



Testing date : 23/11/2023
 Company Name : التوحيد
 Project : Electric Express Train – HSR From Sohag to Qena
 S. Description : مشون 1
 Station : ST: 565+500
 Coordinate : E 445151.515 N 2875259.573 إحداثي البداية
 Coordinate : E 445228.134 N 2875131.695 إحداثي النهاية
 Direction : Right
 Code : TW-S-4

Sieve Analysis:

Sieve size (IN)	Passing %
2	95.9
1.5	95.0
1	87.6
¾	84.8
½	76.4
3/8	72.4
4	61.5
10	50.7
40	31.7
200	4.8

Test	Results	
Soil Classification	A-1-b	
Modified Proctor	Max Dry Density	2.239
	O.M.C	6%
L. L	NP	
P. I	NP	
CBR	33.9 %	

Notes:-.....

Lab (CEL)

Lab. Engineer

Signature



Consultant (K.K.)

Engineer

Signature



Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 15/11/2023
Reporting Date : 23/11/2023
Reporting No. : TW-S-4

Dear Gentleman,

Attached here with the delivered on 15/ 11/ 2023

Materials test

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

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

Signature



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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093



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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 15/11/2023
Reporting Date : 23/11/2023
Reporting No. : TW-S-4

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

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

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Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 15/11/2023
Reporting Date : 23/11/2023
Reporting No. : TW-S-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	95.9
37.5	1.5	95.0
25	1	87.6
19	¾	84.8
12.50	½	76.4
9.50	3/8	72.4
4.75	4	61.5
2.00	10	50.7
0.425	40	31.7

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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 15/11/2023
Reporting Date : 23/11/2023
Reporting No. : TW-S-4

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)	4.8 %

Signature /



Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 15/11/2023
Reporting Date : 23/11/2023
Reporting No. : TW-S-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-b)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	50.7	Max 50 %	-----	-----
0.425 mm (No. 40).	31.7	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	4.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature /



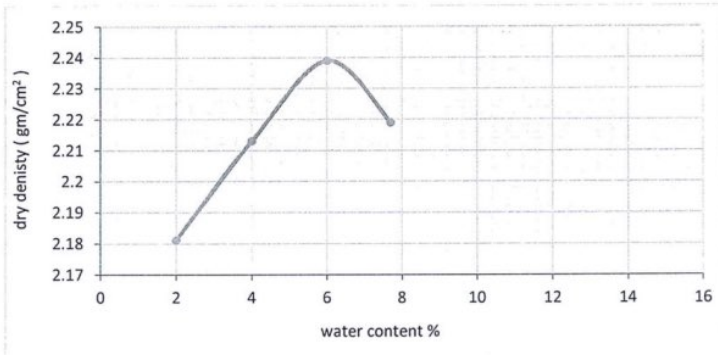
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Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 15/11/2023
Reporting Date : 23/11/2023
Reporting No. : TW-S-4

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



- Max dry density (gm/cm³) : 2.239
- Optimum moisture content % : 6 %

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Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 15/11/2023
Reporting Date : 23/11/2023
Reporting No. : TW-S-4

Test Results of California Bearing Ratio on Base Materials

ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.67
1.27	0.050	1.28
1.91	0.075	1.84
2.54	0.100	2.34
3.18	0.125	2.75
3.81	0.150	3.00
4.45	0.175	3.13
5.08	0.200	3.22
6.35	0.250	3.21

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	33.9%
	6.90	2.34	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of =2.239 (gm /cm³)
At = 6 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

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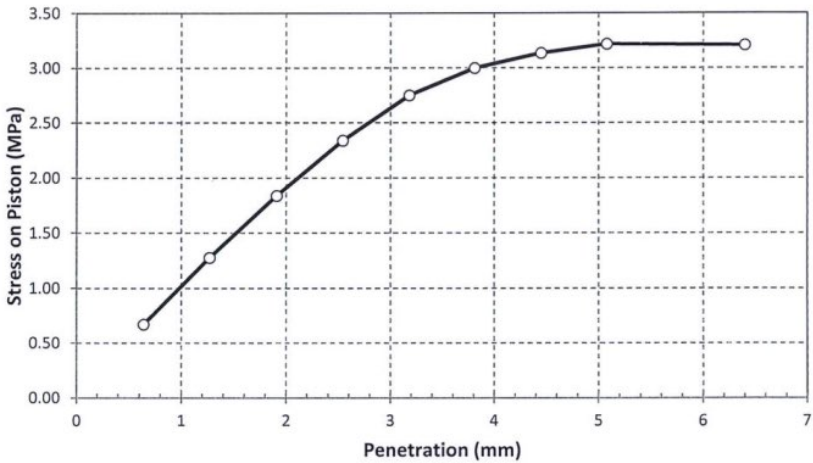


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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 15/11/2023
Reporting Date : 23/11/2023
Reporting No. : TW-S-4

Load Penetration Curve of CBR Test

ASTM D-1883



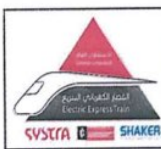
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Testing date : 30/11/2023
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
S. Description : مشون 1
Station : ST: 565+500
Coordinate : E= 445151.515 N= 2875259.573 إحداثي البداية
Coordinate : E =445228.134 N = 2875131.695 إحداثي النهاية
Direction : Right
Code : TW-S-5

Sieve Analysis:

Sieve size (IN)	Passing %
2	98.2
1.5	94.9
1	89.1
¾	85.6
½	77.1
3/8	73.9
4	65.0
10	55.5
40	28.5
200	4.8

Test	Results	
Soil Classification	A-1-b	
Modified Proctor	Max Dry Density	2.190
	O.M.C	6 %
L. L	NP	
P. I	NP	
CBR	30.6 %	

Notes:-.....

Lab (CEL) **CEL**
مكتب معامل الاستشارات الهندسية
Lab. Enginner **محمد مصطفى**
219 - 991 - 537
رقم الترخيص: 1555
Signature

Consultant (K.K.)

Engineer **محمد مصطفى**

Signature **محمد مصطفى**

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : 1 مشون
Delivery Date : 23/11/2023
Reporting Date : 30/11/2023
Reporting No. : TW-S-5

Dear Gentleman,

Attached here with the delivered on 23/ 11/ 2023

Materials test

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

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

مكتب معامل الاستشارات الهندسية
مسؤولية مشروعنا
رقم التسجيل ٢٧٣٦٧٢٣١
توقيع المهندس / محمد أحمد / القاهرة

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 23/11/2023
Reporting Date : 30/11/2023
Reporting No. : TW-S-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.2
37.5	1.5	94.9
25	1	89.1
19	¾	85.6
12.50	½	77.1
9.50	3/8	73.9
4.75	4	65.0
2.00	10	55.5
0.425	40	28.5

Signature

CEL

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مسروحات، سوهاج و قنا

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البنك التجاري: فرع بنك مصر، القاهرة

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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 23/11/2023
Reporting Date : 30/11/2023
Reporting No. : TW-S-5

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)	4.8 %

Signature 
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الفرع الرئيسي : شبراخيت - مصر - الزمالة - القاهرة

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 23/11/2023
Reporting Date : 30/11/2023
Reporting No. : TW-S-5

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

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

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رقم التسجيل الضريبي: 219 - 991 - 537
المركز الرئيسي: قنينا - محافظة أسيوط - الجمهورية العربية السورية

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 23/11/2023
Reporting Date : 30/11/2023
Reporting No. : TW-S-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-b)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	55.5	Max 50 %	-----	-----
0.425 mm (No. 40).	28.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	4.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature

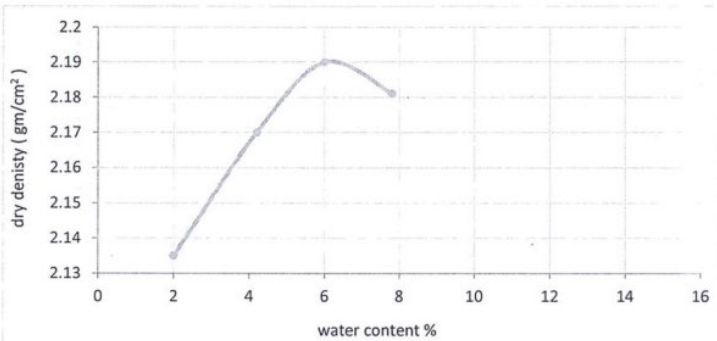

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 رقم الترخيص: 219 - 991 - 537
 القاهرة

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 23/11/2023
Reporting Date : 30/11/2023
Reporting No. : TW-S-5

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.190
- Optimum moisture content % : 6 %

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رقم التسجيل المميز 219 - 991 - 537
القاهرة - مصر

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 23/11/2023
Reporting Date : 30/11/2023
Reporting No. : TW-S-5

Test Results of California Bearing Ratio on Base Materials

ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.71
1.27	0.050	1.22
1.91	0.075	1.70
2.54	0.100	2.13
3.18	0.125	2.49
3.81	0.150	2.87
4.45	0.175	3.09
5.08	0.200	3.32
6.35	0.250	3.80

CBR Result	Stress (Mpa)		CBR 95 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	2.13	29.3 %
At 0.2 inch (5.08 mm) penetration	10.3	3.32	30.6 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = $2.190(\text{gm}/\text{cm}^3)$
At = 6 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments, CBR > 20 for Upper embankment according project spec page No 36.

Signature

...مهندس/مهندس/مهندس
رقم التسجيل المهنى : 219 - 991 - 537
المركز المحلى : القاهرة

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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093

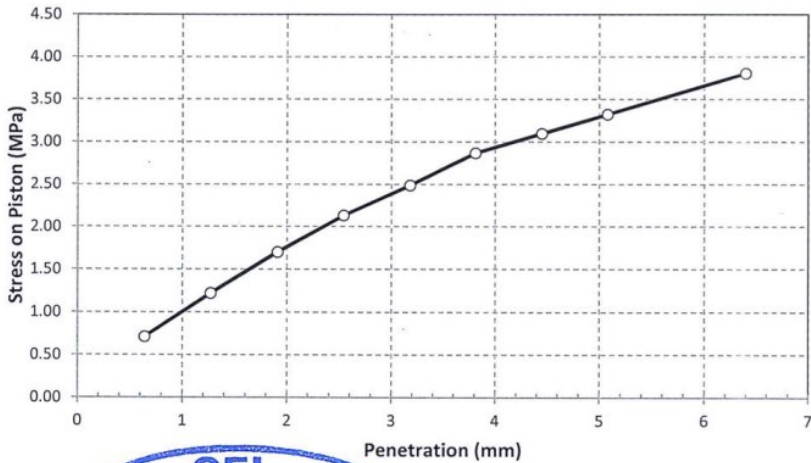


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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 23/11/2023
Reporting Date : 30/11/2023
Reporting No. : TW-S-5

Load Penetration Curve of CBR Test

ASTM D-1883



Testing date : 31/12/2023
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
S. Description : مشون 2
Station : ST: 569+700
Coordinate : E= 448372.340 N=2877497.797 إحداثي البداية
Coordinate : E=448416.287 N=2877413.553 إحداثي النهاية
Direction : Right
Code : TW-S-6

Sieve Analysis:

Sieve size (IN)	Passing %
2	96.1
1.5	93.2
1	78.6
¾	70.7
½	46.5
3/8	39.0
4	25.3
10	19.1
40	14.9
200	4.3

Test	Results
Soil Classification	A-1-a
Modified Proctor	Max Dry Density 2.255
	O.M.C 4.2 %
L. L	NP
P. I	NP
CBR	42.6%

Notes:.....

Lab (CEL)
Lab. Engineer
Signature

Consultant (K.K.)
Engineer
Signature

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 26/12/2023
Reporting Date : 31/12/2023
Reporting No. : TW-S-6

Dear Gentleman,

Attached here with the delivered on 26/ 12 / 2023

Materials test

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

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

Signature





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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 596+600
Type of sample : مشون 2
Delivery Date : 26/12/2023
Reporting Date : 31/12/2023
Reporting No. : TW-S-6

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	96.1
37.5	1.5	93.2
25	1	78.6
19	¾	70.7
12.50	½	46.5
9.50	3/8	39.0
4.75	4	25.3
2.00	10	19.1
0.425	40	14.9



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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 596+600
Type of sample : مشون 2
Delivery Date : 26/12/2023
Reporting Date : 31/12/2023
Reporting No. : TW-S-6

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)	4.3 %



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مشروعات محافظات الوجه القبلي

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 596+600
Type of sample : مشون 2
Delivery Date : 26/12/2023
Reporting Date : 31/12/2023
Reporting No. : TW-S-6

**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

CEL
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مسرور ماهر سوخاج و قنا
رقم التسجيل 991...53
التوقيع: [Signature]
التاريخ: 31/12/2023

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Zamalek, Cairo.
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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 596+600
Type of sample : مشون 2
Delivery Date : 26/12/2023
Reporting Date : 31/12/2023
Reporting No. : TW-S-6

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	19.1	Max 50 %	-----	-----
0.425 mm (No. 40).	14.9	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	4.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature: 
مكتب معامل الاستشارات الهندسية
م.م. محمد المصطفى م.م. محمد المصطفى
رقم التسجيل المهنى : 219 - 991 - 537
الوكالة الرئيسية : القاهرة - الجيزة - الأقصر - الإسماعيلية - بورسعيد

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

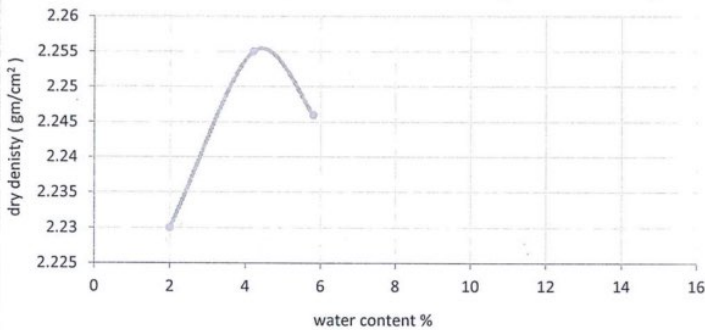


ش الملك الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 596+600
Type of sample : مشون 2
Delivery Date : 26/12/2023
Reporting Date : 31/12/2023
Reporting No. : TW-S-6

Moisture – Density relation of soil
Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.255
- Optimum moisture content % : 4.2 %

Signature

مكتب معامل الاستشارات الهندسية
... فيمصر وعلاوة على ذلك
رقم الترخيص: ٢١٩ - ٩٩١ - ٥٣٧
الترخيص الرئيسي: ٢١٩ - ٩٩١ - ٥٣٧

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 596+600
Type of sample : مشون 2
Delivery Date : 26/12/2023
Reporting Date : 31/12/2023
Reporting No. : TW-S-6

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.91
1.27	0.050	1.44
1.91	0.075	2.00
2.54	0.100	2.69
3.18	0.125	3.27
3.81	0.150	3.88
4.45	0.175	4.33
5.08	0.200	4.62
6.35	0.250	4.91

CBR Result	Stress (Mpa)		CBR 95 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	2.69	37 %
At 0.2 inch (5.08 mm) penetration	10.3	4.62	42.6 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.255 (gm /cm³)
At = 4.2% optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments , CBR > 20 for Upper embankment according to project spec page No 36.

Signature

مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي
رقم التسجيل المبرمج 537 - 991 - 219
المركز الرئيسي : القاهرة - الترمز : القاهرة

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

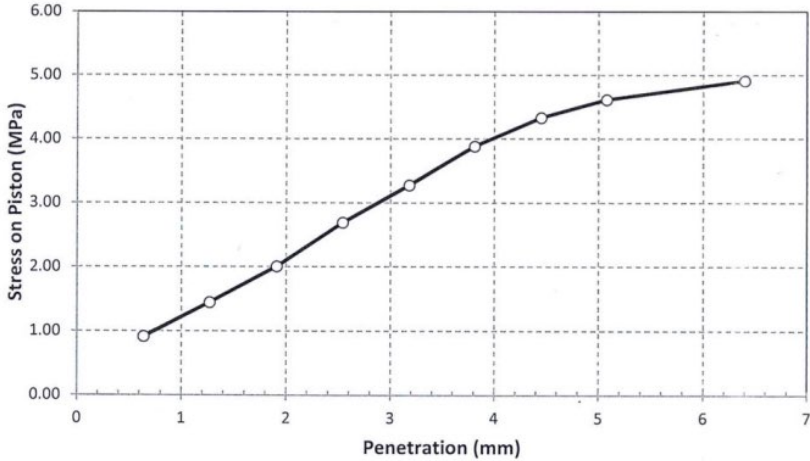


ش الملك الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 596+600
Type of sample : 2 مشون
Delivery Date : 26/12/2023
Reporting Date : 31/12/2023
Reporting No. : TW-S-6

Load Penetration Curve of CBR Test

ASTM D-1883



Signature
مكتب معامل الاستشارات الهندسية
مشاريع (مطارات و جسور)
رقم التسجيل المهنى 219 - 991 - 537
المركز الرئيسى : شارع النيل - القاهرة

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



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



Testing date : 22/02/2024
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
S. Description : مشون 2
Station : ST: 569+700
Direction : Right
Code : TW-S-7

• Sieve Analysis:

Sieve size (IN)	Passing %
2	98.3
1.5	91.8
1	74.5
¾	69.1
½	65.1
3/8	61.6
4	54.4
10	49.6
40	38.1
200	8.3

Test	Results	
Soil Classification	A-1-b	
Modified Proctor	Max Dry Density	2.249
	O.M.C	5.1 %
L. L	NP	
P. I	NP	
CBR	40.3 %	

Notes:.....

Lab (CEL)

Lab. Engineer

Signature



Consultant (K.K.)

Engineer / ابراهيم جيب

Signature / ا.س

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 18/02/2024
Reporting Date : 22/02/2024
Reporting No. : TW-S-7

Dear Gentleman ,

Attached here with the delivered on 18 / 02 / 2024

Materials test

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

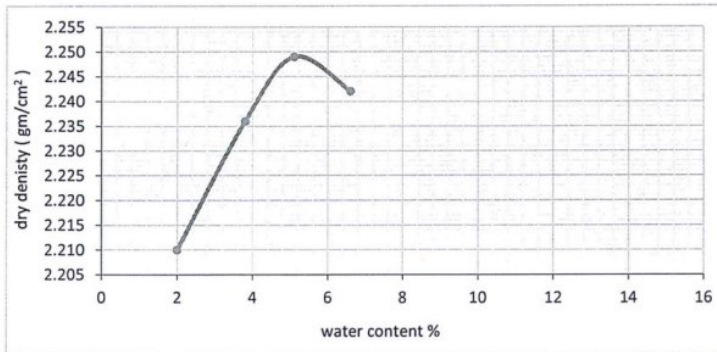
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 18/02/2024
Reporting Date : 22/02/2024
Reporting No. : TW-S-7

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



- Max dry density (gm/cm²) : 2.249
- Optimum moisture content % : 5.1 %

Signature



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



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 18/02/2024
Reporting Date : 22/02/2024
Reporting No. : TW-S-7

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.46
1.27	0.050	1.22
1.91	0.075	1.93
2.54	0.100	2.56
3.18	0.125	3.09
3.81	0.150	3.55
4.45	0.175	4.01
5.08	0.200	4.37
6.35	0.250	4.97

CBR Result	Stress (Mpa)		CBR 95 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	2.56	35.2 %
At 0.2 inch (5.08 mm) penetration	10.3	4.37	40.3 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.249 (gm /cm³)
At = 5.1 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments ,CBR > 20 for Upper embankment
according project spec page No 36.

Signature

مكتب معامل الإستشارات الهندسية
ميسر وكتانية (سحر و قينا)
رقم الترخيص الهندسي 537 - 991 - 219

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

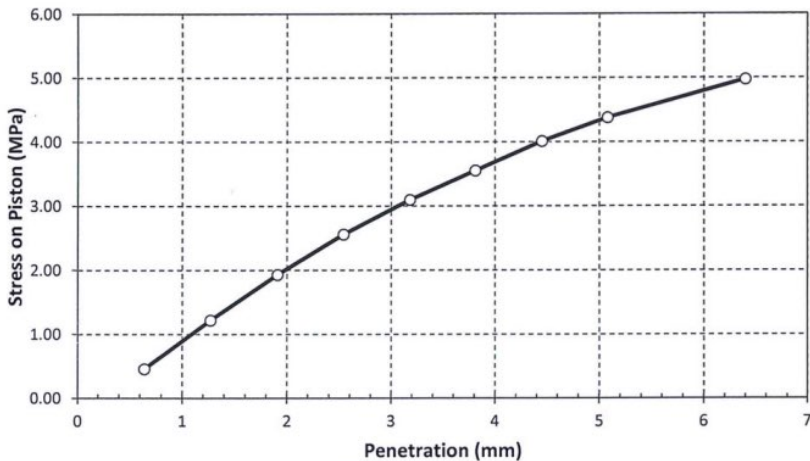


٣ ش الملك الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 18/02/2024
Reporting Date : 22/02/2024
Reporting No. : TW-S-7

Load Penetration Curve of CBR Test

ASTM D-1883



Signature /



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



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

Testing date : 3/3/2024
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
S. Description : 2 مشون
Station : ST: 569+700
Coordinate : E = 448372.340 N = 2877497.797 إحداثي البداية
Coordinate : E = 448416.287 N = 2877413.553 إحداثي النهاية
Direction : Right
Code : TW-S-8

• Sieve Analysis:

Sieve size (IN)	Passing %
2	94.4
1.5	83.9
1	67.0
¾	61.1
½	49.4
3/8	46.0
4	39.5
10	35.9
40	27.2
200	6.0

Test	Results	
Soil Classification	A-1- a	
Modified Proctor	Max Dry Density	2.265
	O.M.C	5.5 %
L. L	NP	
P .I	NP	
CBR	42.5 %	

Notes:-.....

Lab (CEL)

Lab. Engineer /

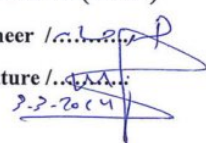
Signature



Consultant (K.K.)

Engineer /

Signature /



3-3-2024

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 26/2/2024
Reporting Date : 3/3/2024
Reporting No. : TW-S-8

Dear Gentleman,

Attached here with the delivered on 26 / 2 / 2024

Materials test

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

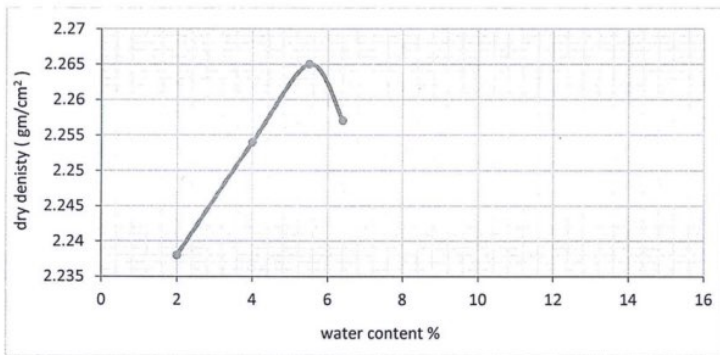
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 26/2/2024
Reporting Date : 3/3/2024
Reporting No. : TW-S-8

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



- Max dry density (gm/cm²) : 2.265
- Optimum moisture content % : 5.5 %

Signature



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



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 26/2/2024
Reporting Date : 3/3/2024
Reporting No. : TW-S-8

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.76
1.27	0.050	1.52
1.91	0.075	2.18
2.54	0.100	2.74
3.18	0.125	3.25
3.81	0.150	3.73
4.45	0.175	4.18
5.08	0.200	4.61
6.35	0.250	5.33

CBR Result	Stress (Mpa)		CBR 95 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	2.74	37.7 %
At 0.2 inch (5.08 mm) penetration	10.3	4.61	42.5 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.265 (gm /cm³)
At = 5.5 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments , CBR > 20 for Upper embankment
according project spec page No 36.

Signature

مكتب معامل الإستشارات الهندسية
3 El Malek El Afdal Street
Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093
219 - 991 - 537
رقم الترخيص الهندسي : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

3 El Malek El Afdal Street
Zamalek, Cairo.

Tel.& Fax : 27367231 - 27363093



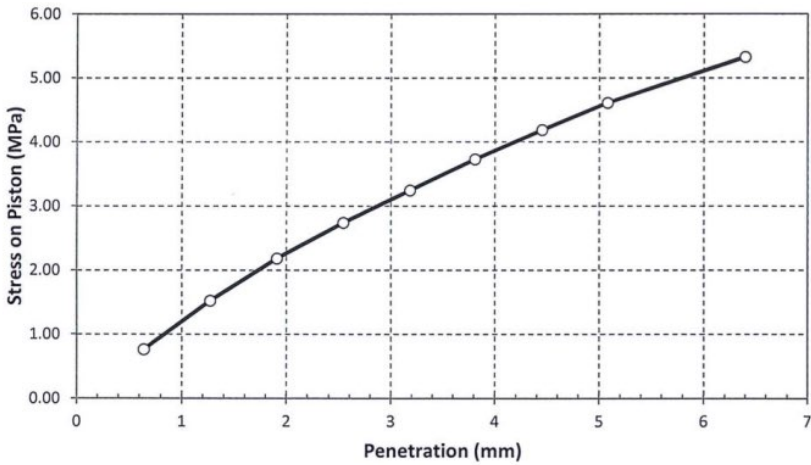
٣ ش الملك الأفضل
الزمالك - القاهرة

تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 26/2/2024
Reporting Date : 3/3/2024
Reporting No. : TW-S-8

Load Penetration Curve of CBR Test

ASTM D-1883



Signature



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



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



Testing date : 9/3/2024
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
S. Description : مشون 2
Station : ST: 569+700
Direction : Right
Code : TW-S-9

• Sieve Analysis:

Sieve size (IN)	Passing %
2	100.0
1.5	91.5
1	77.0
¾	69.2
½	47.9
3/8	41.7
4	27.9
10	22.2
40	16.3
200	2.6

Test	Results	
Soil Classification	A-1-a	
Modified Proctor	Max Dry Density	2.277
	O.M.C	5.5 %
L. L	NP	
P. I	NP	
CBR	44 %	

Notes:-.....

Lab (CEL)

Lab. Engineer /.....
Signature /.....



Consultant (K.K.)

Engineer /.....
Signature /.....

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 3/3/2024
Reporting Date : 9/3/2024
Reporting No. : TW-S-9

Dear Gentleman,

Attached here with the delivered on 3 / 3 / 2024

Materials test

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

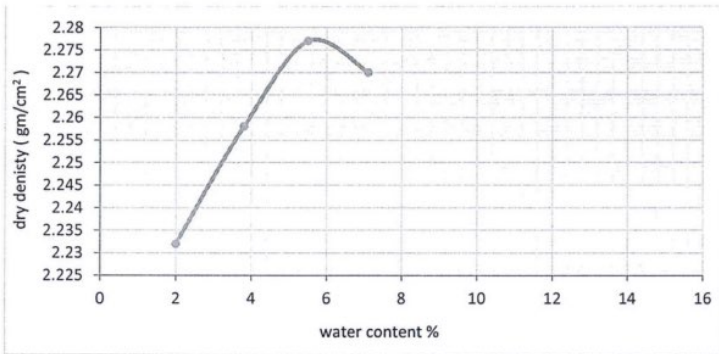
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / ...



Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 3/3/2024
Reporting Date : 9/3/2024
Reporting No. : TW-S-9

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



- Max dry density (gm/cm³) : 2.277
- Optimum moisture content % : 5.5 %

Signature /



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



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 3/3/2024
Reporting Date : 9/3/2024
Reporting No. : TW-S-9

Test Results of California Bearing Ratio on Base Materials

ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.61
1.27	0.050	1.27
1.91	0.075	1.93
2.54	0.100	2.54
3.18	0.125	3.14
3.81	0.150	3.70
4.45	0.175	4.26
5.08	0.200	4.77
6.35	0.250	5.48

CBR Result	Stress (Mpa)		CBR 95 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	2.54	34.9 %
At 0.2 inch (5.08 mm) penetration	10.3	4.77	44 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = $2.277 \text{ (gm /cm}^3\text{)}$
At = 5.5 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments ,CBR > 20 for Upper embankment
according project spec page No 36.

Signature

مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي
رقم الترخيص: 219 - 991 - 537
المقر الرئيسي: شارع محمد أحمد، زماملك، القاهرة

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

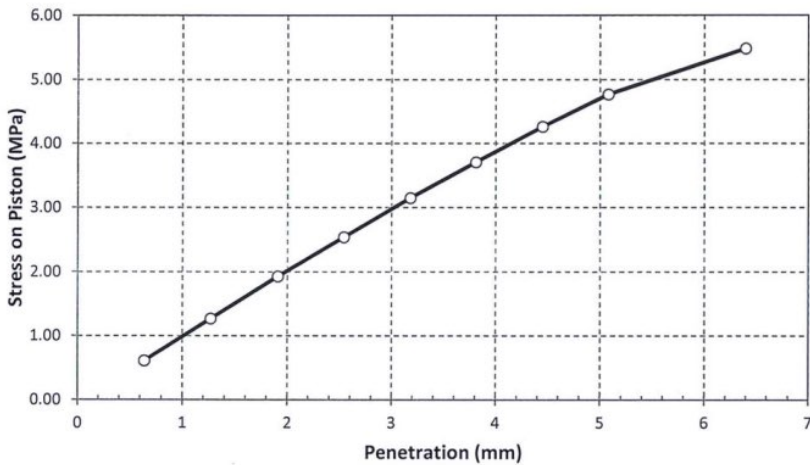


٣ ش الملك الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 569+700
Type of sample : مشون 2
Delivery Date : 3/3/2024
Reporting Date : 9/3/2024
Reporting No. : TW-S-9

Load Penetration Curve of CBR Test

ASTM D-1883



Signature



MATERIAL INSPECTION REQUEST



Contractor Company	التوحيد للمقاولات العمومية		Designer Company	المكتب الاستشاري الهندسي أ.د. / خالد قنديل																
Issued by Contractor	Name م. يوسف يونس	Sign يوسف يونس	Date 12-10-2023	Time																
Contractor Reference	TW-S- (1)																			
Received by ER		MIR	<table border="1"> <tr> <td>C1</td> <td>C2</td> <td>C3</td> <td>DD</td> <td>MM</td> <td>YY</td> <td>HH</td> <td>MM</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	C1	C2	C3	DD	MM	YY	HH	MM									
C1	C2	C3	DD	MM	YY	HH	MM													

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

Description of Materials	REPLACEMENT FILL MATERIAL RESULTS			
	Quantity	Level	From	To
Location to be Used	85	-5	566+000	566+100
	259.39	-2.25	566+000	566+100
	289.9	-1.75	566+120	566+160
	138.34	-1.5	566+120	566+160
	83.16	-2.5	566+180	566+200
	333	-2	566+180	566+220
	9.3	-2.5	566+320	566+340
	314.46	-2	566+320	566+400
	100.34	-2	566+620	566+680
	313.13	-1.75	566+600	566+680
	22.67	-2.5	567+020	567+120
	1530	-2	566+940	567+200
	1519.5	-2.5	567+20	567+120
4998.18				

Item	Description	Unit	Quantity	Arrival Date	Note
1	L.L & P.L & O.M.C %	M3	5000	5-10-2023	
2	Proctor	M3	5000	5-10-2023	
3	Classification	M3	5000	5-10-2023	
4	Sieve Analysis	M3	5000	5-10-2023	
5	C.B.R	M3	5000	12-10-2023	

Comments by: 5-10-2023

APPROVAL STATUS

Organisation	Name	Sign	Date	A-AWC-R
Contractor	يوسف يونس	يوسف يونس	12-10-2023	A
QA/QC *	م. زعيم	م. زعيم	12-10-2023	A
GARB**				
Employers				

MATERIAL INSPECTION REQUEST



Contractor Company	التوحيد		Designer Company	K.K																
Issued by Contractor	Name م. يوسف يونس	Sign يونس يونس	Date 12-10-2023	Time																
Contractor Reference	TW-S-1																			
Received by ER		MAR	<table border="1"> <tr> <td>C1</td> <td>C2</td> <td>C3</td> <td>DD</td> <td>MM</td> <td>YY</td> <td>HH</td> <td>MM</td> </tr> <tr> <td></td> <td></td> <td></td> <td>12</td> <td>10</td> <td>23</td> <td>9</td> <td>00</td> </tr> </table>	C1	C2	C3	DD	MM	YY	HH	MM				12	10	23	9	00	
C1	C2	C3	DD	MM	YY	HH	MM													
			12	10	23	9	00													

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

Description of Materials	Soil (A-1-b)			
Location to be Used	565+500			
Item	specification	Test requirement	Test result attachment	Remarks
1	ASTM C 136	Sieve Analysis	According to specifications	
2	ASTM D 1140	Passing Sieve, No 200	6.5%	
3	ASTM D 4318	Atterberg limit	N.P	
4	ASTM D 2974	Moisture content	6.4%	
5	ASTM D 1557	Modified proctor	2.208	
6	ASTM D 1883	CBR	51.5%	
Comments by:		Comments by:		
		تم اعتماد صلاحية مسون تربة تمثيل حولى 5000 م3 م. زهير		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	م. يوسف يونس	م. يوسف يونس	12-10-2023	
QA/QC *	م. زهير	م. زهير	12-10-2023	A
GARB**				
Employers Representative				

* Designer

** Alignment/Bridges: Culvert only



Testing date : 3/3/2024
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
Station : ST: 567+550 Zone from 567+500 to 567+600
Level : Original Earth
S. Description : Boreholes
Code : 6
Sieve Analysis:

Sieve size (IN)	Passing %
2	100.0
1.5	100.0
1	100.0
¾	100.0
½	99.6
3/8	99.5
4	98.8
10	97.7
40	81.8
200	6.7

Test	Results	
Soil Classification	A-3	
Modified Proctor	Max Dry Density	1.890
	O.M.C	7.5 %
L. L	NP	
P. I	NP	
CBR	12.4 %	

Notes:-.....

Lab (CEL)

Lab. Engineer

Signature



Consultant (K.K.)

Engineer

Signature

Handwritten signature of the Engineer

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+550 Zone from 567+500 to 567+600
Type of sample : Original Earth
Delivery Date : 26/2/2024
Reporting Date : 3/3/2024
Reporting No. : 6

Dear Gentleman,

Attached here with the delivered on 26 / 2 / 2024

Materials test

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

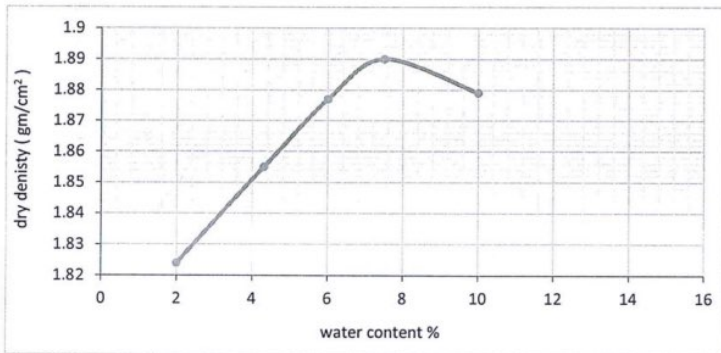
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature

مكتب معامل الاستشارات الهندسية
مستشار (استشار)
رقم الترخيص : 219 - 991 - 537
توقيع المهندس : محمد الفضل - الزمالة - القاهرة

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+550 Zone from 567+500 to 567+600
Type of sample : Original Earth
Delivery Date : 26/2/2024
Reporting Date : 3/3/2024
Reporting No. : 6

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



- Max dry density (gm/cm³) : 1.890
- Optimum moisture content % : 7.5 %

Signature /

مكتب معامل الاستشارات الهندسية
البحر
رقم الترخيص: 219 - 981 - 537
إبراهيم مرسى - القاهرة

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



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تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+550 Zone from 567+500 to 567+600
Type of sample : Original Earth
Delivery Date : 26/2/2024
Reporting Date : 3/3/2024
Reporting No. : 6

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.13
1.27	0.050	0.36
1.91	0.075	0.56
2.54	0.100	0.75
3.18	0.125	0.94
3.81	0.150	1.09
4.45	0.175	1.22
5.08	0.200	1.34
6.35	0.250	1.52

CBR Result	Stress (Mpa)		CBR 95 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	0.75	10.3 %
At 0.2 inch (5.08 mm) penetration	10.3	1.34	12.4 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = **1.890 (gm /cm³)**
At = 7.5% optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments ,CBR > 20 for Upper embankment according project spec page No 36.

Signature /

مكتب معامل الاستشارات الهندسية
التوحيد
240 004 637
القاهرة - الجيزة - المنيا - الفيوم - الدقهية - البحيرة - شبراخيت - دمياط - بورسعيد - العريش - رفح - رفح

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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093

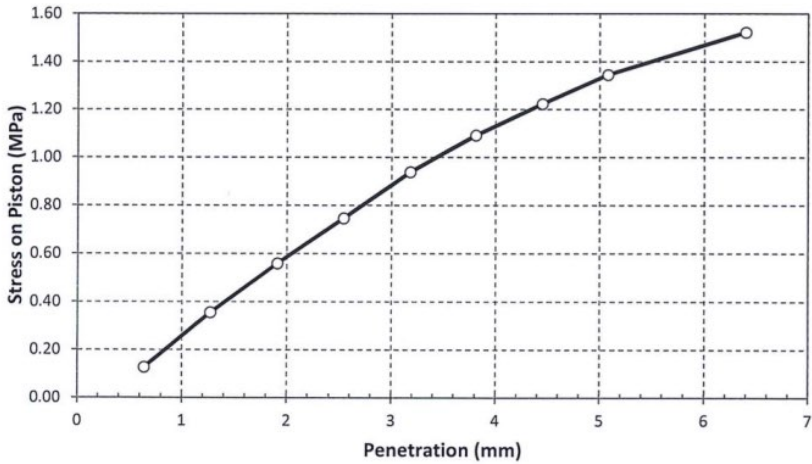


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تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+550 Zone from 567+500 to 567+600
Type of sample : Original Earth
Delivery Date : 26/2/2024
Reporting Date : 3/3/2024
Reporting No. : 6

Load Penetration Curve of CBR Test

ASTM D-1883



Signature /



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Testing date : 1/1/2024
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
Station : ST: 565+980 Zone from 565+960 to 566+000
Level : Original Earth
S. Description : Boreholes
Code : 05
Sieve Analysis:

Sieve size (IN)	Passing %
2	100.0
1.5	98.6
1	97.2
¾	96.2
½	94.9
3/8	94.3
4	93.1
10	91.3
40	69.5
200	9.7

Test	Results
Soil Classification	A-3
Modified Proctor	Max Dry Density 1.926
	O.M.C 7.5 %
L. L	NP
P. I	NP
CBR	15.6 %

Notes:-.....

Lab (CEL)
Lab. Engineer
219-991-537
Signature

Consultant (K.K.)
Engineer
Signature

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+980 Zone from 565+960 to 566+000
Type of sample : Original Earth
Delivery Date : 27/12/2023
Reporting Date : 1/1/2024
Reporting No. : 05

Dear Gentleman,

Attached here with the delivered on 27 /12 / 2023

Materials test

1. Sieve analysis according to ASTM D-122.
2. Material finer than sieve No. 200 according to ASTM D-1110.
3. Liquid limits and plasticity index of soil according to ASTM D-1318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

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

Signature



Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+980 Zone from 565+960 to 566+000
Type of sample : Original Earth
Delivery Date : 27/12/2023
Reporting Date : 1/1/2024
Reporting No. : 05

RESULTS OF SIEVE ANALYSIS According to ASTM D-122.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100.0
37.5	1.5	98.6
25	1	97.2
19	3/4	96.2
12.50	1/2	91.9
9.50	3/8	91.3
1.75	1	93.1
2.00	10	91.3
0.125	10	69.5

مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي
رقم التسجيل: ٢١٩ / ٥٩٩٠٣٥٦٤١
الفرع الرئيسي: القاهرة - الجيزة

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Tel.& Fax : 27367231 - 27363093



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+980 Zone from 565+960 to 566+000
Type of sample : Original Earth
Delivery Date : 27/12/2023
Reporting Date : 1/1/2024
Reporting No. : 05

Materials finer than 75 μm (no.200) sieve
By washing ASTM D-1110.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.7 %

Signature:  مكتبة مجاهد الاسلام
مشاروعات (بشوات و قنا)
رقم التجميع الشريفي 219 - 991 - 537
الفرع الرئيسي شارع الملك فيصل - الرياض - تليفون 219 - 991 - 537

**3 El Malek El Afdal Street
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Tel.& Fax : 27367231 - 27363093**



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تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+980 Zone from 565+960 to 566+000
Type of sample : Original Earth
Delivery Date : 27/12/2023
Reporting Date : 1/1/2024
Reporting No. : 05

**Results of liquid limit and plasticity index
of soils according to ASTM D-1318**

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



Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+980 Zone from 565+960 to 566+000
Type of sample : Original Earth
Delivery Date : 27/12/2023
Reporting Date : 1/1/2024
Reporting No. : 05

Soil Classification

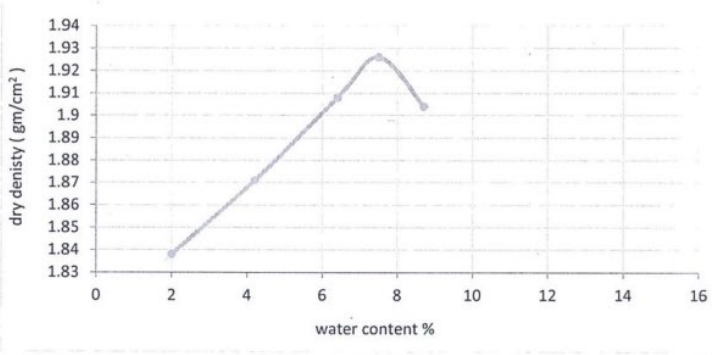
TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-1)
• Group Classification	A-3	(A-1-a)	(A-1-b)	(A-2-1)
2.00 mm (No.10).	91.3	Max 50 %	-----	-----
0.125 mm (No. 10).	69.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.7	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature 

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+980 Zone from 565+960 to 566+000
Type of sample : Original Earth
Delivery Date : 27/12/2023
Reporting Date : 1/1/2024
Reporting No. : 05

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



- Max dry density (gm/cm³) : 1.926
- Optimum moisture content % : 7.5 %

CEL
مكتب الاستشارات الهندسية
مبنى ١٠٠٠ (سوهاج و قنا)
رقم التسجيل المهنى ٢١٩ - ٩٩١ - ٥٣٧
توقيع المهندس / محمد / محمد / محمد

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+980 Zone from 565+960 to 566+000
Type of sample : Original Earth
Delivery Date : 27/12/2023
Reporting Date : 1/1/2024
Reporting No. : 05

Test Results of California Bearing Ratio on Base Materials

ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.61	0.025	0.16
1.27	0.050	0.38
1.91	0.075	0.61
2.51	0.100	0.82
3.18	0.125	1.02
3.81	0.150	1.23
1.15	0.175	1.15
5.08	0.200	1.69
6.35	0.250	2.08

CBR Result	Stress (Mpa)		CBR 95 %
	St. Value	Sample results	
At 0.1 inch (2.51 mm) penetration	6.90	0.82	11.3 %
At 0.2 inch (5.08 mm) penetration	10.3	1.69	15.6 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of =1.926 gm /cm³
At = 7.5 % optimum water content.
- 3- Surcharge load 1.50 Kg.
- 1- CBR > 10 for middle and lower embankments ,CBR > 20 for Upper embankment according project spec page No 36.

Signature: 
مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي
رقم التسجيل المبرمج: 219 - 991 - 537
بوتقة ترخيص: ٢٠١٤ / ١٢ / ٢٠١٤ - ٢٠١٤ / ١٢ / ٢٠١٤

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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093

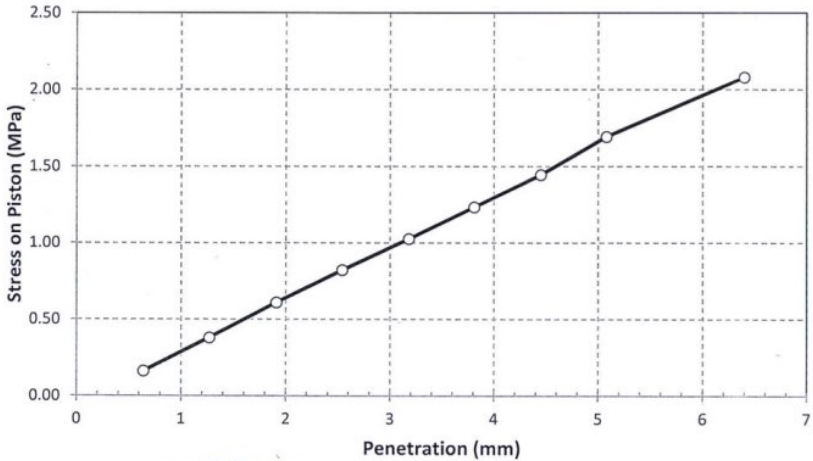


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الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+980 Zone from 565+960 to 566+000
Type of sample : Original Earth
Delivery Date : 27/12/2023
Reporting Date : 1/1/2024
Reporting No. : 05

Load Penetration Curve of CBR Test

ASTM D-1883



Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+450 Zone from 567+200 to 567+700
Type of sample : Original Earth
Delivery Date : 23/10/2023
Reporting Date : 29/10/2023
Reporting No. : 04

Dear Gentleman ,

Attached here with the delivered on 23/ 10 / 2023

Materials test

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

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

Signature



Company Name : التوحيد

Project : Electric Express Train – HSR From Sohag To Qena

Location : St: 567+450 Zone from 567+200 to 567+700

Type of sample : Original Earth

Delivery Date : 23/10/2023

Reporting Date : 29/10/2023

Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100.0
37.5	1.5	100.0
25	1	100.0
19	¾	100.0
12.50	½	100.0
9.50	3/8	100.0
4.75	4	99.7
2.00	10	98.7
0.425	40	74.6

Signature

CEL
مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلى
رقم التسجيل المهنى ٢٧٣٦٧٢٣١
ت. ف. ٢٧٣٦٣٠٩٣

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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093



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www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+450 Zone from 567+200 to 567+700
Type of sample : Original Earth
Delivery Date : 23/10/2023
Reporting Date : 29/10/2023
Reporting No. : 04

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	7.2 %

Signature The stamp is an oval-shaped blue ink mark. It contains the CEL logo at the top, followed by the text 'مكتب معامل الاستشارات الهندسية' (Consulting Engineering Bureau & Laboratories) and 'مصر - القاهرة' (Cairo - Egypt). Below this, it says 'رقم التسجيل المهنى 219 - 991 - 537' (Professional Registration Number 219 - 991 - 537) and 'توقيع المهندس / محمد عبد الله' (Signature of Engineer / Mohamed Abdelh).

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+450 Zone from 567+200 to 567+700
Type of sample : Original Earth
Delivery Date : 23/10/2023
Reporting Date : 29/10/2023
Reporting No. : 04

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

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

Signature



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Company Name : التوحيد
 Project : Electric Express Train – HSR From Sohag To Qena
 Location : St: 567+450 Zone from 567+200 to 567+700
 Type of sample : Original Earth
 Delivery Date : 23/10/2023
 Reporting Date : 29/10/2023
 Reporting No. : 04

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-3	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	98.7	Max 50 %	-----	-----
0.425 mm (No. 40).	74.6	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	7.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature 

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 Zamalek, Cairo.
 Tel.& Fax : 27367231 - 27363093



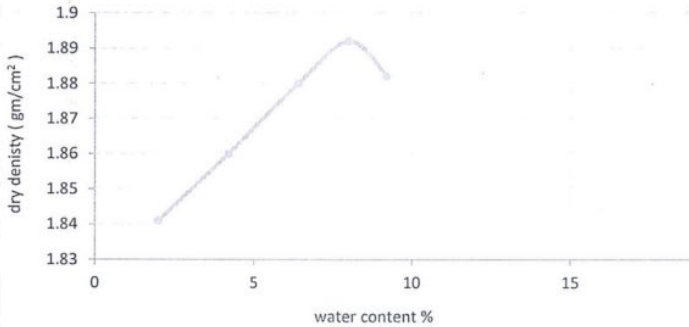
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www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+450 Zone from 567+200 to 567+700
Type of sample : Original Earth
Delivery Date : 23/10/2023
Reporting Date : 29/10/2023
Reporting No. : 04

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 1.892
- Optimum moisture content % : 8 %

Signature

مكتب معامل الإستشارات الهندسية
219 - 991 - 537
رقم التسجيل المهنى : ٢٧٣١٧٢٣١ - ٢٧٣٦٣٠٩٣
البريد الإلكتروني : info@cel-egypt.com

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Tel.& Fax : 27367231 - 27363093



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www.cel-egypt.com

Company Name : التوحيد
 Project : Electric Express Train – HSR From Sohag To Qena
 Location : St: 567+450 Zone from 567+200 to 567+700
 Type of sample : Original Earth
 Delivery Date : 23/10/2023
 Reporting Date : 29/10/2023
 Reporting No. : 04

Test Results of California Bearing Ratio on Base Materials

ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.15
1.27	0.050	0.32
1.91	0.075	0.51
2.54	0.100	0.72
3.18	0.125	0.93
3.81	0.150	1.13
4.45	0.175	1.32
5.08	0.200	1.51
6.35	0.250	1.75

CBR Result	Stress (Mpa)		CBR 95 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	0.72	10.4 %
At 0.2 inch (5.08 mm) penetration	10.3	1.51	14.6 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $=1.892 \text{ gm/cm}^3$
At = 8 % optimum water content.
- 3- Surcharge load = 500 Kg.
- 4- CBR > 10 for middle and lower embankments, CBR > 20 for Upper embankment according project spec. page No 36.

Signature

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 Zamalek, Cairo.
 Tel.& Fax : 27367231 - 27363093

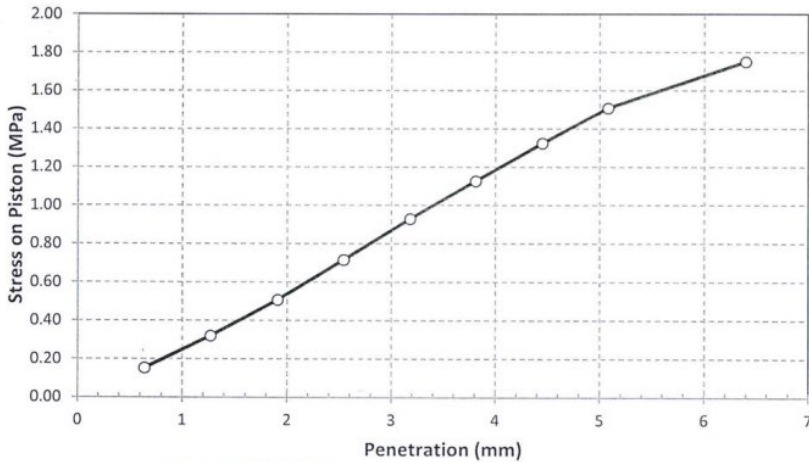


ش الملك الأفضل
 الزمالك - القاهرة
 تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
 www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+450 Zone from 567+200 to 567+700
Type of sample : Original Earth
Delivery Date : 23/10/2023
Reporting Date : 29/10/2023
Reporting No. : 04

Load Penetration Curve of CBR Test

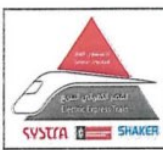
ASTM D-1883



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www.cel-egypt.com



Testing date : 21/9/2023
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
Station : ST: 567+100 Zone from 567+000 to 567+200
Level : Original Earth
S. Description : Boreholes
Code : 03
Sieve Analysis:

Sieve size (IN)	Passing %
2	100.0
1.5	100.0
1	100.0
¾	100.0
½	100.0
3/8	100.0
4	99.6
10	99.6
40	52.8
200	5.2

Test	Results
Soil Classification	A-3
Modified Proctor	Max Dry Density 1.902
	O.M.C 8%
L. L	NP
P. I	NP
CBR	24.3%

Notes:-.....

Lab (CEL)

Lab. Engineer

Signature



Consultant (K.K.)

Engineer

Signature



Consulting Engineering Bureau & Laboratories

مكتب معامل الإستشارات الهندسية

Company Name : مشروعات محافظات الوجه القبلي التوحيد

Project : Electric Express Train – HSR From Sohag To Qena

Location : St: 567+100 Zone from 567+000 to 567+200

Type of sample : Original Earth

Delivery Date : 15/9/2023

Reporting Date : 21/9/2023

Reporting No. : 03

Dear Gentleman,

Attached here with the delivered on 15 / 9 / 2023

Materials test

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

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

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رقم التسجيل المبرمج 537 - 991 - 219
بوكو الخويجي ٢ شارع بنك مصر - الزمالك - القاهرة

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Company Name : مشروع محافظات الوجه القبلي التوحيد

Project : Electric Express Train – HSR From Sohag To Qena

Location : St: 567+100 Zone from 567+000 to 567+200

Type of sample : Original Earth

Delivery Date : 15/9/2023

Reporting Date : 21/9/2023

Reporting No. : 03

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100.0
37.5	1.5	100.0
25	1	100.0
19	3/4	100.0
12.50	1/2	100.0
9.50	3/8	100.0
4.75	4	99.6
2.00	10	99.6
0.425	40	52.8

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المركز الرئيسي : شارع نيل الأصيل - الزمالك - القاهرة

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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+100 Zone from 567+000 to 567+200
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 03

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)	5.2%

Signature / 

Company Name : مشروعات محافظات الوجه القبلي التوحيد

Project : Electric Express Train – HSR From Sohag To Qena

Location : St: 567+100 Zone from 567+000 to 567+200

Type of sample : Original Earth

Delivery Date : 15/9/2023

Reporting Date : 21/9/2023

Reporting No. : 03

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

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

Signature / 
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رقم التسجيل المبرمج 537 - 99٩ - 219
المركز الرئيسي ٣ شارع النيل - القاهرة - القاهرة



Consulting Engineering Bureau & Laboratories

مكتب معامِل الإستشارات الهندسية
مشروعات محافظات الوجه القبلى

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+100 Zone from 567+000 to 567+200
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 03

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-3			
2.00 mm (No.10).	99.6	Max 50 %	-----	-----
0.425 mm (No. 40).	52.8	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	5.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature /



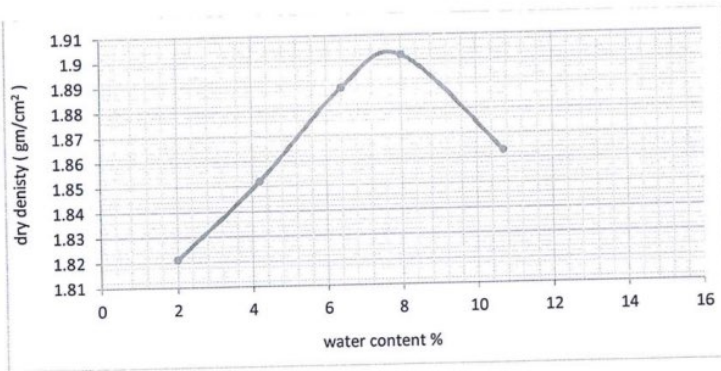
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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+100 Zone from 567+000 to 567+200
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 03

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



- Max dry density (gm/cm³) : 1.902
- Optimum moisture content % : 8%

Signature



Company Name : مشروعات محافظات الوجه القبلى التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+100 Zone from 567+000 to 567+200
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 03

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	0.80
1.91	0.075	1.29
2.54	0.100	1.68
3.18	0.125	2.18
3.81	0.150	2.71
4.45	0.175	3.15
5.08	0.200	3.61
6.35	0.250	4.34

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	24.3%
	6.90	1.68	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 1.902 (gm /cm³)
At = 8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

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مشروعات (سوهاج و قنا)
رقم التسجيل المبرمج 537 - 991 - 219
المركز الرئيسي ٢ شارع نيل - مصر - الزمالة - القاهرة

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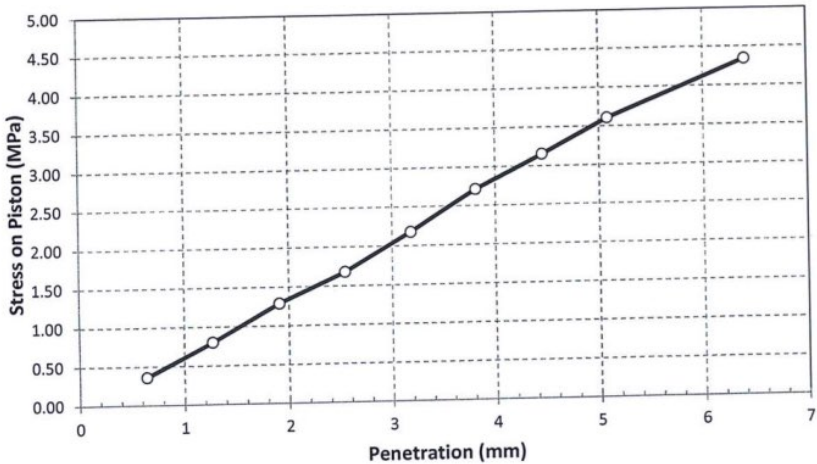


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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 567+100 Zone from 567+000 to 567+200
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 03

Load Penetration Curve of CBR Test

ASTM D-1883



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Testing date : 21/9/2023
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
Station : St: 566+300 Zone from 566+000 to 566+500
Level : Original Earth
S. Description : Boreholes
Code : 02
Sieve Analysis:

Sieve size (IN)	Passing %
2	100.0
1.5	100.0
1	100.0
¾	100.0
½	100.0
3/8	100.0
4	100.0
10	99.6
40	84.6
200	4.8

Test	Results	
Soil Classification	A-3	
Modified Proctor	Max Dry Density	1.89
	O.M.C	8.4 %
L. L	NP	
P. I	NP	
CBR	16.7 %	

Notes:.....



Consultant (K.K.)
Engineer /.....
Signature /.....

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+300 Zone from 566+000 to 566+500
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 02

Dear Gentleman,

Attached here with the delivered on 15 / 9 / 2023

Materials test

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

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

Signature: The stamp is an oval-shaped blue ink mark. It contains the text 'مكتب معامل الاستشارات الهندسية' (Consulting Engineering Bureau & Laboratories) at the top, 'مشروعات محافظات الوجه القبلى' (Projects of the Lower Egypt Governorates) in the middle, and 'رقم التسجيل المبرمج 219 091 0537' (Registration Number 219 091 0537) at the bottom. The word 'Signature' is written to the left of the stamp.

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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+300 Zone from 566+000 to 566+500
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 02

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100.0
37.5	1.5	100.0
25	1	100.0
19	$\frac{3}{4}$	100.0
12.50	$\frac{1}{2}$	100.0
9.50	$\frac{3}{8}$	100.0
4.75	4	100.0
2.00	10	99.6
0.425	40	84.6

Signature: CEL
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مشروعات محافظات الوجه القبلي
رقم التسجيل: ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
الفرع الرئيسي: عين شمس - القاهرة الجديدة

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Company Name : التوحيد

Project : Electric Express Train – HSR From Sohag To Qena

Location : St: 566+300 Zone from 566+000 to 566+500

Type of sample : Original Earth

Delivery Date : 15/9/2023

Reporting Date : 21/9/2023

Reporting 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)	4.8 %

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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+300 Zone from 566+000 to 566+500
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting 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

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Company Name : التوحيد

Project : Electric Express Train – HSR From Sohag To Qena

Location : St: 566+300 Zone from 566+000 to 566+500

Type of sample : Original Earth

Delivery Date : 15/9/2023

Reporting Date : 21/9/2023

Reporting No. : 02

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-3	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	99.6	Max 50 %	-----	-----
0.425 mm (No. 40).	84.6	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	4.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature



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ش الملك الأفضل

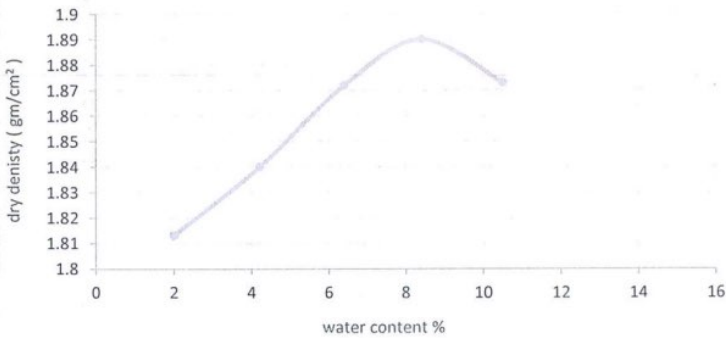
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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+300 Zone from 566+000 to 566+500
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 02

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



- Max dry density (gm/cm³) : 1.89
- Optimum moisture content % : 8.4 %

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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+300 Zone from 566+000 to 566+500
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting 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	0.12
1.27	0.050	0.43
1.91	0.075	0.76
2.54	0.100	1.15
3.18	0.125	1.57
3.81	0.150	2.00
4.45	0.175	2.44
5.08	0.200	2.84
6.35	0.250	3.73

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	16.7 %
	6.90	1.15	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 1.89(gm /cm³)
At = 8.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature

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مستشارات
مشروعات
سوهاج وقنا
رقم التسجيل المهنى 219 - 991 - 537
البريد الإلكتروني : info@cel-egypt.com

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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093

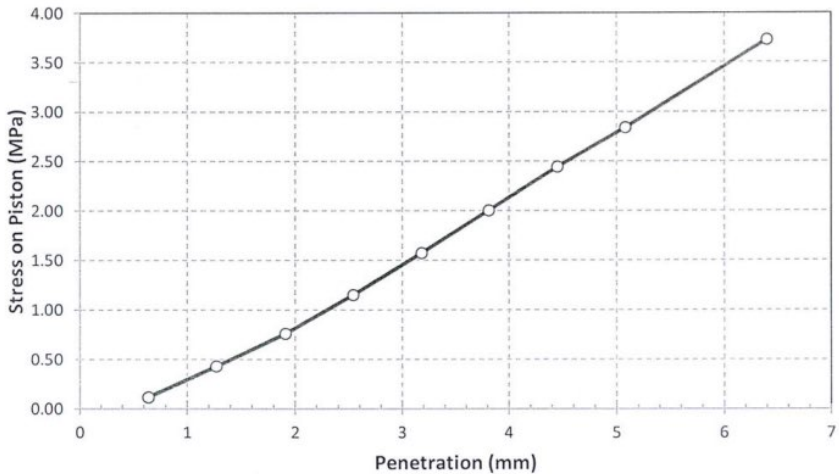


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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+300 Zone from 566+000 to 566+500
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 02

Load Penetration Curve of CBR Test

ASTM D-1883



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الوكالة التجارية 2 من تحت 2 لسنة 2019 - القاهرة

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Testing date : 21/9/2023
 Company Name : التوحيد
 Project : Electric Express Train – HSR From Sohag to Qena
 Station : ST: 566+700 Zone from 566+500 to 567+000
 Level : Original Earth
 S. Description : Boreholes
 Code : 01
 Sieve Analysis:

Sieve size (IN)	Passing %
2	100.0
1.5	100.0
1	100.0
¾	100.0
½	100.0
3/8	100.0
4	100.0
10	99.4
40	78.0
200	5.0

Test	Results	
Soil Classification	(A-3)	
Modified Proctor	Max Dry Density	1.90
	O.M.C	8.3 %
L. L	NP	
P. I	NP	
CBR	17.2 %	

Notes:.....

Lab (CEL) **CEL**
 Lab. Engineer **مكتب دراسات الاستشارات الهندسية**
 219 - 991 - 337
 Signature **م. محمد**

Consultant (K.K.)
 Engineer **م. محمد**
 Signature **م. محمد**

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+700 Zone from 566+500 to 567+000
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 01

Dear Gentleman,

Attached here with the delivered on 15 / 9 / 2023

Materials test

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

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

Signature:  مكتب معامال الاستشارات الهندسية
مشروعات محافظات الوجه القبلى
رقم الترخيص: ٥٣٧٠٠٩٩١٠٢١٩
توقيع: محمد عبد الله

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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+700 Zone from 566+500 to 567+000
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 01

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100.0
37.5	1.5	100.0
25	1	100.0
19	3/4	100.0
12.50	1/2	100.0
9.50	3/8	100.0
4.75	4	100.0
2.00	10	99.4
0.425	40	78.0

Signature: 
مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي
زماملك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

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



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+700 Zone from 566+500 to 567+000
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting 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)	5 %

Signature 
مكتب معامل الاستشارات الهندسية
مصر وجا.ج. (ب.س. ٩٩١ - ٥٣٧)
رقم الترخيص: ٥٣٧ - ٩٩١ - ٥٣٧
الترخيص: ٥٣٧ - ٩٩١ - ٥٣٧

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+700 Zone from 566+500 to 567+000
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting 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: 
مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي
رقم التسجيل التجاري: 219-991-37
القاهرة

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



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+700 Zone from 566+500 to 567+000
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 01

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-3	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	99.4	Max 50 %	-----	-----
0.425 mm (No. 40).	78.0	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	5.0	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature



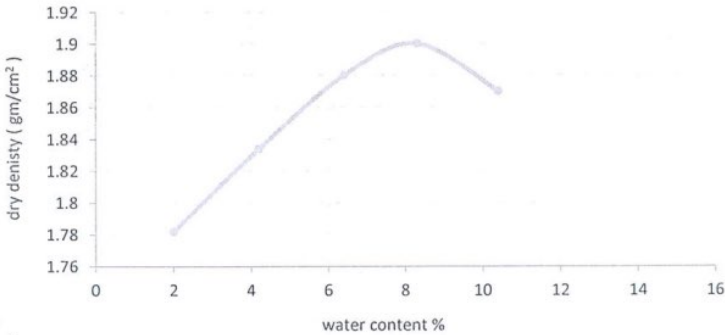
3 El Malek El Afdal Street
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ش الملك الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+700 Zone from 566+500 to 567+000
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 01

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



- Max dry density (gm/cm³) : 1.90
- Optimum moisture content % : 8.3 %

Signature:



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ش الملك الأفضل
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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+700 Zone from 566+500 to 567+000
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting 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	0.27
1.27	0.050	0.53
1.91	0.075	0.83
2.54	0.100	1.19
3.18	0.125	1.55
3.81	0.150	1.95
4.45	0.175	2.41
5.08	0.200	2.80
6.35	0.250	3.52

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	17.2 %
	6.90	1.19	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $=1.90 \text{ (gm/cm}^3\text{)}$
At = 8.3 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for unfills and lower embankments according project spec page No 36.

Signature

مكتب معاميل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي
رقم الترخيص: 219-991-537
ت. ٢٠١٩ - ٢٠٢٣

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Zamalek, Cairo.
Tel. & Fax : 27367231 - 27363093

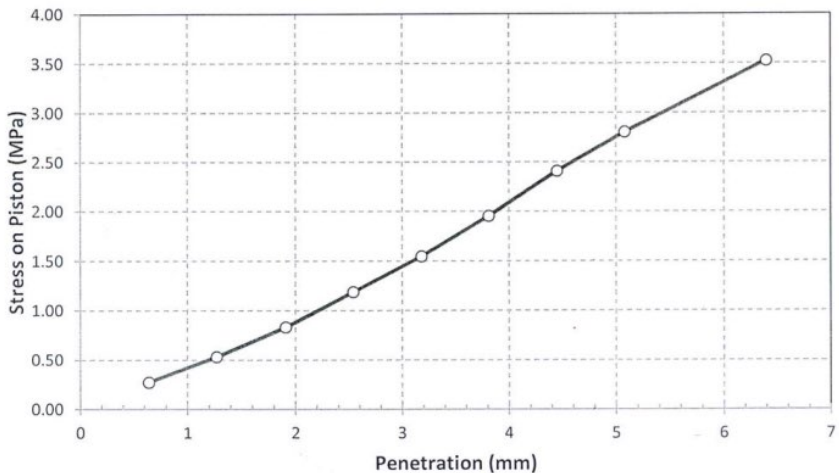


ش الملك الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 566+700 Zone from 566+500 to 567+000
Type of sample : Original Earth
Delivery Date : 15/9/2023
Reporting Date : 21/9/2023
Reporting No. : 01

Load Penetration Curve of CBR Test

ASTM D-1883




 مكتبة مركز
 التعليم والبحث العلمي
 رقم التصفح: 219-991537
 المركز الرئيسي - دمشق - سورية

**3 El Malek El Afdal Street
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Tel.& Fax : 27367231 - 27363093**



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الزمالك - القاهرة
تليفون و فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 5/10/2023
Reporting Date : 12/10/2023
Reporting No. : TW-S-1

Dear Gentleman,

Attached here with the delivered on 5 / 10 / 2023

Materials test

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

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

Signature



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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093**



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الزمالك - القاهرة
تليفون و فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 5/10/2023
Reporting Date : 12/10/2023
Reporting No. : TW-S-1

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	96.1
37.5	1.5	94.2
25	1	87.1
19	$\frac{3}{4}$	83.5
12.50	$\frac{1}{2}$	73.7
9.50	$\frac{3}{8}$	70.4
4.75	4	61.2
2.00	10	54.9
0.425	40	31.7

Signature / ...

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Tel. & Fax : 27367231 - 27363093**



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 5/10/2023
Reporting Date : 12/10/2023
Reporting No. : TW-S-1

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 : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 5/10/2023
Reporting Date : 12/10/2023
Reporting No. : TW-S-1

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 / مكتب معامل الاستشارات الهندسية /



Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 5/10/2023
Reporting Date : 12/10/2023
Reporting No. : TW-S-1

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-b)			
2.00 mm (No.10).	54.9	Max 50 %	-----	-----
0.425 mm (No. 40).	31.7	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	6.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature /



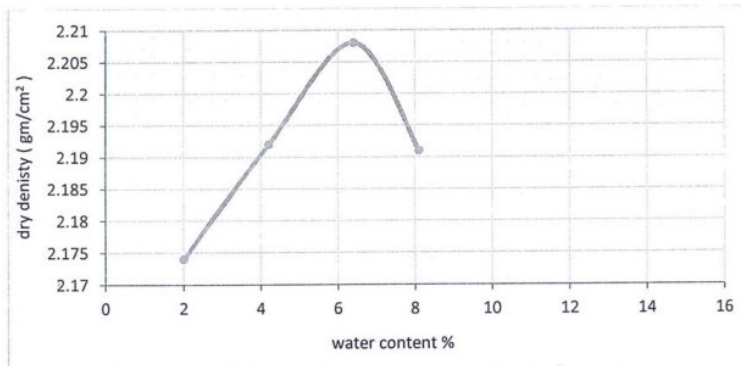
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Tel.& Fax : 27367231 - 27363093



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 5/10/2023
Reporting Date : 12/10/2023
Reporting No. : TW-S-1

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



- Max dry density (gm/cm³) : 2.208
- Optimum moisture content % : 6.4 %

Signature

مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي
رقم الترخيص ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
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الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : 1 مشون
Delivery Date : 5/10/2023
Reporting Date : 12/10/2023
Reporting No. : TW-S-1

Test Results of California Bearing Ratio on Base Materials

ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.52
1.27	0.050	1.37
1.91	0.075	2.50
2.54	0.100	3.55
3.18	0.125	4.44
3.81	0.150	5.49
4.45	0.175	6.46
5.08	0.200	7.38
6.35	0.250	8.61

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = $2.208 \text{ (gm/cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /



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Tel. & Fax : 27367231 - 27363093

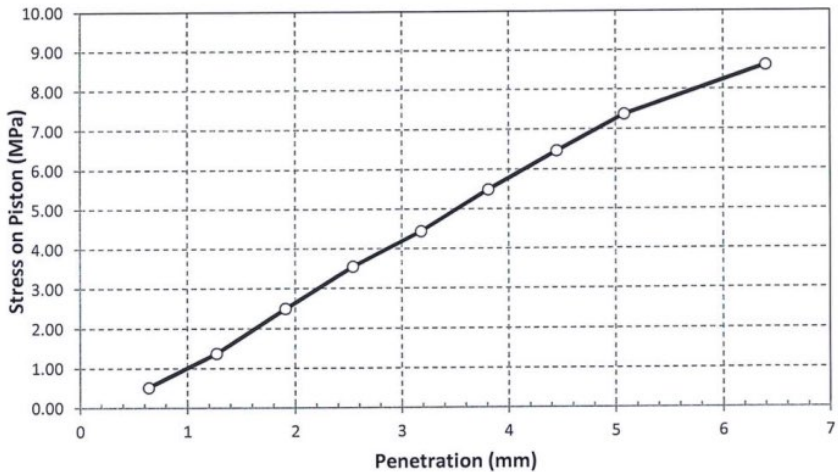


ش الملك الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 5/10/2023
Reporting Date : 12/10/2023
Reporting No. : TW-S-1

Load Penetration Curve of CBR Test

ASTM D-1883



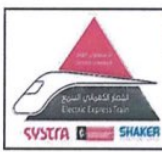
Signature



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Zamalek, Cairo.
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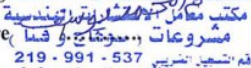
Testing date : 26/10/2023
 Company Name : التوحيد
 Project : Electric Express Train – HSR From Sohag to Qena
 S. Description : مشون 1
 Station : ST: 565+500
 Direction : Right
 Code : TW-S-2
 Sieve Analysis:

Sieve size (IN)	Passing %
2	96.7
1.5	89.9
1	81.6
¾	77.8
½	70.5
3/8	67.7
4	60.5
10	55.3
40	38.3
200	6.7

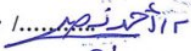
Test	Results	
Soil Classification	A-1-b	
Modified Proctor	Max Dry Density	2.162
	O.M.C	6.4 %
L. L	NP	
P. I	NP	
CBR	35.9 %	

Notes:.....

Lab (CEL)

Lab. Engineer / 
 Signature / 

Consultant (K.K.)

Engineer / 
 Signature / 

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 21/10/2023
Reporting Date : 26/10/2023
Reporting No. : TW-S-2

Dear Gentleman,

Attached here with the delivered on 21 / 10 / 2023

Materials test

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

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

Signature





Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 21/10/2023
Reporting Date : 26/10/2023
Reporting No. : TW-S-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	96.7
37.5	1.5	89.9
25	1	81.6
19	¾	77.8
12.50	½	70.5
9.50	3/8	67.7
4.75	4	60.5
2.00	10	55.3
0.425	40	38.3

Signature 
مكتب معامل الاستشارات الهندسية
مشروعات (سوهاج و قنا)
رقم الترخيص المهنى : 537 - 991 - 219
الطابق الرابع - شارع - القاهرة

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



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

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 21/10/2023
Reporting Date : 26/10/2023
Reporting No. : TW-S-2

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)	6.7 %

Signature





Consulting Engineering Bureau & Laboratories

مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 21/10/2023
Reporting Date : 26/10/2023
Reporting No. : TW-S-2

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

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

Signature 

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www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 21/10/2023
Reporting Date : 26/10/2023
Reporting No. : TW-S-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-b)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	55.3	Max 50 %	-----	-----
0.425 mm (No. 40).	38.3	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	6.7	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

Signature /



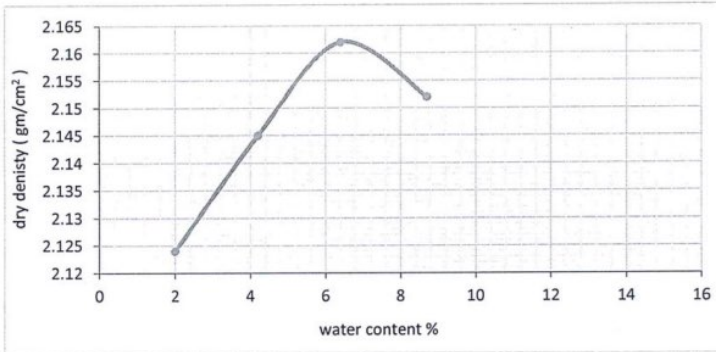
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www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 21/10/2023
Reporting Date : 26/10/2023
Reporting No. : TW-S-2

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



- Max dry density (gm/cm³) : 2.162
- Optimum moisture content % : 6.4 %

Signature

[Signature]
مكتب معمار الاستشارات الهندسية
مشروعات (سوهاج وقنا)
رقم الترخيص: 219 - 991 - 537
بناية ترسي - عين شمس - القاهرة

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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093



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www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 21/10/2023
Reporting Date : 26/10/2023
Reporting No. : TW-S-2

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.55
1.27	0.050	1.07
1.91	0.075	1.67
2.54	0.100	2.47
3.18	0.125	3.47
3.81	0.150	4.59
4.45	0.175	5.81
5.08	0.200	7.04
6.35	0.250	7.51

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.9%
	6.90	2.47	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.162(gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature

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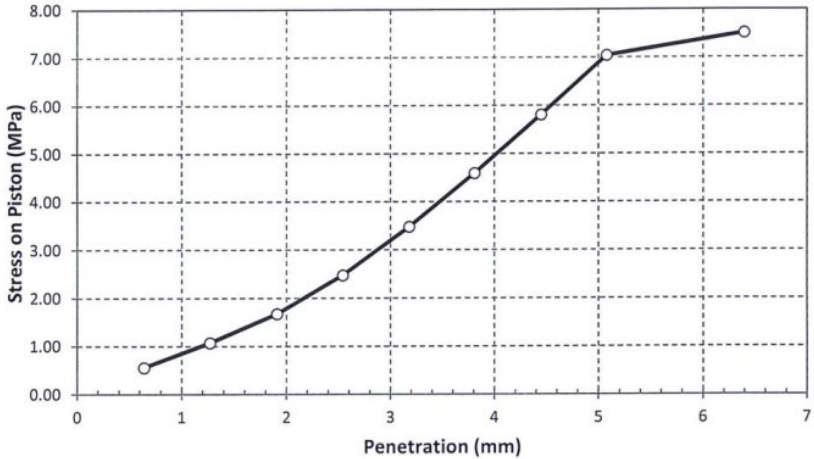
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www.cel-egypt.com

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 21/10/2023
Reporting Date : 26/10/2023
Reporting No. : TW-S-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature: 
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Testing date : 13/11/2023
Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag to Qena
S. Description : مشون 1
Station : ST: 565+500
Coordinate : E 445151.515 N 2875259.573 إحداثي البداية
Coordinate : E 445228.134 N 2875131.695 إحداثي النهاية
Direction : Right
Code : TW-S-3

Sieve Analysis:

Sieve size (IN)	Passing %
2	98.1
1.5	95.2
1	87.9
¾	84.2
½	76.2
3/8	72.1
4	58.9
10	52.1
40	27.6
200	2.2

Test	Results
Soil Classification	A-1-b
Modified Proctor	Max Dry Density 2.197
	O.M.C 6 %
L. L	NP
P. I	NP
CBR	32.7 %

Notes:-.....

Lab (CEL)

Lab. Engineer /

Signature



Consultant (K.K.)

Engineer

Signature



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مشروعات محافظات الوجه القبلى

Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 7/11/2023
Reporting Date : 13/11/2023
Reporting No. : TW-S-3

Dear Gentleman ,

Attached here with the delivered on 7 / 11 / 2023

Materials test

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

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

Signature /



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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 7/11/2023
Reporting Date : 13/11/2023
Reporting No. : TW-S-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.2
25	1	87.9
19	¾	84.2
12.50	½	76.2
9.50	3/8	72.1
4.75	4	58.9
2.00	10	52.1
0.425	40	27.6

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Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 7/11/2023
Reporting Date : 13/11/2023
Reporting No. : TW-S-3

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)	2.2 %

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Company Name : التوحيد
Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 7/11/2023
Reporting Date : 13/11/2023
Reporting No. : TW-S-3

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

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

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Project : Electric Express Train – HSR From Sohag To Qena
Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 7/11/2023
Reporting Date : 13/11/2023
Reporting No. : TW-S-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-b)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	52.1	Max 50 %	-----	-----
0.425 mm (No. 40).	27.6	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	2.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	NP	-----	-----	-----
Plasticity index	NP	Max 6 %	Max 6 %	Max 10 %

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

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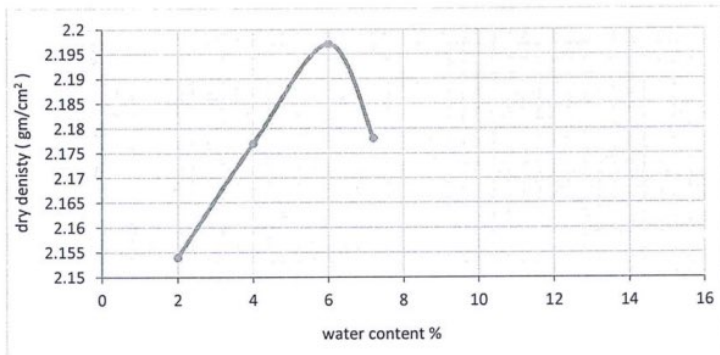
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Location : St: 565+500
Type of sample : مشون 1
Delivery Date : 7/11/2023
Reporting Date : 13/11/2023
Reporting No. : TW-S-3

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.197
- Optimum moisture content % : 6 %

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Type of sample : مشون 1
Delivery Date : 7/11/2023
Reporting Date : 13/11/2023
Reporting No. : TW-S-3

Test Results of California Bearing Ratio on Base Materials

ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.26
1.27	0.050	0.96
1.91	0.075	1.65
2.54	0.100	2.26
3.18	0.125	2.69
3.81	0.150	2.92
4.45	0.175	3.09
5.08	0.200	3.14
6.35	0.250	3.21

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	32.7%
	6.90	2.26	

Notes:

- Attached graph shows penetration resistance versus penetration magnitude.
- The sample was compacted to dry density of = $2.197(\text{gm}/\text{cm}^3)$
At = 6% optimum water content.
- Surcharge load 4.50 Kg
- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature

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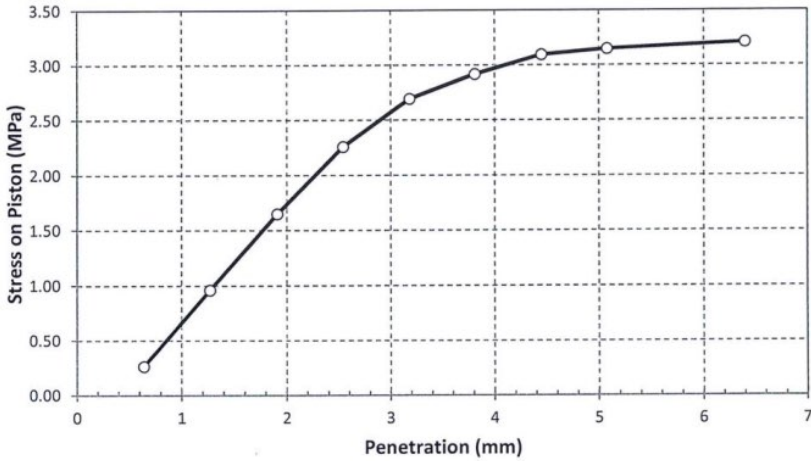


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Load Penetration Curve of CBR Test

ASTM D-1883



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