

55 كذا في نسخة أخرى

مشروع القطار السريع (العلمين - طوكة)

شركة لانماركس للمقاولات العامة من المحطة 424+600 الى المحطة 425+600

محضر تحديد مسافة نقل

(نقل الاتربة)

اليه في يوم الاربعاء الموافق : 2022/5/18

- بناء على طلب المقاول شركة لانماركس للمقاولات العامة لتحديد مسافة لنقل الاتربة من محجر (المصرية)

على طريق وادي التطرون العلمين للمشروع المذكور اعلاه.

تم زيارة المحجر من قبل :-

- | | |
|------------------------------------|--------------------------------------|
| 1- السيد المهندس / ابراهيم الحناوي | ممثل الهيئة العامة للطرق والكباري |
| 2- السيد المهندس / مصطفى نجم | ممثل الاستشاري مكتب دريسد الجيوش |
| 3- السيد المهندس / محمد خليل | ممثل استشاري المساحة XYZ |
| 4- السيد المهندس / محمد عادل | مندوب شركة لانماركس للمقاولات العامة |

وتبين ان المحجر على مسافة 155 كم من منتصف قطاع شركة لانماركس للمقاولات العامة

احداثي المحجر $N 30^{\circ} 33' 19.7''$ $E 29^{\circ} 45' 06.7''$

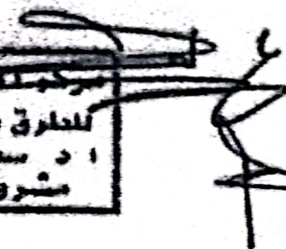
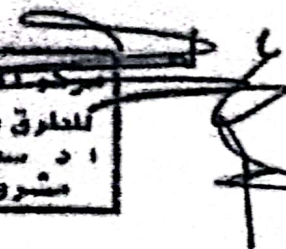
احداثي منتصف القطاع $N 30^{\circ} 58' 03.77''$ $E 28^{\circ} 43' 21.29''$

وعلي ذلك تم توقيع،،



4- كمال

3- محمد خليل

2-  1- 

مركز استشارات الهندسية
للطرق والمطارات SGAC
د. سعد محمد الجيوشي
مشروع القطار السريع

Company : Land marks Co.

Project : Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (6)
- Alamein to Foka
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements
Test Location: Station (424 + 600 to 424 + 780)
Test Date : 28/11/2022
Report Date : 29/11/2022
Type of soil : A-1-a
Test level : Ferma
Report No. : 11:14

Dear Gentleman,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 600 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 700 Bar (Enerbac)
7. Reaction loading system by roller compactor with weight approximately 15 ton
8. Calibration certificates are attached

Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 % , 25 % , and approximately 2 % of the maximum load.
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads

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Report

1. Evaluation and representation of results
2. Load Settlement curve
3. The test report content the following:-
 - location of test site - Dimension of loading plate
 - Measuring device used - Type of soil
 - Type of Bedding material below the plate -Weathering condition
 - Time and date of measurements - Unusual observation made during test
 - Dial gauge reading and corresponding normal stress - Loading-settlement curve
 - Description of the soil condition below the plate after testing

Report

- Type of soil : A-1-a Job requirement : $E_{v2} > 600 \text{ Kg/cm}^2$ (60 MPa).

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	600
- date of measurement	28/11/2022
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		First Cycle	Second Cycle	E_{v2}/E_{v1} Ratio
	From	To	$E_{v1} \text{ (kg/cm}^2\text{)}$	$E_{v2} \text{ (kg/cm}^2\text{)}$	
1	424+600	424+650	776	1500	1.9
2	424+650	424+700	409	1071	2.6
3	424+700	424+750	789	1500	1.9
4	424+750	424+780	600	1800	3.0

Signature /  مكتب معامل الاستشارات الهندسية
الاختبارات المعملية
رقم تسجيل المصمم : 219 - 991 - 537
مصر - شارع السكة الحديد - الزمالة

Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka
 Test Date : 28/11/2022
 report date : 29/11/2022
 Location : Station 424+600 to 424+650
 Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils

DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	20.00	0.00	0.00
1	0.42	19.85	0.15	19.70	0.30	19.80	0.20	0.22
2	0.83	19.67	0.33	19.45	0.55	19.48	0.52	0.47
3	1.25	19.45	0.55	19.25	0.75	19.20	0.80	0.70
4	1.67	19.23	0.77	19.00	1.00	19.00	1.00	0.92
5	2.08	19.00	1.00	18.75	1.25	18.65	1.35	1.20
6	2.50	18.80	1.20	18.55	1.45	18.45	1.55	1.40

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.80	1.20	18.55	1.45	18.45	1.55	1.40
2	1.25	18.83	1.17	18.65	1.35	18.50	1.50	1.34
3	0.625	18.90	1.10	18.85	1.15	18.62	1.38	1.21
4	0.01	19.30	0.70	19.22	0.78	18.90	1.10	0.88

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.30	0.80	19.10	0.90	18.85	1.15	0.95
1	0.83	19.06	0.94	18.96	1.04	18.72	1.28	1.09
2	1.25	18.95	1.05	18.80	1.20	18.60	1.40	1.22
3	1.67	18.82	1.18	18.68	1.32	18.50	1.50	1.33
4	2.08	18.70	1.30	18.55	1.45	18.40	1.60	1.45
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



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Company Name

Land marks Co.

Project

Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (6) - Alamein to Foka

Test Date

28/11/2022

report date

29/11/2022

Location

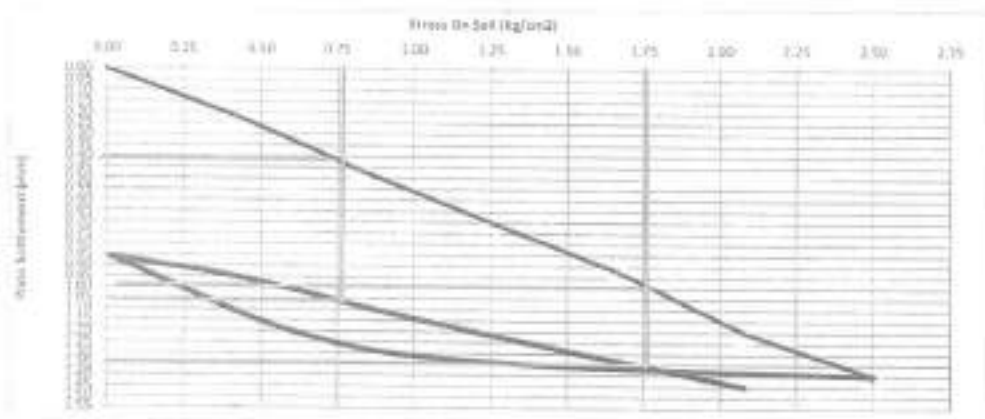
Station 424+600 to 424+650

Test No.

01

Nonrepelitive Static Plate Load Tests of Soils

DIN 18134



Loading (t)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.6	3532.5	4719.4	5878.1	7065
Stress (Kg/cm²)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.22	0.47	0.70	0.92	1.20	1.40

UnLoading (t)	1	2	3	4
Stage(Kg)	7065	3532	1768	0
Stress (Kg/cm²)	2.50	1.75	0.925	0.01
Settlement (mm)	1.40	1.34	1.21	0.05

D (mm) =	600	S1 (mm) =	6.42	S2 (mm) =	1.80	ΔS =	0.58
Ev1 (kg/cm²) =	(0.75 * D²) / ΔS		178				

$$Cv2/Cv1 = 1.8$$

Loading (t)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.6	3532.5	4719.4	5878.1	7065
Stress (Kg/cm²)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.05	1.08	1.22	1.33	1.45	

D (mm) =	600	S1 (mm) =	1.88	S2 (mm) =	1.35	ΔS =	0.38
Ev2 (kg/cm²) =	(0.75 * D²) / ΔS		1900				

Ev1 = Modulus of subgrade during the loading stage

Ev2 = Modulus of subgrade during the reloading stage

D = Plate diameter (mm)

S1 = The difference between S2 and S7 from the maximum loading (mm) (kg/cm²)

ΔS = Difference in settlement corresponding to S2 and S7 from the maximum loading (mm)



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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (5) - Alamein to Foka
Test Date : 28/11/2022
report date : 29/11/2022
Location : Station 424+650 to 424+700
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	20.00	0.00	0.00
1	0.42	19.75	0.25	19.58	0.42	19.85	0.15	0.27
2	0.83	19.45	0.55	19.20	0.80	19.40	0.60	0.65
3	1.25	19.10	0.90	18.70	1.30	18.90	1.10	1.10
4	1.67	18.70	1.30	18.18	1.82	18.35	1.65	1.59
5	2.08	18.30	1.70	17.70	2.30	17.90	2.10	2.03
6	2.50	17.80	2.20	17.20	2.80	17.40	2.60	2.53

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	17.80	2.20	17.20	2.80	17.40	2.60	2.53
2	1.25	17.85	2.15	17.38	2.62	17.45	2.55	2.44
3	0.025	18.05	1.95	17.70	2.30	17.75	2.25	2.17
4	0.01	18.70	1.30	18.25	1.75	18.30	1.70	1.58

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	18.60	1.40	18.10	1.90	18.18	1.82	1.71
1	0.83	18.45	1.55	17.90	2.10	17.95	2.05	1.90
2	1.25	18.30	1.70	17.69	2.31	17.84	2.16	2.06
3	1.67	18.18	1.82	17.45	2.55	17.50	2.50	2.29
4	2.08	17.90	2.10	17.25	2.75	17.35	2.65	2.50
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!

Signature

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Company Name

: Land marks Co.

Project

: Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (6) – Alamein to Foka

Test Data

28/11/2022

report date

: 29/11/2022

Location

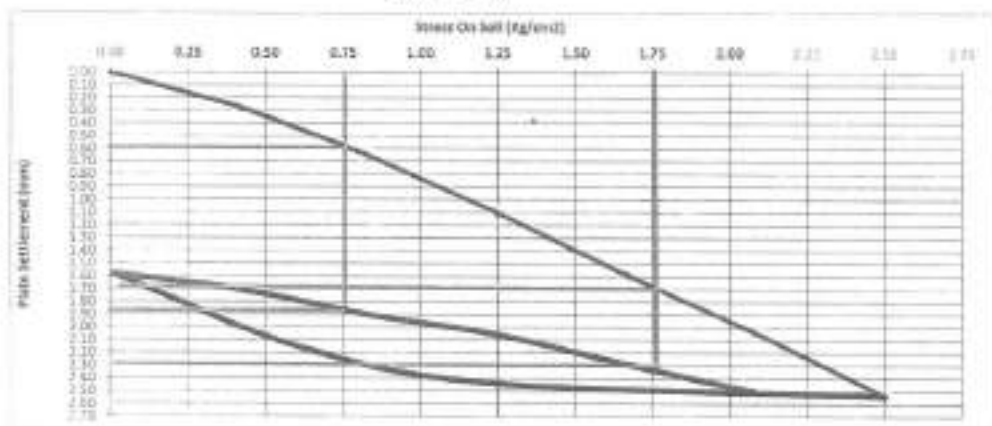
- Station 424+050 to 424+700

Test No.

92

Nonrepetitive Static Plate Load Tests of Soils

DIN 18134



Loading (t)	0	1	2	3	4	5	6
Stage(Kg)	0	1166.92	2345.6	3532.5	4719.4	5878.1	7065
Strain (Kg/cm ²)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.27	0.85	1.10	1.59	2.03	2.53

UnLoading (t)	1	2	3	4
Stages(Kg)	7065	3533	1768	0
Stress (Kg/cm2)	2.50	1.25	0.625	0.01
Settlement (mm)	2.53	2.44	2.17	1.58

D (mm) =	600	S1 (mm) ² =	0.60	S2 (mm) ² =	1.70	ΔS =	1.10
Ev1 (kg/cm ²) =	(9.75*D ⁴ Δσ)/ΔS		409				

Loading (\bar{z})	0	1	2	3	4	5
Stage(Kg)	0	1185.92	2345.6	3532.5	4719.4	5878.1
Stress (Kg/cm ²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	1.56	1.71	1.90	2.05	2.29	2.50

$$E_{x2}/E_{x1} = 2.6$$

D (mm) =	500	Sf (mm) =	1.88	S2(mm) =	2.30	ΔS =	0.42
Env (kg/cm2) =	(0.75'D'ΔS)/ΔS		1871				

Signature 1

 $E=1$ = modulus of deformation during the loading stage. ϵ_{x2} = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

De = The difference between 0.2 and 0.7 from the maximum loading (tmax) (kg/m²)

D8 = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (B) – Alamein to Foka
 Test Date : 28/11/2022
 report date : 29/11/2022
 Location : Station 424+700 to 424+750
 Test No. : 03

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	20.00	0.00	0.00
1	0.42	19.90	0.10	19.75	0.25	19.80	0.20	0.18
2	0.83	19.65	0.35	19.40	0.60	19.50	0.50	0.48
3	1.25	19.40	0.60	19.15	0.85	19.20	0.80	0.75
4	1.67	19.20	0.80	18.95	1.05	19.00	1.00	0.95
5	2.08	19.00	1.00	18.72	1.28	18.80	1.20	1.16
6	2.50	18.80	1.20	18.50	1.50	18.60	1.40	1.37

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.80	1.20	18.50	1.50	18.60	1.40	1.37
2	1.25	18.90	1.10	18.67	1.33	18.70	1.30	1.24
3	0.625	19.10	0.90	18.90	1.10	18.97	1.03	1.01
4	0.01	19.60	0.40	19.40	0.60	19.50	0.50	0.50

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.43	0.57	19.20	0.80	19.35	0.65	0.67
1	0.83	19.24	0.76	18.95	1.05	19.14	0.86	0.89
2	1.25	19.10	0.90	18.85	1.15	19.01	0.99	1.01
3	1.67	19.00	1.00	18.75	1.25	18.90	1.10	1.12
4	2.08	18.90	1.10	18.60	1.40	18.80	1.20	1.23
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!

Signature \

Company Name

: Land marks.Co.

Project

: Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alamein to Foka

Test Date

: 28/11/2022

report date

: 29/11/2022

Location

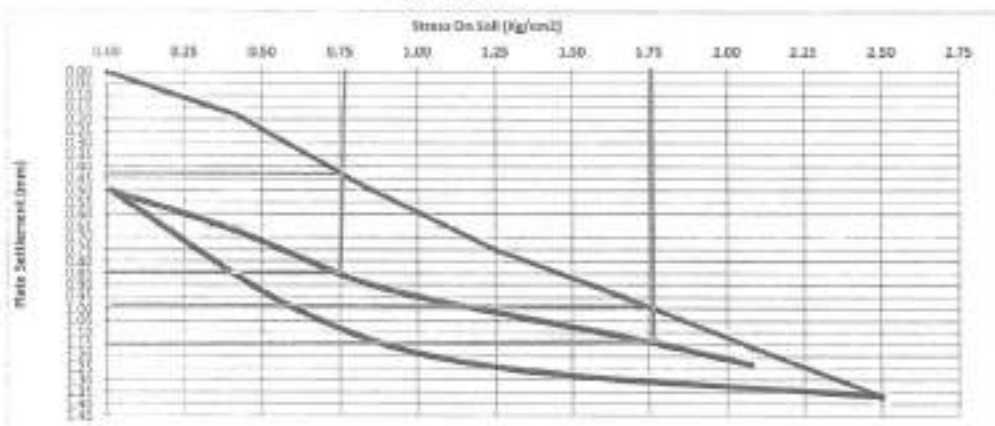
: Station 424+700 to 424+750

Test No.

: 03

Nonrepetitive Static Plate Load Tests of Soils

DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.6	3532.5	4719.4	5878.1	7095
Stress (Kg/cm²)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.18	0.45	0.75	0.95	1.16	1.37

UnLoading (1)	1	2	3	4
Stage(Kg)	7095	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.825	0.01
Settlement (mm)	1.37	1.24	1.01	0.60

D (mm) =	600	S1 (mm) =	0.43	S2 (mm) =	1.00	ΔS =	0.57
Ev1 (kg/cm²) =	(0.75 * D * ΔS) / ΔS						
	789						

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.6	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.60	0.67	0.89	1.01	1.12	1.23

Ev2/Ev1 = 1.9

D (mm) =	600	S1 (mm) =	0.85	S2 (mm) =	1.15	ΔS =	0.30
Ev2 (kg/cm²) =	(0.75 * D * ΔS) / ΔS						
	1500						

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 210-111-937
 2022/11/29

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Releasing stage.

D = Plate diameter (mm)

ΔS = The difference between 0.3 and 0.7 from the maximum loading (σmax) (kg/cm²)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) - Alamein to Foka
Test Date : 28/11/2022
report date : 29/11/2022
Location : Station 424+750 to 424+780
Test No. : 04

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	20.00	0.00	0.00
1	0.42	19.80	0.20	19.72	0.28	19.65	0.35	0.28
2	0.83	19.60	0.40	19.50	0.50	19.40	0.60	0.50
3	1.25	19.27	0.73	19.20	0.80	19.10	0.90	0.81
4	1.67	19.00	1.00	18.90	1.10	18.70	1.30	1.13
5	2.08	18.80	1.20	18.60	1.40	18.40	1.60	1.40
6	2.50	18.62	1.38	18.40	1.60	18.20	1.80	1.59

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.62	1.38	18.40	1.60	18.20	1.80	1.59
2	1.25	18.70	1.30	18.50	1.50	18.35	1.65	1.48
3	0.625	18.90	1.10	18.70	1.30	18.57	1.43	1.28
4	0.01	19.30	0.70	19.00	1.00	18.90	1.10	0.93

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.20	0.80	18.90	1.10	18.80	1.20	1.03
1	0.83	19.00	1.00	18.70	1.30	18.65	1.35	1.22
2	1.25	18.90	1.10	18.62	1.38	18.40	1.60	1.36
3	1.67	18.75	1.25	18.54	1.46	18.35	1.65	1.45
4	2.08	18.65	1.35	18.40	1.60	18.30	1.70	1.55
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!

Signature

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ش الملك الأفضل
الزمالك - القاهرة
تليفون - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name

: Land marks Co.

Project

: Electric Express Train, from Al Ain Soltana to Marsa Matrouh Priority Sector (6) - Alamein to Foka

Test Date

: 28/11/2022

report date

: 29/11/2022

Location

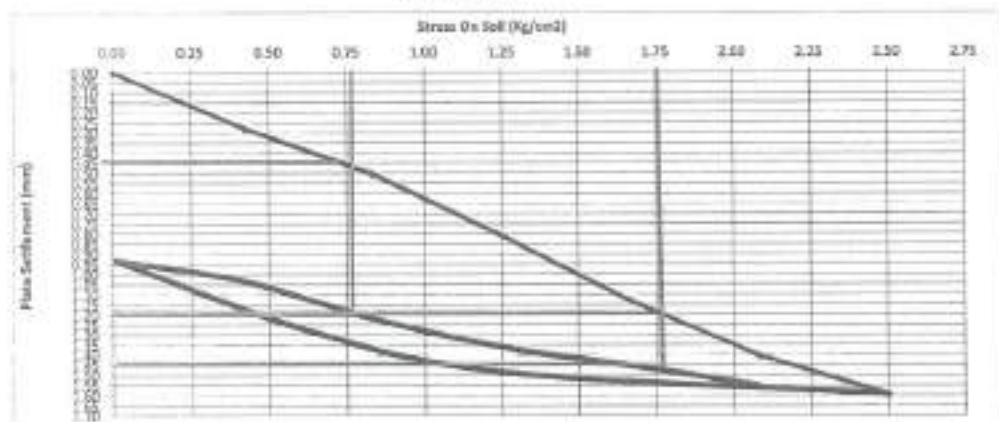
: Station 424+750 to 424+780

Test No.

: 04

Nonrepetitive Static Plate Load Tests of Soils

DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.6	3532.5	4719.4	5878.1	7065
Stress (Kg/cm2)	0.00	0.42	0.83	1.25	1.67	2.08	2.60
Settlement (mm)	0.00	0.28	0.50	0.81	1.13	1.40	1.69

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm2)	2.50	1.25	0.625	0.01
Settlement (mm)	1.59	1.48	1.28	0.93

D (mm) =	600	S1 (mm) =	0.45	S2(mm) =	1.20	ΔS =	0.75
Fv1 (kg/cm2) =	(9.75*D*Δs)/ΔS						
	608						

$$Ev2/Ev1 = 3.0$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.6	3532.5	4719.4	5878.1
Stress (Kg/cm2)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.93	1.03	1.22	1.36	1.45	1.55

D (mm) =	600	S1 (mm) =	1.20	S2(mm) =	1.45	ΔS =	0.25
Ev2 (kg/cm2) =	(9.75*D*Δs)/ΔS						
	1866						

Signature: 
 21/11/2022
 27367231 - 27363093

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

MATERIAL INSPECTION REQUEST



مركز المراقبة والقياس
لجودة الطرق وبنية
البنية التحتية
نظارة النقل والبنية التحتية
الوطنية

الهيئة العامة
للجودة والكفاءة
(GAPB)



14.11.29

Contractor Company	Landmarks for general contracting		Designer Company	SGAC																
Issued by Contractor	Name أحمد أبو بكر	Sign أحمد أبو بكر	Date 16/11/2023	Time 11:00																
Received by ER		MIR	<table border="1"> <tr> <td>C1</td> <td>C2</td> <td>C3</td> <td>DD</td> <td>MM</td> <td>YY</td> <td>HH</td> <td>MM</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		C1	C2	C3	DD	MM	YY	HH	MM								
C1	C2	C3	DD	MM	YY	HH	MM													

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

Description of Materials					
Location to be Used 425+300-425+600 (-0.5) 425+300-425+600 (-0.25)					
MAR Approval No		Date			
Supplier Name		Specification			
Test Requirement		Clause			
Reference Photos		Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	Sieve analysis	M³	5000	21/01/2023	
2	Classification	M³	5000	21/01/2023	
3	Proctor & O.M.C	M³	5000	21/01/2023	
4	L.L & P.L & PI	M³	5000	21/01/2023	
5	C.B.R	M³	5000	21/01/2023	
Comments by:		Comments by:			
APPROVAL STATUS					
Organisation	Name أحمد أبو بكر	Sign أحمد أبو بكر	Date 16/11	A-AWC-R	
Contractor				A	
QA/QC*	Kamal			A	
GARB**	M. Nesim				
Employers Representative					

* Designer
** Alignment / Bridges: Culvert Only

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 10/01/2023
Reporting Date : 16/01/2023
Reporting No. : 50
Sample No. : 27

Dear Gentleman,

Attached here with the Soil Embankment delivered on 10/01/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /


المهندس الدكتور أحمد الأفيل
Dr. El-Malek El-Afadel
1600-005 - 5827
مكتب معامل الاستشارات الهندسية

3 El Malek El Afadal Street
Zamalek, Cairo,
Tel. & Fax : 27367231 - 27363093



ش. المالك الأفيل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Sample No. : 27

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Passing %
50	100
37.5	94.9
25	90.4
19	79.3
12.50	70.1
9.50	60.6
4.75	47.4
2.36	45.9
2.00	42.1
1.18	40.2
0.600	33.9
0.425	30.2
0.300	27.2
0.150	15.8

Signature

[illegible]

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 10/01/2023
Reporting Date : 16/01/2023
Reporting No. : 50
Sample No. : 27

Materials finer than 75 μ m (no.200) sieve
by washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	13.6

Signature /



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 10/01/2023
Reporting Date : 16/01/2023
Reporting No. : 50
Sample No. : 27

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

Signature /
المهندس /
Dr. Mohamed Elmaghrabi
Dr. Mohamed Elmaghrabi
Dr. Mohamed Elmaghrabi

3 El Malek El Afdal Street
Zamalek, Cairo.
Tel. & Fax : 27367231 - 27363093



ش. الملك الافضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 10/01/2023
Reporting Date : 16/01/2023
Reporting No. : 50
Sample No. : 27

Soil Classification According to Project Specs (Embankment)

TEST	Results (%)	Limits according Projects Specs	
• Group Classification	(A-1-b)	(A-1-a)	(A-1-b)
2.00 mm (No.10).	42.1	Max 50 %	-----
0.425 mm (No. 40).	30.2	Max 30 %	Max 50 %
0.075 mm (No. 200).	13.6	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)			
Liquid Limit	NP	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %

The test results are (✓) Comply - □ Not Comply) with specifications limits


 Signature /
 المهندس محمد المصري

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 10/01/2023
Reporting Date : 16/01/2023
Reporting No. : 50
Sample No. : 27

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	1.78
1.27	0.050	2.03
1.91	0.075	2.28
2.54	0.100	2.54
3.18	0.125	2.79
3.81	0.150	3.04
4.45	0.175	3.30
5.08	0.200	3.55
5.71	0.225	3.80
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	2.54	36.8

Notes :

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of 2.09 (gm/cm³) at 7.6% optimum water content.
- 3- Supcharge load: 4.5 kg.

Signature /

المهندس / محمد علي محمد علي
مهندس محامل الاستشارات الهندسية
رقم التسجيل 1337
1337
1337

Company Name : Land Marks

Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh

Location : St. (424+600) : (425+600)

Type of sample : Soil Embankment

Delivery Date : 10/01/2023

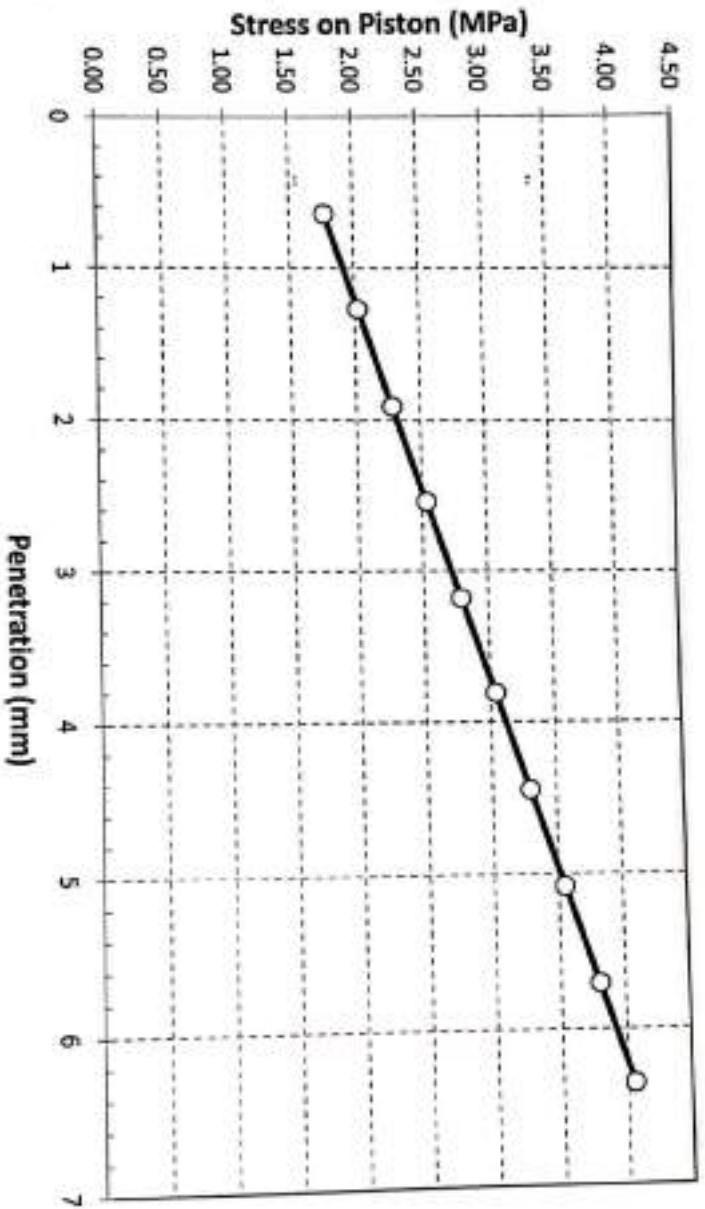
Reporting Date : 16/01/2023

Reporting No. : 50

Sample No. : 27

Load Penetration Curve of CBR Test

ASTM D-1883



Signature

[illegible]

MATERIAL INSPECTION REQUEST



مركز الاستشارات الهندسية
للنقل والبنى التحتية
(طرق وبنية تحتية)
دكتور/ محمد الجديوي

الهيئة العامة
للطرق والكباري
(GARB)



LM. 30

Contractor Company	Landmarks for general contracting		Designer Company	SGAC
Issued by Contractor	Name	Sign	Date	Time
	أحمد أبو بكر	أحمد أبو بكر	21/11/2023	1:00
Received by ER			MIR	

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

Description of Materials					
Location to be Used		424+880-424+900 (-5.5)		424+880-424+900 (-5.0)	
		425+000-425+020 (-6.0)		424+600-424+780 (-5.5)	
MAR Approval No				Date	
Supplier Name					
Test Requirement		Specification		Clause	
Reference Photos		Yes attached / No		Other	
Item	Description	Unit	Quantity	Arrival Date	Note
1	Sieve analysis	M ³	5000	24/4/2022	
2	Classification	M ³	5000	24/4/2022	
3	Proctor & O.M.C	M ³	5000	24/4/2022	
4	L.L & P.L & PI	M ³	5000	24/4/2022	
5	C.B.R	M ³	5000	24/4/2022	
Comments by:			Comments by:		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	أحمد أبو بكر	أحمد أبو بكر	21/11/2023	A
QA/QC *	Ramzi			A
GARB**	M. Negrin			
Employers Representative				

* Designer
** Alignment / Bridges: Culvert Only

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 15/01/2023
Reporting Date : 21/01/2023
Reporting No. : 51
Sample No. : 28

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Passing %
50	100
37.5	95.6
25	91.2
19	76.2
12.50	68.3
9.50	58.4
4.75	49.1
2.36	46.9
2.00	41.2
1.18	37.7
0.600	30.8
0.425	27.8
0.300	22.3
0.150	14.8

Signature /



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 15/01/2023
Reporting Date : 21/01/2023
Reporting No. : 51
Sample No. : 28

**Materials finer than 75 μ m (no.200) sieve
by washing ASTM D-1140.**

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	12.9

Signature /



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 15/01/2023
Reporting Date : 21/01/2023
Reporting No. : 51
Sample No. : 28

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

Signature



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 15/01/2023
Reporting Date : 21/01/2023
Reporting No. : 51
Sample No. : 28

Soil Classification According to Project Specs (Embankment)

TEST	Results (%)	Limits according Projects Specs	
		(A-1-a)	(A-1-b)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)
2.00 mm (No.10).	41.2	Max 50 %	-----
0.425 mm (No. 40).	27.8	Max 30 %	Max 50 %
0.075 mm (No. 200).	12.9	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)			
Liquid Limit	NP	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature



Company Name : Land Marks

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh

Location : St. (424+600) : (425+600)

Type of sample : Soil Embankment

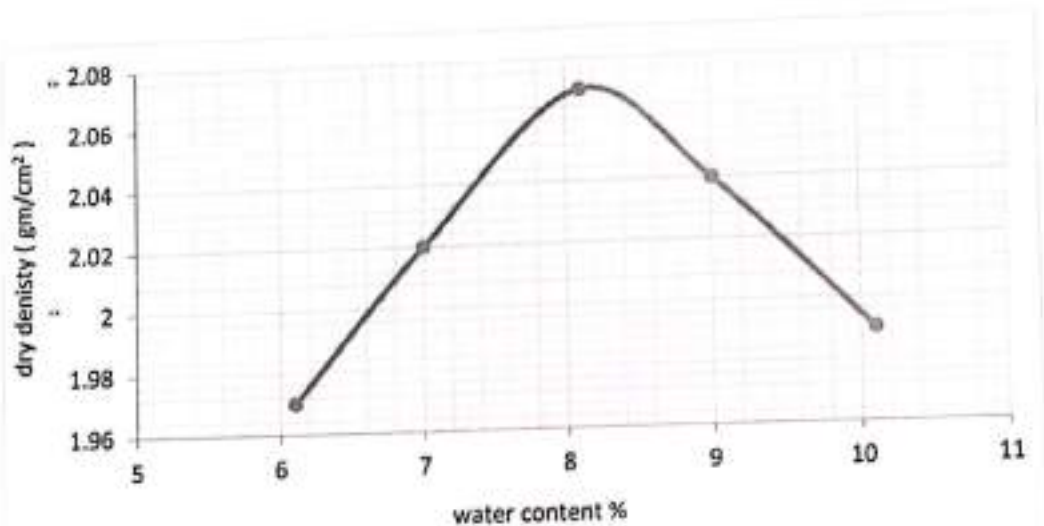
Delivery Date : 15/01/2023

Reporting Date : 21/01/2023

Reporting No. : 51

Sample No. : 28

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.07
- Optimum moisture content % : 8.1

Signature



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 15/01/2023
Reporting Date : 21/01/2023
Reporting No. : 51
Sample No. : 28

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	2.38
1.27	0.050	2.64
1.91	0.075	2.89
2.54	0.100	3.14
3.18	0.125	3.40
3.81	0.150	3.65
4.45	0.175	3.91
5.08	0.200	4.16
5.71	0.225	4.41
6.35	0.250	4.67

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.6
	6.90	3.14	

Notes :

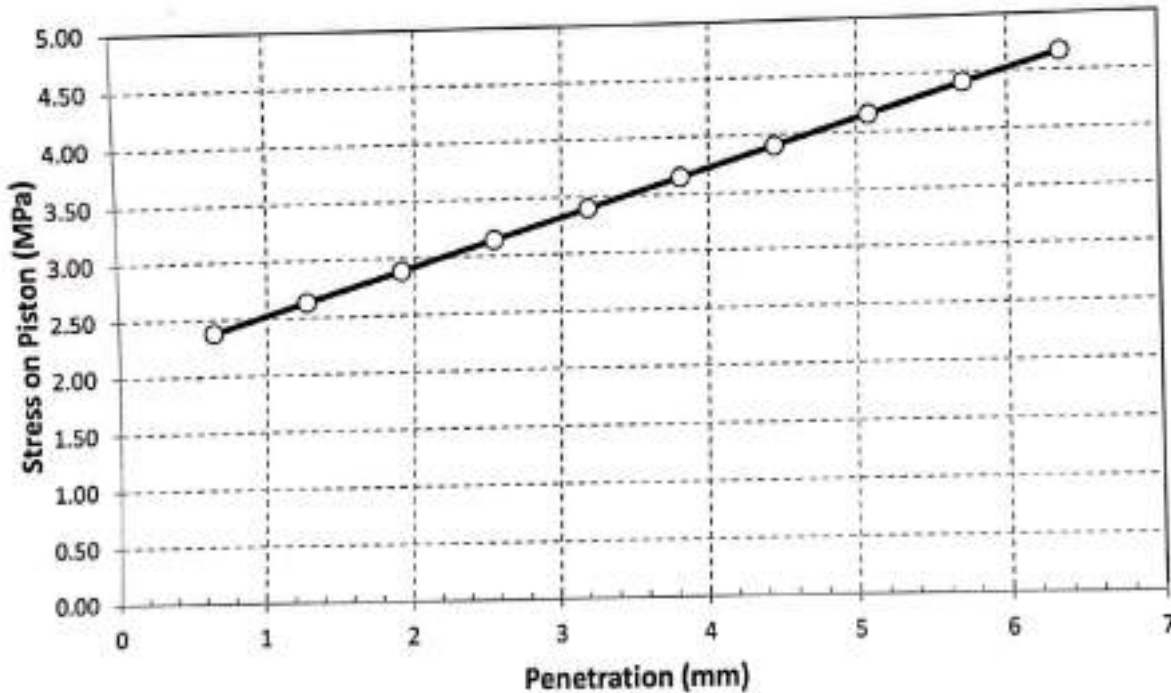
- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of 2.07 (gm /cm³) at 8.1% optimum water content
- 3- Surcharge load 4.50 Kg

Signature /


 م.ع.ع.ب.ل
 م.ع.ع.ب.ل
 م.ع.ع.ب.ل

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 15/01/2023
Reporting Date : 21/01/2023
Reporting No. : 51
Sample No. : 28

Load Penetration Curve of CBR Test ASTM D-1883



Signature / ...



MATERIAL INSPECTION REQUEST



مركز المراقبة المدنية
مركز المراقبة المدنية
(Civil Engineering Center)
مركز المراقبة المدنية
(Civil Engineering Center)

المساحة والمساحة
المساحة والمساحة
(Area and Area)
(Area and Area)



M.M. 51

Contractor Company	Landmarks for general contracting		Designer Company	SGAC																
Issued by Contractor	Name أحمد أبو بكر	Sign أحمد أبو بكر	Date 24/11/2023	Time 10:45																
Received by ER			MIR	<table border="1"> <tr> <td>CI</td> <td>CC</td> <td>CA</td> <td>DD</td> <td>MM</td> <td>YY</td> <td>HH</td> <td>MM</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	CI	CC	CA	DD	MM	YY	HH	MM								
CI	CC	CA	DD	MM	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	Sub Element of Activity		

Description of Materials	425+300-425+600 (-2.5) 425+100-425+160 (-1.0)				
Location to be Used					
MAR Approval No		Date			
Supplier Name		Specification	Clause		
Test Requirement		Other			
Reference Photos	Yes attached / No				
Item	Description	Unit	Quantity	Arrival Date	Note
1	Sieve analysis	M³	5000	15/1/2023	
2	Classification	M³	5000	15/1/2023	
3	Proctor & O.M.C	M³	5000	15/1/2023	
4	L.L & P.L & PI	M³	5000	15/1/2023	
5	C.B.R	M³	5000	15/1/2023	
Comments by:		Comments by:			

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	أحمد أبو بكر	أحمد أبو بكر	24/11	A
QA/QC*	Ramad			A
GARB**	M. K. S. S. S.			
Employers Representative				

* Designer
** Alignment / Bridges: Culvert Only

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 18/01/2023
Reporting Date : 24/01/2023
Station : (425+450)
Level : (-2.50) from Ferna
Reporting No. : 11
Sample No. : 05

Dear Gentleman,

Attached here with the Soil Embankment delivered on 18/01/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /...



3 El Malek El Afdal Street
Zamalek, Cairo.
Tel. & Fax : 27367231 - 27363093



3 شارع المملك الاقصى
الزمالك - القاهرة
تليفون + فاكس : 27367231 - 27363093
www.cel-egypt.com

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 18/01/2023
Reporting Date : 24/01/2023
Station : (425+450)
Level : (-2.50) from Ferna
Reporting No. : 11
Sample No. : 05

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Passing %
50	98.4
37.5	90.3
25	85.4
19	77.1
12.50	63.6
9.50	54.7
4.75	43.9
2.36	40.2
2.00	38.1
1.18	34.9
0.600	32.9
0.425	27.0
0.300	22.8
0.150	16.6

Signature /

CEL
مكتب معامل الاستشارات الهندسية
المعامل الرئيسي
بمصر - شارع مصر - 117 - 118 - 119
0111-594-1577 - 0111-594-1578
0111-594-1579 - 0111-594-1580

2

3 El Malek El Afdal Street
Zamalek, Cairo.
Tel. & Fax : 27367231 - 27363093

IAS
ACCREDITED
Testing Laboratory

ش. الصالح الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٣٣١ - ٢٧٣٦٧٣٣٢
www.cel-egypt.com

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 18/01/2023
Reporting Date : 24/01/2023
Station : (425+450)
Level : (-2.50) from Ferma
Reporting No. : 11
Sample No. : 05

Materials finer than 75 μ m (no.200) sieve
by washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	14.3

Signature /


 مكتب محامل الاستشارات الهندسية
 المحاميل بالقاهرة
 رقم سجل تجاري 837-801-818
 ج.ب. 1 : 13135 - 13135 - 13135 - 13135

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 18/01/2023
Reporting Date : 24/01/2023
Station : (425+450)
Level : (-2.50) from Ferna
Reporting No. : 11
Sample No. : 05

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	24.1
Plastic Limit	19.7
Plasticity Index	4.4

CEL
مكتب معامل الاستشارات الهندسية
المعامل القومية
بمصر الجديدة
3 El Malek El Afdal Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27363093

4

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 18/01/2023
Reporting Date : 24/01/2023
Station : (425+450)
Level : (-2.50) from Ferna
Reporting No. : 11
Sample No. : 05

Soil Classification According to Project Specs (Embankment)

TEST	Results (%)	Limits according Projects Specs	
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)
2.00 mm (No.10).	38.1	Max 50 %	-----
0.425 mm (No. 40).	27.0	Max 30 %	Max 50 %
0.075 mm (No. 200).	14.3	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)			
Liquid Limit	24.1	-----	-----
Plasticity index	4.4	Max 6 %	Max 6 %

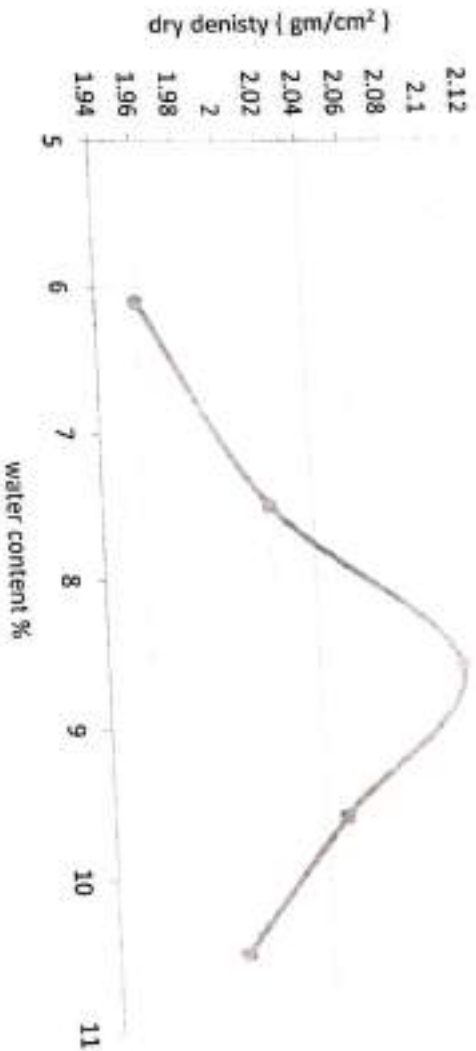
The test results are ☒ Comply - ☐ Not Comply with specifications limits

Signature /

CEL
مكتب معامل الاستشارات الهندسية
المعامل القاهري
2010-2011-2012
2013-2014-2015-2016-2017-2018-2019-2020-2021-2022-2023-2024-2025-2026-2027-2028-2029-2030-2031-2032-2033-2034-2035-2036-2037-2038-2039-2040-2041-2042-2043-2044-2045-2046-2047-2048-2049-2050-2051-2052-2053-2054-2055-2056-2057-2058-2059-2060-2061-2062-2063-2064-2065-2066-2067-2068-2069-2070-2071-2072-2073-2074-2075-2076-2077-2078-2079-2080-2081-2082-2083-2084-2085-2086-2087-2088-2089-2090-2091-2092-2093-2094-2095-2096-2097-2098-2099-2100-2101-2102-2103-2104-2105-2106-2107-2108-2109-2110-2111-2112-2113-2114-2115-2116-2117-2118-2119-2120-2121-2122-2123-2124-2125-2126-2127-2128-2129-2130-2131-2132-2133-2134-2135-2136-2137-2138-2139-2140-2141-2142-2143-2144-2145-2146-2147-2148-2149-2150-2151-2152-2153-2154-2155-2156-2157-2158-2159-2160-2161-2162-2163-2164-2165-2166-2167-2168-2169-2170-2171-2172-2173-2174-2175-2176-2177-2178-2179-2180-2181-2182-2183-2184-2185-2186-2187-2188-2189-2190-2191-2192-2193-2194-2195-2196-2197-2198-2199-2200-2201-2202-2203-2204-2205-2206-2207-2208-2209-2210-2211-2212-2213-2214-2215-2216-2217-2218-2219-2220-2221-2222-2223-2224-2225-2226-2227-2228-2229-2230-2231-2232-2233-2234-2235-2236-2237-2238-2239-2240-2241-2242-2243-2244-2245-2246-2247-2248-2249-2250-2251-2252-2253-2254-2255-2256-2257-2258-2259-2260-2261-2262-2263-2264-2265-2266-2267-2268-2269-2270-2271-2272-2273-2274-2275-2276-2277-2278-2279-2280-2281-2282-2283-2284-2285-2286-2287-2288-2289-2290-2291-2292-2293-2294-2295-2296-2297-2298-2299-2300-2301-2302-2303-2304-2305-2306-2307-2308-2309-2310-2311-2312-2313-2314-2315-2316-2317-2318-2319-2320-2321-2322-2323-2324-2325-2326-2327-2328-2329-2330-2331-2332-2333-2334-2335-2336-2337-2338-2339-2340-2341-2342-2343-2344-2345-2346-2347-2348-2349-2350-2351-2352-2353-2354-2355-2356-2357-2358-2359-2360-2361-2362-2363-2364-2365-2366-2367-2368-2369-2370-2371-2372-2373-2374-2375-2376-2377-2378-2379-2380-2381-2382-2383-2384-2385-2386-2387-2388-2389-2390-2391-2392-2393-2394-2395-2396-2397-2398-2399-2400-2401-2402-2403-2404-2405-2406-2407-2408-2409-2410-2411-2412-2413-2414-2415-2416-2417-2418-2419-2420-2421-2422-2423-2424-2425-2426-2427-2428-2429-2430-2431-2432-2433-2434-2435-2436-2437-2438-2439-2440-2441-2442-2443-2444-2445-2446-2447-2448-2449-2450-2451-2452-2453-2454-2455-2456-2457-2458-2459-2460-2461-2462-2463-2464-2465-2466-2467-2468-2469-2470-2471-2472-2473-2474-2475-2476-2477-2478-2479-2480-2481-2482-2483-2484-2485-2486-2487-2488-2489-2490-2491-2492-2493-2494-2495-2496-2497-2498-2499-2500-2501-2502-2503-2504-2505-2506-2507-2508-2509-2510-2511-2512-2513-2514-2515-2516-2517-2518-2519-2520-2521-2522-2523-2524-2525-2526-2527-2528-2529-2530-2531-2532-2533-2534-2535-2536-2537-2538-2539-2540-2541-2542-2543-2544-2545-2546-2547-2548-2549-2550-2551-2552-2553-2554-2555-2556-2557-2558-2559-2560-2561-2562-2563-2564-2565-2566-2567-2568-2569-2570-2571-2572-2573-2574-2575-2576-2577-2578-2579-2580-2581-2582-2583-2584-2585-2586-2587-2588-2589-2590-2591-2592-2593-2594-2595-2596-2597-2598-2599-2600-2601-2602-2603-2604-2605-2606-2607-2608-2609-2610-2611-2612-2613-2614-2615-2616-2617-2618-2619-2620-2621-2622-2623-2624-2625-2626-2627-2628-2629-2630-2631-2632-2633-2634-2635-2636-2637-2638-2639-2640-2641-2642-2643-2644-2645-2646-2647-2648-2649-2650-2651-2652-2653-2654-2655-2656-2657-2658-2659-2660-2661-2662-2663-2664-2665-2666-2667-2668-2669-2670-2671-2672-2673-2674-2675-2676-2677-2678-2679-2680-2681-2682-2683-2684-2685-2686-2687-2688-2689-2690-2691-2692-2693-2694-2695-2696-2697-2698-2699-2700-2701-2702-2703-2704-2705-2706-2707-2708-2709-2710-2711-2712-2713-2714-2715-2716-2717-2718-2719-2720-2721-2722-2723-2724-2725-2726-2727-2728-2729-2730-2731-2732-2733-2734-2735-2736-2737-2738-2739-2740-2741-2742-2743-2744-2745-2746-2747-2748-2749-2750-2751-2752-2753-2754-2755-2756-2757-2758-2759-2760-2761-2762-2763-2764-2765-2766-2767-2768-2769-2770-2771-2772-2773-2774-2775-2776-2777-2778-2779-2780-2781-2782-2783-2784-2785-2786-2787-2788-2789-2790-2791-2792-2793-2794-2795-2796-2797-2798-2799-2800-2801-2802-2803-2804-2805-2806-2807-2808-2809-2810-2811-2812-2813-2814-2815-2816-2817-2818-2819-2820-2821-2822-2823-2824-2825-2826-2827-2828-2829-2830-2831-2832-2833-2834-2835-2836-2837-2838-2839-2840-2841-2842-2843-2844-2845-2846-2847-2848-2849-2850-2851-2852-2853-2854-2855-2856-2857-2858-2859-2860-2861-2862-2863-2864-2865-2866-2867-2868-2869-2870-2871-2872-2873-2874-2875-2876-2877-2878-2879-2880-2881-2882-2883-2884-2885-2886-2887-2888-2889-2890-2891-2892-2893-2894-2895-2896-2897-2898-2899-2900-2901-2902-2903-2904-2905-2906-2907-2908-2909-2910-2911-2912-2913-2914-2915-2916-2917-2918-2919-2920-2921-2922-2923-2924-2925-2926-2927-2928-2929-2930-2931-2932-2933-2934-2935-2936-2937-2938-2939-2940-2941-2942-2943-2944-2945-2946-2947-2948-2949-2950-2951-2952-2953-2954-2955-2956-2957-2958-2959-2960-2961-2962-2963-2964-2965-2966-2967-2968-2969-2970-2971-2972-2973-2974-2975-2976-2977-2978-2979-2980-2981-2982-2983-2984-2985-2986-2987-2988-2989-2990-2991-2992-2993-2994-2995-2996-2997-2998-2999-3000-3001-3002-3003-3004-3005-3006-3007-3008-3009-3010-3011-3012-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Company Name : Land Marks
project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 18/01/2023
Reporting Date : 24/01/2023
Station : (425+450)
Level : (-2.50) from Fenna
Reporting No. : 11
Sample No. : 05

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.11
- Optimum moisture content % : 8.6

Signature /



- Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 21/01/2023
Reporting Date : 26/01/2023
Reporting No. : 53
Sample No. : 30

Dear Gentleman,

Attached here with the Soil Embankment delivered on 21/01/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /
مكتب معامل الاستشارات الهندسية
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Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 21/01/2023
Reporting Date : 26/01/2023
Reporting No. : 53
Sample No. : 30

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Passing %
50	100
37.5	94.7
25	88.4
19	80.7
12.50	72.6
9.50	60.4
4.75	50.1
2.36	46.6
2.00	43.8
1.18	40.2
0.600	33.9
0.425	29.9
0.300	24.0
0.150	15.8

Signature

مكتب معامل الاستشارات الهندسية
المعتمد من قبل
رقم التسجيل: 2710-001-1937
رقم الترخيص: 1937-001-2710
مكتب معامل الاستشارات الهندسية - القاهرة

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Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 21/01/2023
Reporting Date : 26/01/2023
Reporting No. : 53
Sample No. : 30

Materials finer than 75 μ m (no.200) sieve
by washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	13.8

Signature /

Mohamed Elmaghrabi
Head of Laboratory

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 21/01/2023
Reporting Date : 26/01/2023
Reporting No. : 53
Sample No. : 30

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

Signature /.....

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Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 21/01/2023
Reporting Date : 26/01/2023
Reporting No. : 53
Sample No. : 30

Soil Classification According to Project Specs (Embankment)

TEST	Results (%)	Limits according Projects Specs	
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)
2.00 mm (No.10).	43.8	Max 50 %	-----
0.425 mm (No. 40).	29.9	Max 30 %	Max 50 %
0.075 mm (No. 200).	13.8	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)			
Liquid Limit	NP	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %

The test results are (✓) Comply - □ Not Comply) with specifications limits

Signature


مهندس محمد عبد الله محمد
مهندس محامل الاستشارات الهندسية

5

مكتبة معامل الاستشارات الهندسية

Company Name : Land Marks

Project

: Electric Express Train, from Al Ain Sokhna to Marsa Matrouh

Location

$$: \text{St. (424+600)} : (425+600)$$

Type of sample

: Soil Embankment

Delivery Date

21/01/2023

Reporting Date

26/01/2023

Reporting No.

53

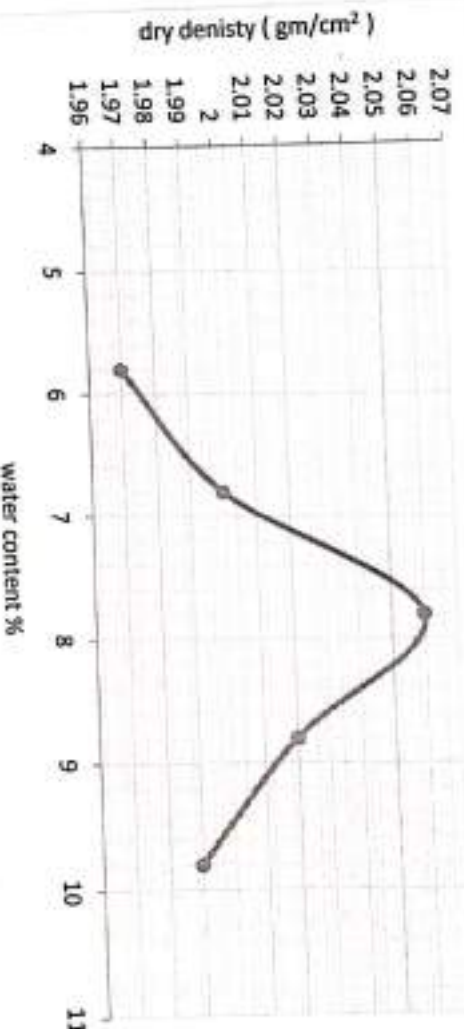
-Sample No.

: 30

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.06
- Optimum moisture content % : 7.8

Signature

[illegible]

Company Name	: Land Marks
Project	: Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location	: St. (424+600) : (425+600)
Type of sample	: Soil Embankment
Delivery Date	: 21/01/2023
Reporting Date	: 26/01/2023
Reporting No.	: 53
Sample No.	: 30

Test Results of California Bearing Ratio on Base Materials

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	1.67
1.27	0.050	1.93
1.91	0.075	2.18
2.54	0.100	2.43
3.18	0.125	2.69
3.81	0.150	2.94
4.45	0.175	3.20
5.08	0.200	3.45
5.71	0.225	3.70
6.35	0.250	3.96

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3
	6.90	2.43	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $2.06 \text{ (gm/cm}^3\text{)}$ at 7.8% optimum water content.
- 3- Saturated at 4.50 KPa ($2.5 \times 10^{-3} \text{ N/mm}^2$)

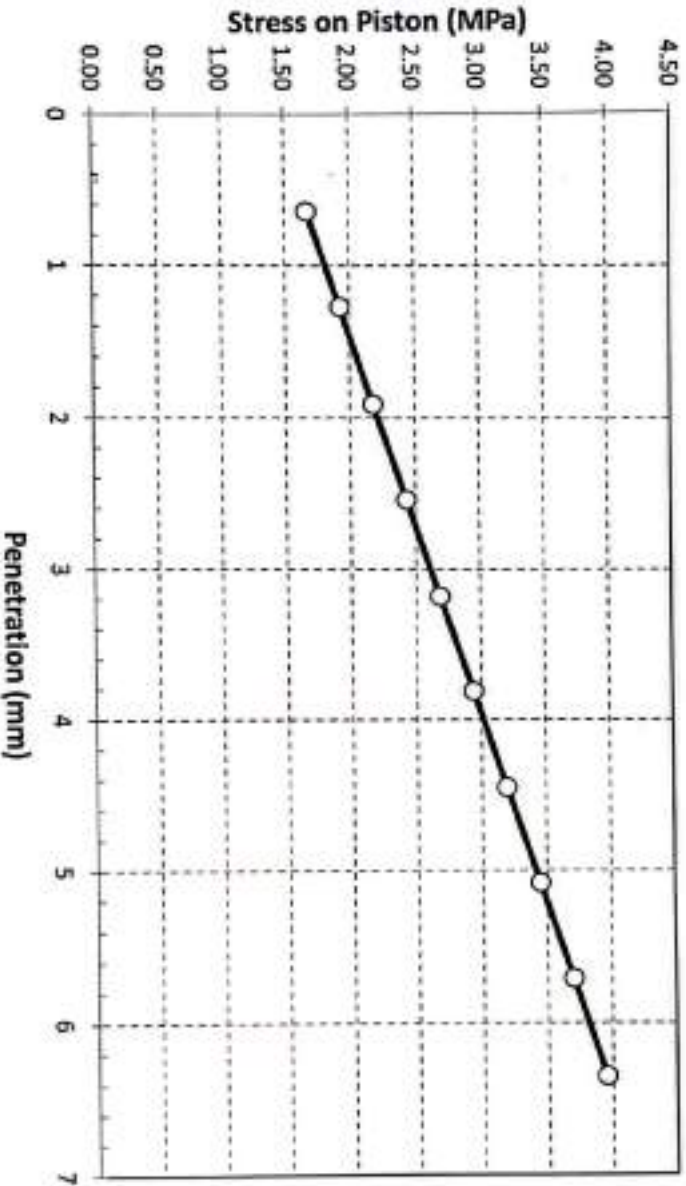
Signature /

at 7.8% optimum water content.
Surcharge total 4.50 K²

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. (424+600) : (425+600)
Type of sample : Soil Embankment
Delivery Date : 21/01/2023
Reporting Date : 26/01/2023
Reporting No. : 53
Sample No. : 30

Load Penetration Curve of CBR Test

ASTM D-1883



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MATERIAL INSPECTION REQUEST



مركز إشراف البنية التحتية
شؤون الطرق والجسور
(إدارة البنية التحتية)
بالتعاون مع إدارة الطرق والجسور

إدارة البنية التحتية
للمطارات والكباري
(GARB)



14.4.53

Contractor Company	Landmarks for general contracting		Designer Company	SGAC																
Issued by Contractor	Name احمد ابوبكر	Sign احمد ابوبكر	Date 2/2/2023	Time 4:00																
Received by ER			MIR	<table border="1"> <tr> <td>CI</td> <td>CR</td> <td>CS</td> <td>DD</td> <td>MM</td> <td>YY</td> <td>HH</td> <td>MM</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	CI	CR	CS	DD	MM	YY	HH	MM								
CI	CR	CS	DD	MM	YY	HH	MM													

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

Description of Materials	425+340-425+600 (-5.0)				
Location to be Used			Date		
MAR Approval No					
Supplier Name		Specification	Clause		
Test Requirement					
Reference Photos	Yes attached / No	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	Sieve analysis	M³	5000	18/12/2022	
2	Classification	M³	5000	18/12/2022	
3	Proctor & O.M.C	M³	5000	18/12/2022	
4	LL & PL & PI	M³	5000	18/12/2022	
5	C.B.R	M³	5000	18/12/2022	
Comments by:		Comments by:			

APPROVAL STATUS			
Organisation	Name	Sign	Date
Contractor	احمد ابوبكر	احمد ابوبكر	2/2
QA/QC*	Ramel		
GARB**	m. Hegm		
Employers Representative			

* Designer
** Alignment / Bridges: Culvert Only

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 26/01/2023
Reporting Date : 02/02/2023
Station : (425+500): (425+600)
Level : (-1.50)
Reporting No. : 15
Sample No. : 04

Dear Gentleman,

Attached here with the Soil Embankment delivered on 26 / 01 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /

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للمواد
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Tel: 27367231 - 27363093

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RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Passing %
50	100
37.5	92.0
25	81.7
19	63.6
12.50	58.8
9.50	52.3
4.75	49.2
2.36	47.9
2.00	40.0
1.18	38.2
0.600	36.6
0.425	33.8
0.300	22.1
0.150	15.1

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 26/01/2023
Reporting Date : 02/02/2023
Station : (425+500): (425+600)
Level : (-1.50)
Reporting No. : 15
Sample No. : 04

Materials finer than 75 μ m (no.200) sieve
by washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	13.2

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في حضور مدير المختبر / مدير المختبر

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 26/01/2023
Reporting Date : 02/02/2023
Station : (425+500): (425+600)
Level : (-1.50)
Reporting No. : 15
Sample No. : 04

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

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المسجل بالقطر رقم ٢١١٠-٥٨١-٥٨٧
في مدينة خورわか, قطر
تلفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 26/01/2023
Reporting Date : 02/02/2023
Station : (425+500); (425+600)
Level : (-1.50)
Reporting No. : 15
Sample No. : 04

Soil Classification According to Project Specs (Embankment)

TEST	Results (%)	Limits according Projects Specs	
• Group Classification	(A-1-b)	(A-1-a)	(A-1-b)
2.00 mm (No.10).	40.0	Max 50 %	-----
0.425 mm (No. 40).	33.8	Max 30 %	Max 50 %
0.075 mm (No. 200).	13.2	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)			
Liquid Limit	NP	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

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المعامل الهندسية
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27367231 - 27363093

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تليفون + فاكس

: Land Marks

: Electric Express Train, from Al Ain Sokhna to Marsa Matrouh

: Soil Embankment

26/01/2023

: 02/02/2023

$$: (425+500): (425+600)$$
$$\therefore (-1.50)$$

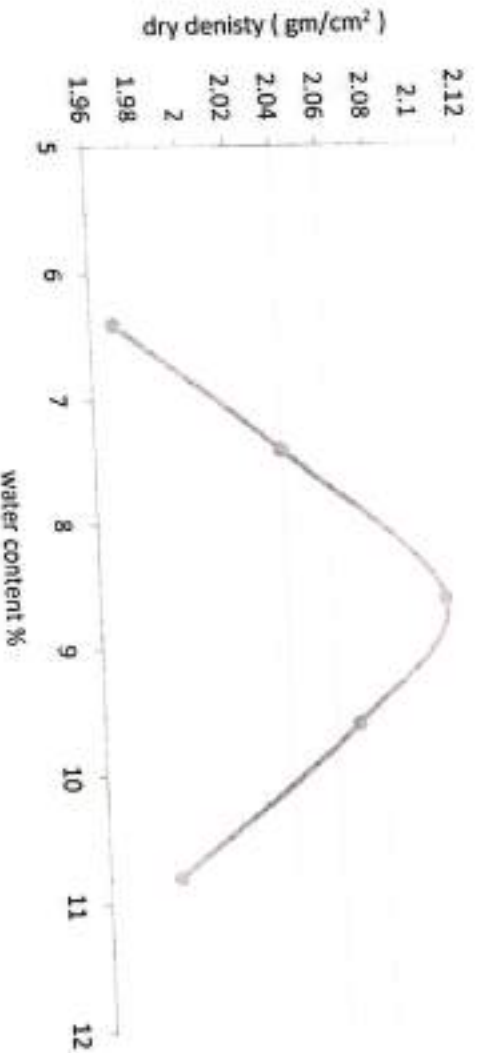
: 15

:04

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm^3) : 2.11
- Optimum moisture content % : 8.6

Signature _____

[illegible]

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 26/01/2023
Reporting Date : 02/02/2023
Station : (425+500): (425+600)
Level : (-1.50)
Reporting No. : 15
Sample No. : 04

Test Results of California Bearing Ratio on Base Materials

ASTM D 1883

penetration		stress on piston (Mpa)	
mm	Inch		
0.64	0.025	1.53	
1.27	0.050	1.80	
1.91	0.075	2.08	
2.54	0.100	2.39	
3.18	0.125	2.72	
3.81	0.150	3.02	
4.45	0.175	3.22	
5.08	0.200	3.42	
5.71	0.225	3.67	
6.35	0.250	4.03	
CBR Result		Stress (Mpa)	
At 0.1 inch (2.54 mm) penetration		St. Value	Sample results
		6.90	2.39
		CBR %	
		34.7	

Notes:

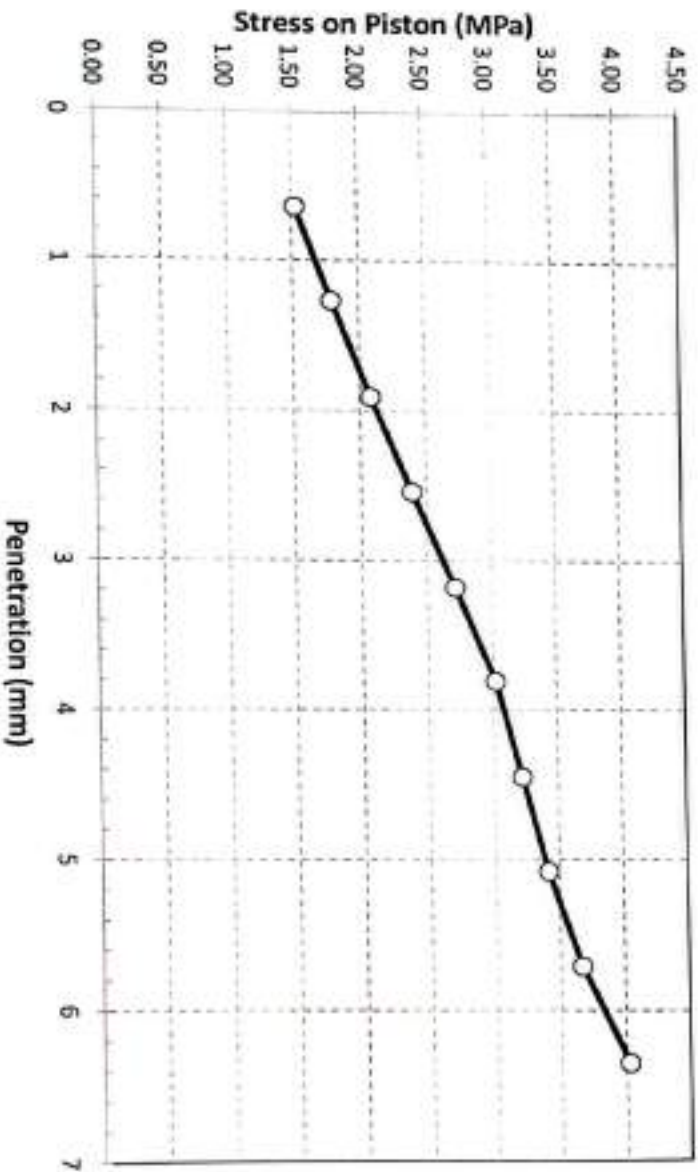
- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of 2.11 (gm /cm³) at 8.6 % optimum water content.
- 3- Surcharge load 4.50 kg

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مكتب معامل الاستشارات الهندسية
210-881657
210-881657

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Soil Embankment
Delivery Date : 26/01/2023
Reporting Date : 02/02/2023
Station : (425+500): (425+600)
Level : (-1.50)
Reporting No. : 15
Sample No. : 04

Load Penetration Curve of CBR Test
ASTM D-1883



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قائمة الكميات الواردة بالمستخلص جاري (٢)

اعمال الجسر الترابي لمشروع القطار الكهربائي السريع (العين السخنة -العاصمة الادارية -العلمين - مطروح) قطاع (العلمين
-فوكة) لتنفيذ المسافة من الكم ٤٢٤+٦٠٠ الى الكم ٤٢٥+٦٠٠ بطول ١ كم اتجاه النوبارية

رقم البند و بيانه : (١-٣) اعمال تحميل وتوريد ونقل التربة صالحة للردم مطابقة للمواصفات

تنفيذ : شركة لاندماركس للمقاولات العمومية

مقدار العمل السابق : م٣

الكمية	الابعاد (متر)		الموقع الكيلومري		بيان الاعمال بالمقاييس
	مساحة المقطع	طول	الى	من	
٩٥٧٧,٥٥٠	١٩,١٥٥	٥٠٠	٤٢٥+١٠٠	٤٢٤+٦٠٠	القطاع الأول
٧٥٦٥,٣٠٧	١٥,١٣١	٥٠٠	٤٢٥+٦٠٠	٤٢٥+١٠٠	القطاع الثاني
١٧١٤٢,٨٥٧	اجمالي الكميات خلال فترة المستخلص الحالية (م٣)				
١٧١٤٢,٨٥٧	الاجمالي الكلي (م٣)				

مهندس الهيئة

م / إبراهيم الحناوي

مهندس الاستشاري

مكتب د/ سعد الجيوشي

م / مصطفى نجم

مهندس الاستشاري

مكتب XYZ

م / محمد خليل

مهندس الشركة

م / احمد ابوبكر

احمد ابوبكر

قائمة الكميات الواردة بالمستخلص جاري (٢)

اعمال الجسر الترابي لمشروع القطار الكهربائي السريع (العين السخنة - العاصمة الادارية - العلمين - مطروح) قطاع
(العلمين - فوكة) لتنفيذ المسافة من الكم ٤٢٤+٦٠٠ الي الكم ٤٢٥+٦٠٠ بطول ١ كم اتجاه النوبارية

رقم البند و بيانه : (١-٣) علاوة مسافة النقل ١٥٥ كم

تنفيذ : شركة لاندماركس للمقاولات العمومية

مقدار العمل السابق : ٠,٠٠ ٣م

الكمية	الايبعاد (متر)		الموقع الكيلومتری		بيان الاعمال بالمقايضة
	مساحة المقطع	طول	الى	من	
٩٥٧٧,٥٥٠	١٩,١٥٥	٥٠٠	٤٢٥+١٠٠	٤٢٤+٦٠٠	القطاع الأول
٧٥٦٥,٣٠٧	١٥,١٣١	٥٠٠	٤٢٥+٦٠٠	٤٢٥+١٠٠	القطاع الثاني
١٧١٤٢,٨٥٧	اجمالي الكميات خلال فترة المستخلص الحالية (٣م)				
١٧١٤٢,٨٥٧	الاجمالي الكلي (٣م)				

مهندس الهيئة

م / إبراهيم التحتاوي

مهندس الاستشاري

مكتب د/سعد الجيوشي

م/مصطفى نجم

مهندس الاستشاري

مكتب XYZ

م / محمد خليل

مهندس الشركة

م / احمد ابوبكر

احمد ابو بكر

قائمة الكميات الواردة بالمستخلص جاري (٢)

اعمال الجسر الترابي لمشروع القطار الكهربائي السريع (العين السخنة - العاصمة الادارية - العلمين - مطروح) قطاع (العلمين - فوكة) لتنفيذ المسافة من الكم ٤٢٤+٦٠٠ الي الكم ٤٢٥+٦٠٠ بطول ١ كم اتجاه النوبارية

رقم البند و بيانه : (١-٣) علاوة تحصيل رسوم الكارثة والموازن طبقا للائحة الشركة الوطنية

تنفيذ : شركة لاندماركس للمقاولات العمومية

مقدار العمل السابق : ٠,٠٠ م٣

الكمية	الابعاد (متر)		الموقع الكيلومتری		بيان الاعمال بالمقايسة
	مساحة المقطع	طول	الى	من	
٩٥٧٧,٥٥٠	١٩,١٥٥	٥٠٠	٤٢٥+١٠٠	٤٢٤+٦٠٠	القطاع الأول
٧٥٦٥,٣٠٧	١٥,١٣١	٥٠٠	٤٢٥+٦٠٠	٤٢٥+١٠٠	القطاع الثاني
١٧١٤٢,٨٥٧	اجمالي الكميات خلال فترة المستخلص الحالية (م٣)				
١٧١٤٢,٨٥٧	الاجمالي الكلي (م٣)				

مهندس الهيئة

م / إبراهيم الحناوي

مهندس الاستشاري

مكتب د/سعد الجبوشي
م/مصطفى نجم

مهندس الاستشاري

مكتب XYZ
م / محمود خليل

مهندس الشركة

م / احمد ابوبكر

احمد ابوبكر

السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة.. وبعد،،

بالإحالة إلى مشروع القطار الكهربائي فائق السرعة (العلمين - فوكة) (القطاع السادس)
نتشرف بأن نرفق لسيادتك طيه المقايضة المعدلة بعد المفاوضة لبنود الأعمال بتاريخ
١٨-١٢-٢٠٢٣ للقطاع الآتي:

مسلسل	اسم الشركة	من المحطة	إلى المحطة	الاتجاه
١	لائتماركس للمقاولات العمومية	٤٢٤+٦٠٠	٤٢٥+٦٠٠	النوبارية

برجاء من سيادتكم التفضل بالأحاطه والتوجيه بالازم

وتفضلوا بقبول فائق الاحترام والتقدير،،،

رئيس الإدارة المركزية

المنطقة الخامسة غرب الدلتا



عميد مهندس/

"هاني محمد محمود طه"





مركز الاستشارات الهندسية
للنقل والطرق والمطارات
(خريدمولتيون)
دكتور/ سعد الجريشاني



الهيئة العامة
للطرق والكباري
(GAR)



وزارة النقل
MINISTRY OF TRANSPORT

مشروع القطار الكهربائي فائق السرعة قطاع (العلمين - فوكة)

المقايسة المعدلة بعد المفاوضة بتاريخ ١٨-١٢-٢٠٢٣ لتبني الأعمال تنفيذ شركة لاندماركس للمقاولات العمومية اتجاه النوبارية
القطاع من المحطة ٤٢٤+٦٠٠ إلى ٤٢٥+٦٠٠

رقم البند	بيان الأعمال	الوحدة	الكمية	القيمة	الاجمالي
٣	اصصال الرزم				
١-٣	بالمتر المكعب اصصال تحميل وتوريد ونقل اترية مطابقة للمواصفات وتشغيلها باستخدام آلات التسوية بسدك لا يزيد عن ٥٠ سم حتى منسوب ٢ متر ويسدك لا يزيد عن ٢٥ سم للاستكمال المنسوب التصعيبي لتشكيل الجسر والاكتاف (نسبة تحمل كاليفورنيا لا تقل عن ١٥%) ورشها بالمياه الاصوانية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة (٩٥% من الكثافة الجافة القصوى) ويتم التنفيذ طبقاً للمنسبب التصميمية والقطاعات العرضية التوضيحية والرسومات التفصيلية المصنعة والبند بجميع مشكلاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكباري وتعليمات المهندسين المشرفين - في حالة طلب جهاز الإشراف زيادة نسبة الدمك عن ٩٥% بحسب زيادة ١ جنيه على زيادة نسبة الدمك لكل ١% - مسافة النقل ٢ كم و يتم احتساب علاوة ١,٥ جنيه لكل كم بالزيادة - السعر يشمل عمل تشوينات وتخليط واختبارات ونقل لمواقع العمل - السعر يشمل قيمة المادة المحجورة	م ^٣	١٧١٤٢,٨٥٧	٩٠	١,٥٤٢,٨٥٧
	علاوة مسافة النقل ١٥٥ كم	م ^٣	١٧١٤٢,٨٥٧	٢٢٩,٥٠	٣,٩٣٤,٣٨٦
	علاوة تحصيل رسوم الكراتة والموازين طبقاً للاتحة للشركة الوطنية	م ^٣	١٧١٤٢,٨٥٧	١٣	٢٢٢,٨٥٧
	الإجمالي				٥,٧٠٠,٠٠٠
(خمس ملايين وسبعمائة ألفاً جنيه مصري فقط لا غير)					

مدير عام مشروعات الهيئة

م/محمد حسني قياض

مدير المشروع الهيئة

م/ابراهيم العناني

مدير المشروع الاستشاري

م/مصطفى نجم

مدير المشروع المقاول

م/احمد ابوبكر

احمد ابوبكر

بموجب
رئيس الادارة المركزية
منطقة غرب الدلتا

الاسكندرية - مرسى مطروح
عميد مهندس /

" هاني محمد محمود طه "

