MATERIAL APPROVAL REQUEST									
Contractor Company	EL-NAWRAS FOR CONTRACTING			Designer Company				K.K Engineering Consulting Office	
Issued by Contractor	Name	Sign		Date/Serial Number				Time	
	Eng. Sherif Rabbih			5/9/2023				12.00	
				M.R.R.S 1					
Received by GARB CONSULTANT	K.K	Khaled Zaki	MRR	C1	C2	C3	C0	MM	YY	HH	MM
				007	RW	C2	6	9	2023	12	0

ZONE 4	S: km 325	01 to 10	Km 300 Here
	Station Reference	Depot Reference	For distance point only start km is used
[illegible]	Work Activity		
[illegible]	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (5000 m3)		
Location to be Used	From Station (332+300) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (2022-ETT-1) VERSION 1 (FEBRUARY 2021)
Prequalification reference		Test Samples/Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Saied Saff (K.K)	Comments by: Eng. Alaa Abd Allatif (GR)
QUALITY TEST RESULT BY THIRD PARTY LABORATORY IS APPROVED THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY [illegible]	1- All tests were carried out by third Party lab ~~(CORMGASAL)~~ Alexandria university 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4- adjust sieve #200 5- Remaining chemical test

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif Rabbih			A
QA/QC *	K.K	Khaled Zaki		AWC
GARB**	Eng. Mourad Magdi			
Employers Representative	Eng. Alaa Abd-Allatif	for	27-9-2023	AWC

* Designer
** Alignment/Bridge Safety

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
[illegible] ٧٢٧-٤٠٥-١٤٢ س.ت ٢١٢٢٩

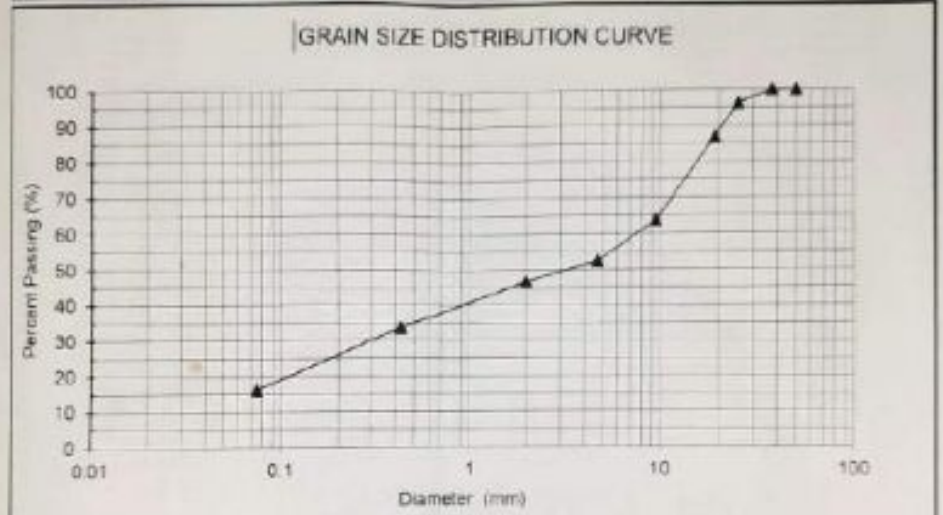
Alexandria University
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

Grain Size Distribution Curve

CLIENT	شركة النورس للمقاولات
PROJECT	القطار الكهربائي السريع قطاع برج العرب - القطاع الخامس) من ٣٣٢+٢٠٠ الى ٣٣٢+٨٠٠
LOCATION	من مخزون الشركة
LAYER TYPE	طبقة تربة — عينة ١ / ٩

Receiving Date	06/09/2023
Cheque Date	06/09/2023
Reciept Number	114726
Report Date	27/09/2023
Lab. Ref.	G 122/09



	PERCENT PASSING								
Sieve No.	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"	2"
Test Results	16.2	33.7	46.5	52.4	63.6	87.0	96.2	100.0	100.0

تصنيف التربة : A-1-b

العينة عديمة اللدونة

ورقة العينة التي اجري عليها الاختبار الى المعمل بمعرفة مكتب الاستشاري (/) هذا فقط

Laboratory Director

Dr. Wael Bekheet

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

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

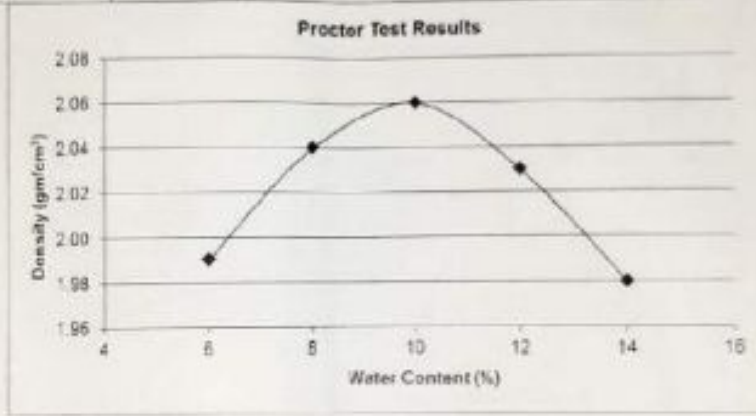
مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض : ٧٢٨ - ٥٠٥ - ١٩٢ س.ت : ٢١٦٢٩

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب الدمك ـ بروكتور معدل

تقرير رقم	ب ٠٣/١٠٩	تاريخ تورية العينة	٢٠٢٣/٠٩/٠٦
الاختبارات	بروكتور	تاريخ الايصال	٢٠٢٣/٠٩/٠٦
العميل	شركة التورس للمقاولات	رقم الايصال	١١٤٧٢٩
المشروع	الخطار الكهربائي السريع لقطاع برج العرب ـ القطاع الخامس) من ٣٣٢+٣٠٠ الى ٣٣٢+٨٠٠	تاريخ التقرير	٢٠٢٣/٠٩/٢٧
الموقع	من مخزون الشركة	العينة	طفلة اتربة (٢)



اقصى كثافة معملية جافة	:	٢,٠٦ جم/سم³
نسبة المياه الأمثلية	:	١٠%

تم توريد العينة بمعرفة مندوب الاستشاري (د / خالد قنديل

مدير المعمل

د. / وائل بخيت

فني المعمل

أ / أحمد عادل

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

المعمل مسئول فقط عن نتائج الاختبارات ، صحتها. المعمل غير مسئول عن تفسير استخدام نتائج الاختبارات أو أي نتائج مبنية على ذلك

رقم بريدي ٢١٥١٤ الاسكندرية - ت/فاكس ٥٩١٧٢٠٣ (٠٣) ٠٠٢٠
P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

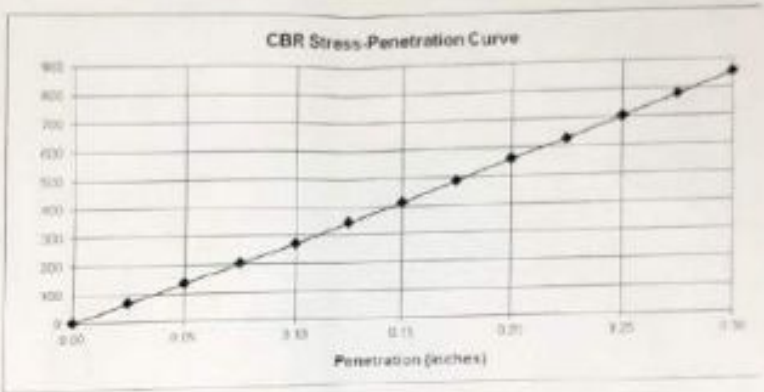
مكتب المورس للإعداد
للمقاولات العامة والتوريدات العامة
ب.ض: ٢٢٨٠٥٠٥٠١٢ س.ت: ٢١٦٢٩

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي لخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب نسبة تحمل كاليفورنيا

تقرير رقم	ت.ك.م-٠٩/١	تاريخ توريد العينة	٢٠٢٣/٠٩/٠٦
الاختبارات	نسبة تحمل كاليفورنيا	تاريخ الإيصال	٢٠٢٣/٠٩/٠٦
العميل	شركة التوريس للمقاولات	رقم الإيصال	١١٤٢٢٦
المشروع	القطار الكهربائي السريع قطاع برج العرب - القطاع الخامس من ٣٣٢٫٣٠٠ الى ٣٣٢٫٨٠٠	تاريخ التقرير	٢٠٢٣/٠٩/٢٧
الموقع	من مخلفات الشركة	العينة	طبقة تربة (٢)



نسبة تحمل كاليفورنيا بعد المعالجة في الماء لمدة ٤ أيام	:	٩٥٫٣٧

تم توريد العينة بمعرفة مندوب الاستشاري : أ / حامد قنديل

مدير المعمل

د. / وائل بخيت

مدير المعمل

أ / أحمد عادل

مكتب التوريس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض. ١٩٢٠٠٥٠٥٠٩٢٨ س.ت. ٢١٦٢٩

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

المعمل مسئول **فقط** عن نتائج الاختبارات و صحتها. المعمل **غير** مسئول عن تفسير استخدام نتائج الاختبارات أو أي نتائج مبنية على ذلك.

رقم بريدي ٢١٥٤٤ الإسكندرية - التليفاكس ٠٣٠٢٠٥٩١٧٢٠٣ (٠٣)
P.O. Box 21544, Alexandria, Egypt. Tele/Fax +(203) 5917203

MATERIAL APPROVAL REQUEST

Contractor Company	EL-NAMRAS FOR CONTRACTING			Designer Company				(K.K.) Engineering Consulting Office		
Issued by Contractor	Name	Sign*		Date/Serial Number				Time		
	Eng. Osama Youssef	osama youssef		4/8/2021				12:00		
				M.A.R. 1						
Received by DAVIS CONSULTANT	Eng. Saied Saff	Khaled Zaki	MAR	T1	C2	C3	C4	YRV	YY	MM	DAY
					DW	CS	S	8	2021	12	0

[illegible]	[illegible]	[illegible]	[illegible]
	Station Reference	Depot Reference	For chainage point only. Start km is used
[illegible]	Work Activity		
[illegible]	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (5000 m3)		
Location to be Used	From Station (332+300) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	LANDWORK SPECIFICATIONS & TESTING REPORT (2021-12-1) VERSION 1 FEBRUARY 2012
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: (K.K.)	Comments by: Eng. Alaa Abd-Alkarif (EN)
QUALITY TEST RESULT BY SITE LABORATORY IS OK THE SAMPLE REPRESENTATIVE (5000) M3 ONLY	1. For information only 2. quality test was carried by site laboratory 3. results attached and found acceptable and comply with proj. specs. 4. Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organization	Name	Sign	Date	A-AWC-R
Contractor	Eng Osama Youssef	osama youssef		A
DAVOC *	Eng. Saied Saff	Khaled Zaki		A
GARB**	Eng. Margan Magdi			
Employer Representative	Eng. Alaa Abd-Alkarif		6-8-2021	AWC

* Designer

** Independent Designer, Engineer only

مكتب الشورى الجديد
للمقاولات العامة والتوريدات العامة
ت : ٢٧٨٠٥٠٥٠٦٢ س ت : ٢١٦٢٩

Electric Express Train - NSR

From El Alin El Sokhna City To El Alamein - MATROUH

Section - 5 From BORG ALARAB To ALHAMMAM

From Station 330+100 To Station 330+600

Operating Lab

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	9/6/2022	Date	ZONE	332+300	332+800
LOCATION	K.P 332+308	mar - 01			
NAME COMPANY	شركة الفورس				

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT (g)		25354.00		gm		table cl
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS		soil clas
Mass retained (g)	0.0	542.0	409.0	1287.0	1894.0	2481.0	4806.0			A-1-b
Cumulative Retained (g)	0.0	542.0	1939.0	2295.0	2809.0	6344.0	11150.0		PRO	2.12
Cumulative Retained %	0.0	2.1	4.1	9.1	15.2	25.0	44.0		WC	6.60
Cumulative Passing %	100.0	97.9	95.9	90.9	84.8	75.0	56.0		CBR	

B-fine material gradation				WT OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	39.00	162.00	370.00					
Cumulative Retained %	7.80	32.40	74.00					
Cumulative Passing %	92.20	67.60	26.00					

C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	97.9	95.9	90.9	84.8	75.0	56.0	51.7	37.9	14.8

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

Contractor

Consultant

Khaled Zaki

مكتب الفورس الجديد
للمقاولات العامة والتوريدات العامة
ت ٧٢٨٠٥٠٤٠٠٢ ، ٧٢٨٠٥٠٤٠٠٢ س ت : ٤١٦٣٩

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 6 From BORG ALARAB To ALHANNAM

From Station 220+400 To Station 166+000

PROCTOR TEST

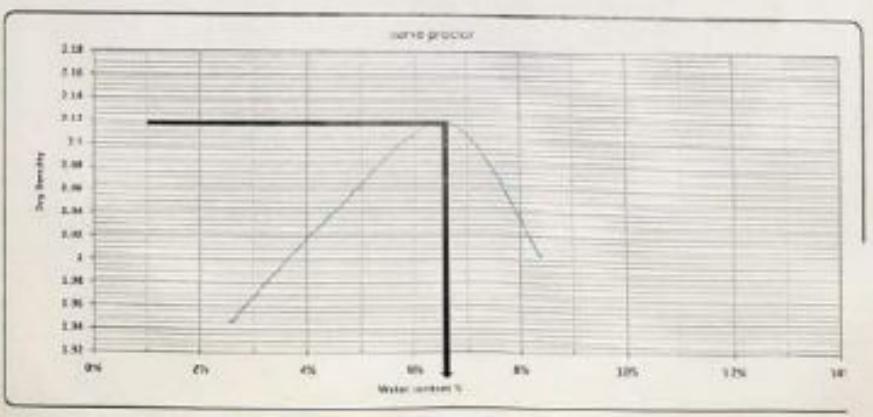
TESTING DATE	6/8/2021	Code	ZONE	332+300	332+600
LOCATION	KP332+300	MAR-01			
NAME COMPANY	شركة النورس				

Weight of empty mold	6132.9
Mold Volume	2169.6

MAX Dry Density	2.108
Water content %	6.6

trains	1	2	3	4	5
Wt. Of Mold+wet soil	10955.8	10800.6	10820.3	10935	
WT. WET SOIL	4823.8	4668.6	4688.4	4703.0	
Wt. Density	1.997	1.926	1.938	2.171	

Tare No.	1	2	3	4	5	6	7	8		
Tare wt.	23.01	22.8	27.89	28.09	29.57	29.9	28.19	26.52		
Wt. Of wet soil & tare	118.5	95.6	107.4	110.7	104.0	106.8	100.0	120.0		
Wt. Of dry soil & tare	109.8	90.5	104.1	106.9	100.8	102.6	111.0	112.2		
Wt. Of water	8.7	5.1	3.3	3.8	3.2	4.2	7.7	8.1		
Wt. Of dry soil	86.1	67.8	77.4	80.7	82.6	80.7	93.0	85.6		
Water content %	5.0%	7.5%	4.3%	4.7%	3.9%	5.2%	8.3%	9.5%		
AV. Water content %	7.6%		4.5%		4.6%		8.9%			
Dry Density	1.947		1.929		1.918		1.895			



مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ص: ٧٢٨٠٥٠٠٠٢ س.ت: ٢١٦٢٩

Khaled Gaki

MATERIAL APPROVAL REQUEST

Contractor Company	EL-NAWRAS FOR CONTRACTING			Designer Company				K.K.I Engineering Consulting Office			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Osama Yousef	osama Yousef		25/8/2020				12:00			
				M.A.R. 2							
Received by GARB CONSULTANT	Eng. Saied Saif	Khaled Saif	MAR	CH	CD	CR	CO	YEAR	YY	MM	MMM
				137	CW	CI	30	8	2021	17	8

LINK 1	51 to 52.5	55 to 59	By KKK Note
	Station Reference	Depot Reference	For illustrative point only. Start km is used
	Work Activity		
	Sub Header of Activity		

Description of Materials	Fill Layer Total Quantity (10000 m3)		
Location to be Used	From Station (332+300) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	SAUDI MOW SPECIFICATIONS & TESTING REPORT (SS23-L02.1) VERSION 1 FEBRUARY 2021
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Saied Saif (K.K.)

QUALITY TEST RESULT BY SITE LABORATORY IS OK

THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY

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

1- For information only.

2- quality test was carried by site party laboratory

3- results attached and found acceptable and comply with proj. specs.

4- final approval is subject to above mentioned comments

APPROVAL STATUS				
Organization	Name	Sign	Date	A-ANC-R
Contractor	Eng Osama Yousef	osama Yousef		A
QA/QC *	Eng. Saied Saif	Khaled Saif		
GARB**	Eng. Margret Magdi			
Employers Representative	Eng. Alaa Abd-Alkaff		30-8-2020	ANC

* Designer

** Alternate Designer Representative

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض: ٠٩٢٠٥٠٥٠٧٢٨ ت: ٢١٦٢٩

KK	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHAMMAM From Station 325+400 To Station 356+399	

Operating Lab

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE	30/8/2023	Code	ZONE		
LOCATION	جنوب الباب من الكلوب	Qt-02			
NAME COMPANY	الفيراني				

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT (g)		8215.00		gm		sand classify
sieve size	2	1.5	1	4/3	2/1	8/3	#4	PASS		soil classify
Mass retained (g)	0.0	100.0	70.0	300.0	450.0	530.0	1305.0			A-1-b
Cumulative Retained (g)	0.0	100.0	170.0	470.0	920.0	1450.0	2755.0		PRO	Q - 1 m
Cumulative Retained %	0.0	1.2	2.1	5.7	11.2	17.7	33.5		WC	7
Cumulative Passing %	100.0	98.8	97.9	94.3	88.8	82.3	66.5		CBR	

B-soft material gradation				WT OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	30.00	150.00	395.00					
Cumulative Retained %	6.00	30.00	79.00					
Cumulative Passing %	94.00	70.00	21.00					

3215.00

C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	#4	#10	#40	#200
sieve size(mm)	50.0	37.5	25.3	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	98.2	97.3	93.7	88.2	76.3	66.5	54.0	42.3	12.7

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

Contractor

Osama Youssef

Consultant

Khaled Zaki

مكتب النورس الجديد
لدمغ المواد العامة والتوريدات العامة
ت: ٢٢٨٠٥٠٥٠ ، ١٢٢ س.ت: ٩١٦٢٩

Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From BORG ALARAB To ALHAMMAM From Station 323+400 To Station 328+000	

PROCTOR TEST

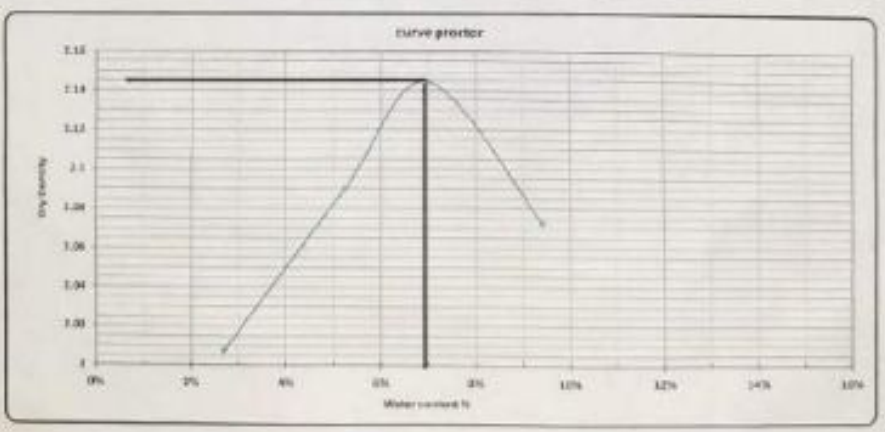
TESTING DATE	30/8/2023	Code	ZONE		
LOCATION	عينة تربة من المطحنة	GT-02			
NAME COMPANY	الهرامس				

Weight of empty mold	[illegible]
Mold Volume:	[illegible]

MAX Dry Density	2.144
Water content %	7

Trial no:	1	2	3	4	
Wt. Of Molds wet soil	[illegible]	[illegible]	[illegible]	[illegible]	
Wt. WET SOIL	[illegible]	[illegible]	[illegible]	[illegible]	
Wt. Density	2.062	2.199	2.274	2.268	

Tare No	33		4		99		34			
Tare wt.	75.7		69.7		42.5		33.8			
Wt. Of wet soil & tare	150.0		150.0		150.0		150.0			
Wt. Of dry soil & tare	148.0		145.5		144.3		140.0			
Wt. Of water	2.0		4.5		5.7		10.0			
Wt. Of dry soil	72.3		75.8		101.8		106.2			
Water content %	2.7%	2.7%	6.2%	6.2%	7.0%	7.0%	9.4%	9.4%		
AV. Water content %	2.7%		6.2%		7.0%		9.4%			
Dry Density	2.008		2.070		2.144		2.073			



Contractor		Consultant
Osama Yahia	مكتب النورس الجديد للمقاولات العامة والتوريدات العامة ب.ض. ٧٢٨-٥٠٥-١٤٢ س.ت. ٢١٦٣٩	Khaled Sakr

MATERIAL APPROVAL REQUEST

Contractor Company	EL NAWRAS FOR CONTRACTING		Designer Company						
Issued by Contractor	Name: Eng. Sherif Rabbie	Sign:	Date/Serial Number: 01/0000 M.A.R. 3-1				Time: 12:00		
Received by GARB CONSULTANT	(K.K)	khaled 19/9	MAR	01	02	03	04	YAY	YY	HH	MM
				3.07	EW	03	4	1	2023	12	0

[illegible]	01 to 021	01 to 02	By KKK Hale
	Station Reference	Depot Reference	For Kilometer points only Start line is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (10000 m3)		
Location to be Used	From Station (332+300) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (0121-121-1) VERSION 1 FEBRUARY 2022
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Saied Saif (K.K.)

QUALITY TEST RESULT BY THIRD PARTY LABORATORY IS APPROVED

THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY

فالكميات دي لحد ما يبقى الطلب

Comments by: Eng. Alaa Abd Allatif (GR)

1- All tests were carried out by third Party lab (~~[illegible]~~) Alexandria university

2-Results report attached and acceptable with the project specifications.

3-Final approval is subject to above mentioned comments.

4- adjust sieve #200

5- Remaining chemical test

APPROVAL STATUS

Organization	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif Rabbie			A
QA/QC *	(K.K)	khaled 19/9		A-WC
GARB**	Eng. Magrat Magdi			
Employer Representative	Eng. Alaa Abd-Allatif		27-9-2023	AWC

* Designer

** Engineer/Designer Consultants only

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
هاتف : ٠١٢٠٥٠٥٠٧٢٠ س.ت : ٢١٦٢٩

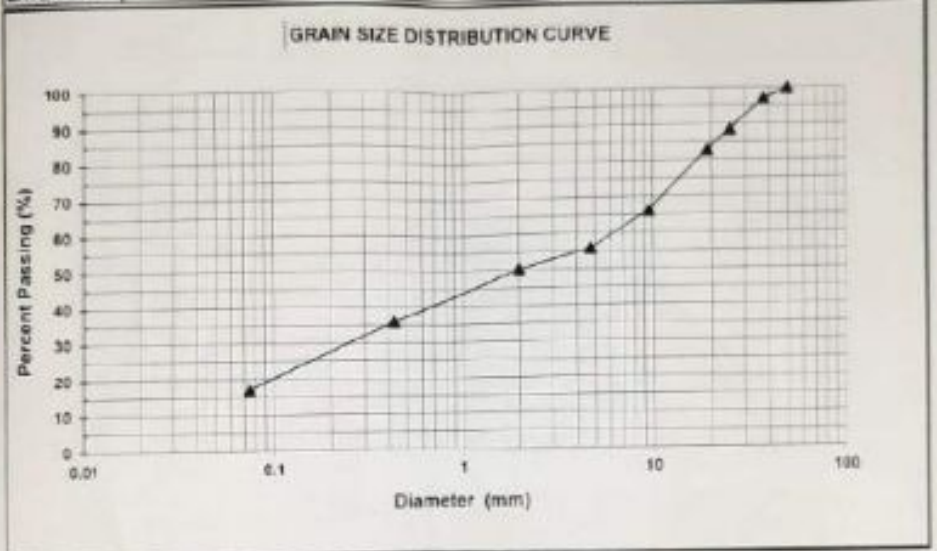
Alexandria University
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

Grain Size Distribution Curve

CLIENT	شركة النورس للمقاولات
PROJECT	القطار الكهربائي السريع لقطاع برج العرب -القطاع الخامس- من ٣٣٢٥٣٠٠ الى ٣٣٢٥٨٠٠
LOCATION	من مشون الشركة
LAYER TYPE	طبقة التربة — عينة ٢ / ٢

Receiving Date	06/09/2023
Cheque Date	06/09/2023
Reciept Number	114726
Report Date	27/09/2023
Lab. Ref.	G 123/09



	PERCENT PASSING								
Sieve No.	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"	2"
Test Results	17.2	35.8	50.2	55.8	66.2	82.8	88.5	97.1	100.0

تصنيف التربة : A-1-b

العينة غير ممثلة للتربة

وردت العينة التي اجري عليها الاختبار في الموقع بمعرفة مندوب الاستشاري ٢ / جلد قابيل

شركة النورس الجديد
للمقاولات العامة والتوريدات العامة
٢١٦٣٩

Laboratory Director
Dr. Wael Bekheet

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

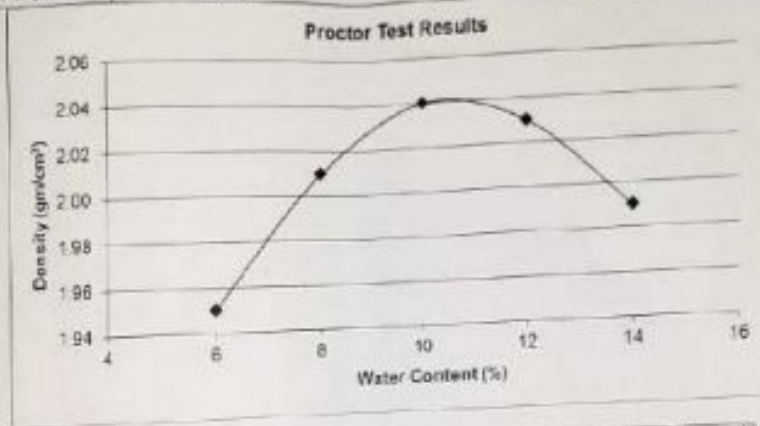
رقم بريدي ٢١٥٤٤ الاسكندرية - تليفاكس ٥٩١٧٢٠٣ (٠٣)+
P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب الدمك - بروكتور معدل

تقرير رقم	ب ٠٩/١٠٠٢	تاريخ توريد العينة	٢٠٠٣/٠٩/٠٦
الاختبارات	بروكتور	تاريخ الايصال	٢٠٠٣/٠٩/٠٦
العميل	شركة الفورس للمقاولات	رقم الايصال	١١٤٧٢٩
المشروع	القطار الكهربائي السريع لقطاع برج العرب - القطع الخامس) من ٣٣٢٠٣٠٠ الى ٣٣٢٠٨٠٠	تاريخ التقرير	٢٠٠٣/٠٩/١٧
الموقع	من مخزون الشركة	العينة	طفلة التربة (١)



أقصى كثافة معملية جافة	:	٢,٠٤ جم/سم³
نسبة المياه الأمثولية	:	٩,٦٠٪

تم توريد العينة بمعرفة مندوب الاستشاري أ.د / خالد تبديل

مدير المعمل
د. / وائل بخيت

في المعمل
أ / أحمد عادل

المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيف استخدام نتائج الاختبارات او اي نتائج مبنية على ذلك

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

رقم بريدي ٢١٥٤٤ الإسكندرية - تليفاكس ٥٩١٧٢٠٠ (٠٣)
P.O. Box 21544, Alexandria, Egypt. Tele-Fax: (+203) 5917200

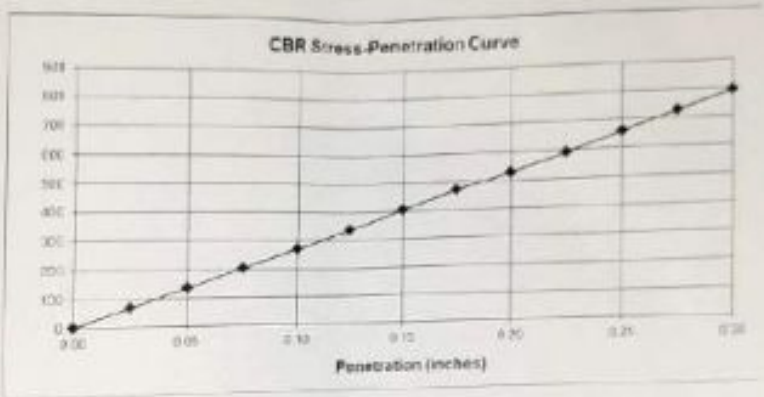
مكتب الفورس الجديد
للاستشارات العامة والتوريدات العامة
رقم : ٢٤٤٠٥٠٥٠١٠٢ س ت : ٢١٦٣٩

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب نسبة تحمل كاليفورنيا

تقرير رقم	ش.ك.٠٢ ٠٩/١	تاريخ توريد العينة	٢٠٢٢/٠٩/٠٦
الاختبارات	نسبة تحمل كاليفورنيا	تاريخ الإيصال	٢٠٢٢/٠٩/٠٦
العميل	شركة النورس للمقاولات	رقم الإيصال	١٩٤٧٢٩
المشروع	القطار الكهربائي السريع قطاع وسط الغرب ، القطاع الخامس) من ٣٣٢٠٣٠٠ الى ٣٣٢٠٥٠٠	تاريخ التقرير	٢٠٢٢/٠٩/٢٧
الموقع	من مخزون الشركة	العينة	طبقة التربة (٩)



نسبة تحمل كاليفورنيا بعد المعالجة في الماء لمدة ٤ أيام	:	٩٪٣٥

تم توريد العينة بمعرفة مندوب الاستشاري ا.م / جلال قدس

مدير المعمل

د. / وائل بخيت

المشرف

ا / أحمد خلاف

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

رقم بريدي ٢١٥٤٤ الإسكندرية - تليفاكس ٠٣٤٩١٧٢٠٣ (٠٢٠٣)
P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 5917203

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض ١٦٢ ، ٥٠٥ ، ٧٦٨ س.ت : ٢١٦٢١

MATERIAL APPROVAL REQUEST

Contractor Company	EL-MAWRAG FOR CONTRACTING			Designer Company				K.K. Engineering Consulting Office			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Sherif Rabea			11/9/2023				12:00			
				M A R 9							
Received by GARB CONSULTANT	K.K. Khaled Zaki		MAR	C1	C2	C3	S5	MM	YY	HH	MM
				002	CW	C5	12	9	2023	12	0

DOKKI	55 to 55	31 to 33	By XXX Name
	Station Reference	Depot Reference	For 4 kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (15000 m3)		
Location to be Used	From Station (332+300) to Station (330+800)		
Sample only	Yes	Material Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	[illegible]
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: (K.K.)

QUALITY TEST RESULT BY SITE LABORATORY IS APPROVED

THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY

Comments by: Eng. Alaa Abd-Alatif (DI)

1-All tests were carried out by material engineer for both contractor and GARB Consultant.

2-Results report attached and acceptable with the project specifications.

3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-APPL-R
Contractor	Eng. Sherif Rabea			A
QA/QC *	K.K. Khaled Zaki			A
GARB**	Eng. Wargyan Magdi			
Employers Representative	Eng. Alaa Abd-Alaatif		12-9-2023	Appr

* Contractor

** Engineering Consultant

مكتب الفورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض : ٢٣٨-٤-٥-١٤٠ س.ت : ٢٦٦٣٨

Operating Lab		

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 5 From BORG ALARAB To ALHANNAM

From Station 226+400 To Station 258+000

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	13/9/2023	Code	ZONE		
LOCATION		QT-3			
NAME COMPANY					

1-visual inspection test:

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT (g)		22130.00		gm		table classify
Sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS		soil classify
Mass retained (g)	0.0	789.8	1547.0	2160.0	1799.0	1475.0	2245.0			A-1b
Cumulative Retained (g)	0.0	789.8	2336.8	4291.0	5890.0	7365.0	9610.0		PRO	2.14
Cumulative Retained %	0.0	3.6	8.7	16.5	26.6	33.2	43.4		WC	6.59
Cumulative Passing %	100.0	96.4	91.3	81.5	73.4	66.8	56.6		CBR	

B-soft material gradation				WT OF sample		500.00		gm
Sieve size	10	40	200					
Cumulative Retained (g)	42.00	185.00	373.00					
Cumulative Retained %	8.40	37.00	75.00					
Cumulative Passing %	92.60	63.00	25.00					

C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	96.4	91.3	81.5	73.4	66.8	56.6	52.1	35.7	14.2

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

Contractor

Consultant

Khaled Zaki

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ت: ٢١٦٢٩٩

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 1 From BORG ALARAB To ALHAMMAM

From Station 331+400 To Station 386+000

PROCTOR TEST

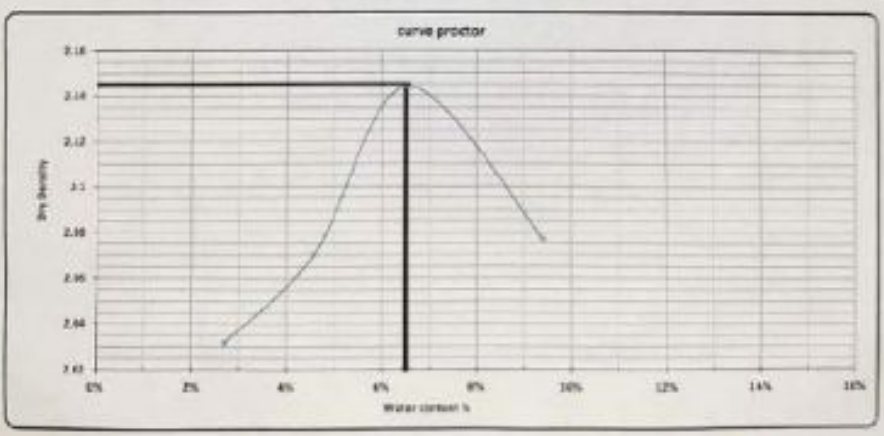
TESTING DATE:	13/9/2023	Code	ZONE		
LOCATION	[illegible]	07-[illegible]			
NAME COMPANY	[illegible]				

Weight of empty mold :	5868.0
Mold Volume:	2121.0

MAX Dry Density	2.144
Water content %	6.9

Trial no.	1	2	3	4	
WT. Of Mold+ wet soil	10284.0	10415.0	10745.0	10600	
WT. WET SOIL	4420.0	4551.0	4881.0	4816.0	
Wt. Density	2.087	2.145	2.284	2.273	

Tare No.	30	40	6	77	98	52	16	29		
Tare wt.	73.7	74	83.7	48	62.5	63	83.8	34		
Wt. Of wet soil & tare	150.8	150.9	150.9	150.9	150.9	150.9	150.9	150.9		
Wt. Of dry soil & tare	140.9	140.1	140.9	140.1	140.9	140.7	140.9	140.1		
Wt. Of water	2.9	3.9	4.0	3.9	5.4	5.2	10.0	5.9		
Wt. Of dry soil	74.3	74.1	86.3	86.3	82.1	81.7	106.2	110.1		
Water content %	3.7%	3.7%	4.6%	4.5%	6.6%	6.4%	9.4%	5.4%		
AV. Water content %	3.7%		4.6%		6.5%		9.4%			
Dry Density	2.031		2.071		2.144		2.077			



Contractor

[illegible] للمقاولات العامة والتوريدات العامة
[illegible]

Consultant

Khaled Zaki

MATERIAL APPROVAL REQUEST				
Contractor Company	EL-NAWRAS FOR CONTRACTING	Designer Consultant	(K.K.) Engineering Consulting Office	
Issued by Contractor	Name: Eng. Sherif Rabbie Sign:	Date/Serial Number: 15/9/2021 M.A.R. 3-1	Time: 12:00	
Received by GAYD CONSULTANT	(K.K) Mohamed Ali Sign:	MAR	CI: 337 / CC: RW / CS: C / SS: 1 / YR: 16 / MN: 2023 / HR: 12 / MIN: 0	

[illegible]	BL to EL Station Reference	BS to EE Depot Reference	Ky [illegible] Ratio For Elevation point only Start km is used
[illegible]	Work Activity		
[illegible]	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (15000 m3)		
Location to be Used	Pipes Station (332+500) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CS21-02) (KASSER TUNNEL) MAY 2022
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Allah (EP)
QUALITY TEST RESULT BY THIRD PARTY LABORATORY IS APPROVED THIS SAMPLE REPRESENTATIVE [5000] M3 ONLY	1. All tests were carried out by third Party lab : [redacted] Alexandria university 2. Results report attached and acceptable with the project specifications. 3. Final approval is subject to above mentioned comments. 4. Remaining chemical test

APPROVAL STATUS				
Organisation	Name	Sign	Date	A/AW/C/R
Contractor	Eng. Sherif Rabbie			A
GAYD*	(K.K) Mohamed Ali			
GAKB**	Eng. Magdi Magdi			
Employers Representative	Eng. Alaa Abd-Allah		22-10-2023	AWC

* Designer

** Highways/Bridges Consultants

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.س ١١٢-٥٠٥-٧٢٨ س.ت ٢٠٢٢٨

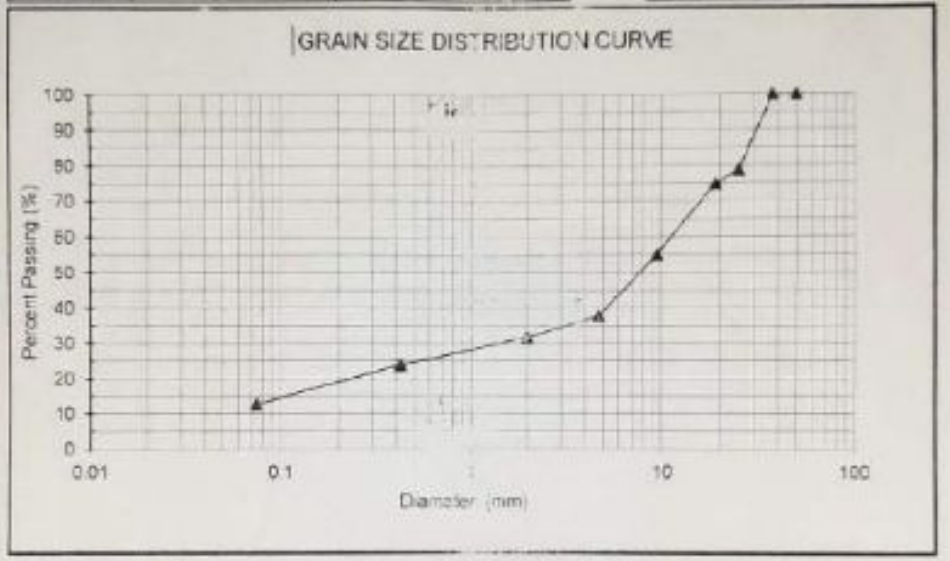
Alexandria University
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

Grain Size Distribution Curve

CLIENT	شركة النورس
PROJECT	الخط الكهربائي السريع قطاع برج العرب من محطة ٢٠٠-٢٢٠ الى محطة ٠
LOCATION	من مشروع الشركة
LAYER TYPE	طبقة تربة — عينة ١ / ٢

Receiving Date	26/09/2023
Cheque Date	03/10/2023
Reciept Number	18435
Report Date	22/10/2023
Lab. Ref.	G 58/10



	PERCENT PASSING								
Sieve No.	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"	2"
Test Results	12.8	23.8	31.7	37.0	55.1	74.8	78.6	100.0	100.0

صنف التربة : [illegible]	الهيئة تقديمة التربة

ورسمت العينة التي تجري عليها الاختبار بمعرفة مندوب الاستشاري / [illegible]

Laboratory Director

Dr. Wael Bekheet

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

تعمل معمل فقط عن نتائج الاختبارات وشهادته المعمل غير مسئول عن تأويل مستخدمي نتائج الاختبارات او اي نتائج مبنية على ذلك

P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(203) 591 7203

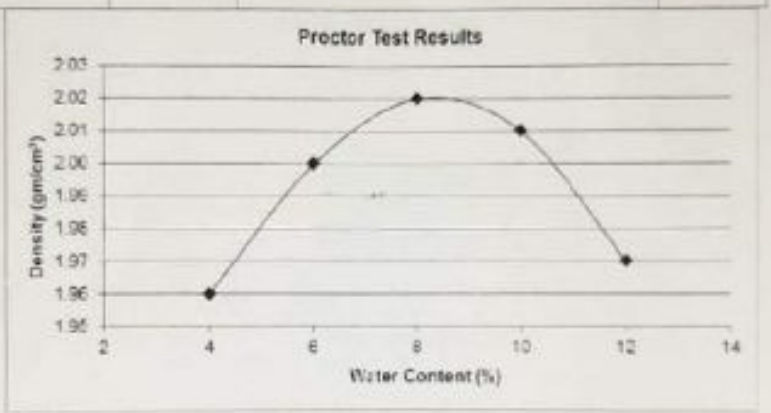
مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض : ١٩٢-٥٠٥-٣٨ س.ت : ٢٦٦٩٩

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب الدمك – بروكتور معدل

تقرير رقم	ب ٥٦/١٠	تاريخ توريد العينة	٢٠٢٣/٠٩/١٦
الاختبارات	بروكتور	تاريخ الإيصال	٢٠٢٣/١٠/٣
العميل	شركة النورس	رقم الإيصال	١٨٤٣٥
المشروع	القطار الكهربائي السريع قطاع برج العرب من [illegible] ٣٣٢٤٠٠ الى محطة ٣٣٢٤٨٠٠	تاريخ التقرير	٢٠٢٣/١٠/٢٢
الموقع	من مخزون الشركة	العينة	طفلة تربة (٦)



أقصى كثافة معملية جافة	:	٢,٠٦ جم/سم٣
نسبة المياه الأمثلية	:	٨%

تم توريد العينة بمعرفة مندوب الاستشاري د/ خالد عدلي

مدير المعمل
د/ وائل بخيت

رئيس المعمل
أ/ أحمد جاد

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

رقم بريدي ٢١٥٤٤ الإسكندرية - تليفون ٥٩١٧٢٠٣ (٠٣)
P.O. Box 21544, Alexandria, Egypt. Tele/Fax: (+203) 5917203

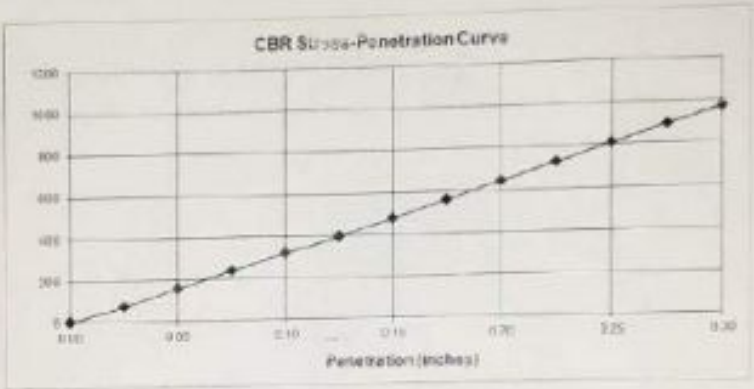
مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب ض ١٩٣-٥-٥-٧٢٨ س ت ٢١٩٢٩

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب نسبة تحمل كاليفورنيا

تقرير رقم	م.ت.ك.٩/٢٠٢٠	تاريخ توريد العينة	٢٠٢٣/٠٩/٢٩
الاختبارات	نسبة تحمل كاليفورنيا	تاريخ الايصال	٢٠٢٣/١٠/٠٣
العميل	شركة التوريس	رقم الايصال	١٨٤٣٥
المشروع	القطار الكهربائي السريع قطاع برج العرب من عند ٣٣٢٠٣٠٠ الى عند ٣٣٢٠٨٠٠	تاريخ التقرير	٢٠٢٣/١٠/٢١
الموقع	من مشروع الشركة	العينة	طفلة التربة (٩)



نسبة تحمل كاليفورنيا بعد المعالجة في الماء لمدة ٤ أيام	:	٩٤٫٣

تم توريد العينة بمعرفة مندوب الاستشاري أ.د/ خالد فندي

مدير المعمل

د. / وائل بخيت

فني المعمل

أ / أحمد عادل

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

المعمل مسئول **فقط** عن نتائج الاختبارات و مضمونها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات أو أي نتائج مبنية على ذلك.

رقم بريدي ٢١٥٤٤ الإسكندرية – تليفاكس ٠٣٤٩١٧٢٥٣ (٠٣)
P.O. Box 21544, Alexandria, Egypt. Tele-Fax: (+203) 4917253

مكتب الشهر العقاري الجديد
ت: ٩٦٦٩٩

MATERIAL APPROVAL REQUEST

Contractor Company	EL-NAWRAS FOR CONTRACTING	Designer Company	[illegible] Engineering Consulting Office
Issued by Contractor	Name: Eng. Sherif Rabea Sign:	Date/Serial Number: 11/9/2023 M.A.R. 4	Time: 12:00
Received by GARD CONSULTANT	Name: Khaled Zaki	MARK	

C1	C2	C3	C4	ARM	PT	AR	WM
010	100	03	12	8	7023	17	8

CODE 6	15 to 121	66 to 84	By KKK Plant
	Station Reference	Legal Reference	For Kilometer point only start km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (20000 m3)		
Location to be Used	From Station (332+300) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	[illegible]
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: (K.C.)

QUALITY TEST RESULT BY SITE LABORATORY IS APPROVED

THIS SAMPLE REPRESENTATIVE [SOIL] MS ONLY

Comments by: Eng. Alaa Abd Allatif (TR)

1-All tests were carried out by material engineer for both contractor and GARD Consultant.

2-Results report attached and acceptable with the project specifications.

3-Final approval is subject to above mentioned comments.

4-For information only.

APPROVAL STATUS				
Organization	Name	Sign	Date	A/AWC/B
Contractor	Eng. Sherif Rabea			A
GA/GC *	Khaled Zaki			A
GARD**	Eng. Magdi Magdi			
Employer's Representative	Eng. Alaa Abd Allatif		12-9-2023	AWC

* Designer

** Independent Engineer

مكتب النورس الجديدة
للمقاولات العامة والتوريدات العامة
ت ٢١٦٢٦٠ ، ٠٢٢٩٩٨٠٥٠٥ س.ت ١٩٢

Operating Lab		

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 5 From BORG ALARAB To ALHAMMAM

From Station 325+400 To Station 358+000

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	12/9/2023	Code	ZONE		
LOCATION		QT-05			
NAME COMPANY					

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT (g)		20425.00		gm		lahie classify
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS		soil classify
Mass retained (g)	0.0	412.0	712.0	2547.3	1800.9	1475.0	2348.0			A-1-b
Cumulative Retained (g)	0.0	412.0	1124.0	3671.3	5396.2	6861.0	9148.0		PRO	2.15
Cumulative Retained %	0.0	2.0	5.5	18.0	26.1	33.6	44.8		WC	6.50
Cumulative Passing %	100.0	98.0	94.5	82.0	73.9	66.4	55.2		CBR	

B-soft material gradation				WT.OF sample		500.00		gm
Sieve size	10	40	200					
Cumulative Retained (g)	80.00	220.00	400.00					
Cumulative Retained %	8.00	44.00	80.00					
Cumulative Passing %	92.00	56.00	20.00					

C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.3	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	98.0	94.5	82.0	73.9	66.7	55.2	36.8	20.0	11.0

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

Contractor

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ت ٢٦٢٩ ، ٢٢٨ ، ٥١٥ ، ١٩٢

Consultant

Ishaq Zaki

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 5 From BORG ALARAB To ALHAMMAM

From Station 325+400 To Station 398+930

PROCTOR TEST

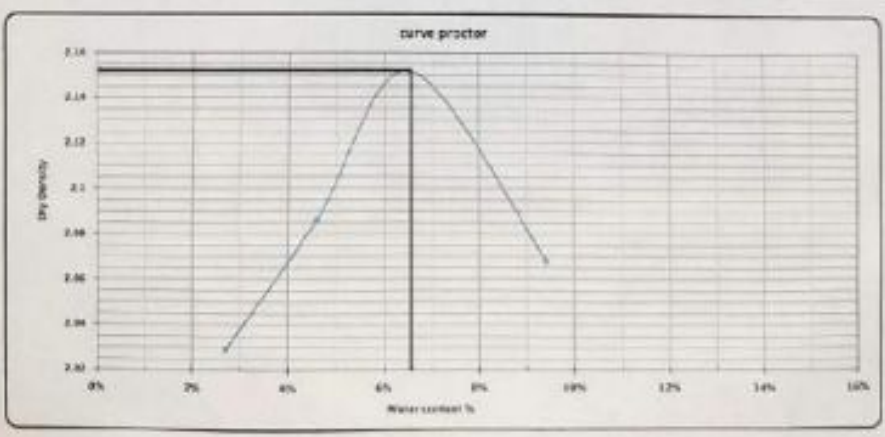
TESTING DATE:	12/6/2023	Code	ZONE		
LOCATION	عينة تربة من المطلوب	Q1-04			
NAME COMPANY	الموردي				

Weight of empty mold :	[illegible]
Mold Volume:	2121.8

MAX Dry Density	2.16
Water content %	6.5

trial no :	1	2	3	4	
WT. Of Mold+ wet soil	10296.0	10687.0	10722.0	10699	
WT. WET SOIL	4418.0	4627.0	4862.0	4799.0	
Wt. Density	2.084	2.182	2.293	2.263	

Tare No.	38	11	9	77	98	52	34	23		
Tare wt.	73.7	74	59.7	60	62.5	63	23.8	34		
Wt. Of wet soil & tare	196.3	198.8	190.0	190.8	190.0	190.0	190.8	196.8		
Wt. Of dry soil & tare	148.3	149.1	146.0	146.1	144.6	144.7	140.8	144.1		
Wt. Of water	2.1	1.9	4.0	3.9	5.4	5.3	10.0	5.3		
Wt. Of dry soil	74.2	74.1	86.3	86.1	82.1	81.7	106.2	110.1		
Water content %	2.7%	2.7%	4.6%	4.5%	6.6%	6.5%	9.4%	9.4%		
AV. Water content %	2.7%		4.6%		6.5%		9.4%			
Dry Density	2.025		2.086		2.192		2.068			



Contractor

مكتب السوق الجديد
للاستشاريات والتوريدات العامة
ت ض ٧٢٢٠٠٥٠٢٩٢ س ت ٢٩٩٢٩

Consultant

Khaled Zaki

MATERIAL APPROVAL REQUEST				

Contractor Company	EL-MAWRAS FOR CONTRACTING		Designer Company	K.K. Engineering Consulting Office
Issued by Contractor	Name	Sign	Date/Serial Number	Time
	Eng. Sherif Rabbie		26/6/2023 M.A.R. 4-1	12:00

Reviewed by GARS CONSULTANT	(K.K) Mohamed Ali		MAR	C1	C2	C3	C4	YRF	YY	MM	ABC
				237	FW	C3	3	10	2023	11	B

0000-4	15 to 121	00 to 50	Rp 000 None
	Station Reference	Depot Reference	For Kilometer point only Start km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (20000 m3)		
Location to be Used	From Station (332+300) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (0000-122.1) VERSION 1 FEBRUARY 2022
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Allatif (EIC)
QUALITY TEST RESULT BY THIRD PARTY LABORATORY IS APPROVED THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY	1- All tests were carried out by third Party lab Alexandria university 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4- Remining chemical test.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWCR
Contractor	Eng. Sherif Rabbie			A
QA/QC *	(K.K) Mohamed Ali			
GARS**	Eng. Margret Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		22-6-2023	AWC

* Designer
** Employer's Design Consultant only

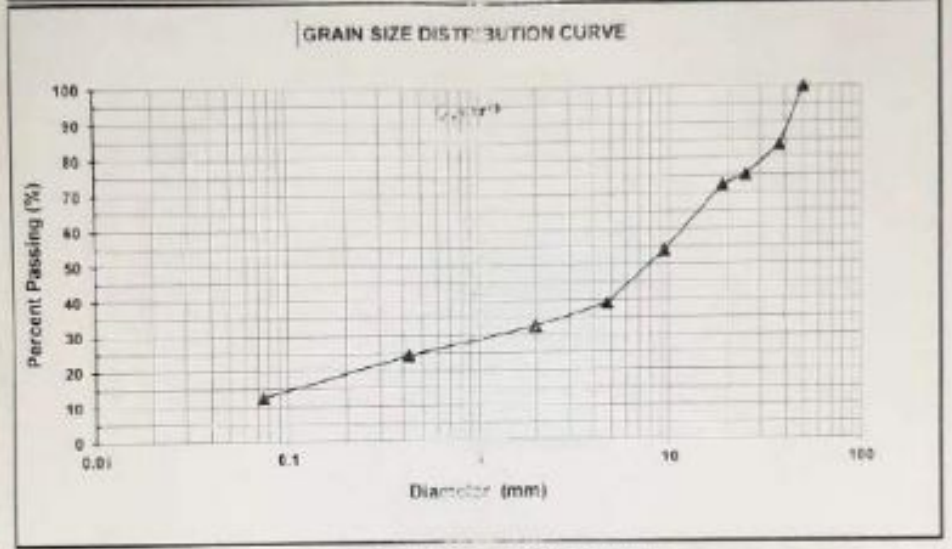
مكتب الفنورس الجديد
للمقاولات العامة والتوريدات العامة
ت ٢١٦٢٩ / ٢٣٨ ، ٥٠٤ ، ١٤٣ س ت

Alexandria University
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

Grain Size [illegible]ution Curve

CLIENT	شركة النورس	Receiving Date	26/09/2023
PROJECT	القطار الكهربائي السريع قطاع برج العرب من محطة ٣٣٢+٥٠٠ الى محطة ٣٣٢+٨٠٠	Cheque Date	03/10/2023
		Reciept Number	18435
LOCATION	من شئون الشركة	Report Date	22/10/2023
LAYER TYPE	طبقة التربة — عينة ٢ / ٢	Lab. Ref.	G 59/10



	PERCENT PASSING								
Sieve No.	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"	2"
Test Results	12.6	24.4	32.6	39.0	54.0	72.5	75.1	83.5	100.0

تصنيف التربة : A-1-a

العينة غير صالحة للتربة

درجات الجودة التي أجري عليها الاختبار [illegible] مطابقة مندوب الاستشاري (إن طلب ذلك)

Laboratory Director

Dr. Wael Bekheet

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

المعمل مسئول فقط عن نتائج الاختبارات ومحتواها. المعمل غير مسئول عن طبيعة استخدام نتائج الاختبارات أو أي نتائج مبنية على ذلك

تليفون ٢١٧٧٢٠٣ / ٢٠٣ تليفاكس ٥٩١٧٢٠٣ ص.ب ٢١٥٤٤ الإسكندرية
P.O. Box 21544, Alexandria, Egypt. Tele-Fax (+203) 5917203

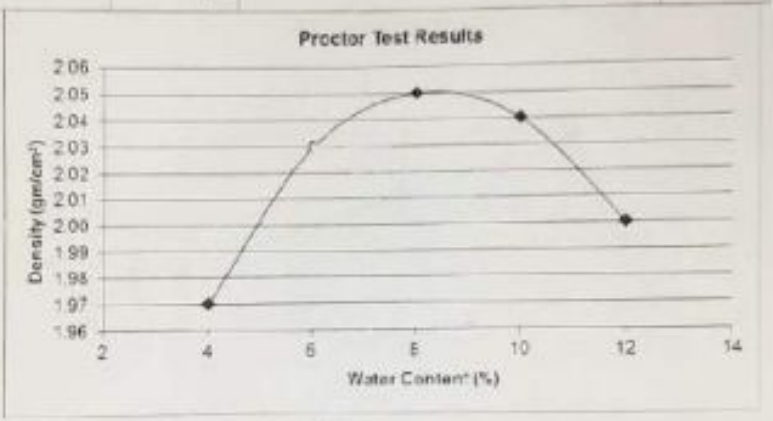
مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ت طن ٧٢٨٠٥٥٠١٢٢ س ت ٢١٩٣٩

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب الدمك - بروكتور معدل

تقرير رقم	ب ٠/٥٧	تاريخ تورية العينة	٢٠١٣/٠٩/٢٦
الاختبارات	بروكتور	تاريخ الإيصال	٢٠١٣/١٠/٠٣
العميل	شركة التوريس	رقم الإيصال	١٨٤٣٥
المشروع	المطار الكهربائي المشروع قطاع برج العرب من محطة ٣٣٢٠٣٠٠ إلى محطة ٣٣٢٠٨٠٠	تاريخ التقرير	٢٠١٣/١٠/٢٦
الموقع	من منشود الشركة	العينة	طبقة تربة (٢)



أقصى كثافة معملية جافة	:	٢,٠٥ جم/سم³
نسبة المياه الأمثلية	:	٩,٨

تم توريد العينة بمعرفة مندوب الاستشاري / د/ خالد فندي

في المعمل

أ / أحمد عادل

مدير المعمل

د. / وائل بخيت

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المعمل مسئول **فقط** عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيف استخدام نتائج الاختبارات أو أي نتائج مبنية على ذلك.

رقم بريدي ٢١٥١٤ الإسكندرية - تلفاكس: (٠٣) ٥٩١٧٢١٠
P.O. Box 21514 Alexandria Egypt Tele-Fax: +(203) 5917210

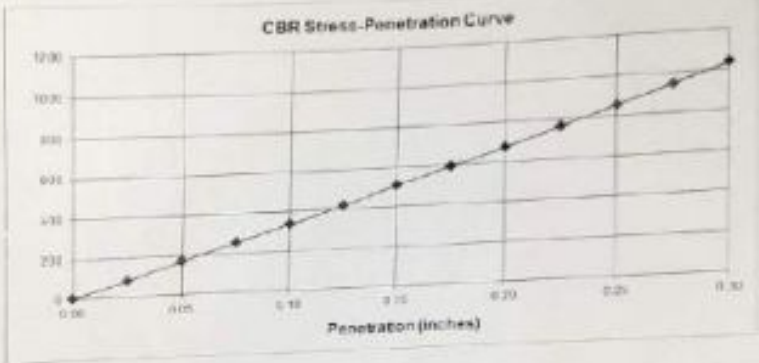
مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب ض: ١٨٢ - ت: ٧٣٨ - س ت: ٢١٦٣٩

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب نسبة تحمل كاليفورنيا

تقرير رقم	ش.ك.ت/١٠/٢٠	تاريخ توريد العينة	٢٠٢٢/١٠/٢٦
الاختبارات	نسبة تحمل كاليفورنيا	تاريخ الإيصال	٢٠٢٢/١٠/٣
العميل	شركة القورس	رقم الإيصال	١٨٤٣٠
المشروع	الخط الكهربائي لسريع الطاع رع الغرب من محطة ٣٢٢+٣٠٠ الى محطة ٣٢٢+٨٠٠	تاريخ التقرير	٢٠٢٢/١٠/٢٦
الموقع	من منشور الشركة	العينة	طبقة تربة (٢)



نسبة تحمل كاليفورنيا بعد المعالجة في الماء لمدة ٤ أيام	:	٩٠٤٥

تم توريد العينة بمعرفة مندوب الاستشاري (م/ حازم فضل)

مدير المعمل
د. / وائل بخيت

في المعمل
أ / أحمد عادل

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

المعمل **مسئول فقط** عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات او اي نتائج مبنية على ذلك

رقم بريدي ٢١٥٤٤ الإسكندرية - شباطين ٣ - ٤٩٠٢٤ و ٤٩١٢٢
P.O. Box 21544, Alexandria, Shatbi, Tel/Fax: (203) 5917203

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض ١٩٢ . ٥٠٥ . ٧٢٨ س.ت ٢١٦٢٦

MATERIAL APPROVAL REQUEST

Contractor Company	EL-NAWRAS FOR CONTRACTING			Designer Company						
Issued by Contractor	Name	Sign		Date/Serial Number				Time		
	Eng. Sherif Fakhir			23/9/2023				12:00		
				M.A.R. 5						
Received by GARB CONSULTANT	(K.C)	Khaled Zaki	MAR	23	09	23	24	9	2023	12	0

Item	Item Reference	Input Reference	For Alignment gates only Start KM is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (21000 m3)		
Location to be Used	From Station (0024500) to Station (031+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (0021-[illegible])
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: (K.C.)	Comments by: Eng. Alaa Abd-Allatif (GR)
QUALITY TEST RESULT BY SITE LABORATORY IS APPROVED THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY	1-All tests were carried-out by material engineer for both contractor and GARB Consultant. 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4- For information only.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif Fakhir			A
QA/QC*	(K.K)	Khaled Zaki		A
GARB**	Eng. Margret Magdi			
Employers Representative	Eng. Alaa Abd-Allatif	for	24-9-2023	AWC

* Designer
** Alignment/Supervision Consultant

مكتب النورس الجديدة
للمقاولات العامة والتوريدات العامة
بيان ٢٨٠٠٥٠١٩٢ س.ت: ٢١٩٢٤

Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 5 From ROPG ALAREB To ALHAMMAM From Station 325+400 To Station 338+000		

Operating Lab

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	24/9/2023	Code	ZONE		
LOCATION		QT-05			
NAME COMPANY	النورس				

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT (g)		24780.10		gm		table classify
sieve size	2	1.5	1	4/0	2/1	8/3	#4	PASS		soil classify
Mass retained (g)	0.0	789.0	1147.0	2580.0	1799.0	1475.3	5336.8			A-1-b
Cumulative Retained (g)	0.0	789.0	1936.0	4535.0	6334.0	7809.3	13145.0		PRO	2.14
Cumulative Retained %	0.0	3.2	7.8	18.2	25.4	31.4	52.9		WC	6.50
Cumulative Passing %	100.0	96.8	92.2	81.8	74.6	68.6	47.1		CBR	

B soft material gradation				WT OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	60.00	160.00	342.00					
Cumulative Retained %	12.00	32.00	68.40					
Cumulative Passing %	88.00	68.00	31.60					

C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	#4	#10	#40	#200
sieve size(mm)	50.8	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	96.8	92.2	81.8	74.6	68.6	47.5	41.0	32.2	15.0

ATTERBERG LIMTS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	NP	NP	NP

Contractor

Consultant

Khaled Zaki

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض ١٩٢٠٠٥٠٤٢٨ س.ت ٩٦٦٠

Electric Express Train - HSR

From: El Ain El Sokhna City To El Alamein - MATROUH

Section - 5 From: DORG ALARAB To ALHAMMAM

From Station 325+400 To Station 389+000

PROCTOR TEST

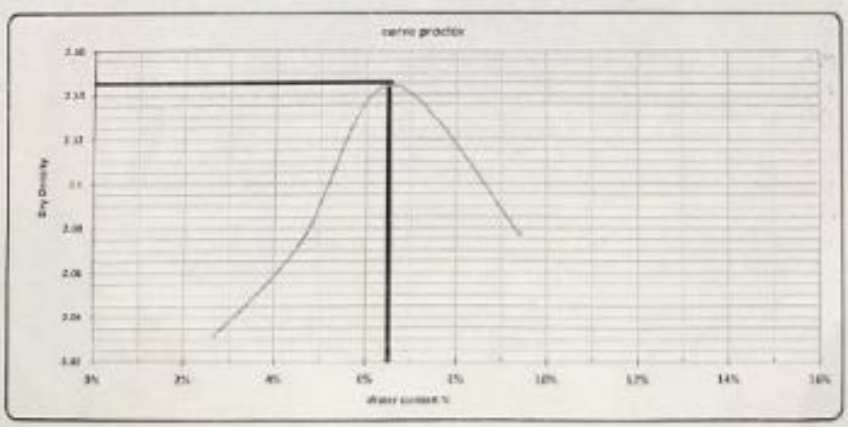
TESTING DATE	24/9/2023	Code	ZONE		
LOCATION	[illegible]	03-05			
NAME COMPANY	[illegible]				

Weight of empty mold :	[illegible]
Mold Volume:	2123.8

MAX Dry Density	2.144
Water content %	6.5

Trial no.	1	2	3	4	
Wt. Of Mold + wet soil	[illegible]	[illegible]	[illegible]	[illegible]	
Wt. Wet soil	[illegible]	[illegible]	[illegible]	[illegible]	
Wt. Density	[illegible]	[illegible]	[illegible]	[illegible]	

Tare No.	33	11	5	77	91	32	16	27		
Tare wt.	19.7	54	49.7	48	42.8	40	41.8	34		
Wt. Of wet soil & tare	156.3	150.0	159.0	150.0	150.0	156.0	150.0	150.0		
Wt. Of dry soil & tare	148.3	140.3	144.0	140.3	140.6	144.7	140.0	144.1		
Wt. Of water	8.0	9.7	8.0	9.7	9.4	5.3	9.0	5.9		
Wt. Of dry soil	94.2	94.3	96.3	94.3	92.8	98.7	98.2	114.1		
Water content %	8.5%	8.7%	8.3%	8.5%	6.8%	6.5%	9.1%	9.4%		
AV. Water content %	8.7%		8.4%		6.5%		9.4%			
Dry Density	2.102		2.078		2.144		2.077			



Contractor

مكتب النورس الجديدة
للمقاولات العامة والتوريدات العامة
ت: ٧٢٨٠٥٠٢٠١٢ س.ت: ٩٦٦٢٩

Consultant

Khaled Zaki

MATERIAL APPROVAL REQUEST	EL-NAWRAS	KK			

Contractor Company	EL-NAWRAS FOR CONTRACTING		Designer Company	K.K. Engineering Consulting Office
Issued by Contractor	Name	Sign	Date/Serial Number	Time
	Eng. Sherif Rabbie		22/9/2023 M.A.R. 5-1	12:00

Received by GAFB CONSULTANT	(K.K) Mohamed		YEAR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
				337	RW	C5	3	10	2023	12	0

[illegible]	51 to 53	01 to 03	Kp 300 Note
	Station Reference	Depot Reference	For Kilometer point only from 0.00 to used
[illegible]	Work Activity		
[illegible]	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (25000 m3)		
Location to be Used	From Station (332+300) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	El SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	[illegible]
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Saied Saif (K.K)	Comments by: Eng. Alaa Abd Allah (TP)
QUALITY TEST RESULT BY THIRD PARTY LABORATORY IS APPROVED THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY	1- All tests were carried-out by third Party lab ~~[illegible]~~ Alexandria University 2- Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments 4. Remaining chemical test.

APPROVAL STATUS				
Organization	Name	Sign	Date	A/A/N/C/R
Contractor	Eng. Sherif Rabbie			A
QA/QC *	(K.K) Mohamed			
GAFB**	Eng. Margret Magdi			
Employers Representative	Eng. Alaa Abd Allah	for	22-10-2023	AUR

* Designer

** Alignment/Bridges Cohort only

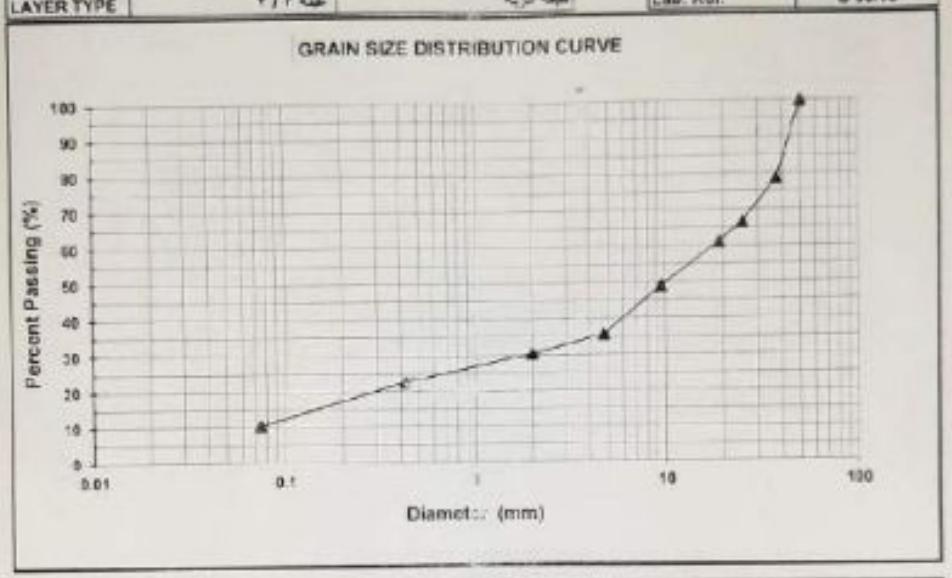
مكتب المشورة الهندسية
للمشاريع العامة والتوريدات
ت: ٠٢٠٢٢٧٨٨٠٥٠٠٢ س ت: ٢٠٣٢٠

...andria University
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

Grain Size Distribution Curve

CLIENT	شركة التورس	Receiving Date	25/09/2023
PROJECT	القطار الكهربائي السريع قطاع برج العرب من محطة ٣٠٠+٢٢٦ الى محطة ٨٠٠+٣٢٤	Cheque Date	03/10/2023
LOCATION	من مخزون الشركة	Reciept Number	18435
LAYER TYPE	طبقة التربة — عينة ٣ / ٣	Report Date	22/10/2023
		Lab. Ref.	G 60/10



	PERCENT PASSING								
Sieve No.	No. 200	No. 40	No. 10	No. 4	3/8"	3/4"	1"	1 1/2"	2"
Test Results	19.6	22.7	30.4	35.6	46.9	61.2	66.6	78.5	100.0

تصنيف التربة : A-1-a	العينة غير صالحة للتربة

ورقة الجيشة التي اجري عليها الاختبار [illegible]

Laboratory Director

Dr. Wael Bekheet

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

المعمل مسئول فقط عن نتائج الاختبارات و صحتها. المعمل غير مسئول عن تفسير نتائج الاختبارات و اي نتائج مبنية على ذلك

ص.ب ٢١٥٤٤ الاسكندرية - التليفاكس ٥٩١٧٢٠٣ (٠٣)
P.O. Box 21544, Alexandria, Egypt. Tele-Fax +(20-3) 5917203

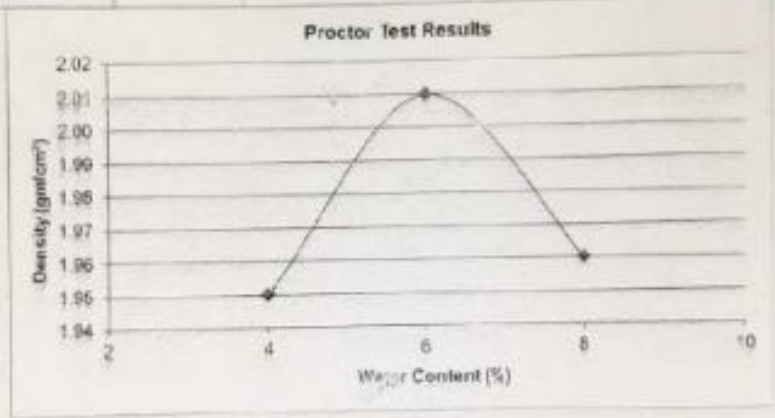
مكتب التورس الجديد
الاستشارات العامة والتوريدات الخاصة
[illegible] ٣٢٨٠٥٠٥٠١٣ س.ت ٢١٦٩٩

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كلية الهندسة
المركز الهندسي لخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب لـ ... كتور معدل

تقرير رقم	ب ١٠/٥٨	تاريخ توريد العينة	٢٠٢٣/٠٩/٢٩
الاشتراطات	بروكتور	تاريخ الإيصال	٢٠٢٣/١٠/٠٧
العميل	شركة التورس	رقم الإيصال	١٨٤٣٠
المشروع	الخط الكهربائي السريع قطاع نوع الهرب من محطة ٣٣٩٥٢٠٠ الى محطة ٣٣٢٠٥٠٠	تاريخ التقرير	٢٠٢٣/١٠/٢٢
الموقع	من مقبود الشركة	العينة	طبقة تربة (٣)



أقصى كثافة معملية جافة	:	٢,٠١جم/سم³
نسبة المياه الأصلية	:	٦%

تم توريد العينة بمعرفة مندوب الاستشاري أ.د/ جلال تديل

فني المعمل

أ/ أحمد عادل

مدير المعمل

د. / وائل بطيت

The laboratory is only responsible for the test results and its conclusions. The laboratory is not responsible for the representation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات ومعناها. المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات أو أي نتائج مبنية على ذلك

رقم بريدي ٢١٥٤٤ الإسكندرية - تليفاكس ٥٩١٧٢٠٣ (٠٣٠٣)
P.O. Box 21544, Alexandria Egypt, Tele-Fax +(203) 5917203

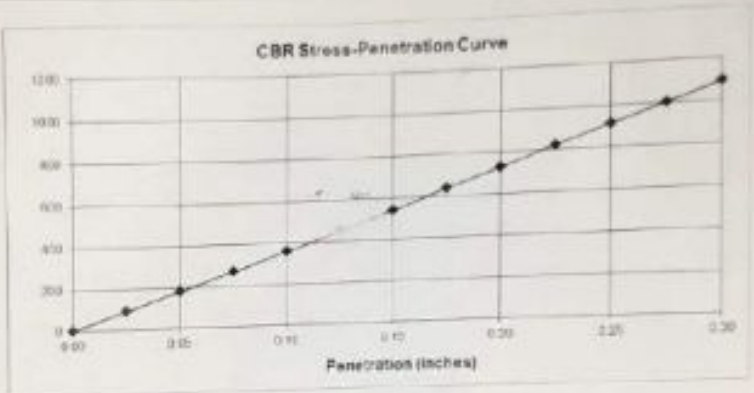
مكتب النورس الجديدة
للمقاولات العامة والتوريدات العامة
ب.ض. ١٩٢ ، ٥٠٥ ، ٧٢٨ س.ت. ٢١٦٢٦

ALEXANDRIA UNIVERSITY
Faculty of Engineering
Engineering Center for Community Development
Roads Soils & Materials Laboratory

جامعة الإسكندرية
كليـة الهندسـة
المركز الهندسي للخدمة العامة
معمل تربة ومواد الطرق

نتائج تجارب نسبة تحمل كاليفورنيا

تقرير رقم	ش.ك/٤١/٢٠٢٣	تاريخ توريد العينة	٢٠٢٣/١٠/٢٦
الاختبارات	نسبة تحمل كاليفورنيا	تاريخ الإيصال	٢٠٢٣/١٠/٣
العميل	شركة التوريد	رقم الإيصال	١٨٦٣٥
المشروع	القطار الكهربائي السريع لقطاع برج العرب من [illegible] ٣٢٢ إلى محطة [illegible] ٢٢٢+٨٨٠٠	تاريخ التقرير	٢٠٢٣/١٠/٢٢
الموقع	من مشروع الشركة	العينة	طفلة التربة (٣)



نسبة تحمل كاليفورنيا بعد المعالجة في الماء لمدة ٤ أيام	٩٤٫٤٨

تم توريد العينة بمعرفة مندوب الاستشاري (أ.د/ جاد قنديل)

مدير المعمل
أ.د/ وائل بهيت

فني المعمل
أ/ أحمد عادل

The laboratory is only responsible for the test results of the samples. The laboratory is not responsible for the interpretation of the test results.

المعمل مسئول فقط عن نتائج الاختبارات وعينات المعمل غير مسئول عن كيفية استخدام نتائج الاختبارات أو أي نتائج مبنية على ذلك

رقم بريدي: ٢١٥٤٤ الإسكندرية - تليفاكس: ٥٩١٧٢٠٣ (٠٣)
P.O. Box 21544, Alexandria, Egypt. Tele/Fax: (203) 5917203

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض: ٥-٥-٧٢٨، ت: ٢١٢٣٩

MATERIAL APPROVAL REQUEST

Contractor Company	EL-NAWRAS FOR CONTRACTING			Designer Company				(K.K) Engineering Consulting Office			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Sherif rabbie			01/08/2023				12:00			
				M.A.R. #							
Received by GARB CONSULTANT	(K.K)	Khaled Zaki	MAR	C1	C2	C3	C4	yr	yr	yr	yr
				117	EW	C3	2	11	2023	12	0

Chainage	11 to 121	01 to 02	Kg Km None
	Station Reference	Depot Reference	For Kilometer point only start km is used
Work Activity	Work Activity		
Sub Element of Activity	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (5000 m3) subGrade		
Location to be Used	From Station (332+200) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	MAKA	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (2022-2023) VERSION 1 FEBRUARY 2022
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: (K.K.)	Comments by: Eng. Alaa Abd-Alhafiz (GR)
QUALITY TEST RESULT BY SITE LABORATORY IS APPROVED THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY	1-All tests were carried out by material engineer for both contractor and GARB Consultant. 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4-for information only.

APPROVAL STATUS				
Organization	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif rabbie			A
QA/QC *	(K.K)	Khaled Zaki		A
GARB**	Eng. Margret Magdi			
Employers Representative	Eng. Alaa Abd-Alhafiz	for	2-11-2023	A-WC

* Designer

** Alignment/Design Engineering

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ش ٢٣٨٠٤٠٥٠١٤٢ س.ت ٢١٦٢٨

Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	1-Nov-20
Company	S.G - السويس		
Station	السلوم	No.	1-0001

Soil Classification (AASHTO M 145)

3- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of oven sample =	45141				
Sieve "inch"	Sieve "mm"	Total retain (gm)	pass %	Specs Limits SM %	
5"	125.000	0	100.00	100	100
4"	100.000	0	100.00	100	100
3"	75.000	0	100.00	100	100
2"	50.000	0	100.00	-	-
1.5"	37.500	711	98.24	90	97
1"	25.000	3925	85.58	-	-
3/4"	19.000	12813	68.54	70	75
1/2"	12.500	16975	58.63		
3/8"	9.500	19915	53.92	55	60
4	4.750	24032	53.98	-	-
wt. of fine sample =	500				
Sieve No.	Sieve "mm"	Total retain (gm)	Total pass%	Specs Limits %	
10	2.000	90	32.75	0	55
40	0.425	262	19.03	-	-
200	0.075	414	9.68	0	12

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limits
Number of blows	N.P	N.P
No. tin of plate		
Wt. Of plate		
wt. of plate+wet of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limits

Liquid Limit	N.P
plasticity index	
Soil Classification	Frequent Sub Grade

Eng. / CONSULTANT

Khaled Taki

Page 1 of 6

Eng. / CONTRACTOR

مكتب أبراج طابق الفيل
Electrical Express Train From Borg Alarab to Alamein

Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	1-Nov-23
Company	S.G - جوزي		
Station	شتى	Request NO	S.G 081

LOS ANGELES ABRASION

Test Class				A	B	C	D
Abrasive Charge (No of Sphere)				12	11	8	6
Sieves Passing		Retained		SAMPLE MASS gm			
mm	in	mm	in				
37.5	1 1/2 in	25	1 in	1250			
25	1in	19	3/4in	1250			
19	3/4 in	12.5	1/2in	1250	2500		
12.5	1/2 in	9.5	3/8in	1250	2500		
9.5	3/8 in	6.35	1/4in			2500	
6.35	1/4 in	1.75	No 4			2500	
4.75	No 4	2.36	No 8				5000
			TOTAL	5000	5000	5000	5000
Mass of Sample Before Test g				5000			
Mass of Sample Retained on 1.7 mm (No 12)				3565			
Los Angeles Wear (%) = 5000 - Mass Retained / 5000 x 100				29.7%			

Remarks:

Eng. / CONSULTANT

Khaled Taki

Eng. / CONTRACTOR

مكتب أ.د/ خالد قنديل

Electrical Express Train From Borg Alarab to Alamein

Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	1-Nov-23
Company	S.G - الفورس		
Station	المتون	Request NO	S.G.001

SAMPLE NO			1	AVE.
WEIGHT OF SAMPLE			2000	
WEIGHT OF OVEN DRY SAMPLE IN AIR	gm	A	1971	
WEIGHT OF SATURATED SURFACE DRY SAMPLE IN AIR	gm	B	2011	
WEIGHT OF SATURATED SURFACE DRY SAMPLE IN WATER	gm	C	1220	
BULK SP. GRAVITY (DRY BASIS)	gm	A/B-C	2.50	
BULK SP. GRAVITY (SSD BASIS)	gm	B/B-C	2.58	
APPARENT SPECIFIC GRAVITY	gm	A/A-C	2.62	
ABSORPTION	%	(B-A)/100 / A	1.82	
ABSORPTION	gm	B-A	36	
Degradation of aggregate	%	1000-A/A*100	1.45	

Eng. / CONSULTANT

Khaled Zaki

Eng. / CONTRACTOR

مكتب الفورس الجديد
للمقاولات العامة والتوريدات العامة
ت ٢٢٨٠٥٠٢٠١٢ ص.ب ٢١٦٣٩

Project	Electrical Express Train From Ring Alarab to Alarab (SET)	Date	1-Nov-21
Company	S.G - الجزيرة		
Station	لسان	Request NO.	S.D 001

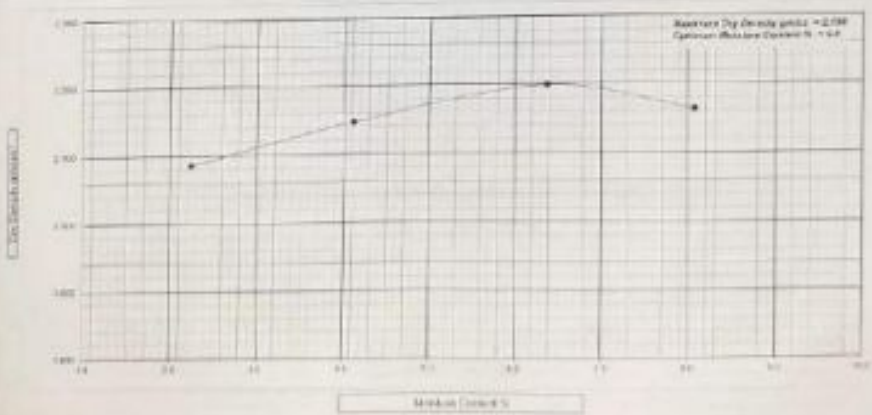
MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

MOISTURE CONTENT

	CONTAINER NUMBER			A	7	20	16	17	19	23	26		
A	MASS WET SOIL & TARE	gms		125.8	106.8	106.8	105.4	104.9	125.3	122.8	100.2		
B	MASS DRY SOIL & TARE	gms		123.9	105.1	103.5	101.2	98.8	116.6	116.3	96.2		
C	TARE MASS	gms		33.7	32.4	31.7	30.3	32.1	30.2	31.5	33.8		
D	MASS OF WATER	gms	A-B	2.0	1.7	2.9	4.2	6.2	8.7	6.5	5.0		
E	MASS OF DRY SOIL	gms	B-C	90.2	72.8	72.2	68.1	66.8	85.4	84.8	62.7		
F	MOISTURE CONTENT	%	D/E X 100	2.2	2.3	4.0	6.2	9.3	7.3	8.2	8.0		
	AVERAGE	%		2.2		5.1		8.4		8.1			

DRY DENSITY

	TRIAL NUMBER			1	2	3	4		
G	MASS OF MOLD & WET SOIL	gms		10658	10292	10610	10508		
H	MASS OF MOLD	gms		5429	5429	5429	5429		
I	MASS OF WET SOIL	gms	G-H	5229	4863	5021	5079		
J	VOLUME OF MOLD	cm³		2147	2147	2147	2147		
K	WET DENSITY	gm/cm³	I/J	2.435	2.265	2.339	2.366		
L	DRY DENSITY	gm/cm³	K/(1+F/100)	2.066	2.143	2.198	2.162		



Eng. / CONSULTANT

Khaled Taki

Eng. / CONTRACTOR

مكتب أ.د/ خالد قديل

Electrical Express Train From Borg Alarab to Alamein

Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	2-Nov-23
Company	S.G - قوريس		
Station	المشون	Request NO	S.G 001

Correction Of Dry Unit Weight And Water Content Of Total Material for Asoil Sample

According To ASTM D-4718

Calculation of dry mass of finer and oversize fractions

Mass of moist finer fraction (M_{mf})	4583	GM
Mass of moist oversize fraction (M_{mo})	2417	GM
Water content of finer fraction	6.3	%
Water content of oversize fraction	5.2	%
Dry mass of finer fraction (M_{df})	4311	GM
Dry mass of oversize fraction (M_{do})	2298	GM

Calculation of percentage of finer and oversize fractions by dry mass

Percentage of dry finer fraction (Pf)	65.2	%
Percentage of dry oversize fraction (Po)	34.8	%

Calculation of corrected water content and dry density of total sample

Specific gravity of oversize fraction (GM)	2.5	
Unit weight of water (γ_w)	0.98	GM/cm3
Dry density of finer fraction	2.10	GM/cm3
Corrected water content of total sample (Wt)	5.92	%
Corrected dry density of total sample	2.27	GM/cm3

Eng. / CONSULTANT

Khaled Qeti

Eng. / CONTRACTOR

مكتب إدارة مشاريع القطار

Electrical Express Train from Bang Alsadra to Alamein

Project	[illegible]	Station	[illegible]	TD
Company	[illegible]			
Date	[illegible]			
Request NO	SG 301			

California Bearing Ratio ASTM D 1883

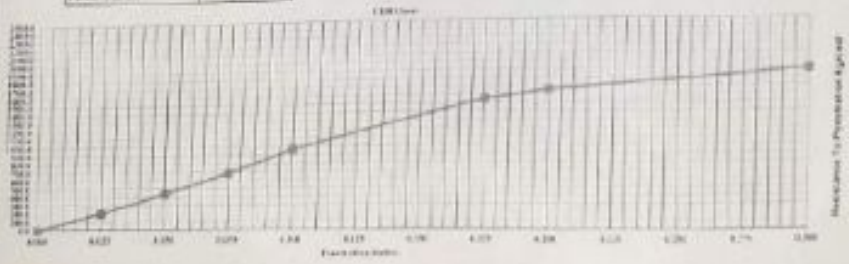
Molding Moisture Content				Density Determination			
Test No		[illegible]	[illegible]	Test No			
Can No		[illegible]	[illegible]	Mold Volume	cm^3		[illegible]
A Mass. Can	g	32.34	32.33	Mass Sample + Mold	g		[illegible]
B Mass. Wet Soil + Can	g	[illegible]	[illegible]	Mass Mold	g		[illegible]
C Mass. Dry Soil + Can	g	[illegible]	[illegible]	Mass Sample	g		[illegible]
D Mass. Moisture	g	8.0	9.08	Unit Wet Mass	g		[illegible]
E Mass. Dry Soil	g	[illegible]	[illegible]	Moisture Moisture	%		[illegible]
F Moisture %	%	6.9	6.7	Unit Dry Mass	cm^3		[illegible]
AVERAGE	%	0.65		Dried sectional area of plunger		19.35	cm^2

Penetration (mm)	0.64	1.27	1.90	2.54	4.8	5.08	7.62
Unit Load kg/cm2	139	431	676	968	1647	693	1386
				19%		80%	

Swell		
Date Molded		[illegible]
Mold No		[illegible]
Dial Height	mm	[illegible]
Final Height	mm	[illegible]
Difference	mm	0.01
Sample Length	mm	116.40
Percent Swell	%	0.01

Remarks

- Max Dry Density 2.18 g/cc
- Optimum Moisture Content 6.2 %
- No. of Blows 56
- CBR at 100% of Max Density 81.0 %



Eng. / CONSULTANT

Khaled Taki

Eng. / CONTRACTOR

MATERIAL APPROVAL REQUEST

EL-NAWRAS

(SARS)

Contractor Company	EL-NAWRAS FOR CONTRACTING			Designer Company				K.K.'s Engineering Consulting Office	
Issued by Contractor	Name	Sign		Date/Serial Number				Time	
	Eng. Sherif Rabbie			5/11/2023				12:00	
				M.A.R 8-1					
Reviewed by GAMC CONSULTANT	(K.K)	Khaled Zaki	MAR	C1	C2	C3	C4	YYYY	MM	DD	HH	MM
				002	FW	C1	13	31	2023	12	0

CONTRACT	E1 to E21	19 to 19	By KKK Note
	Station Reference	Layer Reference	For K.K.Laboratory to select only layer item is used
Work Activity	Work Activity		
Sub Element of Activity	Sub Element of Activity		

Description of Materials		R1- Layer Total Quantity (5000 m3)	Sub Grade
Location to be Used	From Station (332+300) to Station (332+800)		
Sample only	Yes	Materials Type	FILL LAYERS
Supplier Name	MAKA	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (C321-322.1) VERSION 2 (JANUARY 2022)
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Salad Saif (K.K.)	Comments by: Eng. Aiza Abd-Alhafit (PR)
QUALITY TEST RESULT BY THIRD PARTY LABORATORY IS APPROVED THIS SAMPLE REPRESENTATIVE (5000) M3 ONLY	1. All tests were carried out by third party lab. (Lab) 2. Results report attached are acceptable with the project specifications. 3. Final approval is subject to above mentioned comments. 4. Remaining chemical test results.

APPROVAL STATUS				
Organization	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif Rabbie			A
GAMC*	(K.K)	Khaled Zaki		A
GAMC**	Eng. Mergwet Magdi			
Employer's Representative	Eng. Aiza Abd-Alhafit		12-11-2023	AWC

* Designer
** Management Consultant

مكتب التوريد الجديد
للمقاولات العامة والتوريدات العامة
ت ٢٦٨٠٥٠٤٠١٢ ص.ب ٢٦٩٢١

Technical Report

Soil Validation Tests for Sub-grade soil

SG-01 (1-8)

Project

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

Prepared For

El-Nawras Company for General Contracting

Building No.3, first floor, El Sheikh Zayed, Ismailia

(November 12, 2023)

Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by El-Nawras Company for General Contracting to conduct soil tests on the backfill soil of the Electric Express Train (Sokhna - New capital - 6th of October city - New Elalamein city) in accordance with the ASTM standards. The tested samples of the soil were extracted from the backfill stockpiling of the of the project by the clinet and at his responsibility. The report summarizes the test results and their interpretations

Required Tests

The following tests were conducted according to the listed standards.

1-Sieve analysis of fine/coarse aggregate according to ASTM C136.

2- Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D4318)

3- Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (ASTM D1557-12 (2021))

4-Classification of soils and soil-aggregate mixtures for highway construction process. (AASHTO M145)

5- Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils (ASTM D1883-21)

6- Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine (ASTM C131 / 535)

7- Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate (ASTM C127-15)

Test Results:

Tests were conducted to determine the required characteristics of fine/coarse aggregate for soil sample extracted from backfill soil of the project. Appendix A includes Tables 1, 2, 3, 4, and 5 that indicate respectively the percentage fractions of each soil component, the Atterberg limits, results of modified proctor test, and CBR. Figure 1 depicts Soil Classification according to AASHTO.

Note:

1- The soil samples provided by the company were in a moist state, but the samples were not preserved by any means of protection to maintain their moisture content.

2- The results shown represent only the sample that have been tested and any use of them to represent other soil samples is the responsibility of the supplier.

مكتب النورس الجديد
للمقاولات العامة والتوريدات الخاصة

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

Civil Engineering Testing & Consulting Unit

وحدة اختبارات و استشارات الهندسة المدنية

SOIL TESTS REPORT

Company	El-Nawras Company for General Contracting
Project Owner	General Authority for Roads & Bridges
Project	Electric Express Train (Sokhna - New capital - 6th of October city - New
Project Consultant	SYSTRA
Sample No.	SG-01 (1-8)
Sample Loacation	Stockpile

1- Sieve Analysis

Fig. 1

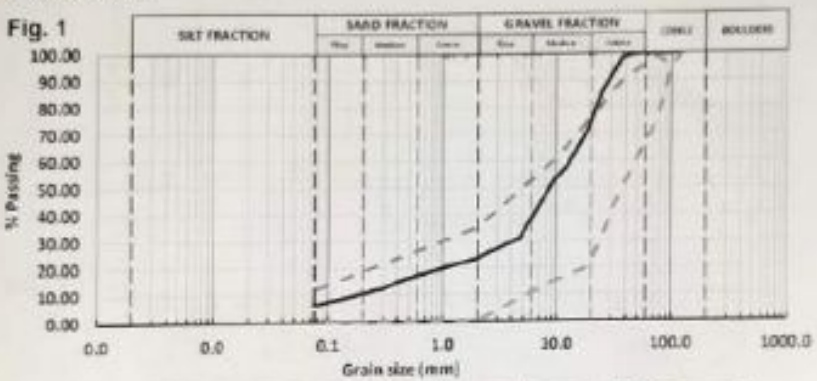


Table 1:

% Gravel	76.60
% Sand	17.21
% Fine (passing Sieve no. 200)	6.20
Nominal maximum partic size	>1.5 in

2- Liquid Limit, Plastic Limit, and Plasticity Index

Table 2:

Plastic Limit %	N.P.
Liquid Limit %	N.P.
Plasticity Index %	N.P.

3- Soil Classification (according to AASHTO classification system)

Tested soil sample is classified as A-1-a (Stone Fragments, Gravel and Sand) as shown in Fig.1 , which is presented in Appendix A of this report.

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Mobile: +201155631725

مكتب الفورس الجديد
للمقاولات العامة والتوريدات العامة

4- Compaction characteristics (Modified Proctor Test)

Fig. 2:

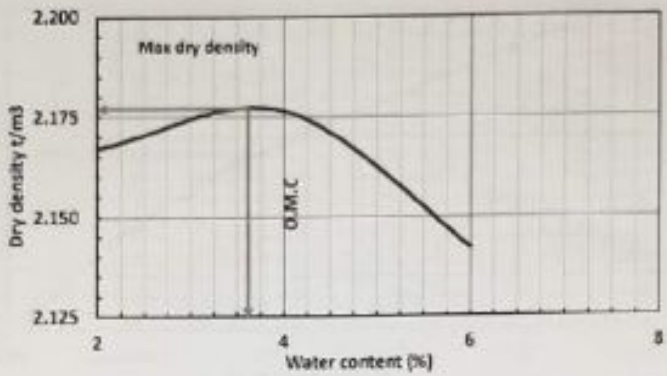

Table 3:

Maxium dry density (t/m³)	2.18
Corrected Maxium dry density (t/m³)	2.28
Optimum water content (%)	3.80
Corrected optimum water content (%)	3.13

5- Characteristics of oversized fractions:

Table 4:

Percentage of dry oversized fractions (%)	32.22
Bulk specific gravity of oversized fraction	2.53
The percentage of water absorption of crushed stone (%)	1.6%

6- California Bearing Ratio (CBR) Test Results

Fig. 3:

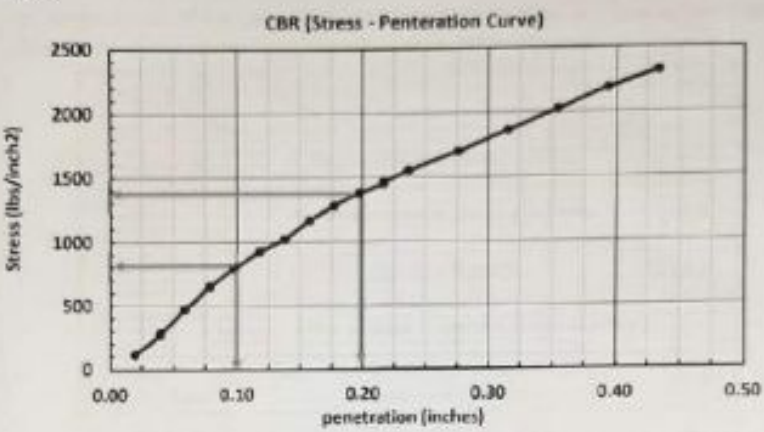

Table 5:

4-days soaked California bearing ratio (CBR) at compation ratio of 100%	97.4 %
Swelling Ratio %	0.00 %

7- Los Angeles Abrasion test

Percentage of wear after 500 revolutions:

Los Angeles Abrasion value	26.0%

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة

5 - Closure

Test results presented herein report for Soil Validation Tests for Sub-grade soil of the project: Electric Express Train (Sokhna - New capital - 6th of October city - New Elalamein city) summriesd at the following table:

Results		
Sieve Analysis	The seive analysis results are shown in Fig. 1.	
	Fraction passing Sieve no. 200 %	6.2 %
	Norninal maximum partic size (mm)	>1.5 in
Soil classification	Plasticity Index %	N.P.
	A-1-a (Stone Fragments, Gravel and Sand)	
California Bearing Ratio	4-day soaked California bearing ratio (CBR) at compation ratio of 100%	97.4 %
Los Angeles	Los Angeles Abrasion value	26 %
Swelling	Swelling Ratio %	0.00%
Compaction Characteristics	Corrected Maxium dry density (t/m^3)	2.28
	Corrected optimum moisture content %	3.13

Note: The results shown represent only the samples that have been tested and any use of them to represent other quantities is the responsibility of the supplier.

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

Lab Engineer
Mohamed A. Al-Najjar

مكتب الشورى الجديد
للمقاولات العامة والتوريدات العامة
ت : ٢٢٦٦٢١

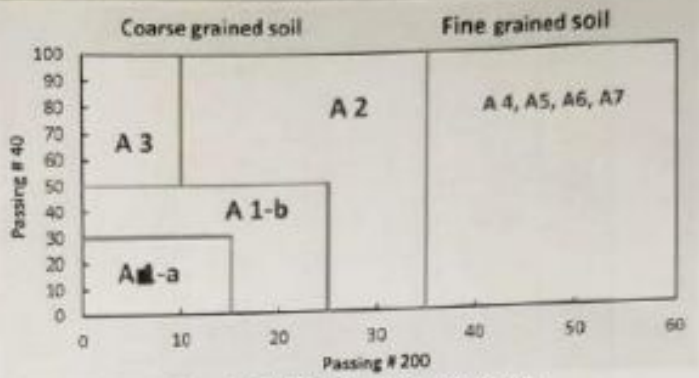

Figure 1: Soil Classification according to AASHTO

Mold volume (cm3)	2124	Mold weight (g)	6785	
Water ratio %	WT.soil + mold gm	Wet soil Wt. gm	WET Unit Wt. gm	Dry Unit Wt. gm
2	11480	4695	2.210	2.167
4	11593	4808	2.264	2.177
6	11608	4823	2.271	2.142
0	0	0	0.000	0.000
0	0	0	0.000	0.000
0	0	0	0.000	0.000

Table 3: Modified Proctor test results

مكتب الشورى الجديد
للاستشارات الهندسية والتوريدات العامة

MATERIAL INSPECTION REQUEST

Contractor Company	EL-NAWRAS FOR CONTRACTING		Designer Company				(K.K.) Engineering Consulting Office		
			Date/Serial Number 368/03				Time		
Issued by Contractor	Name: Eng. Osama Youssef	Sign: eSama Youssef	P.L.T. 01				12:00 PM		
Received by GARB CONSULTANT	Eng. Saied Saif	Ezzelamouna	CS: 332	CS: EW	CS: 03	CS: 01	MM: 7	YY: 2023	HH: 12 / MM: 0

	01 to 001	01 to 01	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km to used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Red Excavation Soil				
Location to be Used	From	332+300	TO	332+500	
MAR & UIR Approval No	UIR C-01	Date	24/07/23		
	MAR C 01		23/7/2023		
Supplier Name					
Test Requirement	P.L.T(DIN 18134)	Specification	SAITNAWAR SPECIFICATIONS & TESTING REPORT 2021-R1.0 VERSION 1 BY CIVISION GROUP		
Reference Photo	No/Yes	Other			

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOADING TEST	PT	2	24/6/23	
2					
3					
4					

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-Plate Loading Test P.L.T (DIN18134) is Approved.	1-P.L.T was carried out by E-JUST for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Osama Youssef	eSama Youssef		A
QA/QC *	Eng. Saied Saif	Ezzelamouna		
GARB**	Eng. Margret Magdi			
Employer Representative	Eng. Alaa Abd-Allatif		8-7-2023	A-W-C

مكتب السوس الجديد
للمقاولات العامة والتوريدات العامة
ب.ت: ٢١١٢٠٥٠٧٢٨ س.ت: ٢١٦٢٩

Technical Report

Plate Loading Tests

KM 332+340 and KM 332+440

Native Soil

Project

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

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ش ١٦٢ ، ٢٠٢ ، ٧٢٨ س.ت : ٢١٦٢٩

Prepared for

El-Nawras Company for General Contracting

Building No.3, first floor, El-Sheikh Zayed, Ismailia

يعتمد ،،،
أمين عام الجامعة
لواء مهندس / أسامة كمال

(July 27, 2023)

E-JUST CETC

1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by El-Nawras Company for General Contracting to conduct two plate loading tests on the Native Soil of the Electric Express Train project at two locations (KM 332+340 and KM 332+440) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Ahmed Mohamed Amr of El-Nawras Company for General Contracting. Field team members (Sameh Hassan & Ahmed Sabry) from the working CETCU team visited the project site on July 27, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ت: ٢٤١٦٢٩

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was 33± 1°C.
- The plate was carried out on a Native Soil (according to the company) at two points (KM 332+340 and KM 332+440). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose loader CAT 972G.

E-JUST CETC Trans.

3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m2 was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m2 was reached, and the loading increment was 0.025 MN/m2. The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. Two plate loading tests on the Native Soil of the Electric Express Train project were conducted at two locations (KM 332+340 and KM 332+440) and the data collected at the two test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+340), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+340)

Loading stage	Load (F)	Normal stress (σ_n)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.24
2	14.14	0.050	0.31
3	21.21	0.075	0.43
4	28.28	0.100	0.54
5	35.35	0.125	0.63
6	42.42	0.150	0.77
7	49.49	0.175	0.85
8	56.56	0.200	0.93
9	63.63	0.225	1.07
10	70.7	0.250	1.18
11	56.56	0.200	1.12
12	49.49	0.175	1.07
13	35.35	0.125	0.95
14	21.21	0.075	0.79
15	1.414	[illegible]	0.16

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ت.ت ٧٢٨٠٥٠٥٠١٩٢ س.ت ٢١٦٢٥

Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+340)

Loading stage	Load (F)	Normal stress (σ_n)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.16
1	7.07	0.025	0.39
2	14.14	0.050	0.47
3	21.21	0.075	0.61
4	28.28	0.100	0.68
5	35.35	0.125	0.77
6	42.42	0.150	0.87
7	49.49	0.175	0.95
8	56.56	0.200	1.05
9	63.63	0.225	1.08

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 332+340) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 332+440) is provided in Tables 4-6 and Figure 2.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+340)

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0,max})$ MN/m^2	0.25	0.25
a_0 (mm)	0.13	0.19
a_1 (mm/(MN/m^2))	3.96	5.98
a_2 (mm/($MN2/m^4$))	0.91	-8.91
$Ev = 1.5\, r/(a_1 + a_2 \cdot \sigma_{0,max})$	107.55	119.76
Ev_2/Ev_1	1.11	

مكتب المشاورس الجديد
للمقاولات العامة والتوريدات العامة
ت خ ٢٢٨٠٥٠٥٠١٢٢ س ت : ٢١٩٢٩

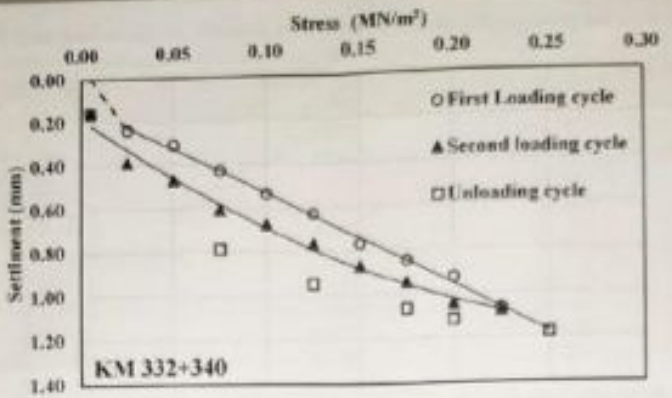

Figure 1: Load-settlement data: plate loading test performed at (KM 332+340)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+440)

Loading stage	Load (F)	Normal stress (σ_n)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.39
2	14.14	0.050	0.54
3	21.21	0.075	0.68
4	28.28	0.100	0.84
5	35.35	0.125	1.05
6	42.42	0.150	1.29
7	49.49	0.175	1.48
8	56.56	0.200	1.68
9	63.63	0.225	1.85
10	70.7	0.250	2.08
11	56.56	0.200	2.03
12	49.49	0.175	1.98
13	35.35	0.125	1.74
14	21.21	0.075	1.46
15	[illegible]	0.005	[illegible]

مكتب المتنوس الجديد
للمقاولات العامة والتوريدات العامة
ت ٢١٦٢٩ ، ٢٩٨٠٥٠١٩٢ ص.ب

Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+440)

Loading stage	load (F)	Normal stress (σ_v)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.38
1	7.07	0.025	0.68
2	14.14	0.050	0.87
3	21.21	0.075	1.05
4	28.28	0.100	1.26
5	35.35	0.125	1.43
6	42.42	0.150	1.59
7	49.49	0.175	1.73
8	56.56	0.200	1.86
9	63.63	0.225	1.94

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+440)

Parameters	1st loading cycle	2nd loading cycle
($s_{o,max}$) MN/m^2	0.25	0.25
a_0 (mm)	0.21	0.37
a_1 (mm/(MN/m^2))	8.11	10.48
a_2 (mm/($MN2/m^4$))	5.58	-15.48
$Ev = 1.5\,r/(a_0+a_1\cdot s_{o,max})$	**59.93**	**68.12**
Ev_2/Ev_1	1.14	

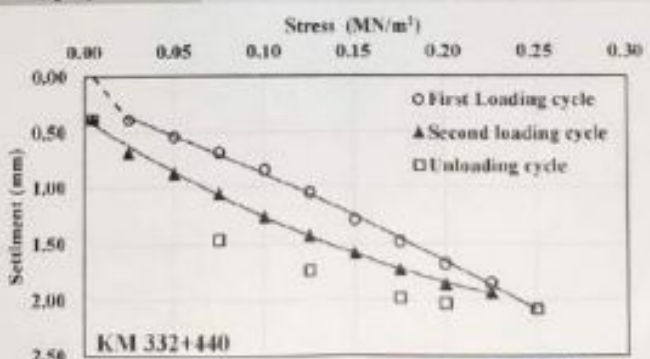

Figure 2: Load-settlement data: plate loading test performed at (KM 332+440)

4. Closure

Test results presented herein report the load-settlement data obtained from two plate loading tests conducted on the Native Soil of the Electric Express train project at two locations (KM 332+340 and KM 332+440) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m2	E_{v2} MN/m2	E_{v2}/E_{v1} ratio
KM 332+340	107.55	119.76	1.11
KM 332+440	59.93	68.12	1.14

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

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar

مكتب الفورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ص. ٩٢٨٠٥٥٠١٨٢ س.ت. ٢١٦٢٩

E-JUST CETC Unit

Appendix A

مكتب الفورس الجديد
للمقاولات العامة والتوريدات الإدارية
ب.ق: ١٧٢٨٠٥/٤٠٠٠ س.ت: ٢٠٢٠٠٠

E-JUST CETC Unit

Location of test site:	KM 332+340		Field team	Sameh Hassan & Ahmed Sabry
Project title:	Electric Express Train Project - El-Nasrien Company for General Contracting		Date:	27/7/2023
Diameter of loading plate	600		Time	9:40:00 AM
				10:07:00 AM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Native Soil			
Bedding material	Sand Layer			
Temperature	33°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.76	
	2	14.14	9.69	
	3	21.21	9.57	
	4	28.28	9.46	
	5	35.35	9.37	
	6	42.42	9.23	
	7	49.49	9.15	
	8	56.56	9.07	
	9	63.63	8.93	
	10	70.7	8.82	
Unloading Stage	11	56.56	8.88	
	12	49.49	8.93	
	13	35.35	9.05	
	14	21.21	9.21	
	15	1.414	9.84	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.84	
	1	7.07	9.61	
	2	14.14	9.53	
	3	21.21	9.39	
	4	28.28	9.32	
	5	35.35	9.23	
	6	42.42	9.13	
	7	49.49	9.05	
	8	56.56	8.98	
	9	63.63	8.91	

مكتب النسور الجديد للمقاولات العامة والتوريدات العامة

Location of test site:	KM 332+440		Field team	Sameh Hassan & Ahmed Sabry
Project title:	Electric Express Train Project - El-Sawwan Company for General Contracting		Date:	27/7/2023
Diameter of loading plate	600		Time	10:12:00 AM 10:39:00 AM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Native Soil			
Bedding material	Sand Layer			
Temperature	33°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.61	
	2	14.14	9.46	
	3	21.21	9.32	
	4	28.28	9.16	
	5	35.35	8.95	
	6	42.42	8.71	
	7	49.49	8.52	
	8	56.56	8.32	
	9	63.63	8.15	
	10	70.7	7.92	
Unloading Stage	11	56.56	7.97	
	12	49.49	8.02	
	13	35.35	8.26	
	14	21.21	8.54	
	15	1.414	9.62	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.62	
	1	7.07	9.32	
	2	14.14	9.13	
	3	21.21	8.95	
	4	28.28	8.74	
	5	35.35	8.57	
	6	42.42	8.41	
	7	49.49	8.27	
	8	56.56	8.14	
	9	63.63	[illegible]	

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض. ١٦٢ ، ٥٠٥ ، ٧٨ س.ت. ٢٤٦٣٩

E-mail: [illegible]@ejust.edu.eg
Mobile: +201555631725

MATERIAL INSPECTION REQUEST								
Contractor Company	EL-NAWRAS FOR CONTRACTING			Designer Company			(K.K.) Engineering Consulting Office	
Issued by Contractor	Name	Sign		Date/Serial Number			Time	
	Eng. Sherif Rabie'			23/08/23			12:00 PM	
				P.L.T. 02				
Received by GARB CONSULTANT	(K.K)			01	02	03	04	05
				232	500	700	31	0

0000-1	01 to 001	01 to 02	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start for is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Bad Excavation Soil			
Location to be Used	From	332+500	TO	332+700
MAR & UIR Approval No	UIR C-02	Date	14/08/23	
	MAR C 02		23/7/2023	
Supplier Name				
Test Requirement	P.L.T (DIN 18134)	Specification	SHITTY NOW SPECIFICATIONS & TESTING REPORT (2021-ef 2) VERSION 2 BY CHEDDA GROUP	
Reference Photos	No/Nos	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOADING TEST			24/8/23	
2					
3					
4					

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-Plate Loading Test P.L.T (DIN18134) is Approved.	1-P.L.T was carried out by R-JUST for both contractor and GARB Consultant. 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-A/W/C-R
Contractor	Eng. Sherif Rabie'			A
GAGC *	(K.K)			
GARB**	Eng. Margret Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		24-8-2023	AWC

مكتب الملوس الجديد
للمقاولات العامة والتوريدات
ب.ج.ر: ١٢٠٥٠٥٠٢٢٨ س.ت: ١٠٩٩٠

Technical Report

Plate Loading Tests

KM 332+600 to 332+660 and KM 332+500 to 332+600

Native Soil

Project

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

Prepared for

El-Nawras Company for General Contracting

Building No.3, first floor, El-Sheikh Zayed, Ismailia

(August 21, 2023)

1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by El-Nawras Company for General Contracting to conduct two plate loading tests on the Native Soil of the Electric Express Train project at two locations (KM 332+600 to 332+660 and KM 332+500 to 332+600) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Ahmed Mohamed Amr of El-Nawras Company for General Contracting. Field team members (Sameh Hassan) from the working CETCU team visited the project site on August 21, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was 30± 1°C.
- The plate was carried out on a Native Soil (according to the company) at two points (KM 332+600 to 332+660 and KM 332+500 to 332+600). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate with the reaction loading system and secured against tilting.
- The reaction loading system was a heavy mobil crane Liebher CAT 972G.

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3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m2 was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m2 was reached, and the loading increment was 0.025 MN/m2. The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. Two plate loading tests on the Native Soil of the Electric Express Train project were conducted at two locations (KM 332+600 to 332+660 and KM 332+500 to 332+600) and the data collected at the two test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+660), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+660)

Loading stage	Load (F)	Normal stress (σ_n)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.24
2	14.14	0.050	0.43
3	21.21	0.075	0.57
4	28.28	0.100	0.71
5	35.35	0.125	0.83
6	42.42	0.150	0.96
7	49.49	0.175	1.14
8	56.56	0.200	1.24
9	63.63	0.225	1.38
10	70.7	0.250	1.50
11	56.56	0.200	1.46
12	49.49	0.175	1.41
13	35.35	0.125	1.29
14	21.21	[illegible]	1.13
15	1.414	0.005	0.29

مكتب الشورق الجديد
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E-JUST CETC Unit

Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+660)

Loading stage	Load (F) kN	Normal stress (σ_v) MN/m²	Settlement (S) mm
0	1.414	0.005	0.29
1	7.07	0.025	0.57
2	14.14	0.050	0.69
3	21.21	0.075	0.86
4	28.28	0.100	0.97
5	35.35	0.125	1.04
6	42.42	0.150	1.14
7	49.49	0.175	1.25
8	56.56	0.200	1.33
9	63.63	0.225	1.39

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 332+600 to 332+660) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 332+500 to 332+600) is provided in Tables 4-6 and Figure 2.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+600 to 332+660)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m²	0.25	0.25
a_0 (mm)	0.10	0.32
a_1 (mm/(MN/m²))	6.29	7.76
a_2 (mm/(MN2/m⁴))	-2.79	-13.76
$Ev = 1.5\ r'\ (a_1+a_2 \cdot s_{0,max})$	80.52	104.09
Ev_2/Ev_1	1.29	

مكتب الفورس الجديد للمقاولات العامة والتوريدات العامة
E-JUST CETC Unit

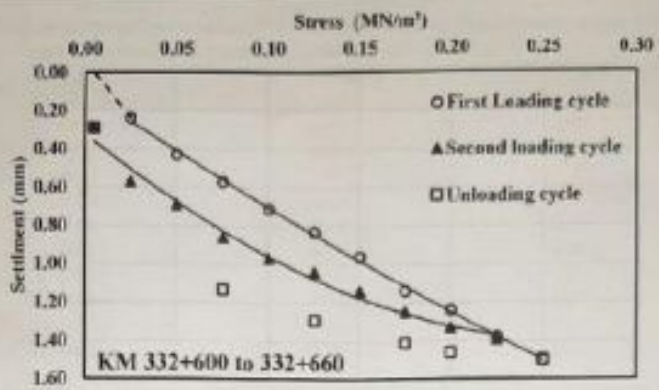

Figure 1: Load-settlement data: plate loading test performed at (KM 332+600 to 332+660)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+600)

Loading stage	Load (F)	Normal stress (σ_n)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.46
2	14.14	0.050	0.68
3	21.21	0.075	0.92
4	28.28	0.100	1.05
5	35.35	0.125	1.40
6	42.42	0.150	1.72
7	49.49	0.175	1.95
8	56.56	0.200	2.27
9	63.63	0.225	2.54
10	70.7	0.250	2.77
11	56.56	0.200	2.70
12	49.49	0.175	2.66
13	35.35	0.125	2.40
14	21.21	0.075	2.03
15	1.414	0.005	0.47

Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+600)

Loading stage	Load (F) kN	Normal stress (σ_n) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.47
1	7.07	0.025	0.89
2	14.14	0.050	1.08
3	21.21	0.075	1.39
4	28.28	0.100	1.60
5	35.35	0.125	1.84
6	42.42	0.150	2.05
7	49.49	0.175	2.27
8	56.56	0.200	2.46
9	63.63	0.225	2.65

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+500 to 332+600)

Parameters	1st loading cycle	2nd loading cycle
($s_{B,max}$) MN/m^2	0.25	0.25
a_0 (mm)	0.22	0.49
a_1 (mm/(MN/m^2))	8.65	12.70
a_2 (mm/(MN2/m^4))	6.97	-14.06
$Ev = 1.5\, r/(a_1 + a_2 \cdot s_{B,MAX})$	43.30	49.01
Ev_2/Ev_1	1.13	

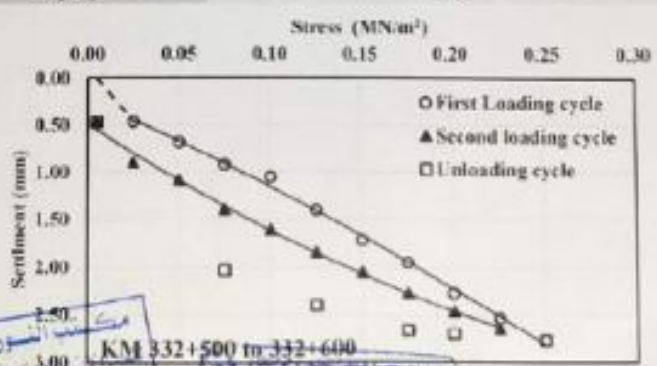

Figure 2: Load settlement data plate loading test performed at (KM 332+500 to 332+600)

4. Closure

Test results presented herein report the load-settlement data obtained from two plate loading tests conducted on the Native Soil of the Electric Express train project at two locations (KM 332+600 to 332+660 and KM 332+500 to 332+600) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m2	E_{v2} MN/m2	E_{v2}/E_{v1} ratio
KM 332+600 to 332+660	80.52	104.09	1.29
KM 332+500 to 332+600	43.30	49.01	1.13

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

Technical committee

Dr. Mahmoud Ahmed

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar

E-JUST CETC Unit
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E-JUST CETC Unit

MATERIAL INSPECTION REQUEST

Contractor	EL-NAWRAS FOR CONTRACTING		Designer Company	(K.K.) Engineering Consulting Office
Issued by Contractor	Name: Eng. Sherif Rabbie	Sign	Date/Serial Number: 06/10/23 F.L.T._03	Time: 12:00 PM
Required by GARB CONSULTANT	(K.K)	Khaled Zaki	MIR	

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

Description of Materials	-1.5			
Location to be Used	From: 332+390		TO	332+700
MAR & UIR Approval No	UIR F28,F29,F30,F31		Date	
	M.A.R 4			12/09/23
Supplier Name				
Test Requirement	P.L.T(DIN 18134)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT 2021-11-2-VERSION 2 BY CONCON GROUP
Reference Photos	No/Yes		Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOADING TEST		4	3/10/23	
2					
3					
4					

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-Plate Loading Test P.L.T (DIN18134) by the third part is Approved.	1-P.L.T was carried- out by E-JUST 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif Rabbie			A
GIVOC *	(K.K)	Khaled Zaki		A
GARB**	Eng. Margret Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		5-10-2023	AWC

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب ض ٩٦٨٠٥٠٥٠١٢ س ت ٢١٦٣٩

Technical Report

Plate Loading Tests

KM 332+300 to 332+400, KM 332+400 to 332+500, KM 332+500 to 332+600, and KM 332+600 to 332+700

(Middle Embankment (-1.5 m))

Project

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

Prepared for

El-Nawras Company for General Contracting

Building No.3, first floor, El-Sheikh Zayed, Ismailia

(October 5, 2023)

1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by El-Nawras Company for General Contracting to conduct 4 plate loading tests on the Middle Embankment (-1.5 m) of the Electric Express Train project at 4 locations (KM 332+300 to 332+400, KM 332+400 to 332+500, KM 332+500 to 332+600, and KM 332+600 to 332+700) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Ahmed Mohamed Amr of El-Nawras Company for General Contracting. Field team members (Mr.Ahmed Sabry) from the working CETCU team visited the project site on October 5, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was 29± 1°C.
- The plate was carried out on a Middle Embankment (-1.5 m) (according to the company) at 4 points (KM 332+300 to 332+400, KM 332+400 to 332+500, KM 332+500 to 332+600, and KM 332+600 to 332+700). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose loader CAT 972G.

3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m2 was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m2 was reached, and the loading increment was 0.025 MN/m2. The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 4 plate loading tests on the Middle Embankment (-1.5 m) of the Electric Express Train project were conducted at 4 locations (KM 332+300 to 332+400, KM 332+400 to 332+500, KM 332+500 to 332+600, and KM 332+600 to 332+700) and the data collected at the 4 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+400), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+400)

Loading stage	Load (F)	Normal	Settleme
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.10
2	14.14	0.050	0.20
3	21.21	0.075	0.30
4	28.28	0.100	0.41
5	35.35	0.125	0.53
6	42.42	0.150	0.64
7	49.49	0.175	0.74
8	56.56	0.200	0.80
9	63.63	0.225	0.90
10	70.7	0.250	1.02
11	56.56	0.200	1.02
12	49.49	0.175	0.96
13	35.35	0.125	0.86
14	21.21	0.075	0.73
15	1.414	0.005	0.23

مكتب المشروعات الجديدة للمقاولات العامة والتوريدات العامة
ش ١٢٢ ش ٢٦ يوليو - ١١٦٢٩

Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+400)

Loading stage	Load (F) kN	Normal stress (σ_n) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.23
1	7.07	0.025	0.40
2	14.14	0.050	0.50
3	21.21	0.075	0.56
4	28.28	0.100	0.63
5	35.35	0.125	0.72
6	42.42	0.150	0.80
7	49.49	0.175	0.87
8	56.56	0.200	0.92
9	63.63	0.225	0.98

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 332+300 to 332+400) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 332+400 to 332+500) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 332+500 to 332+600) is provided in Tables 7-9 and Figure 3. The testing data corresponding to the fourth testing point (KM 332+600 to 332+700) is provided in Tables 10-12 and Figure 4.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+300 to 332+400)

Parameters	1st loading cycle	2nd loading cycle
($s_{v,max}$) MN/m^2	0.25	0.25
a_0 (mm)	-0.02	0.25
a_1 (mm/(MN/m²))	4.59	4.64
a_2 (mm/(MN2/m²))	-1.88	-6.37
$Ev_1 = 1.5\ e\ (a_1+a_2 \cdot s_{v,max})$	109.34	147.48
Ev_2/Ev_1	1.35	

مكتب المندوس الجديد
للمقاولات العامة والتوريدات العامة

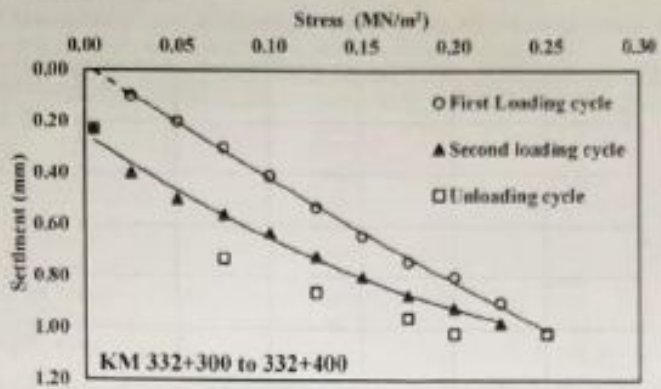

Figure 1: Load-settlement data: plate loading test performed at (KM 332+300 to 332+400)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+400 to 332+500)

Loading stage	Load (F)	Normal stress (σ_o)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.15
2	14.14	0.050	0.25
3	21.21	0.075	0.40
4	28.28	0.100	0.58
5	35.35	0.125	0.71
6	42.42	0.150	0.86
7	49.49	0.175	0.98
8	56.56	0.200	1.10
9	63.63	0.225	1.19
10	70.7	0.250	1.30
11	56.56	0.200	1.30
12	49.49	0.175	1.30
13	35.35	0.125	1.15
14	21.21	0.075	1.03
15	1.414	0.005	0.56

مكتب النورس الجديد للمقاولات العامة والتوريدات العامة

Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+400 to 332+500)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m²	Settlement (S) mm
0	1.414	0.005	0.56
1	7.07	0.025	0.65
2	14.14	0.050	0.72
3	21.21	0.075	0.82
4	28.28	0.100	0.90
5	35.35	0.125	1.00
6	42.42	0.150	1.09
7	49.49	0.175	1.15
8	56.56	0.200	1.22
9	63.63	0.225	1.30

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+400 to 332+500)

Parameters	1st loading cycle	2nd loading cycle
(s_o,max) MN/m²	0.25	0.25
a_0 (mm)	-0.05	0.54
a_1 (mm/(MN/m²))	6.75	3.94
a_2 (mm/(MN2/m⁴))	-5.34	-2.53
Ev= 1.5 r/ (a_1+a_2. $s_{o,max}$)	83.11	136.20
Ev_2/Ev_1	1.64	

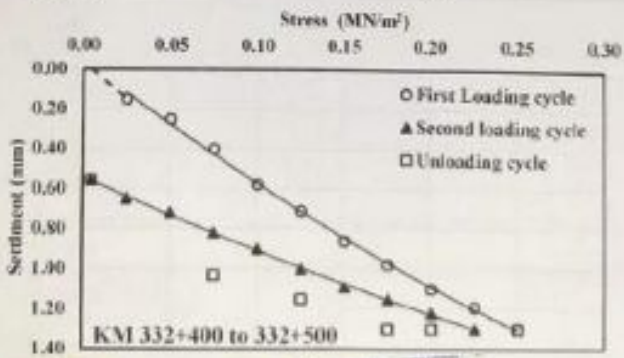

Figure 2: Load-settlement data: plate loading test performed at (KM 332+400 to 332+500)

Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+600)

Loading stage	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.25
2	14.14	0.050	0.35
3	21.21	0.075	0.44
4	28.28	0.100	0.53
5	35.35	0.125	0.66
6	42.42	0.150	0.80
7	49.49	0.175	0.93
8	56.56	0.200	1.04
9	63.63	0.225	1.14
10	70.7	0.250	1.28
11	56.56	0.200	1.28
12	49.49	0.175	1.23
13	35.35	0.125	1.13
14	21.21	0.075	0.97
15	1.414	0.005	0.40

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+600)

Loading stage	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement (S) mm
0	1.414	0.005	0.40
1	7.07	0.025	0.51
2	14.14	0.050	0.60
3	21.21	0.075	0.69
4	28.28	0.100	0.83
5	35.35	0.125	0.90
6	42.42	0.150	1.00
7	49.49	0.175	1.10
8	56.56	0.200	1.14
9	63.63	0.225	1.25

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+500 to 332+600)

Parameters	1st loading cycle	2nd loading cycle
(s_n,max) MN/m²	0.25	0.25
a_0 (mm)	0.14	0.38
a_1 (mm/(MN/m²))	3.87	4.68
a_2 (mm/(MN2/m²))	3.79	3.79
$Ev = 1.6\ r/(a_0+a_1 \cdot s_{n,max})$	96.44	120.69
Ev_2/Ev_1		

مكتب المتوسط الجديد
للمقاولات العامة والتوريدات العامة
ب.ت: ٢٩٨٠٥٠٥٠١٢٢ ، س.ت: ٢١٦٢٩

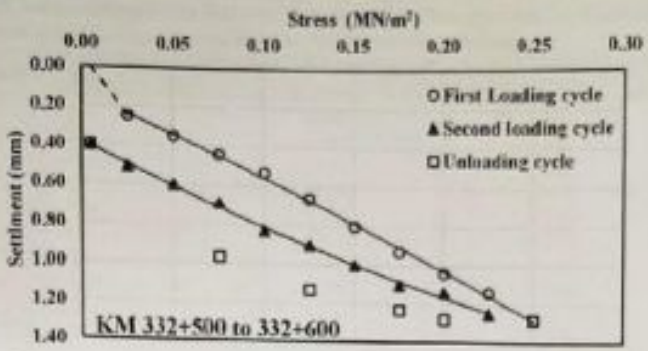

Figure 3: Load-settlement data: plate loading test performed at (KM 332+500 to 332+600)

Table 10: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+700)

Loading stage	Load (F) kN	Normal stress (σ_0) MN/m²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.13
2	14.14	0.050	0.36
3	21.21	0.075	0.60
4	28.28	0.100	0.78
5	35.35	0.125	1.05
6	42.42	0.150	1.30
7	49.49	0.175	1.43
8	56.56	0.200	1.51
9	63.63	0.225	1.63
10	70.7	0.250	1.79
11	56.56	0.200	1.79
12	49.49	0.175	1.69
13	35.35	0.125	1.57
14	21.21	0.075	1.40
15	1.414	0.005	0.72

مكتب الفارس الجديد
استشارات هندسية والموردات العامة

Table 11: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+700)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m²	Settlement (S) mm
0	1.414	0.005	0.72
1	7.07	0.025	0.91
2	14.14	0.050	1.01
3	21.21	0.075	1.17
4	28.28	0.100	1.30
5	35.35	0.125	1.40
6	42.42	0.150	1.53
7	49.49	0.175	1.60
8	56.56	0.200	1.69
9	63.63	0.225	1.76

Table 12: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+600 to 332+700)

Parameters	1st loading cycle	2nd loading cycle
(s_o,max) MN/m²	0.25	0.25
a_o (mm)	-0.18	0.71
a_1 (mm/(MN/m²))	11.82	6.87
a_2 (mm/(MN2/m²))	-15.01	-5.80
Ev= 1.5 r/ (a_1+a_2. $s_{o\,MAX}$)	57.58	101.76
Ev_2/Ev_1	1.77	

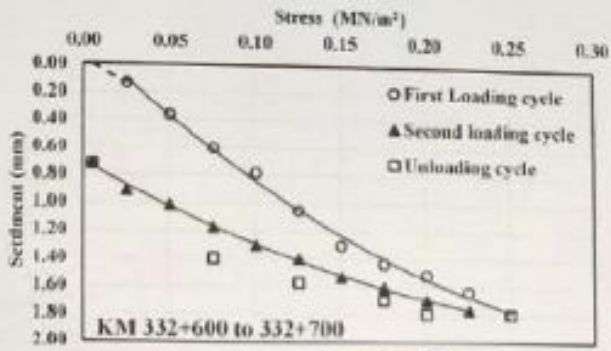

Figure 4: Load-settlement data: plate loading test performed at (KM 332+600 to 332+700)

مكتب الشورى الجديد
للمقاولات العامة والتوريدات العامة

4. Closure

Test results presented herein report the load-settlement data obtained from 4 plate loading tests conducted on the Middle Embankment (-1.5 m) of the Electric Express train project at 4 locations (KM 332+300 to 332+400, KM 332+400 to 332+500, KM 332+500 to 332+600, and KM 332+600 to 332+700) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m2	E_{v2} MN/m2	E_{v2}/E_{v1} ratio
KM 332+300 to 332+400	109.34	**147.48**	1.35
KM 332+400 to 332+500	83.11	**136.20**	1.64
KM 332+500 to 332+600	98.44	**120.69**	1.23
KM 332+600 to 332+700	57.58	**101.76**	1.77

• Note: Before interpreting these test results for future applications, the Middle Embankment (-1.5 m) in-situ variability between the testing locations should be considered.

Technical committee

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة

Appendix A

مكتب النورس الجديد
للاستشارات العامة والتوريدات العامة
ت. ٢٦٦٢٩

Location of test site:	KM 332+300 to 332+400		Field team	Mr.Ahmed Salsy
Project title:	Electric Express Train Project - El-Nawras Company for General Contracting		Date:	5/10/2023
Diameter of loading plate	600		Time	9:30:00 AM
				9:57:00 AM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Middle Embankment (-1.5 m)			
Bedding material	---			
Temperature	29°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.90	
	2	14.14	9.80	
	3	21.21	9.70	
	4	28.28	9.59	
	5	35.35	9.47	
	6	42.42	9.36	
	7	49.49	9.26	
	8	56.56	9.20	
	9	63.63	9.10	
	10	70.7	8.98	
Unloading Stage	11	56.56	8.98	
	12	49.49	9.04	
	13	35.35	9.14	
	14	21.21	9.27	
	15	1.414	9.77	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.77	
	1	7.07	9.60	
	2	14.14	9.50	
	3	21.21	9.44	
	4	28.28	9.37	
	5	35.35	9.28	
	6	42.42	9.20	
	7	49.49	9.13	
	8	56.56	9.08	
	9	63.63	9.02	

مكتب الشورى التجديد
للاستشارات الهندسية والتوريدات العامة

Location of test site:	KM 332+400 to 332+500		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - El-Nasrat Company for General Contracting		Date:	5/10/2023
Diameter of loading plate	600		Time	10:02:00 AM
				10:30:00 AM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Middle Embankment (-1.5 m)			
Bedding material	---			
Temperature	29°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.85	
	2	14.14	9.75	
	3	21.21	9.60	
	4	28.28	9.42	
	5	35.35	9.29	
	6	42.42	9.14	
	7	49.49	9.02	
	8	56.56	8.90	
	9	63.63	8.81	
	10	70.7	8.70	
Unloading Stage	11	56.56	8.70	
	12	49.49	8.70	
	13	35.35	8.85	
	14	21.21	8.97	
	15	1.414	9.44	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.44	
	1	7.07	9.35	
	2	14.14	9.28	
	3	21.21	9.18	
	4	28.28	9.10	
	5	35.35	9.00	
	6	42.42	8.91	
	7	49.49	8.85	
	8	56.56	8.78	
	9	63.63	8.70	

Location of test site:	KM 332+500 to 332+600		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - El-Nawras Company for General Contracting		Date:	5/10/2023
Diameter of loading plate	600		Time	10:35:00 AM
				11:02:00 AM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Middle Embankment (-1.5 m)			
Bedding material	---			
Temperature	29°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.75	
	2	14.14	9.65	
	3	21.21	9.56	
	4	28.28	9.47	
	5	35.35	9.34	
	6	42.42	9.20	
	7	49.49	9.07	
	8	56.56	8.96	
	9	63.63	8.86	
	10	70.7	8.72	
Unloading Stage	11	56.56	8.72	
	12	49.49	8.77	
	13	35.35	8.87	
	14	21.21	9.03	
	15	1.414	9.60	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.60	
	1	7.07	9.49	
	2	14.14	9.40	
	3	21.21	9.31	
	4	28.28	9.17	
	5	35.35	9.10	
	6	42.42	9.00	
	7	49.49	8.90	
	8	56.56	8.86	
	9	63.63	8.75	

مكتب السور الجديد للمقاولات العامة والتوريدات العامة

Location of test site:	**KM 332+600 to 332+700**		**Field team**	**Mr.Ahmed Sabry**
Project title:	**Electric Express Train Project - El Nawras Company for General Contracting**		**Date:**	5/10/2023
Diameter of loading plate	600		**Time**	11:10:00 AM
				11:47:00 AM
Lever ratio	1		**Note:** CAT 972G	
Type of Soil	**Middle Embankment (-1.5 m)**			
Bedding material	---			
Temperature	29°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.87	
	2	14.14	9.64	
	3	21.21	9.40	
	4	28.28	9.22	
	5	35.35	8.95	
	6	42.42	8.70	
	7	49.49	8.57	
	8	56.56	8.49	
	9	63.63	8.37	
	10	70.7	8.21	
Unloading Stage	11	56.56	8.21	
	12	49.49	8.31	
	13	35.35	8.43	
	14	21.21	8.60	
	15	1.414	9.28	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.28	
	1	7.07	9.09	
	2	14.14	8.99	
	3	21.21	8.83	
	4	28.28	8.70	
	5	35.35	8.60	
	6	42.42	8.47	
	7	49.49	8.40	
	8	56.56	8.31	
	9	63.63	8.24	

مكتب النورس الجديد
للخدمات العامة والتوريدات العامة

MATERIAL INSPECTION REQUEST

Contractor*	EL-NAWRAS FOR CONTRACTING		Designer Company		(K.K.) Engineering Consulting Office				
Issued by Contractor	Name	Sign	Date/Serial Number		Time				
	Eng. Sherif Rabbie		29/10/23		12:00 PM				
			P_L_T_ 04						
Received by CARB CONSULTANT	(K.K)	Khaled Zaki	01	02	03	00	HH	YY	MM	MM
			312	FW	CS	20	10	2023	12	0

CODE *	S1 to S21	D1 to D3	Rp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	FILL LAYER (0.000) (FERMA)				
Location to be Used	From	332+300	TO	332+500	
MAR & UIR Approval No	UIR F40		Date		
	M.A.R 6			19/10/23	
Supplier Name					
Test Requirement	P.L.T(DIN 18134)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (C011-41-2) VERSION 2 BY CWECON GROUP	
Reference Photos	No/Yes		Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOADING TEST		4	29/10/23	
2					
3					
4					

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-Plate Loading Test P.L.T (DIN18134) by the third part is Approved.	1-P.L.T was carried- out by E-JLST 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif Rabbie			A
QA/QC *	(K.K)	Khaled Zaki		A
CARB**	Eng. Margret Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		29-10-2023	AWC

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ب.ض ٢٨٨٠٥٠٥٠١٤٢ س.ت ٢٠٢٢١

Technical Report

Plate Loading Tests

KM 332+300 to 332+350, KM 332+350 to 332+400, KM 332+400 to 332+450, and KM 332+450 to 332+500

(Upper Embankment (Ferma))

Project

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

Prepared for

El-Nawras Company for General Contracting

Building No.3, first floor, El-Sheikh Zayed, Ismailia

(October 29, 2023)

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
E-JUST CETC Unit

1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by El-Nawras Company for General Contracting to conduct 4 plate loading tests on the Upper Embankment (Ferma) of the Electric Express Train project at 4 locations (KM 332+300 to 332+350, KM 332+350 to 332+400, KM 332+400 to 332+450, and KM 332+450 to 332+500) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Ahmed Mohamed Amr of El-Nawras Company for General Contracting. Field team members (Sameh Hassan) from the working CETCU team visited the project site on October 29, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was 27± 1°C.
- The plate was carried out on a Upper Embankment (Ferma) (according to the company) at 4 points (KM 332+300 to 332+350, KM 332+350 to 332+400, KM 332+400 to 332+450, and KM 332+450 to 332+500). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was [illegible] Multipose Loader CAT 972G.

3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m2 was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m2 was reached, and the loading increment was 0.025 MN/m2. The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 4 plate loading tests on the Upper Embankment (Ferma) of the Electric Express Train project were conducted at 4 locations (KM 332+300 to 332+350, KM 332+350 to 332+400, KM 332+400 to 332+450, and KM 332+450 to 332+500) and the data collected at the 4 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+350), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+350)

Loading stage	Load (F) kN	Normal MN/m^2	Settleme mm
0	1.414	0.005	0.00
1	7.07	0.025	0.21
2	14.14	0.050	0.26
3	21.21	0.075	0.35
4	28.28	0.100	0.46
5	35.35	0.125	0.55
6	42.42	0.150	0.68
7	49.49	0.175	0.79
8	56.56	0.200	0.86
9	63.63	0.225	0.98
10	70.7	0.250	1.14
11	56.56	0.200	1.13
12	49.49	0.175	1.06
13	35.35	0.125	0.98
14	21.21	0.075	0.88
15	1.414	0.005	0.30

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
EgJUST CETC Unit

Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+350)

Loading stage	Load (F) kN	Normal stress (σ_0) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.30
1	7.07	0.025	0.43
2	14.14	0.050	0.50
3	21.21	0.075	0.63
4	28.28	0.100	0.71
5	35.35	0.125	0.78
6	42.42	0.150	0.87
7	49.49	0.175	0.95
8	56.56	0.200	1.04
9	63.63	0.225	1.07

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 332+300 to 332+350) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 332+350 to 332+400) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 332+400 to 332+450) is provided in Tables 7-9 and Figure 3. The testing data corresponding to the fourth testing point (KM 332+450 to 332+500) is provided in Tables 10-12 and Figure 4.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+300 to 332+350)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m^2	0.25	0.25
a_0 (mm)	0.12	0.29
a_1 (mm/(MN/m^2))	2.97	4.70
a_2 (mm/(MN2/m^4))	4.24	5.32
$Ev = 1.5\, r/(a_1 + a_2 \cdot s_{0,max})$	111.51	133.55
Ev_2/Ev_1	1.20	

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
E-JUST CETC Unit

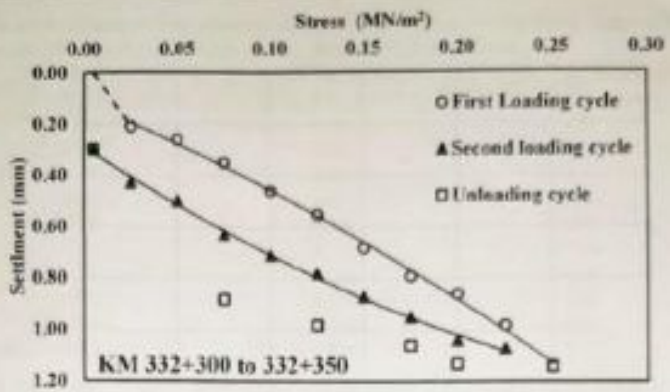

Figure 1: Load-settlement data: plate loading test performed at (KM 332+300 to 332+350)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+350 to 332+400)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.20
2	14.14	0.050	0.27
3	21.21	0.075	0.33
4	28.28	0.100	0.45
5	35.35	0.125	0.57
6	42.42	0.150	0.70
7	49.49	0.175	0.78
8	56.56	0.200	0.90
9	63.63	0.225	1.01
10	70.7	0.250	1.14
11	56.56	0.200	1.13
12	49.49	0.175	1.08
13	35.35	0.125	0.97
14	21.21	0.075	0.84
15	1.414	0.005	0.28

مكتب الفورس الجديد
للمقاولات العامة والتوريدات العامة
E-JUST CETC Unit

Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+350 to 332+400)

Loading stage	Load (F) kN	Normal stress (σ_n) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.28
1	7.07	0.025	0.45
2	14.14	0.050	0.54
3	21.21	0.075	0.66
4	28.28	0.100	0.75
5	35.35	0.125	0.79
6	42.42	0.150	0.87
7	49.49	0.175	0.93
8	56.56	0.200	1.02
9	63.63	0.225	1.05

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+350 to 332+400)

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{n,max}$) MN/m^2	0.25	0.25
a_0 (mm)	0.10	0.29
a_1 (mm/(MN/m^2))	5.27	5.28
a_2 (mm/((MN2/m^4))	5.64	-8.63
Evn 1.5 r' (a_1+a_2· $\sigma_{n,MAX}$)	107.68	164.20
Ev_2/Ev_1	1.34	

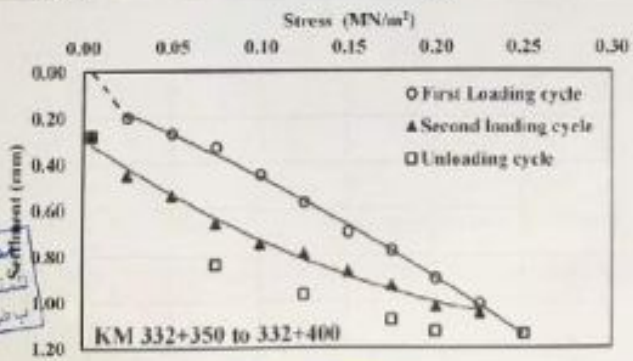

Figure 2: Load-settlement data: plate loading test performed at (KM 332+350 to 332+400)

Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+400 to 332+450)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.21
2	14.14	0.050	0.29
3	21.21	0.075	0.40
4	28.28	0.100	0.51
5	35.35	0.125	0.62
6	42.42	0.150	0.76
7	49.49	0.175	0.91
8	56.56	0.200	1.00
9	63.63	0.225	1.13
10	70.7	0.250	1.25
11	56.56	0.200	1.23
12	49.49	0.175	1.20
13	35.35	0.125	1.09
14	21.21	0.075	0.98
15	1.414	0.005	0.33

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+400 to 332+450)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.33
1	7.07	0.025	0.53
2	14.14	0.050	0.62
3	21.21	0.075	0.71
4	28.28	0.100	0.83
5	35.35	0.125	0.90
6	42.42	0.150	0.98
7	49.49	0.175	1.05
8	56.56	0.200	1.10
9	63.63	0.225	1.16

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+400 to 332+450)

Parameters	1st loading cycle	2nd loading cycle
(σ_o,max) MN/m^2	0.25	0.25
a_o (mm)	0.09	0.14
a_1 (mm/(MN/m^2))	4.05	5.80
a_2 (mm/($MN2/m^4$))	2.55	-0.86
Ev= 1.5 r/ (a_1+$a_2$$\sigma_{o,max}$)	96.07	135.03
Ev2/Ev1	1.41	

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Mobile: +201565631725

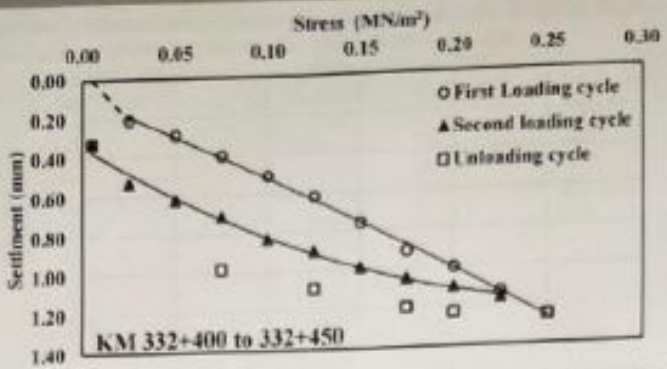

Figure 3: Load-settlement data: plate loading test performed at (KM 332+400 to 332+450)

Table 10: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+450 to 332+500)

Loading stage	Load (F)	Normal stress (σ_n)	Settlement (S)
	kN	MN/m²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.20
2	14.14	0.050	0.27
3	21.21	0.075	0.34
4	28.28	0.100	0.41
5	35.35	0.125	0.49
6	42.42	0.150	0.56
7	49.49	0.175	0.60
8	56.56	0.200	0.66
9	63.63	0.225	0.72
10	70.7	0.250	0.84
11	56.56	0.200	0.84
12	49.49	0.175	0.82
13	35.35	0.125	0.78
14	21.21	0.075	0.67
15	1.414	0.005	0.14

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Table 11: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+450 to 332+500)

Loading stage	Load (F)	Normal stress (σ_N)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.14
1	7.07	0.025	0.20
2	14.14	0.050	0.29
3	21.21	0.075	0.35
4	28.28	0.100	0.40
5	35.35	0.125	0.49
6	42.42	0.150	0.61
7	49.49	0.175	0.70
8	56.56	0.200	0.74
9	63.63	0.225	0.79

Table 12: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+450 to 332+500)

Parameters	1st loading cycle	2nd loading cycle
(s_N,max) MN/m^2	0.25	0.25
a_0 (mm)	0.14	0.12
a_1 (mm/(MN/m^2))	2.72	3.17
a_2 (mm/(MN2/m^4))	-0.06	-0.42
Ev= 1.5 r/ (a_1+a_2. $s_{N,max}$)	166.35	146.69
Ev_2/Ev_1	0.88	

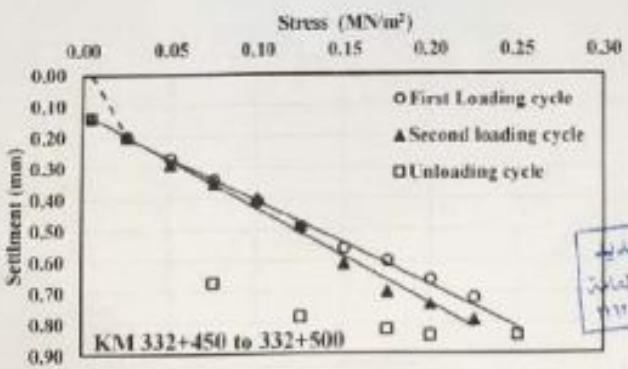

Figure 4: Load-settlement data: plate loading test performed at (KM 332+450 to 332+500)

4. Closure

Test results presented herein report the load-settlement data obtained from 4 plate loading tests conducted on the Upper Embankment (Ferma) of the Electric Express train project at 4 locations (KM 332+300 to 332+350, KM 332+350 to 332+400, KM 332+400 to 332+450, and KM 332+450 to 332+500) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m2	E_{v2} MN/m2	E_{v2}/E_{v1} ratio
KM 332+300 to 332+350	111.51	133.55	1.20
KM 332+350 to 332+400	107.68	144.29	1.34
KM 332+400 to 332+450	96.07	135.01	1.41
KM 332+450 to 332+500	106.35	146.05	0.88

• Note: Before interpreting these test results, Mr. Sultan's recommendations, the Upper Embankment (Ferma) in-situ variability between the testing locations should be considered.

E-JUST CETC Unit

Technical committee | **Lab Engineer**

Prof. Dr. Mohamed F. M. Fahmy | **Mohamed A. Al-Najjar**

مكتب النورس الجديد
للاستشارات العامة والتوريدات العامة
ت ٢٢٨٠٤٥٠٧٢ ص.ب ٢١٦٢٩

E-JUST CETC Unit

Appendix A

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
E-JUST CETC Staff

Location of test site:	KM 332+300 to 332+350		Field team	Sameh Hassan
Project title:	Electric Express Train Project - El-Sawras Company for General Contracting		Date:	29/10/2023
Diameter of loading plate	600		Time	12:00:00 AM 12:27:00 PM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.79	
	2	14.14	9.74	
	3	21.21	9.65	
	4	28.28	9.54	
	5	35.35	9.45	
	6	42.42	9.32	
	7	49.49	9.21	
	8	56.56	9.14	
	9	63.63	9.02	
	10	70.7	8.86	
Unloading Stage	11	56.56	8.87	
	12	49.49	8.94	
	13	35.35	9.02	
	14	21.21	9.12	
	15	1.414	9.70	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.70	
	1	7.07	9.57	
	2	14.14	9.50	
	3	21.21	9.37	
	4	28.28	9.29	
	5	35.35	9.22	
	6	42.42	9.13	
	7	49.49	9.05	
	8	56.56	8.96	
	9	63.63	8.93	

مكتب النورس الجديد للمقاولات العامة والتوريدات الطبية
ب.ض. ١٩٢-٥٠٥-٢٧٩ س.ت. ٩١٦٢٩

E-JUST CETC Unit

Location of test site:	KM 332+350 to 332+400		Field team	Sameh Hassan
Project title:	Electric Express Train Project - El-Nasr-ex Company for General Contracting		Date:	29/10/2023
Diameter of loading plate	600		Time	12:32:00 PM 12:59:00 PM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	—			
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.80	
	2	14.14	9.73	
	3	21.21	9.67	
	4	28.28	9.55	
	5	35.35	9.43	
	6	42.42	9.30	
	7	49.49	9.22	
	8	56.56	9.10	
	9	63.63	8.99	
	10	70.7	8.86	
Unloading Stage	11	56.56	8.87	
	12	49.49	8.92	
	13	35.35	9.03	
	14	21.21	9.16	
	15	1.414	9.72	
Test regime	Leading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.72	
	1	7.07	9.55	
	2	14.14	9.46	
	3	21.21	9.34	
	4	28.28	9.25	
	5	35.35	9.21	
	6	42.42	9.13	
	7	49.49	9.07	
	8	56.56	8.98	
	9	63.63	8.95	

مكتب السيد الجيلاني
للمقاولات العامة والتوريدات
E-JUST CETC Unit

Location of test site:	KM 332+400 to 332+450		Field team	Sameh Hassan
Project title:	Electric Express Train Project - El-Nawras Company for General Contracting		Date:	29/10/2023
Diameter of loading plate	600		Time	01:04:00PM 1:31:00 PM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.79	
	2	14.14	9.71	
	3	21.21	9.60	
	4	28.28	9.49	
	5	35.35	9.38	
	6	42.42	9.24	
	7	49.49	9.09	
	8	56.56	9.00	
	9	63.63	8.87	
	10	70.7	8.75	
Unloading Stage	11	56.56	8.77	
	12	49.49	8.80	
	13	35.35	8.91	
	14	21.21	9.02	
	15	1.414	9.67	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.67	
	1	7.07	9.47	
	2	14.14	9.38	
	3	21.21	9.29	
	4	28.28	9.17	
	5	35.35	9.10	
	6	42.42	9.01	
	7	49.49	8.95	
	8	56.56	8.90	
	9	63.63	8.84	

مكتب التسويق الجديد للمقاولات العامة والتوريدات العامة
E-1057 CETC Unit

Location of test site:	**KM 332+450 to 332+500**		**Field team**	**Sameh Hassan**
Project title:	Electric Express Train Project - El-Nawras Company for General Contracting		**Date:**	**29/10/2023**
Diameter of loading plate	600		**Time**	**1:36:00 PM**
				2:03:00 PM
Lever ratio	1		**Note:** CAT 972G	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	27°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.80	
	2	14.14	9.73	
	3	21.21	9.66	
	4	28.28	9.59	
	5	35.35	9.51	
	6	42.42	9.44	
	7	49.49	9.40	
	8	56.56	9.34	
	9	63.63	9.28	
	10	70.7	9.16	
Unloading Stage	11	56.56	9.16	
	12	49.49	9.18	
	13	35.35	9.22	
	14	21.21	9.33	
	15	1.414	9.86	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.86	
	1	7.07	9.80	
	2	14.14	9.71	
	3	21.21	9.65	
	4	28.28	9.60	
	5	35.35	9.51	
	6	42.42	9.39	
	7	49.49	9.30	
	8	56.56	9.26	
	9	63.63	9.21	

مكتب النسور الجديد للمقاولات العامة والتوريدات العامة

E-JUST CETC Unit

MATERIAL INSPECTION REQUEST

Contractor	EL-NAWRAS FOR CONTRACTING		Designer Company				(K.K.) Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/Serial Number				Time			
	Eng. Sherif Rabbie		11/11/23				12:00 PM			
			P_L_T_05							
Received by GARB CONSULTANT	(K.K)	Khaled Gaki	MIR	CS	CS	CS	CS	MM	YY	HH	MM
				332	EW	CS	12	11	2023	12	0

CODE	31 to 921	01 to 53	Kp XXX Note
	Station Reference	Digital Reference	For Alignment point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer 8.000 (EGIMA)			
Location to be Used	From	332+500	TO	332+700
MAR & UIR Approval No	UIR -F45	Date	11/09/23	
	M A R 7		11/04/23	
Supplier Name				
Test Requirement	P.L.T(DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (2021-V1.2) VERSION 2 BY CAIRCON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOADING TEST		4	12/11/23	
2					
3					
4					

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Alatif (ER)
1-Plate Loading Test P.L.T (DIN18134) by the third part is Approved.	1-P.L.T was carried- out by E-JUST 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS

Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif Rabbie			A
QA/QC *	(K.K)	Khaled Gaki		A
GARB**	Eng. Margret Magdi			
Employer Representative	Eng. Alaa Abd-Alatif		12-11-2023	AWC

مكتب التوريد الجديد
للمقاولات العامة والتوريدات العامة
برقي : ٥٠٥٠١٢٠ ، ٢٤٨ ص.ب : ٢١٦٢١

Technical Report

Plate Loading Tests

KM 332+500 to 332+550, KM 332+550 to 332+600,
KM 332+600 to 332+650, and KM 332+650 to 332+700

(Upper Embankment (Ferma))

Project

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

Prepared for

El-Nawras Company for General Contracting

Building No.3, first floor, El-Sheikh Zayed, Ismailia

(November 12, 2023)

1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by El-Nawras Company for General Contracting to conduct 4 plate loading tests on the Upper Embankment (Ferma) of the Electric Express Train project at 4 locations (KM 332+500 to 332+550, KM 332+550 to 332+600, KM 332+600 to 332+650, and KM 332+650 to 332+700) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Ahmed Mohamed Amr of El-Nawras Company for General Contracting. Field team members (Mr.Ahmed Sabry) from the working CETCU team visited the project site on November 12, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was 26± 1°C.
- The plate was carried out on a Upper Embankment (Ferma) (according to the company) at 4 points (KM 332+500 to 332+550, KM 332+550 to 332+600, KM 332+600 to 332+650, and KM 332+650 to 332+700). The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reacting loading system was a heavy multi-purpose Loader CAT 972G.

3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m2 was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m2 was reached, and the loading increment was 0.025 MN/m2. The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 4 plate loading tests on the Upper Embankment (Ferma) of the Electric Express Train project were conducted at 4 locations (KM 332+500 to 332+550, KM 332+550 to 332+600, KM 332+600 to 332+650, and KM 332+650 to 332+700) and the data collected at the 4 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+550), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+550)

Loading stage	Load (F)	Normal	Settleme
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.15
2	14.14	0.050	0.25
3	21.21	0.075	0.40
4	28.28	0.100	0.54
5	35.35	0.125	0.66
6	42.42	0.150	0.82
7	49.49	0.175	0.95
8	56.56	0.200	1.06
9	63.63	0.225	1.16
10	70.7	0.250	1.28
11	56.56	0.200	1.28
12	49.49	0.175	1.20
13	35.35	0.125	1.12
14	21.21	0.075	0.97
15	1.414	0.005	0.26

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F-JUST CETC Unit

Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+550)

Loading stage	Load (F) kN	Normal stress (σ_n) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.26
1	7.07	0.025	0.43
2	14.14	0.050	0.53
3	21.21	0.075	0.64
4	28.28	0.100	0.75
5	35.35	0.125	0.86
6	42.42	0.150	0.96
7	49.49	0.175	1.08
8	56.56	0.200	1.20
9	63.63	0.225	1.26

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 332+500 to 332+550) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 332+550 to 332+600) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 332+600 to 332+650) is provided in Tables 7-9 and Figure 3. The testing data corresponding to the fourth testing point (KM 332+650 to 332+700) is provided in Tables 10-12 and Figure 4.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+500 to 332+550)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,}$max) MN/m^2	0.25	0.25
a_1 (mm)	-0.02	0.26
a_1 (mm/(MN/m^2))	5.90	5.29
a_2 (mm/(MN2/m^4))	-2.73	-3.64
Ev= 1.5 r/ (a_1+a_2. $s_{0,MAX}$)	86.27	102.77
Ev_2/Ev_1	1.19	

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E-JUST CETC Unit

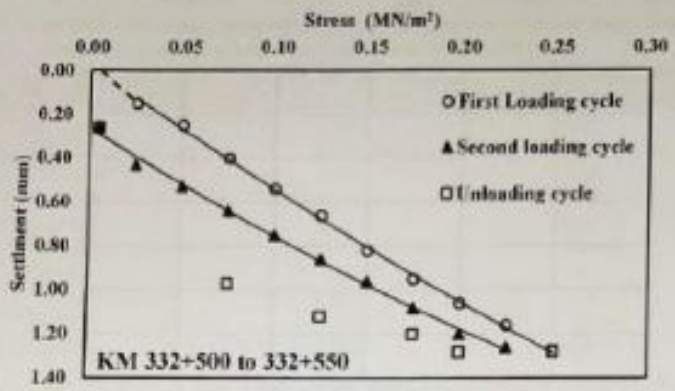

Figure 1: Load-settlement data: plate loading test performed at (KM 332+500 to 332+550)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+550 to 332+600)

Loading stage	Load (F) kN	Normal stress (σ_c) MN/m²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.25
2	14.14	0.050	0.35
3	21.21	0.075	0.52
4	28.28	0.100	0.65
5	35.35	0.125	0.76
6	42.42	0.150	0.90
7	49.49	0.175	1.03
8	56.56	0.200	1.15
9	63.63	0.225	1.32
10	70.7	0.250	1.42
11	56.56	0.200	1.42
12	49.49	0.175	1.30
13	35.35	0.125	1.20
14	21.21	0.075	0.92
15	1.414	0.005	0.20

مكتبة الهندسة الجديدة
للمقاولات العامة والتوريدات العامة
ت: ٧٦٨٠٥٠٥٠١٣ س ت: ٢١٦٢٩٠

Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+550 to 332+600)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.20
1	7.07	0.025	0.40
2	14.14	0.050	0.50
3	21.21	0.075	0.73
4	28.28	0.100	0.90
5	35.35	0.125	1.04
6	42.42	0.150	1.12
7	49.49	0.175	1.24
8	56.56	0.200	1.30
9	63.63	0.225	1.35

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+550 to 332+600)

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{o,max}$) MN/m^2	0.25	0.25
a_1 (mm)	0.11	0.15
a_1 (mm/(MN/m^2))	5.26	8.32
a_2 (mm/($MN2/m^2$))	0.06	-15.87
$Ev = 1.5\,\sigma'/(a_1+a_2\cdot\sigma_{o,max})$	85.35	90.87
Ev_2/Ev_1	1.06	

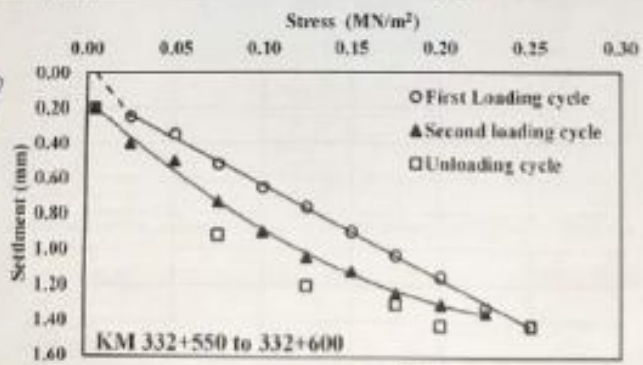

Figure 2: Load-settlement data: plate loading test performed at (KM 332+550 to 332+600)

Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+650)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.12
2	14.14	0.050	0.22
3	21.21	0.075	0.35
4	28.28	0.100	0.44
5	35.35	0.125	0.57
6	42.42	0.150	0.75
7	49.49	0.175	0.90
8	56.56	0.200	1.05
9	63.63	0.225	1.20
10	70.7	0.250	1.39
11	56.56	0.200	1.39
12	49.49	0.175	1.29
13	35.35	0.125	1.19
14	21.21	0.075	0.96
15	1.414	0.005	0.10

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+650)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m²	Settlement (S) mm
0	1.414	0.005	0.10
1	7.07	0.025	0.20
2	14.14	0.050	0.30
3	21.21	0.075	0.40
4	28.28	0.100	0.58
5	35.35	0.125	0.75
6	42.42	0.150	0.87
7	49.49	0.175	0.93
8	56.56	0.200	1.02
9	63.63	0.225	1.12

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+600 to 332+650)

Parameters	1st loading cycle	2nd loading cycle
(s_o,max) MN/m²	0.25	0.25
a_1 (mm)	0.02	0.04
a_1 (mm/(MN/m²))	3.66	5.92
a_2 (mm/(MN2/m²))	7.28	9.85
Ev= 1.5 r/ (a_1+a_2. $s_{o\,max}$)	82.12	95.56
Ev_2/Ev_1	1.16	

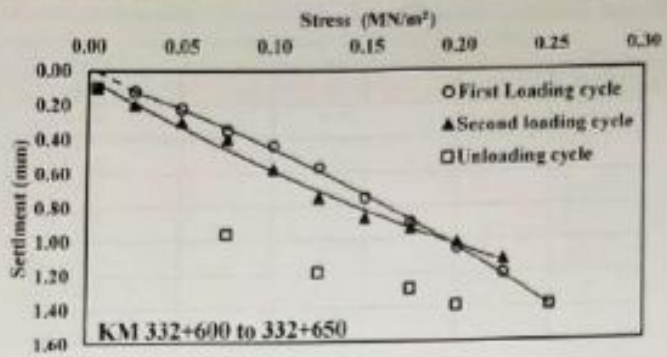

Figure 3: Load-settlement data: plate loading test performed at (KM 332+600 to 332+650)

Table 10: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+650 to 332+700)

Loading stage	Load (F) kN	Normal stress (σ_n) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.15
2	14.14	0.050	0.25
3	21.21	0.075	0.39
4	28.28	0.100	0.51
5	35.35	0.125	0.65
6	42.42	0.150	0.82
7	49.49	0.175	0.93
8	56.56	0.200	1.08
9	63.63	0.225	1.17
10	70.7	0.250	1.33
11	56.56	0.200	1.33
12	49.49	0.175	1.23
13	35.35	0.125	1.13
14	21.21	0.075	0.92
15	1.414	0.005	0.25

Table 11: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+650 to 332+700)

Loading stage	Load (F) kN	Normal stress (σ_n) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.25
1	7.07	0.025	0.40
2	14.14	0.050	0.50
3	21.21	0.075	0.61
4	28.28	0.100	0.72
5	35.35	0.125	0.85
6	42.42	0.150	0.96
7	49.49	0.175	1.08
8	56.56	0.200	1.20
9	63.63	0.225	1.30

Table 12: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+650 to 332+700)

Parameters	1st loading cycle	2nd loading cycle
(s_0,max) MN/m^2	0.25	0.25
a_0 (mm)	0.00	0.25
a_1 (mm/(MN/m^2))	5.24	4.96
a_2 (mm/(MN2/m^4))	0.30	-1.20
E_v= 1.5 r/ (a_1+a_2. $s_{0,max}$)	84.71	96.56
E_{v2}/E_{v1}	1.14	

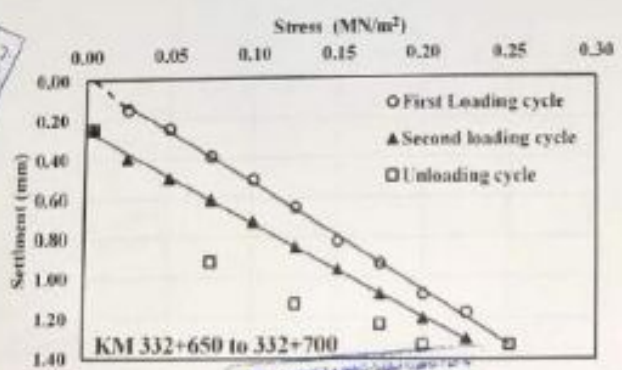

Figure 4: Load-settlement data: plate loading test performed at (KM 332+650 to 332+700)

4. Closure

Test results presented herein report the load-settlement data obtained from 4 plate loading tests conducted on the Upper Embankment (Ferma) of the Electric Express train project at 4 locations (KM 332+500 to 332+550, KM 332+550 to 332+600, KM 332+600 to 332+650, and KM 332+650 to 332+700) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m2	E_{v2} MN/m2	E_{v2}/E_{v1} ratio
KM 332+500 to 332+550	86.27	102.77	1.19
KM 332+550 to 332+600	85.35	90.87	1.06
KM 332+600 to 332+650	82.12	95.54	1.16
KM 332+650 to 332+700	84.71	96.56	1.14

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

Technical committee

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar

مكتب الفارس الجديد
للتجارة العامة والتوريدات الخاصة
ت: ٠٢٠٢٢٤٥٠٠١٢ ص.ب: ٢٩٥ مدينة نصر: ١١٣٧٦

E-JUST CETC Unit

Appendix A

مكتب الفورس الجديد
للاستشارات الهندسية والتوريدات العامة
E-JUST CETC Trans

Location of test site:	KM 332+500 to 332+550		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - El-Nawras Company for General Contracting		Date:	12/11/2023
Diameter of loading plate	600		Time	10:00:00 AM 10:27:00 AM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	—			
Temperature	26°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.85	
	2	14.14	9.75	
	3	21.21	9.60	
	4	28.28	9.46	
	5	35.35	9.34	
	6	42.42	9.18	
	7	49.49	9.05	
	8	56.56	8.94	
	9	63.63	8.84	
	10	70.7	8.72	
Unloading Stage	11	56.56	8.72	
	12	49.49	8.80	
	13	35.35	8.88	
	14	21.21	9.03	
	15	1.414	9.74	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.74	
	1	7.07	9.57	
	2	14.14	9.47	
	3	21.21	9.36	
	4	28.28	9.25	
	5	35.35	9.14	
	6	42.42	9.04	
	7	49.49	8.92	
	8	56.56	8.80	
	9	63.63	8.74	

Location of test site:	KM 332+600 to 332+650		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - El-Nawras Company for General Contracting		Date:	12/11/2023
Diameter of loading plate	600		Time	11:04:00 AM 11:31:00 AM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	—			
Temperature	26°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.88	
	2	14.14	9.78	
	3	21.21	9.65	
	4	28.28	9.56	
	5	35.35	9.43	
	6	42.42	9.25	
	7	49.49	9.10	
	8	56.56	8.95	
	9	63.63	8.80	
	10	70.7	8.61	
Unloading Stage	11	56.56	8.61	
	12	49.49	8.71	
	13	35.35	8.81	
	14	21.21	9.04	
	15	1.414	9.90	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.90	
	1	7.07	9.80	
	2	14.14	9.70	
	3	21.21	9.60	
	4	28.28	9.42	
	5	35.35	9.25	
	6	42.42	9.13	
	7	49.49	9.07	
	8	56.56	8.98	
	9	63.63	8.88	

مكتب المهندس الجديد للمقاولات العامة والتوريدات العامة
E-JUST CETC Unit

Location of test site:	KM 332+650 to 332+700		Field team	Mr.Ahmed Sabry
Project title:	Electric Express Train Project - El-Nawras Company for General Contracting		Date:	12/11/2023
Diameter of loading plate	600		Time	11:36:00 AM
				12:03:00 PM
Lever ratio	1		Note: CAT 972G	
Type of Soil	Upper Embankment (Ferma)			
Bedding material	---			
Temperature	26°C			
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Loading Stage	0	1.414	10.00	
	1	7.07	9.85	
	2	14.14	9.75	
	3	21.21	9.61	
	4	28.28	9.49	
	5	35.35	9.35	
	6	42.42	9.18	
	7	49.49	9.07	
	8	56.56	8.92	
	9	63.63	8.83	
	10	70.7	8.67	
Unloading Stage	11	56.56	8.67	
	12	49.49	8.77	
	13	35.35	8.87	
	14	21.21	9.08	
	15	1.414	9.75	
Test regime	Loading Stage No.	Load (kN)	Dial Gauge Reading (mm)	
Reloading Stage	0	1.414	9.75	
	1	7.07	9.60	
	2	14.14	9.50	
	3	21.21	9.39	
	4	28.28	9.28	
	5	35.35	9.15	
	6	42.42	9.04	
	7	49.49	8.92	
	8	56.56	8.80	
	9	63.63	8.70	

MATERIAL INSPECTION REQUEST

Contractor	EL-NAWRAS FOR CONTRACTING		Designer Company				(K.K.) Engineering Consulting Office		
Issued by Contractor	Name	Sign	Date/Serial Number				Time		
	Eng. Sherif Rabbie		12/11/23				12:00 PM		
			P_L_T_06						
Received by GARB CONSULTANT	(K.K)	Khaled Gaki	C1	C2	C3	C4	MM	YY	HH	MN
			J32	EW	C5	13	11	2023	12	0

CODE-1	S1 to S24	D1 to D3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill layer +0.50			
Location to be Used	From	332+300	TO	332+500
MAR & UIR Approval No	UIR- S.G 03	Date	11/11/23	
	M.A.R 8		02/11/23	
Supplier Name				
Test Requirement	P.L.T (DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (C021-412) VERSION 2 BY CWECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOADING TEST		8	13/11/23	
2					
3					
4					

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-Plate Loading Test P.L.T (DIN 18134) by the third part is Approved	1-P.L.T was carried- out by E-JUST. 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS

Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Sherif Rabbie			A
QA/QC *	(K.K)	Khaled Gaki		A
GARB**	Eng. Morgaet Magdi			
Employers Representative	Eng. Alaa Abd-Allatif	for	13-11-2023	Awc

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة
ت.ت. ٢٢٨٠٥٠١٩٢ س.ت. ٢١٦٢٩

Technical Report

Plate Loading Tests

KM 332+300 to 332+325, KM 332+325 to 332+350,
KM 332+350 to 332+375, KM 332+375 to 332+400,
KM 332+400 to 332+425, KM 332+425 to 332+450,
KM 332+450 to 332+475, and KM 332+475 to 332+500

(Prepared Subgrade)

Project

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

Prepared for

El-Nawras Company for General Contracting

Building No.3, first floor, El-Sheikh Zayed, Ismailia

(November 13, 2023)

1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by El-Nawras Company for General Contracting to conduct 8 plate loading tests on the Prepared Subgrade of the Electric Express Train project at 8 locations (KM 332+300 to 332+325, KM 332+325 to 332+350, KM 332+350 to 332+375, KM 332+375 to 332+400, KM 332+400 to 332+425, KM 332+425 to 332+450, KM 332+450 to 332+475, and KM 332+475 to 332+500) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Ahmed Mohamed Amr of El-Nawras Company for General Contracting. Field team members (Sameh Hassan) from the working CETCU team visited the project site on November 13, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests.
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was 26± 1°C.
- The plate was carried out on a Prepared Subgrade (according to the company) at 8 points. The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader CAT 972G.

3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading reg mes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m2 was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m2 was reached, and the loading increment was 0.025 MN/m2. The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 8 plate loading tests on the Prepared Subgrade of the Electric Express Train project were conducted at 8 locations (KM 332+300 to 332+325, KM 332+325 to 332+350, KM 332+350 to 332+375, KM 332+375 to 332+400, KM 332+400 to 332+425, KM 332+425 to 332+450, KM 332+450 to 332+475, and KM 332+475 to 332+500) and the data collected at the 8 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+325), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+325)

Loading stage	Load (F)	Normal	Settleme
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.44
2	14.14	0.050	0.47
3	21.21	0.075	0.64
4	28.28	0.100	0.80
5	35.35	0.125	0.95
6	42.42	0.150	1.13
7	49.49	0.175	1.27
8	56.56	0.200	1.49
9	63.63	0.225	1.62
10	70.7	0.250	1.75
11	56.56	0.200	1.75
12	49.49	0.175	1.74
13	35.35	0.125	1.65
14	21.21	0.075	1.54
15	1.414	0.005	0.85

مكتب الفورس الجديد
للاستشارات الهندسية والتوريدات العامة

Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+300 to 332+325)

Loading stage	Load (F) kN	Normal stress (σ_o) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.85
1	7.07	0.025	1.08
2	14.14	0.050	1.19
3	21.21	0.075	1.33
4	28.28	0.100	1.44
5	35.35	0.125	1.50
6	42.42	0.150	1.56
7	49.49	0.175	1.62
8	56.56	0.200	1.70
9	63.63	0.225	1.73

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 332+300 to 332+325) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 332+325 to 332+350) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 332+350 to 332+375) is provided in Tables 7-9 and Figure 3. The testing data corresponding to the fourth testing point (KM 332+375 to 332+400) is provided in Tables 10-12 and Figure 4. The testing data corresponding to the fifth testing point (KM 332+400 to 332+425) is provided in Tables 13-15 and Figure 5.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+300 to 332+325)

Parameters	1st loading cycle	2nd loading cycle
(s_o,max) MN/m^2	0.25	0.25
a_o (mm)	0.26	0.87
a_1 (mm/(MN/m^2))	5.13	6.97
a_2 (mm/(MN2/m^4))	4.00	-14.31
Ev= 1.5 r/ (a_o+a_1· $s_{o,max}$)+a_2· $s_{o,max}^2$)	73.45	132.81
Ev_2/Ev_1	1.81	

مكتب النسور الجديد
للمقاولات العامة والتوريدات العامة
ت ٧٢٨٠٤٠٢٠١٢ سجل تجاري ٠١٦٢٩

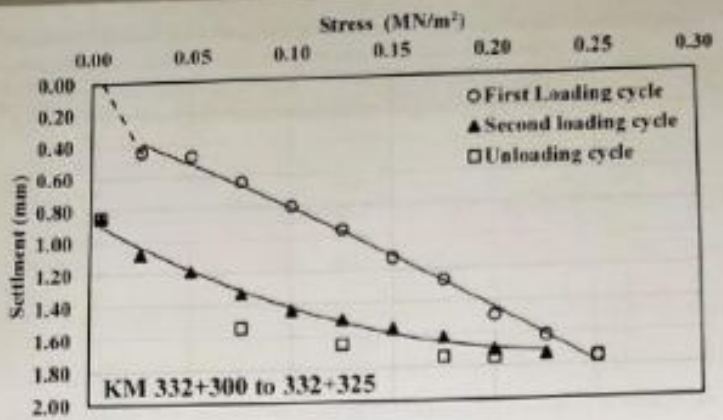

Figure 1: Load-settlement data: plate loading test performed at (KM 332+300 to 332+325)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+325 to 332+350)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.30
2	14.14	0.050	0.43
3	21.21	0.075	0.55
4	28.28	0.100	0.78
5	35.35	0.125	0.98
6	42.42	0.150	1.16
7	49.49	0.175	1.35
8	56.56	0.200	1.60
9	63.63	0.225	1.76
10	70.7	0.250	1.88
11	56.56	0.200	1.88
12	49.49	0.175	1.86
13	35.35	0.125	1.74
14	21.21	0.075	1.59
15	1.414	0.005	0.84

مكتب الشورى الإسكندرية
للمقاولات العامة والتوريدات المختلفة
سجل ١٩٢، ٥٠٥، ٧٢٨ س ت: ٢٦٣٩

Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+325 to 332+350)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m²	Settlement (S) mm
0	1.414	0.005	0.84
1	7.07	0.025	1.14
2	14.14	0.050	1.27
3	21.21	0.075	1.38
4	28.28	0.100	1.49
5	35.35	0.125	1.58
6	42.42	0.150	1.69
7	49.49	0.175	1.79
8	56.56	0.200	1.84
9	63.63	0.225	1.86

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+325 to 332+350)

Parameters	1st loading cycle	2nd loading cycle
(s_0,max) MN/m²	0.25	0.25
a_0 (mm)	0.09	0.88
a_1 (mm/(MN/m²))	6.84	7.86
a_2 (mm/(MN2/m⁴))	2.18	-15.50
Ev= 1.5 r/ (a_0+a_1. s_0 max)	60.96	113.01
Ev_2/Ev_1	1.85	

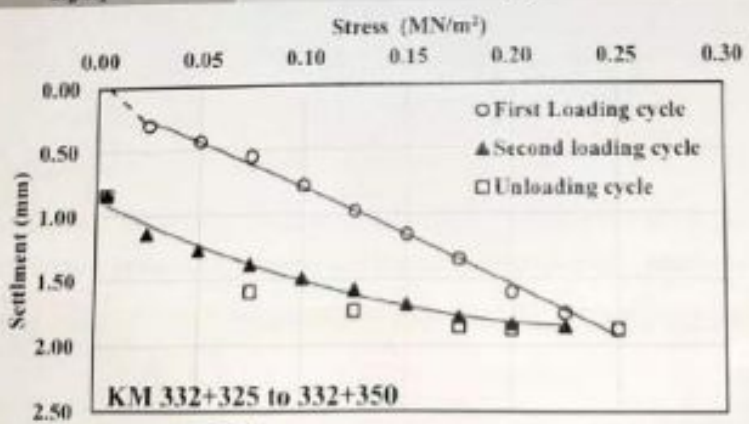

Figure 2: Load-settlement data: plate loading test performed at (KM 332+325 to 332+350)

Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+350 to 332+375)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.36
2	14.14	0.050	0.60
3	21.21	0.075	0.86
4	28.28	0.100	1.08
5	35.35	0.125	1.31
6	42.42	0.150	1.47
7	49.49	0.175	1.63
8	56.56	0.200	1.80
9	63.63	0.225	1.97
10	70.7	0.250	2.10
11	56.56	0.200	2.10
12	49.49	0.175	2.08
13	35.35	0.125	1.99
14	21.21	0.075	1.85
15	1.414	0.005	1.00

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+350 to 332+375)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m^2	Settlement (S) mm
0	1.414	0.005	1.00
1	7.07	0.025	1.29
2	14.14	0.050	1.40
3	21.21	0.075	1.56
4	28.28	0.100	1.68
5	35.35	0.125	1.80
6	42.42	0.150	1.90
7	49.49	0.175	1.98
8	56.56	0.200	2.03
9	63.63	0.225	2.05

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+350 to 332+375)

Parameters	1st loading cycle	2nd loading cycle
($s_0$max) MN/m^2	0.25	0.25
a_0 (mm)	11.05	8.64
a_1 (mm/(MN/m²))	12.19	1.01
a_2 (mm/(MN2/m⁴))	-17.88	-17.88
$Ev_1 = 1.5\ r/(a_1 + a_2 \cdot s_{0max})$	56.21	107.96
Ev_2/Ev_1	1.92	

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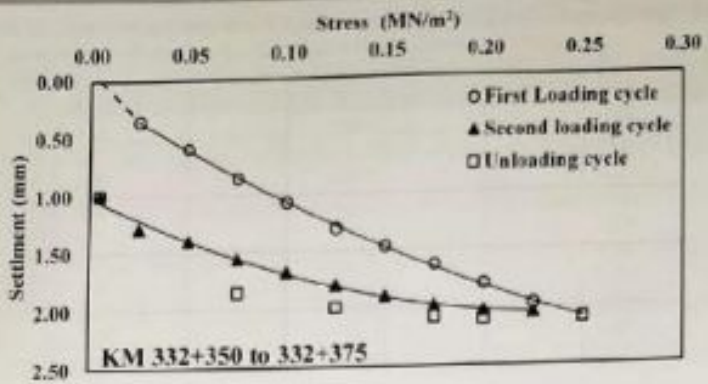

Figure 3: Load-settlement data: plate loading test performed at (KM 332+350 to 332+375)

Table 10: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+375 to 332+400)

Loading stage	Load (P) kN	Normal stress (s_o) MN/m²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.19
2	14.14	0.050	0.40
3	21.21	0.075	0.48
4	28.28	0.100	0.57
5	35.35	0.125	0.69
6	42.42	0.150	0.80
7	49.49	0.175	0.91
8	56.56	0.200	1.16
9	63.63	0.225	1.28
10	70.7	0.250	1.48
11	56.56	0.200	1.48
12	49.49	0.175	1.45
13	35.35	0.125	1.37
14	21.21	0.075	1.16
15	1.414	0.005	0.49

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Table 11: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+375 to 332+400)

Loading stage	Load (F)	Normal stress (σ_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.49
1	7.07	0.025	0.70
2	14.14	0.050	0.82
3	21.21	0.075	0.97
4	28.28	0.100	1.09
5	35.35	0.125	1.21
6	42.42	0.150	1.32
7	49.49	0.175	1.40
8	56.56	0.200	1.43
9	63.63	0.225	1.45

Table 12: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+375 to 332+400)

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0,max})$ MN/m^2	0.25	0.25
a_0 (mm)	0.16	0.47
a_1 $(mm/(MN/m^2))$	3.17	7.96
a_2 $(mm/(MN2/m^4))$	8.12	-15.82
$Ev = 1.5\ r/(a_1+a_2 \cdot \sigma_{0,max})$	86.47	112.23
Ev_2/Ev_1	1.30	

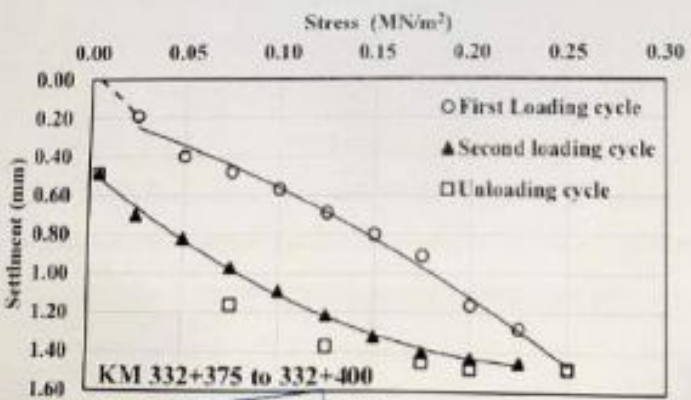

Figure 4: Load-settlement data: plate loading test performed at (KM 332+375 to 332+400)

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Table 13: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+400 to 332+425)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.26
2	14.14	0.050	0.31
3	21.21	0.075	0.44
4	28.28	0.100	0.55
5	35.35	0.125	0.68
6	42.42	0.150	0.77
7	49.49	0.175	0.91
8	56.56	0.200	1.01
9	63.63	0.225	1.11
10	70.7	0.250	1.19
11	56.56	0.200	1.18
12	49.49	0.175	1.14
13	35.35	0.125	1.06
14	21.21	0.075	0.90
15	1.414	0.005	0.36

Table 14: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+400 to 332+425)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m²	Settlement (S) mm
0	1.414	0.005	0.36
1	7.07	0.025	0.49
2	14.14	0.050	0.61
3	21.21	0.075	0.72
4	28.28	0.100	0.82
5	35.35	0.125	0.90
6	42.42	0.150	0.98
7	49.49	0.175	1.04
8	56.56	0.200	1.11
9	63.63	0.225	1.16

Table 15: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+400 to 332+425)

Parameters	1st loading cycle	2nd loading cycle
(s_0,max) MN/m²	0.25	0.25
a_1 (mm)	0.12	0.35
a_1 (mm/(MN/m²))	4.51	5.58
a_2 (mm/(MN2/m⁴))	-0.55	-8.88
$Ev = 1.5\,r/(a_1+a_2\,s_{0,max})$	103.84	133.72
Ev_2/Ev_1	1.30	

مكتب الفورس الجديد للمقاولات العامة والتوريدات العامة

MATERIAL INSPECTION REQUEST	EL- NAWRAS	KK	(GARB)	

Contractor	EL-NAWRAS FOR CONTRACTING		Designer Company				(K.K.) Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/Serial Number				Time			
	Eng. Sherif Rabbie		20/11/23 P_L_T _ 08				12:00 PM			
Received by GARB CONSULTANT	(K.K)	MIR	CK	CL	CS	CD	MM	W	MH	MM
			032	EW	CS	21	11	2023	12	0

CODE 1	S1 to S31	D1 to D5	Kp XXX Note
	Station Reference	Depot Reference	For K locator point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer +0.10			
Location to be Used	From	332+500	TO	332+700
MAR & UIR Approval No	UIR- S.G 05	Date	20/11/23	
	M.A.R.8		02/11/23	
Supplier Name				
Test Requirement	P.L.T(DIN 18134)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (GSR-H-S-VERSION-01) CHECKS GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLATE LOADING TEST		8	21/11/23	
2					
3					
4					

Comments by: Eng. Saied Saif (K.K.)	Comments by: Eng. Alaa Abd-Alatif (ER)
1-Plate Loading Test P.L.T (DIN18134) by the third part is Approved.	1-P.L.T was carried- out by E-JUST 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A/AWC/R
Contractor	Eng. Sherif Rabbie			A
QA/QC *	(K.K)	Khaled Gato		A
GARB**	Eng. Magrol Magdi			
Employers Representative	Eng. Alaa Abd-Alatif	for	21.11.2023	AWC

مكتب الحوض الحديد
للمقاولات العامة والتوريدات العامة
ب.ض. ١٩٢ . ٥٠ . ٣٩٠ س.ت. ٢٢٦٢٩

Technical Report

Plate Loading Tests

KM 332+500 to 332+525, KM 332+525 to 332+550,
KM 332+550 to 332+575, KM 332+575 to 332+600,
KM 332+600 to 332+625, KM 332+625 to 332+650,
KM 332+650 to 332+675, and KM 332+675 to 332+700

(Prepared Subgrade 2.0)

Project

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

Prepared for

El-Nawras Company for General Contracting

Building No.3, first floor, El-Sheikh Zayed, Ismailia

(November 21, 2023)

1. Introduction

The Civil Engineering Testing & Consulting Unit (CETCU) of the Egypt-Japan University of Science and Technology (EJUST) was retained by El-Nawras Company for General Contracting to conduct 8 plate loading tests on the Prepared Subgrade 2.0 of the Electric Express Train project at 8 locations (KM 332+500 to 332+525, KM 332+525 to 332+550, KM 332+550 to 332+575, KM 332+575 to 332+600, KM 332+600 to 332+625, KM 332+625 to 332+650, KM 332+650 to 332+675, and KM 332+675 to 332+700) in accordance with the German Standard DIN18134. The mandate was communicated by Eng. Ahmed Mohamed Amr of El-Nawras Company for General Contracting. Field team members (Mr.Mohamed Mamdouh) from the working CETCU team visited the project site on November 21, 2023 and performed the required tests. This report summarizes the plate loading test procedure according to DIN18134, the test results and their interpretations, and the CETCU pertaining recommendations.

2. Test Set Up and Instrumentation

- The German standard DIN18134 was applied to define the test setup including the loading system, test conditions, and procedure for the plate loading tests
- The tests were carried out to determine the Strain Moduli (Ev1 and Ev2) and their ratio (Ev2/Ev1) from a stress – deformation relationship of two consecutive loading from Loading-Unloading-Loading regime.
- The loading plate has a diameter of 600 mm and a thickness of 25 mm and it is provided with equally spaced stiffeners. The upper plate face is parallel to the bottom face of the plate to allow a 300-mm plate to be placed on the 600-mm plate top.
- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which can apply and release the load increments.
- The dial gauge used to measure the plate settlement has a resolution of 0.01 mm and the lever ratio was equal to 1.
- The temperature at the time of the test was 21± 1°C.
- The plate was carried out on a Prepared Subgrade 2.0 (according to the company) at 8 points. The test surface area was levelled, and the plate was bedded on this surface.
- The hydraulic jack was placed on the middle of, and normal to, the loading plate beneath the reaction loading system and secured against tilting.
- The reaction loading system was a heavy multi-purpose Loader CAT 972G.

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E-JUST CETC Unit

3. Test Procedure and Results

The plate load test was conducted in accordance with the DIN18134. Loading, unloading, and reloading regimes were considered to estimate the resilient modulus of the tested soil. Prior to the test, the force transducer and dial gauge were reset to zero, and then a load corresponding to a stress of 0.01 MN/m2 was applied. The load was increased in the first loading cycle until a normal stress of 0.25 MN/m2 was reached, and the loading increment was 0.025 MN/m2. The load was gradually released in four stages. Following unloading, a second loading cycle was performed, but the load was only increased to the penultimate stage of the first cycle. 8 plate loading tests on the Prepared Subgrade 2.0 of the Electric Express Train project were conducted at 8 locations (KM 332+500 to 332+525, KM 332+525 to 332+550, KM 332+550 to 332+575, KM 332+575 to 332+600, KM 332+600 to 332+625, KM 332+625 to 332+650, KM 332+650 to 332+675, and KM 332+675 to 332+700) and the data collected at the 8 test points is included in Appendix A.

Table 1 presents the load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+525), while Table 2 shows the data obtained at the second loading stage.

Table 1: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+525)

Loading stage	Load (F)	Normal	Settleme
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.27
2	14.14	0.050	0.40
3	21.21	0.075	0.60
4	28.28	0.100	0.87
5	35.35	0.125	1.09
6	42.42	0.150	1.34
7	49.49	0.175	1.50
8	56.56	0.200	1.65
9	63.63	0.225	1.76
10	70.7	0.250	1.89
11	56.56	0.200	1.89
12	49.49	0.175	1.89
13	35.35	0.125	1.77
14	21.21	0.075	1.64
15	7.414	0.005	0.93

Table 2: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+500 to 332+525)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.93
1	7.07	0.025	1.26
2	14.14	0.050	1.35
3	21.21	0.075	1.50
4	28.28	0.100	1.60
5	35.35	0.125	1.68
6	42.42	0.150	1.76
7	49.49	0.175	1.86
8	56.56	0.200	1.91
9	63.63	0.225	2.00

The load-settlement data obtained in all loading and unloading stages for the test performed at the first location (KM 332+500 to 332+525) are shown in Figure 1. Table 3 shows the calculations of the resilient modulus of the tested soil according to DIN18134. The testing data corresponding to the second testing point (KM 332+525 to 332+550) is provided in Tables 4-6 and Figure 2. The testing data corresponding to the third testing point (KM 332+550 to 332+575) is provided in Tables 7-9 and Figure 3. The testing data corresponding to the fourth testing point (KM 332+575 to 332+600) is provided in Tables 10-12 and Figure 4. The testing data corresponding to the fifth testing point (KM 332+600 to 332+625) is provided in Tables 13-15 and Figure 5.

Table 3: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+500 to 332+525)

Parameters	1st loading cycle	2nd loading cycle
$(s_0 max)$ MN/m^2	0.25	0.25
a_0 (mm)	-0.06	0.99
a_1 (mm/(MN/m²))	10.64	7.51
a_2 (mm/(MN2/m⁴))	-10.91	-14.13
$Ev= 1.5 r/ (a_1+a_2 s_{0,max})$	56.90	112.95
Ev_2/Ev_1	1.98	

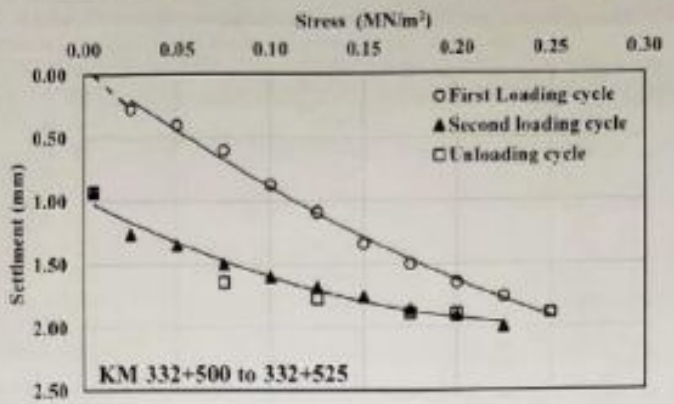

Figure 1: Load-settlement data: plate loading test performed at (KM 332+500 to 332+525)

Table 4: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+525 to 332+550)

Loading stage	Load (F)	Normal stress (s_o)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.15
2	14.14	0.050	0.38
3	21.21	0.075	0.57
4	28.28	0.100	0.71
5	35.35	0.125	0.87
6	42.42	0.150	1.02
7	49.49	0.175	1.16
8	56.56	0.200	1.26
9	63.63	0.225	1.37
10	70.7	0.250	1.50
11	56.56	0.200	1.50
12	49.49	0.175	1.49
13	35.35	0.125	1.40
14	21.21	0.075	1.30
15	1.414	0.005	0.63

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Table 5: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+525 to 332+550)

Loading stage	Load (F)	Normal stress (s_o)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.63
1	7.07	0.025	0.90
2	14.14	0.050	1.00
3	21.21	0.075	1.09
4	28.28	0.100	1.18
5	35.35	0.125	1.25
6	42.42	0.150	1.32
7	49.49	0.175	1.40
8	56.56	0.200	1.45
9	63.63	0.225	1.52

Table 6: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+525 to 332+550)

Parameters	1st loading cycle	2nd loading cycle
($s_{o,max}$) MN/m^2	0.25	0.25
a_o (mm)	-0.04	0.68
a_1 (mm/(MN/m^2))	8.49	6.14
a_2 (mm/($MN2/m^4$))	-9.70	-11.28
$Ev= 1.5 r/ (a_1+a_2 \cdot s_{o,max})$	74.15	135.48
Ev_2/Ev_1	1.83	

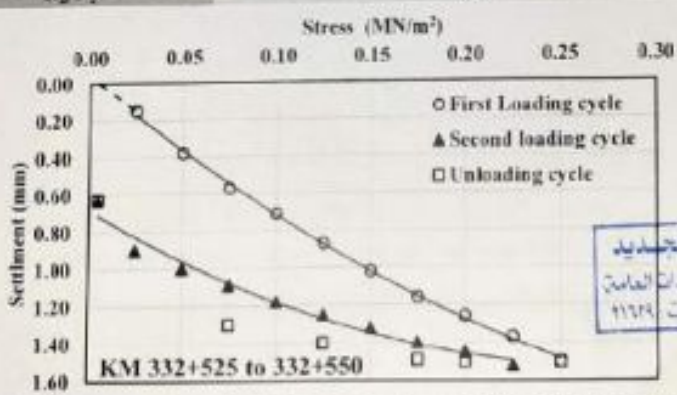

Figure 2: Load-settlement data: plate loading test performed at (KM 332+525 to 332+550)

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Table 7: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+550 to 332+575)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.23
2	14.14	0.050	0.30
3	21.21	0.075	0.42
4	28.28	0.100	0.55
5	35.35	0.125	0.70
6	42.42	0.150	0.86
7	49.49	0.175	1.09
8	56.56	0.200	1.19
9	63.63	0.225	1.30
10	70.7	0.250	1.47
11	56.56	0.200	1.47
12	49.49	0.175	1.46
13	35.35	0.125	1.39
14	21.21	0.075	1.25
15	1.414	0.005	0.52

Table 8: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+550 to 332+575)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.52
1	7.07	0.025	0.79
2	14.14	0.050	0.86
3	21.21	0.075	0.97
4	28.28	0.100	1.10
5	35.35	0.125	1.19
6	42.42	0.150	1.26
7	49.49	0.175	1.36
8	56.56	0.200	1.42
9	63.63	0.225	1.50

Table 9: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+550 to 332+575)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m^2	0.25	0.25
a_0 (mm)	0.07	0.56
a_1 (mm/(MN/m^2))	4.72	6.37
a_2 (mm/($MN2/m^2$))	3.82	-10.06
$Ev = 1.5\ r/\ (a_1+a_2 \cdot s_{0,max})$	79.32	116.65
Ev_2/Ev_1	1.47	

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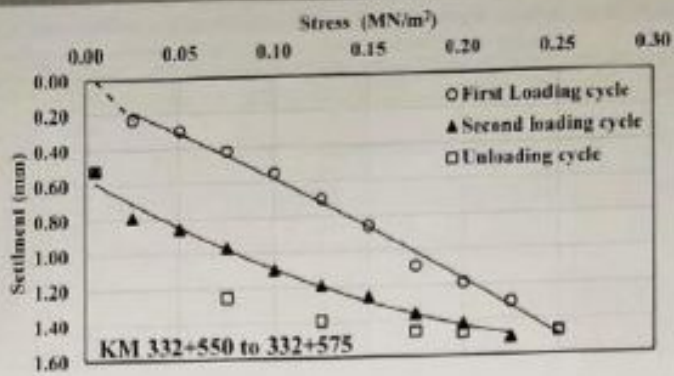

Figure 3: Load-settlement data: plate loading test performed at (KM 332+550 to 332+575)

Table 10: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+575 to 332+600)

Loading stage	Load (F) kN	Normal stress (s_o) MN/m²	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.30
2	14.14	0.050	0.38
3	21.21	0.075	0.50
4	28.28	0.100	0.67
5	35.35	0.125	0.86
6	42.42	0.150	1.05
7	49.49	0.175	1.23
8	56.56	0.200	1.34
9	63.63	0.225	1.48
10	70.7	0.250	1.58
11	56.56	0.200	1.58
12	49.49	0.175	1.52
13	35.35	0.125	1.48
14	21.21	0.075	1.37
15	1.414	0.005	0.65

Table 11: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+575 to 332+600)

Loading stage	Load (F)	Normal stress (s_o)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.65
1	7.07	0.025	0.92
2	14.14	0.050	1.01
3	21.21	0.075	1.15
4	28.28	0.100	1.27
5	35.35	0.125	1.37
6	42.42	0.150	1.45
7	49.49	0.175	1.54
8	56.56	0.200	1.62
9	63.63	0.225	1.70

Table 12: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+575 to 332+600)

Parameters	1st loading cycle	2nd loading cycle
$(s_o)_{max}$ MN/m^2	0.25	0.25
a_o (mm)	0.08	0.68
a_1 (mm/(MN/m^2))	6.43	7.00
a_2 (mm/(MN2/m^4))	-1.09	-11.40
$E_v = 1.5\, r / [a_1 + a_2 \cdot s_{o,max}]$	73.06	108.46
E_{v2}/E_{v1}	1.48	

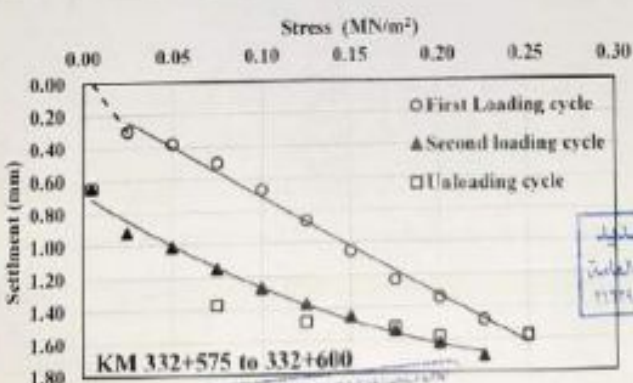

Figure 4: Load-settlement data: plate loading test performed at (KM 332+575 to 332+600)

Table 13: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+625)

Loading stage	Load (F)	Normal stress (s_o)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.30
2	14.14	0.050	0.37
3	21.21	0.075	0.47
4	28.28	0.100	0.61
5	35.35	0.125	0.86
6	42.42	0.150	1.06
7	49.49	0.175	1.28
8	56.56	0.200	1.40
9	63.63	0.225	1.57
10	70.7	0.250	1.71
11	56.56	0.200	1.71
12	49.49	0.175	1.68
13	35.35	0.125	1.60
14	21.21	0.075	1.47
15	1.414	0.005	0.80

Table 14: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+600 to 332+625)

Loading stage	Load (F)	Normal stress (s_o)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.80
1	7.07	0.025	1.08
2	14.14	0.050	1.15
3	21.21	0.075	1.29
4	28.28	0.100	1.38
5	35.35	0.125	1.45
6	42.42	0.150	1.52
7	49.49	0.175	1.62
8	56.56	0.200	1.67
9	63.63	0.225	1.79

Table 15: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+600 to 332+625)

Parameters	1st loading cycle	2nd loading cycle
(s_o,max) MN/m^2	0.25	0.25
a_0 (mm)	0.09	0.85
a_1 (mm/(MN/m^2))	5.58	6.14
a_2 (mm/($MN2/m^4$))	4.37	-9.64
$Ev_1 = 1.5\ r / (a_0 + a_1 \cdot s_{o,max})$	67.49	120.53
Ev_2/Ev_1	1.79	

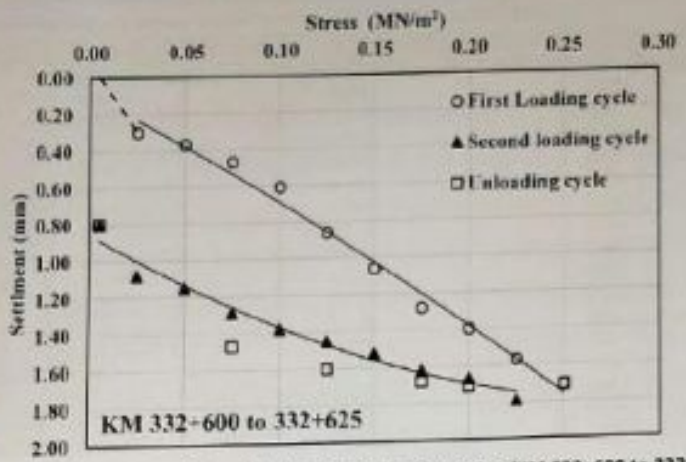

Figure 5: Load-settlement data: plate loading test performed at (KM 332+600 to 332+625)

The testing data corresponding to the sixth testing point (KM 332+625 to 332+650) is provided in Tables 16-18 and Figure 6. The testing data corresponding to the seventh testing point (KM 332+650 to 332+675) is provided in Tables 19-21 and Figure 7. The testing data corresponding to the eighth testing point (KM 332+675 to 332+700) is provided in Tables 22-24 and Figure 8.

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للاستشارات الهندسية والتوريدات العامة

Table 16: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+625 to 332+650)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.00
1	7.07	0.025	0.30
2	14.14	0.050	0.38
3	21.21	0.075	0.50
4	28.28	0.100	0.61
5	35.35	0.125	0.70
6	42.42	0.150	0.78
7	49.49	0.175	0.86
8	56.56	0.200	0.93
9	63.63	0.225	1.00
10	70.7	0.250	1.10
11	56.56	0.200	1.10
12	49.49	0.175	1.04
13	35.35	0.125	0.96
14	21.21	0.075	0.80
15	1.414	0.005	0.17

Table 17: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+625 to 332+650)

Loading stage	Load (F) kN	Normal stress (s_0) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.17
1	7.07	0.025	0.42
2	14.14	0.050	0.50
3	21.21	0.075	0.61
4	28.28	0.100	0.70
5	35.35	0.125	0.80
6	42.42	0.150	0.87
7	49.49	0.175	0.95
8	56.56	0.200	1.00
9	63.63	0.225	1.08

Table 18: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+625 to 332+650)

Parameters	1st loading cycle	2nd loading cycle
(s_0 max) MN/m^2	0.25	0.25
a_0 (mm)	0.18	0.20
a_1 (mm/(MN/m²))	4.52	6.07
a_2 (mm/(MN2/m⁴))	-3.64	-10.15
Ev= 1.5 r/ (a_1+a_2 $s_{0,max}$)	124.60	127.30
Ev_2/Ev_1	1.02	

مكتب الفنون الجديد للتجارة العامة والتوريدات العامة

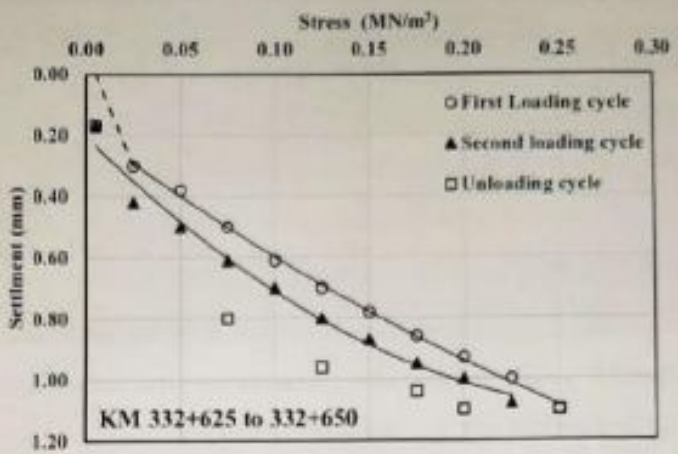

Figure 6: Load-settlement data: plate loading test performed at (KM 332+625 to 332+650)

Table 19: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+650 to 332+675)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m²	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.24
2	14.14	0.050	0.32
3	21.21	0.075	0.45
4	28.28	0.100	0.62
5	35.35	0.125	0.82
6	42.42	0.150	0.93
7	49.49	0.175	1.13
8	56.56	0.200	1.20
9	63.63	0.225	1.39
10	70.7	0.250	1.49
11	56.56	0.200	1.49
12	49.49	0.175	1.44
13	35.35	0.125	1.34
14	21.21	0.075	1.24
15	1.414	0.005	0.56

Table 20: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+650 to 332+675)

Loading stage	Load (F) kN	Normal stress (s_o) MN/m^2	Settlement (S) mm
0	1.414	0.005	0.56
1	7.07	0.025	0.83
2	14.14	0.050	0.93
3	21.21	0.075	1.03
4	28.28	0.100	1.15
5	35.35	0.125	1.25
6	42.42	0.150	1.32
7	49.49	0.175	1.43
8	56.56	0.200	1.50
9	63.63	0.225	1.56

Table 21: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+650 to 332+675)

Parameters	1st loading cycle	2nd loading cycle
(s_o,max) MN/m^2	0.25	0.25
a_o (mm)	0.05	0.60
a_1 (mm/(MN/m²))	6.02	6.63
a_2 (mm/(MN2/m⁴))	-0.61	-10.71
$Ev= 1.5 r/(a_1+a_2 \cdot s_{o,max})$	76.71	113.69
Ev_2/Ev_1	1.48	

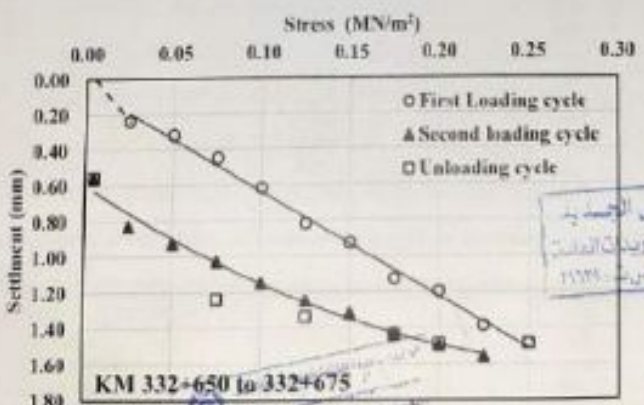

Figure 7: Load-settlement data: plate loading test performed at (KM 332+650 to 332+675)

Table 22: Load-settlement data obtained at the first loading and unloading stages of the plate loading test performed at the location (KM 332+675 to 332+700)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.00
1	7.07	0.025	0.30
2	14.14	0.050	0.40
3	21.21	0.075	0.54
4	28.28	0.100	0.72
5	35.35	0.125	0.91
6	42.42	0.150	1.05
7	49.49	0.175	1.25
8	56.56	0.200	1.35
9	63.63	0.225	1.50
10	70.7	0.250	1.62
11	56.56	0.200	1.62
12	49.49	0.175	1.55
13	35.35	0.125	1.49
14	21.21	0.075	1.37
15	1.414	0.005	0.57

Table 23: Load-settlement data obtained at the second loading and unloading stages of the plate loading test performed at the location (KM 332+675 to 332+700)

Loading stage	Load (F)	Normal stress (s_0)	Settlement (S)
	kN	MN/m^2	mm
0	1.414	0.005	0.57
1	7.07	0.025	0.87
2	14.14	0.050	0.97
3	21.21	0.075	1.13
4	28.28	0.100	1.28
5	35.35	0.125	1.39
6	42.42	0.150	1.45
7	49.49	0.175	1.55
8	56.56	0.200	1.60
9	63.63	0.225	1.70

Table 24: Calculations of the resilient modulus of the tested soil according to DIN18134: (KM 332+675 to 332+700)

Parameters	1st loading cycle	2nd loading cycle
($s_{0,max}$) MN/m^2	0.25	0.25
e_0 (mm)	0.09	0.60
a_1 (mm/(MN/m^2))	6.68	8.25
a_2 (mm/(MN2/m^4))	-1.94	-15.56
$Ev=1.5\ r/(a_1-a_2\ s_{0,max})$	72.61	103.18
Ev_2/Ev_1	1.42	

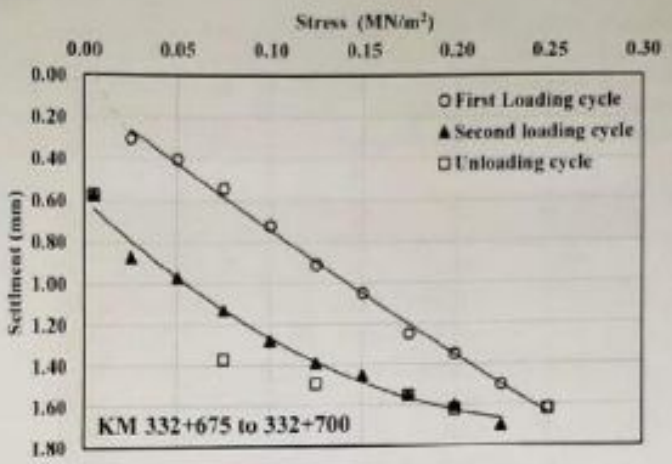

Figure 8: Load-settlement data: plate loading test performed at (KM 332+675 to 332+700)

مكتب القوس الجديد
للمقاولات العامة والتوريدات العامة

4. Closure

Test results presented herein report the load-settlement data obtained from 8 plate loading tests conducted on the Prepared Subgrade 2.0 of the Electric Express train project at 8 locations (KM 332+500 to 332+525, KM 332+525 to 332+550, KM 332+550 to 332+575, KM 332+575 to 332+600, KM 332+600 to 332+625, KM 332+625 to 332+650, KM 332+650 to 332+675, and KM 332+675 to 332+700) in accordance with German Standard, DIN18134.

Location	E_{v1} MN/m2	E_{v2} MN/m2	E_{v2}/E_{v1} ratio
KM 332+500 to 332+525	56.90	112.95	1.98
KM 332+525 to 332+550	74.15	135.48	1.83
KM 332+550 to 332+575	79.32	116.65	1.47
KM 332+575 to 332+600	73.06	108.46	1.48
KM 332+600 to 332+625	67.49	120.53	1.79
KM 332+625 to 332+650	124.60	127.30	1.02
KM 332+650 to 332+675	76.71	113.69	1.48
KM 332+675 to 332+700	72.61	103.18	1.42

• Note: Before interpreting these test results for future applications, the Prepared Subgrade 2.0 in-situ variability between the testing locations should be considered.

Technical committee

Prof. Dr. Mohamed F. M. Fahmy

Lab Engineer

Mohamed A. Al-Najjar

الهيئة العامة للطرق والكباري
GARR

قائمة الكميات الموردة بالمستخلص جاري (1)

مشروع إعداد أعمال الجسر الثاني والأعمال الصناعية للطرق (ربع العرب - الحضيري) من القطع الأول من مشروع الممر الكهربائي السريع والأمن السكني - مطروح
استكمال تشكيل الجسور وطبقات الأساس المسافة من الكم 312+500 إلى الكم 312+880 بطول 0.500 كم

رقم البند وبيانه : (1-1) بالبند المكتب أعمال توريد وتشغيل آلية صالحة للردم وبطاقة المواصفات والتشغيل باستخدام المعدات

استلام : مكتب التوريس لجديد للمقاولات العامة والتوريدات العامة

مقدار العمل السابق : 0.0 م3 كمية المطلوبة 25,000.000 م3

بيان الأعمال بالمقايسة	رقم الطلب	الموقع الكيلومتري من	الى	الابعاد [متر] عرض	مساحة المقطع	الكمية
	(B.F1)	312+360	312+380	60	8.44	506.40
	(B.F2)	312+420	312+500	80	8.44	675.20
	(B.F3)	312+380	312+390	60	12.40	744.00
	(B.F4 SBV 1)	312+460	312+480	80	8.44	675.20
	(B.F5 SBV 1)	312+480	312+540	60	9.84	590.40
	(B.F6)	312+500	312+580	80	8.44	675.20
	(B.F7 SBV 1)	312+540	312+600	100	5.89	589.00
	(B.F8 SBV 2)	312+580	312+680	100	5.89	589.00
	(B.F9 SBV 1)	312+600	312+700	100	8.84	884.00
	(B.F10)	312+680	312+780	100	5.89	589.00
	(B.F11)	312+680	312+780	100	12.14	1214.00
	(B.F12)	312+680	312+780	100	12.14	1214.00
	(B.F13)	312+780	312+860	70	8.44	590.80
	(B.F14)	312+780	312+880	70	10.58	740.60
	(B.F15)	312+680	312+780	100	12.14	1214.00
	(B.F16)	312+780	312+880	100	11.94	1194.00
	(B.F17)	312+680	312+780	100	5.89	589.00
	(B.F18)	312+580	312+680	100	5.89	589.00
	(B.F19)	312+780	312+880	100	10.40	1040.00
	(B.F20)	312+660	312+680	60	5.89	353.40
	(B.F21)	312+780	312+860	40	5.89	235.60
	(B.F22)	312+560	312+580	40	6.12	367.80
	(B.F23)	312+680	312+760	40	6.12	245.20
	(B.F24)	312+560	312+580	60	6.04	362.40
	(B.F25)	312+480	312+560	80	11.44	457.60
	(B.F26)	312+460	312+480	80	6.04	362.40
	(B.F27)	312+560	312+580	40	6.04	241.60
	(B.F28)	312+560	312+580	60	6.04	362.40
	(B.F29)	312+480	312+560	60	6.04	241.60
	(B.F30)	312+460	312+480	60	6.04	362.40
	(B.F31)	312+780	312+860	40	6.04	241.60
	(B.F32)	312+480	312+560	100	5.94	594.00
	(B.F33)	312+560	312+660	100	5.94	594.00
	(B.F34)	312+580	312+780	200	5.90	1180.00
	(B.F35)	312+580	312+780	200	5.88	1176.00
	(B.F36)	312+480	312+560	100	5.79	579.00
	(B.F37)	312+560	312+660	100	5.79	579.00
	(B.F38)	312+680	312+880	200	5.67	1134.00
	(B.F39)	312+780	312+880	200	6.08	1216.00
						24995.40
						24995.40

إجمالي الكميات خلال فترة المستخلص الحالية م3

الإجمالي الكلي م3

مهندس الهيئة

مهندس استشاري

مهندس استشاري

مهندس المقاولة

مكتب التوريس الجديد للمقاولات العامة والتوريدات العامة
مرخص : ٢٢٨٠٥٠٥٠١٢٢ سوت : ٢١٢٢٩٤

شركة السكة
الطرق و الكباري
(SGARB)

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع إنشاء أعمال الجسر الثاني والأعمال المدنية للخلج (برج العرب - العامرية) من الخط الأول من مشروع القطار الكهربائي السريع (العين السخنة - مطروح)
استكمال تشكيل الجسور وطبقات الأساس المسافة من الكم 332+300 إلى الكم 332+600 بطول 0.500 كم

رقم البند وبيانه : (1-8) بالمتر المكعب اعمال توريد وتشغيل تربة صالحة للردم ومطابقة للمواصفات والتشغيل باستخدام المعدات (مكونة الحصين ردموم وكاريات الموازين والرسوم الموضحة تعليق)

المنفذ : مكتب الفيوس الجديد للمقاولات العامة والتوريدات العامة

مقدار العمل السابق : 0.0 م3

بيان الاعمال بالمقايسة	رقم الطلب	الموقع الكيلومتري من	الى	الابعاد (م/م) طول	عرض	متوسط الطبقة	الكمية
بالمتر المكعب اعمال توريد وفرش تربة صالحة للمواصفات وتشغيلها وتستخدم الآلات المتنوعة بسعة لا يزيد عن 08 طن حتى مشروب 10 طن و بسعة لا يزيد عن 21 طن لاستكمال المنسوب التصميمي للتشكيل الجسر بالأطالة إلى حد أعمال الأيكوريا لا تقل عن (95%) و يتم رش الأتربة الصالحة الموجودة في منطقة الحفرية المطلوبة وإضافة الجير بالمواصفات الموصى في الفني لكافة بطة (8) كلاس الكثافة الجافة القصوى ويتم الخلط حلية المكاسب التصميمية والطبقات المرتبة المتواجدة والمبوبات الفصلية المحددة وأبعاد وتصميم مبدئياً طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق و الكباري وتعليمات المهندس المشرف. في حالة طلب جهاز القارف زيادة نسبة الحدد (NSD) يحسب زيادة و جود حتى زيادة نسبة الحدد الى 92 - مسافة الخلط حتى 2 كم ويتم احتساب علاوة 0.5 جنيه لكل كم بالزيادة أو النقصان . الحد الأدنى لكل عملية الدوران و الخلط و الاختبارات و نقل المواد العمل حتى مسافة 2 كم .	IR F1	332+300	332+400	8.44	50	506.40
	IR F2	332+420	332+500	8.44	80	475.20
	IR F3	332+500	332+500	12.40	50	744.00
	IR F4 REV 1	332+500	332+560	8.44	50	475.20
	IR F5 REV 1	332+560	332+640	9.96	60	598.40
	IR F6	332+580	332+580	8.44	50	475.20
	IR F7 REV 2	332+600	332+580	5.88	100	588.00
	IR F8 REV 2	332+600	332+400	5.88	100	588.00
	IR F9 REV 1	332+600	332+560	5.84	100	584.00
	IR F 10	332+600	332+560	5.89	100	589.00
	IR F 11	332+600	332+500	12.14	100	1214.00
	IR F 12	332+500	332+400	12.14	100	1214.00
	IR F 13	332+300	332+400	8.44	20	168.80
	IR F 14	332+300	332+400	10.56	20	211.20
	IR F 15	332+600	332+500	12.14	100	1214.00
	IR F 16	332+300	332+600	11.94	100	1194.00
	IR F 17	332+400	332+360	5.89	100	589.00
	IR F 18	332+500	332+400	5.89	100	589.00
	IR F 19	332+300	332+600	10.40	100	1040.00
	IR F 20	332+660	332+600	5.89	40	353.40
	IR F 21	332+700	332+660	5.89	40	235.60
	IR F 22	332+660	332+600	6.13	40	367.80
	IR F 23	332+660	332+560	6.15	40	345.20
	IR F 24	332+560	332+500	5.89	60	353.40
	IR F 25	332+600	332+560	12.40	40	496.00
	IR F 26	332+460	332+400	6.04	60	362.40
	IR F 27	332+500	332+460	6.05	40	241.60
	IR F 28	332+560	332+500	6.04	60	362.40
	IR F 29	332+600	332+560	6.04	40	241.60
	IR F 30	332+660	332+600	6.04	60	362.40
	IR F 31	332+700	332+660	6.04	40	241.60
	IR F 32	332+400	332+300	5.94	100	594.00
	IR F 33	332+500	332+400	5.94	100	594.00
	IR F 34	332+500	332+300	5.99	200	1198.00
	IR F 35	332+600	332+500	5.88	200	1176.00
	IR F 36	332+400	332+300	5.79	100	579.00
	IR F 37	332+500	332+400	5.79	100	579.00
	IR F 38	332+600	332+500	5.67	200	1134.00
	IR F 39	332+600	332+400	5.68	200	1216.00
						24995.40
						24995.40

مهندس الإستشاري
مكتب الفيوس الجديد
د/ أحمد حلمي

مهندس الجهة
د/ محمد حمدي

مهندس الشركة
د/ أشرف نبيل سعد

مكتب الفيوس الجديد للمقاولات العامة والتوريدات العامة
ت ٣٢٨٠٠٥٠ ، ٠٩٢ ص.ب : ٢١٢٣٩

قائمة الكميات الفرعية والمستخلص جزئي (1)

مشروع إنشاء أعمال الجسر الأرضي والأنفاق الصناعية لمفترق (مرج العرب - الجلمين) من الخط الأول من مشروع القطار الكهربائي السريع (العين السخنة - مطروح)

تشكيل تشكيل الجسور وطبقات الإساس المسافة من الكم 112+883 إلى الكم 112+900 بطول 0,530 كم

رقم البند و بيانه : (1-1) باقي المكعب اعمال توريد وتشغيل التربة صالحة الردم ومطابقة للمواصفات والتشغيل باستخدام المعدات (بداية مسافة النقل قارية بأسبار 100)

المنطقة : مكتب النوبرس الجديد للمقاولات العامة والتوريدات العامة

مقدار العمل السابق : 0.0 م3

بيان باعمال والمنطقة	رقم الحساب	الموقع الكيلومتري من	الموقع الكيلومتري إلى	الأبعاد (م) طول	الأبعاد (م) درجة التشغيل	نسبة مساحية %	الكمية
باقي المكعب اعمال توريد وتشغيل التربة مطابقة للمواصفات وتشغيلها باستخدام الآلات الميكانيكية بمسافة لا تزيد عن 50 متر طول مقسومة الى 4 مرات وبمسافة لا تزيد عن 25 متر بالاشتراك الجسور التحويلي المتكامل العصر والانفاق (بنية تحتية الاباريات لا تقل عن 0.5م و بنية تحتية الاسرارية الرئيسية في بنية الرصيف المطلوبة والانفاق لعمل تقويات الوصول في القسم 4000 متر زيادة عن ما في الخطة المعتمدة للمقاولين ويتم الاشارة حيث الاسلاك الكهربية والاتصالات والطرق الكهربائية والبوابات الكهربية بمعدات وآلية يصنع استثنائية فقط الاصول الصالحة ومواصفات الهيئة العامة للطرق و الكباري والمعدات الهندسي المشاريع. في حالة طلب جهاز الكيلو زيادة نسبة قدمة 50% يحسب زيادة جمعة على زيادة نسبة المعتمد فقط 1.1 مسافة الحفر مسموح الم ر ريس اعتماد ب مقدار مدة ويتم الإتراكي بالزيادة أو النقصان. اسعار يشمل سعر تسوية و تنظيف و تخفيض و تحويل و على شيولة العمل مدى مسافة 1 كم.	1-1-1	112+500	112+600	100	0.44	00	400.32
	1-1-2	112+600	112+680	80	0.44	00	320.26
	1-1-3	112+680	112+800	80	11.48	00	919.20
	1-1-4	112+440	112+360	80	5.44	00%	340.16
	1-1-5	112+400	112+320	80	5.88	00%	470.32
	1-1-6	112+360	112+300	60	5.44	00%	340.16
	1-1-7	112+300	112+200	100	1.88	00%	471.00
	1-1-8	112+200	112+100	100	1.88	00%	471.00
	1-1-9	112+100	112+000	100	1.88	00%	471.00
	1-1-10	112+900	112+800	100	1.88	00%	471.00
	1-1-11	112+800	112+700	100	12.14	00%	1214.00
	1-1-12	112+700	112+600	100	12.14	00%	1214.00
	1-1-13	112+700	112+600	100	5.44	00%	544.00
	1-1-14	112+700	112+600	50	10.56	00%	528.00
	1-1-15	112+600	112+500	100	12.14	00%	1214.00
	1-1-16	112+700	112+600	100	11.84	00%	1184.00
	1-1-17	112+600	112+500	100	5.88	00%	588.00
	1-1-18	112+500	112+400	100	5.88	00%	588.00
	1-1-19	112+700	112+600	100	18.48	00%	1848.00
	1-1-20	112+600	112+500	60	5.88	00%	352.72
	1-1-21	112+700	112+640	60	5.88	00%	352.80
	1-1-22	112+500	112+400	100	5.88	00%	588.00
	1-1-23	112+600	112+500	100	6.20	00%	620.00
	1-1-24	112+800	112+700	100	6.04	00%	604.00
	1-1-25	112+600	112+500	100	12.48	00%	1248.00
	1-1-26	112+900	112+800	100	6.04	00%	604.00
	1-1-27	112+500	112+460	40	6.04	00%	241.60
	1-1-28	112+500	112+460	40	6.04	00%	241.60
	1-1-29	112+500	112+460	40	6.04	00%	241.60
	1-1-30	112+500	112+460	40	6.04	00%	241.60
	1-1-31	112+700	112+660	40	6.04	00%	241.60
	1-1-32	112+600	112+500	100	5.84	00%	584.00
	1-1-33	112+500	112+400	100	5.94	00%	594.00
	1-1-34	112+500	112+360	140	5.99	00%	838.60
	1-1-35	112+500	112+300	200	5.80	00%	1160.00
	1-1-36	112+500	112+380	120	5.79	00%	695.20
	1-1-37	112+500	112+360	140	5.79	00%	810.60
	1-1-38	112+500	112+300	200	5.67	00%	1134.00
	1-1-39	112+500	112+300	200	5.68	00%	1136.00
اجمالي الكميات طبقا لمستخلص جزئي (1)							15996.32
الاجمالي الكلي (م3)							15996.32

مهندس الشركة

مهندس الجهة

مهندس الاستشاري

مكتب النوبرس الجديد للمقاولات العامة والتوريدات العامة

شروع القطار السريع

قائمة الكميات الجزئية والمستخلص جاري (1)

مشروع إنشاء أعمال الجسر الثاني والأعمال الصناعية للطرح (برج العرب - الحمايدو) من الخط الأول من مشروع القطار الكهربائي السريع (القمر السخنة - مطروح)

استكمال تشكيل الجسور وطبقات الأساس المسافة من الكم 333+000 إلى الكم 333+880 بطول 0,330 كم

رقم البند و بيانه :(1-5) إنشاء المكعب احمال تربة وتشغيل التربة مساحة الردم ومطابقة المواصفات والتشغيل باستخدام المعدات (ملاءة مسافة النقل الرجالي بنسبة 50%)

لمقاولين : مكتب الفرس الجديد للمقاولات العامة والتوريدات العامة

مقدم العمل السابق : 0,0 م2

بيان الأعمال بالتفصيلة	رقم الحائط	الموقع الكيلومتري من	الموقع الكيلومتري الى	الأبعاد (م) طول	الأبعاد (م) مساحة الحائط	نسبة تحقيق 80%	الكمية
	06 F 1	333+000	333+006	60	0,44	20%	101,28
	06 F 2	333+500	333+600	10	0,44	20%	105,34
	06 F 3	333+300	333+300	40	12,00	20%	168,80
	06 F 4 SDV 1	333+440	333+300	80	0,44	20%	105,34
	06 F 5 SDV 1	333+520	333+440	80	5,84	20%	118,08
	06 F 6	333+100	333+100	80	0,44	20%	105,34
	06 F 7 SDV 2	333+400	333+300	100	5,89	20%	117,80
	06 F 8 SDV 2	333+600	333+400	100	5,89	20%	117,80
	06 F 9 SDV 2	333+600	333+400	100	5,84	20%	116,80
	06 F 10	333+600	333+400	100	5,89	20%	117,80
	06 F 11	333+400	333+300	100	12,14	20%	242,80
	06 F 12	333+500	333+400	100	12,14	20%	242,80
	06 F 13	333+700	333+600	20	0,44	20%	21,95
	06 F 14	333+700	333+600	20	10,56	20%	42,24
	06 F 15	333+800	333+600	100	12,14	20%	242,80
	06 F 16	333+700	333+600	100	11,84	20%	236,80
	06 F 17	333+800	333+700	100	5,89	20%	117,80
	06 F 18	333+800	333+600	100	5,89	20%	117,80
	06 F 19	333+700	333+600	100	10,60	20%	212,00
	06 F 20	333+600	333+600	60	5,89	20%	70,68
	06 F 21	333+700	333+600	40	5,89	20%	47,12
	06 F 22	333+500	333+500	60	5,13	20%	73,56
	06 F 23	333+600	333+500	40	5,13	20%	49,04
	06 F 24	333+300	333+300	40	5,04	20%	48,48
	06 F 25	333+400	333+300	40	11,44	20%	91,52
	06 F 26	333+400	333+400	60	5,04	20%	72,48
	06 F 27	333+600	333+500	40	5,04	20%	48,32
	06 F 28	333+600	333+500	60	5,04	20%	72,48
	06 F 29	333+600	333+500	40	5,04	20%	48,32
	06 F 30	333+500	333+500	60	5,04	20%	72,48
	06 F 31	333+700	333+600	40	5,04	20%	48,32
	06 F 32	333+400	333+300	100	5,94	20%	118,80
	06 F 33	333+500	333+400	100	5,94	20%	118,80
	06 F 34	333+600	333+500	100	5,94	20%	118,80
	06 F 35	333+500	333+400	100	5,68	20%	135,20
	06 F 36	333+500	333+400	100	5,79	20%	138,80
	06 F 37	333+500	333+400	100	5,79	20%	115,80
	06 F 38	333+500	333+400	100	5,67	20%	136,00
	06 F 39	333+700	333+600	100	5,08	20%	142,40
اجمالي الكميات خلال الأيام المستخلص الحالي م٢							4999,08
الاجمالي الكلي (م٢)							4999,08

مهندس الوحدة

م/ [illegible]

مهندس الاستشاري

مهندس المقاول

مهندس الإدارة

م/ [illegible]

مكتب الفرس الجديد للمقاولات العامة والتوريدات العامة

س ت : ٢١٦٢٢٩

مشروع القطار السريع - [illegible]

هيئة الطرق و الكباري
(GARB)

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع إسناد أعمال الجسر الترابي والأعمال الصناعية لقطاع (برج العرب -العلمين) من الخط الاول من مشروع القطار الكهربائي السريع (العين السخنه - مطروح)
استكمال تشكيل الجسور وطبقات الأساس المسافه من الكم 332+300 الى الكم 332+800 بطول 0,500 كم

رقم البند و بيانه : (2-4) بالامر المكتب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة تالج لكسر الكسارات والمطابقة للمواصفات

لمقايسة : مكتب التوريس الجديد للمقاولات العامة والتوريدات العامة

مقدار العمل السابق : 0.0 م3 كمية المقايسة 4,090.00 م3

بيان الاعمال بالمقايسة	رقم الطلب	البواقع الكيلومترى من	البواقع الكيلومترى الى	(أبعاد (متر) عدد	(أبعاد (متر) مساحة المقطع	الكمية
بالامر المكتب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة تالج لكسر الكسارات ومطابقة للمواصفات والكمي حجم تحميلات 100 متر وان تزيد نسبة المار من منخل 200 عن 10 % والصرح الوزن بالاشتراطات الخاصة والمشروع لا تقل نسبة تحمل كاليفورنيا عن 25 % و لا تزيد نسبة الفلك بطيئ أوس الجانوس عن 30 % ولا يزيد الامتصاص عن 1,5% و لا يقل معامل المرونة (Ez2) عن جودة نوع التحميل عن 80 ميجاباسكال ويتم فرشة على طبقتين باستخدام الات الاسوية المعدولة على ان لا يزيد سمك الطبقة بعد دمج الدمك عن 25 سم و رطوبة بالاسوية الاسوية الموصول الى نسبة الرطوبة المطلوبة والدمك الجيد الهزازات الموصول الى الفص كثافة جافة قصوى (لاتقل عن 95 %) من الكثافة المعملية وتفتة تشمل اجراء التجارب المعملية والحقلية ويتم التحقيق طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة وايضا يجمع ما يتطلبه طبقا للمواصفات الفنية للمشروع وتأمين الاستشاري وتعليمات المهندس المشرف. مسافة النقل لا تقل عن 10 كم	5.C 01	332+300	332+400	100	4.118	411.80
	5.C 02	332+400	332+500	100	4.118	411.80
	5.C 03	332+500	332+700	200	3.919	783.80
	5.C 04	332+700	332+900	200	4.118	823.60
	5.C 05	332+900	332+700	200	3.919	783.80
اجمالي الكميات خلال الفترة المستخلص الحالية (م³)						3214.80
الاجمالي الكلي (م³)						3214.80

مهندس الشركة
م / شريف يوسف سعد

مهندس الاستشاري
مكتب DHD
م / أحمد فتحي

مهندس الاستشاري
مكتب التوريس الجديد
م / أحمد سعد الدين

مهندس الهيئة
م / مدحت محمد

مكتب التوريس الجديد للمقاولات العامة والتوريدات العامة
ب.ض : ١٣٢ . ٥ . ٢٦٨ س.ت : ٢١٢٢٩

مشروع القطار السريع - برج العرب

قائمة الكميات الواردة والمستخلص جزئي (3)

مشروع: إستئناف أعمال الجسر الغربي والأعمال الصناعية لقطاع (برج العرب -الحلمين) من الخط الأول من مشروع القطار الكهربائي السريع (العين السخنه - مطروح) استكمال تشكيل الجسور وطبقات الأساس المسامه من الكم 332+100 الي الكم 332+800 بطول 0,500 كم

رقم البند و بيانه : (2-4) بالسعر المكتب اعمال توريد وفرش طبقة أساس (prepared Subgrade) من الاحجار الصلبة المتدرجة تالج تكسير الكسارات والمطابقة للمواصفات (علاوة مسافة النقل بنسبة 100%)

استلام : مكتب التوريس الجديد للمقاولات العامة والتوريدات العامة

مقدار العمل السابق : 0.0 م3

بيان الأعمال بالمقايسة	رقم الطلب	الموقع الكيلومتري من	الموقع الكيلومتري الى	الأبعاد (متر) طول	الأبعاد (متر) سماكة المقطع	نسبة العلاوة 100%	الكمية
بالسعر المكتب اعمال توريد وفرش طبقة أساس (prepared Subgrade) من الاحجار الصلبة المتدرجة تالج تكسير الكسارات والمطابقة للمواصفات والكمية حجم الحبيبات 100 مم وألا تزيد نسبة المار من منخل 2mm عن 12 % و الشرح الوارد بالكراسة العامة والمشروع لا تقل نسبة تحمل الكيوبيا عن 25 % و لا تزيد نسبة الانتفاخ بجهاز لوس انجلوس عن 30 % ولا يزيد الامتصاص عن 2.5% و لا يقل معامل المرونة (Ev2) (من أجهزة نوع التحميل من 80 ميجابسكال و يتم الرصف على طبقتين وباستخدام الات الضوء الحديثة حتى لن لا يزيد سمك الطبقة بعد دمك الدمك عن 22 سم و يقوم بالمدة الاصلية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للوصول الى القص كثافة جافة تصوى (لاتقل عن 95%) من الكثافة المعملية والتمل تمل ميرا، الجوانب المسلحة والمطاطرا بزيم الطبقة طبقة الاسول الصناعة والرسومات التفصيلية المعتمدة والتي يجميع مشتملات طبقة المواصفات الفنية للمشروع وتقرير الاستشاري بالمعلومات المهندس المشارك. مسافة النقل لا تقل عن 25 كم	5.0 01	332+400	332+100	100	4.12	100%	411.80
	5.0 02	332+500	332+400	100	4.12	100%	411.80
	5.0 03	332+500	332+500	200	3.92	100%	783.80
	5.0 04	332+700	332+100	200	4.12	100%	823.60
	5.0 05	332+700	332+100	200	3.92	100%	783.80
اجمالي الكميات خلال فترة المستخلص الحالية (م3)							3214.80
الاجمالي الكلي (م3)							3214.80

مهندس الشركة
م / شيف ربيع سعد

مهندس الاستشاري
مكتب XYZ
م / أحمد عادل

مهندس الاستشاري
مكتب م/ فؤاد نبيل
م/ أحمد عادل

مهندس الهيئة
م / مدحت مجدي

مشروع القطار السريع - قطاع الحلمين

مكتب التوريس الجديد
للمقاولات العامة والتوريدات العامة
ت: ٢١٦٢٩

الهيئة العامة للطرق و الكباري
(GARB)

قائمة الكميات الوزنية باستخلاص جزئي (1)

مشروع: إسناد أعمال الجسر الري والأعمال الصناعية قطاع (برج العرب -الجلمين) من البعد الأول من مشروع القطار الكهربائي السريع (العين السخنه - مطروح) استكمال تشكيل الجسور وطبقات الأساس المسافه من الكم 332+500 الي الكم 332+800 بطول 0,300 كم

رقم البند و بوقه : (2-4) بالمتر المكعب اعمال توريد وفرش طبقة أساس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات (علاوة تحصيل رسوم وكالات الموازين والرسوم الوطنية للطرق)

لتنفيذ : مكتب النورس الجديد للمقاولات العامة والتوريدات العامة

مقدار العمل السابق : 0,0 %

بيان الاعمال بالعقد	رقم العقد	الموقع الكيلومتري من	الموقع الكيلومتري الى	الابعاد (متر) طول	الابعاد (متر) متوسط العرض	الكمية
بالمتر المكعب اعمال توريد وفرش طبقة أساس prepared Subgrade من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والتي حجم الحبيبات 100 مم ولا تزيد نسبة أبعاد من مختلف 300 عن 12 % و التدرج الوزني بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحميل الايكوفيا عن 25% و لا تزيد نسبة الفاقد بطول لوس انجلوس عن 30 % و لا تزيد الامتصاص عن 2,5% و لا يقل معامل الجودة (CBR) من تجربة قوة التحميل عن 80 ميجاباسكال و يتم ترطيبها على طبقات باستخدام لات التسوية المحملة على ترك لا يزيد سمك الطبقة بعد دمك عن 25 سم و رطبها باقصى ا الصلاحية الوصول الى نسبة الرطوبة المطلوبة بالدمك الجيد الوزنات الوصول الى الكثافة بحالة الجوي (100% من 95 %) من CBR المعملية وتغطية تشمل اجور المعدات المعملية والمطلوبة ويتم تنفيذ طبقة تحويل الصلاحية والرسومات التفصيلية المعتمدة والتي يوضح مطابقة طبقة المواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف مسافة النقل لا تقل عن 20 كم	5.G.01	332+300	332+400	100	4.100	411.00
	5.G.02	332+400	332+500	100	4.100	411.00
	5.G.03	332+500	332+700	200	3.925	785.00
	5.G.04	332+500	332+700	200	4.100	820.00
	5.G.05	332+500	332+700	200	3.925	785.00
اجمالي الكميات خلال فترة استخلاص الحالية (م٣)						3214.00
الاجمالي الكلي (م٣)						3214.00

مهندس الهيئة
م / حمدي سعدي

مهندس الاستشاري
مكتب 252
م / أحمد خليل

مهندس الشركة
د / شريف يوسف سعد

مشروع القطار السريع - قطاع الجلمين

مكتب النورس الجديد للمقاولات العامة والتوريدات العامة
ب.ض : ٢٢٨ ، ٢٢٨ ، ٢٢٨ ، س.ت : ٢١٢٢٩

محضر قياس مسافة نقل

انه في يوم الثلاثاء الموافق 2024/1/2 وبحضور كلا من :

1- م/ مارجريت مجدي (مدير المشروع – الهيئة العامة للطرق والكباري)

2- م/ السيد سيف الدين (مدير مشروع الاستشاري مكتب د. خالد قنديل)

3- م/ شريف ربيع سعد (مدير مشروع شركة النورس)

تم النزول والمعاينة وطبقا للتعليمات الواردة بالمقايسة بمسافات نقل التوريد للاتربة والسن من الكسارة حتى محور مسار الطريق وجد أنه :

متوسط مسافة نقل التربة 168.7 كم حتى تاريخ 8-1-2024

متوسط مسافة نقل الرملة 143.3 كم

متوسط مسافة نقل السن 160 كم

التوقيعات :

3- م/ شريف ربيع سعد التوقيع/

2- م/ السيد سيف الدين التوقيع/

1- م/ مارجريت مجدي التوقيع/

مكتب النورس الجديد
للمقاولات العامة والتوريدات العامة

الهيئة العامة
الطرق و الكباري
(GARB)
وزارة النقل

مشروع: إسناد أعمال الجسر الترابي والأعمال الصناعية لقطار (برج العرب -الطمين)
من الخط الاول من مشروع القطار الكهربائي السريع (العين السخنه - مطروح)
استكمال تشكيل الجسور وطبقات الاساس المسافه من الكم 300+332 الى الكم
800+332 بطول 0.500 كم (بالامر المباشر)

المنطقة الخامسة غرب الدلتا
(الاسكندرية-مطروح)
ادارة المشروعات

تنفيذ : مكتب التوريس الجديد للمقاولات العامة والتوريدات العامة

مستخلص جاري رقم (1)

المقاول : مكتب التوريس الجديد رقم السجل (2024/2023/761) عن المدة من بداية الاعمال حتى (8/1/2024)

م	بيان الأعمال	الكمية	الوحدة	سعر الوحدة	سعر الاعمال التي تمت في خلال هذه المدة	سعر الاعمال التي تمت حتى الآن		جملة سعر الاعمال التي تمت حتى الآن		استقطاع ضمان		القيمة المستحقة بعد الاستقطاع		ملاحظات
		جنيه		جنيه	جنيه	جنيه	قرش	جنيه	قرش	جنيه	قرش	جنيه	قرش	
1	اعمال الردم													
1/1	يقدر المقاول اعمال توريد ونقل التربة مطابقة للمواصفات وتشكيلها باستخدام الات التسوية بسمك لا يزيد عن 50 سم حتى منسوب -2 متر و بسمك لا يزيد عن 25 سم لاستكمال المنسوب التصميمي لتشكيل الجسر والاكتاف (نسبة نمس كاليفورنيا لا تقل عن 15%) و رشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهزازات للوصول الى قصى كثافة جافة (98 % من الكثافة الجافة القصوى) ويتم الكثافة طبقا للمناسيب التصميمية والقطاعات العرضية المنوطية والرسومات التفصيلية المعتمدة والبند يجميع مشتملاته طبقا لاصول الصناعة ومواصفات الهيئة العامة للطرق و الكباري وتعليمات المهندس المشرف. - في حالة طلب جهاز الاشراف زيادة نسبة الدمك 98% يحسب زيادة 1 جنيه على زيادة نسبة الدمك لكل 1% - مسافة النقل حتى 2 كم و يتم احتساب الكلوم 1.4 جنيه لكل كم بالزيادة أو النقصان . - السعر يشمل عمل تثبيتات و تخليط و اختبارات و نقل لموقع العمل حتى مسافه 2 كم .	86.00	م3	26,000.000	23,746.63	23,746.63		2,018,378.55				2,018,378.55		- مكتب جهاز الاشراف متواجد العلامات الارشادية متواجده لوحات المشروع متواجدة - حفير المشروع متواجد والمبيانات متواجدون - مسئول تامين سلامة المرور متواجد العمال ومهندسون العمل متواجدون - التقارير الدورية والاسبوعية متواجدة - يراعى عدم التجارب العملية الحد الامني من المعدات متواجد - البرنامج الزمني للمشروع متواجد - وثيقة التامين للمعدات الشخصية سارية حتى 27/06/2024 وثيقة التامين لمخاطر المقاول سارية حتى 30/06/2024 يراعى تطبيق نصوص العقد
1/2	خلوة مسافة نقل لمسافة التراب 188.7 قم =1.4*166.7= 233.38 (188.7 (المسافة الكلية من المحجر للموقع) - 2(المحمل على اليد)) * 1.4 للكم)	233.38	م3	20,000.000	18,996.50	18,996.50		4,433,404.10				4,433,404.10		
1/3	خلوة مسافة نقل لمسافة الرمال 143.3 قم =1.4*141.3= 197.82 (143.3 (المسافة الكلية من المحجر للموقع) - 2 (المحمل على اليد)) * 1.4 للكم)	197.82	م3	5,000.000	4,749.13	4,749.13		939,472.11				939,472.11		
1/4	خلوة تحصيل رسوم الكارتة والموازين طبقا لكتاب الشركة الوطنية	15.00	م3	26,000.000	23,746.63	23,746.63		308,693.19				308,693.19		
2	طبقات الاساس													
2/1	يقدر المقاول اعمال توريد وفرش طبقة تاسيس (prepared Subgrade) من الاسفلت الصلبة المتروبة تتم تكسير الصخرة وتطابقة المواصفات وتقصى حجم الحبيبات 100 مم ولا تزيد نسبة الغبار من خلال 200 عن 12 % و الشرح الوارد بالكراسة الخاصة بالمشروع لا تقل نسبة نمس كاليفورنيا عن 25 % و لا تزيد نسبة اللدونة بجهاز كوس الجلوس عن 30 % ولا يزيد الانتفاخ عن 15% و لا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال و يتم فرشها على طبقتين باستخدام الات التسوية المحلية على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سمو رشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة ودمك الجيد للوصول الى قصى كثافة جافة قصوى (لاتقل عن 98 %) من الكثافة القصوية وتقاة تشمل اجراء التجارب المعملية والحقلية ويتم الكثافة طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع والتوريد الاستشاري وتعليمات المهندس المشرف. -مسافة النقل لا تقل عن 20 قم	278.00	م3	4,000.000	3,054.00	3,054.00		849,012.00				849,012.00		
2/2	خلوة مسافة نقل لمسافة الدمن 180 قم =(20-160 =) 140 قم (180 (المسافة الكلية من المحجر للموقع) - 20 (المحمل على اليد)) * 1.2 للكم)	168.00	م3	4,000.000	3,054.00	3,054.00		513,072.00				513,072.00		
	خلوة تحصيل رسوم الكارتة والموازين طبقا لكتاب الشركة الوطنية	25.00	م3	4,000.000	3,054.00	3,054.00		76,350.00				76,350.00		
	(جمالي قيمة المستخلص)							9,138,382						

(تسع ملايين ومائة وثمانية وثلاثون الفا وثلاثمائة واثنان وثمانون جنيها فقط لاغير)

المقاول : مكتب التوريس الجديد للمقاولات العامة والتوريدات العامة

مدير المشروع
م/ شريف وهيم

استشاري المشروع
م/ محمد حلمي

مدير المشروع الاستشاري
م/ أسيد سيف الدين

استشاري عام (SYSTRA)
م/ علاء عبد اللطيف
تمت المراجعة الفنية فقط

مدير المشروع (الهيئة)
م/ ماريوريت مجدي

مدير عام مشروعات المنطقة الخامسة
مهندس / محمد كشك فياض

اقر بان هذا الحساب صحيح و مضبوط و ان المبلغ المبين بالظهر و قدرها .....حق صرفها إلى المقاول

: تحريرا في

..... يدفع للمقاول مبلغ

ملحوظة : الفئات .....غير الواردة بعقد الشروط أحتمدت من .....

تحريرا في :

رئيس الإدارة المركزية
منطقة غرب الدلتا
الاسكندرية - مرسى مطروح
عميد - مهندس /
" هنى محمد محمود طه "

م	بيان الأعمال	الوحدة	الكمية	السعر	المبلغ
1	أعمال عامة				
1.1	[illegible]	م	25,004.01	83.50	2,126,600
	[illegible]		25,000.00	255.19	4,687,000
	[illegible]		8,000.00	197.62	1,581,100
	[illegible]		15,000.00	15.00	225,000
2	الطبقات الإنشائية				
2.1	[illegible] Layered Subgrade [illegible]	م	4,008.07	270.00	1,112,002
	[illegible]			163.00	653,000
	[illegible]			29.00	145,000
					9,980,700

الهيئة العامة للطرق و الجسور

الإدارة العامة للشئون الفنية و الإدارية و الإدارة العامة

مكتب النور سيد الحديد
للمقاولات العامة والتوريدات العامة
ت.ض: ٢٢٨-٥-١٩٢ ص ت: ٢١٦٣٩