



# ATTACHMENT 1

The following table provides an estimate of nominal shear resistance of Caltrans' standard plan piles and HP piles embedded in competent soil. These values can be used for design of abutment shear keys (refer to SDC for more information).

Pile Type	Type of Soil	Approximate Nominal Axial Resistance per Pile (Compression) kips	Lateral Capacity (only for Seismic Evaluation of Shear Keys)* kips
CIDH (16")	Medium Sand	280	43
	Stiff Clay		34
CIDH (24")	Medium Sand	400	91
	Stiff Clay		68
Alternative V	Medium Sand	180/280	77
	Stiff Clay		50
Alternative W	Medium Sand	180/280/400	64
	Stiff Clay		45
Alternative X	Medium Sand	180/280/400	33
	Stiff Clay		24
Alternative Y	Medium Sand	180/280/400	53
	Stiff Clay		40
HP 10x42	Medium Sand	180	27
	Stiff Clay		20
HP 10x57	Medium Sand	280	33
	Stiff Clay		24
HP 14x89	Medium Sand	400	55
	Stiff Clay		41

\* The following assumptions were made in preparation of this table. Designers should use pile lateral analysis software when any of the following assumptions is not valid and/or to obtain more accurate results.

- The pile is embedded in a single layer of soil as specified in the table.
- Lateral forces have been calculated based on nominal flexural and factored nominal shear resistance of the pile that is  $M_n$  and  $\phi V_n$ .
- The pile-to-cap connection was assumed pin (no moment transfer).
- The axial force in the pile was assumed zero.