

Contractor Company	Orange for Import & Export and General Contracting Company			Designer Company		(KK) Engineering Consulting Office					
Issued by Contractor	Name	Sign		Date/Serial Number		Time					
	Eng: Mohamed Fathy	محمد قمر الفول		28-08-2023 (OR-M.A 051)		09:30 AM					
Received by ER	Eng: Gaber Ibrahim		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				310	EW	CS	28	08	23	09	30

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

Description of Materials	Stockpile of Dolomitic Crushed Aggregates. (Filter Layer)		
Location to be Used	Station 310+450 to 310+960		
Sample only	Yes	Materials Type	Filter layers
Supplier Name	Rateb	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	Approved
Reference Photos	No	Other	
Comments by: Eng. Hesham Sabry (KK)		Comments by: Eng. Gaber Ibrahim (ER)	
١. تم إجراء الاختبارات المعملة وتم تحقيق النتائج المطلوبة طبقاً لمواصفات المشروع.		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-AWC-R
Contractor	Eng: Mohamed Fathy	محمد قمر الفول	28-08-2023	A
QA/QC *	Eng: Hesham Sabry		28/8/2023	A
GARB**	Eng: Ahmed Galal			
Employers Representative	Eng: Gaber Ibrahim			A.W.C

* Designer

** Alignment/Bridges: Culvert only

28-08-1073



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Seive Analysis of Fine and Coarse Aggregats (T-27)

Date :	28-Aug-23	Station:	310+500
From / To :	310+450 TO 310+960	Sample type :	خليط من سن 1# & 2# & 3#

Sieve size (mm)	Retained	Passing	Passing %		
				MIN	MAX
75	0	15565	100.0	100	100
50	0	15565	100.0	75	90
10	12980	2585	16.6	15	25
4.75	1874	711	4.57	0	10
0.075	580	131	0.8	0	5
Passing	131				
Total	15565				

مهندس الجودة الاستشاري

مهندس الشركة

مهندس الشركة



الهيئة العامة
للطرق والكباري
(GARB)



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Seive Analysis of Fine and Coarse Aggregats (T-27)

Date :	28-Aug-23	Station:	310+500
From / To :	310+450 TO 310+960	Sample type :	خليط من سن 3# & 2# & 1#

Sieve size (mm)	Retained	Passing	Passing %		
				MIN	MAX
75	0	18277	100.0	100	100
50	128	18149	99.3	75	90
10	14389	3760	20.6	15	25
4.75	2891	869	4.75	0	10
0.075	781	88	0.5	0	5
Passing	88				
Total	18277				

مهندس الجودة الاستشاري

مهندس الشركة
محور أبو شنب

Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

APRASION OF AGGREGATE BASE COARSE ASTM C-131

Date :	28-Aug-23	Station:	310+500		
From / To :	310+450 TO 310+960	Sample type :	خليط من سن 3# & 2# & 1#		
رتبة تدرج الاختبار		A	B	C	D
عدد الكرات لكل رتبة		12	11	8	6
مار من	محجوز على	وزن العينات (جم)			
37.5 mm (1½ in.)	25 mm (1 in.)	1250			
25 mm (1 in.)	19 mm (¾ in.)	1250			
19 mm (¾ in.)	12.5 mm (½ in.)	1250	2500		
12.5 mm (½ in.)	9.5 mm (⅜ in.)	1250	2500		
9.5 mm (⅜ in.)	6.35 mm (¼ in.)			2500	
6.35 mm (¼ in.)	4.75 mm (No. 4)			2500	
4.75 mm (No. 4)	2.36 mm (No. 8)				5000
المجموع		5000	5000	5000	5000
حساب نسبة الفاقد بجهاز لوس انجلوس:					
وزن العينة قبل الاختبار		5000			
وزن العينة المحجوزه على مهزه رقم 12		3751			
نسبة الفاقد بجهاز لوس انجلوس		25.0%			

مهندس الجودة الاستشاري

مهندس الشركة
محمد أبو شنب

خالد

Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Water Absorption of Coarse Aggregate (ASTM-C127)

Date :	28-Aug-23
From / To :	310+450/310+960

Station:	310+500
Sample type :	خليط من سن 1 - سن 2 - سن 3

Item	Weigh (gm)
Wt. in Air Dry Before Test (gm.)	5000
Wt. in air SSD (gm.)	5145
Wt. in Air Dry After Test (gm.)	4939
Percentage of Absorption	4.17%
Percentage of Disintegration piece	1.22%

Elongated and Flat Aggregate ASTM D-4791

Weigh of Total Sample (gm.)	5000
Weigh Elongated (gm.)	171
Weigh Flat (gm.)	356
Percentage of Elongated	3.42%
Percentage of Flat	7.12%

Natural Soft Aggregate

Weigh of Total Sample (gm.)	18277
Weigh Natural (gm.)	1201
Percentage of Natural Aggregate	6.57%

المهندس الاستشاري (K.K.)



مهندس المواد (الشركة)

محمود بوشني

MATERIAL APPROVAL REQUEST



CMR ENGINEERING & CONSTRUCTION



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



GARB



SVESTA



Contractor Company	Orange for Import & Export and General Contracting Company		Designer Company	(KK) Engineering Consulting Office
Issued by Contractor	Name	Sign	Date/Serial Number	Time
	Eng: Mohamed Fathy	محمد قدس الغول	29-08-2023 (OR-M.A 052)	09:30 AM
Received by ER	Eng: Gaber Ibrahim			
		MAR	C1 310	C2 EW
			C3 CS	DD 29
			MM 08	YY 23
			HH 09	MM 30

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

Description of Materials	Stockpile of Dolomitic Crushed Aggregates. (Filter Layer)		
Location to be Used	Station 310+450 to 310+960		
Sample only	Yes	Materials Type	Filter layers
Supplier Name	Rateb	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	Approved
Reference Photos	No	Other	
Comments by: Eng. Hesham Sabry (KK)		Comments by: Eng. Gaber Ibrahim (ER)	
تم إجراء الاختبارات المعملية وتم تحقيق النتائج المطلوبة طبقاً لمواصفات المشروع.		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-AWC-R
Contractor	Eng: Mohamed Fathy	محمد قدس الغول	29-08-2023	A
QA/QC *	Eng: Hesham Sabry		29/8/2023	A
GARB**	Eng: Ahmed Galal			
Employers Representative	Eng: Gaber Ibrahim			A.W.C

* Designer
** Alignment/Bridges: Culvert only

29-08-2023



الهيئة العامة
للطرق والكباري
(GARB)



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Seive Analysis of Fine and Coarse Aggregats (T-27)

Date : 29-Aug-23

From / To : 310+450 TO 310+960

Station:

310+600

Sample type :

خليط من سن 1# & 2# & 3#

Sieve size (mm)	Retained	Passing	Passing %		
				MIN	MAX
75	0	10862	100.0	100	100
50	0	10862	100.0	75	90
10	8751	2111	19.4	15	25
4.75	1523	588	5.41	0	10
0.075	491	97	0.9	0	5
Passing	97				
Total	10862				

مهندس الجودة الاستشاري

مهندس الشركة
محمود أبو شنب

Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

APRASION OF AGGREGATE BASE COARSE ASTM C-131

Date :	29-Aug-23	Station:	310+600		
From / To :	310+450 TO 310+960	Sample type :	خليط من سن 3# & 2# & 1#		
رتبة تدرج الاختبار		A	B	C	D
عدد الكرات لكل رتبة		12	11	8	6
مار من	محجوز على	وزن العينات (جم)			
37.5 mm (1½ in.)	25 mm (1 in.)	1250			
25 mm (1 in.)	19 mm (¾ in.)	1250			
19 mm (¾ in.)	12.5 mm (½ in.)	1250	2500		
12.5 mm (½ in.)	9.5 mm (⅜ in.)	1250	2500		
9.5 mm (⅜ in.)	6.35 mm (¼ in.)			2500	
6.35 mm (¼ in.)	4.75 mm (No. 4)			2500	
4.75 mm (No. 4)	2.36 mm (No. 8)				5000
المجموع		5000	5000	5000	5000

حساب نسبة الفاقد بجهاز لوس انجلوس:

وزن العينة قبل الاختبار	5000
وزن العينة المحجوزة على مهزة رقم 12	3798
نسبة الفاقد بجهاز لوس انجلوس	24.0%

مهندس الجودة الاستشاري

مهندس الشركة
محمد أبو شنب

خالد شندبل

Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Water Absorption of Coarse Aggregate (ASTM-C127)

Date :	29-Aug-23
From / To :	310+450/310+960

Station:	310+600
Sample type :	خليط من سن 1 - سن 2 - سن 3

Item	Weigh (gm)
Wt. in Air Dry Before Test (gm.)	5000
Wt. in air SSD (gm.)	5145
Wt. in Air Dry After Test (gm.)	4939
Percentage of Absorption	4.17%
Percentage of Disintegration piece	1.22%

Elongated and Flat Aggregate ASTM D-4791

Weigh of Total Sample (gm.)	5000
Weigh Elongated (gm.)	191
Weigh Flat (gm.)	361
Percentage of Elongated	3.82%
Percentage of Flat	7.22%

Natural Soft Aggregate

Weigh of Total Sample (gm.)	10862
Weigh Natural (gm.)	721
Percentage of Natural Aggregate	6.64%

المهندس الاستشاري (K.K)

مهندس المواد (الشركة)

محمد أبو سنين

(Handwritten signature)



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/28-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031708/1A

Technical report

of Plate Loading Test (DIN 18134)

General	:	SYSTRA
Consultant	:	Dr/Khaled Kandil
Contractor	:	شركة اورنج للإستيراد والتصدير و المقاولات العامة
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Aggregate Filter
Station	:	ST(310+900) TO ST(310+960)
Date of Test	:	04/09/2023
QC	:	1868





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Introduction:

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

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

Test methods :

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

Description of experiment:

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





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/28-II-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/IA

Sec (310+900) to (310+960)

SI (310+930)

600

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

Loading stage no.	Load (F) kN	Normal stress (σ_0) MPa/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.13
2	14.14	0.050	0.27
3	21.21	0.075	0.42
4	28.28	0.100	0.47
5	35.35	0.125	0.74
6	42.42	0.150	0.88
7	49.49	0.175	1.09
8	56.56	0.200	1.21
9	63.63	0.225	1.34
10	70.7	0.250	1.47
11	77.77	0.280	1.45
12	84.84	0.175	1.43
13	91.91	0.175	1.32
14	98.98	0.075	1.21
15	1.414	0.005	1.03

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MPa/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	1.03
16	7.07	0.025	1.11
17	14.14	0.050	1.19
18	21.21	0.075	1.27
19	28.28	0.100	1.34
20	35.35	0.125	1.41
21	42.42	0.150	1.45
22	49.49	0.175	1.51
23	56.56	0.200	1.57
24	63.63	0.225	1.63

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{k,avg})$ MPa/m ²	0.250	0.250
s_0 (mm)	-0.040	1.024
s_1 (mm)(MPa/m ²)	6.026	3.453
s_2 (mm)(MPa/m ²)	0.505	-3.505
E_{avg} (15 or (4+ σ_p - σ_k avg))	73.15	175.13
E_{avg}	2.39	





COMIBASSAL International Controllers

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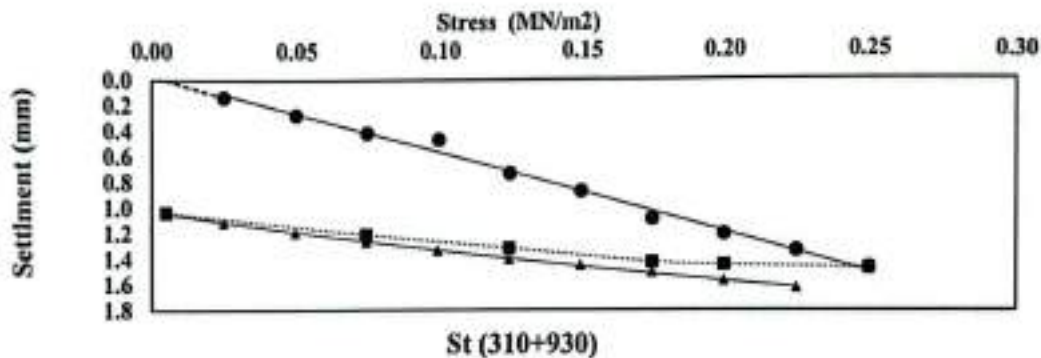


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

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





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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Conclusions:

The present test results which obtained from the plate loading tests of the native soil on aggregate filter layer of the electric express train project at location from St (310+900) to (310+960) in accordance to the German standard , DIN 18134 are illustrated in table 4.

Table 4 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
St (310+930)	73.15	175.13	2.39

Lab Director
Eman
Eng / Eman Kandil



Geotechnical Consultant
Dr. M.
Dr / Mohamed Mostafa Badry



MATERIAL INSPECTION REQUEST



Contractor Company	Orange for Import & Export and General Contracting Company		Designer Company	(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/ Serial Number	Time			
	Eng: Mohamed Fathy						
Received by ER	Eng. Gaber Ibrahim	MIR	C1	C2	C3	DD	MM
			310	EW	CS	04	09

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

Description of Materials	FILTER LAYER				
Location to be Used	From St. (310+900) To St. (310+960)				
MAR Approval No	(OR-M.A 052,053)			Date	04-09-2023 29-08-2023
Supplier Name	RATEB				
Test Requirement	P.L.T (DIN 18134)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP.	
Reference Photos	No		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	Plate load test	NUMBER	1	04-09-2023	
2					
3					
4					
Comments by : Eng. Hesham Sabry (KK)			Comments by: Eng. Gaber Ibrahim (ER)		
1. تم اختبار القطاع (Plate Loading Test) من قبل المعمل الهندسي (كومببيل). 2. تم تحقيق النتائج المطلوبة طبقاً لمواصفات المشروع.			1- P.L.T was carried- out by Comibassal Lab, Attendances of material engineer for both contractor and GARB Consultant. 2- Results report attached and acceptable with project specifications. 3- Final approval is subject to above mentioned comments.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng: Mohamed Fathy		04-09-2023	A
QA/QC *	Eng. Hesham Sabry		4/9/2023	A
GARB**	Eng. Ahmed Galal			
Employers Representative	Eng. Gaber Ibrahim			

* Designer

** Alignment / Bridges: Culvert Only



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COMIBASSAL International Controllers

Internal inspection and laboratories sector

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Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Aggregate Filter
Station	:	ST(310+900) TO ST(310+960)
Date of Test	:	04/09/2023
QC	:	1868

Kilo 23 Alexandria - Cairo Desert Road - Merghem
Tel: 002 03 4704595 - 002 034701191
Email : civdept@comibassal.com
WebSite : www.comibassal.com



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COMIBASSAL International Controllers

Internal inspection and laboratories sector

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- 2- Loading plates with a diameter of 600 mm have a thickness of 25mm and are provided with equally spaced stiffeners with even upper faces parallel to the plate bottom face to allow 300 mm plate to be placed on top of it.
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- 5- The temperature at the time of the test was 25°.
- 6- The plate was carried out on a native soil (sand-gravel). The test surface area was levelled and the plate was bedded on this surface.
- 7- The hydraulic jack was placed on the middle of, and at normal to, the loading plate beneath the reaction loading system and secured against tilting.
- 8- The reaction loading system was a heavy multi-purpose excavator (more than 20 ton).

Description of experiment:

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



Kilo 23 Alexandria - Cairo Desert Road - Merghem
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COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Sec (310+900) to (310+960)

St (310+930)

600

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

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.13
2	14.14	0.050	0.27
3	21.21	0.075	0.42
4	28.28	0.100	0.47
5	35.35	0.125	0.74
6	42.42	0.150	0.88
7	49.49	0.175	1.09
8	56.56	0.200	1.21
9	63.63	0.225	1.34
10	70.7	0.250	1.47
11	56.56	0.200	1.45
12	49.49	0.175	1.43
13	35.35	0.125	1.32
14	21.21	0.075	1.21
15	1.414	0.005	1.03

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	1.03
16	7.07	0.025	1.11
17	14.14	0.050	1.19
18	21.21	0.075	1.27
19	28.28	0.100	1.34
20	35.35	0.125	1.41
21	42.42	0.150	1.45
22	49.49	0.175	1.51
23	56.56	0.200	1.57
24	63.63	0.225	1.63

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0, max})$ MN/m ²	0.250	0.250
a_0 (mm)	-0.040	1.024
a_1 (mm/(MN/m ²))	6.026	3.453
a_2 (mm/(MN ² /m ⁴))	0.505	-3.535
$E_v = 1.5 \pi / (a_1 + a_2 \cdot \sigma_{0, max})$	73.15	175.13
E_v2/E_v1	2.39	



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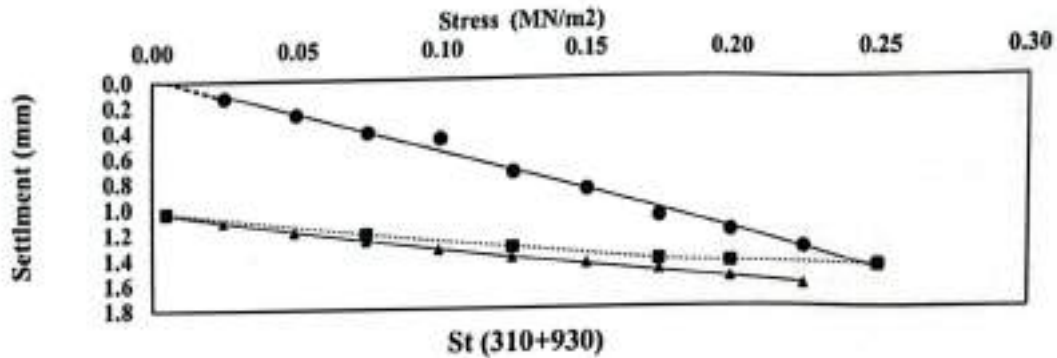


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_1 Normal stress MN/m²



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Conclusions:

The present test results which obtained from the plate loading tests of the native soil on aggregate filter layer of the electric express train project at location from St (310+900) to (310+960) in accordance to the German standard , DIN 18134 are illustrated in table 4.

Table 4 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
St (310+930)	73.15	175.13	2.39

Lab Director

Eng / Eman Kandil



Geotechnical Consultant

Dr / Mohamed Mostafa Badry

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Technical report

of Plate Loading Test (DIN 18134)

General	:	SYSTRA
Consultant	:	Dr/ Khaled Kandil
Contractor	:	شركة اورنج للإستيراد والتصدير و المقاولات العامة
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Coars AGG. Filter Layer
Station	:	ST(310+680) TO ST(310+850)
Date of Test	:	12/9/2023
QC	:	1240

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Introduction:

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

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

Test methods :

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

Description of experiment:

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



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st(310+680) to st(310+850)

310+700

600

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

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.14
2	14.14	0.050	0.25
3	21.21	0.075	0.35
4	28.28	0.100	0.47
5	35.35	0.125	0.56
6	42.42	0.150	0.67
7	49.49	0.175	0.81
8	56.56	0.200	0.94
9	63.63	0.225	1.05
10	70.7	0.250	1.15
11	56.56	0.200	1.13
12	49.49	0.175	1.11
13	35.35	0.125	0.91
14	21.21	0.075	0.79
15	1.414	0.005	0.43

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.43
16	7.07	0.025	0.53
17	14.14	0.050	0.64
18	21.21	0.075	0.73
19	28.28	0.100	0.85
20	35.35	0.125	0.91
21	42.42	0.150	0.98
22	49.49	0.175	1.04
23	56.56	0.200	1.12
24	63.63	0.225	1.20

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0,max}$) MN/m ²	0.250	0.250
a_0 (mm)	0.040	0.417
a_1 (mm/(MN/m ²))	4.019	4.709
a_2 (mm/(MN ² /m ⁴))	1.940	-5.847
$E_v = 1.5 \pi' / (a_0 + a_1 \cdot \sigma_{0,max})$	99.90	138.58
E_v/E_v1		1.39



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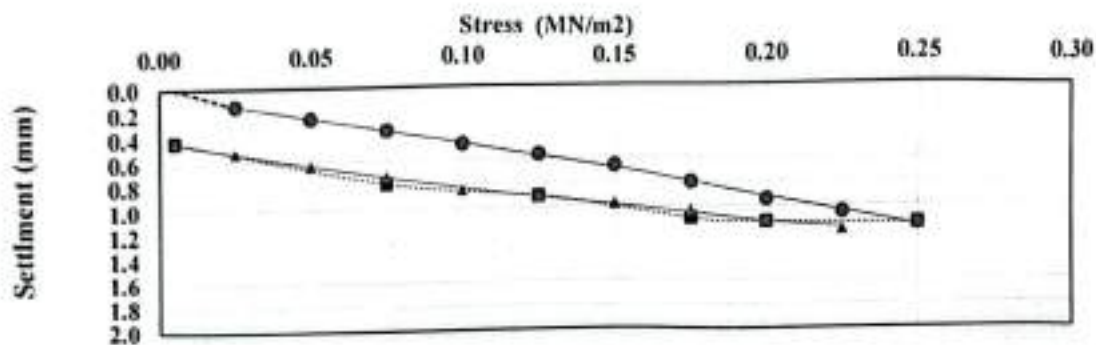


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

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





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st(310+680) to st(310+850)

310+750

600

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

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.15
2	14.14	0.050	0.26
3	21.21	0.075	0.35
4	28.28	0.100	0.50
5	35.35	0.125	0.62
6	42.42	0.150	0.74
7	49.49	0.175	0.87
8	56.56	0.200	1.06
9	63.63	0.225	1.14
10	70.7	0.250	1.23
11	56.56	0.200	1.21
12	49.49	0.175	1.19
13	35.35	0.125	1.03
14	21.21	0.075	0.86
15	1.414	0.005	0.57

Table 5: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.57
16	7.07	0.025	0.67
17	14.14	0.050	0.78
18	21.21	0.075	0.90
19	28.28	0.100	1.01
20	35.35	0.125	1.09
21	42.42	0.150	1.16
22	49.49	0.175	1.22
23	56.56	0.200	1.29
24	63.63	0.225	1.38

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{k,max}$) MN/m ²	0.250	0.250
s_k (mm)	0.016	5.473
s_1 (mm/(MN/m ²))	4.740	5.201
s_2 (mm/(MN ² /m ³))	1.031	-7.428
$E_v = 1.5 \sigma / (s_1 + s_2 \cdot \sigma_{k,max})$	90.05	134.55
E_v2/E_v1	1.49	





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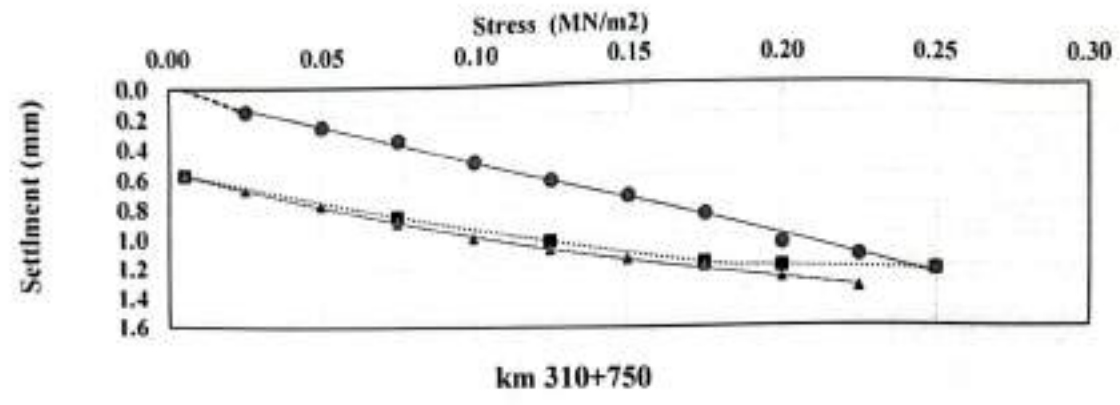


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

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





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st(310+680) to st(310+850)

310+800

600

Table 7: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.14
2	14.14	0.050	0.26
3	21.21	0.075	0.38
4	28.28	0.100	0.53
5	35.35	0.125	0.67
6	42.42	0.150	0.76
7	49.49	0.175	0.88
8	56.56	0.200	0.99
9	63.63	0.225	1.14
10	70.7	0.250	1.23
11	56.56	0.200	1.20
12	49.49	0.175	1.18
13	35.35	0.125	1.03
14	21.21	0.075	0.80
15	1.414	0.005	0.54

Table 8: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.54
16	7.07	0.025	0.64
17	14.14	0.050	0.72
18	21.21	0.075	0.84
19	28.28	0.100	0.92
20	35.35	0.125	1.00
21	42.42	0.150	1.08
22	49.49	0.175	1.14
23	56.56	0.200	1.21
24	63.63	0.225	1.27

Table 9: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0, max}$) MN/m ²	0.250	0.250
a_0 (mm)	-0.001	0.519
a_1 (mm/(MN/m ²))	5.447	4.545
a_2 (mm/(MN ² /m ⁴))	-2.061	-5.483
$E_v = 1.5 \sigma^2 / (a_1 + a_2 \cdot \sigma_{0, max})$	91.25	141.75
E_{v2}/E_{v1}	1.55	





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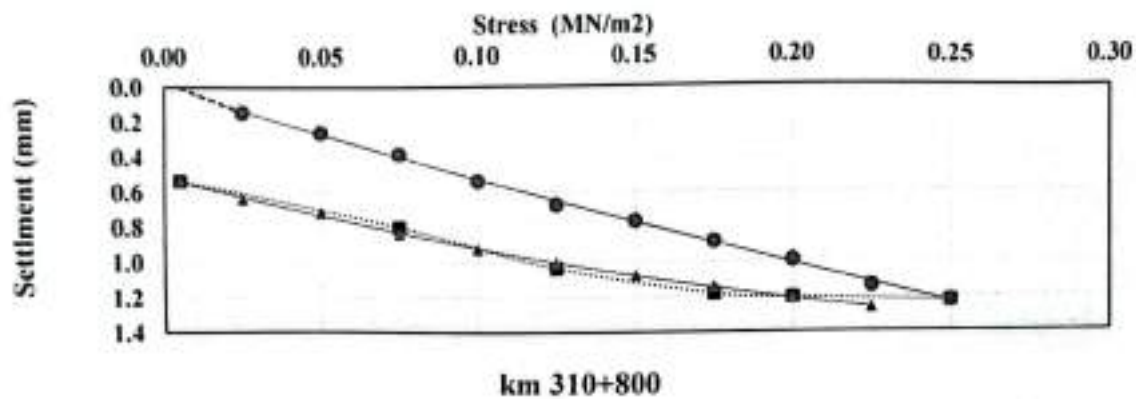


Fig. 3: Load-settlement curve, fitting curves according to Table 7 and Table 8 for the first and second loading cycles

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





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st(310+680) to st(310+850)

310+850

600

Table 10: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.17
2	14.14	0.050	0.26
3	21.21	0.075	0.39
4	28.28	0.100	0.48
5	35.35	0.125	0.61
6	42.42	0.150	0.74
7	49.49	0.175	0.92
8	56.56	0.200	1.05
9	63.63	0.225	1.22
10	70.7	0.250	1.40
11	56.56	0.200	1.38
12	49.49	0.175	1.35
13	35.35	0.125	1.21
14	21.21	0.075	0.99
15	1.414	0.005	0.74

Table 11: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.74
16	7.07	0.025	0.83
17	14.14	0.050	0.92
18	21.21	0.075	0.99
19	28.28	0.100	1.09
20	35.35	0.125	1.18
21	42.42	0.150	1.25
22	49.49	0.175	1.30
23	56.56	0.200	1.39
24	63.63	0.225	1.45

Table 12: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0.005}$) MN/m ²	0.250	0.250
s_0 (mm)	0.083	0.723
a_1 (mm/(MN/m ²))	3.292	3.957
a_2 (mm/(MN ² /m ⁴))	7.856	-3.214
$E_v = 1.5 \sigma / (a_1 + a_2 \cdot \sigma_{0.005})$	85.62	142.68
Ev2/Ev1	1.67	



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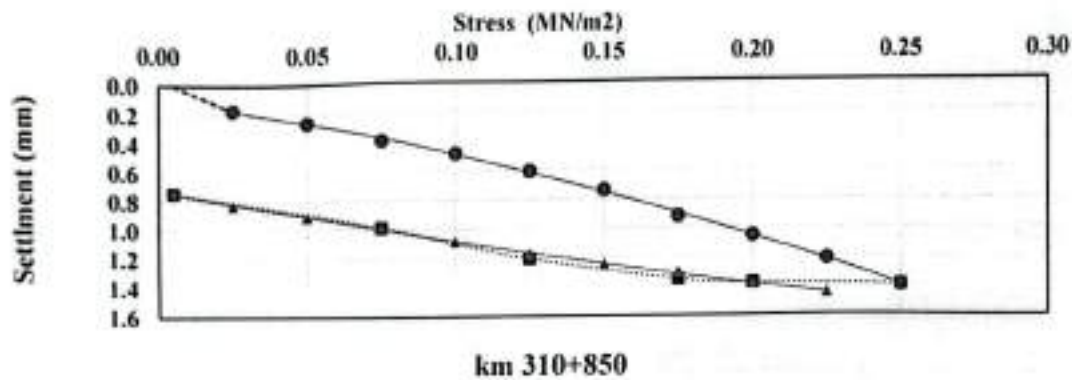


Fig. 4: Load-settlement curve, fitting curves according to Table 10 and Table 11 for the first and second loading cycles

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





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Conclusions:

The present test results which obtained from the plate loading tests of the native soil on Coarse agg. filter layer of the electric express train project at location (from km 310+680 to km 310+850) in accordance to the German standard , DIN 18134 are illustrated in table 13 .

Table 13 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
310+700	99.90	138.58	1.39
310+750	90.05	134.55	1.49
310+800	91.25	141.75	1.55
310+850	85.62	142.68	1.67

Lab Director
Eng / Eman Kandil



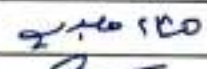
Geotechnical Consultant
Dr / Mohamed Mostafa Badry



Contractor Company	Orange for Import & Export and General Contracting Company			Designer Company				(AHE) & (FHECOR)			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng: Hesham Magdy			04-01-2024 (OR-03 M.A-01)				09:00 AM			
Received by ER	Eng: Gaber Ibrahim		MAR(01)	C1	C2	C3	DO	MM	YY	HH	MM
				310+650	EW	CS	04	01	24	09	00

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

Description of Materials	Stockpile For Replacement Layer		
Location to be Used	Pipe Culvert @ KP 310+650		
Sample only	Yes	Materials Type	Crushed Aggregate
Supplier Name	RATEB	Data Sheet provided	Yes attached
Reference in BoQ		Specification	- GEOTECHNICAL REPORT FROM (A&A) CONSULTANT, March 2023-SYSTRA RM ON 20-03-2023 - EARTHWORK SPECIFICATIONS & TESTING REPORT (CC21-4L7) VERSION 2 BY OVECON GROUP.
Prequalification reference		Test Samples Results	Approved
Reference Photos	No	Other	
Comments by: Eng (KK)		Comments by: Eng. (ER)	
١- تم إجراء الاختبارات المعملية بمعمل كوميبسال وتم تحقيق النتائج المطلوبة طبقاً لمواصفات المشروع.		1- All tests were carried-out by Comibassal Lab, Depended on samples submitted by material engineer for both contractor , GARB consultant. And general consultant (systra) 2- Results report attached and acceptable with the project specifications. 3- Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng: Hesham Magdy			A
QA/QC (K.K)*	Eng: Hesham Sabry		4/1/2024	A
Structure (SYSTRA)	Eng. Abdalrahman youssry			AWC
SYSTRA Lead Civil	Eng. Mohamed Hesham			A
GARB**	Eng. Ahmed Galal			
Employers Representative	Eng: Gaber Ibrahim		04-01-2024	A.W.C

* Designer
** Alignment/Bridges: Culvert only



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AGGREGATE REPORTS FOR ELECTRIC EXPRESS TRAIN PROJECT

Contractor : شركة أورنج للإستيراد والتصدير والمقاولات العامة

Date of report : 13-01-2024

QC : 151-1





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I-Introduction

General Consultant : SYSTRA
Consultant : Dr/Khaled Kandil
Contractor : شركة اورنج للإستيراد والتصدير والمقاولات العامة
Sample : Coarse Aggregate Filter.
Station : St(310+650)- culvert
Date of Test : 4/1/2024
QC : 151-1

II- Sample description:

Coarse Aggregate mix,

III- Required tests and Results:

Required tests		Results
1- Specific gravity (SG), absorption and degradation.	SSD	2.516
	Absorption	1.85%
	Degradation	0.3%
2- Grain size analysis	Grain size analysis	As shown in figures
3- Los Angeles test	Abrasion ratio	24.0%
4- Percentage of flakiness Aggregate.	Total Percentage of flakiness portion	4.86%
5- Percentage of Elongation Aggregate.	Total Percentage of Elongation portion	3.66%
6- Percentage of natural aggregate.	Total Percentage of natural aggregate	7.33%

IV- Notes

- 1- Samples were brought by : consultant
- 2- Samples are responsible from the Person who brought it.
- 3- The results are applying only for the present report.

LAB DIRECTOR

Eng / Eman kandil



Geotechnical consultant

For Dr. M. -

Dr. Mohamed Mostafa Badry

Alex - Cairo Desert Road - Merghem

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APPENDIX

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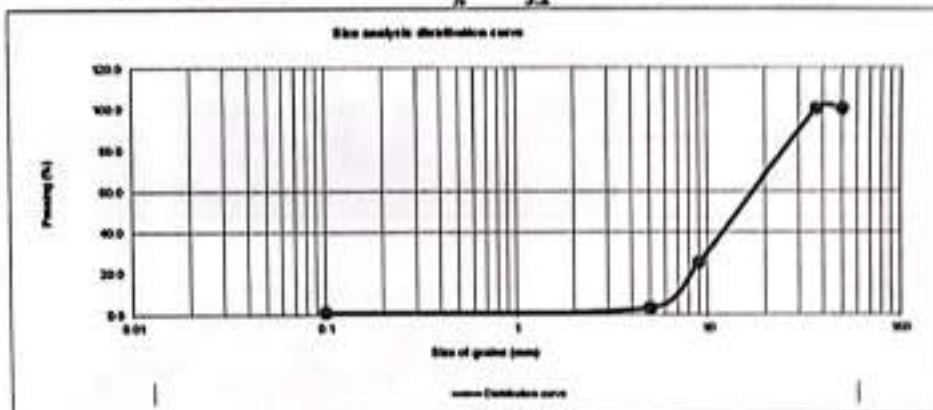
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PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

Sieve size (mm)	WEIGHT	CUMULATIVE	CUMULATIVE	CUMULATIVE	STANDARD SPECIFICATION LIMITS	
	RETAINED (gm)	WEIGHT RETAINED (gm)	PERCENTAGE RETAINED (%)	PERCENTAGE PASSING (%)		
75	0.00	0.00	0.00	100.0	100	100
50	0.00	0.00	0.00	100.0	75	90
10	7562.00	7562.00	74.96	25.0	15	25
No.4	2200.00	9762.00	96.77	3.23	0	30
No.200	352.00	352.00	70.40	0.96	0	5

Total sample weight = 10088.00 pass No.4= 320.0 Total fine aggregates weight = 560 gm
% 3.2



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ABRASION AND IMPACT " LOS ANGELES " TEST **(For small size coarse aggregate)** **ASTM- C 131-96 / AASHTO-T-96**

Results

Speed	Rotate at 30 to 33 Rpm For 500 Revolution
Trial Grading	A
Intitial Weight (W1) gms	5000
Weight of tested sample (W2) gms Retained on sieve No.12	3800
% Wear By Weight Passing on Sieve No.12	24.0%



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percentage of flakiness aggregate ASTM D-4791

Flakiness Determination

Sieve size "inch"		Mass test portion (gm)	Mass of flakiness (gm)	Percentage of flakiness portion %
Passing	Retained			
1	3/4	718.9	42	2.43
3/4	1/2	502	23	1.33
1/2	3/8	350	15	0.87
3/8	no. 4	152	4.2	0.24
Calculations	Total	1730.9	84.2	4.88
		Standard Specification		≤10%

Elongated Determination

Sieve size "inch"		Mass test portion (gm)	Mass elongated (gm)	Percentage of elongated portion %
Passing	Retained			
1	3/4	718.9	12.1	0.70
3/4	1/2	502	29.8	1.72
1/2	3/8	350	14.6	0.84
3/8	no. 4	152	6.9	0.40
Calculations	Total	1730.9	63.4	3.66
		Standard Specification		≤10%



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Percentage of crushed aggregate

Crushed Determination

Sieve size "Inch"		Mass test portion (gm)	Mass natural (gm)	Percentage of crushed portion %
Passing	Retained			
1	3/4	716.9	52	92.75
3/4	1/2	502	30	94.02
1/2	3/8	360	32	91.11
3/8	no. 4	152	12.8	91.58
Total		1730.90	126.8	92.67

Percentage of cruched =	<u>92.67</u>	%
Percentage of natural =	<u>7.33</u>	%
Standard specification	<u>≤ 10</u>	%



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Absorption and specific gravity for Coarse Aggregate ASTM C 127 - AASHTO T 85

Weight of sample	2500
Weight of saturated - dry surface sample (B)	2539
Weight of saturated sample in water (C)	1530
Weight of dry sample after heating (A)	2493

Results:-

Saturation surface dry specific gravity = $B / (B-C)$	2.516
Bulk specific gravity = $A / (B-C)$	2.47
Apparent specific gravity = $A / (A-C)$	2.59
Absorbtion of water = $(B-A)/A*100$	1.85
Degradation of aggregate = $(2500-A)/ A*100$	0.3



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Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011

Report :	125 - I - Center
Date :	13/01/2024

CHEMICAL ANALYSIS

General Consultant :	SYSTRA
Consultant :	DR/ Khaled Kandil
Contractor :	شركة اورنج للاستيراد والتصدير والمقاولات العامة
Project :	Electric express train
Sample :	Coarse Aggregate Filler
Station :	ST (310 + 650)-Culvert
Date of Test :	4/01/2024

Temperature : 20 °C

Humidity : 45%

ANALYSIS	RESULTS	METHOD REFERENCE
CHLORIDE (CL)	0.0036%	ASTM D 1411
SULPHATE (SO ₃)	0.0048%	ASTM D 1580
ORGANIC MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

Mostafa

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COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011

Report : 125-2 - Center
Date : 13-01-2024

General Consultant : SYSTRA
Consultant : DR/ Khaied Kandil
Contractor : شركة اورانج للاستيراد والتصدير والمقاولات العامة
Project : Electric express train
Sample : Coarse Aaggregate Fillter
Station : St(310 + 650)-CULVERT
Date of Test : 4-1-2024

Temperature : 20°C Humidity : 45%

Sieve Size	Grading (Original Sample)%	Weight of test fractions before testing, gm	Percentage passing of segmented sieve after testing, %	Weighted Percentage loss, %	
37.5 mm	2.5	--	3.33	0.08	0.11E.S No 1109
25.0 mm	32.2	463.1	3.33	1.07	
19.0 mm	28.4	411.6	2.9	0.82	
12.5 mm	3.7	--	2.9	0.11	
9.5 mm	1.61	--	3.42	0.05	
4.75 mm	27.39	388.2	3.42	0.94	
-4.75 mm	4.2	--	--	--	

The percentage loss (%) after immersion for five periods in sodium sulphates solution = 3.07 %



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AGGREGATE REPORTS FOR ELECTRIC EXPRESS TRAIN PROJECT

Contractor : شركة أورنج للإستيراد والتصدير والمقاولات العامة

Date of report : 13-01-2024

QC : 151-2





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Internal inspection and laboratories sector

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I-Introduction

General Consultant : SYSTRA
Consultant : Dr/Khaled Kandil
Contractor : شركة اورنج للإستيراد والتصدير والمقاولات العامة
Sample : Coarse Aggregate Filter.
Station : St(310+655)-culvert
Date of Test : 4/1/2024
QC : 151-2

II- Sample description:

Coarse Aggregate mix,

III- Required tests and Results:

Required tests		Results
1- Specific gravity (SG), absorption and degradation.	S S D	2.505
	Absorption	2.0%
	Degradation	0.2%
2- Grain size analysis	Grain size analysis	As shown in figures
3- Los Angeles test	Abrasion ratio	25.1%
4- Percentage of flakiness Aggregate.	Total Percentage of flakiness portion	5.14%
5- Percentage of Elongation Aggregate.	Total Percentage of Elongation portion	4.43%
6- Percentage of natural aggregate.	Total Percentage of natural aggregate	6.57%

IV- Notes

- 1- Samples were brought by : consultant
- 2- Samples are responsible from the Person who brought it.
- 3- The results are applying only for the present report.

LAB DIRECTOR

Eng / Eman kandil

Eman.



Geotechnical consultant

for Dr. M.
Dr. Mohamed Mostafa Badry

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APPENDIX

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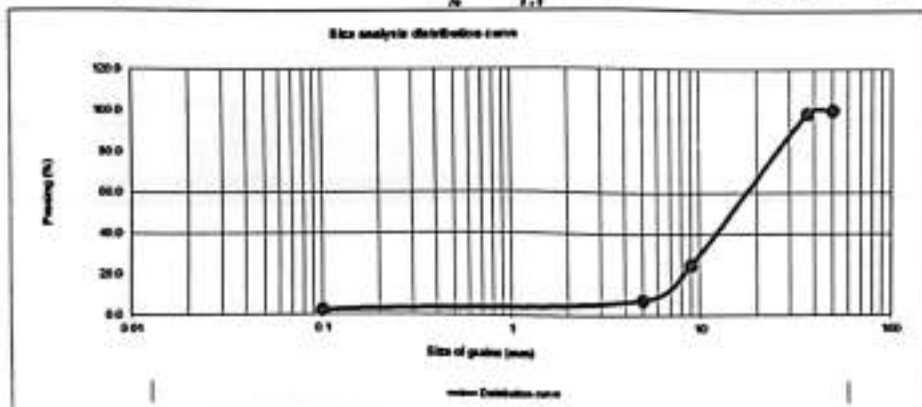
Internal inspection and laboratories sector

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PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

Sieve size (mm)	WEIGHT RETAINED	CUMULATIVE WEIGHT	CUMULATIVE PERCENTAGE	CUMULATIVE PERCENTAGE	STANDARD SPECIFICATION LIMITS	
	(gm)	RETAINED (gm)	RETAINED (%)	PASSING (%)		
75	0.00	0.00	0.00	100.0	100	100
50	157.00	157.00	1.57	98.4	75	90
10	7365.00	7522.00	75.45	24.6	15	25
No. 4	1740.00	9262.00	92.90	7.10	0	10
No. 200	705.00	705.00	70.50	2.09	0	5

Total sample weight = 9970.00 pass No. 4 = 708.0 Total fine aggregates weight = 1000 gm
% 7.1



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ABRASION AND IMPACT " LOS ANGELES " TEST **(For small size coarse aggregate)** **ASTM- C 131-96 / AASHTO-T-96**

Results

Speed	Rotate at 30 to 33 Rpm For 500 Revolution
Trial Grading	A
Intitial Weight (W1) gms	5000
Weight of tested sample (W2) gms Retained on sieve No.12	3746
% Wear By Weight Passing on Sieve No.12	25.1%



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ABRASION AND IMPACT " LOS ANGELES " TEST **(For small size coarse aggregate)** **ASTM- C 131-96 / AASHTO-T-96**

Results

Speed	Rotate at 30 to 33 Rpm For 500 Revolution
Trial Grading	A
Intitlal Weight (W1) gms	5000
Weight of tested sample (W2) gms Retained on sieve No.12	3746
% Wear By Weight Passing on Sieve No.12	25.1%



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percentage of flakiness aggregate ASTM D-4791

Flakiness Determination

Sieve size "Inch"		Mass test portion (gm)	Mass of flakiness (gm)	Percentage of flakiness portion %
Passing	Retained			
1	3/4	885	83	2.98
3/4	1/2	635	30	1.41
1/2	3/8	400	14	0.88
3/8	no. 4	231	2.6	0.12

Calculations	Total	2131	109.6	5.14
Standard Specification				≤10%

Elongated Determination

Sieve size "Inch"		Mass test portion (gm)	Mass elongated (gm)	Percentage of elongated portion %
Passing	Retained			
1	3/4	885	40	1.88
3/4	1/2	635	36	1.69
1/2	3/8	400	10	0.47
3/8	no. 4	231	8.5	0.40

Calculations	Total	2131	94.5	4.43
Standard Specification				≤10%





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Internal inspection and laboratories sector

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Percentage of crushed aggregate

Crushed Determination

Sieve size "Inch"		Mass test portion (gm)	Mass natural (gm)	Percentage of crushed portion %
Passing	Retained			
1	3/4	865	48	94.68
3/4	1/2	635	40	93.70
1/2	3/8	400	23	94.25
3/8	no. 4	231	31	86.58
Total		2131.00	140	93.43

Percentage of cruched =	93.43	%
Percentage of natural =	6.57	%
Standard specification	< 10	%



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Absorption and specific gravity for Coarse Aggregate ASTM C 127 - AASHTO T 85

Weight of sample	2500
Weight of saturated - dry surface sample (B)	2545
Weight of saturated sample in water (C)	1529
Weight of dry sample after heating (A)	2495

Results:-

Saturation surface dry specific gravity = $B / (B - C)$	2.505
Bulk specific gravity = $A / (B - C)$	2.46
Apparent specific gravity = $A / (A - C)$	2.58
Absorbtion of water = $(B - A) / A * 100$	2.00
Degradation of aggregate = $(2500 - A) / A * 100$	0.2





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Report :	125 - 3 - Center
Date :	13/01/2024

CHEMICAL ANALYSIS

General Consultant :	SYSTRA
Consultant :	DR/ Khaled Kandil
Contractor :	شركة اورنج للاستيراد والتصدير والمقاولات العامة
Project :	Electric express train
Sample :	Coarse Aggregate Filter
Station :	ST (310 + 655) Culvert
Date of Test :	4/01/2024

Temperature : 20 °C

Humidity : 45%

ANALYSIS	RESULTS	METHOD REFERENCE
CHLORIDE (CL)	0.0028%	ASTM D 1411
SULPHATE (SO ₃)	0.0068%	ASTM D 1580
ORGANIC MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

Moustaf





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Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011

Report :	125 - 4- Center
Date :	13-01-2024

General Consultant : SYSTRA
Consultant : DR/ Khaled Kandil
Contractor : شركة اورانج للاستيراد والتصدير والمقاولات العامة
Project : Electric express train
Sample : Coarse Aaggregate Fillter
Station : St(310 + 655)-CULVERT
Date of Test : 4-1-2024

Temperature : 20°C Humidity : 45%

Sieve Size	Grading (Original Sample)%	Weight of test fractions before testing, gm	Percentage passing of segmented sieve after testing, %	Weighted Percentage loss, %	
37.5 mm	2.5	--	3.4	0.08	0.11E.S No 1109
25.0 mm	23.63	388.3	3.4	0.8	
19.0 mm	29.21	355.5	2.5	0.73	
12.5 mm	17.51	363.6	4.1	0.72	
9.5 mm	2.30	--	4.1	0.09	
4.75 mm	16.85	322.2	8.5	1.43	
-4.75 mm	8.00	--	--	--	

The percentage loss (%) after immersion for five periods in sodium sulphates solution = 3.85 %



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MATERIAL APPROVAL REQUEST



1 Contractor Company	Orange for Import & Export and General Contracting Company			Designer Company				(AHE) & (FHECOR)				
Issued by Contractor	Name		Sign		Date/Serial Number				Time			
	Eng: Hesham Magdy				18-04-2024 (OR-03 M.A-01)				09:00 AM			
Received by ER	Eng: Gaber Ibrahim		MAR(01)		C1	C2	C3	DD	MM	YY	HH	MM
					310+870	EW	CS	18	04	24	09	00

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

Description of Materials	Stockpile For Replacement Layer		
Location to be Used	Pipe Culvert @ KP 310+870		
Sample only	Yes	Materials Type	Crushed Aggregate
Supplier Name	RATEB	Data Sheet provided	Yes attached
Reference in BoQ		Specification	- GEOTECHNICAL REPORT FROM (AJAA) CONSULTANT, March 2023-SYSTRAN ON 20-03-2023 - EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP.
Prequalification reference		Test Samples Results	Approved
Reference Photos	No	Other	
Comments by: Eng (KK)		Comments by: Eng. (ER)	
١- تم إجراء الاختبارات المعملية بمعمل كومبيصل وتم تحقيق النتائج المطلوبة طبقاً لمواصفات المشروع.		1- All tests were carried-out by Comibassal Lab, Depended on samples submitted by material engineer for both contractor , GARB consultant. And general consultant (systra) 2- Results report attached and acceptable with the project specifications. 3- Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng: Hesham Magdy			A
QA/QC (K.K)*	Eng: Hesham Sabry		22/4/224	A
Structure (SYSTRA)	Eng. Abdalrahman youssry		A	Avc
SYSTRA Lead Civil	Eng. Mohamed Hesham		A	Avc
GARB**	Eng. Ahmed Galal			
Employers Representative	Eng: Gaber Ibrahim		18.04.2024	A.W.C

* Designer

** Alignment/Bridges: Culvert only



COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011

AGGREGATE REPORTS FOR ELECTRIC EXPRESS TRAIN PROJECT

Contractor : شركة أورنج للإستيراد والتصدير والمقاولات العامة
Date of report : 22-4-2024
QC : 685





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011

I-Introduction

General Consultant : SYSTRA
Consultant : Dr/Khaled Kandil
Contractor : شركة أورنج للإستيراد والتصدير والمقاولات العامة
Sample : Coarse Aggregate Filter.
Station : St(310+870)- culvert
Date of Test : 18/4/2024
QC : 685

II- Sample description:

Coarse Aggregate mix,

III- Required tests and Results:

Required tests		Results
1- Specific gravity (SG), absorption and degradation.	SSD	2.578
	Absorption	1.61%
	Degradation	0.3%
2- Grain size analysis	Grain size analysis	As shown in figures
3- Los Angeles test	Abrasion ratio	24.9%
4- Percentage of flakiness Aggregate.	Total Percentage of flakiness portion	3.56%
5- Percentage of Elongation Aggregate.	Total Percentage of Elongation portion	4.28%
6- Percentage of natural aggregate.	Total Percentage of natural aggregate	7.56%

IV- Notes

- 1- Samples were brought by : consultant
- 2- Samples are responsible from the Person who brought it.
- 3- The results are applying only for the present report.

LAB DIRECTOR

Eng / Eman kandil

Eman



Geotechnical consultant

For Dr. H.
Dr. Mohamed Mostafa Badry

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APPENDIX

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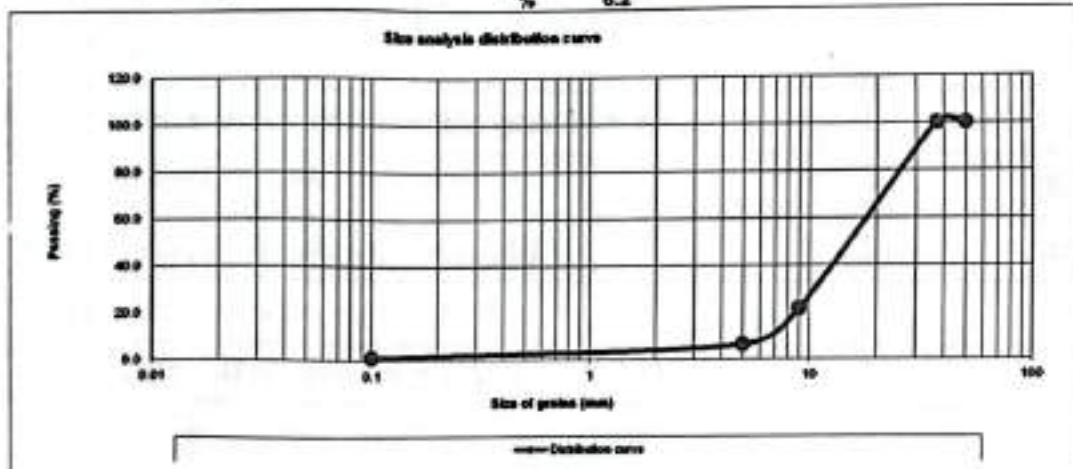
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PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

Sieve size (mm)	WEIGHT RETAINED	CUMULATIVE WEIGHT	CUMULATIVE PERCENTAGE	CUMULATIVE PERCENTAGE	STANDARD	
	(gm)	RETAINED (gm)	RETAINED (%)	PASSING (%)	SPECIFICATION LIMITS	
75	0.00	0.00	0.00	100.0	100	100
50	0.00	0.00	0.00	100.0	75	90
10	7856.00	7856.00	78.56	21.4	15	25
No.4	1523.00	9379.00	93.79	6.21	0	10
No.200	362.00	362.00	82.84	1.07	0	5

Total sample weight = 10000.00 pass No.4= 621.0 Total fine aggregates weight = 437 gm
% 6.2



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Absorption and specific gravity for Coarse Aggregate ASTM C 127 - AASHTO T 85

Weight of sample	2500
Weight of saturated - dry surface sample (B)	2532
Weight of saturated sample in water (C)	1550
Weight of dry sample after heating (A)	2492

Results:-

Saturation surface dry specific gravity = $B / (B - C)$	2.578
Bulk specific gravity = $A / (B - C)$	2.54
Apparent specific gravity = $A / (A - C)$	2.65
Absorption of water = $(B - A) / A * 100$	1.61
Degradation of aggregate = $(2500 - A) / A * 100$	0.3



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Internal inspection and laboratories sector

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ABRASION AND IMPACT " LOS ANGELES " TEST

(For small size coarse aggregate)

ASTM- C 131-96 / AASHTO-T-96

Results

Speed	Rotate at 30 to 33 Rpm For 500 Revolution
Trial Grading	A
Intitial Weight (W1) gms	5000
Weight of tested sample (W2) gms Retained on sieve No.12	3754
% Wear By Weight Passing on Sieve No.12	24.9%



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percentage of flakiness aggregate
ASTM D-4791

Flakiness Determination

Sieve size "inch"		Mass test portion (gm)	Mass of flakiness (gm)	Percentage of flakiness portion %
Passing	Retained			
1	3/4	634	24	1.15
3/4	1/2	1003	30	1.44
1/2	3/8	228	13	0.63
3/8	no. 4	213	7	0.34

Calculations	Total	2078	74	3.56
		Standard Specification		≤10%

Elongated Determination

Sieve size "inch"		Mass test portion (gm)	Mass elongated (gm)	Percentage of elongated portion %
Passing	Retained			
1	3/4	634	44	2.12
3/4	1/2	1003	24	1.15
1/2	3/8	228	9	0.43
3/8	no. 4	213	12	0.58

Calculations	Total	2078	89	4.28
		Standard Specification		≤10%



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Percentage of crushed aggregate

Crushed Determination

Sieve size "Inch"		Mass test portion (gm)	Mass natural (gm)	Percentage of crushed portion %
Passing	Retained			
1	3/4	634	63	90.06
3/4	1/2	1003	42	95.81
1/2	3/8	228	30	86.84
3/8	no. 4	213	22	89.67
Total		2078.00	157	92.44

Percentage of crushed =	92.44	%
Percentage of natural =	7.56	%
Standard specification	≤ 10	%



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COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by - Egyptian General Authority for Petroleum under No. 34/29-11-2011

Report :	336 - 1 - Center
Date :	25-04-2024

General Consultant : SYSTRA
Consultant : DR/ Khaled Kandil
Contractor : شركة اورانج للاستيراد والتصدير والمقاولات العامة
Project : Electric express train
Sample : Coarse Aggregate Filler
Station : St(310 + 870)-CULVERT
Date of Test : 18-4-2024

Temperature : 25°C Humidity : 50%

Sieve Size	Grading (Original Sample)%	Weight of test fractions before testing, gm	Percentage passing of segmented sieve after testing, %	Weighted Percentage loss, %	
37.5 mm	7.83	--	3.9	0.31	0.11E.S No 1109
25.0 mm	28.58	419.1	3.9	1.11	
19.0 mm	30.51	402.4	4.2	1.28	
12.5 mm	26.53	409.5	5.2	1.38	
9.5 mm	4.61	--	5.2	0.24	
4.75 mm	1.35	--	--	--	
-4.75 mm	0.59	--	--	--	

The percentage loss (%) after immersion for five periods in sodium sulphates solution = 4.32 %



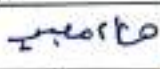
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كيمياء

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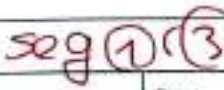


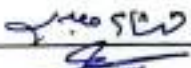
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Email : Internal-inspection@comibassal.com

MATERIAL INSPECTION REQUEST						
	ORANGE COMPANY Contracting Company	Garb General Consultant	KK Structural Consultant	Garb General Consultant	SYSTRA Civil Consultant	AHE General Consultant

Contractor Company	Orange for Import & Export and General Contracting Company			Designer Company			(AHE) & (FHECOR)				
Issued by Contractor	Name	Sign		Date/ Serial Number			Time				
	Eng: Hesham Magdy			04-01-2024 (OR-05 M.I.01)			12:00 PM				
Received by ER	Eng. Gaber Ibrahim		MIR(01)	C1	C2	C3	DD	MM	YY	HH	MM
				310+650	EW	CS	04	01	24	12	00

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

Description of Materials	Replacement Layer				
Location to be Used	Pipe Culvert @ KP 310+650 				
MAR Approval No	(OR-03 M.A-01-(310+650))			Date	04-01-2024
Supplier Name	RATEB				
Test Requirement	PLT (ASTM D 1196)		Specification	- GEOTECHNICAL REPORT FROM (A&A) CONSULTANT, March 2023-SYSTRA RV ON 29-03-2023 - EARTHWORK SPECIFICATIONS & TESTING REPORT (0021-42.2) VERSION 2 BY CIVECON GROUP.	
Reference Photos	No		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	Plate Load Test	NUMBER	02	04-01-2024	
2					
4					
Comments by : GARB/ KK			Comments by: ER		
١- تم إختبار القطاع Plate Load Test بواسطة محل كوميباسل . ٢- تم التحقيق من المواصفات المطلوبة .			1-P.L.T was carried- out by Comibassal Lab attendance of material engineer for both contractor, GARB Consultant and general consultant (SYSTRA). 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: Hesham Magdy		04-01-2024	A
QA/QC *	Eng. Hesham Sabry		4/1/2024	A
Structure (SYSTRA)	Eng. Abdalrahman Yousry			Auc
SYSTRA Lead Civil	Eng. Mohamed Hesham			Auc
GARB**	Eng. Ahmed Galal			
Employers Representative	Eng. Gaber Ibrahim			A.W.C

* Designer



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011

Technical Report

of Plate Loading Test (ASTM D 1196)

General Consultant : SYSTRA

Consultant : DR/ Khaled Kandil

Contractor : شركة اورنج للإستيراد والتصدير و المقاولات العامة

Project : Electric Express Train

Sample : Coarse Aggregate Filter

Station : St(310+650)-Right

Date of test : 04/01/2024

QC : 132 -3

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COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyption General Authority for Petroleum under No. 34/29-11-2011

I- Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil. The method may be used to evaluate the ultimate bearing capacity, the shear strength and deformation parameters of the soil beneath the plate without entailing the effects of sample disturbance. Testing may be carried out at the ground surface, in pits or in trenches

- The test was involved accordance to ASTM D 1196. The purpose of this test is to obtain relationship between between the loading and soil settlement due to each load which can be used to determine the soil bearing capacity , modulus of elasticity and modulus of soil layer reaction.

II- Apparatus

The plate load test is performed using the following equipment: A rigid plate: Rigid plates for performing this test come in different diameters and range from 300 mm to 1000 mm. It is worth noting that the stress influence zone is generally two times the plate diameter, therefore, it is desirable to use a bigger plate, whenever available . Therefore there care should be taken in provide more useful results. Force measuring system: A mechanical (gauge) or electrical force transducer shall be fitted between the loading plate and the hydraulic jack. It measures the load on the plate.

III- Procedure

with most of the slight difference coming from the parameters to measure and how to measure it from the test.

The most widely used standards are the BS 1377 Part 9 (1990), the DIN 18134 (2012), and the BS EN 1997 Part 2 (2007).

Any suitable test procedures and acceptance criteria with full justification may generally be used. The testing procedure is as follows:

1- Select test location and depth at the point where the required foundation will be constructed (assuming testing is for foundation acceptability). If the test is performed in a test pit, the width of the pit should be at least 4 to 5 times that of the plate diameter.

2- Carefully trim off and remove all loose material and any embedded fragments so that the area for the plate is generally level and as undisturbed as possible.

The plate should be placed on a thin layer (10 to 15 mm thick) of clean dry sand to produce a level surface on which to bed the plate.

3- A small seating load is then applied to the plate to enable adjustments to be made: this seating load should be less than 5 kPa.

4-Loading then commences with loading conducted in established small incremental steps by means of a hydraulic jack pushing against the counter weight until reaching the maximum test load. Unloading should also be done in the backward incremental steps. The load at every step is read from the proving ring.

5-Settlements are also read from the dial gauges placed on the plate. A minimum of 3 dial gauges should be placed separately at 120° so there is a fair measurement of the settlement on the entire plate.





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011

Sample No.1

600

Table 1: Measured values for loading cycle

Stress	Load	Unload
0.00	0.00	1.47
0.50	0.04	1.72
1.00	0.21	1.97
1.50	0.72	2.06
2.00	1.40	2.16
2.50	1.85	2.18
3.00	2.20	2.20

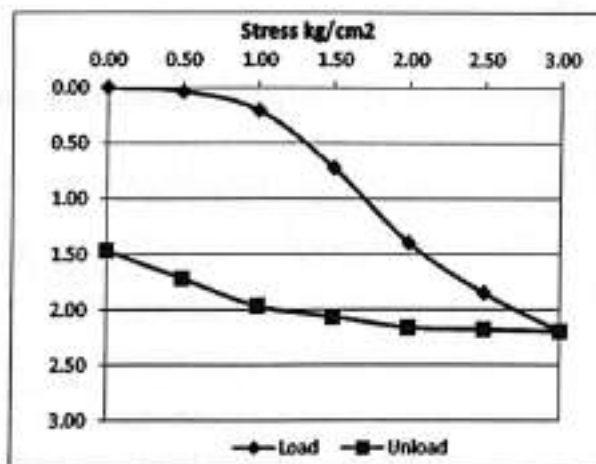


Fig. 1: Load-settlement curve, according to Table 1





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011

IV- Results:

A- Modulus of elasticity (E)

modulus of elasticity of the soil that has been loaded using the following two relationship and then taking the average value as flexible compression factor for overall pressure.

$$E_1 = qd (1-\mu^2) / S$$

$$E_2 = qH/2S$$

Where:

q is ultimate load = 3 kg/cm²

d is the loading plate diameter = 60 cm

I is coefficient depending on rigidity of footing = 0.79 for circular plate

μ is poisson's ratio for soil = 0.3

H = 2d = 1.2 m

S is value of settlement related maximum testing load

Applying this equations we obtained the following results (table 2)

Table (2): Results of Measured values

q (kg/cm ²)	S mm	E ₁ (kg/cm ²)	E ₂ (kg/cm ²)	E _{av} (kg/cm ²)
3	2.20	589.53	820.05	704.79

B-Modulus of Subgrade reaction of soil (K_s) and immediate settlement (S_i)-(ACI-336.2R-88)

1- Immediate settlement of foundation (S_i)

$$S_i = \left(\frac{1-\mu^2}{E_{av}} \right) q B I_p$$

Where :

I_p for flexible strip raft foundation = 2.24

B is Footing width = 3.34 m

E_{av} is average value of modulus of elasticity

q is required allowable bearing capacity = 1.5 kg/cm²

2- Modulus of subgrade reaction of soil

The modulus of Subgrade reaction (K_s) of the soil that has been loaded by the design stress (q) divided by footing immediate settlement (S_i) according to (ACI- 336.2R -88)

$$K_s = q/S_i$$

Applying this equations we obtained the following results (table 3)

Table (3): Results of Measured values

q (kg/cm ²)	S _i (mm)	K _s (Ton/m ³)
1.50	14.49	1035.20





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011

Conclusion

The present test results which obtained from the plate loading tests of the native soil on coarse aggregate filter layer in electric express train project at St(310+650)-Right in accordance to the ASTM standard , D 1196 are illustrated in table 4.

Table 4 :Test results

Sample No.	E_w (kg/cm ²)	S_1 (mm)	K_s (ton/m ²)
1	704.79	14.49	1035.196
SPECIFICATION (A&A CONSULTANT)	—	Not more than 50 (mm)	Not less than 550 (ton/m ²) for two vent

Lab Director

Eng/ Eman Kandil



Geotechnical Consultant

For Dr. H.
Dr / Mohamed Mostafa Badry





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011

Technical Report

of Plate Loading Test (ASTM D 1196)

General Consultant : SYSTRA

Consultant : DR/ Khaled Kandil

Contractor : شركة اورنج للإستيراد والتصدير و المقاولات العامة

Project : Electric Express Train

Sample : Coarse Aggregate Filter

Station : St (310+650)- Left

Date of test : 04/01/2024

QC : 132 -1





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyption General Authority for Petroleum under No. 34/29-11-2011

I- Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil. The method may be used to evaluate the ultimate bearing capacity, the shear strength and deformation parameters of the soil beneath the plate without entailing the effects of sample disturbance. Testing may be carried out at the ground surface, in pits or in trenches

- The test was involved accordance to ASTM D 1196. The purpose of this test is to obtain relationship between between the loading and soil settlement due to each load which can be used to determine the soil bearing capacity , modulus of elasticity and modulus of soil layer reaction.

II- Apparatus

The plate load test is performed using the following equipment; A rigid plate: Rigid plates for performing this test come in different diameters and range from 300 mm to 1000 mm. It is worth noting that the stress influence zone is generally two times the plate diameter, therefore, it is desirable to use a bigger plate, whenever available . Therefore there care should be taken in provide more useful results. Force measuring system: A mechanical (gauge) or electrical force transducer shall be fitted between the loading plate and the hydraulic jack. It measures the load on the plate.

III- Procedure

with most of the slight difference coming from the parameters to measure and how to measure it from the test.

The most widely used standards are the BS 1377 Part 9 (1990), the DIN 18134 (2012), and the BS EN 1997 Part 2 (2007).

Any suitable test procedures and acceptance criteria with full justification may generally be used. The testing procedure is as follows:

1- Select test location and depth at the point where the required foundation will be constructed (assuming testing is for foundation acceptability). If the test is performed in a test pit, the width of the pit should be at least 4 to 5 times that of the plate diameter.

2- Carefully trim off and remove all loose material and any embedded fragments so that the area for the plate is generally level and as undisturbed as possible.

The plate should be placed on a thin layer (10 to 15 mm thick) of clean dry sand to produce a level surface on which to bed the plate.

3- A small seating load is then applied to the plate to enable adjustments to be made: this seating load should be less than 5 kPa.

4-Loading then commences with loading conducted in established small incremental steps by means of a hydraulic jack pushing against the counter weight until reaching the maximum test load. Unloading should also be done in the backward incremental steps. The load at every step is read from the proving ring.

5-Settlements are also read from the dial gauges placed on the plate. A minimum of 3 dial gauges should be placed separately at 120° so there is a fair measurement of the settlement on the entire plate.



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COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011

Sample No.1

600

Table 1: Measured values for loading cycle

Stress	Load	Unload
0.00	0.00	1.40
0.50	0.28	1.81
1.00	0.73	2.21
1.50	1.13	2.26
2.00	1.51	2.31
2.50	1.80	2.33
3.00	2.35	2.35

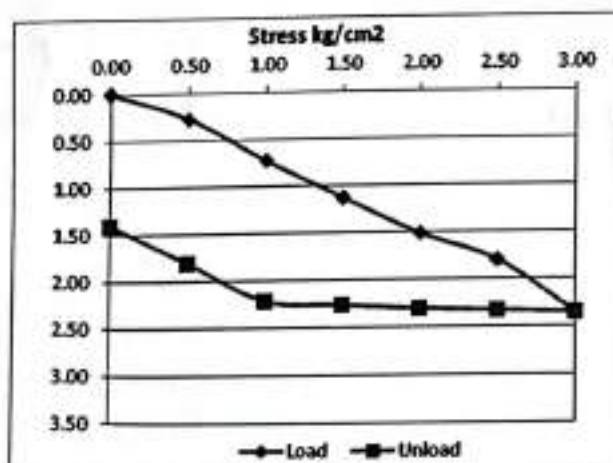


Fig. 1: Load-settlement curve, according to Table 1



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IV- Results:

A- Modulus of elasticity (E)

modulus of elasticity of the soil that has been loaded using the following two relationship and then taking the average value as flexible compression factor for overall pressure.

$$E1 = qd (1-\mu^2) / S$$

$$E2 = qH/2S$$

Where:

q is ultimate load = 3 kg/cm²

d is the loading plate diameter = 60 cm

I is coefficient depending on rigidity of footing = 0.79 for circular plate

μ is poisson's ratio for soil = 0.3

H = 2d = 1.2 m

S is value of settlement related maximum testing load

Applying this equations we obtained the following results (table 2)

Table (2):Results of Measured values

q (kg/cm ²)	S mm	E ₁ (kg/cm ²)	E ₂ (kg/cm ²)	E _{av} (kg/cm ²)
3	2.35	550.65	765.96	658.30

B-Modulus of Subgrade reaction of soil (K_s) and immediate settlement (S_i)-(ACI-336.2R-88)

1- immediate settlement of foundation (S_i)

$$S_i = \left(\frac{1-\mu^2}{E_{av}} \right) q B I_p$$

Where :

I_p for flexible strip raft foundation = 2.24

B is Footing width = 3.34 m

E_{av} is average value of modulus of elasticity

q is required allowable bearing capacity = 1.5 kg/cm²

2- Modulus of subgrade reaction of soil

The modulus of Subgrade reaction (K_s) of the soil that has been loaded by the design stress (q) divided by footing immediate settlement (S_i) according to (ACI- 336.2R -88)

$$K_s = q/S_i$$

Applying this equations we obtained the following results (table 3)

Table (3):Results of Measured values

q (kg/cm ²)	S _i (mm)	k _s (Ton/m ³)
1.50	15.51	966.92





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011

Conclusion

The present test results which obtained from the plate loading tests of the native soil on coarse aggregate filter layer in electric express train project at 5t(310+650) - (left) in accordance to the ASTM standard , D 1196 are illustrated in table 4.

Table 4 :Test results

Sample No.	E_w (kg/cm ²)	S_1 (mm)	K_s (ton/m ³)
1	658.30	15.51	966.917
SPECIFICATION (A&A CONSULTANT)	—	Not more than 50 (mm)	Not less than 550 (ton/m ³) for two vent

Lab Director

Eng/ Eman Kandil



Geotechnical Consultant

Dr. Dr. H.
Dr / Mohamed Mostafa Badry



MATERIAL INSPECTION REQUEST



Contractor Company	Orange for Import & Export and General Contracting Company		Designer Company	(AHE) & (FHECOR)				
Issued by Contractor	Name	Sign	Date/ Serial Number		Time			
	Eng: Hesham Magdy		04-01-2024 (OR-05 M.I.01)		12:00 PM			
Received by ER	Eng. Gaber Ibrahim	MIR(01)	C1	C2	C3	DD	MM	YY
			310+655	EW	CS	04	01	24
							HH	MM
							12	00

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

Description of Materials		Replacement Layer			
Location to be Used		Pipe Culvert @ KP 310+655 سوق ١١٣			
MAR Approval No		(OR-03 M.A-01-(310+655))		Date	04-01-2024
Supplier Name		RATEB			
Test Requirement		PLT (ASTM D 1196)		Specification	- GEOTECHNICAL REPORT FROM (AJAA) CONSULTANT, March 2023-SYSTRA RN ON 20-03-2023 - EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP.
Reference Photos		No		Other	
Item	Description	Unit	Quantity	Arrival Date	Note
1	Plate Load Test	NUMBER	02	04-01-2024	
2					
4					
Comments by : GARB/ KK			Comments by: ER		
١- تم إختبار القطاع Plate Load Test بواسطة معمل كومبيصل . ٢- تم التحقيق من المواصفات المطلوبة .			1-P.L.T was carried- out by Comibassal Lab attendance of material engineer for both contractor, GARB Consultant and general consultant (SYSTRA). 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: Hesham Magdy		04-01-2024	A
QA/QC *	Eng. Hesham Sabry		4/1/2024	A
Structure (SYSTRA)	Eng. Abdalrahman Yousry			AWC
SYSTRA Lead Civil	Eng. Mohamed Hesham		4/1/	AWC
GARB**	Eng. Ahmed Galal			
Employers Representative	Eng. Gaber Ibrahim		04-01-2024	A.W.C

* Designer



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011

Technical Report

of Plate Loading Test (ASTM D 1196)

General Consultant : SYSTRA

Consultant : DR/ Khaled Kandil

Contractor : شركة اورنج للاستيراد والتصدير والمقاولات العامة

Project : Electric Express Train

Sample : Coarse Aggregate Filter

Station : St(310+655)-Right

Date of test : 04/01/2024

QC : 132 -4





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011

I- Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil. The method may be used to evaluate the ultimate bearing capacity, the shear strength and deformation parameters of the soil beneath the plate without entailing the effects of sample disturbance. Testing may be carried out at the ground surface, in pits or in trenches

- The test was involved accordance to ASTM D 1196. The purpose of this test is to obtain relationship between the loading and soil settlement due to each load which can be used to determine the soil bearing capacity , modulus of elasticity and modulus of soil layer reaction.

II- Apparatus

The plate load test is performed using the following equipment: A rigid plate: Rigid plates for performing this test come in different diameters and range from 300 mm to 1000 mm. It is worth noting that the stress influence zone is generally two times the plate diameter, therefore, it is desirable to use a bigger plate, whenever available . Therefore there care should be taken in provide more useful results. Force measuring system: A mechanical (gauge) or electrical force transducer shall be fitted between the loading plate and the hydraulic jack. It measures the load on the plate.

III- Procedure

with most of the slight difference coming from the parameters to measure and how to measure it from the test.

The most widely used standards are the BS 1377 Part 9 (1990), the DIN 18134 (2012), and the BS EN 1997 Part 2 (2007).

Any suitable test procedures and acceptance criteria with full justification may generally be used. The testing procedure is as follows:

1- Select test location and depth at the point where the required foundation will be constructed (assuming testing is for foundation acceptability). If the test is performed in a test pit, the width of the pit should be at least 4 to 5 times that of the plate diameter.

2- Carefully trim off and remove all loose material and any embedded fragments so that the area for the plate is generally level and as undisturbed as possible.

The plate should be placed on a thin layer (10 to 15 mm thick) of clean dry sand to produce a level surface on which to bed the plate.

3- A small seating load is then applied to the plate to enable adjustments to be made: this seating load should be less than 5 kPa.

4-Loading then commences with loading conducted in established small incremental steps by means of a hydraulic jack pushing against the counter weight until reaching the maximum test load. Unloading should also be done in the backward incremental steps. The load at every step is read from the proving ring.

5-Settlements are also read from the dial gauges placed on the plate. A minimum of 3 dial gauges should be placed separately at 120° so there is a fair measurement of the settlement on the entire plate.



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COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011

Sample No.1

600

Table 1: Measured values for loading cycle

Stress	Load	Unload
0.00	0.00	0.98
0.50	0.15	1.30
1.00	0.36	1.61
1.50	0.75	1.68
2.00	1.00	1.75
2.50	1.45	1.77
3.00	1.79	1.79

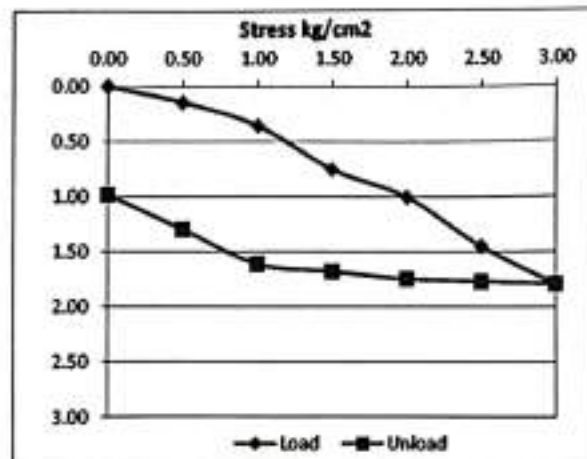


Fig. 1: Load-settlement curve, according to Table 1



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IV- Results:

A- Modulus of elasticity (E)

modulus of elasticity of the soil that has been loaded using the following two relationship and then taking the average value as flexible compression factor for overall pressure.

$$E_1 = qd(1-\mu^2) / S$$

$$E_2 = qH/25$$

Where:

q is ultimate load = 3 kg/cm²

d is the loading plate diameter = 60 cm

l is coefficient depending on rigidity of footing = 0.79 for circular plate

μ is poisson's ratio for soil = 0.3

H = 2d = 1.2 m

S is value of settlement related maximum testing load

Applying this equations we obtained the following results (table 2)

Table (2):Results of Measured values

q (kg/cm ²)	S mm	E ₁ (kg/cm ²)	E ₂ (kg/cm ²)	E _{av} (kg/cm ²)
3	1.79	722.92	1005.59	864.25

B-Modulus of Subgrade reaction of soil (K_s) and immediate settlement (S_i)-(ACI-336.2R-88)

1- immediate settlement of foundation (S_i)

$$S_i = \left(\frac{1-\mu^2}{E_{av}} \right) q B l_p$$

Where :

l_p for flexible strip raft foundation = 2.24

B is Footing width = 1.80 m

E_{av} is average value of modulus of elasticity

q is required allowable bearing capacity = 1.5 kg/cm²

2- Modulus of subgrade reaction of soil

The modulus of Subgrade reaction (K_s) of the soil that has been loaded by the design stress (q) divided by footing immediate settlement (S_i) according to (ACI- 336.2R -88)

$$K_s = q/S_i$$

Applying this equations we obtained the following results (table 3)

Table (3):Results of Measured values

q (kg/cm ²)	S _i (mm)	k _s (Ton/m ²)
1.50	6.37	2355.47





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Conclusion

The present test results which obtained from the plate loading tests of the native soil on coarse aggregate filter layer in electric express train project at St(310+655)-Right in accordance to the ASTM standard , D 1196 are illustrated in table 4.

Table 4 :Test results

Sample No.	E_w (kg/cm ²)	S_1 (mm)	K_s (ton/m ³)
1	864.25	6.37	2355.473
SPECIFICATION (A&A CONSULTANT)	—	Not more than 50 (mm)	Not less than 700 (ton/m ³) for one vent

Lab Director

Eng/ Eman Kandil



Geotechnical Consultant

Dr / Mohamed Mostafa Badry





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011

Technical Report

of Plate Loading Test (ASTM D 1196)

General Consultant : SYSTRA

Consultant : DR/ Khaled Kandil

Contractor : شركة اورنج للإستيراد والتصدير و المقاولات العامة

Project : Electric Express Train

Sample : Coarse Aggregate Filter

Station : St (310+655) -Left

Date of test : 04/01/2024

QC : 132 -2



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyption General Authority for Petroleum under No. 34/29-11-2011

I- Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil. The method may be used to evaluate the ultimate bearing capacity, the shear strength and deformation parameters of the soil beneath the plate without entailing the effects of sample disturbance. Testing may be carried out at the ground surface, in pits or in trenches

- The test was involved accordance to ASTM D 1196. The purpose of this test is to obtain relationship between between the loading and soil settlement due to each load which can be used to determine the soil bearing capacity , modulus of elasticity and modulus of soil layer reaction.

II- Apparatus

The plate load test is performed using the following equipment; A rigid plate: Rigid plates for performing this test come in different diameters and range from 300 mm to 1000 mm. It is worth noting that the stress influence zone is generally two times the plate diameter, therefore, it is desirable to use a bigger plate, whenever available . Therefore there care should be taken in provide more useful results. Force measuring system: A mechanical (gauge) or electrical force transducer shall be fitted between the loading plate and the hydraulic jack. It measures the load on the plate.

III- Procedure

with most of the slight difference coming from the parameters to measure and how to measure it from the test.

The most widely used standards are the BS 1377 Part 9 (1990), the DIN 18134 (2012), and the BS EN 1997 Part 2 (2007).

Any suitable test procedures and acceptance criteria with full justification may generally be used. The testing procedure is as follows:

1- Select test location and depth at the point where the required foundation will be constructed (assuming testing is for foundation acceptability). If the test is performed in a test pit, the width of the pit should be at least 4 to 5 times that of the plate diameter.

2- Carefully trim off and remove all loose material and any embedded fragments so that the area for the plate is generally level and as undisturbed as possible.

The plate should be placed on a thin layer (10 to 15 mm thick) of clean dry sand to produce a level surface on which to bed the plate.

3- A small seating load is then applied to the plate to enable adjustments to be made: this seating load should be less than 5 kPa.

4-Loading then commences with loading conducted in established small incremental steps by means of a hydraulic jack pushing against the counter weight until reaching the maximum test load. Unloading should also be done in the backward incremental steps. The load at every step is read from the proving ring.

5-Settlements are also read from the dial gauges placed on the plate. A minimum of 3 dial gauges should be placed separately at 120° so there is a fair measurement of the settlement on the entire plate.



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COMIBASSAL International Controllers

Internal inspection and laboratories sector

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Sample No.1

600

Table 1: Measured values for loading cycle

Stress	Load	Unload
0.00	0.00	0.85
0.50	0.55	1.23
1.00	0.94	1.62
1.50	1.44	2.18
2.00	1.82	2.75
2.50	2.23	2.76
3.00	2.78	2.78

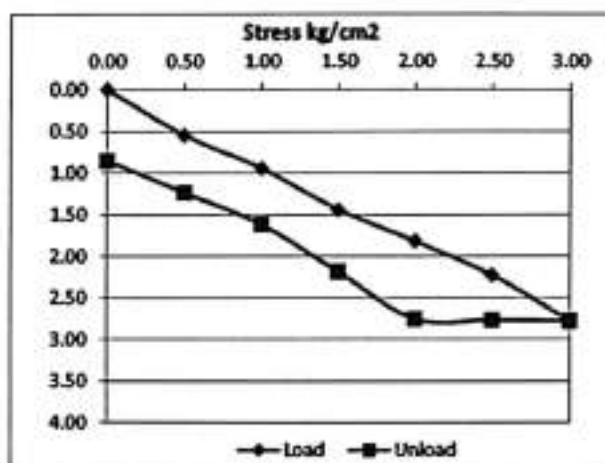


Fig. 1: Load-settlement curve, according to Table 1





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IV- Results:

A- Modulus of elasticity (E)

modulus of elasticity of the soil that has been loaded using the following two relationship and then taking the average value as flexible compression factor for overall pressure.

$$E_1 = qd(1-\mu^2) / S$$

$$E_2 = qH/2S$$

Where:

q is ultimate load = 3 kg/cm²

d is the loading plate diameter = 60 cm

l is coefficient depending on rigidity of footing = 0.79 for circular plate

μ is poisson's ratio for soil = 0.3

H = 2d = 1.2 m

S is value of settlement related maximum testing load

Applying this equations we obtained the following results (table 2)

Table (2): Results of Measured values

q (kg/cm ²)	S mm	E ₁ (kg/cm ²)	E ₂ (kg/cm ²)	E _{av} (kg/cm ²)
3	2.78	466.31	648.65	557.48

B-Modulus of Subgrade reaction of soil (K_s) and immediate settlement (S_i)-(ACI-336.2R-88)

1- Immediate settlement of foundation (S_i)

$$S_i = \left(\frac{1-\mu^2}{E_{av}} \right) q B l_p$$

Where :

l_p for flexible strip raft foundation = 2.24

B is Footing width = 1.80 m

E_{av} is average value of modulus of elasticity

q is required allowable bearing capacity = 1.5 kg/cm²

2- Modulus of subgrade reaction of soil

The modulus of Subgrade reaction (K_s) of the soil that has been loaded by the design stress (q) divided by footing immediate settlement (S_i) according to (ACI- 336.2R -88)

$$K_s = q/S_i$$

Applying this equations we obtained the following results (table 3)

Table (3): Results of Measured values

q (kg/cm ²)	S _i (mm)	k _s (Ton/m ²)
1.50	9.87	1519.39



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Conclusion

The present test results which obtained from the plate loading tests of the native soil on coarse aggregate filter layer in electric express train project at St(310+655) - (left) in accordance to the ASTM standard , D 1196 are illustrated in table 4.

Table 4 :Test results

Sample No.	E_w (kg/cm ²)	S_1 (mm)	K_s (ton/m ²)
1	557.48	9.87	1519.386
SPECIFICATION (A&A CONSULTANT)	—	Not more than 50 (mm)	Not less than 700 (ton/m ²) for one vent

Lab Director

Eng/ Eman Kandil



Geotechnical Consultant

For Dr. H.
Dr / Mohamed Mostafa Badry



MATERIAL INSPECTION REQUEST



Contractor Company	Orange for Import & Export and General Contracting Company		Designer Company	(AHE) & (FHECOR)				
Issued by Contractor	Name	Sign	Date/ Serial Number 23-04-2024 (OR-05 M.I.01)		Time 12:00 PM			
	Eng: Hesham Magdy							
Received by ER	Eng. Gaber Ibrahim	MIR(01)	C1	C2	C3	DD	MM	YY
			310+870	EW	CS	23	04	24
							HH	MM
							12	00

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

Description of Materials	Replacement Layer				
Location to be Used	Pipe Culvert @ KP 310+870				
MAR Approval No	(OR-03 M.A-01-(310+870))			Date	18-04-2024
Supplier Name	RATEB				
Test Requirement	PLT (ASTM D 1196)		Specification	- GEOTECHNICAL REPORT FROM (ARJA) CONSULTANT, March 2023-SYSTRA RN ON 20-03-2023 - EARTHWORK SPECIFICATIONS & TESTING REPORT (EG21-41.2) VERSION 2 BY CIVECON GROUP.	
Reference Photos	No		Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	Plate Load Test	NUMBER	02	23-04-2024	
2					
4					

Comments by : GARB/ KK		Comments by: ER	
١- تم اختبار القطاع Plate Load Test بواسطة معمل كومبيصل . ٢- تم التحقيق من المواصفات المطلوبة .		1-P.L.T was carried- out by Comibassal Lab attendance of material engineer for both contractor, GARB Consultant and general consultant (SYSTRA). 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: Hesham Magdy		23-04-2024	A
QA/QC *	Eng. Hesham Sabry		23/4/2024	A
Structure (SYSTRA)	Eng. Abdalrahman Yousry			Awc
SYSTRA Lead Civil	Eng. Mohamed Hesham			Awc
GARB**	Eng. Ahmed Galal			
Employers Representative	Eng. Gaber Ibrahim			A.W.C

* Designer

23-04-2024



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011

Technical Report

of Plate Loading Test (ASTM D 1196)

General Consultant : SYSTRA

Consultant : DR/ Khaled Kandil

Contractor : شركة اورنج للإستيراد والتصدير و المقاولات العامة

Project : Electric Express Train

Sample : Coarse Aggregate Filter

Station : St (310+870) Left

Date of test : 23/04/2024

QC : 689-1

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Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011

I- Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil. The method may be used to evaluate the ultimate bearing capacity, the shear strength and deformation parameters of the soil beneath the plate without entailing the effects of sample disturbance. Testing may be carried out at the ground surface, in pits or in trenches

- The test was involved accordance to ASTM D 1196. The purpose of this test is to obtain relationship between between the loading and soil settlement due to each load which can be used to determine the soil bearing capacity , modulus of elasticity and modulus of soil layer reaction.

II- Apparatus

The plate load test is performed using the following equipment; A rigid plate: Rigid plates for performing this test come in different diameters and range from 300 mm to 1000 mm. It is worth noting that the stress influence zone is generally two times the plate diameter, therefore, it is desirable to use a bigger plate, whenever available . Therefore there care should be taken in provide more useful results. Force measuring system: A mechanical (gauge) or electrical force transducer shall be fitted between the loading plate and the hydraulic jack. It measures the load on the plate.

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The plate should be placed on a thin layer (10 to 15 mm thick) of clean dry sand to produce a level surface on which to bed the plate.

3- A small seating load is then applied to the plate to enable adjustments to be made: this seating load should be less than 5 kPa.

4-Loading then commences with loading conducted in established small incremental steps by means of a hydraulic jack pushing against the counter weight until reaching the maximum test load. Unloading should also be done in the backward incremental steps. The load at every step is read from the proving ring.

5-Settlements are also read from the dial gauges placed on the plate. A minimum of 3 dial gauges should be placed separately at 120° so there is a fair measurement of the settlement on the entire plate.





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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Sample No.1

600

Table 1: Measured values for loading cycle

Stress	Load	Unload
0.00	0.00	1.32
0.50	0.30	1.71
1.00	0.73	2.11
1.50	1.25	2.21
2.00	1.69	2.31
2.50	2.09	2.36
3.00	2.40	2.40

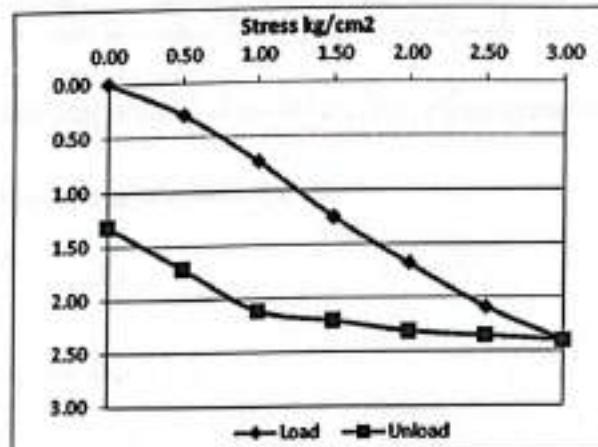


Fig. 1: Load-settlement curve, according to Table 1





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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IV- Results:

A- Modulus of elasticity (E)

modulus of elasticity of the soil that has been loaded using the following two relationship and then taking the average value as flexible compression factor for overall pressure.

$$E_1 = qd(1-\mu^2) / S$$

$$E_2 = qH/2S$$

Where:

q is ultimate load = 3 kg/cm²

d is the loading plate diameter = 60 cm

I is coefficient depending on rigidity of footing = 0.79 for circular plate

μ is poisson's ratio for soil = 0.3

H = 2d = 1.2 m

S is value of settlement related maximum testing load

Applying this equations we obtained the following results (table 2)

Table (2):Results of Measured values

q (kg/cm ²)	S mm	E ₁ (kg/cm ²)	E ₂ (kg/cm ²)	E _{av} (kg/cm ²)
3	2.40	539.18	750.00	644.59

B-Modulus of Subgrade reaction of soil (K_s) and immediate settlement (S_i)-(ACI-336.2R-88)

1- Immediate settlement of foundation (S_i)

$$S_i = \left(\frac{1-\mu^2}{E_{av}} \right) q B I_p$$

Where :

I_p for flexible strip raft foundation = 2.24

B is Footing width = 1.80 m

E_{av} is average value of modulus of elasticity

q is required allowable bearing capacity = 1.5 kg/cm²



2- Modulus of subgrade reaction of soil

The modulus of Subgrade reaction (K_s) of the soil that has been loaded by the design stress (q) divided by footing Immediate settlement (S_i) according to (ACI- 336.2R -88)

$$K_s = q/S_i$$

Applying this equations we obtained the following results (table 3)

Table (3):Results of Measured values

q (kg/cm ²)	S _i (mm)	k _s (Ton/m ³)
1.50	8.54	1756.79

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COMIBASSAL International Controllers Internal inspection and laboratories sector

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Conclusion

The present test results which obtained from the plate loading tests of the native soil on coarse aggregate filter layer in electric express train project at St(310+870)- Left in accordance to the ASTM standard , D 1196 are illustrated in table 4.

Table 4 :Test results

Sample No.	E_{av} (kg/cm ²)	S_v (mm)	K_v (ton/m ³)
1	644.59	8.54	1756.790
SPECIFICATION (A&A CONSULTANT)	—	Not more than 50 (mm)	Not less than 700 (ton/m ³) for one vent

Lab Director *Eman*
Eng/ Eman Kandil



Geotechnical Consultant
For Dr. H.
Dr / Mohamed Mostafa Badry





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011

Technical Report

of Plate Loading Test

(ASTM D 1196)

General Consultant : SYSTRA

Consultant : DR/ Khaled Kandil

Contractor : شركة اورنج للإستيراد والتصدير و المقلولات العامة

Project : Electric Express Train

Sample : Coarse Aggregate Filter

Station : St (310+870) Right

Date of test : 23/04/2024

QC : 689-2

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Internal inspection and laboratories sector

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I- Introduction:

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Sample No.1

600

Table 1: Measured values for loading cycle

Stress	Load	Unload
0.00	0.00	1.16
0.50	0.36	1.59
1.00	0.77	2.01
1.50	1.21	2.10
2.00	1.59	2.20
2.50	1.97	2.23
3.00	2.27	2.27

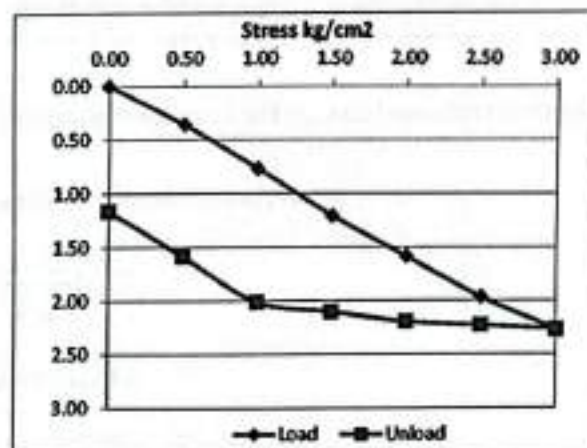


Fig. 1: Load-settlement curve, according to Table 1



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IV- Results:

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modulus of elasticity of the soil that has been loaded using the following two relationship and then taking the average value as flexible compression factor for overall pressure.

$$E_1 = qd(1-\mu^2) / S$$

$$E_2 = qH/2S$$

Where:

q is ultimate load = 3 kg/cm²

d is the loading plate diameter = 60 cm

l is cofficeint depending on rigidity of footing = 0.79 for circular plate

μ is poisson's ratio for soil = 0.3

H = 2d = 1.2 m

S is value of settlement related maximum testing load

Applying this equations we obtained the following results (table 2)

Table (2):Results of Measured values

q (kg/cm ²)	S mm	E ₁ (kg/cm ²)	E ₂ (kg/cm ²)	E _{av} (kg/cm ²)
3	2.27	571.31	794.70	683.01

B-Modulus of Subgrade reaction of soil (K_s) and immediate settlement (S_i)-(ACI-336.2R-88)

1- Immediate settlement of foundation (S_i)

$$S_i = \left(\frac{1-\mu^2}{E_{av}} \right) q B l_p$$

Where :

l_p for flexible strip raft foundation =2.24

B is Footing width =1.80 m

E_{av} is average value of modulus of elasticity

q is required allowable bearing capacity =1.5 kg/cm²

2- Modulus of subgrade reaction of soil

The modulus of Subgrade reaction (K_s) of the soil that has been loaded by the design stress (q) divided by footing Immediate settlement (S_i) according to (ACI- 336.2R -88)

$$K_s = q/S_i$$

Applying this equations we obtained the following results (table 3)

Table (3):Results of Measured values

q (kg/cm ²)	S _i (mm)	k _s (Ton/m ³)
1.50	8.06	1861.50





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Conclusion

The present test results which obtained from the plate loading tests of the native soil on coarse aggregate filter layer in electric express train project at St(310+870) - Right in accordance to the ASTM standard , D 1196 are illustrated in table 4.

Table 4 :Test results

Sample No.	E_{sv} (kg/cm ²)	S_1 (mm)	K_v (ton/m ³)
1	683.01	8.06	1861.500
SPECIFICATION (A&A CONSULTANT)	—	Not more than 50 (mm)	Not less than 700 (ton/m ³) for one vent

Lab Director
Eng/ Eman Kandil



Geotechnical Consultant
Dr / Mohamed Mostafa Badry



قائمة الكميات الواردة بالمستخلص جاري (٢)

استد أعمال الجسر الترابي للخط الأول لمشروع القطر الكهربائي السريع
(العين السخنة - العاصمة الإدارية - العلمين - مطروح)
(قطاع وادي النطرون / برج العرب) أعمال من الفلتر
لتنفيذ المصفاة من الكم ٣١٠,٦٤٠ إلى الكم ٣١١,٠٠٠ بطول ٠,٣٦٠ كم (بالأمر المباشر).

بند (١-١):

بالمتر المكعب أعمال توريد وفرش طبقة فلتر من الأحجار الصلبة المترددة ناتج تكسير كسرات والمطابقة للمواصفات وأقصى حجم حبيبي ما بين ٢٠ مم إلى ٧٥ مم ولا يزيد نسبة المار من منخل ٢٠٠ عن ٥% والتدرج الوارد بالاشتراطات الخاصة بالمشروع وهي أحجار مقاس سن ١: سن ٢: سن ٤ أو سن ٦ بنسبة ١:١:١ ولا يقل معامل المرونة EV2 من تجربة لوح التحميل عن ٥٠ ميجا بسكال ولا يزيد نسبة الفاقد بجهاز لوس أنجلوس عن ٤٥% والفئة تشمل أعمال التجارب المعملية والبند يشمل اجراء التجارب المعملية والحقلية طبقاً لأصول الصناعة الممتازة وتقرير الاستشاري وتعليمات المهندس المشرف.
- لمسافة نقل ٢٠ كم.
- الفئة شاملة قيمة المادة المحجورة.
- يتم احتساب ١,٣ جنية للكم بالزيادة أو النقصان.

المعبر خلال شهر أكتوبر ٢٠٢٢ طبقاً للمفاوضة الخاصة بالقطاع الرابع بتاريخ ١٨-١٢-٢٠٢٣
تنفيذ: "شركة أورانج للاستيراد والتصدير"
عقد رقم (٢٠٢٤/٢٠٢٣/٩٤٩)

مقدار العمل السابق :		٠,٠	٣م
مسلسل	الموقع الكيلومتری		الكمية (م٣)
	من الكم	إلى الكم	
١	٣١٠,٦٤٠	٣١١,٠٠٠	٦٠٣٠,٣٠
إجمالي الكمية الهندسي بالقطاع (م٣)			
إجمالي الكمية بعد احتساب نسبة غرز ٢٥% (م٣)			
٧٥٣٧,٨٨			
كميات سبق صرفها في عقود سابقة (م٣)			
٦٠٣٠,٣٠			
الإجمالي خلال فترة المستخلص الحالية (م٣)			
١٥٠٧,٥٨			

مهندس الهيئة
م / أحمد جلال عبد السلام
أحمد جلال

مهندس الاستشاري
مكتب أد / خالد قلندل
م / هشام محمد صبري



مهندس الاستشاري
مكتب XYZ
م / محمد خليل



مهندس الشركة
م / محمد فتحي النور
م / محمد فتحي النور



م / محمد شفيق الغول
ORANGE
EXPORT & IMPORT
التصدير والاستيراد والتصدير
من ٢٠١٩/١١/٢٤ إلى ٢٠١٩/١١/٢٤

قائمة الكميات الواردة بالمستخلص جاري (٢)

اسناد أعمال الجسر الترابي للخط الأول لمشروع القطار الكهربائي السريع
(العين السخنة - العاصمة الإدارية - العلمين - مطروح)
(قطاع وادي النطرون / برج العرب) أعمال سن الفلتر
لتنفيذ المسافة من الكم ٣١٠.٦٤٠ إلى الكم ٣١١.٠٠٠ بطول ٠.٣٦٠ كم (بالأمر المباشر).

بنء (١-١):

بالمتر المكعب أعمال توريد وفرش طبقة فلتر من الأحجار الصلبة المترجئة ناتج تكسير كسرات والمطابقة للمواصفات وأقصى حجم حبيبي ما بين ٢٠ مم إلى ٧٥ مم ولا يزيد نسبة المار من منخل ٢٠٠ عن ٥% والتدرج الوارد بالاشتراطات الخاصة بالمشروع وهي أحجار مقاس سن ١ سن ٢ سن ٤ أو سن ٦ بلسية ١:١:١ ولا يقل معدل المرونة EV2 من تجربة لوح التحميل عن ٥٠ ميجا بسكال ولا يزيد نسبة الفقد بجهاز لوس أنجلوس عن ٤٥% والفلة تشمل أعمال التجارب المعملية والبنء يشمل اجراء التجارب المعملية والحقلية طبقاً لأصول الصناعة المعتمدة وتقرير الاستشاري وتعليمات المهندس المشرف.
- لمسافة نقل ٢٠ كم.
- الفئة شاملة قيمة المادة المحجربة.
- يتم احتساب ١,٣ جنية للكم بالزيادة أو التقصان

السعر ابتداءً من شهر سبتمبر طبقاً للمفاوضة الخاصة بالقطاع الرابع بتاريخ ٢٠٢٤-٠٦

تنفيذ : "شركة أورانج للاستيراد والتصدير"

عقد رقم (٢٠٢٤/٢٠٢٣/٩٤٩)

مقدار العمل السابق :		٠,٠	٣م
تمثيل	الموقع للكيلومتری		الكمية (م٣)
	من الكم	إلى الكم	
١	٣١٠+٦٨٠	٣١١+٠٠٠	٧١٣٧,٦٠
٢	بربخ ٣١٠+٦٥٠		١٥٩,٤٤
٣	بربخ ٣١٠+٦٥٥		١٤٣,٩٩
اجمالي الكمية الهندسي بالقطاع (م٣)			
٧٤٤١,٠٢			
اجمالي الكمية بعد احتساب نسبة غرز ٢٥% (م٣)			
٩٣٠١,٢٨			
الاجمالي خلال فترة المستخلص الحالية (م٣)			
٩٣٠١,٢٨			

مهندس الهيئة

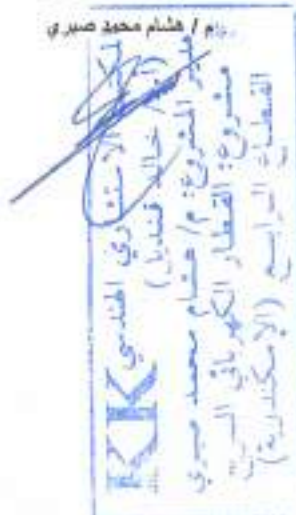
م / احمد جلال عبد السلام

احمد جلال

مهندس الاستشاري

مكتب أ.د/ خالد فتدیل

م / هشام محمد صبري



مهندس الاستشاري

مكتب XYZ

م / محمد خليل



مهندس الشركة

م / محمد فتحي الفول



قائمة الكميات الواردة بالمستخلص جاري (٢)

اسناد أعمال الجسر الترابي للخط الأول لمشروع القطر الكهربائي السريع
(العين المسخنة - العاصمة الإدارية - العلمين - مطروح)
(قطاع وادي النطرون / برج العرب) أعمال سن الفلتر
لتنفيذ المسافة من الكم ٣١٠,٦٤٠ إلى الكم ٣١١,٠٠٠ بطول ٣٣٦٠ كم (بالأمر المباشر).

بند (١-١):

بالمتر المكعب أعمال توريد وفرش طبقة فلتر من الأحجار الصلبة المترددة ناتج تكسير كسرات والمطبقة للمواصفات وأقصى حجم حبيبي ما بين ٢٠ مم إلى ٧٥ مم وألا يزيد نسبة العار من منخل ٢٠٠ عن ٥% والتدرج الوارد بالاشتراطات الخاصة بالمشروع وهي أحجار مقاس سن ١:٢:٤ أو سن ٦ بنسبة ١:١:١ وألا يقل معامل المرونة EV2 من تجربة لوح التحميل عن ٥٠ ميجا بسكال وألا يزيد نسبة الفقد بجهاز لوس أنجلوس عن ٤٥% والفئة تشمل أعمال التجارب المعملية والبند يشمل اجراء التجارب المعملية والحقلية طبقاً لأصول الصناعة الممتازة وتقرير الاستشاري وتعليمات المهندس المشرف.

- لمسافة نقل ٢٠ كم.

- الفئة شاملة قيمة المادة المحجوبة.

- يتم احتساب ١,٣ جنية للكم بالزيادة أو النقصان

السعر ابتداءً من ٢٠٢٢-٣-٢٤ طبقاً للمفاوضة الخاصة بالقطاع الرابع بتاريخ ٢٠٢٤-٠٦-٢٤

تنفيذ : "شركة أورانج للاستيراد والتصدير"

عقد رقم (٢٠٢٤/٢٠٢٣/٩٩٩)

مقدار العمل السابق :		٠,٠	٣م
مستعمل	الموقع الكيلومثري		الكمية (م٣)
	من الكم	الى الكم	
١	بربخ ٣٦٠+٨٧٠		١٤٣,٩٩
اجمالى الكمية الهندسي بالقطاع (م٣)			
اجمالى الكمية بعد احتساب نسبة غرز ٢٥% (م٣)			
١٧٩,٩٩			
الاجمالى خلال فترة المستخلص الحالية (م٣)			
١٧٩,٩٩			

مهندس الهيئة

م / احمد جلال عبد السلام

امسجل

مهندس الاستشاري

مكتب أ.د/ خالد قنديل

د. هاشم محمد صبرى

القطاع الرابع
(الإسكندرية)
القطر الكهربائي السريع
حشام محمد صبرى
مهندس الاستشاري

مهندس الاستشاري

مكتب XYZ

أحمد كمال

مهندس الاستشاري
مكتب XYZ
أحمد كمال

مهندس الشركة

م / محمد فتحي النور

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م / محمد فتحي النور
٢٠٢٤/٠٦/٢٤

قائمة الكميات الواردة بالمستخلص جاري (٢)

اسناد أعمال الجسر الترابي للخط الأول لمشروع القطار الكهربائي السريع
(العين السفلى - العاصمة الإدارية - العلمين - مطروح)
(قطاع وادي النطرون / برج العرب) أعمال من الفلتر
لتنفيذ المسافة من الكم ٣١٠,٦٤٠ إلى الكم ٣١١,٠٠٠ بطول ٠,٣٦٠ كم (بالأمر المباشر).

علاوة بند (١-١) علاوة تحصيل رسوم الكارثة والموازن طبقا للاحقة الشركة الوطنية.

تنفيذ : "شركة أورانج للاستيراد والتصدير"
عقد رقم (٢٠٢٤/٢٠٢٣/٩٤٩)

مقدار العمل السابق :		٣م	١٣٦٢١,٠٠
مسلسل	الموقع الكيلومترى		الكمية (م٣)
	من الكم	إلى الكم	
١	٣١٠+٦٥٠	بربح	١٥٩,٤٤
٢	٣١٠+٦٥٥	بربح	١٤٣,٩٩
٣	٣١٠+٨٧٠	بربح	١٤٣,٩٩
اجمالي الكمية الهندسي بالقطاع (م٣)			٤٤٧,٤٢
اجمالي الكمية بعد احتساب نسبة غرز ٢٥% (م٣)			٥٥٩,٢٨
الاجمالي خلال فترة المستخلص الحالية (م٣)			١٤١٨٠,٢٨

مهندس الهيئة
م / أحمد جلال عبد السلام
أحمد جلال

مهندس الاستشاري
مكتب أ/د/ خالد فتحي
م / أحمد جلال عبد السلام
قطاع الرابع
الإسكندرية
الهندسي
KK

مهندس الاستشاري
مكتب XYZ
م / أحمد جلال عبد السلام
مشروع القطار السريع - غرب النيل

مهندس الشركة
م / محمد فتحي الغول
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٢٠٢٤/٢٠٢٣/٩٤٩

قائمة الكميات الواردة بالمستخلص جاري (٢)

اسناد أعمال الجسر النرابي للخط الأول لمشروع القطار الكهربائي السريع
(العين السفلى - العاصمة الإدارية - العتمين - مطروح)
(قطاع وادي النطرون / برج العرب) أعمال سن الفلتر
لتنفيذ المسافة من الكم ٣١٠.٦٤٠ إلى الكم ٣١١.٠٠٠ بطول ٠.٣٦٠ كم (بالأمر المباشر).

علاوة بند (١-١) علاوة مسافة النقل ١٦٢ كم .

السعر حتى ٢٠٢٣-٠٥-٠٣
السعر خلال شهر أكتوبر ٢٠٢٢ طبقاً للمفاضلة الخاصة بالقطاع الرابع بتاريخ ٢٠٢٣-١٢-١٨
تنفيذ : "شركة أورانج للاستيراد والتصدير"
عقد رقم (٢٠٢٤/٢٠٢٣/٩٤٩)

مقدار العمل السابق : ٠.٠ ٣م

الكمية (م٣)	الطول (متر)	الموقع الكيلومتری		مستعمل
		من الكم	إلى الكم	
٦٠٣٠,٣٠	٣٢٠	٣١٠+٦٨٠	٣١١+٠٠٠	١
٦٠٣٠,٣٠	اجمالي الكمية الهندسي بالقطاع (م٣)			
٧٥٣٧,٨٨	اجمالي الكمية بعد احتساب نسبة غرز ٢٥% (م٣)			

٦٠٣٠,٣٠	كميات سبق صرفها في عقود سابقة (م٣)
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١٥٠٧,٥٨	الاجمالي خلال فترة المستخلص الحالية (م٣)
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مهندس الهيئة
م / أحمد جلال عبد السلام
i احمد جلال

مكتب أ/د خالد قنديل
م / هشام محمد صبري



مكتب XYZ

م / محمد خليل



مهندس الشركة

م / محمد فتحي النول



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مهندس الشركة
م / محمد علي الفول
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الرياض للاستيراد والتصدير
1431 هـ / 2010 م

السيد المهندس / رئيس قطاع التنفيذ و المناطق

تحية طيبة وبعد ،،،

بالإحالة إلي مشروع القطار الكهربائي السريع القطاع الرابع (قطاع وادي النظرون/برج العرب/الاسكندرية).

نتشرف بأن نرسل لسيادتكم المقايضة المعدلة لبتود أعمال الجسر الترابي للخط الأول لمشروع القطار الكهربائي السريع (العين السخنة - العاصمة الإدارية - العلمين - مطروح) (قطاع وادي النظرون / برج العرب) أعمال من القلتر

لتنفيذ المسافة من الكم ٣١٠,٦٤٠ إلى الكم ٣١١,٠٠٠ بطول ٠,٣٦٠ كم (بالأمر المباشر).

عقد رقم (٢٠٢٤/٢٠٢٣/٩٤٩)

تنفيذ : "شركة أورانج للاستيراد والتصدير".

وذلك طبقاً للأسعار بعد المفاوضة.

برجاء من سيادتكم التفضل بالموافقة والتوجيه بالازم.

و تفضلوا بقبول فائق الاحترام ،،،

١٥

رئيس الإدارة المركزية

منطقة غرب الدلتا

الاسكندرية - مرسى مطروح

عميد مهندس /

"هاني محمد محمود طه"

المقايضة المعادلة لبطون الأعمال لعملية
استاد أعمال الجسر القرباني للخط الأول لمشروع القطار الكهربائي المربع
(العين السفينة - العاصمة الإدارية - العنمين - مطروح) (قطاع وادي النطرون / برج العرب) أعمال من القطار
للتقليد المسافة من الكم ٣١٠,٦٤٠ إلى الكم ٣١١,٠٠٠ بطول ٠,٣٦٠ كم (بالأمر المباشر).
عقد رقم (٢٠٢٤/٢٠٢٣/٩٩٩)
تتفيذ "شركة أورنج للإستيراد والتصدير"

رقم البند	بيان الأعمال	الوحدة	الكمية	القيمة	الإجمالي
١	أعمال الرسم				
١٠١	بالمتر المكعب أعمال توريد وفرش طبقة فلتر من الأحجار الصلبة المترجعة ناتج تكسير كسارات والمطابقة للمواصفات والفسي حجم حبيبي ما بين ٢٠مم الى ٧٥ مم والا يزيد نسبة المار من منخل ٢٠٠ عن ٥% والفرج الوارد بالاشتراطات الخاصة بالمشروع وهي احجار مقاس ١ سن: ٢ سن: ٤ سن: ٨ او ٦ بنسبة ١:١:١:١ والاقل معامل المرونة EV2 من تجربة لوح التحميل عن ٥٠ ميجاباسكال والا يزيد نسبة الفقد بجهاز لوس الجلوس عن ٥% والقلة تشمل اعمال التجارب المعملية واليوند يشمل اجراء التجارب المعملية والحقبة طبقا لاصول الصناعة المتنازلة وتقرير الاستشاري وتعليمات المهندس المشرف . - لمسافة نقل ٢٠ كم . - القنة شاملة قيمة المادة المحجورية. - يتم احتساب ١,٢ جنيه لكل ١ كم بزيادة او نقصان .				
	السعر خلال شهر أكتوبر طبقاً للمفاوضة بتاريخ ٢٠٢٣-١٢-١٨	م ^٣	١٥٠٨,٠	٣١٥,٥٠	٤٧٥,٧٧٤,٠٠
	السعر خلال شهر يونيو طبقاً للمفاوضة بتاريخ ٢٠٢٤-٠٦	م ^٣	٣١٩٢,٠	٣٤٩,٠٠	١,١١٤,٠٠٨,٠٠
	السعر ابتداءً من شهر سبتمبر طبقاً للمفاوضة بتاريخ ٢٠٢٤-٠٦	م ^٣	٩٣٠٢,٠	٣٥٩,٤٠	٣,٣٤٣,١٢٨,٨٠
	السعر ابتداءً من ٢٠٢٤-٠٣-٢٢ طبقاً للمفاوضة بتاريخ ٢٠٢٤-٠٦	م ^٣	٥٨٩٩,٠	٣٦٣,٠٠	٢,١٤١,٣٢٧,٠٠
	علاوة بند (١-١) علاوة مسافة النقل ١٦٢ كم . ١٧٠,٤=١,٢*(٢٠-١٦٢) السعر حتي ٢٠٢٣-٠٥-٠٤	م ^٣	١٥٠٨,٠	١٧٠,٤٠	٢٥٦,٩٦٣,٢٠
	علاوة بند (١-١) علاوة مسافة النقل ١٦٢ كم . ١٨٤,٦=١,٣*(٢٠-١٦٢) السعر ابتداءً من ٢٠٢٣-٠٥-٠٤	م ^٣	١٢٤٩٤,٠	١٨٤,٦٠	٢,٣٠٦,٣٩٢,٤٠
	علاوة بند (١-١) علاوة مسافة النقل ١٦٢ كم . ١٩٤,٤=١,٢*١٦٢+٨٠*١,٥ السعر ابتداءً من ٢٠٢٤-٠٣-٢٢	م ^٣	٥٨٩٩,٠	١٩٤,٤٠	١,١٤٦,٧٦٥,٦٠
	علاوة بند (١-١) علاوة تحصيل رسوم الكارثة والموازين طبقا للائحة الشركة الوطنية.	م ^٣	١٩٩٠١,٠	٢٥,٠٠	٤٩٧,٥٢٥,٠٠
					الإجمالي
احد عشر مليوناً ومئتان وواحد وثمانون ألفاً وثمانمائة وأربعة جنيهها مصرياً فقط لا غير.					
* يرجى العلم بان الفئات المذكورة طبقاً للمفاوضة الخاصة بالطعام للاربع بتاريخ ٢٠٢٣-١٢-١٨ و المفاوضة الخاصة بتاريخ ٢٠٢٤-٠٦					