

From: [Daly, Keith](#)
To: [Kevin Culbert \(Kevinc@americanconstco.com\); "vernonu@americanconstco.com";](#)
cc: [Green, Frank; Degenhart, Mark; Peppers, Nicki; document.control;](#)
Subject: Contract 8078 - Approved and Approved as Noted Air Supply Manifold Hook Up Working Drawings
Date: Tuesday, February 01, 2011 11:37:39 AM
Attachments: [8078 - Air Supply Manifold Hook Up Working Drawings.pdf](#)

Kevin/Vernon,

Please find attached Approved and Approved as Noted Air Supply Manifold Hook Up Working Drawings. If you have any questions please let me know.

Thanks,

Keith Daly
Assistant Business Manager

[Columbia River Crossing Project](#) | <mailto:dalyk@columbiarivercrossing.org>
700 Washington St. Suite 300, Vancouver, WA 98660
office: 360.816.8870 | Office: 503.256.2726 Ext. 8870
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7078

APPROVED AS NOTED

WASHINGTON STATE
 DEPARTMENT OF TRANSPORTATION
 BRIDGE AND STRUCTURES OFFICE
 BY: CONSTRUCTION SUPPORT ENGINEER
 FEB - 1 2011

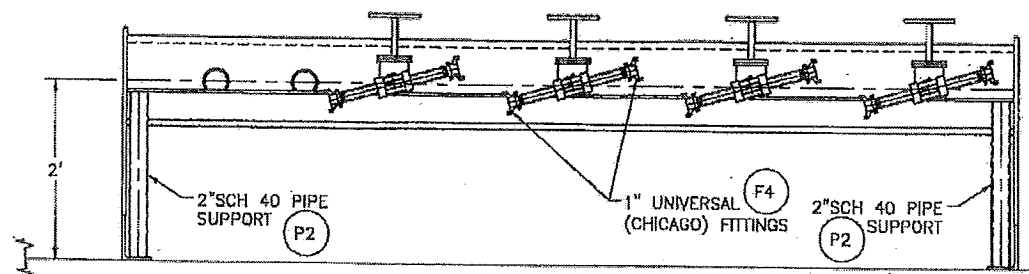
REVISIONS
 DESCRIPTION
 BY/DATE
 wpease 28 JAN 11

DATE _____

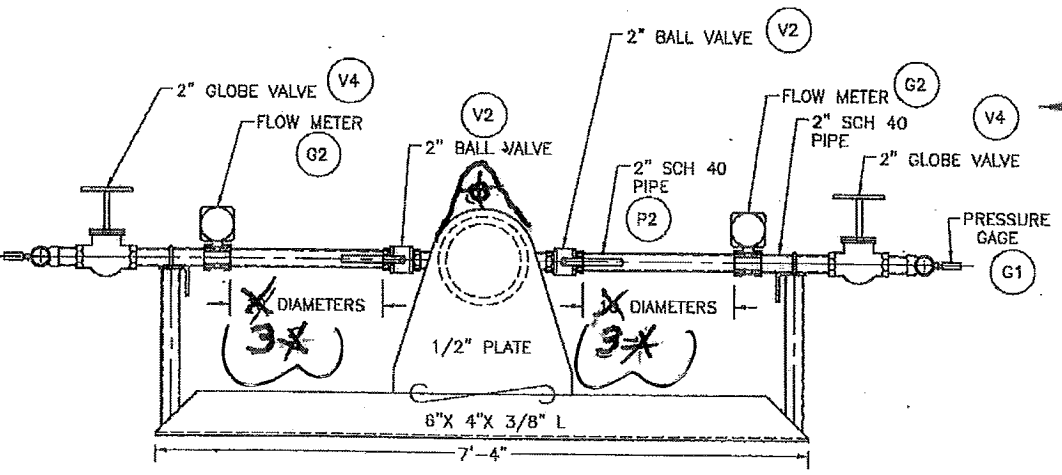
Paint steel components per
 std spec.
 per plan sht 8.

DRILL AND TAP
 FOR 1/2" NPT PLUG

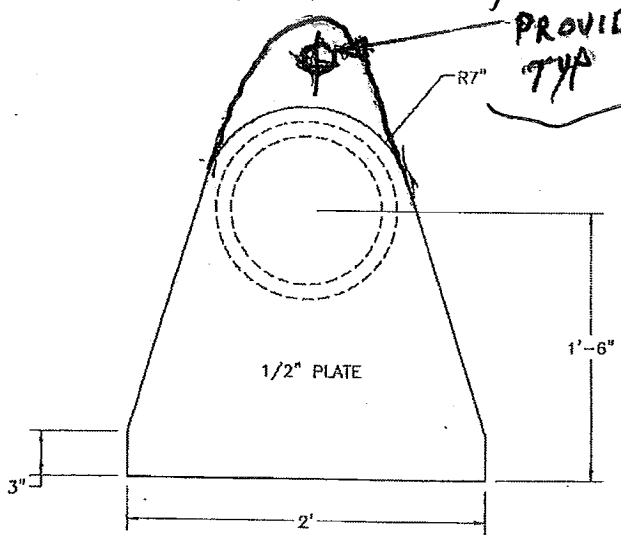
SECTION "4-D"
 1/2" = 1' - 0"



ELEVATION "2-D"
 1/2" = 1' - 0"

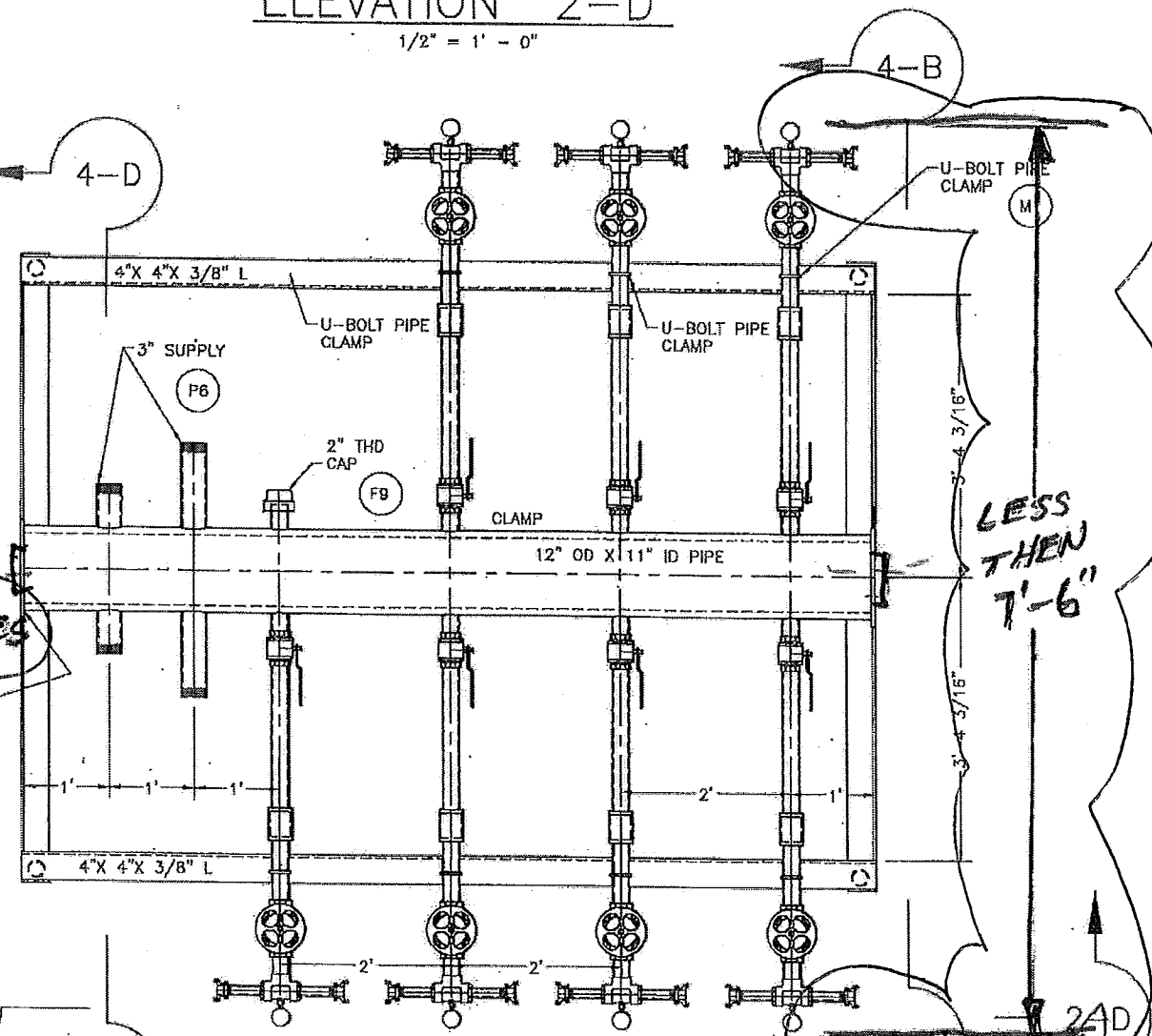


SECTION "4-B"
 1/2" = 1' - 0"



SECTION "4-A"
 END PLATE
 TWO REQUIRED
 1" = 1' - 0"

PROVIDE LIFTING EYES
 TYP 2 PLACES



PLAN "2-A"
 BUBBLER SUPPLY
 1/2" = 1' - 0"

- GENERAL NOTES
- DRAWING DEPICTS UNCONFINED AND CONFINED BUBBLE CURTAIN DISTRIBUTION MANIFOLD.
 - MAWP = 100 PSI
 - MANIFOLD TO BE PRESSURE TESTED TO 1-1/2 TIMES THE MAWP (150 PSI)
 - EACH BUBBLE RING TO BE CONNECTED WITH TWO 1" HOSES TO ONE "TEE" ASSEMBLY.
 - 3" SUPPLY PIPES TO BE THREADED TO MATCH FITTINGS ON AIR COMPRESSOR HOSES.
 - 10 DIAMETERS OF STRAIT PIPE REQUIRED IN FRONT OF FLOW METERS, PER REFERENCE 10.
 - WELDS UNDER PRESSURE SHALL BE PER ASME SECTION 8 BOILER AND PRESSURE VESSEL CODE, LATEST ADDITION.

- REFERENCES
- COLUMBIA-SENTINEL ENGINEERS DRAWING 1109-100-1, UNCONFINED BUBBLE CURTAIN, HOOK UP SCHEMATIC.
 - COLUMBIA-SENTINEL ENGINEERS DRAWING 1109-100-3, CONFINED BUBBLE CURTAIN, HOOK UP SCHEMATIC.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, I-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, NOISE ATTENUATION DETAIL, REF.SHT. NUMBER ND1, SHEET 5 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, I-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, BOTTOM BUBBLE RING DETAILS, REF.SHT. NUMBER ND2, SHEET 6 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, I-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, UPPER BUBBLE RING DETAILS, REF.SHT. NUMBER ND3, SHEET 7 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, I-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, NOISE ATTENUATION DETAIL 1, REF.SHT. NUMBER ND5, SHEET 9 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, I-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, NOISE ATTENUATION DETAIL 2, REF.SHT. NUMBER ND6, SHEET 10 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, I-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, NOISE ATTENUATION DETAIL, REF.SHT. NUMBER ND7, SHEET 11 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, I-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, CONFINED BUBBLE RING DETAILS, REF.SHT. NUMBER ND8, SHEET 12 OF 12.
 - INSTALLATION, OPERATION AND MAINTENANCE, THREADED AND WAFER STYLE FLOWMETERS, RCM INDUSTRIES, INC. (WWW.FLO-GAGE.COM)

LESS THAN 7'-6"



APPROVED AS MARKED

James S. Hoffmeyer
 1-31-2011

* FLOW METER SUPPLIER OK'D FEWER DIAMETERS

COLUMBIA-SENTINEL ENGINEERS, INC.
 NAVAL ARCHITECTS & MARINE ENGINEERS
 SEATTLE, WASHINGTON

AMERICAN CONSTRUCTION
 UNCONFINED BUBBLE CURTAIN
 AIR SUPPLY MANIFOLD

DESIGN: wpease	APPROVED: DATE 28 JAN 11	APPROVED BY LETTER DATED: DATE	SCALE: NOTED	REV: A
DWG NO. 1109-100-2	SHEET 1	OF 2		

EXPIRES: 11/5/2011

APPROVED AS NOTED

WASHINGTON STATE

DEPARTMENT OF TRANSPORTATION

BRIDGE AND STRUCTURES OFFICE

BY: CONSTRUCTION SUPPORT ENGINEER

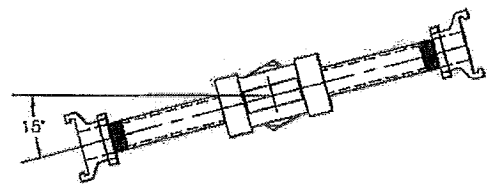
DATE FEB - 1 2011

DATE _____

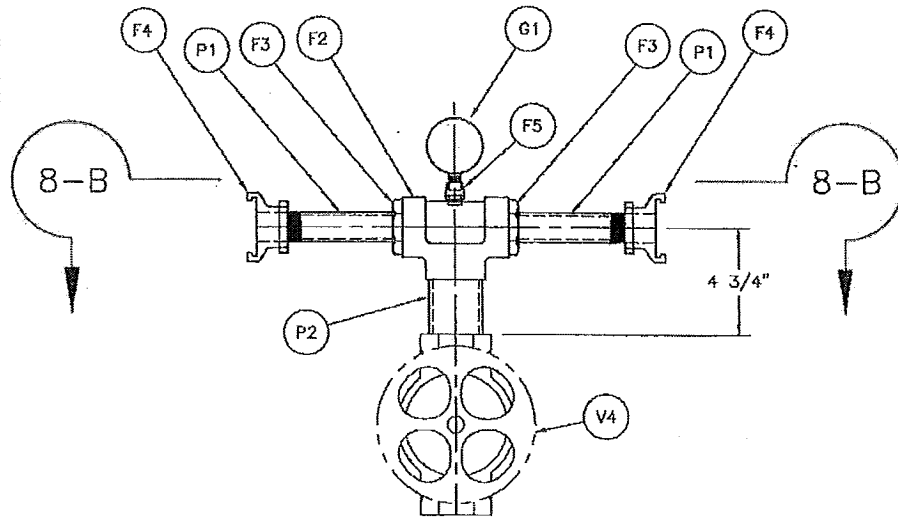
MATERIAL LIST

NO.	QTY.	SIZE	GRADE	ENDS	DESCRIPTION	MATERIAL	
P12	1				12" OD x 11" ID x 10' long Pipe	A106 GR B	
P1		1"			SCH 40 PIPE	A106 GR B	
P2		2"			SCH 40 PIPE	A106 GR B	
P3		3"			SCH 40 PIPE	A106 GR B	
F2	7	2"	SCH 40	FNPT	TEE	A197	
F3	14	2" X 1"	SCH 40	NPT	BUSHING	A197	
F4	14	1"		FNPT	UNIVERSAL (CHICAGO) COUPLINGS	SST	DIXON OR EQUAL
F5	7	1/2" X 2"	3000#	FNPT	THREDOLET	STEEL	BONNEY FORGE OR EQUAL
F6	4	3"		FBPT	HOSE TO PIPE CONNECTION		TO MATCH COMPRESSOR AIR HOSES
F7	28	1"		BARB	UNIVERSAL (CHICAGO) COUPLINGS	SST	DIXON OR EQUAL WITH HOSE CLAMPS
F8	1	1/2"	SCH 40	MNPT	PIPE PLUG	ASTM A105 OR A181	
F9	1	2"	SCH 40	FNPT	PIPE CAP	ASTM A105 OR A181	
F10	3	3"	SCH 40	FNPT	PIPE CAP	ASTM A105 OR A181	
V2	7	2"		FNPT	BALL VALVE	ASTM A351, BALL, PTFE SEAT & SEALS	TACHEN 2" TC-02X OR EQUAL
V4	7	2"	150#	FNPT	GLOBE VALVE	ANSI B16.5, ASTM A197 OR A395 w/ RENEWABLE BRZ TRIM	
G1	7				PRESSURE GAUGE		NOSCHOK 25.400-200PSI-1/2"NPT OR EQUAL
G2	7				FLOW METER		RCM FLO-GAGE 2-71-R-800-ADI OR EQUAL
H1	600'	1"	250 PSI		HOSE		PACIFIC RUBBER MARINE ENVIRONMENT INDUSTRIAL
M1	7	2"			"U" BOLT PIPE HANGERS	STEEL	ASTM 708-92, TABLE 4
A1	2				6" X 4" X 3/8" L X 7'-4" LONG	A36	
A2	2				4" X 4" X 3/8" L X 12'-0" LONG	A36	
PL1	2				1/2" PL; 24" X 25"	A36	

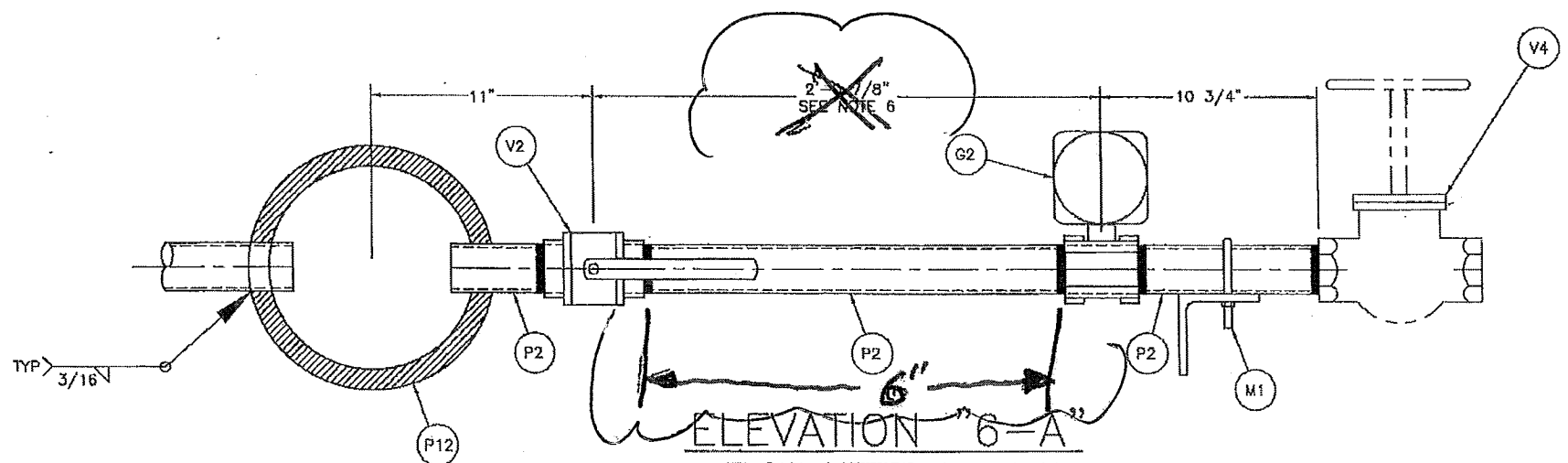
Paint steel components per Std. Spec. per plan sht. 8



ELEV. "8-B"
FLANGE "CLOCKING"
1-1/2" = 1'-0"



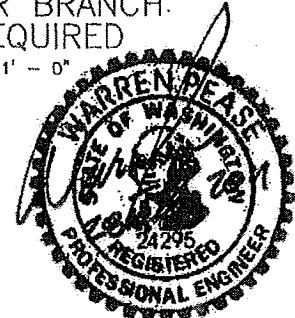
PLAN "8-A"
CHICAGO FITTING BRANCH
SEVEN REQUIRED
1-1/2" = 1'-0"



ELEVATION "6-A"
FLOW METER BRANCH.
SEVEN REQUIRED
1-1/2" = 1'-0"

APPROVED AS MARKED

James Schufeldt



PIRES: 11/5/2011

COLUMBIA-SENTINEL ENGINEERS, INC.
NAVAL ARCHITECTS & MARINE ENGINEERS
SEATTLE, WASHINGTON

AMERICAN CONSTRUCTION
UNCONFINED BUBBLE CURTAIN
AIR SUPPLY MANIFOLD

DESIGN	WPROB8	APPROVED	APPROVED BY LETTER DATED	DATE	ISS:1	USCG:
CHECKED		DATE	28 JAN 11			
DWG NO.	1109-100-2	SHEET	2	OF	2	SCALE: NOTED
REV						A

APPROVED
 WASHINGTON STATE
 DEPARTMENT OF TRANSPORTATION
 BRIDGE AND STRUCTURES OFFICE
 BY: CONSTRUCTION SUPPORT ENGINEER
 FEB -1 2011
 DATE _____

REVISIONS		
SYM	DESCRIPTION	BY/DATE
A	INITIAL STAMPED ISSUE	wpeose 28JAN11

GENERAL NOTES

- DRAWING DEPICTS BUBBLE CURTAIN SCHEMATIC.
- MAWP = 100 PSI

- REFERENCES
- COLUMBIA-SENTINEL ENGINEERS DRAWING 1109-100-2, UNCONFINED BUBBLE CURTAIN, AIR SUPPLY MANIFOLD.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, 1-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, NOISE ATTENUATION DETAIL, REF.SHT. NUMBER ND1, SHEET 5 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, 1-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, BOTTOM BUBBLE RING DETAILS, REF.SHT. NUMBER ND2, SHEET 6 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, 1-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, UPPER BUBBLE RING DETAILS, REF.SHT. NUMBER ND3, SHEET 7 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, 1-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, NOISE ATTENUATION DETAIL 1, REF.SHT. NUMBER ND5, SHEET 9 OF 12.
 - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, 1-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, NOISE ATTENUATION DETAIL 2, REF.SHT. NUMBER ND6, SHEET 10 OF 12.

COLUMBIA-SENTINEL ENGINEERS, INC.
 NAVAL ARCHITECTS & MARINE ENGINEERS
 SEATTLE, WASHINGTON

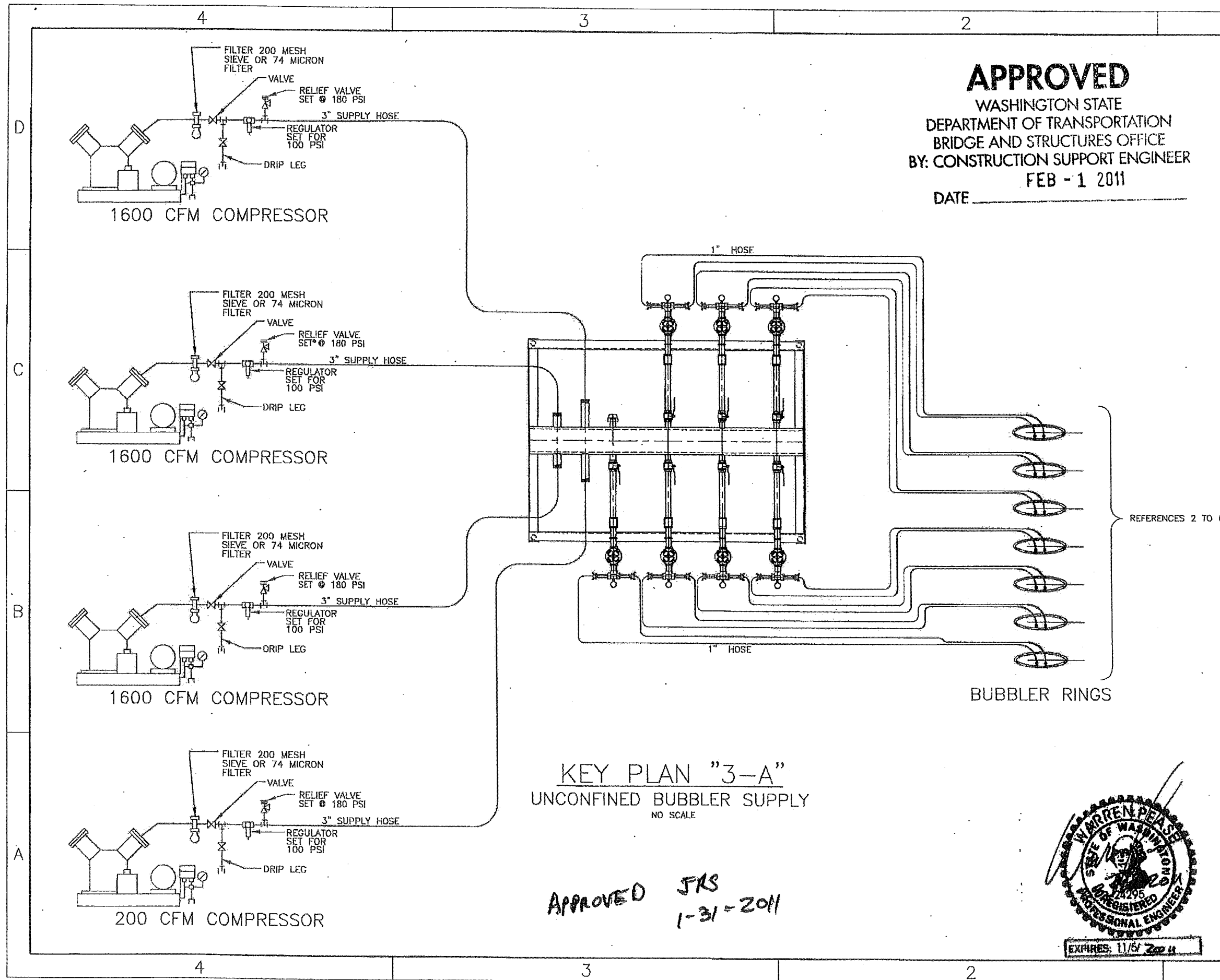
AMERICAN CONSTRUCTION
 UNCONFINED BUBBLE CURTAIN
 HOOK UP SCHEMATIC

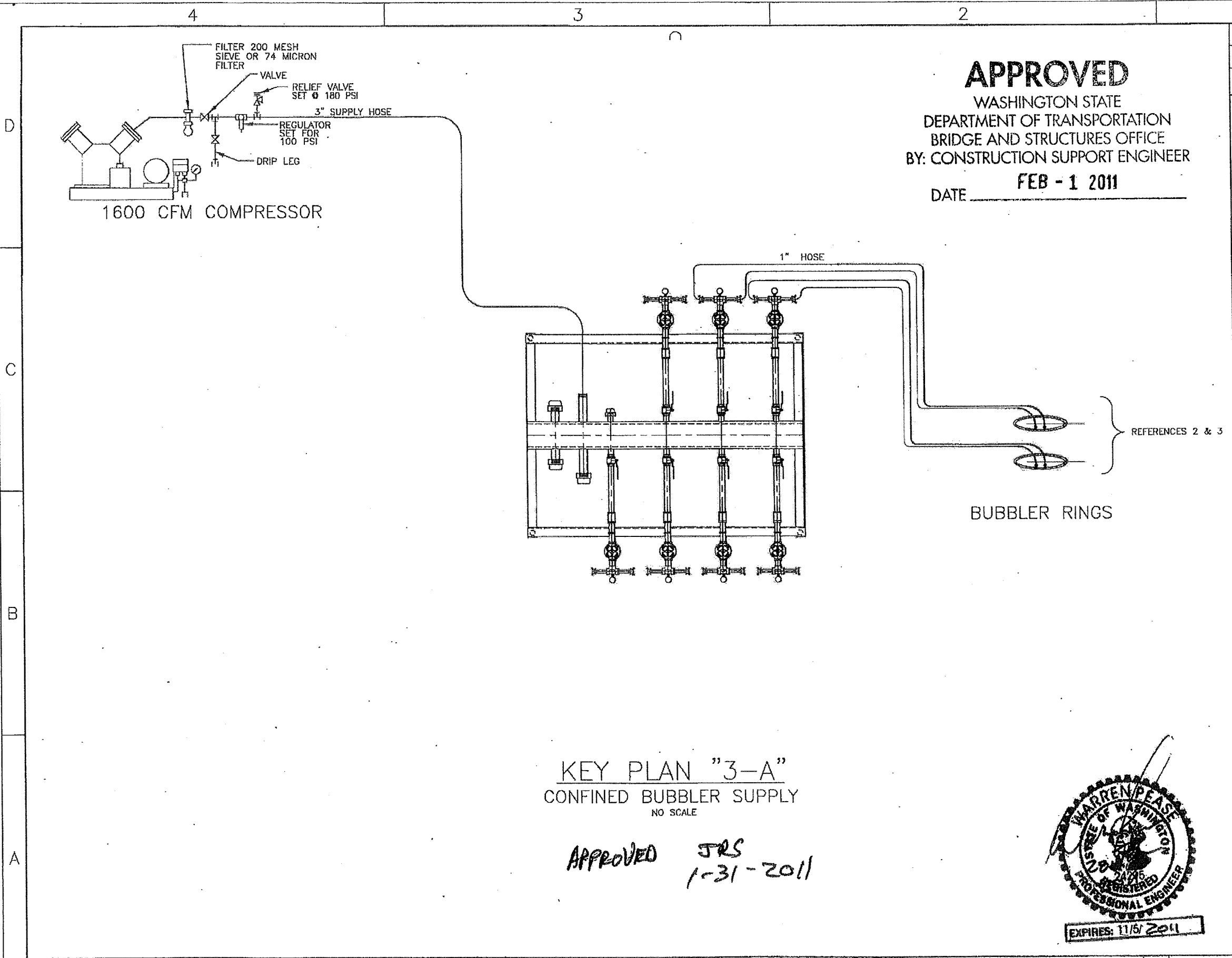
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CHECKED				28 JAN 11		
DWG NO.	1109-100-1	SHEET	1	OF	1	SCALE: NOTED
						REV A



KEY PLAN "3-A"
 UNCONFINED BUBBLER SUPPLY
 NO SCALE

APPROVED JRS
 1-31-2011





APPROVED
 WASHINGTON STATE
 DEPARTMENT OF TRANSPORTATION
 BRIDGE AND STRUCTURES OFFICE
 BY: CONSTRUCTION SUPPORT ENGINEER
 DATE FEB - 1 2011

REVISIONS		
SYM	DESCRIPTION	BY/DATE
A	INITIAL STAMPED ISSUE	wpease 28JAN11

GENERAL NOTES

1. DRAWING DEPICTS BUBBLE CURTAIN SCHEMATIC.
2. MAWP = 100 PSI

REFERENCES

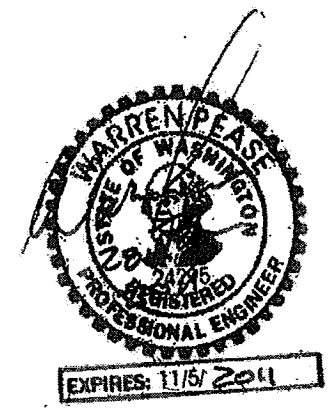
1. COLUMBIA-SENTINEL ENGINEERS DRAWING 1109-100-2, UNCONFINED BUBBLE CURTAIN, AIR SUPPLY MANIFOLD.
2. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, 1-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, NOISE ATTENUATION DETAIL, REF.SHT. NUMBER N07, SHEET 11 OF 12.
3. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION DRAWING 10X314, 1-5 COLUMBIA RIVER BRIDGE TEMPORARY PILE TEST PROGRAM, CONFINED BUBBLE RING DETAILS, REF.SHT. NUMBER N08, SHEET 12 OF 12.

REFERENCES 2 & 3

BUBBLER RINGS

KEY PLAN "3-A"
 CONFINED BUBBLER SUPPLY
 NO SCALE

APPROVED *JRS*
 1-31-2011



COLUMBIA-SENTINEL ENGINEERS, INC.
 NAVAL ARCHITECTS & MARINE ENGINEERS
 SEATTLE, WASHINGTON

AMERICAN CONSTRUCTION
 CONFINED BUBBLE CURTAIN
 HOOK UP SCHEMATIC

DRAWN wpease	APPROVED DATE 28 JAN 11	APPROVED BY LETTER DATED: OWNER: A&A: U.S.C.O.:	SCALE: NOTED	REV A
DWG NO. 1109-100-3		SHEET 1 of 1		