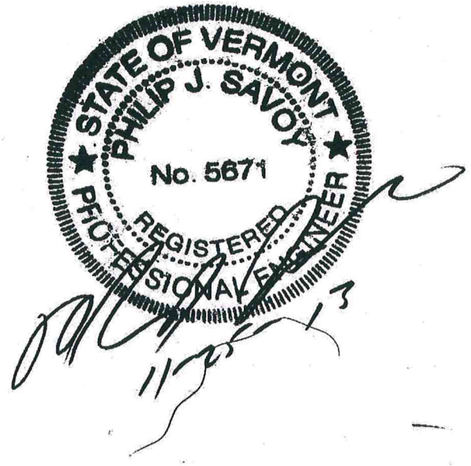
CAVENDISH ER BRF 0146 (13)
CONTRACTOR FABRICATED PRE-CAST

SHEET1:ABUTMENT #1 PLAN
SHEET2:ABUTMENT #2 PLAN
SHEET3:ABUTMENT #1 ELEVATION
SHEET4:ABUTMENT #2 ELEVATION
SHEET5:APPROACH SLAB #1 PLAN
SHEET6:APPROACH SLAB #1 CASTING PLAN
SHEET7:APPROACH SLAB #2 PLAN
SHEET8:APPROACH SLAB #2 CASTING PLAN
SHEET9:POST TENSIONING DETAILS
SHEET10:FORMING PLAN
SHEET11:ENCLOSURE DETAILS
SHEET12:ENCLOSURE DETAILS
SHEET13:QUALITY CONTROL
SHEET14:GENERAL NOTES
SHEET15:REINFORCING STEEL
SHEET16:CONCRETE MIX DESIGN
SHEET17:TEMPORARY BEARING LAYOUT
SHEET18:BEARING DETAILS AND NOTES



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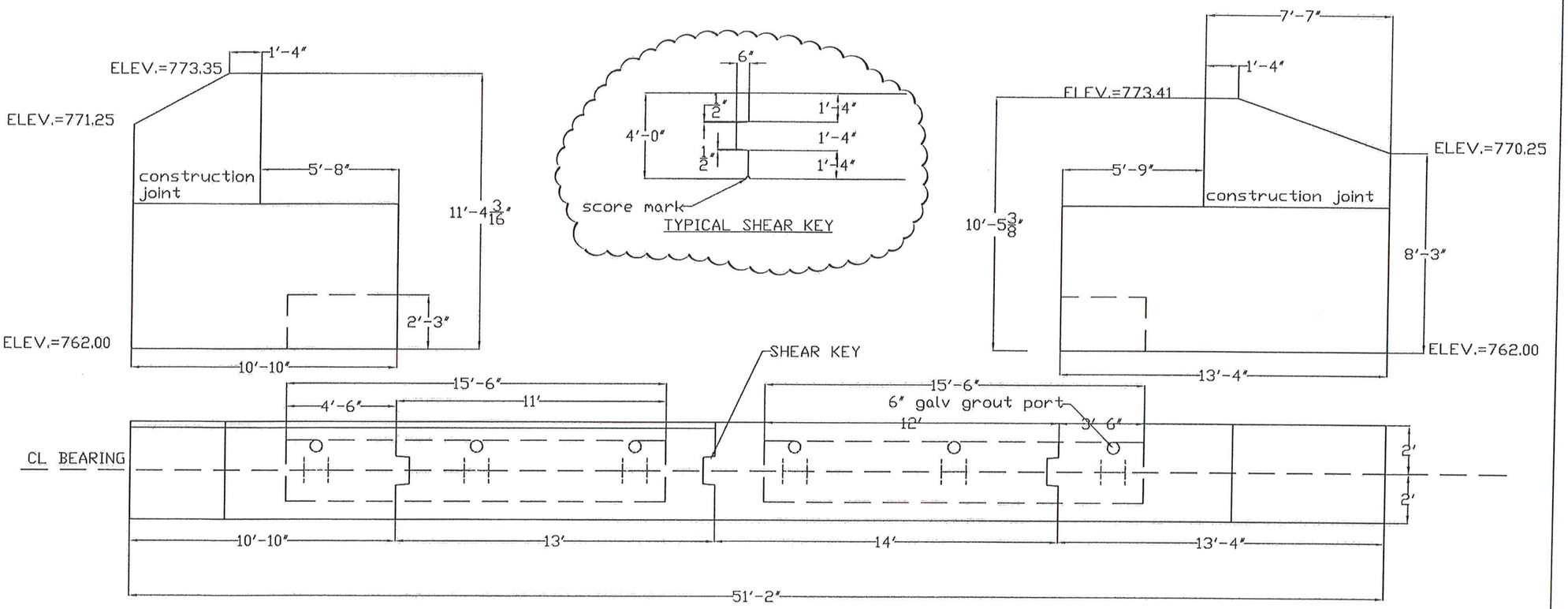
CAVENDISH ER BRF 0146(13)

COVER SHEET/INDEX

SHEET NUMBER: COVER

DATE: 10-31-13 Scale:



ABUTMENT 1 PLAN&ELEV VIEW

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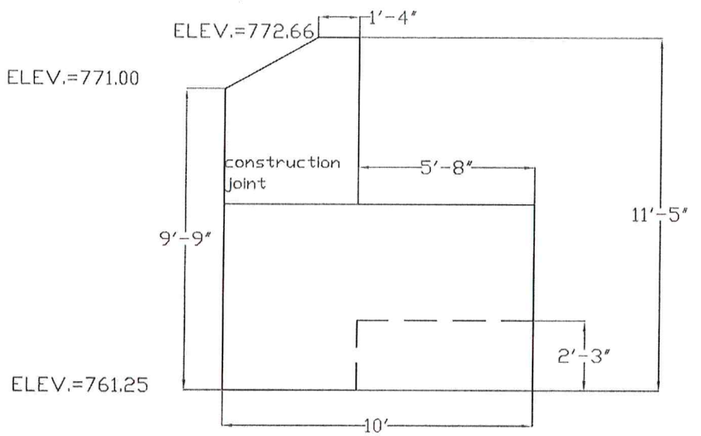
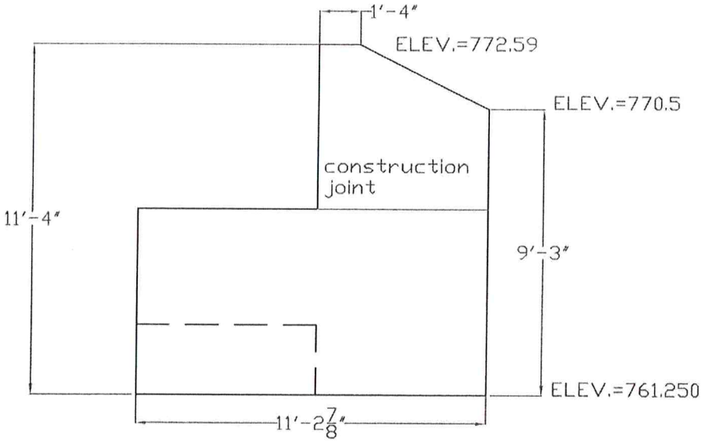
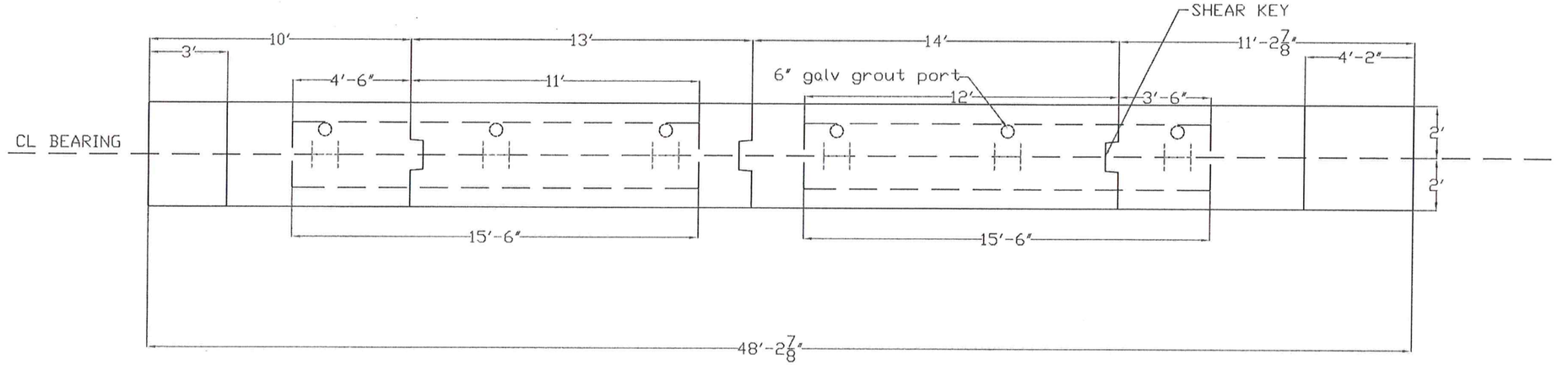
ABUTMENT 1 PLAN

SHEET NUMBER 1

DATE: 10-2-13 scale: 1/4"=1'







ABUTMENT 2 PLAN&ELEV VIEW

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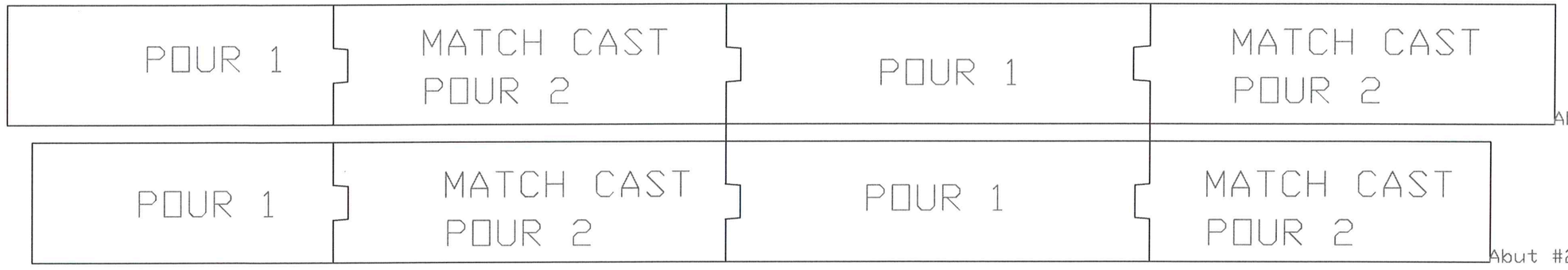
ABUTMENT 2 PLAN

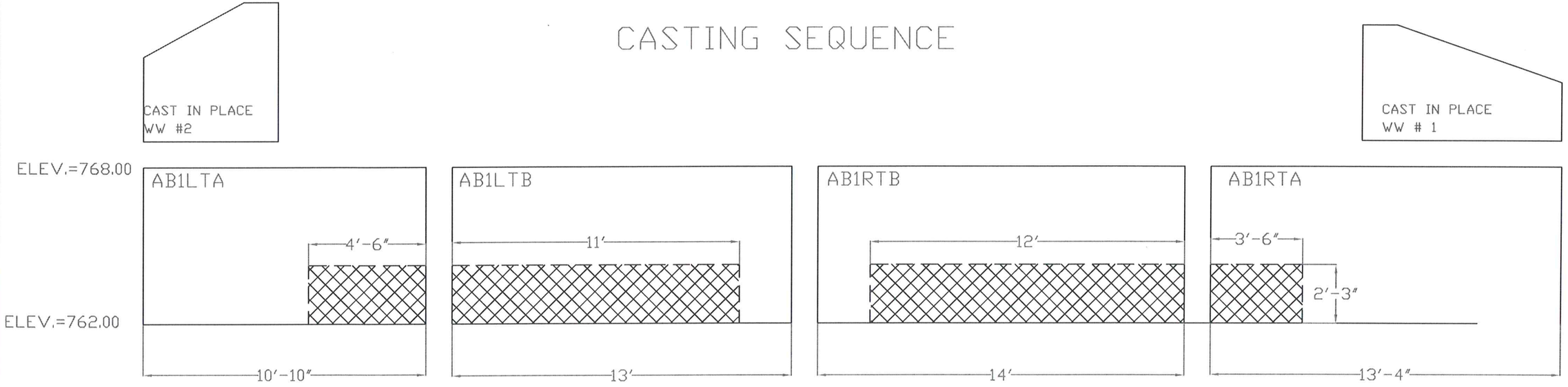
SHEET NUMBER 2

DATE: 10-2-13 scale: 1/4"=1'

NOTE:
USE MECHANICAL CONNECTOR #6 EPOXY COATED IN WINGWALLS AND ABUTMENTS EACH FACE AND SEAT LEVEL
EPOXY COATED MECH CONNECTORS APPROVED BY PROJECT MANAGER 11-19-13-GALVANIZED NOT REQUIRED



CASTING SEQUENCE



ABUTMENT 1 ELEVATION VIEW

REVISION # 1 11-19-13

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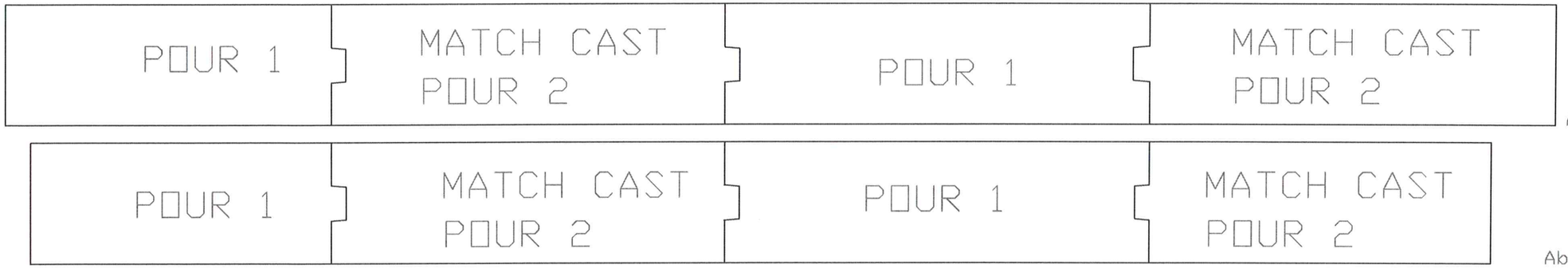
ABUTMENT 1 PLAN

SHEET NUMBER 3

DATE: 10-2-13 scale:

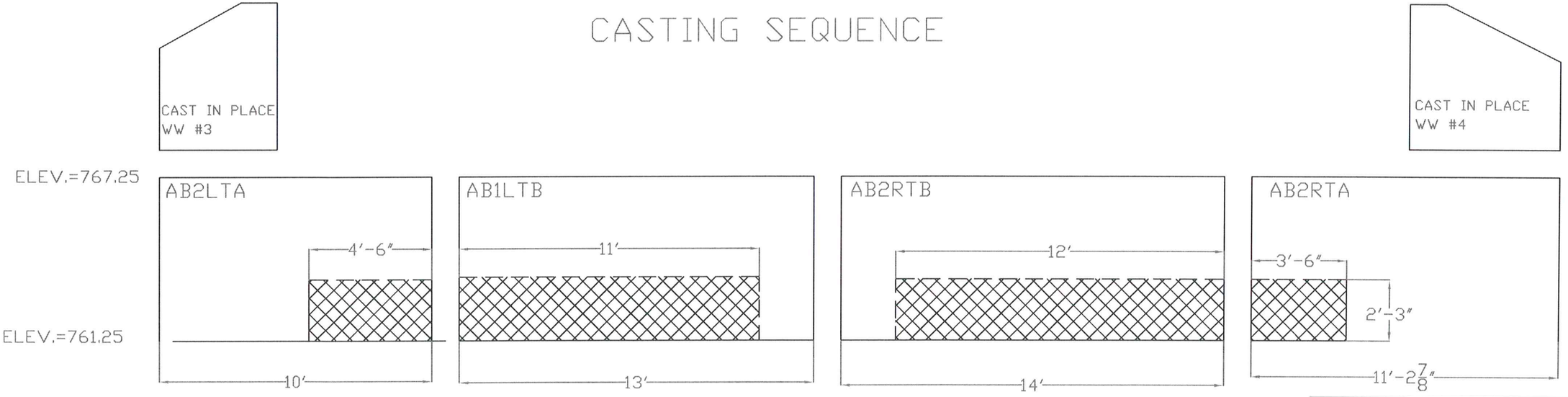
NOTE:
USE MECHANICAL CONNECTOR #6 EPOXY COATED IN WINGWALLS AND ABUTMENTS EACH FACE AND SEAT LEVEL
EPOXY COATED MECH CONNECTORS APPROVED BY PROJECT MANAGER 11-19-13-GALVANIZED NOT REQUIRED



Abut #1 Front Face

Abut #2 Front Face.

CASTING SEQUENCE



ABUTMENT 2 ELEVATION VIEW

REVISION # 1 11-19-13

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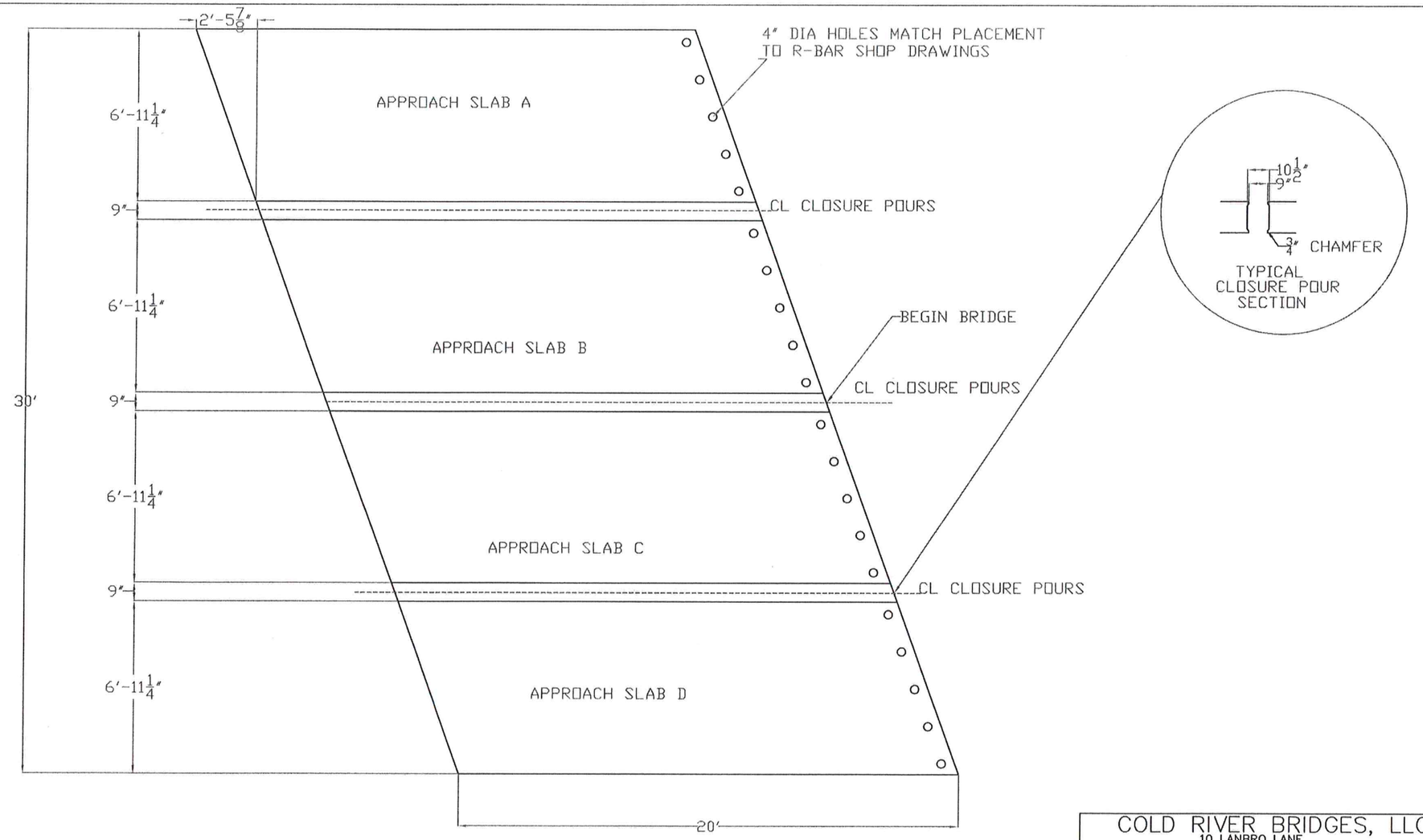
CAVENDISH ER BRF 0146(13)

ABUTMENT 2 PLAN

SHEET NUMBER 4

DATE: 10-2-13 scale:



APPROACH SLAB 1 PLAN VIEW

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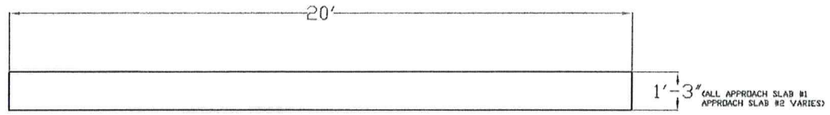
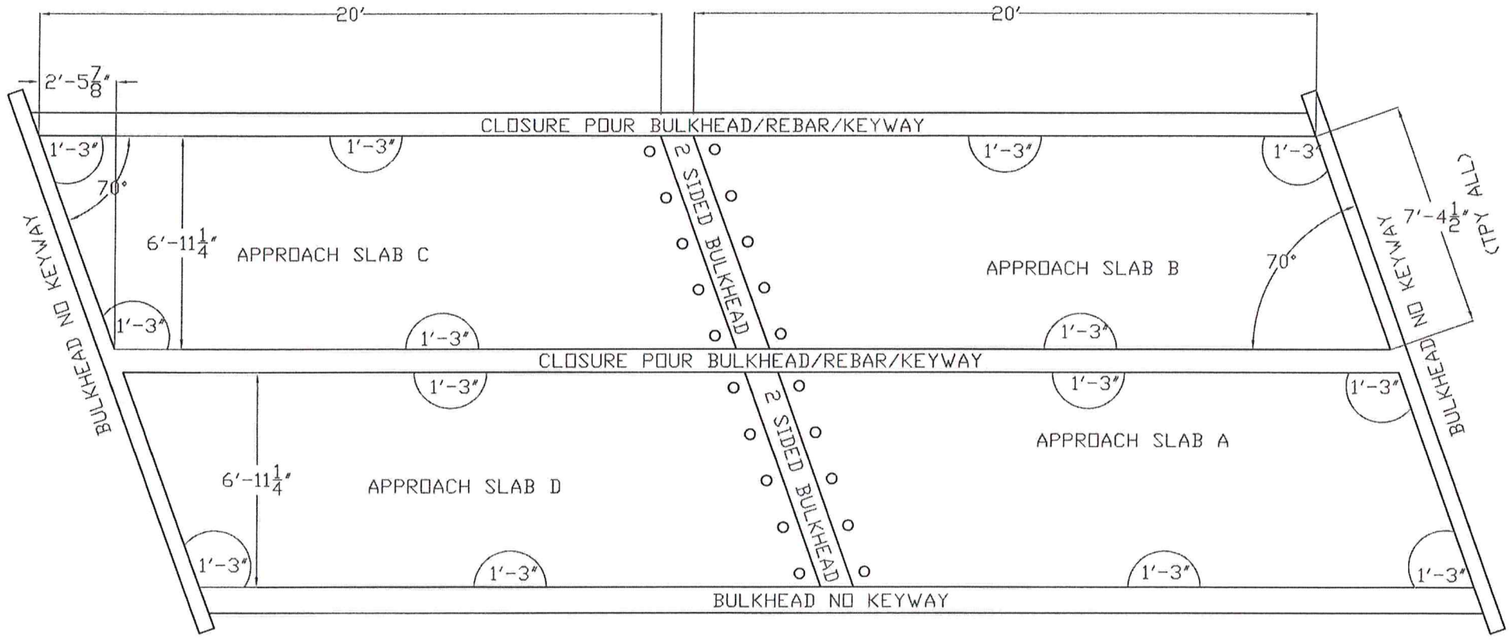
APPROACH SLAB 1

SHEET NUMBER 5

DATE: 10-2-13 scale:



APPROACH SLAB 1 ELEVATION VIEW



APPROACH SLABS A,B,C,D
CASTING LAY-OUT
REVISION # 1 11-19-13

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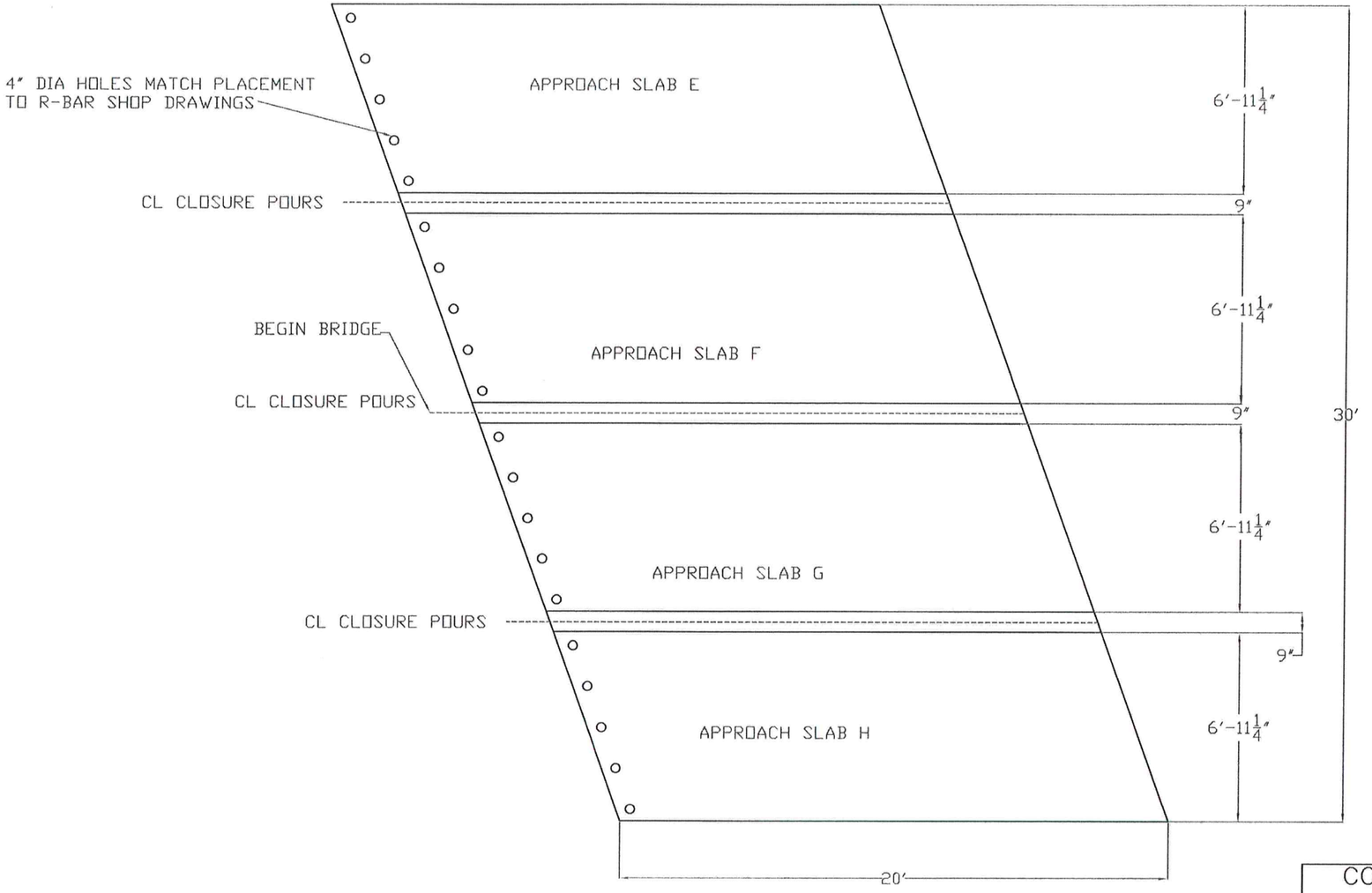
CAVENDISH ER BRF 0146(13)

APPROACH SLAB 1

SHEET NUMBER 6

DATE: 10-2-13 scale:



APPROACH SLAB 2 PLAN VIEW

REVISION # 1 11-19-13

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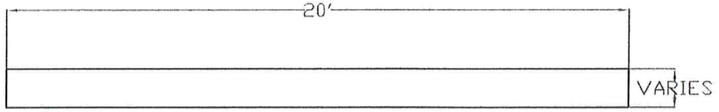
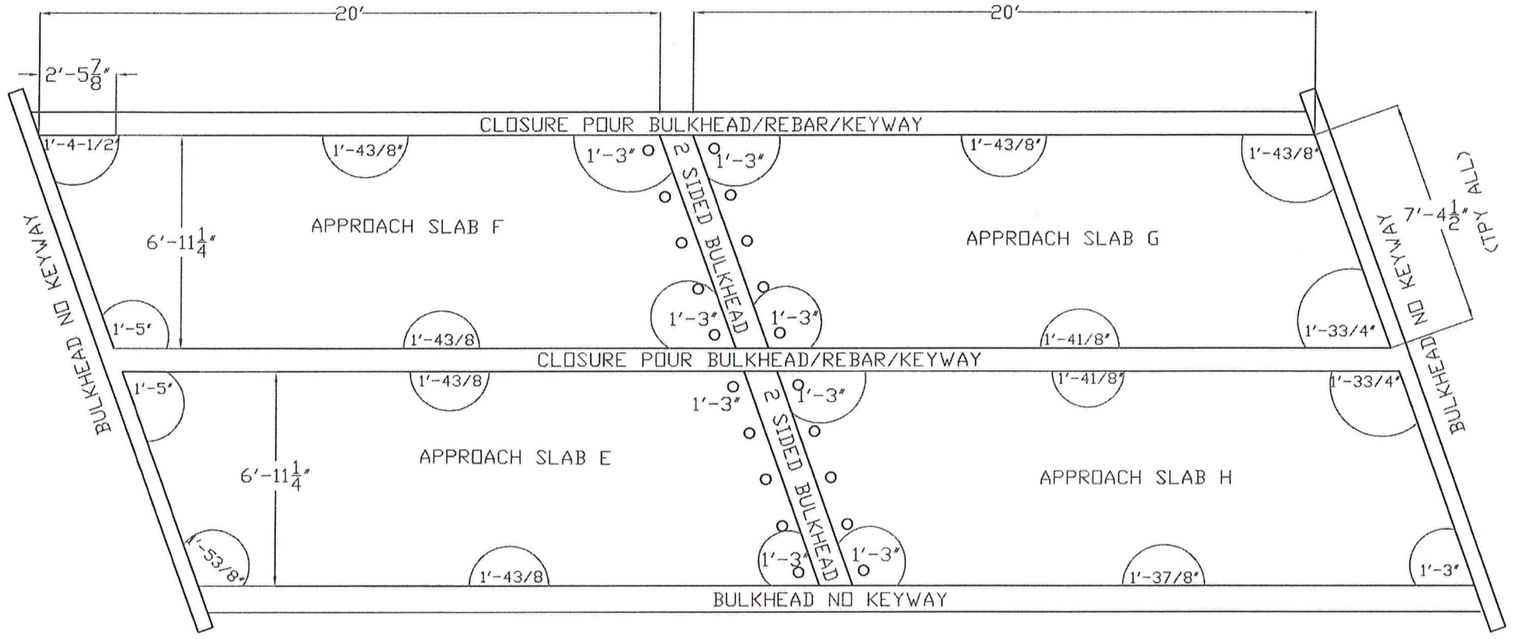
APPROACH SLAB 2

SHEET NUMBER 7

DATE: 10-2-13 scale:



APPROACH SLAB 2 ELEVATION VIEW



APPROACH SLABS E,F,G,H
CASTING LAY-OUT
REVISION # 1 11-19-13

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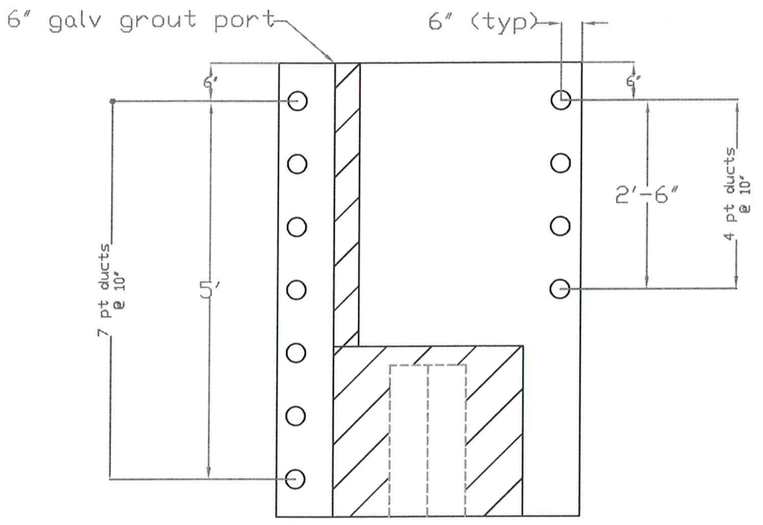
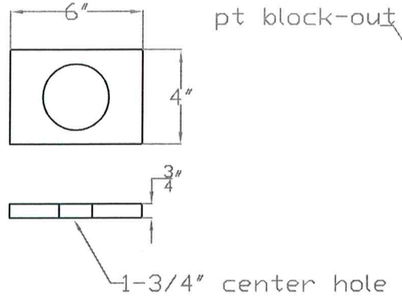
CAVENDISH ER BRF 0146(13)

APPROACH SLAB 2

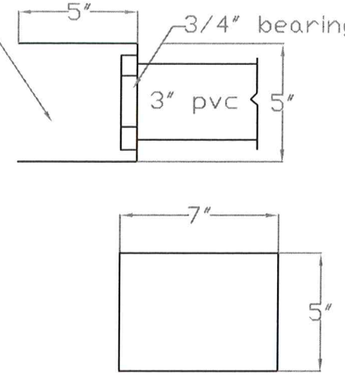
SHEET NUMBER 8

DATE: 10-2-13 scale:





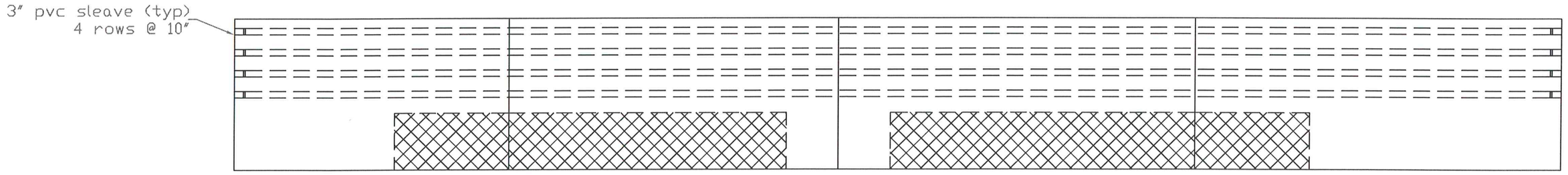
BEARING PLATE DETAIL
NTS



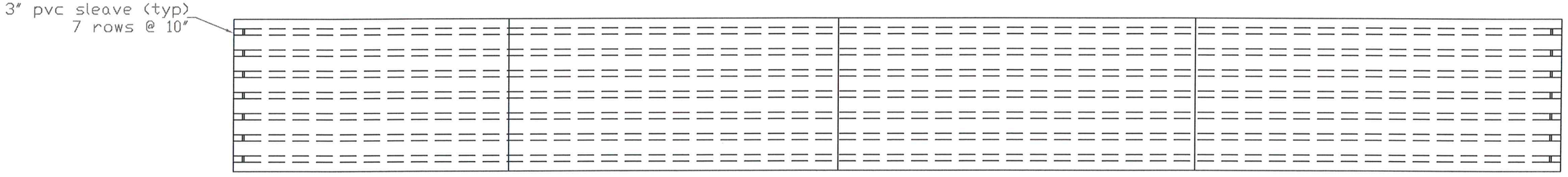
TYPICAL PT BLOCK OUT
NTS

BILL OF MATERIALS
1. .6 dia,270 ksi monostrand tendons (11)@54', 11@51'
2. 22each .6" encapsulated anchors with tubes,grease caps and weddges
3. 44 each 4x7 bearing plates

pt material and services supplied by Constructive Services of Dedham,Ma



PT DUCT LOCATION FRONT FACE



PT DUCT LOCATION REAR FACE

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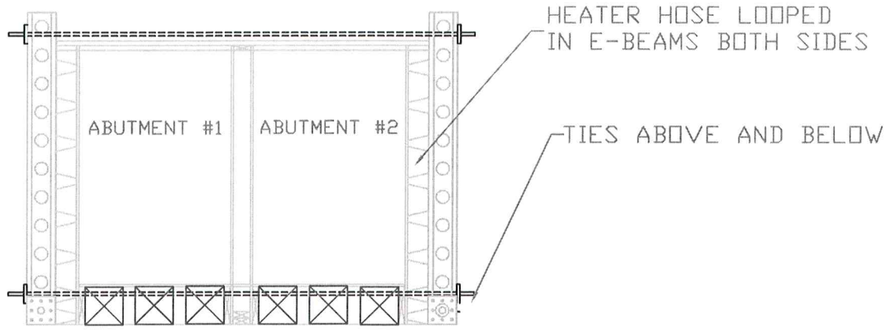
CAVENDISH ER BRF 0146(13)

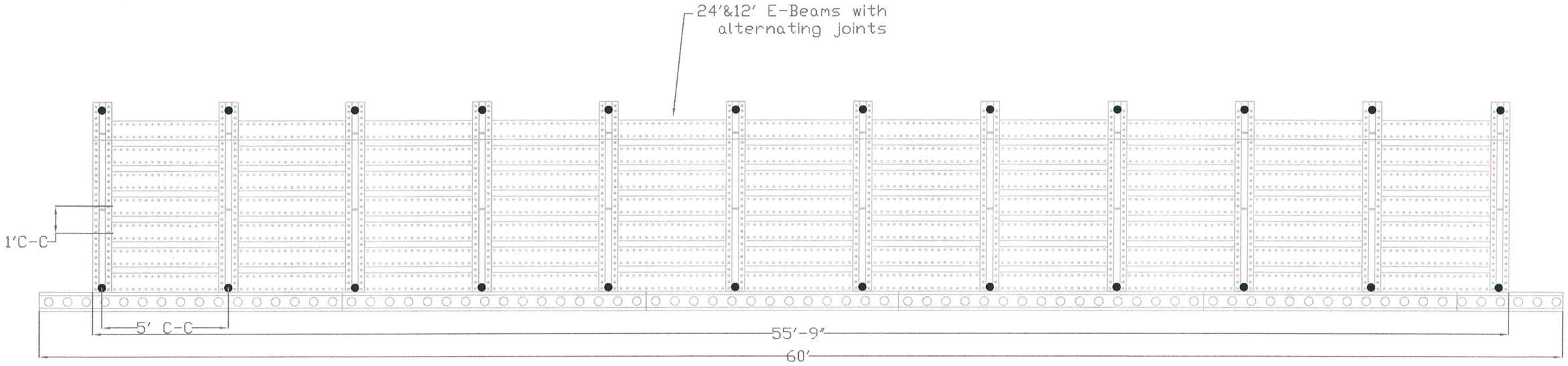
POST-TENSION DETAILS

SHEET NUMBER 9

DATE: 10-2-13 scale:



TYPICAL FORMING SECTION



TYPICAL FORMING ELEV VIEW

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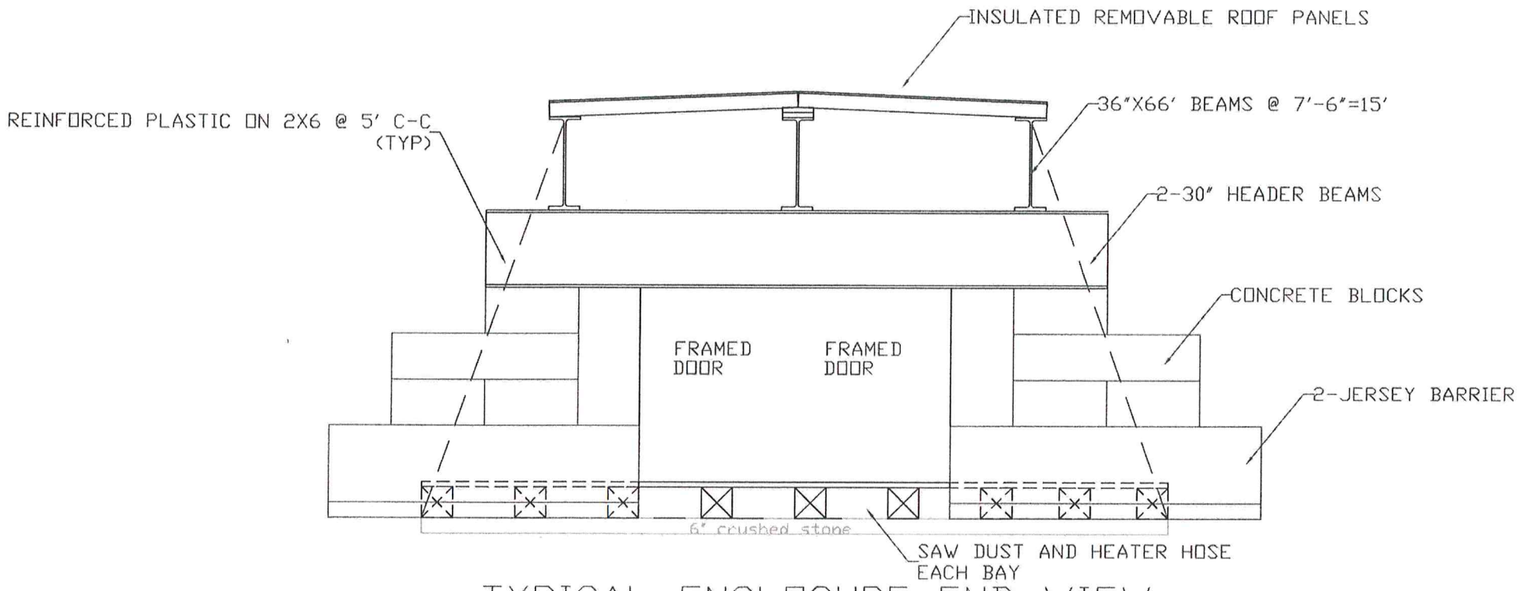
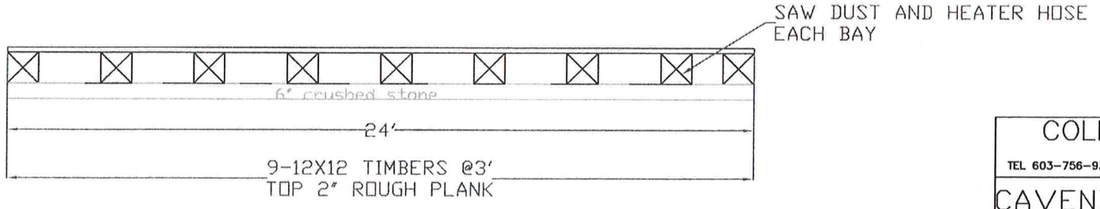
FORMING DETAILS

SHEET NUMBER 10

DATE: 10-2-13 scale:



TYPICAL ENCLOSURE END VIEW



TYPICAL WORK PLATFORM

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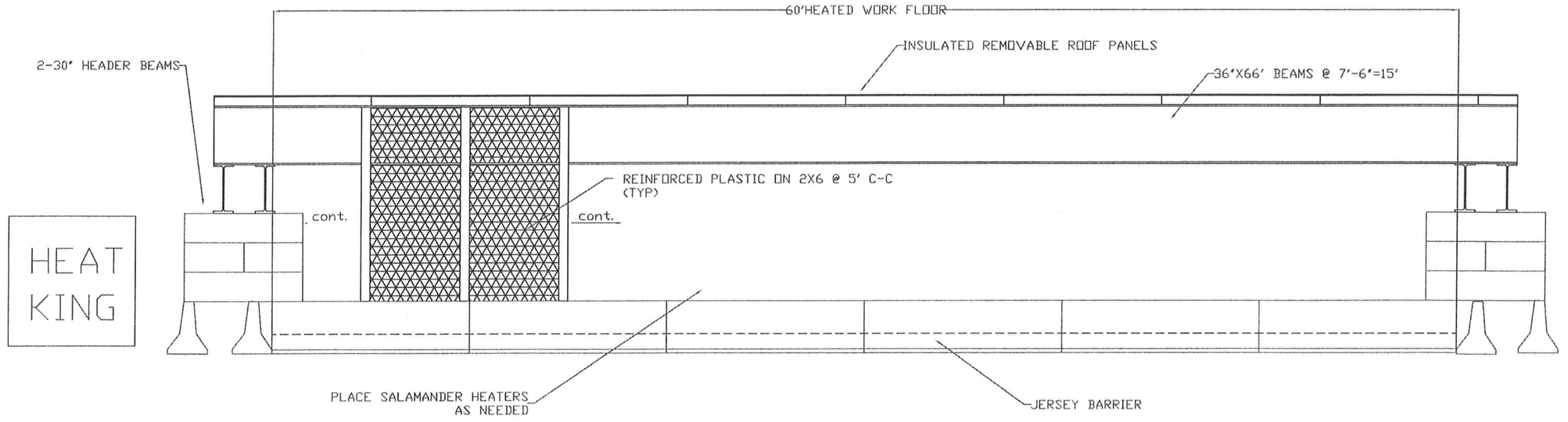
ENCLOSURE DETAILS

SHEET NUMBER 11

DATE: 10-2-13 scale:



ENCLOSURE ELEVATION VIEW

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CAVENDISH ER BRF 0146(13)

ENCLOSURE DETAILS

SHEET NUMBER 12

DATE: 10-2-13 Scale:

QUALITY CONTROL PROCEDURES.

1.CARROLL CONCRETE WILL BE RESPONSIBLE FOR THE CONTRACTOR./SUPPLIOR QC TESTING DURING CONCRETE POURS.

2.A PRE-PRODUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR AND RESIDENT ENGINEER BEFORE CONCRETE PLACEMENT.

3. VTRANS WILL RETAIN THEIR RESPONSIBILITIES FOR QUALITY ACCEPTANCE TESTING.

4. FOUR EXTRA CYLINDER SETS PER CONCRETE PLACEMENT SHALL BE TAKEN FOR EARLY STRENGTH BREAKS.

5. ALL INSIDE FORM DIMENSION AND R-BAR SPACING AND CLEARANCES SHALL BE REVIEWED AND DOCUMENTED ON THE PRE-POUR INSPECTION SHEET BY THE CONTRACTOR AND THE RESIDENT ENGINEER BEFORE CASTING IS COMMENCED..

6. BEFORE FORMS ARE ERECTED THE CONTRACTOR WILL INSPECT ALL FORM-WORK FOR DAMAGE OR RESIDUAL CONCRETE. ANY DEFICIENCY IN THE FORM WORK SHALL BE CORRECTED BEFORE FORM WORK CONTINUES.

7. FORMS SHALL HAVE A GENEROUS COATING OF FORM OIL APPLIED. . CAUTION WILL BE TAKEN NOT TO HAVE PONDING OF FORM OIL IN THE BASE OF THE FORM OR ON ANY R-BAR.

8. ALL PRE-CAST WILL BE INSPECTED BY BOTH THE CONTRACTOR AND THE RESIDENT ENGINEER AND DOCUMENTED ON THE POST POUR INSPECTION SHEET. ANY MINOR REPAIRS AND HONEY COMBING OR RUBBING NECESSARY WILL BE COMPLETED USING A SAND AND PORTLAND SLURRY FROM THE SAME SOURCE AS THE CONCRETE. ANY MAJOR REPAIRS WILL BE REPAIRED WITH A VERTICAL '''OVERHEAD PATCH FROM THE APPROVED PRODUCTS LIST.

10. CONCRETE TOLERANCES +- $\frac{1}{4}$ -REINFORCING PLACEMENT +-1/4" COVER AND CLEARANCE 1" BAR SPACING

11. EACH PIECE OF PRE-CAST SHALL BE MARKED WITH ITS UNIT NUMBER AND DATE OF CASTING

12. CURE METHODS WILL MEET THE REQUIRMENTS OF SECTION 501.17A(5). IF THE CONCRETE TEMPERATURE DROPS BELOW 50 DEGREE OR A WET CONDITION IS NOT MAINTAINED THE CURE WILL BE EXTENDED PER SECTION 501.17 (a)

WINTER WORK PROVISIONS:
1.Cold River Bridges will be constructing the abutments and approach slabs inside of an enclosure. Construction of the enclosure is detailed on sheet #10
2.Concrete will meet the temperature requirements of section 501.07. Hot water will be mixed with the aggregate prior to the introduction of cement to produce a uniform temperature no lower than 50 degrees and not to exceed 80 degrees.
3.Form work and r-bar will be pre-heated inside of the casting enclosure to 50 degrees with the use of radiant heat and supplemental "salamander heaters".This will produce a redundant source of heat.
4.After the placement of concrete a combination of radiant heat and salamanders will be used for the full length of the cure.
5. Digital temperature data loggers will be used to monitor cure. 1 data logger will be supplied per unit.

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QC PROCEDURES/PLAN

SHEET NUMBER 13

DATE: 10-30-13 scale:

CONCRETE NOTES:
CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURES.

1.APROACH SLABS- 5000 PSI

2.WINGWALLS-5000 PSI

3.ALL CONCRETE ABOVE WILL BE SUPPLIED BY CARROLL CONCRETE INC.

4.ALL CONCRETE MIX DESIGNS HAVE BEEN SUBMITTED BY CARROLL CONCRETE INC,COPIES ARE INCLUDED ON SHEET 16

7. APPROACH SLABS SHALL HAVE A TEXTURED BROOM FINISH.

8. WINGWALLS AND ABUTMENT POUR TOP WILL HAVE ROUGH FINISH.

8. ABUTMENTS AND APPRUACH SLABS FORMS CAN BE REMOVED WHEN THE SPECIFIED CONCRETE HAS REACHED 85% OF ITS DESIGN STRENGTH. CURE WILL CONTINUE BASED ON TABLE 501.17A "CURING CONCRETE COMPONENTS" 7 DAYS OFCURING. PER SECTION 501.17(5)

9. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3./4"

10. ALL LIFTING DEVISES ARE GALVANIZED

11. USING REDUCED CONCRETE STRENGTH FOR THE LIFTING DESIGN PRODUCES A MORE CONSERVATIVE DESIGN.

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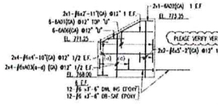
GENERAL NOTES

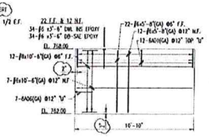
SHEET NUMBER 14

DATE: 10-30-13 scale:

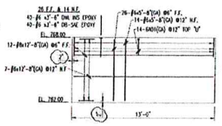
PLEASE VERIFY COVER AND LAP OF DWL BARS



CAST IN PLACE WW #1



AB1LTA REINF



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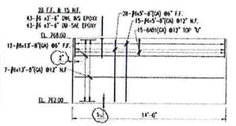

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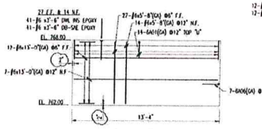

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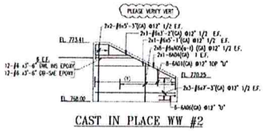
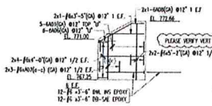
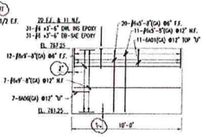


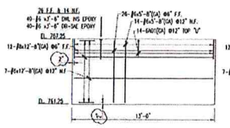
CAST IN PLACE WW #2



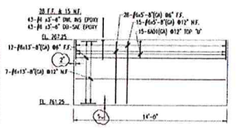
CAST IN PLACE WW #1



AB2LTA REINF



AB2LTB REINF



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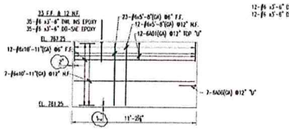
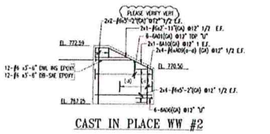
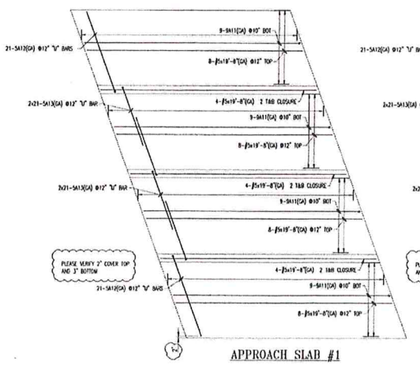


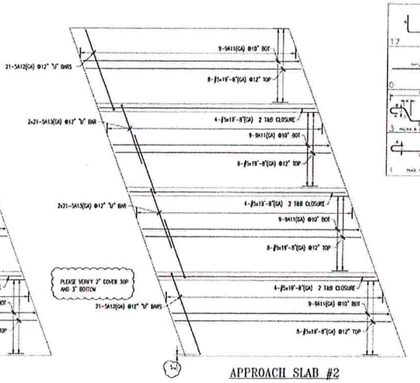
AB2RTA REINF



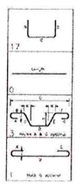
CAST IN PLACE WW #2

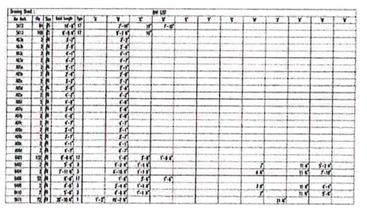


APPROACH SLAB #1



APPROACH SLAB #2





ENG. AND ARCH. PLEASE VERIFY ALL CLOUDED AREAS

ALL (GA) IS FOR DUAL COATED

LAP CHART-U.N.O.

#13			
#10			
#9			
#8			
#6			
#5			
#4			
#3			
BARS	TOP BARS *	OTHER BARS	

* Top bars are bars with more than 12" of concrete cast below the bars.

No.	Description	Date	By
1	APPROVAL	11-15-13	DSH

Revisions and Issue Record

The full intent and purpose of this drawing is the placing of reinforcing steel bars ONLY. It is NOT to be used as a means of communication between the Architect, Engineer, Contractor or any other Sub-trades.

THIS DRAWING IS NOT TO BE SCALED.

Harris Rebar New England Inc. of Berlin

DETAILED AT: CANAAN NEW HAMPSHIRE

Project: BRIDGE REPLACEMENT
CAVENDISH, VT

Drawing: ABUTMENT AND APPROACH SLABS

Customer: COLD RIVER BRIDGES

Engineer:

Refer to Release:

Date	Drawn	Chkd.	JOB No.	Dwg. No.
11-14-13	TRH		10050769	R01

REVISION # 1 11-19-13

COLD RIVER BRIDGES, LLC
10 LANBRO LANE
TEL 603-756-9300 WALPOLE, NH FAX 603-756-9303

CAVENDISH ER BRF 0146(13)

REINFORCING PLAN

SHEET NUMBER 15

DATE: 11-19-13 SCALE: 1/4"=1'

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIAL AND RESEARCH SECTION - STRUCTURAL CONCRETE UNIT

STRUCTURAL CONCRETE MIX DESIGN SUBMISSION

Agency Use Only	
Mix ID	HP00-A-0
Mix Design #	
Approved by	
Approved Date	
Spec Book Year	2013

Concrete class: HPC A
Additional Description:
Ready Mix Supplier: CARROLL CONCRETE - CHARLESTOWN, NH
Designed By: Scott Jordan
Design strength: 5000 PSI
Design by dry weight or saturated surface dry: SSD

Mix designs are valid for a 12 month period from date of approval or unless there is a change in material, material property or design parameter.

Cement: 701.02	Source:			Specific Gravity		lb/cy	0.00 cf
	Brand Name:						
Cement Type III: 701.04	Source:			Specific Gravity		lb/cy	0.00 cf
	Brand Name:						
Blended Cement: 701.06	Source:	LAFARGE - TERCEM - MONTREAL, EAST PLANT		Specific Gravity	3.020	611 lb/cy	3.24 cf
	Brand Name:						
Cement with Slag: 701.07	Source:			Specific Gravity		lb/cy	0.00 cf
	Brand Name:						
Pozzolan: 725.03(a)	Source:			Specific Gravity		lb/cy	0.00 cf
	Brand Name:						
Fly Ash: 725.03(a)	Source:			Specific Gravity		lb/cy	0.00 cf
	Brand Name:						
Silica Fume: 725.03(b)	Source:			Specific Gravity		lb/cy	0.00 cf
	Brand Name:						
Slag: 725.03(c)	Source:			Specific Gravity		lb/cy	0.00 cf
	Brand Name:						
Water					31 gals	258.7 lb/cy	4.14 cf
Air Content Target					7.0 %		1.89 cf
Coarse Aggregate 3/8"		Absorption		Specific Gravity		lb/cy	0.00 cf
704.02A	Source:						
Coarse Aggregate 3/4"		Absorption	0.80	Specific Gravity	2.830	1719 lb/cy	9.73 cf
704.02B	Source:	COLD RIVER MATERIALS PIT - N WALPOLE, NH					
Coarse Aggregate 1 1/2"		Absorption		Specific Gravity		lb/cy	0.00 cf
704.02C	Source:						
Fine Aggregate:		Absorption	1.00	Specific Gravity	2.660	1328 lb/cy	8.00 cf
704.01	Source:	NEWPORT SAND & GRAVEL - NEWPORT, NH		Fineness Modulus	2.69		
Air Entrainment Admixture				Specific Gravity		1.5 oz/cy	
725.02(b)	Source:	MASTER BUILDERS INC - MESQUITE, TX					
	Brand Name:	Micro Air					
Retarder Admixture:				Specific Gravity		1 oz/cwt	
725.02(c)	Source:	MASTER BUILDERS INC - MESQUITE, TX					
	Brand Name:	Pozzolith 100XR					
High Range Water Reducer Admixture:				Specific Gravity		3 oz/cwt	
725.02(h)	Source:	MASTER BUILDERS INC - MESQUITE, TX					
	Brand Name:	Glenium 7500					
Other Admixtures:							
				Specific Gravity		oz/cwt	0.00 cf
	Source:						
	Brand Name:			Specific Gravity			0.00 cf
	Source:						
	Brand Name:			Specific Gravity			0.00 cf
	Source:						
	Brand Name:						
				TOTAL	46.510	3917 lb	27.00 cf

Maximum Water/Cementitious Ratio	0.44		
Maximum Water (gal/cy)	32.2		
Slump Min/Max (inch)	4.0 min	7.0 max	
Air Content Min/Max (%)	5.0 min	9.0 max	
Design Unit Wt. (lb/cf)	145.06		

Notes:

2013 Construction season 2011 specification 5000 psi precast 11-19-13

REVISION # 1 11-19-13

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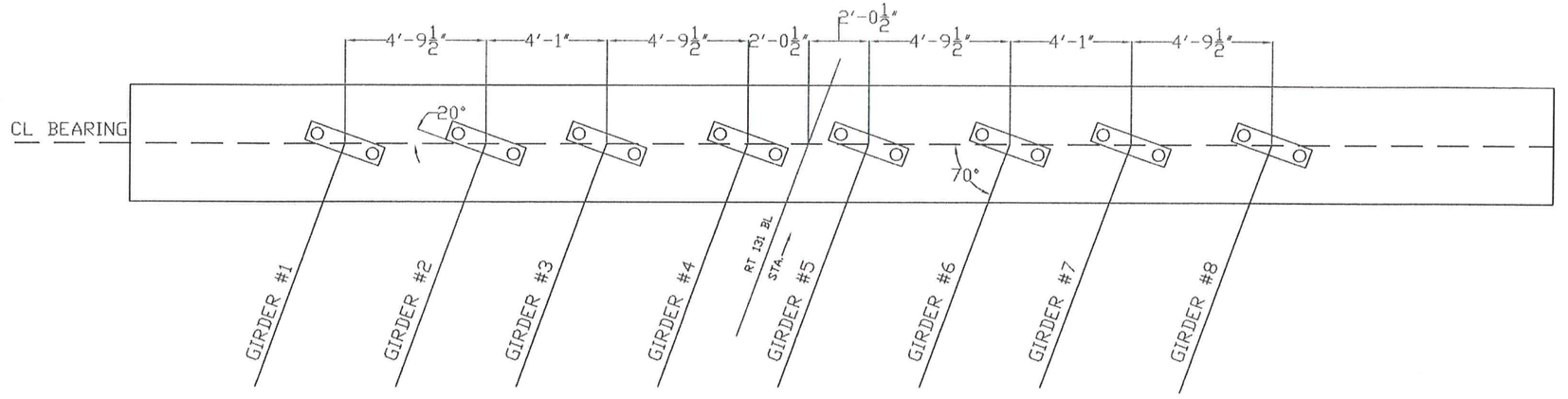
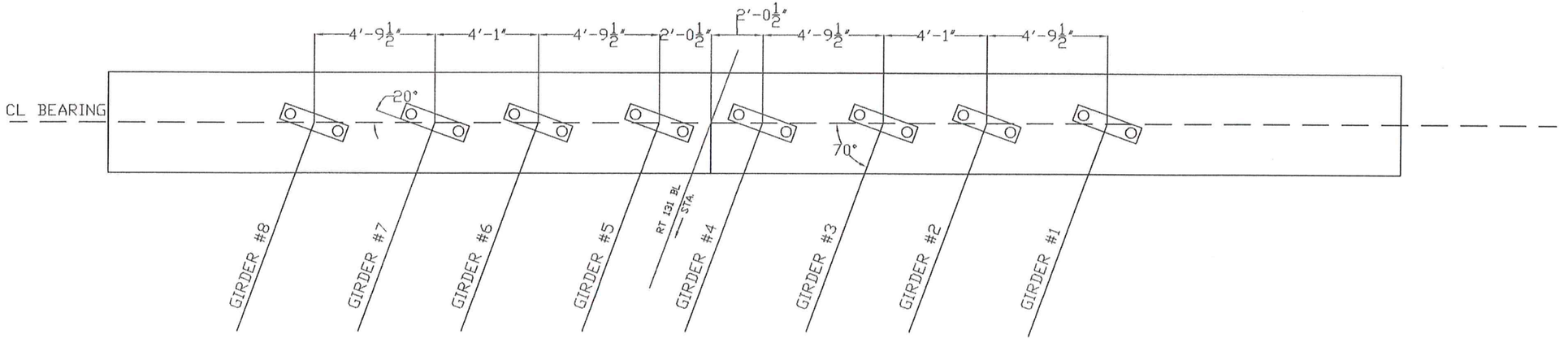
CONCRETE MIX DESIGN

SHEET NUMBER 16

DATE: 11-19-13 scale: 1/4"=1'



ABUTMENT 2 BEARING LAY-OUT



ABUTMENT 1 BEARING LAY-OUT

REVISION # 1 11-19-13

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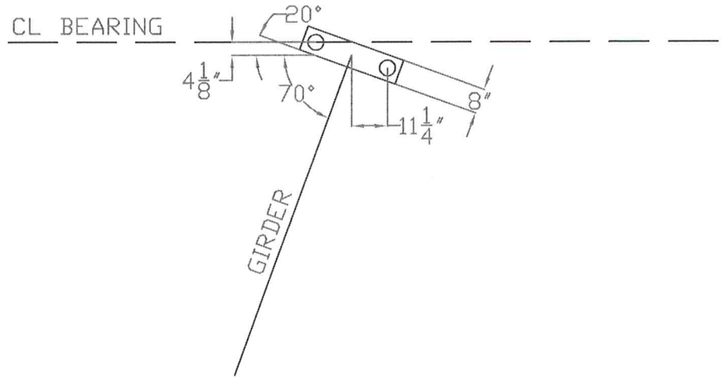
CAVENDISH ER BRF 0146(13)

BEARING LAY-OUT

SHEET NUMBER 17

DATE: 11-18-13 scale:



TYPICAL BEARING LAY-OUT DETAIL

TEMPORARY BEARING NOTES:

1. TEMPORARY BEARINGS WILL BE DRILLED AND GROUTED AFTER THE CASTING OF THE ABUTMENTS.
2. GROUT OR EPOXY USED TO INSTALL ANCHOR BOLTS WILL BE APPROVED BY THE RESIDENT ENGINEER OR FROM THE APROOVED PRODUCTS LIST.
3. TEMPORARY BEARING ASSEMBLIES ARE BEING SUPPLIED BY CASCO BAY STEEL STRUCTURES. DETAILS AND SHOP DRAWINGS WILL BE PART OF THE STRUCTURAL STEEL SUBMITTALL.

REVISION # 1 11-19-13

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CAVENDISH ER BRF 0146(13)

BEARING DETAIL&NOTES

SHEET NUMBER 18

DATE: 11-18-13 scale: