1.0 EARTHQUAKE RECOMMENDATION

The site is located at Kingdom of Jordan earthquake map. according to the map (1-2) from Jordan code for earthquakes.(look appendix - 3)

The soil profile is described as S_B from table (3-8-1).

S_1: Spectral Response Acceleration at 1 second from map (3-3-2).

S_s: Spectral Response Acceleration at 0.2 second from map (3-3-1).

F_A: The coefficient response at 0.2 seconds from table (3-3-2).

F_v : The coefficient response at 1.0 seconds from table (3-3-3).

PGA : The gravitational acceleration geometric = 0.23 moderate from map (3-7-1).

F_{PGA} : The coefficient for the maximum gravitational acceleration from table (3-7-1).

Spectral Response Acceleration	Contour Interval
S_1	0.19
S_s	0.58

Coefficient	Value
F_A	1.0
F_v	1.0
F_{PGA}	1.0

We suggest the structural engineer to take into consideration the above factors. and any future effect due to earthquakes. especially for the footing system.

عمان - تلاع العلي - تلفون ٥٥٣٥٨٢١ ص.ب ٧٧٣ - تلاع العلي ٢٠ شارع ميرزا وصفي - بجانب مديرية الإقامة والحدود

2.0 GENERAL GEOLOGY

The materials described below are geologically related to Soil over bed rock. These deposits are relatively thin to thick beds and consisted of "silty clay and gravel" materials over bedrock materials

3.0 FIELD EXPLORATION AND DRILLING

On 9th Sep. 2025. two (2) boreholes were drilled at the site as following:

Table 1

BH No.	Depth (m)
BH-1	6
BH-2	6

Bulk samples were collected from each meter depth and where Litho-logical changes of strata occur. Samples recovered were described and classified by our geological engineer. and taken to the lab in watertight plastic bags for further testing. The drilling was executed using the rotary air flush method HW-412 Sampling core barrel and four inches bit hammer. These boreholes are good enough to supply the designer with sufficient information to the type of subsurface lithology and their characteristics. The field-testing included coring at 2m depth.

4.0 LABORATORY TESTING

Laboratory testing included water content determination and unconfined compression strength. procedures are recommended in ASTM designation D2938-71a. for all the undisturbed samples collected the core recovery and R.Q.D. by Deere (1963) are measured for these samples.

5.0 TYPE OF MATERIAL

The encountered surface& subsurface materials after drilling and geologic description by our site engineer are shown in the following Table no.2:

Table No. 2
Material Types and Properties

BH No	Depths m	Ground Materials
BH-1	0.0m To 0.6m	brown medium plastic silty clay with gravels
BH-2	0.0m To 0.6m	
BH-1	0.6m To 6.0m	Alternated layers of yellowish cream weak marlstone, pinkish white moderately weak fractured limestone and lenses of grye chert
BH-2	0.6m To 6.0m	

عمان - تلاع العلي - تلفون ٥٥٣٥٨٢١ ص.ب ٧٧٣ - تلاع العلي ٢٠ شارع ميرزا وصفي - بجانب مديرية الإقامة والحدود

6.0 ANALYSIS OF TESTS RESULTS

A. BEARING CAPACITY CALCULATIONS

The ultimate and safe bearing capacity is calculated for extracted undisturbed core specimens using the obtained results from the unconfined compressive test using the following equation:

$$q(safe) = q_{uncon} / F.S$$

Where.

$q(safe)$ = Allowable-bearing capacity.

q_{uncon}= Unconfined compressive strength (by test) = 48.64 kg/cm^2

S.F.= Safety factor = 15.2 (depending on values of R.Q.D. and according to the Jordanian Code for Foundations)

So. $q(safe)$ = **3.20** kg/cm^2.

BH No	Depth of Sample (m)	Length of Sample (cm)	Diameter of Sample (cm)	Volume of Sample (cc)	Weight of Sample (gm)	Density of Sample (gm/cc)	qu (kg/cm^2) (From Test)	qa (kg/cm^2) qu/S.F
BH-1	2.0	15.00	9.27	1011.9	2175.5	2.150	48.6	3.20
BH-2	2.0	15.10	9.27	1018.6	2291.9	2.250	48.9	3.22

عمان - تلاع العلي - تلفون ٥٥٣٥٨٢١ ص.ب ٧٧٣ - تلاع العلي ٢٠ شارع ميرزا وصفي - بجانب مديرية الإقامة والحدود

GELOGICAL MAP OF THE SITE

(Natural Resources Authority –map of Amman)

(scale 1 : 50,000)

LEGEND					
S S	Soil	WSL	Wadi As Sir Limestone	DH	Dhahab Limestone
Al	Alluvium	Sh	Shueib	RM	Ramla Sandstone
Pl	Pleistocene	H	Hummar	URC	Umm Rijam Chert
d	Calcrete	F	Fuheis	ARG	Abu Ruways Gypsum
AHP	Al Hisa Phosphorite	NL	Nau'r	KS	Kurnub
ASL	Amman Silicified Limestone	QP	Qatrana Phosphorite	WC	Waqqas Conglomerate
WG	Wadi Umm Ghudran	BC	Bahiya Coquina	MCB	Madaba Calc Bereccia
LM	Lisan Marl	SP	Sultani Phosphorite	ARG	Abu Ruways Gypsum
MCM	Muwaqqar Chalk Marl	MUG	Mughanniya Limestone	WC	Waqqas Conglomerate
UT	Umm Tina	GEOLOGICAL SYMBOLS			
IR/UT	Iraq El Amir		Fault with downthrow		
MK	Mukherieris Sandstone Shale		Fault inferred/ uncertian		
B	Basalt		Fault inferred		
			Strike-slip fault		

Pag

Log Of Boring

Owner الشركة العلمية الأردنية للصواريخ والتموين					Borehole No: 1							
Project:					Depth 6m							
Location: Amman-Plot:123												
Report No 66/ 9-2025 Sep,11,2025.					Drilling Method : Rotary Air Flush							
Depth (m)	Sampling	Legend	Detailed Soil and Rock Description	Density gm/cm^3	TCR(%)	RQD (%)	m.c %	SPT	blows	L.L(%)	P.L()	
1			brown medium plastic silty clay with gravels									
2			Alternated layers of yellowish cream weak marlstone, pinkish white moderately weak fractured limestone and lenses of grye chert									
3					72	45						
4												
5												
6												
			End of Boring									

Keys :
TCR: Total core recovery
RQD: Rock quality Designation
SPT: Standard Pentration Test

Ground Water Data: Not Exist
Depth while drilling : ---
Depth after drilling: ---

sample Keys:
core sample
SPT sample

عمان - تلاع العلي - تلفون ٥٥٣٥٨٢١ ص.ب ٧٧٣ ـ تلاع العلي ٢٠ شارع ميرزا وصفي ـ بجانب مديرية الإقامة والحدود

Log Of Boring

Owner الشركة العامة الأردنية للصوامع والتموين	Borehole No: 2
Project:	Depth: 6m
Location: Amman-Plot:123	
Report No 66/ 9-2025 Sep,11,2025.	Drilling Method : Rotary Air Flush

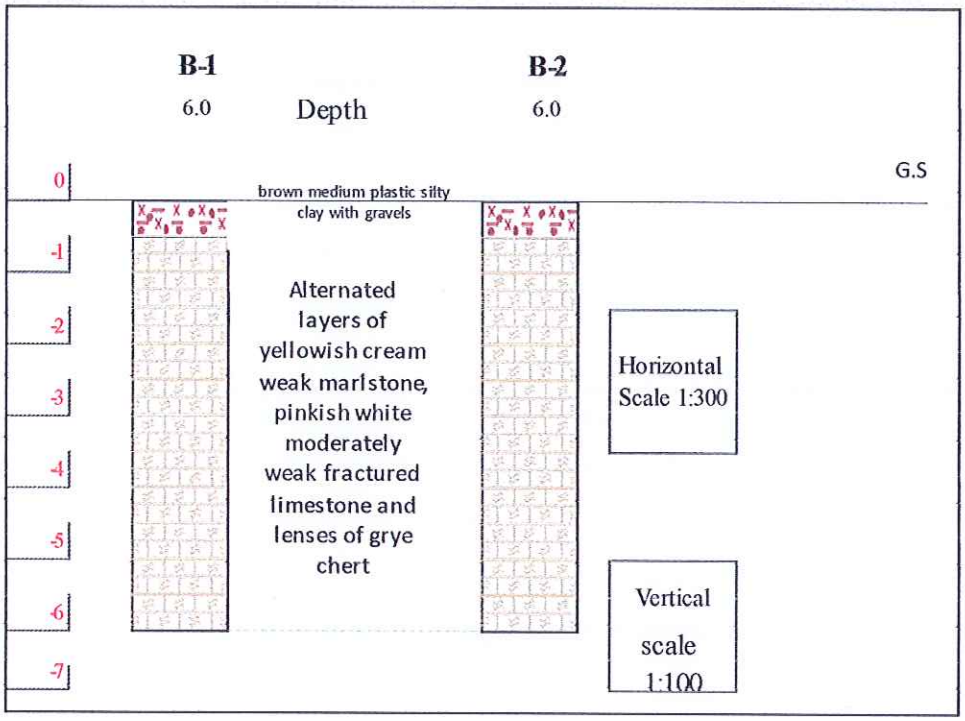
Depth (m)	Samplin	Legend	Detailed Soil and Rock Description	Density gm/cm³	TCR(%)	RQD (%)	m.c %	SPT	blows	L.L(%)	P.L()
1			brown medium plastic silty clay with gravels								
2											
3			Alternated layers of yellowish cream weak marlstone, pinkish white moderately weak fractured limestone and lenses of grye chert		70	41					
4											
5											
6											
			End of Boring								

Keys :
TCR: Total core recovery
RQD: Rock quality Designation
SPT: Standard Pentration Test

Ground Water Data: Not Exist
Depth while drilling : ---
Depth after drilling: ---

sample Keys:
core sample
SPT sample

عمان - تلاع العلي - تلفون ٥٥٣٥٨٢١ ص.ب ٧٧٣ - تلاع العلي ٢٠ شارع ميرزا وصفي - بجانب مديرية الإقامة والحدود


B-1
6.0
Depth
B-2
6.0
G.S
0
-1
-2
-3
-4
-5
-6
-7
brown medium plastic silty clay with gravels
Alternated layers of yellowish cream weak marlstone, pinkish white moderately weak fractured limestone and lenses of grye chert
Horizontal Scale 1:300
Vertical scale 1:100