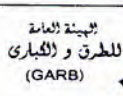


MATERIAL INSPECTION REQUEST



Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		31/05/2023 S5-A-MO3-PLT-C-1	3:00 PM							
Received by GARB CONSULTANT	Eng. SAYED SAIF		MIR	C1 351	C2 EW	C3 CS	DD 1	MM 6	YY 23	HH 3	MM 0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
CODE-2	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-3	Work Activity		
	Sub Element of Activity		

Description of Materials	Excavation Bed			
Location to be Used	from	351+000	TO	351+100
		33+519.71		33+619.71
MAR & UIR Approval No	UIR S5-A-MO3-IR-C-1	Date	16/04/2023	
Supplier Name	native soil			
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	2	06/03/2023	
2					
3					
4					

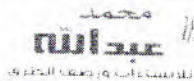
Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.I.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

للإشاعات ورصف الطرق

مدير المشروع م / السيد سيف
مستشار الكهرباء السريخ
التفتاح الخامس

MATERIAL INSPECTION REQUEST



الهيئة العامة
للطرق والكباري
(GARB)



الهيئة العامة
للطرق والكباري



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			31/5/2023 P.L.T C-001	3:00 PM						
Received by GARB CONSULTANT	Eng. Mohammed Al		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	1	6	23		

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Excavation Bed				
Location to be Used	From	351+000	TO	351+100	
MAR & UIR Approval No	UIR (C-001)	Date	16/4/2023		
	M.A.R.001				
Supplier Name	Native soil				
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG2-41 2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	2	2023-03-06	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-Just) . 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments with proj spec.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Mohammed Al			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		16/4/2023	AWC

* Designer

** Alignment/Bridges/Culvert only

تكتب محمد عبد الله محمد السباعي
للإنشاءات ورصف الطرق

(أ.د / خالد قنديل)
مدير المشروع م / السيد سيف
شروع التفتار الكهروماني السريع
التفتار الخامس



Technical Report

Plate Loading Tests

Section from KM 350+880 to KM 351+100

Project

Electric Express Train (Sokhna - New capital - 6th
of October city - New Elalamein city)

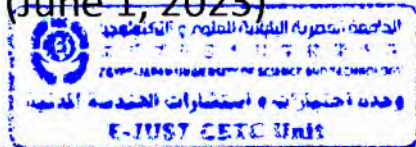
Prepared for

Mohammed Abdullah Company for Construction and Road
Paving

Al-Israa Tower, Al-Mahmoudia Canal Road, Hajar Al-Nawatiya, Al-Bar
Al-Qibli - Alexandria, Egypt

يعتمد
أمين عام الجامعة
لواء مهندس / أسامة فتحى

(June 1, 2023)





1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct 6 plate loading tests on the embankment of the Electric Express Train project at 6 locations (KM 350+880, KM 350+880, KM 350+940, KM 350+940, KM 351+075, and KM 351+100) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Mohamed Mostafa of Mohammed Abdullah Company for Construction and Road Paving. Field team members (Mr. Ahmed Sabry) from the working CETCU team visited the project site on June 1, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was $30 \pm 1^\circ\text{C}$.
- The plate was carried out on the soil (according to the company) at 6 points. The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader Komatsu WA420.



3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m² was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 6 plate loading tests on the embankment of the Electric Express Train project were conducted at 6 locations (KM 350+880, KM 350+880, KM 350+940, KM 350+940, KM 351+075, and KM 351+100) and the data collected at the 6 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+880), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+880)

Loading stage	Load (F) kN	Normal MN/m ²	Settleme mm
0	1.414	0.005	0.00
1	7.07	0.025	0.15
2	14.14	0.050	0.20
3	21.21	0.075	0.30
4	28.28	0.100	0.40
5	35.35	0.125	0.51
6	42.42	0.150	0.61
7	49.49	0.175	0.70
8	56.56	0.200	0.80
9	63.63	0.225	0.87
10	70.7	0.250	0.98
11	56.56	0.200	0.98
12	49.49	0.175	0.95
13	35.35	0.125	0.85
14	21.21	0.075	0.74
15	1.414	0.005	0.35

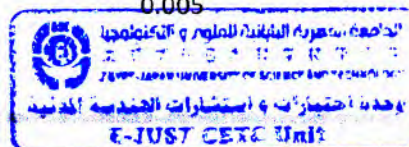




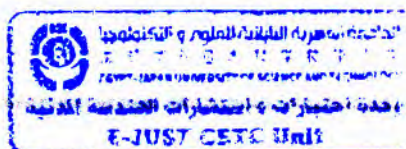
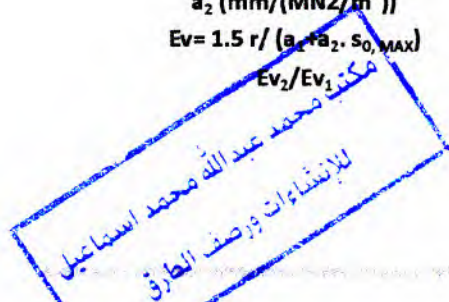
Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 350+880)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.35
1	7.07	0.025	0.40
2	14.14	0.050	0.46
3	21.21	0.075	0.54
4	28.28	0.100	0.61
5	35.35	0.125	0.70
6	42.42	0.150	0.75
7	49.49	0.175	0.83
8	56.56	0.200	0.91
9	63.63	0.225	0.96

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 350+880) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 350+880) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 350+940) is provided in Tables 7-9 and Figure 3. The testing data corresponding to the fourth testing point (KM 350+940) is provided in Tables 10-12 and Figure 4. The testing data corresponding to the fifth testing point (KM 351+075) is provided in Tables 13-15 and Figure 5. The testing data corresponding to the sixth testing point (KM 351+100) is provided in Tables 16-18 and Figure 6.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 350+880)

Parameters	1st loading cycle	2nd loading cycle
$(s_{0,max})$ MN/m ²	0.25	0.25
a_0 (mm)	0.03	0.33
a_1 (mm/(MN/m ²))	3.73	2.87
a_2 (mm/(MN ² /m ⁴))	0.24	-0.08
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	118.70	157.89
Ev_2/Ev_1	1.33	



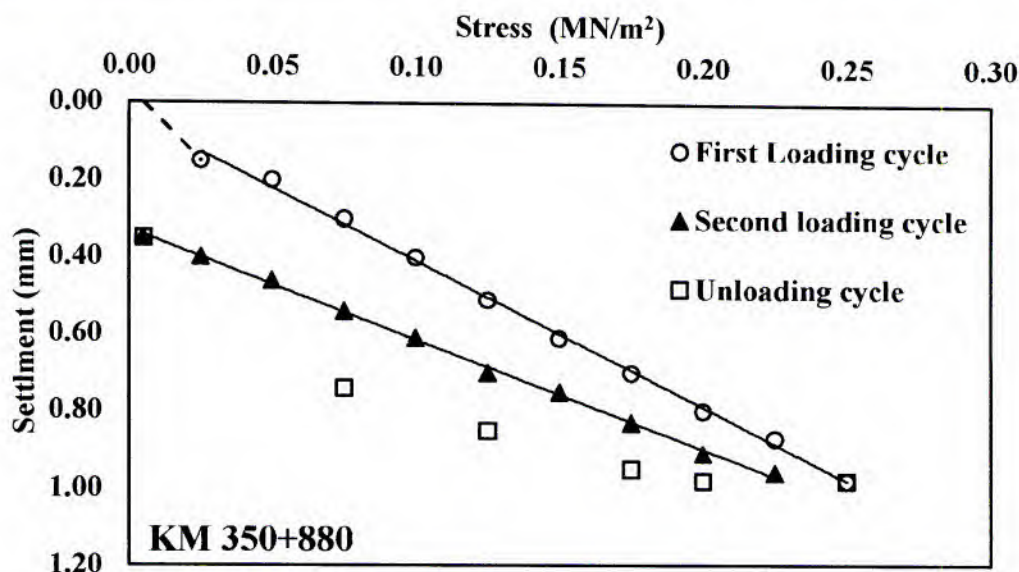


Figure 1: Load-settlement data: plate loading test performed at (KM 350+880)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+880)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.32
2	14.14	0.050	0.54
3	21.21	0.075	0.70
4	28.28	0.100	0.85
5	35.35	0.125	1.15
6	42.42	0.150	1.40
7	49.49	0.175	1.69
8	56.56	0.200	1.90
9	63.63	0.225	2.10
10	70.7	0.250	2.33
11	56.56	0.200	2.33
12	49.49	0.175	2.19
13	35.35	0.125	2.01
14	21.21	0.075	1.70
15	1.414	0.005	0.62



Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 350+880)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.62
1	7.07	0.025	0.91
2	14.14	0.050	1.10
3	21.21	0.075	1.29
4	28.28	0.100	1.42
5	35.35	0.125	1.61
6	42.42	0.150	1.80
7	49.49	0.175	1.95
8	56.56	0.200	2.10
9	63.63	0.225	2.24

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 350+880)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.10	0.63
a_1 (mm/(MN/m ²))	7.89	9.11
a_2 (mm/(MN ² /m ⁴))	4.61	-8.97
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	49.75	65.49
Ev_2/Ev_1	1.32	

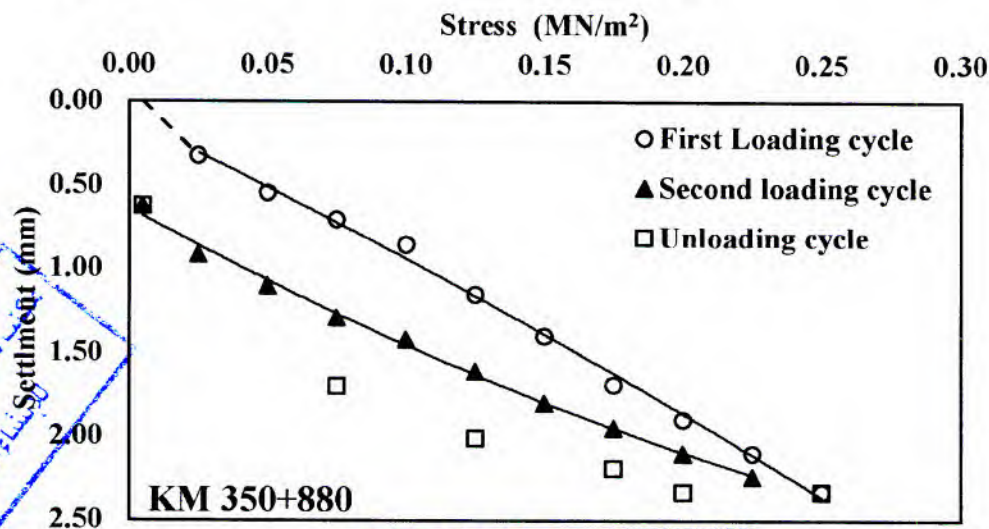


Figure 2: Load-settlement data: plate loading test performed at (KM 350+880)



Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+940)

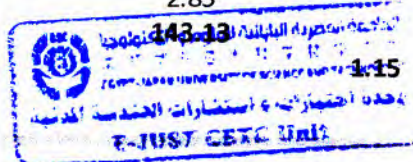
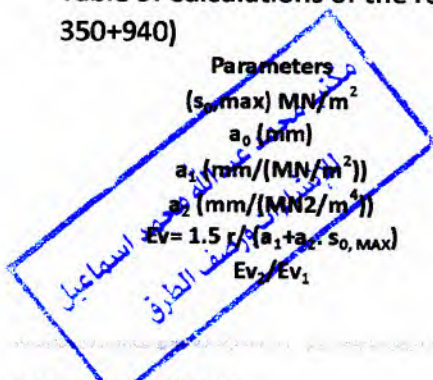
Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.16
2	14.14	0.050	0.23
3	21.21	0.075	0.29
4	28.28	0.100	0.35
5	35.35	0.125	0.44
6	42.42	0.150	0.53
7	49.49	0.175	0.63
8	56.56	0.200	0.70
9	63.63	0.225	0.76
10	70.7	0.250	0.89
11	56.56	0.200	0.89
12	49.49	0.175	0.85
13	35.35	0.125	0.76
14	21.21	0.075	0.65
15	1.414	0.005	0.25

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 350+940)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.25
1	7.07	0.025	0.32
2	14.14	0.050	0.40
3	21.21	0.075	0.44
4	28.28	0.100	0.52
5	35.35	0.125	0.57
6	42.42	0.150	0.66
7	49.49	0.175	0.75
8	56.56	0.200	0.80
9	63.63	0.225	0.85

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 350+940)

Parameters	1st loading cycle	2nd loading cycle
$(s_{0,max})$ MN/m ²	0.25	0.25
a_0 (mm)	0.10	0.24
a_1 (mm/(MN/m ²))	2.43	2.82
a_2 (mm/(MN ² /m ⁴))	2.85	-0.29
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	143.13	164.04
Ev_1 / Ev_2	1.15	



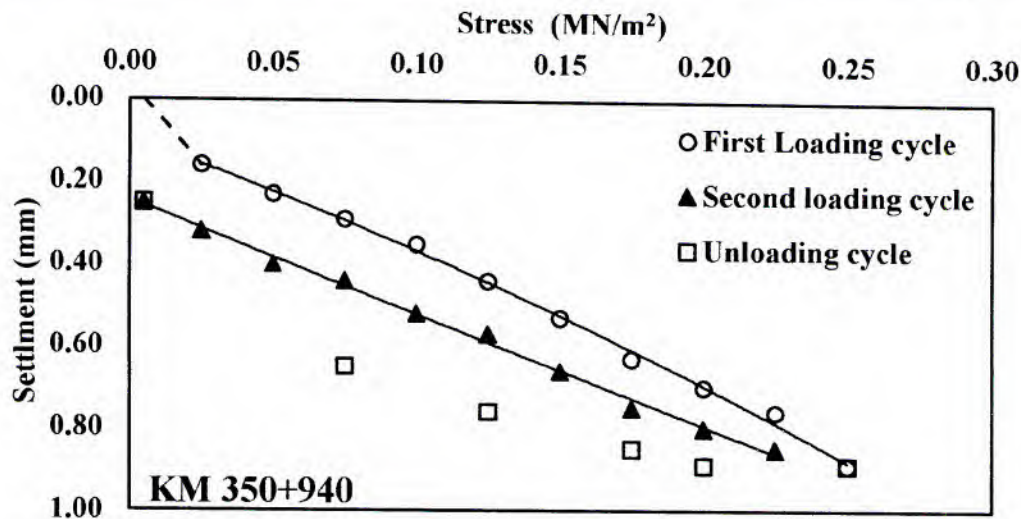


Figure 3: Load-settlement data: plate loading test performed at (KM 350+940)

Table 10: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+940)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.42
2	14.14	0.050	0.62
3	21.21	0.075	0.89
4	28.28	0.100	1.15
5	35.35	0.125	1.49
6	42.42	0.150	1.90
7	49.49	0.175	2.21
8	56.56	0.200	2.49
9	63.63	0.225	2.72
10	70.7	0.250	3.06
11	56.56	0.200	3.06
12	49.49	0.175	2.81
13	35.35	0.125	2.58
14	21.21	0.075	2.17
15	1.414	0.005	0.90

مكتب محمد عبد الله محمد اسماعيل
للإشارات ورصف الطرق

الجامعة المصرية اليابانية للعلوم والتكنولوجيا
EGYPT-JAPAN UNIVERSITY OF SCIENCE AND TECHNOLOGY
وحدة اختبارات واستشارات الهندسة المدنية
E-JUST CETC Unit



Table 11: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 350+940)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.90
1	7.07	0.025	1.21
2	14.14	0.050	1.49
3	21.21	0.075	1.80
4	28.28	0.100	2.10
5	35.35	0.125	2.44
6	42.42	0.150	2.49
7	49.49	0.175	2.70
8	56.56	0.200	2.86
9	63.63	0.225	3.01

Table 12: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 350+940)

Parameters	1st loading cycle	2nd loading cycle
$(s_{0,max})$ MN/m ²	0.25	0.25
a_0 (mm)	0.07	0.83
a_1 (mm/(MN/m ²))	11.24	15.17
a_2 (mm/(MN ² /m ⁴))	3.27	-24.68
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	37.33	49.98
Ev_2/Ev_1	1.34	

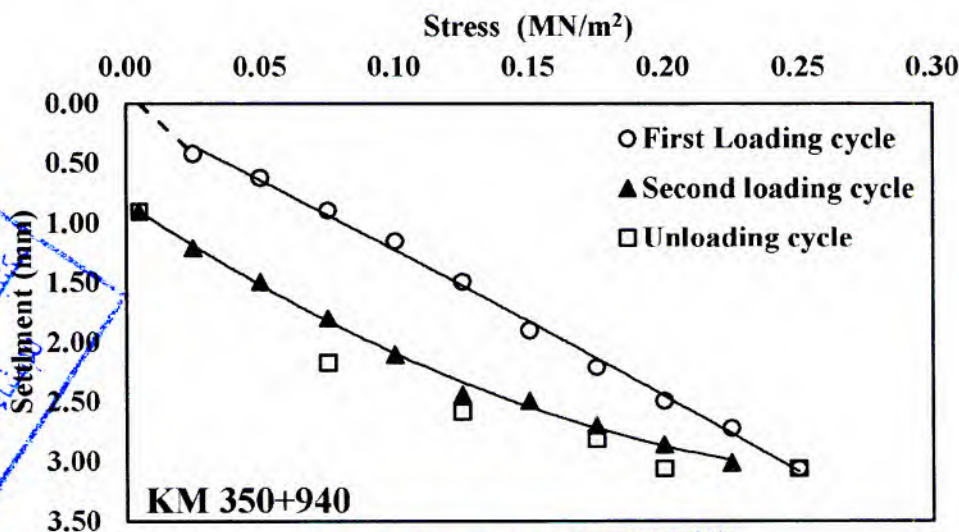


Figure 4: Load-settlement data plate loading test performed at (KM 350+940)



Table 13: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+075)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.35
2	14.14	0.050	0.50
3	21.21	0.075	0.65
4	28.28	0.100	0.85
5	35.35	0.125	1.00
6	42.42	0.150	1.15
7	49.49	0.175	1.32
8	56.56	0.200	1.48
9	63.63	0.225	1.60
10	70.7	0.250	1.75
11	56.56	0.200	1.75
12	49.49	0.175	1.65
13	35.35	0.125	1.55
14	21.21	0.075	1.45
15	1.414	0.005	0.70

Table 14: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+075)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.70
1	7.07	0.025	0.92
2	14.14	0.050	1.10
3	21.21	0.075	1.26
4	28.28	0.100	1.35
5	35.35	0.125	1.43
6	42.42	0.150	1.52
7	49.49	0.175	1.60
8	56.56	0.200	1.68
9	63.63	0.225	1.74

Table 15: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+075)

Parameters
($s_{0, \max}$) MN/m²
 a_0 (mm)
 a_1 (mm/(MN/m²))
 a_2 (mm/(MN²/m⁴))
 $E_v = 1.5 r / (a_1 + a_2 \cdot s_{0, \max})$
 E_{v2}/E_{v1}

1st loading cycle

0.25
0.16
7.04
-2.67

2nd loading cycle

0.25
0.71
7.88
-15.22
110.45

70.61

1.56

E-JUST CETC Unit

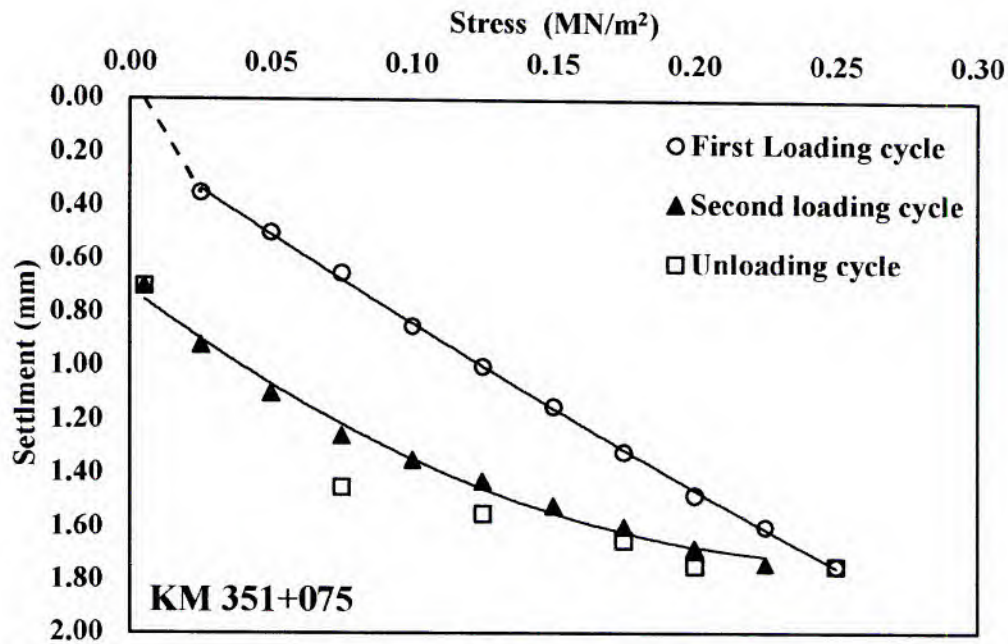


Figure 5: Load-settlement data: plate loading test performed at (KM 351+075)

Table 16: Load-settlement data obtained at the first loading and unloading stages of the

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.70
2	14.14	0.050	1.15
3	21.21	0.075	1.64
4	28.28	0.100	2.05
5	35.35	0.125	2.50
6	42.42	0.150	3.10
7	49.49	0.175	3.56
8	56.56	0.200	4.00
9	63.63	0.225	4.45
10	70.7	0.250	4.80
11	56.56	0.200	4.80
12	49.49	0.175	4.80
13	35.35	0.125	4.60
14	21.21	0.075	4.23
15	1.414	0.005	1.76



Table 17: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+100)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	1.76
1	7.07	0.025	2.36
2	14.14	0.050	2.90
3	21.21	0.075	3.30
4	28.28	0.100	3.66
5	35.35	0.125	3.95
6	42.42	0.150	4.20
7	49.49	0.175	4.40
8	56.56	0.200	4.60
9	63.63	0.225	4.78

Table 18: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+100)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.17	1.75
a_1 (mm/(MN/m ²))	19.77	23.67
a_2 (mm/(MN ² /m ⁴))	-4.06	-46.63
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	23.99	37.45
Ev_2/Ev_1	1.56	

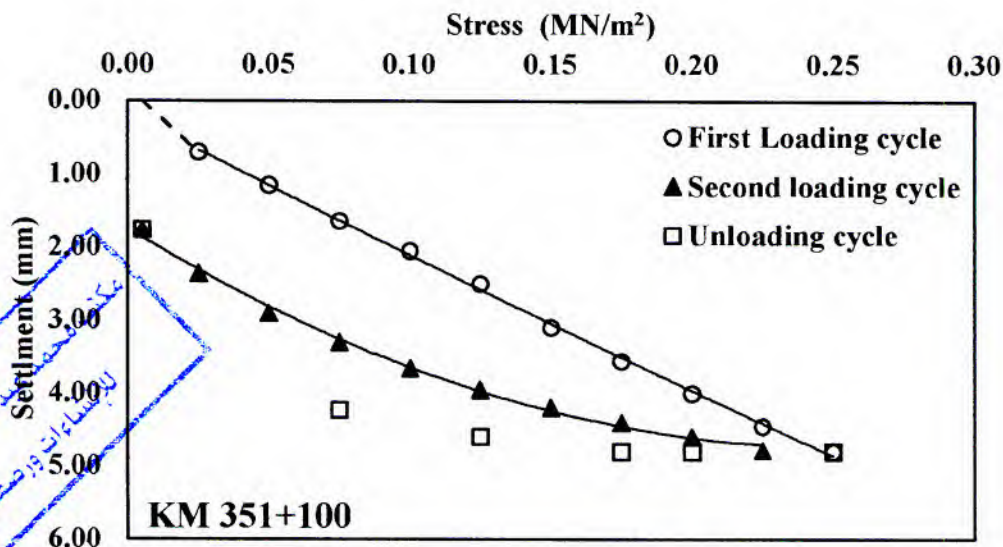


Figure 6: Load-settlement data: plate loading test performed at (KM 351+100)



4. Closure

Test results presented herein report the load-settlement data obtained from 6 plate loading tests conducted on the soil of the Electric Express train project at 6 locations (KM 350+880, KM 350+880, KM 350+940, KM 350+940, KM 351+075, and KM 351+100) in accordance with German Standard, DIN18134.

Location	Level	E_{v1} MN/m ²	E_{v2} MN/m ²	E_{v2}/E_{v1} ratio
KM 350+880	(-0.75 m)	118.70	157.89	1.33
KM 350+880	Native soil	49.75	65.49	1.32
KM 350+940	(-0.75 m)	143.13	164.04	1.15
KM 350+940	Native soil	37.33	49.98	1.34
KM 351+075	(-0.75 m)	70.61	110.45	1.56
KM 351+100	Native soil	23.99	37.45	1.56

- Note: Before interpreting these test results for future applications, the soil in-situ variability between the testing locations should be considered.

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar





Appendix A





Location of test site:	KM 350+880		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Tram Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	1/6/2023
Diameter of loading plate	600		Time	12:15:00 PM 12:42:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	(-0.75 m)			
Bedding material	Sand Layer			
Temperature	30°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.85	
	2	14.14	9.80	
	3	21.21	9.70	
	4	28.28	9.60	
	5	35.35	9.49	
	6	42.42	9.39	
	7	49.49	9.30	
	8	56.56	9.20	
	9	63.63	9.13	
	10	70.7	9.02	
Unloading Stage	11	56.56	9.02	
	12	49.49	9.05	
	13	35.35	9.15	
	14	21.21	9.26	
	15	1.414	9.65	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.65	
	1	7.07	9.60	
	2	14.14	9.54	
	3	21.21	9.46	
	4	28.28	9.39	
	5	35.35	9.30	
	6	42.42	9.25	
	7	49.49	9.17	
	8	56.56	9.09	
	9	63.63	9.04	



Location of test site:	KM 350+880		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	1/6/2023
Diameter of loading plate	600		Time	12:50:00 PM 1:17:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Native soil			
Bedding material	---			
Temperature	30°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.68	
	2	14.14	9.46	
	3	21.21	9.30	
	4	28.28	9.15	
	5	35.35	8.85	
	6	42.42	8.60	
	7	49.49	8.31	
	8	56.56	8.10	
	9	63.63	7.90	
	10	70.7	7.67	
Unloading Stage	11	56.56	7.67	
	12	49.49	7.81	
	13	35.35	7.99	
	14	21.21	8.30	
	15	1.414	9.38	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.38	
	1	7.07	9.09	
	2	14.14	8.90	
	3	21.21	8.71	
	4	28.28	8.58	
	5	35.35	8.39	
	6	42.42	8.20	
	7	49.49	8.05	
	8	56.56	7.90	
9	63.63	7.76		

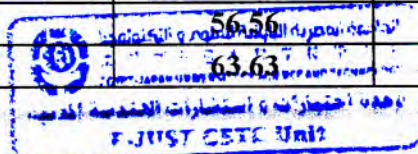
مكتب محمد عبد الله محمد اسماعيل
للاختبارات ورصف الطرق





Location of test site:	KM 350+940		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	1/6/2023
Diameter of loading plate	600		Time	1:30:00 PM 1:57:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	(-0.75 m)			
Bedding material	---			
Temperature	30°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.84	
	2	14.14	9.77	
	3	21.21	9.71	
	4	28.28	9.65	
	5	35.35	9.56	
	6	42.42	9.47	
	7	49.49	9.37	
	8	56.56	9.30	
	9	63.63	9.24	
	10	70.7	9.11	
Unloading Stage	11	56.56	9.11	
	12	49.49	9.15	
	13	35.35	9.24	
	14	21.21	9.35	
	15	1.414	9.75	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.75	
	1	7.07	9.68	
	2	14.14	9.60	
	3	21.21	9.56	
	4	28.28	9.48	
	5	35.35	9.43	
	6	42.42	9.34	
	7	49.49	9.25	
	8	56.56	9.20	
	9	63.63	9.15	

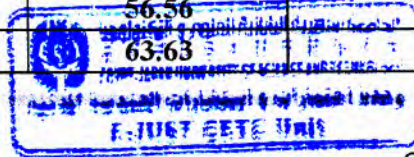
تمت محمد عبد الله محمد اسماعيل
لإرشادات وصف الطرق





Location of test site:	KM 350+940		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	1/6/2023
Diameter of loading plate	600		Time	2:15:00 PM 2:43:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Native soil			
Bedding material	---			
Temperature	30°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.58	
	2	14.14	9.38	
	3	21.21	9.11	
	4	28.28	8.85	
	5	35.35	8.51	
	6	42.42	8.10	
	7	49.49	7.79	
	8	56.56	7.51	
	9	63.63	7.28	
	10	70.7	6.94	
Unloading Stage	11	56.56	6.94	
	12	49.49	7.19	
	13	35.35	7.42	
	14	21.21	7.83	
	15	1.414	9.10	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.10	
	1	7.07	8.79	
	2	14.14	8.51	
	3	21.21	8.20	
	4	28.28	7.90	
	5	35.35	7.56	
	6	42.42	7.51	
	7	49.49	7.30	
	8	56.56	7.14	
	9	63.63	6.99	

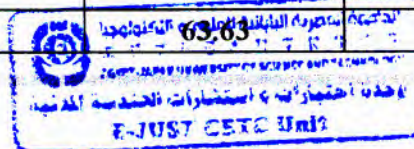
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للإشراف ورصف الطرق





Location of test site:	KM 351+075		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	1/6/2023
Diameter of loading plate	600		Time	1:05:00 PM 1:32:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	(-0.75 m)			
Bedding material	Sand Layer			
Temperature	30°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.65	
	2	14.14	9.50	
	3	21.21	9.35	
	4	28.28	9.15	
	5	35.35	9.00	
	6	42.42	8.85	
	7	49.49	8.68	
	8	56.56	8.52	
	9	63.63	8.40	
	10	70.7	8.25	
Unloading Stage	11	56.56	8.25	
	12	49.49	8.35	
	13	35.35	8.45	
	14	21.21	8.55	
	15	1.414	9.30	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.30	
	1	7.07	9.08	
	2	14.14	8.90	
	3	21.21	8.74	
	4	28.28	8.65	
	5	35.35	8.57	
	6	42.42	8.48	
	7	49.49	8.40	
	8	56.56	8.32	
	9	63.63	8.26	

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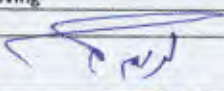




Location of test site:	KM 351+100		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	1/6/2023
Diameter of loading plate	600		Time	4:00:00 PM 4:30:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Native soil			
Bedding material	Sand Layer			
Temperature	30°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.30	
	2	14.14	8.85	
	3	21.21	8.36	
	4	28.28	7.95	
	5	35.35	7.50	
	6	42.42	6.90	
	7	49.49	6.44	
	8	56.56	6.00	
	9	63.63	5.55	
	10	70.7	5.20	
Unloading Stage	11	56.56	5.20	
	12	49.49	5.20	
	13	35.35	5.40	
	14	21.21	5.77	
	15	1.414	8.24	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	8.24	
	1	7.07	7.64	
	2	14.14	7.10	
	3	21.21	6.70	
	4	28.28	6.34	
	5	35.35	6.05	
	6	42.42	5.80	
	7	49.49	5.60	
	8	56.56	5.40	
	9	63.63	5.22	

تمت محمد عبد الله محمد اسماعيل
للانشاءات ورصف الطرق



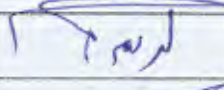
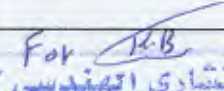
Contractor Company	Mohamed Abdallah 3 for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			18/04/2023	3:00 PM						
				S5-A-MO3-PLT-C-2							
Received by GARB CONSULTANT	Eng. SAYED SAIF		MIR	C1	C2	C3	DO	MM	YY	HH	MM
				351	EW	CS	19	4	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
Sub Element of Activity			

Description of Materials	Excavation Bed			
Location to be Used	from	351+100	TO	351+260
		33+619.71		33+779.71
MAR & UIR Approval No	UIR S5-A-MO3-IR-C-2		Date	17/04/2023
Supplier Name	native soil			
Test Requirement	P.L.T (DIN 18134)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes		Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	2	20/04/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK) 1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	Comments by: Eng. Alaa Abd-Allatif (ER) 1-P.L.T was carried- out by third party lab (COMIBASSAL) 2-Results report attached and acceptable with project specifications.
---	--

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
 للإستشارات ورصف الطرق

For K.K.
 مكتب الاستشاري الهندسي
 (أ.د / خالد قنديل)
 مدير المشروع / السيد سيف
 مشروع: التطوير الكهربائي السريع
 القطاع الخامس

MATERIAL INSPECTION REQUEST

محمد عبدالله
للإنشاءات ورصف الطرق

KK
Khalid Khalil & Associates
Engineering & Construction
P.L.C. 1999

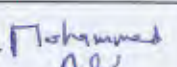
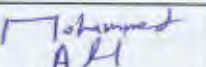
الهيئة العامة
للطرق والكباري
(GARB)



الهيئة العامة
للطرق والكباري
(GARB)

الهيئة العامة
للطرق والكباري
(GARB)



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company				k.k			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed moustafa			18/4/2023				3:00 PM			
			P.L.T C-002								
Received by GARB CONSULTANT	Eng. 		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	19	4	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Excavation Bed			
Location to be Used	From	351+100	TO	351+260
MAR & UIR Approval No	UIR (C-002)	Date	17/4/2023	
	M.A.R.001			
Supplier Name	Native soil			
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	2	20/4/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.t. (DIN 18134) is Approved. 	1-P.L.T was carried- out by third party lab (COMIBASSAL) . 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments with proj spec.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng.			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		19-4-2023	AWC

* Designer

** Alignment/Bridges: Consultant only

محمد عبدالله
للإنشاءات ورصف الطرق

KK
الهيئة العامة
للطرق والكباري
(GARB)



COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

Technichal report Of Plate Loading Test DIN 18134

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة محمد عبدالله للإنشاءات ورصف الطرق
Project	:	Electric express train
Sample	:	Excavation Base Layer
Station	:	St(351+160) to st(351+240)
Date of Test	:	19/04/2023
QC	:	986

مكتب محمد عبدالله للإنشاءات ورصف الطرق
للإنشاءات ورصف الطرق



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Internal inspection and laboratories sector

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Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil.

The test to be carried out on the native soil according to German specifications DIN 18134.

Test methods :

- 1- The German standard DIN 18134 was applied to define the apparatus used, the loading system, test conditions, and procedure for plate load test.
- 2- Loading plates with a diameter of 600 mm have a thickness of 25mm and are provided with equally spaced stiffeners with even upper faces parallel to the plate bottom face to allow 300 mm plate to be placed on top of it.
- 3- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which is capable of applying and releasing the load stages.
- 4- The dial gauge used to measure the plate settlement has a resolution of 0.01mm and the lever ratio was equal to 1.
- 5- The temperature at the time of the test was 25°.
- 6- The plate was carried out on a native soil (sand-gravel). The test surface area was levelled and the plate was bedded on this surface.
- 7- The hydraulic jack was placed on the middle of, and at normal to, the loading plate beneath the reaction loading system and secured against tilting.
- 8- The reaction loading system was a heavy multi-purpose excavator (more than 20 ton).

Description of experiment:

- 1- Loading, unloading and reloading regims were applied according to DIN 18134 for the plate load test to estimate the resilient modulus
- 2- Prior to the test, the force transducer and dial gauge were set to zero, after which a load was applied corresponding to a stress of 0.01 MN/m².
- 3- In the first loading cycle, the load was increased until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was released in four stages.
- 4- Following unloading, a further second loading cycle was carried out, in which, the load was increased only to the penultimate stage of the first cycle.

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351+160

600

Table 1: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.39
2	14.14	0.050	0.80
3	21.21	0.075	1.02
4	28.28	0.100	1.20
5	35.35	0.125	1.36
6	42.42	0.150	1.48
7	49.49	0.175	1.64
8	56.56	0.200	1.73
9	63.63	0.225	1.82
10	70.7	0.250	1.96
11	56.56	0.200	1.93
12	49.49	0.175	1.88
13	35.35	0.125	1.71
14	21.21	0.075	1.51
15	1.414	0.005	0.94

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.94
16	7.07	0.025	1.03
17	14.14	0.050	1.23
18	21.21	0.075	1.38
19	28.28	0.100	1.47
20	35.35	0.125	1.57
21	42.42	0.150	1.66
22	49.49	0.175	1.74
23	56.56	0.200	1.81
24	63.63	0.225	1.86

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0,max}$) MN/m ²	0.250	0.250
a_0 (mm)	0.192	0.892
a_1 (mm/(MN/m ²))	11.828	7.032
a_2 (mm/(MN ² /m ⁴))	-49.907	-12.293
$E_v = 1.5 \cdot r / (a_1 + a_2 \cdot \sigma_{0,max})$	65.67	113.67
E_v2/E_v1	1.73	



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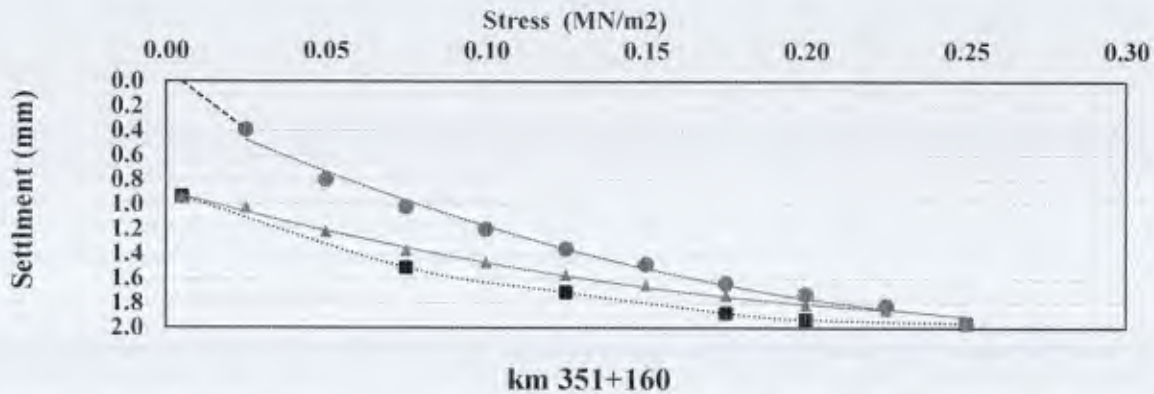


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_0 Normal stress MN/m²



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351+240

600

Table 4: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.27
2	14.14	0.050	0.51
3	21.21	0.075	0.71
4	28.28	0.100	0.96
5	35.35	0.125	1.20
6	42.42	0.150	1.45
7	49.49	0.175	1.65
8	56.56	0.200	1.86
9	63.63	0.225	2.02
10	70.7	0.250	2.55
11	56.56	0.200	2.54
12	49.49	0.175	2.45
13	35.35	0.125	2.26
14	21.21	0.075	1.99
15	1.414	0.005	1.43

Table 5: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	1.43
16	7.07	0.025	1.55
17	14.14	0.050	1.71
18	21.21	0.075	1.87
19	28.28	0.100	2.04
20	35.35	0.125	2.18
21	42.42	0.150	2.36
22	49.49	0.175	2.47
23	56.56	0.200	2.57
24	63.63	0.225	2.67

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0,max}$) MN/m ²	0.250	0.250
a_0 (mm)	0.095	1.378
a_1 (mm/(MN/m ²))	7.863	7.306
a_2 (mm/(MN ² /m ⁴))	5.962	-6.559
$E_v = 1.5 v / (a_1 + a_2 \cdot \sigma_{0,max})$	48.11	79.42
E_v2/E_v1		1.65

كتاب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

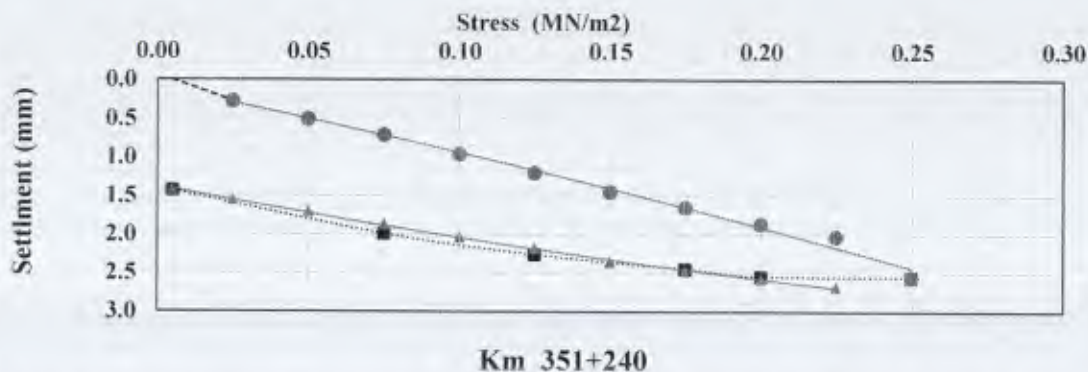


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_0 Normal stress MN/m²



مكتب محمد عبدالله محمد اسماعيل
للإنشاءات ورصف الطرق



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

Conclusions:

The present test results which obtained from the plate loading tests of the native soil on Excavation Base layer of the electric express train project at location (from 351+160 to 351+240) in accordance to the German standard , DIN 18134 are illustrated in table 7 .

Table 7 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
351+160	65.67	113.67	1.73
351+240	48.11	79.42	1.65

Lab Director

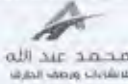
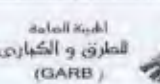
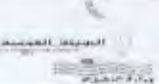
Eng / Eman Kandil



Geotechnical Consultant

For . Dr . M .
Dr / Mohamed Mostafa Badry

مكتب محمد عبد الله محمد اسماعيل
للإستشارات ورصف الطرق

MATERIAL INSPECTION REQUEST							
	مكتف محمد عبد الله للاستشارات ومهندسة الطرق	مكتف محمد عبد الله للاستشارات ومهندسة الطرق	أمية العامة للطرق و الكباري (GARB)	مكتف محمد عبد الله للاستشارات ومهندسة الطرق	مكتف محمد عبد الله للاستشارات ومهندسة الطرق	مكتف محمد عبد الله للاستشارات ومهندسة الطرق	مكتف محمد عبد الله للاستشارات ومهندسة الطرق

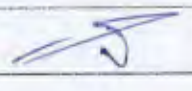
Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		01/05/2023 S5-A-MO3-FDT-F-1	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	02	5	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	FILL LAYER AT LEVEL (-1.25 m) FROM FERMA			
Location to be Used	From	351+000	TO	351+100
		33+519.71		33+619.71
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-001	Date	02/05/2023	
	S5-A-MO1-MAR-F-01		27/04/2023	
Supplier Name	محاجر وادي النطرون - العلمين			
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	03/05/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2- Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتف محمد عبد الله محمد اسماعيل
للاستشارات ومهندسة الطرق

مكتف محمد عبد الله محمد اسماعيل
للاستشارات ومهندسة الطرق

MATERIAL INSPECTION REQUEST

محمد عبدالله
للإنشاءات ورصف الطرق

K.K
CONSULTING ENGINEERING SERVICE
للإنشاءات ورصف الطرق

إمارة القاهرة
للطرق والكباري
(GARB)

إمارة القاهرة
للطرق والكباري

إمارة القاهرة
للطرق والكباري

إمارة القاهرة
للطرق والكباري

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	K.K						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			01/05/2023 (F.D.T.001)	3:00 PM						
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	2	5	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer (-1.25m from Ferma Level).				
Location to be Used	From	351+000	TO	351+100	
MAR & UIR Approval No	UIR F-001	Date	02/05/2023		
	M.A.R.001		27/04/2023		
Supplier Name	محجر وادي النطرون - العلمين				
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	03/05/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried-out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			Awe

* Designer

** Alignment/Bridges: Culvert only

مكتب محمد عبد الله محمد استشاري
للإنشاءات ورصف الطرق

إمارة القاهرة
للطرق والكباري
شارع المشروع م / السيد سيف
شارع القطر الكهربائي السريع
القطاع الخامس

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	02/05/2023	FINAL DATE	03/05/2023
STAGE OF WORK :	Fill Layer at level (-1.25 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-1		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER		Fill Layer at level (-1.25 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm				
SAMPLE No.	-	1	2	3	4				
STATION	-	351+025	351+050	351+075	351+100				
	-	33+545	33+570	33+595	33+620				
CONTAINER No	-	A-1	A-1	A-1	A-1				
WEIGHT OF CAN	gms	33	30	33	29				
WT. OF CAN+WET SOIL	gms	205.0	208.0	208.0	203.0				
WT. OF CAN+DRY SOIL	gms	194.0	193.0	192.0	193.0				
WT. OF WATER	gms	11.0	15.0	16.0	10.0				
WT. OF DRY SOIL	gms	161.0	163.0	159.0	164.0				
WATER CONTENT	%	6.8	9.2	10.1	6.1				
WT. OF WET SOIL	gms	3773	3830	3788	3813				
WT. OF INITIAL SAND+CONT.	gms	7788	7822	7716	7869				
WT. OF RESIDUAL SAND + CONT.	gms	3839	3778	3821	3839				
WT. OF SAND TO FILL CONE+HOLE	gms	3949	4044	3895	4030				
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553				
WT. OF SAND TO FILL HOLE	gms	2396	2491	2342	2477				
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47				
GROSS VOLUME OF HOLE	ccs	1629.9	1694.6	1593.2	1685.0				
WET UNIT WT. OF SOIL	gm/cc	2.31	2.26	2.38	2.26				
DRY UNIT WT. OF SOIL	gm/cc	2.17	2.07	2.16	2.13				
MAX. DRY DENSITY	gm/cc	2.17	2.17	2.17	2.17				
OPTIMUM MOISTURE CONTENT	%	7.1	7.1	7.1	7.1				
COMPACTION	%	99.85	95.38	99.55	98.29				
REQUIRED COMPACTION	%	95	95	95	95				
REMARKS		PASSED	PASSED	PASSED	PASSED				

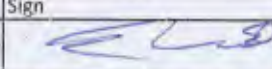
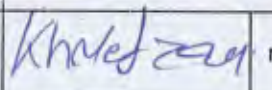
Eng. / CONSULTANT

مكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع م. السيد سيف
شروع: القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

مكتب محمد عبد الله
للإنشاءات ورصف الطرق

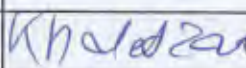
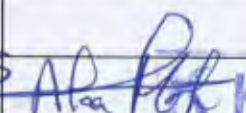
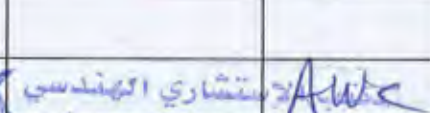
مدير المشروع: م / السيد عبد الله بن عبد الله
شروع: التقطار الكهربائي المشروع
التقطار الخامس

Contractor Company		Mohamed Abdallah for constructions and roads paving		Designer Company		K.K	
Issued by Contractor	Name	Sign		Date/Serial Number	Time		
	Eng. Mohamed moustafa			01/05/2023 (F.D.T.002)	3:00 PM		
Received by GARB CONSULTANT	Eng. Sayed saif	Sign		MIR	C1	C2	C3
					351	EW	CS
					DD	MM	YY
					2	5	23
						HH	MM
						3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE 2	Work Activity		
CODE 3	Sub Element of Activity		

Description of Materials		Fill Layer (-1 m from Ferma Level).			
Location to be Used		From	351+100	TO	351+260
MAR & UIR Approval No	UIR F-002	Date		01/05/2023	
	M.A.R.001			27/04/2023	
Supplier Name		محجر وادي النطرون - العلمين			
Test Requirement		F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos		No/Yes	Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	03/05/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023/05/05	



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل



الهيئة العامة
للطرق والكباري
(GARB)



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	02/05/2023	FINAL DATE	03/05/2023
STAGE OF WORK :	Fill Layer at level (-1 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-2		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-1 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm

SAMPLE No.	-	1	2	3	4	5	6	7
STATION	-	351+125	351+150	351+175	351+200	351+225	351+250	351+260
	-	33+645	33+670	33+695	33+720	33+745	33+770	33+780
CONTAINER No.	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	29	30	29	31	32	31	29
WT. OF CAN+WET SOIL	gms	205.0	208.0	207.0	207.0	206.0	208.0	207.0
WT. OF CAN+DRY SOIL	gms	191.0	191.0	194.0	194.0	191.0	194.0	194.0
WT. OF WATER	gms	14.0	17.0	13.0	13.0	15.0	14.0	13.0
WT. OF DRY SOIL	gms	162.0	161.0	165.0	163.0	159.0	163.0	165.0
WATER CONTENT	%	8.6	10.6	7.9	8.0	9.4	8.6	7.9

WT. OF WET SOIL	gms	3829	3743	3831	3875	3883	3896	3891
WT. OF INITIAL SAND+CONT.	gms	7835	7764	7779	7754	7705	7796	7796
WT. OF RESIDUAL SAND + CONT.	gms	3782	3825	3758	3685	3642	3792	3689
WT. OF SAND TO FILL CONE+HOLE	gms	4053	3939	4021	4069	4063	4004	4107
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2500	2386	2468	2516	2510	2451	2554
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1700.7	1623.1	1678.9	1711.6	1707.5	1667.3	1737.4
WET UNIT WT. OF SOIL	gm/cc	2.25	2.31	2.28	2.26	2.27	2.34	2.24
DRY UNIT WT. OF SOIL	gm/cc	2.07	2.09	2.12	2.10	2.08	2.15	2.08
MAX. DRY DENSITY	gm/cc	2.17	2.17	2.17	2.17	2.17	2.17	2.17
OPTIMUM MOISTURE CONTENT	%	7.1	7.1	7.1	7.1	7.1	7.1	7.1
COMPACTION	%	95.50	96.12	97.47	96.63	95.76	99.16	95.67
REQUIRED COMPACTION	%	95	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Eng. / CONSULTANT

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع م. السيد سيف
القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

مكتب محمد عبد الله
للإنشاءات ورصف الطرق

Contractor Company		Mohamed Abdallah for constructions and roads paving		Designer Company		(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign		Date/Serial Number		Time	
	Eng. Mohamed moustafa			17/05/2023		3:00 PM	
			S5-A-MO3-FDT-F-3				
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD
				351	EW	CS	18
				MM	YY	HH	MM
				5	23	3	0

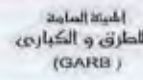
CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

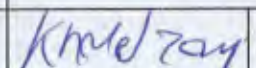
Description of Materials		FILL LAYER AT LEVEL (-0.75 m) FROM FERMA			
Location to be Used	From	351+100	TO	351+260	
		33+619.71		33+779.71	
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-002	Date	17/05/2023		
	S5-A-MO1-MAR-F-01		27/04/2023		
Supplier Name	محاجر وادي النطرون - العلمين				
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	20/05/2023	
2					
3					
4					
Comments by: Eng. SAYED SAIF (KK)			Comments by: Eng. Alaa Abd-Allatif (ER)		
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.			1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant		
			2-Results report attached and acceptable with project specifications.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif	for		A

للإشاعات ورصف الطرق
 محمد عبد الله محمد اسماعيل

مكتب الاستشاري الهندسي
 (د.أ / خالد قنديل)
 مدير المشروع / السيد سيف
 مشروع القطر الكهربائي السريع
 القطاع الخامس

MATERIAL INSPECTION REQUEST	     	
		

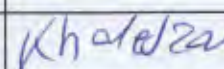
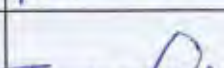
Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(SPECTRUM) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		17/05/2023 (F.D.T.003)	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif	Sign	MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	18	5	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer (-0.75m from Ferma Level).			
Location to be Used	From	351+100	TO	351+260
MAR & UIR Approval No	UIR F-003		Date	17/05/2023
	M.A.R.001			27/04/2023
Supplier Name	محجر وادي النطرون - المنمين			
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	20/05/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			Awe

* Designer

** Alignment/Bridges: Culvert only

للإشاعات ورصف الطرق

(أ.د. / خالد قنديل)
مدير المشروع / السيد سيب
شروع: القطار الكهربائي السريع
القطاع الخامس



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل



محمد عبد الله
للإنشاءات ورصف الطرق

الهيئة العامة
للطرق والكباري
(GARB)



الهيئة القومية للإنفاق
QATAR NATIONAL INFRASTRUCTURE AUTHORITY



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	18/05/2023	FINAL DATE	19/05/2023
STAGE OF WORK :	Fill Layer at level (-0.75 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-3		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.75 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm

SAMPLE No.	-	1	2	3	4	5	6	7
STATION	-	351+125	351+150	351+175	351+200	351+225	351+250	351+260
		33+645	33+670	33+695	33+720	33+745	33+770	33+780
CONTAINER No.	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	33	31	33	29	33	32	29
WT. OF CAN+WET SOIL	gms	208.0	207.0	203.0	204.0	205.0	203.0	203.0
WT. OF CAN+DRY SOIL	gms	197.0	198.0	192.0	193.0	193.0	195.0	191.0
WT. OF WATER	gms	11.0	9.0	11.0	11.0	12.0	8.0	12.0
WT. OF DRY SOIL	gms	164.0	167.0	159.0	164.0	160.0	163.0	162.0
WATER CONTENT	%	6.7	5.4	6.9	6.7	7.5	4.9	7.4

WT. OF WET SOIL	gms	3875	3755	3790	3817	3893	3834	3787
WT. OF INITIAL SAND+CONT.	gms	7809	7930	7835	7851	7741	7718	7755
WT. OF RESIDUAL SAND + CONT.	gms	3682	3848	3821	3756	3683	3681	3756
WT. OF SAND TO FILL CONE+HOLE	gms	4127	4082	4014	4095	4058	4037	3999
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2574	2529	2461	2542	2505	2484	2446
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1751.0	1720.4	1674.1	1729.3	1704.1	1689.8	1663.9
WET UNIT WT. OF SOIL	gm/cc	2.21	2.18	2.26	2.21	2.28	2.27	2.28
DRY UNIT WT. OF SOIL	gm/cc	2.07	2.07	2.12	2.07	2.13	2.16	2.12
MAX. DRY DENSITY	gm/cc	2.17	2.17	2.17	2.17	2.17	2.17	2.17
OPTIMUM MOISTURE CONTENT	%	7.1	7.1	7.1	7.1	7.1	7.1	7.1
COMPACTION	%	95.57	95.44	97.57	95.33	97.93	99.67	97.65
REQUIRED COMPACTION	%	95	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

المكتب الاستشاري الهندسي
KK (أ.د. خالد قنديل)

Eng. / CONSULTANT

م.أ.ير المشروع م / السيد سيف
شروع: القطار الكهربائي السريع
القطاع الخامس

المكتب محمد عبد الله

للإنشاءات ورصف الطرق

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق والكباري (GARBU)		الهيئة العامة للتخطيط العمراني والبناء (GAUPC)	
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Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/Serial Number	Time			
	Eng. Mohamed moustafa		24/05/2023	3:00 PM			
			SS-A-MO3-FDT-F-4				
Received by GARBU CONSULTANT	Eng. Sayed saif		MR	4%	G2	C3	DB
				MM	YY	HH	MM
				35J	FW	CS	25
				5	23	3	0

Station Reference	D1 to S3	Kp XXX Note
Station Reference	Report Reference	For Kilometer point only Start Km is used
Work Activity		
Sub Element of Activity		

Description of Materials	FILL LAYER AT LEVEL (1 m) FROM FERMA			
Location to be Used	From	351+000	TO	351+100
		33+519 71		33+619 71
MAR & UIR Approval No	UIR SS A MO1-IR-F-004	Date	24/05/2023	
	SS A MO1 MAR F 01		27/04/2023	
Supplier Name	محاجر وادي التطرون العلمي			
Test Requirement	F D T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (EG21 41 2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	27/05/2023	
2					
3					
4					

Comments by Eng. SAYED SAIF (KK)	Comments by Eng. Alaa Abd-Alfatif (ER)
1-The Compaction Test Result F D T (ASTM D 1556) is Approved	1- F D T was carried out by material engineer for both contractor and GARBU Consultant 2- Results report attached and acceptable with project specifications

APPROVAL STATUS				
Organisation	Name	Sign	Date	A AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC	Eng. Sayed saif			A
GARB**	Eng. Margret magaly			
Employers Representative	Eng. Maha Abdallah			A

مكتب محمد عبد الله محمد اسماعيل
للإستشارات ورصف الطرق

(أ. د. خالد قنديل)
مدير المشروع م / السيد سيف
شروع انقطاع الكهرقائي السريع
القطاع الخامس

CDE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub element of Activity		

Comments by Eng. (K K)	Comments by Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D T, (ASTM D 1556) is Approved	1-F D.T was carried out by material engineer for both contractor and GARB Consultant 2 Results report attached and acceptable with project specifications 3 Final approval is subject to above mentioned comments

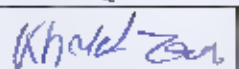
Designer ** Alignment/Bridges Culvert only	مكتب محمد عبد الله محمد اسماعيل للاستشارات ورصف الطرق	27/5 (1 هـ / خالد قنديل) مدير المشروع م / السيد سيف مشروع الفضل الكهربائي السريع القطاع الخامس
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K K الاستشاري الهندسي
 (مهندس) (مهندس)
 المهندس محمد عبد الله محمد اسماعيل
 ENR CONTRACTOR
 مشروع / السيد سيف
 انقطاع الكهرباء السريع
 انقطاع الخامس
 طرق
 رقم

Pyramid of Maslow's hierarchy of needs with 'Self-actualization' at the top and 'Physiological' at the base.

مكتب الاستشاري الهندسي
(مهندسين قاتلين)
مدير المشروع / السيد سيف
المطاط الكهربائي السريع
القطاع الخامس

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company		k.k					
Issued by Contractor	Name	Sign		Date/Serial Number		Time					
	Eng. Mohamed meustafa			30/05/2023 (F D T 005)		3:00 PM					
Received by GARB CONSULTANT	Eng. Sayed saif		MIN	C1	C2	C3	CD	MD	YY	HH	MM
				351	EW	CS	31	5	23	3	0

CODE	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

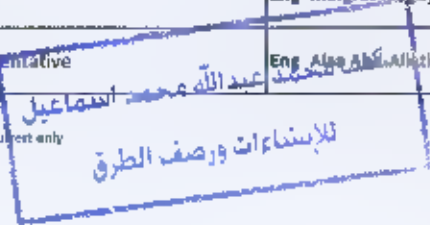
Description of Materials		Fill Layer (-0.75m from Ferma Level)				
Location to be Used		From	351+000	TO	351+100	
MAR & UIR Approval No		UIR F-005	Date		30/05/2023	
		M A R.001			27/04/2023	
Supplier Name		محجر وادي النصارون العلي				
Test Requirement		F D T(ASTM D 1556)		Specification		
				EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-42 2) VERSION 2 BY OVECON GROUP		
Reference Photos		No/Yes		Other		
Item	Description		Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST		NUMBER	4	01/05/2023	
2						
3						
4						

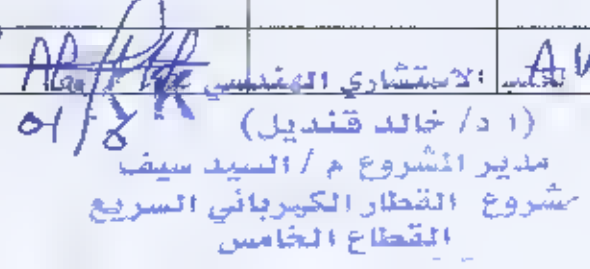
Comments by: Eng. (K K)	Comments by: Eng. Alaa Abd-Allahf (ER)
1-The Compaction Test Result F.D.T (ASTM D 1556) is Approved.	1 F D T was carried out by material engineer for both contractor and GARBS Consultant 2 Results report attached and acceptable with project specifications 3 Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A AWC R
Contractor	Eng. Mohamed meustafa			A
QA/QC *	Eng. Sayed saif			A
GARB **	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allahf			AWC

* Designer

** Alignment/Bridges, Culvert only

2023

 محمد عبد الله محمد اسماعيل
 للإنشاءات ورصف الطرق

2023

 الاستشاري الهندسي
 (أ.د / خالد قنديل)
 مدير المشروع م / السيد سيف
 مشروع القطار الكهربائي السريع
 القطاع الخامس

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	31/05/2023	FINAL DATE	01/06/2023
STAGE OF WORK.	Fill Layer at level (-0.75 m) from Fenna		
Request NO	S5-A-M03-IR-F-5		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

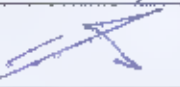
LAYER	Fill Layer at level (-0.75 m) from Fenna									
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm					
SAMPLE No	-	1	2	3	4					
STATION	-	351+025	351+050	351+075	351+100					
		33+545	33+570	33+595	33+620					
CONTAINER No	-	A-1	A-1	A-1	A-1					
WEIGHT OF CAN	gms	29	31	30	33					
WT OF CAN+WET SOIL	gms	205.0	203.0	204.0	207.0					
WT OF CAN+DRY SOIL	gms	193.0	194.0	194.0	195.0					
WT OF WATER	gms	12.0	9.0	10.0	12.0					
WT OF DRY SOIL	gms	164.0	163.0	164.0	162.0					
WATER CONTENT	%	7.3	5.5	6.1	7.4					
WT OF WET SOIL	gms	3815	3859	3771	3819					
WT OF INITIAL SAND+CONT	gms	7850	7898	7878	7821					
WT OF RESIDUAL SAND + CONT	gms	3844	3756	3822	3796					
WT OF SAND TO FILL CONE+HOLE	gms	4006	4142	4056	4025					
WT OF SAND TO FILL CONE	gms	1553	1553	1553	1553					
WT OF SAND TO FILL HOLE	gms	2453	2589	2503	2472					
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47					
GROSS VOLUME OF HOLE	cc	1668.7	1761.2	1702.7	1681.6					
WET UNIT WT. OF SOIL	gm/cc	2.29	2.19	2.21	2.27					
DRY UNIT WT. OF SOIL	gm/cc	2.13	2.08	2.09	2.11					
MAX DRY DENSITY	gm/cc	2.17	2.17	2.17	2.17					
OPTIMUM MOISTURE CONTENT	%	7.1	7.1	7.1	7.1					
COMPACTION	%	98.17	95.68	96.19	97.44					
REQUIRED COMPACTION	%	95	95	95	95					
REMARKS		PASSED	PASSED	PASSED	PASSED					

KK مكتب استشاري الهندسي
(جاسد قنديل)

المهندس / السيد سيف

Eng / CONSULTANT السيد الكهربائي السريح
القطاع الخامس

Eng / CONTRACTOR مكتب محمد عبد الله محمد اسماعيل
للانشآت ورصف الطرق

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign		Date/Serial Number	Time			
	Eng. Mohamed moustafa			30/05/2023	3 00 PM			
				SS A MO3 FDT F-6				
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	01 02 03 04 05 06 07 08 09 10 11 12	MM	YY	HH	MM

COMET	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
Sub Element of Activity			

Description of Materials	FILL LAYER AT LEVEL (-5 m) FROM FERMA			
Location to be Used	From	351+100	TO	351+260
		33+619 71		33+779 71
MAR & UIR Approval No	UIR SS A MO1 IR F 006	Date	30/05/2023	
	SS A MO1 MAR F 03		28/05/2023	
Supplier Name	محاجر وادي البطرون العتيبي			
Test Requirement	F D T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 A1 2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	01/06/2023	
2					
3					
4					

Comments by Eng. SAYED SAIF (KK)	Comments by Eng. Alaa Abd Allatif (ER)
1-The Compaction Test Result F.D T. (ASTM D 1556) is Approved	1-F D.T was carried out by material engineer for both contractor and GARB Consultant 2 Results report attached and acceptable with project specifications

APPROVAL STATUS				
Organisation	Name	Sign	Date	A A W C R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
U/Rb**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd Allatif			A

مكتب محمد عبد الله محمد استعايل
للإنشاءات ورصف الطرق

المكتب الاستشاري الهندسي
(أ/د/ خالد قنديل)
مدير المشروع م / السيد سيف
شروع القطر الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST	محمد عبد الله	KK	إهبة العامة الطرق والكباري (GARB)	مشاريع الطرق والكباري	مشاريع الطرق والكباري
	للإستشارات ورصف الطرق	مشاريع الطرق والكباري	مشاريع الطرق والكباري	مشاريع الطرق والكباري	مشاريع الطرق والكباري

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	k.k	
Issued by Contractor	Name	Eng. Mohamed moustafa	Date/Serial Number	30/05/2023	
	Sign		(F.D.T. 006)	3:00 PM	
Received by GARB CONSULTANT	Eng. Sayed sarf		MIR	351	EW
			CS	31	5
			MM	23	3
			MM	0	

S1 to S21	D1 to S3	Kg 1000 Note
Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity		
Sub Element of Activity		

Description of Materials	Fill Layer (0.5m from Ferma Level)				
Location to be Used	From	351+100	TO	351+260	
MAR & UIR Approval No	UIR F-006	Date	30/05/2023		
	M.A.R. 03		28/05/2023		
Supplier Name	محجر وادي الطرون - العلمين				
Test Requirement	F D T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG23-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	01/06/2023	
2					
3					
4					

Comments by Eng. (K.K.)	Comments by Eng. Alaa Abd-Allatif (ER)
1 The Compaction Test Result F D T. (ASTM D 1556) is Approved.	1 F D T was carried- out by material engineer for both contractor and GARB Consultant. 2-Results report attached and acceptable with project specifications 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC R
Contractor	Eng. Mohamed moustafa			A
QA/QC*	Eng. Sayed sarf			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer
** Alignment/leveling/curb only

01/6

شروع القطار الكهربائي السريع
القطاع الخامس

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	31/05/2023	FINAL DATE	01/08/2023
STAGE OF WORK	Fill Layer at level (-0.5 m) from Ferma		
Request NO	S5-A-MO3-IR-F-6		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.5 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm
SAMPLE No	-	1	2	3	4	5	6	7
STATION	-	351+125	351+150	351+175	351+200	351+225	351+250	351+260
CONTAINER No	-	33+645	33+670	33+695	33+720	33+745	33+770	33+780
WEIGHT OF CAN	gms	30	30	31	32	29	30	33
WT. OF CAN+WET SOIL	gms	205.0	208.0	206.0	203.0	204.0	208.0	206.0
WT. OF CAN+DRY SOIL	gms	193.0	198.0	196.0	194.0	194.0	197.0	195.0
WT. OF WATER	gms	12.0	10.0	10.0	9.0	10.0	11.0	11.0
WT. OF DRY SOIL	gms	183.0	188.0	186.0	185.0	184.0	186.0	184.0
WATER CONTENT	%	7.4	6.0	6.1	5.6	6.1	6.6	6.8
WT. OF WET SOIL	gms	3784	3765	3868	3735	3823	3822	3849
WT. OF INITIAL SAND+CONT	gms	7799	7782	7795	7723	7881	7758	7806
WT. OF RESIDUAL SAND + CONT	gms	3782	3722	3670	3692	3771	3672	3702
WT. OF SAND TO FILL CONE+HOLE	gms	4017	4060	4125	4031	4110	4086	4104
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2464	2507	2572	2478	2557	2533	2551
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1676.2	1705.4	1749.7	1685.7	1739.5	1723.1	1735.4
WET UNIT WT. OF SOIL	gm/cc	2.25	2.21	2.21	2.22	2.20	2.22	2.22
DRY UNIT WT. OF SOIL	gm/cc	2.09	2.08	2.08	2.10	2.07	2.08	2.08
MAX. DRY DENSITY	gm/cc	2.18	2.18	2.18	2.18	2.18	2.18	2.18
OPTIMUM MOISTURE CONTENT	%	6.9	6.9	6.9	6.9	6.9	6.9	6.9
COMPACTION	%	95.94	95.58	95.61	96.29	95.06	95.46	95.27
REQUIRED COMPACTION	%	95	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Eng / CONSULTANT

الاستشاري الهندسي

مدير المشروع م / السيد سيف
تدوع انطار الكهربائي السريع
القطاع الخامس

مكتب محمد عبدالله محمد اسعيل
Eng / CONTRACTOR

الإستشاري وصرف الطرق

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق و الكباري (GARB)		المجلس الاقتصادي الاستراتيجي		

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/Serial Number	Time			
	Eng. Mohamed moustafa		07/06/2023	3:00 PM			
			S5-A-MO3-FDT-F-7				
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD
				351	EW	CS	08
				MM	YY	HH	MM
				6	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	FILL LAYER AT LEVEL (-0.25 m) FROM FERMA		
Location to be Used	From	351+100	TO
		33+619.71	
			351+260
			33+779.71
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-7	Date	07/06/2023
	S5-A-MO1-MAR-F-03		28/05/2023
Supplier Name	محاجر وادي النطرون - العلمين		
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes	Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	10/06/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			

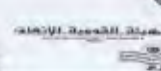
الإشراف ورصف الطرق
للإنشاءات ورصف الطرق

المكتب الاستشاري الهندسي
(إ.د. خالد قنديل)
مدير المشروع: م. السيد سيف
مشروع: القطار الكهربائي السريع
التقاطع الخامس

MATERIAL INSPECTION REQUEST



الهيئة العامة
للطرق والكباري
(GARB)



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		07/06/2023 (F.D.T.007)	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	08	6	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is use
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Description of Materials	Fill Layer (-0.25m from Ferma Level).			
Location to be Used	From	351+100	TO	351+260
MAR & UIR Approval No	UIR F-007	Date	07/06/2023	
	M.A.R.003		28/05/2023	
Supplier Name	محجر وادي النطرون - العلمين			
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG2 41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	10/06/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARI Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023/06/10	A.W.C

* Designer مكتب محمد عبد الله محمد اسماعيل
** Alignment/Bridges/Culvert only للإنشاءات ورصف الطرق

د. خالد قنديل
المشروع م / السيد سيف
المستشار الكهربائي السريع
التخطيط الخامس



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل



الهيئة العامة
للطرق والكباري
(GARB)



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	08/06/2023	FINAL DATE	09/06/2023
STAGE OF WORK :	Fill Layer at level (-0.25 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-7		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.25 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm

SAMPLE No.	-	1	2	3	4	5	6	7	
STATION	-	351+125	351+150	351+175	351+200	351+225	351+250	351+260	
		33+645	33+670	33+695	33+720	33+745	33+770	33+780	
CONTAINER No.	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1	
WEIGHT OF CAN	gms	32	29	32	30	30	30	32	
WT. OF CAN+WET SOIL	gms	204.0	204.0	208.0	207.0	203.0	207.0	206.0	
WT. OF CAN+DRY SOIL	gms	198.0	192.0	195.0	195.0	195.0	194.0	195.0	
WT. OF WATER	gms	6.0	12.0	13.0	12.0	8.0	13.0	11.0	
WT. OF DRY SOIL	gms	166.0	163.0	163.0	165.0	165.0	164.0	163.0	
WATER CONTENT	%	3.6	7.4	8.0	7.3	4.8	7.9	6.7	

WT. OF WET SOIL	gms	3876	3783	3772	3882	3883	3809	3824	
WT. OF INITIAL SAND+CONT	gms	7834	7738	7794	7726	7709	7710	7778	
WT. OF RESIDUAL SAND + CONT.	gms	3702	3700	3834	3708	3644	3671	3772	
WT. OF SAND TO FILL CONE+HOLE	gms	4132	4038	3960	4018	4065	4039	4006	
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553	
WT. OF SAND TO FILL HOLE	gms	2579	2485	2407	2465	2512	2486	2453	
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47	
GROSS VOLUME OF HOLE	ccs	1754.4	1690.5	1637.4	1676.9	1708.8	1691.2	1668.7	
WET UNIT WT. OF SOIL	gm/cc	2.21	2.24	2.30	2.32	2.27	2.25	2.29	
DRY UNIT WT. OF SOIL	gm/cc	2.13	2.08	2.13	2.16	2.17	2.09	2.15	
MAX. DRY DENSITY	gm/cc	2.18	2.18	2.18	2.18	2.18	2.18	2.18	
OPTIMUM MOISTURE CONTENT	%	6.9	6.9	6.9	6.9	6.9	6.9	6.9	
COMPACTION	%	97.81	95.61	97.87	98.99	99.41	95.73	98.47	
REQUIRED COMPACTION	%	95	95	95	95	95	95	95	
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	

Eng. / CONSULTANT

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: السيد سيف
شروع القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

للإنشاءات وحفر الطرق

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق والكباري (GARB)			
	محمد عبد الله Mohamed Abdallah	K.K. Engineering Consulting Office	مادة الترخيص	مادة الترخيص	مادة الترخيص	مادة الترخيص

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office	
Issued by Contractor	Name	Eng. Mohamed moustafa	Date/Serial Number	Time	
	Eng. Mohamed moustafa		11/06/2023 S5-A-MO3-FDT-F-8	3:00 PM	
Received by GARB CONSULTANT	Eng. Sayed saif		MIR		

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	FILL LAYER AT LEVEL (-0.5 m) FROM FERMA		
Location to be Used	From	351+000	TO
		33+519.71	351+100
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-008	Date	11/06/2023
	S5-A-MO1-MAR-F-03		28/05/2023
Supplier Name	محاجر وادي النطرون - العلمين		
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes	Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	13/06/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الخارقي

مكتب الاستشاري الهندسي
... (د. ا. د. خالد قنديل) ...
مدير المشروع: م. السيد سيف
مشروع: القطار الكهربائي السريع
القطاع الخاص

MATERIAL INSPECTION REQUEST	محمد عبدالله	XX	الهيئة العامة للطرق والكباري (GARB)	الهيئة العامة للطرق والكباري	الهيئة العامة للطرق والكباري	الهيئة العامة للطرق والكباري
	للإنشاءات ورصف الطرق	مكتب محمد عبد الله محمد اسماعيل	مكتب محمد عبد الله محمد اسماعيل	مكتب محمد عبد الله محمد اسماعيل	مكتب محمد عبد الله محمد اسماعيل	مكتب محمد عبد الله محمد اسماعيل

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	k.k	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		11/05/2023 (F.D.T.008)	3:00 PM	
Received by GARB CONSULTANT	Eng. Sayed saif	Khaleel	MM	YY	HH
			351	EW	CS
			12	6	23
			3	0	

CODE	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer (-0.5m from Ferma Level).		
Location to be Used	From	351+000	TO 351+100
MAR & UIR Approval No	UIR F-008	Date	11/06/2023
	M.A.R.003		28/05/2023
Supplier Name	محجر وادي النطرون - العلمين		
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes	Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	13/05/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		23/05/2023	AWC

* Designer: مكتب محمد عبد الله محمد اسماعيل
** Alignment/Bridges: Culvert only
للإنشاءات ورصف الطرق

المهندس / السيد سينا
شروع: القطر الكهربائي السريع
القطاع الخامس



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل



الهيئة العامة
للطرق والجاري
(GARB)



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	12/06/2023	FINAL DATE	13/06/2023
STAGE OF WORK :	Fill Layer at level (-0.5 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-8		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.5 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm			

SAMPLE No.	-	1	2	3	4			
STATION	-	351+025	351+050	351+075	351+100			
	-	33+545	33+570	33+595	33+620			
CONTAINER No.	-	A-1	A-1	A-1	A-1			
WEIGHT OF CAN	gms	30	30	30	32			
WT. OF CAN+WET SOIL	gms	203.0	205.0	203.0	204.0			
WT. OF CAN+DRY SOIL	gms	192.0	194.0	193.0	191.0			
WT. OF WATER	gms	11.0	11.0	10.0	13.0			
WT. OF DRY SOIL	gms	162.0	164.0	163.0	159.0			
WATER CONTENT	%	6.8	6.7	6.1	8.2			

WT. OF WET SOIL	gms	3852	3770	3842	3711			
WT. OF INITIAL SAND+CONT.	gms	7780	7734	7745	7750			
WT. OF RESIDUAL SAND + CONT.	gms	3698	3747	3694	3846			
WT. OF SAND TO FILL CONE+HOLE	gms	4082	3987	4051	3904			
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553			
WT. OF SAND TO FILL HOLE	gms	2529	2434	2498	2351			
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47			
GROSS VOLUME OF HOLE	ccs	1720.4	1655.8	1699.3	1599.3			
WET UNIT WT. OF SOIL	gm/cc	2.24	2.28	2.26	2.32			
DRY UNIT WT. OF SOIL	gm/cc	2.10	2.13	2.13	2.14			
MAX. DRY DENSITY	gm/cc	2.18	2.18	2.18	2.18			
OPTIMUM MOISTURE CONTENT	%	6.9	6.9	6.9	6.9			
COMPACTION	%	96.18	97.88	97.72	98.39			
REQUIRED COMPACTION	%	95	95	95	95			
REMARKS		PASSED	PASSED	PASSED	PASSED			

Eng. / CONSULTANT

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع م. السيد سيف
القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

مهندس محمد اسماعيل
لبنان ورصف الطرق

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق و النقل (GARB)				

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office		
Issued by Contractor	Name	Sign		Date/Serial Number	Time		
	Eng. Mohamed moustafa			17/06/2023	3:00 PM		
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD
				351	EW	CS	18
				MM	YY	HH	MM
				6	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	FERMA		
Location to be Used	From	351+100	TO
		33+619.71	
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-009	Date	15/06/2023
	S5-A-MO1-MAR-F-03		28/05/2023
Supplier Name	محاجر وادي النطرون - العلمين		
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes	Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	19/06/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by third party lab (E-JUST) 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

للإنشاءات ورصف الطرق
عبد الله محمد اسماعيل

مدير المشروع م / السيد سيف
رؤس: انقطاع الكهرباء السريع
القنطرة الخامس

MATERIAL INSPECTION REQUEST	محمد عبدالله	K.K	الهيئة العامة للطرق والكباري (GARB)	مركز البحوث والدراسات	مركز البحوث والدراسات	مركز البحوث والدراسات
	مركز البحوث والدراسات	مركز البحوث والدراسات	مركز البحوث والدراسات	مركز البحوث والدراسات	مركز البحوث والدراسات	مركز البحوث والدراسات

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa	<i>[Signature]</i>	17/06/2023 (F.D.T.009)	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif	<i>[Signature]</i>	MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	18	6	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Description of Materials	Ferma				
Location to be Used	From	351+100	TO	351+260	
MAR & UIR Approval No	UIR F-009	Date	15/06/2023		
	M.A.R.00 3		28/05/2023		
Supplier Name	محجر وادي النطرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	19/06/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by Third party lab 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa	<i>[Signature]</i>		A
QA/QC *	Eng. Sayed saif	<i>[Signature]</i>		A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif	<i>[Signature]</i>	18 June 2023	AWC

* Designer

** Alignment/Bridges Consultant مكتب محمد عبد الله

للإنشاءات ورصف الطرق

(أ.د/ خالد فتيد)
مدير المشروع / السيد سيف
شروع التطوير الكهربائي السريع
القطاع الخامس



Egypt-Japan University of Science and Technology
الجامعة المصرية اليابانية للعلوم والتكنولوجيا
エジプト日本科学技術大学

Civil Engineering Testing &
Consulting Unit

وحدة اختبارات واستشارات الهندسة
المدنية

Technical Report

FIELD DENISITY TEST (7 Point)

Upper Embankment from KM 351+110 to KM 351+260

Project

Electric Express Train (Sokhna - New capital - 6th of October
city - New Elalamein city)

Prepared For

Mohammed Abdullah Company for Construction and Road Paving

Al-Israa Tower, Al-Mahmoudia Canal Road, Hajar Al-Nawatiya, Al-Bar Al-Qibli - Alexandria, Egypt



(June 18, 2023)

يعتمد
أمين عام الجامعة
لواء مهندس / أسامة فتحي



مكتب محمد عبد الله
www.ejust.edu.eg
CETC23060004.Trans.GEO.FD
للإنشاءات ورصف الطرق



CINTECH@ejust.edu.eg
Mobile: +201555631725



Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct 7 SAND CONE tests on the backfill soil of the Electric Express Train (Sokhna - New capital - 6th of October city - New Elalamein city) in accordance with the Egyptian Standard ECP 202. A geotechnical technician (Mr. Ahmed Sabry) from the working CETCU team visited the project site on June 18, 2023 and performed the tests. The report summarizes the sand cone test procedure, the test results and their interpretations, and the CETCU recommendations.

Test Set Up

The Egyptian standard ECP 202 was applied to define standard dry sand density used in the experiment, calculate the volume of a standard pot and cone, and the test setup. The sand cone test was conducted on the backfill soil of the project. The number and location of test points were determined according to the site engineer of the company. These tests were conducted to determine the density of the soil to determine the water content, and to determine the degree of compaction taking into account the test results of the Modified proctor test and the sieve analysis report are given in Appendix A of this report.

Test Procedure and Results

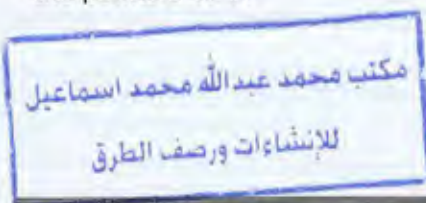
The sand cone test was conducted in accordance with the Egyptian standard ECP 202. According to the test locations and points specified and determined by the site company's engineer, disturbed samples were taken from the backfill soil at the project site.

Prior to the test, the test surface area was levelled, and the test set-up was bedded on this surface.

The soil used in the backfilling works is sand according to the sieve analysis results, so it was carefully treated according to the requirements of the Egyptian specifications to extract the required samples at each test point. For the extracted disturbed wet soil, the weight was measured directly in the field using a 0.1 g precision scale.

The curves for the sieve analysis test and relationship of the water content versus the soil dry density are included in Appendix A.

Table 1 presents the data obtained at the points 1-to-5, and Table 2 presents the data obtained at the points 6-to-7.





FIELD DENSITY REPORT

Company	Mohammed Abdullah Company for Construction and Road Paving
Project Owner	General Authority for Roads & Bridges
Project	Electric Express Train (Sokhna - New capital - 6th of October city - New Elalamein city)
Structure	As mentioned in table 1
location	As mentioned in table 1
Layer	Upper Embankment
Site test date	18/6/2023

Table 1

Reference point		1	2	3	4	5
Location		351+110	351+135	351+160	351+185	351+210
Layer		Upper Embankment				
Determination of Unit of wet soil	Wt. of wet soil (gm)	3811	4071	3430	4360	3950
	Wt. (sand+ cont.) gm	11350	11071	10792	10507	10133
	Wt. resid. sand+cont. gm	7420	6962	7107	6220	6111
	Wt. sand to fill cone (gm)	1359.5	1359.5	1359.5	1359.5	1359.5
	Wt. sand to fill hole (gm)	2570.5	2749.5	2325.5	2927.5	2662.5
	Unit Wt. of sand (t/m^3)	1.474	1.474	1.474	1.474	1.474
	Vol of the hole	1743.9	1865.3	1577.7	1986.1	1806.3
	Unit of wet soil (t/m^3)	2.185	2.182	2.174	2.195	2.187
Moisture content	Wt. of dry soil (gm)	3689.0	3891.9	3285.9	4236.2	3776.2
	Wt of moisture (gm)	122.0	179.1	144.1	123.8	173.8
	Mositure content (%)	3.3	4.6	4.4	2.9	4.6
Compaction	Unit Wt. of dry soil (t/m^3)	2.115	2.086	2.083	2.133	2.091
	Max dry density (t/m^3)	1.992	1.992	1.992	1.992	1.992
	Compaction (%)	106.2	104.7	104.6	107.1	104.9

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar





FIELD DENISITY REPORT

Company	Mohammed Abdullah Company for Construction and Road Paving
Project Owner	General Authority for Roads & Bridges
Project	Electric Express Train (Sokhna - New capital - 6th of October city - New Elalamein city)
Structure	As mentioned in table 2
location	As mentioned in table 2
Layer	Upper Embankment
Site test date	18/6/2023

Table 2

Reference point		6	7
Location		351+235	351+260
Layer		Upper Embankment	
Determination of Unit of wet soil	Wt. of wet soil (gm)	3852	3648
	Wt. (sand+ cont.) gm	9740	9544
	Wt. resid. sand+cont. gm	5782	5767
	Wt. sand to fill cone (gm)	1359.5	1359.5
	Wt. sand to fill hole (gm)	2598.5	2417.5
	Unit Wt. of sand (t/m^3)	1.474	1.474
	Vol of the hole	1762.9	1640.1
	Unit of wet soil (t/m^3)	2.185	2.224
Moisture content	Wt. of dry soil (gm)	3694.8	3526.9
	Wt of moisture (gm)	157.2	121.1
	Mositure content (%)	4.3	3.4
Compaction	Unit Wt. of dry soil (t/m^3)	2.096	2.150
	Max dry density (t/m^3)	1.992	1.992
	Compaction (%)	105.2	108.0

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق





Egypt-Japan University of Science and Technology
الجامعة المصرية اليابانية للعلوم والتكنولوجيا
エジプト日本科学技術大学

Civil Engineering Testing &
Consulting Unit

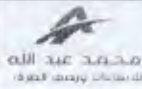
وحدة اختبارات واستشارات الهندسة
المدنية

Appendix A

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق



MATERIAL INSPECTION REQUEST



الهيئة العامة
للمطرق والكباري
(GARB)



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company				(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed moustafa			18/06/2023				3:00 PM			
				S5-A-MO3-FDT-F-10							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	FW	CS	19	6	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	FILL LAYER (-0.25m from ferma level)			
Location to be Used	From	351+000	TO	351+100
		33+519.71		33+619.71
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-010	Date	18/06/2023	
	S5-A-MO1-MAR-F-03		28/05/2023	
Supplier Name	محاجر وادي النطرون - العلمين			
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

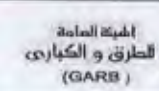
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	20/06/2023	
2					
3					
4					

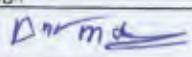
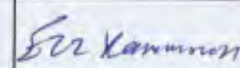
Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB **	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

المكتب الاستشاري الهندسي
(د.أ) خالد قنديل
مدير المشروع م. السيد سيف
شروع: القطر الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST	     	
	محمد عبدالله للإنشاءات ورصف الطرق K.K. ENGINEERING CONSULTING OFFICE مكتب محمد عبدالله للإنشاءات ورصف الطرق إمارة الشارقة الشارقة Garb (General Arab Road Bureau) وزارة النقل الشارقة Syster Shaker	

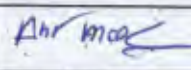
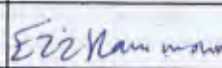
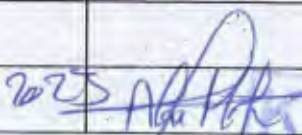
Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		18/06/2023 (F.D.T.010)	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	19	6	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer (-0.25m from Ferma Level).				
Location to be Used	From	351+000	TO	351+100	
MAR & UIR Approval No	UIR F-010		Date	18/06/2023	
	M.A.R.003			28/05/2023	
Supplier Name	محجر وادي النطرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	20/06/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		20/6	AWC

* Designer.

** Alignment/Bridges: Culvert only

مكتب محمد عبدالله
للإنشاءات ورصف الطرق

(أ.د / خالد قنديل)
مدير المشروع / السيد سيف
شروع القطر الكهربائي السريع
القطاع الخامس

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	19/06/2023	FINAL DATE	20/06/2023
STAGE OF WORK :	Fill Layer at level (-0.25 m) from Ferma		
Request NO.	S5-A-M03-IR-F-10		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER		Fill Layer at level (-0.25 m) from Ferma			
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm
SAMPLE No.	-	1	2	3	4
STATION	-	351+025	351+050	351+075	351+100
		33+545	33+570	33+595	33+620
CONTAINER No.	-	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	29	33	32	33
WT. OF CAN+WET SOIL	gms	203.0	203.0	205.0	203.0
WT. OF CAN+DRY SOIL	gms	191.0	193.0	195.0	194.0
WT. OF WATER	gms	12.0	10.0	10.0	9.0
WT. OF DRY SOIL	gms	162.0	160.0	163.0	161.0
WATER CONTENT	%	7.4	6.3	6.1	5.6
WT. OF WET SOIL	gms	3795	3899	3883	3755
WT. OF INITIAL SAND+CONT.	gms	7741	7876	7844	7757
WT. OF RESIDUAL SAND + CONT.	gms	3743	3787	3781	3729
WT. OF SAND TO FILL CONE+HOLE	gms	3998	4089	4063	4028
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2445	2536	2510	2475
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1663.3	1725.2	1707.5	1683.7
WET UNIT WT. OF SOIL	gm/cc	2.28	2.26	2.27	2.23
DRY UNIT WT. OF SOIL	gm/cc	2.12	2.13	2.14	2.11
MAX. DRY DENSITY	gm/cc	2.18	2.18	2.18	2.18
OPTIMUM MOISTURE CONTENT	%	6.9	6.9	6.9	6.9
COMPACTION	%	97.44	97.57	98.29	96.89
REQUIRED COMPACTION	%	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED

Eng. / CONSULTANT

KK الاستشاري الهندسي
(أ.د. خالد قنديل)

مدير المشروع م. السيد سيف
شروع القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

مكتب محمد عبد الله
للإنشاءات ورصف الطرق

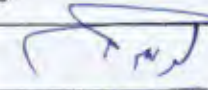
Contractor Company		Mohamed Abdallah for constructions and roads paving		Designer Company		(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign		Date/Serial Number		Time	
	Eng. Mohamed moustafa			05/07/2023 S5-A-MO3-FDT-F-11		3:00 PM	
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD
				351	EW	CS	06
				MM	YY	HH	MM
				7	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials		ferma			
Location to be Used	From	351+000	TO	351+100	
		33+519.71		33+619.71	
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-011	Date	04/07/2023		
	S5-A-MO1-MAR-F-03		28/05/2023		
Supplier Name	محاجر وادي النطرون - العلمين				
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	08/07/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK) 1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	Comments by: Eng. Alaa Abd-Allatif (ER) 1-F.D.T was carried- out by Third party lab (E-JUST) 2-Results report attached and acceptable with project specifications.
---	--

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC +	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
للإتصالات ورصف الطرق

المكتب الاستشاري الهندسي
(أ.د/ خالد قنديل)
مدير المشروع م / السيد سيف
مشروع: القطار الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST	محمد عبد الله	KK	الهيئة العامة للطرق والكباري (GARB)	مكة المكرمة	الهيئة العامة للطرق والكباري	CVTRA SHARAH
	للإشراف ورصف الطرق	مكتب محمد عبد الله محمد اسماعيل للإنشاءات ورصف الطرق				

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k		
Issued by Contractor	Name	Sign		Date/Serial Number	Time		
	Eng. Mohamed moustafa			05/07/2023 (F.D.T.0011)	3:00 PM		
Received by GARB CONSULTANT	Eng. Sayed saif	Khawaja	MIR	C1	C2	C3	DD
				351	EW	CS	06
				MM	YY	HH	MM
				7	23	3	0

CODE-A	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Ferma				
Location to be Used	From	351+000	TO	351+100	
MAR & UIR Approval No	UIR F-011	Date	04/07/2023		
	M.A.R.003		28/05/2023		
Supplier Name	محجر وادي النطرون - العلمين				
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	08/07/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by third party lab (E-Just) 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif	Khawaja		A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif	for	8-7-2023	AWC

* Designer

** Alignment/Bridges: Culvert only

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: م. السيد سيف
مشروع: القطار الكهربائي السريع



Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct 7 SAND CONE tests on the backfill soil of the Electric Express Train (Sokhna - New capital - 6th of October city - New Elalamein city) in accordance with the Egyptian Standard ECP 202. A geotechnical technician (Mr. Ahmed Sabry) from the working CETCU team visited the project site on July 6, 2023 and performed the tests. The report summarizes the sand cone test procedure, the test results and their interpretations, and the CETCU recommendations.

Test Set Up

The Egyptian standard ECP 202 was applied to define standard dry sand density used in the experiment, calculate the volume of a standard pot and cone, and the test setup. The sand cone test was conducted on the backfill soil of the project. The number and location of test points were determined according to the site engineer of the company. These tests were conducted to determine the density of the soil to determine the water content, and to determine the degree of compaction taking into account the test results of the modified proctor test and the sieve analysis report are given in Appendix A of this report.

Test Procedure and Results

The sand cone test was conducted in accordance with the Egyptian standard ECP 202. According to the test locations and points specified and determined by the site company's engineer, disturbed samples were taken from the backfill soil at the project site.

Prior to the test, the test surface area was levelled, and the test set-up was bedded on this surface.

The soil used in the backfilling works is sand according to the sieve analysis results, so it was carefully treated according to the requirements of the Egyptian specifications to extract the required samples at each test point. For the extracted disturbed wet soil, the weight was measured directly in the field using a 0.1 g precision scale.

The curves for the sieve analysis test and relationship of the water content versus the soil dry density are included in Appendix A.

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق





FIELD DENSITY REPORT

Company	Mohammed Abdullah Company for Construction and Road Paving
Project Owner	General Authority for Roads & Bridges
Project	Electric Express Train (Sokhna - New capital - 6th of October city - New Elalamein city)
Structure	As mentioned in table 1
location	As mentioned in table 1
Layer	As mentioned in table 1
Site test date	6/7/2023

Table 1

Reference point		1	2	3	4	5	6
Location		350+850	350+875	350+900	350+925	350+950	350+975
Layer		Upper Embankment					
Determination of Unit of wet soil	Wt. of wet soil (gm)	4039	3992	4632	4568	4121	4133
	Wt. (sand+ cont.) gm	10473	10225	9980	9509	9250	8850
	Wt. resid. sand+cont. gm	6325	6086	5400	5050	4998	4622
	Wt. sand to fill cone (gm)	1469.0	1469.0	1469.0	1469.0	1469.0	1469.0
	Wt. sand to fill hole (gm)	2679.0	2670.0	3111.0	2990.0	2783.0	2759.0
	Unit Wt. of sand (t/m ³)	1.44	1.44	1.44	1.44	1.44	1.44
	Vol of the hole	1860.4	1854.2	2160.4	2076.4	1932.6	1916.0
Moisture content	Unit of wet soil (t/m ³)	2.171	2.153	2.144	2.200	2.132	2.157
	Wt. of dry soil (gm)	3967.9	3838.7	4515.3	4432.8	4032.8	4020.6
	Wt of moisture (gm)	71.1	153.3	116.7	135.2	88.2	112.4
Compaction	Mositure content (%)	1.8	4.0	2.6	3.1	2.2	2.8
	Unit Wt. of dry soil (t/m ³)	2.133	2.070	2.090	2.135	2.087	2.098
	Max dry density (t/m ³)	1.992	1.992	1.992	1.992	1.992	1.992
Compaction (%)		107.1	103.9	104.9	107.2	104.8	105.3

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar





FIELD DENSITY REPORT

Company	Mohammed Abdullah Company for Construction and Road Paving
Project Owner	General Authority for Roads & Bridges
Project	Electric Express Train (Sokhna - New capital - 6th of October city - New Elalamein city)
Structure	As mentioned in table 2
location	As mentioned in table 2
Layer	As mentioned in table 2
Site test date	6/7/2023

Table 2

Reference point		7	8	9	10	11
Location		351+000	351+025	351+050	351+075	351+100
Layer		Upper Embankment				
Determination of Unit of wet soil	Wt. of wet soil (gm)	3820	3754	3735	3545	3385
	Wt. (sand+ cont.) gm	8542	8192	7855	7589	7306
	Wt. resid. sand+cont. gm	4498	4107	3948	3727	3540
	Wt. sand to fill cone (gm)	1469.0	1469.0	1469.0	1469.0	1469.0
	Wt. sand to fill hole (gm)	2575.0	2616.0	2438.0	2393.0	2297.0
	Unit Wt. of sand (t/m ³)	1.44	1.44	1.44	1.44	1.44
	Vol of the hole	1788.2	1816.7	1693.1	1661.8	1595.1
	Unit of wet soil (t/m ³)	2.136	2.066	2.206	2.133	2.122
Moisture content	Wt. of dry soil (gm)	3723.7	3656.4	3602.0	3445.0	3303.8
	Wt of moisture (gm)	96.3	97.6	133.0	100.0	81.2
	Mositure content (%)	2.6	2.7	3.7	2.9	2.5
Compaction	Unit Wt. of dry soil (t/m ³)	2.082	2.013	2.128	2.073	2.071
	Max dry density (t/m ³)	1.992	1.992	1.992	1.992	1.992
	Compaction (%)	104.5	101.0	106.8	104.1	104.0

Technical committee
Dr. Mahmoud Ahmed
Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer
Mohamed A. Al-Najjar

MATERIAL INSPECTION REQUEST							
	المصالح العامة Ministry of Transport and Infrastructure	المصالح العامة Ministry of Planning	المصالح العامة Ministry of Economy and Finance	المصالح العامة Ministry of Education and Higher Education	المصالح العامة Ministry of Health and Social Welfare	المصالح العامة Ministry of Agriculture and Forestry	المصالح العامة Ministry of Water Resources

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		31/08/2023 S5-A-M03-FDT-F-12	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	02	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer at level (-1 m) from ferma level				
Location to be Used	From	351+260	TO	351+440	
		33+779.71		33+959.71	
MAR & UIR Approval No	UIR S5-A-M01-IR-F-012	Date	31/08/2023		
	S5-A-M01-MAR-F-03		28/05/2023		
Supplier Name	محاجر وادي النطرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	8	03/09/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: م. السيد سيق
مشروع: القطر الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST	محمد عبدالله	K.K	الهيئة العامة للطرق والكباري (GARB)	وزارة النقل	الهيئة العامة للطرق والكباري	الهيئة العامة للطرق والكباري
	للإشراف على إنشاء وصيانة الطرق	الهيئة العامة للطرق والكباري	الهيئة العامة للطرق والكباري	الهيئة العامة للطرق والكباري	الهيئة العامة للطرق والكباري	الهيئة العامة للطرق والكباري

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	K.K		
Issued by Contractor	Name	Sign		Date/Serial Number	Time		
	Eng. Mohamed moustafa			31/08/2023 (F.D.T.012)	3:00 PM		
Received by GARB CONSULTANT	Eng. Sayed saif	Khaleel Zaidi	MIR	CL	C2	C3	DD
				351	EW	CS	2
				MM	YY	HH	MM
				9	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
CODE 2	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE 3	Work Activity		
CODE 4	Sub Element of Activity		

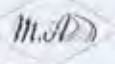
Description of Materials	LEVEL (-1.00) FROM FERMA				
Location to be Used	From	351+260	TO	351+440	
MAR & UIR Approval No	UIR F-012		Date	31/08/2023	
	M.A.R.003			28/05/2023	
Supplier Name	محاجر وادي النظرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	8	03/09/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif	Khaleel Zaidi		A
GARB**	Eng. Margret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer
** Approval/Bridges: Culvert only
للإشراف على إنشاء وصيانة الطرق

(أ.د. خالد زكي)
مدير المشروع / السيد سيف
شروع: التفتار الكهربائي السريع
التحطاع الخامس



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	02/09/2023	FINAL DATE	03/09/2023
STAGE OF WORK :	Embankment -1.00		
Request NO.	IR(F-012)		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Embankment -1.00								
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm

SAMPLE No.	-	1	2	3	4	5	6	7	8
STATION	-	351+260	351+285	351+310	351+335	351+360	351+385	351+410	351+440
CONTAINER No.	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	31	30.5	29	31.5	33	32	32	32
WT. OF CAN+WET SOIL	gms	208.0	207.0	206.0	203.0	204.0	207.0	206.0	207.0
WT. OF CAN+DRY SOIL	gms	200.0	198.0	196.4	195.0	196.0	198.0	198.0	197.0
WT. OF WATER	gms	8.0	9.0	9.6	8.0	8.0	9.0	8.0	10.0
WT. OF DRY SOIL	gms	169.0	167.5	167.4	163.5	163.0	166.0	166.0	165.0
WATER CONTENT	%	4.7	5.4	5.7	4.9	4.9	5.4	4.8	6.1

WT. OF WET SOIL	gms	3812	3712	3987	3725	3678	3674	3652	3952
WT. OF INITIAL SAND+CONT.	gms	7985	7856	8152	7745	7689	7624	7752	7852
WT. OF RESIDUAL SAND + CONT.	gms	3898	3854	4102	3725	3752	3721	3821	3822
WT. OF SAND TO FILL CONE+HOLE	gms	4087	4002	4050	4020	3937	3903	3931	4030
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2534	2449	2497	2467	2384	2350	2378	2477
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	2.47	3.47
GROSS VOLUME OF HOLE	ccs	1723.8	1666.0	1698.6	1678.2	1621.8	1621.8	1598.6	962.8
WET UNIT WT. OF SOIL	gm/cc	2.21	2.23	2.35	2.22	2.27	2.27	2.30	3.79
DRY UNIT WT. OF SOIL	gm/cc	2.11	2.11	2.22	2.12	2.16	2.16	2.18	3.62
MAX. DRY DENSITY	gm/cc	2.18	2.18	2.18	2.18	2.18	2.18	2.18	2.18
OPTIMUM MOISTURE CONTENT	%	5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0
COMPACTION	%	96.85	97.00	97.00	97.07	99.16	99.16	95.63	97.60
REQUIRED COMPACTION	%	95	95	95	95	95	95	95	96
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Eng. / CONSULTANT

Khaled Alkhalaf

Eng. / CONTRACTOR

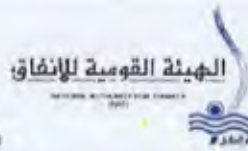
محمد
عبدالله
للإستشارات ورصف الطرق



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد منديل



الهيئة العامة
للطرق والكباري
(GARB)



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	02/09/2023	FINAL DATE	03/09/2023
STAGE OF WORK :	Fill Layer at level (-1 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-12		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-1 m) from Ferma								
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm

SAMPLE No.	-	1	2	3	4	5	6	7	8
STATION	-	351+280	351+305	351+330	351+355	351+380	351+405	351+430	351+440
	-	33+800	33+825	33+850	33+875	33+900	33+925	33+950	33+960
CONTAINER No.	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	30	30	33	30	32	31	33	30
WT. OF CAN+WET SOIL	gms	203.0	206.0	205.0	206.0	207.0	205.0	204.0	203.0
WT. OF CAN+DRY SOIL	gms	196.0	198.0	198.0	196.0	198.0	195.0	195.0	192.0
WT. OF WATER	gms	7.0	8.0	7.0	10.0	9.0	10.0	9.0	11.0
WT. OF DRY SOIL	gms	166.0	168.0	165.0	166.0	166.0	164.0	162.0	162.0
WATER CONTENT	%	4.2	4.8	4.2	6.0	5.4	6.1	5.6	6.8

WT. OF WET SOIL	gms	3776	3827	3800	3847	3826	3877	3826	3899
WT. OF INITIAL SAND+CONT.	gms	7771	7825	7808	7858	7798	7815	7848	7788
WT. OF RESIDUAL SAND + CONT.	gms	3722	3807	3705	3771	3748	3742	3825	3741
WT. OF SAND TO FILL CONE+HOLE	gms	4049	4018	4103	4087	4050	4073	4023	4047
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2496	2465	2550	2534	2497	2520	2470	2494
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1698.0	1676.9	1734.7	1723.8	1698.6	1714.3	1680.3	1696.6
WET UNIT WT. OF SOIL	gm/cc	2.22	2.28	2.19	2.23	2.25	2.26	2.28	2.30
DRY UNIT WT. OF SOIL	gm/cc	2.13	2.18	2.10	2.10	2.14	2.13	2.16	2.15
MAX. DRY DENSITY	gm/cc	2.18	2.18	2.18	2.18	2.18	2.18	2.18	2.18
OPTIMUM MOISTURE CONTENT	%	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
COMPACTION	%	97.88	99.93	96.40	96.55	98.01	97.78	98.95	98.72
REQUIRED COMPACTION	%	95	95	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

مكتب الاستشاري الهندسي KK

(أ.د. خالد منديل)

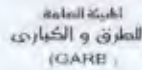
مدير المشروع م. السيد سيف
مستشار الكهربي السريخ
القنصل الخامس

Eng. / CONTRACTOR

مكتب محمد عبد الله
للإنشاءات ورصف الطرق

Eng. / CONSULTANT

MATERIAL INSPECTION REQUEST



الهيئة العامة للطرق والكباري



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company				(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed moustafa			04/09/2023				3:00 PM			
				55-A-MO3-FDT-F-13							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	05	9	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer at level (-1 m) from ferma level			
Location to be Used	From	351+440	TO	351+500
		33+959.71		34+019.71
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-013	Date	04/09/2023	
	S5-A-MO1-MAR-F-05		01/09/2023	
Supplier Name	محاجر وادي التطرون - العلمين			
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	3	06/09/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

المكتب الاستشاري الهندسي
(د. خالد قنديل)
مدير المشروع: م. السيد سيف
مشروع: القطار الكهربائي السريع
التحطاع الخامس

MATERIAL INSPECTION REQUEST	محمد عبدالله	KK	الهيئة العامة للطرق والكباري (GARB)	وزارة النقل	المكتب الاستشاري	SYSTEM
	للإنشاءات ورصف الطرق	المكتب الاستشاري				

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	k.k							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		04/09/2023 (F.D.T.013)	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif	Sign	MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	05	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Level (-1.00) from ferma				
Location to be Used	From	351+440	TO	351+500	
MAR & UIR Approval No	UIR F-013		Date	04/09/2023	
	M.A.R.005			01/09/2023	
Supplier Name	محاجر وادي النطرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	3	06/09/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges: Culvert only

المكتب الاستشاري
مدير المشروع / المهندس
شروع القطر الكهربائي السريع
القطاع الخامس



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	05/09/2023	FINAL DATE	06/09/2023
STAGE OF WORK :	Embankment (-1.00)		
Request NO.	IR(F-013)		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Embankment (-1.00)							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm				

SAMPLE No.	-	1	2	3				
STATION	-	351+450	351+475	351+500				
CONTAINER No.	-	A-1	A-1	A-1				
WEIGHT OF CAN	gms	32	31	30.5				
WT. OF CAN+WET SOIL	gms	206.0	203.0	201.0				
WT. OF CAN+DRY SOIL	gms	197.0	195.5	192.0				
WT. OF WATER	gms	9.0	7.5	8.4				
WT. OF DRY SOIL	gms	165.0	164.5	162.1				
WATER CONTENT	%	5.5	4.6	5.2				

WT. OF WET SOIL	gms	3956	3621	3752				
WT. OF INITIAL SAND+CONT.	gms	7985	7856	7789				
WT. OF RESIDUAL SAND + CONT.	gms	3925	4025	3856				
WT. OF SAND TO FILL CONE+HOLE	gms	4060	3831	3933				
WT. OF SAND TO FILL CONE	gms	1428	1428	1428				
WT. OF SAND TO FILL HOLE	gms	2632	2403	2505				
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47				
GROSS VOLUME OF HOLE	ccs	1790.5	1634.7	1704.1				
WET UNIT WT. OF SOIL	gm/cc	2.21	2.22	2.20				
DRY UNIT WT. OF SOIL	gm/cc	2.10	2.12	2.09				
MAX. DRY DENSITY	gm/cc	2.15	2.15	2.15				
OPTIMUM MOISTURE CONTENT	%	6.5	6.5	6.5				
COMPACTION	%	97.45	98.54	97.36				
REQUIRED COMPACTION	%	95	95	95				
REMARKS		PASSED	PASSED	PASSED				

Eng. / CONSULTANT

[Signature]

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: السيد سيف
مهندس: القطار الكهربائي السريع
التصميم والمقاسم

Eng. / CONTRACTOR

مكتب محمد وهاب
للإنشاءات ورصف الطرق
[Signature]



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل



الهيئة العامة
للطرق والجسور
(GARB)



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	05/09/2023	FINAL DATE	06/09/2023
STAGE OF WORK :	Fill Layer at level (-1 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-13		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

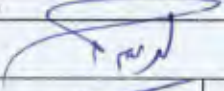
LAYER		Fill Layer at level (-1 m) from Ferma						
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm				
SAMPLE No.	-	1	2	3				
STATION	-	351+450	351+475	351+500				
	-	33+970	33+995	34+020				
CONTAINER No.	-	A-1	A-1	A-1				
WEIGHT OF CAN	gms	31	33	30				
WT. OF CAN+WET SOIL	gms	204.0	205.0	205.0				
WT. OF CAN+DRY SOIL	gms	193.0	195.0	195.0				
WT. OF WATER	gms	11.0	10.0	10.0				
WT. OF DRY SOIL	gms	162.0	162.0	165.0				
WATER CONTENT	%	6.8	6.2	6.1				
WT. OF WET SOIL	gms	3752	3803	3755				
WT. OF INITIAL SAND+CONT.	gms	7832	7758	7857				
WT. OF RESIDUAL SAND + CONT.	gms	3802	3682	3812				
WT. OF SAND TO FILL CONE+HOLE	gms	4030	4076	4045				
WT. OF SAND TO FILL CONE	gms	1553	1553	1553				
WT. OF SAND TO FILL HOLE	gms	2477	2523	2492				
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47				
GROSS VOLUME OF HOLE	ccs	1685.0	1716.3	1695.2				
WET UNIT WT. OF SOIL	gm/cc	2.23	2.22	2.22				
DRY UNIT WT. OF SOIL	gm/cc	2.09	2.09	2.09				
MAX. DRY DENSITY	gm/cc	2.15	2.15	2.15				
OPTIMUM MOISTURE CONTENT	%	6.5	6.5	6.5				
COMPACTION	%	96.98	97.07	97.14				
REQUIRED COMPACTION	%	95	95	95				
REMARKS		PASSED	PASSED	PASSED				

المكتب الاستشاري الهندسي (KK)
(أ.د. خالد قنديل)

Eng. / CONSULTANT

مدير المشروع: م. السيد سيف
مشروع: القطار الكهربائي السريع
القطاع الخامس

مكتب محمد عبد الله
Eng. CONTRACTOR
المهندس عبد الله
المهندس عبد الله

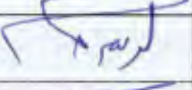
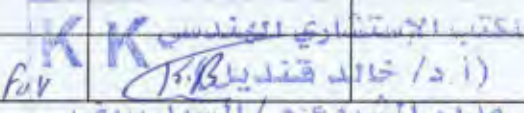
Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			05/09/2023	3:00 PM						
				S5-A-MO3-FDT-F-14							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	06	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer at level (-1.25 m) from ferma level				
Location to be Used	From	351+500	TO	351+620	
		34+019.71		34+139.71	
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-014	Date	05/09/2023		
	S5-A-MO1-MAR-F-05		01/09/2023		
Supplier Name	محاجر وادي النطرون - العلمين				
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	6	07/09/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK) 1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	Comments by: Eng. Alaa Abd-Allatif (ER) 1-F,D,T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.
---	---

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

مكتب الاستشاري الهندسي
(د.أ) خالد قنديل
مدير المشروع م / السيد سفيان
مشروع: القطار الكهربائي السريع
التحطاع الخامس

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		05/09/2023 (F.D.T.014)	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	D0	MM	YY	HH	MM
				351	EW	C5	06	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Level (-1.25) from ferma			
Location to be Used	From	351+500	TO	351+620
MAR & UIR Approval No	UIR F-014		Date	05/09/2023
	M.A.R.005			01/09/2023
Supplier Name	محاجر وادي النطرون - العلمين			
Test Requirement	F.D.T (ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes		Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	6	07/09/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023/09/07	AWC

مكتب محمد عبد الله عبد الله

للإنشاءات ورصف الطرق

** Alignment/Bridges/Oververt only

مكتب الاستشاري الهندسي

(أ.د/ خالد قنديل)

مدير المشروع: م / السيد سيف

شروع: القطار الكهربائي السريع

التقاطع الخامس



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل



الهيئة العامة
للطرق والكباري
(GARB)



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	06/09/2023	FINAL DATE	07/09/2023
STAGE OF WORK :	Fill Layer at level (-1.25 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-14		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-1.25 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	

SAMPLE No.	-	1	2	3	4	5	6		
STATION	-	351+500	351+525	351+550	351+575	351+600	351+620		
	-	34+020	34+045	34+070	34+095	34+120	34+140		
CONTAINER No.	-	A-1	A-1	A-1	A-1	A-1	A-1		
WEIGHT OF CAN	gms	30	29	29	31	31	32		
WT. OF CAN+WET SOIL	gms	207.0	203.0	204.0	206.0	204.0	204.0		
WT. OF CAN+DRY SOIL	gms	197.0	192.0	194.0	197.0	195.0	193.0		
WT. OF WATER	gms	10.0	11.0	10.0	9.0	9.0	11.0		
WT. OF DRY SOIL	gms	167.0	163.0	165.0	166.0	164.0	161.0		
WATER CONTENT	%	6.0	6.7	6.1	5.4	5.5	6.8		

WT. OF WET SOIL	gms	3860	3814	3886	3839	3890	3836		
WT. OF INITIAL SAND+CONT.	gms	7853	7765	7891	7852	7725	7786		
WT. OF RESIDUAL SAND + CONT.	gms	3700	3707	3747	3734	3639	3712		
WT. OF SAND TO FILL CONE+HOLE	gms	4153	4058	4144	4118	4086	4074		
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553		
WT. OF SAND TO FILL HOLE	gms	2600	2505	2591	2565	2533	2521		
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47		
GROSS VOLUME OF HOLE	ccs	1768.7	1704.1	1762.6	1744.9	1723.1	1715.0		
WET UNIT WT. OF SOIL	gm/cc	2.18	2.24	2.20	2.20	2.26	2.24		
DRY UNIT WT. OF SOIL	gm/cc	2.06	2.10	2.08	2.09	2.14	2.09		
MAX. DRY DENSITY	gm/cc	2.15	2.15	2.15	2.15	2.15	2.15		
OPTIMUM MOISTURE CONTENT	%	6.5	6.5	6.5	6.5	6.5	6.5		
COMPACTION	%	95.77	97.52	96.69	97.07	99.54	97.38		
REQUIRED COMPACTION	%	95	95	95	95	95	95		
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED		

Eng. / CONSULTANT

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع م. السيد سيمت
مشروع: القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

AMERICAN SOCIETY OF HUMAN GENETICS
11 Dupont Circle, N.W., Washington, D.C. 20036
Tel: 202/638-1000 Fax: 202/638-1001



الهيئة العامة
للطرق والكباري
(GARB)



1. 2000 年 10 月 1 日起, 凡在我国境内销售货物的单位和个人, 均应按销售额的一定比例缴纳增值税。



CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	8	09/09/2023	
2					
3					
4					

Comments by: Eng. Alaa Abd-Allatif (ER)

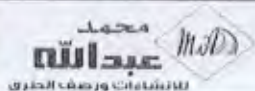
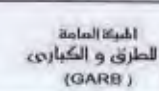
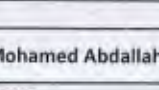
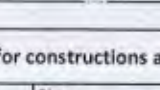
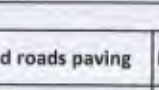
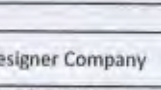
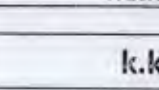
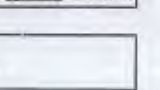
1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant

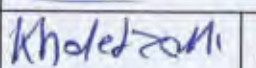
2-Results report attached and acceptable with project specifications.

Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

للإنشاءات ورصف الطرق

مكتبة الإستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: م. السيد سيف
مشروع: القطار الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST	     
	      

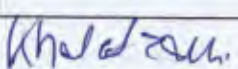
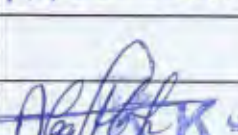
Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		06/09/2023 (F.D.T.015)	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	07	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Description of Materials	Level (-0.75) From Ferma			
Location to be Used	From	351+260	TO	351+440
MAR & UIR Approval No	UIR F-015		Date	06/09/2023
	M.A.R.005			01/09/2023
Supplier Name	محاجر وادي النطرون - الدسين			
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	8	09/09/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		09/9	A

* Designer
 * Alignment/Bridges: Culvert only
 مكتب محمد عبد الله
 للإنشاءات ورصف الطرق

(أ.د/ خالد قنديل)
 مدير المشروع م / السيد سيف
 مشروع: القطار الكهربائي السريع
 القطاع الخامس



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل



الهيئة العامة
للطرق والكباري
(GARB)



Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	07/09/2023	FINAL DATE	08/09/2023
STAGE OF WORK :	Fill Layer at level (-0.75 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-15		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.75 m) from Ferma								
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm

SAMPLE No.	-	1	2	3	4	5	6	7	8
STATION	-	351+280	351+305	351+330	351+355	351+380	351+405	351+430	351+440
	-	33+800	33+825	33+850	33+875	33+900	33+925	33+950	33+960
CONTAINER No.	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	29	30	29	32	31	32	29	29
WT. OF CAN+WET SOIL	gms	204.0	207.0	203.0	204.0	206.0	207.0	206.0	203.0
WT. OF CAN+DRY SOIL	gms	193.0	195.0	196.0	194.0	198.0	196.0	195.0	192.0
WT. OF WATER	gms	11.0	12.0	7.0	10.0	8.0	11.0	11.0	11.0
WT. OF DRY SOIL	gms	164.0	165.0	167.0	162.0	167.0	164.0	166.0	163.0
WATER CONTENT	%	6.7	7.3	4.2	6.2	4.8	6.7	6.6	6.7

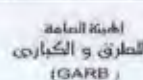
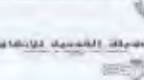
WT. OF WET SOIL	gms	3797	3796	3726	3789	3821	3804	3854	3846
WT. OF INITIAL SAND+CONT.	gms	7756	7859	7891	7875	7804	7900	7840	7819
WT. OF RESIDUAL SAND + CONT.	gms	3702	3849	3805	3792	3727	3833	3740	3756
WT. OF SAND TO FILL CONE+HOLE	gms	4054	4010	4086	4083	4077	4067	4100	4063
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2501	2457	2533	2530	2524	2514	2547	2510
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1701.4	1671.4	1723.1	1721.1	1717.0	1710.2	1732.7	1707.5
WET UNIT WT. OF SOIL	gm/cc	2.23	2.27	2.16	2.20	2.23	2.22	2.22	2.25
DRY UNIT WT. OF SOIL	gm/cc	2.09	2.12	2.08	2.07	2.12	2.08	2.09	2.11
MAX. DRY DENSITY	gm/cc	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
OPTIMUM MOISTURE CONTENT	%	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
COMPACTION	%	97.28	98.47	96.53	96.44	98.77	96.95	97.03	98.14
REQUIRED COMPACTION	%	95	95	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Eng. / CONSULTANT

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع م. السيد سيقا
شروع - القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

المهندس محمد اسماعيل
المسؤول عن ورصف الطرق

MATERIAL INSPECTION REQUEST							
	محمد عبد الله للإنشاءات ورصف الطرق	K.K. ENGINEERING CONSULTING OFFICE مكتب الاستشارات الهندسية	الهيئة العامة للمطرق والكباري (GARB)	وزارة النقل Ministry of Transport and Infrastructure	الوزارة Ministry of Planning	الوزارة Ministry of Economy and Finance	الوزارة Ministry of Housing and Urban Planning

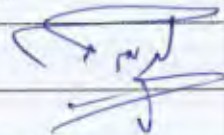
Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			10/09/2023 SS-A-MO3-FDT-F-16	3:00 PM						
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	11	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer at level (-0.75 m) from ferma level				
Location to be Used	From	351+440	TO	351+500	
		33+959.71		34+019.71	
MAR & UIR Approval No	UIR SS-A-MO1-IR-F-016	Date	10/09/2023		
	SS-A-MO1-MAR-F-05		01/09/2023		
Supplier Name	محاجر وادي النطرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	3	12/09/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

مكتب الاستشاري الهندسي
(د.أ) خالد فتحي
مدير المشروع / السيد
مشروع: القطار الكهربائي السريع
التحطاع الخامس

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company				k.k			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed moustafa			10/09/2023				3:00 PM			
			(F.D.T.016)								
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	11	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials		Level (-0.75) from ferma				
Location to be Used		From	351+440	TO	351+500	
MAR & UIR Approval No		UIR F-016	Date	10/09/2023		
		M.A.R.005		01/09/2023		
Supplier Name		محاجر وادي النطرون - العلمين				
Test Requirement		F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos		No/Yes	Other			
Item	Description		Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST		NUMBER	3	12/09/2023	
2						
3						
4						

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer

** Alignment/Bridges: Culvert only

للإنشاءات ورصف الطرق

12 / 9

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	11/09/2023	FINAL DATE	12/09/2023
STAGE OF WORK :	Fill Layer at level (-0.75 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-16		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER		Fill Layer at level (-0.75 m) from Ferma						
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm				
SAMPLE No.	-	1	2	3				
STATION	-	351+450	351+475	351+500				
	-	33+970	33+995	34+020				
CONTAINER No.	-	A-1	A-1	A-1				
WEIGHT OF CAN	gms	32	31	30				
WT. OF CAN+WET SOIL	gms	208.0	203.0	207.0				
WT. OF CAN+DRY SOIL	gms	195.0	191.0	194.0				
WT. OF WATER	gms	13.0	12.0	13.0				
WT. OF DRY SOIL	gms	163.0	160.0	164.0				
WATER CONTENT	%	8.0	7.5	7.9				
WT. OF WET SOIL	gms	3825	3846	3763				
WT. OF INITIAL SAND+CONT.	gms	7808	7787	7703				
WT. OF RESIDUAL SAND + CONT.	gms	3799	3688	3693				
WT. OF SAND TO FILL CONE+HOLE	gms	4009	4099	4010				
WT. OF SAND TO FILL CONE	gms	1553	1553	1553				
WT. OF SAND TO FILL HOLE	gms	2456	2546	2457				
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47				
GROSS VOLUME OF HOLE	ccs	1670.7	1732.0	1671.4				
WET UNIT WT. OF SOIL	gm/cc	2.29	2.22	2.25				
DRY UNIT WT. OF SOIL	gm/cc	2.12	2.07	2.09				
MAX. DRY DENSITY	gm/cc	2.15	2.15	2.15				
OPTIMUM MOISTURE CONTENT	%	6.5	6.5	6.5				
COMPACTION	%	98.62	96.08	97.02				
REQUIRED COMPACTION	%	95	95	95				
REMARKS		PASSED	PASSED	PASSED				

Eng. / CONSULTANT

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: السيد سيف
مشروع: القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

مكتب محمد عبد الله
للإنشاءات ورصف الطرق

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق والكباري (GARB)		المجلس الأعلى للبنية التحتية للطرق والكباري (KVC)	
	محمد عبد الله	KK	للطرق والكباري	وزارة النقل والبنية التحتية	مجلس البنية التحتية	وزارة التخطيط

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		11/09/2023 S5 A MO3-FDT-F 17	3 00 PM	
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	351	EW
			CS	12	9
			MM	YY	HH
			MM	YY	HH

S2 to S22	D1 to S3	Kp XXX Note
Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity		
Sub Element of Activity		

Description of Materials	Fill Layer at level (1 m) from forma level				
Location to be Used	From	351+500	TO	351+640	
		34+019 71		34+159 71	
MAR & UIR Approval No	UIR S5 A-MO1-IR-F-017	Date	11/09/2023		
	S5 A MO1 MAR F 05		01/09/2023		
Supplier Name	محاجر وادي البطرون - العلمي				
Test Requirement	F D T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG23 41 2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	6	13/09/2023	
2					
3					
4					

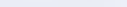
Comments by Eng. SAYED SAIF (KK)	Comments by Eng. Alaa Abd-Allatif (EK)
1-The Compaction Test Result F D T. (ASTM D 1556) is Approved.	1 F D T was carried out by material engineer for both contractor and GARB Consultant 2 Results report attached and acceptable with project specifications

APPROVAL STATUS				
Organisation	Name	Sign	Date	A AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC*	Eng. Sayed saif			A
GARB**	Eng. Maryet magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

للإنشاءات ورصف الطرق
محمد عبدالله محمد اسماعيل

مدير المشروع / السيد /
شروع البطار الكوبرياش
القنطرة الخامسة









Contractor Company		Mohamed Abdelah for constructions and roads paving		Designer Company/				K.K							
Issued by Contractor		Name		Sign		Date/Serai Number				Time					
		Eng. Mohamed mostafa				11/09/2023				3:00 PM					
						(F D T 017)									
Received by GARIB CONSULTANT		Eng. Sayed saif				MIN		C1	C2	C3	C4	MM	YY	HH	MM
								351	EW	CS	12	9	23	3	0

OSDF 70001	S1 to S21	D1 to S3	Kg XXX Note
	Station Reference	Daped Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials		Level (-1.00) from ferma				
Location to be Used		From	351+500	TO	351+640	
MAR & UIR Approval No		UIR F-017		Date	11/09/2023	
		MAR 005			01/09/2023	
Supplier Name		محاجر وادي الطرون - العلمي				
Test Requirement		F D T (ASTM D 1556)		Specification		
Reference Photos		No/Yes		Other		
Item	Description		Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST		NUMBER	6	13/09/2023	
2						
3						
4						

Comments by Eng. (K K)	Comments by Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F D T was carried out by material engineer for both contractor and GARB Consultant 2 Results report attached and acceptable with project specifications. 3 Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A AWC R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed sarf			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Asa Alad-Alattif			AWC

* Designer: **مهندس محمد عبد الله محمد النجار**
 ** Alignment: **Right to Left**
 * Units: **المتر**
 * Scale: **1:1**
 * Drawing: **للإشعارات ورصف الطرق**

(أ/د/ خالد قنديل) /
مدير المشروع / السيد سيف
م. وع. القطار الكهربائي السريع
القطاع الخامس

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	12/09/2023	FINAL DATE	13/09/2023
STAGE OF WORK	Fill Layer at level (-1 m) from Ferma		
Request NO	S5-A-MO3-IR-F-17		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-1 m) from Ferma						
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm
SAMPLE No		1	2	3	4	5	6
STATION		351+500	351+525	351+550	351+575	351+600	351+620
		34+020	34+045	34+070	34+095	34+120	34+140
CONTAINER No		A 1	A-1	A 1	A-1	A-1	A 1
WEIGHT OF CAN	gms	33	31	29	31	31	32
WT. OF CAN+WET SOIL	gms	208 0	205 0	207 0	204 0	206 0	206 0
WT. OF CAN+DRY SOIL	gms	195 0	194 0	195 0	193 0	195 0	192 0
WT. OF WATER	gms	13 0	11 0	12 0	11 0	11 0	14 0
WT. OF DRY SOIL	gms	162 0	163 0	166 0	162 0	164 0	160 0
WATER CONTENT	%	8 0	6 7	7 2	6 8	6 7	8 8
WT. OF WET SOIL	gms	3890	3776	3849	3797	3771	3860
WT. OF NIT-L SAND+CONT	gms	7879	7800	7794	7820	7750	7701
WT. OF RESIDUAL SAND + CONT	gms	3844	3779	3713	3772	3732	3656
WT. OF SAND TO FILL CONE+HOLE	gms	4036	4021	4081	4048	4018	4045
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2482	2468	2528	2495	2465	2492
UNIT WT. OF SAND	gm/cc	1 47	1 47	1 47	1 47	1 47	1 47
GROSS VOLUME OF HOLE	ccs	1688 4	1678 9	1719 7	1697 3	1676 9	1695 2
WET UNIT WT. OF SOIL	gm/cc	2 30	2 25	2 24	2 24	2 25	2 28
DRY UNIT WT. OF SOIL	gm/cc	2 13	2 11	2 09	2 09	2 11	2 09
MAX. DRY DENSITY	gm/cc	2 15	2 15	2 15	2 15	2 15	2 15
OPTIMUM MOISTURE CONTENT	%	6 5	6 5	6 5	6 5	6 5	6 5
COMPACTION	%	99.20	98.00	97.08	97.44	98.02	97.38
REQUIRED COMPACTION	%	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Eng / CONSULTANT

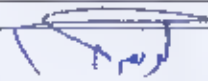
[Signature]

KK الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع م / السيد سيد
القطار الكهربائي السريع
القطاع الخامس

Eng / CONTRACTOR

م / محمد اسماعيل
المهندس ورصف الطرق

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق والكباري (GARB)		المجلس الأعلى للتخطيط والتعاون الدولي	
	جمهورية مصر العربية					

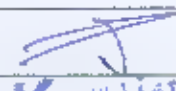
Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		11/09/2023 SS A MO3 FDT F 18	3:00 PM	
Received by GARB CONSTRUCTION	Eng. Sayed saif	Sign	MAR	SL	CL
			SS1	W	1

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
Sub Element of Activity			

Description of Materials	Fill Layer at level (0.5 m) from forma level			
Location to be Used	From	351+260	TO	351+440
		33+779.71		33+959.71
MAR & UIR Approval No	UIR SS A MO1 IR F 018	Date	11/09/2023	
	SS A-MO1 MAR F 05		01/09/2023	
Supplier Name	محاجر وادي البطرون العليمي			
Test Requirement	F D T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	8	13/09/2023	
2					
3					
4					

Comments by Eng. SAYED SAIF (KK)	Comments by Eng. Alaa Abd-Allatif (ER)
1 The Compaction Test Result F D T (ASTM D 1556) is Approved.	1 F D T was carried out by material engineer for both contractor and GARB Consultant 2 Results report attached and acceptable with project specifications

APPROVAL STATUS				
Organisation	Name	Sign	Date	A WCR
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employer Representative	Eng. Alaa Abd-Allatif			A

للإشتاءات ورصف الطرق
 محمد عبد الله محمد اسماعيل

المهندس / المهندس
 (أ.د. خالد قنديل)
 مدير المشروع / المهندس
 شروق القنديل الكهرتاني الشوريه
 القطاع الخامس

MATERIAL INSPECTION REQUEST

محمد عبد الله
للإستشارات ورصف الطرق



الطريق والكباري
(GARB)



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k				
Issued by Contractor	Name	Sign	Date/Serial Number		Time				
	Eng. Mohamed moustafa		11/09/2023 (F.D.T 018)		3 00 PM				
Received by GARB CONSULTANT	Eng. Sayed self		CL	C2	C3	DD	MM	YY	HH
			351	EW	CS	12	9	23	3

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km Is used
Work Activity			
Sub Element of Activity			

Description of Materials	Level (-0.5) From Ferma			
Location to be Used	From	351+260	TO	351+440
MAR & UIR Approval No	UIR F-018		Date	11/09/2023
	MAR 005			01/09/2023
Supplier Name	محاجر وادي البطرون - العلمين			
Test Requirement	F D T (ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes		Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	8	13/09/2023	
2					
3					
4					

Comments by: Eng (K K)	Comments by: Eng Alaa Abd-Allah (ER)
1-The Compaction Test Result F.D.T (ASTM D 1556) is Approved.	1-F D T was carried- out by material engineer for both contractor and GARB Consultant 2 Results report attached and acceptable with project specifications 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed self			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allah			

* Designer

** Alignment/Bridges Culvert only

للإستشارات ورصف الطرق

13/9

مدير المشروع م / السيد سيف
شروع القطر الكهربائي السريع
القطاع الخامس

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	12/09/2023	FINAL DATE	13/09/2023
STAGE OF WORK .	Fill Layer at level (-0.5 m) from Ferma		
Request NO	S5-A-MO3-IR-F-18		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.5 m) from Ferma								
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm
SAMPLE No	-	1	2	3	4	5	6	7	8
STATION	-	351+280	351+305	351+330	351+355	351+380	351+405	351+430	351+440
	-	33+800	33+825	33+850	33+875	33+900	33+925	33+950	33+960
CONTAINER No	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	29	32	29	30	31	31	31	29
WT. OF CAN+WET SOIL	gms	205.0	207.0	208.0	203.0	204.0	208.0	205.0	207.0
WT. OF CAN+DRY SOIL	gms	195.0	198.0	197.0	193.0	192.0	196.0	194.0	195.0
WT. OF WATER	gms	10.0	9.0	11.0	10.0	12.0	12.0	11.0	12.0
WT. OF DRY SOIL	gms	186.0	186.0	186.0	183.0	181.0	186.0	183.0	186.0
WATER CONTENT	%	6.0	5.4	6.5	6.1	7.5	7.3	6.7	7.2
WT. OF WET SOIL	gms	3759	3743	3765	3807	3864	3816	3767	3778
WT. OF INITIAL SAND+CONT	gms	7796	7732	7809	7781	7778	7724	7720	7916
WT. OF RESIDUAL SAND + CONT	gms	3739	3702	3817	3697	3729	3688	3656	3838
WT. OF SAND TO FILL CONE+HOLE	gms	4057	4030	3992	4084	4049	4036	4064	4078
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2504	2477	2439	2531	2496	2483	2511	2526
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1703.4	1685.0	1659.2	1721.8	1698.0	1689.1	1708.2	1717.7
WET UNIT WT. OF SOIL	gm/cc	2.21	2.22	2.27	2.21	2.28	2.26	2.21	2.20
DRY UNIT WT. OF SOIL	gm/cc	2.08	2.11	2.13	2.08	2.12	2.11	2.07	2.05
MAX. DRY DENSITY	gm/cc	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
OPTIMUM MOISTURE CONTENT	%	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
COMPACTION	%	96.81	98.00	99.06	96.90	98.50	97.93	96.09	95.35
REQUIRED COMPACTION	%	95	95	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Eng / CONSULTANT

المكتب الاستشاري الهندسي
(أ. د. خالد شنديل)
مدير المشروع م / السيد سيف
شروع القطر الكهربائي السريع
القطاع الخامس

Eng / CONTRACTOR

مكتب محمد عبد الله
للإستشارات ورصف الطرق

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		14/09/2023 S5-A-MO3-FDT-F-19	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	FW	CS	16	9	23	3	0

CODE-1	S1 to S21 Station Reference	D1 to S3 Depot Reference	Kp XXX Note For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer at level (-0.5 m) from ferma level			
Location to be Used	From	351+440	TO	351+500
		33+959.71		34+019.71
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-019	Date	14/09/2023	
	S5-A-MO1-MAR-F-05		01/09/2023	
Supplier Name	محاجر وادي النطرون - العلمين			
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	3	17/09/2023	
2					
3					
4					

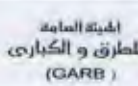
Comments by: Eng. SAYED SAIF (KK) 1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	Comments by: Eng. Alaa Abd-Allatif (ER) 1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.
---	---

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبدالله
للإنشاءات ورصف الطرقات

مكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع / السيد سعيد
مشروع: القطار الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company				K.K.			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed moustafa			14/09/2023				3:00 PM			
				(F.D.T.019)							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	16	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Description of Materials		Level (-0.50) from ferma				
Location to be Used		From	351+440	TO	351+500	
MAR & UIR Approval No		UIR F-019		Date	14/09/2023	
		M.A.R.00 5			01/09/2023	
Supplier Name		محاجر وادي النطرون - العلمين				
Test Requirement		F.D.T(ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos		No/Yes		Other		
Item	Description		Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST		NUMBER	3	17/09/2023	
2						
3						
4						

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		14/09/2023	AWC

* Designer

** Alignment/Bridges: Culvert only

للإنشاءات ورصف الطرق

مدير المشروع م / السيد سيف
شروع القطر الكهربائي السريع
القطاع الخامس

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	16/09/2023	FINAL DATE	17/09/2023
STAGE OF WORK :	Fill Layer at level (-0.5 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-19		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.5 m) from Ferma									
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm						
SAMPLE No.	-	1	2	3						
STATION	-	351+450	351+475	351+500						
		33+970	33+995	34+020						
CONTAINER No	-	A-1	A-1	A-1						
WEIGHT OF CAN	gms	32	32	31						
WT. OF CAN+WET SOIL	gms	205.0	207.0	208.0						
WT. OF CAN+DRY SOIL	gms	194.0	194.0	196.0						
WT. OF WATER	gms	11.0	13.0	12.0						
WT. OF DRY SOIL	gms	162.0	162.0	165.0						
WATER CONTENT	%	6.8	8.0	7.3						
WT. OF WET SOIL	gms	3832	3769	3719						
WT. OF INITIAL SAND+CONT.	gms	7894	7748	7748						
WT. OF RESIDUAL SAND + CONT.	gms	3811	3742	3792						
WT. OF SAND TO FILL CONE+HOLE	gms	4083	4006	3956						
WT. OF SAND TO FILL CONE	gms	1553	1553	1553						
WT. OF SAND TO FILL HOLE	gms	2530	2453	2403						
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47						
GROSS VOLUME OF HOLE	ccs	1721.1	1668.7	1634.7						
WET UNIT WT. OF SOIL	gm/cc	2.23	2.26	2.28						
DRY UNIT WT. OF SOIL	gm/cc	2.08	2.09	2.12						
MAX. DRY DENSITY	gm/cc	2.15	2.15	2.15						
OPTIMUM MOISTURE CONTENT	%	6.5	6.5	6.5						
COMPACTION	%	96.97	97.25	98.64						
REQUIRED COMPACTION	%	95	95	95						
REMARKS		PASSED	PASSED	PASSED						

Eng. / CONSULTANT

KK المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)

مدير المشروع م. السيد سيف
القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

المكتب محمد عبد الله
للإنشاءات ورصف الطرق

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق والكباري (GARB)			
	محمد عبد الله للإنشاءات ورصف الطرق	KK ENGINEERING CONSULTING OFFICE مكتب الاستشارات الهندسية	مكتب الطرق والكباري	وزارة النقل والبنية التحتية	وزارة التخطيط	وزارة الاقتصاد والتجارة

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		18/09/2023 S5-A-MO3-FDT-F-20	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	19	9	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer at level (-0.75m) from ferma level				
Location to be Used	From	351+500	TO	351+640	
		34+019.71		34+159.71	
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-20 rev2	Date	18/09/2023		
	S5-A-MO1-MAR-F-06		16/09/2023		
Supplier Name	محاجر وادي النظرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			

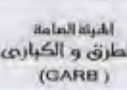
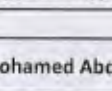
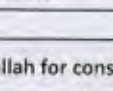
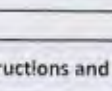
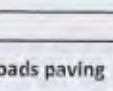
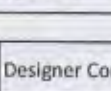
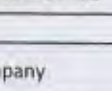
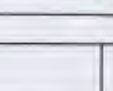
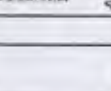
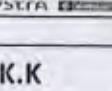
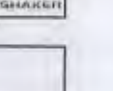
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	20/09/2023	
2					
3					
4					

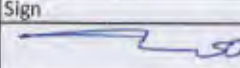
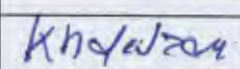
Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

للمكتب الاستشاري الهندسي
(أ.د. خالد قنديل) / السيد سيف
مدير المشروع م. السيد سيف
شروع: التقطع الكهربائي السويدي
التقاطع الخامس

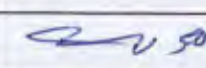
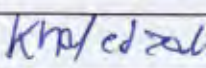
MATERIAL INSPECTION REQUEST	       
	         

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	K.K							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		18/09/2023 (F.D.T.020)	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif	Sign	MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	19	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

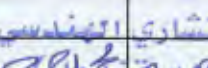
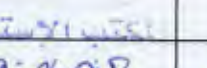
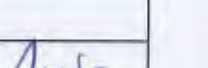
Description of Materials	LEVEL (-0.75) FROM FERMA				
Location to be Used	From	351+500	TO	351+640	
MAR & UIR Approval No	UIR F-020 rev2		Date	18/09/2023	
	M.A.R.006			16/09/2023	
Supplier Name	محاجر وادي النطرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	20/09/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		18/09/2023	Awc

* Designer

** Alignment/Bridges/Culvert only

مشروع: القطار الكهربائي السريع
 القطاع الخامس

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	19/09/2023	FINAL DATE	20/09/2023
STAGE OF WORK :	Fill Layer at level (-0.75 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-20 rev-2		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.75 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm

SAMPLE No.	-	1	2	3	4	5	6	7
STATION	-	351+500	351+525	351+550	351+575	351+600	351+625	351+640
		34+020	34+045	34+070	34+095	34+120	34+145	34+160
CONTAINER No.	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	31	32	30	29	33	33	32
WT. OF CAN+WET SOIL	gms	204.0	204.0	203.0	204.0	205.0	204.0	205.0
WT. OF CAN+DRY SOIL	gms	198.0	196.0	197.0	197.0	195.0	193.0	195.0
WT. OF WATER	gms	6.0	8.0	6.0	7.0	10.0	11.0	10.0
WT. OF DRY SOIL	gms	167.0	164.0	167.0	168.0	162.0	160.0	163.0
WATER CONTENT	%	3.6	4.9	3.6	4.2	6.2	6.9	6.1

WT. OF WET SOIL	gms	3776	3777	3733	3880	3884	3882	3897
WT. OF INITIAL SAND+CONT.	gms	7733	7804	7745	7883	7768	7752	7862
WT. OF RESIDUAL SAND + CONT.	gms	3703	3741	3650	3776	3737	3714	3735
WT. OF SAND TO FILL CONE+HOLE	gms	4030	4063	4095	4107	4031	4038	4127
WT. OF SAND TO FILL CONE	gms	1553	1553	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2477	2510	2542	2554	2478	2485	2574
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1685.0	1707.5	1729.3	1737.4	1685.7	1690.5	1751.0
WET UNIT WT. OF SOIL	gm/cc	2.24	2.21	2.16	2.23	2.30	2.30	2.23
DRY UNIT WT. OF SOIL	gm/cc	2.16	2.11	2.08	2.14	2.17	2.15	2.10
MAX. DRY DENSITY	gm/cc	2.18	2.18	2.18	2.18	2.18	2.18	2.18
OPTIMUM MOISTURE CONTENT	%	6.6	6.6	6.6	6.6	6.6	6.6	6.6
COMPACTION	%	99.23	96.75	95.59	98.34	99.55	98.56	96.19
REQUIRED COMPACTION	%	95	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Eng. / CONSULTANT

Eng. / CONTRACTOR

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: السيد سيف
القطار الكهربائي السريع
القطاع الخامس

مكتب محمد عبد الله
للإنشاءات ورصف الطرق

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق والكباري (GARB)			
	محمد عبد الله للبناء والطرق	ENGINEERING CONSULTING OFFICE مكتب استشارات وهندسة (KK)		وزارة النقل	وزارة التخطيط	وزارة التخطيط مكتب تخطيط المدن (MUP)

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		18/09/2023 S5-A-MO3-FDT-F-21	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	19	9	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer at level (-0.5 m) from ferma level				
Location to be Used	From	351+260	TO	351+500	
		33+779.71		34+019.71	
MAR & UIR Approval No	UIR S5-A-MO1-IR-F-021	Date	18/09/2023		
	S5-A-MO1-MAR-F-06		16/09/2023		
Supplier Name	محاجر وادي النطرون - العلمين				
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	10	20/09/2023	
2					
3					
4					
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)			
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.		1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications.			

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد عبد الله
للإنشاءات ورصف الطرق

مشروع: القطر الكهربائي السريع
القضايح الخامس

MATERIAL INSPECTION REQUEST

محمد عبدالله
للإنشاءات ورصف الطرق

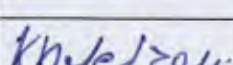
K.K
Khalid Khalil
للإنشاءات ورصف الطرق

الهيئة العامة
للطرق والكباري
(GARB)

وزارة النقل

الهيئة العامة
للطرق والكباري

CVSERA SHAKER

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company				k.k			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed moustafa			18/09/2023				3:00 PM			
				(F.D.T.021)							
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1 351	C2 EW	C3 CS	DD 19	MM 9	YY 23	HH 3	MM 0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials		Level (-0.5) From Ferma				
Location to be Used		From	351+260	TO	351+500	
MAR & UIR Approval No		UIR F-021	Date	18/09/2023		
		M.A.R.006		16/09/2023		
Supplier Name		محاجر وادي النطرون - العلمين				
Test Requirement		F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos		No/Yes	Other			
Item	Description		Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST		NUMBER	10	20/09/2023	
2						
3						
4						

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		20/09/2023	Awe

* Designer

** Alignment/Bridges: Culver Only

Enq. / CONSULTANT

Eng. / CONTRACTOR

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	19/09/2023	FINAL DATE	20/09/2023
STAGE OF WORK :	Fill Layer at level (-0.25 m) from Ferma		
Request NO.	S5-A-MO3-IR-F-21		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

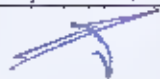
LAYER		Fill Layer at level (-0.25 m) from Ferma						
DEPTH OF HOLE	cm	15 cm	15 cm					
SAMPLE No.	-	9	10					
STATION	-	351+480	351+500					
	-	34+000	34+020					
CONTAINER No.	-	A-1	A-1					
WEIGHT OF CAN	gms	33	29					
WT. OF CAN+WET SOIL	gms	207.0	207.0					
WT. OF CAN+DRY SOIL	gms	196.0	194.0					
WT. OF WATER	gms	11.0	13.0					
WT. OF DRY SOIL	gms	163.0	165.0					
WATER CONTENT	%	6.7	7.9					
WT. OF WET SOIL	gms	3763	3780					
WT. OF INITIAL SAND+CONT.	gms	7780	7735					
WT. OF RESIDUAL SAND + CONT.	gms	3803	3733					
WT. OF SAND TO FILL CONE+HOLE	gms	3977	4002					
WT. OF SAND TO FILL CONE	gms	1553	1553					
WT. OF SAND TO FILL HOLE	gms	2424	2449					
UNIT WT. OF SAND	gm/cc	1.47	1.47					
GROSS VOLUME OF HOLE	ccs	1649.0	1666.0					
WET UNIT WT. OF SOIL	gm/cc	2.28	2.27					
DRY UNIT WT. OF SOIL	gm/cc	2.14	2.10					
MAX. DRY DENSITY	gm/cc	2.18	2.18					
OPTIMUM MOISTURE CONTENT	%	6.6	6.6					
COMPACTION	%	98.06	96.48					
REQUIRED COMPACTION	%	95	95					
REMARKS		PASSED	PASSED					

Eng. / CONSULTANT

المكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: السيد سيف
القطار الكهربائي السريع
القطاع الخامس

Eng. / CONTRACTOR

المكتب محمد عبد الله
للإنشاءات ورصف الطرق

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office								
Issued by Contractor	Name	Sign		Date/Serial Number	Time								
	Eng. Mohamed moustafa			24/09/2023 S5 A MO3-FDT-E 22	3 00 PM								
Received by GARB CONSULTANT	Eng. Sayed saif		MRR	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
				EW	CS	20	0	23	3	0			

S1 to S21	D1 to S3	Kp XXX Note
Station Reference	Depot Reference	For Kilometer points only Start Km is used
Work Activity		
Sub Element of Activity		

Description of Materials	fill Layer at level { 0.5 m} from ferma level			
Location to be Used	From	351+500	TO	351+640
		34+019 71		34+159 71
MAR & UIR Approval No	UIR S5 A MO1-IR-F 021	Date	24/09/2023	
	S5 A MO1 MAR-F 06		16/09/2023	
Supplier Name	محاجر وادي البطرون العليين			
Test Requirement	F D T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 41 2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	7	26/09/2023	
2					
3					
4					

Comments by Eng. SAYED SAIF (KK) 1-The Compaction Test Result F D T (ASTM D 1556) is Approved	Comments by Eng. Alaa Abd Allatif (ER) 1-F D T was carried out by material engineer for both contractor and GARB Consultant 2 Results report attached and acceptable with project specifications
--	--

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC R
Contractor	Eng. Mohamed moustafa			A
QA/QC*	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd Allatif			A

مكتب محمد عبدالله محمد السامير
للإستشارات ورصف الطرق

مدير المشروع / السيد خالد
مدير المشروع / السيد خالد
مدير المشروع / السيد خالد
مدير المشروع / السيد خالد
مدير المشروع / السيد خالد

- * Designer
- ** Alignment/توافق

Project	Electrical Express Train From Borg Alarab to Alamein		STATION REPRESENTED
SAMPLE Date	25/09/2023	FINAL DATE	26/09/2023
STAGE OF WORK	Fill Layer at level (-0.5 m) from Ferma		
Request NO	S5-A-MO3 IR F-22		

WORKSHEET FOR FIELD DENSITY TEST

BY SAND CONE METHOD ASTM D 1556

LAYER	Fill Layer at level (-0.5 m) from Ferma							
DEPTH OF HOLE	cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm	15 cm
SAMPLE No	-	1	2	3	4	5	6	7
STATION	-	351+600	351+525	351+550	351+575	351+600	351+625	351+640
CONTAINER No	-	A-1	A-1	A-1	A-1	A-1	A-1	A-1
WEIGHT OF CAN	gms	32	33	30	29	30	31	31
WT. OF CAN+WET SOIL	gms	205.0	207.0	204.0	205.0	204.0	205.0	203.0
WT. OF CAN+DRY SOIL	gms	196.0	194.0	196.0	196.0	192.0	193.0	193.0
WT. OF WATER	gms	9.0	13.0	8.0	9.0	12.0	12.0	10.0
WT. OF DRY SOIL	gms	164.0	161.0	166.0	167.0	162.0	162.0	162.0
WATER CONTENT	%	5.5	8.1	4.8	5.4	7.4	7.4	6.2
WT. OF WET SOIL	gms	3855	3893	3806	3766	3794	3823	3799
WT. OF INITIAL SAND+CONT	gms	7891	7810	7761	7732	7824	7798	7710
WT. OF RESIDUAL SAND+CONT	gms	3810	3763	3684	3723	3828	3793	3689
WT. OF SAND TO FILL CONE+HOLE	gms	4071	4047	4077	4009	3996	4005	4021
WT. OF SAND TO FILL CONE	gms	1553	1563	1553	1553	1553	1553	1553
WT. OF SAND TO FILL HOLE	gms	2518	2494	2524	2456	2443	2452	2468
UNIT WT. OF SAND	gm/cc	1.47	1.47	1.47	1.47	1.47	1.47	1.47
GROSS VOLUME OF HOLE	ccs	1712.9	1696.6	1717.0	1670.7	1661.9	1668.0	1678.9
WET UNIT WT. OF SOIL	gm/cc	2.25	2.29	2.22	2.26	2.28	2.29	2.26
DRY UNIT WT. OF SOIL	gm/cc	2.13	2.12	2.11	2.14	2.13	2.13	2.13
MAX. DRY DENSITY	gm/cc	2.18	2.18	2.18	2.18	2.18	2.18	2.18
OPTIMUM MOISTURE CONTENT	%	6.6	6.6	6.6	6.6	6.6	6.6	6.6
COMPACTION	%	97.86	97.39	97.01	98.16	97.50	97.88	97.76
REQUIRED COMPACTION	%	95	95	95	95	95	95	95
REMARKS		PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

استشاري الهندسة
خالد شحيد

Eng / CONSULTANT

مهندس مشروع م / السيد سيف
محطات الكهرباء السريع
القطاع الخامس

Eng / CONTRACTOR

مهندس محمد عبد الله
استشاري
للاستشارات ورصف الطرق

MATERIAL INSPECTION REQUEST						
	محمد عبد الله Mohamed Abdallah 3	الهيئة العامة للطرق والكباري (GARB)	الهيئة العامة للطرق والكباري (GARB)	الهيئة العامة للطرق والكباري (GARB)	الهيئة العامة للطرق والكباري (GARB)	الهيئة العامة للطرق والكباري (GARB)

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		16/06/2023 55-A-MO3-PLT-F-1	3:00 PM	
Received by GARB CONSULTANT	Eng. SAYED SAIF	MIR	CL	C2	C3
			351	EW	CS
			17	MM	YY
			6	23	3
			0		

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	FERMA			
Location to be Used	from	351+100	TO	351+260
		33+619.71		33+779.71
MAR & UIR Approval No	UIR 55-A-MO3-IR-F-9	Date	16/06/2023	
	55-A-MO3-MAR-F-3			
Supplier Name	محاجر وادي النطرون - العلمين			
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	4	18/06/2023	
2					
3					
4					

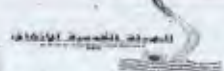
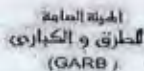
Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.t. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

مدير المشروع: م / السيد سيف
مشروع: القطر الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k			
Issued by Contractor	Name	Eng. Mohamed moustafa	Sign	Date/Serial Number	Time			
				16/06/2023 (P.L.T.001)	3:00 PM			
Received by GARB CONSULTANT	Eng. Sayed saif	Mohamed Al	MIR	C1	C2	C3	DD	MM
				351	EW	CS	17	6
								YY
								HH
								MM

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
CODE-2	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-3	Work Activity		
	Sub Element of Activity		

Description of Materials	Ferma				
Location to be Used	From	351+100	TO	351+260	
MAR & UIR Approval No	UIR F-009	Date		16/06/2023	
	M.A.R.-003				
Supplier Name	محجر وادي النطرون - العلمين				
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	4	18/06/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.t. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) . 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments with proj spec.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif	Mohamed Al		A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges: Culvert only

للإنشاءات ورصف الطرق

19/6

(أ.د/ خالد قنديل)
مدير المشروع / السيد سيف
مشروع: القطار الكهربائي السريع
القطاع الخامس



Technical Report

Plate Loading Tests

KM 351+120, KM 351+160,
KM 351+200, and KM 351+260

Upper Embankment (Ferma)

Project

Electric Express Train (Sokhna - New capital - 6th
of October city - New Elalamein city)

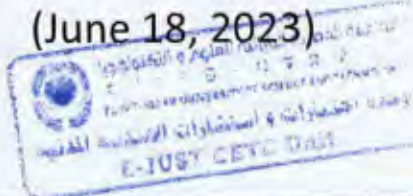
Prepared for

**Mohammed Abdullah Company for Construction and Road
Paving**

Al-Israa Tower, Al-Mahmoudia Canal Road, Hajar Al-Nawatiya, Al-Bar
Al-Qibli - Alexandria, Egypt



(June 18, 2023)



يعتمد
أمين عام الجامعة
لواء مهندس / أسامة شحاته

مكتب محمد عبد الله محمد اسماعيل
للاستشارات ورصف الطرق

www.ejust.edu.eg

CETC23060016.Trans.Geo0



1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct 4 plate loading tests on the Upper Embankment (Ferma) of the Electric Express Train project at 4 locations (KM 351+120, KM 351+160, KM 351+200, and KM 351+260) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Mohamed Mostafa of Mohammed Abdullah Company for Construction and Road Paving. Field team members (Mr. Ahmed Sabry) from the working CETCU team visited the project site on June 18, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was $31 \pm 1^\circ\text{C}$.
- The plate was carried out on a Upper Embankment (Ferma) (according to the company) at 4 points (KM 351+120, KM 351+160, KM 351+200, and KM 351+260). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader Komatsu WA420.



3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m² was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 4 plate loading tests on the Upper Embankment (Ferma) of the Electric Express Train project were conducted at 4 locations (KM 351+120, KM 351+160, KM 351+200, and KM 351+260) and the data collected at the 4 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+120), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+120)

Loading stage	Load (F) kN	Normal MN/m ²	Settleme mm
0	1.414	0.005	0.00
1	7.07	0.025	0.18
2	14.14	0.050	0.21
3	21.21	0.075	0.31
4	28.28	0.100	0.39
5	35.35	0.125	0.50
6	42.42	0.150	0.59
7	49.49	0.175	0.64
8	56.56	0.200	0.79
9	63.63	0.225	0.84
10	70.7	0.250	0.90
11	56.56	0.200	0.90
12	49.49	0.175	0.84
13	35.35	0.125	0.76
14	21.21	0.075	0.64
15	1.414	0.005	0.14





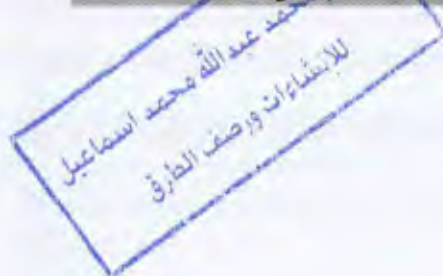
Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+120)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.14
1	7.07	0.025	0.34
2	14.14	0.050	0.42
3	21.21	0.075	0.50
4	28.28	0.100	0.57
5	35.35	0.125	0.65
6	42.42	0.150	0.72
7	49.49	0.175	0.78
8	56.56	0.200	0.83
9	63.63	0.225	0.92

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 351+120) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 351+160) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 351+200) is provided in Tables 7-9 and Figure 3. The testing data corresponding to the fourth testing point (KM 351+260) is provided in Tables 10-12 and Figure 4.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+120)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.07	0.17
a_1 (mm/(MN/m ²))	3.38	4.74
a_2 (mm/(MN ² /m ⁴))	0.18	-6.85
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	131.52	148.80
Ev_2/Ev_1	1.13	



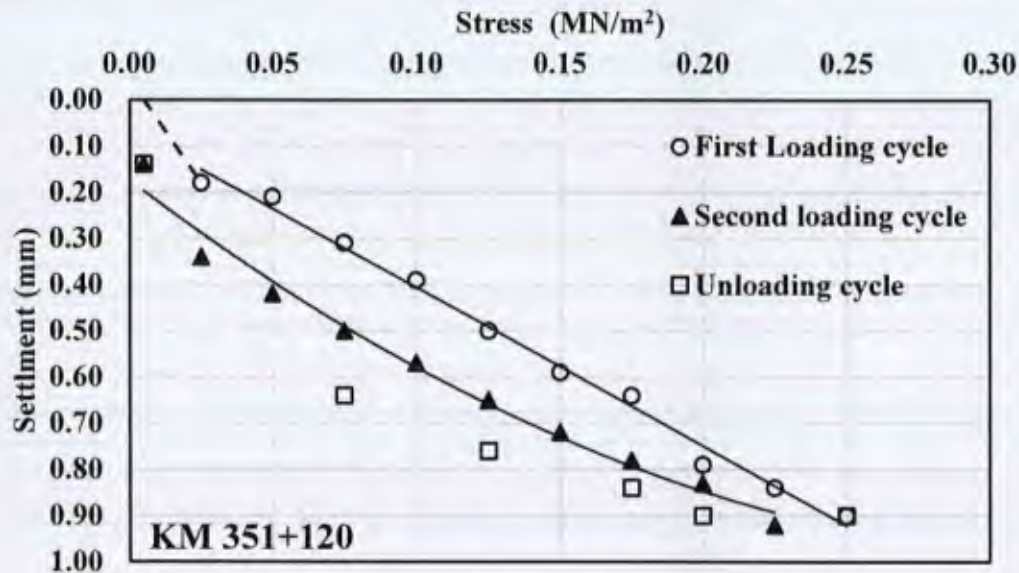


Figure 1: Load-settlement data: plate loading test performed at (KM 351+120)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+160)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.12
2	14.14	0.050	0.17
3	21.21	0.075	0.28
4	28.28	0.100	0.31
5	35.35	0.125	0.40
6	42.42	0.150	0.49
7	49.49	0.175	0.61
8	56.56	0.200	0.70
9	63.63	0.225	0.75
10	70.7	0.250	0.85
11	56.56	0.200	0.85
12	49.49	0.175	0.80
13	35.35	0.125	0.69
14	21.21	0.075	0.58
15	1.414	0.005	0.20



Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+160)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.20
1	7.07	0.025	0.34
2	14.14	0.050	0.40
3	21.21	0.075	0.46
4	28.28	0.100	0.55
5	35.35	0.125	0.63
6	42.42	0.150	0.68
7	49.49	0.175	0.73
8	56.56	0.200	0.79
9	63.63	0.225	0.87

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+160)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.04	0.21
a_1 (mm/(MN/m ²))	2.73	3.76
a_2 (mm/(MN ² /m ⁴))	2.18	-4.09
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	137.52	164.18
Ev_2/Ev_1	1.19	

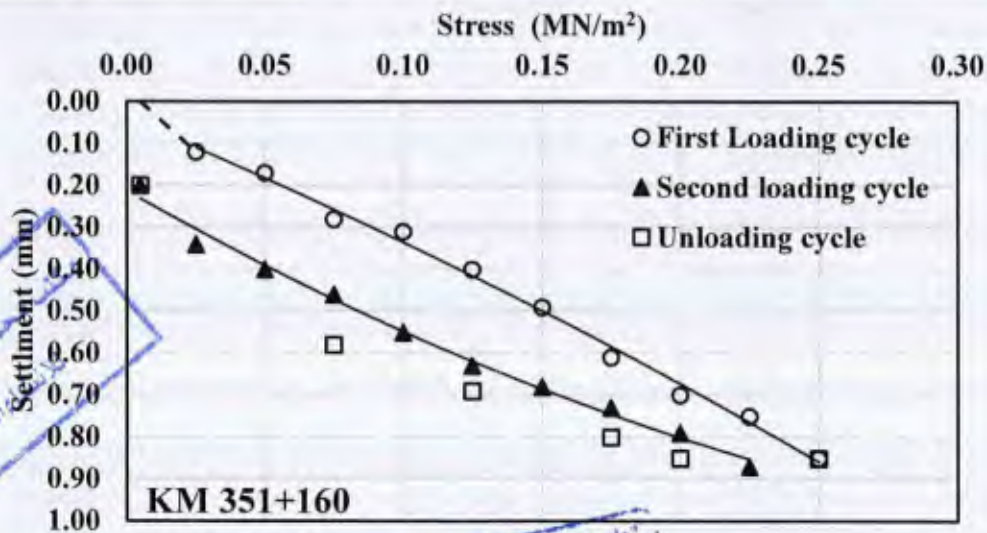


Figure 2: Load-settlement data, plate loading test performed at (KM 351+160)



Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+200)

Loading stage	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.12
2	14.14	0.050	0.20
3	21.21	0.075	0.28
4	28.28	0.100	0.38
5	35.35	0.125	0.49
6	42.42	0.150	0.58
7	49.49	0.175	0.70
8	56.56	0.200	0.78
9	63.63	0.225	0.85
10	70.7	0.250	0.93
11	56.56	0.200	0.93
12	49.49	0.175	0.88
13	35.35	0.125	0.78
14	21.21	0.075	0.69
15	1.414	0.005	0.25

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+200)

Loading stage	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.25
1	7.07	0.025	0.42
2	14.14	0.050	0.46
3	21.21	0.075	0.55
4	28.28	0.100	0.62
5	35.35	0.125	0.71
6	42.42	0.150	0.77
7	49.49	0.175	0.83
8	56.56	0.200	0.88
9	63.63	0.225	0.94

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+200)

Parameters	1st loading cycle	2nd loading cycle
($s_{0, \max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.00	0.27
a_1 (mm/(MN/m ²))	4.03	4.22
a_2 (mm/(MN ² /m ⁴))	-1.09	-5.60
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0, \max})$	119.71	159.62
Ev_2/Ev_1	1.33	

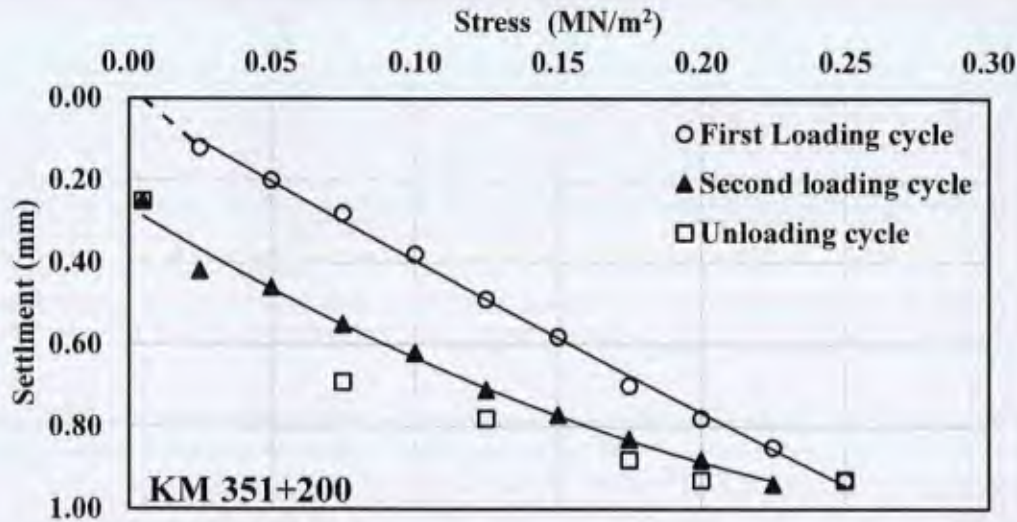


Figure 3: Load-settlement data: plate loading test performed at (KM 351+200)

Table 10: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+260)

Loading stage	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.13
2	14.14	0.050	0.22
3	21.21	0.075	0.30
4	28.28	0.100	0.37
5	35.35	0.125	0.46
6	42.42	0.150	0.55
7	49.49	0.175	0.65
8	56.56	0.200	0.72
9	63.63	0.225	0.82
10	70.7	0.250	0.93
11	56.56	0.200	0.93
12	49.49	0.175	0.85
13	35.35	0.125	0.65
14	21.21	0.075	0.59
15	1.414	0.005	0.16

تمت الموافقة على هذا التقرير
في ١٤٤٢/١٢/١٥
م. عبد الله محمد اسماعيل
م. يوسف الطرقي

الجامعة المصرية اليابانية للعلوم والتكنولوجيا
E-JUST CETC Unit



Table 11: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+260)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.16
1	7.07	0.025	0.35
2	14.14	0.050	0.43
3	21.21	0.075	0.49
4	28.28	0.100	0.58
5	35.35	0.125	0.64
6	42.42	0.150	0.74
7	49.49	0.175	0.80
8	56.56	0.200	0.85
9	63.63	0.225	0.91

Table 12: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+260)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.06	0.19
a_1 (mm/(MN/m ²))	2.97	4.64
a_2 (mm/(MN ² /m ⁴))	1.94	-6.51
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	130.42	149.36
Ev_2/Ev_1	1.15	

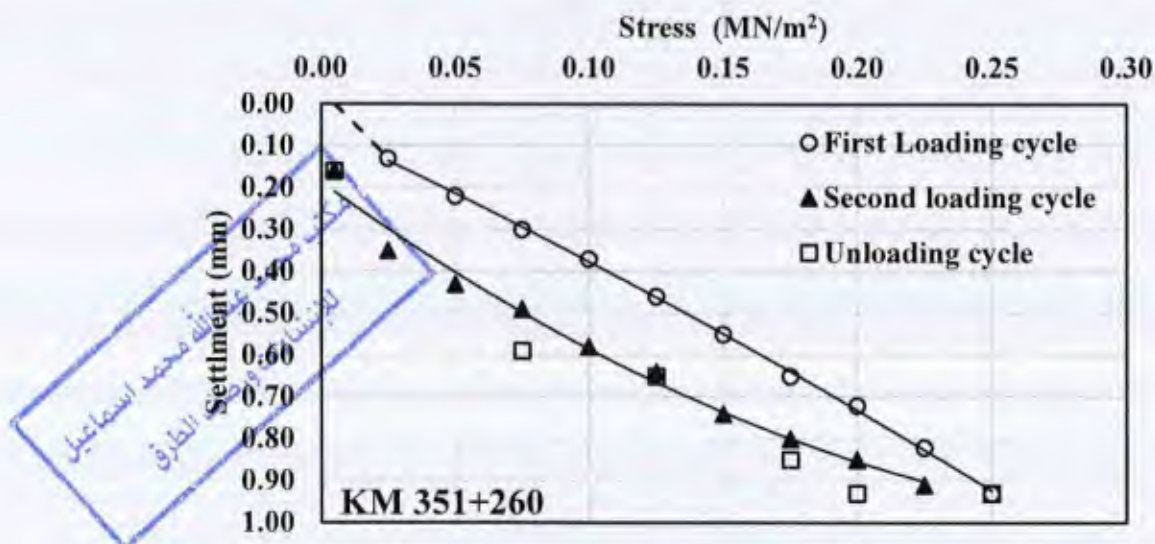


Figure 4: Load-settlement data, plate loading test performed at (KM 351+260)



4. Closure

Test results presented herein report the load-settlement data obtained from 4 plate loading tests conducted on the Upper Embankment (Ferma) of the Electric Express train project at 4 locations (KM 351+120, KM 351+160, KM 351+200, and KM 351+260) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m ²	E_{v2} MN/m ²	E_{v2}/E_{v1} ratio
KM 351+120	131.52	148.80	1.13
KM 351+160	137.52	164.18	1.19
KM 351+200	119.71	159.62	1.33
KM 351+260	130.42	149.36	1.15

- Note: Before interpreting these test results for future applications, the Upper Embankment (Ferma) in-situ variability between the testing locations should be considered.

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar





Appendix A





Location of test site:	KM 351+120		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	18/6/2023
Diameter of loading plate	600		Time	12:45:00 pm 1:13:00 pm
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	31°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.82	
	2	14.14	9.79	
	3	21.21	9.69	
	4	28.28	9.61	
	5	35.35	9.50	
	6	42.42	9.41	
	7	49.49	9.36	
	8	56.56	9.21	
	9	63.63	9.16	
	10	70.7	9.10	
Unloading Stage	11	56.56	9.10	
	12	49.49	9.16	
	13	35.35	9.24	
	14	21.21	9.36	
	15	1.414	9.86	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.86	
	1	7.07	9.66	
	2	14.14	9.58	
	3	21.21	9.50	
	4	28.28	9.43	
	5	35.35	9.35	
	6	42.42	9.28	
	7	49.49	9.22	
	8	56.56	9.17	
	9	63.63	9.08	



Location of test site:	KM 351+160		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	18/6/2023
Diameter of loading plate	600		Time	1:18:00 pm 1:45:00 pm
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	31°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.88	
	2	14.14	9.83	
	3	21.21	9.72	
	4	28.28	9.69	
	5	35.35	9.60	
	6	42.42	9.51	
	7	49.49	9.39	
	8	56.56	9.30	
	9	63.63	9.25	
	10	70.7	9.15	
Unloading Stage	11	56.56	9.15	
	12	49.49	9.20	
	13	35.35	9.31	
	14	21.21	9.42	
	15	1.414	9.80	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.80	
	1	7.07	9.66	
	2	14.14	9.60	
	3	21.21	9.54	
	4	28.28	9.45	
	5	35.35	9.37	
	6	42.42	9.32	
	7	49.49	9.27	
	8	56.56	9.21	
	9	63.63	9.13	

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق





Location of test site:	KM 351+260		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	18/6/2023
Diameter of loading plate	600		Time	2:22:00 pm 2:49:00 pm
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	31°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.87	
	2	14.14	9.78	
	3	21.21	9.70	
	4	28.28	9.63	
	5	35.35	9.54	
	6	42.42	9.45	
	7	49.49	9.35	
	8	56.56	9.28	
	9	63.63	9.18	
	10	70.7	9.07	
Unloading Stage	11	56.56	9.07	
	12	49.49	9.15	
	13	35.35	9.35	
	14	21.21	9.41	
	15	1.414	9.84	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.84	
	1	7.07	9.65	
	2	14.14	9.57	
	3	21.21	9.51	
	4	28.28	9.42	
	5	35.35	9.36	
	6	42.42	9.26	
	7	49.49	9.20	
	8	56.56	9.15	
	9	63.63	9.09	



Contractor Company	Mohamed Abdallah 3 for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			05/07/2023 S5-A-MO3-PLT-F-2	3:00 PM						
Received by GARB CONSULTANT	Eng. SAYED SAIF		MIR	C1	C2	C3	D0	MM	YY	HH	MM
				351	EW	CS	6	7	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	FERMA			
Location to be Used	from	351+000	TO	351+100
		33+519.71		33+619.71
MAR & UIR Approval No	UIR S5-A-MO3-IR-F-11	Date	04/07/2023	
	S5-A-MO3-MAR-F-3			
Supplier Name	محاجر وادي النطرون -العلمين			
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	3	08/07/2023	
2					
3					
4					

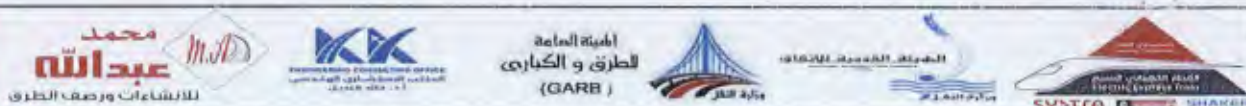
Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC +	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

مكتب الاستشاري الهندسي
(د/د خالد فتنديل)
مدير المشروع: م / السيد سيف
مشروع: القطار الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			05/07/2023 (P.L.T. 002)	3:00 PM						
Received by GARB CONSULTANT	Eng. Sayed saif		MIR	C1 351	C2 EW	C3 CS	DD 6	MM 7	YY 23	HH 3	MM 0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Description of Materials	Ferma			
Location to be Used	From	351+000	TO	351+100
MAR & UIR Approval No	UIR F-011	Date	04/07/2023	
	M.A.R.-003			
Supplier Name	محجر وادي النطرون - العلمين			
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	3	08/07/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) . 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments with proj spec.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Mervet magdy			
Employers Representative	Eng. Alaa Abd-Allatif		6-7-2023	AWC

* Designer
** Alignment/Bridges: Culvert only

ك.ك. استشاري الهندسة
(أ.د. خالد قنديل)
مدير المشروع / السيد سيف
شروع: القطار الكهربائي السريع



Technical Report

Plate Loading Tests

KM 350+840, KM 350+920,
KM 350+970, KM 351+020,
KM 351+060, and KM 351+100

Upper Embankment (Ferma)

Project

**Electric Express Train (Sokhna - New capital - 6th
of October city - New Elalamein city)**

Prepared for

**Mohammed Abdullah Company for Construction and Road
Paving**

Al-Israa Tower, Al-Mahmoudia Canal Road, Hajar Al-Nawatiya, Al-Bar
Al-Qibli - Alexandria, Egypt

(July 6, 2023)



49702





1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct 6 plate loading tests on the Upper Embankment (Ferma) of the Electric Express Train project at 6 locations (KM 350+840, KM 350+920, KM 350+970, KM 351+020, KM 351+060, and KM 351+100) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Mohamed Mostafa of Mohammed Abdullah Company for Construction and Road Paving. Field team members (Mr. Mohamed Mamdouh) from the working CETCU team visited the project site on July 6, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (E_{v1} and E_{v2}) and their ratio (E_{v2}/E_{v1}) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was $27 \pm 1^\circ\text{C}$.
- The plate was carried out on a Upper Embankment (Ferma) (according to the company) at 6 points. The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader Komatsu WA420.



3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m² was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 6 plate loading tests on the Upper Embankment (Ferma) of the Electric Express Train project were conducted at 6 locations (KM 350+840, KM 350+920, KM 350+970, KM 351+020, KM 351+060, and KM 351+100) and the data collected at the 6 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+840), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+840)

Loading stage	Load (F)	Normal	Settleme
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.19
2	14.14	0.050	0.25
3	21.21	0.075	0.37
4	28.28	0.100	0.44
5	35.35	0.125	0.53
6	42.42	0.150	0.63
7	49.49	0.175	0.72
8	56.56	0.200	0.82
9	63.63	0.225	0.90
10	70.7	0.250	1.05
11	56.56	0.200	1.05
12	49.49	0.175	1.02
13	35.35	0.125	0.95
14	21.21	0.075	0.84
15	1.414	0.005	0.30



Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 350+840)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.30
1	7.07	0.025	0.47
2	14.14	0.050	0.57
3	21.21	0.075	0.64
4	28.28	0.100	0.70
5	35.35	0.125	0.79
6	42.42	0.150	0.84
7	49.49	0.175	0.90
8	56.56	0.200	0.97
9	63.63	0.225	1.03

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 350+840) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 350+920) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 350+970) is provided in Tables 7-9 and Figure 3. The testing data corresponding to the fourth testing point (KM 351+020) is provided in Tables 10-12 and Figure 4. The testing data corresponding to the fifth testing point (KM 351+060) is provided in Tables 13-15 and Figure 5. The testing data corresponding to the sixth testing point (KM 351+100) is provided in Tables 16-18 and Figure 6.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 350+840)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.11	0.33
a_1 (mm/(MN/m ²))	3.04	4.56
a_2 (mm/(MN ² /m ⁴))	2.61	-6.69
$E_v = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	122.01	155.89
E_{v2}/E_{v1}	1.28	

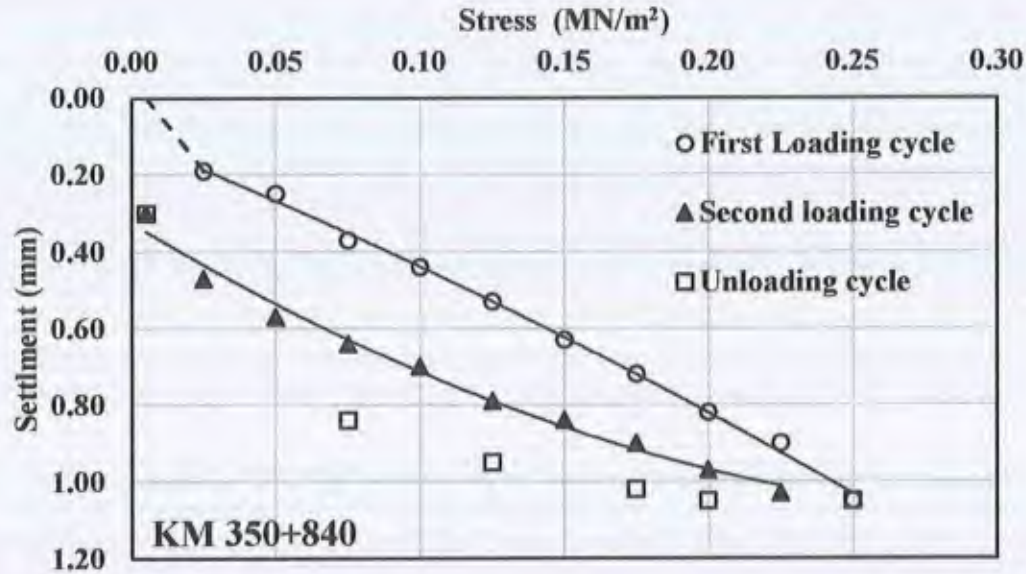


Figure 1: Load-settlement data: plate loading test performed at (KM 350+840)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+920)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.22
2	14.14	0.050	0.26
3	21.21	0.075	0.36
4	28.28	0.100	0.43
5	35.35	0.125	0.57
6	42.42	0.150	0.69
7	49.49	0.175	0.74
8	56.56	0.200	0.82
9	63.63	0.225	0.91
10	70.7	0.250	1.00
11	56.56	0.200	1.00
12	49.49	0.175	0.99
13	35.35	0.125	0.95
14	21.21	0.075	0.83
15	1.414	0.005	0.30



Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 350+920)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.30
1	7.07	0.025	0.45
2	14.14	0.050	0.51
3	21.21	0.075	0.60
4	28.28	0.100	0.65
5	35.35	0.125	0.73
6	42.42	0.150	0.81
7	49.49	0.175	0.87
8	56.56	0.200	0.92
9	63.63	0.225	0.98

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 350+920)

Parameters	1st loading cycle	2nd loading cycle
$(s_0)_{max}$ MN/m ²	0.25	0.25
a_0 (mm)	0.10	0.31
a_1 (mm/(MN/m ²))	3.73	4.02
a_2 (mm/(MN ² /m ⁴))	-0.42	-4.85
$Ev = 1.5 \cdot r / (a_1 + a_2 \cdot s_0)_{max}$	124.02	160.18
Ev_2/Ev_1	1.29	

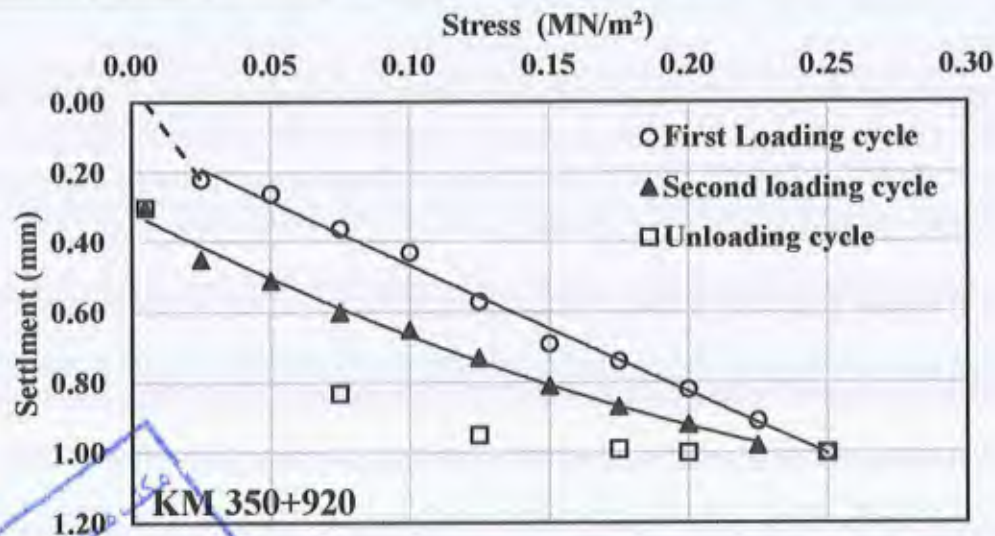


Figure 2: Load-settlement data: plate loading test performed at (KM 350+920)



Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 350+970)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.30
2	14.14	0.050	0.37
3	21.21	0.075	0.51
4	28.28	0.100	0.59
5	35.35	0.125	0.74
6	42.42	0.150	0.85
7	49.49	0.175	1.00
8	56.56	0.200	1.11
9	63.63	0.225	1.21
10	70.7	0.250	1.35
11	56.56	0.200	1.35
12	49.49	0.175	1.35
13	35.35	0.125	1.29
14	21.21	0.075	1.19
15	1.414	0.005	0.41

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 350+970)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.41
1	7.07	0.025	0.60
2	14.14	0.050	0.72
3	21.21	0.075	0.86
4	28.28	0.100	1.00
5	35.35	0.125	1.10
6	42.42	0.150	1.20
7	49.49	0.175	1.24
8	56.56	0.200	1.34
9	63.63	0.225	1.41

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 350+970)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.17	0.40
a_1 (mm/(MN/m ²))	4.25	7.04
a_2 (mm/(MN ² /m ⁴))	1.88	-11.68
$E_v = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	95.29	109.17
E_{v2}/E_{v1}		

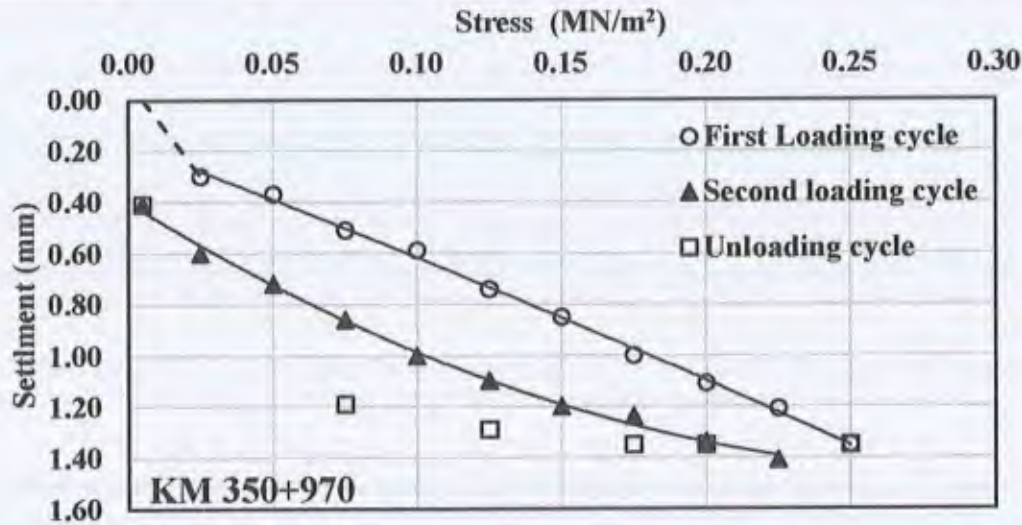


Figure 3: Load-settlement data: plate loading test performed at (KM 350+970)

Table 10: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+020)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.25
2	14.14	0.050	0.32
3	21.21	0.075	0.39
4	28.28	0.100	0.55
5	35.35	0.125	0.73
6	42.42	0.150	0.83
7	49.49	0.175	0.95
8	56.56	0.200	1.07
9	63.63	0.225	1.15
10	70.7	0.250	1.29
11	56.56	0.200	1.29
12	49.49	0.175	1.28
13	35.35	0.125	1.19
14	21.21	0.075	1.13
15	1.414	0.005	0.51



Table 11: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+020)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.51
1	7.07	0.025	0.70
2	14.14	0.050	0.83
3	21.21	0.075	0.90
4	28.28	0.100	0.98
5	35.35	0.125	1.07
6	42.42	0.150	1.11
7	49.49	0.175	1.18
8	56.56	0.200	1.26
9	63.63	0.225	1.32

Table 12: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+020)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.09	0.54
a_1 (mm/(MN/m ²))	4.85	5.35
a_2 (mm/(MN ² /m ⁴))	-0.12	-8.80
$EV = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	93.34	142.87
EV_2/EV_1	1.53	

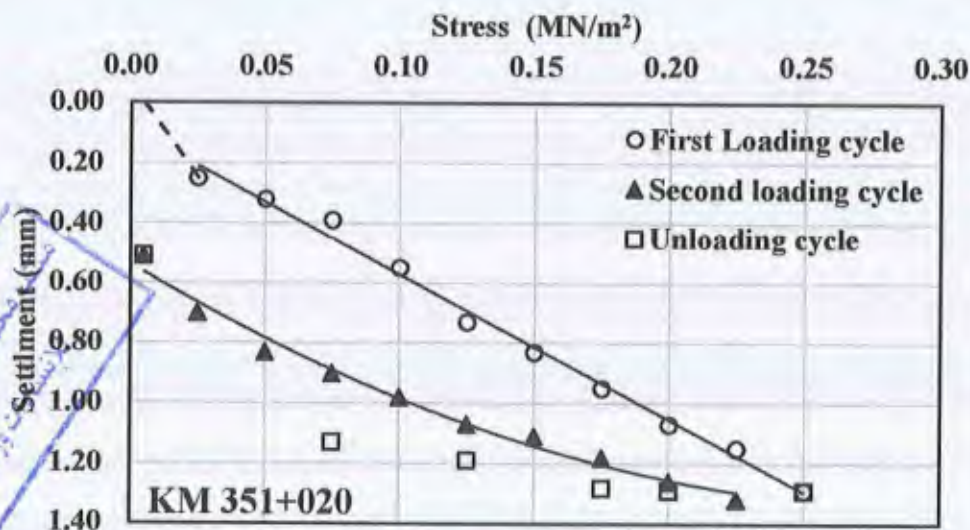


Figure 4: Load-settlement data: plate loading test performed at (KM 351+020)



Table 13: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+060)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.20
2	14.14	0.050	0.28
3	21.21	0.075	0.37
4	28.28	0.100	0.47
5	35.35	0.125	0.58
6	42.42	0.150	0.70
7	49.49	0.175	0.79
8	56.56	0.200	0.87
9	63.63	0.225	0.94
10	70.7	0.250	1.15
11	56.56	0.200	1.15
12	49.49	0.175	1.03
13	35.35	0.125	0.95
14	21.21	0.075	0.85
15	1.414	0.005	0.29

Table 14: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+060)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.29
1	7.07	0.025	0.46
2	14.14	0.050	0.55
3	21.21	0.075	0.65
4	28.28	0.100	0.72
5	35.35	0.125	0.79
6	42.42	0.150	0.88
7	49.49	0.175	0.94
8	56.56	0.200	1.00
9	63.63	0.225	1.08

Table 15: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+060)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.11	0.31
a_1 (mm/(MN/m ²))	3.39	4.83
a_2 (mm/(MN ² /m ⁴))	2.43	-6.59
$E_v = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	112.48	141.46
E_{v2}/E_{v1}	1.26	

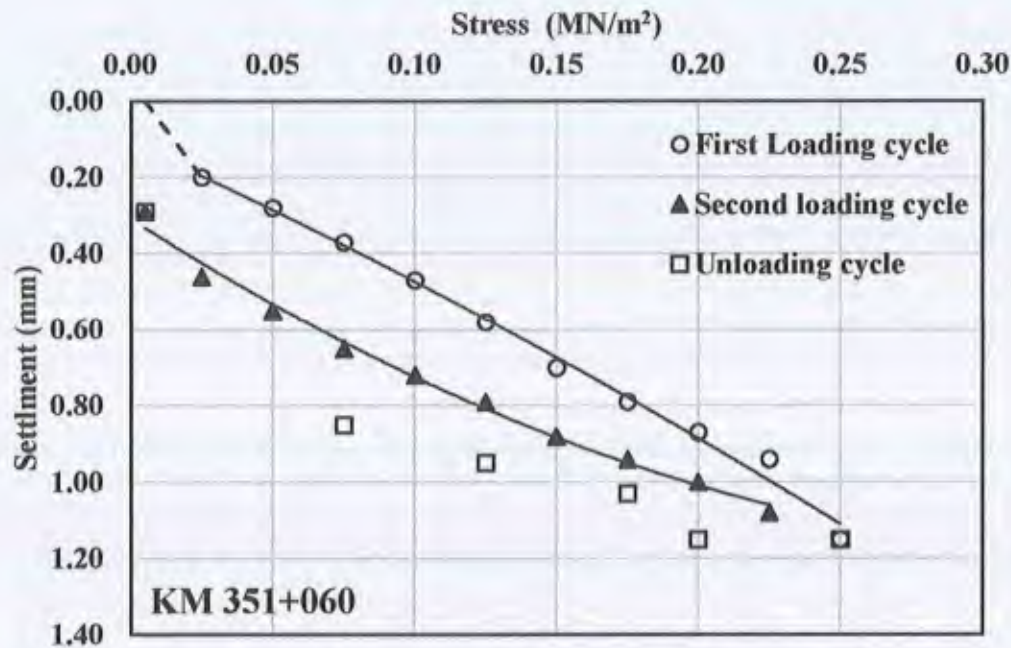


Figure 5: Load-settlement data: plate loading test performed at (KM 351+060)

Table 16: Load-settlement data obtained at the first loading and unloading stages of the

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.13
2	14.14	0.050	0.18
3	21.21	0.075	0.28
4	28.28	0.100	0.40
5	35.35	0.125	0.54
6	42.42	0.150	0.70
7	49.49	0.175	0.83
8	56.56	0.200	0.92
9	63.63	0.225	1.05
10	70.7	0.250	1.15
11	56.56	0.200	1.15
12	49.49	0.175	1.10
13	35.35	0.125	1.02
14	21.21	0.075	0.95
15	1.414	0.005	0.45



Table 17: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+100)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.45
1	7.07	0.025	0.56
2	14.14	0.050	0.63
3	21.21	0.075	0.70
4	28.28	0.100	0.80
5	35.35	0.125	0.88
6	42.42	0.150	0.95
7	49.49	0.175	1.00
8	56.56	0.200	1.05
9	63.63	0.225	1.11

Table 18: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+100)

Parameters	1st loading cycle	2nd loading cycle
$(s_{0,max})$ MN/m ²	0.25	0.25
a_0 (mm)	-0.02	0.44
a_1 (mm/(MN/m ²))	4.35	4.10
a_2 (mm/(MN ² /m ⁴))	1.76	-5.05
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	94.02	158.51
Ev_2/Ev_1	1.69	

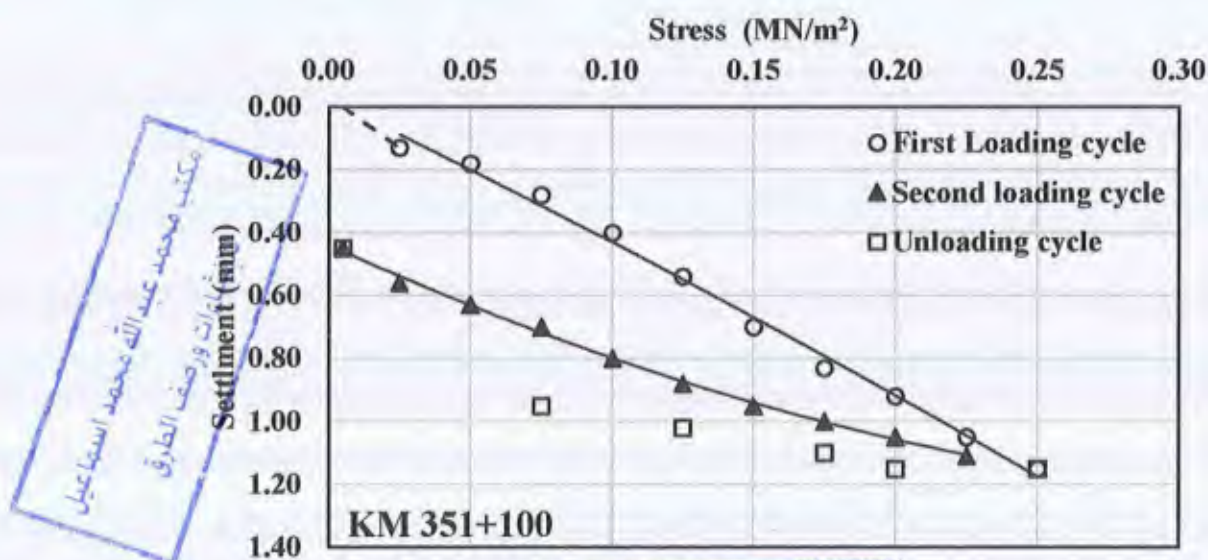


Figure 6: Load-settlement data plate loading test performed at (KM 351+100)



4. Closure

Test results presented herein report the load-settlement data obtained from 6 plate loading tests conducted on the Upper Embankment (Ferma) of the Electric Express train project at 6 locations (KM 350+840, KM 350+920, KM 350+970, KM 351+020, KM 351+060, and KM 351+100) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m ²	E_{v2} MN/m ²	E_{v2}/E_{v1} ratio
KM 350+840	122.01	155.89	1.28
KM 350+920	124.02	160.18	1.29
KM 350+970	95.29	109.17	1.15
KM 351+020	93.34	142.87	1.53
KM 351+060	112.48	141.46	1.26
KM 351+100	94.02	158.51	1.69

• Note: Before interpreting these test results for future applications, the Upper Embankment (Ferma) in-situ variability between the testing locations should be considered.

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

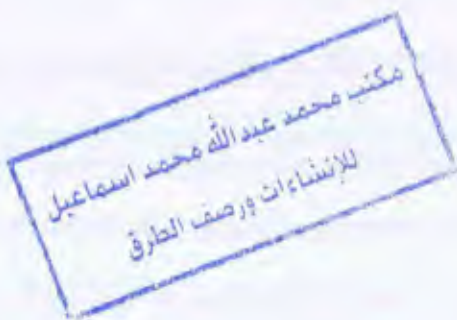
Lab Engineer

Mohamed A. Al-Najjar





Appendix A





Location of test site:	KM 350+840		Field team	Mr.Mohamed Mamdouh
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	6/7/2023
Diameter of loading plate	600		Time	10:35:00 AM 11:03:00 AM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.81	
	2	14.14	9.75	
	3	21.21	9.63	
	4	28.28	9.56	
	5	35.35	9.47	
	6	42.42	9.37	
	7	49.49	9.28	
	8	56.56	9.18	
	9	63.63	9.10	
	10	70.7	8.95	
Unloading Stage	11	56.56	8.95	
	12	49.49	8.98	
	13	35.35	9.05	
	14	21.21	9.16	
	15	1.414	9.70	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.70	
	1	7.07	9.53	
	2	14.14	9.43	
	3	21.21	9.36	
	4	28.28	9.30	
	5	35.35	9.21	
	6	42.42	9.16	
	7	49.49	9.10	
	8	56.56	9.03	
	9	63.63	8.97	

مكتب محمد عبد الله محمد السباعي
للإنشاءات ورصف الطرق



Location of test site:	KM 350+920		Field team	Mr.Mohamed Mamdouh
Project title:	Electric Express Tram Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	6/7/2023
Diameter of loading plate	600		Time	11:08:00 AM 11:36:00 AM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.78	
	2	14.14	9.74	
	3	21.21	9.64	
	4	28.28	9.57	
	5	35.35	9.43	
	6	42.42	9.31	
	7	49.49	9.26	
	8	56.56	9.18	
	9	63.63	9.09	
Unloading Stage	10	70.7	9.00	
	11	56.56	9.00	
	12	49.49	9.01	
	13	35.35	9.05	
	14	21.21	9.17	
	15	1.414	9.70	
	16	1.414	9.70	
	17	7.07	9.55	
	18	14.14	9.49	
	19	21.21	9.40	
Reloading Stage	20	28.28	9.35	
	21	35.35	9.27	
	22	42.42	9.19	
	23	49.49	9.13	
	24	56.56	9.08	
	25	63.63	9.02	
	26	70.7	9.00	
	27	56.56	9.00	
	28	49.49	9.01	
	29	35.35	9.05	
30	21.21	9.17		
31	1.414	9.70		
32	1.414	9.70		
33	7.07	9.55		
34	14.14	9.49		
35	21.21	9.40		
36	28.28	9.35		
37	35.35	9.27		
38	42.42	9.19		
39	49.49	9.13		
40	56.56	9.08		
41	63.63	9.02		
42	70.7	9.00		
43	56.56	9.00		
44	49.49	9.01		
45	35.35	9.05		
46	21.21	9.17		
47	1.414	9.70		
48	1.414	9.70		
49	7.07	9.55		
50	14.14	9.49		
51	21.21	9.40		
52	28.28	9.35		
53	35.35	9.27		
54	42.42	9.19		
55	49.49	9.13		
56	56.56	9.08		
57	63.63	9.02		
58	70.7	9.00		
59	56.56	9.00		
60	49.49	9.01		
61	35.35	9.05		
62	21.21	9.17		
63	1.414	9.70		
64	1.414	9.70		
65	7.07	9.55		
66	14.14	9.49		
67	21.21	9.40		
68	28.28	9.35		
69	35.35	9.27		
70	42.42	9.19		
71	49.49	9.13		
72	56.56	9.08		
73	63.63	9.02		
74	70.7	9.00		
75	56.56	9.00		
76	49.49	9.01		
77	35.35	9.05		
78	21.21	9.17		
79	1.414	9.70		
80	1.414	9.70		
81	7.07	9.55		
82	14.14	9.49		
83	21.21	9.40		
84	28.28	9.35		
85	35.35	9.27		
86	42.42	9.19		
87	49.49	9.13		
88	56.56	9.08		
89	63.63	9.02		
90	70.7	9.00		
91	56.56	9.00		
92	49.49	9.01		
93	35.35	9.05		
94	21.21	9.17		
95	1.414	9.70		
96	1.414	9.70		
97	7.07	9.55		
98	14.14	9.49		
99	21.21	9.40		
100	28.28	9.35		
101	35.35	9.27		
102	42.42	9.19		
103	49.49	9.13		
104	56.56	9.08		
105	63.63	9.02		
106	70.7	9.00		
107	56.56	9.00		
108	49.49	9.01		
109	35.35	9.05		
110	21.21	9.17		
111	1.414	9.70		
112	1.414	9.70		
113	7.07	9.55		
114	14.14	9.49		
115	21.21	9.40		
116	28.28	9.35		
117	35.35	9.27		
118	42.42	9.19		
119	49.49	9.13		
120	56.56	9.08		
121	63.63	9.02		
122	70.7	9.00		
123	56.56	9.00		
124	49.49	9.01		
125	35.35	9.05		
126	21.21	9.17		
127	1.414	9.70		
128	1.414	9.70		
129	7.07	9.55		
130	14.14	9.49		
131	21.21	9.40		
132	28.28	9.35		
133	35.35	9.27		
134	42.42	9.19		
135	49.49	9.13		
136	56.56	9.08		
137	63.63	9.02		
138	70.7	9.00		
139	56.56	9.00		
140	49.49	9.01		
141	35.35	9.05		
142	21.21	9.17		
143	1.414	9.70		
144	1.414	9.70		
145	7.07	9.55		
146	14.14	9.49		
147	21.21	9.40		
148	28.28	9.35		
149	35.35	9.27		
150	42.42	9.19		
151	49.49	9.13		
152	56.56	9.08		
153	63.63	9.02		
154	70.7	9.00		
155	56.56	9.00		
156	49.49	9.01		
157	35.35	9.05		
158	21.21	9.17		
159	1.414	9.70		
160	1.414	9.70		
161	7.07	9.55		
162	14.14	9.49		
163	21.21	9.40		
164	28.28	9.35		
165	35.35	9.27		
166	42.42	9.19		
167	49.49	9.13		
168	56.56	9.08		
169	63.63	9.02		
170	70.7	9.00		
171	56.56	9.00		
172	49.49	9.01		
173	35.35	9.05		
174	21.21	9.17		
175	1.414	9.70		
176	1.414	9.70		
177	7.07	9.55		
178	14.14	9.49		
179	21.21	9.40		
180	28.28	9.35		
181	35.35	9.27		
182	42.42	9.19		
183	49.49	9.13		
184	56.56	9.08		
185	63.63	9.02		
186	70.7	9.00		
187	56.56	9.00		
188	49.49	9.01		
189	35.35	9.05		
190	21.21	9.17		
191	1.414	9.70		
192	1.414	9.70		
193	7.07	9.55		
194	14.14	9.49		
195	21.21	9.40		
196	28.28	9.35		
197	35.35	9.27		
198	42.42	9.19		
199	49.49	9.13		
200	56.56	9.08		
201	63.63	9.02		
202	70.7	9.00		
203	56.56	9.00		
204	49.49	9.01		
205	35.35	9.05		
206	21.21	9.17		
207	1.414	9.70		
208	1.414	9.70		
209	7.07	9.55		
210	14.14	9.49		
211	21.21	9.40		
212	28.28	9.35		
213	35.35	9.27		
214	42.42	9.19		
215	49.49	9.13		
216	56.56	9.08		
217	63.63	9.02		
218	70.7	9.00		
219	56.56	9.00		
220	49.49	9.01		
221	35.35	9.05		
222	21.21	9.17		
223	1.414	9.70		
224	1.414	9.70		
225	7.07	9.55		
226	14.14	9.49		
227	21.21	9.40		
228	28.28	9.35		
229	35.35	9.27		
230	42.42	9.19		
231	49.49	9.13		
232	56.56	9.08		
233	63.63	9.02		
234	70.7	9.00		
235	56.56	9.00		
236	49.49	9.01		
237	35.35	9.05		
238	21.21	9.17		
239	1.414	9.70		
240	1.414	9.70		
241	7.07	9.55		
242	14.14	9.49		
243	21.21	9.40		
244	28.28	9.35		
245	35.35	9.27		
246	42.42	9.19		
247	49.49	9.13		
248	56.56	9.08		
249	63.63	9.02		
250	70.7	9.00		
251	56.56	9.00		
252	49.49	9.01		
253	35.35	9.05		
254	21.21	9.17		
255	1.414	9.70		
256	1.414	9.70		
257	7.07	9.55		
258	14.14	9.49		
259	21.21	9.40		
260	28.28	9.35		
261	35.35	9.27		
262	42.42	9.19		
263	49.49	9.13		
264	56.56	9.08		
265	63.63	9.02		
266	70.7	9.00		
267	56.56	9.00		
268	49.49	9.01		
269	35.35	9.05		
270	21.21	9.17		
271	1.414	9.70		
272	1.414	9.70		
273	7.07	9.55		
274	14.14	9.49		
275	21.21	9.40		
276	28.28	9.35		
277	35.35	9.27		
278	42.42	9.19		
279	49.49	9.13		
280	56.56	9.08		
281	63.63	9.02		
282	70.7	9.00		
283	56.56	9.00		
284	49.49	9.01		
285	35.35	9.05		
286	21.21	9.17		
287	1.414	9.70		
288	1.414	9.70		
289	7.07	9.55		
290	14.14	9.49		
291	21.21	9.40		
292	28.28	9.35		
293	35.35	9.27		
294	42.42	9.19		
295	49.49	9.13		
296	56.56	9.08		
297	63.63	9.02		
298	70.7	9.00		
299	56.56	9.00		
300	49.49	9.01		
301	35.35	9.05		
302	21.21	9.17		
303	1.414	9.70		
304	1.414	9.70		
305	7.07	9.55		
306	14.14	9.49		
307	21.21	9.40		
308	28.28	9.35		
309	35.35	9.27		
310	42.42	9.19		
311	49.49	9.13		
312	56.56	9.08		
313	63.63	9.02		
314	70.7	9.00		
315	56.56	9.00		
316	49.49	9.01		
317	35.35	9.05		
318	21.21	9.17		
319	1.414	9.70		
320	1.414	9.70		
321	7.07	9.55		
322	14.14	9.49		
323	21.21	9.40		
324	28.28	9.35		
325	35.35	9.27		
326	42.42	9.19		
327	49.49	9.13		
328	56.56	9.08		
329	63.63	9.02		
330	70.7	9.00		
331	56.56	9.00		
332	49.49	9.01		
333	35.35	9.05		
334	21.21	9.17		
335	1.414	9.70		
336	1.414	9.70		
337	7.07	9.55		
338	14.14	9.49		
339	21.21	9.40		
340	28.28	9.35		
341	35.35	9.27		
342	42.42	9.19		
343	49.49	9.13		
344	56.56	9.08		
345	63.63	9.02		
346	70.7	9.00		
347	56.56	9.00		
348	49.49	9.01		
349	35.35	9.05		
350	21.21	9.17		
351	1.414	9.70		
352	1.414	9.70		
353	7.07	9.55		
354	14.14	9.49		
355	21.21	9.40		
356	28.28	9.35		
357	35.35	9.27		
358	42			





Location of test site:	KM 350+970		Field team	Mr.Mohamed Mamdouh	
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	6/7/2023	
Diameter of loading plate	600		Time	11:41:00 AM 12:09:00 PM	
Lever ratio	1		Note: Komatsu WA420		
Type of Soil	Upper Embankment (Ferma)				
Bedding material	---				
Temperature	27°C				
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)		
Loading Stage	0	1.414	10.00		
	1	7.07	9.70		
	2	14.14	9.63		
	3	21.21	9.49		
	4	28.28	9.41		
	5	35.35	9.26		
	6	42.42	9.15		
	7	49.49	9.00		
	8	56.56	8.89		
	9	63.63	8.79		
Unloading Stage	10	70.7	8.65		
	11	56.56	8.65		
	12	49.49	8.65		
	13	35.35	8.71		
	14	21.21	8.81		
Test regime	15	1.414	9.59		
	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)		
	Reloading Stage	0	1.414	9.59	
	1	7.07	9.40		
	2	14.14	9.28		
	3	21.21	9.14		
	4	28.28	9.00		
مكتب محمد عبد الله للإنشاءات والصيانة	5	35.35	8.90		
	6	42.42	8.80		
	7	49.49	8.76		
	8	56.56	8.66		
	9	63.63	8.59		



Location of test site:	KM 351+020		Field team	Mr.Mohamed Mamdouh
Project title:	Electric Express Tram Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	6/7/2023
Diameter of loading plate	600		Time	12:14:00 PM 12:42:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.75	
	2	14.14	9.68	
	3	21.21	9.61	
	4	28.28	9.45	
	5	35.35	9.27	
	6	42.42	9.17	
	7	49.49	9.05	
	8	56.56	8.93	
	9	63.63	8.85	
Unloading Stage	10	70.7	8.71	
	11	56.56	8.71	
	12	49.49	8.72	
	13	35.35	8.81	
	14	21.21	8.87	
Reloading Stage	15	1.414	9.49	
	0	1.414	9.49	
	1	7.07	9.30	
	2	14.14	9.17	
	3	21.21	9.10	
	4	28.28	9.02	
	5	35.35	8.93	
	6	42.42	8.89	
	7	49.49	8.82	
	8	56.56	8.74	
9	63.63	8.68		



E-JUST CETC Unit



Location of test site:	KM 351+060		Field team	Mr.Mohamed Mamdouh
Project title:	Electric Express Tram Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	6/7/2023
Diameter of loading plate	600		Time	12:47:00 PM 1:15:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.80	
	2	14.14	9.72	
	3	21.21	9.63	
	4	28.28	9.53	
	5	35.35	9.42	
	6	42.42	9.30	
	7	49.49	9.21	
	8	56.56	9.13	
	9	63.63	9.06	
Unloading Stage	10	70.7	8.85	
	11	56.56	8.85	
	12	49.49	8.97	
	13	35.35	9.05	
	14	21.21	9.15	
Reloading Stage	15	1.414	9.71	
	0	1.414	9.71	
	1	7.07	9.54	
	2	14.14	9.45	
	3	21.21	9.35	
	4	28.28	9.28	
	5	35.35	9.21	
	6	42.42	9.12	
	7	49.49	9.06	
	8	56.56	9.00	
9	63.63	8.92		

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

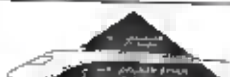
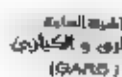


Location of test site:	KM 351+100		Field team	Mr.Mohamed Mamdouh
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	6/7/2023
Diameter of loading plate	600		Time	1:20:00 PM 1:47:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Upper Embankment (Ferma)			
Bedding material				
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.87	
	2	14.14	9.82	
	3	21.21	9.72	
	4	28.28	9.60	
	5	35.35	9.46	
	6	42.42	9.30	
	7	49.49	9.17	
	8	56.56	9.08	
	9	63.63	8.95	
Unloading Stage	10	70.7	8.85	
	11	56.56	8.85	
	12	49.49	8.90	
	13	35.35	8.98	
	14	21.21	9.05	
Reloading Stage	15	1.414	9.55	
	0	1.414	9.55	
	1	7.07	9.44	
	2	14.14	9.37	
	3	21.21	9.30	
	4	28.28	9.20	
	5	35.35	9.12	
	6	42.42	9.05	
	7	49.49	9.00	
	8	56.56	8.95	
9	63.63	8.89		

مكتب محمد عبد الله محمد اسماعيل
للإستشارات ورصف الطرق



MATERIAL APPROVAL REQUEST



Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	K.K	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		26/04/2023 (M A R D03)	08:00	
Received by GARB CONSULTANT	Eng.		MAR	C1	C2
				35.1	EW
			CS	DD	MM
			27	4	23
				HH	MM
				8	0

CODE-1	\$1 to \$21	\$1 to \$3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	fill layer		
Location to be Used	Store from s t (351+000) To s t (351+760)		
Sample only	Yes	Materials Type	fill layer
Supplier Name	مناجر وادي البطرون - العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 41 2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-Quality test Result By site lab	1-For information only
2 This Sample Representative (5000 m3) only	2-All tests were carried-out by site lab.
	3 Results report attached and acceptable with the project specification
	4-final approval is subject to above mentioned comments

APPROVAL STATUS				
Organisation	Name	Sign	Date	A AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng.			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2025 29/4	AWC

* Designer

** Alignment/Bridges Culvert only

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي ا.د. خالد الشاذلي	 SYSTRA	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHAMMAM From Station 325+400 To Station 358+000	 الجمهورية العربية السورية وزارة التخطيط
Operating Lab	محمد عبد الله		

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	27/04/2023	Code	ZONE	351+000	351+760
LOCATION	STORE	MAR-1			
NAME COMPANY	Mohamed abdallah				

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]	16872.00		gm	table classify	
sieve size	2	1.5	1	4/3	3/3	# 4	PASS	soil classify	
Mass retained (g)	0.0	698.0	158.0	1135.0	2547.0	4258.0		A-1-B	
Cumulative Retained (g)	0.0	698.0	856.0	1991.0	4538.0	8794.0		PRO	2.17
Cumulative Retained %	0.0	4.1	5.1	11.8	26.9	52.1		WC	7.10
Cumulative Passing %	100.0	95.9	94.9	88.2	73.1	47.9		CBR	-

B-soft material gradation				WT.OF samp	500.00		gm
sieve size	10	40	200				
Cumulative Retained (g)	82.00	40.00	387.00				
Cumulative Retained %	12.40	8.00	77.40				
Cumulative Passing %	87.60	92.00	22.60				

C-General gradient									
sieve size(in)	2	1.5	1	3/4	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	95.9	94.9	88.2	73.1	47.9	41.9	44.0	10.8

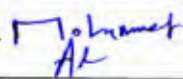
ATTERBERG LIMITS	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTIC INDEX (PI)
	N.P	N.P	N.P

Contractor

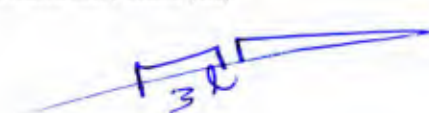


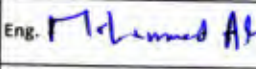
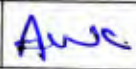
Consultant



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			2023-05-04 (M.A.R. 2)	08:00						
Received by GARB CONSULTANT	Eng. 		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	6	5	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Fill layer		
Location to be Used	From S.t (351+000) To S.t (351+260)		
Sample only	Yes	Materials Type	Fill layer
Supplier Name	محاجر وادي النطرون - العلمين	Data Sheet provided	
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K) 1-Quality test Result By Third party lab is Approved. 2-This Sample Representative (5000m3) only. 		Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were carried-out by Third party lab 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. 			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		21-5-2023	

* Designer

** Alignment/Bridges: Culvert only



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

SOIL REPORTS FOR ELECTRIC EXPRESS TRAIN PROJECT

Contractor : محمد عبدالله للإنشاءات ورصف الطرق
Date of report : 21/05/2023
QC : 1202-2





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

I- Introduction

General Consultant : SYSTRA
Consultant : Dr/ Khaled Kandil
Contractor : محمد عبدالله للإنشاءات ورصف الطرق
Sample : FERMA
Station : St(350+780) to st(351+100)
Date of Test : 06/05/2023
QC : 1202-2

II- Sample description:

Gravel and sand

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction (Proctor test)	MDD	2.114
	OMC	7.3%
3- Liquid limit, plastic limit and plasticity index	LL	Non plastic
	PL	Non plastic
	PI	Non plastic
4- California bearing ratio (CBR)	CBR ratio	49%

LAB DIRECTOR

Eng / Eman kandil



Geotechnical Consultant

Dr. Mohamed Mostafa Badry

Kilo 23 Alexandria - Cairo Desert Road - Merghem

Tel: 002 03 4704595 - 002 034701191

Email : civdept@comibassal.com

WebSite : www.comibassal.com



49 El Horria Ave. Alex, Egypt

Tel: 002 033920176 - 002 033931482

Fax : 002 033900476

Email : internal-inspection@comibassal.com



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Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

APPENDIX





COMIBASSAL International Controllers

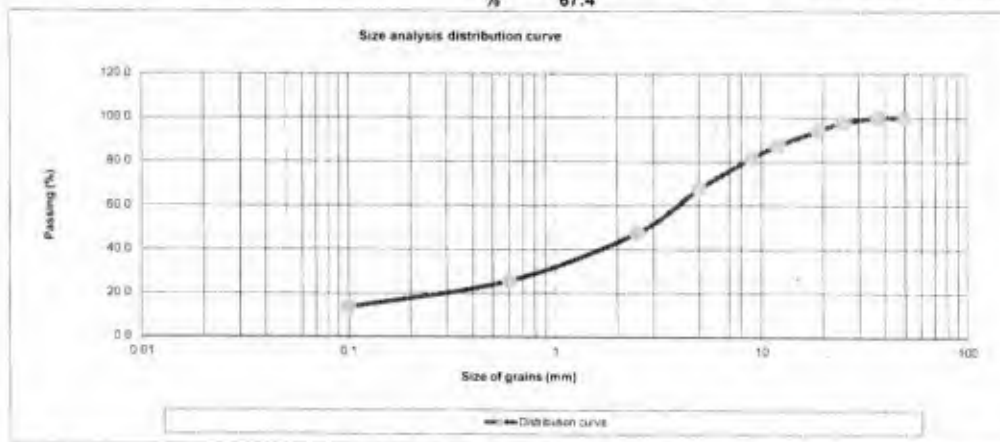
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Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED (gm)	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
2	0.00	0.00	0.00	100.0	
1 1/2	0.00	0.00	0.00	100.0	
1	237.00	237.00	2.37	97.6	
3/4	359.00	596.00	5.96	94.0	
1/2	688.00	1284.00	12.84	87.2	
3/8	584.00	1868.00	18.68	81.3	
No.4	1389.00	3257.00	32.57	67.4	
No.10	148.00	148.00	29.60	47.5	
No.40	310.00	310.00	62.00	25.6	
No.200	400.00	400.00	80.00	13.5	

Total sample weight = 10000.00 pass No.4= 6743.0 Total fine aggregates weight = 500 gm
% 67.4



Soil classification: A - 1 - a (Non plastic)





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Modified Proctor Test Report ASTM - D 1557

Mould Number :- 2
Volume of mould = 2.199 cm³
Weight of mould = 7045 g
G.S = 2.57 g/cm³

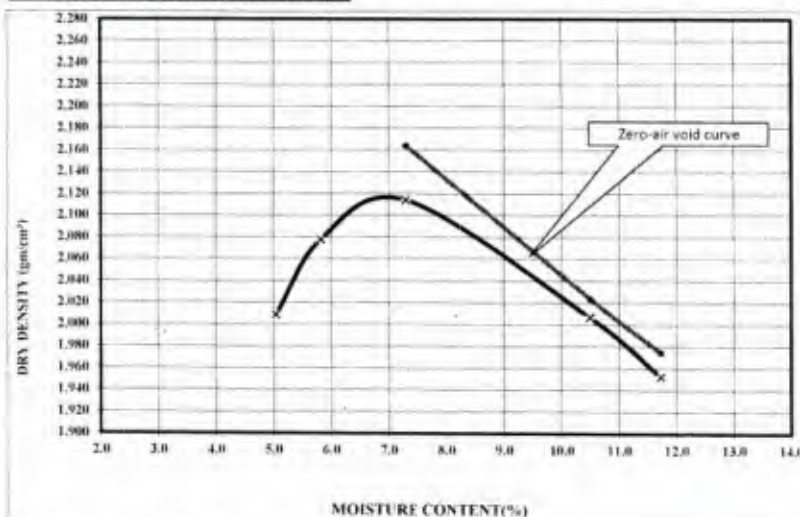
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	11684	11879	12033	11921	11842
Weight of mould (g)	7045	7045	7045	7045	7045
Weight of wet soil (g)	4639	4834	4988	4876	4797
Volume of mould (cm ³)	2199	2199	2199	2199	2199
Wet density (g/cm ³)	2.110	2.198	2.268	2.217	2.181
Dry density (g/cm ³)	2.008	2.077	2.114	2.007	1.952
Zero-air Void curve			2.164	2.024	1.975

B- Moisture Calculations :-

Weight of wet soil (g)	100.0	100.0	100.0	100.0	100.0
Weight of dry soil (g)	95.2	94.5	93.2	90.5	89.5
moisture content%	5.0	5.8	7.3	10.5	11.7

C - Dry density-Moisture relationship:-



M.D.D= 2.114 gm/cm³
O.M.C= 7.30 %





COMIBASSAL International Controllers

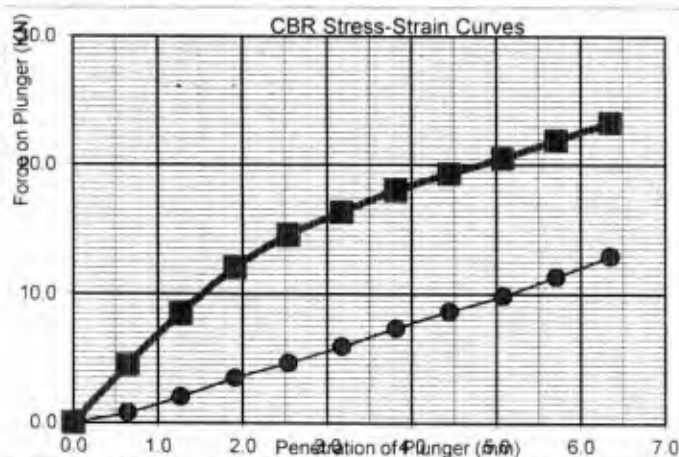
Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56				Swell %	
MOULD NO	1				56	
WT OF MOULD+SOIL	11950			Start	0.00	
WT OF MOULD	7010			End	0.00	
WT OF SOIL	4940			Swell	0.00	
VOLUME OF MOULD	2198					
WET DENSITY	2.247					
	MC before soaking			Weight of Rammer	4.54Kg	
TIN NO	1			MDD	Kg/m3	2.114
WT OF WET SOIL+TIN	250.00			OMC	%	7.3
WT OF DRY SOIL+TIN	240.5					
WT OF WATER	9.50					
WT OF TIN	92			PROVING RING		
WT OF DRY SOIL	148.5			Div/KN	0.0210	
MOISTURE CONTENT	6.4					
DRY DENSITY	2.112			Capacity (KN)	50	

Pen	Reading (Div)	Bearing (KN)	standar	CBR
mm	56	56	56	
0.00	0	0.0	0.0	
0.64	80	0.8	4.5	
1.27	208	2.0	8.5	
1.91	355	3.5	12.0	
2.54	475	4.7	14.5	35
3.17	605	5.9	16.3	
3.81	751	7.4	18.0	
4.45	883	8.7	19.3	
5.08	1005	9.9	20.5	49
5.71	1155	11.3	21.9	
6.35	1315	12.9	23.3	





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

Report	:	452 - 1 - Center
Date	:	13/05/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	DR / KHALED KANDIL
Contractor	:	شركة محمد عبدالله للاستشارات ورصف الطرق
Project	:	Electric express train
Sample	:	Middle Embankment (-1.5)
Station	:	ST (350 + 780) : (351 +100)
Date of Test	:	6-5-2023

Temperature : 21 °C

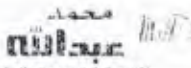
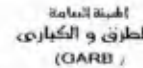
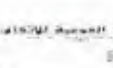
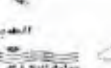
Humidity : 40%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

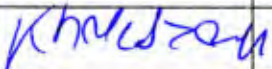
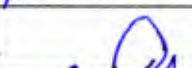
Mostafa Asker

MATERIAL APPROVAL REQUEST	      	
	للمهندسة هادي النطرون - العلمين المهندس محمد مصطفى المهندس خالد خليل المهندس محمد مصطفى المهندس خالد خليل المهندس محمد مصطفى المهندس خالد خليل	

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	K.K	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		27/05/2023 (M.A.R.003)	08:00	
Received by GARB CONSULTANT	Eng.		MAR	C1 351	C2 ELV C3 CS D0 28 MM 5 VV 27 HH 8 MM 0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	fill layer		
Location to be Used	Store from s.t (351+000) To s.t (351+760)		
Sample only	Yes	Materials Type	fill layer
Supplier Name	محاجر وادي النطرون - العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. (K.K) 1-Quality test Result By site lab 2-This Sample Representative (5000 m3) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-For information only 2-All tests were carried-out by site lab. 3-Results report attached and acceptable with the project specification. 4-final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng.			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023 30/5	AWC

* Designer

** Alignment/Bridges: Culvert only

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد قنديل	 SYSTRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHAMMAM From Station 325+400 To Station 358+000	 الهيئة القومية للإنتافق (S.A.E.C.)
Opreating Lab	محمد عبدالله		

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	28/05/2023	Code			
LOCATION	STORE	MAR-3	ZONE	351+000	351+760
NAME COMPANY	Mohamed abdallah				

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]	15848.00		gm	table classify
sieve size	2	1.5	1	4/3	8/3	# 4	PASS	soil classify
Mass retained (g)	0.0	579.0	145.0	1068.0	2496.0	4135.0		A-1-B
Cumulative Retained (g)	0.0	579.0	724.0	1792.0	4288.0	8423.0	PRO	2.18
Cumulative Retained %	0.0	3.7	4.6	11.3	27.1	53.1	WC	0.90
Cumulative Passing %	100.0	96.3	95.4	88.7	72.9	46.9	CBR	-

B-soft material gradation			WT.OF sample	500.00		gm
sieve size	10	40	200			
Cumulative Retained (g)	62.00	40.00	387.00			
Cumulative Retained %	12.40	8.00	77.40			
Cumulative Passing %	87.60	92.00	22.60			

C-General gradient									
sieve size(in)	2	1.5	1	3/4	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	96.3	95.4	88.7	72.9	46.9	41.0	43.1	10.6

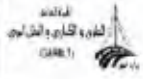
ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

Consultant

[Signature]

[Signature]

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد زكي	 SVSIFA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHAMMAM From Station 325+400 To Station 358+000		 الهيئة العامة للنقل وزارة النقل والاقتصاد (GARE)

PROCTOR TEST

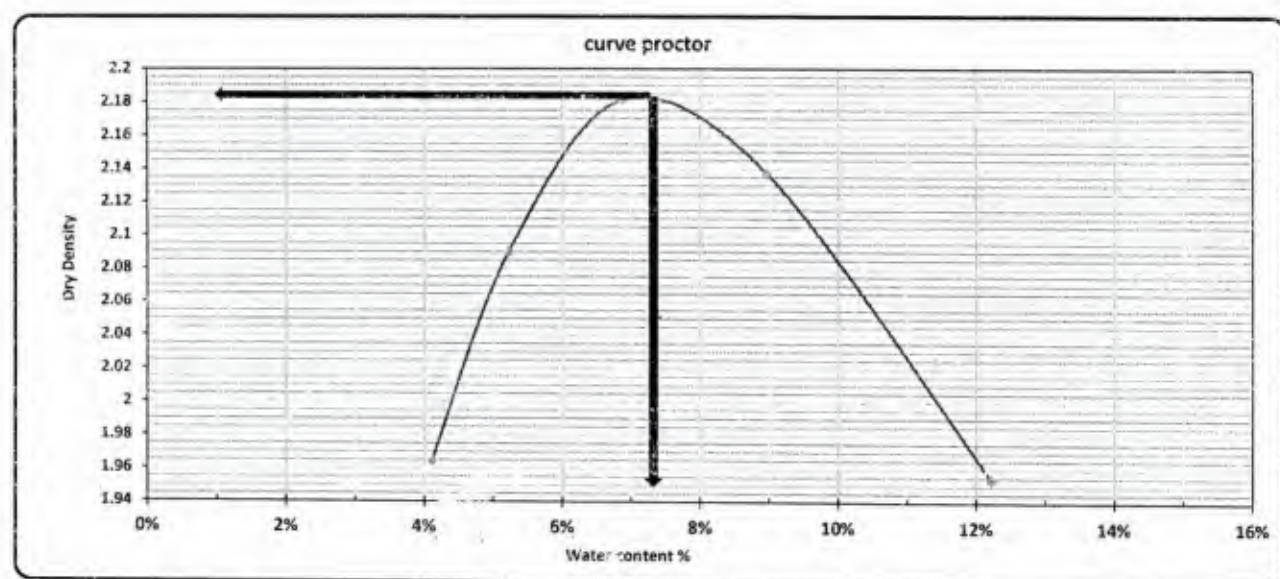
TESTING DATE:	28/5/2023	Code	ZONE	351+000	351+760
LOCATION	STORE	MAR 3			
NAME COMPANY	MOHAMED ABDALLAH				

Weight of empty mold :	6062.0
Mold Volume:	2103.0

MAX Dry Density	2.18
Water content %	6.9

trial no :	1	2	3	4	5
Wt. Of Mold+ wet soil	10364.0	10687.0	10965.0	10960	10674
WT. WET SOIL	4302.0	4625.0	4903.0	4898.0	4612.0
Wt. Density	2.046	2.199	2.331	2.329	2.193

Tare No.	33	18	5	15	90	17	16	5	20	4
Tare wt.	73.7	77.5	59.7	31.9	62.5	59.6	33.8	59.7	61	60.3
Wt. Of wet soil & tare	151.0	152.0	151.0	152.0	153.0	156.0	150.0	154.0	156.0	150.0
Wt. Of dry soil & tare	148.0	149.0	146.5	146.0	147.0	150.0	142.0	145.0	147.0	139.0
Wt. Of water	3.0	3.0	4.5	6.0	6.0	6.0	8.0	9.0	9.0	11.0
Wt. Of dry soil	74.3	71.5	86.8	114.1	84.5	90.4	108.2	85.3	86.0	78.7
Water content %	4.0%	4.2%	5.2%	5.3%	7.1%	6.6%	7.4%	10.5%	10.5%	14.0%
AV. Water content %	4.1%		5.2%		6.9%		9.0%		12.2%	
Dry Density	1.965		2.099		2.182		2.137		1.954	



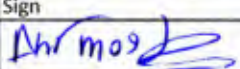
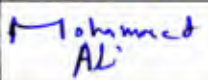
Contractor

Amr Mohamed

Consultant

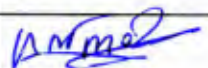
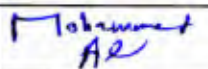
Khaled Zaki

MATERIAL APPROVAL REQUEST							

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		18/07/2023 (M.A.R.004)	08:00							
Received by GARB CONSULTANT	Eng. Sayed saif		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	19	7	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Fill layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Fill layer
Supplier Name	محاجر وادي النطرون-العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K) 1-Quality test Result By third party Laboratory is Approved. 2-This Sample Representative (5000 m3) only. 		Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were carried-out by thid party lab (Alexandria University) 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4.for information only.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Mergret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2-8-2023	AWC

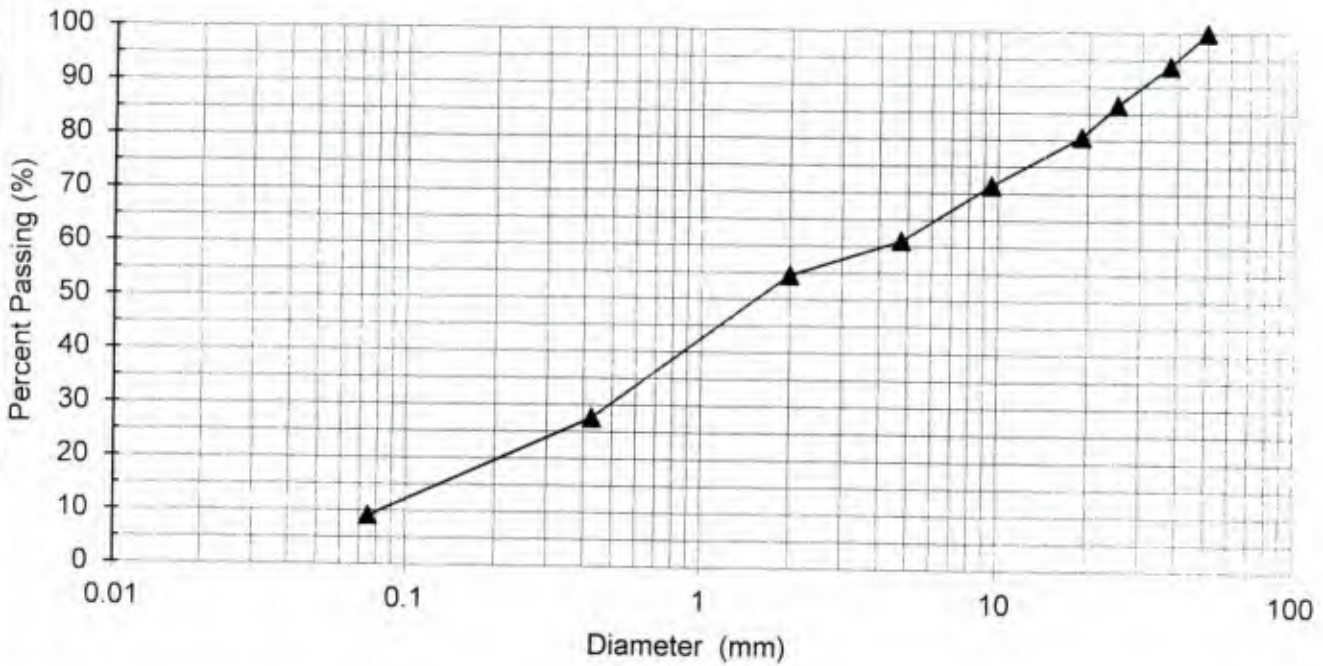
* Designer

** Alignment/Bridges: Culvert only

**Grain Size Distribution Curve**

CLIENT	شركة محمد عبد الله للإنشاءات ورصف الطرق
PROJECT	القطار الكهربائي السريع من برج العرب الى العلمين
LOCATION	من محطة ٣٥٠+٨٤٠ الى محطة ٣٥١+١٠٠
LAYER TYPE	اتربة عينة ١ / ١

Receiving Date	19/07/2023
Cheque Date	19/07/2023
Reciept Number	985202
Report Date	02/08/2023
Lab. Ref.	G 6/08

GRAIN SIZE DISTRIBUTION CURVE

Sieve No.	PERCENT PASSING							
	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"
Test Results	9.1	27.6	54.5	61.0	71.4	80.5	86.6	93.9
								100.0

تصنيف التربة : A-1-b

العينة عديمة اللدونة

وردت العينة التي اجري عليها الاختبار الى المعمل بمعرفة مندوب الاستشاري أ.د/ خالد قنديل



Laboratory Director

Dr. Wael Bekheet

The laboratory is only responsible for the test results and its correctness. The laboratory is not responsible for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات وصحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اى نتائج مبنية على ذلك

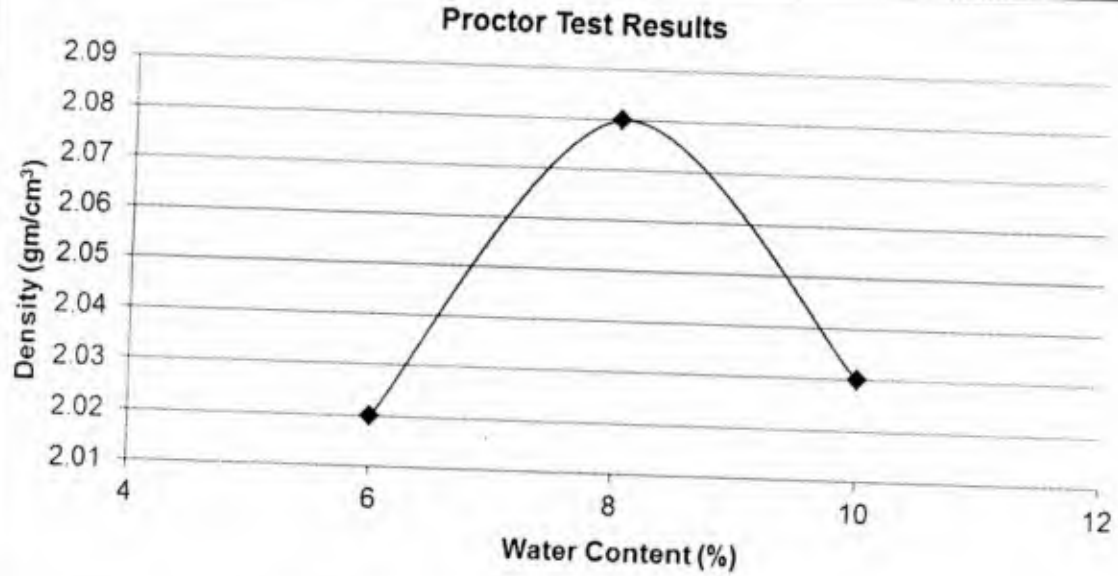
رقم بریدی ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ + (٢٠٣)

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203



نتائج تجارب الدمك - بروكتور معدل

٢٠٢٣/٠٧/١٩	تاريخ توريد العينة	ب ٠٨/٠٧	تقرير رقم
٢٠٢٣/٠٧/١٩	تاريخ الايصال	بروكتور	الاختبارات
٩٨٥٢٠٢	رقم الايصال	شركة محمد عبد الله للانشاءات ورصف الطرق	العمل
٢٠٢٣/٠٨/٠٢	تاريخ التقرير	القطار الكهربائى السريع من برج العرب الى العلمين	المشروع
طبقة اترية	العينة	من محطة ٣٥٠+٨٤٠ الى محطة ٣٥١+١٠٠	الموقع



أقصى كثافة معملية جافة	: ٢,٠٨ جم/سم³
نسبة المياه الأصولية	: ٨%

تم توريد العينة بمعرفة مندوب الاستشارى أ.د/ خالد قنديل

مدير المعمل

والله

د. / وائل بخيت

فى المعمل

أ / أحمد عادل



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المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن تفسير نتائج الاختبارات او أى نتائج مبنيه على ذلك

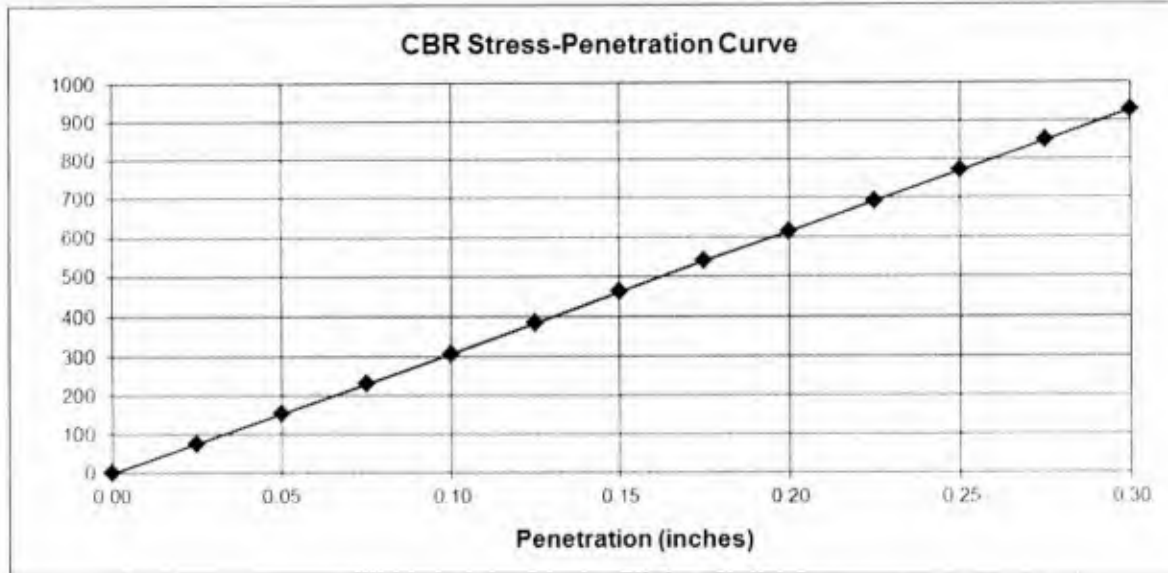
رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)+

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

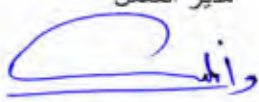


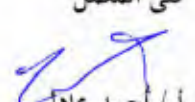
نتائج تجارب نسبة تحمل كاليفورنيا

٢٠٢٣/٠٧/١٩	تاريخ توريد العينة	٠٨/٠٦/٢٠٢٣	تقرير رقم
٢٠٢٣/٠٧/١٩	تاريخ الايصال	نسبة تحمل كاليفورنيا	الاختبارات
٩٨٥٢٠٢	رقم الايصال	شركة محمد عبد الله للانشاءات ورصف الطرق	العميل
٢٠٢٣/٠٨/٠٢	تاريخ التقرير	القطار الكهربائى السريع من برج العرب الى العلمين	المشروع
طبقة التربة	العينة	من محطة ٣٥٠+٨٤٠ الى محطة ٣٥١+١٠٠	الموقع



نسبة تحمل كاليفورنيا بعد المعالجة في الماء لمدة ٤ أيام	:	٤١ %
تم توريد العينة بمعرفة مندوب الاستشارى أ.د/ خالد قنديل		

مدير المعمل

 د. / وائل بخيت

فى المعمل

 أ / أحمد عادل

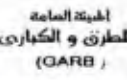


The laboratory is **only responsible** for the test results and its correctness. The laboratory is **not responsible** for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات أو أى نتائج مبنية على ذلك

رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

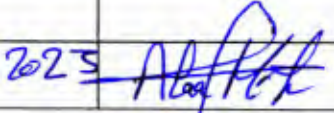
P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

MATERIAL APPROVAL REQUEST														
	محمّد عبد الله للإنشاءات ورصف الطرق K.K. DESIGNERS مهندسين معماريين ومهندسين مدنيين إمينة العامة للطرق و الجسور (GARB) وزارة النقل وزارة النقل الهيئة العامة للتخطيط الاقتصادي وزارة التخطيط وزارة التخطيط الاقتصادي وزارة التخطيط الاقتصادي													

Contractor Company	Mohamed Abdallah for constructions and roads paving				Designer Company	K.K					
Issued by Contractor	Name	Sign			Date/Serial Number	Time					
	Eng. Mohamed moustafa				31/08/2023	08:00					
					(M.A.R.005)						
Received by GARB CONSULTANT	Eng.	Khaled Zaki	MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	2	9	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	fill layer		
Location to be Used	Store from s.t (351+000) To s.t (351+760)		
Sample only	Yes	Materials Type	fill layer
Supplier Name	محاجر وادي النطرون - العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. (K.K)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By site lab		1-For information only	
2-This Sample Representative (5000 m3) only.		2-All tests were carried-out by site lab.	
		3-Results report attached and acceptable with the project specification.	
		4-final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng.	Khaled Zaki		A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges: Culvert only

03/9

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد شحبل	 SYSTEM SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHAMMAM From Station 325+400 To Station 358+000	 الهيئة القومية للتحقيق المجلس الأعلى للبحوث والدراسات (CARST)
Opreating Lab	محمد عبدالله		

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	02/09/2023	Code			
LOCATION	STORE	MAR-5	ZONE	351+000	351+760
NAME COMPANY	Mohamed abdallah				

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]	10984.00		gm	table classify	
sieve size	2	1.5	1	4/3	8/3	# 4	PASS	soil classify	
Mass retained (g)	0.0	542.0	142.0	985.0	2148.0	2065.0		A-1-B	
Cumulative Retained (g)	0.0	542.0	684.0	1669.0	3817.0	5882.0		PRO	2.15
Cumulative Retained %	0.0	4.9	6.2	15.2	34.8	53.6		WC	6.50
Cumulative Passing %	100.0	95.1	93.8	84.8	65.2	46.4		CBR	-

B-soft material gradation			WT.OF samp	500.00		gm
sieve size	10	40	200			
Cumulative Retained (g)	59.00	40.00	349.00			
Cumulative Retained %	11.80	8.00	69.80			
Cumulative Passing %	88.20	92.00	30.20			

C-General gradient									
sieve size(in)	2	1.5	1	3/4	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	95.1	93.8	84.8	65.2	46.4	41.0	42.7	14.0

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

Consultant

Amr mael

Khaled Zaki

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ. د. خالد زكي	 SVSIRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHAMMAM From Station 325+400 To Station 358+000		 الهيئة العامة للإحصاء Ministry of Planning (SARST)

PROCTOR TEST

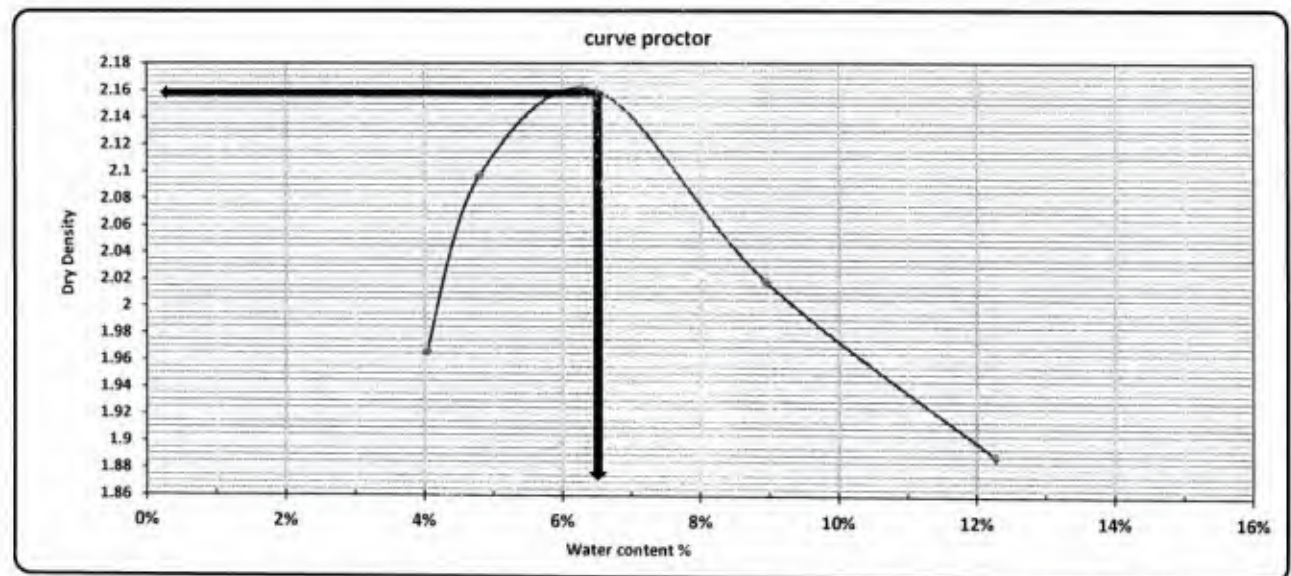
TESTING DATE:	2/9/2023	Code	ZONE	351+000	351+760
LOCATION	STORE	MAR-5			
NAME COMPANY	MOHAMED ABDALLAH				

Weight of empty mold :	6062.0
Mold Volume:	2103.0

MAX Dry Density	2.15
Water content %	6.5

trial no :	1	2	3	4	5
Wt. Of Mold+ wet soil	10365.0	10684.0	10899.0	10687	10524
WT. WET SOIL	4303.0	4622.0	4837.0	4625.0	4462.0
Wt. Density	2.046	2.198	2.300	2.199	2.122

Tare No.	1	3	5	7	4	9	8	2	14	30
Tare wt.	73.1	77.2	59.5	32.1	61.6	58.7	33.2	59.7	61.9	60.3
Wt. Of wet soil & tare	152.0	153.0	154.0	154.0	156.0	161.0	150.0	154.0	156.0	150.0
Wt. Of dry soil & tare	149.0	150.0	150.0	148.0	150.0	155.0	142.0	145.0	147.0	139.0
Wt. Of water	3.0	3.0	4.0	6.0	6.0	6.0	8.0	9.0	9.0	11.0
Wt. Of dry soil	78.9	72.8	90.5	115.9	88.4	96.3	108.8	85.3	85.1	78.7
Water content %	4.0%	4.1%	4.4%	5.2%	6.8%	6.2%	7.4%	10.6%	10.6%	14.0%
AV. Water content %	4.0%		4.8%		6.5%		9.0%		12.3%	
Dry Density	1.967		2.097		2.159		2.019		1.890	



Contractor

Amr mag

Consultant

Khaled Zeki

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد فاضل	 SYSTRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Adamein - MATPOUH Section - 5 From BORG ALARAB To ALHAMMAM From Station 325+400 To Station 358+000	 الهيئة القومية للإنتفاق (GAREL)
Operating Lab	محمد عبدالله		

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	16/09/2023	Code	ZONE	351+000	351+750
LOCATION	STORE	MAR 6			
NAME COMPANY	MCHAMED ABDALLAH				

1-Visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]	13785.00		gm	table classify	
sieve size	2	1.5	1	4/3	8/3	# 4	PASS	soil classify	
Mass retained (g)	0.0	542.0	142.0	985.0	2214.0	4035.0		A-1-B	
Cumulative Retained (g)	0.0	542.0	684.0	1669.0	3883.0	7918.0		PRO	2.18
Cumulative Retained %	0.0	3.9	5.0	12.1	28.2	57.4		WC	6.50
Cumulative Passing %	100.0	96.1	95.0	87.9	71.8	42.6		CBR	-

B-soft material gradation			WT.OF samp	500.00	gm
sieve size	10	40	200		
Cumulative Retained (g)	60.00	41.00	348.00		
Cumulative Retained %	12.00	8.20	69.60		
Cumulative Passing %	88.00	91.80	30.40		

C-General gradient									
sieve size(in)	2	1.5	1	3/4	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	96.1	95.0	87.9	71.8	42.6	37.5	39.1	12.9

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

Consultant

Amr moaz

Khaleel zaki

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ. د. خالد زكريا	 SYSTEM ENGINEER SHAKER	Electric Express Train - HSR		 الهيئة العامة للإنتاج المحوري المحوري (2008.7)
		From: El Ain El Sokhna City To El Alamein - MATROUP		
		Section - 5 From BORG ALARAB To ALHAMMAM		
		From Station 325+000 To Station 365+000		

PROCTOR TEST

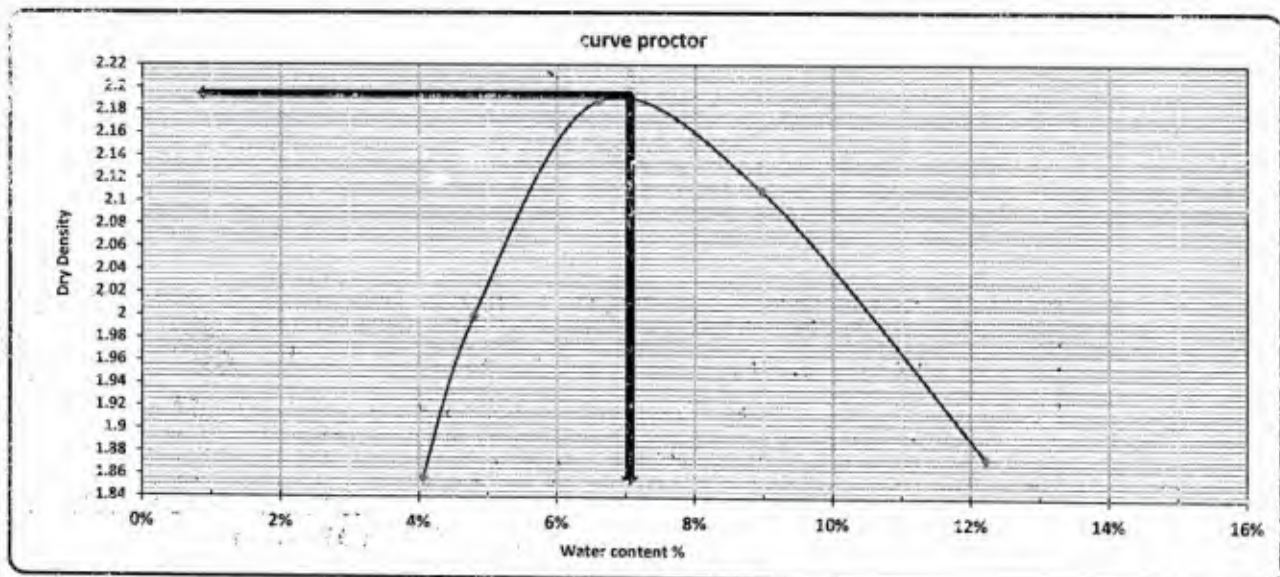
TESTING DATE:	16/9/2023	Code	ZONE	351+000	351+760
LOCATION	STORE	MAR-6			
NAME COMPANY	MOHAMED ABDALLAH				

Weight of empty mold :	6062.0
Mold Volume:	2103.0

MAX Dry Density	2.18
Water content %	6.5

trial no :	1	2	3	4	5
Wt. Of Mold+ wet soil	10125.0	10469.0	10965.0	10895	10487
WT. WET SOIL	4053.0	4407.0	4903.0	4833.0	4425.0
Wt. Density	1.932	2.096	2.331	2.298	2.104

Tare No.	1	3	5	8	7	16	11	14	17	2
Tare wt.	73.7	77.5	59.7	31.9	62.5	59.6	33.8	59.7	51	60.3
Wt. Of wet soil & tare	152.0	153.0	154.0	154.0	156.0	161.0	150.0	154.0	156.0	150.0
Wt. Of dry soil & tare	149.0	150.0	150.0	148.0	150.0	155.0	142.0	145.0	147.0	139.0
Wt. Of water	3.0	3.0	4.0	6.0	6.0	6.0	8.0	9.0	9.0	11.0
Wt. Of dry soil	75.3	72.5	90.3	116.1	87.5	95.4	108.2	85.3	86.0	78.7
Water content %	4.0%	4.1%	4.4%	5.2%	6.9%	6.3%	7.4%	10.6%	10.3%	14.0%
Average Water content %	4.1%		4.8%		6.5%		9.0%		12.2%	
Dry Density	1.857		2.000		2.188		2.109		1.875	

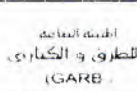


Contractor

Anwar

Consultant

Khaled Zaki

MATERIAL APPROVAL REQUEST						
	الهيئة العامة للطرق والكباري (GARB) مركز البحوث والدراسات مركز البحوث والدراسات مركز البحوث والدراسات مركز البحوث والدراسات مركز البحوث والدراسات					

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			15/07/2023	08:00						
				55-A-M03-MAR-FF-1							
Received by GARB CONSULTANT	Eng. SAYED SAIF		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	1W	15	15	7	23	9	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Filter Layer		
Location to be Used	From	351+000	TO 351+760
		33+519.71	34+279.71
Sample only	Yes	Materials Type	filter layer
Supplier Name	كسارة وادي النطرون - العلمين	Data Sheet provided	filter layer (fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1 Quality test Result By site laboratory is Approved		1-For Information only	
2 This Sample Representative (5000 m3) only.		2-All tests were carried-out by site lab	
		3-Results report attached and acceptable with the project specifications.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد
للإستشارات والدراسات

For KK
الاستشاري الهندسي
(أ/د/ خالد قنديل)
مدير المشروع / السيد سيف
شروع التفتار الكهربائي السريع
القنطرة الخامسة

MATERIAL APPROVAL REQUEST

مكتب محمد عبد الله
للإنشاءات ورصف الطرق

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
إ. د. خالد فتنديل

الهيئة العامة
للطرق والكباري
(GARB)



المعهد القومي للبحوث والدراسات
الهندسية



شركة شاكه
SHAKER

Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	k.k							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		15/07/2023 (M.A.R. FF-001)	08:00							
Received by GARB CONSULTANT	Eng. Sayed saif	Sign	MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	16	7	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون - لمين	Data Sheet provided	filter layer (Fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved.		1-For information only	
2-This Sample Representative (5000 m3) only.		2-All tests were carried-out by site lab	
		3-Results report attached and acceptable with the project specifications.	
		4-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023/7/19	AWC

* Designer

** Alignment/Bridges: Culvert only

مكتب محمد عبد الله محمد
للإنشاءات ورصف الطرق

المكتب الاستشاري الهندسي
(إ. د. خالد فتنديل)
مدير المشروع / السيد شيباش
مشروع: التفتتار الكهربائي السريع
القطاع الخامس

 محمد عبدالله للمهندسات ورصف الطرق ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد قنديل	 SVS TRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHMAM From Station 349+000 To Station 351+800	 الهيئة القومية للإتقان (CARBIL)
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PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	16/7/2023	code	ZONE	351+000	351+760
LOCATION	351		Material	FILTER LAYER	
NAME COMPANY	Mohamed Abdallah		layer Thickness	25 Cm	

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		7895.00		gm	table classify
sieve size	5	4.0	3	1 1/2	3/4	3/8	# 4	PASS	soil classify
Mass retained (g)	0.0	0.0	0.0	898.0	1203.0	4268.0	1256.0		A-1-a
Cumulative Retained (g)	0.0	0.0	0.0	898.0	2101.0	6369.0	7625.0	PRO	
Cumulative Retained %	0.0	0.0	0.0	11.4	26.6	80.7	96.6	WC	
Cumulative Passing %	100.0	100.0	100.0	88.6	73.4	19.3	3.4	CBR	

B-soft material gradation			WT.OF sample		500.00		gm
sieve size	10	40	200				
Cumulative Retained (g)	109.50	254.50	380.00				
Cumulative Retained %	21.90	50.90	76.00				
Cumulative Passing %	78.10	49.10	24.00				

C-General gradient									
sieve size(in)	5	4.0	3	1 1/2	3/4	3/8	# 4	# 10	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.075
Cumulative Passing %	100.0	100.0	100.0	88.6	73.4	19.3	3.4	2.7	0.8

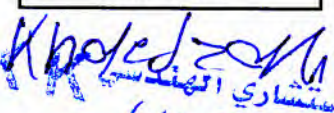
ATTERBERG LIMITS	LIQUID LIMIT (LL)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor



 مكتبة محمد عبدالله محمد اسماعيل
 للإستشارات ورصف الطرق

Consultant



 مكتبة الإستشاري الهندسي
 (أ.د. خالد قنديل)
 مدير المشروع م / السيد سيف
 مشروع: التطوير الكهربائي السريع
 القطاع الخامس

 محمد عبدالله المكتب الاستشاري الهندسي أبو خالد عبدالله	 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أبو خالد عبدالله	 KVSERA SHAKER	From Station 349+000 To Station 351+800 Section - 3 From 349+000 To 351+800	 الهيئة العامة للإقناوي وزارة النقل
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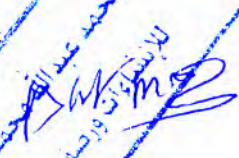
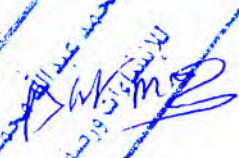
**Absorption & Aggregate specific gravity
AASHTO-T85**

TESTING DATE:	16/7/2023	code	Station	351+000	351+760
LOCATION	K.P (351)	MAR FF-001	Material	FILTER LAYER	
NAME COMPANY	Mohamed Abdallah		Layer Thickness	25 Cm	

Los Angeles abrasion AASHTO-T36

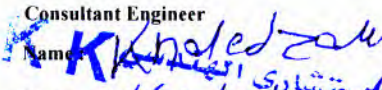
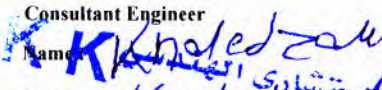
Results:-

Weight of sample before test (gm)	Weight of sample after test (gm)	Abrasion ratio (%)
5000	4009	19.82

Lab. Specialist
 Name : 
 Sign : 

*المكتب الاستشاري الهندسي
أبو خالد عبدالله*

Lab. Engineer
 Name : 
 Sign : 

Consultant Engineer
 Name : 
 Sign : 

*المهندس الاستشاري
أبو خالد عبدالله
مدير المشروع / السيد / السيد
مشروع التطوير الكهربائي السريع
القطاع الخامس*

MATERIAL APPROVAL REQUEST			الهيئة العامة للطرق والكباري (GARB)		المجلس القومي للتخطيط للمواصلات		
	مجلس الوزراء Ministry of Planning	المجلس القومي للتخطيط للمواصلات ENGINEERING CONSULTING OFFICE		وزارة النقل Ministry of Transport	المجلس القومي للتخطيط للمواصلات	المجلس القومي للتخطيط للمواصلات	المجلس القومي للتخطيط للمواصلات

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time						
	Eng. Mohamed moustafa		24/07/2023	08:00						
Received by GARB CONSULTANT	Eng. SAYED SAIF	MAR	C1	C2	C3	DD	MM	YY	HH	MM
			154	FW	CS	25	7	25	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Filter layer		
Location to be Used	From	351+000	TO
		33+519.71	
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	Filter layer (fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By site laboratory is Approved		1-For information only	
2 This Sample Representative (5000 m3) only.		2-All tests were carried-out by site lab	
		3-Results report attached and acceptable with the project specifications.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB **	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد السماعيل
للإنشاءات وصرف الطرق

For
مكتب الاستشاري الهندسي
(د.أ. / خالد قنديل)
مدير المشروع م / السيد سميعة
شروع: التفتار الكهربائي السريع
القطاع الخامس

MATERIAL APPROVAL REQUEST



Contractor Company	Mohamed Abdallah for constructions and roads paving		Designer Company	k.k	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		24/07/2023	08:00	
Received by GARB CONSULTANT	Eng. Sayed saif	Sign	(M A R FF 002)		

CODE-S	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Filter layer		
Location to be Used	From S t (351+000) To S t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي السطرون - العلمين	Data Sheet provided	filter layer (Fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by Eng. Sayed Saif (K K)		Comments by: Eng. Alaa Abdel-Atatif (ER)	
1-Quality test Result By Site Laboratory is Approved.		1-For information only	
2-This Sample Representative (5000 m3) only		2 All tests were carried-out by site lab	
		3-Results report attached and acceptable with the project specifications	
		4 Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB **	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abdel Atatif			Awc

* Designer

** Alignment/Location/Quantity

تمت الموافقة على
الاستشارة في 27/7/2023
للاستشارة في 27/7/2023

27/7/2023
مدير المشروع م / السيد
شروع القطار الكهربائي السريع
التقاطع الخامس

 محمد عبدالله ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد فندويل	 Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHMAM From Station 349+000 To Station 351+800	 الهيئة القومية للإنفاق القنوات والكباري والملاحة (CARREL)
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PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	25/7/2023	code	ZONE	351+000	351+760
LOCATION	351	MAR ff-002	Material	FILTER LAYER	
NAME COMPANY	Mohamed Abdallah		layer Thickness	25 Cm	

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		9856.00		gm	table classify
sieve size	5	4.0	3	1 1/2	3/4	3/8	# 4	PASS	soil classify
Mass retained (g)	0.0	0.0	0.0	998.0	1365.0	5689.0	1326.0		A-1-a
Cumulative Retained (g)	0.0	0.0	0.0	998.0	2363.0	8052.0	9378.0	PRO	
Cumulative Retained %	0.0	0.0	0.0	10.1	24.0	81.7	95.2	WC	
Cumulative Passing %	100.0	100.0	100.0	89.9	76.0	18.3	4.8	CBR	

B-soft material gradation				WT.OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	109.50	254.50	460.00					
Cumulative Retained %	21.90	50.90	92.00					
Cumulative Passing %	78.10	49.10	8.00					

C-General gradient									
sieve size(in)	5	4.0	3	1 1/2	3/4	3/8	# 4	# 10	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.075
Cumulative Passing %	100.0	100.0	100.0	89.9	76.0	18.3	4.8	3.8	0.4

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

المكتب محمد عبدالله
للإستشارات ورصف الطرق
أ.د. خالد فندويل

Consultant

Kh Medzani
المكتب الإستشاري الهندسي
(أ.د. خالد فندويل)
مدير المشروع / السيد سبيش
شروع: القطاع الكهربائي السريع
القطاع الخامس

MATERIAL APPROVAL REQUEST			الهيئة العامة للطرق و الكباري (GARB)		الهيئة العامة للطرق و الكباري (GARB)		

Contractor Company	Mohamed Abdallah 1 for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office					
Issued by Contractor	Name	Sign		Date/Serial Number	Time					
	Eng. Mohamed moustafa			02/08/2023	08:00					
Received by GARB CONSULTANT	Eng. SAYED SAIF	MAR	C1	C2	C3	DD	MM	YY	HH	MM
			31	08	23	02	08	23	08	00

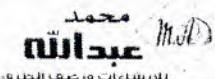
CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

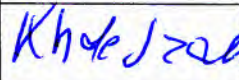
Description of Materials	filter layer		
Location to be Used	From	351+000	TO
		33+519.71	
Sample only	Yes	Materials Type	filter layer
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 41 2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1- Quality test Result By Third party laboratory Approved.		1- All tests were carried out by third party lab (Alexandria university)	
2- This Sample Representative (5000 m3) only.		2- Results report attached and acceptable with the project specifications	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد استشاري
للإنشاءات ورصف الطرق

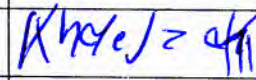
مكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع م / السيد سيف
شروع: القطار الكهربائي السريع
التقطيع الخامس

MATERIAL APPROVAL REQUEST										
	محمد عبدالله للإنشاءات ورصف الطرق		ENGINEERING CONSULTING OFFICE المهندسين الاستشاريين والبناء إ. د. خالد قنديل		الهيئة العامة للمرور والكباري (GARB)		الهيئة العامة للمرور والكباري (GARB)		الهيئة العامة للمرور والكباري (GARB)	

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			02/08/2023 (M.A.R.FF-003)	08:00						
Received by GARB CONSULTANT	Eng. Sayed saif		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	3	8	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون-العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By third party Laboratory is Approved.		1-All tests were carried-out by thid party lab (Alexandria University)	
2-This Sample Representative (5000 m3) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Mergret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		7-8-2023	AWC

* Designer

** Alignment/Bridges: Culvert

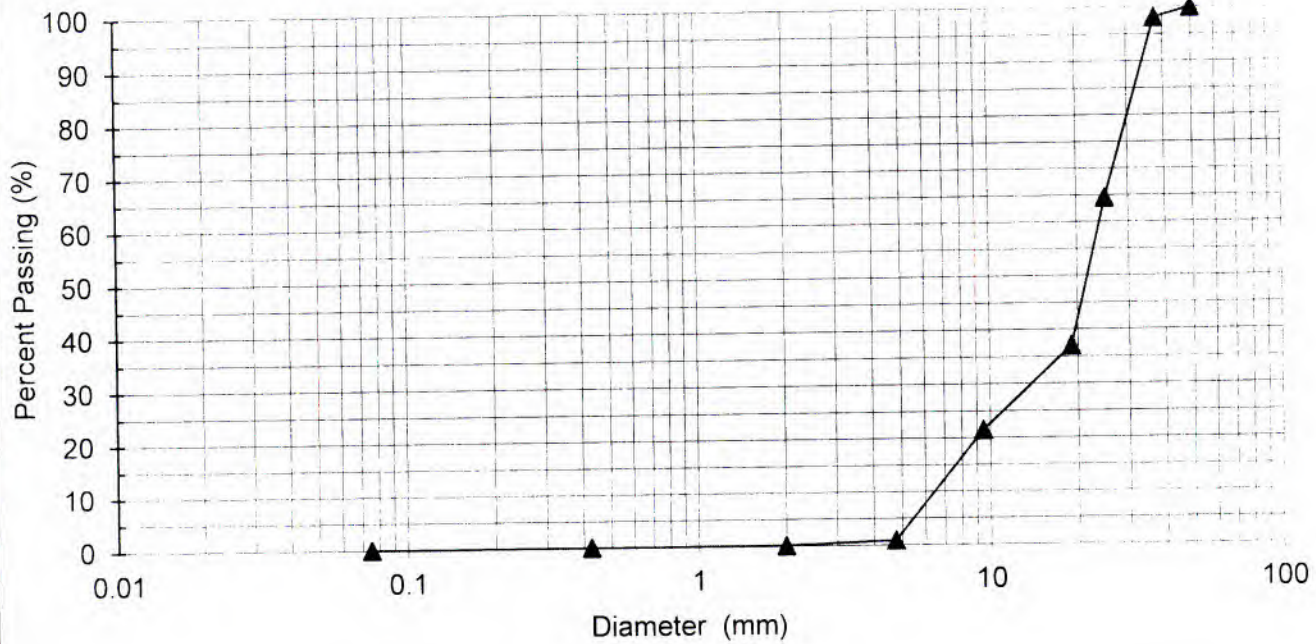
مكتب محمد عبدالله
للإنشاءات ورصف الطرق

مهندسين الاستشاريين والبناء
(إ. د. خالد قنديل)
مدير المشروع م / السيد سعيد
مشروع: القطار الكهربائي السريع
القطاع الخامس

**Grain Size Distribution Curve**

CLIENT	شركة محمد عبد الله للإنشاءات ورصف الطرق
PROJECT	القطار الكهربائي السريع من برج العرب الى العلمين
LOCATION	القطار الكهربائي السريع من برج العرب الى العلمين
LAYER TYPE	سن فلتر عينة ١ / ١

Receiving Date	03/08/2023
Cheque Date	03/08/2023
Reciept Number	990905
Report Date	07/08/2023
Lab. Ref.	G 34/08

GRAIN SIZE DISTRIBUTION CURVE

Sieve No.	PERCENT PASSING							
	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"
Test Results	0.0	0.1	0.1	0.9	21.5	37.0	64.5	98.1

وردت العينة التي اجري عليها الاختبار الى المعمل بمعرفة المهندس الاستشاري م / محمد على الشيخ

Laboratory Director

Dr. Wael Bekheet

The laboratory is only responsible for the test results and its correctness. The laboratory is not responsible for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او أى نتائج مبنيه على ذلك

رقم بریدی ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203



نتائج تجارب لوس أنجلوس و الامتصاص

٢٠٢٣/٠٨/٠٣	تاريخ توريد العينة	ل.١٤/٠٨	تقرير رقم
٢٠٢٣/٠٨/٠٣	أمر دفع	لوس أنجلوس و الامتصاص	الاختبارات
٩٩٠٩٠٥	أمر دفع	شركة محمد عبد الله للإنشاءات ورصف الطرق	المقاول
٢٠٢٣/٠٨/٠٧	تاريخ التقرير	القطار الكهربائى السريع من برج العرب الى العلمين	المشروع
سن فلتر	العينة	القطار الكهربائى السريع من برج العرب الى العلمين	الموقع

نتائج اختبار لوس أنجلوس و الامتصاص

٥٠٠ لفة	لوس أنجلوس
١٢ كورة	عدد كرات الاختبار
٥٠٠٠ جم	وزن العينة قبل التجربة
٤٠١٩ جم	وزن العينة بعد التجربة
١٩,٦٢ %	نسبة التآكل
١,٥٠ %	نسبة الامتصاص بعد ٢٤ ساعة غمر
٠,٥٠ %	نسبة التفتت في الماء
٢,٦١ جم/سم ٣	الوزن النوعي

تم توريد العينة بمعرفة المهندس الاستشارى م / محمد على الشيخ

مدير المعمل

د. / وائل بخيت

فنى المعمل

أ / أحمد عادل

مكتب محمد عبد الله محمد اسماعيل
للإنشاءات ورصف الطرق

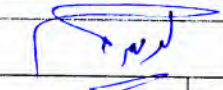


The laboratory is **only responsible** for the test results and its correctness. The laboratory is **not responsible** for the interpretation of the test results. المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اى نتائج مبنية على ذلك

رقم بريدى ٢١٥٤٤ الإسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

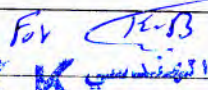
P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

MATERIAL APPROVAL REQUEST	 		الهيئة العامة للطرق والكباري (GARB)			
	3127 شارع الجمهورية القاهرة - مصر		ENGINEERING CONSULTING AND DESIGN مستشارية الهندسة والاستشارات والبناء مصر - القاهرة		جمهورية مصر العربية Ministry of Planning القاهرة - مصر	

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			06/08/2023	08:00						
Received by GARB CONSULTANT	Eng. SAYED SAIF		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	1W	FS	2	8	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	filter layer		
Location to be Used	From	351+000	TO
		33+519.71	
Sample only	Yes	Materials Type	filter layer
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	filter layer (fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By site laboratory is Approved.		1-For information only	
2-This Sample Representative (5000 m3) only.		2-All tests were carried-out by site lab	
		3-Results report attached and acceptable with the project specifications	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد الشحات
للإنشاءات وخدمات الطرق

مكتب الاستشاري الهندسي
(أ.د. خالد قنديل)
مدير المشروع: م. السيد سيف
مشروع: القطار الكهربائي السريع
التصاميم الخامسة

MATERIAL APPROVAL REQUEST

محمد عبدالله
للإنشاءات ورصف الطرق

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري والهندسي
إ.م. خالد هادي

الهيئة العامة
للمرور والكباري
(GARB)

وزارة النقل

الهيئة العامة
للتنظيم والإدارة

SYSTRA SHAKKAH

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company				k.k			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed moustafa			06/08/2023				08:00			
				(M.A.R. FF-004)							
Received by GARB CONSULTANT	Eng. Sayed saif		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	7	8	23	8	0

CODE-1	S1 to S21	D1 to S3	K: XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	filter layer (Fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved.		1-For information only	
2-This Sample Representative (5000 m3) only.		2-All tests were carried-out by site lab	
		3-Results report attached and acceptable with the project specifications.	
		4-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa	[Signature]		A
QA/QC *	Eng. Sayed Saif	[Signature]		A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif	[Signature]	8-8-2023	AWC

* Designer: مهندس محمد عبد الله محمد

** Alignment/Bridges: Culvert only

للإنشاءات ورصف الطرق

مدير المشروع / المهندس
مشروع: القطار الكهربائي
التقطيع الخامس

 محمد عبد الله للمهندسات ورصف الطرق ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي ا.د. خالد فتيل	 SVS TRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHMAM From Station 349+000 To Station 351+800	 الهيئة القومية للإعاق المجلس الأعلى للقنوات (CARBT)
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PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	7/8/2023	code	ZONE	351+000	351+760
LOCATION	351	MAR 11-004	Material	FILTER LAYER	
NAME COMPANY	Mohamed Abdallah		layer Thickness	25 Cm	

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		10265.00		gm	table classify soil classify A-1-a
sieve size	5	4.0	3	1 1/2	3/4	3/8	# 4	PASS	
Mass retained (g)	0.0	0.0	0.0	1032.0	1426.0	5897.0	1584.0		
Cumulative Retained (g)	0.0	0.0	0.0	1032.0	2458.0	8355.0	9939.0		
Cumulative Retained %	0.0	0.0	0.0	10.1	23.9	81.4	96.8		PRO
Cumulative Passing %	100.0	100.0	100.0	89.9	76.1	18.6	3.2		WC
									CBR

B-soft material gradation				WT.OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	184.00	325.00	469.00					
Cumulative Retained %	36.80	65.00	93.80					
Cumulative Passing %	63.20	35.00	6.20					

C-General gradient									
sieve size(in)	5	4.0	3	1 1/2	3/4	3/8	# 4	# 10	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.075
Cumulative Passing %	100.0	100.0	100.0	89.9	76.1	18.6	3.2	2.0	0.2

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

مكتب محمد عبد الله محمد الهادي
للإنشاءات ورصف الطرق

Consultant

مكتب الاستشاري الهندسي
K H M
م. هادي
مشروع: القطار الكهربائي السريع
القضايح الخامس

 محمد عبد الله مهندسين واستشارات مهندسين واستشارات	 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ. د. خالد قنديل	 SVS TRA	Electric Express Train - HSR From El Ain El Sokhna City To El Alamain - MATROUH Section - 5 From BORG ALARAB To ALHMAN From Station 349+000 To Station 351+800	 الهيئة العامة للنقل (A.R.T)
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**Absorbition & Aggregate specific gravity
AASHTO-T85**

TESTING DATE:	7/8/2023	code	Station	351+000	351+760
LOCATION	K.P (351)	MAR FF-004	Material	FILTER LAYER	
NAME COMPANY	Mohamed Abdallah		Layer Thickness	25 Cm	

Los Anglos abrasion AASHTO-T96

Results:-

Weight of sample before test (gm)	Weight of sample after test (gm)	Abrasion ratio (%)
5000	4008	19.84

Lab. Specialist

Name:

Sign:

Lab. Engineer

Name:

Sign:

Consultant Engineer

Name:

Sign:

المهندس الاستشاري المهندس
 (أ. د. / خالد قنديل)
 مدير المشروع م / السيد سيد
 مشروع: القطار الكهربائي السريع
 القطاع الخامس

MATERIAL APPROVAL REQUEST			الهيئة العامة للطرق والكباري (GARB)			
	محمد عبد الله Mohamed Abdallah 3	ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ. د. خالد قنديل		مادة الطرق	المهندس المهندس للاستشارات م. د. محمد مصطفى	الهيئة العامة للطرق والكباري EGEA

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		09/08/2023 SS-A-M03-MAR-FF-5	08:00	
Received by GARB CONSULTANT	Eng. SAYED SAIF		MAR	C1	C2
				C3	DD
				MM	YY
				HH	MM
				351	EW
				CS	10
				8	23
				8	08

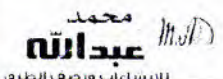
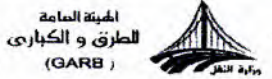
CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

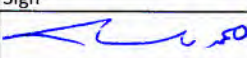
Description of Materials	filter layer		
Location to be Used	From	351+000	TO
		33+519.71	351+760
Sample only	Yes	Materials Type	filter layer
Supplier Name	كسارات وادي التطرون - العلمين	Data Sheet provided	filter layer(fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By site laboratory is Approved.		1-For information only	
2 This Sample Representative (5000 m3) only.		2-All tests were carried-out by site lab	
		3-Results report attached and acceptable with the project specifications	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد استشاري
للإنشاءات ورصف الطرق

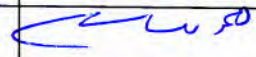
مكتب الاستشاري الهندسي
(أ.د/ خالد قنديل)
مدير المشروع / السيد سيف
شروع القطر الكهربائي السريع
القطاع الخامس

MATERIAL APPROVAL REQUEST					

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			09/08/2023	08:00						
				(M.A.R. FF-005)							
Received by GARB CONSULTANT	Eng. Sayed saif	Kh Moustafa	MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	10	8	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	filter layer (Fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K) 1-Quality test Result By Site Laboratory is Approved. 2-This Sample Representative (5000 m3) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-For information only 2-All tests were carried-out by site lab 3-Results report attached and acceptable with the project specifications. 4-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif	Kh Moustafa		HA
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		10-8-2023	AWC

* Designer
 ** Alignment/Bridges: Culvert only

مكتب محمد عبد الله محمد عبد الله
 للإنشاءات ورصف الطرق

مدير المشروع م / السيد سيف
 مشروع القطر الكهربائي السريع
 القطاع الخامس

 محمد عبدالله للمهندسين واستشارات الهندسية (إ.د. خالد قنديل)	 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي (إ.د. خالد قنديل)	 VSTRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Ajamein - MATROUH Section - 5 From BORG ALARAB To ALHMAM From Station 349+000 To Station 351+800	 الهيئة العامة للنقل (إ.د. خالد قنديل)
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**Absorbition & Aggregate specific gravity
AASHTO-T85**

TESTING DATE:	10/8/2023	code	Station	351+000	351+760
LOCATION	K.P (351)	MAR FF-005	Material	FILTER LAYER	
NAME COMPANY	Mohamed Abdallah		Layer Thickness	25 Cm	

Los Angeles abrasion AASHTO-T96

Results:-

Weight of sample before test (gm)	Weight of sample after test (gm)	Abrasion ratio (%)
5000	4013	19.74

Lab. Specialist

Name :

Sign :

Lab. Engineer

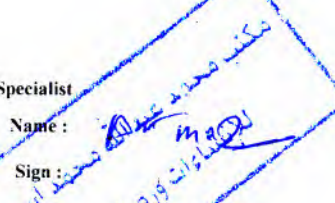
Name :

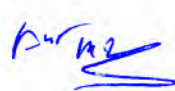
Sign :

Consultant Engineer

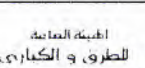
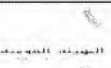
Name :

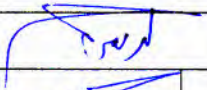
Sign :


 محمد عبدالله
 للمهندسين واستشارات الهندسية
 (إ.د. خالد قنديل)


 (إ.د. خالد قنديل)

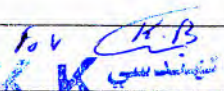

 (إ.د. خالد قنديل)
 مدير المشروع / الاستشاري
 مشروع التطوير الكهربائي السريع
 القطاع الخامس

MATERIAL APPROVAL REQUEST	     	
	الهيئة العامة للطرق والكباري (GARB)	

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time						
	Eng. Mohamed moustafa		13/08/2023	08:00						
Received by GARB (UNSP/PLAN)	Eng. SAYED SAIF	MAR	S5-A-MO3-MAR-FF-6							
			C1	C2	C3	DD	MM	YY	HH	MM
			25	08	13	14	8	2	8	8

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	filter layer			
Location to be Used	From	351+000	TO	351+760
		33+519.71		34+279.71
Sample only	Yes	Materials Type	filter layer	
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	Yes attached	
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Prequalification reference		Test Samples Results		
Reference Photos	No/Yes	Other		
Comments by: Eng. SAYED SAIF (KK) 1- Quality test Result By third party laboratory is Approved. 2- This Sample Representative (5000 m3) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1- All tests were carried-out by third party lab (Alexandria university) 2- result report attached and acceptable with the project specifications		

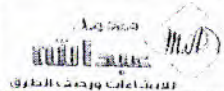
APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
CA/IC*	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

يكتب محمود عبد الله محمد السيد

للإشادات ورصد الطرق

مدير المشروع / السيد سيف
مهندس الكهربياني السريع
التفتاح الخامس

MATERIAL APPROVAL REQUEST



الهيئة العامة
للمطرق والكبارى
(GARB)



مركز الدراسات والبحوث
في النقل والبنية التحتية



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			13/08/2023 (M.A.R.FF-006)	08:00						
Received by GARB CONSULTANT	Eng. Sayed saif	Sign		C1	C2	C3	DD	MM	YY	HH	MM
			MAR	351	EW	CS	14	8	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون-العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By third party Laboratory is Approved.		1-All tests were carried-out by thid party lab (Alexandria University)	
2-This Sample Representative (5000 m3) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Mergret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		22-8-2023	AWC

* Designer

** Alignment/Bridges; Culvert only

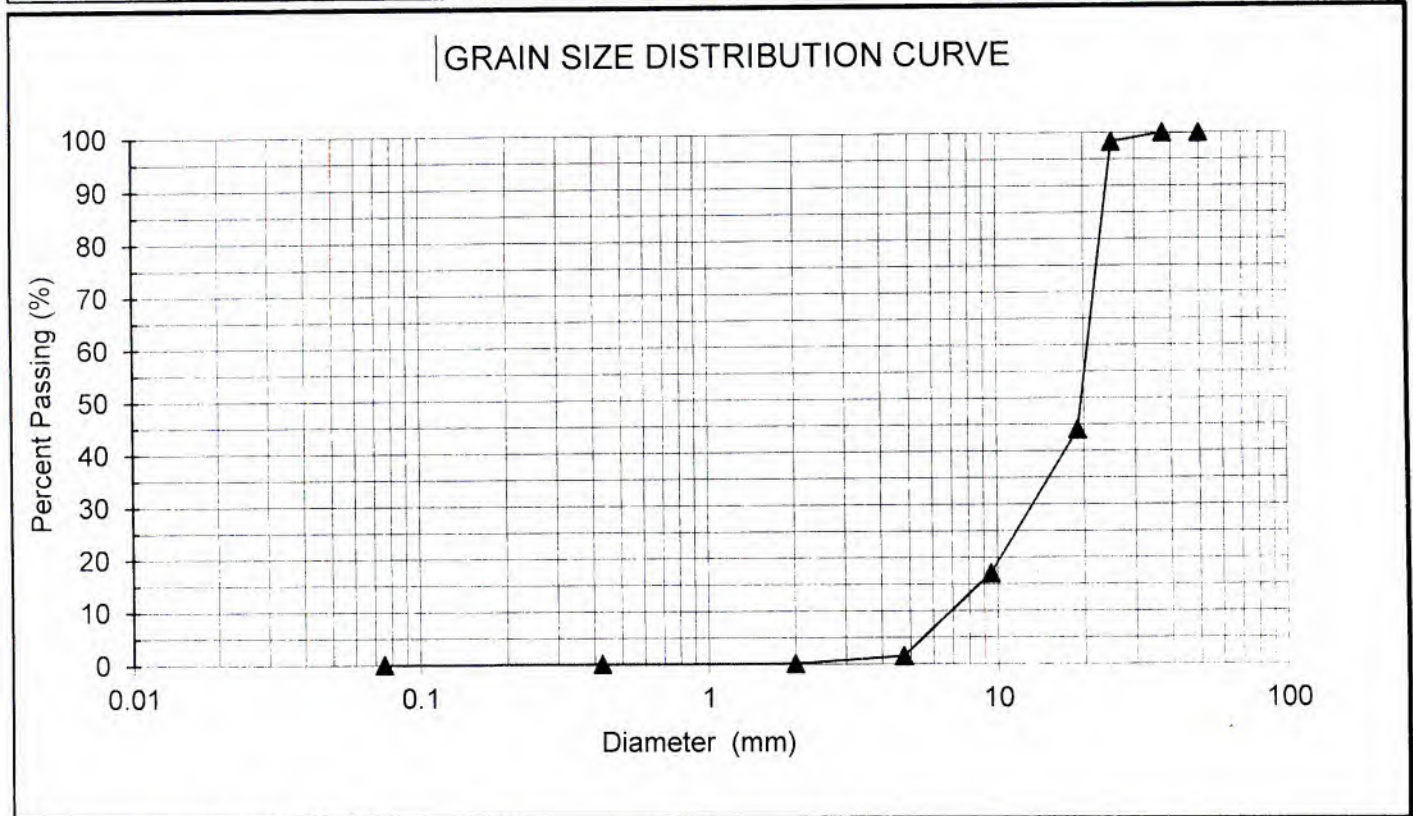
مكتب محمود عبد الله محمد
للإنشاءات وخدمات الطرق

مهندس الاستشاري الهندسي
(أ.د / خالد قنديل)
مدير المشروع م / السيد سيف
شروع: التقطع الكهربي في السريعة
التقطع الخامس

**Grain Size Distribution Curve**

CLIENT	محمد عبد الله للإنشاءات ورصف الطرق
PROJECT	القطار الكهربائي السريع من برج العرب الى العلمين
LOCATION	من ٣٥١+٢٦٠ الى ٣٥١+٧٦٠ (مشون)
LAYER TYPE	سن فتر عينة ٢ / ١

Receiving Date	14/08/2023
Cheque Date	14/08/2023
Reciept Number	992194
Report Date	22/08/2023
Lab. Ref.	G 76/08



Sieve No.	PERCENT PASSING								
	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"	2"
Test Results	0.0	0.1	0.1	1.5	17.0	44.0	98.3	100.0	100.0

وردت العينة التي اجري عليها الاختبار الى المعمل بمعرفة مندوب الاستشارى أ.د/ خالد قنديل

Laboratory Director

والد

Dr. Wael Bekheet

The laboratory is only responsible for the test results and its correctness. The laboratory is not responsible for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اى نتائج مبنيه على ذلك

رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203



نتائج تجارب لوس أنجلوس و الامتصاص

٢٠٢٣/٠٨/١٤	تاريخ توريد العينة	٠٨/ ٤٢.١ ل	تقرير رقم
٢٠٢٣/٠٨/١٤	أمر دفع	لوس انجلوس و الامتصاص	الاختبارات
٩٩٢١٩٤	أمر دفع	محمد عبد الله ثلاثاءات ورصف الطرق	المقاول
٢٠٢٣/٠٨/٢٢	تاريخ التقرير	القطار الكريانى السريع من برج العرب الى العلمين	المشروع
سن فلتر (١)	العينة	(من ٣٥١+٢٦٠ الى ٣٥١+٧٦٠ مشون)	الموقع

نتائج اختبار لوس انجلوس و الامتصاص

٥٠٠ لفة	لوس انجلوس
١٢ كورة	عدد كرات الاختبار
٥٠٠٠ جم	وزن العينة قبل التجربة
٤٠٠٥ جم	وزن العينة بعد التجربة
%١٩,٩٠	نسبة التآكل
%١,٦٠	نسبة الامتصاص بعد ٢٤ ساعه غمر
%٠,٣١	نسبة التفككت في الماء
٢,٦٧ جم/سم ٣	الوزن النوعي

تم توريد العينة بمعرفة مندوب الاستشارى أ.د/ خالد قنديل

مدير المعمل

د. / وائل بخيت

فنى المعمل

أ / أحمد عادل

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رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

MATERIAL APPROVAL REQUEST



الهيئة العامة
للطرق والكباري
(GARBU)



الهيئة العامة
للتخطيط
الاقتصادي



Contractor Company	Mohamed Abdallah 3 for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office				
Issued by Contractor	Name	Sign		Date/Serial Number	Time				
	Eng. Mohamed moustafa			16/08/2023	08:00				
Received by GARB CONSULTANT	Eng. SAYED SAIF		MAR	SS-A-M03-MAR-FF-7					
				C1	C2	C3	DD	MM	YY
				351	17	8	23	8	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	filter layer			
Location to be Used	From	351+000	TO	351+760
		33+519.71		34+279.71
Sample only	Yes	Materials Type	filter layer	
Supplier Name	كسارات وادي النظرون - العلمين	Data Sheet provided	Yes attached	
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 41.2) VERSION 2 BY CIVECON GROUP	
Prequalification reference		Test Samples Results		
Reference Photos	No/Yes	Other		
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)		
1- Quality test Result By third party laboratory is Approved.		1-For information only		
2- This Sample Representative (5000 m3) only.		2-All tests were carried-out by site lab		
		3- result report attached and acceptable with the project specifications		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			

مكتب محمد عبد الله محمد المصطفى
للإستشارات وإنشاءات وإستشارات

مدير المشروع م / السيد بييتا
شروع: التقطع الكهربي الثاني السريع
التقطع الخامس

م. د. محمد عبد الله
م. د. محمد عبد الله
للإستشارات وحفظ الطرق



الهيئة العامة
طرق و الكباري
(GARB)



CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	filter layer (Fill)
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K) 1-Quality test Result By Site Laboratory is Approved. 2-This Sample Representative (5000 m3) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-For information only 2-All tests were carried-out by site lab 3-Results report attached and acceptable with the project specifications. 4-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		17-8-2023	Awc

** Alignment/Bridges: Culvert only

لكتب محمد عبد الله محمد استشاري
للإنشاءات ورفعت الطارقي

(أ.د. / فاضل قنديل)
مدير المشروع / الأستاذ المساعد
المشروع: التفتار الكهربائي للمريخ
التسلسل الخامس

	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHMAM From Station 349+000 To Station 351+800	
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PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	17/8/2023	code MAR ff-007	ZONE	351+000	351+760
LOCATION	351		Material	FILTER LAYER	
NAME COMPANY	Mohamed Abdallah		layer Thickness	25 Cm	
1-visual inspection test					

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		11369.00		gm	table classify soil classify A-1-a PRO WC CBR
sieve size	5	4.0	3	1 1/2	3/4	3/8	# 4	PASS	
Mass retained (g)	0.0	0.0	0.0	989.0	1426.0	6598.0	1610.0		
Cumulative Retained (g)	0.0	0.0	0.0	989.0	2415.0	9013.0	10623.0		
Cumulative Retained %	0.0	0.0	0.0	8.7	21.2	79.3	93.4		
Cumulative Passing %	100.0	100.0	100.0	91.3	78.8	20.7	6.6		

B-soft material gradation				WT.OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	172.00	331.00	452.00					
Cumulative Retained %	34.40	66.20	90.40					
Cumulative Passing %	65.60	33.80	9.60					

C-General gradient									
sieve size(in)	5	4.0	3	1 1/2	3/4	3/8	# 4	# 10	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.075
Cumulative Passing %	100.0	100.0	100.0	91.3	78.8	20.7	6.6	4.3	0.6

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor
 مكتب محمد عبد الله سمير
 للإنشاءات ورصف الطرق

Consultant

مهندس الاستشاري محمد عبد الله سمير
 (أ.د. / خالد قنديل)
 مدير المشروع / السيد سمير
 مشروع: التطوير الكهربائي السريع
 القطاع الخامس

 وزارة النقل والبنى التحتية Ministry of Transport and Public Works	 المكتب الاستشاري الهندسي Engineering Consulting Office	 SVSLTA SHAKER	Electric Express Train - HSR From El Ain El Sekhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHMAN From Station 349+000 To Station 381+800	 الهيئة العامة للإحصاء General Authority of Statistics
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**Absorbtion & Aggregate specific gravity
AASHTO-T85**

TESTING DATE:	17/8/2023	code	Station	351+000	351+760
LOCATION	K.P (351)	MAR FF-007	Material	FILTER LAYER	
NAME COMPANY	Mohamed Abdallah		Layer Thickness	25 Cm	

Los Anglos abrasion AASHTO-T96

Results:-

Weight of sample before test (gm)	Weight of sample after test (gm)	Abrasion ratio (%)
5000	4011	19.78

Lab. Specialist

Name :

Sign:

Lab. Engineer

Name :

Sign :

Consultant Engineer

Name :

Sign :

كمال ج. خالدة
 Khaled J. Khalda
 مهندس استشاري
 (أ.د. / خالدة قنديل)
 مدير المشروع / م. / السيد السيد
 مشروع: القطار الكهربائي
 القطاع الخامس

MATERIAL APPROVAL REQUEST			الهيئة العامة للطرق والكباري (GARB)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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MATERIAL APPROVAL REQUEST



الهيئة العامة
للمرور والكباري
(GARB)



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k			
Issued by Contractor	Name	Sign		Date/Serial Number	Time			
	Eng. Mohamed moustafa			16/10/2023	08:00			
				(M.A.R.FF-008)				
Received by GARB CONSULTANT	Eng. Sayed saif		MAR	C1	C2	C3	DD	MM
				351	EW	CS	17	10
							YY	HH
							23	8
								MM
								0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون-العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Sayed Saif (K.K)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By third party Laboratory is Approved.		1-All tests were carried-out by thid party lab (Alexandria University)	
2-This Sample Representative (5000 m3) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Mergret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		4-11-2023	AWC

* Designer

** Alignment/Bridges: Culvert only

مكتب محمد عبد الله مكي
للإنشاءات وصرف الطرق

مكتب الاستشاري الهندسي
(أ.د / خاليد فتحي)
مدير المشروع / المهندس
مشروع: القطار الكهربائي السريع
القطاع الخامس

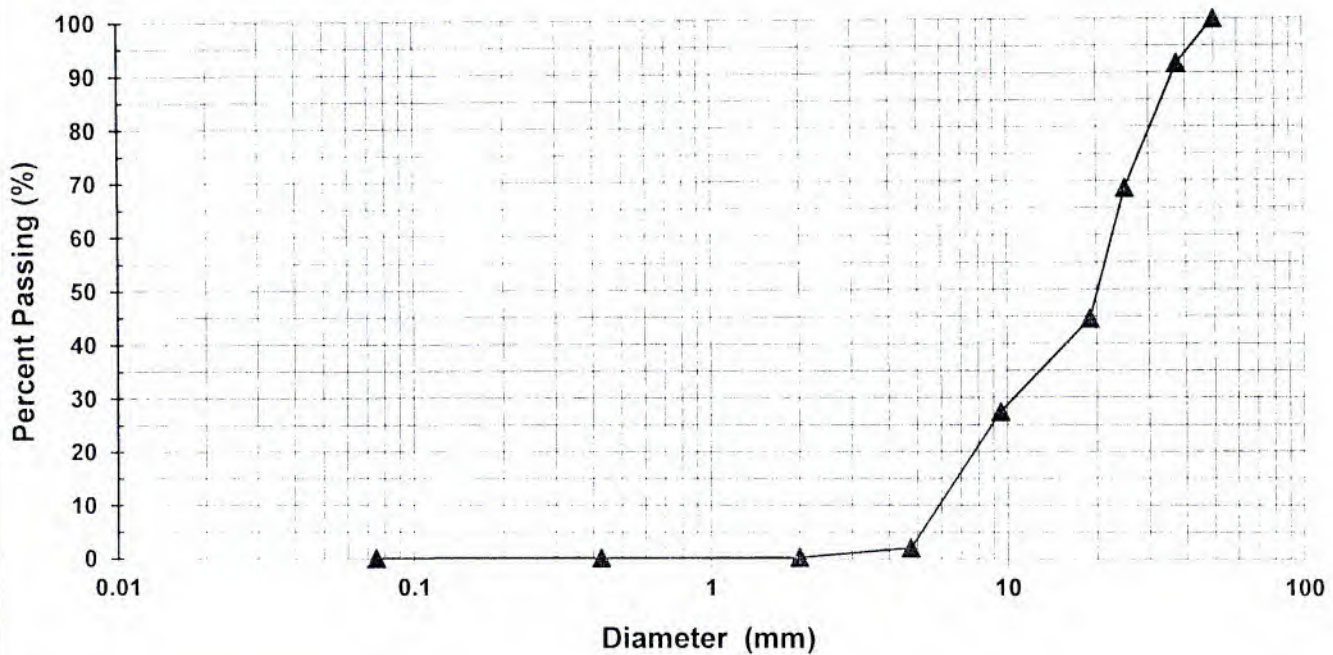


Grain Size Distribution Curve

CLIENT	محمد عبد الله للانشاءات ورصف الطرق
PROJECT	القطار الكهربائي السريع من برج العرب الى العلمين
LOCATION	من كم ٣٥١+٧٦٠ الى ٣٥١+٢٦٠ من المشون
LAYER TYPE	سن فلتر عينة ٤ / ٤

Receiving Date	17/10/2023
Cheque Date	19/10/2023
Reciept Number	879
Report Date	04/11/2023
Lab. Ref.	G 37/11

GRAIN SIZE DISTRIBUTION CURVE



Sieve No.	PERCENT PASSING							
	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"
Test Results	0.0	0.2	0.2	2.0	27.4	44.6	68.6	91.7
								100.0

وردت العينة التي اجري عليها الاختبار الى المعمل بمعرفة مندوب الاستشارى د.ا/ خالد قنديل

مكتب محمد عبد الله للانشاءات ورصف الطرق



Laboratory Director

Dr. Wael Bekheet

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المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اى نتائج مبنية على ذلك

رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203



نتائج تجارب لوس أنجلوس و الامتصاص

٢٠٢٣/١٠/١٧	تاريخ توريد العينة	ل.١١/٢٢.١	تقرير رقم
٢٠٢٣/١٠/١٩	أمر دفع	لوس أنجلوس و الامتصاص	الاختبارات
٨٧٩	أمر دفع	محمد عبد الله للإنشاءات ورصف الطرق	المقاول
٢٠٢٣/١١/٠٤	تاريخ التقرير	القطار الكهربائى السريع من برج العرب الى العلمين	المشروع
سن فلتر (٤)	العينة	من كم ٣٥١+٧٦٠ الى ٣٥١+٢٦٠ من المشون	الموقع

نتائج اختبار لوس أنجلوس و الامتصاص

٥٠٠ لفة	لوس أنجلوس
١٢ كورة	عدد كرات الاختبار
٥٠٠٠ جم	وزن العينة قبل التجربة
٣٩٩٧ جم	وزن العينة بعد التجربة
٢٠,٠٦%	نسبة التآكل
١,٤٠%	نسبة الامتصاص بعد ٢٤ ساعة غمر
٠,٣٠%	نسبة التفتت في الماء
٢,٦٢ جم/سم ٣	الوزن النوعي

تم توريد العينة بمعرفة مندوب الاستشارى ا.د/ خالد قنديل

مدير المعمل

د. / وائل بخيت

فنى المعمل

أ / أحمد عادل



The laboratory is **only** responsible for the test results and its correctness. The laboratory is **not** responsible for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اى نتائج مبنية على ذلك

رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)+

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

MATERIAL APPROVAL REQUEST			الهيئة العامة للطرق و الكباري (GARB)		

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa		16/10/2023 55-A-M03-MAR-FF-9	08:00							
Received by GARB (CONSULTANT)	Eng. SAYED SAIF	Sign	MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	17	10	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

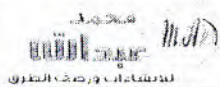
Description of Materials	filter layer		
Location to be Used	From	351+000	TO
		33+519.71	
Sample only	Yes	Materials Type	filter layer
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1- Quality Test Result By third party laboratory is Approved.		1-All tests were carried-out by third party lab (Alexandria university)	
2- This Sample Representative (5000 m3) only.		2- result report attached and acceptable with the project specifications	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد عبد الله
للإنشاءات وخدمات الطرق

مدير المشروع / المهندس
مشروع: القطار الكهربائي السريع
التصميم الخامس

MATERIAL APPROVAL REQUEST



الهيئة العامة
للطرق والكباري
(GARB)



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company				k.k			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed moustafa			16/10/2023				08:00			
				(M.A.R.FF-009)							
Received by GARB CONSULTANT	Eng. Sayed saif		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	17	10	23	8	0

CODE-1	S1 to S21	D1 to S3	K to XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون-العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By third party Laboratory is Approved.		1-All tests were carried-out by thid party lab (Alexandria University)	
2-This Sample Representative (5000 m3) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Mergret magdy			
Employers Representative	Eng. Alaa Abd-Allatif		4-11-2023	AWC

* Designer

** Alignmant/Bridges: Culvert only

للإنشاءات ورصف الطرق

المهندس الاستشاري المهندس ك.ك
(أ.د/ خالد قنديل)
مدير المشروع م / السيد / السيد
شروع: التطار الكهربائي السريع
القطاع الخامس

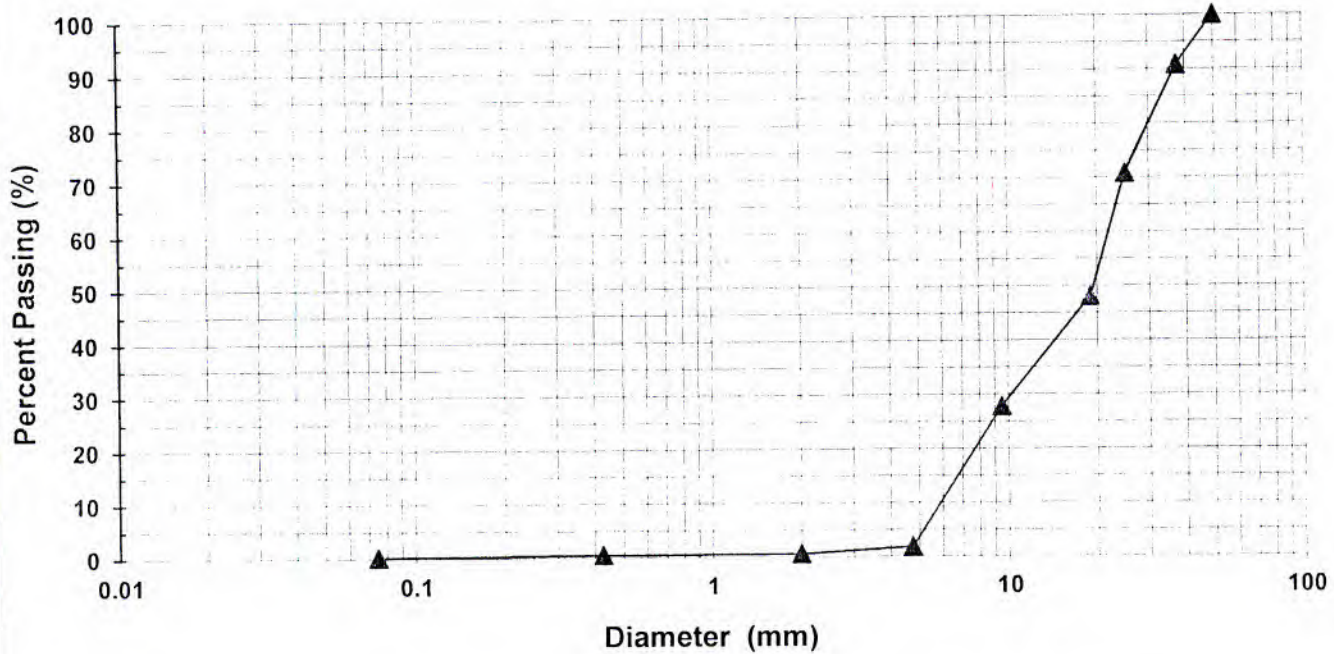


Grain Size Distribution Curve

CLIENT	محمد عبد الله للإنشاءات ورصف الطرق
PROJECT	القطار الكهربائي السريع من برج العرب الى العامين
LOCATION	من كم ٣٥١+٧٦٠ الى ٣٥١+٢٦٠ من المشون
LAYER TYPE	سن فلت ٤ / ٣ عينة

Receiving Date	17/10/2023
Cheque Date	19/10/2023
Reciept Number	879
Report Date	04/11/2023
Lab. Ref.	G 36/11

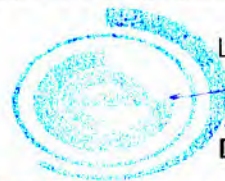
GRAIN SIZE DISTRIBUTION CURVE



Sieve No.	PERCENT PASSING								
	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"	2"
Test Results	0.1	0.5	0.6	1.9	27.8	48.1	70.8	90.7	100.0

وردت العينة التي اجري عليها الاختبار الى المعمل بمعرفة مندوب الاستشارى ا.د/ خالد قنديل

مكتب محمد عبد الله محمد استشاري
للإنشاءات ورصف الطرق



Laboratory Director

Dr. Wael Bekheet

The laboratory is only responsible for the test results and its correctness. The laboratory is not responsible for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات وصحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اي نتائج مبنية على ذلك

رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203



نتائج تجارب لوس أنجلوس و الامتصاص

٢٠٢٣/١٠/١٧	تاريخ توريد العينة	ل.أ.٢١/١١	تقرير رقم
٢٠٢٣/١٠/١٩	أمر دفع	لوس أنجلوس و الامتصاص	الاختبارات
٨٧٩	أمر دفع	محمد عبد الله للإنشاءات ورصف الطرق	المقاول
٢٠٢٣/١١/٠٤	تاريخ التقرير	القطار الكهربائي السريع من برج العرب الى العلمين	المشروع
سن فتر (٣)	العينة	من كم ٣٥١+٧٦٠ الى ٣٥١+٢٦٠ من المشون	الموقع

نتائج اختبار لوس أنجلوس و الامتصاص

٥٠٠ لفة	لوس أنجلوس
١٢ كورة	عدد كرات الاختبار
٥٠٠٠ جم	وزن العينة قبل التجربة
٤٠٢٢ جم	وزن العينة بعد التجربة
١٩,٥٦%	نسبة التآكل
١,٣٣%	نسبة الامتصاص بعد ٢٤ ساعة غمر
٠,٢٦%	نسبة التفتت في الماء
٢,٥٥ جم/سم ٣	الوزن النوعي

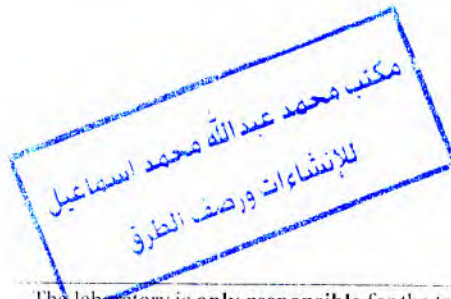
تم توريد العينة بمعرفة مندوب الاستشارى ا.د/ خالد قنديل

مدير المعمل

د. / وائل بخيت

فنى المعمل

أ / أحمد عادل



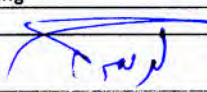
The laboratory is **only** responsible for the test results and its correctness. The laboratory is **not** responsible for the interpretation of the test results.

المعمل مسنول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسنول عن كيفية استخدام نتائج الاختبارات او اى نتائج مبنيه على ذلك

رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

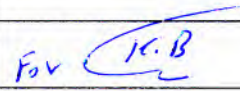
P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

MATERIAL APPROVAL REQUEST			الهيئة العامة للطرق والكباري (GARB)		الهيئة العامة للطرق والكباري (GARB)	

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			16/10/2023	08:00						
				S5-A-M03-MAR-FF-10							
Received by GARB CONSULTANT	Eng. SAYED SAIF		MAR	C1	C2	C3	DD	MM	YY	HH	MM

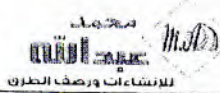
CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
Sub Element of Activity			

Description of Materials	filter layer		
Location to be Used	From	351+000	TO
		33+519.71	
Sample only	Yes	Materials Type	filter layer
Supplier Name	كسارات وادي النطرون - العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21 41 2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. SAYED SAIF (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1 Quality test Result By third party laboratory is Approved.		1-All tests were carried-out by third party lab (Alexandria university)	
2-This Sample Representative (5000 m3) only.		2- result report attached and acceptable with the project specifications	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Moustafa			A
QA/QC *	Eng. Sayed Saif			
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتب محمد عبد الله محمد استاغيل
للإنشاءات ورصف الطرق

MATERIAL APPROVAL REQUEST



الهيئة العامة
للطرق والكبارى
(GARB)



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed moustafa			16/10/2023 (M.A.R.FF-010)	08:00						
Received by GARB CONSULTANT	Eng. Sayed saif	Sign	MAR	C1	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	17	10	23	8	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Filter layer		
Location to be Used	From S.t (351+000) To S.t (351+760)		
Sample only	Yes	Materials Type	Filter layer
Supplier Name	كسارات وادي النطرون-العلمين	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng.Sayed Saif (K.K) 1-Quality test Result By third party Laboratory is Approved. 2-This Sample Representative (5000 m3) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were carried-out by thid party lab (Alexandria University) 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Mergret magdy			
Employers Representative	Eng. Alaa Abd-Allatif	for	4.11.2023	AWC

* Designer

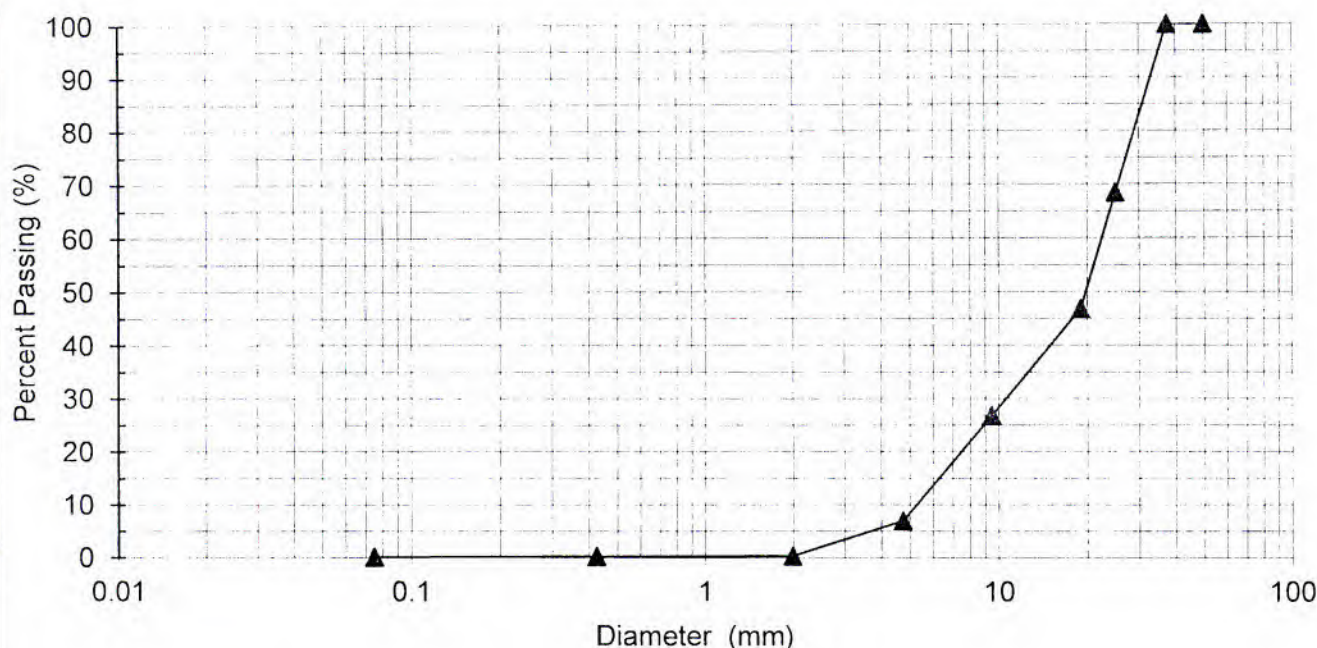
** Alignment/Bridges: Culvert only

مستند محمد عبد الله محمد
للإنشاءات و: صنف الطرق

**Grain Size Distribution Curve**

CLIENT	محمد عبد الله للإنشاءات ورصف الطرق
PROJECT	القطار الكهربائي السريع من برج العرب الى العلمين
LOCATION	من كم ٣٥١+٧٦٠ الى ٣٥١+٢٦٠ من المشون
LAYER TYPE	سن فلتر عينة ١ / ٤

Receiving Date	17/10/2023
Cheque Date	19/10/2023
Reciept Number	879
Report Date	04/11/2023
Lab. Ref.	G 34/11

GRAIN SIZE DISTRIBUTION CURVE

Sieve No.	PERCENT PASSING							
	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"
Test Results	0.1	0.2	0.3	7.0	26.8	46.8	68.4	100.0

وردت العينة التي اجري عليها الاختبار الى المعمل بمعرفة مندوب الاستشارى ا.د/ خالد قنديل

Laboratory Director

Dr. Wael Bekheet

The laboratory is only responsible for the test results and its correctness. The laboratory is not responsible for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اى نتائج مبنية على ذلك

رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203



نتائج تجارب لوس أنجلوس و الامتصاص

٢٠٢٣/١٠/١٧	تاريخ توريد العينة	ل. ١٩. ١١	تقرير رقم
٢٠٢٣/١٠/١٩	أمر دفع	لوس أنجلوس و الامتصاص	الاختبارات
٨٧٩	أمر دفع	محمد عبد الله للإنشاءات ورصف الطرق	المقاول
٢٠٢٣/١١/٠٤	تاريخ التقرير	القطار الكهربائى السريع من برج العرب الى العلمين	المشروع
سن فلتر (١)	العينة	من كم ٣٥١+٧٦٠ الى ٣٥١+٢٦٠ من المشون	الموقع

نتائج اختبار لوس أنجلوس و الامتصاص

٥٠٠ لفة	لوس أنجلوس
١٢ كورة	عدد كرات الاختبار
٥٠٠٠ جم	وزن العينة قبل التجربة
٣٩٩٤ جم	وزن العينة بعد التجربة
٢٠,١٢ %	نسبة التآكل
١,٢٥ %	نسبة الامتصاص بعد ٢٤ ساعه غمر
٠,٢٣ %	نسبة التفتت فى الماء
٢,٦٢ جم/سم ٣	الوزن النوعى

تم توريد العينة بمعرفة مندوب الامتشارى د. ا/ خالد قنديل

مدير المعمل

د. / وائل بخيت

فنى المعمل

أ / أحمد عادل



The laboratory is **only** responsible for the test results and its correctness. The laboratory is **not** responsible for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اى نتائج مبنيه على ذلك

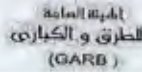
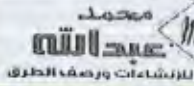
رقم بريدى ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٢٠٣)

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

مكتبة الإستشاري الهندسي
(أ.د/ خالد فنديل)
مدير المشروع: م / السيد سيف
شروع: القطر الكهربائي المصري
القاهرة

MATERIAL INSPECTION REQUEST



Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k		
Issued by Contractor	Name	Sign		Date/Serial Number	Time		
	Eng. Mohamed moustafa			26/07/2023 (P.L.T.008) PP	3:00 PM		
Received by GARB CONSULTANT	Eng.			C1	C2	C3	DD
				351	EW	CS	27
				MM	YY	HH	MM
				7	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
CODE-2	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-3	Work Activity		
CODE-4	Sub Element of Activity		

Description of Materials	filter				
Location to be Used	From	351+260	TO	351+360	
MAR & UIR Approval No	UIR FF-001	Date	20/07/2023		
	M.A.R. 4F1				
Supplier Name	محجر وادي النطرون-العلمين				
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	1	29/07/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) . 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments with proj spec.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer

** Alignment/Bridges: Culvert only

29/7 (د.ا / خالد قنديل)
مدير المشروع م / السيد سيف
مشروع: القطار الكهربائي السريع
القطاع الخامس

Technical Report

Plate Loading Test

KM 351+300

Crushed Stone Filter Layer

Project

Electric Express Train (Sokhna - New capital - 6th
of October city - New Elalamein city)

Prepared for

Mohammed Abdullah Company for Construction and Road
Paving

Al-Israa Tower, Al-Mahmoudia Canal Road, Hajar Al-Nawatiya, Al-Bar
Al-Qibli - Alexandria, Egypt

يعتمد
أمين عام الجامعة
نواء مهندس / أسامة فتحة

(July 27, 2023)

مكتب محمد عبد الله محمد اسماعيل
للرسماءات ورصف الطرق





1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct one plate loading test on the Crushed Stone Filter Layer of the Electric Express Train project at one location (KM 351+300) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Mohamed Mostafa of Mohammed Abdullah Company for Construction and Road Paving. Field team members (Ahmed Sabry and Sameh Hassan) from the working CETCU team visited the project site on July 27, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was $33 \pm 1^\circ\text{C}$.
- The plate was carried out on a Crushed Stone Filter Layer (according to the company) at one point: (KM 351+300). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader CAT 970F.



3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m² was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. One plate loading tests on the Crushed Stone Filter Layer of the Electric Express Train project was conducted at one location (KM 351+300) and the data collected at the test point is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+300), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+300)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.23
2	14.14	0.050	0.35
3	21.21	0.075	0.46
4	28.28	0.100	0.54
5	35.35	0.125	0.65
6	42.42	0.150	0.70
7	49.49	0.175	0.78
8	56.56	0.200	0.88
9	63.63	0.225	0.95
10	70.7	0.250	1.10
11	56.56	0.200	1.06
12	49.49	0.175	1.02
13	35.35	0.125	0.87
14	21.21	0.075	0.73
15	1.414	0.005	0.15

مكتب محمد عبد الله محمد اسماعيل
للإستشارات ورصف الطرق





Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+300)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.15
1	7.07	0.025	0.40
2	14.14	0.050	0.50
3	21.21	0.075	0.60
4	28.28	0.100	0.70
5	35.35	0.125	0.80
6	42.42	0.150	0.88
7	49.49	0.175	0.97
8	56.56	0.200	1.00
9	63.63	0.225	1.05

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 351+300) are shown in Figure 1.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+300)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.16	0.18
a_1 (mm/(MN/m ²))	3.81	6.65
a_2 (mm/(MN ² /m ⁴))	-0.73	-12.47
$E_v = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	123.93	127.31
E_{v2}/E_{v1}	1.03	

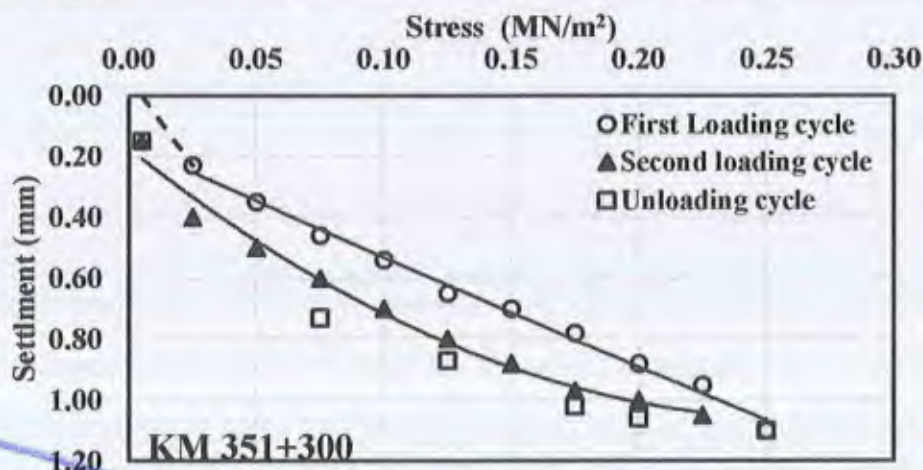


Figure 1: Load-settlement data: plate loading test performed at (KM 351+300)



4. Closure

Test results presented herein report the load-settlement data obtained from one plate loading test conducted on the Crushed Stone Filter Layer of the Electric Express train project at one location (KM 351+300) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m ²	E_{v2} MN/m ²	E_{v2}/E_{v1} ratio
KM 351+300	123.93	127.31	1.03

• Note: Before interpreting these test results for future applications, the Crushed Stone Filter Layer in-situ variability between the testing locations should be considered.

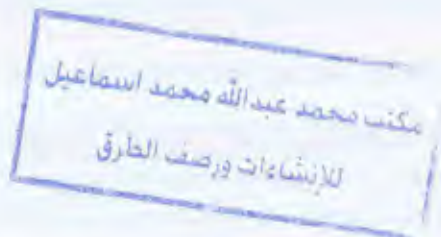
Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar





Appendix A



كتب محمد عبد الله محمد اسماعيل
للاشياء ورصف الطرق

Location of test site:	KM 351+300		Field team	Ahmed Sabry and Sameh Hassan
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	27/7/2023
Diameter of loading plate	600		Time	11:05:00 AM 11:32:00 AM
Lever ratio	1		Note: CAT 970F	
Type of Soil	Crushed Stone Filter Layer			
Bedding material	Sand Layer			
Temperature	33°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.77	
	2	14.14	9.65	
	3	21.21	9.54	
	4	28.28	9.46	
	5	35.35	9.35	
	6	42.42	9.30	
	7	49.49	9.22	
	8	56.56	9.12	
	9	63.63	9.05	
	10	70.7	8.90	
Unloading Stage	11	56.56	8.94	
	12	49.49	8.98	
	13	35.35	9.13	
	14	21.21	9.27	
	15	1.414	9.85	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.85	
	1	7.07	9.60	
	2	14.14	9.50	
	3	21.21	9.40	
	4	28.28	9.30	
	5	35.35	9.20	
	6	42.42	9.12	
	7	49.49	9.03	
	8	56.56	9.00	
	9	63.63	8.95	

MATERIAL INSPECTION REQUEST			الهيئة العامة للطرق والكباري (GARB)			
	محمد عبد الله Mohamed Abdallah 3	KK Engineering Consulting Office	الهيئة العامة للطرق والكباري (GARB)	وزارة النقل والبنية التحتية Ministry of Transport and Infrastructure	وزارة التخطيط Ministry of Planning	وزارة الاقتصاد والمالية Ministry of Economy and Finance

Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		30/07/2023 S5-A-MO3-PLT-ff-2	3:00 PM	
Received by GARB CONSULTANT	Eng. SAYED SAIF		MIR	C1 349	C2 EW
				C3 CS	DD 31
				MM 7	YY 23
				HH 3	MM 0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	filter layer		
Location to be Used	from	351+360	TO
		33+879.71	
		351+400	
		33+919.71	
MAR & UIR Approval No	UIR S5-A-MO3-IR-ff-2	Date	30/07/2023
	S5-A-MO3-MAR-ff-2		
Supplier Name	كسارات وادى النظرون - العلمين		
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes	Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	1	02/08/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) . 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

المكتب الاستشاري الهندسي
(د. خالد قنديل)
مدير المشروع: م. السيد سيف
مشروع: القطر الكهربائي السريع
القطاع الخامس

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) . 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments with proj spec.

* Designer
** Alignment/Bridges: Culvert only

(أ) (ب) (ج) (د) (هـ) (و) (ز) (ح) (ط) (ي) (ك) (ل) (م) (ن) (س) (ع) (ف) (ق) (ص) (ض) (ظ) (غ) (ف) (ق) (ص) (ض) (ظ) (غ)

الميزان الكهرلي / السيد سيق
الميزان الكهرلي السري
القطاع الخامس



Technical Report

Plate Loading Test

KM 351+400

Crushed Stone Filter Layer

Project

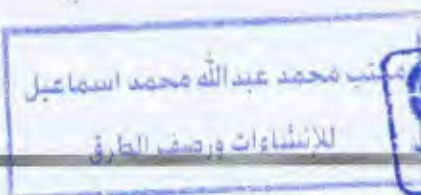
**Electric Express Train (Sokhna - New capital - 6th
of October city - New Elalamein city)**

Prepared for

**Mohammed Abdullah Company for Construction and Road
Paving**

Al-Israa Tower, Al-Mahmoudia Canal Road, Hajar Al-Nawatiya, Al-Bar
Al-Qibli - Alexandria, Egypt

(July 31, 2023)





1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct one plate loading test on the Crushed Stone Filter Layer of the Electric Express Train project at one location (KM 351+400) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Mohamed Mostafa of Mohammed Abdullah Company for Construction and Road Paving. Field team members (Mr. Mohamed Mamdouh) from the working CETCU team visited the project site on July 31, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was $30 \pm 1^\circ\text{C}$.
- The plate was carried out on a Crushed Stone Filter Layer (according to the company) at one point: (KM 351+400). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader Komatsu WA420.



3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m² was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. One plate loading tests on the Crushed Stone Filter Layer of the Electric Express Train project was conducted at one location (KM 351+400) and the data collected at the test point is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+400), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+400)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.26
2	14.14	0.050	0.33
3	21.21	0.075	0.40
4	28.28	0.100	0.52
5	35.35	0.125	0.67
6	42.42	0.150	0.88
7	49.49	0.175	1.05
8	56.56	0.200	1.30
9	63.63	0.225	1.49
10	70.7	0.250	1.72
11	56.56	0.200	1.72
12	49.49	0.175	1.65
13	35.35	0.125	1.59
14	21.21	0.075	1.49
15	1.414	0.005	0.82

كتب محمد عبدالله محمد الشمايل

للإنشاءات ورصف الطرق





Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+400)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.82
1	7.07	0.025	1.05
2	14.14	0.050	1.15
3	21.21	0.075	1.25
4	28.28	0.100	1.35
5	35.35	0.125	1.43
6	42.42	0.150	1.51
7	49.49	0.175	1.59
8	56.56	0.200	1.67
9	63.63	0.225	1.80

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 351+400) are shown in Figure 1.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+400)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.19	0.86
a_1 (mm/(MN/m ²))	1.83	5.46
a_2 (mm/(MN ² /m ⁴))	17.64	-6.56
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	72.10	117.76
Ev_2/Ev_1	1.63	

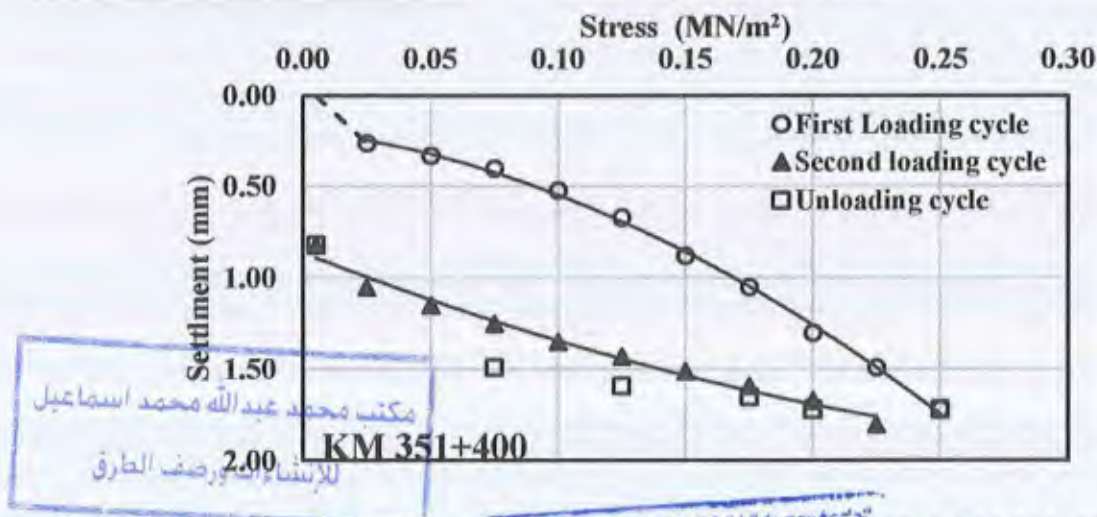


Figure 1: Load-settlement data: plate loading test performed at (KM 351+400)



4. Closure

Test results presented herein report the load-settlement data obtained from one plate loading test conducted on the Crushed Stone Filter Layer of the Electric Express train project at one location (KM 351+400) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m ²	E_{v2} MN/m ²	E_{v2}/E_{v1} ratio
KM 351+400	72.10	117.76	1.63

* Note: Before interpreting these test results for future applications, the Crushed Stone Filter Layer in-situ variability between the testing locations should be considered.

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar

كتب محمد عبد الله محمد اسماعيل
للإشادات ورصف الطرق



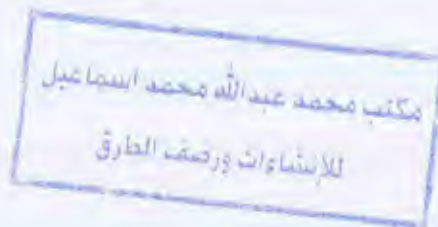


Location of test site:	KM 351+400		Field team	Mr.Mohamed Mamdouh
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	31/7/2023
Diameter of loading plate	600		Time	10:30:00 AM 10:28:00 AM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Crushed Stone Filter Layer			
Bedding material	---			
Temperature	30°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.74	
	2	14.14	9.67	
	3	21.21	9.60	
	4	28.28	9.48	
	5	35.35	9.33	
	6	42.42	9.12	
	7	49.49	8.95	
	8	56.56	8.70	
	9	63.63	8.51	
	10	70.7	8.28	
Unloading Stage	11	56.56	8.28	
	12	49.49	8.35	
	13	35.35	8.41	
	14	21.21	8.51	
	15	1.414	9.18	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.18	
	1	7.07	8.95	
	2	14.14	8.85	
	3	21.21	8.75	
	4	28.28	8.65	
	5	35.35	8.57	
	6	42.42	8.49	
	7	49.49	8.41	
	8	56.56	8.33	
	9	63.63	8.20	

مكتب محمد عبد الله محمد اسماعيل
الاستشارات ورصف الطرق



Appendix A



MATERIAL INSPECTION REQUEST



الهيئة العامة
للطرق و التخطيط
(GARB)



الهيئة العامة
للإسكان
(GAS)



Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time						
	Eng. Mohamed moustafa		08/08/2023 55-A-MO3-PLT-ff-3	3:00 PM						
Received by GARB CONSULTANT	Eng. SAYED SAIF	MIR	C1	C2	C3	DD	MM	YY	HH	MM
			351	EW	CS	9	8	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	filter layer				
Location to be Used	from	351+460	TO	351+580	
		33+979.71		34+099.71	
MAR & UIR Approval No	UIR S5-A-MO3-IR-ff-3	Date	08/08/2023		
	SS-A-MO3-MAR-ff-3				
Supplier Name	محجر وادي النطرون - العلمين				
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT ICG21.41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	1	10/08/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.I.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) . 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS			
Organisation	Name	Sign	Date
Contractor	Eng. Mohamed moustafa		
QA/QC *	Eng. Sayed Saif		
GARB**	Eng. Margret magdy		
Employers Representative	Eng. Alaa Abd-Allatif		

مكتب الاستشاري الهندسي
(أ.أ) خالد قنديل
مدير المشروع م / السيد سيف
مشروع: التطوير الكهربائي السريع
القطاع الخامس

MATERIAL INSPECTION REQUEST	محمد عبدالله	KK	الهيئة العامة للطرق والكباري (GARB)	مجلس الوزراء	مجلس الوزراء	مجلس الوزراء
	للإشراف على إنشاءات وصرف الطرق	مجلس الوزراء	مجلس الوزراء	مجلس الوزراء	مجلس الوزراء	مجلس الوزراء

Contractor Company	Mohamed Abdallah for constructions and roads paving			Designer Company	k.k						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed moustafa	<i>[Signature]</i>	08/08/2023 P.L.T FF-003	3:00 PM							
Received by GARB CONSULTANT	Eng. Sayed Saif	Sign	MIR	CL	C2	C3	DD	MM	YY	HH	MM
				351	EW	CS	9	8	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Filter layer				
Location to be Used	From	351+460	TO	351+580	
MAR & UIR Approval No	UIR (FF-003)		Date	08/08/2023	
	M.A.R.FF-003				
Supplier Name	محجر وادي النطرون - العلمين				
Test Requirement	P.L.T (DIN 18134)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes		Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	1	10/08/2023	
2					
3					
4					

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.I.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST) . 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments with proj spec.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa	<i>[Signature]</i>		A
QA/QC *	Eng. Sayed Saif	<i>[Signature]</i>		
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif	<i>[Signature]</i>	10/8/2023	AWC

* Designer

** Alignment/Bridges: Culvert only

مدير المشروع: م / السيد سيف
مشروع: التظافر الكهربائي السريع
القطاع الخامس



Technical Report

Plate Loading Test

KM 351+500

Crushed Stone Filter Layer

Project

**Electric Express Train (Sokhna - New capital - 6th
of October city - New Elalamein city) - Al
Ghirbaniaat**

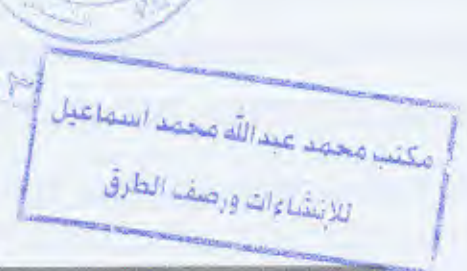
Prepared for

**Mohammed Abdullah Company for Construction and Road
Paving**

Al-Israa Tower, Al-Mahmoudia Canal Road, Hajar Al-Nawatiya, Al-Bar
Al-Qibli - Alexandria, Egypt

(August 9, 2023)

يعتمد
أمين عام الجامعة
لواء مهندس / أسامة فتحي





1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct one plate loading test on the Crushed Stone Filter Layer of the Electric Express Train project at one location (KM 351+500) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Mohamed Mostafa of Mohammed Abdullah Company for Construction and Road Paving. Field team members (Sameh Hassan) from the working CETCU team visited the project site on August 9, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (E_{v1} and E_{v2}) and their ratio (E_{v2}/E_{v1}) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was $32 \pm 1^\circ\text{C}$.
- The plate was carried out on a Crushed Stone Filter Layer (according to the company) at one point: (KM 351+500). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader Komatsu WA420.



3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m² was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. One plate loading tests on the Crushed Stone Filter Layer of the Electric Express Train project was conducted at one location (KM 351+500) and the data collected at the test point is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+500), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+500)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.18
2	14.14	0.050	0.26
3	21.21	0.075	0.37
4	28.28	0.100	0.42
5	35.35	0.125	0.54
6	42.42	0.150	0.67
7	49.49	0.175	0.84
8	56.56	0.200	1.05
9	63.63	0.225	1.17
10	70.7	0.250	1.34
11	56.56	0.200	1.33
12	49.49	0.175	1.30
13	35.35	0.125	1.16
14	21.21	0.075	1.05
15	1.414	0.005	0.52





Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+500)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.52
1	7.07	0.025	0.75
2	14.14	0.050	0.83
3	21.21	0.075	0.92
4	28.28	0.100	1.00
5	35.35	0.125	1.10
6	42.42	0.150	1.21
7	49.49	0.175	1.28
8	56.56	0.200	1.35
9	63.63	0.225	1.36

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 351+500) are shown in Figure 1.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+500)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.13	0.54
a_1 (mm/(MN/m ²))	2.00	5.80
a_2 (mm/(MN ² /m ⁴))	11.76	-9.38
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	91.03	130.22
Ev_2/Ev_1	1.43	

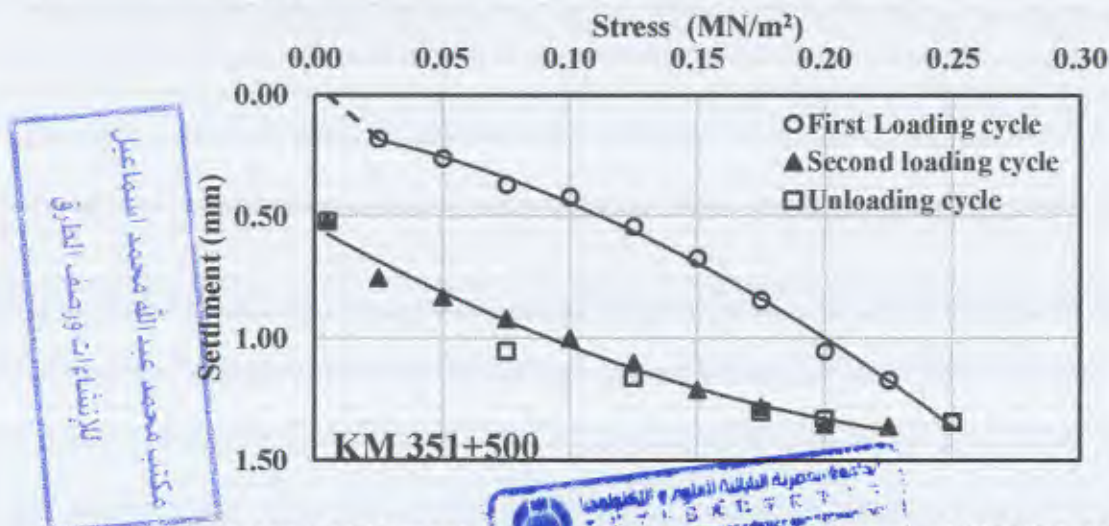


Figure 1: Load-settlement data, plate loading test performed at (KM 351+500)



4. Closure

Test results presented herein report the load-settlement data obtained from one plate loading test conducted on the Crushed Stone Filter Layer of the Electric Express train project at one location (KM 351+500) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m ²	E_{v2} MN/m ²	E_{v2}/E_{v1} ratio
KM 351+500	91.03	130.22	1.43

• Note: Before interpreting these test results for future applications, the Crushed Stone Filter Layer in-situ variability between the testing locations should be considered.

Technical committee

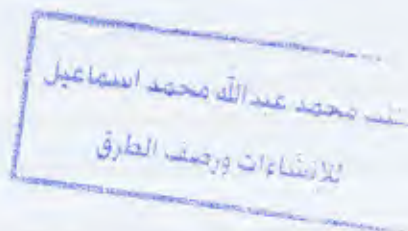
Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy



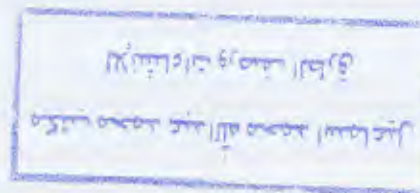
Lab Engineer

Mohamed A. Al-Najjar



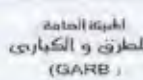


Appendix A





Location of test site:	KM 351+500		Field team	Sameh Hassan
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	9/8/2023
Diameter of loading plate	600		Time	3:03:00 PM 3:30:00 PM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Crushed Stone Filter Layer			
Bedding material	---			
Temperature	32°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.82	
	2	14.14	9.74	
	3	21.21	9.63	
	4	28.28	9.58	
	5	35.35	9.46	
	6	42.42	9.33	
	7	49.49	9.16	
	8	56.56	8.95	
	9	63.63	8.83	
	10	70.7	8.66	
Unloading Stage	11	56.56	8.67	
	12	49.49	8.70	
	13	35.35	8.84	
	14	21.21	8.95	
	15	1.414	9.48	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.48	
	1	7.07	9.25	
	2	14.14	9.17	
	3	21.21	9.08	
	4	28.28	9.00	
	5	35.35	8.90	
	6	42.42	8.79	
	7	49.49	8.72	
	8	56.56	8.65	
	9	63.63	8.64	

MATERIAL INSPECTION REQUEST	     	
		

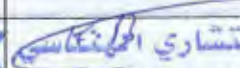
Contractor Company	Mohamed Abdallah 3 for constructions and roads paving		Designer Company	(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	Eng. Mohamed moustafa		30/08/2023 SS-A-MO3-PLT-ff-4	3:00 PM	
Received by GARB CONSULTANT	Eng. SAYED SAIF		MIR	C1	C2
				C3	C4
				C5	C6
				C7	C8
				C9	C10

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

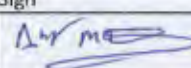
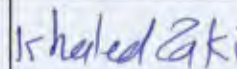
Description of Materials	filter layer			
Location to be Used	from	351+580	TO	351+760
		34+099.71		34+279.71
MAR & UIR Approval No	UIR S5-A-MO3-IR-ff-4, S5-A-MO3-IR-ff-5	Date	20/08/2023	
	S5-A-MO3-MAR-ff-4, S5-A-MO3-MAR-ff-5			
Supplier Name	محجر وادي النظرون - العلمين			
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST	NUMBER	3	02/09/2023	
2					
3					
4					

Comments by: Eng. SAYED SAIF (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (E-JUST). 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng. Sayed Saif			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

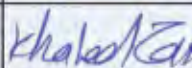
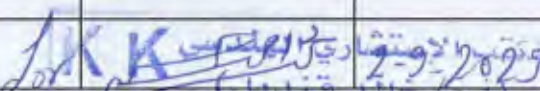
مكتب الاستشاري الهندسي
 (د. خالد قنديل)
 مدير المشروع م / السيد سيف
 مشروع: القطار الكهربائي السريع
 القطاع الخامس

Contractor Company		Mohamed Abdallah for constructions and roads paving			Designer Company				k.k			
Issued by Contractor	Name	Sign			Date/Serial Number				Time			
	Eng. Mohamed moustafa				30/08/2023				3:00 PM			
					P.L.T FF- 4,5							
Received by GARB CONSULTANT	Eng.		MIR	C1	C2	C3	DD	MM	YY	HH	MM	
				351	EW	CS	31	8	23	3	0	

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Description of Materials		Filter layer				
Location to be Used		From	351+580	TO	351+760	
MAR & UIR Approval No		UIR (FF-004 , FF-005)	Date	20/08/2023		
		M.A.R.004,05				
Supplier Name		محجر وادي النطرون -العلمين				
Test Requirement		P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos		No/Yes	Other			
Item	Description		Unit	Quantity	Arrival Date	Note
1	PLATE LOAD TEST		NUMBER	3	02/09/2023	
2						
3						
4						

Comments by: Eng. (K.K)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Load Test Result p.l.T. (DIN 18134) is Approved.	1-P.L.T was carried- out by third party lab (Japanese university) . 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments with proj spec.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed moustafa			A
QA/QC *	Eng.			A
GARB**	Eng. Margret magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer

** Alignment/Bridges: Culvert only

مدير المشروع م / السيد سيف
شروع: القطار الكهربائي السريع
القطاع الخامس



Technical Report

Plate Loading Tests

KM 351+580, KM 351+650,
and KM 351+720

Crushed Stone Filter Layer

Project

Electric Express Train (Sokhna - New capital - 6th
of October city - New Elalamein city)

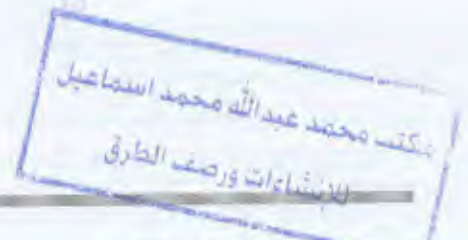
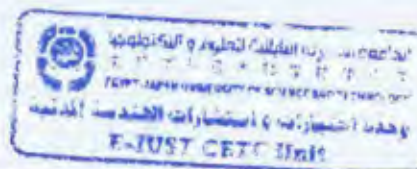
Prepared for

Mohammed Abdullah Company for Construction and Road
Paving

Al-Israa Tower, Al-Mahmoudia Canal Road, Hajar Al-Nawatiya, Al-Bar
Al-Qibli - Alexandria, Egypt

(August 31, 2023)

أمين عام الجامعة
لواء مهندس / أسامة فتحي





1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by Mohammed Abdullah Company for Construction and Road Paving to conduct 3 plate loading tests on the Crushed Stone Filter Layer of the Electric Express Train project at 3 locations (KM 351+580, KM 351+650, and KM 351+720) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Mohamed Mostafa of Mohammed Abdullah Company for Construction and Road Paving. Field team members (Sameh Hassan) from the working CETCU team visited the project site on August 31, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was $32 \pm 1^\circ\text{C}$.
- The plate was carried out on a Crushed Stone Filter Layer (according to the company) at 3 points (KM 351+580, KM 351+650, and KM 351+720). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader Komatsu WA420.



3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m² was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 3 plate loading tests on the Crushed Stone Filter Layer of the Electric Express Train project were conducted at 3 locations (KM 351+580, KM 351+650, and KM 351+720) and the data collected at the 3 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+580), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+580)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.28
2	14.14	0.050	0.38
3	21.21	0.075	0.51
4	28.28	0.100	0.70
5	35.35	0.125	1.08
6	42.42	0.150	1.46
7	49.49	0.175	1.70
8	56.56	0.200	1.96
9	63.63	0.225	2.22
10	70.7	0.250	2.44
11	56.56	0.200	2.38
12	49.49	0.175	2.31
13	35.35	0.125	2.15
14	21.21	0.075	1.95
15	1.414	0.005	1.40

تم إعداد هذا التقرير من قبل



Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+580)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	1.40
1	7.07	0.025	1.66
2	14.14	0.050	1.78
3	21.21	0.075	1.93
4	28.28	0.100	2.04
5	35.35	0.125	2.14
6	42.42	0.150	2.23
7	49.49	0.175	2.33
8	56.56	0.200	2.37
9	63.63	0.225	2.40

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 351+580) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 351+650) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 351+720) is provided in Tables 7-9 and Figure 3.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+580)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	-0.02	1.41
a_1 (mm/(MN/m ²))	7.60	7.98
a_2 (mm/(MN ² /m ⁴))	10.25	-16.02
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	44.30	113.14
Ev_2/Ev_1	2.55	

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للإستشارات ورصف الطرق

الجامعة المصرية اليابانية للعلوم والتكنولوجيا
E-Just CETC Unit

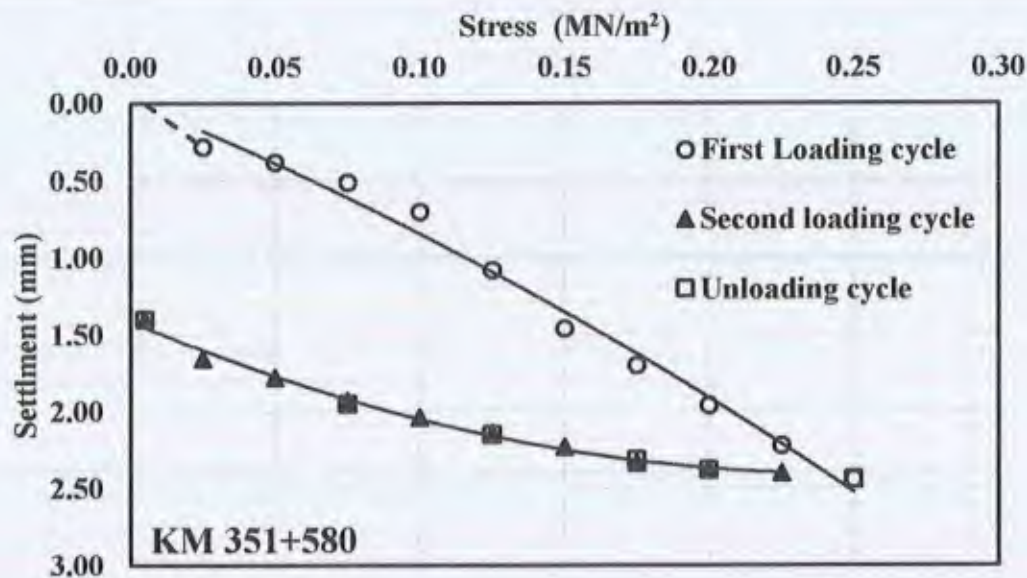


Figure 1: Load-settlement data: plate loading test performed at (KM 351+580)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+650)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.22
2	14.14	0.050	0.30
3	21.21	0.075	0.40
4	28.28	0.100	0.52
5	35.35	0.125	0.70
6	42.42	0.150	0.88
7	49.49	0.175	1.13
8	56.56	0.200	1.41
9	63.63	0.225	1.76
10	70.7	0.250	2.10
11	56.56	0.200	2.07
12	49.49	0.175	2.02
13	35.35	0.125	1.90
14	21.21	0.075	1.79
15	1.414	0.005	1.30

محمد عبد الله محمد اسماعيل



Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+650)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	1.30
1	7.07	0.025	1.51
2	14.14	0.050	1.63
3	21.21	0.075	1.73
4	28.28	0.100	1.83
5	35.35	0.125	1.92
6	42.42	0.150	2.01
7	49.49	0.175	2.11
8	56.56	0.200	2.14
9	63.63	0.225	2.16

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+650)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.22	1.31
a_1 (mm/(MN/m ²))	0.02	6.63
a_2 (mm/(MN ² /m ⁴))	30.07	-12.50
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,MAX})$	59.67	128.25
Ev_2/Ev_1	2.15	

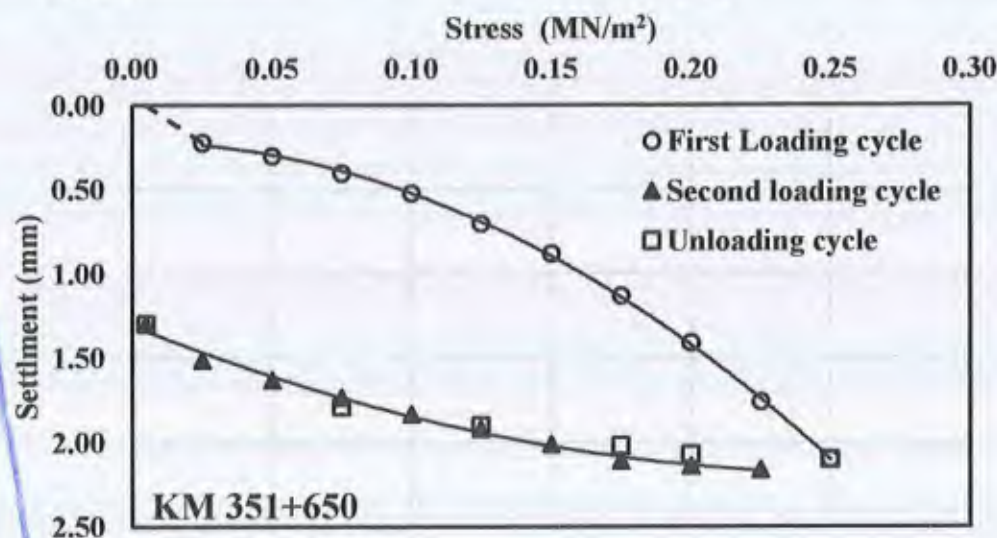


Figure 2: Load-settlement data: plate loading test performed at (KM 351+650)



Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 351+720)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.18
2	14.14	0.050	0.29
3	21.21	0.075	0.40
4	28.28	0.100	0.49
5	35.35	0.125	0.61
6	42.42	0.150	0.76
7	49.49	0.175	0.88
8	56.56	0.200	1.08
9	63.63	0.225	1.31
10	70.7	0.250	1.53
11	56.56	0.200	1.47
12	49.49	0.175	1.42
13	35.35	0.125	1.27
14	21.21	0.075	1.13
15	1.414	0.005	0.62

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 351+720)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m ²	mm
0	1.414	0.005	0.62
1	7.07	0.025	0.85
2	14.14	0.050	0.96
3	21.21	0.075	1.07
4	28.28	0.100	1.16
5	35.35	0.125	1.25
6	42.42	0.150	1.36
7	49.49	0.175	1.43
8	56.56	0.200	1.54
9	63.63	0.225	1.56

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 351+720)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m ²	0.25	0.25
a_0 (mm)	0.15	0.64
a_1 (mm/(MN/m ²))	1.84	6.27
a_2 (mm/(MN ² /m ⁴))	14.49	-9.69
$Ev = 1.5 r / (a_1 + a_2 \cdot s_{0,max})$	82.42	117.02
Ev_2/Ev_1		



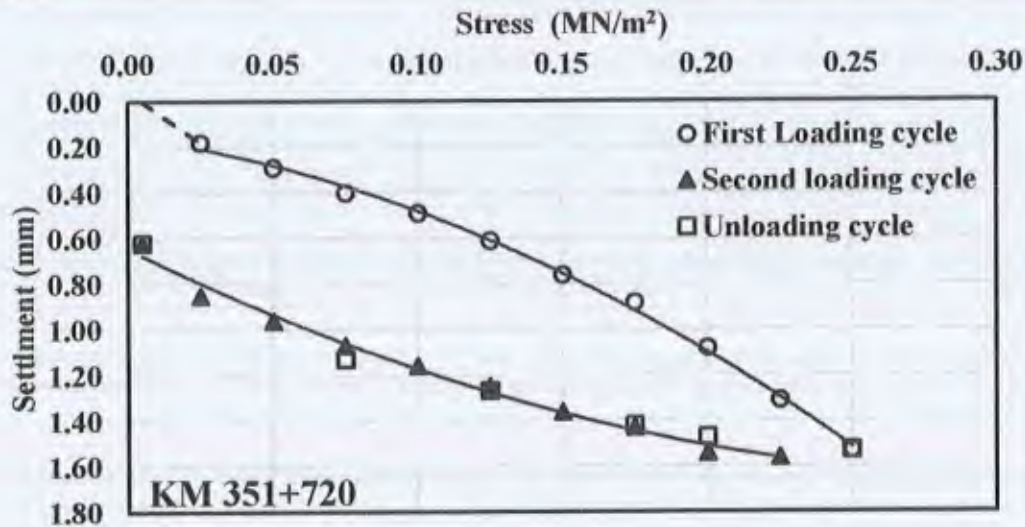


Figure 3: Load-settlement data: plate loading test performed at (KM 351+720)

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للإنشاءات ورصف الطرق
E-Just CETC 37510



4. Closure

Test results presented herein report the load-settlement data obtained from 3 plate loading tests conducted on the Crushed Stone Filter Layer of the Electric Express train project at 3 locations (KM 351+580, KM 351+650, and KM 351+720) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m ²	E_{v2} MN/m ²	E_{v2}/E_{v1} ratio
KM 351+580	44.30	113.14	2.55
KM 351+650	59.67	128.25	2.15
KM 351+720	82.42	117.02	1.42

• Note: Before interpreting these test results for future applications, the Crushed Stone Filter Layer in-situ variability between the testing locations should be considered.

Technical committee

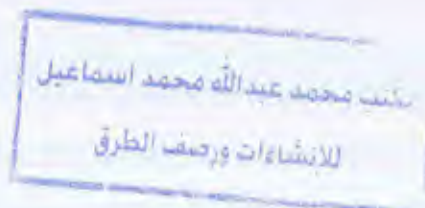
Dr. Mahmoud Ahmed

Prof. Dr. Mohamed R. M. Fahmy



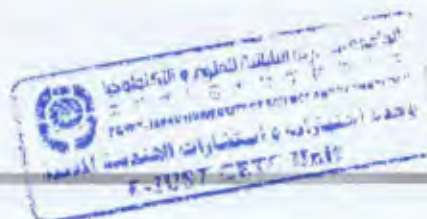
Lab Engineer

Mohamed A. Al-Najjar





Appendix A





Location of test site:	KM 351+580		Field team	Sameh Hassan
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	31/8/2023
Diameter of loading plate	600		Time	10:00:00 AM 10:27:00 AM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Crushed Stone Filter Layer			
Bedding material	---			
Temperature	32°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.72	
	2	14.14	9.62	
	3	21.21	9.49	
	4	28.28	9.30	
	5	35.35	8.92	
	6	42.42	8.54	
	7	49.49	8.30	
	8	56.56	8.04	
	9	63.63	7.78	
	10	70.7	7.56	
Unloading Stage	11	56.56	7.62	
	12	49.49	7.69	
	13	35.35	7.85	
	14	21.21	8.05	
	15	1.414	8.60	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	8.60	
	1	7.07	8.34	
	2	14.14	8.22	
	3	21.21	8.07	
	4	28.28	7.96	
	5	35.35	7.86	
	6	42.42	7.77	
	7	49.49	7.67	
	8	56.56	7.63	
	9	63.63	7.60	



Location of test site:	KM 351+650		Field team	Sameh Hassan
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	31/8/2023
Diameter of loading plate	600		Time	10:32:00 AM 10:59:00 AM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Crushed Stone Filter Layer			
Bedding material	---			
Temperature	32°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.78	
	2	14.14	9.70	
	3	21.21	9.60	
	4	28.28	9.48	
	5	35.35	9.30	
	6	42.42	9.12	
	7	49.49	8.87	
	8	56.56	8.59	
	9	63.63	8.24	
	10	70.7	7.90	
Unloading Stage	11	56.56	7.93	
	12	49.49	7.98	
	13	35.35	8.10	
	14	21.21	8.21	
	15	1.414	8.70	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	8.70	
	1	7.07	8.49	
	2	14.14	8.37	
	3	21.21	8.27	
	4	28.28	8.17	
	5	35.35	8.08	
	6	42.42	7.99	
	7	49.49	7.89	
	8	56.56	7.86	
	9	63.63	7.84	

محمد عبد الله محمد اسماعيل

الاسماءات مرسومة باليد



وحدة اختبارات واستشارات الهندسة المدنية
12 of 13 CETC Unit



Location of test site:	KM 351+720		Field team	Sameh Hassan
Project title:	Electric Express Train Project - Mohammed Abdullah Company for Construction and Road Paving		Date:	31/8/2023
Diameter of loading plate	600		Time	11:04:00 AM 11:31:00 AM
Lever ratio	1		Note: Komatsu WA420	
Type of Soil	Crushed Stone Filter Layer			
Bedding material	---			
Temperature	32°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.82	
	2	14.14	9.71	
	3	21.21	9.60	
	4	28.28	9.51	
	5	35.35	9.39	
	6	42.42	9.24	
	7	49.49	9.12	
	8	56.56	8.92	
	9	63.63	8.69	
	10	70.7	8.47	
Unloading Stage	11	56.56	8.53	
	12	49.49	8.58	
	13	35.35	8.73	
	14	21.21	8.87	
	15	1.414	9.38	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.38	
	1	7.07	9.15	
	2	14.14	9.04	
	3	21.21	8.93	
	4	28.28	8.84	
	5	35.35	8.75	
	6	42.42	8.64	
	7	49.49	8.57	
	8	56.56	8.46	
	9	63.63	8.44	