

Company Name : Land Marks
Project : Electric Express Train. from Al Ain Sokhna to Marsa Matrouh
Type of sample : Sub-Ballast
Delivery Date : 02/04/2023
Reporting Date : 09/04/2023
Reporting No. : 21
Sample No. : 01

Dear Gentleman,

Attached here with the Sub-Ballast delivered on 02/04/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Proctor test according to ASTM D-1557.
5. Specific Gravity & Absorption according to ASTM C-127 & D 6473.
6. CBR according to ASTM D-1883
7. Los Anglos according to ASTM C-131.

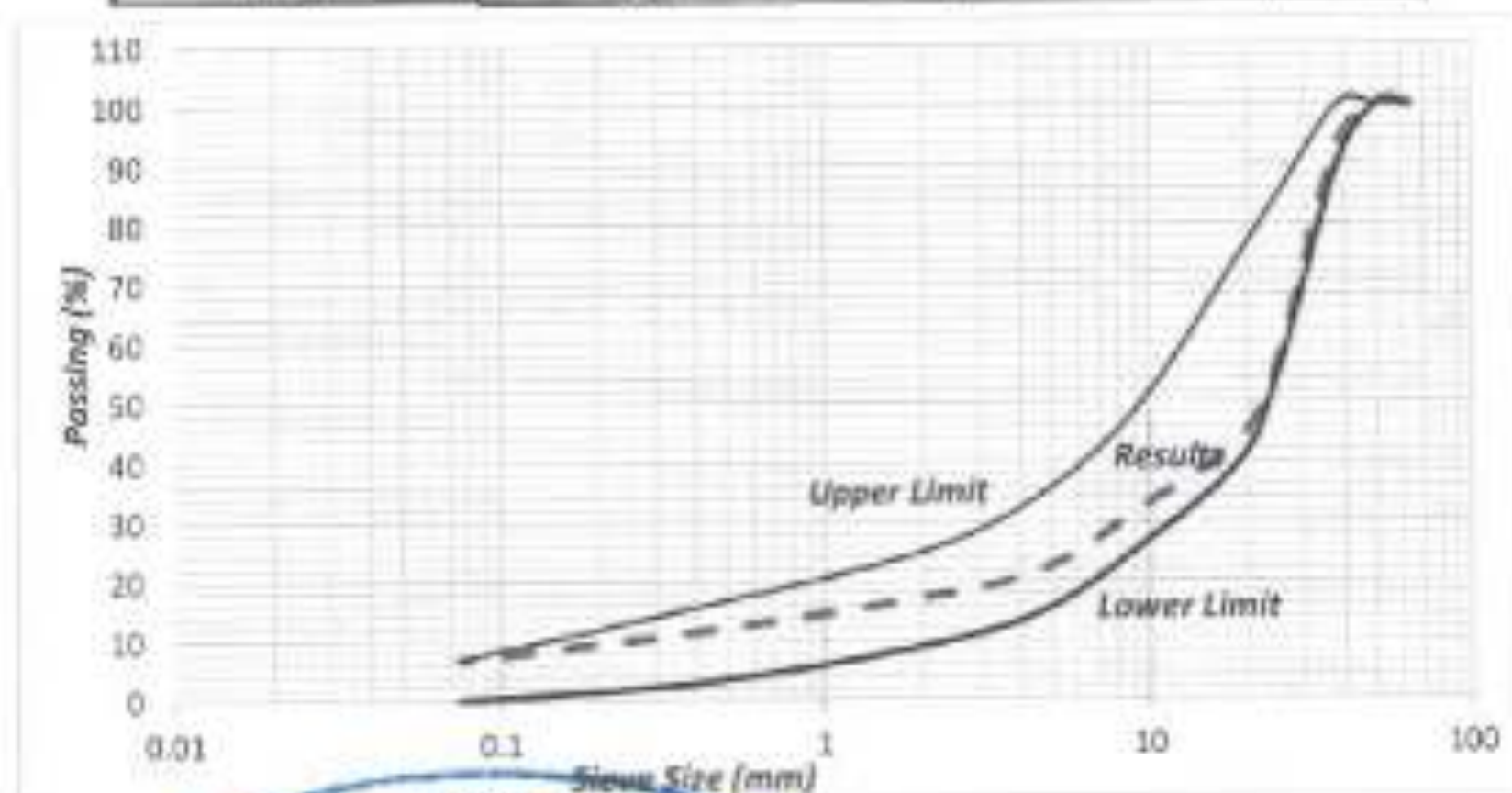
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /.....


Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Sub-Ballast
Delivery Date : 02/04/2023
Reporting Date : 09/04/2023
Reporting No. : 21
Sample No. : 01

Results of sieve analysis according to ASTM D-422.

Sieve Size (mm)	Passing %	Job specification limits (ASTM D-422)	
		Min.	Max.
63.5	100	100	100
50	100	100	100
38	93.1	90	100
25	56.8	55	85
19	43.7	40	75
12.5	34.9	—	—
9.5	32.3	26	50
4.75	22.0	15	35
2.00	17.2	9	25
0.425	11.7	3	16
0.075	6.8	0	7



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

Signature /

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Sub-Ballast
Delivery Date : 02/04/2023
Reporting Date : 09/04/2023
Reporting No. : 21
Sample No. : 01

**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)	6.8

Signature /.....



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Sub-Ballast
Delivery Date : 02/04/2023
Reporting Date : 09/04/2023
Reporting No. : 21
Sample No. : 01

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

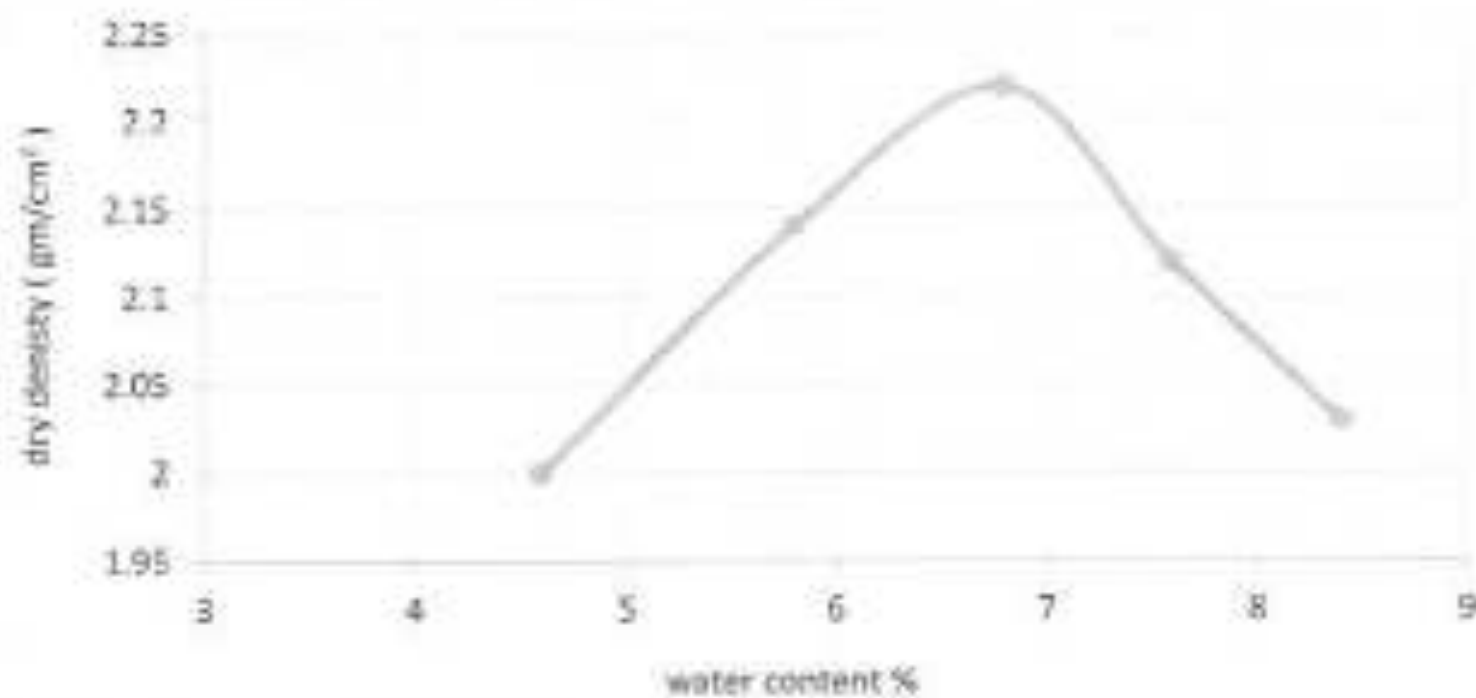
Test	Results (%)
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

Signature /



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Sub-Ballast
Delivery Date : 02/04/2023
Reporting Date : 09/04/2023
Reporting No. : 21
Sample No. : 01

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



- Max dry density (gm/cm³) : 2.22
- Optimum moisture content % : 6.8

Signature /



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Sub-Ballast
Delivery Date : 02/04/2023
Reporting Date : 09/04/2023
Reporting No. : 21
Sample No. : 01

Results of Specific Gravity and Absorption
of Course Aggregate
ASTM C127 & D 6473

Test	Results
Bulk Specific Gravity (OD)	2.32
Bulk Specific Gravity (SSD)	2.40
Apparent Specific Gravity.	2.52
Absorption %	2.41

Note:

- (OD) Refer to Oven Dry.
- (SSD) Refer to Saturated Surface Dry.

Signature /...



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Sub-Ballast
Delivery Date : 02/04/2023
Reporting Date : 09/04/2023
Reporting No. : 21
Sample No. : 01

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	4.07
1.27	0.050	4.59
1.91	0.075	5.10
2.54	0.100	5.58
3.18	0.125	6.11
3.81	0.150	6.59
4.45	0.175	7.10
5.08	0.200	7.61
5.71	0.225	8.11
6.35	0.250	8.62

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	80.9
	6.90	5.58	

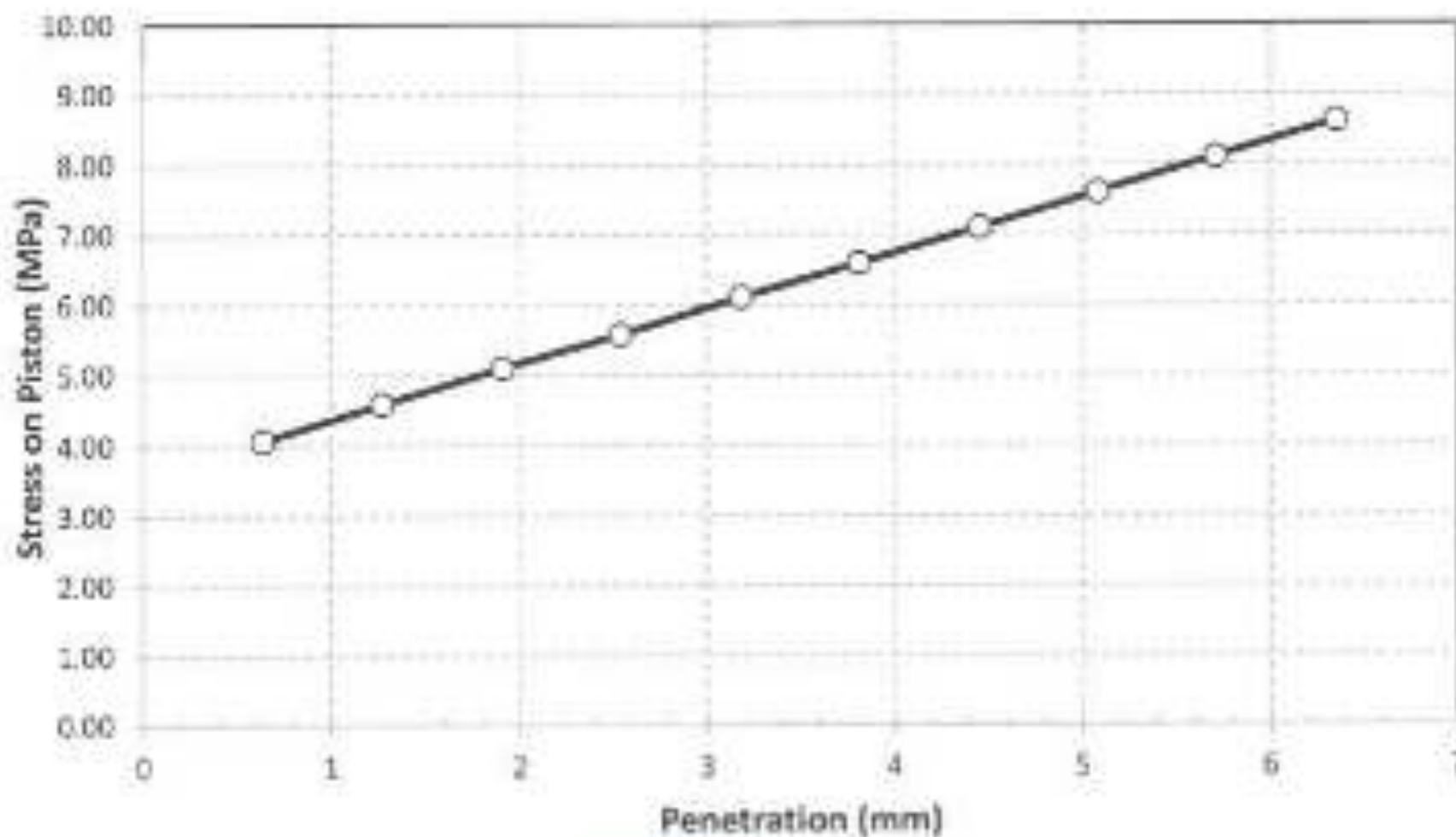
Notes :

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of 2.22 (gm/cm³) at 6.8% optimum water content.
- 3- Surcharge load 4.50 Kg.

Signature

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Sub-Ballast
Delivery Date : 02/04/2023
Reporting Date : 09/04/2023
Reporting No. : 21
Sample No. : 01

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /



Company:

Land marks

Project : Electric express train.
 Delivery Date : 06/04/2023
 Report Date : 12/04/2023
 Sample Id : Sub-ballast sample No.1
 Type : Coarse Aggregate
 Source : Site
 Report No. : 01

**RESISTANCE TO DEGRADATION
 OF SMALL SIZE AGGREGATE BY ABRASION
 AND IMPACT IN LOS ANGELES MACHINE
 ASTM C 535**

Test	Results
Amount of loss by abrasion and impact (%) Coarse Aggregate	19.7

- According to project specs :

The amount of loss by abrasion and impact for moderate weathering:

- Shall not exceed 30 % (when Subjected to 500 revolutions)

The Test Results is ☒ Comply • ☐ Not Comply) with Spec. Limits

Signature /.....



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 22
Sample No. : 01

Dear Gentleman,

Attached here with the Prepared Subgrade delivered on 13-04-2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Proctor test according to ASTM D-1557.
5. CBR according to ASTM D-1883
6. Los Anglos according to ASTM C-131.

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

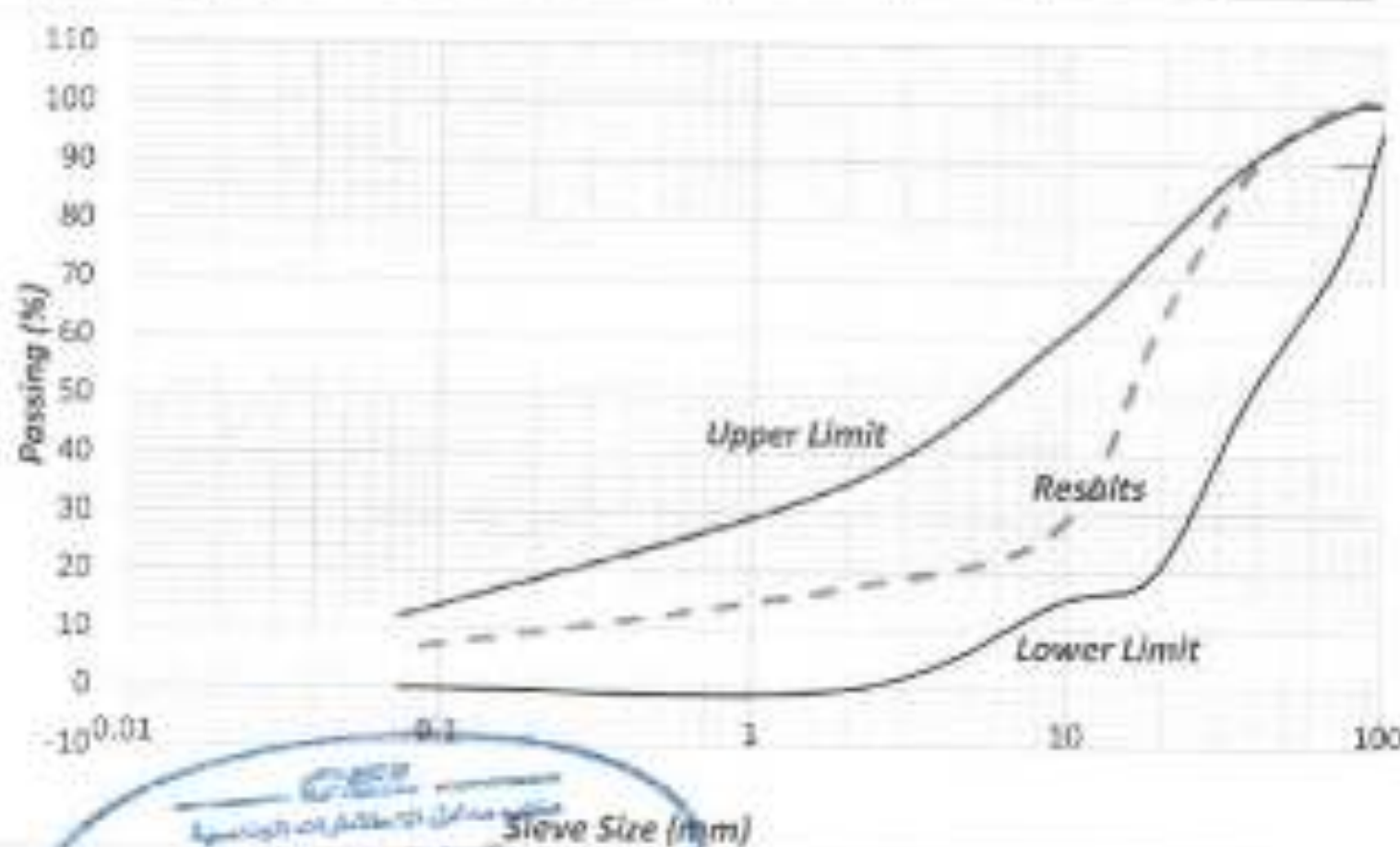
Signature /



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 22
Sample No. : 01

Results of sieve analysis according to ASTM D-422.

Sieve Size (mm)	Passing %	Job specification limits (ASTM D-422)	
		Min.	Max.
100	100	90	100
75	100	75	100
50	100	—	—
38	88.4	50	100
25	70.2	—	100
19	60.9	20	75
12.5	44.2	—	—
9.5	40.0	15	60
4.75	27.9	—	—
2.00	26.2	0	35
0.425	17.3	0	—
0.075	6.5	0	12



The test results are (☒ Comply ☐ Not Comply) with specifications limits.
Signature /

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 22
Sample No. : 01

**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)	6.5

Signature



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 22
Sample No. : 01

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

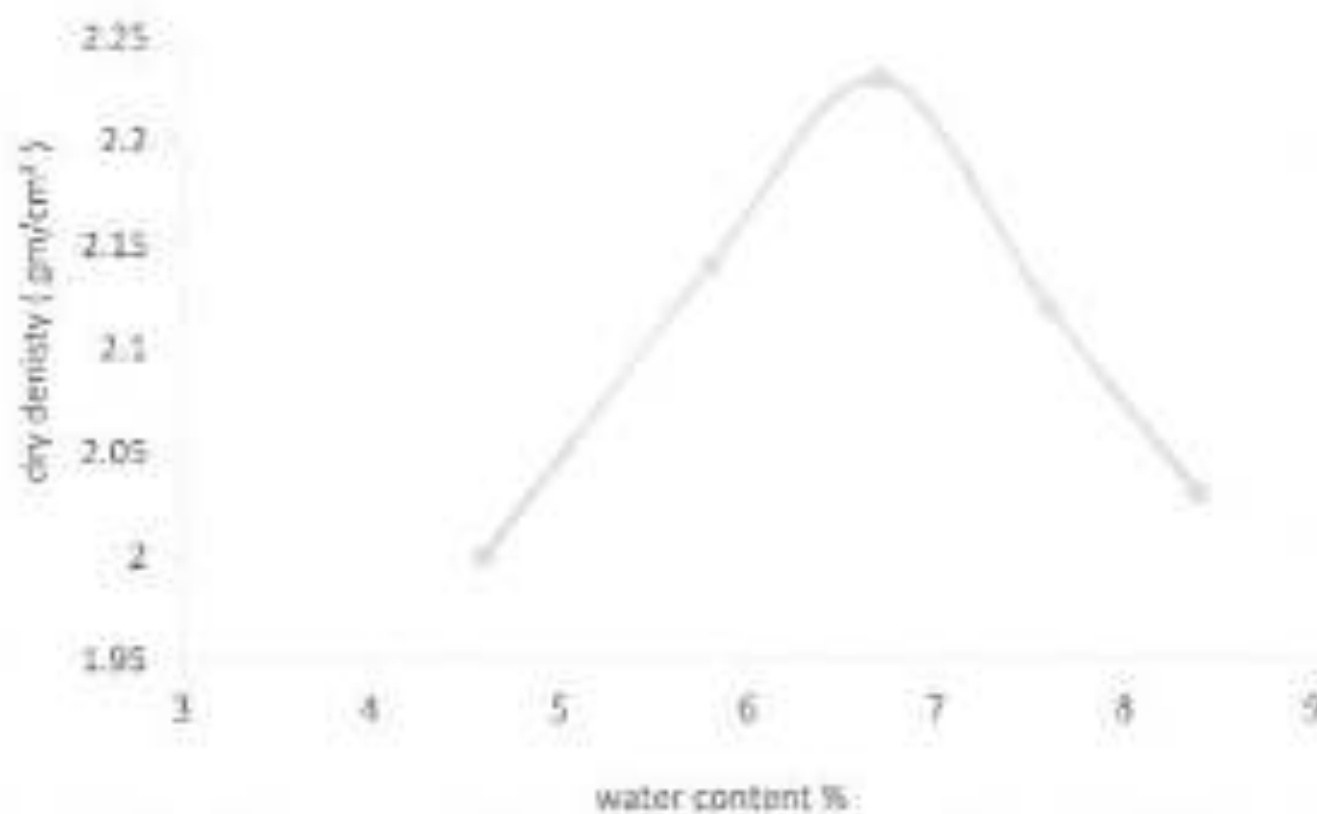
Test	Results (%)
Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP

Signature /



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 22
Sample No. : 01

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



- Max dry density (gm/cm³) : 2.23
- Optimum moisture content % : 6.7

Signature



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 22
Sample No. : 01

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	3.89
1.27	0.050	4.34
1.91	0.075	5.00
2.54	0.100	5.46
3.18	0.125	6.11
3.81	0.150	6.59
4.45	0.175	7.03
5.08	0.200	7.45
5.71	0.225	7.95
6.35	0.250	8.49

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	79.1
	6.90	5.46	

Notes :

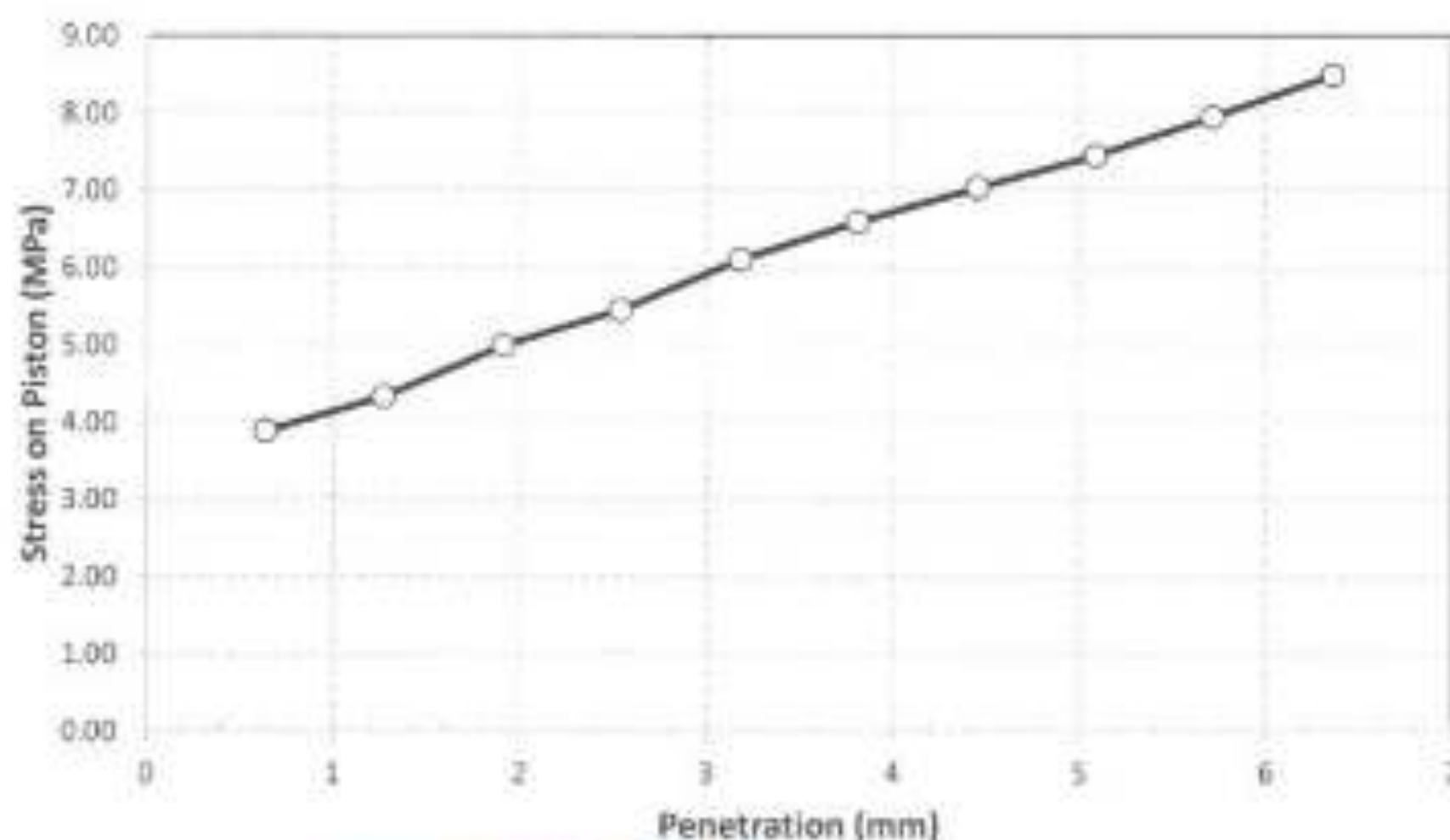
- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of 2.23 (gm/cm^3) at 6.7 % optimum water content.
- 3- Surcharge load = 50 Kg

Signature

[Signature]

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 22
Sample No. : 01

Load Penetration Curve of CBR Test
ASTM D-1883



Signature


 مكتب معامل الاستشارات الهندسية
 القاهرة - الجيزة
 ٢٧٣٦٢٣١ - ٢٧٣٦٢٣٢
 www.cel-egypt.com

Company:

Land marks

Project : Electric express train.
 Delivery Date : 01/05/2023
 Report Date : 15/05/2023
 Sample Id : Prepared subgrade sample No.1
 Type : Coarse Aggregate
 Source : Site
 Report No. : 01

RESISTANCE TO DEGRADATION OF SMALL SIZE AGGREGATE BY ABRASION AND IMPACT IN LOS ANGELES MACHINE ASTM C 535

Test	Results
Amount of loss by abrasion and impact (%) Coarse Aggregate	24.0

- According to project specs :

The amount of loss by abrasion and impact for moderate weathering:

- Shall not exceed 40 % (when Subjected to 500 revolutions)

The Test Results is ☒ **Comply** ☐ Not Comply) with Spec. Limits

Signature /...



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 23
Sample No. : 02

Dear Gentleman,

Attached here with the Prepared Subgrade delivered on 13-04-2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Proctor test according to ASTM D-1557.
5. CBR according to ASTM D-1883
6. Los Anglos according to ASTM C-131.

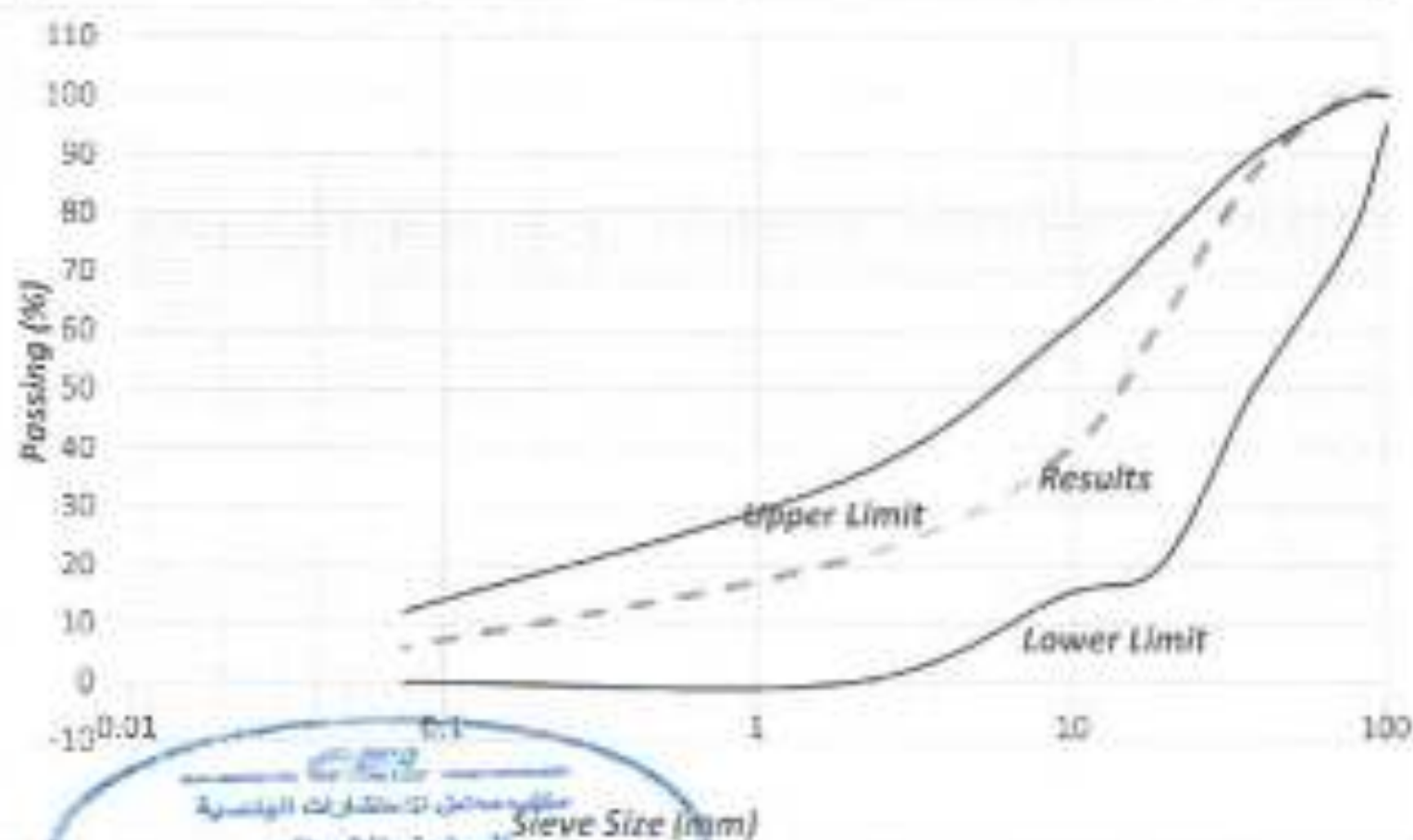
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 23
Sample No. : 02

Results of sieve analysis according to ASTM D-422.

Sieve Size (mm)	Passing %	Job specification limits (ASTM D-422)	
		Min.	Max.
100	100	90	100
75	100	75	100
50	100	—	—
38	86.9	50	100
25	72.3	—	100
19	61.6	20	75
12.5	43.2	—	—
9.5	39.2	15	60
4.75	24.6	—	—
2.00	21.3	0	35
0.425	15.0	0	—
0.075	6.5	0	12



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

Signature /

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 23
Sample No. : 02

**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)	5.9

Signature /...



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 23
Sample No. : 02

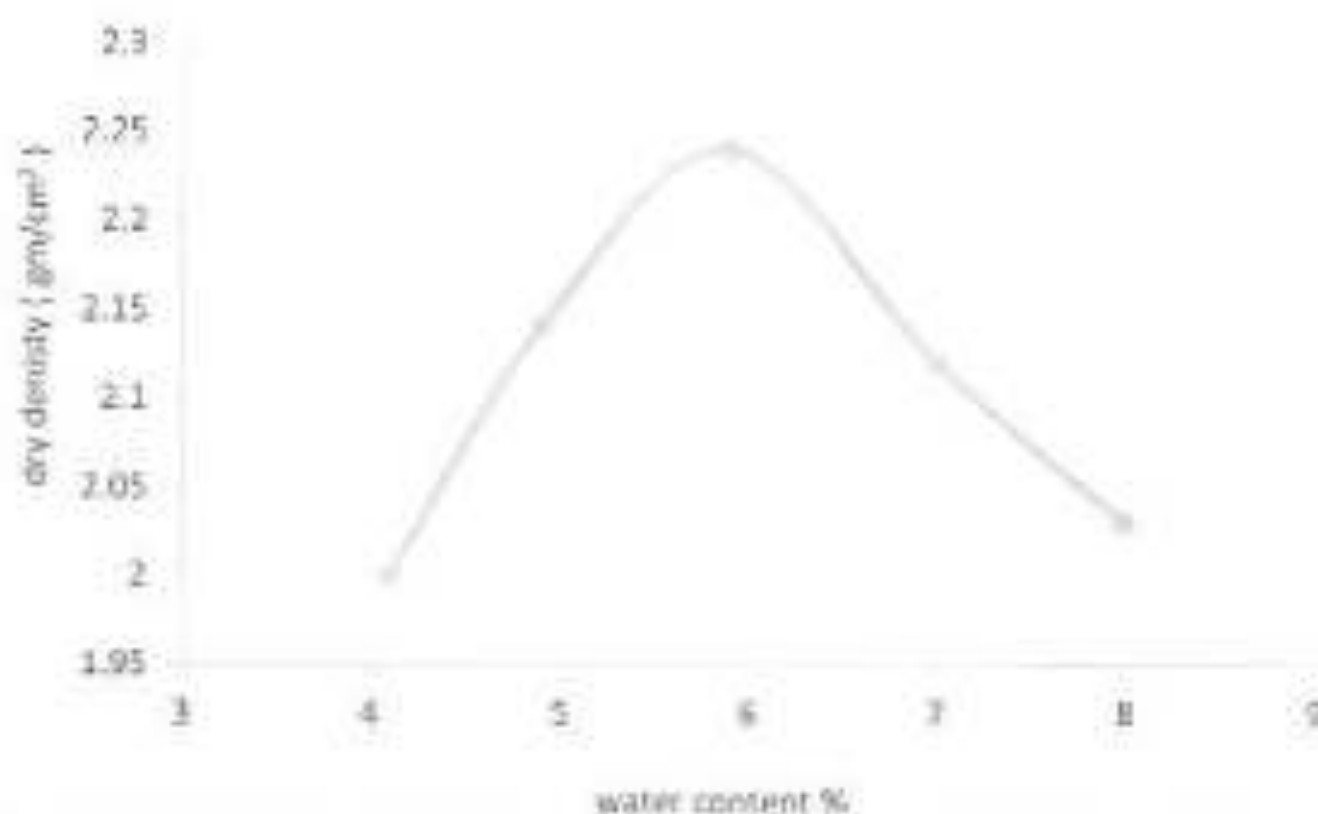
**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

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

Signature / ... The stamp is circular with the CEL logo at the top. Below the logo, it says 'مكتب معامل الاستشارات الهندسية' (Consulting Engineering Bureau & Laboratories) and 'البريد الإلكتروني' (Email). At the bottom, it lists 'رقب الترخيص: ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣' (License No: 27367231 - 27363093) and 'مركز التحليل: ١٠٢ شارع الملك فيصل' (Analysis Center: 102 King Faisal St).

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 23
Sample No. : 02

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



- Max dry density (gm/cm³) : 2.24
- Optimum moisture content % : 5.9

Signature /



Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 23
Sample No. : 02

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	4.06
1.27	0.050	4.34
1.91	0.075	4.56
2.54	0.100	4.91
3.18	0.125	5.40
3.81	0.150	5.70
4.45	0.175	6.14
5.08	0.200	6.64
5.71	0.225	7.09
6.35	0.250	7.48

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	71.7
	6.90	4.91	

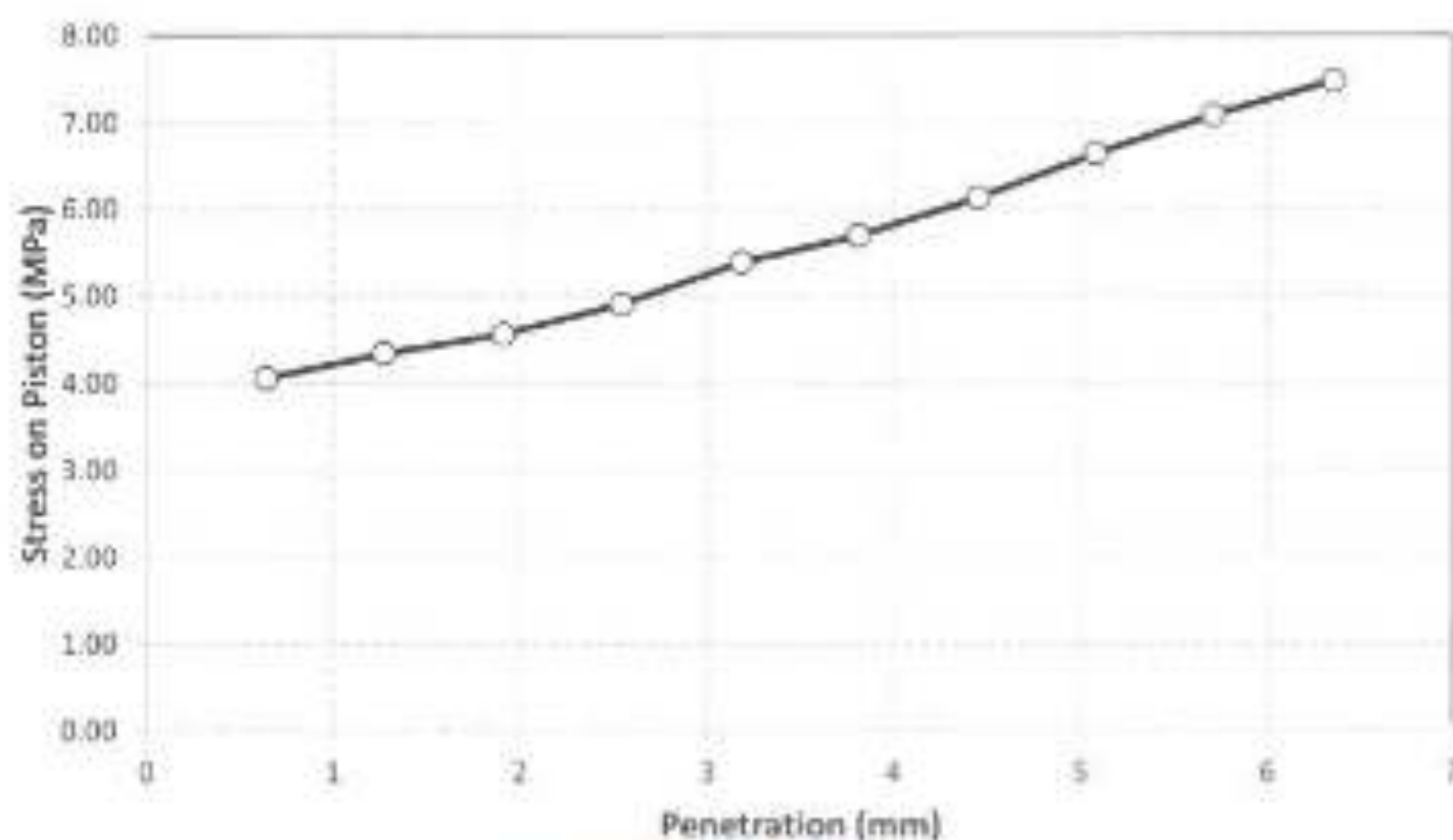
Notes :

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of 2.24 (gm / cm³) at 5.9% optimum water content.
- 3- Surcharge load 4.50 Kg

Signature / 

Company Name : Land Marks
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Type of sample : Prepared Subgrade
Delivery Date : 13-04-2023
Reporting Date : 17-04-2023
Reporting No. : 22
Sample No. : 01

Load Penetration Curve of CBR Test
ASTM D-1883



Signature


 مكتب محامل الاستشارات الهندسية
 المهندس / محمد علي
 ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣٢
 ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣٢

Company:

Land marks

Project : Electric express train.
 Delivery Date : 01/05/2023
 Report Date : 15/05/2023
 Sample Id : Prepared subgrade sample No.2
 Type : Coarse Aggregate
 Source : Site
 Report No. : 02

**RESISTANCE TO DEGRADATION
 OF SMALL SIZE AGGREGATE BY ABRASION
 AND IMPACT IN LOS ANGELES MACHINE
 ASTM C 535**

Test	Results
Amount of loss by abrasion and impact (%) Coarse Aggregate	23.2

- According to project specs :

The amount of loss by abrasion and impact for moderate weathering:

- Shall not exceed 40 % (when Subjected to 500 revolutions)

The Test Results is ☒ **Comply** - ☐ **Not Comply** with Spec. Limits

Signature /

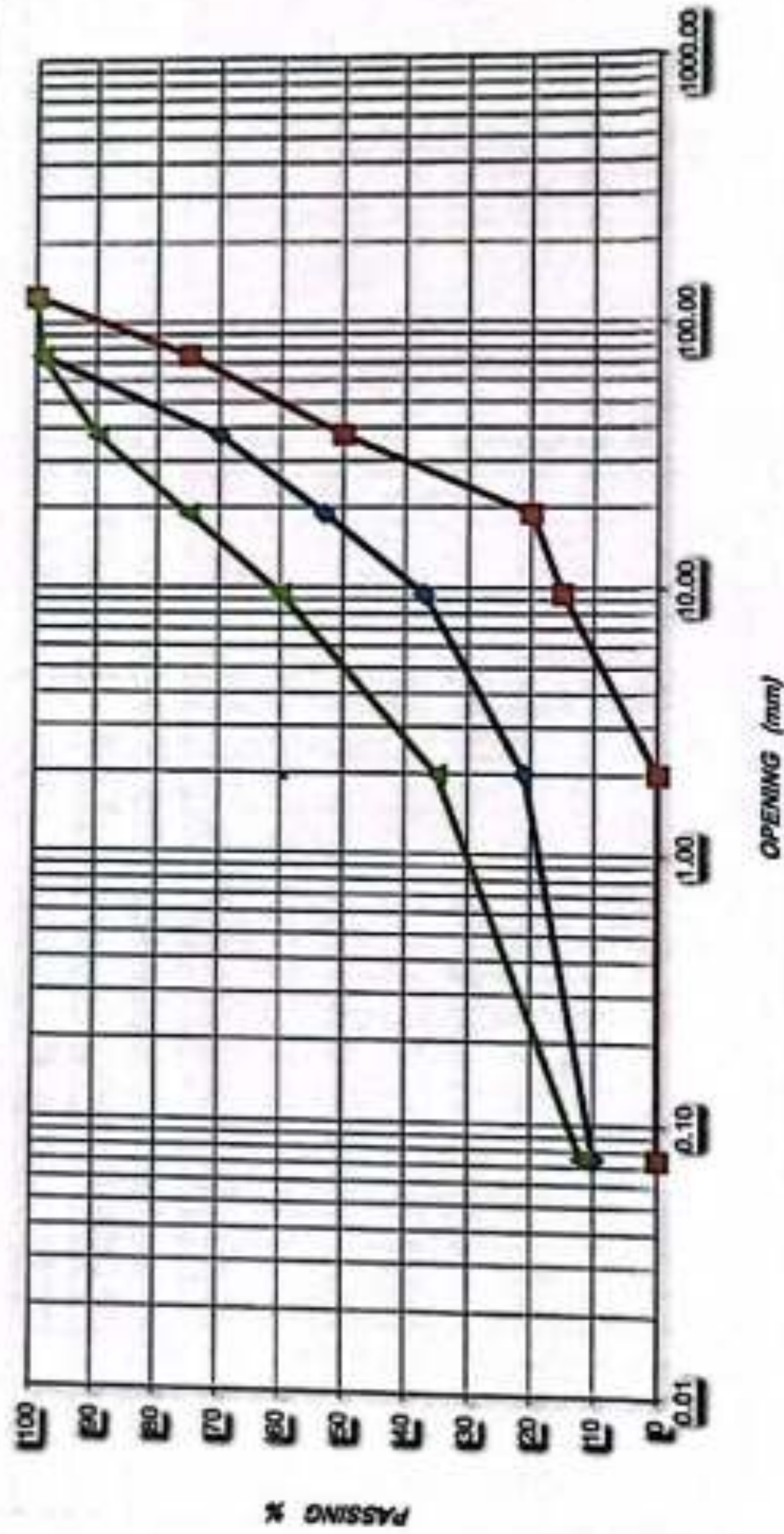
مشروع القطر السريع (الطين - فوكه) قطاع د / سعد الجبوشي مكتب سجاك للإستشارات الهندسية

Company:	لاند ماركس للمقاولات العمومية	Layer NO:	0.25
Description :	Sieve Analysis	Layer Thickness:	20
Station Represented :	424+600 TO 424+780	Sample Date :	29/12/2022

SIEVE ANALYSIS & BLEND of BASE COURSE MIX

ASTM C-136 & C-117

Location of Tested Material	PREPARED SUPGRADE									
Sieve No.	5.0 in.	3.0 in.	1.5 in.	3/4 in.	3/8 in.	No. 10	No. 20			
Opening (mm)	125.00	75.00	37.50	19.00	9.50	2.00	0.075			
Passing %	100.0	99.0	70.0	53.0	37.0	21.0	10.0			
Min. %	100.0	75.0	50.0	20.0	15.0	0.0	0.0			
Max. %	100.0	99.0	90.0	75.0	60.0	35.0	12.0			



Lab Contractor Eng.:-

SGAC Consultant Eng.:-

مشروع القطر السريع (العالمين - فوكه) قطاع د / سعد الجوشي مكتب سجاك للإستشارات الهندسية

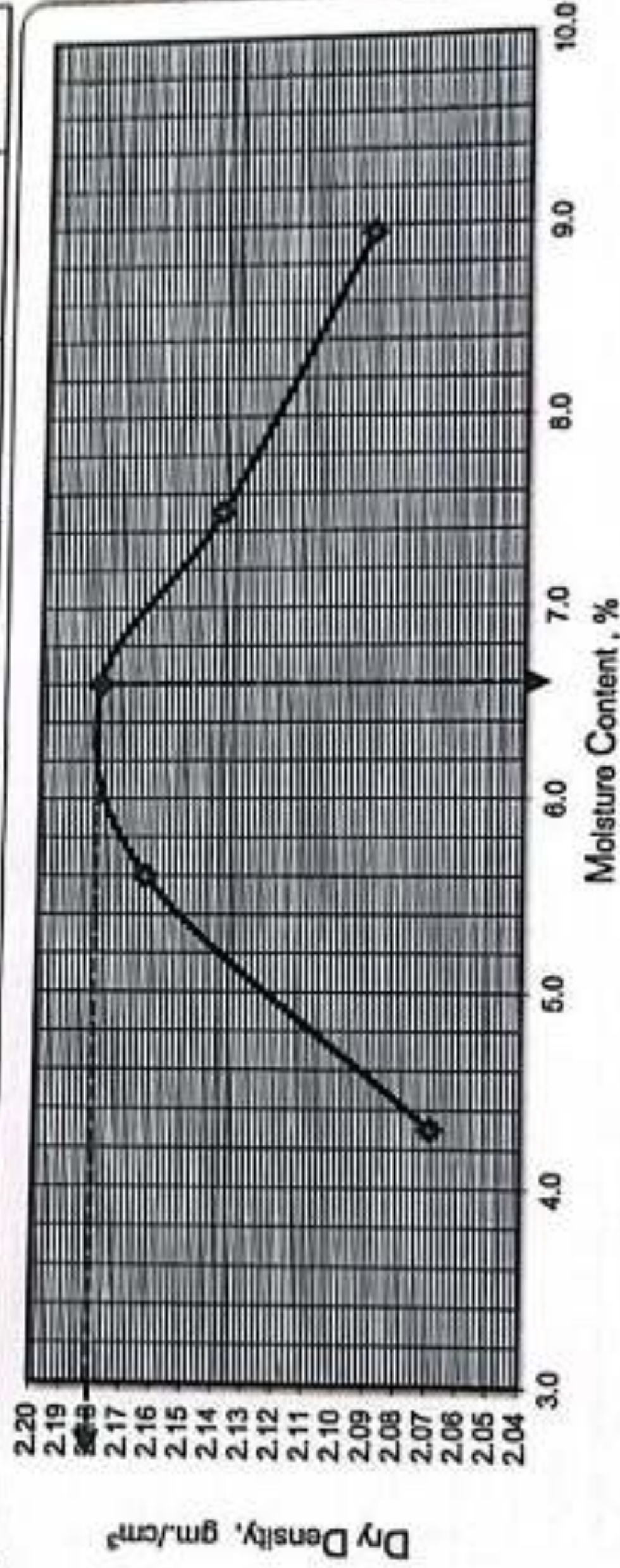
Company:	لاتدماركس للمقاولات العمومية			Sample No:	0.25
Description :	المختبر بروتكر			Sample Date :	31/12/2022
Station Repres	from 424+600 TO 424+780			Report Date:	01/01/2023

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lb. rammer dropped from 18 in. height, Producing a compactive effort of 55000 ft-lb/ft³

Weight of PROCTOR Mould, gm	6289	Volume of PROCTOR Mould, cm ³	2193
-----------------------------	------	--	------

Point No.	1	2	3	4	5
Weight of Soil + Mould, gm	11.022	11.301	11.383	11.335	11.285
Wet Density, gm/cm ³	2.158	2.285	2.324	2.301	2.278
Weight of Wet Soil Portion, gm	218.0	225.0	222.0	218.0	210.3
Weight after Drying, gm	209.0	213.0	208.0	203.0	193.0
Moisture Content, %	4.3	5.6	6.6	7.5	9.0
Dry Density, gm/cm ³	2.069	2.164	2.180	2.140	2.091

Max. Dry Density = 2.18 t/m³

Optimum Moisture Content = 6.6%

CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

مشروع القطر السريع (العلمين - فوكه) قطاع د / سد الجبوشي مكتب سجاك للإستشارات الهندسية

Activity : Earth Work

نتائج اختبارات المعمل

Date 3-Jan-23

Density and Unit Weight of Soil In Place by the Sand-Cone Method - ASTM D 1556

Company:	لائحة ماركس للمقاولات العمومية	Layer NO:	0.25
Description :	اختبار نمك	Layer Thickness:	20
Station Represented :	from 424+600 to 424+780	Sample Date :	02/01/2023

Modified Proctor Testing Results

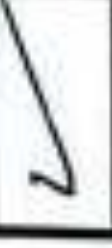
Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.18	6.6	98% <i>95%</i>	1.470

Compaction Testing Results & Calculations

Hole No.	424+605	424+615	424+625	424+635	424+645	424+655	424+665	424+675
Wt. of Sand before Test, gm	10500	10321	10141	10008	9905	9800	9603	9427
Wt. of Sand After Test, gm	7040	6822	6647	6495	6291	6178	6010	5904
Wt. of Sand in Cone + hole, gm	3460	3499	3494	3513	3614	3622	3593	3523
Wt. of Sand in Cone	1240	1240	1240	1240	1240	1240	1240	1240
Wt. of Sand at hole, gm	2220	2259	2254	2273	2374	2382	2353	2283
Volume of the Hole, cm ³	1510	1537	1533	1546	1615	1620	1600	1553
Wt. of Soil from Hole, gm	3462	3482	3458	3513	3639	3697	3642	3573
Bulk Density of Soil, gm/cm ³	2.293	2.265	2.256	2.272	2.253	2.282	2.276	2.300
Moisture Content, %	5.4	5.3	5.1	5.6	5	5.1	5	5.7
Dry Density, gm/cm ³	2.175	2.151	2.147	2.152	2.146	2.171	2.167	2.176
Compaction, (%)	99.8%	98.7%	98.5%	98.7%	98.4%	99.6%	99.4%	99.8%

Acceptance Criteria

Comply



Not Comply

CONSULTANT COMMENTS



Lab Contractor Eng.:-



SGAC Consultant Eng.:-

مشروع القطر السريع (الطين - فوكه) قطاع د / سعد الجويش، مكتب سجاك للإستشارات الهندسية

Activity : Earth Work

نتائج اختبارات المعمل

Date 3-Jan-23

Density and Unit Weight of Soil In Place by the Sand-Cone Method - ASTM D 1556

Company:	لاندماركس للمقاولات العمومية	Layer NO:	0.25
Description :	اختبار معك	Layer Thickness:	20
Station Represented :	from 424+600 to 424+780	Sample Date :	02/01/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.18	6.6	98%	1.470

Compaction Testing Results & Calculations

Hole No.	424+685	424+695	424+705	424+715	424+725	424+735	424+745	424+755
Wt. of Sand before Test, gm	10173	9624	9468	9389	9248	9000	8825	8780
Wt. of Sand After Test, gm	6573	6088	6019	5924	5798	5412	5348	5306
Wt. of Sand in Cone + hole, gm	3600	3536	3449	3465	3450	3588	3477	3474
Wt. of Sand in Cone	1240	1240	1240	1240	1240	1240	1240	1240
Wt. of Sand at hole, gm	2360	2296	2209	2225	2210	2348	2237	2234
Volume of the Hole, cm ³	1605	1562	1502	1513	1503	1597	1522	1520
Wt. of Soil from Hole, gm	3669	3551	3460	3477	3423	3648	3480	3447
Bulk Density of Soil, gm/cm ³	2.285	2.273	2.304	2.298	2.277	2.284	2.286	2.268
Moisture Content, %	5.4	5.5	5.6	5.7	5.2	5.3	5.6	5.3
Dry Density, gm/cm ³	2.168	2.155	2.180	2.174	2.165	2.169	2.165	2.154
Compaction, (%)	99.4%	98.9%	100.0%	99.7%	99.3%	99.5%	99.3%	98.8%

Acceptance Criteria

Comply



Not Comply



CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

SYSTRA



مركز الاستشارات الهندسية
للنقل والمقاولات والمطرق
(مفوضات دولي)



مشروع القطر السريع (العلمين - فوكه) قطاع د / سعد الجويشني مكتب سجاك للاستشارات الهندسية

Activity : Earth Work

لنتائج اختبارات المعمل

Date 3-Jan-23

Density and Unit Weight of Soil In Place by the Sand-Cone Method - ASTM D 1556

Company:	لاندماركس للمقاولات العمومية	Layer NO:	0.25
Description :	اختبار دمك	Layer Thickness:	20
Station Represented :	from 424+600 to 424+780	Sample Date :	02/01/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.18	6.6	99%	1.470

Compaction Testing Results & Calculations

Hole No.	424+765	424+775	27	28	29	30	31	32
Wt. of Sand before Test, gm	9655	9543						
Wt. of Sand After Test, gm	6163	5983						
Wt. of Sand in Cone + hole, gm	3492	3560						
Wt. of Sand in Cone	1240	1240						
Wt. of Sand at hole, gm	2252	2320						
Volume of the Hole, cm ³	1532	1578						
Wt. of Soil from Hole, gm	3522	3558						
Bulk Density of Soil, gm/cm ³	2.299	2.255						
Moisture Content, %	5.5	5.6						
Dry Density, gm/cm ³	2.179	2.145						
Compaction, (%)	100.0%	99.8%						

Acceptance Criteria

Comply



Not Comply

CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

SYSTRA



مركز الاستشارات الهندسية
للجسور والطرق
والبنية التحتية
والمرافق العامة

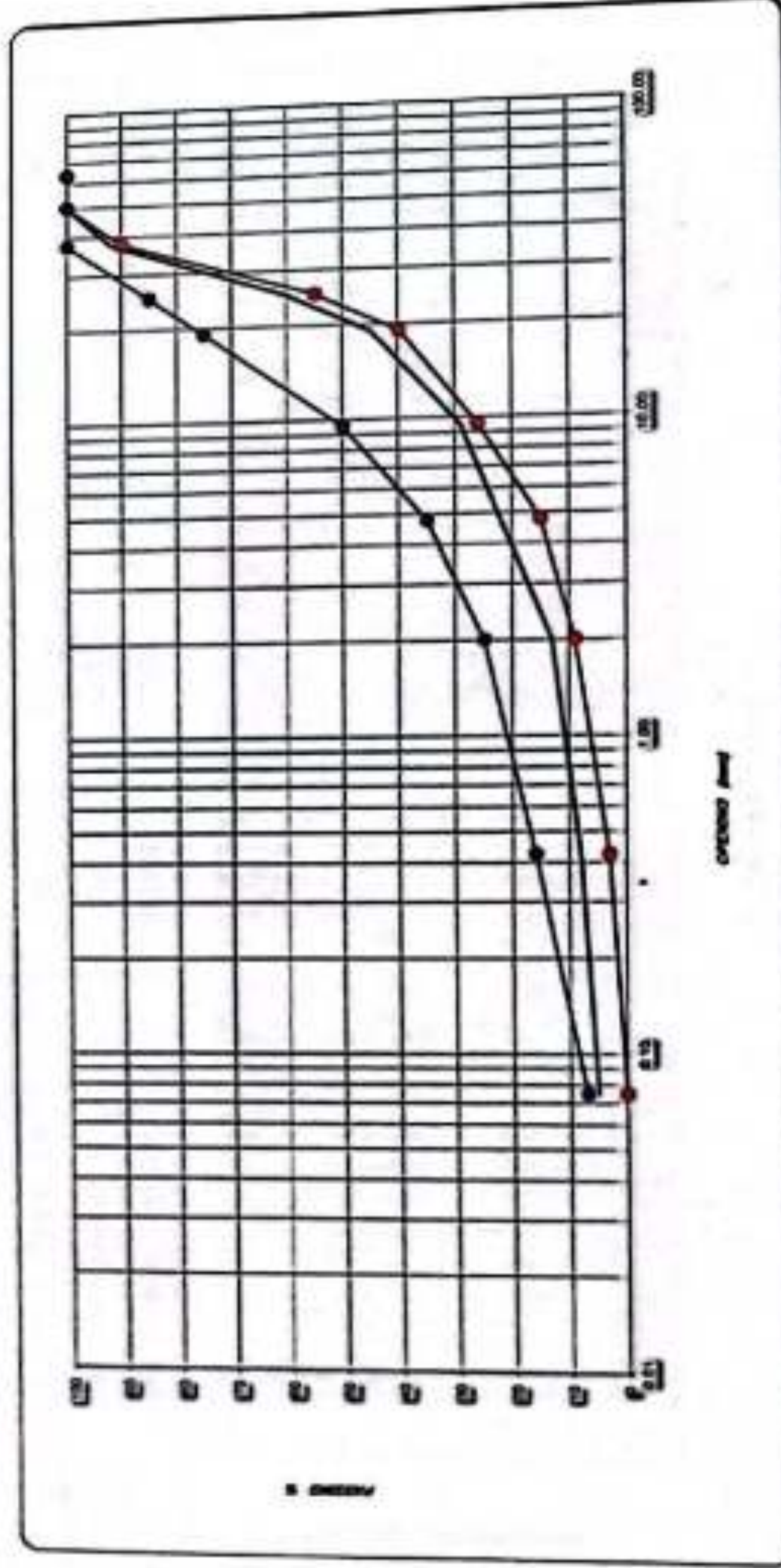
مشروع القطار السريع (الطين - فوك) قطاع د / سعد الجويش مكتب سجاد للإستشارات الهندسية

Company:	شركة لاند ماركس للمقاولات العمومية	Layer NO:	0.7
Description :	Sieve Analysis	Layer Thickness:	20
Station Represented :	from 425+300 TO 425+600	Sample Date:	08/04/2023

SIEVE ANALYSIS & BLEND of SUB BALLAST MIX AASHTO T27 & ASTM C-136

Location of Tested Material	SUB BALLAST									
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Sieve No.	2.5 in	2.0 in	1.5 in	1.0 in	3/4 in	3/8 in	no. 4	no. 10	no. 40	No. 200
Opening (mm)	63.50	50.00	37.50	25.00	19.00	9.50	4.75	2.00	0.43	0.075
Passing %	100.0	100.0	92.0	60.0	45.0	29.0	22.0	13.0	8.0	5.00
Min. %	100.0	100.0	90.0	55.0	40.0	26.0	15.0	9.0	3.0	0.0
Max. %	100.0	100.0	100.0	85.0	75.0	50.0	35.0	25.0	16.0	7.0



Lab Contractor Eng.→

[Signature]

SGAC Consultant Eng.→

[Signature]

مشروع القطر المربع (العلمين - فوكه) قطاع د / سعد الجبوري مكتب سجاك للاستشارات الهندسية

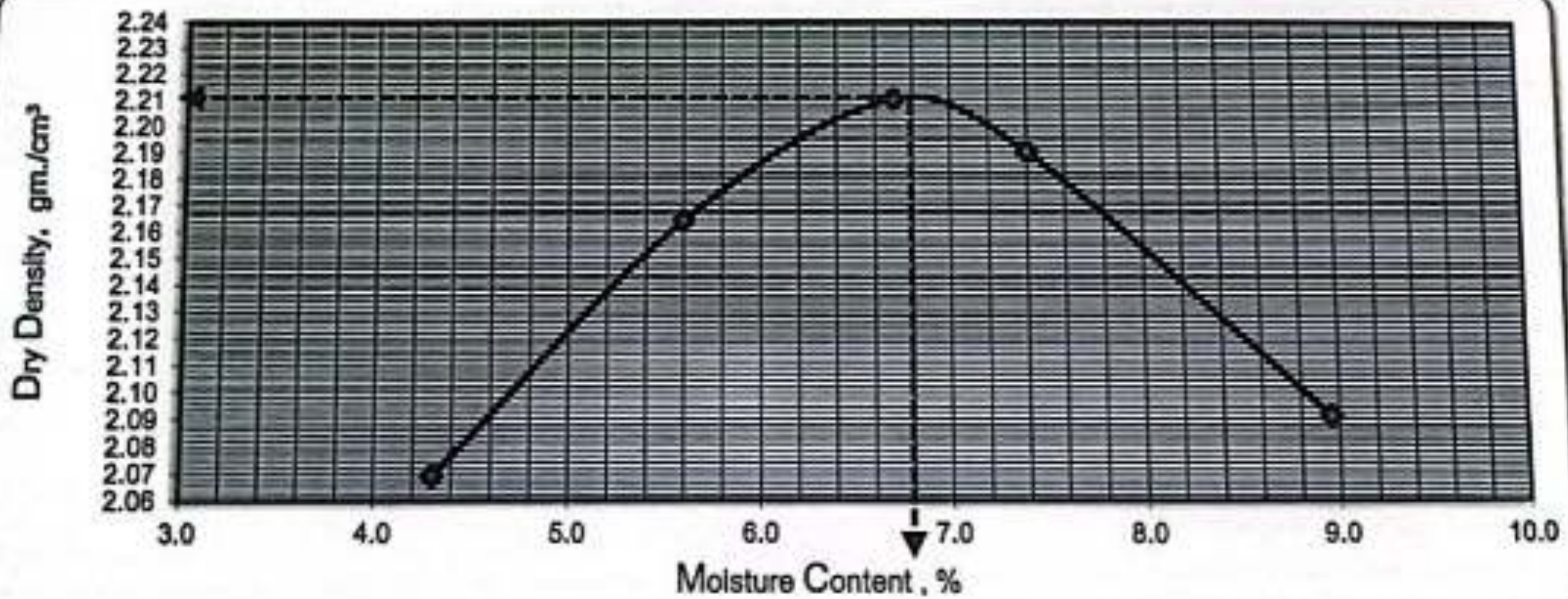
Company:	لائحةماركس للمقاولات العمومية	Sample No:	0.7
Description :	الختبار بروكتور	Sample Date :	10/04/2023
Station Repres	from 425+300 TO 425+600	Report Date:	11/04/2023

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lbf. rammer dropped from 18 in. high, Producing a compactive effort of 56000 ft-lb/ft³

Weight of PROCTOR Mould, gm	6289	Volume of PROCTOR Mould, cm ³	2193
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Point No.	1	2	3	4	5
Weight of Soil + Mould, gm	11.022	11.301	11.460	11.447	11.285
Wet Density, gm/cm ³	2.158	2.285	2.358	2.352	2.278
Weight of Wet Soil Portion, gm	218.0	225.0	222.0	218.0	210.3
Weight after Drying, gm	209.0	213.0	208.0	203.0	193.0
Moisture Content, %	4.3	5.6	6.7	7.4	9.0
Dry Density, gm/cm ³	2.069	2.164	2.210	2.190	2.091



Max. Dry Density = 2.21 t/m³

Optimum Moisture Content = 6.80 %

CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

SYSTRA



مركز الاستشارات الهندسية
للنقل والطرق والطرقات
(خبراء دوليون)
دكتور / سعد الجبوشي



مشروع القطار السريع (العلمين - فوكه) قطاع د / سعد الجبوشي مكتب سجاك للاستشارات الهندسية

Activity : Earth Work

نتائج اختبارات المعمل

Date

13-Apr-23

Density and Unit Weight of Soil In Place by the Sand-Cone Method – ASTM D 1556

Company:	لاندماركس للمقاولات العمومية	Layer NO:	0.7
Description :	اختبار دمك	Layer Thickness:	20
Station Represented :	from 425+300 to 425+600	Sample Date :	12/04/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.21	6.8	100%	1.470

Compaction Testing Results & Calculations

Hole No.	425+305	425+315	425+325	425+335	425+345	425+355	425+365	425+375
Wt. of Sand before Test, gm	8628	8500	8312	8216	8089	7954	7788	7681
Wt. of Sand After Test, gm	5166	5035	4855	4769	4651	4550	4378	4233
Wt. of Sand in Cone + hole, gm	3462	3465	3457	3447	3438	3404	3410	3448
Wt. of Sand in Cone	1240	1240	1240	1240	1240	1240	1240	1240
Wt. of Sand at hole, gm	2222	2225	2217	2207	2198	2164	2170	2208
Volume of the Hole, cm ³	1512	1514	1508	1501	1495	1472	1476	1502
Wt. of Soil from Hole, gm	3512	3526	3513	3499	3475	3445	3450	3498
Bulk Density of Soil, gm/cm ³	2.323	2.329	2.330	2.331	2.324	2.340	2.337	2.329
Moisture Content, %	5.0	5.1	5.4	5.3	5.1	5.6	5.7	5.3
Dry Density, gm/cm ³	2.212	2.216	2.210	2.214	2.212	2.216	2.211	2.212
Compaction, (%)	100.1%	100.3%	100.0%	100.2%	100.1%	100.3%	100.0%	100.1%

Acceptance Criteria

Comply



Not Comply



CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

SYSTRA



مركز الاستشارات الهندسية
للتلال و تخطيط و الطرق
(جرد دولتي)
دكتور / سعد الجبوشي



مشروع القطر السريع (العلمين - فوكه) قطاع د / سعد الجبوشي مكتب سجاك للاستشارات الهندسية

Activity : Earth Work

نتائج اختبارات المعمل

Date

13-Apr-23

Density and Unit Weight of Soil In Place by the Sand-Cone Method – ASTM D 1556

Company:	لاندماركس للمقاولات العمومية	Layer NO:	0.7
Description :	الختبار دعم	Layer Thickness:	20
Station Represented :	from 425+300 to 425+600	Sample Date :	12/04/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required , %	Bulk Density of Specified Sand, gm/cm ³
2.21	6.8	100%	1.470

Compaction Testing Results & Calculations

Hole No.	425+385	425+395	425+405	425+415	425+425	425+435	425+445	425+455
Wt. of Sand before Test, gm	9469	9370	9270	9249	9075	8962	8883	8771
Wt. of Sand After Test, gm	6033	5942	5758	5811	5578	5488	5417	5260
Wt. of Sand in Cone + hole, gm	3436	3428	3512	3438	3497	3474	3466	3511
Wt. of Sand in Cone	1240	1240	1240	1240	1240	1240	1240	1240
Wt. of Sand at hole, gm	2196	2188	2272	2198	2257	2234	2226	2271
Volume of the Hole, cm ³	1494	1488	1546	1495	1535	1520	1514	1545
Wt. of Soil from Hole, gm	3490	3478	3589	3498	3580	3525	3538	3598
Bulk Density of Soil, gm/cm ³	2.336	2.337	2.321	2.340	2.332	2.320	2.337	2.329
Moisture Content, %	5.7	5.5	5	5.8	5.3	4.9	5.7	5.2
Dry Density, gm/cm ³	2.210	2.216	2.211	2.212	2.215	2.211	2.211	2.214
Compaction, (%)	100.0%	100.2%	100.0%	100.1%	100.2%	100.0%	100.0%	100.2%

Acceptance Criteria

Comply



Not Comply



CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

SYSTRA

مركز الاستشارات الهندسية
للتنقل والمطارات والطرق
(خبراء دوليون)
دكتور/ سعد الجبوشي



مشروع القطار السريع (العلمين - فوكة) قطاع د / سعد الجبوشي مكتب سجاك للاستشارات الهندسية

Activity : Earth Work

نتائج اختبارات المعمل

Date

13-Apr-23

Density and Unit Weight of Soil in Place by the Sand-Cone Method – ASTM D 1556

Company:	لاندماركس للمقاولات العمومية	Layer NO:	0.7
Description :	اختبار دمك	Layer Thickness:	20
Station Represented :	from 425+300 to 425+600	Sample Date :	12/04/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.21	6.8	100%	1.470

Compaction Testing Results & Calculations

Hole No.	425+465	425+475	425+485	425+495	425+505	425+515	425+525	425+535
Wt. of Sand before Test, gm	10229	10056	9900	9792	9680	9566	9436	9370
Wt. of Sand After Test, gm	6700	6531	6449	6354	6230	6101	5989	5904
Wt. of Sand in Cone + hole, gm	3529	3525	3451	3438	3450	3465	3447	3466
Wt. of Sand in Cone	1240	1240	1240	1240	1240	1240	1240	1240
Wt. of Sand at hole, gm	2289	2285	2211	2198	2210	2225	2207	2226
Volume of the Hole, cm ³	1557	1554	1504	1495	1503	1514	1501	1514
Wt. of Soil from Hole, gm	3648	3630	3522	3505	3509	3537	3506	3542
Bulk Density of Soil, gm/cm ³	2.343	2.336	2.342	2.344	2.335	2.336	2.336	2.339
Moisture Content, %	5.8	5.6	5.7	5.9	5.6	5.5	5.6	5.8
Dry Density, gm/cm ³	2.215	2.212	2.216	2.214	2.211	2.214	2.212	2.211
Compaction, (%)	100.2%	100.1%	100.2%	100.2%	100.0%	100.2%	100.1%	100.0%

Acceptance Criteria

Comply



Not Comply



CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

مشروع القطر السريع (العامين - فوكه) قطاع د / سعد الجيوشي مكتب سجاك للاستشارات الهندسية

Activity : Earth Work

نتائج اختبارات المعمل

Date

13-Apr-23

Density and Unit Weight of Soil in Place by the Sand-Cone Method – ASTM D 1556

Company:	لاندماركس للمقاولات العمومية	Layer NO:	0.7
Description :	اختبار دمعك	Layer Thickness:	20
Station Represented :	from 425+300 to 425+600	Sample Date :	12/04/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.21	6.8	100%	1.470

Compaction Testing Results & Calculations

Hole No.	425+545	425+555	425+565	425+575	425+585	425+595	31	32
Wt. of Sand before Test, gm	8040	7914	7851	7755	7600	8800		
Wt. of Sand After Test, gm	4623	4511	4382	4319	4110	5354		
Wt. of Sand in Cone + hole, gm	3417	3403	3469	3436	3490	3446		
Wt. of Sand in Cone	1240	1240	1240	1240	1240	1240		
Wt. of Sand at hole, gm	2177	2163	2229	2196	2250	2206		
Volume of the Hole, cm ³	1481	1471	1516	1494	1531	1501		
Wt. of Soil from Hole, gm	3471	3442	3544	3481	3588	3503		
Bulk Density of Soil, gm/cm ³	2.344	2.340	2.338	2.330	2.344	2.334		
Moisture Content, %	5.9	5.6	5.7	5.4	5.8	5.6		
Dry Density, gm/cm ³	2.213	2.216	2.212	2.211	2.215	2.210		
Compaction, (%)	100.1%	100.3%	100.1%	100.0%	100.2%	100.0%		

Acceptance Criteria

Comply



Not Comply



CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

SYSTRA



مركز الاستشارات الهندسية
للبنية التحتية
والطرق والمواصلات
والطاقة والمياه

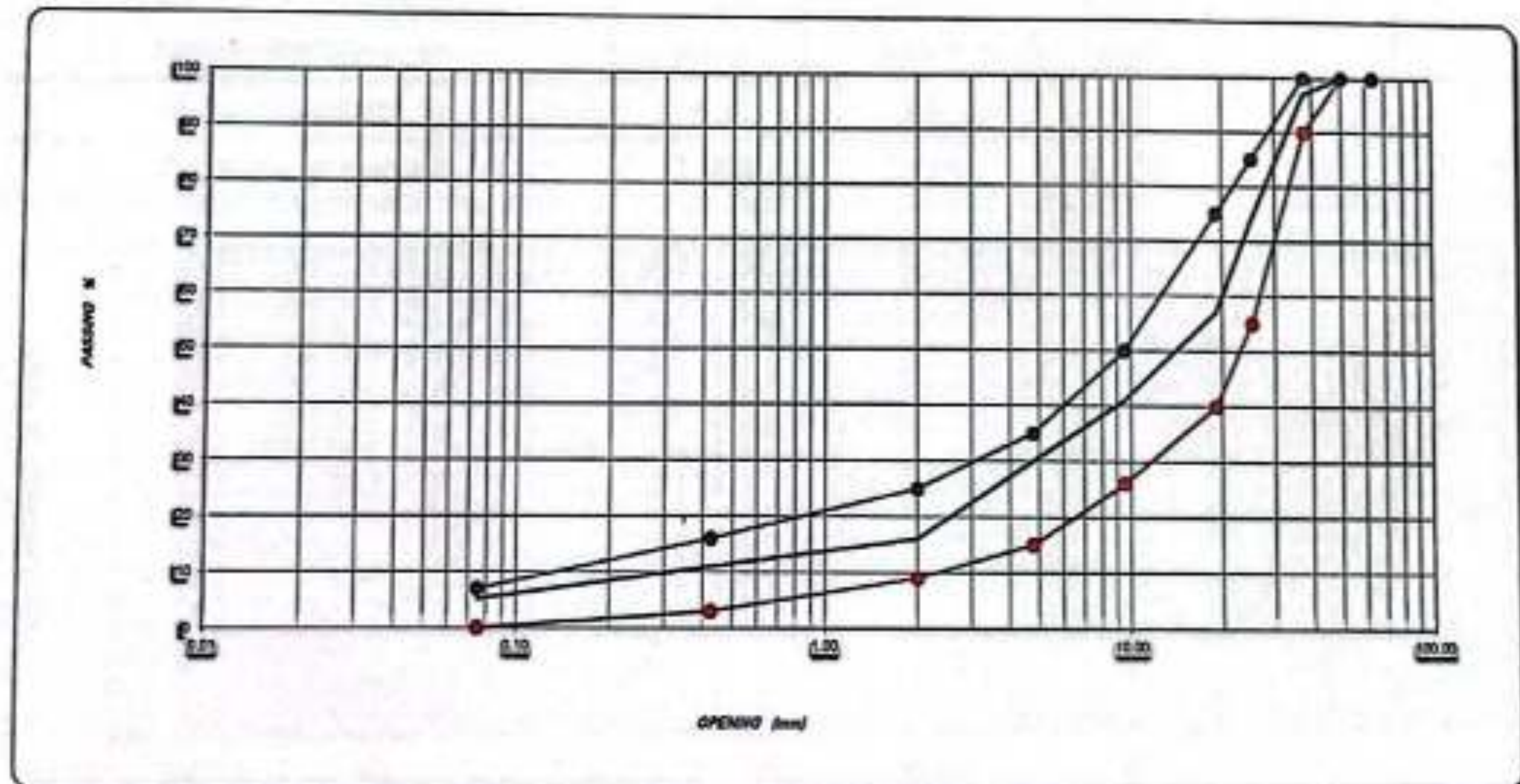


مشروع القطر السريع (العلمين - فوكه) قطاع د / سعد الجيوشي مكتب سجاك للإستشارات الهندسية

Company:	شركة لاند ماركس للمقاولات العمومية	Layer NO:	07
Description :	Sieve Analysis	Layer Thickness:	20
Station Represented :	from 424+920 TO 425+000	Sample Date:	25/03/2023

SIEVE ANALYSIS & BLEND of SUB BALLAST MIX
AASHTO T27 & ASTM C-136

Location of Tested Material	SUB BALLAST									
Sieve No.	2.5 in	2.0 in	1.5 in	1.0 in	3/4 in	3/8 in	no. 4	no. 10	no. 40	No. 200
Opening (mm)	63.50	50.00	37.50	25.00	19.00	9.50	4.75	2.00	0.43	0.075
Passing %	100.0	100.0	97.0	74.0	57.0	41.0	30.0	16.0	11.0	5.20
Min. %	100.0	100.0	90.0	55.0	40.0	26.0	15.0	9.0	3.0	0.0
Max. %	100.0	100.0	100.0	85.0	75.0	50.0	35.0	25.0	16.0	7.0



Lab Contractor Eng.:-

[Signature]

SGAC Consultant Eng.:-

[Signature]

مشروع القطار السريع (العلمين - فوكه) قطاع د / معبد الجيوشي مكتب مسجك للاستشارات الهندسية

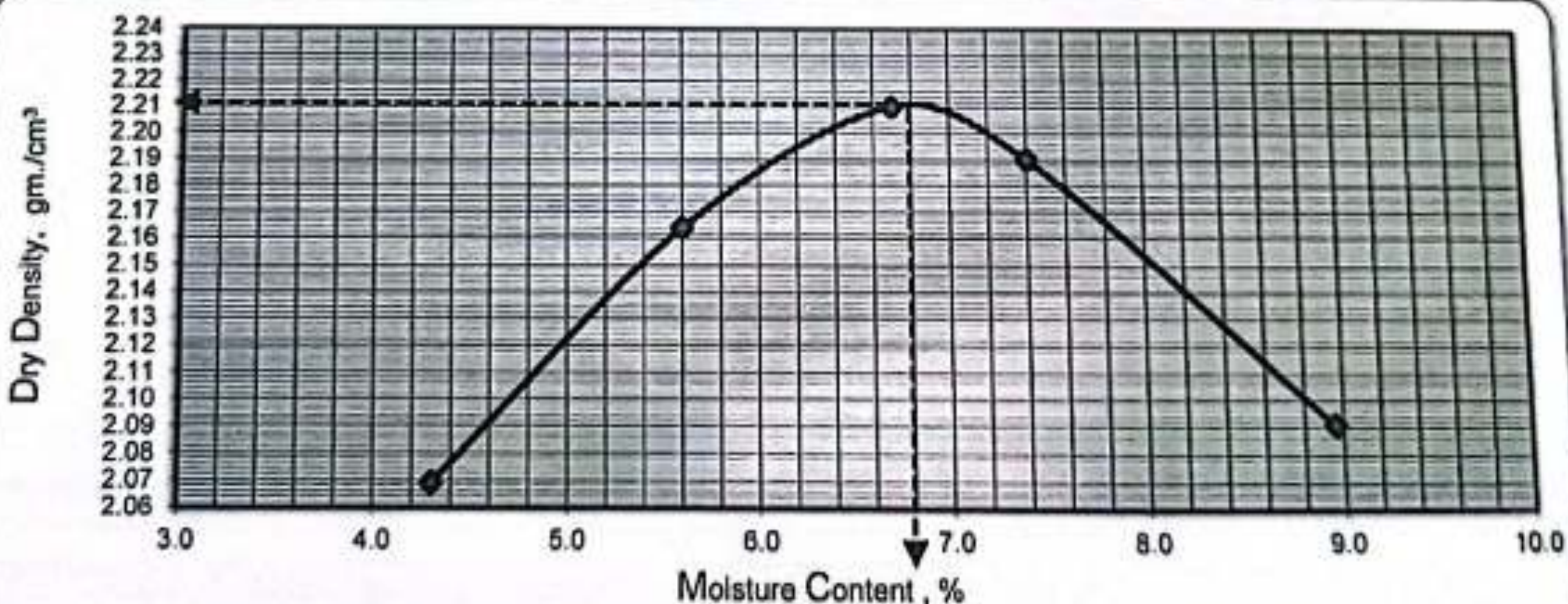
Company:	لاندماركس للمقاولات العمومية	Sample No:	0.7
Description :	اختبار بروكتر	Sample Date :	27/03/2023
Station Repres	from 424+920 TO 425+000	Report Date	28/03/2023

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lbf. rammer dropped from 18 in. high, Producing a compactive effort of 56000 ft-lb/ft³

Weight of PROCTOR Mould, gm	6289	Volume of PROCTOR Mould, cm ³	2193
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Point No.	1	2	3	4	5
Weight of Soil + Mould, gm	11.022	11.301	11.460	11.447	11.285
Wet Density, gm/cm ³	2.158	2.285	2.358	2.352	2.278
Weight of Wet Soil Portion, gm	218.0	225.0	222.0	218.0	210.3
Weight after Drying, gm	209.0	213.0	208.0	203.0	193.0
Moisture Content, %	4.3	5.6	6.7	7.4	9.0
Dry Density, gm/cm ³	2.069	2.164	2.210	2.190	2.091



Max. Dry Density = 2.21 t/m³

Optimum Moisture Content = 6.80 %

CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

SYSTRA



مركز الاستشارات الهندسية
للتنقل والطرق والبنى
(خبراء دوليون)
دكتور / محمد الجيوشي



مشروع القطار السريع (العلمين - فوكة) قطاع د / سعد الجيوشي مكتب سجاك للاستشارات الهندسية

Activity : Earth Work

نتائج اختبارات المعمل

Date

30-Mar-23

Density and Unit Weight of Soil In Place by the Sand-Cone Method – ASTM D 1556

Company:	لاندماركس للمقاولات العمومية	Layer NO:	0.7
Description :	الختبار بعمق	Layer Thickness:	20
Station Represented :	from 424+920 to 425+000	Sample Date :	29/03/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.21	6.8	100%	1.470

Compaction Testing Results & Calculations

Hole No.	424+925	424+935	424+945	424+955	424+965	424+975	424+985	424+995
Wt. of Sand before Test, gm	10605	10188	10150	9925	9665	9475	9365	8783
Wt. of Sand After Test, gm	7031	6767	6714	6385	6102	6103	5840	5322
Wt. of Sand in Cone + hole, gm	3574	3421	3436	3540	3563	3372	3525	3461
Wt. of Sand in Cone	1240	1240	1240	1240	1240	1240	1240	1240
Wt. of Sand at hole, gm	2334	2181	2196	2300	2323	2132	2285	2221
Volume of the Hole, cm ³	1588	1484	1494	1565	1580	1450	1554	1511
Wt. of Soil from Hole, gm	3646	3423	3415	3615	3648	3369	3617	3488
Bulk Density of Soil, gm/cm ³	2.300	2.307	2.290	2.310	2.308	2.323	2.327	2.310
Moisture Content, %	3.7	4.2	3.5	4.4	4.3	5.1	5.1	4.5
Dry Density, gm/cm ³	2.210	2.214	2.209	2.213	2.213	2.210	2.214	2.211
Compaction, (%)	100.0%	100.2%	100.0%	100.1%	100.1%	100.0%	100.2%	100.0%

Acceptance Criteria

Comply



Not Comply



CONSULTANT COMMENTS

Lab Contractor Eng.:-

SGAC Consultant Eng.:-

محضر استلام موقع

مشروع: أعمال الجسر القرابي والاعمال الصناعية لمشروع القطار الكهربائي السريع (العين السخنة-العاصمة الإدارية-العلمين-مطروح) قطاعات غرب النيل لتنفيذ المسافة من الكم 424,600 الى كم 425,600 بطول 1 كم اتجاه الطريق الساحلي.

تنفيذ: شركة لاندماركس للمقاولات العمومية

إشراف: المنطقة الخامسة - منطقة غرب الدلتا

طبقاً للعقد رقم (2023/2022/2189) بتاريخ

إته في يوم الاربعاء الموافق 2023-06-14 اجتمع كل من:-

- 1- السيد المهندس /محمد حسني قياض مدير عام المشروعات - الهيئة العامة للطرق والكباري
- 2- السيد المهندس /إبراهيم عبد الله الحناوي مهندس العملية - الهيئة العامة للطرق والكباري
- 3- السيد المهندس /احمد أبو بكر مدير مشروع - شركة لاندماركس للمقاولات العمومية

وذلك للمرور على مسار العملية المذكورة عاليه لاستلام الموقع وقد تبين أن الموقع خالياً من العوائق الظاهرية ويسمح بالبدء في التنفيذ وبناء عليه يعتبر تاريخ 2023-06-14 هو تاريخ استلام الموقع وبدء الأعمال بالعملية واقفل المحضر على ذلك ووقع الحضور

التوقيعات

3- أحمد أبو بكر

2-

1-

رئيس الإدارة المركزية

منطقة غرب الدلتا

الاسكندرية - مرسى مطروح

عميد مهندس /

"هاني محمد محمود طه"

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+920 to 424+760) & (424+425 to 424+760).
Test Date : 13/04/2023
Report Date : 13/04/2023
Type of soil : ———
Test level : Sub ballast
Report No. : 57.88

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



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:

Test level : Sub ballast

- Job requirement : $E_{v2} > 1200 \text{ Kg/cm}^2$ (120 MPa). $E_{v2}/E_{v1} \leq 2.2$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	600
- date of measurement	13/04/2023
- 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	$E_{v1} (\text{kg/cm}^2)$	$E_{v2} (\text{kg/cm}^2)$	
1	424+920	424+930	1500	1875	1.3
2	424+930	424+955	1731	1216	1.4
3	424+955	424+980	1148	2143	1.8
4	424+980	425+000	1286	2388	1.8
5	424+600	424+625	1500	1957	1.3
6	424+625	424+650	1125	2250	2.0
7	424+650	424+675	1216	1800	1.5
8	424+675	424+700	1098	2045	1.9
9	424+700	424+725	1250	1957	1.6
10	424+725	424+750	1500	2388	1.6
11	424+750	424+760	818	1406	1.7

Signature /



Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) - Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+920to 420+930
 Test No. : 01

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	19.81	0.19	19.90	0.10	19.92	0.08	0.12
2	0.83	19.67	0.33	19.79	0.21	19.86	0.14	0.23
3	1.25	19.53	0.47	19.64	0.36	19.73	0.27	0.37
4	1.67	19.40	0.60	19.51	0.49	19.64	0.36	0.48
5	2.08	19.26	0.74	19.38	0.62	19.56	0.44	0.60
6	2.50	19.10	0.90	19.27	0.73	19.43	0.57	0.73

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.10	0.90	19.27	0.73	19.43	0.57	0.73
2	1.25	19.15	0.85	19.35	0.65	19.48	0.52	0.67
3	0.625	19.22	0.78	19.44	0.56	19.58	0.42	0.59
4	0.01	19.54	0.46	19.64	0.36	19.69	0.31	0.38

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.44	0.56	19.58	0.42	19.66	0.34	0.44
1	0.83	19.37	0.63	19.50	0.50	19.58	0.42	0.52
2	1.25	19.38	0.72	19.43	0.57	19.51	0.49	0.59
3	1.67	19.30	0.80	19.31	0.69	19.38	0.62	0.70
4	2.08	19.10	0.90	19.20	0.80	19.29	0.71	0.80
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	WREF



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (S) - Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+820 to 420+800
 Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.8	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	0.12	0.23	0.37	0.48	0.60	0.73

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)	0.73	0.67	0.50	0.36

D (mm) = 600	S1 (mm) = 0.20	S2(mm) = 0.38	ΔS = 0.18
Ev1 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1506		

$$Ev2/Ev1 = 1.4$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.38	0.44	0.52	0.59	0.70	0.80

D (mm) = 600	S1 (mm) = 0.48	S2(mm) = 0.72	ΔS = 0.24
Ev2 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1875		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to 0.1 and 0.7 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 (6) – Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+930 to 424+955
 Test No. : 02

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	19.89	0.11	19.93	0.07	19.84	0.16	0.11
2	0.83	19.77	0.23	19.81	0.19	19.68	0.32	0.25
3	1.25	19.65	0.35	19.63	0.37	19.43	0.57	0.43
4	1.67	19.51	0.49	19.50	0.50	19.27	0.73	0.57
5	2.08	19.35	0.65	19.36	0.64	19.10	0.90	0.73
6	2.50	19.14	0.86	19.18	0.82	19.00	1.00	0.89

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.14	0.86	19.18	0.82	19.00	1.00	0.89
2	1.25	19.21	0.79	19.30	0.70	19.03	0.97	0.82
3	0.625	19.32	0.68	19.42	0.58	19.21	0.79	0.68
4	0.01	19.60	0.40	19.63	0.37	19.59	0.41	0.39

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.47	0.53	19.59	0.41	19.53	0.47	0.47
1	0.83	19.38	0.62	19.52	0.48	19.41	0.59	0.56
2	1.25	19.30	0.70	19.43	0.59	19.27	0.73	0.67
3	1.67	19.22	0.78	19.28	0.72	19.13	0.87	0.79
4	2.08	19.15	0.85	19.16	0.84	19.07	0.98	0.89



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (E) - Alamein to Feka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+930 to 424+955
 Test No. : 02

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	19.89	0.11	19.93	0.07	19.84	0.16	0.11
2	0.83	19.77	0.23	19.81	0.19	19.68	0.32	0.25
3	1.25	19.65	0.35	19.63	0.37	19.43	0.57	0.43
4	1.67	19.51	0.49	19.50	0.50	19.27	0.73	0.57
5	2.08	19.35	0.65	19.36	0.64	19.10	0.90	0.73
6	2.50	19.14	0.86	19.18	0.82	19.00	1.00	0.89

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.14	0.86	19.18	0.82	19.00	1.00	0.89
2	1.25	19.21	0.79	19.30	0.70	19.03	0.97	0.82
3	0.625	19.33	0.68	19.42	0.58	19.21	0.79	0.68
4	0.01	19.60	0.40	19.63	0.37	19.59	0.41	0.39

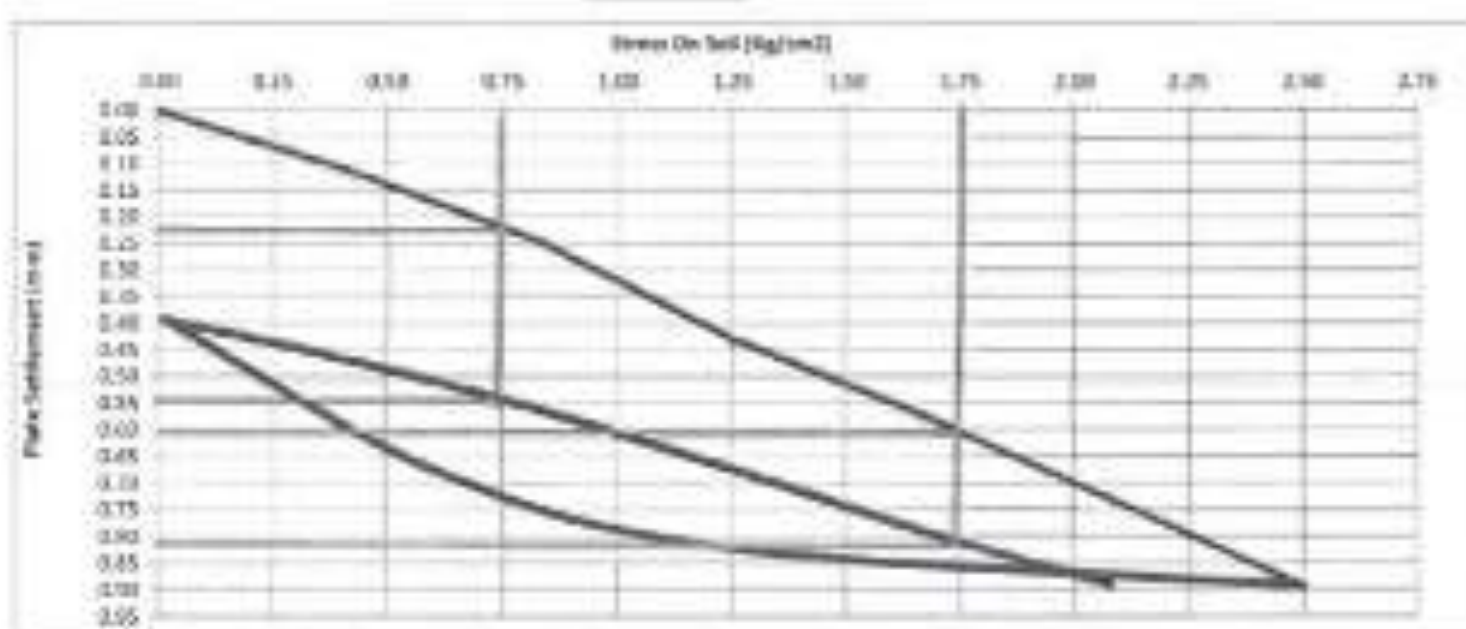
Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.47	0.53	19.59	0.41	19.53	0.47	0.47
1	0.83	19.38	0.62	19.52	0.48	19.41	0.59	0.56
2	1.25	19.30	0.70	19.41	0.59	19.27	0.73	0.67
3	1.67	19.22	0.78	19.28	0.72	19.13	0.87	0.79
4	2.08	19.15	0.85	19.16	0.84	19.02	0.98	0.89



Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Helwan to Matruh Matrouh Priority Sector (B) - Almain to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+330 to 424+385
 Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils QIN 18134



Loading (1)	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	0.11	0.25	0.43	0.57	0.73	0.88

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1766	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	0.88	0.82	0.68	0.32

D (mm) = 600	S1 (mm) = 0.23	S2(mm) = 0.88	ΔS = 0.37
Ev1 (kg/cm²) = $(\frac{0.75 \cdot D^2 \cdot \Delta \sigma}{\Delta S})$	1216		

$$Ev2/Ev1 = 3.4$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	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)	0.35	0.47	0.55	0.67	0.79	0.88

D (mm) = 600	S1 (mm) = 0.55	S2(mm) = 0.81	ΔS = 0.26
Ev2 (kg/cm²) = $(\frac{0.75 \cdot D^2 \cdot \Delta \sigma}{\Delta S})$	1731		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Re-loading stage.

D = Plate diameter (mm)

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

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



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (S) - Alamin to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+955 to 424+980
 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	19.83	0.17	19.87	0.13	19.94	0.06	0.12
2	0.83	19.71	0.29	19.61	0.39	19.87	0.13	0.27
3	1.25	19.56	0.44	19.46	0.54	19.74	0.26	0.41
4	1.67	19.31	0.69	19.28	0.72	19.65	0.35	0.59
5	2.08	19.17	0.83	19.15	0.85	19.52	0.48	0.72
6	2.50	19.06	0.94	19.01	0.99	19.41	0.59	0.84

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.06	0.94	19.01	0.99	19.41	0.59	0.84
2	1.25	19.10	0.90	19.06	0.94	19.47	0.53	0.79
3	0.825	19.16	0.84	19.15	0.85	19.54	0.46	0.72
4	0.01	19.44	0.56	19.47	0.53	19.69	0.31	0.47

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.36	0.64	19.41	0.59	19.67	0.33	0.52
1	0.83	19.29	0.71	19.32	0.68	19.54	0.46	0.62
2	1.25	19.20	0.80	19.20	0.80	19.51	0.49	0.70
3	1.67	19.08	0.92	19.12	0.88	19.42	0.58	0.79
4	2.08	19.01	0.99	19.02	0.98	19.30	0.70	0.89



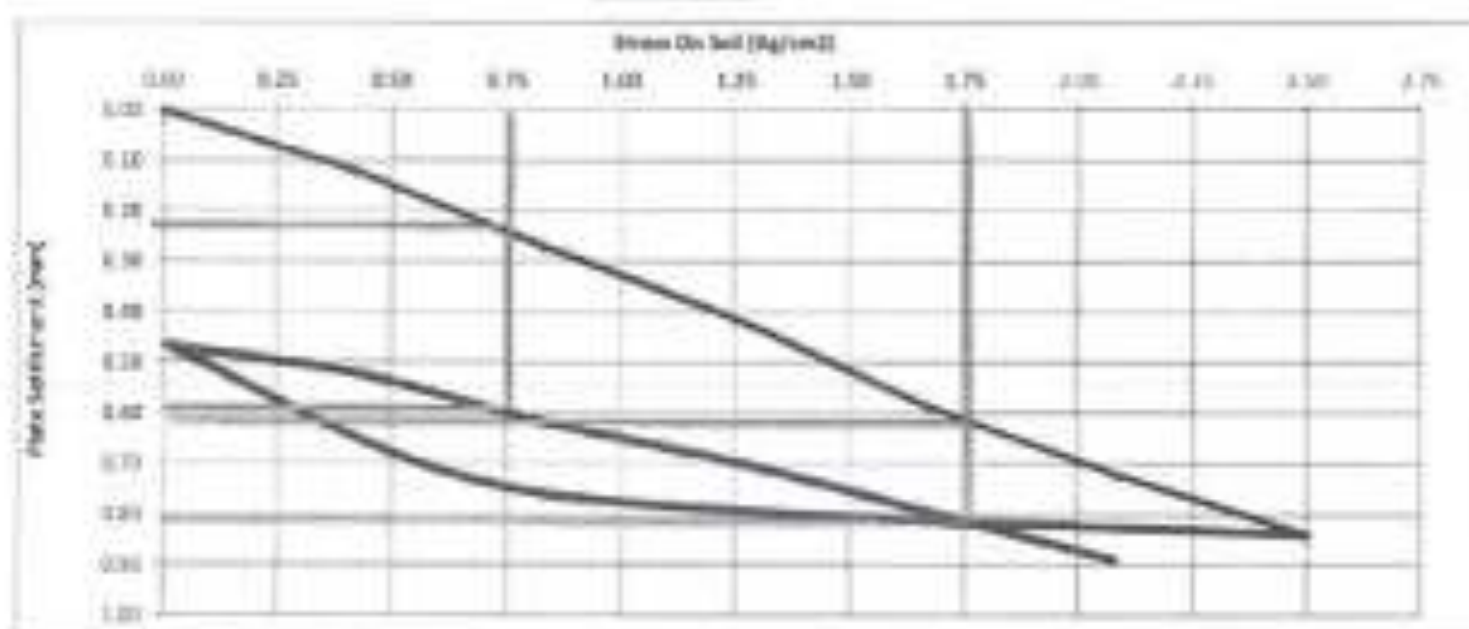
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Company Name: Land marks Co.
 Project: Electric Express Train, from Al Ain Sekhna to Marout Matrouh Priority Sector (E) - Alamein to Foka
 Test Date: 13/04/2023
 report date: 13/04/2023
 Location: Station 424+955 to 424+980
 Test No.: 02

Nonrepetitive Static Plate Load Tests of Soils
QIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.6	3532.5	4719.4	5878.1	7085
Stress (Kg/cm2)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.12	0.27	0.41	0.59	0.72	0.84

UnLoading (1)	1	2	3	4
Stage(Kg)	7085	3533	1766	0
Stress (Kg/cm2)	2.50	1.25	0.625	0.01
Settlement (mm)	0.64	0.78	0.72	0.47

D (mm) = 600	S1 (mm) = 0.38	S2 (mm) = 0.82	ΔS = 0.38
Ev1 (Kg/cm2) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1184		

$Ev2/Ev1 = 1.8$

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)	0.47	0.52	0.62	0.70	0.79	0.89

D (mm) = 600	S1 (mm) = 0.89	S2 (mm) = 1.80	ΔS = 0.21
Ev2 (Kg/cm2) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	2143		

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 (stress) (Kg/cm2)
 ΔR = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+980 to 425+000
 Test No. : 04

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	19.93	0.07	19.79	0.21	19.76	0.24	0.17
2	0.83	19.77	0.23	19.65	0.35	19.67	0.33	0.30
3	1.25	19.60	0.40	19.53	0.47	19.53	0.47	0.45
4	1.67	19.49	0.51	19.35	0.65	19.34	0.66	0.61
5	2.08	19.31	0.69	19.23	0.77	19.24	0.76	0.74
6	2.50	19.19	0.81	19.12	0.88	19.14	0.86	0.85

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.19	0.81	19.12	0.88	19.14	0.86	0.85
2	1.25	19.21	0.79	19.16	0.84	19.16	0.84	0.82
3	0.825	19.31	0.69	19.22	0.78	19.22	0.78	0.75
4	0.01	19.63	0.37	19.54	0.46	19.54	0.46	0.43

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.44	0.56	19.46	0.54	19.45	0.55	0.55
1	0.83	19.31	0.69	19.37	0.63	19.37	0.63	0.65
2	1.25	19.22	0.78	19.31	0.69	19.31	0.69	0.72
3	1.67	19.13	0.87	19.19	0.81	19.23	0.77	0.82
4	2.08	19.04	0.96	19.08	0.92	19.12	0.88	0.92



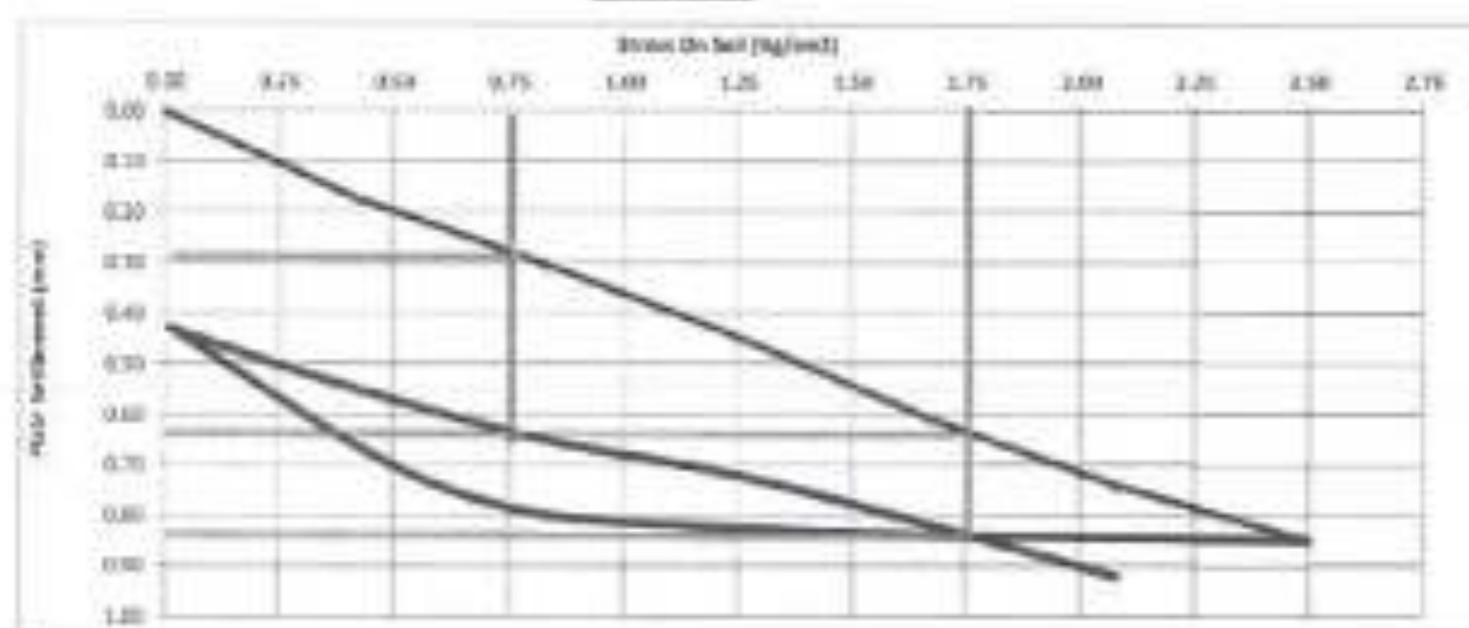
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (S) – Alamein to Folak
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+000 to 426+000
 Test No. : 04

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2346.8	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	0.17	0.30	0.45	0.61	0.74	0.85

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)	0.85	0.82	0.75	0.43

D (mm) = 600	S1 (mm) = 0.29	S2 (mm) = 0.84	ΔS = 0.35
Ev1 (kg/cm²) = (0.75 * D² * ΔS) / ΔS	1256		

$$Ev2/Ev1 = 1.8$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2346.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.43	0.55	0.60	0.72	0.82	0.82

D (mm) = 600	S1 (mm) = 0.54	S2 (mm) = 0.82	ΔS = 0.18
Ev2 (kg/cm²) = (0.75 * D² * ΔS) / ΔS	2368		

Ev1 = Relative of deformation during the loading stage.

Ev2 = Relative of deformation during the Reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to 0.2 and 0.7 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 (S) - Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+500 to 424+625
 Test No. : 05

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	19.89	0.11	19.88	0.14	19.82	0.18	0.14
2	0.83	19.77	0.23	19.73	0.27	19.69	0.31	0.27
3	1.25	19.62	0.38	19.61	0.39	19.56	0.44	0.40
4	1.67	19.53	0.47	19.50	0.50	19.42	0.58	0.52
5	2.08	19.41	0.59	19.35	0.65	19.31	0.79	0.68
6	2.50	19.30	0.70	19.19	0.81	19.04	0.96	0.82

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.30	0.70	19.19	0.81	19.04	0.96	0.82
2	1.25	19.40	0.60	19.23	0.77	19.10	0.90	0.76
3	0.625	19.52	0.48	19.32	0.68	19.18	0.82	0.66
4	0.01	19.73	0.27	19.64	0.36	19.44	0.56	0.40

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.69	0.31	19.56	0.44	19.38	0.62	0.46
1	0.83	19.59	0.41	19.47	0.53	19.27	0.73	0.56
2	1.25	19.50	0.50	19.37	0.63	19.18	0.82	0.65
3	1.67	19.41	0.59	19.28	0.72	19.09	0.91	0.74
4	2.08	19.28	0.72	19.14	0.86	19.01	0.99	0.86
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF1



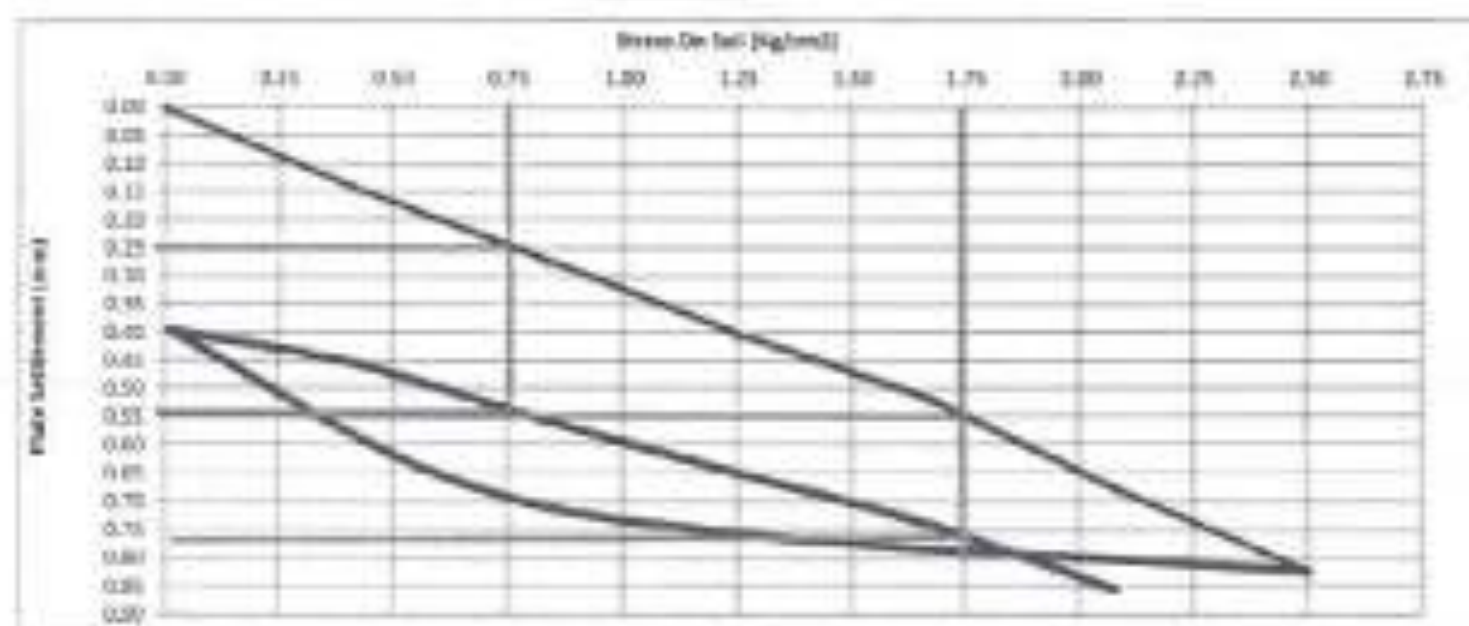
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Helwan to Marsa Matruh Priority Sector (B) - Alamin to Fokko
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+000 to 424+025
 Test No. : 05

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	2.50
Settlement (mm)	0.00	0.14	0.27	0.40	0.52	0.66	0.82

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)	0.82	0.76	0.66	0.40

D (mm) = 600	S1 (mm) = 0.26	S2(mm) = 0.55	ΔS = 0.30
Ev1 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta s / \Delta S)$	1800		

Ev2/Ev1 = 1.3

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)	0.40	0.46	0.56	0.65	0.74	0.85

D (mm) = 600	S1 (mm) = 0.54	S2(mm) = 0.77	ΔS = 0.23
Ev2 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta s / \Delta S)$	1907		

Ev1 = Modulus of deformation during the loading stage.
 Ev2 = Modulus of deformation during the Releasing stage.
 D = Plate diameter (mm)
 Δs = The difference between S2 and S1 from the maximum loading (mm) (kg/cm²)
 ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (S) - Alamin to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+625 to 424+650
 Test No. : 06

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	19.79	0.21	19.84	0.16	19.86	0.14	0.17
2	0.83	19.65	0.35	19.72	0.28	19.68	0.32	0.32
3	1.25	19.51	0.49	19.57	0.43	19.50	0.50	0.47
4	1.67	19.34	0.66	19.32	0.68	19.32	0.68	0.67
5	2.08	19.21	0.79	19.18	0.82	19.14	0.86	0.82
6	2.50	19.07	0.93	19.05	0.95	18.96	1.04	0.97

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.07	0.93	19.05	0.95	18.96	1.04	0.97
2	1.25	19.12	0.88	19.10	0.90	19.01	0.99	0.92
3	0.825	19.17	0.83	19.15	0.85	19.10	0.90	0.86
4	0.01	19.46	0.54	19.43	0.57	19.36	0.64	0.58

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.38	0.61	19.31	0.69	19.30	0.70	0.67
1	0.83	19.31	0.69	19.22	0.78	19.21	0.79	0.75
2	1.25	19.24	0.76	19.13	0.87	19.12	0.88	0.84
3	1.67	19.14	0.86	19.05	0.95	19.03	0.97	0.93
4	2.08	19.03	0.97	18.97	1.03	18.94	1.06	1.02



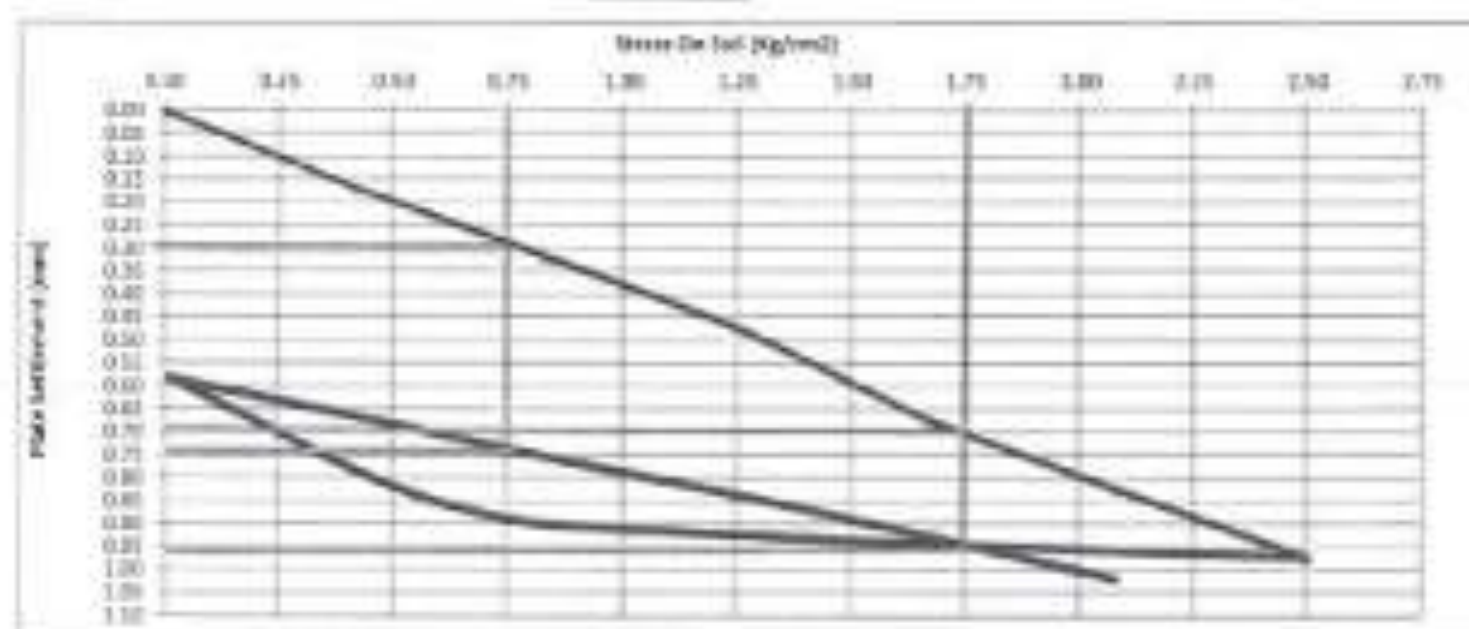
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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sidiya to Marsa Matruh Priority Sector (B) - Alamin to Foka
Test Date : 13/04/2023
report date : 13/04/2023
Location : Station 424+625 to 424+650
Test No. : 05

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1185.92	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	0.17	0.32	0.47	0.67	0.82	0.97

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)	0.97	0.62	0.35	0.00

D (mm) =	600	S1 (mm) =	0.38	S2 (mm) =	0.78	ΔS =	0.40
Ev1 (kg/cm²) =	$0.75 \cdot D^2 \cdot \Delta S / \Delta S$						

$$Ev2/Ev1 = 2.6$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1185.92	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)	0.03	0.67	0.78	0.84	0.93	1.02

D (mm) =	600	S1 (mm) =	0.74	S2 (mm) =	0.94	ΔS =	0.20
Ev2 (kg/cm²) =	$0.75 \cdot D^2 \cdot \Delta S / \Delta S$						

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S2 and S1 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 (S) - Namein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+650 to 424+675
 Test No. : 07

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	19.80	0.20	19.81	0.19	19.92	0.08	0.16
2	0.83	19.68	0.32	19.67	0.33	19.78	0.22	0.29
3	1.25	19.56	0.44	19.53	0.47	19.64	0.36	0.42
4	1.67	19.32	0.68	19.39	0.61	19.49	0.51	0.60
5	2.08	19.21	0.79	19.24	0.76	19.28	0.72	0.78
6	2.50	19.12	0.88	19.08	0.92	19.13	0.87	0.89

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.12	0.88	19.08	0.92	19.13	0.87	0.89
2	1.25	19.16	0.84	19.13	0.87	19.18	0.82	0.84
3	0.825	19.29	0.71	19.50	0.50	19.26	0.76	0.66
4	0.01	19.35	0.45	19.52	0.48	19.57	0.43	0.45

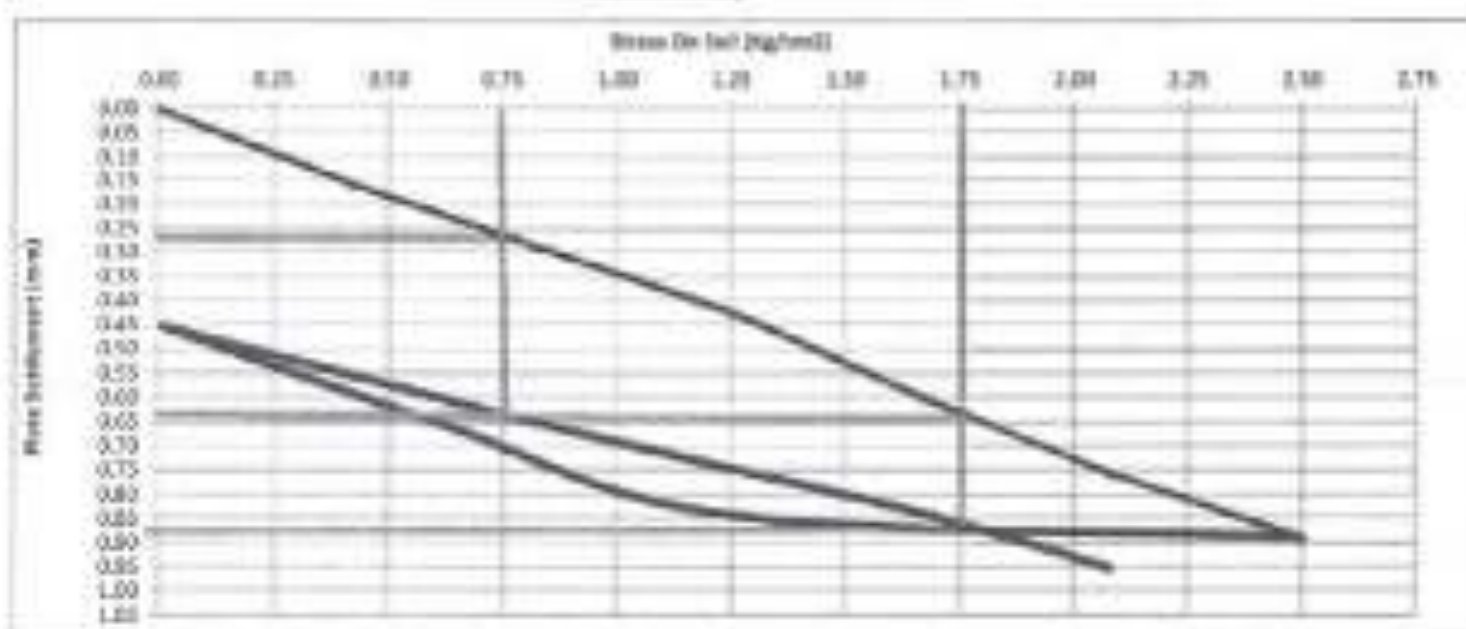
Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.42	0.58	19.43	0.57	19.49	0.51	0.55
1	0.83	19.31	0.69	19.35	0.65	19.38	0.62	0.65
2	1.25	19.23	0.78	19.27	0.73	19.27	0.73	0.75
3	1.67	19.17	0.88	19.18	0.82	19.18	0.82	0.84
4	2.08	19.01	0.99	19.06	0.94	19.07	0.93	0.95



Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhra to Marsa Matruh Priority Sector (B) - Alamein to Pasha
Test Date : 13/04/2023
report date : 13/04/2023
Location : Station 424+633 to 424+675
Test No. : 97

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1185.92	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	0.16	0.39	0.42	0.60	0.76	0.89

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.825	0.01
Settlement (mm)	0.89	0.84	0.66	0.45

D (mm) =	633	S1 (mm) =	8.27	S2 (mm) =	8.84	ΔS =	0.37
Ev1 (kg/cm²) =	(0.75 * D³) / (ΔS * 1216)						

$$Ev2/Ev1 = 1.5$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1185.92	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)	0.45	0.55	0.65	0.75	0.84	0.95

D (mm) =	633	S1 (mm) =	8.43	S2 (mm) =	8.88	ΔS =	0.25
Ev2 (kg/cm²) =	(0.75 * D³) / (ΔS * 1000)						

Ev1 = Modulus of deformation during the loading stage

Ev2 = Modulus of deformation during the reloading stage

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S2 and S1 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+675 to 424+700
 Test No. : 08

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	19.89	0.11	19.82	0.18	19.86	0.14	0.14
2	0.83	19.78	0.22	19.69	0.31	19.68	0.32	0.28
3	1.25	19.62	0.38	19.49	0.51	19.46	0.54	0.48
4	1.67	19.49	0.51	19.34	0.66	19.29	0.71	0.63
5	2.08	19.37	0.63	19.20	0.80	19.11	0.89	0.77
6	2.50	19.27	0.73	19.09	0.91	18.94	1.06	0.90

Unloading Stage (1)

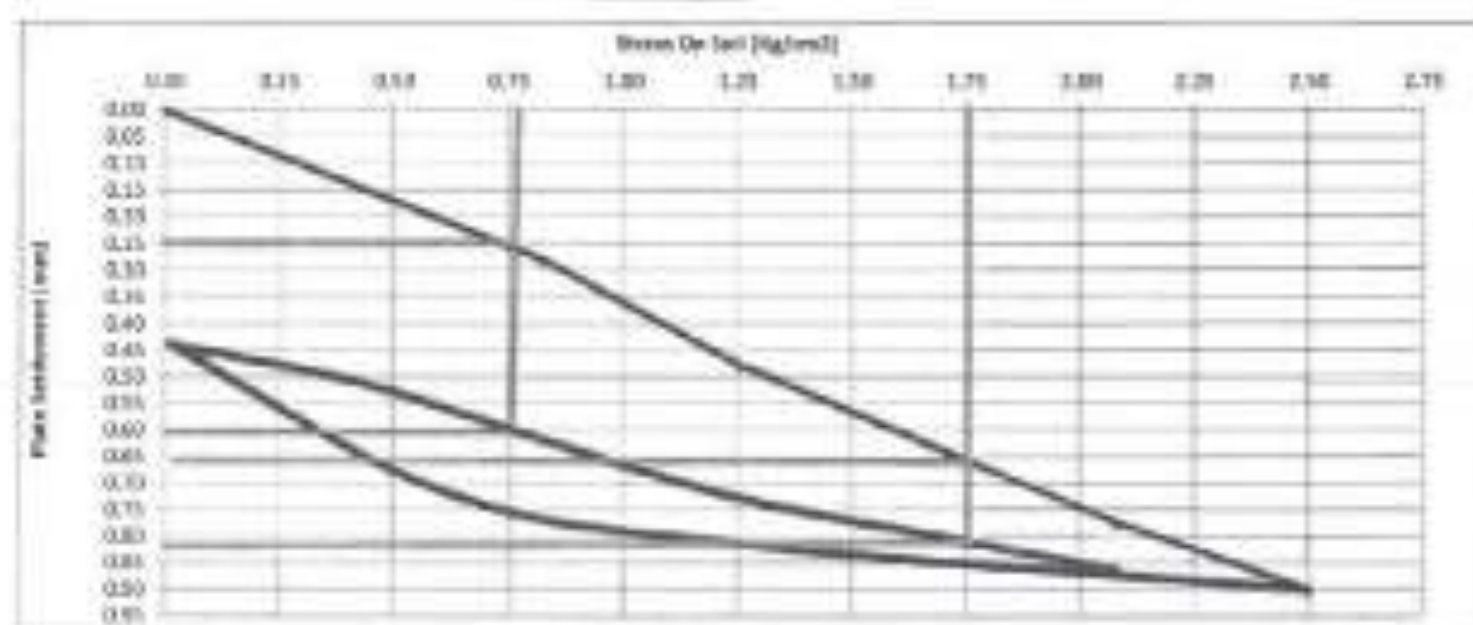
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.27	0.73	19.09	0.91	18.94	1.06	0.90
2	1.25	19.30	0.70	19.20	0.80	19.06	0.94	0.81
3	0.825	19.37	0.63	19.30	0.70	19.17	0.83	0.72
4	0.01	19.59	0.41	19.80	0.40	19.49	0.51	0.44

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.54	0.46	19.50	0.50	19.43	0.57	0.51
1	0.83	19.47	0.53	19.37	0.63	19.30	0.70	0.62
2	1.25	19.40	0.60	19.26	0.74	19.16	0.84	0.73
3	1.67	19.35	0.65	19.18	0.82	19.08	0.92	0.80
4	2.08	19.30	0.70	19.11	0.89	19.00	1.00	0.86

Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sector to Marsa Matruh Priority Sector (6) - Atamain to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+673 to 424+708
 Test No. : 08

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.6	3532.5	4719.4	5879.1	7065
Stress (Kg/cm²)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.14	0.28	0.48	0.63	0.77	0.90

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)	0.90	0.61	0.72	0.44

D (mm) =	600	S1 (mm) =	0.25	S2 (mm) =	0.88	ΔS =	0.41
Ev1 (kg/cm²) =	(0.75'D³ΔS)/ΔS						

$$Ev2/Ev1 = 1.0$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2345.6	3532.5	4719.4	5879.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.44	0.61	0.62	0.73	0.80	0.86

D (mm) =	600	S1 (mm) =	0.88	S2 (mm) =	0.82	ΔS =	0.22
Ev2 (kg/cm²) =	(0.75'D³ΔS)/ΔS						

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

ΔS = The difference between 0.2 and 0.7 from the maximum loading (mm) (kg/cm²)

ΔS = Difference in settlements corresponding to 0.2 and 0.7 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Mabrouh Priority Sector (E) - Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+700 to 424+725
 Test No. : 09

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	19.78	0.22	19.82	0.18	19.85	0.15	0.18
2	0.83	19.66	0.34	19.63	0.37	19.64	0.36	0.36
3	1.25	19.49	0.51	19.48	0.52	19.51	0.49	0.51
4	1.67	19.40	0.60	19.29	0.71	19.35	0.65	0.65
5	2.08	19.28	0.72	19.14	0.86	19.23	0.77	0.78
6	2.50	19.19	0.81	19.04	0.96	19.10	0.90	0.89

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.19	0.81	19.04	0.96	19.10	0.90	0.89
2	1.25	19.25	0.75	19.11	0.89	19.21	0.79	0.81
3	0.625	19.35	0.65	19.25	0.75	19.34	0.66	0.69
4	0.01	19.51	0.49	19.53	0.47	19.63	0.37	0.44

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.42	0.58	19.48	0.52	19.53	0.45	0.52
1	0.83	19.31	0.69	19.35	0.65	19.43	0.57	0.64
2	1.25	19.22	0.78	19.24	0.76	19.31	0.69	0.74
3	1.67	19.11	0.89	19.14	0.86	19.23	0.77	0.84
4	2.08	19.05	0.95	19.02	0.98	19.15	0.85	0.93



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sakhra to Marsa Matruh Priority Sector (B) - Alamein to Fara
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+700 to 424+725
 Test No. : 08

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.8	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	0.18	0.30	0.51	0.65	0.78	0.89

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)	0.89	0.81	0.68	0.44

D (mm) = 600	S1 (mm) = 0.32	S2 (mm) = 0.88	ΔS = 0.56
Ev1 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1288		

$$Ev2/Ev1 = 1.6$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.44	0.62	0.64	0.74	0.84	0.93

D (mm) = 600	S1 (mm) = 0.62	S2 (mm) = 0.48	ΔS = 0.23
Ev2 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1987		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Releasing stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S2 and S1 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 (6) - Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+725 to 424+750
 Test No. : 10

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	19.82	0.18	19.76	0.24	19.73	0.27	0.23
2	0.83	19.70	0.30	19.54	0.46	19.66	0.34	0.37
3	1.25	19.52	0.38	19.39	0.61	19.57	0.43	0.47
4	1.67	19.48	0.52	19.23	0.77	19.44	0.56	0.62
5	2.08	19.32	0.68	19.07	0.93	19.40	0.60	0.74
6	2.50	19.11	0.89	18.83	1.07	19.31	0.69	0.88

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.11	0.89	18.83	1.07	19.31	0.69	0.88
2	1.25	19.15	0.85	18.98	1.02	19.39	0.61	0.83
3	0.625	19.21	0.78	19.06	0.94	19.48	0.52	0.76
4	0.01	19.57	0.43	19.32	0.68	19.67	0.33	0.48

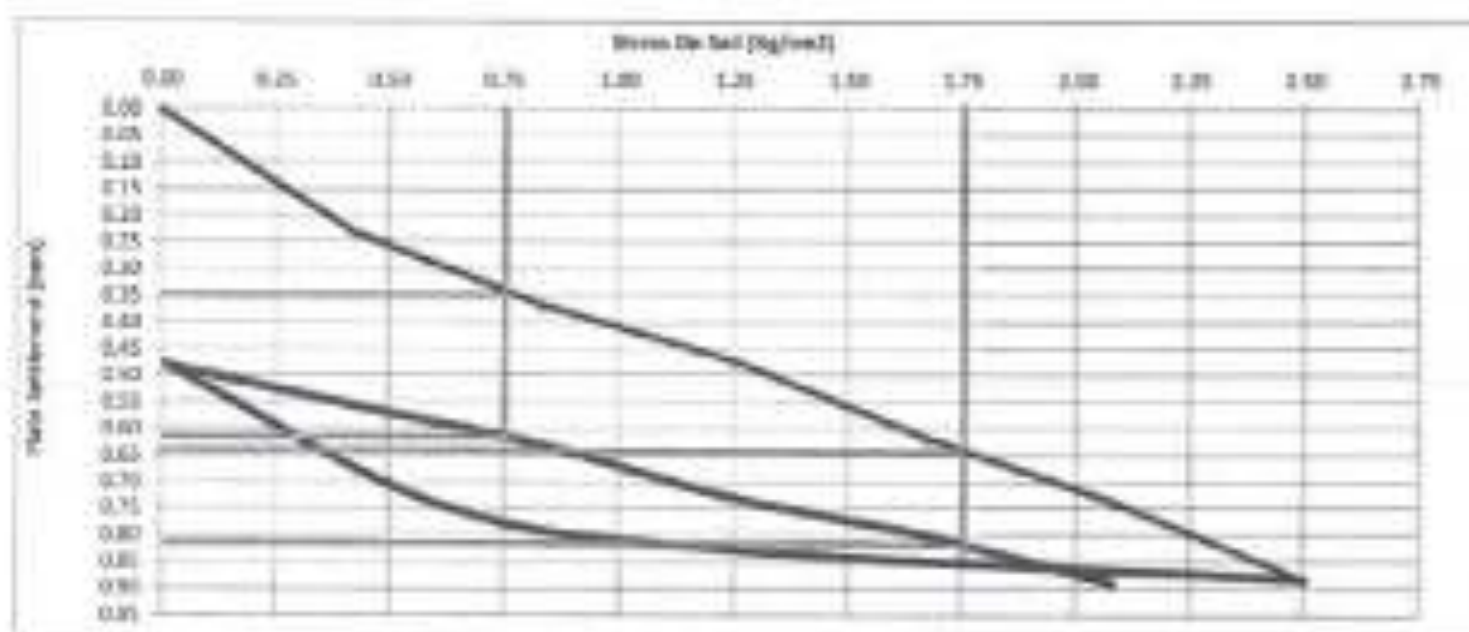
Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.50	0.50	19.23	0.77	19.60	0.40	0.56
1	0.83	19.41	0.59	19.16	0.84	19.54	0.46	0.63
2	1.25	19.34	0.66	19.08	0.92	19.39	0.61	0.73
3	1.67	19.25	0.75	19.00	1.00	19.35	0.66	0.80
4	2.08	19.17	0.83	18.92	1.08	19.24	0.76	0.89



Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marasa Matrouh Priority Sector (E) – Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+725 to 424+750
 Test No. : 13

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.8	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	0.29	0.37	0.47	0.62	0.74	0.88

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)	0.88	0.63	0.75	0.48

D (mm) = 600	S1 (mm) = 0.18	S2 (mm) = 0.68	ΔS = 0.50
Ev1 (kg/cm²) = $(5.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1560		

$Ev2/Ev1 = 1.6$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.42	0.50	0.63	0.75	0.80	0.88

D (mm) = 600	S1 (mm) = 0.62	S2 (mm) = 0.81	ΔS = 0.19
Ev2 (kg/cm²) = $(5.75 \cdot D^2 \cdot \Delta S) / \Delta S$	2388		

Ev1 = Modulus of deformation during the loading stage.
 Ev2 = Modulus of deformation during the Reloading stage.
 D = Plate diameter (mm)
 ΔS = The difference between S2 and S1 from the maximum loading (mm) (kg/cm²)
 ΔS = Difference in settlements corresponding to S2 and S1 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 (S) - Alamein to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+750 to 424+760
 Test No. : 11

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	19.79	0.21	19.56	0.34	19.70	0.30	0.28
2	0.83	19.57	0.43	19.45	0.55	19.49	0.51	0.50
3	1.25	19.32	0.68	19.16	0.84	19.29	0.71	0.74
4	1.67	19.09	0.91	18.91	1.09	19.12	0.88	0.96
5	2.08	18.91	1.09	18.74	1.26	18.97	1.03	1.13
6	2.50	18.74	1.26	18.55	1.45	18.79	1.21	1.31

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.74	1.26	18.55	1.45	18.79	1.21	1.31
2	1.25	18.84	1.16	18.74	1.26	18.87	1.13	1.18
3	0.825	19.03	0.97	18.99	1.01	19.06	0.94	0.97
4	0.01	19.43	0.57	19.54	0.46	19.45	0.55	0.53

Loading Stage (2)

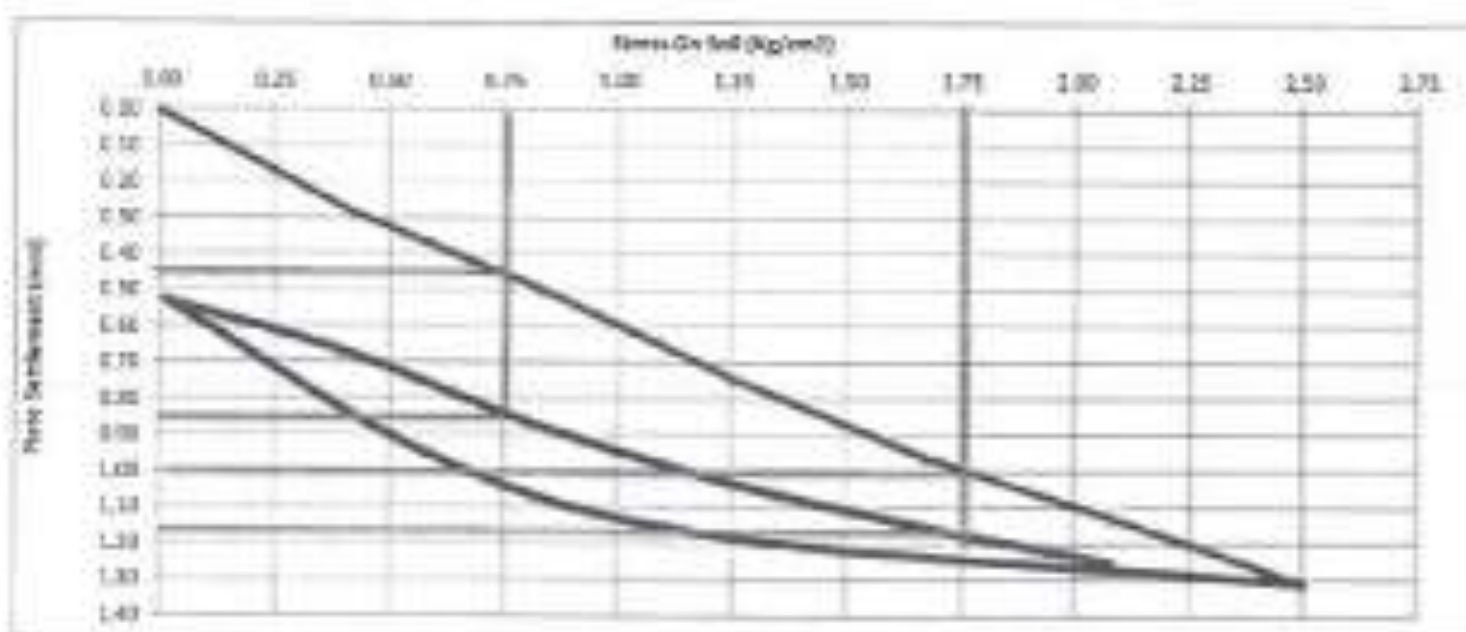
Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.32	0.68	19.34	0.66	19.31	0.69	0.68
1	0.83	19.16	0.84	19.04	0.96	19.17	0.83	0.88
2	1.25	19.00	1.00	18.87	1.13	19.03	0.97	1.03
3	1.67	18.87	1.13	18.74	1.26	18.93	1.07	1.15
4	2.08	18.78	1.22	18.64	1.36	18.83	1.17	1.25

Signature 1


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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Alamein to Foko
 Test Date : 13/04/2023
 Report Date : 13/04/2023
 Location : Station 424+750 to 424+793
 Test No. : 111

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	2.50
Settlement (mm)	0.00	0.28	0.50	0.74	0.96	1.13	1.31

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)	1.31	1.18	0.97	0.53

D (mm) = 600	S1 (mm) = 0.68	S2 (mm) = 1.08	ΔS = 0.35
Ev1 (kg/cm²) = (0.75 * D² * ΔS) / ΔS	818		

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)	0.53	0.68	0.88	1.05	1.15	1.25

Ev2/Ev1 = 1.7

D (mm) = 600	S1 (mm) = 0.85	S2 (mm) = 1.17	ΔS = 0.32
Ev2 (kg/cm²) = (0.75 * D² * ΔS) / ΔS	1490		

Signature:

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

S1 = The difference between S2 and S1 from the maximum loading (mm)

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



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 (425+300 to 425+600)
Test Date : 14/04/2023
Report Date : 18/04/2023
Type of soil : -----
Test level : Sub ballast
Report No. : 89.80

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:

Test level : Sub ballast

- Job requirement : $E_{v2} > 1200 \text{ Kg/cm}^2$ (120 MPa). $E_{v2}/E_{v1} \leq 2.2$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	600
- date of measurement	14/04/2023
- 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	425+300	425+325	938	1324	1.4
2	425+325	425+350	1148	2368	2.0
3	425+350	425+375	1364	1875	1.4
4	425+375	425+400	1500	1500	1.0
5	425+400	425+425	1500	1957	1.3
6	425+425	425+450	1125	2250	2.0
7	425+450	425+475	1216	1552	1.3
8	425+475	425+500	1098	2045	1.9
9	425+500	425+525	1250	1957	1.6
10	425+525	425+550	1500	2368	1.6
11	425+550	425+575	1098	1452	1.3
12	425+575	425+600	1364	1800	1.3

Signature /


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 219-891-5321
 011-26767231

Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Bokhna to Marsa Matrouh Priority Sector (6) – Alamin to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+300 to 425+325
Test No. : 01

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	19.67	0.33	19.72	0.28	19.65	0.35	0.32
2	0.83	19.43	0.57	19.48	0.52	19.39	0.61	0.57
3	1.25	19.21	0.79	19.28	0.72	19.20	0.80	0.77
4	1.67	19.02	0.98	19.06	0.94	18.96	1.04	0.98
5	2.08	18.81	1.19	18.86	1.14	18.78	1.22	1.18
6	2.50	18.60	1.40	18.71	1.29	18.61	1.39	1.36

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.60	1.40	18.71	1.29	18.61	1.39	1.36
2	1.25	18.63	1.37	18.74	1.26	18.63	1.37	1.33
3	0.825	18.73	1.27	18.84	1.16	18.74	1.26	1.23
4	0.01	19.29	0.71	19.42	0.58	19.21	0.79	0.69

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.18	0.82	19.32	0.68	19.10	0.80	0.80
1	0.83	18.96	1.04	19.16	0.84	18.98	1.02	0.97
2	1.25	18.72	1.28	19.02	0.98	18.89	1.11	1.12
3	1.67	18.62	1.38	18.89	1.11	18.76	1.24	1.24
4	2.08	18.51	1.49	18.73	1.27	18.64	1.36	1.37
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



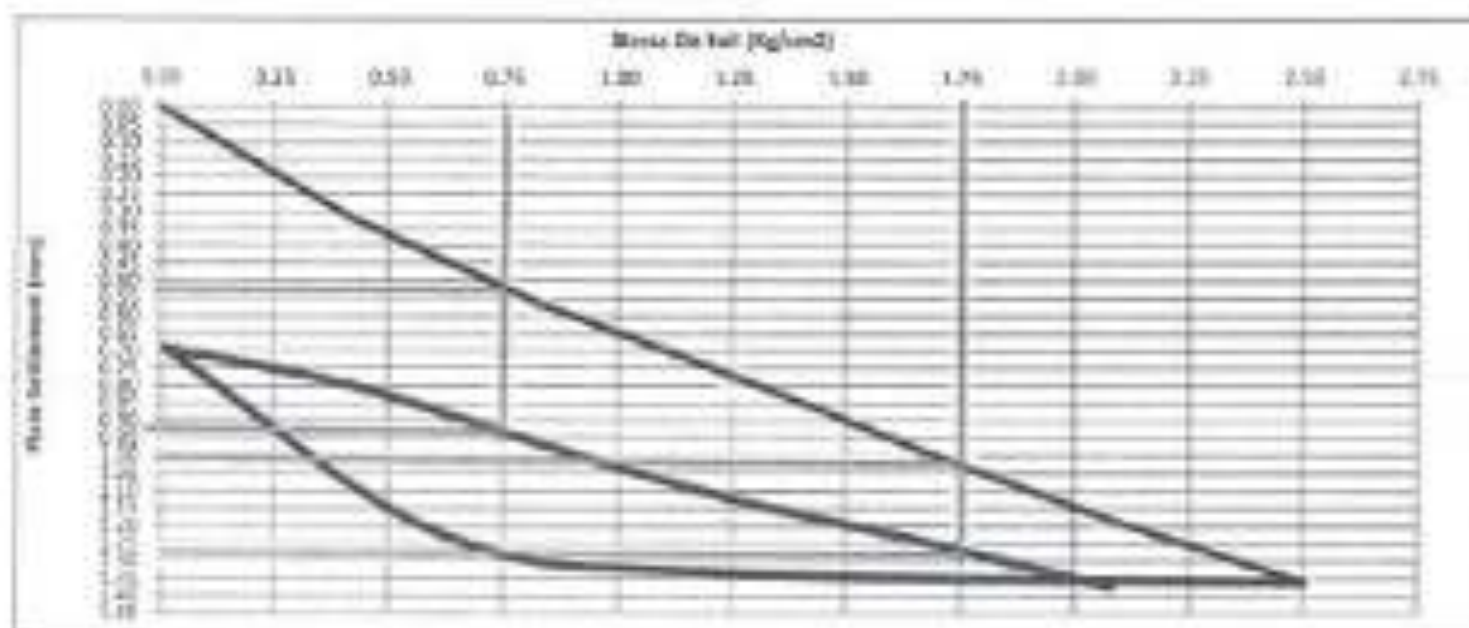
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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhra to Marsa Matruh Priority Sector (S) – Almain to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+300 to 425+325
Test No. : 01

Nonrepellive Static Plate Load Tests of Soils
DIN 18134



Loading (T)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.6	3532.8	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	0.32	0.57	0.77	0.99	1.18	1.36

UnLoading (T)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.825	0.01
Settlement (mm)	1.36	1.30	1.23	0.68

D (mm) = 600	S1 (mm) = 0.82	S2 (mm) = 1.08	ΔS = 0.48
Ev1 (kg/cm²) = (0.75'D³ΔS)/ΔS	908		

$$Ev2/Ev1 = 1.4$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.6	3532.8	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.08	0.80	0.87	1.12	1.24	1.37

D (mm) = 600	S1 (mm) = 8.82	S2 (mm) = 1.27	ΔS = 9.34
Ev2 (kg/cm²) = (0.75'D³ΔS)/ΔS	1324		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Unloading stage.

D = Plate diameter (mm)

ΔS = The difference between 0.3 and 0.7 from the maximum loading (mm) (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 (E) - Alamein to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+325 to 425+350
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	19.78	0.22	19.78	0.22	19.68	0.32	0.25
2	0.83	19.66	0.34	19.67	0.37	19.50	0.50	0.40
3	1.25	19.50	0.50	19.42	0.58	19.24	0.76	0.61
4	1.67	19.42	0.58	19.30	0.70	19.10	0.90	0.73
5	2.08	19.23	0.77	19.10	0.90	18.91	1.09	0.92
6	2.50	19.11	0.89	18.95	1.05	18.70	1.30	1.08

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.11	0.89	18.95	1.05	18.70	1.30	1.08
2	1.25	19.13	0.87	18.96	1.04	18.72	1.28	1.06
3	0.825	19.15	0.85	18.99	1.01	18.81	1.19	1.02
4	0.01	19.41	0.59	19.34	0.66	19.20	0.80	0.68

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.34	0.66	19.24	0.76	19.09	0.91	0.78
1	0.83	19.30	0.70	19.10	0.90	18.93	1.07	0.89
2	1.25	19.22	0.78	19.02	0.98	18.81	1.19	0.98
3	1.67	19.18	0.82	18.97	1.08	18.74	1.26	1.05
4	2.08	19.10	0.90	18.86	1.14	18.62	1.38	1.14



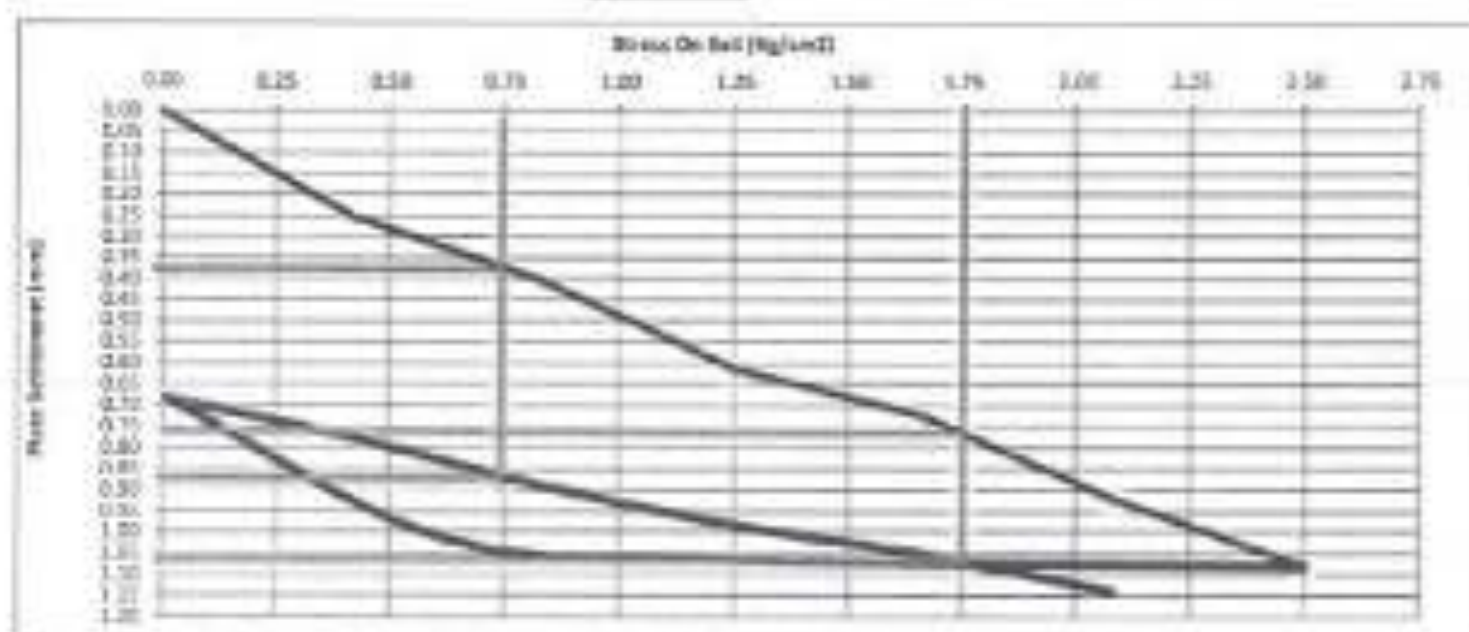
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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alamein to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+325 to 425+356
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.8	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	0.25	0.40	0.61	0.73	0.92	1.08

Unloading (1)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.833	0.01
Settlement (mm)	1.08	1.06	1.02	0.66

D (mm) =	600	E1 (mm) =	0.38	E2 (mm) =	0.18	ΔS =	0.38
Ev1 (kg/cm²) =	$(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$						
	1184						

$$Ev2/Ev1 = 0.8$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.00	0.78	0.89	0.96	1.00	1.14

D (mm) =	600	E1 (mm) =	0.87	E2 (mm) =	1.06	ΔS =	0.19
Ev2 (kg/cm²) =	$(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$						
	2368						

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

ΔS = The difference between S3 and S7 from the maximum loading (mm) (kg/cm²)

ΔS = Difference in settlement corresponding to 0.3 and 0.7 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 (6) - Alamein to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+350 to 425+375
 Test No. : 03

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	19.75	0.25	19.82	0.18	19.72	0.28	0.24
2	0.83	19.52	0.48	19.70	0.30	19.56	0.44	0.41
3	1.25	19.35	0.65	19.53	0.47	19.42	0.58	0.57
4	1.67	19.24	0.76	19.42	0.58	19.31	0.69	0.68
5	2.08	19.12	0.88	19.31	0.69	19.12	0.88	0.82
6	2.50	19.01	0.99	19.12	0.88	19.02	0.98	0.95

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.01	0.99	19.12	0.88	19.02	0.98	0.95
2	1.25	19.06	0.94	19.15	0.85	19.05	0.95	0.91
3	0.625	19.13	0.87	19.21	0.79	19.21	0.79	0.82
4	0.01	19.35	0.65	19.42	0.38	19.52	0.48	0.50

Loading Stage (2)

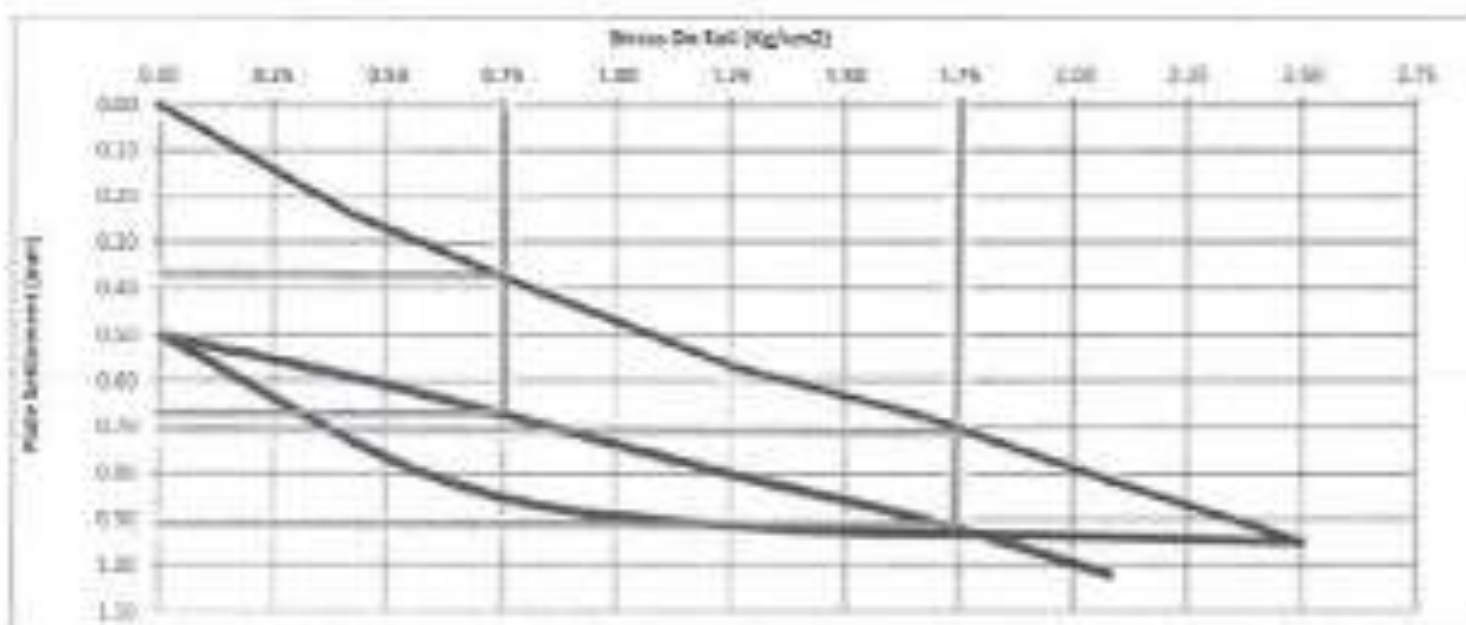
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.25	0.75	19.56	0.44	19.42	0.58	0.59
1	0.83	19.12	0.88	19.49	0.51	19.51	0.69	0.69
2	1.25	19.01	0.99	19.38	0.62	19.20	0.80	0.80
3	1.67	18.91	1.09	19.28	0.72	19.11	0.89	0.90
4	2.08	18.82	1.18	19.16	0.84	18.96	1.04	1.02



Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (B) – Almain to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+359 to 425+375
Test No. : 03

Nonrepetitive Static Plate Load Tests of Soils

QIN 18134



Loading (1)	0	1	2	3	4	5	6
Stress (Kg)	0	1188.92	2346.6	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	0.24	0.41	0.57	0.68	0.82	0.95

UnLoading (1)	1	2	3	4
Stress (Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	0.95	0.91	0.82	0.50

D (mm) = 600	S1 (mm) = 0.57	S2 (mm) = 0.70	ΔS = 0.33
Ev1 (kg/cm²) = $(0.75 \times D^2 \times \Delta S) / (AS)$	1304		

$$Ev2/Ev1 = 1.4$$

Loading (2)	0	1	2	3	4	5
Stress (Kg)	0	1188.92	2346.6	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.03	0.39	0.69	0.83	0.90	1.02

D (mm) = 600	S1 (mm) = 0.67	S2 (mm) = 0.91	ΔS = 0.24
Ev2 (kg/cm²) = $(0.75 \times D^2 \times \Delta S) / (AS)$	1675		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Retesting stage.

D = Plate diameter (mm)

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

AS = Difference in settlements corresponding to S1 and S2 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 (S) – Nainin to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+375 to 425+400
 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	19.82	0.18	19.72	0.28	19.85	0.14	0.20
2	0.83	19.72	0.28	19.59	0.41	19.76	0.24	0.31
3	1.25	19.62	0.38	19.47	0.53	19.64	0.36	0.42
4	1.67	19.51	0.49	19.37	0.63	19.43	0.57	0.56
5	2.08	19.39	0.61	19.24	0.76	19.24	0.76	0.71
6	2.50	19.24	0.76	19.12	0.88	19.06	0.94	0.86

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.24	0.76	19.12	0.88	19.06	0.94	0.86
2	1.25	19.25	0.75	19.16	0.84	19.09	0.91	0.83
3	0.625	19.32	0.68	19.22	0.78	19.15	0.85	0.77
4	0.01	19.52	0.48	19.54	0.46	19.52	0.48	0.47

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.46	0.54	19.46	0.54	19.35	0.65	0.58
1	0.83	19.32	0.68	19.37	0.63	19.21	0.79	0.70
2	1.25	19.21	0.79	19.31	0.69	19.02	0.98	0.82
3	1.67	19.02	0.98	19.19	0.81	18.92	1.08	0.96
4	2.08	18.96	1.04	19.08	0.92	18.84	1.16	1.04



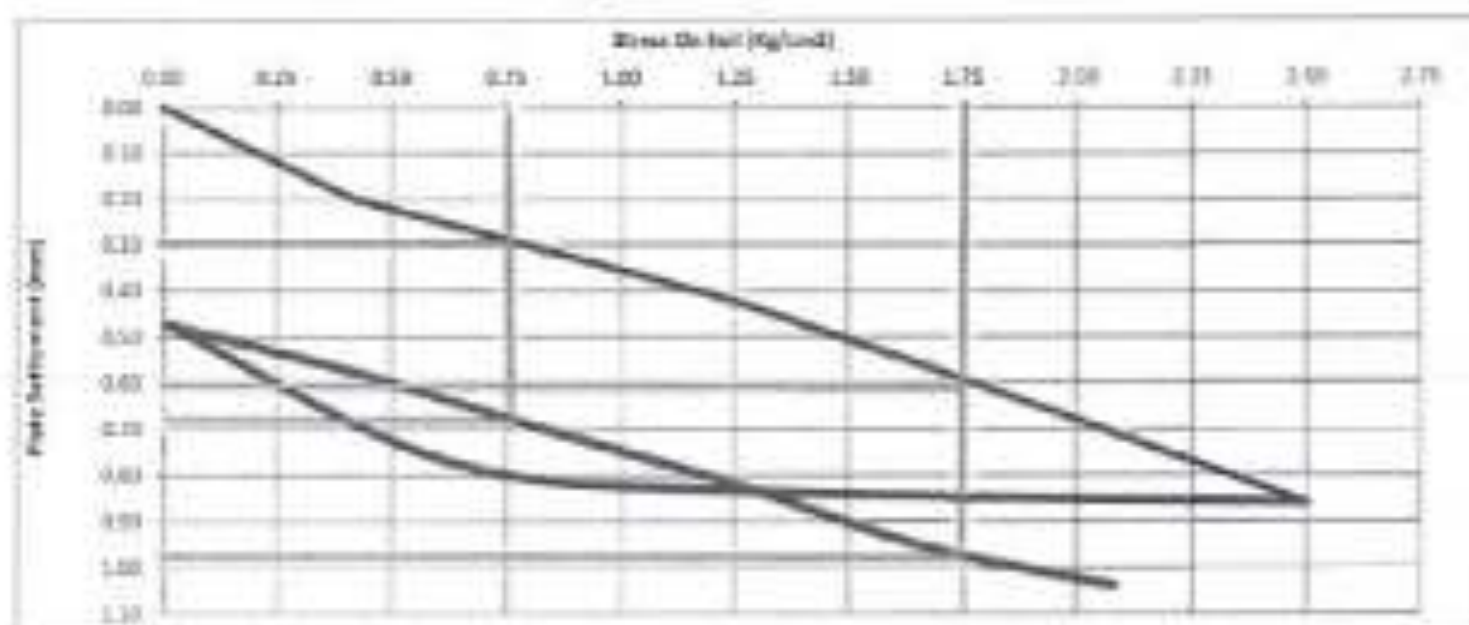
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Alwein to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+375 to 425+400
 Test No. : 04

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.82	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	0.20	0.31	0.42	0.58	0.71	0.85

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)	0.85	0.83	0.77	0.47

D (mm) =	600	S1 (mm) =	0.38	S2 (mm) =	0.88	ΔS =	0.30
Ev1 (kg/cm²) =	(0.75*D*Δs)/ΔS	1588					

Ex2/Ex1 = 1.4

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.82	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)	0.47	0.58	0.70	0.82	0.89	1.04

D (mm) =	600	S1 (mm) =	0.63	S2 (mm) =	0.98	ΔS =	0.30
Ex2 (kg/cm²) =	(0.75*D*Δs)/ΔS	1588					

Ev1 = Modulus of deformation during the loading stage.

Ex2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

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

S2 = Difference in settlement corresponding to 0.5 and 0.7 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 (S) - Alamein to Fuka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+400 to 425+425
Test No. : 05

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	19.89	0.11	19.86	0.14	19.82	0.18	0.14
2	0.83	19.77	0.23	19.73	0.27	19.69	0.31	0.27
3	1.25	19.62	0.38	19.61	0.39	19.56	0.44	0.40
4	1.67	19.53	0.47	19.50	0.50	19.42	0.58	0.52
5	2.08	19.41	0.59	19.35	0.65	19.21	0.79	0.68
6	2.50	19.30	0.70	19.19	0.81	19.04	0.96	0.82

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.30	0.70	19.19	0.81	19.04	0.96	0.82
2	1.25	19.40	0.60	19.23	0.77	19.10	0.90	0.76
3	0.825	19.52	0.48	19.32	0.68	19.18	0.82	0.66
4	0.01	19.73	0.27	19.64	0.36	19.61	0.56	0.40

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.69	0.31	19.56	0.44	19.38	0.62	0.46
1	0.83	19.59	0.41	19.47	0.53	19.27	0.73	0.56
2	1.25	19.50	0.50	19.37	0.63	19.18	0.82	0.65
3	1.67	19.41	0.59	19.28	0.72	19.09	0.91	0.74
4	2.08	19.28	0.72	19.14	0.86	19.01	0.99	0.86
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



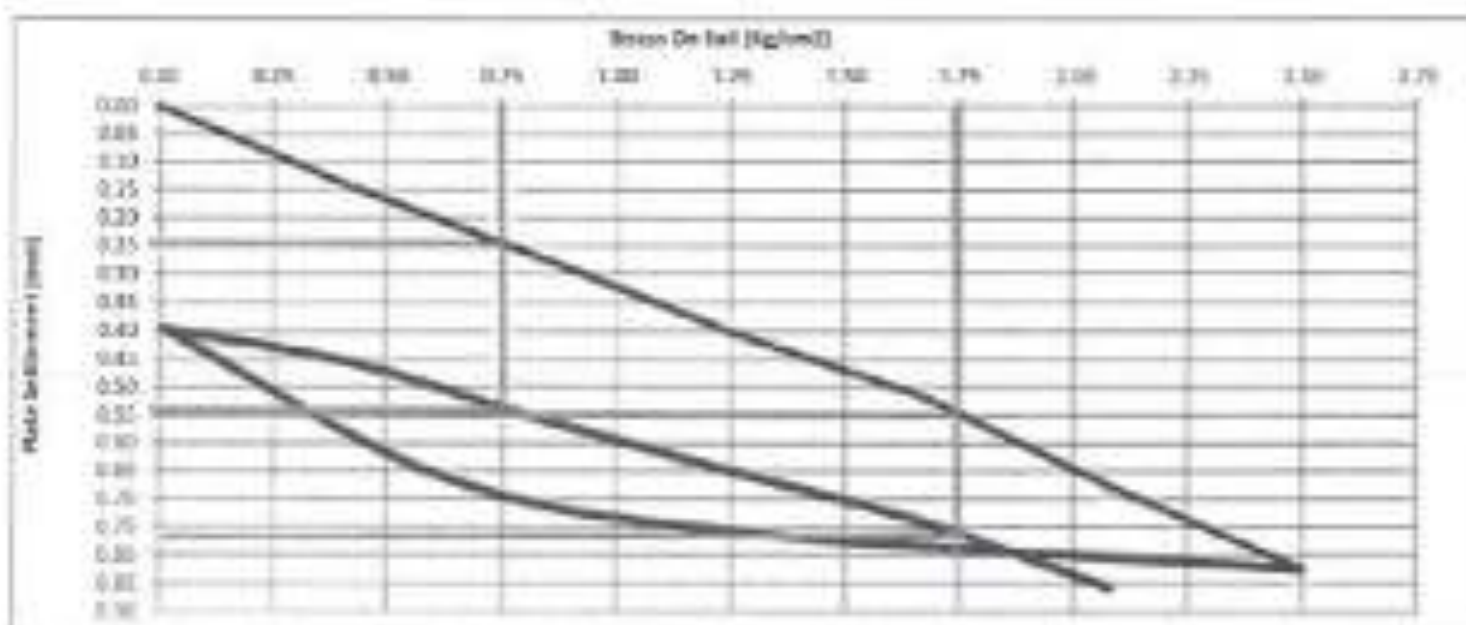
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Company Name	: Land marks Co.
Project	: Electric Express Train, from Al Ain Station to Marsa Matruh Priority Sector (B) – Alamein to Fuka
Test Date	: 14/04/2023
report date	: 18/04/2023
Location	: Station 425+400 to 425+425
Test No.	: 05

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (t)	0	1	2	3	4	5	6
Stress (Kg/cm ²)	0	1108.92	2348.8	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	0.14	0.27	0.40	0.52	0.68	0.82

Unloading (t)	1	2	3	4
Stage(%)	7025	2533	1768	0
Stress (Kg/cm ²)	2.50	1.25	0.625	0.01
Settlement (mm)	0.82	0.76	0.66	0.40

$D \text{ (mm)} = 630$	$S1 \text{ (mm)} = 8.25$	$S2 \text{ (mm)} = 9.55$	$\Delta S = 0.30$
$E_{\text{eff}} \text{ (kg/cm}^2\text{)} = 0.75 \times 0.8 \times 0.85$	1500		

Loading [2]	0	1	2	3	4	5
Stress (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
Sediment (mm)	0.40	5.46	9.98	16.55	27.4	46.88

Ev2Er1 • 13

D (mm) =	600	WT (mm)	0.34	XZ (mm)	0.77	$\delta\theta =$	0.23
Wt (g/cm ³) =	3.78*10 ⁻³ g/(mm)		1997				

Ev1 = Measures of deformation during the heating stage.

ED3 = Modulus of deformation during the Networking stage.

 $\bar{D}$ = Plate diameter (mm) Δz = The difference between 0.3 and 0.7 from the maximum loading (weight) (kg/m²)

III = 0.61; ratio is sufficiently corresponding to 0.5 and 0.7 from the maximum loading level.



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (S) - Alamein to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+425 to 425+450
 Test No. : 06

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	19.72	0.28	19.84	0.16	19.86	0.14	0.19
2	0.83	19.65	0.35	19.72	0.28	19.68	0.32	0.32
3	1.25	19.51	0.49	19.57	0.43	19.50	0.50	0.47
4	1.67	19.34	0.66	19.32	0.68	19.32	0.68	0.67
5	2.08	19.21	0.79	19.18	0.82	19.14	0.86	0.82
6	2.50	19.07	0.93	19.05	0.95	18.95	1.04	0.97

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.07	0.93	19.05	0.95	18.95	1.04	0.97
2	1.25	19.12	0.88	19.10	0.90	19.01	0.99	0.92
3	0.625	19.17	0.83	19.15	0.85	19.10	0.90	0.86
4	0.01	19.36	0.54	19.43	0.57	19.36	0.64	0.58

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.39	0.61	19.31	0.69	19.30	0.70	0.67
1	0.83	19.31	0.69	19.22	0.78	19.21	0.79	0.75
2	1.25	19.24	0.76	19.13	0.87	19.12	0.88	0.84
3	1.67	19.14	0.86	19.05	0.95	19.03	0.97	0.93
4	2.08	19.03	0.97	18.97	1.03	18.94	1.06	1.02



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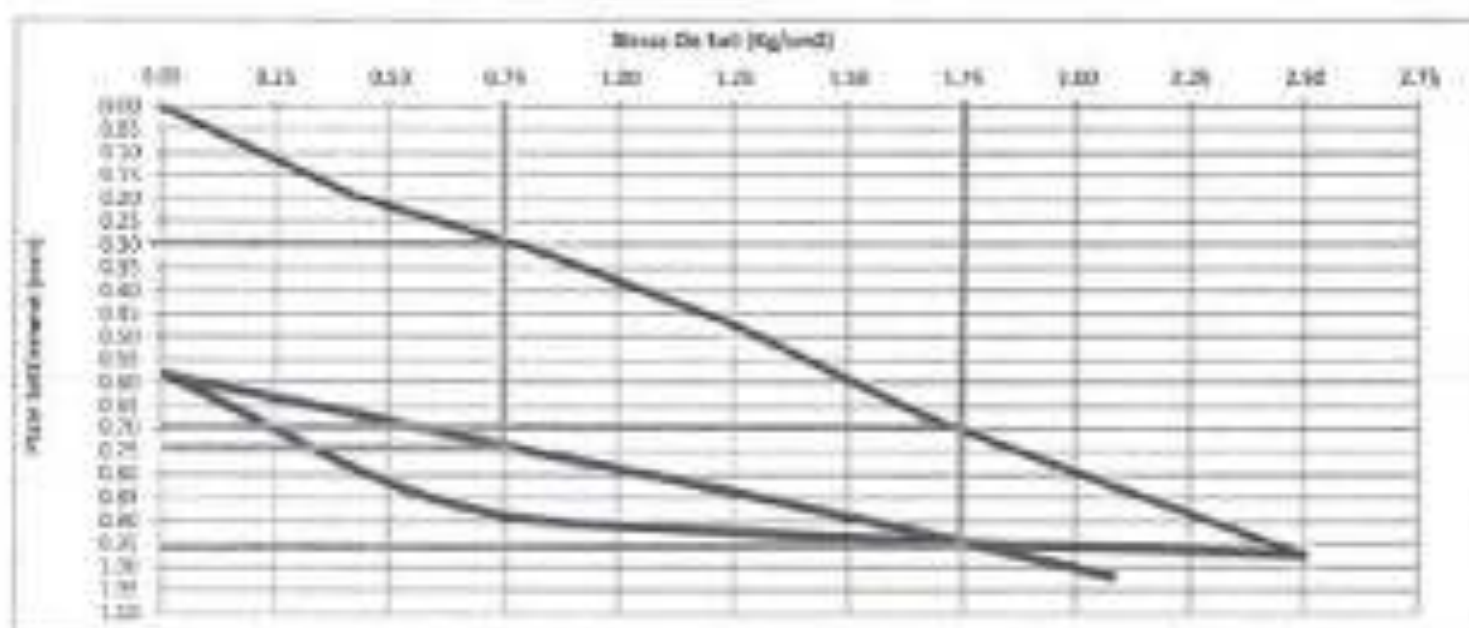


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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhra to Marsa Matrouh Priority Sector (5) – Alamin to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+425 to 425+438
Test No. : 06

Nonrepetitive Static Plate Load Tests of Soils

QIN 18134



Loading (1)	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	0.13	0.32	0.47	0.67	0.82	0.97

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)	0.97	0.92	0.86	0.96

D (mm) = 600	S1 (mm) = 0.38	S2 (mm) = 0.19	ΔS = 0.49
E _{v1} (kg/cm²) = $(8.75 \times D^2 \times \Delta S) / \Delta S$	1125		

$$E_{v2}/E_{v1} = 1.8$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	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)	0.03	0.67	0.76	0.84	0.93	1.02

D (mm) = 600	S1 (mm) = 0.74	S2 (mm) = 0.44	ΔS = 0.20
E _{v2} (kg/cm²) = $(8.75 \times D^2 \times \Delta S) / \Delta S$	2250		

E_{v1} = Modulus of deformation during the loading stage.

E_{v2} = Modulus of deformation during the Retesting stage.

D = Plate diameter (mm)

ΔS = The difference between S₁ and S₂ from the maximum loading (mm)

ΔS = Difference in settlements corresponding to 0.2 and 0.7 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 (B) - Almain to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+450 to 425+475
 Test No. : 07

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	19.72	0.28	19.72	0.28	19.79	0.21	0.26
2	0.83	19.40	0.60	19.55	0.45	19.56	0.44	0.50
3	1.25	19.25	0.75	19.38	0.62	19.36	0.64	0.67
4	1.67	19.09	0.91	19.21	0.79	19.29	0.71	0.80
5	2.08	18.94	1.06	19.06	0.94	19.16	0.84	0.95
6	2.50	18.84	1.16	18.90	1.10	19.02	0.98	1.08

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.84	1.16	18.90	1.10	19.02	0.98	1.08
2	1.25	18.90	1.10	18.99	1.01	19.09	0.91	1.01
3	0.825	18.99	1.01	19.13	0.87	19.21	0.79	0.89
4	0.01	19.34	0.66	19.41	0.59	19.56	0.44	0.58

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.25	0.75	19.34	0.66	19.39	0.61	0.67
1	0.83	19.18	0.82	19.17	0.83	19.28	0.72	0.79
2	1.25	19.10	0.90	19.05	0.95	19.18	0.82	0.89
3	1.67	18.96	1.04	18.94	1.06	19.10	0.90	1.00
4	2.08	18.83	1.17	18.82	1.18	18.98	1.02	1.12



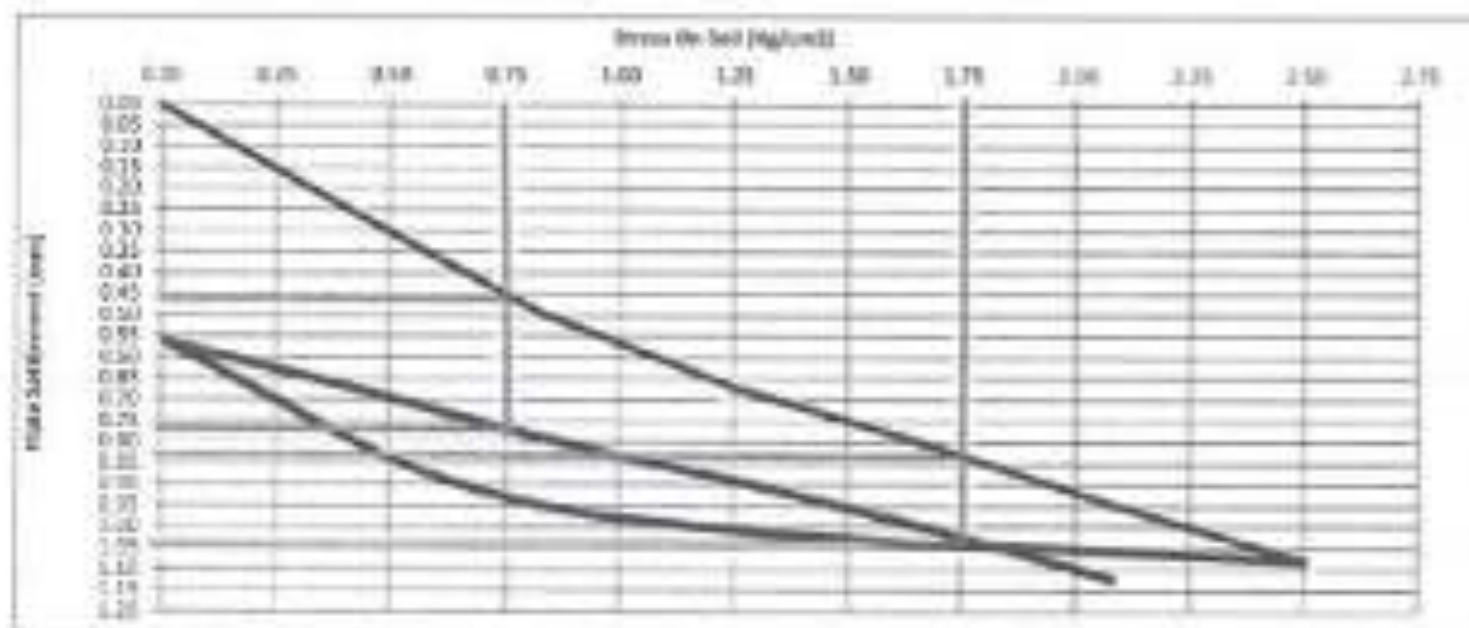
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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sakhra to Marsa Matruh Priority Sector (E) - Almain to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+450 to 425+475
Test No. : 07

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.8	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	0.28	0.50	0.87	0.83	0.25	1.08

Unloading (1)	1	2	3	4
Stage(Kg)	7065	5933	1768	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	1.00	1.01	0.89	0.56

D (mm) =	600	01 (mm) =	0.48	S2 (mm) =	0.43	ΔS =	0.37
Ex1 (kg/cm²) =	(8.75*D²Δs)/ΔS						1218

$Ex2/Ex1 = 1.8$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.56	0.87	0.79	0.89	1.00	1.12

D (mm) =	900	S1 (mm) =	4.76	S2 (mm) =	1.85	ΔS =	0.29
Ex2 (kg/cm²) =	(8.75*D²Δs)/ΔS						1552

Ex1 = Modulus of deformation during the loading stage.
Ex2 = Modulus of deformation during the Reloading stage.
D = Plate diameter (mm)
Δs = The difference between 0.3 and 0.7 from the maximum loading (mm) (kg/cm²)
ΔS = Difference in settlements corresponding to 0.3 and 0.7 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 (B) - Alamein to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+475 to 425+500
 Test No. : 08

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	19.89	0.11	19.82	0.18	19.86	0.14	0.14
2	0.83	19.78	0.22	19.69	0.31	19.68	0.32	0.28
3	1.25	19.62	0.38	19.49	0.51	19.46	0.54	0.48
4	1.67	19.49	0.51	19.34	0.66	19.29	0.71	0.63
5	2.08	19.37	0.63	19.20	0.80	19.11	0.89	0.77
6	2.50	19.27	0.73	19.09	0.91	18.94	1.06	0.90

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.27	0.73	19.09	0.91	18.94	1.06	0.90
2	1.25	19.30	0.70	19.20	0.80	19.06	0.94	0.81
3	0.625	19.37	0.63	19.30	0.70	19.17	0.83	0.72
4	0.01	19.59	0.41	19.60	0.40	19.49	0.51	0.44

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.54	0.46	19.50	0.50	19.43	0.57	0.51
1	0.83	19.47	0.53	19.37	0.63	19.30	0.70	0.62
2	1.25	19.40	0.60	19.26	0.74	19.16	0.84	0.73
3	1.67	19.35	0.65	19.18	0.82	19.06	0.92	0.80
4	2.08	19.30	0.70	19.11	0.89	19.00	1.00	0.88



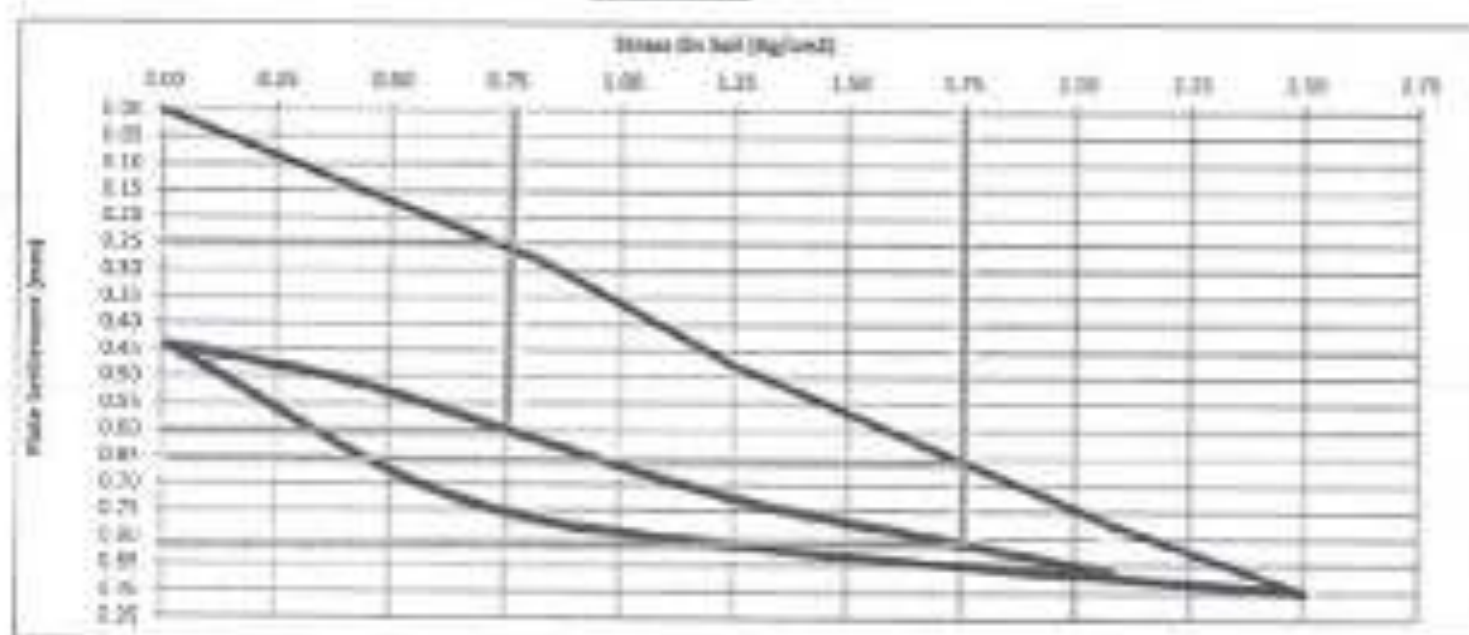
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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Marssa Matruh Priority Sector (R) - Alamein to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+475 to 435+500
Test No. : 08

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	2.50
Settlement (mm)	0.00	0.14	0.28	0.43	0.63	0.77	0.90

Unloading (1)	1	2	3	4
Stage(Kg)	7065	3532.5	1766	0
Stress (Kg/cm²)	2.50	1.25	0.825	0.01
Settlement (mm)	0.90	0.81	0.72	0.44

D (mm) = 600	S1 (mm) = 0.23	S2 (mm) = 0.66	ΔS = 0.41
Ev1 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta s) / \Delta S$	3333		

$Ev2/Ev1 = 1.9$

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)	0.44	0.51	0.62	0.73	0.80	0.88

D (mm) = 600	S1 (mm) = 0.66	S2 (mm) = 0.32	ΔS = 0.32
Ev2 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta s) / \Delta S$	3945		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S2 and S1 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 (S) - Alamein to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+500 to 425+525
 Test No. : 09

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	19.78	0.22	19.82	0.18	19.85	0.15	0.18
2	0.83	19.66	0.34	19.63	0.37	19.64	0.36	0.36
3	1.25	19.49	0.51	19.48	0.52	19.51	0.49	0.51
4	1.67	19.40	0.60	19.29	0.71	19.35	0.65	0.65
5	2.08	19.28	0.72	19.14	0.86	19.23	0.77	0.78
6	2.50	19.19	0.81	19.04	0.96	19.10	0.90	0.89

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.19	0.81	19.04	0.96	19.10	0.90	0.89
2	1.25	19.25	0.75	19.11	0.89	19.21	0.79	0.81
3	0.825	19.33	0.65	19.25	0.75	19.34	0.66	0.68
4	0.01	19.51	0.49	19.53	0.47	19.65	0.37	0.44

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.42	0.58	19.48	0.52	19.55	0.45	0.52
1	0.83	19.31	0.69	19.35	0.65	19.43	0.57	0.64
2	1.25	19.22	0.78	19.24	0.76	19.31	0.69	0.74
3	1.67	19.11	0.89	19.14	0.86	19.23	0.77	0.84
4	2.08	19.05	0.95	19.02	0.98	19.15	0.85	0.93



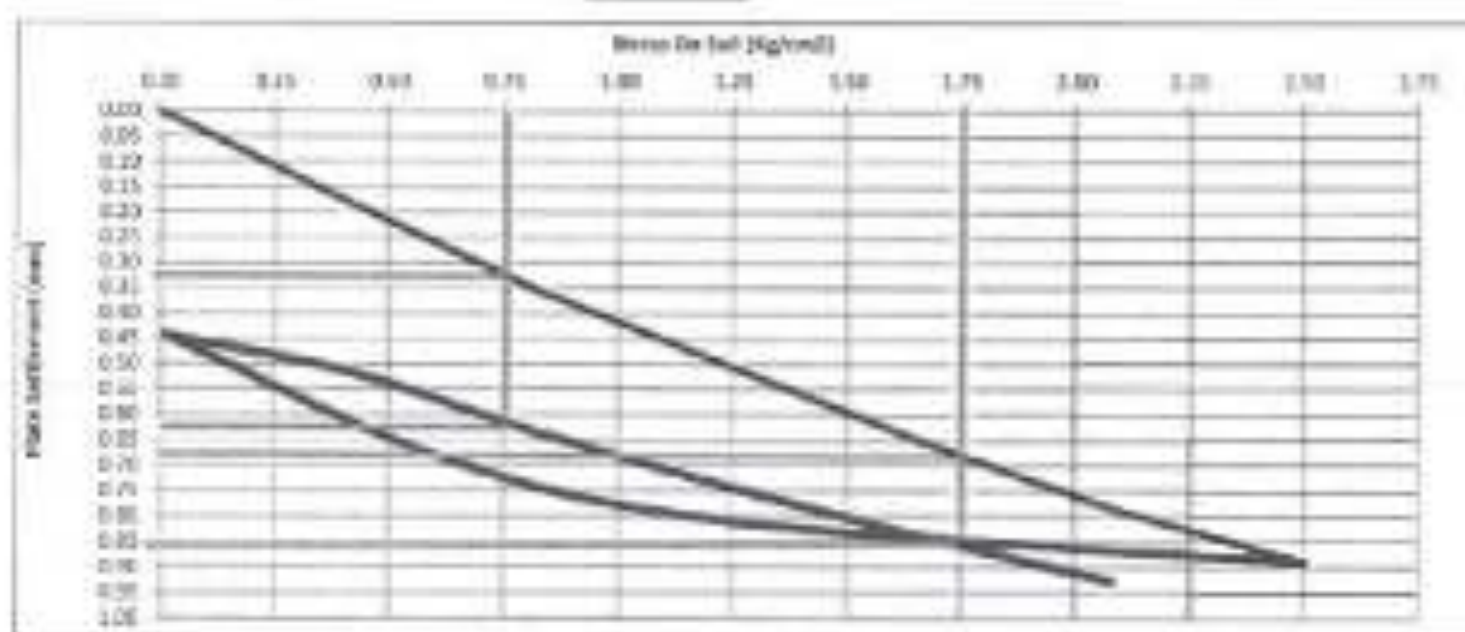
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sektine to Mersa Matruh Priority Sector (R) - Almain to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+500 to 425+525
 Test No. : 09

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.8	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	0.18	0.38	0.51	0.65	0.78	0.83

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)	0.89	0.61	0.05	0.44

D (mm) = 600	S1 (mm) = 0.32	S2 (mm) = 0.68	ΔS = 0.36
Ex1 (kg/cm²) = $(8.75/D^2 \Delta S) / 0.25$	1293		

$$Ex2/Ex1 = 1.4$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.44	0.52	0.64	0.74	0.84	0.93

D (mm) = 600	S1 (mm) = 0.83	S2 (mm) = 0.85	ΔS = 0.23
Ex2 (kg/cm²) = $(8.75/D^2 \Delta S) / 0.25$	1957		

Ex1 = Modulus of deformation during the loading stage.

Ex2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

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

DB = Difference in settlements corresponding to S2 and S1 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marxa Matrouh Priority Sector (B) - Alamein to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+525 to 425+550
 Test No. : 10

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	19.82	0.18	19.76	0.24	19.73	0.27	0.23
2	0.83	19.70	0.30	19.54	0.46	19.66	0.34	0.37
3	1.25	19.62	0.38	19.39	0.61	19.57	0.43	0.47
4	1.67	19.48	0.52	19.23	0.77	19.44	0.56	0.62
5	2.08	19.32	0.68	19.07	0.93	19.40	0.60	0.74
6	2.50	19.11	0.89	18.93	1.07	19.31	0.69	0.88

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.11	0.89	18.93	1.07	19.31	0.69	0.88
2	1.25	19.15	0.85	18.98	1.02	19.39	0.61	0.83
3	0.825	19.22	0.78	19.06	0.94	19.48	0.52	0.75
4	0.01	19.57	0.43	19.32	0.68	19.67	0.33	0.48

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.50	0.50	19.23	0.77	19.60	0.40	0.56
1	0.83	19.41	0.59	19.16	0.84	19.54	0.46	0.63
2	1.25	19.34	0.66	19.08	0.92	19.39	0.61	0.73
3	1.67	19.25	0.75	19.00	1.00	19.35	0.65	0.80
4	2.08	19.17	0.83	18.92	1.08	19.14	0.76	0.89



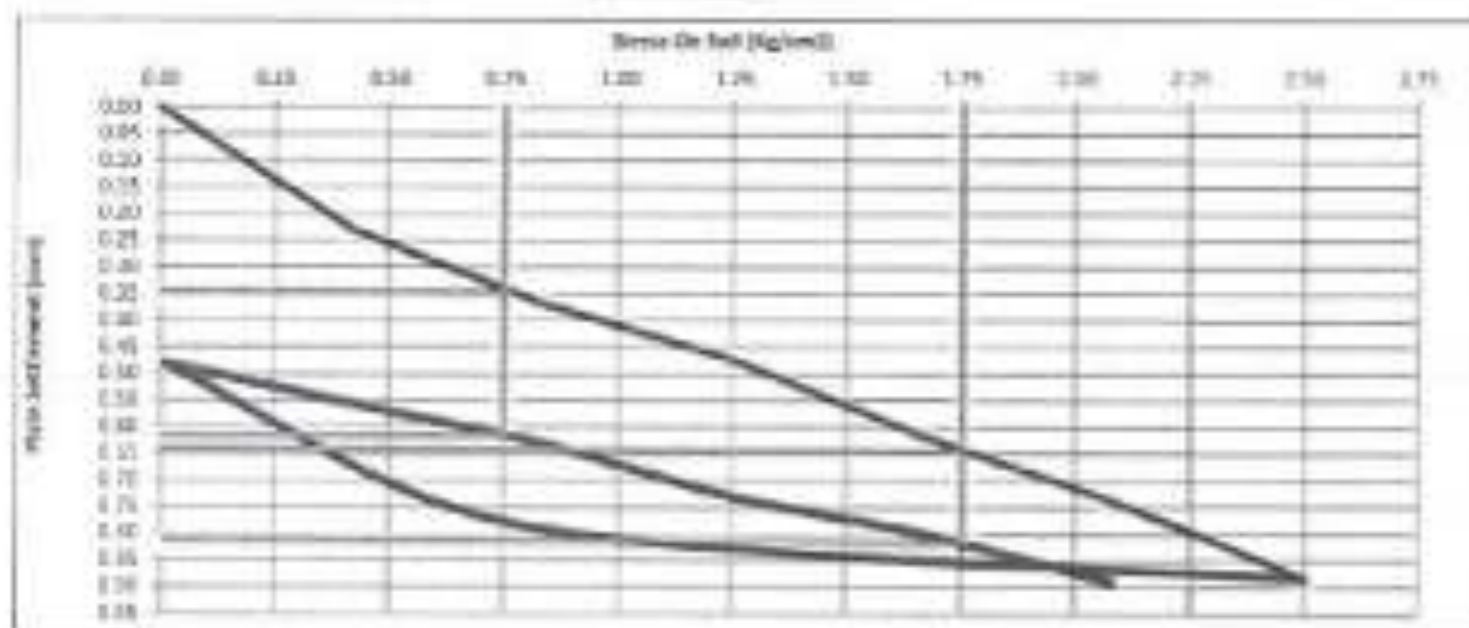
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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhra to Marsa Matrouh Priority Sector (S) – Alamein to Fouka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+525 to 425+550
Test No. : 50

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (T)	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	2.50
Settlement (mm)	0.00	0.33	0.57	0.67	0.82	0.74	0.68

UnLoading (T)	1	2	3	4
Stage(Kg)	7065	3532.5	1768	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	0.88	0.83	0.75	0.48

D (mm) = 500	S1 (mm) = 0.33	S2 (mm) = 0.88	ΔS = 0.30
Ev1 (kg/cm²) = $(3.75 \times 0.33) / 0.5$	1590		

$$E_v2/E_v1 = 1.8$$

Loading (T)	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)	0.48	0.55	0.63	0.73	0.80	0.88

D (mm) = 600	S1 (mm) = 0.62	S2 (mm) = 0.81	ΔS = 0.19
Ev2 (kg/cm²) = $(3.75 \times 0.62) / 0.5$	2368		

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 (mm) (kg/cm²)

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



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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 : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+750 to 424+760
 Test No. : 11

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	19.56	0.14	19.75	0.25	19.78	0.22	0.20
2	0.83	19.55	0.35	19.56	0.44	19.67	0.33	0.37
3	1.25	19.50	0.50	19.38	0.62	19.48	0.52	0.55
4	1.87	19.42	0.68	19.21	0.79	19.29	0.71	0.73
5	2.08	19.15	0.85	19.08	0.92	19.12	0.88	0.88
6	2.50	19.01	0.99	18.90	1.10	19.02	0.98	1.02

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.01	0.99	18.90	1.10	19.02	0.98	1.02
2	1.25	19.08	0.92	18.95	1.05	19.06	0.94	0.97
3	0.625	19.16	0.84	19.11	0.89	19.20	0.80	0.84
4	0.01	19.48	0.52	19.41	0.59	19.53	0.47	0.53

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.32	0.68	19.30	0.70	19.46	0.52	0.63
1	0.83	19.21	0.79	19.21	0.79	19.37	0.83	0.74
2	1.25	19.08	0.92	19.10	0.90	19.22	0.78	0.87
3	1.67	18.93	1.07	18.97	1.03	19.10	0.90	1.00
4	2.08	18.78	1.22	18.86	1.14	18.94	1.06	1.14



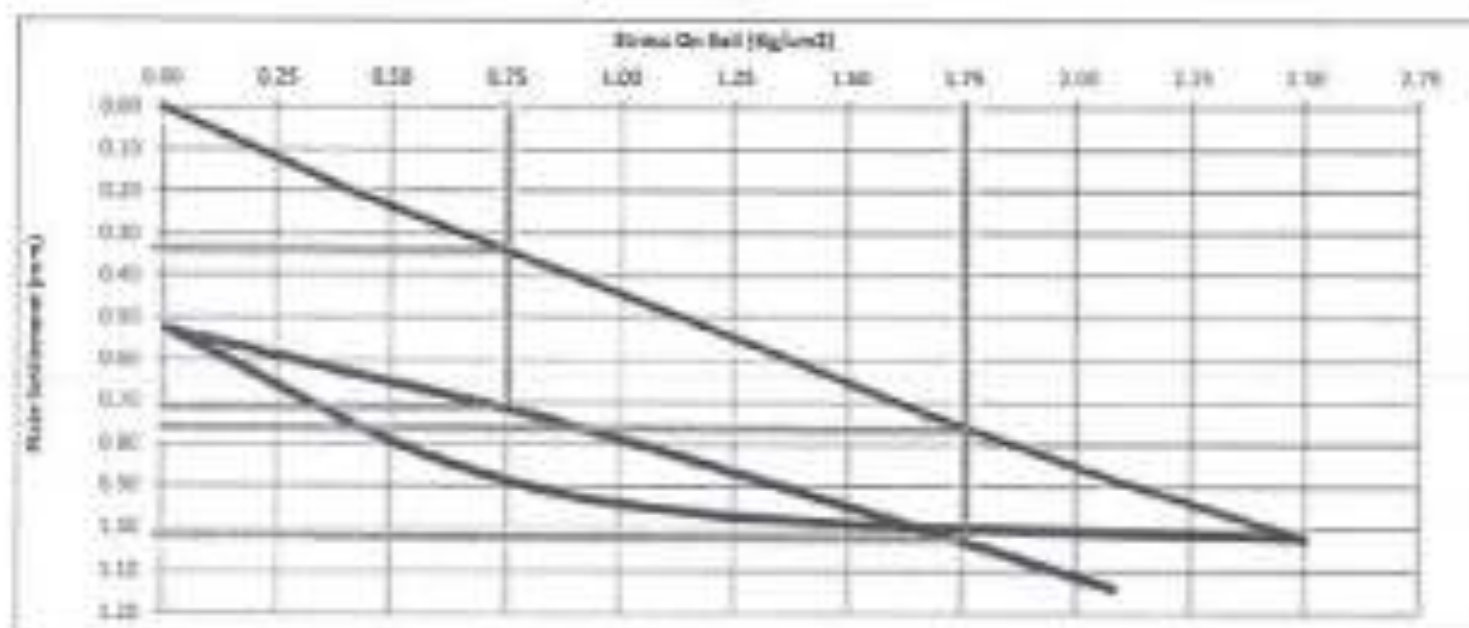
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www.cel-egypt.com

Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sekhna to Marsa Matruh Priority Sector (S) - Alayia to Foka
 Test Date : 13/04/2023
 report date : 13/04/2023
 Location : Station 424+750 to 424+760
 Test No. : 11

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	2.50
Settlement (mm)	0.00	0.30	0.37	0.55	0.73	0.88	1.02

Unloading (1)	1	2	3	4
Stage(Kg)	7065	3532	1768	0
Stress (Kg/cm²)	2.50	1.25	0.825	0.01
Settlement (mm)	1.02	0.97	0.84	0.53

D (mm) =	600	S1 (mm) =	0.38	S2 (mm) =	0.79	ΔS =	0.41
Ex1 (kg/cm²) =	(0.75'D'Δs)/ΔS		1088				

$E_{v2}/E_{v1} = 1.3$

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)	0.53	0.63	0.74	0.87	1.00	1.14

D (mm) =	600	S1 (mm) =	0.79	S2 (mm) =	1.81	ΔS =	0.31
Ex2 (kg/cm²) =	(0.75'D'Δs)/ΔS		1482				

Ex1 = Modulus of deformation during the loading stage
 Ex2 = Modulus of deformation during the Reloading stage
 D = Plate diameter (mm)
 Δs = The difference between 0.5 and 0.7 from the maximum loading (mm) (kg/cm²)
 ΔS = Difference in settlements corresponding to 0.5 and 0.7 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 (6) - Alamein to Foka
 Test Date : 14/04/2023
 report date : 18/04/2023
 Location : Station 425+575 to 425+600
 Test No. : 12

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	19.84	0.16	19.90	0.10	19.85	0.15	0.14
2	0.83	19.75	0.25	19.76	0.24	19.68	0.37	0.29
3	1.25	19.63	0.37	19.66	0.34	19.50	0.50	0.40
4	1.67	19.50	0.50	19.41	0.59	19.34	0.66	0.58
5	2.08	19.38	0.62	19.31	0.69	19.24	0.76	0.69
6	2.50	19.21	0.79	19.21	0.79	19.12	0.88	0.82

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.21	0.79	19.21	0.79	19.12	0.88	0.82
2	1.25	19.27	0.73	19.25	0.75	19.16	0.84	0.77
3	0.625	19.38	0.62	19.36	0.64	19.24	0.76	0.67
4	0.01	19.67	0.33	19.58	0.42	19.61	0.39	0.38

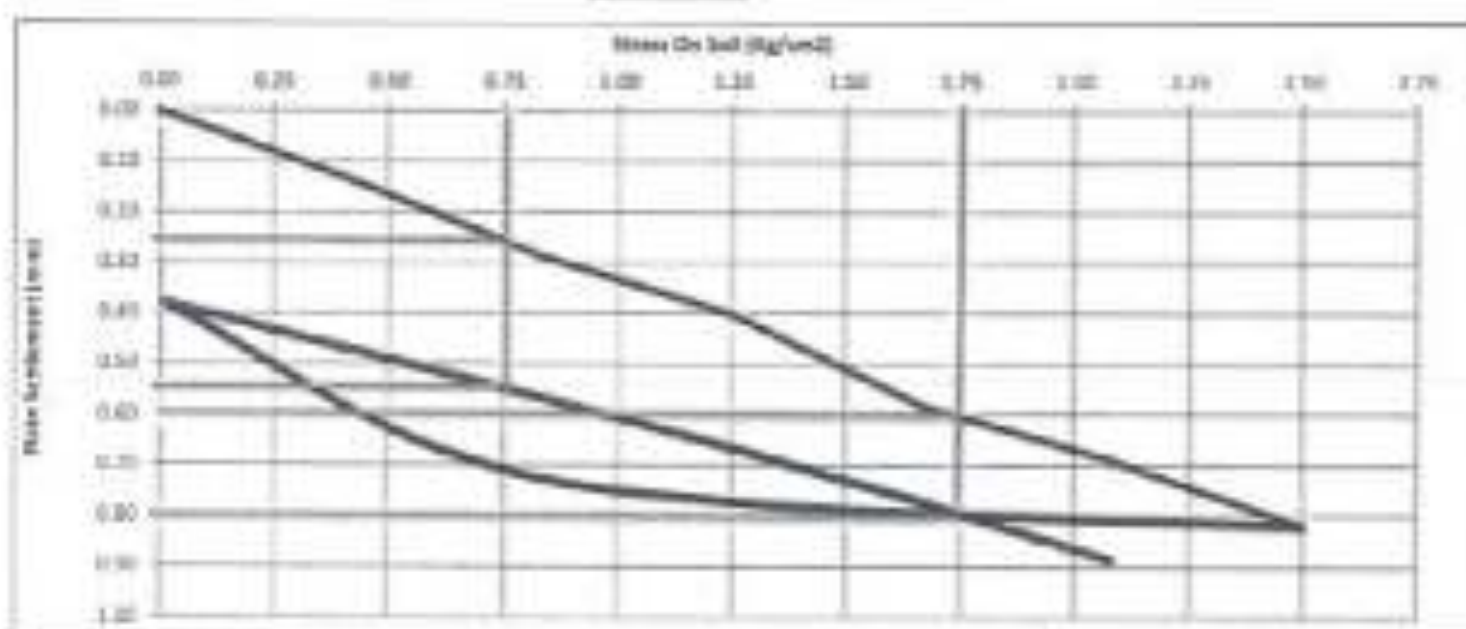
Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.55	0.45	19.50	0.50	19.53	0.47	0.47
1	0.83	19.47	0.53	19.41	0.59	19.42	0.58	0.57
2	1.25	19.36	0.64	19.32	0.68	19.32	0.68	0.67
3	1.67	19.24	0.76	19.22	0.78	19.22	0.78	0.77
4	2.08	19.18	0.82	19.07	0.93	19.09	0.91	0.89



Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Alamein to Foka
Test Date : 14/04/2023
report date : 18/04/2023
Location : Station 425+575 to 425+600
Test No. : 12

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	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	0.14	0.29	0.40	0.58	0.69	0.82

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3532	1768	0
Stress (Kg/cm2)	2.50	1.25	0.825	0.01
Settlement (mm)	0.82	0.77	0.67	0.38

D (mm) =	600	S1 (mm) =	0.37	S2 (mm) =	0.40	ΔS =	0.33
Ev1 (kg/cm2) =	(0.75*D ² ΔS)/ΔS						1364

$$Ev2/Ev1 = 1.3$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	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)	0.38	0.47	0.57	0.67	0.77	0.89

D (mm) =	800	S1 (mm) =	0.55	S2 (mm) =	0.48	ΔS =	0.25
Ev2 (kg/cm2) =	(0.75*D ² ΔS)/ΔS						1880

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 (mm) (kg/cm²)

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



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مركز الاستشارات الهندسية
للطرق والمطارات والموانئ
والجسور



الهيئة العامة
للمطارات والكباري
(GARB)



وزارة النقل



مشروع الطرق الكهرملي فائق السرعة قطاع (العدين - فوكة)
المقايمة التقديرية لتبؤد الاعمال تنفيذ شركة لاند ماركس للمقاولات العمومية انجاز الطريق المساحي
القطاع من المحطة 424+600 الى 425+600

رقم البند	بيان الأعمال	الوحدة	كمية	الاجملي
4	طبقة الأساس			
4-1	بالمتر المكعب اعمال توريد وفرش طبقة اساس (Prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسرات والمطابقة للمواصفات والقصي حجم للحبيبات 100 مم والا تزيد نسبة المنخل 200 عن 12 % والتكسج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 25 % ولا تزيد نسبة الفاك بجهز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرولة (EV2) من تجربة لوح التحميل عن 80 ميجاباسكال ويتم فردها على طبقتين باستخدام الآلات التسوية الحديثة على الا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم ورشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى القصي كثافة جافة (لا تقل عن 95%) من الكثافة المعملية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبلد بجميع مشتعلات طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف حسابه النقل 20 كم و يتم احتساب علاوة 1.2 جنية لكل 1 كم بالزيادة او النقصان السعر يشمل قيمة المواد المحجيرة طبقا لائحة المنطقة بهذا القطاع (6) من الكم 395 الى الكم 504 .	3م	4587.06	1,275,202.680
	علاوة مسافة النقل 147 كم	3م	162.4	699,067.944
	علاوة تحصيل رسوم الكارثة والموازن طبقا لائحة الشركة الوطنية	3م	25	114,676.500
4-2	بالمتر المكعب اعمال توريد وفرش طبقة اساس من الاحجار الصلبة المتدرجة ناتج تكسير الكسرات والمطابقة للمواصفات والقصي حجم للحبيبات ما بين 31.5 مم الى 40 مم والا تزيد نسبة المنخل 200 عن 5 % والتكسج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 80 % ولا تزيد نسبة الفاك بجهز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرولة (EV2) من تجربة لوح التحميل عن 120 ميجاباسكال ويتم فردها على طبقتين باستخدام الآلات التسوية الحديثة على الا يزيد سمك الطبقة بعد تمام الدمك عن 20 سم ورشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى القصي كثافة جافة (لا تقل عن 100%) من الكثافة المعملية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبلد بجميع مشتعلات طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف مسافة النقل 20 كم و يتم احتساب علاوة 1.2 جنية لكل 1 كم بالزيادة او النقصان السعر يشمل قيمة المواد المحجيرة طبقا لائحة المنطقة بهذا القطاع (6) من الكم 395 الى الكم 504 .	3م	3161.70	842,186.600
	علاوة مسافة النقل 147 كم	3م	162.4	481,843.080
	علاوة تحصيل رسوم الكارثة والموازن طبقا لائحة الشركة الوطنية	3م	25	79,042.500

مدير المشروع (الهيئة)

م/محمّد حسني قياتش

مدير المشروع (الهيئة)

م / ابراهيم الحناوي

مدير المشروع الاستشاري

م / مصطفى نجم

مدير المشروع المقاول

م / هشام محمد حامد

شركة لاند ماركس
للمقاولات العمومية والتوريدات
ب.ش ٦٩٩ - ٧٩٦ - ١٥٢



مركز الاستشارات الهندسية
للمباني والمباني والمباني
الهندسية



الهيئة العامة
للتنظيم والكفالة
(GAR)



وزارة النقل



مشروع القطر الكهربائي، فائق السرعة، قطاع (العلمين - فوكا) المقايضة التجارية لنموذج الأعمال لشركة لاند ماركس للمقاولات العمومية اتجاه الطريق الساحلي القطاع من المحطة 424+600 إلى 425+600				
رقم البند	بيان الأصل	الوحدة	الكمية	الاجملي
5	البلاطات الخرسانية / الرصف القرمشاني			
5-1	بالمتر المكعب أعمال توريد وصب خرسانة عالية بسمك 15 سم لحماية الأكتاف والعمود الخرسانية تتكون من 0.8 م ³ من دولوميت مترج 0.40+3 م ³ رمل حرش 280+ كجم لبر 3 اسمنت بوتلندي عادي على ان يكون السن نظيف ومقشور والرمل خالي من الشوائب والطفلة واستخدام الياف (فايبر جلاس) والاملاح والمواد الغريبة والبند يشمل تجهيز واستبدال مناسب التربة الطبيعية أسفل البلاطة للوصول الى المناسب التصميمية على ان تحقق الخرسانة اجهاد لا يقل عن 200 كجم/سم ² وتشطيب السطح والتفادي طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند يجمع مشتلاته طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف.	م ³	355	1,447,982.520
5-2	بالمتر المكعب أعمال توريد وصب خرسانة عالية بسمك 15 سم لحماية الأكتاف والعمود الخرسانية تتكون من 0.8 م ³ من دولوميت مترج 0.40+3 م ³ رمل حرش 280+ كجم لبر 3 اسمنت بوتلندي عادي على ان يكون السن نظيف ومقشور والرمل خالي من الشوائب والطفلة والمواد الغريبة مع وضع قوam (بالفاصل) بسمك 2 سم (طبقا لتعليمات الاستشاري) والبند يشمل اعمال الحفر والشدات وكل ما يلزم لتجهيز العمل على ان تحقق الخرسانة اجهاد لا يقل عن 250 كجم/سم ² وملء الفواصل بالنتيرون المرمل والتفادي طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند يجمع مشتلاته طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف.	م ³	2200	660,000.000
				5,700,000
				(خمسة مليون و سبعة مائة ألف جنيه فقط لا غير)

مدير المشروعات (الهيئة)

م/محمد حسني فياض

مدير المشروع (الهيئة)

م / ابراهيم الحناوي

مدير المشروع الاستشاري

م / مصطفى نجم

مدير المشروع المقاول

م / هشام محمد حامد

يعتمد
رئيس الادارة المركزية
منطقة غرب الدلتا
الاسكندرية - مرسى مطروح
عقيد مهندس /
" هاني محمد محمود طه "

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ب.ص. ٦٩٩ - ٦٩٩ - ٦٥٢

شركة لاند
للمقاولات العمومية والمورسات
ب.ص. ٦٩٩ - ٦٩٩ - ٦٥٢

Company : Land marks Co.

Project : Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (8)
- 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 + 750)
Test Date : 12/03/2023
Report Date : 13/03/2023
Type of soil : -----
Test level : prepared Subgrade
Report No. : 37-42

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 : ----- Test level : prepared Subgrade
- Job requirement : $E_{v2} > 800 \text{ Kg/cm}^2$ (80 MPa).

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	600
- date of measurement	12/03/2023
- 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	$E_{v1} (\text{kg/cm}^2)$	$E_{v2} (\text{kg/cm}^2)$	
1	424+600	424+625	978	1552	1.6
2	424+625	424+650	1957	1800	0.9
3	424+650	424+675	1184	2143	1.8
4	424+675	424+700	1047	1286	1.2
5	424+700	424+725	1098	2045	1.9
6	424+725	424+750	1250	1957	1.6

Signature /



Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (5) – Alamein to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+600 to 425+625
 Test No. : 04

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	19.78	0.22	19.74	0.26	19.69	0.31	0.26
2	0.83	19.65	0.35	19.51	0.49	19.49	0.51	0.45
3	1.25	19.46	0.54	19.25	0.75	19.29	0.71	0.67
4	1.67	19.29	0.71	19.04	0.96	19.12	0.88	0.85
5	2.08	19.15	0.85	18.84	1.16	18.97	1.03	1.01
6	2.50	19.00	1.00	18.68	1.32	18.79	1.21	1.18

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.00	1.00	18.68	1.32	18.79	1.21	1.18
2	1.25	19.09	0.91	18.84	1.16	18.87	1.13	1.07
3	0.625	19.24	0.76	19.05	0.95	19.06	0.94	0.88
4	0.01	19.61	0.39	19.48	0.52	19.45	0.55	0.49

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.44	0.56	19.30	0.70	19.31	0.69	0.65
1	0.83	19.31	0.69	19.13	0.87	19.17	0.83	0.80
2	1.25	19.22	0.78	18.95	1.01	19.03	0.97	0.92
3	1.67	19.13	0.87	18.86	1.14	18.93	1.07	1.03
4	2.08	19.04	0.96	18.73	1.27	18.83	1.17	1.13
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



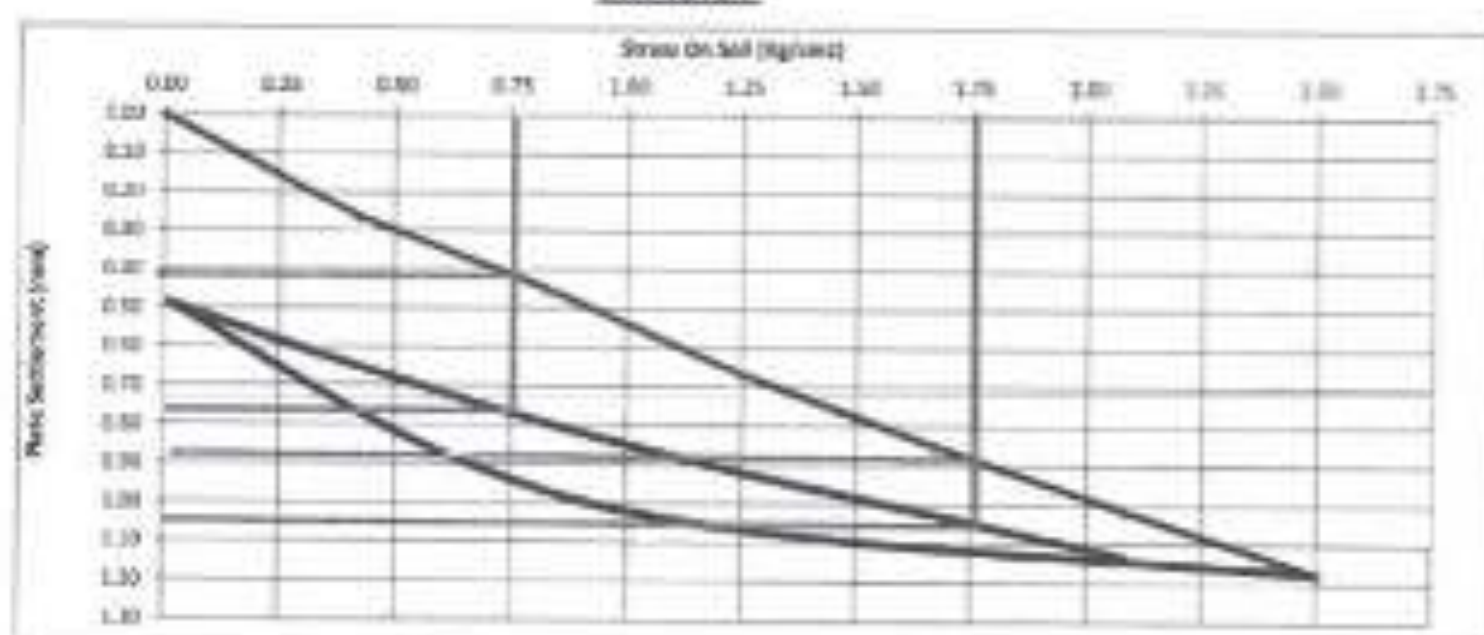
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alansin to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+800 to 425+825
 Test No. : 04

Nonrepetitive Static Plate Load Tests of Soils QIN 18134



Loading (t)	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	2.50
Settlement (mm)	0.00	0.26	0.45	0.67	0.88	1.01	1.18

Unloading (t)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	1.18	1.07	0.88	0.49

D (mm) =	600	S1 (mm) =	0.42	S2 (mm) =	0.88	ΔS =	0.46
Ev1 (kg/cm²) =	(8.78*600)/ΔS						978

$$Ev2/Ev1 = 1.8$$

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)	0.49	0.68	0.80	0.92	1.03	1.13

D (mm) =	600	S1 (mm) =	0.78	S2 (mm) =	1.08	ΔS =	0.29
Ev2 (kg/cm²) =	(0.75*600)/ΔS						1552

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Releasing stage.

D = Plate diameter (mm)

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

S2 = Difference in settlements corresponding to S1 and S2 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marssa Matruh Priority Sector (6) - Alamein to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+625 to 424+650
 Test No. : 05

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	19.56	0.34	19.62	0.38	19.61	0.39	0.37
2	0.83	19.58	0.42	19.48	0.52	19.48	0.52	0.49
3	1.25	19.50	0.50	19.34	0.66	19.34	0.66	0.61
4	1.67	19.45	0.55	19.25	0.75	19.24	0.76	0.69
5	2.08	19.38	0.62	19.14	0.86	19.17	0.83	0.77
6	2.50	19.30	0.70	19.03	0.97	19.08	0.92	0.86

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.30	0.70	19.03	0.97	19.08	0.92	0.86
2	1.25	19.38	0.62	19.18	0.82	19.19	0.81	0.75
3	0.625	19.43	0.57	19.33	0.67	19.36	0.64	0.63
4	0.01	19.70	0.30	19.60	0.31	19.61	0.19	0.27

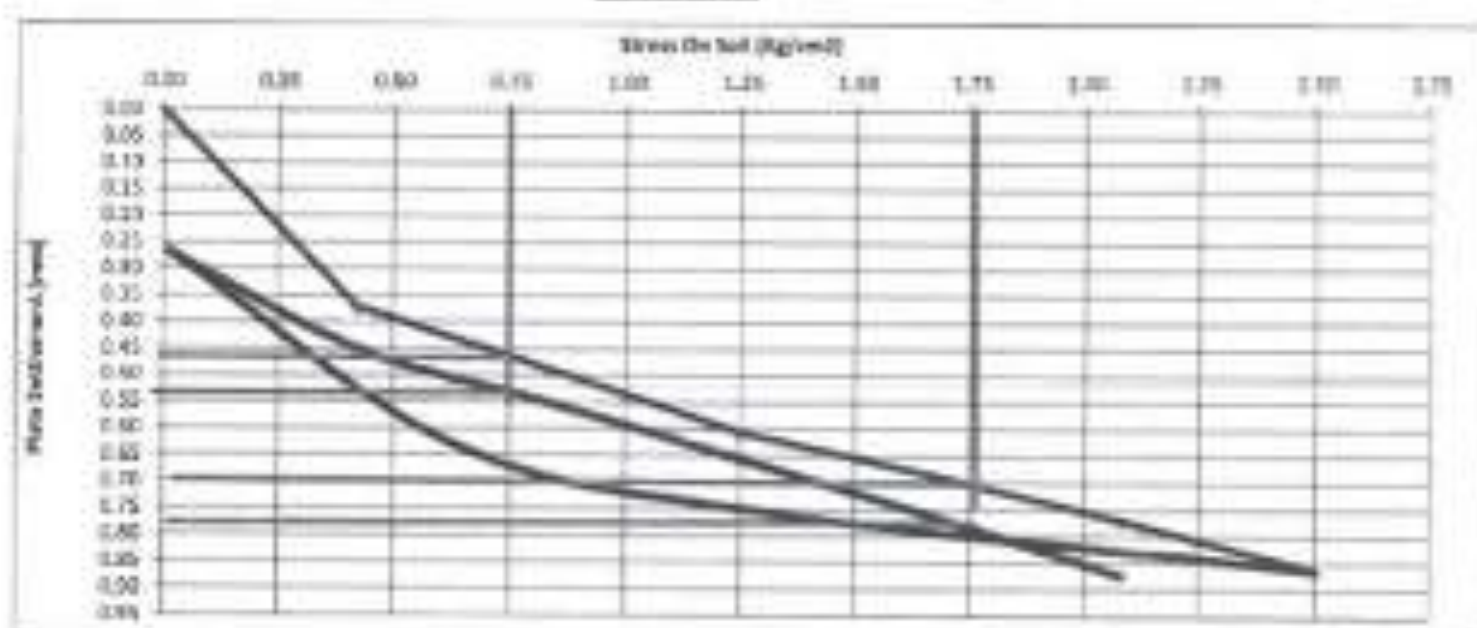
Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.56	0.44	19.50	0.50	19.59	0.41	0.45
1	0.83	19.45	0.51	19.39	0.61	19.47	0.53	0.55
2	1.25	19.43	0.57	19.28	0.72	19.32	0.68	0.68
3	1.67	19.35	0.65	19.17	0.83	19.19	0.81	0.76
4	2.08	19.28	0.72	19.02	0.98	19.08	0.92	0.87
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Alamein to Port
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+626 to 424+680
 Test No. : 05

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (t)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.8	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	0.37	0.49	0.61	0.69	0.77	0.86

UnLoading (t)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	0.86	0.75	0.63	0.27

D (mm) =	600	S1 (mm) =	6.47	S2 (mm) =	8.76	ΔS =	0.23
Evt (kg/cm²) =	$(8.76 \times D^2 \times \Delta S) / 45$						
	1837						

$$E_v2/E_v1 = 0.8$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.27	0.45	0.55	0.66	0.76	0.87

D (mm) =	600	S1 (mm) =	9.53	S2 (mm) =	8.78	ΔS =	0.28
Evt (kg/cm²) =	$(8.78 \times D^2 \times \Delta S) / 45$						
	1800						

E_{v1} = Modulus of deformation during the loading stage.
 E_{v2} = Modulus of deformation during the Reloading stage.
 D = Plate diameter (mm)
 ΔS = The difference between S₁ and S₂ from the maximum loading (mm)
 ΔS = Difference in settlements corresponding to S₁ and S₂ from the maximum loading (mm)



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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Mersa Matruh Priority Sector (6) - Alamein to Foka
Test Date : 12/03/2023
report date : 13/03/2023
Location : Station 424+650 to 424+675
Test No. : 08

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	19.86	0.14	19.81	0.19	19.89	0.11	0.15
2	0.83	19.75	0.25	19.67	0.33	19.78	0.22	0.27
3	1.25	19.60	0.40	19.42	0.58	19.66	0.34	0.44
4	1.67	19.46	0.54	19.22	0.78	19.53	0.47	0.60
5	2.08	19.35	0.65	19.05	0.95	19.42	0.58	0.73
6	2.50	19.29	0.71	18.85	1.15	19.30	0.70	0.85

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.29	0.71	18.85	1.15	19.30	0.70	0.85
2	1.25	19.36	0.64	18.94	1.06	19.40	0.60	0.77
3	0.625	19.46	0.54	19.07	0.93	19.52	0.48	0.66
4	0.01	19.77	0.23	19.41	0.59	19.79	0.21	0.34

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.67	0.33	19.32	0.68	19.70	0.30	0.44
1	0.83	19.58	0.42	19.19	0.81	19.61	0.39	0.54
2	1.25	19.49	0.51	19.09	0.91	19.51	0.48	0.64
3	1.67	19.41	0.59	19.00	1.00	19.42	0.58	0.72
4	2.08	19.36	0.64	18.91	1.09	19.38	0.62	0.78
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



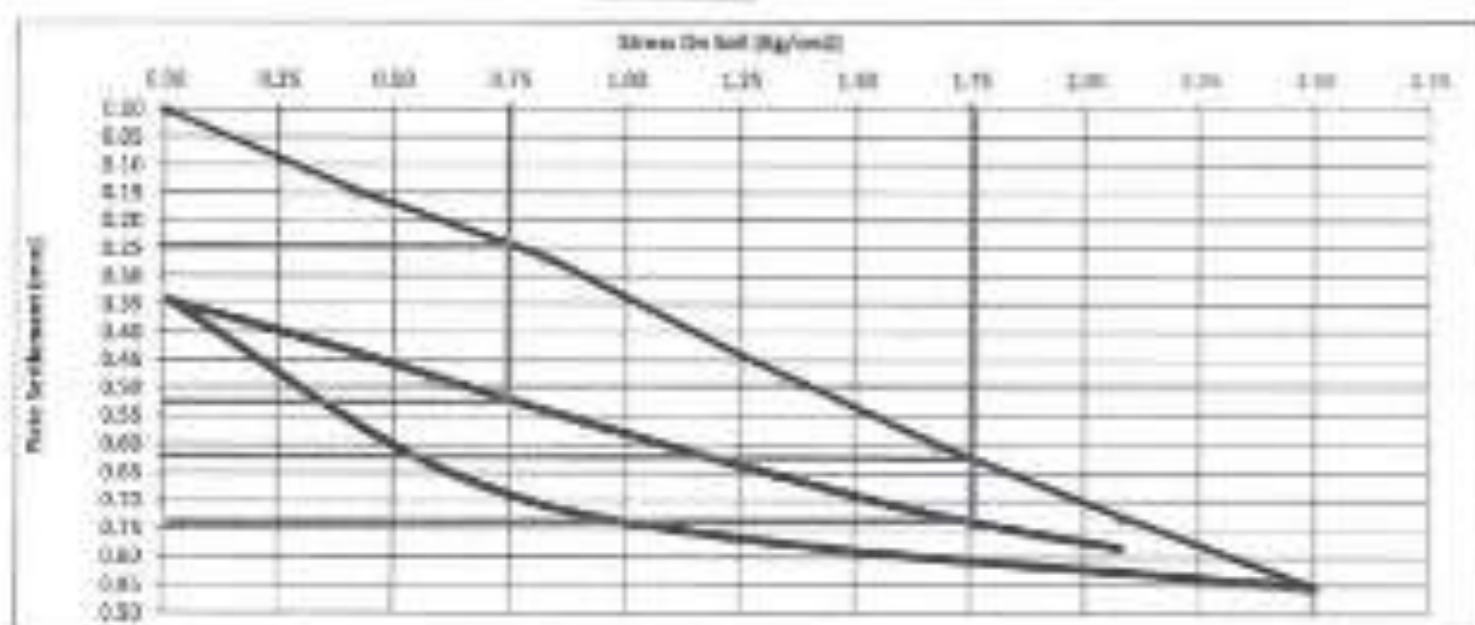
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Almarin to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+688 to 424+679
 Test No. : 08

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.8	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	0.16	0.27	0.44	0.60	0.73	0.85

UnLoading (1)	1	2	3	4
Stage(Kg)	7866	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	0.85	0.77	0.65	0.34

D (mm) = 600	S1 (mm) = 0.25	S2 (mm) = 0.83	ΔS = 0.38
Ev1 (kg/cm²) = $(8.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1184		

$$Ev2/Ev1 = 1.8$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.34	0.44	0.54	0.64	0.72	0.78

D (mm) = 600	S1 (mm) = 0.32	S2 (mm) = 0.73	ΔS = 0.21
Ev2 (kg/cm²) = $(8.75 \cdot D^2 \cdot \Delta S) / \Delta S$	2143		

Ev1 = Modulus of deformation during the loading stage.
 Ev2 = Modulus of deformation during the Reloading stage.
 D = Plate diameter (mm)
 ΔS = The difference between S2 and S1 from the maximum loading (mm) (kg/cm²)
 ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marae Matrouh Priority Sector (S) - Alamein to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+675 to 424+700
 Test No. : 07

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	19.67	0.33	19.93	0.07	19.34	0.66	0.35
2	0.83	19.54	0.46	19.81	0.19	19.25	0.75	0.47
3	1.25	19.36	0.64	19.65	0.35	18.94	1.06	0.68
4	1.67	19.19	0.81	19.56	0.44	18.74	1.26	0.84
5	2.08	18.98	1.02	19.42	0.58	18.45	1.55	1.05
6	2.50	18.80	1.20	19.31	0.69	18.25	1.75	1.21

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	19.31	0.69	18.25	1.75	1.21
2	1.25	18.97	1.03	19.40	0.60	18.41	1.59	1.07
3	0.625	19.20	0.80	19.51	0.49	18.68	1.32	0.87
4	0.01	19.69	0.31	19.77	0.23	19.08	0.92	0.49

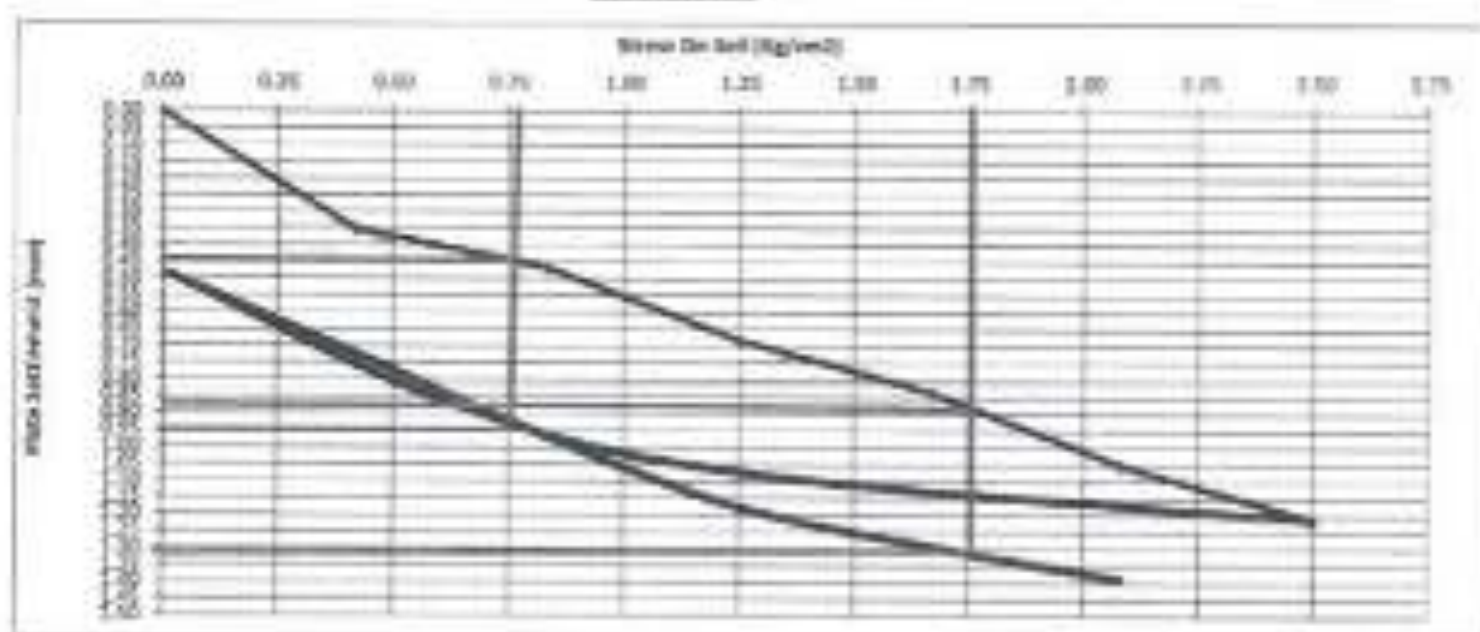
Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.45	0.55	19.44	0.56	18.94	1.06	0.72
1	0.83	19.25	0.75	19.31	0.89	18.74	1.26	0.97
2	1.25	19.08	0.92	18.85	1.15	18.54	1.46	1.18
3	1.67	19.00	1.00	18.67	1.33	18.45	1.55	1.29
4	2.08	18.90	1.10	18.57	1.43	18.36	1.64	1.38
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	WREF1



Company Name : Land marine Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Alamein to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+675 to 434+700
 Test No. : 07

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (t)	0	1	2	3	4	5	8
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	2.50
Settlement (mm)	0.00	0.35	0.47	0.68	0.84	1.05	1.21

UnLoading (t)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.835	0.01
Settlement (mm)	1.21	1.07	0.87	0.43

D (mm) = 600	S1 (mm) = 0.48	S2 (mm) = 0.88	ΔS = 0.43
E _{v1} (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$	1647		

$$E_{v2}/E_{v1} = 1.3$$

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)	0.49	0.72	0.97	1.18	1.29	1.39

D (mm) = 600	S1 (mm) = 0.88	S2 (mm) = 1.30	ΔS = 0.35
E _{v2} (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$	1286		

E_{v1} = Modulus of deformation during the loading stage.

E_{v2} = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δσ = The difference between 0.2 and 0.7 from the maximum loading (kg/cm²)

ΔS = Difference in settlements corresponding to 0.2 and 0.7 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (5) - Alamein to Foke
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+700 to 424+725
 Test No. : 08

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	19.89	0.11	19.82	0.18	19.86	0.14	0.14
2	0.83	19.78	0.22	19.69	0.31	19.68	0.32	0.28
3	1.25	19.62	0.38	19.49	0.51	19.46	0.54	0.48
4	1.67	19.49	0.51	19.34	0.66	19.29	0.71	0.63
5	2.08	19.37	0.63	19.20	0.80	19.11	0.89	0.77
6	2.50	19.27	0.73	19.09	0.91	18.94	1.06	0.90

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.27	0.73	19.09	0.91	18.94	1.06	0.90
2	1.25	19.30	0.70	19.20	0.80	19.06	0.94	0.81
3	0.825	19.37	0.63	19.30	0.70	19.17	0.83	0.72
4	0.01	19.59	0.41	19.50	0.40	19.49	0.51	0.44

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.54	0.46	19.50	0.50	19.43	0.57	0.51
1	0.83	19.47	0.53	19.37	0.63	19.30	0.70	0.62
2	1.25	19.40	0.60	19.26	0.74	19.16	0.84	0.73
3	1.67	19.35	0.65	19.18	0.82	19.08	0.92	0.80
4	2.08	19.30	0.70	19.11	0.89	19.00	1.00	0.88
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



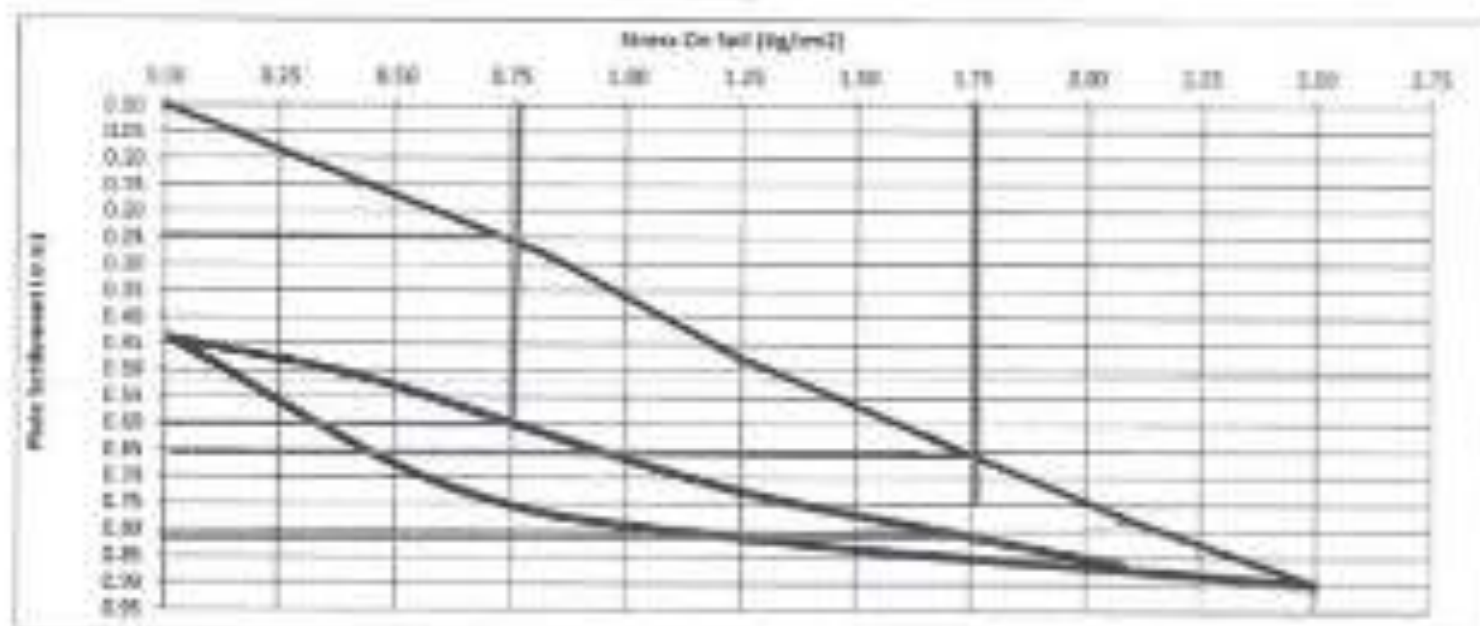
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (S) - Almain to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+700 to 424+725
 Test No. : 88

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	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	0.14	0.28	0.42	0.53	0.77	0.90

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)	0.90	0.81	0.72	0.44

D (mm) = 600	S1 (mm) = 0.25	S2 (mm) = 0.66	ΔS = 0.41
Ev1 (kg/cm²) = (E.75'D³Δs)/ΔS	1038		

$$Ev2/Ev1 = 1.5$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	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)	0.44	0.51	0.52	0.73	0.80	0.85

D (mm) = 500	S1 (mm) = 0.90	S2 (mm) = 0.82	ΔS = 0.22
Ev2 (kg/cm²) = (E.75'D³Δs)/ΔS	2045		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between S2 and S1 from the maximum loading (mm)

ΔS = Difference in settlements corresponding to 0.5 and 0.7 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 (8) – Alamein to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+725 to 424+750
 Test No. : 09

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	19.78	0.22	19.82	0.18	19.85	0.15	0.18
2	0.83	19.65	0.34	19.63	0.37	19.64	0.36	0.36
3	1.25	19.49	0.51	19.48	0.52	19.51	0.49	0.51
4	1.67	19.40	0.60	19.29	0.71	19.35	0.65	0.65
5	2.08	19.28	0.72	19.14	0.86	19.23	0.77	0.78
6	2.50	19.19	0.81	19.04	0.96	19.10	0.90	0.89

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.19	0.81	19.04	0.96	19.10	0.90	0.89
2	1.25	19.25	0.75	19.11	0.89	19.21	0.79	0.81
3	0.625	19.35	0.65	19.25	0.75	19.34	0.66	0.68
4	0.01	19.51	0.49	19.53	0.47	19.63	0.37	0.44

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.42	0.58	19.48	0.52	19.55	0.45	0.52
1	0.83	19.31	0.69	19.35	0.65	19.43	0.57	0.64
2	1.25	19.22	0.78	19.24	0.76	19.31	0.69	0.74
3	1.67	19.11	0.89	19.14	0.86	19.23	0.77	0.84
4	2.08	19.05	0.95	19.02	0.98	19.15	0.85	0.93
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



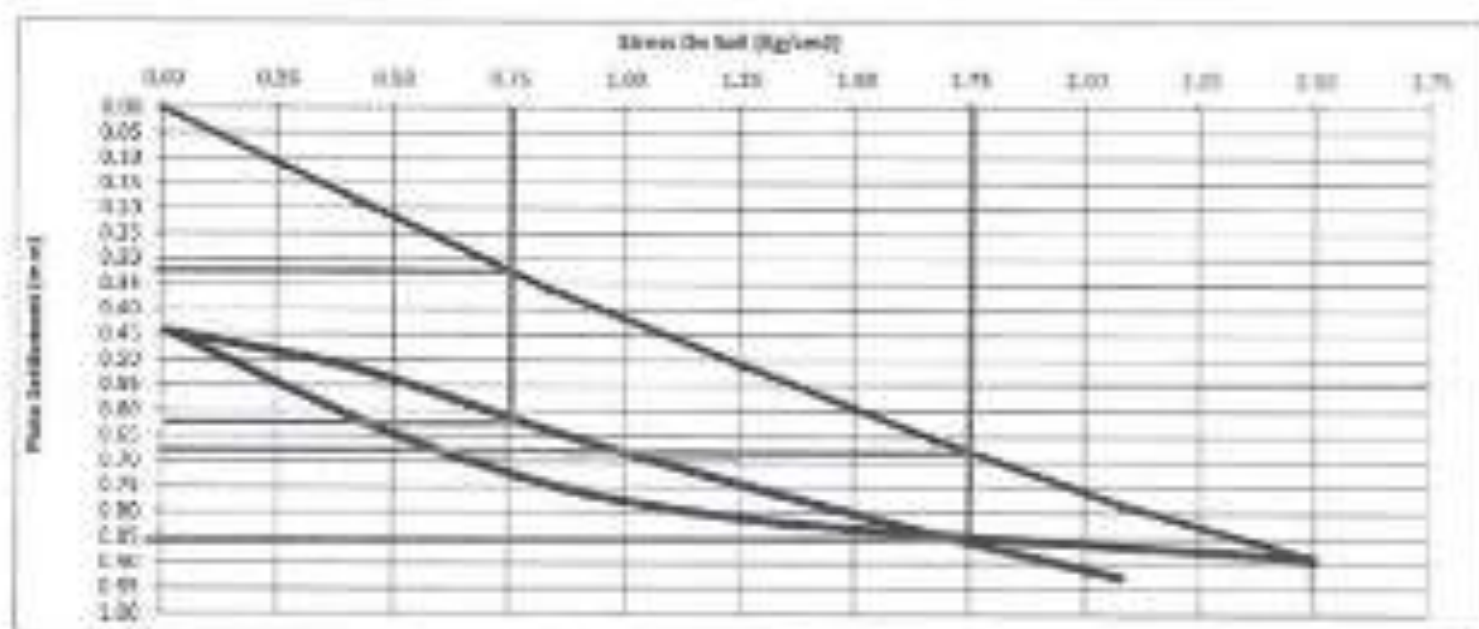
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (R) - Marsa to Fokar
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 434+726 to 434+760
 Test No. : 08

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.8	3532.8	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	0.18	0.36	0.51	0.65	0.78	0.85

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.825	0.01
Settlement (mm)	0.09	0.01	0.59	0.44

D (mm) =	600	S1 (mm) =	0.32	S2 (mm) =	0.68	ΔS =	0.36
Ex1 (kg/cm²) =	(3.75*D*ΔS)/ΔS		1250				

$$Ex2/Ex1 = 1.4$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2345.8	3532.8	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.44	0.72	0.64	0.74	0.84	0.93

D (mm) =	600	S1 (mm) =	0.00	S2 (mm) =	0.88	ΔS =	0.23
Ex2 (kg/cm²) =	(3.75*D*ΔS)/ΔS		1627				

Ex1 = Modulus of deformation during the loading stage.
 Ex2 = Modulus of deformation during the Reloading stage.
 D = Plate diameter (mm)
 ΔS = The difference between 0.3 and 0.7 from the maximum loading (Δmax) (kg/cm²)
 ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company : Land marks Co.

Project : Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (8)
- 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 + 920 to 425 + 000)
Test Date : 12/03/2023
Report Date : 13/03/2023
Type of soil : -----
Test level : prepared Subgrade
Report No. : 43/45

Dear Gentleman,

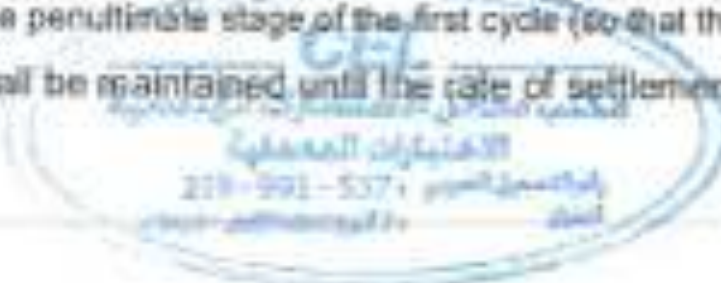
According to the above mentioned subject the test performed as follows:-

Apparatus

9. Loading plates consists of two plates with 600 mm and 300 mm diameter
10. The thickness of plates 30 mm
11. Dial gauges with accuracy 0.01 mm to measuring the settlement
12. Steel straightedges with magnetic supports to fixed the dial gauges
13. Hydraulic jack with pump to transfer reactive loads to the loading plates
14. Dial indicator measuring device with scale capacity 700 Bar (Enerbac)
15. Reaction loading system by roller compactor with weight approximately 15 ton
16. Calibration certificates are attached

Test Procedure

12. Clean the ground on test area to the required level with undisturbed soil
13. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
14. Prior to starting the test applied preloading about 30 seconds.
15. The strain gauge and the dial gauge shall be set to zero
16. For a 600 mm loading plate, the limit values are 2.5 kg/cm^2
17. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
18. Each change in load (from stage to stage) shall be completed within one minute
19. The load shall be released in 3 stages, to 50 % , 25 % , and approximately 2 % of the maximum load.
20. 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)
21. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.



22. Remove the loads

Report

4. Evaluation and representation of results
5. Load Settlement curve
6. 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 : ----- Test level : prepared Subgrade

- Job requirement : $E_{v2} > 800 \text{ Kg/cm}^2$ (80 MPa).

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	600
- date of measurement	12/03/2023
- 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+920	424+950	900	1500	1.7
2	424+950	424+975	1286	2143	1.7
3	424+975	425+000	957	1552	1.6

Signature /

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 + 920 to 425 + 000)
Test Date : 12/03/2023
Report Date : 13/03/2023
Type of soil : ———
Test level : prepared Subgrade
Report No. : 43:45

Dear Gentleman,

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

Apparatus

9. Loading plates consists of two plates with 600 mm and 300 mm diameter
10. The thickness of plates 30 mm
11. Dial gauges with accuracy 0.01 mm to measuring the settlement
12. Steel straightedges with magnetic supports to fixed the dial gauges
13. Hydraulic jack with pump to transfer reactive loads to the loading plates
14. Dial indicator measuring device with scale capacity 700 Bar (Enerbar)
15. Reaction loading system by roller compactor with weight approximately 15 ton
16. Calibration certificates are attached

Test Procedure

12. Clean the ground on test area to the required level with undisturbed soil
13. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
14. Prior to starting the test applied preloading about 30 seconds.
15. The strain gauge and the dial gauge shall be set to zero
16. For a 600 mm loading plate, the limit values are 2.5 kg/cm²
17. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
18. Each change in load (from stage to stage) shall be completed within one minute
19. The load shall be released in 3 stages, to 50 % , 25 % , and approximately 2 % of the maximum load.
20. 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).
21. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
22. Remove the loads



Report

4. Evaluation and representation of results
5. Load Settlement curve
6. 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 : ----- Test level : prepared Subgrade

- Job requirement : $E_{v2} > 800 \text{ Kg/cm}^2$ (80 MPa).

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	600
- date of measurement	12/03/2023
- 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	$E_{v1} (\text{kg/cm}^2)$	$E_{v2} (\text{kg/cm}^2)$	
1	424+920	424+950	900	1500	1.7
2	424+950	424+975	1286	2143	1.7
3	424+975	425+000	957	1552	1.6

Signature



Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Narmeln to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+925 to 424+950
 Test No. : 01

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	19.00	0.00	19.00	0.00	19.00	0.00	0.00
1	0.42	19.84	0.16	19.45	0.55	19.43	0.57	0.43
2	0.83	19.56	0.44	19.19	0.81	19.13	0.87	0.71
3	1.25	19.38	0.62	18.95	1.05	18.88	1.12	0.93
4	1.67	19.22	0.78	18.73	1.27	18.71	1.29	1.11
5	2.08	19.04	0.96	18.54	1.46	18.52	1.48	1.30
6	2.50	18.90	1.10	18.40	1.60	18.36	1.64	1.45

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.90	1.10	18.40	1.60	18.36	1.64	1.45
2	1.25	19.00	1.00	18.52	1.48	18.48	1.52	1.33
3	0.825	19.18	0.82	18.73	1.27	18.66	1.34	1.14
4	0.01	19.48	0.52	19.23	0.77	19.18	0.82	0.70

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.38	0.64	18.95	1.05	18.97	1.03	0.91
1	0.83	19.20	0.74	18.81	1.19	18.83	1.17	1.03
2	1.25	19.15	0.85	18.68	1.32	18.69	1.31	1.16
3	1.67	19.06	0.94	18.56	1.44	18.58	1.42	1.27
4	2.08	18.92	1.08	18.47	1.53	18.48	1.52	1.38
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



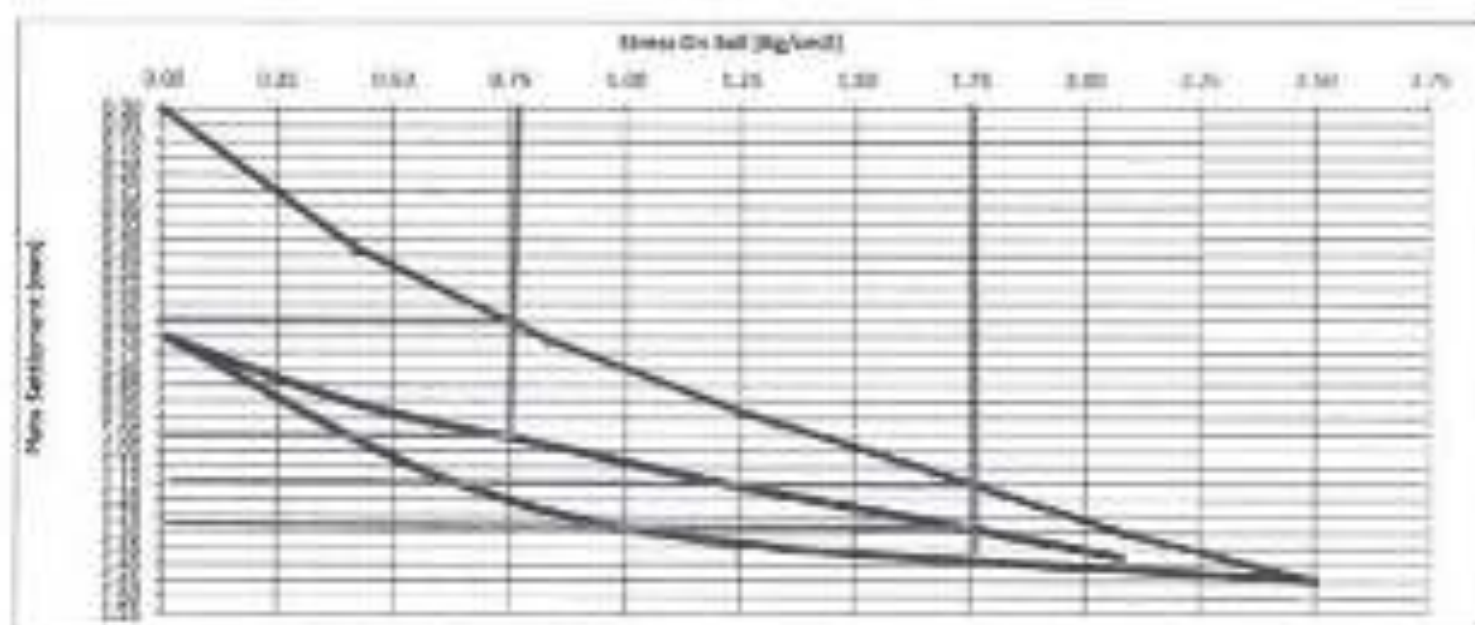
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhra to Marsa Matruh Priority Sector (B) - Alamein to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+925 to 424+950
 Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	8
Stage(Kg)	0	1188.92	2345.8	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	0.45	0.71	0.93	1.11	1.30	1.45

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.825	0.01
Settlement (mm)	1.45	1.33	1.14	0.70

D (mm) =	600	S1 (mm) =	8.85	S2 (mm) =	1.13	ΔS =	0.50
Ev1 (Kg/cm²) =	(8.75*Q*Δs)/ΔS		800				

$$Ev2/Ev1 = 1.7$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.70	0.91	1.03	1.18	1.27	1.38

D (mm) =	600	S1 (mm) =	1.50	S2 (mm) =	1.38	ΔS =	0.50
Ev2 (Kg/cm²) =	(8.75*Q*Δs)/ΔS		1000				

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S1 and S2 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 : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+950 to 424+975
 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	19.84	0.16	19.85	0.15	19.85	0.15	0.15
2	0.83	19.75	0.25	19.71	0.29	19.68	0.32	0.29
3	1.25	19.64	0.36	19.57	0.43	19.50	0.50	0.43
4	1.67	19.50	0.50	19.41	0.59	19.33	0.67	0.59
5	2.08	19.42	0.58	19.30	0.70	19.21	0.79	0.69
6	2.50	19.33	0.67	19.20	0.80	19.10	0.90	0.79

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.33	0.67	19.20	0.80	19.10	0.90	0.79
2	1.25	19.35	0.65	19.24	0.76	19.13	0.87	0.76
3	0.625	19.43	0.57	19.37	0.63	19.27	0.73	0.64
4	0.01	19.68	0.32	19.67	0.33	19.61	0.39	0.35

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.63	0.38	19.59	0.41	19.54	0.46	0.42
1	0.83	19.52	0.48	19.47	0.53	19.40	0.60	0.54
2	1.25	19.45	0.55	19.37	0.63	19.29	0.71	0.63
3	1.67	19.39	0.61	19.29	0.71	19.19	0.81	0.71
4	2.08	19.33	0.67	19.19	0.81	19.09	0.91	0.80
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	REF



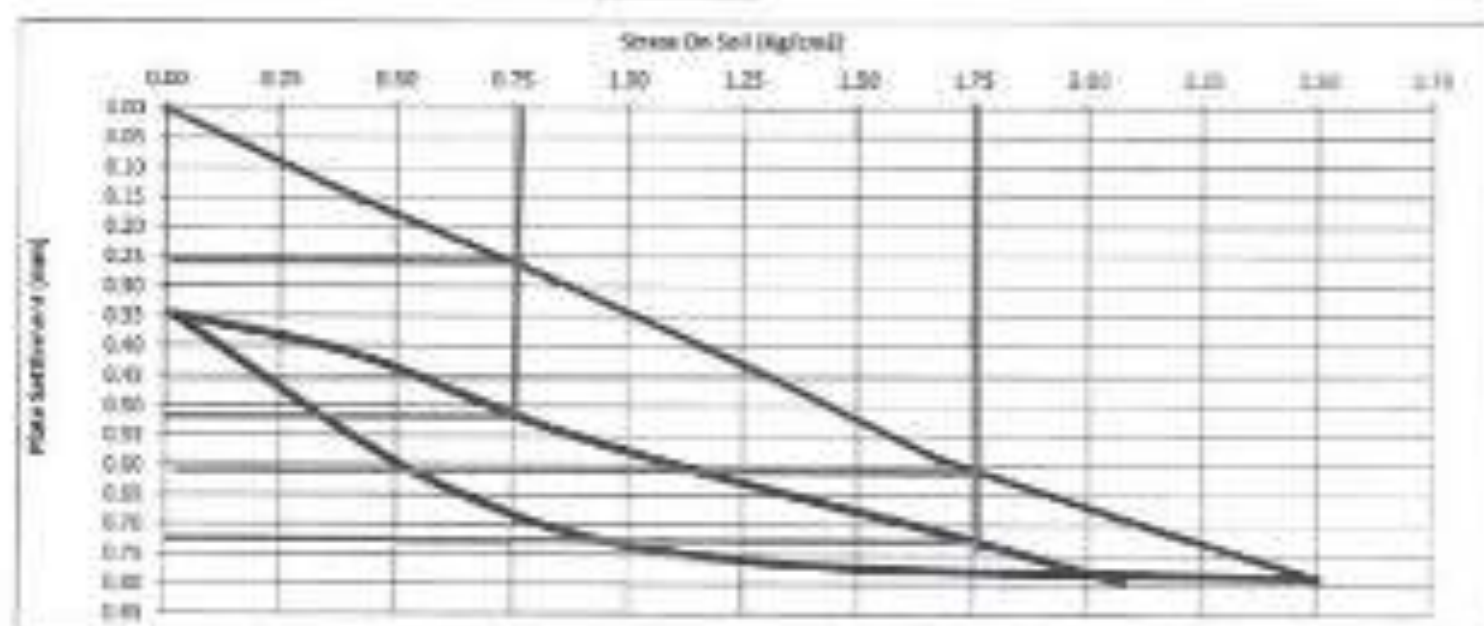
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Alamein to Foka
 Test Date : 12/03/2023
 Report No. : 13/03/2023
 Location : Station 424+050 to 424+075
 Test No. : 02

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	2.50
Settlement (mm)	0.00	0.15	0.29	0.43	0.59	0.69	0.79

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)	0.79	0.78	0.64	0.35

D (mm) = 600	S1 (mm) = 0.27	S2 (mm) = 0.82	ΔS = 0.35
Ev1 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1288		

$$Ev2/Ev1 = 1.7$$

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)	0.35	0.42	0.54	0.63	0.71	0.80

D (mm) = 600	S1 (mm) = 0.52	S2 (mm) = 0.19	ΔS = 0.21
Ev2 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	2143		

S1 = Modulus of deformation during the loading stage.

S2 = Modulus of deformation during the reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S2 and S1 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 (S) – Alamein to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+975 to 425+000
 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	19.84	0.16	19.75	0.24	19.70	0.30	0.23
2	0.83	19.72	0.28	19.57	0.43	19.48	0.52	0.41
3	1.25	19.57	0.43	19.35	0.65	19.38	0.62	0.57
4	1.67	19.39	0.61	19.04	0.96	19.09	0.91	0.83
5	2.08	19.21	0.79	18.84	1.16	18.90	1.10	1.02
6	2.50	19.00	1.00	18.68	1.32	18.79	1.21	1.18

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.00	1.00	18.68	1.32	18.79	1.21	1.18
2	1.25	19.09	0.91	18.84	1.16	18.87	1.13	1.07
3	0.625	19.24	0.76	19.05	0.95	19.06	0.94	0.88
4	0.01	19.61	0.39	19.48	0.52	19.45	0.55	0.49

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.44	0.56	19.30	0.70	19.31	0.69	0.65
1	0.83	19.31	0.69	19.13	0.87	19.17	0.83	0.80
2	1.25	19.22	0.78	18.99	1.01	19.03	0.97	0.92
3	1.67	19.13	0.87	18.86	1.14	18.93	1.07	1.03
4	2.08	19.04	0.96	18.73	1.27	18.83	1.17	1.13
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



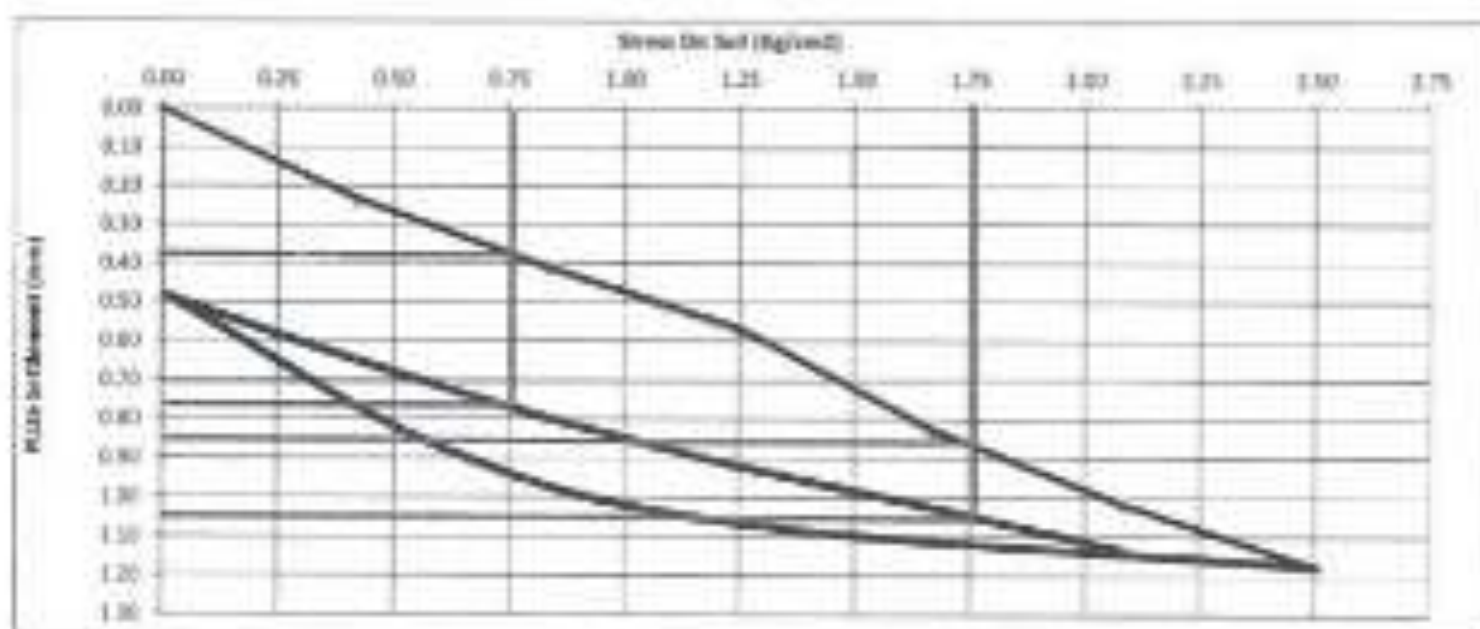
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alamein to Foka
 Test Date : 12/03/2023
 report date : 13/03/2023
 Location : Station 424+975 to 425+000
 Test No. : 03

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	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	0.20	0.41	0.57	0.83	1.02	1.18

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.825	0.01
Settlement (mm)	1.18	1.07	0.88	0.48

D (mm) = 650	S1 (mm) = 0.30	S2 (mm) = 0.85	ΔS = 0.47
E ₁ (Kg/cm²) = $(9.75 \cdot D^2) / \Delta S$	957		

$$E_v(E_1) = 1.6$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	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)	0.48	0.65	0.80	0.92	1.03	1.13

D (mm) = 600	S1 (mm) = 0.78	S2 (mm) = 1.06	ΔS = 0.29
E ₂ (Kg/cm²) = $(9.75 \cdot D^2) / \Delta S$	1962		

E₁ = Modulus of deformation during the loading stage.

E₂ = Modulus of deformation during the reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S₂ and S₁ from the maximum loading (mm)



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Company : Land marks Co.

Project : Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (8)
- 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 (4245+300 to 425+600) .
Test Date : 11/04/2023
Report Date : 12/04/2023
Type of soil : ———
Test level : prepared Subgrade
Report No. : 46/57

Dear Gentleman,

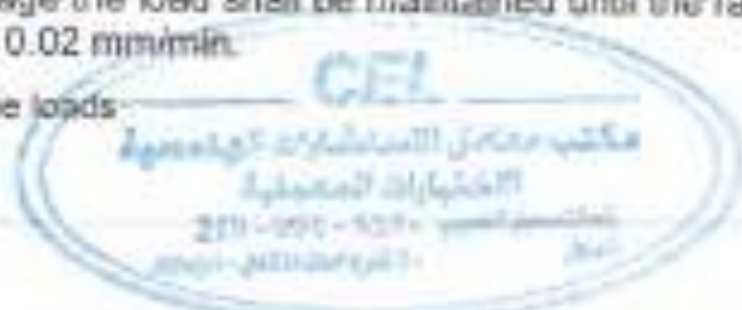
According to the above mentioned subject the test performed as follows:-

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



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 : ——— Test level : prepared Subgrade
- Job requirement : $E_{v2} > 800 \text{ Kg/cm}^2$ (80 MPa).

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	600
- date of measurement	11/04/2023
- 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	425+300	425+325	818	2143	2.6
2	425+325	425+350	938	2143	2.3
3	425+350	425+375	957	1552	1.6
4	425+375	425+400	1125	2413	1.9
5	425+400	425+425	1098	1957	1.8
6	425+425	425+450	1071	1957	1.8
7	425+450	425+475	1047	1288	1.2
8	425+475	425+500	1098	2045	1.9
9	425+500	425+525	1250	1957	1.6
10	425+525	425+550	1098	2250	2.0
11	425+550	425+575	818	1408	1.7
12	425+575	425+600	900	1731	1.9

Signature /



Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) - Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+300 to 425+325
 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	19.90	0.10	19.86	0.14	19.84	0.16	0.13
2	0.83	19.65	0.34	19.65	0.35	19.53	0.47	0.39
3	1.25	19.35	0.64	19.31	0.69	19.15	0.85	0.73
4	1.67	19.20	0.80	19.14	0.86	19.00	1.00	0.89
5	2.08	19.22	0.78	18.96	1.04	18.96	1.04	0.95
6	2.50	18.85	1.15	18.82	1.18	18.72	1.28	1.20

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.85	1.15	18.82	1.18	18.72	1.28	1.20
2	1.25	18.92	1.08	18.89	1.11	18.80	1.20	1.13
3	0.625	19.02	0.98	18.98	1.02	18.89	1.11	1.04
4	0.01	19.25	0.75	19.24	0.76	19.16	0.84	0.78

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.16	0.84	19.18	0.82	19.10	0.90	0.85
1	0.83	19.08	0.92	19.09	0.91	19.01	0.99	0.94
2	1.25	19.00	1.00	18.99	1.01	18.92	1.08	1.03
3	1.67	18.92	1.08	18.90	1.10	18.82	1.18	1.12
4	2.08	18.83	1.17	18.81	1.19	18.73	1.27	1.21
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



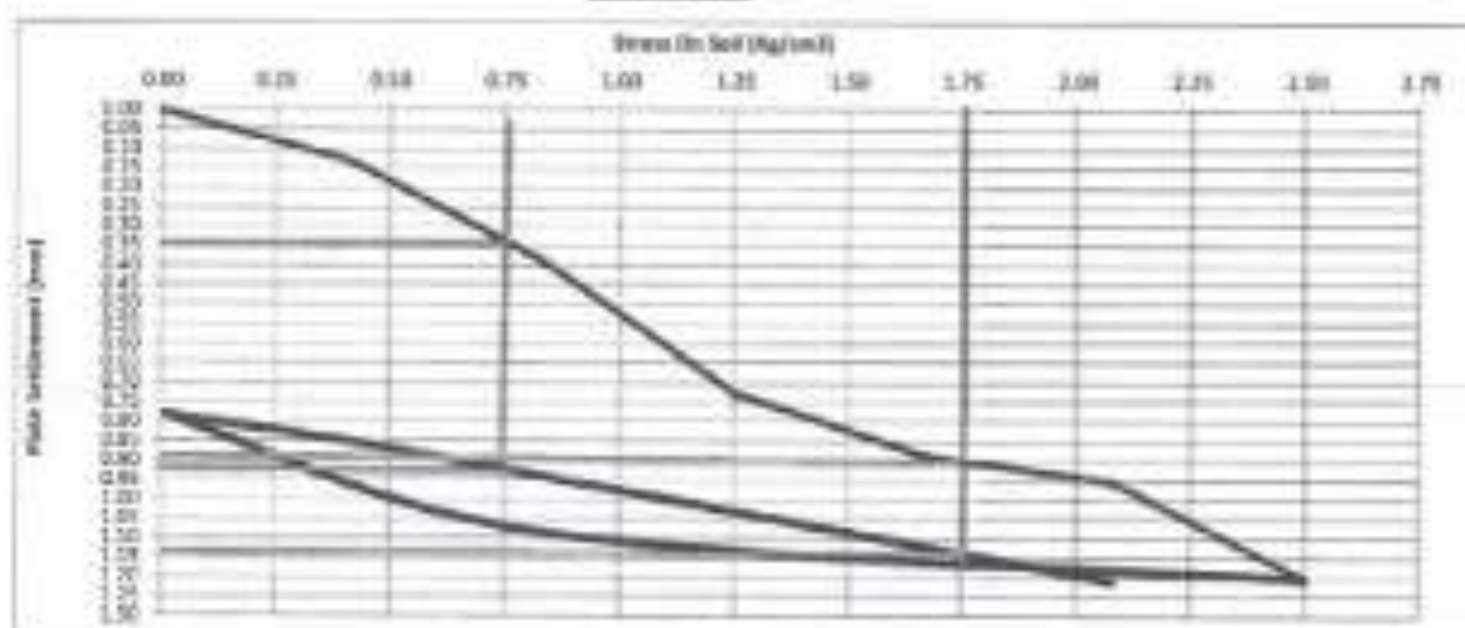
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Matruh Matrouh Priority Sector (E) - Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+300 to 425+325
 Test No. : 81

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.8	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	0.13	0.39	0.73	0.85	0.95	1.20

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)	1.20	1.13	1.04	0.76

D (mm) = 600	E1 (mm) = 0.34	E2 (mm) = 0.88	ΔS = 0.55
Ev1 (kg/cm²) = (8.78*D³ΔS)/0.8	818		

$$Ev2/Ev1 = 2.6$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.78	0.85	0.94	1.03	1.12	1.21

D (mm) = 600	E1 (mm) = 0.92	E2 (mm) = 1.11	ΔS = 0.21
Ev2 (kg/cm²) = (8.78*D³ΔS)/0.8	2143		

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 (mm) (kg/cm²)

E2 = Difference in settlements corresponding to 0.3 and 0.7 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 (6) - Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+325 to 425+350
 Test No. : 02

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	19.88	0.12	19.75	0.25	19.80	0.20	0.19
2	0.83	19.61	0.39	19.58	0.42	19.60	0.40	0.40
3	1.25	19.42	0.58	19.38	0.62	19.37	0.63	0.61
4	1.67	19.24	0.76	19.19	0.81	19.20	0.80	0.79
5	2.08	19.06	0.94	18.98	1.02	19.02	0.98	0.98
6	2.50	18.84	1.16	18.77	1.23	18.85	1.15	1.18

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.84	1.16	18.77	1.23	18.85	1.15	1.18
2	1.25	18.90	1.10	18.82	1.18	18.91	1.09	1.12
3	0.825	18.98	1.02	18.90	1.10	18.90	1.00	1.04
4	0.01	19.25	0.75	19.16	0.84	19.28	0.72	0.77

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.19	0.81	19.10	0.90	19.20	0.80	0.84
1	0.83	19.10	0.90	18.99	1.01	19.11	0.89	0.93
2	1.25	19.01	0.99	18.90	1.10	19.00	1.00	1.03
3	1.67	18.92	1.08	18.82	1.18	18.92	1.08	1.11
4	2.08	18.83	1.17	18.76	1.24	18.84	1.16	1.19



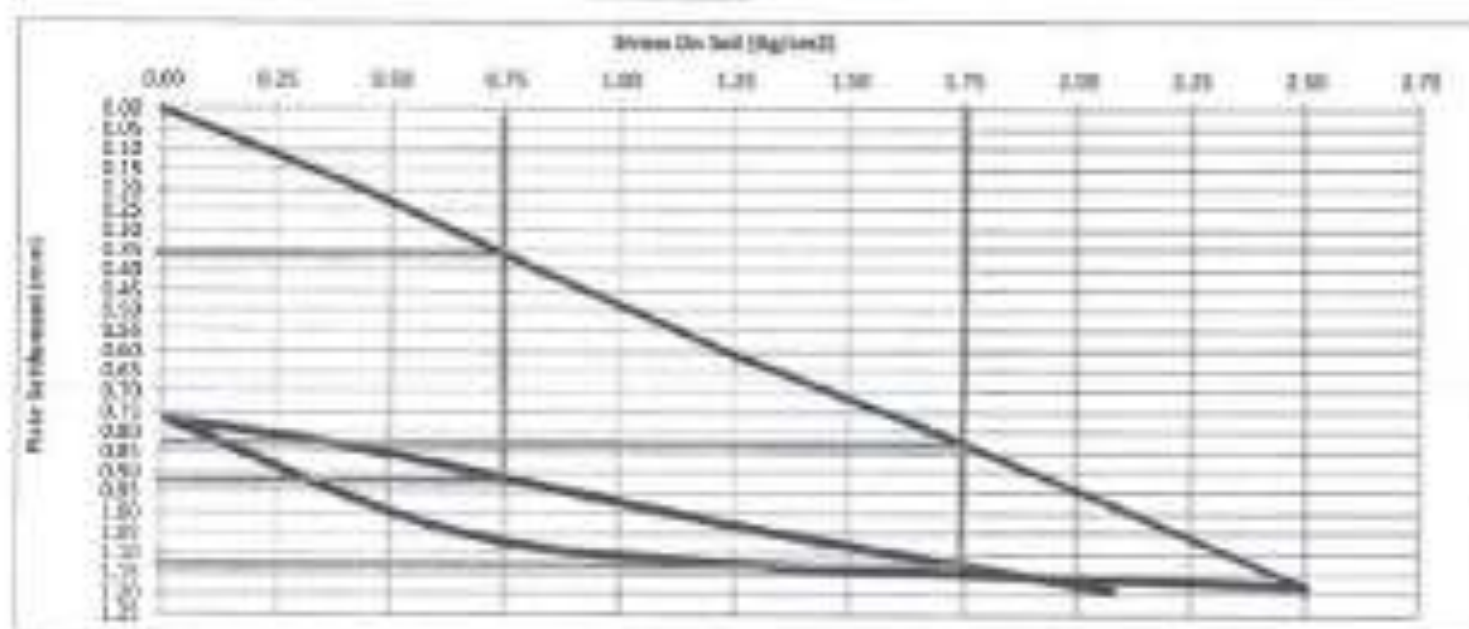
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Company Name: Land marks Co.
 Project: Electric Express Train, from Al Ain Shams to Marsa Matruh Priority Sector (E) - Almarai to Foka
 Test Date: 11/04/2023
 report date: 12/04/2023
 Location: Station 425+325 to 425+350
 Test No.: 62

Nonrepetitive Static Plate Load Tests of Soils
QIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1185.92	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	0.18	0.40	0.61	0.79	0.98	1.18

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.00
Settlement (mm)	1.18	1.12	1.04	0.77

D (mm) = 600	S1 (mm) = 0.38	S2(mm) = 0.61	ΔS = 0.48
Ev1 (kg/cm²) = $(0.707D^2 \Delta S) / \Delta S$	939		

$$Ev2/Ev1 = 2.3$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1185.92	2345.6	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.00	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.77	0.84	0.90	1.03	1.11	1.15

D (mm) = 600	S1 (mm) = 0.91	S2(mm) = 1.12	ΔS = 0.21
Ev2 (kg/cm²) = $(0.707D^2 \Delta S) / \Delta S$	2143		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to 0.3 and 0.7 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 (8) – Alamein to Foka
Test Date : 11/04/2023
report date : 12/04/2023
Location : Station 425+350 to 425+375
Test No. : 03

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Dial 3	Settlement	Average
	Kg/cm ²		mm		mm		mm	
0	0.00	20.00	0.00	20.00	0.00	20.00	0.00	0.00
1	0.42	19.84	0.16	19.76	0.24	19.70	0.30	0.23
2	0.83	19.72	0.28	19.57	0.43	19.48	0.52	0.41
3	1.25	19.57	0.43	19.35	0.65	19.38	0.62	0.57
4	1.67	19.39	0.61	19.04	0.96	19.09	0.91	0.83
5	2.08	19.21	0.79	18.84	1.16	18.90	1.10	1.02
6	2.50	19.00	1.00	18.68	1.32	18.79	1.21	1.18

Unloading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Dial 3	Settlement	Average
	Kg/cm2		mm		mm		mm	
1	2.50	19.00	1.00	18.68	1.32	18.79	1.21	1.18
2	1.25	19.09	0.91	18.84	1.16	18.87	1.13	1.07
3	0.625	19.24	0.76	19.05	0.95	19.06	0.94	0.88
4	0.01	19.61	0.39	19.43	0.52	19.45	0.55	0.48

Loading Stage (2)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Dial 3	Settlement	Average
	Kg/cm2		mm		mm		mm	
0	0.42	19.44	0.56	19.30	0.70	19.31	0.69	0.65
1	0.83	19.31	0.69	19.13	0.87	19.17	0.83	0.80
2	1.25	19.22	0.78	18.99	1.01	19.03	0.97	0.92
3	1.67	19.13	0.87	18.86	1.14	18.93	1.07	1.03
4	2.08	19.04	0.96	18.73	1.27	18.83	1.17	1.13



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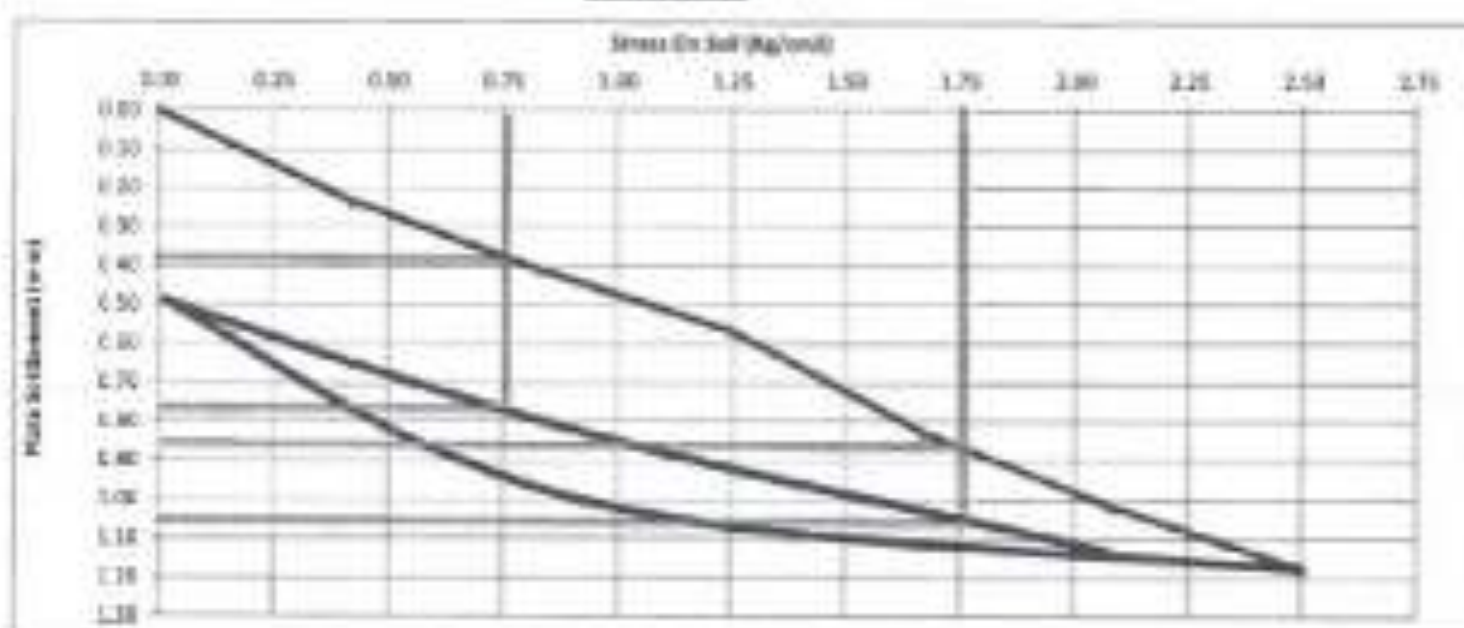
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Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (B) - Atamain to Foka
Test Date : 11/04/2023
report date : 12/04/2023
Location : Station 425+350 to 425+375
Test No. : 03

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (T)	0	1	2	3	4	5	8
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	0.29	0.41	0.57	0.83	1.02	1.18

UnLoading (T)	1	2	3	4
Stage(Kg)	7065	3533	1766	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	1.18	1.07	0.80	0.49

D (mm) = 600	S1 (mm) = 0.39	S2(mm) = 0.88	ΔS = 0.47
Ev1 (kg/cm²) = $(8.75 \cdot D^2 \cdot \Delta s) / 0.5$	957		

$$Ev2/Ev1 = 1.8$$

Loading (T)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	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)	0.49	0.65	0.80	0.92	1.03	1.13

D (mm) = 600	S1 (mm) = 0.76	S2(mm) = 1.08	ΔS = 0.28
Ev2 (kg/cm²) = $(8.75 \cdot D^2 \cdot \Delta s) / 0.5$	1552		

Ev1 = Module of deformation during the loading stage.

Ev2 = Module of deformation during the Reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S2 and S1 from the maximum loading (mm)



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الزمالك - القاهرة

تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

www.cel-egypt.com

Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marxa Matrouh Priority Sector (6) - Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+375 to 425+400
 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	19.90	0.10	19.81	0.19	19.79	0.21	0.17
2	0.83	19.65	0.35	19.63	0.37	19.60	0.40	0.37
3	1.25	19.42	0.53	19.45	0.55	19.47	0.53	0.54
4	1.67	19.30	0.70	19.30	0.70	19.28	0.72	0.71
5	2.08	19.16	0.84	19.15	0.85	19.14	0.86	0.85
6	2.50	19.00	1.00	19.02	0.98	18.95	1.05	1.01

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.00	1.00	19.02	0.98	18.95	1.05	1.01
2	1.25	19.09	0.91	19.10	0.90	19.00	1.00	0.94
3	0.625	19.24	0.76	19.19	0.81	19.10	0.90	0.82
4	0.01	19.61	0.39	19.47	0.53	19.36	0.64	0.52

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.44	0.56	19.40	0.60	19.30	0.70	0.62
1	0.83	19.31	0.69	19.31	0.69	19.21	0.79	0.72
2	1.25	19.22	0.78	19.22	0.78	19.12	0.88	0.81
3	1.67	19.13	0.87	19.11	0.89	19.04	0.96	0.91
4	2.08	19.04	0.96	19.03	0.97	18.95	1.05	0.99



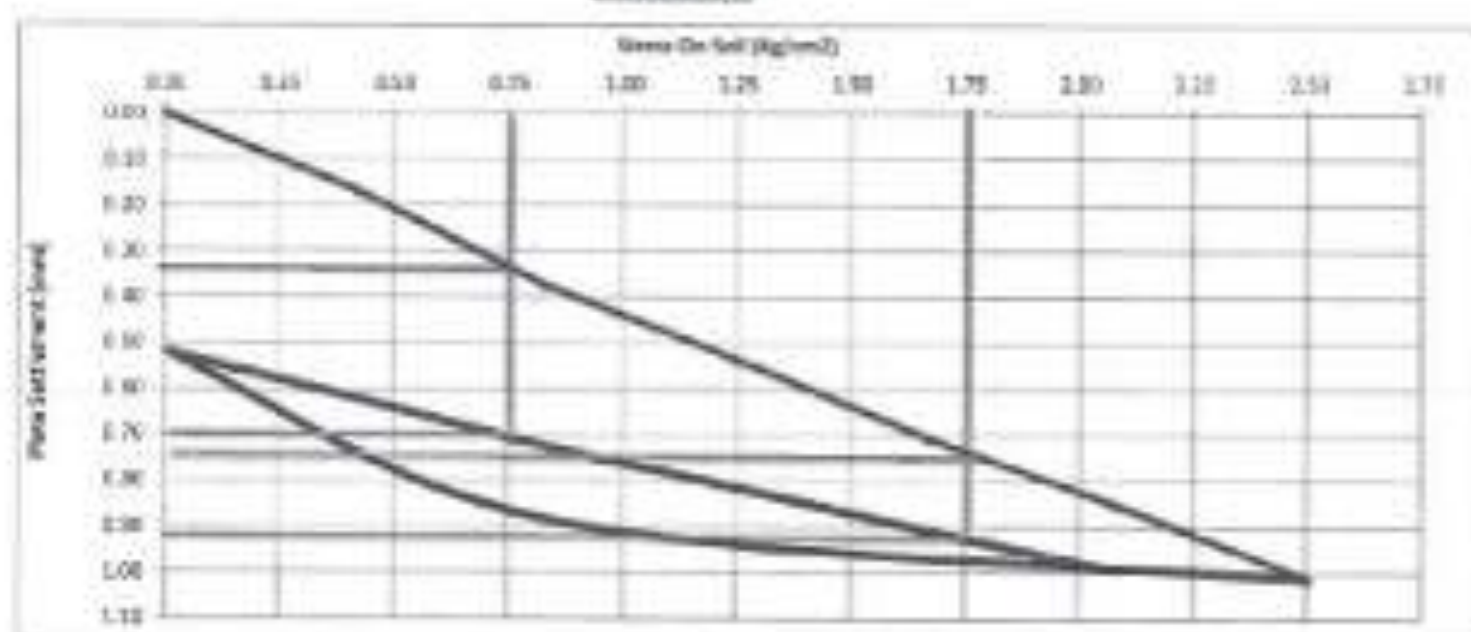
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (S) - Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+375 to 425+400
 Test No. : 04

Nonrepetitive Static Plate Load Tests of Soils
QIN 18134



Loading (T)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.6	3532.5	4719.4	5878.1	7068
Stress (Kg/cm²)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.17	0.37	0.54	0.71	0.85	1.01

UnLoading (T)	1	2	3	4
Stage(Kg)	7068	3533	1766	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	1.01	0.94	0.82	0.52

D (mm) =	600	S1 (mm) =	6.34	S2 (mm) =	8.74	ΔS =	0.40
Ev1 (kg/cm²) =	$(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$						
	1125						

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)	0.52	0.52	0.72	0.81	0.91	1.09

$$Ev2/Ev1 = 1.9$$

D (mm) =	630	S1 (mm) =	9.70	S2 (mm) =	8.91	ΔS =	0.21
Ev2 (kg/cm²) =	$(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$						
	2143						

Ev1 = Modulus of deformation during the loading stage.
 Ev2 = Modulus of deformation during the Re-loading stage.
 D = Plate diameter (mm)
 ΔS = The difference between S1 and S2 from the maximum loading (mm) (Kg/cm²)
 ΔS = Difference in settlements corresponding to S1 and S2 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 : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+400 to 425+425
 Test No. : 05

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	19.88	0.12	19.83	0.17	19.85	0.15	0.15
2	0.83	19.69	0.31	19.65	0.35	19.70	0.30	0.32
3	1.25	19.50	0.50	19.49	0.51	19.52	0.48	0.50
4	1.67	19.31	0.69	19.33	0.67	19.37	0.63	0.66
5	2.08	19.14	0.86	19.17	0.83	19.21	0.79	0.83
6	2.50	18.95	1.05	19.01	0.99	19.05	0.95	1.00

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.95	1.05	19.01	0.99	19.05	0.95	1.00
2	1.25	19.05	0.95	19.07	0.93	19.10	0.90	0.93
3	0.625	19.13	0.87	19.16	0.84	19.18	0.82	0.84
4	0.01	19.38	0.62	19.48	0.52	19.44	0.56	0.57

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.31	0.69	19.35	0.65	19.38	0.62	0.66
1	0.83	19.21	0.79	19.24	0.76	19.27	0.73	0.76
2	1.25	19.12	0.88	19.16	0.84	19.18	0.82	0.85
3	1.67	19.03	0.97	19.08	0.92	19.09	0.91	0.93
4	2.08	18.95	1.05	18.99	1.01	19.01	0.99	1.02
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!



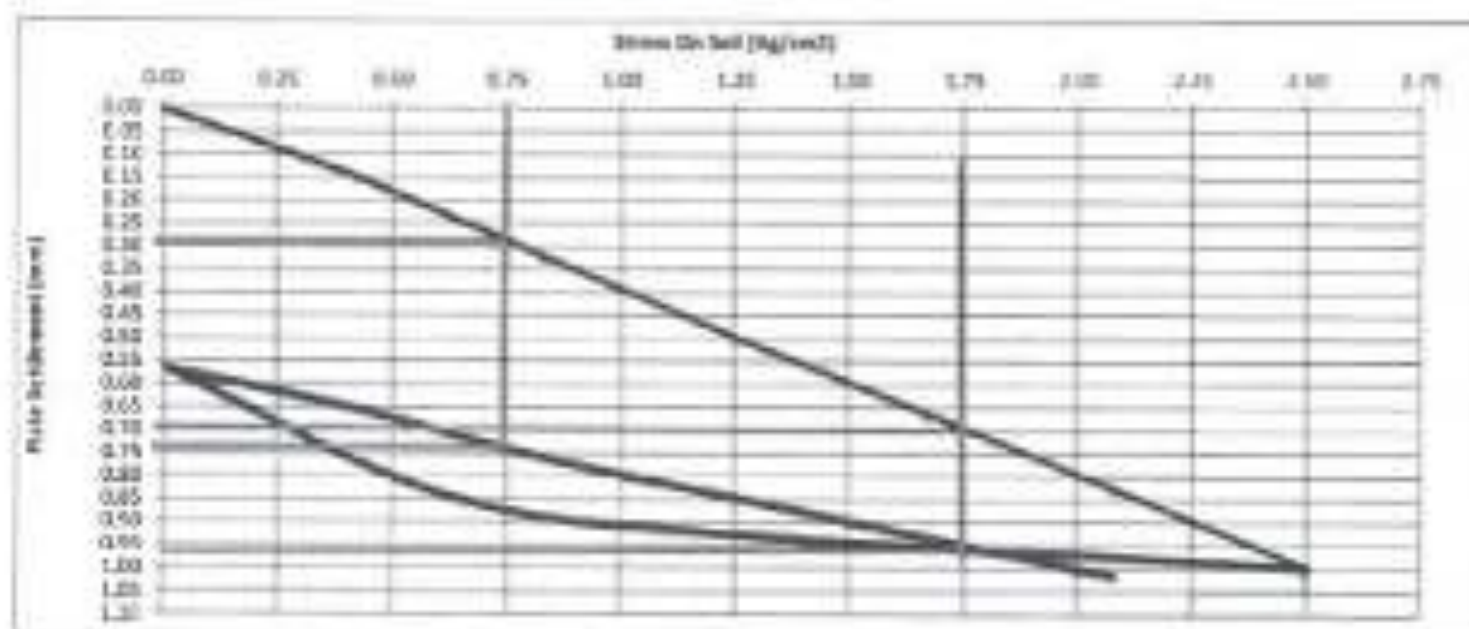
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Company Name : Land-marks-Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (B) - Alamin to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+400 to 425+425
 Test No. : 06

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1186.92	2345.8	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	0.15	0.32	0.50	0.66	0.83	1.00

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1768	0
Stress (Kg/cm²)	2.50	1.25	0.833	0.01
Settlement (mm)	1.00	0.93	0.84	0.57

D (mm) = 600	S1 (mm) = 0.39	S2(mm) = 0.78	ΔS = 0.41
Ev1 (kg/cm²) = $(8.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$	1088		

$$Ev2/Ev1 = 1.8$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1186.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.57	0.65	0.76	0.85	0.93	1.02

D (mm) = 600	S1 (mm) = 0.73	S2(mm) = 0.96	ΔS = 0.23
Ev1 (kg/cm²) = $(8.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$	1967		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S2 and S1 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 (6) – Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+425to 425+450
 Test No. : 06

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	19.75	0.25	19.81	0.19	19.86	0.14	0.19
2	0.83	19.58	0.42	19.61	0.39	19.68	0.32	0.38
3	1.25	19.40	0.60	19.43	0.57	19.50	0.50	0.56
4	1.67	19.24	0.76	19.28	0.72	19.32	0.68	0.72
5	2.08	19.07	0.93	19.13	0.87	19.14	0.86	0.89
6	2.50	18.90	1.10	19.00	1.00	18.96	1.04	1.05

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.90	1.10	19.00	1.00	18.96	1.04	1.05
2	1.25	18.97	1.03	19.08	0.92	19.01	0.99	0.98
3	0.825	19.07	0.93	19.17	0.83	19.10	0.90	0.89
4	0.01	19.34	0.66	19.40	0.60	19.36	0.64	0.63

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.28	0.72	19.31	0.69	19.30	0.70	0.70
1	0.83	19.17	0.83	19.22	0.78	19.21	0.79	0.80
2	1.25	19.07	0.93	19.13	0.87	19.12	0.88	0.89
3	1.67	18.98	1.02	19.05	0.95	19.03	0.97	0.96
4	2.08	18.90	1.10	18.97	1.03	18.94	1.06	1.06



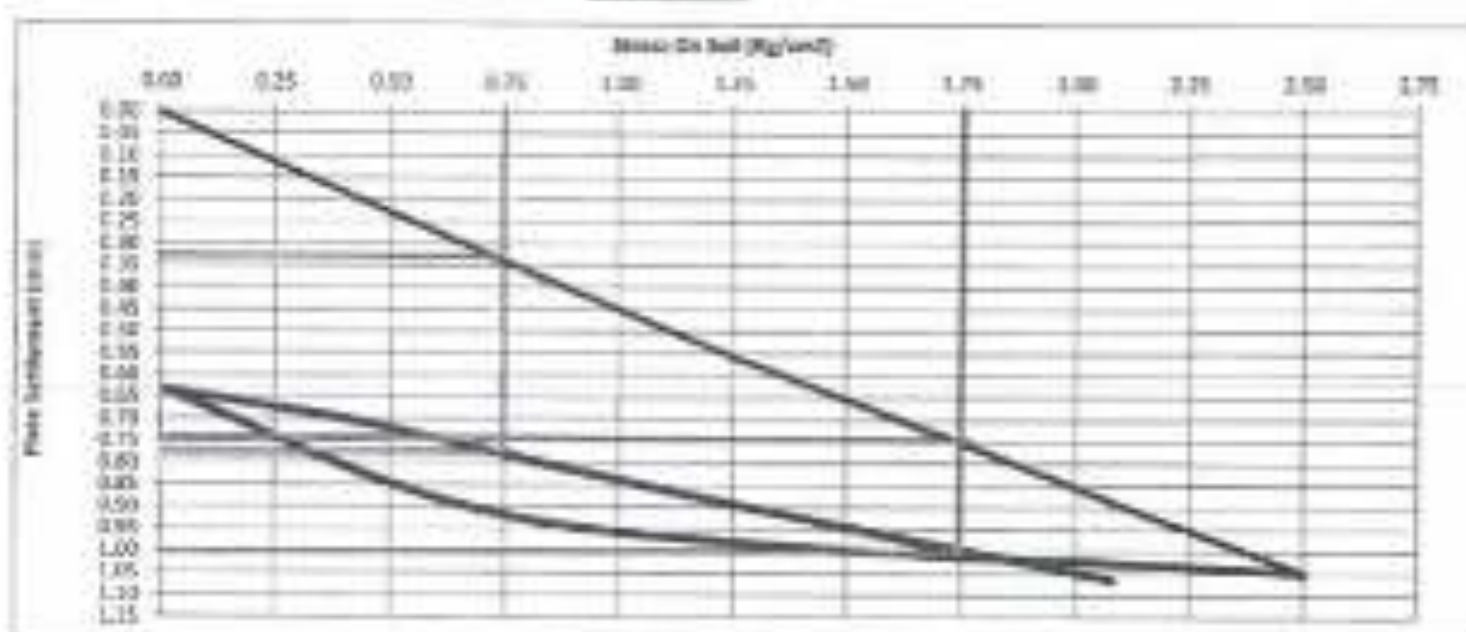
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Company Name: Land marks Co.
 Project: Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Alameda to Foka
 Test Date: 11/04/2023
 report date: 12/04/2023
 Location: Station 425+425 to 429+450
 Test No: 106

Nonrepeditive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2346.8	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	0.19	0.36	0.55	0.72	0.89	1.05

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1708	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	1.05	0.88	0.89	0.83

D (mm) = 600	S1 (mm) = 8.33	S2(mm) = 8.75	ΔS = 0.42
Ex1 (kg/cm²) = (E.T.D*Δs)/ΔS	1071		

$$E_{v2}/E_{v1} = 1.8$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2346.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.03	0.70	0.89	0.89	0.98	1.05

D (mm) = 600	S1 (mm) = 0.17	S2(mm) = 1.08	ΔS = 0.23
Ex2 (kg/cm²) = (E.T.D*Δs)/ΔS	1957		

Ev1 = Modulus of deformation during the loading stage

Ev2 = Modulus of deformation during the Reloading stage

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to 0.5 and 2.5 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 (6) – Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+450 to 425+475
 Test No. : 07

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	19.67	0.33	19.93	0.07	19.34	0.66	0.35
2	0.83	19.54	0.46	19.81	0.19	19.25	0.75	0.47
3	1.25	19.38	0.64	19.65	0.35	18.94	1.06	0.68
4	1.67	19.19	0.81	19.56	0.44	18.74	1.26	0.84
5	2.08	18.98	1.02	19.42	0.58	18.45	1.55	1.05
6	2.50	18.80	1.20	19.31	0.69	18.25	1.75	1.21

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	19.31	0.69	18.25	1.75	1.21
2	1.25	18.97	1.03	19.40	0.60	18.41	1.59	1.07
3	0.825	19.20	0.80	19.51	0.49	18.68	1.32	0.87
4	0.01	19.68	0.31	19.77	0.23	19.08	0.92	0.49

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.45	0.55	19.44	0.56	18.94	1.06	0.72
1	0.83	19.25	0.75	19.11	0.89	18.74	1.26	0.97
2	1.25	19.08	0.92	18.85	1.15	18.54	1.46	1.18
3	1.67	19.00	1.00	18.67	1.33	18.45	1.55	1.28
4	2.08	18.90	1.10	18.57	1.43	18.36	1.64	1.38



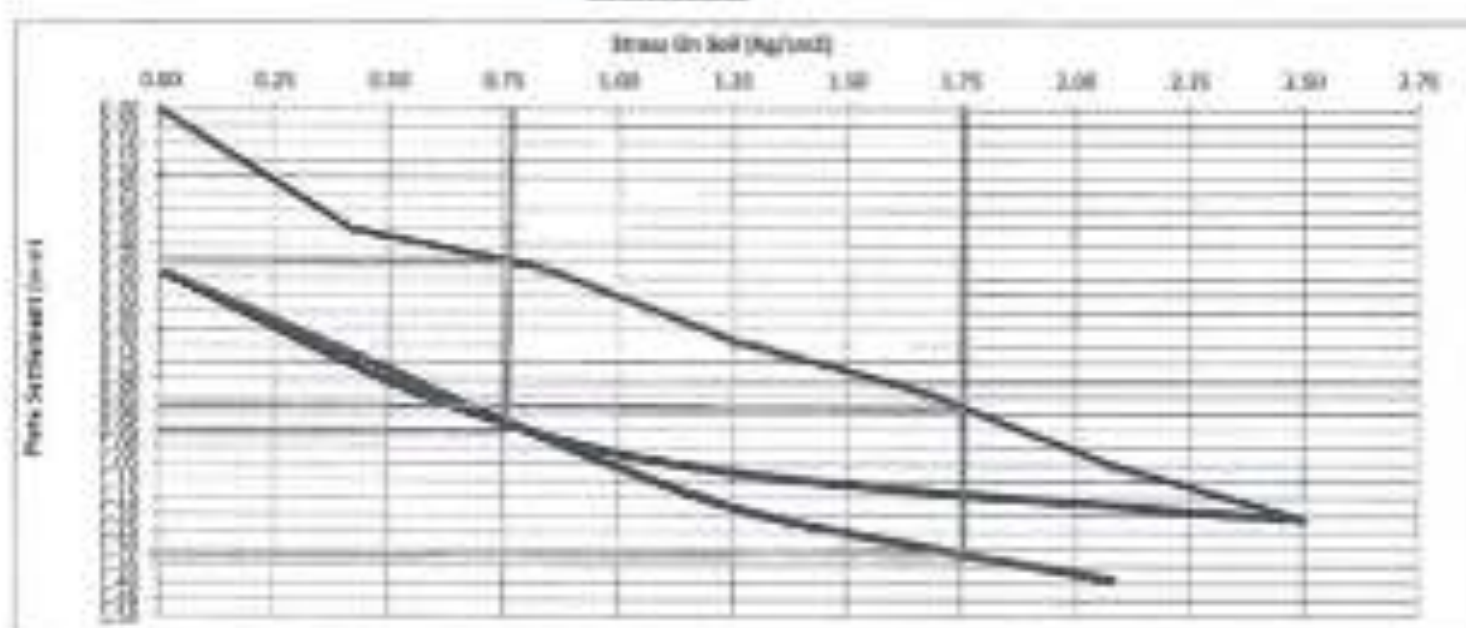
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+450 to 425+475
 Test No. : 07

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (t)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2346.8	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	0.35	0.47	0.68	0.84	1.05	1.21

UnLoading (t)	1	2	3	4
Stage(Kg)	7065	3533	1766	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	1.21	1.07	0.67	0.49

D (mm) =	500	S1 (mm) =	0.45	S2 (mm) =	0.88	ΔS =	0.43
Ev1 (kg/cm²) =	$(0.75 \cdot D^2 \cdot \Delta s) / \Delta S$						
	1047						

$Ev2/Ev1 = 1.3$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2346.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.49	0.72	0.97	1.18	1.29	1.39

D (mm) =	500	S1 (mm) =	0.45	S2 (mm) =	1.38	ΔS =	0.93
Ev2 (kg/cm²) =	$(0.75 \cdot D^2 \cdot \Delta s) / \Delta S$						
	1226						

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the unloading stage.

D = Plate diameter (mm)

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

ΔS = Difference in settlements corresponding to S1 and S2 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 (S) – Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+475 to 425+500
 Test No. : 08

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	19.89	0.11	19.82	0.18	19.86	0.14	0.14
2	0.83	19.78	0.22	19.65	0.31	19.68	0.32	0.28
3	1.25	19.62	0.38	19.49	0.51	19.46	0.54	0.48
4	1.67	19.49	0.51	19.34	0.66	19.29	0.71	0.63
5	2.08	19.37	0.63	19.20	0.80	19.11	0.89	0.77
6	2.50	19.27	0.73	19.09	0.91	18.94	1.06	0.90

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.27	0.73	19.09	0.91	18.94	1.06	0.90
2	1.25	19.30	0.70	19.20	0.80	19.06	0.94	0.81
3	0.825	19.37	0.63	19.30	0.70	19.17	0.83	0.72
4	0.01	19.39	0.41	19.60	0.40	19.49	0.51	0.44

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.54	0.46	19.50	0.50	19.43	0.57	0.51
1	0.83	19.47	0.53	19.37	0.63	19.30	0.70	0.62
2	1.25	19.40	0.60	19.26	0.74	19.16	0.84	0.73
3	1.67	19.35	0.65	19.18	0.82	19.08	0.92	0.80
4	2.08	19.30	0.70	19.11	0.89	19.00	1.00	0.86



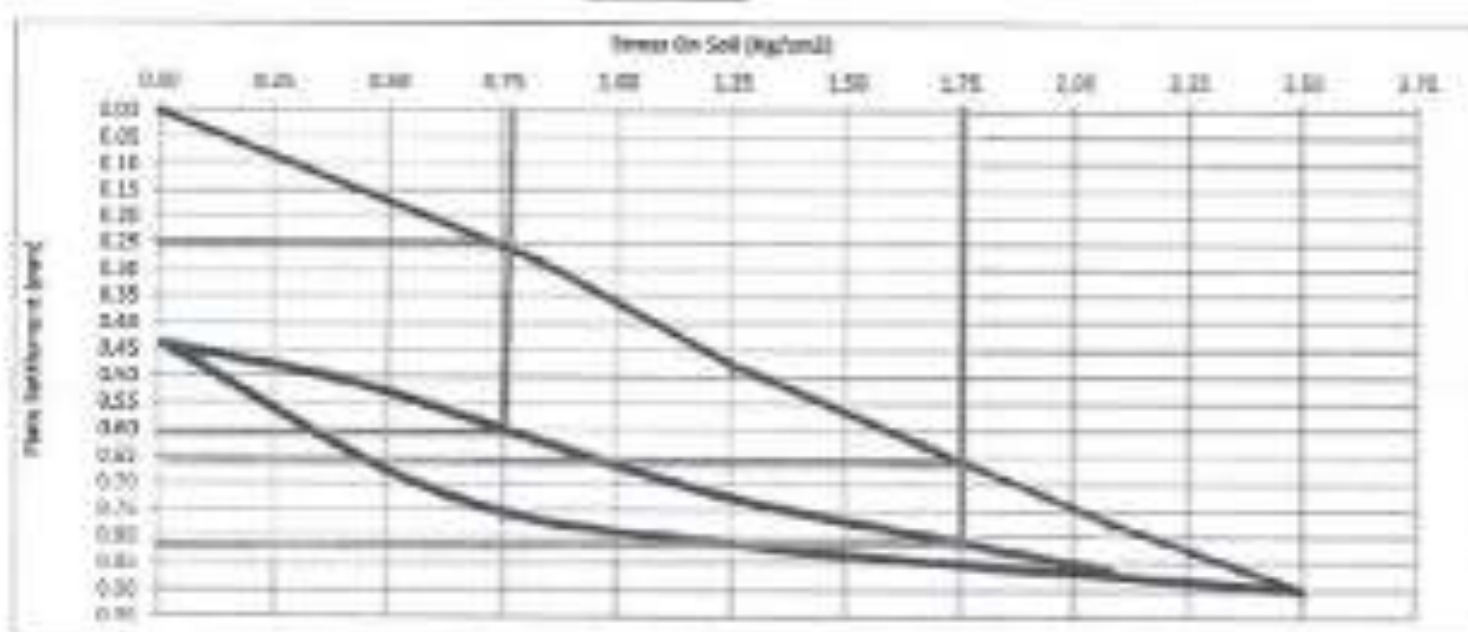
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Company Name: Land-marks Co.
Project: Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) – Almain to Foka
Test Date: 11/04/2023
report date: 12/04/2023
Location: Station 425+475 to 425+500
Test No.: 08

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	2.50
Settlement (mm)	0.00	0.14	0.28	0.48	0.63	0.77	0.90

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)	0.90	0.81	0.72	0.44

D (mm) = 600	S1 (mm) = 0.25	S2 (mm) = 0.80	ΔS = 0.41
Ex1 (kg/cm²) = (0.75*D²*ΔS/ΔS)	1098		

$$Ex2/Ex1 = 1.8$$

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)	0.44	0.51	0.62	0.73	0.80	0.86

D (mm) = 600	S1 (mm) = 0.66	S2 (mm) = 0.82	ΔS = 0.22
Ex2 (kg/cm²) = (0.75*D²*ΔS/ΔS)	2045		

Ex1 = Modulus of deformation during the loading stage.
Ex2 = Modulus of deformation during the Reloading stage.
D = Plate diameter (mm)
ΔS = The difference between S2 and S1 from the maximum loading (mm) (kg/cm²)
ΔS = Difference in settlements corresponding to S2 and S1 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 (6) – Almain to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+500 to 425+525
 Test No. : 09

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	19.78	0.22	19.82	0.18	19.85	0.15	0.18
2	0.83	19.66	0.34	19.63	0.37	19.64	0.36	0.36
3	1.25	19.49	0.51	19.48	0.52	19.51	0.49	0.51
4	1.67	19.40	0.60	19.29	0.71	19.35	0.65	0.65
5	2.08	19.28	0.72	19.14	0.86	19.23	0.77	0.78
6	2.50	19.19	0.81	19.04	0.96	19.10	0.90	0.89

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.19	0.81	19.04	0.96	19.10	0.90	0.89
2	1.25	19.25	0.75	19.11	0.89	19.21	0.79	0.81
3	0.625	19.35	0.65	19.25	0.75	19.34	0.66	0.69
4	0.01	19.51	0.49	19.53	0.47	19.63	0.37	0.44

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.47	0.58	19.48	0.52	19.55	0.45	0.52
1	0.83	19.31	0.69	19.35	0.65	19.43	0.57	0.64
2	1.25	19.23	0.78	19.24	0.76	19.31	0.69	0.74
3	1.67	19.11	0.89	19.14	0.86	19.23	0.77	0.84
4	2.08	19.05	0.95	19.02	0.98	19.15	0.86	0.93



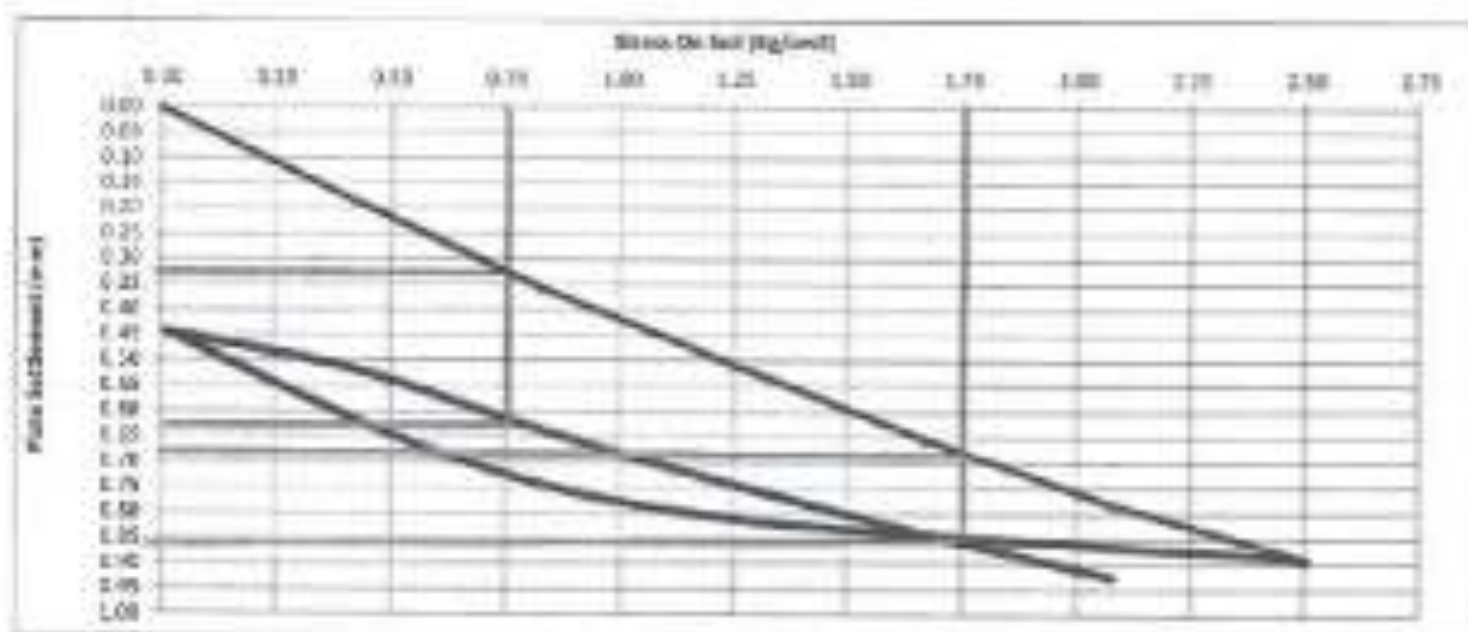
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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (K) - Alamein to Peki
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+500 to 429+528
 Test No. : 99

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2345.8	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	0.16	0.36	0.51	0.65	0.78	0.89

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1766	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	0.89	0.81	0.69	0.44

D (mm) =	300	S1 (mm) =	0.32	S2 (mm) =	0.88	ΔS =	0.36
Cv1 (kg/cm²) =	(0.75*Q*Δs/ΔS)		1250				

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2345.8	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.44	0.52	0.64	0.74	0.84	0.93

$$Ev2/Ev1 = 1.6$$

D (mm) =	600	S1 (mm) =	3.92	S2 (mm) =	5.88	ΔS =	0.23
Cv2 (kg/cm²) =	(0.75*Q*Δs/ΔS)		1667				

E_{v1} = Modulus of deformation during the loading stage.
 E_{v2} = Modulus of deformation during the Reloading stage.
 D = Plate Diameter (mm)
 Δs = The difference between S₂ and S₁ from the maximum loading (mm) (kg/cm²)
 ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+525 to 425+550
 Test No. : 10

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	19.90	0.10	19.89	0.11	19.85	0.14	0.12
2	0.83	19.72	0.28	19.69	0.31	19.70	0.30	0.30
3	1.25	19.54	0.46	19.50	0.50	19.54	0.48	0.47
4	1.67	19.38	0.64	19.35	0.65	19.38	0.62	0.64
5	2.08	19.18	0.82	19.18	0.82	19.22	0.78	0.81
6	2.50	19.00	1.00	19.03	0.97	19.06	0.94	0.97

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.00	1.00	19.03	0.97	19.06	0.94	0.97
2	1.25	19.05	0.95	19.09	0.91	19.11	0.89	0.92
3	0.625	19.13	0.87	19.18	0.82	19.20	0.80	0.83
4	0.01	19.42	0.58	19.45	0.55	19.50	0.50	0.54

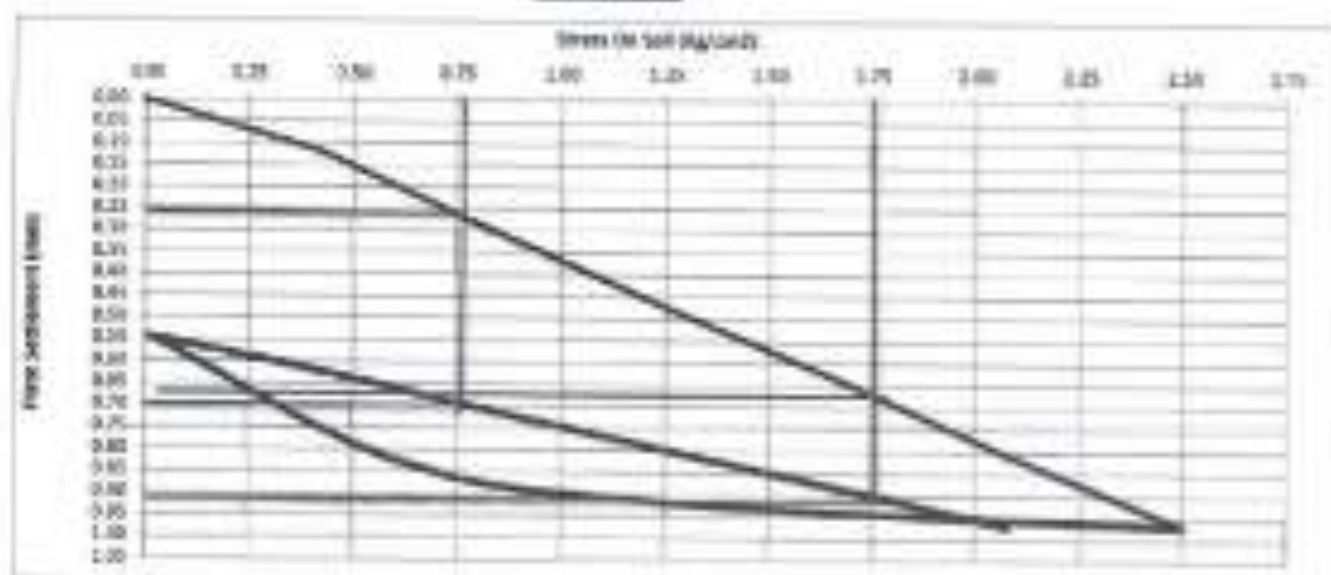
Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.34	0.66	19.38	0.61	19.41	0.59	0.62
1	0.83	19.25	0.75	19.30	0.70	19.32	0.68	0.71
2	1.25	19.17	0.83	19.21	0.79	19.23	0.77	0.80
3	1.67	19.09	0.91	19.12	0.88	19.14	0.86	0.88
4	2.08	19.00	1.00	19.04	0.96	19.06	0.94	0.97



Company Name : Land marks Co.
Project : Badkha Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (E) - Alamein to Foka
Test Date : 11/04/2022
report date : 12/04/2022
Location : Station 425+525 to 425+590
Test No. : 10

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (t)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2348.6	3532.6	4719.4	5879.1	7068
Stress (Kgf/cm²)	0.00	0.42	0.83	1.28	1.67	2.08	2.50
Settlement (mm)	0.00	0.12	0.30	0.47	0.64	0.81	0.97

UnLoading (t)	1	2	3	4
Stage(Kg)	7068	3533	1758	0
Stress (Kgf/cm²)	2.50	1.28	0.625	0.01
Settlement (mm)	0.87	0.82	0.83	0.24

D (mm) =	600	S1 (mm) =	0.28	S2 (mm) =	0.68	ΔS =	0.41
E _{v1} (kg/cm²) =	(0.197 Gr/Aspale)						1098

Loading (t)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2348.6	3532.6	4719.4	5879.1
Stress (Kgf/cm²)	0.00	0.42	0.83	1.28	1.67	2.08
Settlement (mm)	0.54	0.62	0.71	0.80	0.88	0.97

S₂/S₁ = 2.1

D (mm) =	800	S1 (mm) =	0.70	S2 (mm) =	0.90	ΔS =	0.20
E _{v2} (kg/cm²) =	(0.197 Gr/Aspale)						2280

E_{v1} = Modulus of deformation during the loading stage.
E_{v2} = Modulus of deformation during the reloading stage.
D = Plate diameter (mm)
ΔS = The difference between S₂ and S₁ from the maximum loading (mm) (kg/cm²)
ΔS = Difference in settlements corresponding to S₂ and S₁ from the maximum loading (mm)

Signature 1

Company Name : Land marks Co.
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka
 Test Date : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+550 to 425+575
 Test No. : 11

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	19.79	0.21	19.86	0.34	19.70	0.30	0.28
2	0.83	19.57	0.43	19.45	0.55	19.49	0.51	0.50
3	1.25	19.32	0.68	19.16	0.84	19.29	0.71	0.74
4	1.67	19.09	0.91	18.91	1.09	19.12	0.88	0.96
5	2.08	18.91	1.09	18.74	1.26	18.97	1.03	1.13
6	2.50	18.74	1.26	18.55	1.45	18.79	1.21	1.31

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.74	1.26	18.55	1.45	18.79	1.21	1.31
2	1.25	18.84	1.16	18.74	1.26	18.87	1.13	1.18
3	0.625	19.03	0.97	18.99	1.01	19.06	0.94	0.97
4	0.01	19.43	0.57	19.54	0.46	19.45	0.55	0.53

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.32	0.68	19.34	0.66	19.31	0.69	0.68
1	0.83	19.15	0.84	19.04	0.96	19.17	0.83	0.88
2	1.25	19.00	1.00	18.87	1.13	19.03	0.97	1.03
3	1.67	18.87	1.13	18.74	1.26	18.93	1.07	1.15
4	2.08	18.73	1.22	18.64	1.36	18.83	1.17	1.25
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	#REF!

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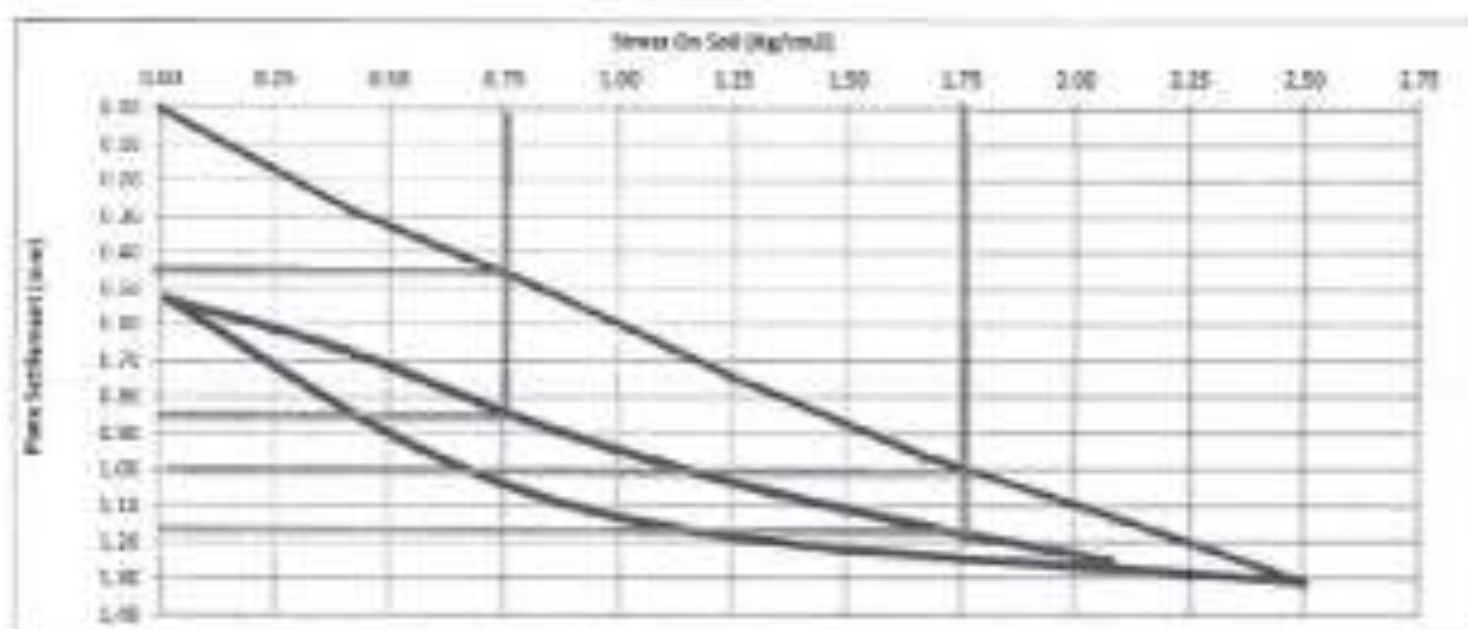
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Company Name : Land-marks-Co.
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (R) - Alarwin to Foka
Test Date : 11/04/2023
report date : 12/04/2023
Location : Station 425+550 to 425+575
Test No. : 11

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	1188.92	2348.6	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	0.28	0.50	0.74	0.96	1.13	1.31

UnLoading (1)	1	2	3	4
Stage(Kg)	7065	3533	1766	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	1.31	1.18	0.97	0.03

D (mm) = 600	S1 (mm) = 0.43	S2 (mm) = 1.00	ΔS = 0.55
Ev1 (kg/cm²) = $(8.75 \cdot D^2 \cdot \Delta S) / \Delta S$	818		

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	1188.92	2348.6	3532.5	4719.4	5878.1
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.03	0.08	0.88	1.03	1.15	1.25

Ev2/Ev1 = 1.7

D (mm) = 600	S1 (mm) = 0.96	S2 (mm) = 1.17	ΔS = 0.21
Ev2 (kg/cm²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	1426		

Signature

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Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the unloading stage.
D = Plate diameter (mm)
ΔS = The difference between 0.1 and 0.7 from the maximum loading (mm) (kg/cm²)
ΔS = Difference in settlements corresponding to 0.1 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 : 11/04/2023
 report date : 12/04/2023
 Location : Station 425+575 to 425+600
 Test No. : 12

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	19.72	0.28	19.84	0.16	19.83	0.12	0.19
2	0.83	19.56	0.44	19.68	0.32	19.68	0.32	0.36
3	1.25	19.32	0.68	19.42	0.58	19.46	0.54	0.60
4	1.67	19.12	0.88	19.22	0.78	19.29	0.71	0.79
5	2.08	18.95	1.05	19.05	0.95	19.11	0.89	0.96
6	2.50	18.77	1.23	18.85	1.15	18.94	1.06	1.15

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	18.77	1.23	18.85	1.15	18.94	1.06	1.15
2	1.25	18.95	1.04	18.94	1.06	19.06	0.94	1.01
3	0.625	19.03	0.97	19.07	0.93	19.17	0.83	0.91
4	0.01	19.42	0.58	19.41	0.59	19.49	0.51	0.56

Loading Stage (2)

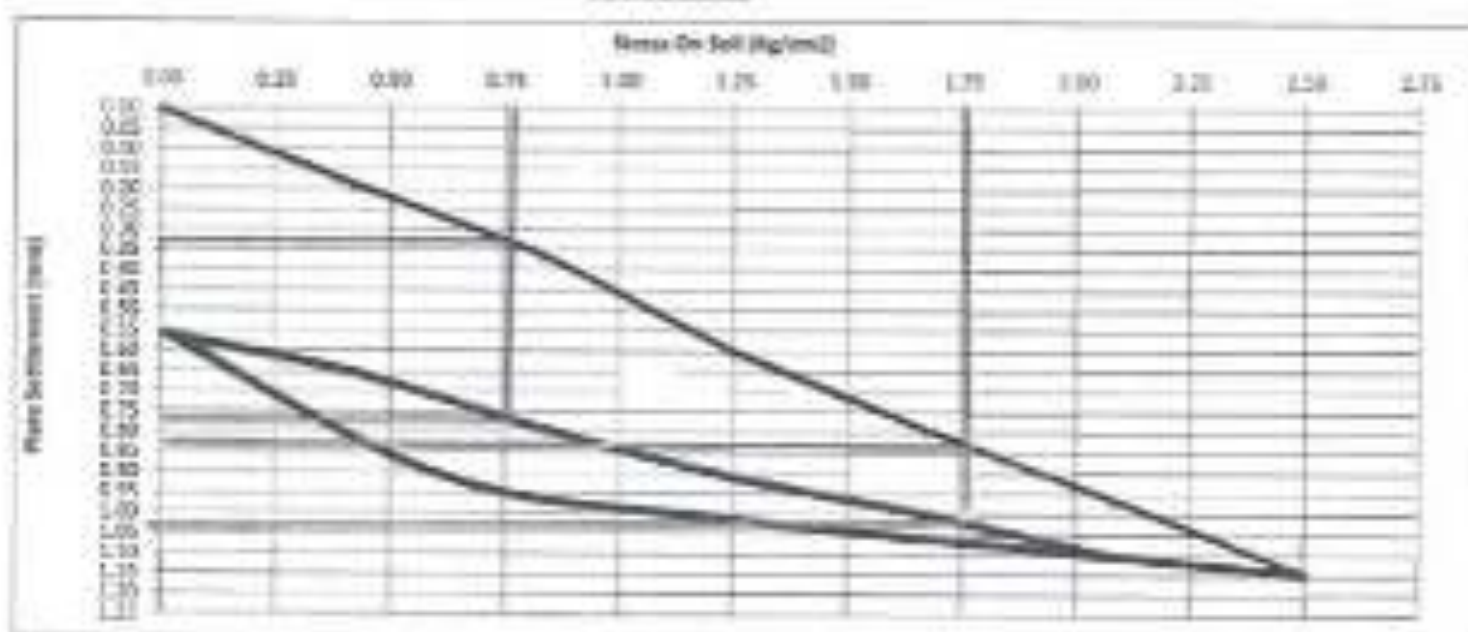
Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.29	0.71	19.32	0.68	19.43	0.57	0.65
1	0.83	19.14	0.86	19.19	0.81	19.30	0.70	0.79
2	1.25	19.02	0.98	19.09	0.91	19.16	0.84	0.91
3	1.67	18.92	1.08	19.00	1.00	19.08	0.92	1.00
4	2.08	18.80	1.20	18.91	1.09	18.98	1.02	1.10

Signature



Company Name : Land marks Co.
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matruh Priority Sector (B) – Almain to Foka
Test Date : 11/04/2023
report date : 12/04/2023
Location : Station 425+575 to 425+600
Test No. : 12

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	2.50
Settlement (mm)	0.00	0.78	0.85	0.91	0.97	1.00	1.15

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)	1.15	1.01	0.91	0.55

D (mm) =	600	S1 (mm) =	0.31	S2 (mm) =	0.81	ΔS =	0.50
Ev1 (kg/cm²) =	$(0.75 \cdot D^2 \cdot \Delta s) / \Delta S$						
	968						

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)	0.50	0.65	0.78	0.91	1.00	1.10

$$Ev2/Ev1 = 1.9$$

D (mm) =	600	S1 (mm) =	0.77	S2 (mm) =	1.03	ΔS =	0.26
Ev2 (kg/cm²) =	$(0.75 \cdot D^2 \cdot \Delta s) / \Delta S$						
	1731						



Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the Reloading stage.
D = Plate diameter (mm)
Δs = The difference between S2 and S1 from the maximum loading (mm) (kg/cm²)
ΔS = Difference in settlements corresponding to S2 and S1 from the maximum loading (mm)