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Project Name:	Ashdod infrastructure corridor	Revision:	0	By:	S.K.
Client:	Energy Infrastructures	Date:	24.11.2021	App.:	E.H.

Appendix "B" – Seismic Design Requirements – VOC Treatment system

1. OBJECTIVE

The main objective of this document is to provide code seismic provisions to be used for the analysis and design of the VOC Treatment system in the Ashdod infrastructure corridor.

2. DESIGN SEISMIC HAZARD

Seismic design loads shall be designed according to SI 413, Part 1, Part 2-3 & Part 2-3.

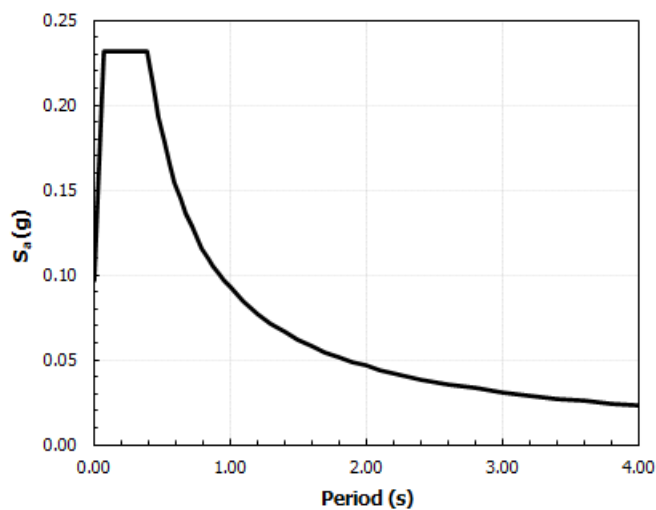
2.1 Basic design for a return period of 1/475 (10% / 50 years)

2.1.1	Basic ground acceleration as per SI 413, PGA:	0.06 g
2.1.2	Soil classification as per table 1:	D
2.1.3	Importance factor as per Table 4 for group A:	1.4
2.1.4	Force reduction coefficient, K, as per table 5 for DCM structure:	See relevant table.
2.1.5	Damping:	5%
2.1.6	Short-term coefficient F_a for the probability of a 10% return period of 50 years:	1.60
2.1.7	Long-term coefficient F_v for the probability of a 10% return period of 50 years:	2.40

2.2 Basic design for a return period of 1/2475 (2% / 50 years)

2.2.1	Basic ground acceleration as per SI 413, PGA:	0.11 g
2.2.2	Soil classification as per table 1:	D
2.2.3	Importance factor as per Table 4 for group A:	1.0
2.2.4	Force reduction coefficient, K, as per table 5 for DCM structure:	See relevant table.
2.2.5	Damping:	5%
2.2.6	Short-term coefficient F_a for the probability of a 10% return period of 50 years:	1.57
2.2.7	Long-term coefficient F_v for the probability of a 10% return period of 50 years:	2.40

X coordinate: 169475
Y coordinate: 639130
Site Class: D
Probability: 10%
Z= 0.06
S_S= 0.14
S₁= 0.04
F_a= 1.60
F_v= 2.40
S_{DS}= 0.23
S_{D1}= 0.09
T₀(s)= 0.08
T_S(s)= 0.40

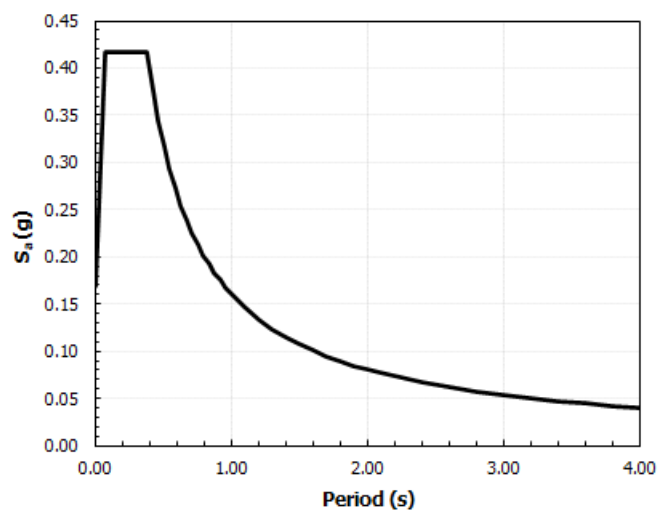


Period (s)	Sa (g)
0.00	0.10
0.04	0.16
0.08	0.23
0.19	0.23
0.29	0.23
0.40	0.23
0.44	0.21
0.48	0.19
0.52	0.18
0.56	0.17
0.60	0.15
0.64	0.14
0.68	0.14
0.72	0.13
0.76	0.12
0.80	0.12
0.84	0.11
0.88	0.11
0.92	0.10
0.96	0.10
1.00	0.09
1.10	0.08
1.20	0.08
1.30	0.07
1.40	0.07
1.50	0.06
1.60	0.06
1.70	0.05
1.80	0.05
1.90	0.05
2.00	0.05
2.10	0.04
2.40	0.04
2.60	0.04
2.80	0.03
3.00	0.03
3.20	0.03
3.40	0.03
3.60	0.03
3.80	0.02
4.00	0.02

Ver. 0.2β, written by Assoc. Prof. Assaf Klar (Technion 2011)

Figure B.1– Site response spectrum for mean return of 475 years and damping ratios of 10% as per SI 413

X coordinate: 169475
Y coordinate: 639130
Site Class: D
Probability: 2%
Z= 0.11
S_S= 0.26
S₁= 0.07
F_a= 1.59
F_v= 2.40
S_{DS}= 0.42
S_{D1}= 0.16
T₀(s)= 0.08
T_S(s)= 0.39



Period (s)	Sa (g)
0.00	0.17
0.04	0.29
0.08	0.42
0.18	0.42
0.28	0.42
0.39	0.42
0.43	0.38
0.47	0.34
0.51	0.32
0.55	0.29
0.59	0.27
0.63	0.25
0.67	0.24
0.71	0.23
0.75	0.21
0.80	0.20
0.84	0.19
0.88	0.18
0.92	0.18
0.96	0.17
1.00	0.16
1.10	0.15
1.20	0.13
1.30	0.12
1.40	0.11
1.50	0.11
1.60	0.10
1.70	0.09
1.80	0.09
1.90	0.08
2.00	0.08
2.10	0.08
2.40	0.07
2.60	0.06
2.80	0.06
3.00	0.05
3.20	0.05
3.40	0.05
3.60	0.04
3.80	0.04
4.00	0.04

Ver. 0.2β, written by Assoc. Prof. Assaf Klar (Technion 2011)

Figure B.2 – Site response spectrum for mean return of 2475 years and damping ratios of 2% as per SI 413