



**FORM DQP 2.01-1
LEVEL 1 CHECK PRINT SIGN-OFF SHEET**

Client Name: Ohio Department of Transportation

Job Title: Cleveland Innerbelt Design-Build Contract

Job Number: CUY-90-14.90

Document Title: Unit 2 - Walsh CW check - Bearing offset

Check Level (Mark One): 1A 100% Document Check + longitudinal movement
 1B 100% Input Check

Enter description below:

	Print Name	Signature	Date
<input checked="" type="checkbox"/> Originator	<u>David Glastetter</u>	<u>[Signature]</u>	<u>6/21/12</u>
<input checked="" type="checkbox"/> Checker	<u>SARAH LARSON</u>	<u>Sarah Larson</u>	<u>6-21-12</u>
<input checked="" type="checkbox"/> Backchecker	<u>David Glastetter</u>	<u>[Signature]</u>	<u>6/21/12</u>
<input checked="" type="checkbox"/> Updater	<u>David Glastetter</u>	<u>[Signature]</u>	<u>6/21/12</u>
<input checked="" type="checkbox"/> Validator	<u>SARAH LARSON</u>	<u>Sarah Larson</u>	<u>6-21-12</u>

Insert an "X" in the box to indicate a required QC activity.

HNTB	Made by	DJG	Date	6/21/2012	Job Number	49633
	Checked by	SJL	Date	6/21/2012		
	For: CIB - Unit 2	Backchecked by	DJG	Date	6/21/2012	Sheet Number

\\kcow00\Jobs\49633\Bridges\Design\Final Design\Unit 2\Walsh CW Check\2012-06-20-Temperature Offset for Bearings.xlsx\DL Offset

LONGITUDINAL BEARING OFFSET TO COUNTERACT DEAD LOAD MOVEMENT

	DISP. G1 (ft.)	DISP. G2 (ft.)	DISP. G3 (ft.)	DISP. G4 (ft.)	DISP. G5 (ft.)
P2	-0.164	-0.164	-0.166	-0.17	-0.176
P3	-0.05	-0.061	-0.073	-0.083	-0.094
P4	-0.287	-0.28	-0.273	-0.265	-0.258
P5	-0.043	-0.045	-0.046	-0.048	-0.049
P6	0.004	0.002	-0.001	-0.003	-0.005
P7	-0.008	-0.009	-0.011	-0.012	-0.013
P8	0.029	0.03	0.032	0.033	0.034
P9	0.111	0.112	0.113	0.116	0.116
P10	-0.064	-0.065	-0.066	-0.069	-0.075
P11	0.061	0.06	0.058	0.057	0.057

AVERAGE OFFSET	PLAN OFFSET	Difference
2		
14/16	- 9/16	1 7/16
3 2/8	1 7/8	1 3/8
4/8	3/8	1/8
0	- 1/8	1/8
2/16	1/16	1/16
- 1/2	- 1/2	0
-1 3/8	-1 3/8	0
13/16	7/16	6/16
- 6/8		

NOTE: POSITIVE VALUES ARE UPSTATION



The HNTB Companies
Engineers Architects Planners

Made	SJL	Date	3/14/2011	Job Number	49633
Checked	CPS	Date	3/16/2011		
For	Cleveland Innerbelt, Unit 2	Backchk'd	SJL	Date	3/31/2011
		Revised	DJG	Date	6/21/2012
		Checked	SJL	Date	6/21/2012
		Backchk'd	DJG	Date	6/21/2012

Filename: \\kcow00\Jobs\49633\Bridges\Design\Final Design\Unit 2\Walsh CW Check\Bearing Reactions_updated.xlsx\DX Movement

Factors	
DC	1
DW	1
LL+I, BR	1
TU	1.2
ni	1

Longitudinal Movement

PIER	GIRDER	JOINT	Node	NCDL	FWS	Max		Min		Max		Min		Service I Max LL, BR, TU (ft)	Service I Min LL, BR, TU (ft)	Service I Max Total (in)	Service I Min Total (in)
						LL+I ND	LL+I ND	BR	BR	TU	TU						
Pier 2	G1	101000	1000	-0.164	-0.02	-0.184	0.013	-0.021	0.018	-0.018	0.947	-0.631	1.167	-0.796	14.0	-9.6	
Pier 2	G2	103000	3000	-0.164	-0.021	-0.185	0.011	-0.016	0.018	-0.018	0.942	-0.628	1.159	-0.788	13.9	-9.5	
Pier 2	G3	105000	5000	-0.166	-0.021	-0.187	0.01	-0.015	0.017	-0.017	0.936	-0.624	1.150	-0.781	13.8	-9.4	
Pier 2	G4	107000	7000	-0.17	-0.021	-0.191	0.011	-0.016	0.018	-0.018	0.931	-0.621	1.146	-0.779	13.8	-9.4	
Pier 2	G5	109000	9000	-0.176	-0.019	-0.195	0.048	-0.066	0.018	-0.018	0.926	-0.617	1.177	-0.824	14.1	-9.9	
Pier 3	G1	101409	1409	-0.05	-0.001	-0.051	0.062	-0.069	0.018	-0.018	0.765	-0.51	0.998	-0.699	12.0	-8.4	
Pier 3	G2	103409	3409	-0.061	-0.003	-0.064	0.041	-0.045	0.018	-0.018	0.763	-0.509	0.975	-0.674	11.7	-8.1	
Pier 3	G3	105409	5409	-0.073	-0.004	-0.077	0.033	-0.037	0.017	-0.017	0.761	-0.507	0.963	-0.662	11.6	-7.9	
Pier 3	G4	107409	7409	-0.083	-0.004	-0.087	0.039	-0.043	0.018	-0.018	0.758	-0.506	0.967	-0.668	11.6	-8.0	
Pier 3	G5	109409	9409	-0.094	-0.005	-0.099	0.146	-0.161	0.018	-0.018	0.756	-0.504	1.071	-0.784	12.9	-9.4	
Pier 4	G1	101429	1429	-0.287	-0.028	-0.315	0.063	-0.07	0.018	-0.018	0.547	-0.365	0.737	-0.526	8.8	-6.3	
Pier 4	G2	103429	3429	-0.28	-0.027	-0.307	0.038	-0.042	0.017	-0.017	0.546	-0.364	0.710	-0.496	8.5	-5.9	
Pier 4	G3	105429	5429	-0.273	-0.027	-0.3	0.03	-0.033	0.017	-0.017	0.544	-0.363	0.700	-0.486	8.4	-5.8	
Pier 4	G4	107429	7429	-0.265	-0.026	-0.291	0.037	-0.041	0.017	-0.017	0.542	-0.361	0.704	-0.491	8.5	-5.9	
Pier 4	G5	109429	9429	-0.258	-0.025	-0.283	0.137	-0.151	0.018	-0.018	0.54	-0.36	0.803	-0.601	9.6	-7.2	
Pier 5	G1	101449	1449	-0.043	-0.008	-0.051	0.069	-0.074	0.02	-0.02	0.335	-0.223	0.491	-0.362	5.9	-4.3	
Pier 5	G2	103449	3449	-0.045	-0.008	-0.053	0.044	-0.048	0.019	-0.019	0.334	-0.223	0.464	-0.335	5.6	-4.0	
Pier 5	G3	105449	5449	-0.046	-0.008	-0.054	0.037	-0.04	0.018	-0.018	0.334	-0.222	0.456	-0.324	5.5	-3.9	
Pier 5	G4	107449	7449	-0.048	-0.008	-0.056	0.044	-0.048	0.019	-0.019	0.333	-0.222	0.463	-0.333	5.6	-4.0	
Pier 5	G5	109449	9449	-0.049	-0.008	-0.057	0.164	-0.179	0.02	-0.02	0.333	-0.222	0.584	-0.465	7.0	-5.6	
Pier 6	G1	608810	1489	-0.042	-0.013	-0.045	0.045	-0.045	0.045	-0.045	0.072	-0.048	0.144	-0.147	1.7	-1.4	
Pier 6	G2	608812	3489	-0.025	-0.028	-0.028	0.045	-0.045	0.045	-0.045	0.072	-0.048	0.128	-0.102	1.5	-1.2	
Pier 6	G3	608814	5489	-0.021	-0.023	-0.023	0.045	-0.045	0.045	-0.045	0.073	-0.049	0.124	-0.097	1.5	-1.2	
Pier 6	G4	608816	7489	-0.025	-0.027	-0.027	0.045	-0.045	0.045	-0.045	0.073	-0.049	0.120	-0.102	1.5	-1.2	
Pier 6	G5	608818	9489	-0.099	-0.104	-0.104	0.045	-0.045	0.045	-0.045	0.074	-0.049	0.204	-0.179	2.4	-2.1	
Pier 7	G1	708810	1489	-0.041	-0.039	-0.039	0.045	-0.045	0.045	-0.045	0.047	-0.071	0.143	-0.140	1.4	-1.7	
Pier 7	G2	708812	3489	-0.025	-0.025	-0.025	0.045	-0.045	0.045	-0.045	0.045	-0.07	0.097	-0.125	1.2	-1.5	
Pier 7	G3	708814	5489	-0.022	-0.02	-0.02	0.045	-0.045	0.045	-0.045	0.045	-0.069	0.092	-0.143	1.4	-1.4	
Pier 7	G4	708816	7489	-0.025	-0.023	-0.023	0.045	-0.045	0.045	-0.045	0.045	-0.068	0.095	-0.121	1.4	-1.4	
Pier 7	G5	708818	9489	-0.098	-0.093	-0.093	0.045	-0.045	0.045	-0.045	0.045	-0.067	0.108	-0.169	2.0	-2.3	
Pier 8	G1	101509	1509	0.029	0.007	0.036	0.06	-0.057	0.019	-0.019	0.21	-0.316	0.331	-0.455	4.0	-5.5	
Pier 8	G2	103509	3509	0.03	0.008	0.038	0.04	-0.036	0.019	-0.019	0.209	-0.313	0.310	-0.431	3.7	-5.2	
Pier 8	G3	105509	5509	0.032	0.009	0.041	0.033	-0.028	0.018	-0.018	0.207	-0.311	0.299	-0.419	3.6	-5.0	
Pier 8	G4	107509	7509	0.033	0.009	0.042	0.036	-0.031	0.019	-0.019	0.205	-0.308	0.301	-0.420	3.6	-5.0	
Pier 8	G5	109509	9509	0.034	0.01	0.044	0.138	-0.117	0.019	-0.019	0.204	-0.306	0.402	-0.503	4.8	-6.0	
Pier 9	G1	101529	1529	0.111	0.02	0.131	0.049	-0.046	0.018	-0.018	0.341	-0.511	0.476	-0.677	5.7	-8.1	
Pier 9	G2	103529	3529	0.112	0.021	0.133	0.028	-0.026	0.017	-0.017	0.336	-0.504	0.448	-0.648	5.4	-7.8	
Pier 9	G3	105529	5529	0.113	0.021	0.134	0.023	-0.021	0.017	-0.017	0.33	-0.495	0.436	-0.632	5.2	-7.6	
Pier 9	G4	107529	7529	0.116	0.021	0.137	0.027	-0.024	0.017	-0.017	0.325	-0.487	0.434	-0.625	5.2	-7.5	
Pier 9	G5	109529	9529	0.116	0.021	0.137	0.097	-0.087	0.018	-0.018	0.32	-0.48	0.499	-0.681	6.0	-8.2	
Pier 10	G1	101549	1549	-0.064	-0.005	-0.069	0.055	-0.051	0.018	-0.018	0.481	-0.721	0.650	-0.934	7.8	-11.2	
Pier 10	G2	103549	3549	-0.065	-0.005	-0.07	0.034	-0.032	0.018	-0.018	0.472	-0.708	0.618	-0.900	7.4	-10.8	
Pier 10	G3	105549	5549	-0.066	-0.005	-0.071	0.027	-0.026	0.017	-0.017	0.463	-0.694	0.600	-0.876	7.2	-10.5	
Pier 10	G4	107549	7549	-0.069	-0.005	-0.074	0.029	-0.028	0.018	-0.018	0.454	-0.68	0.592	-0.862	7.1	-10.3	
Pier 10	G5	109549	9549	-0.075	-0.005	-0.08	0.109	-0.104	0.018	-0.018	0.445	-0.668	0.661	-0.924	7.9	-11.1	
Pier 11	G1	101313	1313	0.061	0.018	0.079	0.02	-0.014	0.018	-0.018	0.597	-0.895	0.754	-1.106	9.1	-13.3	
Pier 11	G2	103316	3316	0.06	0.019	0.079	0.016	-0.012	0.018	-0.018	0.587	-0.88	0.738	-1.086	8.9	-13.0	
Pier 11	G3	105313	5313	0.058	0.019	0.077	0.014	-0.01	0.017	-0.017	0.577	-0.866	0.723	-1.066	8.7	-12.8	
Pier 11	G4	107311	7311	0.057	0.019	0.076	0.013	-0.01	0.017	-0.017	0.568	-0.851	0.712	-1.048	8.5	-12.6	
Pier 11	G5	109312	9312	0.057	0.018	0.075	0.057	-0.044	0.018	-0.018	0.558	-0.837	0.745	-1.066	8.9	-12.8	



The HNTB Companies
Engineers Architects Planners

Made	SJL	Date	3/14/2011	Job Number	49633
Checked	CPS	Date	3/16/2011		
Backchk'd	SJL	Date	3/31/2011	Sheet No.	
Revised	DJG	Date	6/21/2012		
Checked	SJL	Date	6/21/2012		
Backchk'd	DJG	Date	6/21/2012		

For **Cleveland Innerbelt, Unit 2**

Longitudinal Movement

<u>PIER</u>	<u>Service I</u>		<u>Total Mov. (in)</u>	<u>Add offset Diff (in)</u>
	<u>Max (in)</u>	<u>Min (in)</u>		
Pier 2	14.126	-9.893	24.019	
Pier 3	12.854	-9.406	22.260	23.689
Pier 4	9.636	-7.212	16.848	18.244
Pier 5	7.003	-5.585	12.588	12.767
Pier 6	2.446	-2.146	4.591	
Pier 7	2.016	-2.273	4.289	
Pier 8	4.822	-6.038	10.860	10.981
Pier 9	5.988	-8.172	14.160	14.172
Pier 10	7.932	-11.210	19.142	19.519
Pier 11	9.053	-13.272	22.325	

Longitudinal Movement of Bearings for HLMR Bearings Piers 3-10

Due to the revised erection analysis the movement of the expansion bearings was re-evaluated based on differing dead load displacements. These differing displacements are the most pronounced at the Bent 3 end of the bridge since the new casting sequence starts near Span 10 and predominately is poured East to West towards Pier 3. Since the displacements are different, the initial placement of the sole plate in relationship to the centerline of the bearing is also different. However, since this offset value has been used by the steel detailer to calculate plate lengths for the drop in sections of the girders and cannot be revised, this change in displacement must be absorbed in the bearing's range of total movement. The new bearing offset value was calculated and algebraically summed with the plan value of the bearing offset to find the amount of additional movement that needs to be accommodated by the bearings. This value was then added to the total movement of Dead Load (from the new erection sequence), Live Load, and Temperature. The resulting total bearing movement is less than the value stated on the plans in every location except Piers 3 and 4. At these two locations the total bearing movement is approximately 1" greater than what was stated on the plans. Per R.J. Watson Shop Drawings of the bearings at Piers 3 and 4 the total longitudinal dimension that can be accommodated by the bearings is 25" and 20" respectively which is over 2" greater than the design movements as stated in the design plans. Say ok to keeping the offset dimensions and the longitudinal displacement as is on the plans.

NOTES:

GENERAL

- MARK CENTERLINES ON BEARING MASONRY PLATE AND SOLE & PLATE EDGES. THESE IDENTIFICATION MARKS WILL BE USED TO MEASURE OFFSETS IN THE FIELD. USE INDELIBLE INK TO PLACE THESE MARKS.
- THIS SHOP DRAWING WAS PREPARED IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- MARK ALL SOLE PLATES ON A SIDE THAT IS VISIBLE AFTER INSTALLATION WITH THE FOLLOWING INFORMATION:
 -R.J. WATSON, INC.
 -BEARING LOCATION
 -SERIAL NO. 11-2687A-(BRG NO.)
 -DATE OF MANUFACTURE

MATERIALS

- ALL STEEL FOR BEARINGS SHALL BE ASTM A709 GR. 50. NO SUPPLEMENTARY REQUIREMENTS OF ASTM A709 GR. 50 ARE SPECIFIED FOR BEARING PLATES. THEREFORE, ASTM A572 GR. 50 IS AN ACCEPTABLE EQUIVALENT.
- THE POLYTRON DISC SHALL BE SUPPLIED IN ACCORDANCE WITH AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS SECTION 18.8.2. THE TOP AND BOTTOM SURFACES OF THE POLYTRON DISC SHALL BE ROUGHENED.
- ALL STAINLESS STEEL SHALL BE 12 GAUGE AND HAVE A NO.8 BRIGHT MIRROR FINISH.
- ALL SHEET PTFE SHALL BE IN ACCORDANCE WITH AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS SECTION 18.3.2.8, AND ETCHED ON ONE SIDE FOR BONDING. APPLY A UNIFORM LAYER OF CHEMGrip ADHESIVE FOR EFFECTIVE BONDING.

COATINGS

- ALL MILL SCALE SHALL BE REMOVED FROM STEEL PLATES VIA ABRASIVE BLASTING IN ACCORDANCE WITH SSPC-SP10. THE PLATE SURFACES ABOVE AND BELOW THE POLYTRON DISC SHALL BE ABRASIVE BLASTED TO A NEAR WHITE CONDITION AS DEFINED IN SSPC-SP10. THE BLAST PROFILE SHALL BE JAGGED RATHER THAN "PEENED".
- PAINT ALL EXPOSED STEEL SURFACES WITH AN IZOL PAINT SYSTEM IN ACCORDANCE WITH CMS514. THE TOP COAT COLOR SHALL BE FEDERAL STANDARD NUMBER [PROVIDED BY ENGINEER].

THE FOLLOWING SHALL NOT BE COATED:

- ALL PTFE, POLYETHER URETHANE, AND STAINLESS STEEL SURFACES
- SRM AND SRM HOLE

THE FOLLOWING SURFACES SHALL RECEIVE A PRIMER COAT ONLY:

- BOTTOM OF MASONRY PLATE
- TOP OF SOLE PLATE IN WAY OF GIRDER FLANGE

- CONNECTION BOLTS, ANCHOR RODS, COUPLERS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.
- HARDENED WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

WELDING

- ALL STEEL FABRICATION SHALL CONFORM TO THE CONTRACT SPECIFICATIONS AND APPLICABLE SECTIONS OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES. ALL WELDING SHALL BE PERFORMED BY WELDERS/WELDING OPERATORS QUALIFIED TO PROCESS AND POSITION IN ACCORDANCE WITH AWS D1.5.
- WELDING TO BEARING PLATES AFTER ASSEMBLY IS PERMITTED PROVIDED WELDING PROCEDURES RESTRICT THE MAXIMUM TEMPERATURE IN THE AREAS OF THE POLYTRON DISC AND PTFE TO NO MORE THAN 225°F AS DETERMINED BY USE OF TEMPERATURE INDICATING WAX PENCILS. PROTECTIVE MATERIAL SHALL BE PLACED OVER THE BEARING ASSEMBLY TO PROTECT AGAINST SPARKS AND FLASH. AFTER WELDING IS COMPLETE, EXPOSED STEEL IS TO BE COATED IN ACCORDANCE WITH THE SPECIFIED COATING SYSTEM.

SHIPPING AND HANDLING

- COMPLETED BEARINGS SHALL BE INDIVIDUALLY Banded IN THE UPRIGHT POSITION.
- BEARING ASSEMBLIES SHALL BE HANDLED BY THEIR BOTTOM SURFACES ONLY, AND SHALL NOT BE LIFTED BY THEIR TOPS, SIDES AND/OR SHIPPING BANDS.
- BEARINGS SHALL BE STORED IN A CLEAN, DRY AND UPRIGHT POSITION.
- AT NO TIME PRIOR TO THE COMPLETION OF THE PROJECT MAY ANY BEARING BE DISASSEMBLED WITHOUT AUTHORIZATION FROM R.J. WATSON, INC.

TESTING

- BEARINGS SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, SECTION 18.3.4.

INSTALLATION

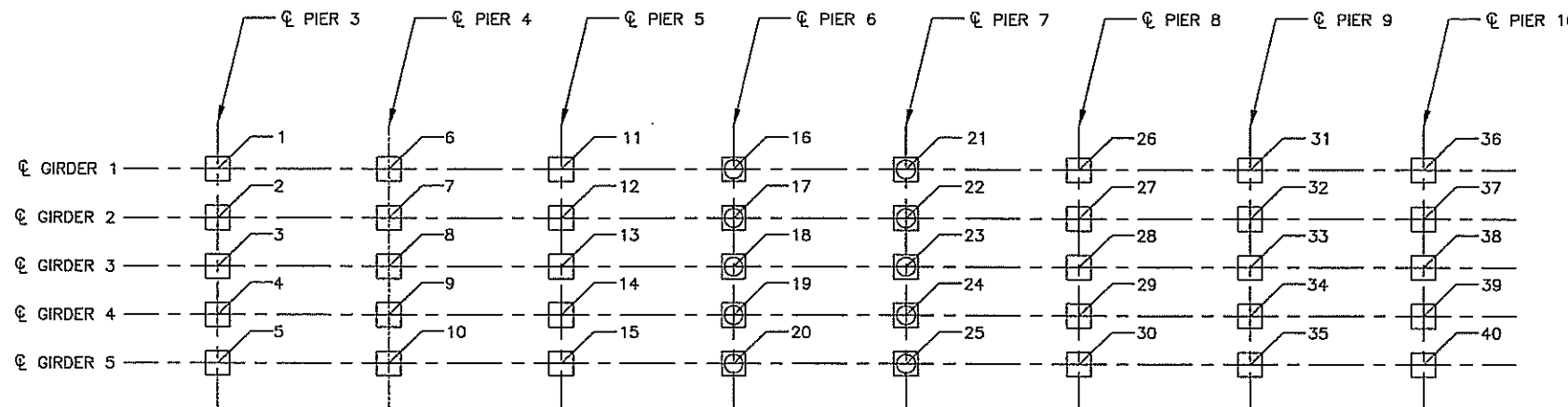
- CONTRACTOR SHALL ADJUST BEARING SEAT ELEVATIONS TO ACCOMMODATE FINAL BEARING HEIGHT.
- CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT STAINLESS STEEL AND PTFE SURFACES FROM DAMAGE AND/OR DEBRIS INTRUSION DURING THE INSTALLATION OF BEARINGS AND ANCHORAGE.
- BEARINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE TOLERANCES PROVIDED IN THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS SECTION 18.1.7.

DRAWING INDEX

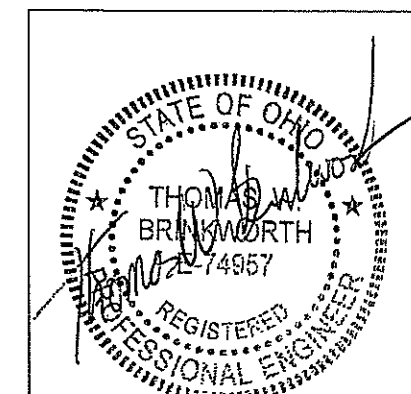
SHEET NO	DESCRIPTION
1	NOTES & BEARING LOCATIONS
2	BEARING INSTALLATION
3	BEARING INSTALLATION CONTINUED
4	DB2950U ASSEMBLY
5	DB2750U ASSEMBLY
6	DB2650F ASSEMBLY
7	DB3150U ASSEMBLY
8	DB4150U ASSEMBLY
9	MASONRY PLATE ASSEMBLY DETAILS 1
10	MASONRY PLATE ASSEMBLY DETAILS 2
11	MASONRY PLATE ASSEMBLY DETAILS 3
12	SRM & UPPER BEARING PLATE DETAILS
13	UPPER BEARING PLATE DETAILS CONTINUED
14	DB2950U BEVELED SOLE PLATE ASSEMBLY
15	DB2750U BEVELED SOLE PLATE ASSEMBLY 1
16	DB2750U BEVELED SOLE PLATE ASSEMBLY 2
17	DB2650F BEVELED SOLE PLATE ASSEMBLY
18	DB3150U BEVELED SOLE PLATE ASSEMBLY 1
19	DB3150U BEVELED SOLE PLATE ASSEMBLY 2
20	DB4150U BEVELED SOLE PLATE ASSEMBLY

BEARING LOCATIONS TABLE

BEARING NUMBER	MODEL NUMBER	BEARING TYPE	BEARING LOCATION	GIRDER	BEARING NUMBER	MODEL NUMBER	BEARING TYPE	BEARING LOCATION	GIRDER	BEARING NUMBER	MODEL NUMBER	BEARING TYPE	BEARING LOCATION	GIRDER
1	DB2950U	EXPANSION	PIER 3	1	15	DB2750U	EXPANSION	PIER 5	5	29	DB3150U	EXPANSION	PIER 8	4
2	DB2950U	EXPANSION	PIER 3	2	16	DB2650F	FIXED	PIER 6	1	30	DB3150U	EXPANSION	PIER 8	5
3	DB2950U	EXPANSION	PIER 3	3	17	DB2650F	FIXED	PIER 6	2	31	DB3150U	EXPANSION	PIER 9	1
4	DB2950U	EXPANSION	PIER 3	4	18	DB2650F	FIXED	PIER 6	3	32	DB3150U	EXPANSION	PIER 9	2
5	DB2950U	EXPANSION	PIER 3	5	19	DB2650F	FIXED	PIER 6	4	33	DB3150U	EXPANSION	PIER 9	3
6	DB2750U	EXPANSION	PIER 4	1	20	DB2650F	FIXED	PIER 6	5	34	DB3150U	EXPANSION	PIER 9	4
7	DB2750U	EXPANSION	PIER 4	2	21	DB2650F	FIXED	PIER 7	1	35	DB3150U	EXPANSION	PIER 9	5
8	DB2750U	EXPANSION	PIER 4	3	22	DB2650F	FIXED	PIER 7	2	36	DB4150U	EXPANSION	PIER 10	1
9	DB2750U	EXPANSION	PIER 4	4	23	DB2650F	FIXED	PIER 7	3	37	DB4150U	EXPANSION	PIER 10	2
10	DB2750U	EXPANSION	PIER 4	5	24	DB2650F	FIXED	PIER 7	4	38	DB4150U	EXPANSION	PIER 10	3
11	DB2750U	EXPANSION	PIER 5	1	25	DB2650F	FIXED	PIER 7	5	39	DB4150U	EXPANSION	PIER 10	4
12	DB2750U	EXPANSION	PIER 5	2	26	DB3150U	EXPANSION	PIER 8	1	40	DB4150U	EXPANSION	PIER 10	5
13	DB2750U	EXPANSION	PIER 5	3	27	DB3150U	EXPANSION	PIER 8	2					
14	DB2750U	EXPANSION	PIER 5	4	28	DB3150U	EXPANSION	PIER 8	3					



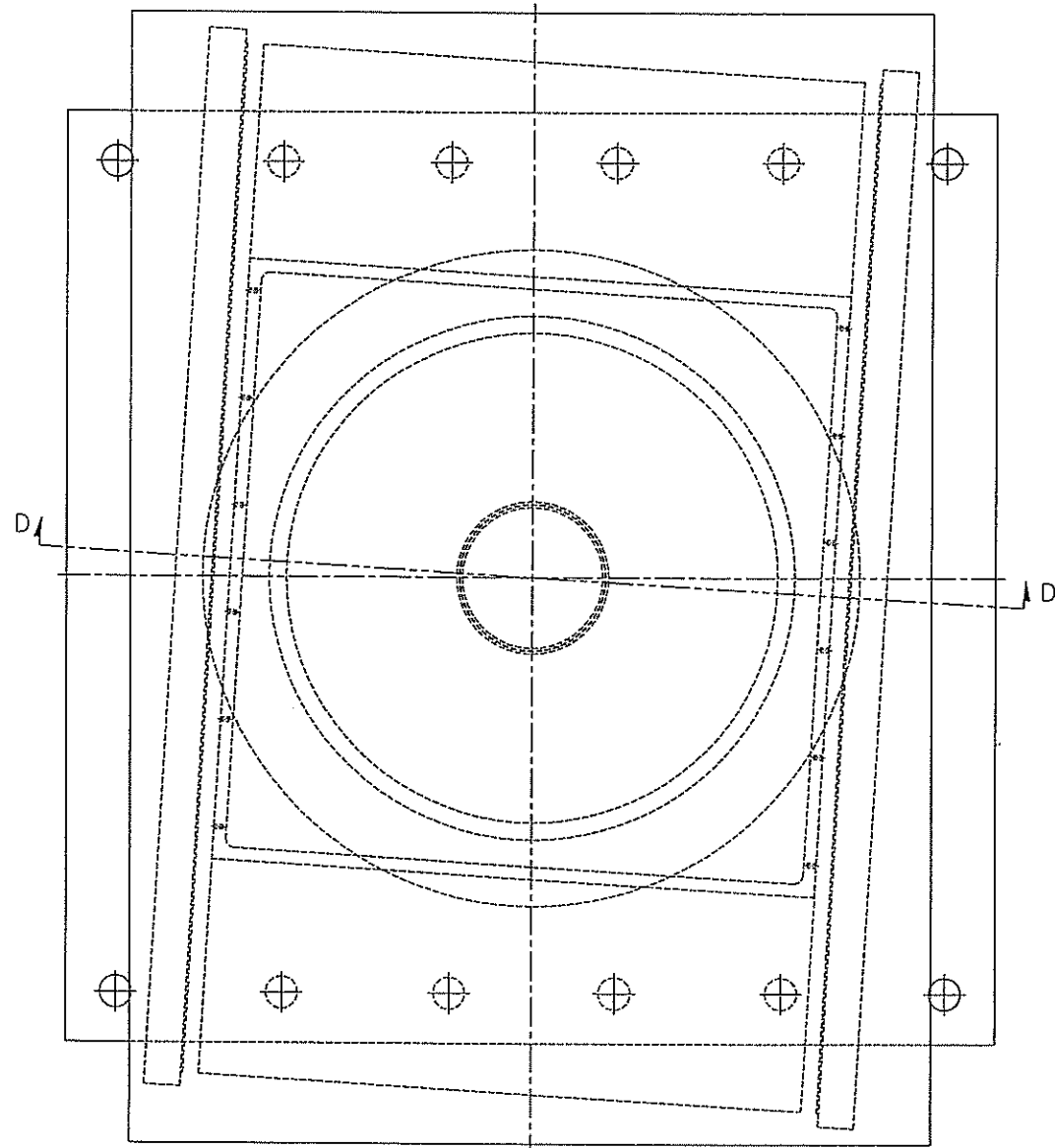
PLAN MAIN SPAN - UNIT 2
NOT TO SCALE



LEGEND ## DENOTES QUANTITY CLOUDED NOTES ARE TO BE PERMANENTLY MARKED IN POSITIONS SHOWN ON DETAILS TYP=TYPICAL TPI=THREADS PER INCH THDS=THREADS DENOTES THICK END	TOLERANCING: AS PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS TABLE 18.1.4.2-1 UNLESS NOTED OTHERWISE	PROJECT INFORMATION: MAIN SPAN - UNIT 2 INNERBELT BRIDGE I-90 WB, BRIDGE NO. CUY-90-1566 CLEVELAND, OHIO CUY-90-14.90 PID NO. 77332/85531	R. J. WATSON, INC. 78 JOHN GLENN DRIVE AMHERST, NEW YORK 14228															
	SCALE: AS NOTED DO NOT SCALE DRAWING <table border="1"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DTL'D</th> <th>CHK'D</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REVISION		DATE	DTL'D	CHK'D												
REVISION	DATE	DTL'D	CHK'D															
ALL DIMENSIONS IN INCHES			DTL'D BY: JSM DATE: 7-13-11 CHK'D BY: JCC DATE: 7-22-11 BEARING TYPE: DISKTRON	RJW PO No. 2687A SHEET: 1 OF 20														

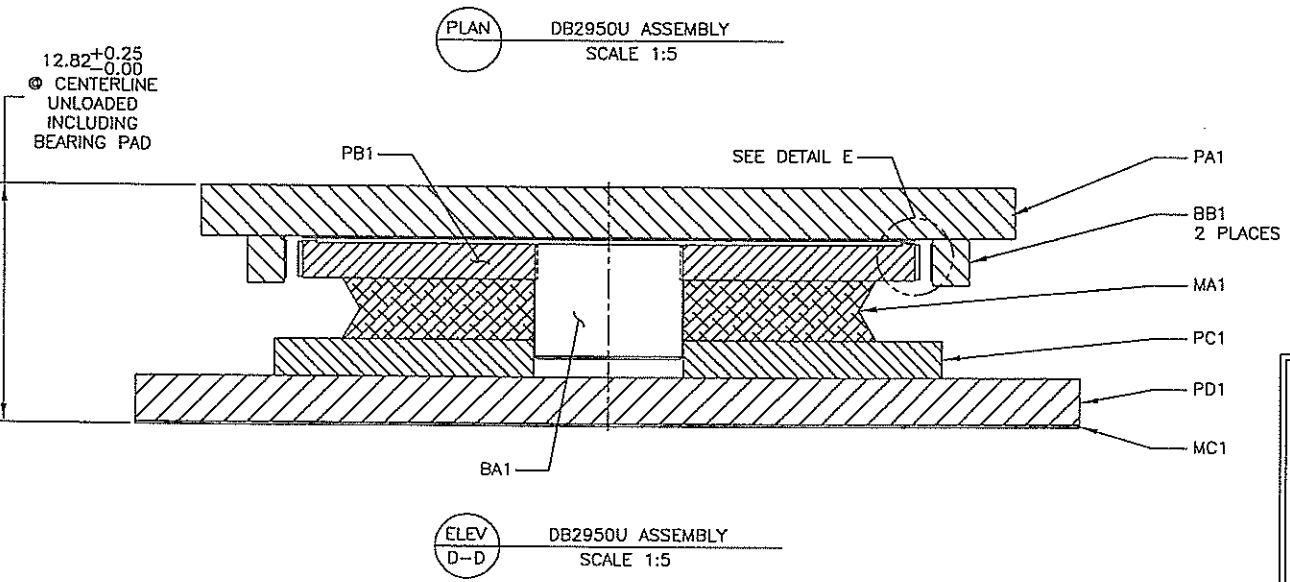
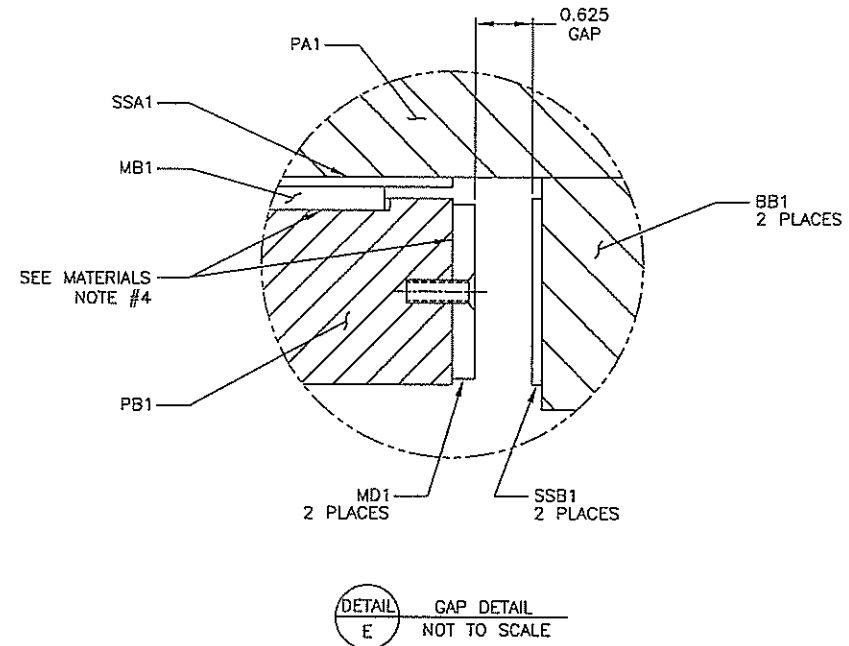
DB2950U CAPACITY TABLE

BEARING NO.	1 - 5
VERTICAL SERVICE LOAD (KIPS)	2950
VERTICAL STRENGTH LOAD (KIPS)	4250
HORIZONTAL SERVICE LOAD (KIPS)	295
HORIZONTAL STRENGTH LOAD (KIPS)	443
HORIZONTAL EXTREME EVENT LOAD (KIPS)	494
TOTAL LONGITUDINAL DISPLACEMENT (IN)	25.00
TOTAL TRANSVERSE DISPLACEMENT (IN)	1.25
SERVICE ROTATION (RAD)	±0.021
STRENGTH ROTATION (RAD)	±0.03
APPROXIMATE DEAD LOAD DEFLECTION (IN)	0.26
APPROXIMATE BEARING WEIGHT (LBS)	5300

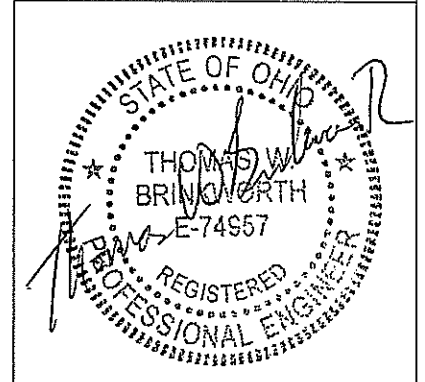


DB2950U		5	LOCATION: UNIT 2 PIER 3			PIECE	COATING	MATERIAL	REMARKS
MARK	QTY UNIT	QTY TOTAL	DESCRIPTION (IN)						
			DIM1	DIM2	DIM3				
PA1	1	5	62.000	44.000	3.000	BEVELED SOLE PLATE	PAINT	ASTM A709 GR 50	**SEE DETAILS FOR BEVEL AND GAGE BAR ORIENTATION
PB1	1	5	33.000	33.000	2.000	UPPER BEARING PLATE	PAINT	ASTM A709 GR 50	
PC1	1	5	51.000	51.000	2.500	MASONRY PLATE	PAINT	ASTM A709 GR 50	
PD1	1	5	36.000	Ø	2.000	LOWER BEARING PLATE	PAINT	ASTM A709 GR 50	
SSA1	1	5	56.500	33.000	12 GA	TOP STAINLESS STEEL	NONE	ASTM A240 TYPE 304	
SSB1	2	10	56.500	2.000	12 GA	SIDE STAINLESS STEEL	NONE	ASTM A240 TYPE 304	
BA1	1	5	8.000	Ø	6.125	SRM	NONE	AISI 4000 SERIES	Fymin = 75 ksi
BB1	2	10	58.000	2.000	2.500	GUIDE BAR	PAINT	ASTM A709 GR 50	
MA1	1	5	28.750	Ø	3.250	POLYTRON DISC	NONE	POLYETHER URETHANE	ID = 8.125
MB1	1	5	31.500	31.500	0.250	TOP PTFE	NONE	ASTM D4894/D4895	UNFILLED SHEET, DIMPLED LUBRICATED
MC1	1	5	51.000	51.000	0.125	BEARING PAD	NONE	CMS 711.21	
MD1	2	10	31.500	1.875	0.250	SIDE PTFE	NONE	ASTM D4894/D4895	15% GLASS FILLED SHEET
MK1	12	60	1.500	Ø	4.500	BOTTOM CONNECTION BOLT	GALVANIZE	ASTM A325	
ML1	12	60	1.500	Ø	23.000	ANCHOR ROD	GALVANIZE	ASTM A325 OR A449	FULLY THREADED
MM1	12	60	1.500	Ø	4.500	THREADED COUPLER	GALVANIZE	ASTM A563 GR DH OR EQUIV	
MN1	12	60	1.500	Ø	-	HARDENED WASHER	GALVANIZE	ASTM F436	
MP1	24	120	1.500	Ø	-	HEAVY HEX NUT	GALVANIZE	ASTM A563	

NOTE: ALL DIMENSIONS IN BILL OF MATERIALS REFLECT THE DIMENSIONS OF RAW MATERIALS TO BE ORDERED. SEE DETAIL SHEETS FOR FINAL DIMENSIONS OF FABRICATED INDIVIDUAL PARTS.



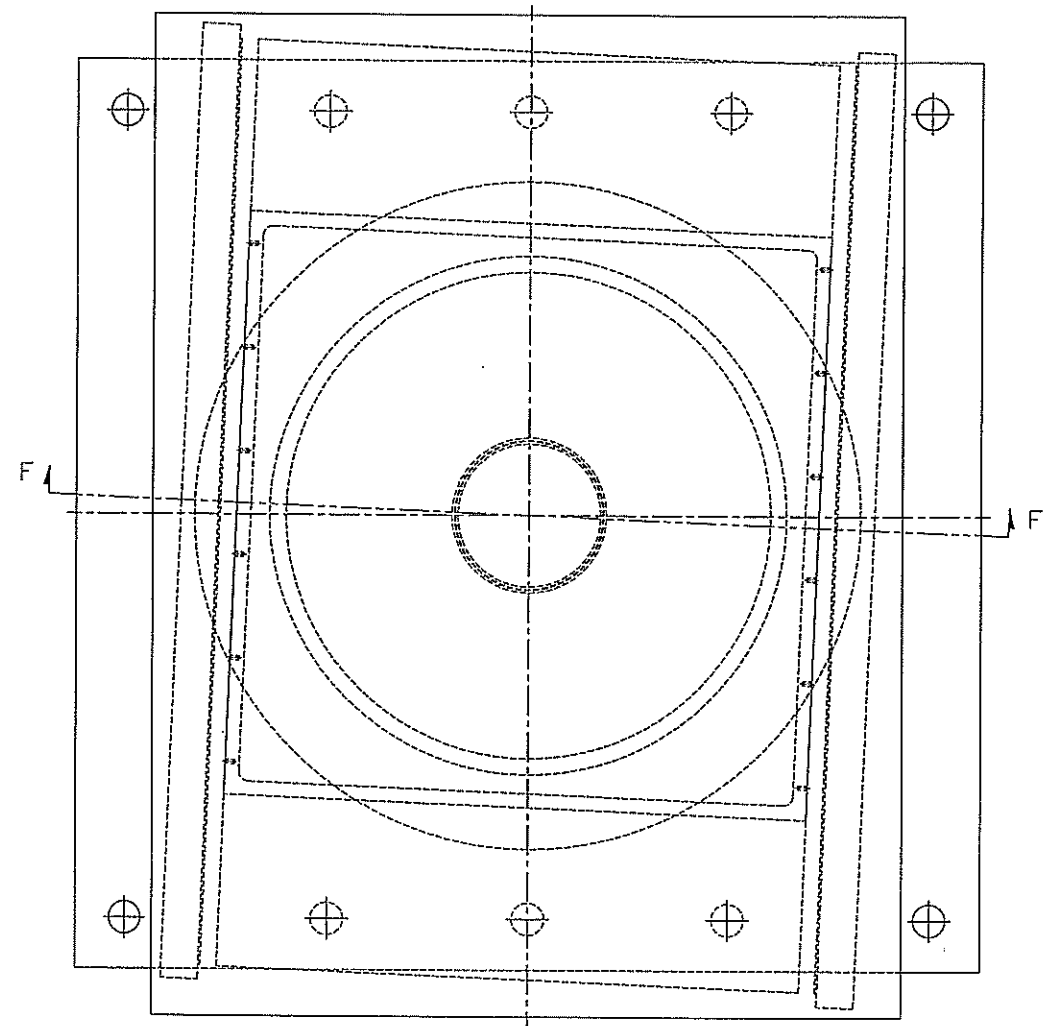
ALL DIMENSIONS IN INCHES



LEGEND ## DENOTES QUANTITY CLOUDED NOTES ARE TO BE PERMANENTLY MARKED IN POSITIONS SHOWN ON DETAILS TYP=TYPICAL TPI=THREADS PER INCH THDS=THREADS ⊗ DENOTES THICK END	TOLERANCING: AS PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS TABLE 16.1.4.2-1 UNLESS NOTED OTHERWISE	PROJECT INFORMATION: MAIN SPAN - UNIT 2 INNERBELT BRIDGE I-90 WB, BRIDGE NO. CUY-90-1566 CLEVELAND, OHIO CUY-90-14.90 PID NO. 77332/85531	R. J. WATSON, INC. 78 JOHN GLENN DRIVE AMHERST, NEW YORK 14228								
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REVISION	DATE	DIT'D	CHK'D								

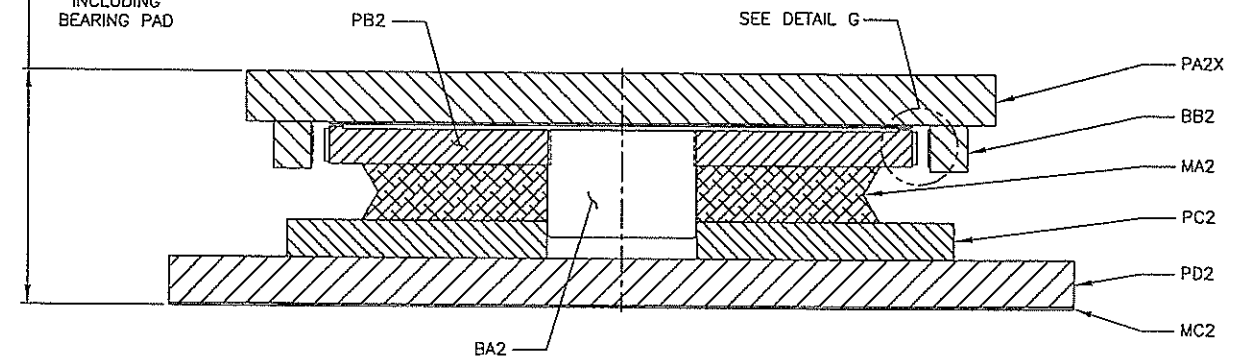
DB2750U CAPACITY TABLE

BEARING NO.	6 - 15
VERTICAL SERVICE LOAD (KIPS)	2750
VERTICAL STRENGTH LOAD (KIPS)	4000
HORIZONTAL SERVICE LOAD (KIPS)	275
HORIZONTAL STRENGTH LOAD (KIPS)	413
HORIZONTAL EXTREME EVENT LOAD (KIPS)	454
TOTAL LONGITUDINAL DISPLACEMENT (IN)	20.00
TOTAL TRANSVERSE DISPLACEMENT (IN)	1.25
SERVICE ROTATION (RAD)	±0.019
STRENGTH ROTATION (RAD)	±0.027
APPROXIMATE DEAD LOAD DEFLECTION (IN)	0.22
APPROXIMATE BEARING WEIGHT (LBS)	4625



PLAN DB2750U ASSEMBLY
SCALE 1:5

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UNLOADED
INCLUDING
BEARING PAD

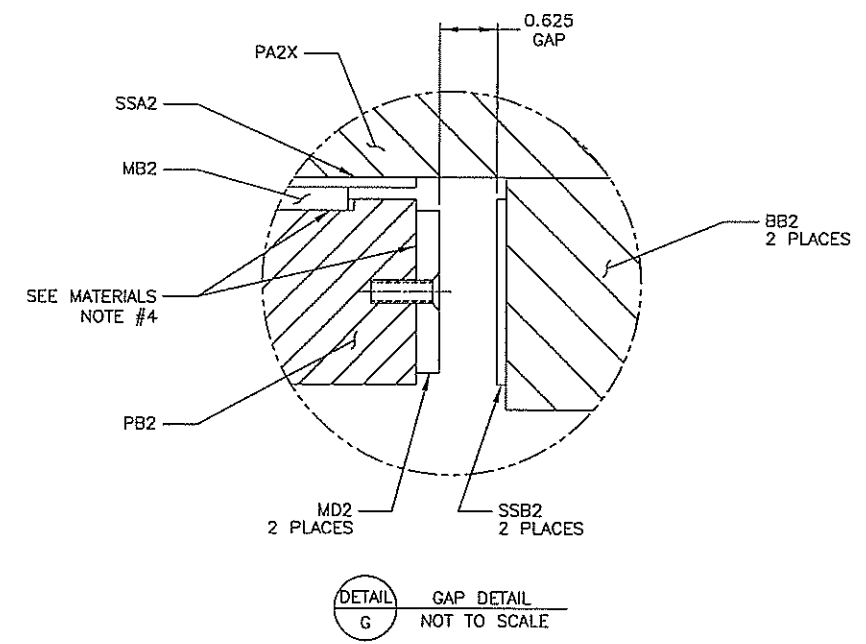


ELEV DB2750U ASSEMBLY
F-F SCALE 1:5

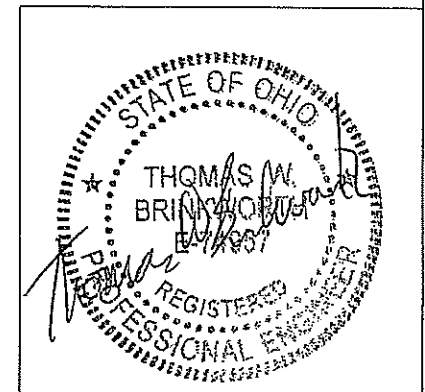
ALL DIMENSIONS IN INCHES

DB2750U		10		LOCATION: UNIT 2 PIERS 4 & 5		DESCRIPTION (IN)		PIECE	COATING	MATERIAL	REMARKS
MARK	QTY	UNIT	TOTAL	DIM1	DIM2	DIM3					
PA2X	1	10	10	54.000	40.500	3.000	BEVELED SOLE PLATE	PAINT	ASTM A709 GR 50		*SEE DETAILS FOR BEVEL AND GUIDE BAR ORIENTATION
PB2	1	10	10	31.500	31.500	2.000	UPPER BEARING PLATE	PAINT	ASTM A709 GR 50		
PC2	1	10	10	49.000	49.000	2.500	MASONRY PLATE	PAINT	ASTM A709 GR 50		
PD2	1	10	10	38.000	Ø	2.000	LOWER BEARING PLATE	PAINT	ASTM A709 GR 50		
SSA2	1	10	10	50.000	31.500	12 GA	TOP STAINLESS STEEL	NONE	ASTM A240 TYPE 304		
SSB2	2	20	20	50.000	2.000	12 GA	SIDE STAINLESS STEEL	NONE	ASTM A240 TYPE 304		
BA2	1	10	10	8.000	Ø	5.750	SRM	NONE	ANSI 4000 SERIES		Fymin = 75 ksi
BB2	2	20	20	51.500	2.000	2.500	GUIDE BAR	PAINT	ASTM A709 GR 50		
MA2	1	10	10	28.000	Ø	3.000	POLYTRON DISC	NONE	POLYETHER URETHANE		ID = 8.125
MB2	1	10	10	30.000	30.000	0.250	TOP PTFE	NONE	ASTM D4894/D4895		UNFILLED SHEET, DIAPLED LUBRICATED
MC2	1	10	10	49.000	49.000	0.125	BEARING PAD	NONE	CMS 711.21		
MD2	2	20	20	30.000	1.750	0.250	SIDE PTFE	NONE	ASTM D4894/D4895		15% GLASS FILLED SHEET
MK2	10	100	100	1.500	Ø	4.500	BOTTOM CONNECTION BOLT	GALVANIZE	ASTM A325		
ML2	10	100	100	1.500	Ø	23.000	ANCHOR ROD	GALVANIZE	ASTM A325 OR A449		FULLY THREADED
MM2	10	100	100	1.500	Ø	4.500	THREADED COUPLER	GALVANIZE	ASTM A563 GR DH OR EQUIV		
MN2	10	100	100	1.500	Ø	-	HARDENED WASHER	GALVANIZE	ASTM F436		
MP2	20	200	200	1.500	Ø	-	HEAVY HEX NUT	GALVANIZE	ASTM A563		

NOTE: ALL DIMENSIONS IN BILL OF MATERIALS REFLECT THE DIMENSIONS OF RAW MATERIALS TO BE ORDERED. SEE DETAIL SHEETS FOR FINAL DIMENSIONS OF FABRICATED INDIVIDUAL PARTS.



DETAIL G GAP DETAIL
NOT TO SCALE



LEGEND DENOTES QUANTITY CLOUDED NOTES ARE TO BE PERMANENTLY MARKED IN POSITIONS SHOWN ON DETAILS TYP=TYPICAL TP1=THREADS PER INCH THDS=THREADS DENOTES THICK END	TOLERANCING: AS PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS TABLE 18.1.4.2-1 UNLESS NOTED OTHERWISE	PROJECT INFORMATION: MAIN SPAN - UNIT 2 INNERBELT BRIDGE I-90 WB, BRIDGE NO. CUY-90-1566 CLEVELAND, OHIO CUY-90-14.90 PID NO. 77332/85531	 R. J. WATSON, INC. 78 JOHN GLENN DRIVE AMHERST, NEW YORK 14228								
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