CCS Constructors LLC

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

Temporary Bridge
To support Temporary Waterline
For
Vermont Agency of Transportation Project
Stowe BRF 0235 (11)

October 30, 2014

CCS Constructors
138 Munson Ave.
Morrisville, VT 05661
Ph. 802-888-7701
Fax. 802-888-4746

Vermont Agency of Transportation

RECEIVED

Temp Bridge Plan R3.pdf

CK'D BY D. PETERSON **OK'D BY** C. CARLSON

October 30, 2014

RESUBMIT NO **Approved**

BY C. CARLSON **DATE** 10/31/2014

CCS Constructors LLC

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

Temporary Bridge to Support Waterline
Stowe, VT

October 30, 2014

Prepared by: Brian Richardson
CCS Constructors, Inc.
138 Munson Ave
Morrisville, VT 05661

General Description:

We will be using 2x4 and 4x4 waste blocks to build the two abutments, all seams will be staggered, once finished the temporary abutments will measure 4x8.

The bridge will be constructed from 90 ton crane boom, 3 pieces 40 feet in length and 1 10 foot length. Once constructed the boom will be laid horizontal form abutment to abutment and weight 7,430 lbs. Two steel frames made from 14x89 H-pile will be pinned to the boom and anchored to the built-up precast block bridge abutments.

The erection of the boom sections will be done in the existing roadway, once the boom is connected, the waterline will then be ran down the middle of the boom resting on wood 4x4's spanning the bottom cords of the boom. The waterline will be attached to the wood 4x4 with steel banding. The wood members supporting the waterline will be secured to the boom with a ½" threaded rod bent into a u-bolt. The boom will then be lifted into place by a Grove TMS900E equipped with full counter weights. The crane will be set-up on the south side of the bridge just behind the abutment.

Per the attached crane chart the boom is acceptable to carry a load of 8,425 lbs lying horizontal. With the waterline weighting 2,494 lbs and the water at 4,535 lbs we are at a total of 7,028 lbs which is within the acceptable range. We also load tested the bridge for two days at 178% of the load that will be applied, the boom deflected 4" total with the load. Please see the attached pics.

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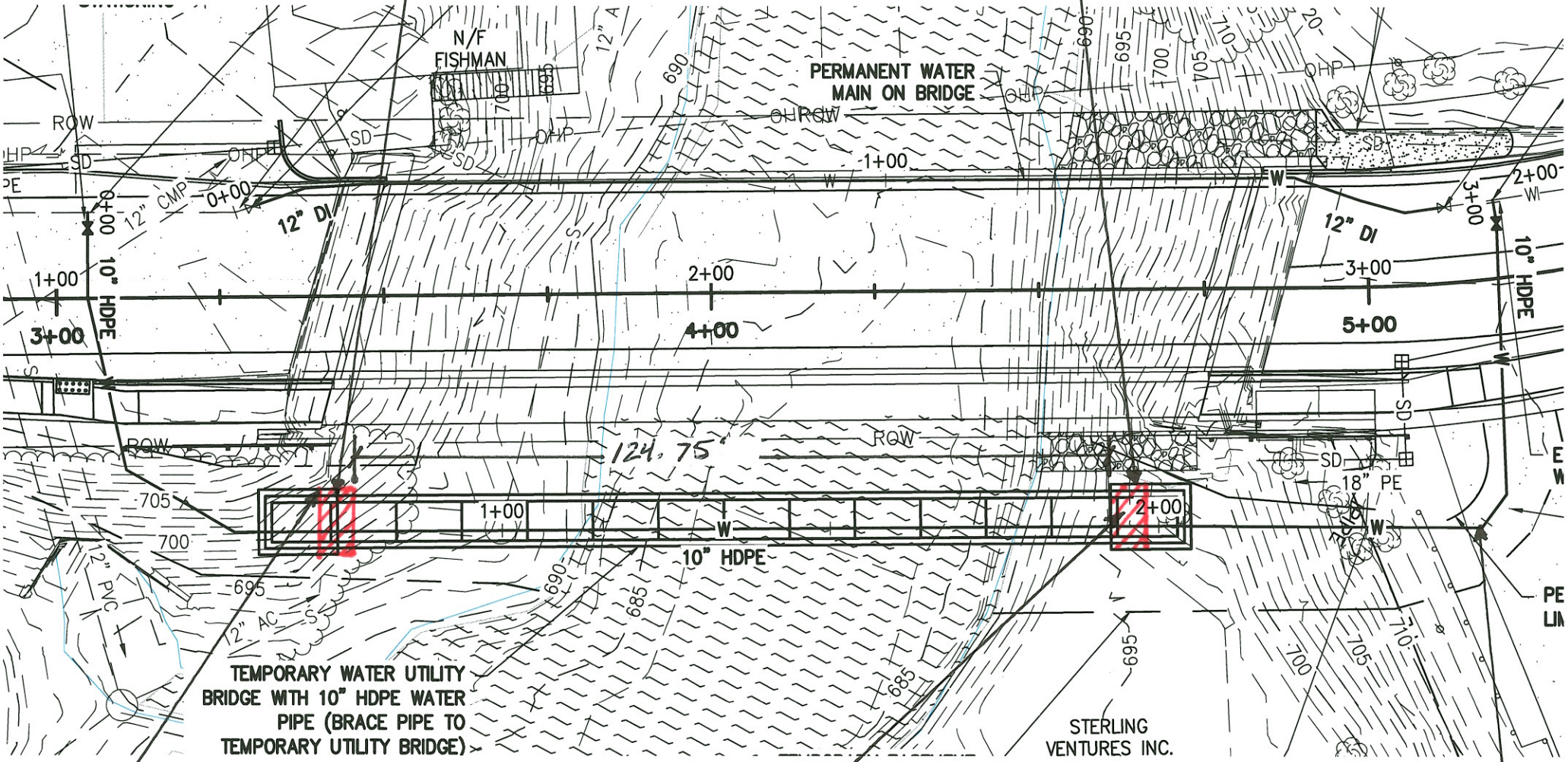
STATE OF VERMONT
DEAN E. WALKER
NO. 2393
REGISTERED PROFESSIONAL ENGINEER

10/30/12

Dean Walker P.E.

SOUTH ABUTMENT
TOP ELEV. => 698.87'
BOTTOM ELEV. => 692.87'

NORTH ABUTMENT
TOP = ELEV => 698.87'
BOTTOM ELEV. => 694.87'

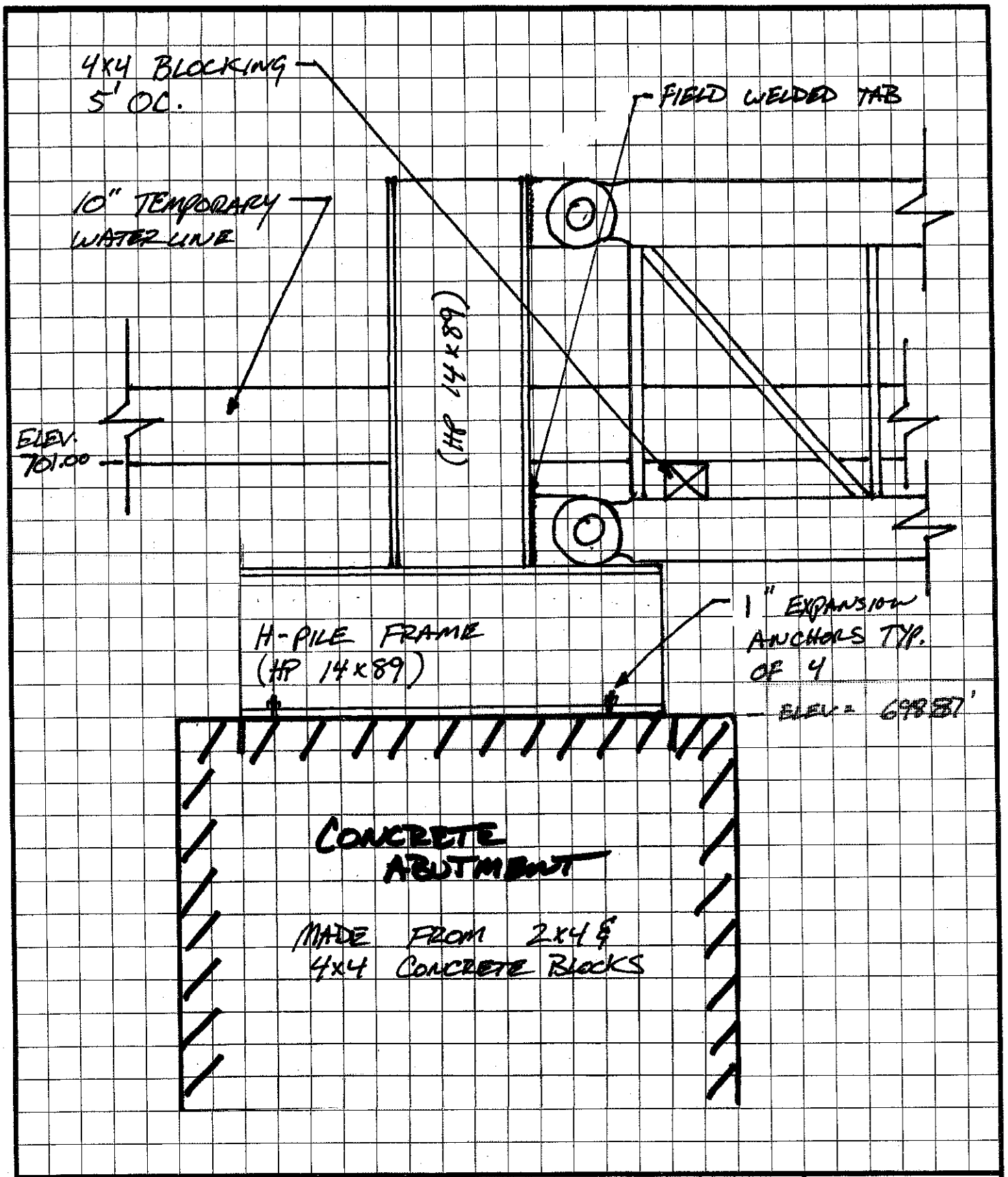


TEMP ABUTMENT WILL START ON BACK SIDE OF EXISTING CONCRETE WALL

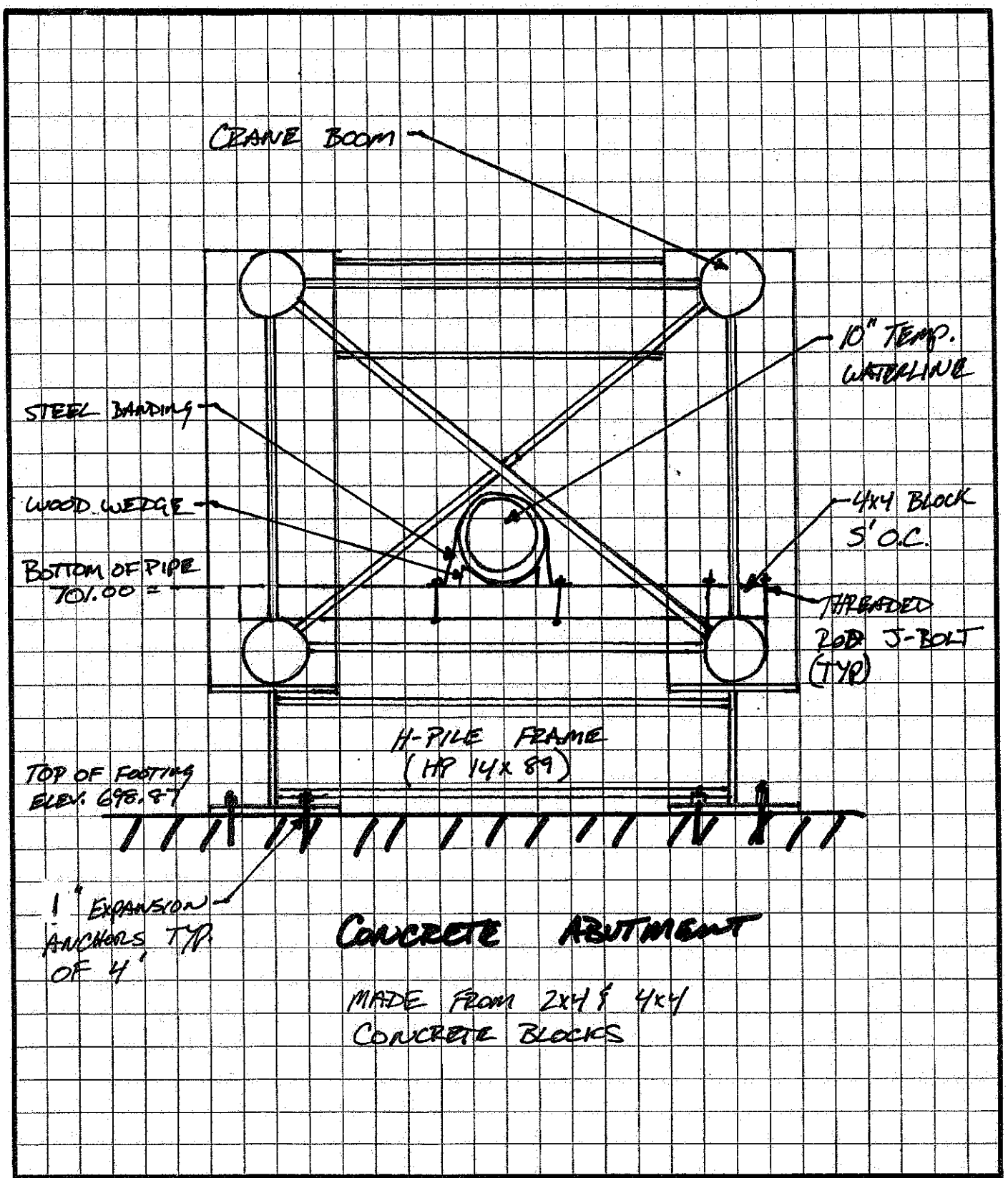
4x8 BUILT-UP ABUTMENTS

EXTEND WATERLINE STRAIGHT TO FITTING. WITH THRUST BLOCK

TEMP. BRIDGE PLAN



CCS CONSTRUCTORS 138 MUNSON AVE. MORRISVILLE, VT 05661 PH. 802-888-7701 FX. 802-888-4746	PROJECT NAME STOWE BRF 0235(11)	PROJECT NO.
		DRAWING NO. SK-1
	SCALE NTS / DATE 10/30/14	



CONCRETE ABUTMENT

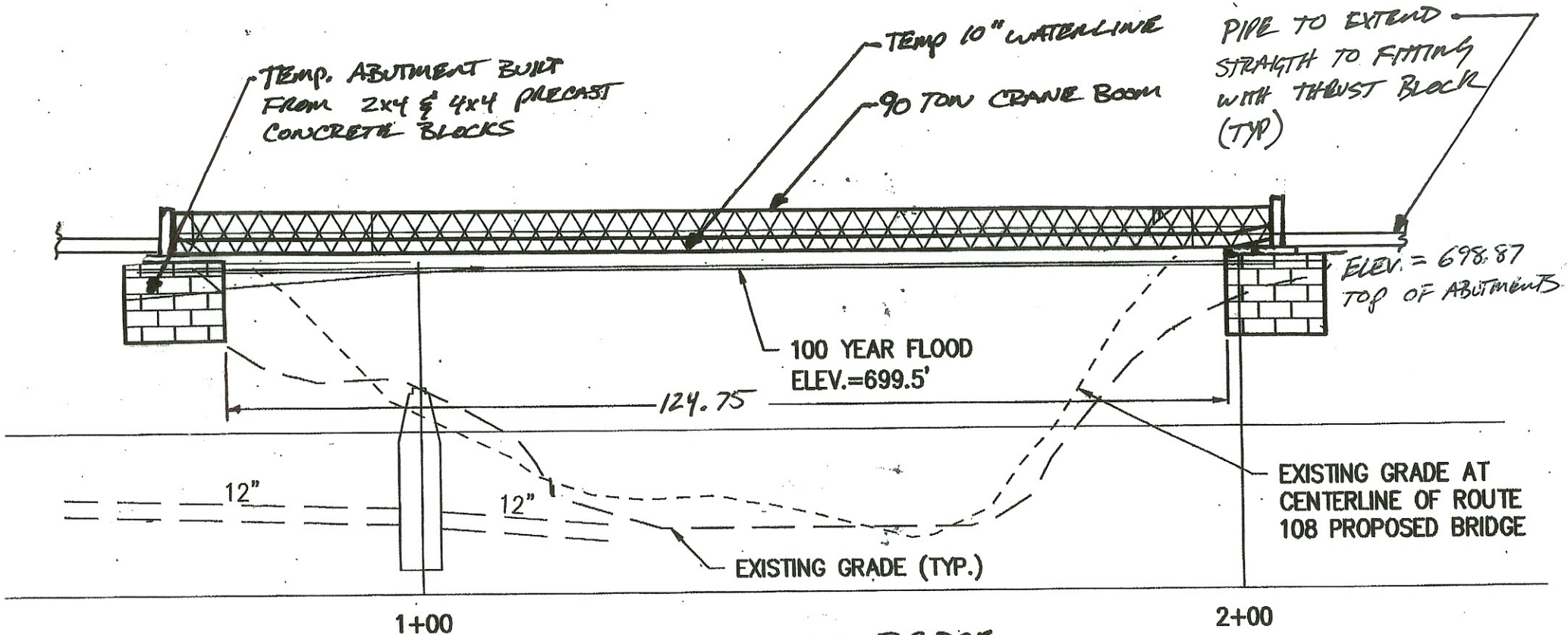
MADE FROM 2x4 & 4x4 CONCRETE BLOCKS

CCS CONSTRUCTORS 138 MUNSON AVE. MORRISVILLE, VT 05661 PH. 802-888-7701 FX. 802-888-4746	PROJECT NAME STOWE BRF 0235 (11)	PROJECT NO.
		DRAWING NO. SK-2
	SCALE NTS / DATE 10/23/14	

CCS CONSTRUCTORS
138 MUNSON AVE.
MORRISVILLE, VT

STOWE BRF 0255(11)

10/30/14



ELEVATION OF TEMP. BRIDGE

N.T.S

SK-3

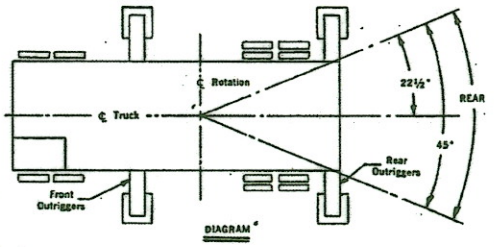
Tubular Boom
90 Ton Class 15-556

CRANE CAPACITY CHART
OVER THE REAR ON OUTRIGGERS WITH BUMPER COUNTERWEIGHT
CHART NO. 6012855

Maximum Counterweight:
Main Counterweight — 30,930 Lbs.
Bumper Counterweight — 13,000 Lbs.

Boom Length	Boom Radius	Boom Height	Boom Angle	Outriggers Extended and Set Over Rear
50'	15'	55.1'	76.0°	*180,000
	20'	53.6'	70.0	*130,000
	25'	51.4'	63.7	*112,725
	30'	48.6'	57.2	* 84,400
	35'	44.9'	50.0	* 67,175
	40'	40.1'	42.1	* 55,600
	45'	33.5'	32.6	* 47,275
	50'	23.3'	19.5	* 36,200
60'	15'	65.4'	78.3	*170,000
	20'	61.4'	73.4	*130,000
	25'	62.4'	68.4	*112,700
	30'	60.1'	63.1	* 84,375
	35'	57.3'	57.6	* 67,125
	40'	53.7'	51.8	* 55,525
	45'	49.3'	45.4	* 47,200
	50'	43.7'	38.2	* 40,925
	60'	25.0'	17.8	* 29,975
70'	20'	74.5'	75.8	*122,200
	25'	73.0'	71.6	*104,300
	30'	71.1'	67.2	* 84,325
	35'	68.8'	62.7	* 67,025
	40'	66.0'	58.0	* 55,400
	45'	62.5'	53.0	* 47,050
	50'	58.4'	47.7	* 40,775
	60'	47.1'	35.3	* 31,925
	70'	26.5'	16.5	* 22,775
80'	20'	84.8'	77.6	*122,100
	25'	83.5'	73.9	*104,250
	30'	81.9'	70.2	* 84,300
	35'	79.9'	66.3	* 67,000
	40'	77.5'	62.4	* 55,350
	45'	74.6'	58.2	* 47,000
	50'	71.3'	53.9	* 40,700
	60'	62.6'	44.4	* 31,825
	70'	50.1'	33.0	* 25,900
	80'	27.9'	15.4	* 18,900
90'	20'	95.0'	79.0	*122,000
	25'	93.8'	75.8	*104,000
	30'	92.4'	72.5	* 84,275
	35'	90.7'	69.1	* 66,925
	40'	88.6'	65.6	* 55,225
	45'	86.1'	62.1	* 46,850
	50'	83.3'	58.4	* 40,525
	60'	76.2'	50.6	* 31,650
	70'	66.6'	41.8	* 25,700
	80'	53.0'	31.0	* 21,425
	90'	29.2'	14.5	* 15,800
100'	25'	104.1'	77.2	* 89,875
	30'	102.9'	74.3	* 81,000
	35'	101.3'	71.3	* 66,800
	40'	99.5'	68.2	* 55,125
	45'	97.3'	65.1	* 46,700
	50'	94.8'	61.9	* 40,375
	60'	88.7'	55.2	* 31,500
	70'	80.7'	47.8	* 25,525
	80'	70.3'	39.5	* 21,275
	90'	55.7'	29.4	* 18,050
	100'	30.4'	13.8	* 13,400
110'	25'	114.4'	78.4	* 89,850
	30'	113.2'	75.7	* 80,500
	35'	111.8'	73.0	* 66,725
	40'	110.2'	70.3	* 55,000
	45'	108.2'	67.5	* 46,575
	50'	106.0'	64.6	* 40,225
	60'	100.6'	58.7	* 31,300
	70'	93.8'	52.4	* 25,325
	80'	85.0'	45.5	* 21,050
	90'	73.8'	37.6	* 17,825
	100'	58.3'	28.0	* 15,325
	110'	31.6'	13.1	* 11,375
120'	25'	124.6'	79.4	* 89,800
	30'	123.5'	76.9	* 88,000
	35'	122.2'	74.5	* 66,700
	40'	120.7'	72.0	* 54,975
	45'	119.0'	69.5	* 46,550
	50'	117.0'	66.9	* 40,200
	60'	112.1'	61.6	* 31,275
	70'	106.1'	56.0	* 25,300
	80'	98.5'	50.0	* 21,025
	90'	89.1'	43.3	* 17,800
	100'	77.1'	36.0	*15,300
	110'	60.7'	26.8	* 13,300
	120'	32.7'	12.6	* 9,900
130'	30'	133.8'	78.0	* 63,750
	35'	132.6'	75.6	* 60,000
	40'	131.2'	73.4	* 52,750
	45'	129.6'	71.1	* 46,400
	50'	127.8'	68.8	* 40,025
	60'	123.4'	63.9	* 31,100
	70'	117.9'	58.9	* 25,100
	80'	111.3'	53.6	* 20,825
	90'	103.1'	47.9	* 17,600
	100'	93.0'	41.7	* 15,075
	110'	80.3'	34.5	* 13,075
	120'	63.0'	25.7	* 11,425
	130'	33.8'	12.1	* 8,425
140'	30'	144.0'	78.8	* 63,725
	35'	142.9'	76.7	* 59,000
	40'	141.6'	74.6	* 52,625
	45'	140.1'	72.5	* 46,250
	50'	138.4'	70.3	* 39,875
	60'	134.4'	65.9	* 30,925
	70'	129.5'	61.4	* 24,925
	80'	123.5'	56.6	* 20,650
	90'	116.2'	51.5	* 17,400
	100'	107.4	46.1	* 14,900
	110'	96.7'	40.1	* 12,875
	120'	83.3'	32.2	* 11,225
	130'	65.3'	24.8	* 9,850
	140'	34.8'	11.6	* 7,200
150'	30'	154.1'	79.6	* 63,700
	35'	153.1'	77.6	* 58,000
	40'	151.9'	75.7	* 52,500
	45'	150.6'	73.7	* 46,125
	50'	149.0'	71.7	* 39,725
	60'	145.3'	67.6	* 30,750
	70'	140.8'	63.4	* 24,725
	80'	135.3'	59.1	* 20,425
	90'	128.7'	54.5	* 17,175
	100'	120.9'	49.7	* 14,675
	110'	111.6'	44.4	* 12,650
	120'	100.3'	38.7	* 11,000
	130'	86.2'	32.1	* 9,600
	140'	67.4'	23.9	* 8,450
	150'	35.8'	11.2	* 6,050
160'	35'	163.4'	78.4	* 50,350
	40'	162.2'	76.6	* 47,500
	45'	161.0'	74.7	* 43,250
	50'	159.5'	72.9	* 39,600
	60'	156.1'	69.1	* 30,600
	70'	151.9'	65.2	* 24,550
	80'	146.8'	61.1	* 20,225
	90'	140.8'	57.0	* 16,975
	100'	133.8'	52.5	* 14,450
	110'	125.5'	48.0	* 12,425
	120'	115.6'	42.9	* 10,775
	130'	103.8'	37.4	* 9,375
	140'	89.1'	31.0	* 8,200
	150'	69.5'	23.1	* 7,200
	160'	36.8'	10.9	* 6,325
170'	35'	173.5'	79.1	* 50,325
	40'	172.5'	77.4	* 47,000
	45'	171.3'	75.7	* 43,125
	50'	169.9'	73.9	* 39,400
	60'	166.7'	70.4	* 30,350
	70'	162.8'	66.7	* 24,300
	80'	158.1'	63.0	* 19,975
	90'	152.6'	59.2	* 16,725
	100'	146.1'	55.2	* 14,175
	110'	138.6	50.9	* 12,150
	120'	129.8'	46.5	* 10,500
	130'	119.5'	41.6	* 9,100
	140'	107.1'	36.2	* 7,925
	150'	91.8'	30.1	* 6,925
	160'	71.5'	22.4	* 6,050
	170'	37.7'	10.6	* 5,275
180'	35'	183.7'	79.7	* 50,300
	40'	182.7'	78.1	* 46,500
	45'	181.6'	76.5	* 43,000
	50'	180.3'	74.8	* 39,250
	60'	177.3'	71.5	* 30,200
	70'	173.6'	68.1	* 24,150
	80'	169.3'	64.6	* 19,800
	90'	164.1'	61.1	* 16,525
	100'	158.2'	57.3	* 14,000
	110'	151.3'	53.5	* 11,950
	120'	143.3'	49.4	* 10,300
	130'	134.0'	45.1	* 8,900
	140'	123.2'	40.4	* 7,725
	150'	110.3'	35.2	* 6,700
	160'	94.4'	29.2	* 5,925
	170'	73.5'	21.8	* 5,075
	180'	38.7'	10.3	* 4,400
190'	40'	192.9'	78.7	* 42,425
	45'	191.9'	77.2	* 40,000
	50'	190.7'	75.6	* 36,500
	60'	187.8'	72.5	* 30,000
	70'	184.4'	69.3	* 23,925
	80'	180.3'	66.1	* 19,575
	90'	175.5'	62.7	* 16,325
	100'	169.9'	59.3	* 13,775
	110'	163.5'	55.7	* 11,725
	120'	156.2'	51.9	* 10,050
	130'	147.8'	48.0	* 8,675
	140'	138.1'	43.8	* 7,475
	150'	126.8'	39.3	* 6,475
	160'	113.4'	34.2	* 5,600
	170'	97.0'	28.4	* 4,825
	180'	75.4'	21.2	* 4,150
200'	40'	203.1'	79.3	* 42,400
	45'	202.1'	77.8	* 39,000
	50'	201.0'	76.4	* 36,250
	60'	98.3'	73.4	* 29,725
	70'	195.0'	70.4	* 23,675
	80'	191.1'	67.3	* 19,325
	90'	186.6'	64.2	* 16,075
	100'	181.4'	61.0	* 13,525
	110'	175.5'	57.6	* 11,475
	120'	168.7'	54.2	* 9,825
	130'	161.0'	50.5	* 8,425
	140'	152.2'	46.7	* 7,250
	150'	142.1'	42.6	* 6,225
	160'	130.4'	38.2	* 5,350
	170'	116.5'	33.3	* 4,600
	180'	99.5'	27.7	* 3,925

NOTE:
This chart is a supplement to the Standard Crane Chart. All instructions, restrictions, notes, and warnings on the Standard Crane Capacity Chart therefore apply to this chart. (See Note #7 on this chart for exceptions.)



DIAGRAM

This Chart is Based Upon:

1. Loads marked by * are the maximum allowable loads permitted by the structural strength of the parts and are not based on the stability of the machine.
2. Machine shall be leveled on a firm solid support and all rubber tires shall be free of the ground.
3. Side and shock loads shall be prevented.
4. All hook blocks, lifting tackle, and jib attachments shall be considered a part of the load to be lifted.
5. Exceeding the capacities shown on this chart or altering the counterweight nullifies all warranties.
6. Boom suspension pendants shall be 1-3/8" dia. with a minimum breaking strength of 211,000 lbs.
7. Capacities on this chart apply to loads handled on the boom point only. When boom plus jib combinations are used and loads are handled on the jib, the capacities on the standard "Over The Side and Rear" chart shall apply.
8. The capacities on this chart apply to "Over The Rear" as indicated by the boundary sector shown on the diagram.
9. The jibs referred to on this chart shall be equipped with a 9'0" strut.

Rope Reeving For Hook Blocks

Loads in Pounds	No. Park Line	Loads In Pounds	No. Part Line
To 16,800	1	Over 100,800	7
Over 16,800	2	Over 177,600	8
Over 33,600	3	Over 134,400	9
Over 50,400	4	Over 151,200	10
Over 67,200	5	Over 168,000	11
Over 84,000	6		

Based upon ¾ dia. wire rope with a minimum breaking strength of 58,800 lbs.

In accordance with our established policy of constantly improving our products, we reserve the right to change or modify our products or our product specifications at any time without notice.

CLARK Lima Division

LIMA, OHIO 45802

Manufactured and Sold in Conformance with U.S. Department of Commerce Commercial Standard CS90-58.

DISTRIBUTED BY

CHADWICK-BaROSS INC.
US ROUTE 2
EAST MONTPELIER, VT.
802-229-9183

Form SPS-990-TC 1/76 9M Litho in U.S.A.

WELDING PROCEDURE SPECIFICATION (WPS) YES ☐
PREQUALIFIED X QUALIFIED BY TESTING ____.
or PROCEDURE QUALIFICATION RECORD (PQR) YES ☐

Identification # CCS-008.
Revision 0 Date 01/17/05 By R. Irick
Authorized by Tim Prevost Date 1/17/05.
Type Manual ☐ Semi-Automatic ☐
Machined x Automatic ☐

Company Name CCS Constructors LLC
Welding Process (es) SMAW
Supporting PQR No. (s) Prequalified
AWS D1.1 Fig. 2.1 Para. 2.4.5

JOINT DESIGN USED
Type: Fillet
Single x Double Weld ☐
Backing: Yes ☐ No x
Backing Material:
Root Opening: none.
Root Face Dimension:
Groove Angle: N/A Radius (J-U) ____
Back gouging: Yes ☐ No x Method ____

BASE METALS
Material Spec. ASTM A53
Type or Grade B
Thickness: Groove ____ Fillet Unlimited
Diameter (Pipe) ____

FILLER METALS
AWS Specification A5.1
AWS Classification E7018

POSITION
Position of Groove: ____ Fillet: All.
Vertical Progression: Up x Down ☐

ELECTRICAL CHARACTERISTICS
Transfer Mode (GMAW) Short Circuiting ☐
Globular ☐ Spray ☐
Current: AC ☐ DCEP x DCEN ☐ Pulsed ☐
Other ____
Tungsten Electrode (GTAW)
Size: ____.
Type: ____.

TECHNIQUE
Stringer or Weave Bead: Stringer.
Multi-pass or single pass (per side) Single.
Number of Electrodes 1.
Electrode Spacing Longitudinal ____.
Lateral ____.
Angle ____.

LTP Nondestructive Testing, Inc.

SHIELDING
Flux 7018 Gas ____.
Composition ____
Electrode Flux (Class) F4 E7018 Flow Rate ____
Gas Cup Size ____

Contact Tube to Work Distance ____.
Preening ____.
Interpass Cleaning: ____.

PREHEAT
Preheat Temp., Min. 50° F
Interpass Temp., Min. 50° F Max. 600° F

POSTWELD HEAT TREATMENT
Temp. ____.
Time ____.

WELDING PROCEDURE

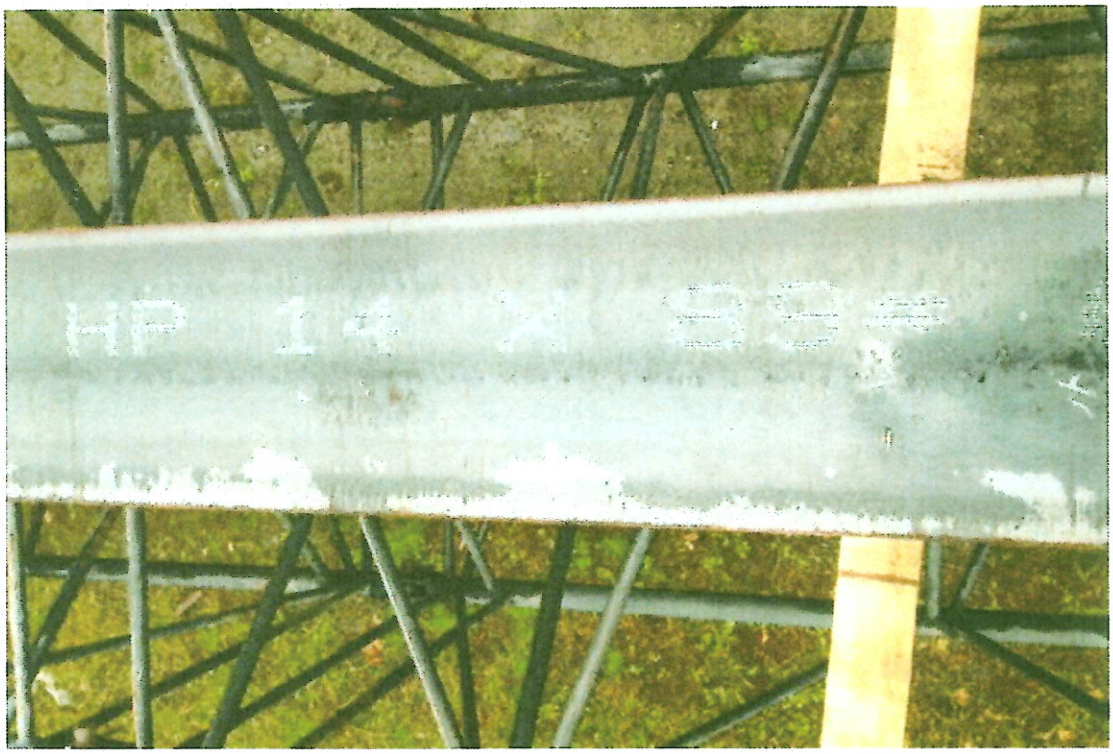
Pass or weld Layer	Process	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class	Diam.	Type & Polarity	Amps or wire feed speed			
1	SMAW	7018	1/8"	DCRP	63-135 Amps	12-24 Volts	2-10 IPM	Single Fillet Weld See Fig. 2.1 Para. 2.4.5

AWS QC 1 RICHARD F. IRICK 99060221 CWI

When Base Metal Temp. is below 32° F – Base Metal shall be Pre-heated to 70° F and maintained during welding

Page 5 attached

AWS QC 1 RICHARD F. IRICK 99060221 CWI



ABUTMENT DESIGN

BOOM = 7,430 lbs
PIPE = 2494 lbs
WATER = 4535 lbs

TOTAL LOAD on FOOTING 14,459 lbs

BUILT-UP ABUTMENT (CONCRETE)

4' x 8' x 6' => 192 FT³ / 27 FT³ => 7.1 CY

7.1 CY x 4000 lbs/CY => 28,445 lbs

TOTAL LOAD W/ABUTMENT => 28,445 lbs + 14459 lbs => 42,903 lbs

GROUND PRESSURE

FOOTING IS 4 x 8 => 32 SF

42,903 lbs / 32 SF => 1341 lbs/SF

BEARING FOR LOOSE SAND => 2000 lbs/SF

BEARING FOR COMPACTED SAND => 6000 lbs/SF

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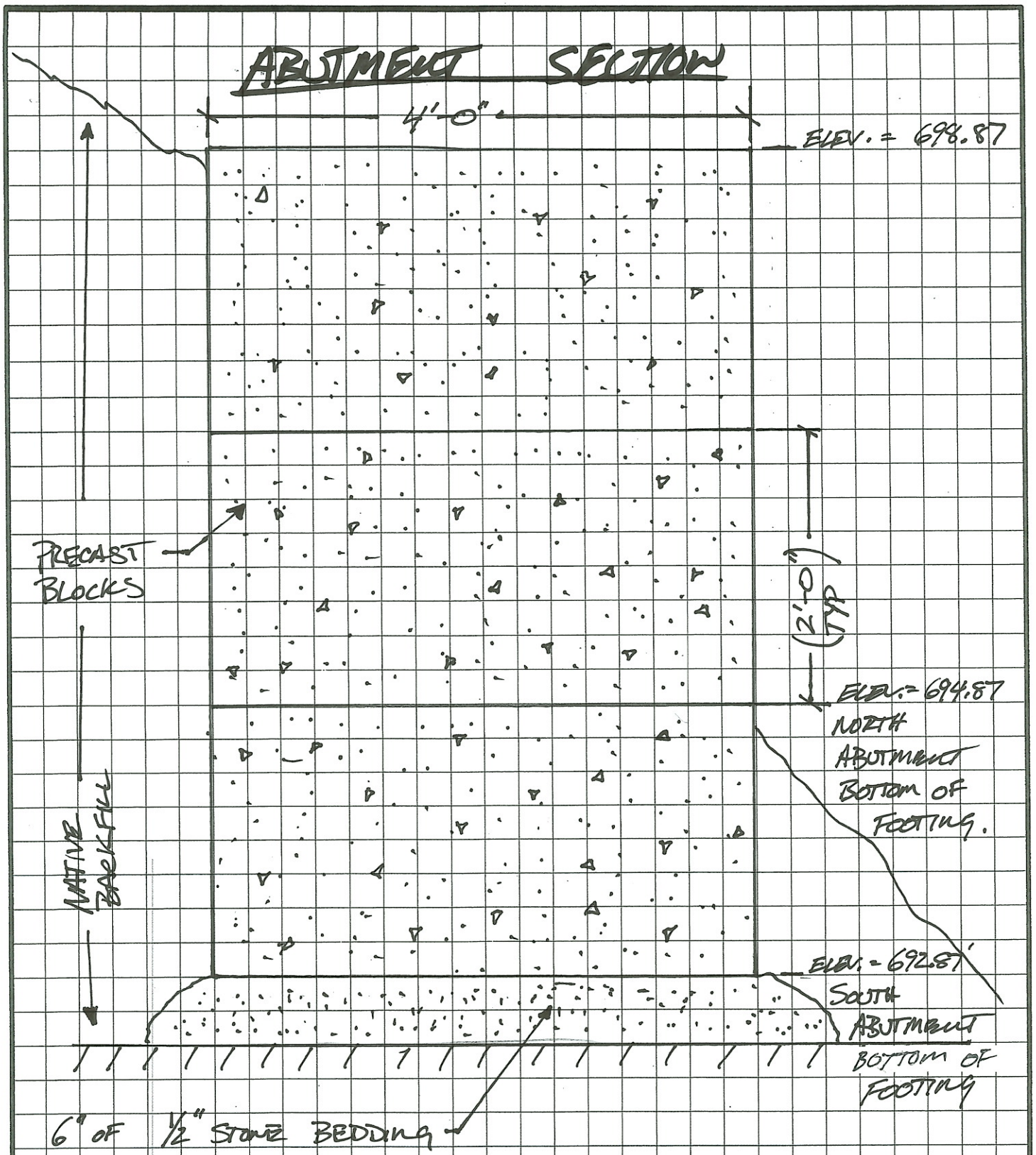
ABUTMENT SECTION



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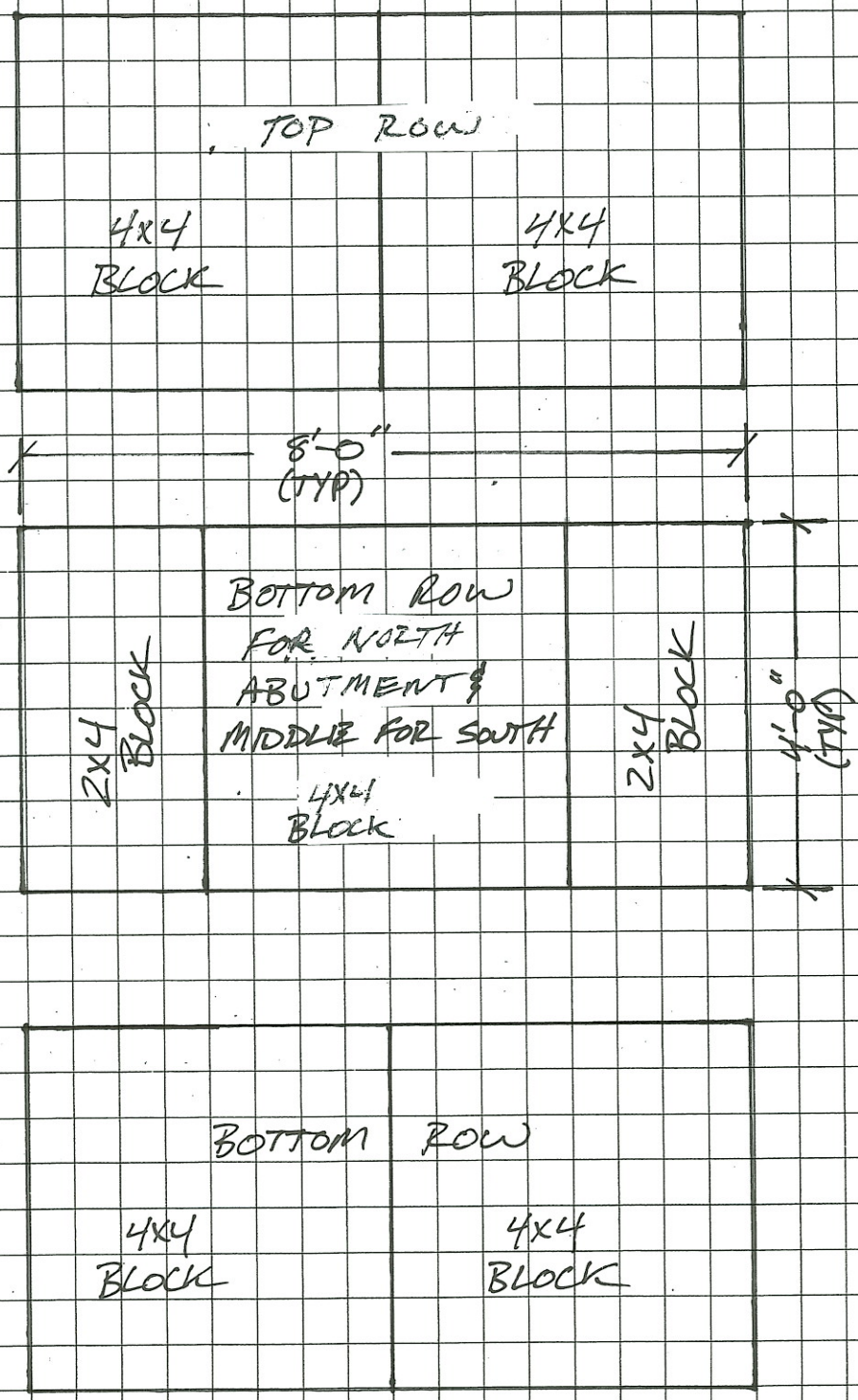
ABUTMENT BLOCK LAYOUT



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