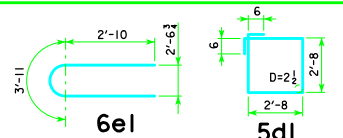


## BILL OF REINFORCING STEEL - ONE PIER

BRIDGE LENGTH		70'-0 BRIDGE			80'-0 BRIDGE			90'-0 BRIDGE			100'-0 BRIDGE			110'-0 BRIDGE			120'-0 BRIDGE			130'-0 BRIDGE			140'-0 BRIDGE			150'-0 BRIDGE		
MARK	SKEW	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT		
6cl	0°		10	23'-10	358	10	23'-10	358	10	23'-10	358	10	23'-10	358	10	23'-10	358	10	23'-10	358	10	23'-10	358	10	23'-10	358		
	15°		10	24'-8	370	10	24'-8	370	10	24'-8	370	10	24'-8	370	10	24'-8	370	10	24'-8	370	10	24'-8	370	10	24'-8	370		
	30°		10	27'-6	413	10	27'-6	413	10	27'-6	413	10	27'-6	413	10	27'-6	413	10	27'-6	413	10	27'-6	413	10	27'-6	413		
	45°		10	33'-9	507	10	33'-9	507	10	33'-9	507	10	33'-9	507	10	33'-9	507	10	33'-9	507	10	33'-9	507	10	33'-9	507		
5dl	0°		17	11'-8	207	20	11'-8	244	16	11'-8	195	16	11'-8	195	18	11'-8	219	20	11'-8	244	20	11'-8	244	20	11'-8	244		
	15°		17	11'-8	207	20	11'-8	244	16	11'-8	195	16	11'-8	195	18	11'-8	219	20	11'-8	244	20	11'-8	244	20	11'-8	244		
	30°		22	11'-8	268	20	11'-8	244	23	11'-8	280	23	11'-8	280	18	11'-8	219	20	11'-8	244	20	11'-8	244	20	11'-8	244		
	45°		27	11'-8	329	26	11'-8	317	23	11'-8	280	23	11'-8	280	26	11'-8	317	29	11'-8	353	29	11'-8	353	29	11'-8	353		
6el	ALL		6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86	6	9'-7	86		

### BENT BAR DETAILS



NOTE: DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER

### ESTIMATED QUANTITIES - ONE PIER

BRIDGE LENGTH	SKEW	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (CU. YDS.)	0°	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
	15°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
	30°	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	45°	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
REINFORCING STEEL (LBS.)	0°	651	688	639	639	663	688	688	688	688
	15°	663	700	651	651	675	700	700	700	700
	30°	767	743	779	779	718	743	743	743	743
	45°	922	910	873	873	910	946	946	946	946
④ PILING (NO.)	ALL	6	7	8	8	9	10	10	10	10

### TYPICAL NUMBERS OF PILES AND SPACINGS AND FACTORED PIER LOADS

BRIDGE LENGTH	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
① TYP. NO. OF PILES	6	7	8	8	9	10	10	10	10
TYP. PILE SPACES @ 0°	5 SPA. @ 4'-6	6 SPA. @ 3'-9	② 7 SPA. @ ABOUT 3'-3	② 7 SPA. @ ABOUT 3'-3	③ 8 SPA. @ ABOUT 2'-10	③ 9 SPA. @ 2'-6	③ 9 SPA. @ 2'-6	③ 9 SPA. @ 2'-6	③ 9 SPA. @ 2'-6
TYP. PILE SPACES @ 15°	5 SPA. @ ABOUT 4'-8	6 SPA. @ ABOUT 3'-11	7 SPA. @ ABOUT 3'-4	7 SPA. @ ABOUT 3'-4	② 8 SPA. @ ABOUT 2'-11	③ 9 SPA. @ ABOUT 2'-7	③ 9 SPA. @ ABOUT 2'-7	③ 9 SPA. @ ABOUT 2'-7	③ 9 SPA. @ ABOUT 2'-7
TYP. PILE SPACES @ 30°	5 SPA. @ ABOUT 5'-2	6 SPA. @ ABOUT 4'-4	7 SPA. @ ABOUT 3'-9	7 SPA. @ ABOUT 3'-9	② 8 SPA. @ 3'-3	② 9 SPA. @ ABOUT 2'-11	② 9 SPA. @ ABOUT 2'-11	② 9 SPA. @ ABOUT 2'-11	② 9 SPA. @ ABOUT 2'-11
TYP. PILE SPACES @ 45°	5 SPA. @ ABOUT 6'-4	6 SPA. @ ABOUT 5'-4	7 SPA. @ ABOUT 4'-7	7 SPA. @ ABOUT 4'-7	8 SPA. @ ABOUT 4'-0	9 SPA. @ ABOUT 3'-6	9 SPA. @ ABOUT 3'-6	9 SPA. @ ABOUT 3'-6	9 SPA. @ ABOUT 3'-6
④ PU, STRENGTH I DESIGN LOAD FOR PIER (KIPS)	623 KIPS	683 KIPS	750 KIPS	822 KIPS	891 KIPS	973 KIPS	1054 KIPS	1138 KIPS	1232 KIPS

- ① THIS TYPICAL NUMBER OF PILES MAY NEED TO BE MODIFIED DEPENDING ON SELECTED PILE TYPE AND SIZE, HEIGHT, AND RESISTANCE. IF THE NUMBER OF PILES IS DIFFERENT THAN IN THE TABLE FOR THE BRIDGE LENGTH, THE NUMBER OF 5d1 BARS AND OTHER QUANTITIES NEED TO BE CHECKED AND ADJUSTED AS NEEDED. PILES 10 INCHES AND 12 INCHES IN SIZE MUST BE SPACED 2'-6 OR MORE, PILES 14 INCHES IN SIZE MUST BE SPACED 2'-11 OR MORE, AND PILES 16 INCHES IN SIZE MUST BE SPACED 3'-4 OR MORE.
- ② MAXIMUM PILE SIZE AT THIS SPACING IS 14 INCHES.
- ③ MAXIMUM PILE SIZE AT THIS SPACING IS 12 INCHES.
- ④ STRENGTH I PIER DESIGN LOAD INCLUDES DYNAMIC LOAD ALLOWANCE (1M), AND PIER CAP WEIGHT IS BASED ON 45° SKEW. USE THIS PU FOR DETERMINING NUMBER OF PILES AND PILE LENGTH.

### PIER NOTES:

- FOR SKEWED BRIDGES BOTTOM OF PIER CAP IS TO BE SLOPED TO COMPENSATE FOR GRADE. THEREFORE BOTTOM OF CAP ELEVATIONS WILL BE REQUIRED AT THE C/L OF ROADWAY AND AT EACH EXTERIOR PILE.
- THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
- THE PIER PILES ARE TO BE DRIVEN TO FULL PENETRATION, IF PRACTICABLE, BUT IN NO CASE TO A BEARING VALUE LESS THAN THE PILE BEARING REQUIRED FOR EACH BRIDGE LENGTH AS SHOWN ON THIS SHEET. ADDITIONAL DRIVING CAPACITY MAY BE REQUIRED THROUGH SCOURABLE LAYERS. REFER TO GENERAL PLAN NOTES FOR ADDITIONAL INFORMATION.
- THE CONCRETE QUANTITIES ARE BASED ON THE USE OF TYPE 3 PILING. IF TYPE 1 OR TYPE 2 IS USED, THE CONCRETE QUANTITIES MAY BE ADJUSTED TO ACCOUNT FOR THE CONCRETE DISPLACED BY THE PILING.
- ALL REINFORCING STEEL IS TO BE GRADE 60.
- PIER PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

REVISED 06-13 -- REVISION FOR LRFD PILE DESIGN.

06-13 LATEST REVISION DATE   APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 24' ROADWAY, 3 SPAN BRIDGES <b>CONTINUOUS CONCRETE SLAB BRIDGES</b> NOVEMBER, 2006
	<b>NON-MONOLITHIC PIER CAP DETAILS ALL BRIDGES</b>
	<b>J24-26-06</b>  SHEET 2 OF 2