

30-OCT-09  
18:17:30

GEORGIA DEPARTMENT OF TRANSPORTATION  
PRECONSTRUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN  
THE ANALYSIS AND DESIGN OF PIERS FOR BRIDGES - V 4.2.07 - AASHTO SPECS 1984 INTERIM  
REVISED: JUNE 30, 2008  
60' CURB-CURB; 9 BEAMS; 140' SPAN; 50' TALL; BRIDGE 19 ; PIER 13

PROB. NO. 0001

DESIGN NO.	NO. CAN	NO. COL	NO. LLC	SKEW D	ANG M	F'C S	FC PSI	N	FY PSI	FS PSI	DESIGN DATA		CONC.	Z	* * *	CAP	REINFORCING			STEEL	* * *	CAP				
OPTIONS											EC	ES	STRAIN	FACT	MAIN	STR	MAX	MAX	MIN	MIN	TOP	MIN	DEPTH	BOT		
D	D	D	L	2	3	23	19-17-28	3500.	1400.	8.	60000.	24000.	3409.	29000.	0.0030	170.	11	5	13	13	11	2	2.00	4.00	3.00	2.00

COLUMN	REINFORCING	STEEL	R	KL	OC	OF	CM	BD1	BD2	IMPACT	SOIL	WT	ALL.S.P.	MIN	MAX	EDGE	PILE	REBAR	ALL.PILE	ALL.PILE	I		
MIN.P	MAX.P	CL.SP.	CLEAR	MODE	COEF					%	KCF	KSF	KSF	PL	SP	PL	SP	DIST	DEPTH	CLEAR	CAPACITY	UPLIFT	P
1.00	8.00	2.50	3.750	2	2.00	0.70	0.90	0.00	1.00	0.75	18.87	0.120	0.000	3.00	9.00	1.250	1.000	3.000	235.000			-9.999	

CAP DATA

CN	C	L	A	DE	BC	BE	DH	LH	XB1	XB2	XB3	XB4	XB5	XB6	XB7	XB8
11	L	10.595	2.500	4.000	5.000	5.000	2.000	8.095	6.996	4.996						
12	C	23.758	2.500	6.000	5.000		0.000	0.000	2.000	6.064	7.530	6.164				
13	3	SAME AS CAP SECTION 2														
14	4	SAME AS CANTILEVER 1														

COLUMN DATA

CN	P	I	T	S	HT	A	DT	BT	DB	BB	DL	FLEX	ND	NB	SZ	ND	NB	SZ	ND	NB	SZ	SLOPE	EP	AP			
21	1	C	T		50.000	0.000	5.000	5.000	5.000	5.000	4.000	0.000	5	5	11	5	5	11	13	13	11	13	13	11	0.000	0.000	0.000
22	1	2	SAME AS COLUMN 1																								
23	1	3	SAME AS COLUMN 1																								

FOOTING DATA

CN	S/P	B	D	T	DEL.B	DEL.D	DEL.T	R.B/D	R.D/B	S.HT.	NP	SYM.	BP	DP	SET.
31	P	7.000	7.000	3.000	0.500	0.500	0.250	1.000	1.000	2.500	4	3	0.000	0.000	0.000
32	2	SAME AS FOOTING 1													
33	3	SAME AS FOOTING 1													

GROUP II WIND

WIND ON SUPERSTRUCTURE	INTENSITIES	* WIND FORCE	ARM	* WIND ON PIER													
TRANS.	LONG.	WIND	FT1	FT2	FL1	FT2	FL2	FT3	FL3	FT4	FL4	FT5	FL5	APT	APL	PT	PL
1365.	2730.	1	50	0	44	6	41	12	33	16	17	19	7.375	7.375	5.396	40.176	

GROUP III WIND

STD. * WIND ON SUPERSTRUCTURE	INTENSITIES	* STD. * WIND ON LIVE LOAD	INTENSITIES	* LENGTHS OF LL	* WIND ON LL	LL ARMS																			
WIND	FT1	FL1	FT2	FL2	FT3	FL3	FT4	FL4	FT5	FL5	TRANS.	LONGI.	APT	APL											
1	50	0	44	6	41	12	33	16	17	19	1	100	0	88	12	82	24	66	32	34	38	140.0	280.0	15.583	15.583

MISCELLANEOUS FORCES

CENTRI.	TRACTION	FORCE	AND	ARMS	EXPANSION	SHRINKAGE	STREAM	FLOW
FT	FL	APT	APL	COEFFICIENT	COEFFICIENT	PT	PL	
5.111	9.860	15.583	15.583	0.00018000	0.00044000	0.000	0.000	

DEAD LOAD SUPERSTRUCTURE AND LIVE LOAD CASES

I.D.	NL	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
D.L.	0	257.670 294.319	0.000 0.000	294.319 257.670	0.000	294.319	294.319	0.000	294.319	0.000	294.319	294.319	0.000
LL 1	1	74.999 0.000	0.000 0.000	62.412 0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL 2	2	74.999 0.000	0.000 0.000	100.946 0.000	0.000	79.407	19.470	0.000	0.000	0.000	0.000	0.000	0.000
LL 3	3	74.999 0.000	0.000 0.000	100.946 0.000	0.000	89.974	98.877	0.000	47.437	0.000	0.000	0.000	0.000
LL 4	4	74.999 0.000	0.000 0.000	100.946 0.000	0.000	89.974	98.877	0.000	98.742	0.000	79.407	6.699	0.000
LL 5	5	74.999 34.667	0.000 0.000	100.946 0.000	0.000	89.974	98.877	0.000	98.742	0.000	102.744	86.107	0.000
LL 6	1	0.000 62.412	0.000 0.000	0.000 74.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL 7	2	0.000 100.946	0.000 0.000	0.000 74.999	0.000	0.000	0.000	0.000	0.000	0.000	19.470	79.407	0.000
LL 8	3	0.000 100.946	0.000 0.000	0.000 74.999	0.000	0.000	0.000	0.000	47.437	0.000	98.877	89.974	0.000
LL 9	4	0.000 100.946	0.000 0.000	0.000 74.999	0.000	6.699	79.407	0.000	98.742	0.000	98.877	89.974	0.000
LL10	5	0.000 100.946	0.000 0.000	34.667 74.999	0.000	86.107	102.744	0.000	98.742	0.000	98.877	89.974	0.000
LL11	1	0.000 0.000	0.000 0.000	0.000 0.000	0.000	0.000	29.002	0.000	79.407	0.000	29.002	0.000	0.000

PIER-60-9-140-50.OUT

I.D.	NL	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
LL12	2	0.000 0.000	0.000 0.000	0.000 0.000	0.000	56.969	108.409	0.000	80.442	0.000	29.002	0.000	0.000
LL13	3	0.000 0.000	0.000 0.000	0.000 0.000	0.000	56.969	108.409	0.000	81.476	0.000	108.409	56.969	0.000
LL14	4	16.231 0.000	0.000 0.000	79.407 0.000	0.000	98.742	108.409	0.000	81.476	0.000	108.409	56.969	0.000
LL15	5	16.231 79.407	0.000 0.000	79.407 16.231	0.000	98.742	108.409	0.000	81.476	0.000	108.409	98.742	0.000
LL16	2	0.000 0.000	0.000 0.000	0.000 0.000	0.000	8.632	79.407	0.000	98.742	0.000	79.407	8.632	0.000
LL17	3	0.000 0.000	0.000 0.000	36.600 0.000	0.000	88.040	100.811	0.000	98.742	0.000	79.407	8.632	0.000
LL18	4	0.000 36.600	0.000 0.000	36.600 0.000	0.000	88.040	100.811	0.000	98.742	0.000	100.811	88.040	0.000
LL19	5	71.132 36.600	0.000 0.000	102.880 0.000	0.000	88.040	100.811	0.000	98.742	0.000	100.811	88.040	0.000
LL20	2	74.999 62.412	0.000 0.000	62.412 74.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL21	3	74.999 62.412	0.000 0.000	100.946 74.999	0.000	79.407	19.470	0.000	0.000	0.000	0.000	0.000	0.000
LL22	4	74.999 100.946	0.000 0.000	100.946 74.999	0.000	79.407	19.470	0.000	0.000	0.000	19.470	79.407	0.000
LL23	5	74.999 100.946	0.000 0.000	100.946 74.999	0.000	89.974	98.877	0.000	47.437	0.000	19.470	79.407	0.000

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COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS)

LOAD	COL	TRANSVERSE							* LONGITUDINAL				
		PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF	
UNIT F.AT CL.CAP	1	0.505	7.456	0.317	8.407	0.505	0.000	-7.456	1.333	0.333	16.667	16.667	
	2	0.000	9.064	0.365	9.211	0.000	-4.532	-4.532	1.333	0.333	16.667	16.667	
	3	-0.505	7.456	0.317	8.407	-0.505	-7.456	0.000	1.333	0.333	16.667	16.667	
EXPANSION OF CAP	1	12.995	205.816	8.799	234.114	12.995	0.000	-205.816	0.000	0.000	0.000	0.000	
	2	-25.989	0.000	0.000	0.000	-25.989	-102.908	102.908	0.000	0.000	0.000	0.000	
	3	12.995	-205.816	-8.799	-234.114	12.995	205.816	0.000	0.000	0.000	0.000	0.000	
SHRINKAGE OF CAP	1	-31.764	-503.106	-21.508	-572.278	-31.764	0.000	503.106	0.000	0.000	0.000	0.000	
	2	63.529	0.000	0.000	0.000	63.529	251.553	-251.553	0.000	0.000	0.000	0.000	
	3	-31.764	503.106	21.508	572.278	-31.764	-503.106	0.000	0.000	0.000	0.000	0.000	
DEAD LOAD TOTAL	1	953.837 1126.337	-47.019	-1.411	-23.509	1126.337	2007.288	-1960.269	0.000	0.000	0.000	0.000	
	2	964.933 1137.433	0.000	0.000	0.000	1137.433	1693.500	-1693.500	0.000	0.000	0.000	0.000	
	3	953.837 1126.337	47.019	1.411	23.509	1126.337	1960.269	-2007.288	0.000	0.000	0.000	0.000	
TRAC. FORCE 1 LN	1	2.712	24.286	1.033	27.385	2.712	0.000	-24.286	-60.749	-3.102	-203.447	-203.447	
	2	0.000	29.524	1.191	30.004	0.000	-14.762	-14.762	-60.749	-3.102	-203.447	-203.447	
	3	-2.712	24.286	1.033	27.385	-2.712	-24.286	0.000	-60.749	-3.102	-203.447	-203.447	
CENT. FORCE 1 LN	1	4.016	35.966	1.530	40.556	4.016	0.000	-35.966	11.022	0.563	36.913	36.913	
	2	0.000	43.723	1.763	44.434	0.000	-21.862	-21.862	11.022	0.563	36.913	36.913	
	3	-4.016	35.966	1.530	40.556	-4.016	-35.966	0.000	11.022	0.563	36.913	36.913	
WIND ON SUBSTR.	1	2.723	40.231	1.712	45.364	2.723	0.000	-40.231	-53.568	-13.392	-669.600	-669.600	
	2	0.000	48.907	1.972	49.703	0.000	-24.454	-24.454	-53.568	-13.392	-669.600	-669.600	
	3	-2.723	40.231	1.712	45.364	-2.723	-40.231	0.000	-53.568	-13.392	-669.600	-669.600	
GROUP 2 WIND 1 1	1	45.224	520.508	22.149	586.927	45.224	0.000	-520.508	31.925	-5.876	-238.377	-238.377	
	2	0.000	632.767	25.516	643.057	0.000	-316.384	-316.384	31.925	-5.876	-238.377	-238.377	
	3	-45.224	520.508	22.149	586.927	-45.224	-520.508	0.000	31.925	-5.876	-238.377	-238.377	
GROUP 2 WIND 1 2	1	45.224	520.508	22.149	586.927	45.224	0.000	-520.508	139.061	20.908	1100.823	1100.823	
	2	0.000	632.767	25.516	643.057	0.000	-316.384	-316.384	139.061	20.908	1100.823	1100.823	
	3	-45.224	520.508	22.149	586.927	-45.224	-520.508	0.000	139.061	20.908	1100.823	1100.823	
GROUP 2 WIND 2 1	1	43.694	503.221	21.413	567.434	43.694	0.000	-503.221	-36.954	-11.931	-585.802	-585.802	
	2	0.000	611.751	24.669	621.699	0.000	-305.876	-305.876	-36.954	-11.931	-585.802	-585.802	
	3	-43.694	503.221	21.413	567.434	-43.694	-503.221	0.000	-36.954	-11.931	-585.802	-585.802	
GROUP 2 WIND 2 2	1	36.554	422.529	17.980	476.446	36.554	0.000	-422.529	187.422	25.159	1344.755	1344.755	
	2	0.000	513.657	20.713	522.010	0.000	-256.828	-256.828	187.422	25.159	1344.755	1344.755	
	3	-36.554	422.529	17.980	476.446	-36.554	-422.529	0.000	187.422	25.159	1344.755	1344.755	
GROUP 2 WIND 3 1	1	44.714	514.750	21.904	580.434	44.714	0.000	-514.750	-100.704	-17.536	-907.354	-907.354	
	2	0.000	625.767	25.234	635.943	0.000	-312.883	-312.883	-100.704	-17.536	-907.354	-907.354	
	3	-44.714	514.750	21.904	580.434	-44.714	-514.750	0.000	-100.704	-17.536	-907.354	-907.354	

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COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS)

LOAD	COL	TRANSVERSE							* LONGITUDINAL				
		PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF	
GROUP 2 WIND 3 2	1	30.433	353.367	15.036	398.458	30.433	0.000	-353.367	240.913	29.862	1614.560	1614.560	
	2	0.000	429.578	17.323	436.564	0.000	-214.789	-214.789	240.913	29.862	1614.560	1614.560	
	3	-30.433	353.367	15.036	398.458	-30.433	-353.367	0.000	240.913	29.862	1614.560	1614.560	
GROUP 2 WIND 4 1	1	40.294	464.802	19.778	524.113	40.294	0.000	-464.802	-153.463	-22.174	-1173.468	-1173.468	
	2	0.000	565.047	22.786	574.236	0.000	-282.524	-282.524	-153.463	-22.174	-1173.468	-1173.468	

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	3	-40.294	464.802	19.778	524.113	-40.294	-464.802	0.000	-153.463	-22.174	-1173.468	-1173.468
GROUP 2 WIND 4 2	1	21.253	249.625	10.622	281.479	21.253	0.000	-249.625	266.314	32.095	1742.683	1742.683
	2	0.000	303.462	12.237	308.397	0.000	-151.731	-151.731	266.314	32.095	1742.683	1742.683
	3	-21.253	249.625	10.622	281.479	-21.253	-249.625	0.000	266.314	32.095	1742.683	1742.683
GROUP 2 WIND 5 1	1	28.479	331.287	14.097	373.560	28.479	0.000	-331.286	-210.131	-27.156	-1459.299	-1459.299
	2	0.000	402.736	16.240	409.285	0.000	-201.368	-201.368	-210.131	-27.156	-1459.299	-1459.299
	3	-28.479	331.287	14.097	373.560	-28.479	-331.286	0.000	-210.131	-27.156	-1459.299	-1459.299
GROUP 2 WIND 5 2	1	5.867	75.764	3.224	85.431	5.867	0.000	-75.764	268.267	32.267	1752.530	1752.530
	2	0.000	92.104	3.714	93.601	0.000	-46.052	-46.052	268.267	32.267	1752.530	1752.530
	3	-5.867	75.764	3.224	85.431	-5.867	-75.764	0.000	268.267	32.267	1752.530	1752.530
GROUP 3 WIND 1 1	1	24.568	254.671	10.837	287.168	24.568	0.000	-254.671	39.769	-0.221	29.597	29.597
	2	0.000	309.596	12.485	314.631	0.000	-154.798	-154.798	39.769	-0.221	29.597	29.597
	3	-24.568	254.671	10.837	287.168	-24.568	-254.671	0.000	39.769	-0.221	29.597	29.597
GROUP 3 WIND 1 2	1	24.568	254.671	10.837	287.168	24.568	0.000	-254.671	71.910	7.814	431.357	431.357
	2	0.000	309.596	12.485	314.631	0.000	-154.798	-154.798	71.910	7.814	431.357	431.357
	3	-24.568	254.671	10.837	287.168	-24.568	-254.671	0.000	71.910	7.814	431.357	431.357
GROUP 3 WIND 2 1	1	23.713	245.939	10.465	277.321	23.713	0.000	-245.938	-5.219	-3.280	-156.092	-156.092
	2	0.000	298.981	12.056	303.842	0.000	-149.490	-149.490	-5.219	-3.280	-156.092	-156.092
	3	-23.713	245.939	10.465	277.321	-23.713	-245.938	0.000	-5.219	-3.280	-156.092	-156.092
GROUP 3 WIND 2 2	1	19.723	205.179	8.731	231.361	19.723	0.000	-205.179	103.497	9.962	561.732	561.732
	2	0.000	249.430	10.058	253.486	0.000	-124.715	-124.715	103.497	9.962	561.732	561.732
	3	-19.723	205.179	8.731	231.361	-19.723	-205.179	0.000	103.497	9.962	561.732	561.732
GROUP 3 WIND 3 1	1	24.283	251.762	10.713	283.888	24.283	0.000	-251.762	-46.857	-6.111	-327.953	-327.953
	2	0.000	306.060	12.342	311.037	0.000	-153.030	-153.030	-46.857	-6.111	-327.953	-327.953
	3	-24.283	251.762	10.713	283.888	-24.283	-251.762	0.000	-46.857	-6.111	-327.953	-327.953
GROUP 3 WIND 3 2	1	16.302	170.243	7.244	191.967	16.302	0.000	-170.243	138.434	12.337	705.936	705.936
	2	0.000	206.960	8.346	210.325	0.000	-103.480	-103.480	138.434	12.337	705.936	705.936
	3	-16.302	170.243	7.244	191.967	-16.302	-170.243	0.000	138.434	12.337	705.936	705.936
GROUP 3 WIND 4 1	1	21.813	226.532	9.639	255.439	21.813	0.000	-226.532	-81.317	-8.454	-470.184	-470.184
	2	0.000	275.389	11.105	279.867	0.000	-137.695	-137.695	-81.317	-8.454	-470.184	-470.184
	3	-21.813	226.532	9.639	255.439	-21.813	-226.532	0.000	-81.317	-8.454	-470.184	-470.184
GROUP 3 WIND 4 2	1	11.172	117.840	5.014	132.877	11.172	0.000	-117.840	155.025	13.465	774.414	774.414
	2	0.000	143.255	5.777	145.585	0.000	-71.628	-71.628	155.025	13.465	774.414	774.414
	3	-11.172	117.840	5.014	132.877	-11.172	-117.840	0.000	155.025	13.465	774.414	774.414

□ COLUMN MOMENTS (KIP-FEET), SHEARS (KIPS), REACTIONS (KIPS)

		TRANSVERSE * LONGITUDINAL										
LOAD	COL	PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF
GROUP 3 WIND 5 1	1	15.210	159.090	6.770	179.390	15.210	0.000	-159.090	-118.329	-10.970	-622.953	-622.953
	2	0.000	193.401	7.799	196.546	0.000	-96.700	-96.700	-118.329	-10.970	-622.953	-622.953
	3	-15.210	159.090	6.770	179.390	-15.210	-159.090	0.000	-118.329	-10.970	-622.953	-622.953
GROUP 3 WIND 5 2	1	2.574	30.018	1.277	33.848	2.574	0.000	-30.018	156.300	13.552	779.678	779.678
	2	0.000	36.492	1.472	37.085	0.000	-18.246	-18.246	156.300	13.552	779.678	779.678
	3	-2.574	30.018	1.277	33.848	-2.574	-30.018	0.000	156.300	13.552	779.678	779.678
LIVE LOAD LL 1	1	160.814	-101.085	-2.733	-35.567	160.814	524.693	-423.608	0.000	0.000	0.000	0.000
	2	-25.983	59.059	2.071	44.505	-25.983	-132.412	73.354	0.000	0.000	0.000	0.000
	3	2.579	12.076	0.662	21.013	2.579	-12.076	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 2	1	253.199	-26.707	-0.663	-6.439	253.199	524.693	-497.986	0.000	0.000	0.000	0.000
	2	25.017	-5.581	-0.029	4.124	25.017	67.753	-62.172	0.000	0.000	0.000	0.000
	3	-3.394	18.459	0.692	16.144	-3.394	-18.459	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 3	1	252.603	25.037	0.805	15.218	252.603	472.224	-497.261	0.000	0.000	0.000	0.000
	2	127.875	-60.524	-1.762	-27.562	127.875	255.373	-194.849	0.000	0.000	0.000	0.000
	3	-9.468	30.087	0.957	17.743	-9.468	-30.087	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 4	1	205.317	9.738	0.390	9.787	205.317	393.520	-403.258	0.000	0.000	0.000	0.000
	2	195.982	-6.056	-0.083	1.890	195.982	324.866	-318.810	0.000	0.000	0.000	0.000
	3	10.934	-13.518	-0.307	-1.841	10.934	13.518	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 5	1	200.598	4.418	0.354	13.280	200.598	393.520	-397.937	0.000	0.000	0.000	0.000
	2	236.604	44.428	1.554	33.285	236.604	431.657	-476.085	0.000	0.000	0.000	0.000
	3	78.089	-70.987	-1.908	-24.423	78.089	70.987	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 6	1	2.579	-12.076	-0.662	-21.013	2.579	0.000	12.076	0.000	0.000	0.000	0.000
	2	-25.983	59.059	-2.071	-44.505	-25.983	-73.354	132.412	0.000	0.000	0.000	0.000
	3	160.814	101.085	2.733	35.567	160.814	423.608	-524.693	0.000	0.000	0.000	0.000
LIVE LOAD LL 7	1	-3.394	-18.459	-0.692	-16.144	-3.394	0.000	18.459	0.000	0.000	0.000	0.000
	2	25.017	5.581	0.029	4.124	25.017	62.172	-67.753	0.000	0.000	0.000	0.000
	3	253.199	26.707	0.663	6.439	253.199	497.986	-524.693	0.000	0.000	0.000	0.000
LIVE LOAD LL 8	1	-9.468	-30.087	-0.957	-17.743	-9.468	0.000	30.087	0.000	0.000	0.000	0.000
	2	127.875	60.524	1.762	27.562	127.875	194.849	-255.373	0.000	0.000	0.000	0.000
	3	252.603	-25.037	-0.805	-15.218	252.603	497.261	-472.224	0.000	0.000	0.000	0.000
LIVE LOAD LL 9	1	10.934	13.518	0.307	1.841	10.934	0.000	-13.518	0.000	0.000	0.000	0.000
	2	195.982	6.056	0.083	-1.890	195.982	318.810	-324.866	0.000	0.000	0.000	0.000
	3	205.317	-9.738	-0.390	-9.787	205.317	403.258	-393.520	0.000	0.000	0.000	0.000
LIVE LOAD LL10	1	78.089	70.987	1.908	24.423	78.089	0.000	-70.987	0.000	0.000	0.000	0.000
	2	236.604	-44.428	-1.554	-33.285	236.604	476.085	-431.657	0.000	0.000	0.000	0.000
	3	200.598	-4.418	-0.354	-13.280	200.598	397.937	-393.520	0.000	0.000	0.000	0.000
LIVE LOAD LL11	1	5.276	11.518	0.346	5.759	5.276	0.000	-11.518	0.000	0.000	0.000	0.000
	2	126.860	0.000	0.000	0.000	126.860	122.949	-122.949	0.000	0.000	0.000	0.000
	3	5.276	-11.518	-0.346	-5.759	5.276	11.518	0.000	0.000	0.000	0.000	0.000

□ COLUMN MOMENTS (KIP-FEET), SHEARS (KIPS), REACTIONS (KIPS)

TRANSVERSE \* LONGITUDINAL

LOAD	COL	PIER-60-9-140-50.OUT										
		PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF
LIVE LOAD LL12	1	61.207	102.897	2.923	43.244	61.207	0.000	-102.897	0.000	0.000	0.000	0.000
	2	218.018	-91.580	-2.911	-53.995	218.018	427.865	-336.285	0.000	0.000	0.000	0.000
	3	-4.403	5.092	-0.011	-5.658	-4.403	-5.092	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL13	1	46.375	77.659	2.330	38.829	46.375	0.000	-77.659	0.000	0.000	0.000	0.000
	2	278.258	0.000	0.000	0.000	278.258	577.080	-577.080	0.000	0.000	0.000	0.000
	3	46.375	-77.659	-2.330	-38.829	46.375	77.659	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL14	1	133.389	73.191	2.186	36.130	133.389	85.164	-158.355	0.000	0.000	0.000	0.000
	2	241.502	-10.611	-0.328	-5.771	241.502	519.447	-508.836	0.000	0.000	0.000	0.000
	3	37.341	-61.649	-1.859	-31.290	37.341	61.649	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL15	1	132.084	70.125	2.104	35.062	132.084	85.164	-155.289	0.000	0.000	0.000	0.000
	2	251.122	0.000	0.000	0.000	251.122	547.382	-547.382	0.000	0.000	0.000	0.000
	3	132.084	-70.125	-2.104	-35.062	132.084	155.289	-85.164	0.000	0.000	0.000	0.000
LIVE LOAD LL16	1	19.264	38.086	1.143	19.043	19.264	0.000	-38.086	0.000	0.000	0.000	0.000
	2	236.291	0.000	0.000	0.000	236.291	364.152	-364.152	0.000	0.000	0.000	0.000
	3	19.264	-38.086	-1.143	-19.043	19.264	38.086	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL17	1	99.204	102.230	2.921	43.796	99.204	0.000	-102.230	0.000	0.000	0.000	0.000
	2	259.986	-59.379	-1.928	-37.008	259.986	512.178	-452.799	0.000	0.000	0.000	0.000
	3	11.819	-28.213	-0.993	-21.426	11.819	28.213	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL18	1	78.071	80.138	2.404	40.069	78.071	0.000	-80.138	0.000	0.000	0.000	0.000
	2	256.092	0.000	0.000	0.000	256.092	531.034	-531.034	0.000	0.000	0.000	0.000
	3	78.071	-80.138	-2.404	-40.069	78.071	80.138	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL19	1	197.777	8.233	0.460	14.769	197.777	373.230	-381.462	0.000	0.000	0.000	0.000
	2	237.610	42.010	1.473	31.657	237.610	436.845	-478.855	0.000	0.000	0.000	0.000
	3	79.905	-71.548	-1.933	-25.121	79.905	71.548	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL20	1	163.394	-113.162	-3.395	-56.581	163.394	524.693	-411.531	0.000	0.000	0.000	0.000
	2	-51.965	0.000	0.000	0.000	-51.965	-205.766	205.766	0.000	0.000	0.000	0.000
	3	163.394	113.162	3.395	56.581	163.394	411.531	-524.693	0.000	0.000	0.000	0.000
LIVE LOAD LL21	1	230.200	-34.905	-1.192	-24.707	230.200	472.224	-437.319	0.000	0.000	0.000	0.000
	2	-0.869	-58.176	-1.890	-36.342	-0.869	-5.040	63.216	0.000	0.000	0.000	0.000
	3	141.679	107.590	3.083	46.540	141.679	364.634	-472.224	0.000	0.000	0.000	0.000
LIVE LOAD LL22	1	187.354	-33.875	-1.016	-16.937	187.354	393.520	-359.645	0.000	0.000	0.000	0.000
	2	37.525	0.000	0.000	0.000	37.525	97.444	-97.444	0.000	0.000	0.000	0.000
	3	187.354	33.875	1.016	16.937	187.354	359.645	-393.520	0.000	0.000	0.000	0.000
LIVE LOAD LL23	1	207.957	7.020	0.152	0.574	207.957	393.520	-400.540	0.000	0.000	0.000	0.000
	2	125.325	-46.251	-1.446	-26.062	125.325	259.440	-213.189	0.000	0.000	0.000	0.000
	3	182.009	45.103	1.294	19.615	182.009	348.416	-393.520	0.000	0.000	0.000	0.000

CAP ANALYSIS AND DESIGN DATA

CAP MOMENTS AND SHEARS

POINT	MOMENTS (KIP- FEET)								SHEARS (KIPS)							
	D.L. TOT.	G1 MAX.+	G1 MAX.-	G2 MAX.+	G2 MAX.-	G3 MAX.+	G3 MAX.-	DL T.LT	DL T.RT	G1 + LT	G1 + RT	G1 - LT	G1 - RT			
P 1	-27.130	-27.130	-27.130	-27.130	-27.130	-27.130	-27.130	-15.596	-350.567	-15.596	-350.567	-15.596	-513.390			
P 2	-1843.056	-1843.056	-2656.519	-1843.056	-1843.056	-1843.056	-2330.160	-377.359	-377.359	-377.359	-377.359	-540.182	-540.182			
C 1L	-2609.475	-2609.475	-3748.583	-2609.475	-2609.475	-2609.475	-3291.576	-389.059		-389.059		-551.882				
C 1R	-2548.350	-2483.030	-3754.144	-1871.690	-3225.011	-2092.919	-3737.347		468.314		681.479		447.760			
P 4	-1623.421	-1551.364	-2484.894	-1038.347	-2208.495	-1191.642	-2512.571	456.614	456.614	669.779	669.779	436.060	436.060			
P 5	1037.930	1976.070	506.762	1345.313	730.548	1788.808	546.608	421.140	38.525	634.305	101.262	400.585	5.072			
P 6	1162.176	2084.788	906.967	1199.618	1124.735	1738.527	986.320	-5.525	-388.140	57.212	-325.403	-38.979	-614.295			
P 7	-1341.453	-963.369	-2149.392	-1021.741	-1661.164	-911.068	-2021.952	-424.199	-424.199	-361.462	-361.462	-650.355	-650.355			
C 2L	-2201.551	-1697.993	-3454.392	-1790.252	-2612.849	-1637.596	-3204.808	-435.899		-373.162		-662.055				
C 2R	-2201.551	-1754.833	-3531.126	-1790.252	-2612.849	-1694.436	-3292.925		435.899		666.894		379.491			
P 9	-1341.452	-1007.552	-2209.039	-1021.740	-1661.164	-955.250	-2101.240	424.199	424.199	655.194	655.194	367.791	367.791			
P10	1162.176	1949.715	899.982	1199.618	1124.734	1656.792	979.335	388.140	5.525	619.134	48.472	331.731	-50.883			
P11	1037.930	1880.581	528.001	1345.313	730.547	1778.643	563.577	-38.525	-421.140	4.421	-392.042	-94.934	-625.762			
P12	-1623.421	-1399.386	-2441.456	-1038.348	-2208.495	-1039.814	-2431.716	-456.615	-456.615	-427.516	-427.516	-661.236	-661.236			
C 3L	-2548.350	-2356.789	-3629.477	-1871.690	-3225.011	-1966.678	-3611.106	-468.315		-439.216		-672.936				
C 3R	-2609.475	-2609.475	-3748.583	-2609.475	-2609.475	-2609.475	-3291.576		389.059		551.882		389.059			
P14	-1843.056	-1843.056	-2656.519	-1843.056	-1843.056	-1843.056	-2330.160	377.359	377.359	540.182	540.182	377.359	377.359			
P15	-27.130	-27.130	-27.130	-27.130	-27.130	-27.130	-27.130	350.567	15.596	513.390	15.596	350.567	15.596			

CAP DESIGN DATA

PT.	M+ UNF. K-FT.	M- UNF. K-FT.	TOP REINFORCE.				BOT. REINFORCE.				LEFT STIRRUPS				RIGHT STIRRUPS				D IN.	FC PSI	PS %	FS/FF RATIO	FS/FZ RATIO
			AS	NO.	SIZE		AS	NO.	SIZE		M.SP.	AV/IN	BAR&SPAC	M.SP.	AV/IN	BAR&SPAC							
P 1	-20.869	-20.869	3.12	2	# 11	3.12	2	# 11	0.00	0.000	#5@ 0.00	24.00	0.064	#5@ 9.75	58.67			0.10	0.000	0.077			
P 2	-1417.736	-1792.431	8.79	6	# 11	3.12	2	# 11	24.00	0.050	#5@12.40	24.00	0.050	#5@12.40	72.00			0.22	0.528	1.263			
C 1	-1930.182	-2554.639	12.52	9	# 11	3.12	2	# 11	24.00	0.050	#5@12.40	24.00	0.076	#5@ 8.13	72.00			0.33	0.563	1.060			
P 4	-1215.595	-1670.548	8.30	6	# 11	3.12	2	# 11	24.00	0.073	#5@ 8.50	24.00	0.073	#5@ 8.50	72.00			0.20	0.585	1.177			
P 5	1230.531	547.188	3.12	2	# 11	7.58	5	# 11	24.00	0.063	#5@ 9.87	0.00	0.000	#5@ 0.00	72.00			0.18	0.846	1.100			

PIER-60-9-140-50.OUT

PT.	M+ UNF. K-FT.	M- UNF. K-FT.	TOP REINFORCE.		BOT. REINFORCE.		CAP DESIGN DATA				D IN.	FC PSI	PS %	FS/FF RATIO	FS/FZ RATIO	
			AS	NO. SIZE	AS	NO. SIZE	LEFT STIRRUPS		RIGHT STIRRUPS							
							M.SP.	AV/IN	BAR&SPAC	M.SP.	AV/IN	BAR&SPAC				
P 6	1320.549	776.428	3.12	2 # 11	7.58	5 # 11	0.00	0.000	#5@ 0.00	24.00	0.057	#5@10.86	72.00	0.18	0.744	1.181
P 7	-844.099	-1404.038	7.58	5 # 11	3.12	2 # 11	24.00	0.067	#5@ 9.20	24.00	0.067	#5@ 9.20	72.00	0.18	0.790	1.255
C 2	-1444.012	-2329.607	11.76	8 # 11	3.12	2 # 11	24.00	0.071	#5@ 8.77	24.00	0.072	#5@ 8.60	72.00	0.31	0.818	1.127
P 9	-878.086	-1452.980	7.58	5 # 11	3.12	2 # 11	24.00	0.069	#5@ 9.02	24.00	0.069	#5@ 9.02	72.00	0.18	0.824	1.299
P10	1256.736	771.055	3.12	2 # 11	7.58	5 # 11	24.00	0.058	#5@10.60	0.00	0.000	#5@ 0.00	72.00	0.18	0.662	1.124
P11	1211.128	563.526	3.12	2 # 11	7.58	5 # 11	0.00	0.000	#5@ 0.00	24.00	0.060	#5@10.27	72.00	0.18	0.807	1.083
P12	-1098.804	-1625.586	8.06	6 # 11	3.12	2 # 11	24.00	0.070	#5@ 8.80	24.00	0.070	#5@ 8.80	72.00	0.20	0.645	1.145
C 3	-1833.073	-2531.981	12.50	9 # 11	3.12	2 # 11	24.00	0.074	#5@ 8.40	24.00	0.050	#5@12.40	72.00	0.33	0.612	1.051
P14	-1417.736	-1792.431	8.79	6 # 11	3.12	2 # 11	24.00	0.050	#5@12.40	24.00	0.050	#5@12.40	72.00	0.22	0.528	1.263
P15	-20.869	-20.869	3.12	2 # 11	3.12	2 # 11	24.00	0.064	#5@ 9.75	0.00	0.000	#5@ 0.00	58.67	0.10	0.000	0.077

NOTE: \*\*\* FS/FZ RATIO EXCEEDS 1.0! \*\*\*

COLUMN ANALYSIS AND DESIGN OUTPUT

CRITICAL COLUMN LOADS

CN	T B	GR	LLC	WC	R	E S	C F	S F	PF	MTF	MLF	PM	MTM	MLM	PU	MTU	MLU	PU/PM	B	D
1	B	3	LL23	4.2			C		1755.5	207.1	2178.5	1755.5	970.6	3238.1	3202.0	1769.9	5904.5	1.824	60.00	60.00
2	T	1	LL13	0.0			C		1858.5	153.5	38.7	1858.5	1035.6	1529.4	5158.8	2877.7	4249.8	2.777	60.00	60.00
2	B	3	LL15	5.2			C		1805.1	118.6	2185.3	1805.1	1008.7	3296.8	3222.9	1800.4	5884.4	1.785	60.00	60.00
3	T	1	LL 7	0.0			C		1779.2	212.6	28.7	1779.2	987.0	1427.1	5214.7	2896.3	4187.7	2.933	60.00	60.00
3	B	3	LL10	5.2			C		1715.3	121.5	2185.3	1715.3	952.8	3210.2	3168.5	1755.3	5913.7	1.843	60.00	60.00

COLUMN DESIGN DATA

CN	T B	FACE 1 NO. SIZE	FACE 2 NO. SIZE	FACE 3 NO. SIZE	FACE 4 NO. SIZE	AS	PS	BD12	BD	SUMP	SUMP	DEL.T	DEL.L	CM	R	PHIC
1	B	7 # 11	7 # 11	5 # 11	5 # 11	37.44	1.040	1.00	0.000	4741.	49527.	1.106	1.486	1.000	2	0.70
2	T	7 # 11	7 # 11	5 # 11	5 # 11	37.44	1.040	1.00	0.000	4876.	47470.	1.114	1.646	1.000	2	0.70
2	B	7 # 11	7 # 11	5 # 11	5 # 11	37.44	1.040	1.00	0.000	4741.	45062.	1.118	1.509	1.000	2	0.70
3	T	7 # 11	7 # 11	5 # 11	5 # 11	37.44	1.040	1.00	0.246	4667.	47289.	1.110	1.604	1.000	2	0.70
3	B	7 # 11	7 # 11	5 # 11	5 # 11	37.44	1.040	1.00	0.328	4741.	47453.	1.111	1.469	1.000	2	0.70

FOOTING 1 DESIGN LOADS

F	G	LLID	WC	ES	C	S	P	MT	VT	ML	VL	P4	P3	P2	P1	MTF	VBF	VPF	LOAD
2	3	LL19	3.2		C		1337.323	291.070	11.732	1607.284	26.081	252.305	111.301	152.451	293.455	60.723	0.712	41.818	MAX.P1
2	3	LL19	3.2		C		1738.520	378.391	15.252	2089.469	33.905	327.996	144.691	198.186	381.491	78.940	0.925	54.364	MAX.MT
2	3	LL19	3.2		C		1738.520	378.391	15.252	2089.469	33.905	327.996	144.691	198.186	381.491	78.940	0.925	54.364	MAX.VT
2	3	LL15	4.2		C		1753.297	259.606	10.301	2178.490	35.371	342.445	151.324	187.960	379.080	77.135	0.888	54.818	MAX.VP
2	3	LL15	5.2		C		1753.297	118.557	4.704	2185.333	35.484	352.698	160.976	177.707	369.428	150.870	2.424	54.818	MAX.ML
2	3	LL15	5.2		C		1753.297	118.557	4.704	2185.333	35.484	352.698	160.976	177.707	369.428	150.870	2.424	54.818	MAX.VL
2	2		4.2				1137.433	308.397	12.237	1742.683	32.095	229.020	75.104	118.625	272.541	52.903	0.549	35.672	MAX.P3

FOOTING 1 ANALYSIS/DESIGN RESULTS

FOOTING SIZE				* BAR REINFORCEMENT STEEL *				SECTION CAPACITIES				*
B	D	T	P1/PA	AS	NO. SIZE	SPAC.	PLACEMENT	MT.	VB	VP	DS	FC
10.500	10.500	3.250	0.999	0.81	20 # 6	@ 6.250	TOP TRAN	81.126	26.811	53.622	22.215	0.000
				1.52	11 #11	@ 11.375	BOT. LONG	161.218	28.114	56.229	23.295	0.000

NUMBER OF PILES = 7 BP = 4.000 DP = 4.000

FOOTING 2 DESIGN SAME AS FOOTING 1

FOOTING 3 DESIGN SAME AS FOOTING 1