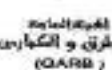


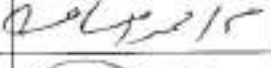
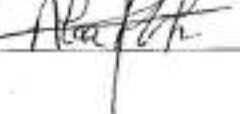
(382+680 To 383+180)

MATERIAL APPROVAL REQUEST	     
	

Contractor Company	Eng. Abdelgalam El Eky For Contracting	Designer Company	(SPECTRUM) Engineering Consulting Office																		
Issued by Contractor	Name: م. عبد الحميد العلي وشركاه Sign:  Eng. Mohamed Ali	Date/Serial Number	Time																		
Received by GARU CONSULTANT	Eng. Mazen Essamy	29/3/2023	09:00																		
		SS-B-AP2 (I.A.R.F. (1))																			
		<table border="1"> <tr> <th>C1</th> <th>C2</th> <th>C3</th> <th>C4</th> <th>M1</th> <th>M2</th> <th>M3</th> <th>M4</th> <th>M5</th> </tr> <tr> <td>382+600</td> <td>EW</td> <td>CB</td> <td>1</td> <td>4</td> <td>23</td> <td>8</td> <td>8</td> <td></td> </tr> </table>	C1	C2	C3	C4	M1	M2	M3	M4	M5	382+600	EW	CB	1	4	23	8	8		
C1	C2	C3	C4	M1	M2	M3	M4	M5													
382+600	EW	CB	1	4	23	8	8														

CODE-1	S1 to S21	D1 to S3	Kp KKK Note
	Status Reference	Depth Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41 2) VERSION 2 BY GINECOM GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM) 1- Quality test Result By Third Party Lab Comibastel is Approved. 2- This Sample Representative (5000 m³) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1- All tests were selected for Quality test and were carried out by Third party lab Comibastel. 2- Results report attached and acceptable with the project specifications.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margaret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer

** Approved Bridges/ Culvert only

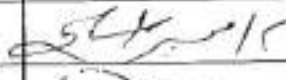
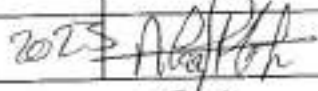
(382+680T0383+180)

MATERIAL APPROVAL REQUEST					
----------------------------------	---	---	--	---	---

Contractor Company	Eng. Abdel Salam EL Feky For Contracting		Designer Company	(SPECTRUM) Engineering Consulting Office							
Issued by Contractor	Name	Eng. Mohamed Ismael	Date/Serial Number	29/3/2023							
			(M.A.R.F. (2))	8:00							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAE	C1	C2	C3	OD	MM	TY	HI	MM
				382+500	EW	CS	L	4	23	8	0

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

Description of Materials	Fill Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (KG23-43.2) VERSION 2 BY CIVICON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allah (GAR)	
1-Quality test Result By Third Party lab Comibassal is Approved.		1-All tests were selected for Quality test and were carried-out by Third party lab Comibassal.	
2-This Sample Representative (5000 m³) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	
		4- Remain Chemical test	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margeret Magdy			
Employers Representative	Eng. Alaa Abd-Allah			AWC

* Designer

** All general/Responsible Civil only

2023/03/29
05/4



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. 031708/1A

I- Introduction

General Consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عبد السلام القوي المقاولات
Sample : FERMA
Station : St(382+500)to St(383+000)
Date of Test : 1/04/2023
QC : 990

II- Sample description:

Gravel and sand (80:20)

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction and optimum moisture content (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction and optimum moisture content (Proctor test)	MDD	2.119
	OMC	6.2%
3- Liquid limit, plastic limit and plasticity index	LL	25.0%
	PL	23.7%
	PI	1.3%
4- California bearing ratio (CBR)	CBR ratio	49%

LAB DIRECTOR
Eng / Eman kandil



Geotechnical consultant
For: Dr. M.
Dr. Mohamed Mostafa Badry

Kilo 23 Alexandria - Cairo Desert Road - Merghem
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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
Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

APPENDIX

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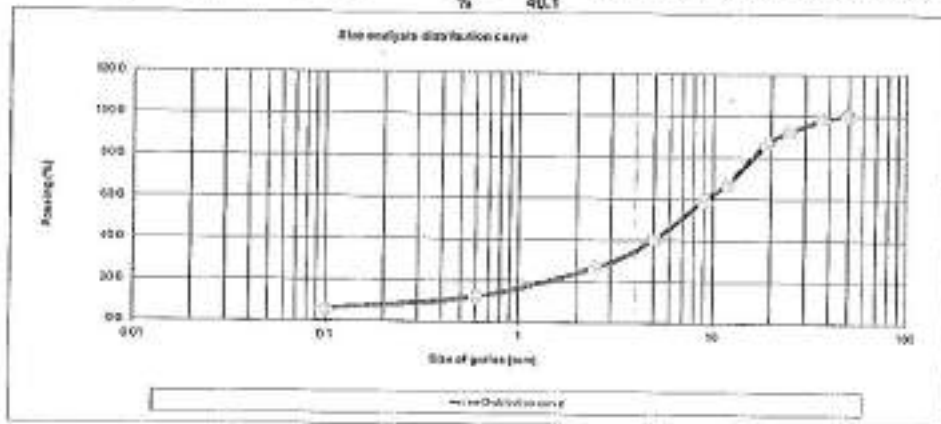
Internal inspection and laboratories sector

Accredited by: Egyptian General Authority for Petroleum under No. 34/29-11-2011
Accredited by: Egyptian Accreditation council (EGAC) under No. 031708/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
	(gm)				
2	0.00	0.00	0.00	100.0	
1 1/2	180.00	180.00	2.25	97.7	
1	475.00	655.00	8.19	91.8	
3/4	465.00	1120.00	14.00	86.0	
1/2	1508.00	2628.00	32.85	67.1	
3/8	648.00	3276.00	40.96	59.0	
No.4	1513.00	4789.00	59.87	40.1	
No.10	169.00	169.00	33.80	26.6	
No.40	349.00	349.00	60.80	12.1	
No.200	426.00	426.00	85.20	5.9	

Total sample weight = 7999.00 pass No.4 = 3210.0 Total fine aggregates weight = 500 gm
% 40.1



Soil classification: A-1-a

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COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/28-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

Modified Proctor Test Report

ASTM - D 1557

Mould Number :-
Volume of mould = $\frac{1}{2199} \text{ cm}^3$
Weight of mould = 7045 g
G.S = 2.5 g/cm³

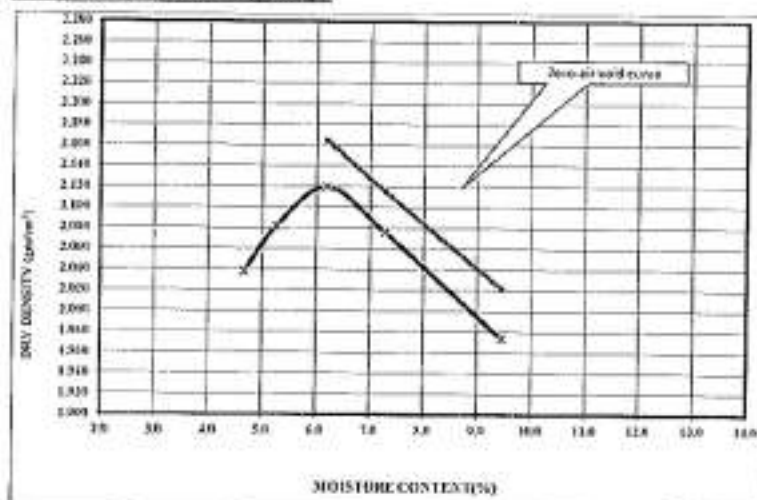
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	11736	11863	11994	11942	11796
Weight of mould (g)	7045	7045	7045	7045	7045
Weight of wet soil (g)	4691	4818	4949	4897	4751
Volume of mould (cm ³)	2199	2199	2199	2199	2199
Wet density (g/cm ³)	2.133	2.191	2.251	2.227	2.161
Dry density (g/cm ³)	2.038	2.081	2.119	2.076	1.974
Zero-air Void curve			2.165	2.115	2.022

B- Moisture Calculations :-

Weight of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil+container (g)	242.5	241.5	240.2	238.8	236.0
Weight of container (g)	82.0	80.0	82.0	85.0	88.0
moisture content (%)	4.7	5.3	6.2	7.3	9.5

C - Dry density-Moisture relationship:-



M.D.D= 2.119 gm/cm³
O.M.C= 6.2 %



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Email : internal-inspection@comibassal.com





COMIBASSAL International Controllers

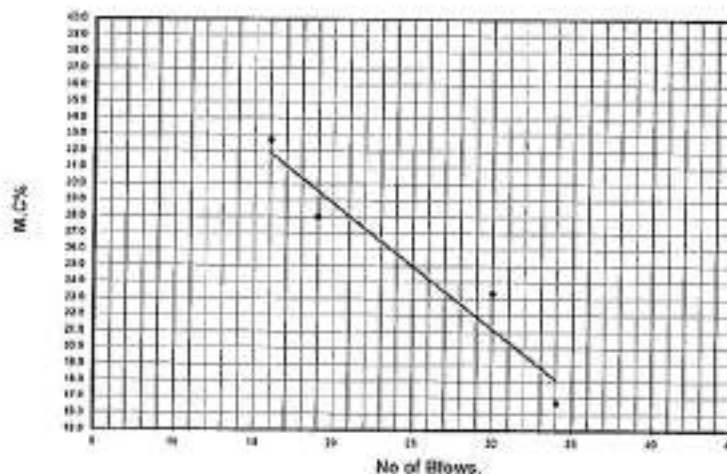
Internal inspection and laboratories sector

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

Liquid and Plastic Limits Test

ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit			Plastic Limit		
NO of B.	34	30	19	16		
Container No	J	e	s	m	F	J
Mass of wet soil +container	103.00	107.50	97.80	101.90	63.20	49.80
Mass of dry soil +container	101.00	104.00	95.00	97.00	57.50	47.20
Mass of container	89.00	89.00	85.00	82.00	34.00	36.00
Mass of moisture	2.00	3.50	2.80	4.90	5.70	2.60
Mass of dry soil	12.00	15.00	10.00	15.00	23.50	11.20
Moisture content	16.67	23.33	28.00	32.67	24.26	23.21



Results:
Liquid Limit (L.L.) : 25 %
Plastic Limit (P.L.) : 23.7 %
Plasticity Index (P.I.) : 1.3 %



LAP ENG

CONTRACTOR

CONSULTANT

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COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by: Egyptian General Authority for Petroleum under No. 34/20-11-2011
Accredited by: Egyptian Accreditation council (EGAC) under No. 031706/1A

Report	:	427 - I - Center
Date	:	01/05/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام القلي للمقاولات
Project	:	Electric express train
Sample	:	FERMA
Station	:	ST (382 + 500) : (383 + 0.00) 5000m ³
Date of Test	:	1-4-2023

Temperature : 21 °C

Humidity : 55%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

Mustafa

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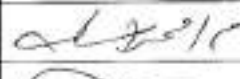
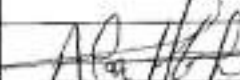
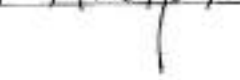
(382+680 To 383+180)

MATERIAL APPROVAL REQUEST					
	الهيئة العامة للتخطيط العمراني	الهيئة العامة للتخطيط العمراني	الهيئة العامة للتخطيط العمراني	الهيئة العامة للتخطيط العمراني	الهيئة العامة للتخطيط العمراني

Contractor Company	Eng. Abdel Salam EL Fiky For Contracting	Designer Company	(SPECTRUM) Engineering Consulting Office
Issued by Contractor	Name: Eng. Mohamed Ismail	Date/Serial Number	Time: 09:00
Received by GARB CONSULTANT	Eng. Mazen Essamy	SS B-AP2 (M.A.R.F. 2)	
		C1: 382+500	C2: EW
		C3: CB	C4: 1
		C5: 6	C6: 23
		C7: 8	C8: 0

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

Description of Materials	Fill Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Date Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41 2) VERSION 2 BY CIVECON GROUP
Preevaluation reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allah (ER)	
1-Quality test Result By Third Party lab Comibastal is Approved.		1-All tests were selected for Quality test and were carried out by Third party lab Comibastal.	
2-This Sample Representative (5000 m³) only.		2-Results report attached and acceptable with the project specifications.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismail			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margaret Magdy			A
Employees Representative	Eng. Alaa Abd-Allah			A

* Design

** Alignment/Bridges: Civil only

(382+680 To 383+180)

**MATERIAL
APPROVAL
REQUEST**

 الهيئة العامة
لجسور و الكباري
(GARBB)

شركة أبناء

Contractor Company	Eng. Abdelsalam Elmaghrabi	Owner Company	(SPECTRUM) Engineering Consulting Office								
Issued by Contractor	Name Eng. Mohamed Ismael	Date/Serial Number 30/4/2023 (M.A.R.F (2))	Time 8:00								
Received by GARBB CONSULTANT	Eng. Mazen Essamy	MAR	<table border="1"> <tr> <td>382+500</td> <td>EW</td> <td>CS</td> <td>1</td> <td>5</td> <td>23</td> <td>8</td> <td>0</td> </tr> </table>	382+500	EW	CS	1	5	23	8	0
382+500	EW	CS	1	5	23	8	0				

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

Description of Materials	Fill Layer Total Quantity (1000 m ³)		
Location to be Used	From Station 382+500) to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CS2)- 4L.2) VERSION 2 BY CMECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1- Quality test Result By Third Party lab Comibassal Approved. 2- This Sample Representative (1000 m ³) only.		1- All tests were selected for Quality test and were carried out by Thrid party lab Comibassal. 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/n
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margeret Magdy			
Employees Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges: Civil/early



COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

I- Introduction

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة عبد السلام القبي للمقاولات
Sample :	FERMA
Station :	St(383+000)to St(382+500)
Date of Test :	1/05/2023
QC :	1381

II- Sample description:

Gravel and sand

III- Required tests and Results

Required Tests		Results
1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-b
2- Modified compaction (Proctor test)	MDD	2.124
	OMC	8.6%
3- Liquid limit, plastic limit and plasticity index	LL	Non plastic
	PL	Non plastic
	PI	Non plastic
4- California bearing ratio (CBR)	CBR ratio	40%

IV- Notes

- 1- Samples were brought by : client
- 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. H.
Dr. Mohamed Mostafa Badry

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COMIBASSAL International Controllers Internal inspection and laboratories sector

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APPENDIX

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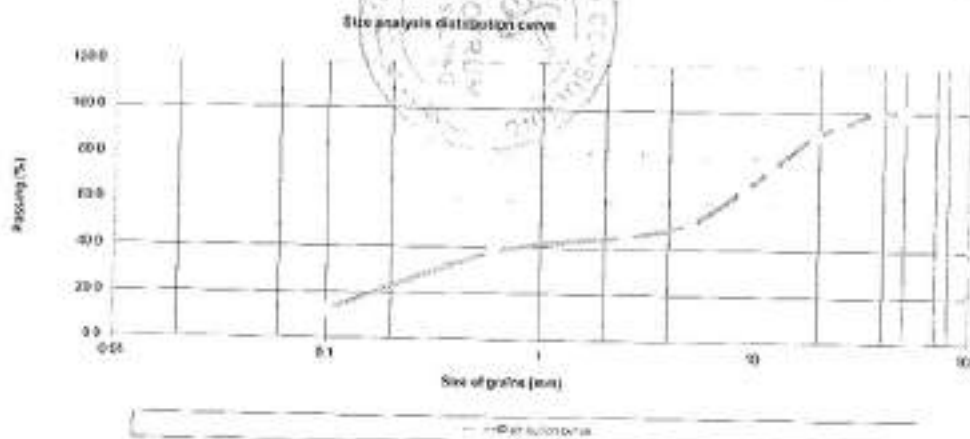
Internal inspection and laboratories sector

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Accredited by : Egyptian Accreditation council (EGAC) under No. 031708/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
2	0.00	0.00	0.00	100.0	
1 1/2	0.00	0.00	0.00	100.0	
1	622.00	622.00	6.22	93.8	
3/4	390.00	1012.00	10.12	89.9	
1/2	1464.00	2476.00	24.76	75.2	
3/8	912.00	3388.00	33.88	66.1	
No.4	1525.00	4913.00	49.13	50.9	
No.10	58.00	58.00	11.60	45.0	
No.40	130.00	130.00	26.00	37.6	
No.200	380.00	380.00	76.00	12.2	

Total sample weight = 10000.00 PASS No.4 50.9 % Total fine aggregates weight = 5007.0



Soil classification: A - 1 - b (Non Plastic)



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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

Modified Proctor Test Report

ASTM - D 1557

Mould Number :- 1
Volume of mould = 2188 cm³
Weight of mould = 5890 g
G.S = 2.65 g/cm³

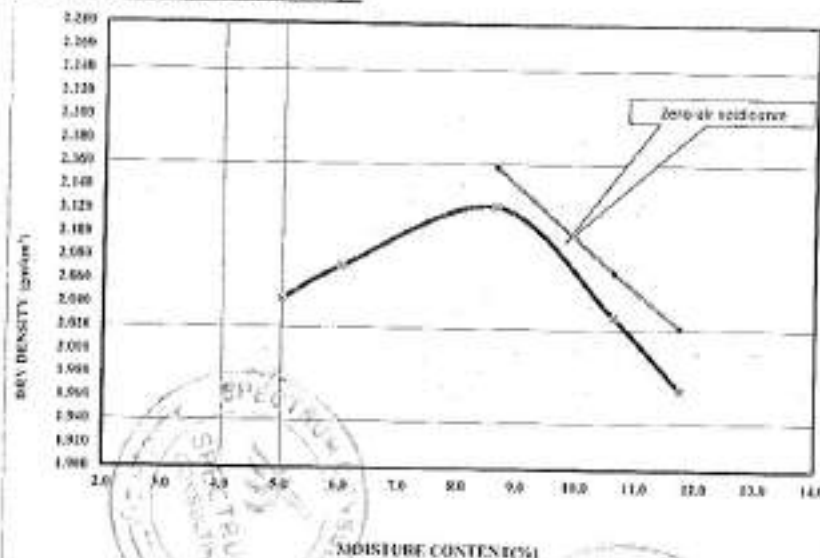
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10586	10696	10937	10803	10702
Weight of mould (g)	5890	5890	5890	5890	5890
Weight of wet soil (g)	4696	4806	5047	4913	4812
Volume of mould (cm ³)	2188	2188	2188	2188	2188
Wet density (g/cm ³)	2.146	2.197	2.307	2.245	2.199
Dry density (g/cm ³)	2.044	2.072	2.124	2.030	1.968
Zero-air Void curve			2.158	2.069	2.022

B- Moisture Calculations :-

Weight of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil+container (g)	242.0	237.6	232.0	229.0	233.0
Weight of container (g)	82.0	31.0	23.0	31.0	88.0
moisture content (%)	5.0	6.0	8.6	10.6	11.7

C - Dry density-Moisture relationship:-



M.D.D = 2.124 gm/cm³
O.M.C = 8.6 %

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Tel: 002 03 4704595 - 002 034701191
Email: cldept@comibassal.com
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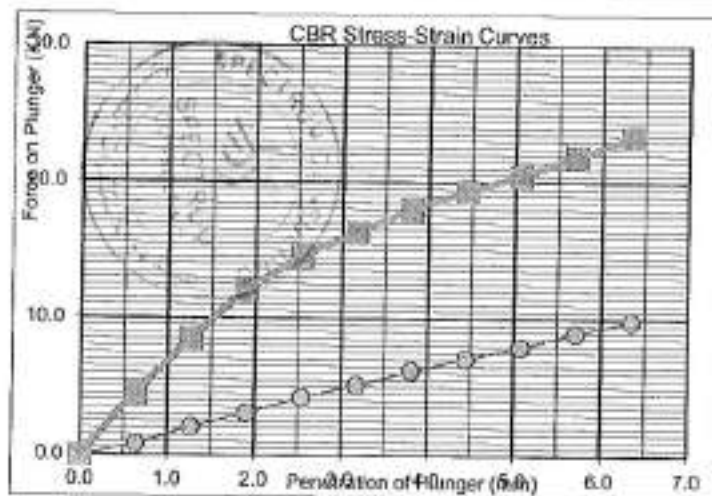


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Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS		56			Swell %		
MOULD NO		1				56	
WT OF MOULD+SOIL		11950			Start	0.00	
WT OF MOULD		7010			End	0.00	
WT OF SOIL		4940			Swell	0.00	
VOLUME OF MOULD		2198					
WET DENSITY		2.247					
MC before soaking				Weight of Rammer		4.54Kg	
TIN NO		1			MDD	Kg/m3	2.124
WT OF WET SOIL+TIN		250.00					
WT OF DRY SOIL+TIN		240.5			OMC	%	8.6
WT OF WATER		9.50					
WT OF TIN		92			PROVING RING		
WT OF DRY SOIL		148.5			Div/KN		0.0210
MOISTURE CONTENT		6.4					
DRY DENSITY		2.112			Capacity (KN)		50

Pen mm	Reading (Div)		Bearing (KN)		CBR	
0.00	56		56		standar	56
0.00	0		0.0		0.0	
0.64	80		0.8		4.5	
1.27	208		2.0		8.5	
1.91	312		3.1		12.0	
2.54	432		4.2		14.5	32
3.17	522		5.1		16.3	
3.81	630		6.2		18.0	
4.45	722		7.1		19.3	
5.08	811		8.0		20.5	40
5.71	912		8.9		21.9	
6.35	1003		9.8		23.3	



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Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

Report	:	553 - 3 - Center
Date	:	18/06/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقى للمقاولات
Project	:	Electric express train
Sample	:	FERMA
Station	:	ST (383 + 0.00) : (382 + 500)
Date of Test	:	1-5-2023

Temperature : 25 °C

Humidity : 40%

ANALYSIS	RESULTS	TEST METHOD
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

Mostafa

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(382+680 TO 383+180)

MATERIAL APPROVAL REQUEST		وزارة النقل Ministry of Transport		الهيئة العامة للمطرق و الجسور (GARB)		مجلس إدارة القاهرة		مجلس إدارة الجيزة		مجلس إدارة المنيا		مجلس إدارة البحرية		مجلس إدارة الشرقية		مجلس إدارة الغربية		مجلس إدارة الدقهلية		مجلس إدارة المنوفية		مجلس إدارة السيوة	
Contractor Company	Eng. AbdElSalam El Feky For Contracting			Designer Company			(SPECTRUM) Engineering Consulting Office																
Issued by Contractor	Name			Date/Serial Number			Time																
	Eng. Mohamed Ismael			30/4/2023			08:00																
Received by GARB CONSULTANT	Eng. Mazon Essamy			MAR			55-B-AF2 QT SG (1)																
CODE 4		S1 to S21			D1 to D3			Kp XXX Note															
		Station Reference			Dipet Reference			For Kilometer point only Start Km is used															
		Work Activity			Sub Element of Activity																		
Description of Materials		Subgrade Layer Total Quantity (5000 m³)																					
Location to be Used		From Station 382+500 to Station (383+000)																					
Sample only		Yes		Materials Type		Fill layers																	
Supplier Name				Data Sheet provided		Yes attached																	
Reference in BoQ				Specification		EARTHWORK SPECIFICATIONS & TESTING REPORT (EG21-41.2) VERSION 2 BY CIVECON GROUP																	
Prequalification reference				Test Samples Results																			
Reference Photos		No/Yes		Other																			
Comments by: Eng. Mazon Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (BRT)																					
1- Quality test Result By Third Party Lab Combassal is Approved.		1- All tests were selected for Quality test and were carried out by Third party lab Combassal.																					
2- This Sample Representative (6000 m³) only.		2- Results report attached and acceptable with the project specifications.																					
APPROVAL STATUS																							
Organisation	Name			Sign			Date			A-AWC-R													
Contractor	Eng. Mohamed Ismael			[Signature]						A													
QA/QC *	Eng. Mazon Essamy			[Signature]						A													
GARB **	Eng. Margherit Magdy			[Signature]						A													
Employers Representative	Eng. Alaa Abd-Allatif			[Signature]						A													

* Designer

** Alligned/Bridges, Culvert only

(382+680 To 383+180)

MATERIAL APPROVAL REQUEST							
	شركة ابن سناء						

Contractor Company	Eng. Abdel Salam El Eky For Contracting	Designer Company	SPECTRUM Engineering Consulting Office								
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed El Eky		30/6/2021	8:00							
			QT SG (1)								
Received by GARB CONSULTANT	Eng. Maran Essamy	Sign	MM	CI	CC	CS	CU	MM	TT	HT	MM
				382+500	EW	CS	1	5	23	8	0

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

Description of Materials	Subgrade Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		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	
Reference Photos	No/Yes	Other	
Comments by: Eng. Maran Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (IR)	
1- Quality test Result By Third Party lab Combassal is Approved. 2- This Sample Representative (5000 m³) only.		1- All tests were selected for Quality test and were carried-out by Third party lab Combassal. 2- Results report attached and acceptable with the project specifications. 3- Final approval is subject to above mentioned comments. 4- Remain chemical test	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Maran Essamy			A
GARB**	Eng. Margeret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023 08/5	AWC

* Designer

** Alignment/Bridges, Culvert only



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

I- Introduction

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة عبد السلام الفني للمقاولات
Sample :	Prepared Sub-grade
Station :	St(382+500) to st(383+000)
Date of Test :	01/05/2023
QC :	1178

II- Sample description:

Crushed stone and sand

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)
- 5- Specific gravity (SG)
- 6- Los Angeles test

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction (Proctor test)	MDD	2.166
	OMC	5.5%
3- Liquid limit, plastic limit and plasticity index	LL	Non plastic
	PL	Non plastic
	PI	Non plastic
4- California bearing ratio (CBR)	CBR ratio	92%
5- Specific gravity (SG), absorption and degradation	S S D	2.573
	Absorption	1.2%
	Degradation	0.2%
6- Los Angeles test	Abrasion ratio	27.0%

LAB DIRECTOR

Eng / Eman kandil

Geotechnical consultant

Dr. Mohamed Mostafa Badry



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APPENDIX

Kilo 23 Alexandria - Cairo Desert Road - Merghem
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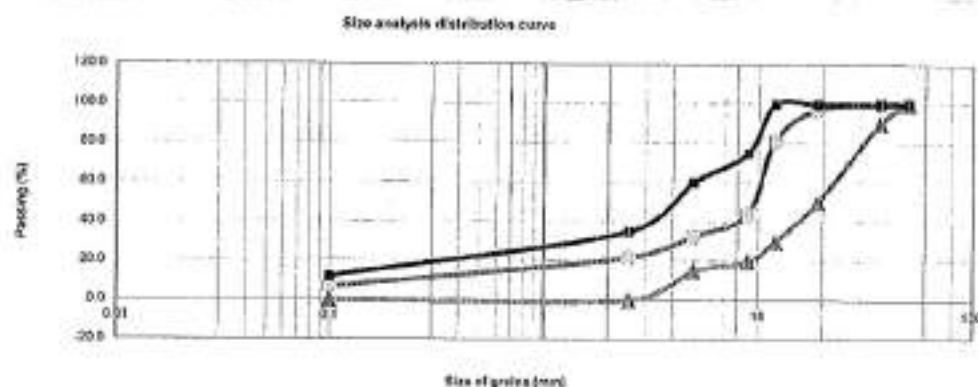
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PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED	CUMULATIVE WEIGHT	CUMULATIVE PERCENTAGE	CUMULATIVE PERCENTAGE	STANDARD SPECIFICATION	
	(gm)	RETAINED (gm)	RETAINED (%)	PASSING (%)	LIMITS	
5	0.00	0.00	0.00	100.0	100	100
4	0.00	0.00	0.00	100.0	20	100
3	0.00	0.00	0.00	100.0	75	100
1.5	273.00	273.00	2.73	97.3	50	100
3/4	3699.00	5550.00	55.50	44.5	20	75
3/8	1188.00	6738.00	67.38	32.6	15	60
No.10	165.00	165.00	33.00	21.9	6	35
No.200	399.00	399.00	79.80	6.6	0	12

Total sample weight = 10000.00 pass No.30 = 3262.0 Total fine aggregates weight = 500 gm
% 32.6



Soil classification: A-1-a (Non Plastic)



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Internal inspection and laboratories sector

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Modified Proctor Test Report

ASTM - D 1557

Mould Number :- 1
Volume of mould = 2199 cm³
Weight of mould = 5925 g
G.S = 2.5 g/cm³

A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10430	10610	10950	10870	10725
Weight of mould (g)	5925	5925	5925	5925	5925
Weight of wet soil (g)	4505	4685	5025	4945	4800
Volume of mould (cm ³)	2199	2199	2199	2199	2199
Wet density (g/cm ³)	2.049	2.131	2.285	2.249	2.183
Dry density (g/cm ³)	1.975	2.045	2.166	2.096	1.999
Zero-air Void curve			2.199	2.114	2.034

B- Moisture Calculations :-

Weight of wet soil (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil (g)	241.0	240.0	237.0	233.0	229.0
moisture content (%)	3.7	4.2	5.5	7.3	9.2

C - Dry density-Moisture relationship:-



M.D.D= 2.166 gm/cm³
O.M.C= 5.60 %



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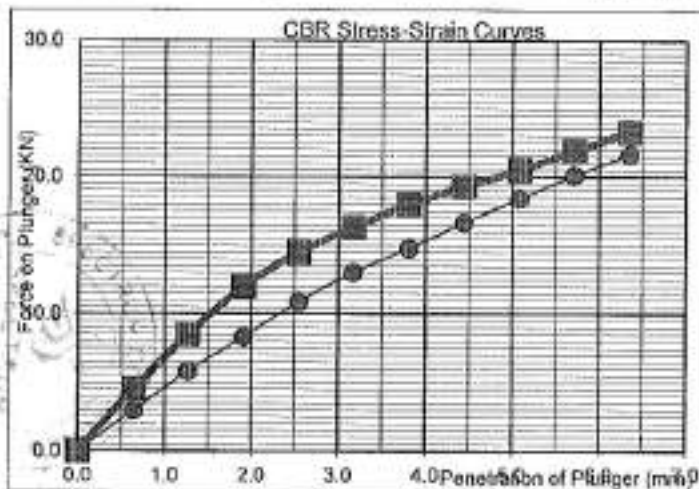
Internal inspection and laboratories sector

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Accredited by : Egypt Accreditation council (EGAC) under No. 031705/1A

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56				Swell %	
MOULD NO	1				56	
WT OF MOULD+SOIL	12105			Start	0.00	
WT OF MOULD	7047			End	0.00	
WT OF SOIL	5058			Swell	0.00	
VOLUME OF MOULD	2190					
WET DENSITY	2.310					
		MC before soaking		Weight of Rammer		4.54Kg
TIN NO	1			MDD	Kg/m ³	2.166
WT OF WET SOIL+TIN	250.00					
WT OF DRY SOIL+TIN	240			OMC	%	5.5
WT OF WATER	10.00					
WT OF TIN	92			PROVING RING		
WT OF DRY SOIL	148	2.125		Dw/KN		
MOISTURE CONTENT	6.8					
DRY DENSITY	2.163			Capacity (KN)		50

Pen mm	97		Bearing (KN)		CBR	
56			56		standar	56
0.00	0		FALSE		0.0	
0.64	302		3.0		4.5	
1.27	595		5.8		8.5	
1.91	850		8.3		12.0	
2.54	1130		10.9		14.5	82
3.17	1330		13.0		16.3	
3.81	1510		14.8		18.0	
4.45	1700		16.7		19.3	
5.08	1880		18.4		20.5	92
5.71	2050		20.1		21.9	
6.35	2210		21.7		23.3	



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ABRASION AND IMPACT " LOS ANGELES " TEST

(For coarse aggregate)

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

Speed	Rotate at 30 to 33 Rpm For 500 Revolution
Trial Grading	A
Intital Weight (W1) gms	5000
Weight of tested sample (W2) gms Retained on sieve No.12	3650
% abrasion By Weight Passing from Sieve No.12	27.0%



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Absorption & Specific Gravity for Aggregate AASHTO T85 - ASTM C127

Weight of sample	2500
Weight of saturated - dry surface sample (B)	2524
Weight of saturated sample in water (C)	1543
Weight of dry sample after heating (A)	2495

Results:-

Saturation surface dry specific gravity = $B / (B-C)$	2.573
Bulk specific gravity = $A / (B-C)$	2.543
Apparent specific gravity = $A / (A-C)$	2.621
Absorption of water = $(B-A)/A \times 100$	1.2
Degradation of aggregate = $(2500-A)/A \times 100$	0.2



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Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

Report	:	494 - 1 - Center
Date	:	20/05/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام القلي للمقاولات
Project	:	Electric express train
Sample	:	Prepared Sub Grade
Station	:	ST (382 + 500) : (383 + 0.00)
Date of Test	:	1-5-2023

Temperature : 24 °C

Humidity : 40%

ANALYSIS	RESULTS	TEST METHOD
CHLORIDE	0.0011%	ASTM D 2974
SULPHATE	0.0033%	
ORGANIC MATTER	NEGATIVE	



LAB DIRECTOR
CH/ Mostafa Asker

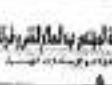
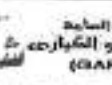
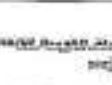
Mostafa

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Email : cindept@comibassal.com
WebSite : www.comibassal.com



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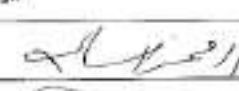
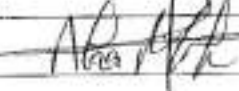
(382+680 To 383+180)

MATERIAL APPROVAL REQUEST	          	
	شركة ابن سينا	

Contractor Company	Eng. Abdelsalam EFFKY	Designer Company	SPECTRUM Engineering Consulting Office
Issued by Contractor	Eng. Mohamed Ismail	Date/Serial Number	24/02/2023
Received by GARB CONSULTANT	Eng. Mazen Essawy	SS-B-AF3 QT SB (1)	08:00
MAR		C1	C2
382+500		EW	CS
		25	6
		23	0
		0	0

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

Description of Materials	Subballast Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500) to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY GIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essawy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party Lab/Consultant is Approved.		1-All tests were selected for Quality test and were carried out by Third party lab Combassol	
2-This Sample Representative (5000 m³) only.		2-Results report attached and acceptable with the project specifications	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismail			A
QA/QC *	Eng. Mazen Essawy			A
GARB**	Eng. Margeret Magdy			A
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer
** Approved/Rejected/Checked only

(382+680 To 383+180)

MATERIAL APPROVAL REQUEST								
	شركة ابناء							

Contractor Company	Eng. AbdelIslam EL Ezz For Contracting		Designer Company	(SPECTRUM) Engineering Consulting Office					
Issued by Contractor	Name	Eng. Mohamed Ismael	Sign	Date/Serial Number	24/5/2023				
				QF SR (1)					
Received by GARB CONSULTANT	Eng. Mazen Essamy	MAR	CL	CS	CL	GD	MM	YY	MM
			282+500	EW	CS	25	5	23	8

CODE 1	S1 to S23	D1 to D3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Subballast Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (021-41.2) VERSION 2 BY ONECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy. (SPECTRUM)		Comments by: Eng. Alaa Abd-Allah (ER)	
1- Quality test: Result By Third Party lab Comibassal is Approved. 2- T&T Sample Representative (5000 m³) only.		1- All tests were selected for Quality test and were carried-out by Third party lab Comibassal. 2- Results report attached and acceptable with the project specifications. 3- Final approval is subject to above mentioned comments. 4- Remain Chemical Tests	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AMC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB **	Eng. Margeret Magdy			
Employers Representative	Eng. Alaa Abd-Allah			AWC

* Designer

** Margeret/Bridges Consultant only



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Internal inspection and laboratories sector

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I- Introduction

General Consultant :	SYSTRA
Consultant :	Spectrum
Contractor :	شركة عبد السلام القتي للمقاولات
Sample :	Sub-Ballast
Station :	St(383+000)to st(382+500)
Date of Test :	25/05/2023
QC :	1409-2

II- Sample description:

Crushed stone and sand

III- Required tests and Results:

Required Tests		Results
1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction (Proctor test)	MDD	2.214
	OMC	6.8%
3- Liquid limit, plastic limit and plasticity index	LL	Non plastic
	PL	Non plastic
	PI	Non plastic
4- California bearing ratio (CBR)	CBR ratio	96%
5- Specific gravity (SG), absorption and degradation	S S D	2.521
	Absorption	1.2 %
	Degradation	0.2%
6- Los Angeles test	Abrasion ratio	25.5%

IV- Notes

- 1- Samples were brought by : client
- 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. H-
Dr. Mohamed Mostafa Badry

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APPENDIX

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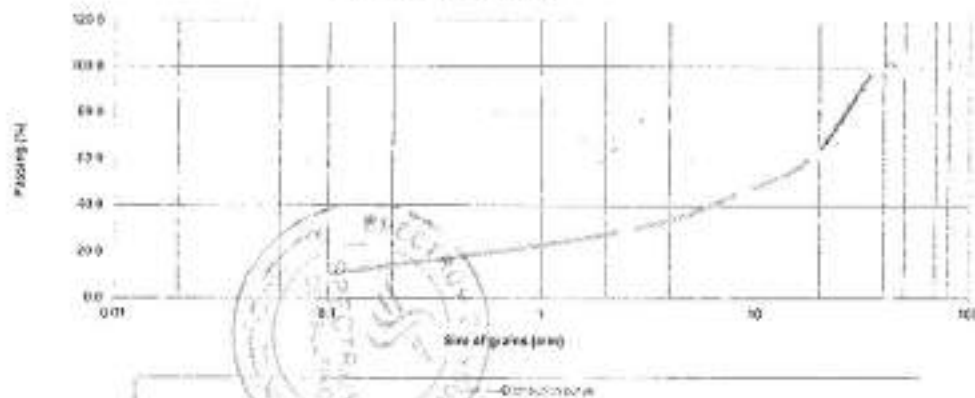
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PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED	CUMULATIVE WEIGHT	CUMULATIVE PERCENTAGE	CUMULATIVE PERCENTAGE	STANDARD SPECIFICATION
	(gm)	RETAINED (gm)	RETAINED (%)	PASSING (%)	LIMITS
2	0.00	0.00	0.00	100.0	
1 1/2	63.00	63.00	0.63	99.4	
1	2741.00	2804.00	28.04	72.0	
3/4	1004.00	3808.00	38.08	61.9	
1/2	1102.00	4910.00	49.10	50.9	
3/8	478.00	5388.00	53.88	46.1	
No.4	1147.00	6535.00	65.35	34.7	
No.10	82.00	82.00	16.40	29.0	
No.200	355.00	355.00	71.00	10.0	

Total sample weight = 10000.00 pass No.4= 3465.0 Total fine aggregates weight = 500 gm

See analysis distribution curve



Soil classification: A - 1- a - sample is non plastic



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Modified Proctor Test Report

ASTM - D 1557

Mould Number :- 1
Volume of mould = 2188 cm³
Weight of mould = 5657 g
G.S = 2.67 g/cm³

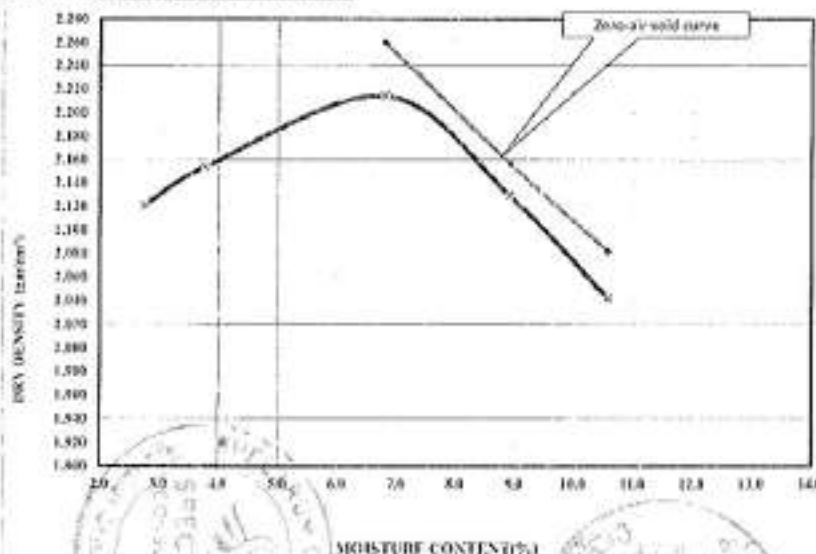
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10425	10547	10831	10731	10598
Weight of mould (g)	5657	5657	5657	5657	5657
Weight of wet soil (g)	4768	4890	5174	5074	4941
Volume of mould (cm ³)	2188	2188	2188	2188	2188
Wet density (g/cm ³)	2.179	2.235	2.365	2.319	2.258
Dry density (g/cm ³)	2.121	2.154	2.214	2.129	2.042
Zero-air Void curve			2.260	2.157	2.082

B- Moisture Calculations :-

Weight of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil+container (g)	245.5	242.0	236.0	232.0	234.5
Weight of container (g)	82.0	30.0	30.0	30.0	88.0
moisture content (%)	2.8	3.8	6.8	8.9	10.6

C - Dry density-Moisture relationship:



M.D.D = 2.214 gm/cm³
O.M.C = 6.8 %

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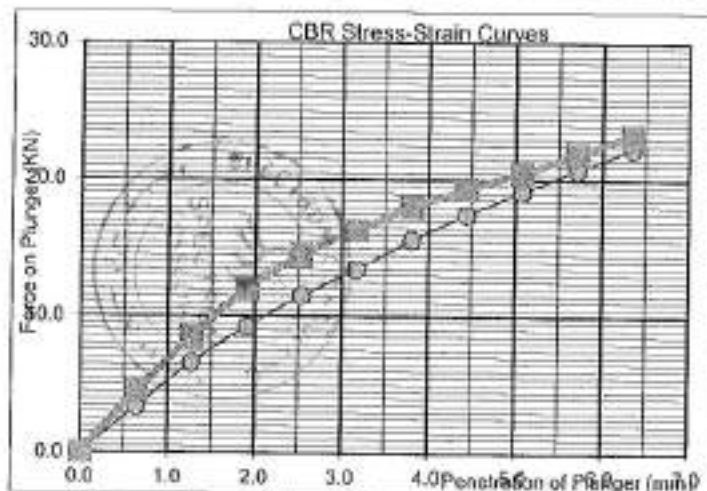
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Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56			Swell %		
MOULD NO	1				56	
WT OF MOULD+SOIL	12350			Start	0.00	
WT OF MOULD	7250			End	0.00	
WT OF SOIL	5100			Swell	0.00	
VOLUME OF MOULD	2190					
WET DENSITY	2.329					
		MC before soaking		Weight of Rammer		4.54Kg
TIN NO	1			MDD	Kg/m3	2.214
WT OF WET SOIL+TIN	250.00					
WT OF DRY SOIL+TIN	241			OMC	%	6.8
WT OF WATER	9.00					
WT OF TIN	82			PROVING RING		
WT OF DRY SOIL	159	2.125		DhwKN		
MOISTURE CONTENT	5.7					
DRY DENSITY	2.204			Capacity (KN)		50

Pen mm	97		Bearing (KN)		CBR	
	56		56		stander	56
0.00	0		FALSE		0.0	
0.64	345		3.4		4.5	
1.27	674		6.6		8.6	
1.91	942		9.2		12.0	
2.54	1172		11.5		14.5	87
3.17	1372		13.5		16.3	
3.81	1590		15.6		18.0	
4.45	1780		17.5		19.3	
5.08	1950		19.1		20.5	96
5.71	2111		20.7		21.9	
6.35	2270		22.3		23.3	



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ABRASION AND IMPACT " LOS ANGELES " TEST

(For coarse aggregate)

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

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	3725
% abrasion By Weight Passing from Sieve No.12	25.5%



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Absorption & Specific Gravity for Aggregate AASHTO T85 - ASTM C127

Weight of sample	2500
Weight of saturated - dry surface sample (B)	2526
Weight of saturated sample in water (C)	1524
Weight of dry sample after heating (A)	2496

Results:-

Saturation surface dry specific gravity = $B / (B - C)$	2.521
Bulk specific gravity = $A / (B - C)$	2.491
Apparent specific gravity = $A / (A - C)$	2.568
Absorption of water = $(B - A) / A \times 100$	1.2
Degradation of aggregate = $(2500 - A) / A \times 100$	0.2



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Report :	553 - 2 - Center
Date :	15/06/2023

CHEMICAL ANALYSIS

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة عبد السلام القلي للمقاولات
Project :	Electric express train
Sample :	Sub Ballast
Station :	ST (383 + 0.00) : (382 + 500)
Date of Test :	25-5-2023

Temperature : 25 °C

Humidity : 40%

ANALYSIS	RESULTS	TEST METHOD
CHLORIDE	0.0043%	ASTM D 2974
SULPHATE	0.0240%	
ORGANIG MATTER	NEGATIVE	



LAB DIRECTOR
CH/ Mostafa Asker

Mostafa

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(382+680 To 382+980)

MATERIAL
INSPECTION
REQUEST

Contractor Company	Eng. Abdelhameed Elsayed For Contracting	Designer Company	(SPECTRUM) Engineering Consulting Office
Issued by Contractor	Name: عبد السلام عبد الحميد Eng. Mohamed Elsayed	Date/Serial Number	Time
		6/5/2023	3:00 PM
Received by GARB CONSULTANT	Eng. Mazen Essamy	S5-B-AF2 PLT (1)	
		C1	C2
		C3	C4
		C5	C6
		C7	C8
		C9	C10
		C11	C12
		C13	C14
		C15	C16
		C17	C18
		C19	C20
		C21	C22
		C23	C24
		C25	C26
		C27	C28
		C29	C30
		C31	C32
		C33	C34
		C35	C36
		C37	C38
		C39	C40
		C41	C42
		C43	C44
		C45	C46
		C47	C48
		C49	C50
		C51	C52
		C53	C54
		C55	C56
		C57	C58
		C59	C60
		C61	C62
		C63	C64
		C65	C66
		C67	C68
		C69	C70
		C71	C72
		C73	C74
		C75	C76
		C77	C78
		C79	C80
		C81	C82
		C83	C84
		C85	C86
		C87	C88
		C89	C90
		C91	C92
		C93	C94
		C95	C96
		C97	C98
		C99	C100

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For reminder point only start run is used
	Work Activity		
	Sub Element of Activity		

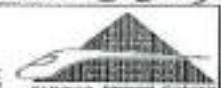
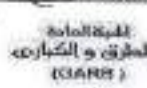
Description of Materials	AT LAYER T.O.E (FERMA)				
Location to be Used	From	382+600	TO	382+800	
MAR & UIR Approval No	UIR F-3	Date		1/5/2023	
	UIR F-4			1/5/2023	
	M.A.R.F (1)			1/4/2023	
Supplier Name	ELSEWY				
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Comibessal LABORATORY	NUMBER	6	09/05/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allatif (ER)		
 1-The Plate Load Test Result by third party is Approved.			1-6 Point was carried- out by (Comibessal) on Fill layer 2-Results report attached and acceptable with project specifications.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismail			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margraet Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer

** Absent/Bridges: Colored only

(382+680 To 382+980)

MATERIAL
INSPECTION
REQUEST

Contractor Company	Eng. Abdelisalem ELSEWY For Contracting		Designer Company	SPECTRUM Engineering Consulting Office									
Issued by Contractor	Name	Eng. Mohamed Ismael	Date/Serial Number	6/5/2023									
	Sign		PLT (1)										
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	11	12	13	14	15	16	17	18	19	20
				382+500	EW	CS	8	5	23	3	0		

CODE-1	S1 to S21	B1 to B3	Ka XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Description of Materials	AT LAYER T.O.E (FERMA)				
Location to be Used	From	382+500	TO	382+800	
MAR & UIR Approval No	UIR F-3	Date	1/5/2023		
	UIR F-4		1/5/2023		
	M.A.R.F (1)		1/4/2023		
Supplier Name	ELSEWY				
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (EG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Cornibassal LABORATORY	NUMBER	6	8/5/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allah (ER)		
 1-The Plate Load Test Result by third party is Approved.			1-6 Point was carried-out by (Cornibassal) on Fill layer 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 Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margaret Magdy			
Employers Representative	Eng. Alaa Abd-Allah			AWC

* Designer

** Agreement/Bridges: Consent only



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Technichal report Of Plate Loading Test DIN 18134

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبدالسلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Upper embankment
Station	:	St(382+550) to st(382+800)
Date of Test	:	08/05/2023
QC	:	1071



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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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382+550

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	0.04
2	14.14	0.050	0.16
3	21.21	0.075	0.30
4	28.28	0.100	0.44
5	35.35	0.125	0.55
6	42.42	0.150	0.60
7	49.49	0.175	0.67
8	56.56	0.200	0.75
9	63.63	0.225	0.81
10	70.7	0.250	0.86
11	56.56	0.200	0.84
12	49.49	0.175	0.80
13	35.35	0.125	0.72
14	21.21	0.075	0.64
15	1.414	0.005	0.42

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	0.42
16	7.07	0.025	0.53
17	14.14	0.050	0.68
18	21.21	0.075	0.74
19	28.28	0.100	0.79
20	35.35	0.125	0.83
21	42.42	0.150	0.88
22	49.49	0.175	0.92
23	56.56	0.200	0.96
24	63.63	0.225	0.99

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0.250}$) MN/m ²	0.250	0.250
a_0 (mm)	-0.123	0.425
a_1 (mm/(MN/m ²))	6.450	4.646
a_2 (mm/(MN ² /m ⁴))	40.247	-9.924
$E_v = 1.5 \cdot a_1 / (a_2 + a_0 \cdot \sigma_{0.250})$	115.71	207.80
E_v2/E_v1	1.80	

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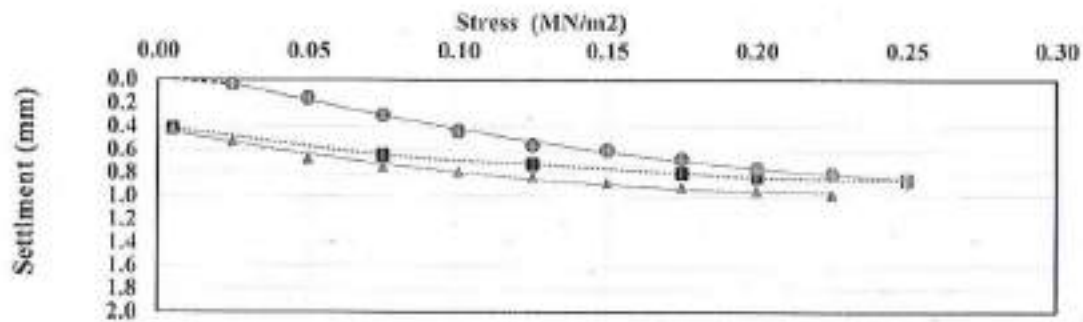
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km 382+550

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_0 Normal stress MN/m^2



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382+600

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	0.04
2	14.14	0.050	0.13
3	21.21	0.075	0.30
4	28.28	0.100	0.38
5	35.35	0.125	0.45
6	42.42	0.150	0.51
7	49.49	0.175	0.59
8	56.56	0.200	0.66
9	63.63	0.225	0.72
10	70.7	0.250	0.79
11	56.56	0.200	0.77
12	49.49	0.175	0.76
13	35.35	0.125	0.72
14	21.21	0.075	0.63
15	1.414	0.005	0.42

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	0.42
16	7.07	0.025	0.46
17	14.14	0.050	0.51
18	21.21	0.075	0.57
19	28.28	0.100	0.62
20	35.35	0.125	0.66
21	42.42	0.150	0.71
22	49.49	0.175	0.75
23	56.56	0.200	0.79
24	63.63	0.225	0.84

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{0max}) MN/m ²	0.250	0.250
a_0 (mm)	-0.039	0.407
a_1 (mm/(MN/m ²))	4.572	2.198
a_2 (mm/(MN/m ²))	-5.295	-1.256
$E_v = 1.5 a' / (a_1 + a_2 \sigma_{0max})$	138.51	238.85
E_{s2}/E_{s1}	1/2	



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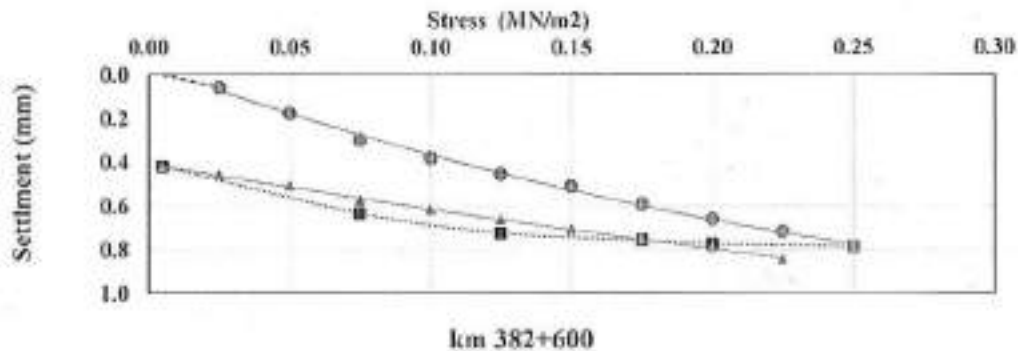


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- 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_0 Normal stress MN/m²



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382+650

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	0.06
2	14.14	0.050	0.22
3	21.21	0.075	0.39
4	28.28	0.100	0.58
5	35.35	0.125	0.68
6	42.42	0.150	0.78
7	49.49	0.175	0.86
8	56.56	0.200	0.93
9	63.63	0.225	1.00
10	70.7	0.250	1.08
11	56.56	0.200	1.07
12	49.49	0.175	1.03
13	35.35	0.125	0.94
14	21.21	0.075	0.85
15	1.414	0.005	0.61

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	0.61
16	7.07	0.025	0.68
17	14.14	0.050	0.76
18	21.21	0.075	0.83
19	28.28	0.100	0.87
20	35.35	0.125	0.92
21	42.42	0.150	0.96
22	49.49	0.175	1.00
23	56.56	0.200	1.05
24	63.63	0.225	1.09

Table 9: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$\{\sigma_{0,max}\}$ MN/m ²	0.250	0.250
σ_0 (mm)	-0.138	0.608
a_1 (mm/(MN/m ²))	8.136	2.997
a_2 (mm/(MN/m ²))	-13.399	-3.980
$E_{50} = 1.5 \pi' / (a_1 + \sigma_0 - \sigma_{0,max})$	94.01	224.79
E_{50}/E_{v1}	2.39	



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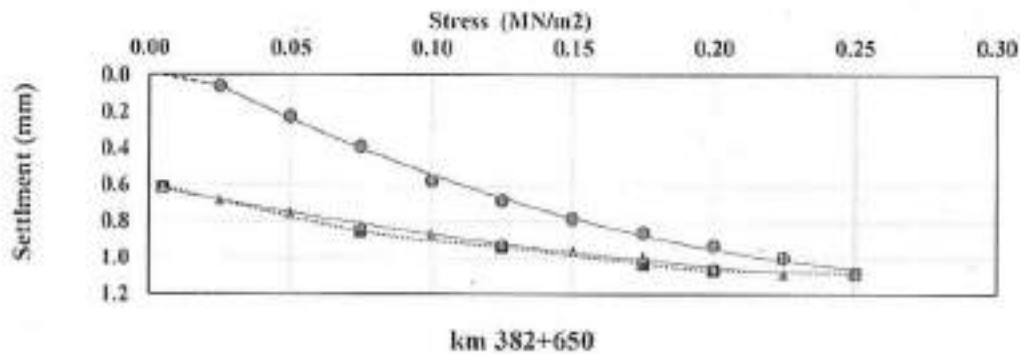


Fig. 3: Load-settlement curve, fitting curves according to Table 7 and Table 8 for the first and second loading cycles

- 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_0 Normal stress MN/m²



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382+700

600

Table 10: 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	1.114	0.005	0.00
1	7.87	0.025	0.16
2	14.14	0.050	0.37
3	21.21	0.075	0.47
4	28.28	0.100	0.56
5	35.35	0.125	0.63
6	42.42	0.150	0.70
7	49.49	0.175	0.77
8	56.56	0.200	0.86
9	63.63	0.225	0.93
10	70.7	0.250	0.99
11	56.56	0.200	0.98
12	49.49	0.175	0.96
13	35.35	0.125	0.89
14	21.21	0.075	0.76
15	1.114	0.005	0.54

Table 11: 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	1.114	0.005	0.54
16	7.87	0.025	0.62
17	14.14	0.050	0.71
18	21.21	0.075	0.77
19	28.28	0.100	0.84
20	35.35	0.125	0.89
21	42.42	0.150	0.93
22	49.49	0.175	0.97
23	56.56	0.200	1.00
24	63.63	0.225	1.04

Table 12: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$\{\sigma_{0.005}\}$ MN/m ²	0.250	0.250
α_0 (mm)	0.087	0.533
α_1 (mm/(MN/m ²))	5.230	3.628
α_2 (mm/(MN ² /m ⁴))	-6.669	-6.274
$E_v = 1.5 \alpha' (\alpha_1 + \alpha_2 \cdot \sigma_{0.005})$	126.30	218.90
E_v/E_v	1.73	



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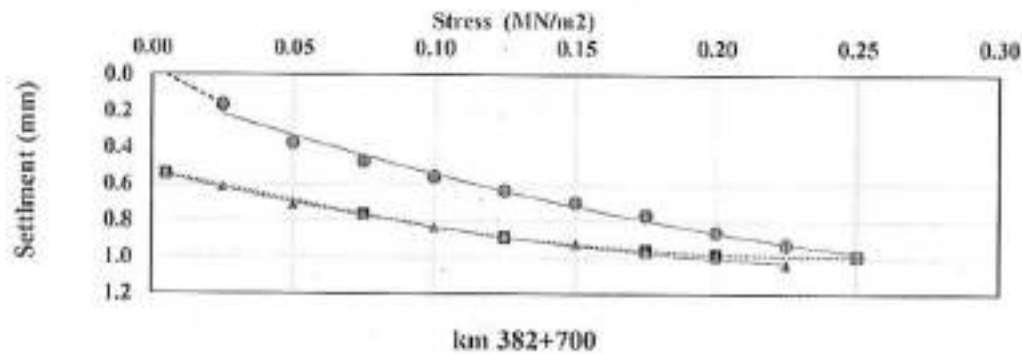


Fig. 4: Load-settlement curve, fitting curves according to Table 10 and Table 11 for the first and second loading cycles

- 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_s Normal stress MN/m²



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382+750

600

Table 13: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.09
1	7.07	0.025	0.23
2	14.14	0.050	0.42
3	21.21	0.075	0.59
4	28.28	0.100	0.73
5	35.35	0.125	0.85
6	42.42	0.150	0.93
7	49.49	0.175	1.03
8	56.56	0.200	1.11
9	63.63	0.225	1.14
10	70.7	0.250	1.17
11	56.56	0.200	1.16
12	49.49	0.175	1.15
13	35.35	0.125	1.08
14	21.21	0.075	1.00
15	1.414	0.005	0.72

Table 14: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.72
16	7.07	0.025	0.77
17	14.14	0.050	0.84
18	21.21	0.075	0.90
19	28.28	0.100	0.96
20	35.35	0.125	1.02
21	42.42	0.150	1.08
22	49.49	0.175	1.12
23	56.56	0.200	1.18
24	63.63	0.225	1.21

Table 15: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{0max}) MN/m ²	0.250	0.250
a_0 (mm)	0.036	0.701
a_0 (mm/(MN/m ²))	8.408	2.877
a_1 (mm/(MN/m ²))	-15.481	-2.619
$E = 1.5 \times (a_0 + a_1 \cdot \sigma_{0max})$	89.14	202.23
E_{v2}/E_{v1}	2.04	



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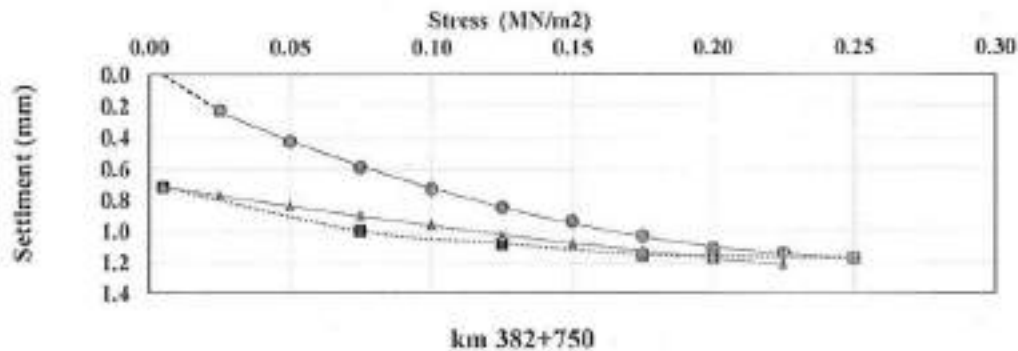


Fig. 5: Load-settlement curve, fitting curves according to Table 13 and Table 14 for the first and second loading cycles

- 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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382+800

600

Table 16: 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	1.114	0.005	0.09
1	7.07	0.025	0.11
2	14.14	0.050	0.33
3	21.21	0.075	0.59
4	28.28	0.100	0.53
5	35.35	0.125	0.67
6	42.42	0.150	0.82
7	49.49	0.175	0.50
8	56.56	0.200	0.93
9	63.63	0.225	1.03
10	70.7	0.250	1.11
11	56.56	0.200	1.10
12	49.49	0.175	1.09
13	35.35	0.125	0.90
14	21.21	0.075	0.76
15	1.114	0.005	0.58

Table 17: 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	1.114	0.005	0.58
16	7.07	0.025	0.76
17	14.14	0.050	0.74
18	21.21	0.075	0.81
19	28.28	0.100	0.84
20	35.35	0.125	0.88
21	42.42	0.150	0.95
22	49.49	0.175	1.04
23	56.56	0.200	1.07
24	63.63	0.225	1.11

Table 18: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0.025})$ MN/m ²	0.250	0.250
s_0 (mm)	-0.022	0.620
s_1 (mm/(MN/m ²))	6.941	2.456
s_2 (mm/(MN/m ²))	-9.903	-1.406
$E_v = 1.5 \pi / (s_1 + s_2, \sigma_{0.025})$	100.77	209.83
$E_v 2/E_v 1$		2.08



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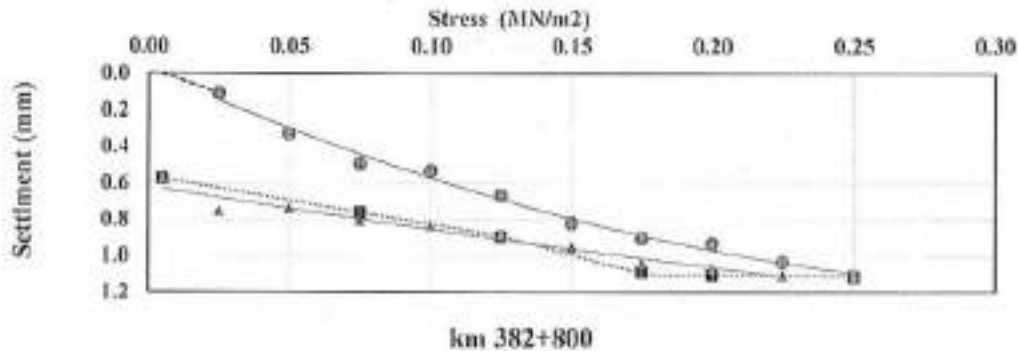


Fig. 6: Load-settlement curve, fitting curves according to Table 16 and Table 17 for the first and second loading cycles

- 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 upper embankment layer of the electric express train project at location (from km 382+550) to (km 382+800) in accordance to the German standard, DIN 18134 are illustrated in table 19.

Table 19 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
382+550	115.71	207.80	1.80
382+600	138.51	238.85	1.72
382+650	94.01	224.79	2.39
382+700	126.30	218.50	1.73
382+750	99.14	202.23	2.04
382+800	100.77	209.83	2.08

Lab Director

Eng / Eman Kandil

Geotechnical Consultant

For DR. M.
Dr / Mohamed Mostafa Badry



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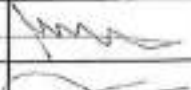
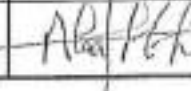
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(382+680 To 382+860)

UNIVERSAL INSPECTION REQUEST													
RECEIPT of NOTIFICATION-Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown													
Contractor Company		Abd EL-Salam EL-Feky Contracting Company				Designer Company*		(SPECTRUM) Engineering Consulting Office					
Issued by Contractor		Name: Eng. Ahmed Abdelmonsef				Date/Serial Number		Time					
		Ahmed Abdelmonsef				30/4/2023 SS-B-AF2 IR (F-03)		04:00 م					
Received by GARB CONSULTANT		Eng. Mohamed Nagib		UIR		G1		C2		C3			
						DD		MM		YY			
						382		EW		CS			
						01		05		2023			
										01			
										00			
CODE-1		S1 to S21 Station Reference				D1 to D3 Depot Reference				Kp XXX Note For Kilo meter point only Start Km is used			
CODE - 2		Work Activity											
CODE - 3		Sub Element of Activity											
EXPLANATION OF WORK TO BE INSPECTED													
Description				Element				Item					
From St. 382+500 To St. 382+680				T.O.E				Fill Soil					
INSPECTION DETAILS The following will be ready at the Planned Inspection Time													
Planned Inspection Date						Planned Inspection Time							
COMPLIANCE EVIDENCE Must be included as appropriate													
Checklist Attached		Test Results Attached				Calibration Attached		Other as indicated					
Drawing Reference		References				MS Reference							
Plan and Profile REV. 32		MAR (1) MIR) (F1)				-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG23-41.2) VERSION 2 BY CIVECON GROUP. -TECHNICAL REPORT (CG23-122.1) VERSION 1 BY CIVECON GROUP.							
Comments by: Eng. Mohamed Khalil (XYZ)													
I- Attached Master Sheet approved by SPECTRUM,													
Comments by: Eng. Mohamed Nagib (SPECTRUM)													
Comments by: Eng. Alaa Abd-Allatif (ER)													
1-coordinates & levels and width checked by GARB consultant													
2- تم استلام القطاع فحص بصري													
تم مراجعة شيت المتناسيب													
INSPECTION RESULT													
Organisation		Name		Sign		Date		Time		Approval Status			
Contractor		Eng. Ahmed Abdelmonsef								A-AWC-R			
XYZ Survey		Eng. Mohamed Khalil								A			
QA/QC*		Eng. Mohamed Nagib								B			
GARB**		Eng. Mohammed Fayad											
Employers Representative		Eng.								A			

(382+680 To 382+860)

UNIVERSAL INSPECTION REQUEST													
RECEIPT of NOTIFICATION -Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown													
Contractor Company		Abd EL-Salam EL-Feky Contracting Company				Designer Company*		(SPECTRUM) Engineering Consulting Office					
Issued by Contractor		Name:		Sign:		Date/Serial Number		Time					
		Eng. Ahmed Abdelmonsef				13/04/2023 IR (F-03)		4:00 PM					
Received by GARB CONSULTANT		Eng. Mohamed Nagib		UIR		01 02 03 04 05 06 07 08 09 10		382 EW CS 01 05 2023 01 00					
CODE-1		S1 to S21 Station Reference				D1 to D3 Depot Reference				Exp XXX Note For Kilo meter point only Start Km is used			
CODE - 2		Work Activity											
CODE - 3		Sub Element of Activity											
EXPLANATION OF WORK TO BE INSPECTED													
Description				Element				Item					
From St. 382+500 To St. 382+680				T.O.E				Fill Soil					
INSPECTION DETAILS The Following will be ready at the Planned Inspection Time													
Planned Inspection Date						Planned Inspection Time							
COMPLIANCE EVIDENCE Must be included as appropriate													
Checklist Attached		Test Results Attached		Calibration Attached		Other as Indicated							
Drawing Reference		References				MS Reference							
Plan and Profile REV. 32		MAR (1) MIR (F 1)				-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (EG21-41.2) VERSION 2 BY CIVECON GROUP. -TECHNICAL REPORT (CS21-122.1) VERSION 1 BY CIVECON GROUP.							
Comments by: Eng. Mohamed Khalil (XYZ)													
1- Attached Master Sheet approved by SPECTRUM.													
Comments by: Eng. Mohamed Nagib (SPECTRUM)						Comments by: Eng. Alaa Abd-Allatif (ER)							
1- تم استلام القطاع في يوم 13/04/2023 2- تم مراجعة شيت المناسب						1-coordinates & levels and width checked by GARB consultant 2- (REV. 32 & X-sec./20m) Should Approved from SYSTRA. 3-Final approval is subject to above mentioned comments.							
INSPECTION RESULT						Approval Status		Please Tick if Not Attend					
Organisation		Name		Sign		Date		Time		A-AWC-R			
Contractor		Eng. Ahmed Abdelmonsef								A			
XYZ Survey		Eng. Mohamed Khalil								A			
QA/QC*		Eng. Mohamed Nagib								A			
GARB**		Eng. Mohammed Fayad											
Employers Representative		Eng. 2023								AWC			

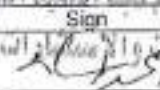
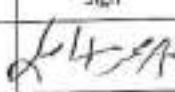
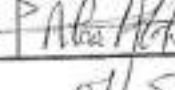
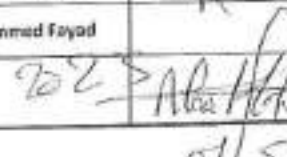
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Page 1 of 1

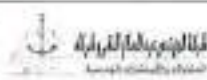
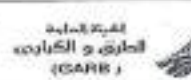
(382+860 To 382+960)

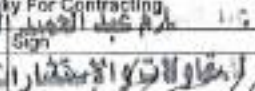
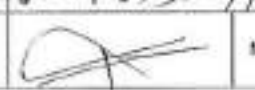
UNIVERSAL INSPECTION REQUEST													
RECEIPT of NOTIFICATION-Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown													
Contractor Company		Abd EL-Salam EL-Feky Contracting Company				Designer Company*		(SPECTRUM) Engineering Consulting Office					
Issued by Contractor		Name		Sign		Date/Serial Number		Time					
		Eng. Ahmed Abdelmonsef				30/4/2023 SS-B-AF2 IR (F-04)		02:00 م					
Received by GARB CONSULTANT		Eng. Mohamed Nagib		UIR		C1 C2 C3 C4		MM YY HH MM					
		382		EW		CS		01 05		2023 01 00			
CODE-1		S1 to S21 Station Reference		D1 to D3 Depot Reference		Kp XXX Note: For Kilo meter point only Start Km is used							
CODE - 2		Work Activity											
CODE - 3		Sub Element of Activity											
EXPLANATION OF WORK TO BE INSPECTED													
Description		Element		Item									
From St. 382+680 To St. 382+780		T.O.E		Fill Soil									
INSPECTION DETAILS The following will be ready at the Planned Inspection Time													
Planned Inspection Date						Planned Inspection Time							
COMPLIANCE EVIDENCE Must be included as appropriate													
Checklist Attached		Test Results Attached		Calibration Attached		Other as indicated							
Drawing Reference		References		MS Reference									
Plan and Profile REV. 32		MAR (1), MIR) (F2)		-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION2 BY CIVECON GROUP, -TECHNICAL REPORT (CG21-122.1) VERSION 1 BY CIVECON GROUP.									
Comments by: Eng. Mohamed Khalil (XYZ)													
1- Attached Master Sheet approved by SPECTRUM													
Comments by: Eng. Mohamed Nagib (SPECTRUM)													
1- coordinates & levels and width checked by GARB consultant													
Comments by: Eng. Alaa Abd-Allatif (ER)													
2- تم استلام القطاع فحص بصري 3- تم مراجعة ذببت المناسيب													
INSPECTION RESULT										Approval Status		Please Tick If Not Attend	
Organisation		Name		Sign		Date		Time		A-AWC-R			
Contractor		Eng. Ahmed Abdelmonsef								A			
XYZ Survey		Eng. Mohamed Khalil								A			
QA/QC*		Eng. Mohamed Nagib								A			
GARB**		Eng. Mohammed Fayad											
Employers Representative		Eng.								A			

(382+860 To 382+960)

UNIVERSAL INSPECTION REQUEST																													
RECEIPT of NOTIFICATION - Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown																													
Contractor Company		Abd EL-Salam EL-Feky Contracting Company 2				Designer Company*		[SPECTRUM] Engineering Consulting Office																					
Issued by Contractor		Name ..		Sign		Date/Serial Number		Time																					
		Eng. Ahmed Abdelmonsef				30/04/2023 IR (F-04)		4:00 PM																					
Received by GARB CONSULTANT		Eng. Mohamed Nagib		UIR		<table border="1"><tr><td>01</td><td>02</td><td>03</td><td>04</td><td>MM</td><td>YY</td><td>DD</td><td>MM</td><td>YY</td><td>DD</td></tr><tr><td>382</td><td>EW</td><td>CS</td><td>01</td><td>05</td><td>2023</td><td>12</td><td>00</td><td></td><td></td></tr></table>		01	02	03	04	MM	YY	DD	MM	YY	DD	382	EW	CS	01	05	2023	12	00				
01	02	03	04	MM	YY	DD	MM	YY	DD																				
382	EW	CS	01	05	2023	12	00																						
CODE - 1		S1 to S31 Station Reference		D1 to D3 Depot Reference		Kp XXX Note For Km water point only Start Km is used																							
CODE - 2		Work Activity																											
CODE - 3		Sub Element of Activity																											
EXPLANATION OF WORK TO BE INSPECTED																													
Description				Element				Item																					
From St. 382+680 To St. 382+780				T.O.E				Fill Soil																					
INSPECTION DETAILS The Following will be ready at the Planned Inspection Time																													
Planned Inspection Date						Planned Inspection Time																							
COMPLIANCE EVIDENCE Must be included as appropriate																													
Checklist Attached		Test Results Attached		Calibration Attached		Other as indicated																							
Drawing Reference		References				MS Reference																							
Plan and Profile REV. 32		MAR (1), MIR (2)				-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP. -TECHNICAL REPORT (CG21-122.3) VERSION 1 BY CIVECON GROUP.																							
Comments by: Eng. Mohamed Khalil (XYZ)																													
I- Attached Master Sheet approved by SPECTRUM.																													
Comments by: Eng. Mohamed Nagib (SPECTRUM)																													
Comments by: Eng. Alaa Abd-Allah (EH)																													
1-coordinates & levels and width checked by GARB consultant 2- (REV. 32 & X-sec./20m) Should Approved from SYSTRA. 3-Final approval is subject to above mentioned comments.																													
INSPECTION RESULT						Approval Status		Please Tick if Not Attend																					
Organisation		Name		Sign		Date		Time		A-AWC-R																			
Contractor		Eng. Ahmed Abdelmonsef								A																			
XYZ Survey		Eng. Mohamed Khalil								A																			
QA/QC*		Eng. Mohamed Nagib								A																			
GARB**		Eng. Mohammed Fayad																											
Employers Representative		Eng. 702								AWC																			

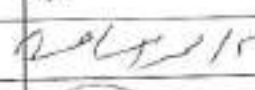
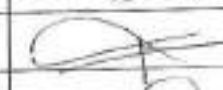
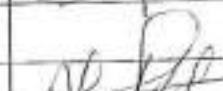
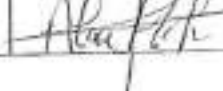
(382+680 To 383+180)

MATERIAL APPROVAL REQUEST										
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Contractor Company	Eng. Abdelsalam ELSEWY For Contracting		Designer Company	SPECTRUM Engineering Consulting Office							
Issued by Contractor	Name	Eng. Mohamed Elmaghrabi	Date/Serial Number	28/10/2023							
	Sign		SS-B-AF2 (M.A.R.F (1))	03:00							
Received by GARBU CONSULTANT	Eng. Mazen Essamy		MAR	C1	C2	C3	C4	MM	YY	DD	MM
				382+609	EW	CS	1	4	23	8	0

CODE-1	S1 to S21	Q1 to Q3	Up XXX Note
	Station Reference	Dupot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Fill Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41 2) VERSION 2 BY CMECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM) 1-Quality test Result By Third Party Lab Comibassal is Approved. 2-This Sample Representative (5000 m³) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were selected for Quality test and were carried-out by Third party lab Comibassal. 2-Results report attached and acceptable with the project specifications.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elmaghrabi			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margaret Nagdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer

** Alignment/Bridges: Culvert only

(382+680 To 383+180)

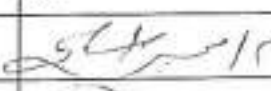
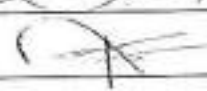
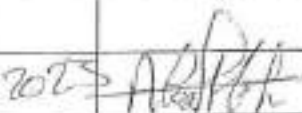
MATERIAL APPROVAL REQUEST	    	
	شركة انيسا انيسا انجنيئرنگ انيسا انجنيئرنگ	

Contractor Company	Eng. Abdel Salam El Faky For Contracting	Designer Company	(SPECTRUM) Engineering Consulting Office								
Issued by Contractor	Name	Date/Serial Number	Time								
	Eng. Mohamed Ismael	29/3/2023 (M.A.R. 1)	8:00								
Received by GAR CONSULTANT	Eng. Mazen Essawy	 MAR	<table border="1"> <tr> <td>382+500</td> <td>EW</td> <td>CS</td> <td>1</td> <td>4</td> <td>23</td> <td>8</td> <td>0</td> </tr> </table>	382+500	EW	CS	1	4	23	8	0
382+500	EW	CS	1	4	23	8	0				

CODE 1	S1 to S23	O1 to S3	By XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Fill Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (EG21-41.2) VERSION 2 BY CIVICON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essawy (SPECTRUM) 1- Quality test Result By Third Party lab Comibassal is Approved. 2- This Sample Representative (5000 m³) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1- All tests were selected for Quality test and were carried-out by Third party lab Comibassal. 2- Results report attached and acceptable with the project specifications. 3- Final approval is subject to above mentioned comments. 4- Remain Chemical test	

APPROVAL STATUS

Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essawy			A
GARB **	Eng. Margeret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023/4/25	AWC

* Designer

** Alignment/Bridges: Culvert only

(382+980 To 383+180)

MATERIAL
INSPECTION
REQUEST

Contractor Company	Eng. Abdel Salam EL Feky For Contracting		Designer Company	(SPECTRUM) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Ismael		11/5/2023	3:00 PM							
Received by GARU CONSULTANT	Eng. Mazen Essamy		MIR	C1	C2	C3	DO	MM	YY	HH	MM
				382+500	EW	CS	14	5	23	3	0

CODE 1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For kilometer point only start from road
WORK ACTIVITY	Work Activity		
SUB ELEMENT OF ACTIVITY	Sub Element of Activity		

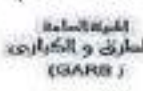
Description of Materials	AT LAYER T.O.E (FERMA)				
Location to be Used	From	382+800	TO	383+000	
MAR & UIR Approval No	UIR F-6	Date		9/5/2023	
	M.A.R.F (2)			1/5/2023	
Supplier Name	ELSEWY				
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CMECON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Cornibassal LABORATORY	NUMBER	4	14/5/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allatif (ER)		
 1-The Plate Load Test Result by third party is Approved.			1-4 Point was carried-out by (Cornibassal) on Fill layer 2-Results report attached and acceptable with project specifications.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margraet Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer

** Alignment/Bridges: Culvert only

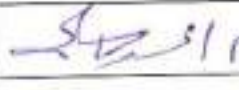
(382+980 To 383+180)

MATERIAL INSPECTION REQUEST	     

Contractor Company	Eng. Abdel Salam EL Faly For Contracting		Designer Company	SPECTALUM Engineering Consulting Office																				
Issued by Contractor	Name	Eng. Mohamed Ismael	Date/Serial Number	11/5/2023																				
	Sign		PLT (2)	3:00 PM																				
Received by GARB CONSULTANT	Eng. Mazen Essamy	MIR	<table border="1"> <tr> <td>CT</td> <td>CP</td> <td>CS</td> <td>CD</td> <td>MM</td> <td>YY</td> <td>HH</td> <td>MM</td> </tr> <tr> <td>382+509</td> <td>EW</td> <td>CS</td> <td>14</td> <td>5</td> <td>23</td> <td>3</td> <td>0</td> </tr> </table>	CT	CP	CS	CD	MM	YY	HH	MM	382+509	EW	CS	14	5	23	3	0					
CT	CP	CS	CD	MM	YY	HH	MM																	
382+509	EW	CS	14	5	23	3	0																	

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

Description of Materials	AT LAYER T.O.E (FERMA)				
Location to be Used	From	382+800	TO	383+000	
MAR & UIR Approval No	UIR F-6	Date		9/5/2023	
	M.A.R.F (2)			1/5/2023	
Supplier Name	ELSEWY				
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CAYDON GROUP	
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Comibassal LABORATORY	NUMBER	4	14/5/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allatif (ER)		
 1-The Plate Load Test Result by third party is Approved.			1-4 Point was carried- out by (Comibassal) on Fill layer 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 Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margraet Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			Awc

* Designer

** Alignment/Bridges/Culvert only



COMIBASSAL International Controllers Internal inspection and laboratories sector

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

Technichal report Of Plate Loading Test DIN 18134

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبدالسلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Upper embankment
Station	:	St(382+850) to st(383+000)
Date of Test	:	14/05/2023
QC	:	1135



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Internal inspection and laboratories sector

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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.

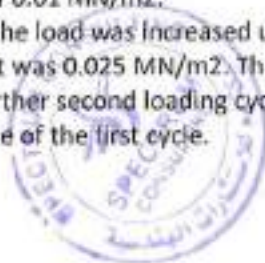
The test to be carried out on the native soil according to German specifications DIN 18134.

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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Email: ciidept@comibassal.com
WebSite: www.comibassal.com



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Tel: 002 033920176 - 002 033931482
Fax :002 033900476
Email : internal-inspection@comibassal.com



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Internal inspection and laboratories sector

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Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

382+850

600

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

Loading stage no.	Load (F) kN	Normal stress (σ_s) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.08
2	14.14	0.050	0.25
3	21.21	0.075	0.30
4	28.28	0.100	0.39
5	35.35	0.125	0.47
6	42.42	0.150	0.58
7	49.49	0.175	0.65
8	56.56	0.200	0.77
9	63.63	0.225	0.84
10	70.7	0.250	0.90
11	56.56	0.200	0.89
12	49.49	0.175	0.87
13	35.35	0.125	0.75
14	21.21	0.075	0.61
15	1.414	0.005	0.32

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_s) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.32
16	7.07	0.025	0.39
17	14.14	0.050	0.46
18	21.21	0.075	0.55
19	28.28	0.100	0.63
20	35.35	0.125	0.70
21	42.42	0.150	0.76
22	49.49	0.175	0.82
23	56.56	0.200	0.88
24	63.63	0.225	0.95

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{max}) MN/m ²	0.250	0.250
a_y (mm)	0.094	0.300
a_1 (mm/(MN/m ²))	-4.121	-3.594
a_2 (mm/(MN ² /m ⁴))	-1.960	-3.292
$E_{avg} = 1.5 \pi / (a_1 + a_2 \cdot \sigma_{s, max})$	123.93	162.97
E_{v2}/E_v	1.32	

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Email: civdept@comibassal.com
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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

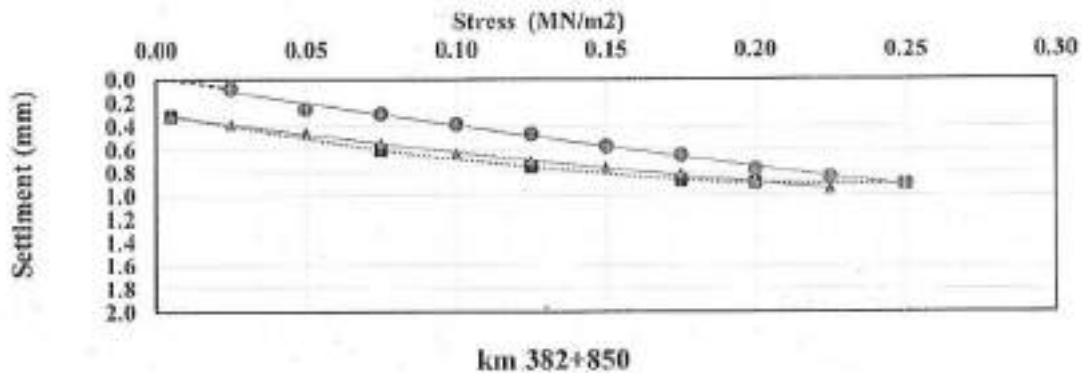


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- 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_0 Normal stress MN/m²



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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. 031708/1A

382+900

600

Table 4: 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	0.67
2	14.14	0.050	0.18
3	21.21	0.075	0.29
4	28.28	0.100	0.40
5	35.35	0.125	0.48
6	42.42	0.150	0.57
7	49.49	0.175	0.65
8	56.56	0.200	0.73
9	63.63	0.225	0.81
10	70.7	0.250	0.89
11	56.56	0.200	0.87
12	49.49	0.175	0.85
13	35.35	0.125	0.78
14	21.21	0.075	0.63
15	1.414	0.005	0.43

Table 5: 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	0.49
17	14.14	0.050	0.55
18	21.21	0.075	0.62
19	28.28	0.100	0.68
20	35.35	0.125	0.74
21	42.42	0.150	0.79
22	49.49	0.175	0.85
23	56.56	0.200	0.89
24	63.63	0.225	0.94

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{max}) MN/m ²	0.250	0.250
s_0 (mm)	-0.039	0.417
s_1 (mm)/(MN/m ²)	4.641	2.866
s_2 (mm)/(MN/m ²)	-3.860	-2.457
$E_s = 1.5 \cdot s_1 / (s_1 + s_2)$	122.41	109.34
E_2/E_1	1.63	



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Tel: 002 03 4704555 - 002 034701191
Email: cindept@comibassal.com
WebSite: www.comibassal.com



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Tel: 002 033920176 - 002 033931482
Fax: 002 033900476
Email: internal-inspection@comibassal.com



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Internal inspection and laboratories sector

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

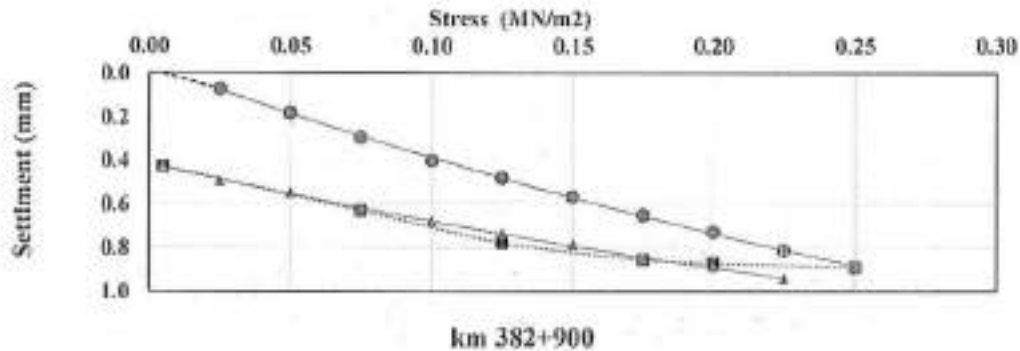


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- 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_0 Normal stress MN/m²



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382+950

600

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

Loading stage no.	Load (P) 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	0.09
2	14.14	0.050	0.25
3	21.21	0.075	0.40
4	28.28	0.100	0.55
5	35.35	0.125	0.65
6	42.42	0.150	0.74
7	49.49	0.175	0.82
8	56.56	0.200	0.89
9	63.63	0.225	0.95
10	70.7	0.250	1.02
11	56.56	0.200	1.01
12	49.49	0.175	0.97
13	35.35	0.125	0.86
14	21.21	0.075	0.75
15	1.414	0.005	0.50

Table 8: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.50
16	7.07	0.025	0.50
17	14.14	0.050	0.68
18	21.21	0.075	0.77
19	28.28	0.100	0.83
20	35.35	0.125	0.88
21	42.42	0.150	0.93
22	49.49	0.175	0.98
23	56.56	0.200	1.03
24	63.63	0.225	1.07

Table 9: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0.05})$ MN/m ²	0.250	0.250
s_0 (mm)	-0.078	0.492
α_1 (mm/(MN/m ²))	7.203	3.952
α_2 (mm/(MN/m ²))	-11.479	-6.289
$E_v = 1.5 \cdot r / (\alpha_1 + \alpha_2 \cdot \sigma_0 \cdot \sigma_{0.05})$	103.83	189.05
$E_v / E_v 1$	1.82	

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Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

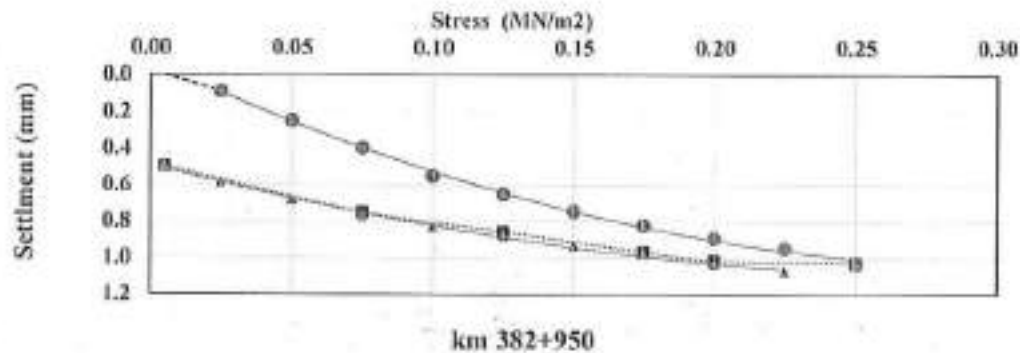


Fig. 3: Load-settlement curve, fitting curves according to Table 7 and Table 8 for the first and second loading cycles

- 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_0 Normal stress MN/m²



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383+000

600

Table 10: 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	0.09
1	7.07	0.025	0.19
2	14.14	0.050	0.40
3	21.21	0.075	0.55
4	28.28	0.100	0.64
5	35.35	0.125	0.72
6	42.42	0.150	0.78
7	49.49	0.175	0.84
8	56.56	0.200	0.92
9	63.63	0.225	0.98
10	70.7	0.250	1.04
11	56.56	0.200	1.03
12	49.49	0.175	1.00
13	35.35	0.125	0.90
14	21.21	0.075	0.76
15	1.414	0.005	0.50

Table 11: 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	0.50
16	7.07	0.025	0.57
17	14.14	0.050	0.66
18	21.21	0.075	0.74
19	28.28	0.100	0.81
20	35.35	0.125	0.87
21	42.42	0.150	0.92
22	49.49	0.175	0.97
23	56.56	0.200	1.02
24	63.63	0.225	1.06

Table 12: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0,max})$ MN/m ²	0.250	0.250
s_0 (mm)	0.688	0.481
a_1 (mm/(MN/m ²))	6.348	3.840
a_2 (mm/(MN/m ²))	-10.500	-5.709
$E_s = 1.5 \sigma / (a_1 + a_2 \sigma_{0,max})$	121.57	186.52
E_v / E_v1	1.53	



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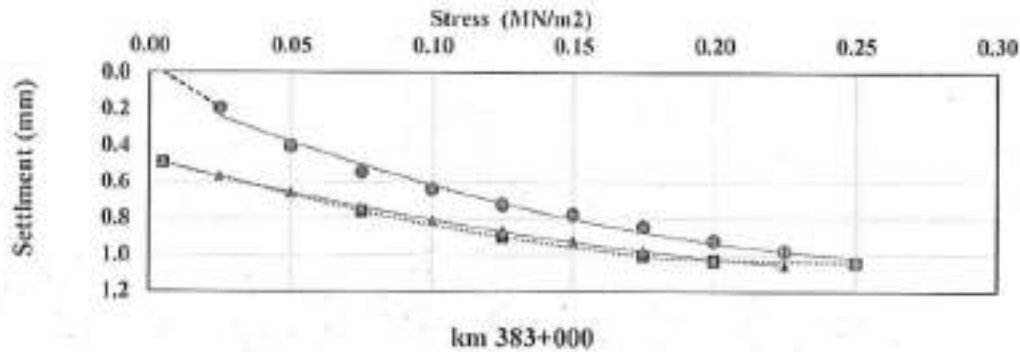


Fig. 4: Load-settlement curve, fitting curves according to Table 10 and Table 11 for the first and second loading cycles

- 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 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 upper embankment layer of the electric express train project at location (from km 382+850) to (km 383+000) 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
382+850	123.93	162.97	1.32
382+900	122.41	199.84	1.63
382+950	103.83	189.05	1.82
383+000	121.57	186.52	1.53

Lab Director

Eng / Eman Kandil

Geotechnical Consultant

Dr / Mohamed Mostafa Badry

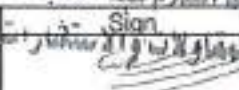
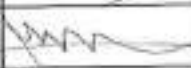
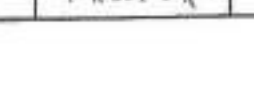


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Fax : 002 033900476
Email : Internal-Inspection@comibassal.com

(382+960 To 383+180)

UNIVERSAL INSPECTION REQUEST									
RECEIPT of NOTIFICATION -Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at Planned time shown.									
Contractor Company		Abd EL-Salam EL-Feky Contracting Company			Designer Company*		(SPECTRUM) Engineering Consulting Office		
Issued by Contractor		Name Eng. Ahmed Abdelmonsef		Sign 		Date/Serial Number 8/5/2023 SS-B-AF2 IR (F-06)		Time 04:00 م	
Received by GARB CONSULTANT		Eng. Moustafa Rayad		UIR		01 02 03 04 05 06 07 08 09 10 11 12		MM YY HH MM 382 EW CS 09 05 2023 12 00	
CODE-1		S1 to S21 Station Reference		D1 to D3 Depot Reference		Rp XXX Note For Kilo meter point only Start Km is used			
CODE - 2		Work Activity							
CODE - 3		Sub Element of Activity							
EXPLANATION OF WORK TO BE INSPECTED									
Description				Element		Item			
From St. 382+780 To St. 383+000				T.O.E		Fill Soil			
INSPECTION DETAILS The following will be ready at the Planned Inspection Time									
Planned Inspection Date					Planned Inspection Time				
COMPLIANCE EVIDENCE Must be included as appropriate									
Checklist Attached		Test Results Attached		Calibration Attached		Other as indicated			
Drawing Reference		References		MS Reference					
Plan and Profile REV. 32		MAR (1,2). MIR (13)		-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP. -TECHNICAL REPORT (CG21-122.1) VERSION 1 BY CIVECON GROUP.					
Comments by: Eng. Mohamed Khalil (XYZ)									
1- Attached Master Sheet approved by SPECTRUM.									
Comments by: Eng. Moustafa Rayad/ (SPECTRUM)									
1-coordinates & levels and width checked by GARB consultant.									
Comments by: Eng. Alaa Abd-Allatif (ER)									
1-coordinates & levels and width checked by GARB consultant.									
INSPECTION RESULT						Approval Status		Please Tick if Not Attend	
Organisation	Name	Sign	Date	Time	A-AWC-R				
Contractor	Eng. Ahmed Abdelmonsef				A				
XYZ Survey	Eng. Mohamed Khalil				A				
QA/QC*	Eng. Moustafa Rayad				A				
GARB**	Eng. Mohammed Fayad				A				
Employers Representative	Eng.				A				

(382+960 To 383+180)

UNIVERSAL INSPECTION REQUEST											
RECEIPT of NOTIFICATION -Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown											
Contractor Company		Abd EL-Salam El-Rehky Contracting Company 2				Designer Company*		(SPECTRUM) Engineering Consulting Office			
Issued by Contractor		Name		Ahmed Abdelmonsef		Date/Serial Number		08/05/2023 IR (F-08)			
Received by GARB CONSULTANT		Eng. Moustafa Rayed		UIR		382		EW		CS 09 05 2023 12 00	
CODE - 1		S1 to S21 Station Reference		D1 to D3 Depot Reference		Kp XXX Note For Kilo meter point only Start Km is used					
CODE - 2		Work Activity									
CODE - 3		Sub Element of Activity									
EXPLANATION OF WORK TO BE INSPECTED											
Description				Element				Item			
From SL 382+800 To SL 383+000				T.O.E				Fill Soil			
INSPECTION DETAILS The Following will be ready at the Planned Inspection Time											
Planned Inspection Date						Planned Inspection Time					
COMPLIANCE EVIDENCE Must be included as appropriate											
Checklist Attached		Test Results Attached		Calibration Attached		Other as Indicated					
Drawing Reference		References		M5 Reference		-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP.					
Plan and Profile REV. 32		MAR (12) MIR (3)				-TECHNICAL REPORT (CG21-32.1) VERSION 1 BY CIVECON GROUP.					
Comments by: Eng. Mohamed Khalil (XYZ)											
1- Attached Master Sheet approved by SPECTRUM.											
Comments by: Eng. Mohamed Nabib (SPECTRUM)											
1- coordinates & levels and width checked by GARB consultant											
2- (REV. 32 & X-sec./10m) Should be Approved from SYSTRA.											
3- Final approval is subject to above mentioned comments.											
INSPECTION RESULT											
Organisation		Name		Sign		Date		Time		Approval Status	
Contractor		Eng. Ahmed Abdelmonsef								A-AWC-R	
XYZ Survey		Eng. Mohamed Khalil								A	
QA/QC*		Eng. Moustafa Rayed								A	
GARB**		Eng. Mohammed Fayad								A	
Employers Representative		Eng.								AWC	

(382+680 To 383+180)

MATERIAL APPROVAL REQUEST		 وزارة النقل والبنى التحتية (MTPW)		 الهيئة العامة للنقل (ARTA)		 الهيئة العامة للنقل (ARTA)		 الهيئة العامة للنقل (ARTA)				
Contractor Company	Eng. Abdelsalam EL Feky For Contracting			Designer Company		(SPECTRUM) Engineering Consulting Office						
Issued by Contractor	Name	Eng. Mohamed Ismail			Date/Serial Number	Time						
					30/04/2023	09:00						
Received by GARD CONSULTANT	Eng. Mazen Essamy	MAR			C1	C2	C3	C4	LD	YY	HH	MM
					382+500	EW	CS	1	5	23	8	0
C00C-1	S1 to S21			D1 to S3			Kp XXX Note					
	Station Reference			Depot Reference			For Kilometer point only Start Km is used					
Work Activity												
Sub Element of Activity												
Description of Materials		Fill Layer Total Quantity (5000 m³)										
Location to be Used		From Station 382+500 to Station (383+000)										
Sample only	Yes	Materials Type		Fill layers								
Supplier Name	ELSEWY	Data Sheet provided		Yes attached								
Reference in BoQ		Specification		EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CMECON GROUP								
Prequalification reference		Test Samples Results										
Reference Photos	No/Yes	Other										
Comments by: Eng. Mazen Essamy (SPECTRUM) 1-Quality test Result By Third Party lab Combastel is Approved. 2-This Sample Representative (5000 m³) only.					Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were selected for Quality test and were carried-out by Third party lab Combastel. 2-Results report attached and acceptable with the project specifications.							
APPROVAL STATUS												
Organisation	Name	Sign	Date	A-AWC-R								
Contractor	Eng. Mohamed Ismail			A								
QA/QC *	Eng. Mazen Essamy			A								
GARB**	Eng. Margeret Magdy			A								
Employers Representative	Eng. Alaa Abd-Allatif			A								

* Designer
** Agreement/Signatures: Client only

(382+680 To 383+180)

MATERIAL APPROVAL REQUEST										
	شركة انيسنس									

Contractor Company	Eng. Abdelsalam ELFAHRY For Contracting			Designer Company	(SPECTRUM) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Ismael		30/4/2023 (M.A.R.F (2))	8:00							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	382+500	EW	CS	1	5	23	8	0

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

Description of Materials	Fill Layer Total Quantity (1000 m³)		
Location to be Used	From Station 382+500) to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-AL.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM) 1-Quality test Result By Third Party lab Combassal is Appraised. 2-This Sample Representative (1000 m³) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were selected for Quality test and were carried-out by Third party lab Combassal. 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-G
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margaret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A W C

* Designer
 ** Alignment/Bridges: Subent only

(382+680 To 382+980)

MATERIAL INSPECTION REQUEST



Contractor Company	Eng. Abdelsalam Elrefky For Contracting	Designer Company	(SPECTRUM) Engineering Consulting Office																
Issued by Contractor	Name: Eng. Mohamed Ismael Signature:	Date/Serial Number	Time																
	Eng. Mohamed Ismael	23/5/2023	3:00 PM																
		S5-B-AP2 PLT (3)																	
Received by GARB CONSULTANT	Eng. Mazen Essamy Signature:	MIR																	
		<table border="1"> <tr> <td>C1</td> <td>C2</td> <td>C3</td> <td>DD</td> <td>MM</td> <td>YY</td> <td>HH</td> <td>MM</td> </tr> <tr> <td>382+500</td> <td>EW</td> <td>CS</td> <td>24</td> <td>5</td> <td>23</td> <td>3</td> <td>0</td> </tr> </table>	C1	C2	C3	DD	MM	YY	HH	MM	382+500	EW	CS	24	5	23	3	0	
C1	C2	C3	DD	MM	YY	HH	MM												
382+500	EW	CS	24	5	23	3	0												

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For kilometer point only start km is used.
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

Description of Materials		AT LAYER (SUBGRADE 2)			
Location to be Used	From	382+500	TO	382+800	
MAR & UIR Approval No	UIR SG (03)	Date	22/5/2023		
	UIR SG (05)		23/5/2023		
	(QT SG 1)		1/5/2023		
Supplier Name					
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY GIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Comibassal LABORATORY	NUMBER	12	24/5/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
 1-The Plate Load Test Result by third party is Approved.	1-12 Point was carried- cut by (Comibassal) on Subgrade layer 2-Results report attached and acceptable with project specifications.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margreet Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer

** Alignment/Bridges: Culvert only

(382+680 To 382+980)

MATERIAL INSPECTION REQUEST						
	الهيئة العامة للتخطيط العمراني General Authority for Urban Planning	الهيئة العامة للتخطيط العمراني General Authority for Urban Planning	الهيئة العامة للتخطيط العمراني General Authority for Urban Planning	الهيئة العامة للتخطيط العمراني General Authority for Urban Planning	الهيئة العامة للتخطيط العمراني General Authority for Urban Planning	الهيئة العامة للتخطيط العمراني General Authority for Urban Planning

Contractor Company	Eng. Abdel Salam ELZEKY For Contracting		Designer Company	(SPECTRUM) Engineering Consulting Office	
Issued by Contractor	Name	Eng. Mohamed Ismail	Date/Serial Number	23/5/2023	
	Eng. Mohamed Ismail		PLT (3)	3:00 PM	
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	382+500	EW CS 24 5 23 3 0

CODE 1	S1 to S28	D1 to S3	Kp XXX Note
CODE 2	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE 3	Work Activity		
CODE 4	Sub Element of Activity		

Description of Materials		AT LAYER (SUBGRADE 2)			
Location to be Used	From	382+500	TO	382+800	
MAR & UIR Approval No	UIR SG (03)	Date		22/5/2023	
	UIR SG (05)			23/5/2023	
	(QT SG 1)			1/5/2023	
Supplier Name					
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Comibassal LABORATORY	NUMBER	12	24/5/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allah (ER)		
 1-The Plate Load Test Result by third party is Approved.			1-12 Point was carried- out by (Comibassal) on Subgrade layer 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 Ismail			A
QA/QC*	Eng. Mazen Essamy			A
GARB**	Eng. Margraet Magdy			
Employers Representative	Eng. Alaa Abd-Allah		25/5	AWC

* Designer

** Alignment/Structures Consultant



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Internal inspection and laboratories sector

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Technical report

of Plate Loading Test (DIN 18134)

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبدالسلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Prepared Subgrade
Station	:	St (382+525) to St (382+800)
Date of Test	:	24/5/2023
Qc	:	1239



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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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382+525

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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	0.11
2	14.14	0.050	0.21
3	21.21	0.075	0.33
4	28.28	0.100	0.43
5	35.35	0.125	0.53
6	42.42	0.150	0.64
7	49.49	0.175	0.75
8	56.56	0.200	0.85
9	63.63	0.225	0.94
10	70.7	0.250	1.01
11	56.56	0.200	1.00
12	49.49	0.175	0.97
13	35.35	0.125	0.85
14	21.21	0.075	0.62
15	1.414	0.005	0.25

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	0.25
16	7.07	0.025	0.31
17	14.14	0.050	0.38
18	21.21	0.075	0.46
19	28.28	0.100	0.53
20	35.35	0.125	0.59
21	42.42	0.150	0.70
22	49.49	0.175	0.78
23	56.56	0.200	0.89
24	63.63	0.225	0.99

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0, max}$) MN/m ²	0.250	0.250
σ_0 (mm)	-0.014	0.249
α_1 (mm/(MN/m ²))	4.725	2.360
α_2 (mm/(MN ² /m ⁴))	-2.304	-4.073
$E_v = 1.5 \alpha_1 / (\alpha_2 \sigma_{0, max})$	168.46	133.22
Ev2/Ev1	1.23	



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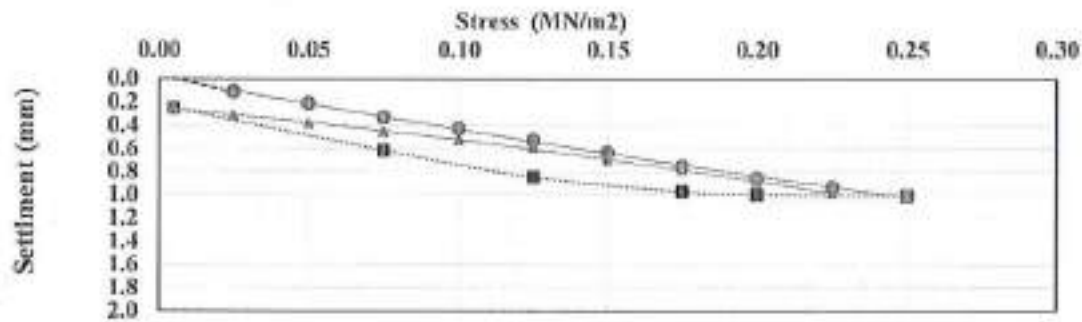
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Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- 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_0 Normal stress MN/m²



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382+550

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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	0.13
2	14.14	0.050	0.20
3	21.21	0.075	0.32
4	28.28	0.100	0.43
5	35.35	0.125	0.53
6	42.42	0.150	0.63
7	49.49	0.175	0.73
8	56.56	0.200	0.82
9	63.63	0.225	0.89
10	70.7	0.250	0.96
11	56.56	0.200	0.94
12	49.49	0.175	0.85
13	35.35	0.125	0.66
14	21.21	0.075	0.47
15	1.414	0.005	0.18

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	0.18
16	7.07	0.025	0.28
17	14.14	0.050	0.39
18	21.21	0.075	0.53
19	28.28	0.100	0.66
20	35.35	0.125	0.74
21	42.42	0.150	0.82
22	49.49	0.175	0.92
23	56.56	0.200	0.99
24	63.63	0.225	1.06

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{0max}) MN/m ²	0.250	0.250
u_0 (mm)	-0.004	0.146
u_1 (mm/(MN/m ²))	4.682	5.623
u_2 (mm/(MN ² /m ⁴))	-3.173	-6.948
$Ev = 1.5 u / (u_1 + u_2 - \sigma_{0max})$	115.72	115.81
$Ev2/Ev1$	1.00	

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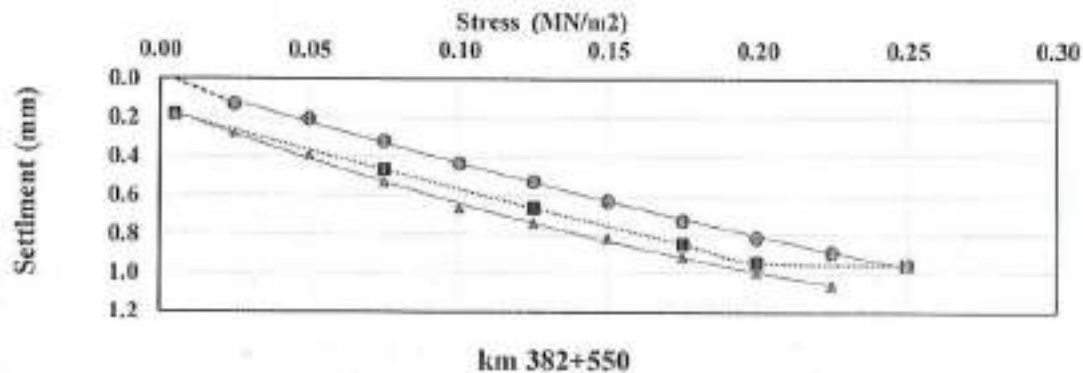


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- 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_s Normal stress MN/m²



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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	0.08
2	14.14	0.050	0.20
3	21.21	0.075	0.29
4	28.28	0.100	0.40
5	35.35	0.125	0.52
6	42.42	0.150	0.61
7	49.49	0.175	0.72
8	56.56	0.200	0.83
9	63.63	0.225	0.91
10	70.7	0.250	1.01
11	56.56	0.200	1.00
12	49.49	0.175	0.97
13	35.35	0.125	0.82
14	21.21	0.075	0.62
15	1.414	0.005	0.24

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	0.24
16	7.07	0.025	0.32
17	14.14	0.050	0.39
18	21.21	0.075	0.49
19	28.28	0.100	0.56
20	35.35	0.125	0.67
21	42.42	0.150	0.78
22	49.49	0.175	0.85
23	56.56	0.200	0.94
24	63.63	0.225	1.01

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)	-0.038	0.221
a_1 (mm/(MN/m ²))	4.653	3.621
a_2 (mm/(MN ² /m ⁴))	-1.839	-0.254
$E_v = 1.5 \pi / (a_0 + a_1 \cdot \sigma_{0, max})$	107.32	126.49
E_v2/E_v1	1.18	

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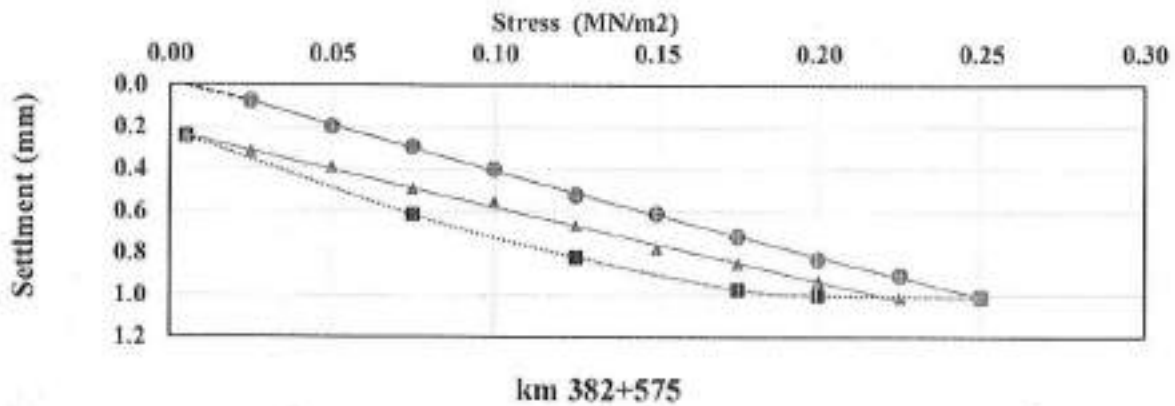


Fig. 3: Load-settlement curve, fitting curves according to Table 7 and Table 8 for the first and second loading cycles

- 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_0 Normal stress MN/m²





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Table 10: 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	0.12
2	14.14	0.050	0.24
3	21.21	0.075	0.37
4	28.28	0.100	0.58
5	35.35	0.125	0.74
6	42.42	0.150	0.84
7	49.49	0.175	0.93
8	56.56	0.200	1.02
9	63.63	0.225	1.09
10	70.7	0.250	1.17
11	56.56	0.200	1.16
12	49.49	0.175	1.14
13	35.35	0.125	1.02
14	21.21	0.075	0.78
15	1.414	0.005	0.27

Table 11: 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	0.27
16	7.07	0.025	0.35
17	14.14	0.050	0.42
18	21.21	0.075	0.57
19	28.28	0.100	0.63
20	35.35	0.125	0.77
21	42.42	0.150	0.87
22	49.49	0.175	0.98
23	56.56	0.200	1.07
24	63.63	0.225	1.18

Table 12: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{s,0.01})$ MN/m ²	0.250	0.250
a_0 (mm)	-0.106	0.238
a_1 (mm/(MN/m ²))	7.909	4.361
a_2 (mm/(MN ² /m ⁴))	-11.239	-9.770
$E_v = 1.5 \cdot (a_0 + a_1 \cdot \sigma_{s,0.01} + a_2 \cdot \sigma_{s,0.01}^2)$	88.13	107.94
E_v2/E_v1	1.22	

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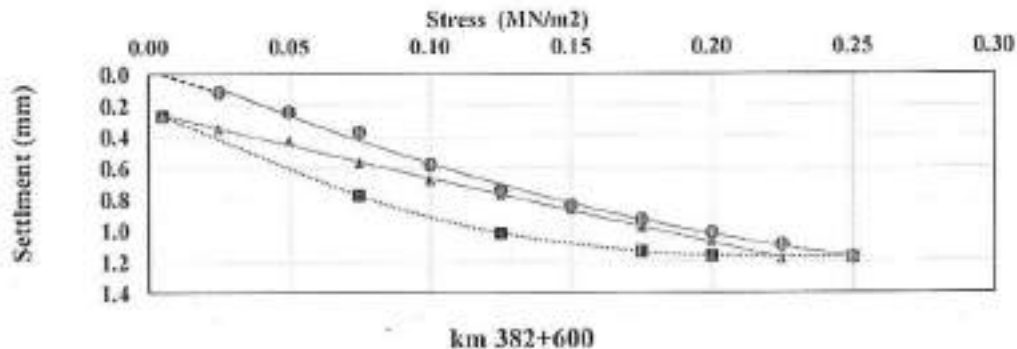


Fig. 4: Load-settlement curve, fitting curves according to Table 10 and Table 11 for the first and second loading cycles

- 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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Table 13: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) 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	0.11
2	14.14	0.050	0.23
3	21.21	0.075	0.34
4	28.28	0.100	0.48
5	35.35	0.125	0.62
6	42.42	0.150	0.71
7	49.49	0.175	0.79
8	56.56	0.200	0.88
9	63.63	0.225	0.97
10	70.7	0.250	1.05
11	56.56	0.200	1.04
12	49.49	0.175	1.02
13	35.35	0.125	0.87
14	21.21	0.075	0.66
15	1.414	0.005	0.25

Table 14: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.25
16	7.07	0.025	0.32
17	14.14	0.050	0.40
18	21.21	0.075	0.49
19	28.28	0.100	0.59
20	35.35	0.125	0.69
21	42.42	0.150	0.79
22	49.49	0.175	0.90
23	56.56	0.200	1.00
24	63.63	0.225	1.07

Table 15: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{max}) MN/m ²	0.250	0.250
s_0 (mm)	-0.046	0.225
α_1 (mm/(MN/m ²))	5.093	3.606
α_2 (mm/(MN ² /m ⁴))	-6.043	8.902
$E_v = 1.5 \pi / (\alpha_1 + \alpha_2 \cdot \sigma_0 \cdot \sigma_{max})$	102.69	116.83
E_v2/E_v1	1.14	

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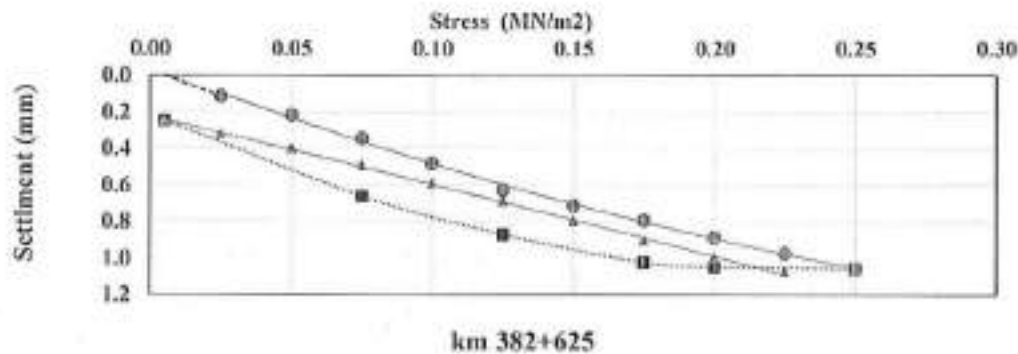


Fig. 5: Load-settlement curve, fitting curves according to Table 13 and Table 14 for the first and second loading cycles

- 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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Table 16: 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	0.10
2	14.14	0.050	0.19
3	21.21	0.075	0.31
4	28.28	0.100	0.41
5	35.35	0.125	0.52
6	42.42	0.150	0.63
7	49.49	0.175	0.74
8	56.56	0.200	0.84
9	63.63	0.225	0.92
10	70.7	0.250	1.01
11	56.56	0.200	1.00
12	49.49	0.175	0.97
13	35.35	0.125	0.79
14	21.21	0.075	0.61
15	1.414	0.005	0.25

Table 17: 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	0.25
16	7.07	0.025	0.32
17	14.14	0.050	0.42
18	21.21	0.075	0.52
19	28.28	0.100	0.62
20	35.35	0.125	0.69
21	42.42	0.150	0.77
22	49.49	0.175	0.86
23	56.56	0.200	0.95
24	63.63	0.225	1.03

Table 18: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{lim}) MN/m ²	0.250	0.250
s_0 (mm)	-0.030	0.232
a_1 (mm/(MN/m ²))	4.660	3.886
a_2 (mm/(MN/m ²))	-1.819	-1.624
$E_s = 1.5 \pi (a_1 + a_2 \cdot \sigma_0 \cdot \pi \cdot \pi)$	107.13	129.32
E_s/E_s	1.21	



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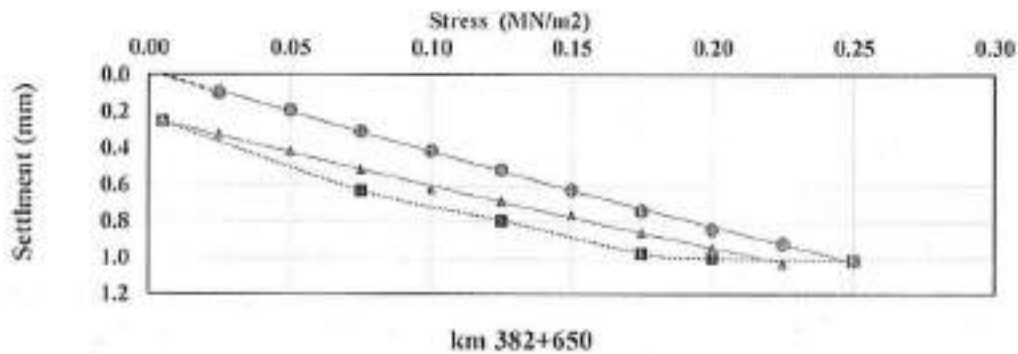


Fig. 6: Load-settlement curve, fitting curves according to Table 16 and Table 17 for the first and second loading cycles

- 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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Table 19: 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	0.11
2	14.14	0.050	0.22
3	21.21	0.075	0.38
4	28.28	0.100	0.49
5	35.35	0.125	0.60
6	42.42	0.150	0.69
7	49.49	0.175	0.78
8	56.56	0.200	0.87
9	63.63	0.225	1.02
10	70.7	0.250	1.12
11	56.56	0.200	1.11
12	49.49	0.175	1.10
13	35.35	0.125	1.01
14	21.21	0.075	0.90
15	1.414	0.005	0.54

Table 20: 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	0.60
17	14.14	0.050	0.68
18	21.21	0.075	0.74
19	28.28	0.100	0.79
20	35.35	0.125	0.85
21	42.42	0.150	0.92
22	49.49	0.175	1.01
23	56.56	0.200	1.10
24	63.63	0.225	1.17

Table 21: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{max}) MN/m ²	0.250	0.250
s_2 (mm)	-0.013	0.517
s_0 (mm) (MN/m ²)	5.115	2.377
s_1 (mm) (MN/m ²)	-2.607	1.917
$E_v = 1.5 \sigma_0 / (s_0 - s_1)$	100.81	157.55
E_v/E_{ref}	1.56	

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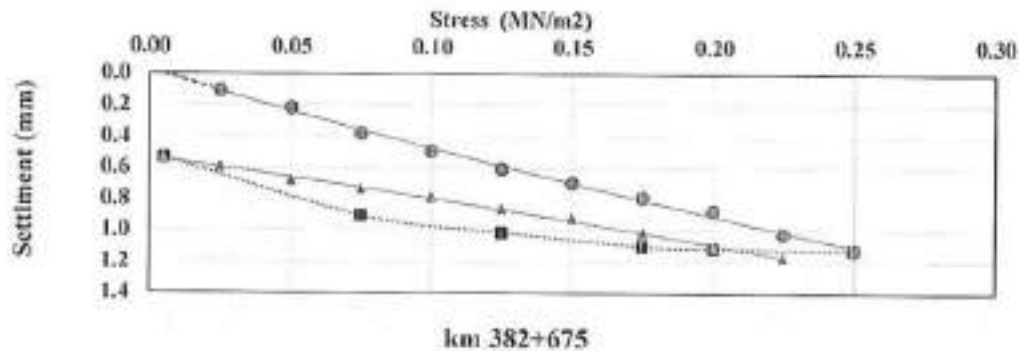


Fig. 7: Load-settlement curve, fitting curves according to Table 19 and Table 20 for the first and second loading cycles

- 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_c Normal stress MN/m^2



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382+700

600

Table 22: 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	0.09
2	14.14	0.050	0.24
3	21.21	0.075	0.42
4	28.28	0.100	0.56
5	35.35	0.125	0.70
6	42.42	0.150	0.85
7	49.49	0.175	0.98
8	56.56	0.200	1.08
9	63.63	0.225	1.21
10	70.7	0.250	1.35
11	56.56	0.200	1.33
12	49.49	0.175	1.32
13	35.35	0.125	1.21
14	21.21	0.075	1.12
15	1.414	0.005	0.63

Table 23: 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	0.63
16	7.07	0.025	0.67
17	14.14	0.050	0.75
18	21.21	0.075	0.84
19	28.28	0.100	0.93
20	35.35	0.125	1.01
21	42.42	0.150	1.11
22	49.49	0.175	1.19
23	56.56	0.200	1.27
24	63.63	0.225	1.34

Table 24: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{lim}) MN/m ²	0.250	0.250
a_0 (mm)	-0.002	0.597
a_1 (mm/(MN/m ²))	6.865	5.349
a_2 (mm/(MN ² /m ⁴))	-1.770	0.016
$E \cdot \epsilon \cdot 1.5 \cdot t / (a_1 + a_2 \cdot \sigma_0 \cdot t)$	79.33	134.23
$E \cdot \epsilon / E \cdot \epsilon$	1.69	

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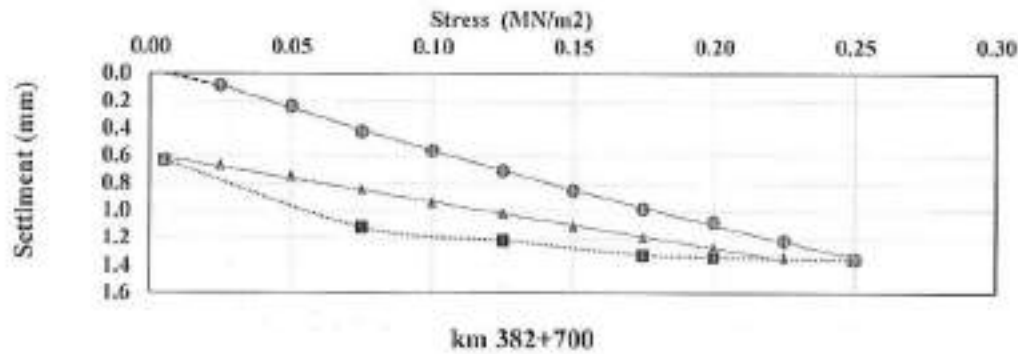


Fig. 8: Load-settlement curve, fitting curves according to Table 22 and Table 23 for the first and second loading cycles

- 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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382+725

600

Table 25: 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	0.19
2	14.14	0.050	0.33
3	21.21	0.075	0.44
4	28.28	0.100	0.50
5	35.35	0.125	0.59
6	42.42	0.150	0.67
7	49.49	0.175	0.77
8	56.56	0.200	0.85
9	63.63	0.225	0.91
10	70.7	0.250	0.97
11	56.56	0.200	0.96
12	49.49	0.175	0.89
13	35.35	0.125	0.85
14	21.21	0.075	0.75
15	1.414	0.005	0.38

Table 26: 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	0.38
16	7.07	0.025	0.46
17	14.14	0.050	0.54
18	21.21	0.075	0.60
19	28.28	0.100	0.67
20	35.35	0.125	0.74
21	42.42	0.150	0.81
22	49.49	0.175	0.87
23	56.56	0.200	0.91
24	63.63	0.225	0.99

Table 27: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{0max}) MN/m ²	0.250	0.250
s_0 (mm)	0.097	0.376
σ_1 (mm/(MN/m ²))	4.604	3.196
σ_2 (mm/(MN/m ²))	-4.586	-2.129
$E = 1.5 \sigma_1 / (s_1 - s_0)$	128.30	168.91
E_v / E_{v1}	1.32	

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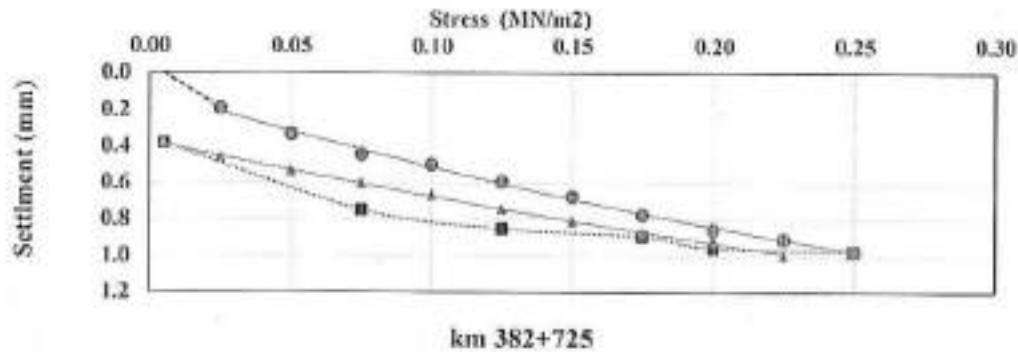


Fig. 9: Load-settlement curve, fitting curves according to Table 25 and Table 26 for the first and second loading cycles

- 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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382+750

600

Table 28: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.08
2	14.14	0.050	0.17
3	21.21	0.075	0.29
4	28.28	0.100	0.41
5	35.35	0.125	0.51
6	42.42	0.150	0.60
7	49.49	0.175	0.67
8	56.56	0.200	0.76
9	63.63	0.225	0.84
10	70.7	0.250	0.91
11	56.56	0.200	0.90
12	49.49	0.175	0.89
13	35.35	0.125	0.82
14	21.21	0.075	0.71
15	1.414	0.005	0.40

Table 29: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.40
16	7.07	0.025	0.45
17	14.14	0.050	0.53
18	21.21	0.075	0.62
19	28.28	0.100	0.68
20	35.35	0.125	0.76
21	42.42	0.150	0.82
22	49.49	0.175	0.86
23	56.56	0.200	0.91
24	63.63	0.225	0.97

Table 30: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$\{\sigma_{0.001}\}$ MN/m ²	0.250	0.250
a_s (mm)	-0.078	0.372
a_1 (mm/(MN/m ²))	5.351	3.536
a_2 (mm/(MN ² /m ⁴))	-5.659	-1.013
$E_s = 1.5 \sigma_1 / (a_1 + a_2 \sigma_1)$	114.30	177.69
E_v/E_1	1.55	



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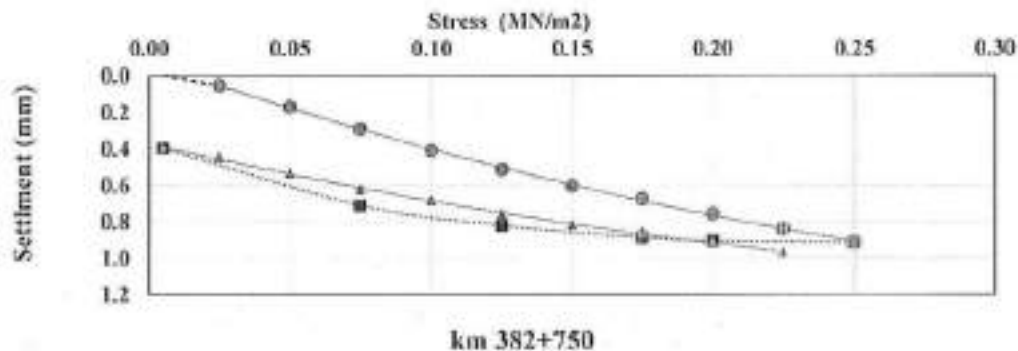


Fig. 9: Load-settlement curve, fitting curves according to Table 28 and Table 29 for the first and second loading cycles

- 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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382+775

600

Table 31: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.10
2	14.14	0.050	0.15
3	21.21	0.075	0.31
4	28.28	0.100	0.41
5	35.35	0.125	0.48
6	42.42	0.150	0.59
7	49.49	0.175	0.72
8	56.56	0.200	0.79
9	63.63	0.225	0.89
10	70.7	0.250	0.95
11	56.56	0.200	0.93
12	49.49	0.175	0.90
13	35.35	0.125	0.85
14	21.21	0.075	0.76
15	1.414	0.005	0.43

Table 32: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.43
16	7.07	0.025	0.51
17	14.14	0.050	0.57
18	21.21	0.075	0.64
19	28.28	0.100	0.71
20	35.35	0.125	0.76
21	42.42	0.150	0.82
22	49.49	0.175	0.85
23	56.56	0.200	0.91
24	63.63	0.225	0.97

Table 33: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{n,m})$ MN/m ²	0.250	0.250
s_0 (mm)	0.009	0.428
n_1 (mm/(MN/m ²))	4.293	3.026
n_2 (mm/(MN ² /m ⁴))	-1.556	-2.878
$E_v = 1.5 n^2 / (n_1^2 + n_2 \sigma_{n,m})$	117.98	106.12
$E_v/2(E_v)$	1.65	



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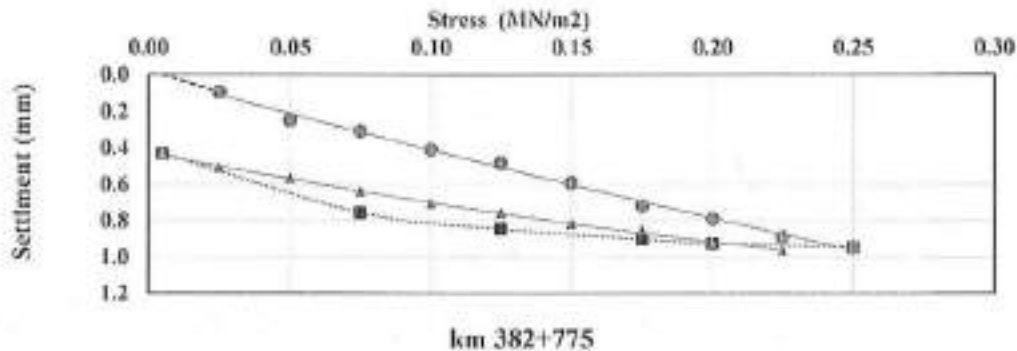


Fig. 9: Load-settlement curve, fitting curves according to Table 31 and Table 32 for the first and second loading cycles

- 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_o Normal stress MN/m²



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382+800

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Table 34: 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	0.23
3	21.21	0.075	0.32
4	28.28	0.100	0.37
5	35.35	0.125	0.46
6	42.42	0.150	0.61
7	49.49	0.175	0.70
8	56.56	0.200	0.79
9	63.63	0.225	0.86
10	70.7	0.250	0.92
11	56.56	0.200	0.90
12	49.49	0.175	0.87
13	35.35	0.125	0.81
14	21.21	0.075	0.74
15	1.414	0.005	0.39

Table 35: 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	0.39
16	7.07	0.025	0.44
17	14.14	0.050	0.54
18	21.21	0.075	0.63
19	28.28	0.100	0.69
20	35.35	0.125	0.75
21	42.42	0.150	0.82
22	49.49	0.175	0.90
23	56.56	0.200	0.98
24	63.63	0.225	1.05

Table 36: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0, max})$ MN/m ²	0.250	0.250
a_0 (mm)	0.045	0.371
a_1 (mm/(MN/m ²))	3.619	3.389
a_2 (mm/(MN ² /m ⁴))	-0.040	-2.022
$E_s = 1.5 \text{ of } (a_1 + a_2 \cdot \sigma_{0, max})$	124.69	156.05
Ev2/Ev1	1.25	



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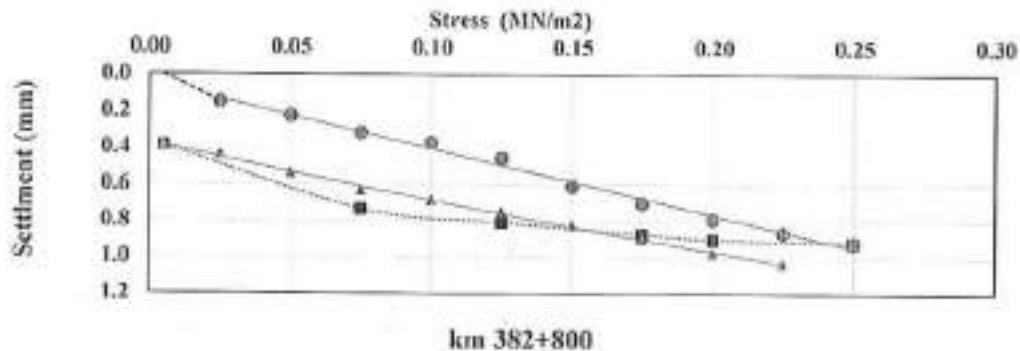


Fig. 9: Load-settlement curve, fitting curves according to Table 34 and Table 35 for the first and second loading cycles

- 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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Conclusions:

The present test results which obtained from the plate loading tests of the native soil on prepared subgrade layer of the electric express train project at location (from km 382+525 to km 382+800) in accordance to the German standard , DIN 18134 are illustrated in table 37.

Table 37 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
382+525	108.46	133.22	1.23
382+550	115.72	115.81	1.00
382+575	107.32	126.49	1.18
382+600	88.23	107.94	1.22
382+625	102.69	116.83	1.14
382+650	107.13	129.32	1.21
382+675	100.81	157.55	1.56
382+700	79.33	134.23	1.69
382+725	128.30	168.91	1.32
382+750	114.30	177.69	1.55
382+775	117.98	195.12	1.65
382+800	124.69	156.03	1.25

Lab Director

Eag / Eman Kandil

Geotechnical Consultant

Dr / Mohamed Mostafa Badry



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(382+680 To 382+880)

UNIVERSAL INSPECTION REQUEST											
RECEIPT of NOTIFICATION-Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown											
Contractor Company		Abd EL-Salam EL-Foky Contracting Company 2				Designer Company*		(SPECTRUM) Engineering Consulting Office			
Issued by Contractor		Name		Sign		Date/Serial Number		Time			
		Eng. Ahmed Abd-Almonsef				21/05/2023 S5-B-AF2 IRSG2(03)		04:00			
Received by GARB CONSULTANT		Eng. Moustafa Ryad		UIR		382 EW CS 22 05 2023 12 00					
CODE - 1		S1 to S21 Station Reference		D1 to D3 Depot Reference		Kp XXX Note For Kilo meter point only Start Km is used					
CODE - 2		Work Activity									
CODE - 3		Sub Element of Activity									
EXPLANATION OF WORK TO BE INSPECTED											
Description		Element		Item							
From St. 382+500 To St. 382+700		Subgrade 2		Subgrade							
INSPECTION DETAILS The following will be ready at the Planned Inspection Time											
Planned Inspection Date						Planned Inspection Time					
COMPLIANCE EVIDENCE Must be included as appropriate											
Checklist Attached		Test Results Attached		Calibration Attached		Other as indicated					
Drawing Reference		References		MS Reference							
Plan and Profile REV. 32		MAR (QT SG1) MIR (SG (01))		-Specification: EARTH/WORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION2 BY CNECON GROUP. -TECHNICAL REPORT (CG21-122.1) VERSION 1 BY CNECON GROUP.							
Comments by: Eng. Mohamed Khalil (XYZ)											
I- Attached Master Sheet approved by SPECTRUM.											
Comments by: Eng. Eng. Moustafa Ryad (SPECTRUM)											
1- تم استلام القطاع فحص بصري 2- تم مراجعة شيت المناسيب											
Comments by: Eng. Alaa Abd-Allatif (ER)											
1-coordinates & levels and width checked by GARB consultant											
INSPECTION RESULT											
Organisation		Name		Sign		Date		Time		Approval Status	
Contractor		Eng. Ahmed Abd-Almonsef								A-AWC-R	
XYZ Survey		Eng. Mohamed Khalil								A	
QA/QC*		Eng. Moustafa Ryad								A	
GARB**		Eng. Mohammed Fayad									
Employers Representative		Eng.								A	

(382+680 To 382+880)

UNIVERSAL INSPECTION REQUEST											
RECEIPT of NOTIFICATION -Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown											
Contractor Company		Abd EL-Salem EL-Feky Contracting Company 2				Designer Company*		(SPECTRUM) Engineering Consulting Office			
Issued by Contractor		Name		Sign		Date/Serial Number		Time			
		Eng. Ahmed Abd-Almonsef				21/05/2023 IRSG2(03)		4:00 PM			
Received by GARB CONSULTANT		Eng. Moustafa Ryad				UR		C1 382 C2 EW C3 CS D3 22 MM 05 YY 2023 HH 12 MM 00			
CODE - 1		S1 to S21 Station Reference		D1 to D3 Depot Reference		Kp XXX Note For KEO meter point only Start Km is used					
CODE - 2		Work Activity									
CODE - 3		Sub Element of Activity									
EXPLANATION OF WORK TO BE INSPECTED											
Description		Element		Item							
From St. 382+500 To St. 382+700		Subgrade 2		Subgrade							
INSPECTION DETAILS the following will be ready at the Planned Inspection Time											
Planned Inspection Date						Planned Inspection Time					
COMPLIANCE EVIDENCE Must be included as appropriate											
Checklist Attached		Test Results Attached		Calibration Attached		Other as Indicated					
Drawing Reference		References		MS Reference							
Plan and Profile REV. 32		MAR (QT SB1) MIR (SG (01)		-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP. -TECHNICAL REPORT (CG21-122.1) VERSION 1 BY CIVECON GROUP.							
Comments by: Eng. Mohamed Khalil (XYZ)											
1- Attached Master Sheet approved by SPECTRUM .											
Comments by: Eng. Eng. Moustafa Ryad (SPECTRUM)						Comments by: Eng. Alaa Abd-Allatif (ER)					
1- تم استلام القطاع فحص بصري 2- تم مراجعة شيت المناهض						1-coordinates & levels and width checked by GARB consultant 2- (REV. 32 & X-sec./20m) Should Approved from SYSTRA. 3-Final approval is subject to above mentioned comments.					
INSPECTION RESULT								Approval Status		Please Tick if Not Attend	
Organisation	Name	Sign	Date	Time	A-AWC-R						
Contractor	Eng. Ahmed Abd-Almonsef				A						
XYZ Survey	Eng. Mohamed Khalil				A						
QA/QC*	Eng. Moustafa Ryad				A						
GARB**	Eng. Mohammed Fayad										
Employers Representative	Eng.				AWC						

* Designer
File Name : MS-P.L632

Page 1 of 1

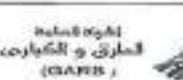
(382+880 To 382+980)

UNIVERSAL INSPECTION REQUEST											
RECEIPT of NOTIFICATION-Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown:											
Contractor Company		Abd EL-Salam EL-Feky Contractings Company 2				Designer Company*		(SPECTRUM) Engineering Consulting Office			
Issued by Contractor		Name: Eng. Ahmed Abd-Almonsef				Date/Serial Number		Time			
		22/05/2023 S5-B-AF2 IRSG2(05)				04:00					
Received by GARB CONSULTANT		Eng. Moustafa Ryad		UIR		G1 G2 G3 DD MM YY HH MM					
CODE-1		S1 to S21 Station Reference		D1 to D3 Depot Reference		Kp XXX Note		For Kilo meter point only Start Km is used			
CODE - 2		Work Activity									
CODE - 3		Sub Element of Activity									
EXPLANATION OF WORK TO BE INSPECTED											
Description				Element				Item			
From St. 382+700 To St. 382+800				Subgrade 2				Subgrade			
INSPECTION DETAILS The following will be ready at the Planned Inspection Time											
Planned Inspection Date						Planned Inspection Time					
COMPLIANCE EVIDENCE Must be included as appropriate											
Checklist Attached		Test Results Attached		Calibration Attached		Other as indicated					
Drawing Reference		References		MS Reference							
Plan and Profile REV. 32		MAR (QT SG1) MIR) (SG (02)		-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP. -TECHNICAL REPORT (CG21-122.3) VERSION 1 BY CIVECON GROUP.							
Comments by: Eng. Mohamed Khalil (XYZ)											
1- Attached Master Sheet approved by SPECTRUM.											
Comments by: Eng. Eng. Moustafa Ryad (SPECTRUM)											
1-coordinates & levels and width checked by GARB consultant											
Comments by: Eng. Alaa Abd-Allah (PR)											
1-coordinates & levels and width checked by GARB consultant											
INSPECTION RESULT											
Organisation		Name		Sign		Date		Time		Approval Status	
Contractor		Eng. Ahmed Abd-Almonsef								A	
XYZ Survey		Eng. Mohamed Khalil								A	
QA/QC*		Eng. Moustafa Ryad								A	
GARB**		Eng. Mohammed Fayad								A	
Employers Representative		Eng.								A	

382+880 To 382+980

UNIVERSAL INSPECTION REQUEST																															
RECEIPT of NOTIFICATION -Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown																															
Contractor Company		Abd EL-Salam EL-Faky Contracting Company 2				Designer Company*		(SPECTRUM) Engineering Consulting Office																							
Issued by Contractor		Name: Eng. Ahmed Abd-Almonsef				Date/Serial Number		Time																							
		22/05/2023				IRSG2(05)		4:00 PM																							
Received by GARB CONSULTANT		Eng. Moustafa Ryed				UR		<table border="1"> <tr> <td>Q</td> <td>C</td> <td>CS</td> <td>DD</td> <td>MM</td> <td>YY</td> <td>HH</td> <td>MM</td> </tr> <tr> <td>382</td> <td>EW</td> <td>CS</td> <td>23</td> <td>05</td> <td>2023</td> <td>12</td> <td>00</td> </tr> </table>								Q	C	CS	DD	MM	YY	HH	MM	382	EW	CS	23	05	2023	12	00
Q	C	CS	DD	MM	YY	HH	MM																								
382	EW	CS	23	05	2023	12	00																								
CODE - 1		S1 to S21 Station Reference				D1 to D3 Depot Reference		Kp XXX Note For IGLD meter point only Start Km is used																							
CODE - 2		Work Activity																													
CODE - 3		Sub Element of Activity																													
EXPLANATION OF WORK TO BE INSPECTED																															
Description		Element				Item																									
From St. 382+700 To St. 382+800		Subgrade 2				Subgrade																									
INSPECTION DETAILS The following will be ready at the Planned Inspection Time																															
Planned Inspection Date								Planned Inspection Time																							
COMPLIANCE EVIDENCE Must be included as appropriate																															
Checklist Attached		Test Results Attached				Calibration Attached				Other as indicated																					
Drawing Reference		References				MS Reference																									
Plan and Profile REV. 32		MAR (QT 5B1) MIR (SG (02))				-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP. -TECHNICAL REPORT (CG21-122.1) VERSION 1 BY CIVECON GROUP																									
Comments by: Eng. Mohamed Khalil (XYZ)																															
1- Attached Master Sheet approved by SPECTRUM																															
Comments by: Eng. Eng. Moustafa Ryed (SPECTRUM)																															
1- coordinates & levels and width checked by GARB consultant 2- (REV. 32 & X-sec./20m) Should Approved from SYSTRA. 3-Final approval is subject to above mentioned comments.																															
INSPECTION RESULT																															
Organisation		Name		Sign		Date		Time		Approval Status		Please Tick if Not Attend																			
Contractor		Eng. Ahmed Abd-Almonsef								A																					
XYZ Survey		Eng. Mohamed Khalil								A																					
QA/QC*		Eng. Moustafa Ryed								A																					
GARB**		Eng. Mohammed Fayad																													
Employers Representative		Eng.								AWC																					

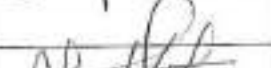
(382+680 TO 383+180)

MATERIAL APPROVAL REQUEST						
	مجلس الوزراء الهيئة العامة للطرق والكباريت (GAR)					

Contractor Company	Eng. AbdElsalam EL Feky For Contracting	Designer Company	(SPECTRUM) Engineering Consulting Office
Issued by Contractor	Name	Date/Serial Number	Time
	Eng. Mohamed Jamaal	33/4/2023 SS-R-AF2 QT 50 (1)	08:00
Received by GARB CONSULTANT	Eng. Mazen Essawy	MAR	

CODE-I	81 to 521	01 to 53	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub-Element of Activity		

Description of Materials	Subgrade Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (2021-41.2) VERSION 2 BY CINECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essawy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party lab Combissal is Approved.		1-All tests were selected for Quality test and were carried-out by Third party lab Combissal.	
2-This Sample Representative (5000 m³) only.		2-Results report attached and acceptable with the project specifications.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Jamaal			A
QA/QC *	Eng. Mazen Essawy			A
GARB**	Eng. Margeret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer
** Approving/Signs Only

(382+680 To 383+180)

MATERIAL APPROVAL REQUEST										
	شركة ابن سينا									

Contractor Company	Eng. Abdelsalam ElFeky For Contracting			Designer Company			[SPECTRUM] Engineering Consulting Office				
Issued by Contractor	Name	Eng. Mohamed Elmaghrabi	Sign	Date/Serial Number			Time				
				30/4/2023			8:00				
Received by GARB CONSULTANT	Eng. Maren Essamy		MAR	C1	C2	C3	D0	MM	YY	HH	MM
				382+500	EW	CS	1	5	23	8	0

COORD-1	S1 to S23	D1 to S1	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub-Element of Activity		

Description of Materials	Subgrade Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	HAIRWORK SPECIFICATIONS & TESTING REPORT (EGS-43.2) VERSION 2 BY CINECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Maren Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party lab Combassal is Approved.		1-All tests were selected for Quality test and were carried-out by Third party lab Combassal.	
2-This Sample Representative (5000 m³) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	
		4-Remain chemical test	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Maren Essamy			A
GARB **	Eng. Margaret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023 08/5	AWC

* Designer

** Alignment/Bridges: Civil/Highway

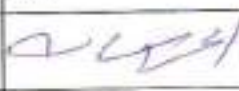
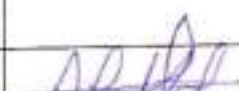
(382+980 To 383+180)

MATERIAL
INSPECTION
REQUEST

Contractor Company	Eng. Abdelsalam ELFaky For Contracting		Designer Company		(SPECTRUM) Engineering Consulting Office					
Issued by Contractor	Name	عبد السلام عبد الفتاح وشركاه	Date/Serial Number	Time						
	Eng. Mohamed Ismael	29/5/2023	3:00 PM							
Received by GARB CONSULTANT	Eng. Mazen Essamy	MIR	C1	C2	C3	DD	MM	YY	HH	MM
			382+500	EW	CS	30	5	23	3	0

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Depot Reference	For number point only start points used
	Work Activity		
	Sub Element of Activity		

Description of Materials		AT LAYER (SUBGRADE 2)			
Location to be Used	From	382+800	TO	383+000	
MAR & UIR Approval No	UIR SG (06)	Date	29/5/2023		
	(QT SG 1)		1/5/2023		
Supplier Name					
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY GIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Comibassal LABORATORY	NUMBER	8	30/5/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allatif (ER)		
 1-The Plate Load Test Result by third party is Approved.			1-8 Point was carried- out by (Comibassal) on Subgrade layer 2-Results report attached and acceptable with project specifications.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			P
GARB**	Eng. Margraot Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Designer

** Alignment/Bridges, Culvert only

(382+980 TO 383+180)

MATERIAL INSPECTION REQUEST																											

Contractor Company	Eng. Abdelkader EL Faky For Contracting		Designer Company	[SPECTRUM] Engineering Consulting Office							
Issued by Contractor	Name	Eng. Mohamed Ismael	Date/Serial Number	Time							
	Sign		25/5/2023	3:00 PM							
	Eng. Mohamed Ismael		PLT (4)								
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	CV	CJ	CS	CD	MM	VY	HR	MM
				382+500	EW	CS	30	5	23	8	0

CODE 1	SA to S23	D1 to S3	Ng XXX Note
CODE 2	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE 3	Work Activity		
CODE 4	Sub Element of Activity		

Description of Materials		AT LAYER (SUBGRADE 2)			
Location to be Used	From	382+800	TO	383+000	
MAR & UIR Approval No	UIR SG (06)	Date		29/5/2023	
	(QT SG 1)			1/5/2023	
Supplier Name					
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-43.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Comibassal LABORATORY	NUMBER	8	30/5/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)			
 1-The Plate Load Test Result by third party is Approved.		1-8 Point was carried-out by (Comibassal) on Subgrade layer 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 Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margaret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023/5/31	AWC

* Designer

** Alignment/Bridges/Culvert only



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/28-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

Technical report of Plate Loading Test (DIN18134)

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفني للمقاولات
Project	:	Electric express train
Sample	:	Prepared subgrade (2)
Station	:	St (382+825) to St (383+00)
Date of Test	:	30/05/2023
Qc	:	1281



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Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031708/1A

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.



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382+825

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	0.04
2	14.14	0.050	0.11
3	21.21	0.075	0.16
4	28.28	0.100	0.25
5	35.35	0.125	0.33
6	42.42	0.150	0.41
7	49.49	0.175	0.49
8	56.56	0.200	0.55
9	63.63	0.225	0.61
10	70.7	0.250	0.69
11	56.56	0.200	0.58
12	49.49	0.175	0.66
13	35.35	0.125	0.56
14	21.21	0.075	0.43
15	1.414	0.005	0.23

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	0.23
16	7.07	0.025	0.16
17	14.14	0.050	0.36
18	21.21	0.075	0.41
19	28.28	0.100	0.45
20	35.35	0.125	0.53
21	42.42	0.150	0.59
22	49.49	0.175	0.63
23	56.56	0.200	0.68
24	63.63	0.225	0.71

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{0max}) MN/m ²	0.250	0.250
s_0 (mm)	-0.038	0.200
n_1 (mm/(MN/m ²))	2.882	3.085
n_2 (mm/(MN/m ²))	0.364	-3.723
$E_s = 1.5 \cdot n_1 / (n_1 + n_2 - \sigma_{0max})$	151.30	209.12
$E = 2/E_s$	1.38	



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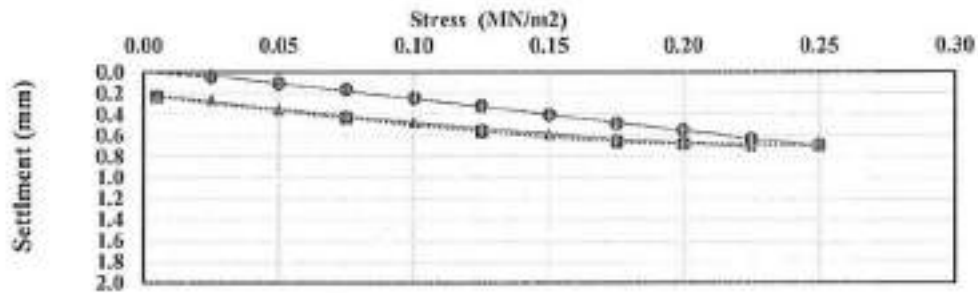
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km 382+825

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_v Normal stress MN/m²



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382+850

600

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

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.22
2	14.14	0.050	0.39
3	21.21	0.075	0.53
4	28.28	0.100	0.63
5	35.35	0.125	0.70
6	42.42	0.150	0.76
7	49.49	0.175	0.82
8	56.56	0.200	0.85
9	63.63	0.225	0.89
10	70.7	0.250	0.92
11	56.56	0.200	0.90
12	49.49	0.175	0.93
13	35.35	0.125	0.79
14	21.21	0.075	0.67
15	1.414	0.005	0.48

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	0.48
16	7.07	0.025	0.55
17	14.14	0.050	0.64
18	21.21	0.075	0.70
19	28.28	0.100	0.77
20	35.35	0.125	0.82
21	42.42	0.150	0.85
22	49.49	0.175	0.91
23	56.56	0.200	0.93
24	63.63	0.225	0.98

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0,max}$) MN/m ²	0.250	0.250
a_0 (mm)	0.888	0.470
a_1 (mm/(MN/m ²))	6.515	3.441
a_2 (mm/(MN ² /m ⁴))	-13.116	-5.410
$E = 1.5 \sigma / (a_1 + a_2 \sigma_{0,max})$	138.20	215.43
E_{r1}/E_{r1}	1.55	



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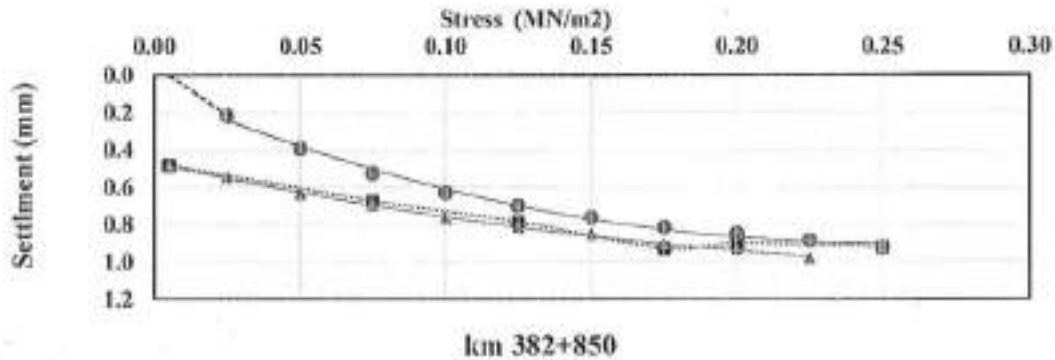


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- 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_s Normal stress MN/m²



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382+875

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	0.05
2	14.14	0.050	0.12
3	21.21	0.075	0.17
4	28.28	0.100	0.23
5	35.35	0.125	0.30
6	42.42	0.150	0.36
7	49.49	0.175	0.43
8	56.56	0.200	0.51
9	63.63	0.225	0.55
10	70.7	0.250	0.63
11	56.56	0.200	0.60
12	49.49	0.175	0.58
13	35.35	0.125	0.47
14	21.21	0.075	0.34
15	1.414	0.005	0.10

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	0.10
16	7.07	0.025	0.19
17	14.14	0.050	0.26
18	21.21	0.075	0.33
19	28.28	0.100	0.38
20	35.35	0.125	0.43
21	42.42	0.150	0.48
22	49.49	0.175	0.53
23	56.56	0.200	0.57
24	63.63	0.225	0.62

Table 9: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0, \text{max}}$) MN/m ²	0.250	0.250
a_0 (mm)	-0.010	0.104
a_1 (mm/(MN/m ²))	2.407	3.201
a_2 (mm/(MN ² /m ²))	0.566	-4.150
$Ev = 1.5 \sigma' (a_1 + a_2 \cdot \sigma_{0, \text{max}})$	176.61	208.01
$Ev2/Ev1$	1.18	

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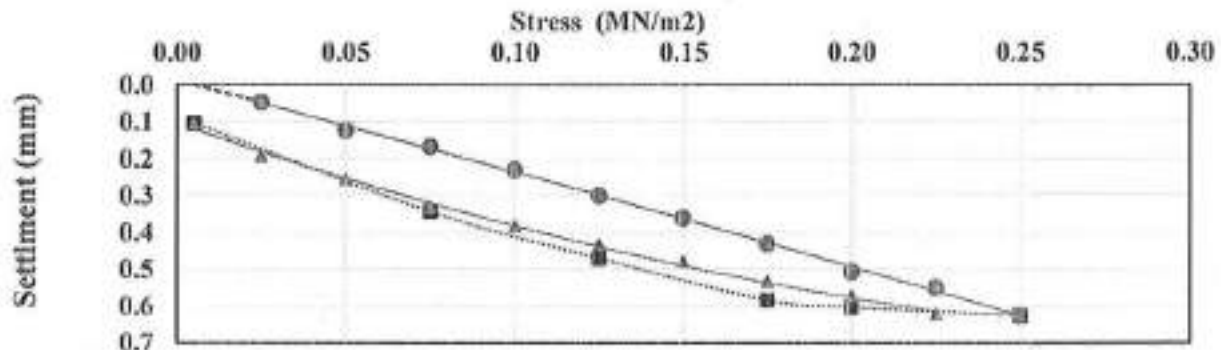
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km 382+875

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_0 Normal stress MN/m²



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Table 10: 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	0.08
2	14.14	0.050	0.19
3	21.21	0.075	0.26
4	28.28	0.100	0.36
5	35.35	0.125	0.43
6	42.42	0.150	0.50
7	49.49	0.175	0.57
8	56.56	0.200	0.65
9	63.63	0.225	0.72
10	70.7	0.250	0.77
11	56.56	0.200	0.75
12	49.49	0.175	0.73
13	35.35	0.125	0.60
14	21.21	0.075	0.50
15	1.414	0.005	0.34

Table 11: 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	0.34
16	7.07	0.025	0.41
17	14.14	0.050	0.48
18	21.21	0.075	0.55
19	28.28	0.100	0.63
20	35.35	0.125	0.67
21	42.42	0.150	0.71
22	49.49	0.175	0.76
23	56.56	0.200	0.79
24	63.63	0.225	0.86

Table 12: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{0max}) MN/m ²	0.250	0.250
s_0 (mm)	-0.014	0.327
a_1 (mm/(MN/m ²))	3.984	3.293
a_2 (mm/(MN ² /m ⁴))	-3.375	-4.477
$E_{\sigma} = 1.5 \cdot a_1^2 / (a_2 + a_1 \cdot \sigma_{0max})$	143.30	207.03
$E_{\sigma 20}/E_{\sigma 1}$	1.44	

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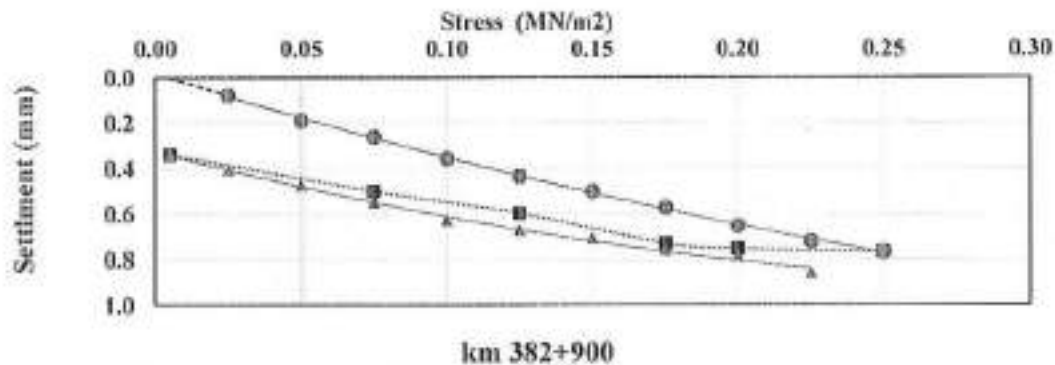


Fig. 4: Load-settlement curve, fitting curves according to Table 10 and Table 11 for the first and second loading cycles

- 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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Table 13: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) 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	0.05
2	14.14	0.050	0.13
3	21.21	0.075	0.19
4	28.28	0.100	0.23
5	35.35	0.125	0.29
6	42.42	0.150	0.37
7	49.49	0.175	0.43
8	56.56	0.200	0.50
9	63.63	0.225	0.56
10	70.7	0.250	0.66
11	56.56	0.200	0.65
12	49.49	0.175	0.63
13	35.35	0.125	0.55
14	21.21	0.075	0.40
15	1.414	0.005	0.22

Table 14: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.22
16	7.07	0.025	0.26
17	14.14	0.050	0.29
18	21.21	0.075	0.35
19	28.28	0.100	0.40
20	35.35	0.125	0.47
21	42.42	0.150	0.50
22	49.49	0.175	0.55
23	56.56	0.200	0.61
24	63.63	0.225	0.67

Table 15: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0,max}$) MN/m ²	0.250	0.250
s_0 (mm)	0.006	0.207
a_1 (mm/(MN/m ²))	2.109	1.835
a_2 (mm/(MN ² /m ²))	1.900	0.938
$E_v = 1.5 \text{ of } (a_1 + a_2 \cdot \sigma_{0,max})$	174.14	217.50
E_v/E_v1	1.25	



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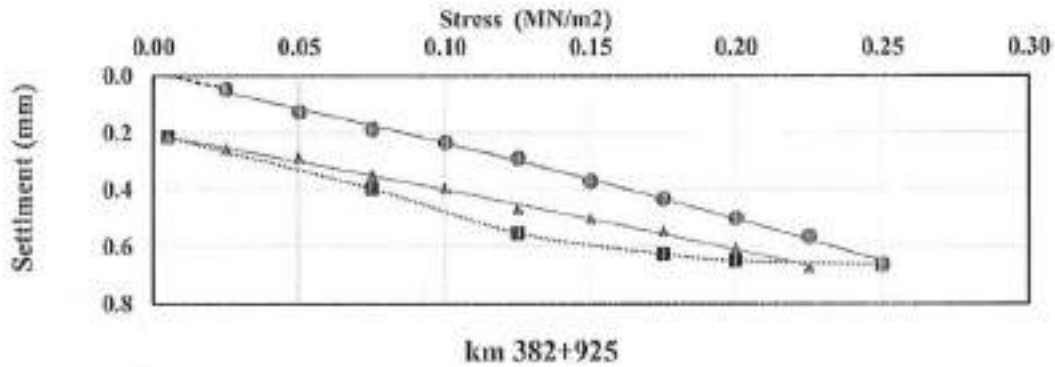


Fig. 5: Load-settlement curve, fitting curves according to Table 13 and Table 14 for the first and second loading cycles

- 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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Table 16: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.05
2	14.14	0.050	0.12
3	21.21	0.075	0.19
4	28.28	0.100	0.26
5	35.35	0.125	0.35
6	42.42	0.150	0.38
7	49.49	0.175	0.45
8	56.56	0.200	0.51
9	63.63	0.225	0.58
10	70.7	0.250	0.67
11	56.56	0.200	0.68
12	49.49	0.175	0.65
13	35.35	0.125	0.53
14	21.21	0.075	0.41
15	1.414	0.005	0.25

Table 17: 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	0.25
16	7.07	0.025	0.33
17	14.14	0.050	0.41
18	21.21	0.075	0.47
19	28.28	0.100	0.54
20	35.35	0.125	0.60
21	42.42	0.150	0.66
22	49.49	0.175	0.69
23	56.56	0.200	0.73
24	63.63	0.225	0.77

Table 18: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0.005}$) MN/m ²	0.250	0.250
a_0 (mm)	-0.016	0.241
a_1 (mm/(MN/m ²))	2.766	3.535
a_2 (mm/(MN ² /m ²))	-0.344	-5.418
$E_s = 1.5 \pi' (a_0 + a_1 \cdot \sigma_{0.005})$	167.92	206.35
E_v/E_v1	1.23	



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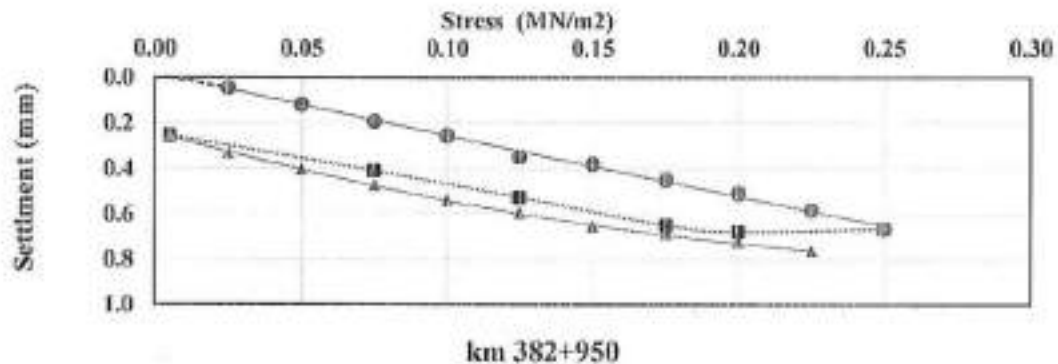


Fig. 6: Load-settlement curve, fitting curves according to Table 16 and Table 17 for the first and second loading cycles.

- 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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Table 19: 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	0.05
2	14.14	0.050	0.11
3	21.21	0.075	0.16
4	28.28	0.100	0.24
5	35.35	0.125	0.33
6	42.42	0.150	0.42
7	49.49	0.175	0.50
8	56.56	0.200	0.59
9	63.63	0.225	0.66
10	70.7	0.250	0.72
11	56.56	0.200	0.70
12	49.49	0.175	0.68
13	35.35	0.125	0.53
14	21.21	0.075	-17.38
15	1.414	0.005	0.16

Table 20: 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	0.16
16	7.07	0.025	0.20
17	14.14	0.050	0.25
18	21.21	0.075	0.32
19	28.28	0.100	0.36
20	35.35	0.125	0.41
21	42.42	0.150	0.45
22	49.49	0.175	0.51
23	56.56	0.200	0.58
24	63.63	0.225	0.71

Table 21: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{0max}) MN/m ²	0.250	0.250
a_0 (mm)	-0.038	0.166
a_1 (mm)/(MN/m ²)	2.871	1.421
a_2 (mm)/(MN ² /m ⁴)	0.869	3.834
$E_v = 1.5 \sigma' (a_1 + a_2 \cdot \sigma_{0max})$	145.71	189.13
E_v2/E_v1	1.30	



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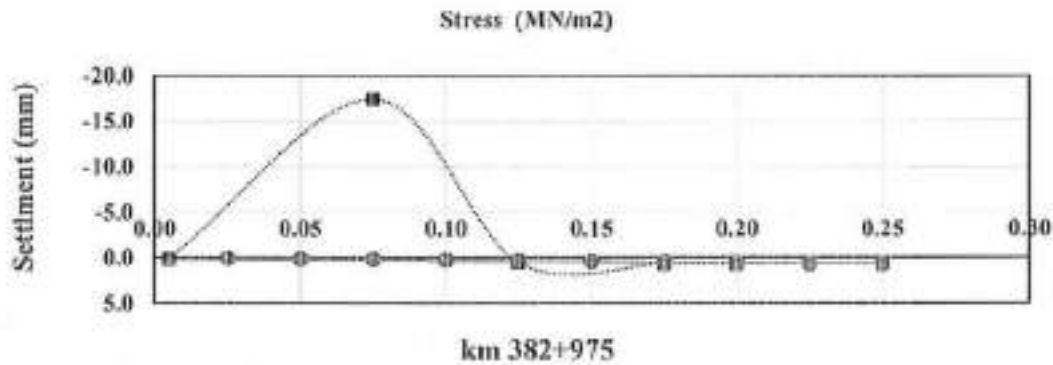


Fig. 7: Load-settlement curve, fitting curves according to Table 19 and Table 20 for the first and second loading cycles

- ⊙ 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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Table 22: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.03
2	14.14	0.050	0.09
3	21.21	0.075	0.15
4	28.28	0.100	0.19
5	35.35	0.125	0.23
6	42.42	0.150	0.29
7	49.49	0.175	0.34
8	56.56	0.200	0.39
9	63.63	0.225	0.43
10	70.7	0.250	0.53
11	56.56	0.200	0.51
12	49.49	0.175	0.49
13	35.35	0.125	0.38
14	21.21	0.075	0.23
15	1.414	0.005	0.14

Table 23: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.14
16	7.07	0.025	0.21
17	14.14	0.050	0.27
18	21.21	0.075	0.31
19	28.28	0.100	0.36
20	35.35	0.125	0.42
21	42.42	0.150	0.46
22	49.49	0.175	0.50
23	56.56	0.200	0.53
24	63.63	0.225	0.57

Table 24: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{n,lim})$ MN/m ²	0.250	0.250
a_0 (mm)	-0.010	0.139
a_1 (mm/(MN/m ²))	1.908	2.577
a_2 (mm/(MN ² /m ⁴))	0.647	-3.051
$E_{av} = 1.5 \sigma' / (a_1 + a_2 \cdot \sigma_{n,lim})$	217.18	247.97
E_{v2}/E_{v1}	1.14	



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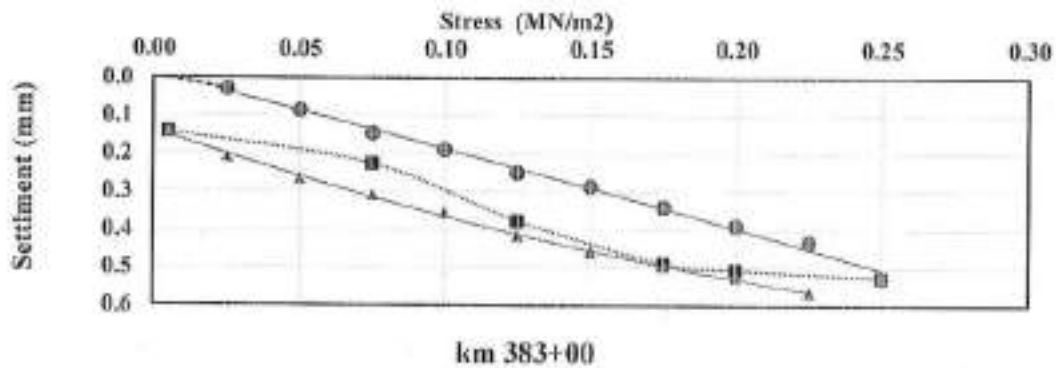


Fig. 8: Load-settlement curve, fitting curves according to Table 22 and Table 23 for the first and second loading cycles

- 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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Conclusions:

The present test results which obtained from the plate loading tests of the native soil Prepared subgrade layer of the electric express train project at location (from km 381+025 to km 381+300) in accordance to the German standard , DIN 18134 are illustrated in table 36.

Table 25 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
382+825	151.39	209.12	1.38
382+850	138.20	215.43	1.56
382+875	176.61	208.01	1.18
382+900	143.30	207.03	1.44
382+925	174.14	217.50	1.25
382+950	167.92	206.35	1.23
382+975	145.71	189.13	1.30
383+00	217.48	247.97	1.14

Lab Director

Eng / Eman Kandil

Eman



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Dr / Mohamed Mostafa Badry

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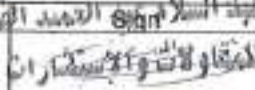
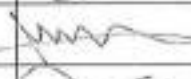
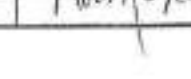
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UNIVERSAL INSPECTION REQUEST																							
RECEIPT of NOTIFICATION-Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown																							
Contractor Company		Abd EL-Salam EL-Feky Contracting Company 2				Designer Company*		(SPECTRUM) Engineering Consulting Office															
Issued by Contractor		Name: <u>Eng. Ahmed Abd-Almonsef</u> Signature: 				Date/Serial Number 27/05/2023 SS-B-AF2 IRSG2(06)		Time 04:00 م															
Received by GARB CONSULTANT		Eng. Moustafa Ryad		Signature: 		UIR		C1 S82		C2 EW		C3 CS		C4 28		C5 05		C6 2023		C7 12		C8 00	
CODE-1		S1 to S21 Station Reference				D1 to D3 Depot Reference				Kp XXX Note For Kilo meter point only Start Km is used													
CODE - 2		Work Activity																					
CODE - 3		Sub Element of Activity																					
EXPLANATION OF WORK TO BE INSPECTED																							
Description				Element				Item															
From St. 382+800 To St. 383+000				Subgrade 2				Subgrade															
INSPECTION DETAILS The Following will be ready at the Planned Inspection Time																							
Planned Inspection Date						Planned Inspection Time																	
COMPLIANCE EVIDENCE Must be included as appropriate																							
Checklist Attached		Test Results Attached				Calibration Attached				Other as indicated													
Drawing Reference		References				MS Reference																	
Plan and Profile REV. 32		MAR (QT SG1) MIR) (SG 04)				-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION2 BY CIVECON GROUP. -TECHNICAL REPORT (CG21-122.1) VERSION 1 BY CIVECON GROUP.																	
Comments by: Eng. Mohamed Khalil (XYZ)																							
1- Attached Master Sheet approved by SPECTRUM																							
Comments by: Eng. Enk. Moustafa Ryad (SPECTRUM)																							
1- تم استلام القطاع فحص بصري 2- تم مراجعة شيت المناسيب																							
Comments by: Eng. Alaa Abd-Allatif (ER)																							
1-coordinates & levels and width checked by GARB consultant																							
INSPECTION RESULT												Approval Status		Please Tick if Not Attend									
Organisation		Name		Sign		Date		Time		A-AWC-R													
Contractor		Eng. Ahmed Abd-Almonsef								A													
XYZ Survey		Eng. Mohamed Khalil								A													
QA/QC*		Eng. Moustafa Ryad								A													
GARB**		Eng. Mohammed Fayad																					
Employers Representative		Eng.								A													

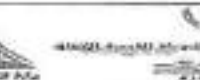
(382+980 To 383+180)

UNIVERSAL INSPECTION REQUEST											
RECEIPT of NOTIFICATION- Minimum Notice Period not less than 24 Hours The Work described below will be complete and ready for inspection at planned time shown											
Contractor Company		Abd EL-Salam EL-Faky Contracting Company 2				Designer Company*		(SPECTRUM) Engineering Consulting Office			
Issued by Contractor		Name		Sign		Date/Serial Number		Time			
		Eng. Ahmed Abd-Almonsef		[Signature]		27/05/2023 IKSG2(06)		4:00 PM			
Received by GARB CONSULTANT		Eng. Moustafa Ryed		[Signature]		UR		382 EW CS 26 05 2023 12 00			
CODE - 1		S1 to S21 Station Reference				D1 to D3 Depot Reference				Kp XXX Note For Kilo meter point only Start Km is used	
CODE - 2		Work Activity									
CODE - 3		Sub Element of Activity									
EXPLANATION OF WORK TO BE INSPECTED											
Description		Element				Item					
From St. 382+000 To St. 383+000		Subgrade 2				Subgrade					
INSPECTION DETAILS The following will be ready at the Planned Inspection Time											
Planned Inspection Date						Planned Inspection Time					
COMPLIANCE EVIDENCE Must be included as appropriate											
Checklist Attached		Test Results Attached				Calibration Attached		Other as indicated			
Drawing Reference		References				MS Reference					
Plan and Profile REV. 32		MAR (QT SG1) MIR) (SG 04)				-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP. -TECHNICAL REPORT (CG21-122.1) VERSION 1 BY CIVECON GROUP.					
Comments by: Eng. Mohamed Khalil (XYZ)											
1- Attached Master Sheet approved by SPECTRUM.											
Comments by: Eng. Eng. Moustafa Ryed (SPECTRUM)											
1- تم استلام القطاع فحص بصري 2- تم مراجعة شيت المساحي											
Comments by: Eng. Alaa Abd-Allah (ER)											
1-coordinates & levels and width checked by GARB consultant 2- (REV. 32 & X-sec./20m) Should Approved from SYSTRA. 3-Final approval is subject to above mentioned comments.											
INSPECTION RESULT						Approval Status		Please Tick if Not Attend			
Organisation	Name	Sign	Date	Time	A-AWC-R						
Contractor	Eng. Ahmed Abd-Almonsef	[Signature]			A						
XYZ Survey	Eng. Mohamed Khalil	[Signature]			A						
QA/QC*	Eng. Moustafa Ryed	[Signature]			A						
GARB**	Eng. Mohammed Fayad	[Signature]									
Employers Representative	Eng.	[Signature]			A W K						

* Designer
File Name : M5-F.1.032

Page 1 of 1

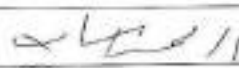
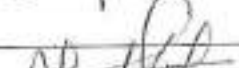
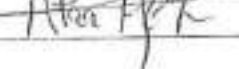
(382+680 TO 383+180)

MATERIAL APPROVAL REQUEST	    	
	جمهورية مصر العربية وزارة النقل والبنى التحتية COA/RB	

Contractor Company	Eng. AbdelElsalam EL Feky For Contracting		Designer Company	(SPECTRUM) Engineering Consulting Office	
Issued by Contractor	Name	Eng. Mohamed Ismael	Date/Serial Number	30/4/2023	
				08:00	
Received by GARB CONSULTANT	Eng. Mazen Essamy	MAR	C1	C2	C3
			382+500	EW	CS
			1	5	23
			8	0	

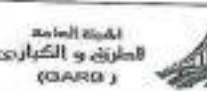
Page 1	D1 to S21	D1 to S3	Rp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Subgrade Layer Total Quantity (5000 m³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (C021-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)		
1-Quality test Result By Third Party lab Comibassal is Approved.	1-All tests were selected for Quality test and were carried-out by Third party lab Comibassal		
2-This Sample Representative (5000 m³) only.	2-Results report attached and acceptable with the project specifications.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB **	Eng. Mervet Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			A

* Design
** Alignment/Drages, Culvert only

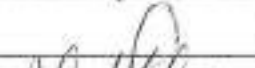
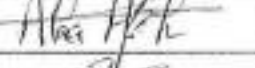
(382+680 To 383+180)

MATERIAL APPROVAL REQUEST	    									
	المملكة العربية السعودية الجمهورية العربية السورية جمهورية مصر العربية الجمهورية الجزائرية الديمقراطية الشعبية الجمهورية التونسية الجمهورية اللبنانية الجمهورية اللبنانية الجمهورية اللبنانية									

Contractor Company	Eng. Abdelsalam EL Eky For Contracting			Designer Company	SPECTRUM Engineering Consulting Office							
Issued by Contractor	Name	Eng. Mohamed Ismael	Sign	Date/Serial Number	30/4/2023							
	Time	8:00										
Received by GARB CONSULTANT	Eng. Mazen Essamy	Sign	Time	OTSS (1)								
	Eng. Mazen Essamy	Sign	Time	OTSS (1)	382+500	EW	CS	1	5	23	8	0

Code	S1 to S21	D1 to S2	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
Work Activity			
Sub Element of Activity			

Description of Materials	Subgrade Layer Total Quantity (5000 m ³)		
Location to be Used	From Station 382+500 to Station (383+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG 23-41.2) VERSION 2 BY CIVICOM GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM) 1-Quality test Result By Third Party lab Cornibassal is Approved. 2-This Sample Representative (5000 m ³) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were selected for Quality test and were carried-out by Third party lab Cornibassal. 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4-Romazin chemical test	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Ismael			A
QA/QC*	Eng. Mazen Essamy			A
GARB**	Eng. Margaret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges/Culvert only

382+680 To 383+180

MATERIAL INSPECTION REQUEST																					

Contractor Company	Eng. Abdulsalam ELFoky For Contracting	Designer Company	(SPECTRUM) Engineering Consulting Office
Issued by Contractor	Name: Eng. Mohamed Ismail	Date/Serial Number	Time
	Eng. Mohamed Ismail	11/6/2023	12:00 PM
		PLT (%)	
Received by GARS CONSULTANT	Eng. Maren Essamy	MIR	
		382+500	EW CS 13 6 23 3 0

CODE-1	S1 to S25	D1 to S3	Ep XXX Note
	Station Reference	Deport Reference	For Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	AT LAYER (SUB BALLAST 2)				
Location to be Used	From	382+500	TO	383+000	
MAR & UIR Approval No	UIR SB (03)	Date		7/6/2023	
	UIR SB (04)			7/6/2023	
	M.A.R.(QT SB 1)			25/5/2023	
Supplier Name					
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA	Specification	EARTHWORK SPECIFICATIONS & TEST LOG REPORT (CS21-41.2) VERSION 2 BR OVERCON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Cornibassal LABORATORY	NUMBER	20	13/6/2023	
2					
3					
4					
Comments by: Eng. Maren Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allatif (ER)		
1-The Plate Load Test Result by third party is Approved.			1-20 Point was carried- out by (Cornibassal) on Sub ballast layer 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 Ismail			A
QA/QC *	Eng. Maren Essamy			A
GARS**	Eng. Margaret Magdy			
Employers Representative	Eng. Alaa Abd-Allatif		2023/6/15	AWC

* Designer

** Alignment/Brigade: Civil only



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

Technical report

of Plate Loading Test (DIN 18134)

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Subballast layer (2)
Station	:	St(382+525)to st(382+750)
Date of Test	:	13/06/2023
QC	:	1408



COMIBASSAL International Controllers

Internal inspection and laboratories sector

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



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Tel: 002 03 4704595 - 002 034701191
Email : civdep@comibassal.com
WebSite : www.comibassal.com



49 El Horria Ave. Alex, Egypt
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Email : internal-inspection@comibassal.com



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Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

St(382+525) KM

600

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

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.05
2	14.14	0.050	0.10
3	21.21	0.075	0.17
4	28.28	0.100	0.23
5	35.35	0.125	0.29
6	42.42	0.150	0.37
7	49.49	0.175	0.44
8	56.56	0.200	0.51
9	63.63	0.225	0.56
10	70.7	0.250	0.62
11	56.56	0.200	0.61
12	49.49	0.175	0.58
13	35.35	0.125	0.42
14	21.21	0.075	0.30
15	1.414	0.005	0.13

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.13
16	7.07	0.025	0.15
17	14.14	0.050	0.22
18	21.21	0.075	0.33
19	28.28	0.100	0.40
20	35.35	0.125	0.47
21	42.42	0.150	0.53
22	49.49	0.175	0.59
23	56.56	0.200	0.64
24	63.63	0.225	0.70

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{n,max})$ MN/m ²	0.250	0.250
a_0 (mm)	-0.028	0.116
a_1 (mm/(MN/m ²))	2.643	3.089
a_2 (mm/(MN ² /m ⁴))	-0.202	-2.251
$E = 1.5 \pi (a_1^2 + a_2 \sigma_{n,max})$	173.58	178.12
E_{avg}	1.63	



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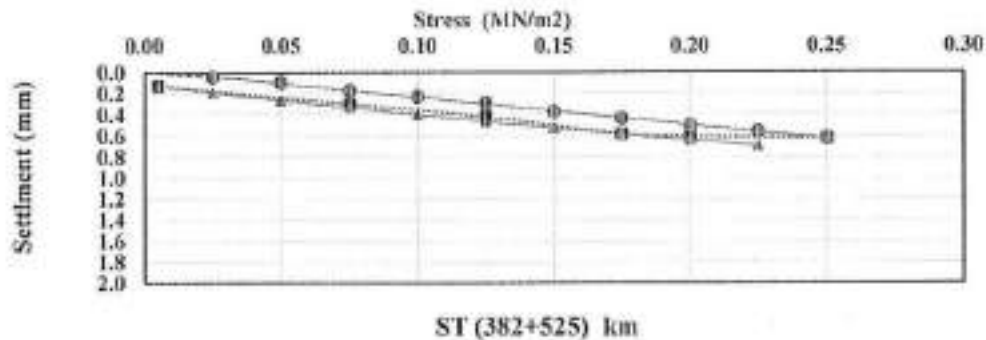


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- 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_v Normal stress MN/m²



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المنطقة الخامسة - (غرب الدلتا)

السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة.. وبعد،،

بالإحالة إلى مشروع القطار السريع (العين السخنه- العاصمة الإدارية - برج العرب
مرسى مطروح)
برجاء التفضل بالموافقة على المقايسة المرفقة المعدلة عقد رقم 2024/2023/1018:-
أولاً : القطاع الخامس (برج العرب / العلمين) :

م	المسافة		الطول (كم)	الشركة	التكلفة (مليون)
	من	إلى			
1	382+500	383+000	0.5	شركة ابناء عبدالسلام الفقي	5992000

برجاء من سيادتكم التفضل بالأحاطه والتوجيه بالازم

وتفضلوا بقبول فائق الاحترام والتقدير،،

رئيس الإدارة المركزية

المنطقة الخامسة- غرب الدلتا

عبد مهندس/

"فأني محب محبوني"



مشروع القطار الكهربائي فائق السرعة قطاع (برج العرب - العميد)

مقاييسه بتود اعمال الجسر الترابي و طبقات الاساس تنفيذ شركة ابناء عبدالسلام الفقي

القطاع من المحطة 382+500 الى 383+000 بطول 500 متر

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الوحدة	الإجمالي
3	اصال الردم				
3-1	بالمتر المكعب اصال توريد وتشغيل اترية صالحة للردم و مطابقة للمواصفات والتشغيل باستخدام المعدات بسمك لا يزيد عن 50 سم حتى مشوب 2 متر و بسمك لا يزيد عن 25 سم لاستكمال المشوب التصميمي لتشكيل الجسر والاكتاف (نسبة تحمل كاليفورنيا لا تقل عن 15%) و رشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى أقصى كثافة جافة (95 % من الكثافة الجافة القصوى) ويتم التنفيذ طبقا للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المتعددة والبند بجميع مشتملاته طبقا لاصول الصناعة ومواصفات الهيئة العامة للطرق والكباري وتعليمات المهندسين المشرفين. - مسافة النقل 2 كم - يتم احتساب علاوة 1.5 اجنيه لكل 1 كم بالزيادة او النقصان - السعر يشمل عمل تشوينات وتخليط واختيارات ونقل لموقع العمل حتى مسافة 2 كم - السعر يشمل قيمة المادة المحجورة				
	السعر خلال شهر ابريل 2023 طبقا للمفاضلة بتاريخ 18/12/2023	3م	1637.2	100.90	165,193.48
	السعر خلال شهر مايو 2023 طبقا للمفاضلة بتاريخ 18/12/2023	3م	5862.8	101.40	594,487.92
	علاوة مسافة نقل اقترية طبقا للمفاضلة بتاريخ 18/12/2023 لمسافة 120 كم = 1.5*118 = 177 جنيه	3م	6000.00	177.00	1,062,000.00
	علاوة مسافة نقل الترمل طبقا للمفاضلة بتاريخ 18/12/2023 لمسافة 73 كم = 1.5*71 = 106.5 جنيه	3م	1500.00	106.50	159,750.00
	علاوة تحميل رسوم الكرامة والموازين طبقا للائحة الشركة الوطنية	3م	7,500.00	13.00	97,500.00

مدير مشروع ذات الهيئة

باسم مدير مشروع

مدير المشروع

م / اماريت مولي زاهر

مدير المشروع



مدير المشروع

م / احمد عبدالمنعم

شركة ابناء
عبد السلام عبد العميد الفقي وشركاه
مقاييسه وتنشيطات الهندسة

[illegible]

مشروع : القطار الكهربائي السريع (عين السخنة - العاصمة الادارية - العلمين - مطروح) قطاع غرب النيل في المسافة من الكم 500+382 الى الكم 383+000 بطول 0.5 كيلو متر .

رقم البلد وبينة (3-1): بالمر الشطب العمل توريد وتداول التربة مسكلة الترمم ومعالجة التلويحات والتشغيل باستخدام المعدات بسك لا يزيد على 50 سم حتى متسوب 2 متر و بسك لا يزيد عن 25 سم استبدال المتسوب التسمي لتشكل الجسر والاقطاف (تربة تدمل كالبورتيا لا تقل عن 15%) و رشها بالنهاه الاسفلتيه للوصول الي نسبة الرطوبة المطلوبة والتمك الجيد بطراست للوصول الي أقصى كثافة جافة (95% من كثافة الجافة القصوى) ويتم تنفيذ طبقة التماسيب التسميية والطاقل الفرعية التماسيبية والرسومات التسميية المعتمدة والتمد بجميع مشكلاته طبقة للوصول لشحاعة ومواصلات الهيبة العامة للقطر والكباري وتطبيقات المهندس المشرف
- مسافة التقل 2 كم
- حتم احتساب عاكس 1.5 جنيه لكل 1 كم بالزيادة او التخصا
- السعر يشمل عمل نشويات وتخليط والمخرات ونقل لموقع العمل على مسافة 2 كم
- السعر يشمل قيمة المادة المعمورة
(طبقة لتريكوستات المنلدة في شهر ابريل)

تسقيف : شركة عيد السلام الفني للمقاولات العامة و الاستشارات الهندسية								
مقدار العمل السابق :				0.0	3م	كمية المقايضة	1637.2	3م
بيان الاعمال بالمقايضة	رقم الطلب	الموقع الكيلومتری		تاریخ	الابعاد (متر)		الكمية	
		من	الى		الطلب	طول		مساحة المقطع
بالمر الشطب العمل توريد وتداول التربة مسكلة الترمم ومعالجة التلويحات والتشغيل باستخدام المعدات بسك لا يزيد على 50 سم حتى متسوب 2 متر و بسك لا يزيد عن 25 سم استبدال المتسوب التسمي لتشكل الجسر والاقطاف (تربة تدمل كالبورتيا لا تقل عن 15%) و رشها بالنهاه الاسفلتيه للوصول الي نسبة الرطوبة المطلوبة والتمك الجيد بطراست للوصول الي أقصى كثافة جافة (95% من كثافة الجافة القصوى) ويتم تنفيذ طبقة التماسيب التسميية والطاقل الفرعية التماسيبية والرسومات التسميية المعتمدة والتمد بجميع مشكلاته طبقة للوصول لشحاعة ومواصلات الهيبة العامة للقطر والكباري وتطبيقات المهندس المشرف - مسافة التقل 2 كم - حتم احتساب عاكس 1.5 جنيه لكل 1 كم بالزيادة او التخصا - السعر يشمل عمل نشويات وتخليط والمخرات ونقل لموقع العمل على مسافة 2 كم - السعر يشمل قيمة المادة المعمورة (طبقة لتريكوستات المنلدة في شهر ابريل)	IR F 01	382+500	382+680	5/4/2023	180.00	5.83	1053.00	
	IR F 02	382+680	382+780	11/4/2023	100.00	5.84	584.80	
اجمال الكميات خلال فترة التسقيف الحالية (3م)								1637.00
الاجمال الكلى (م ³)								1637.00

مهندس الهيئة
م / مارجريت مجدي



مهندس الشركة
شركة عيد السلام الفني
محمد عبد المنعم

شركة ابنشاء

كعبة السلام عيد العبد الفنى وشركاه
للمقاولات والاستشارات الهندسية

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : القطار الكهربائي السريع (العين السخنة -العاصمة الإدارية -العلمين -مطروح) قطاع غرب النيل في المسافة من الكم 382+500 إلى الكم 383+000 بطول 0.5 كيلو متر .

(رقم البند وبيان (1-3): بالمتر المكعب العمل لوريد وتشغيل التربة صالحة للزرم و مطابقة للمواصفات والاشتراطات باستعمال المعدات بسمك لا يزيد عن 50 سم حتى يتسوي 2 متر و بسمك لا يزيد عن 25 سم لاستكمال التسوية القصوى لتشغيل الجسر والاقطاب (نسبة تحمل قاطور لا تقل عن 95%) و رصفها بالبناء الاسفلتي للوصول الى نسبة خرطوية المطلوبة وكذلك الجهد بالترانس كورسول الى أقصى شذوذة (95% من الشذوذة المخططه المصوره) ويتم التقلية طبقا لتسليم التصميمية والقطاعات الفرعية المتواجدة والاشتراطات التفصيلية المتعددة وشدة بجميع مشكلات طبقا للوصول الصالحة وسواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف.

- مسافة النقل 2 كم

- يتم احساب علوة 1.5م فيه نقل 1 كم بالزيادة او نقصان

- السعر يشمل عمل تشوينات وتخليط واختارات ونقل امواع العمل حتى مسافة 2 كم

- السعر يشمل قيمة المادة المعهجرة

(طبقا للميكروبيستات المتخذة في شهر مايو)

تسفيد : شركة عبد السلام الفني للمقاولات العامة و الاستشارات الهندسية									
مقدار العمل السابق :		0.0	3م	كمية المقايضة	5862.8	3م			
بيان الاعمال بالمقايضة	رقم الطلب	الموقع الكيلومتری		تاريخ	الابعاد (متر)		الكمية		
		من	الى		طول	مساحة المقطع			
بالمتر المكعب العمل لوريد وتشغيل التربة صالحة للزرم و مطابقة للمواصفات والاشتراطات باستعمال المعدات بسمك لا يزيد عن 50 سم حتى يتسوي 2 متر و بسمك لا يزيد عن 25 سم لاستكمال التسوية القصوى لتشغيل الجسر والاقطاب (نسبة تحمل قاطور لا تقل عن 95%) و رصفها بالبناء الاسفلتي للوصول الى نسبة خرطوية المطلوبة وكذلك الجهد بالترانس كورسول الى أقصى شذوذة (95% من الشذوذة المخططه المصوره) ويتم التقلية طبقا لتسليم التصميمية والقطاعات الفرعية المتواجدة والاشتراطات التفصيلية المتعددة وشدة بجميع مشكلات طبقا للوصول الصالحة وسواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف.	IR F 03	382+500	382+680	1/5/2023	180.00	5.20	936.00		
	IR F 04	382+680	382+780	1/5/2023	100.00	4.88	488.00		
	IR F 05	382+780	383+000	3/5/2023	220.60	5.97	1333.40		
	IR F 06	382+780	383+000	9/5/2023	220.00	5.73	1260.60		
اجمالي الكميات خلال فترة المستخلص الحالية (م3)							3998.00		
الاجمالي الكلي (م3)							3998.00		

مهندس الهيئة
م / مازن حريت مجدي



مهندس الشركة
(شركة عبد السلام الفني)
أ. م. محمد عبد الوهاب

مجلس إدارة
مجلس إدارة
مجلس إدارة

مشروع : القطار الكهربائي السريع (العين السخنة -العاصمة الإدارية -العلمين -حطرون) قطاع غرب النيل في المسافة من الكم 382+500 الى الكم 383+000 بطول 0.5 كيلو متر .

رقم الهند وبيانة (3-1) : بالمتر المكعب امداد لوردد وتشغيل الرية صالحة للردم و معاقبة للمواصلات والتشغيل باستخدام المعدات بسلك لا يزيد عن 50 سم حتى ماسدوب 2 متر و بسلك لا يزيد عن 25 سم لاستكمال الماسدوب التصميبي لتشكيل الجسر والاكتاف (نسبة تحمل كاتيلونيا لا تقل عن 15%) و رشها بالبناء الاسفلتي للوصول الى نسبة الرطوبة المطلوبة والتمك الجيد بالهريسات للوصول الى النسب كتلة جافة (95% من الكتلة الجافة التصوي) ويتم التنفيذ طبقا للمسابد التصميمية والاطاعات العرضية النموذجية والرسومات التنفيذية المعتمدة والبيد بجميع مشتتات طبقا لاصول الصناعة ومواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف. - مسافة النقل 2 كم - يتم احتساب علاوة 1.5 جنيه لكل 1 كم بالزيادة او النقصان. - السعر يشمل عمل لتقنيات وتخليط واختبارات ونقل مواقع العمل حتى مسافة 2 كم - السعر يشمل ازمة المادة المحجوزة

(علاوة مسافة النقل للرية بسمية 80 % من الكمية الكلية) 120 كم (المسافة الكلية) - 2 كم (المحمل على البند) 1.5* (118*177 =

تسفيد : شركة عبد السلام الفقي للمقاولات العامة والاستشارات الهندسية						
مقدار العمل السابق :						
بيان الاعمال بالمقاييس	رقم الطلب	الموقع الكيلومري		تاريخ	كمية المقاييس	
		من	الى		الابعاد (متر)	مساحة المقطع * 0.8
		الطلب	الطلب		طول	
بالتر الطلب امداد لوردد وتشغيل الرية صالحة للردم و معاقبة للمواصلات والتشغيل باستخدام المعدات بسلك لا يزيد عن 50 سم حتى ماسدوب 2 متر و بسلك لا يزيد عن 25 سم بالتر الطلب امداد لوردد وتشغيل الرية صالحة للردم و معاقبة للمواصلات والتشغيل باستخدام المعدات بسلك لا يزيد عن 50 سم حتى ماسدوب 2 متر و بسلك لا يزيد عن 25 سم (15%) و رملها بكمية (الموصلة) لعمودين الى تسية بطرية معقودة وبقية البقية بكمية (الموصلة) لعمودين الى تسية بطرية (25% من 10000 اليه) (الموصلة) وبقية البقية بكمية (الموصلة) لعمودين الى تسية بطرية (						

مهندس الهيئة

م / مارجريت مجدي

مهندس الاستشاري
مكتب د/ عماد توبل



مهندس الشركة
(شركة عبد السلام الفقي)

أ. محمد عبد الحفيظ

شركة ابناء
شركة السلام عبد الحفيظ الفقي وشركاه
للمقاولات والاستشارات الهندسية

مشروع : القطار الكهربائي السريع (عين السخنة - العاصمة الإدارية - العلمين - مطروح) قطاع غرب النيل في المسافة من الكم 500+382 الى الكم 000+383 بطول 0.5 كيلو متر .

رقم الهند ورشة (1-3) : بالمر المكعب اجمال لوردد وتشغيل الرية صالحة الريم و معالجة للمواصفات وتشغيل باستخدام المعدات بسعة لا يزيد عن 50 سم حتى ملسوب 2 متر و يسمل لا يزيد عن 25 سم لاستكمال الملسوب مقلقة لعمق السطوح وتشغيل باستخدام المعدات بسعة لا يزيد عن 50 سم حتى ملسوب 2 متر و يسمل لا يزيد عن 25 سم لاستكمال الملسوب
التصميم لتشكيل الجسر والاكتاف (سبة تحمل كابلوردا لا تقل عن 15% و ريشا والبراء الاسوية للوصول الى نسبة الرطوبة المطلوبة والتمكك الجيد بالهريسات للوصول الى الصل كفاءة جافة (95% من 1250 لة الجافة القصوى) ويتم التنفيذ طبقا للمناسيب التصميمية والقطاعات العرضية التوافقية والرسومات التنفيذية المعتمدة والبيد يجمع مشكلاته طبقا لاسوان الصيانة ومواصفات الهيئة العامة للمطرق والكباري وتعليمات المهندس المشرف. (مسافة التتال 2 كم يتم احتساب علاوة 1.5 جنيه لكل 1 كم بالزيادة او النقصان) - السعر يشمل حيل لتوريدات وتعليط واختبارات ونقل الموقع العمل حتى مسافة 2 كم () - السعر يشمل قيمة المادة المحصورة

(علاوة مسافة النقل للزمام بأسية 20% من الكمية الكلية) 73 كم (المسافة الكلية) - 2 كم (المحمل على الهند) 1.5* (لكل كم) 71*3.5 = 108.5

تسقيط : شركة عيد السلام الفني للمقاولات العامة والاستشارات الهندسية						
مقدار العمل السابق :						
الكمية	الموقع الكيلومتر		رقم الطلب	بيان الأعمال بالمقاييس		
	من	الى		تاريخ الطلب	مساحة المقطع * 0.80	1500
210.60	382+500	382+680	IR F 01	5/4/2023	1.17	180.00
116.80	382+680	382+780	IR F 02	11/4/2023	1.17	106.00
187.20	382+500	382+680	IR F 03	1/5/2023	1.04	183.00
97.60	382+680	382+780	IR F 04	1/5/2023	0.98	100.00
262.68	382+780	383+000	IR F 05	3/5/2023	1.15	220.00
252.12	382+780	383+000	IR F 06	9/5/2023	1.15	220.00
1127.0	اجمالي الكميات خلال فترة المستخلص الحالية (3م)					
1127.00	الاجمالي الكلي (م)					

مهندس الهيئة
م / ماز جويث مجدي



مهندس الشركة
شركة عيد السلام الفني

شركة عيد السلام الفني
مشاريع القطار السريع

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : القطار الكهربائي السريع (العين السخنة -العاصمة الادارية -العلمين -مطروح) قطاع غرب النيل في المسافة من الكم 382+500 الى الكم 383+000 بطول 0.5 كيلو متر .

رقم الهند وبنية (1-3): بالامر المكسب اعمال توريد وتشغيل اerie متصلة للردم و مطابقة المواصفات وتشغيل واستخدام المعدات بسلك لا يزيد عن 50 سم حتى منسوب 2 متر و بسلك لا يزيد عن 25 سم لاستكمال المنسوب التصميمي لتشكيل الجسر والاكتاف (نسبة تحمل كاتيلونيا لا تقل عن 15%) و بنائها بالبناء الاصولية للوصول الى نسبة الرطوبة المطلوبة والتمكك الجيد بالهزسات للوصول الى العن كتافة جافة (95% من الكثافة الجافة القصوى) ويتم التنفيذ طبقا للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة واليبدأ بجميع مستحلاتة طبقا لاسول الصيانة ومواصفات الهيئة العامة للمطرق والكباري وتعليمات المهندس المشرف. (3 مسافة النقل 2 كم (يتم احتساب علاوة 1.5 جنيه لكل 1 كم بالزيادة او النقصان). السعر يشمل عمل تشويبات وتخطيط واختبارات ونقل لموقع العمل حتى مسافة 2 كم - السعر يشمل قيمة المادة المعجربة

(علاوة تحصيل ر سوم الكارثة والموازين طبقا للائحة الشركة الوطنية) 13 جنيه للمتر

تنفيذ : شركة عيد السلام القفي للمقاولات العامة و الاستشارات الهندسية

الكمية	مقدار العمل السابق :		0.00		3م		كسبة المقايسة		7500	
	بيان الاعمال بالمقايسة		الموقع الكيلومترى		الابعاد (متر)		تاريخ الطلب		مساحة المقطع	
رقم الطلب	من	الى	طول	189.00	5/4/2023	5.85	1053.00	IR F 01	382+500	382+680
IR F 02	382+680	382+780	11/4/2023	100.00	5.84	584.00	IR F 03	382+500	382+680	1/5/2023
IR F 04	382+680	382+780	1/5/2023	100.00	4.88	488.00	IR F 05	382+780	383+000	3/5/2023
IR F 06	382+780	383+000	9/5/2023	220.00	5.73	1260.00	اجمالي الكميات خلال فترة المستخلص الحالية (3م)			
				5635.00				الاجمالي الكسبي (م)		
				5635.00						

مهندس الهيئة
م / ماجريت مجدي



مهندس الشركة
شركة عيد السلام القفي

المقاولات والاستشارات الهندسية
شركة عيد السلام القفي وشركاه

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : القطار الكهربائي السريع (العين السخنة - العاصمة الادارية - العلمين - مطروح) قطاع غرب النيل في المسافة من الكم 382+500 الى الكم 383+000 بطول 0.5 كيلو متر .

بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والقصى حجم للحبيبات 100 مم والا تزيد نسبة العار من متخل 200 عن 12 % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاتيفورتيا عن 25 % والا تزيد نسبة الغالف بجهز لوس الجيوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال و يتم فرداها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى القصى كثافة جافة قصوي (لا تقل عن 95 %) من الكثافة المعملية والفترة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف

مسافة النقل لا تقل عن 20 كم
- يتم احتساب علاوة 1.3 جنيه لكل 1 كم بالزيادة او النقصان
(طبقا لريكوستنت خلال شهر مايو)

تنفيذ : شركة أبناء عبدالسلام الفقي للمقاولات والاستشارات الهندسية

كمية المقايسة (م3) :		5,500.00		مقدار العمل السابق (م3) :		0.00	
البند	طلب الفحص	المسافة الكيلومترية		تاريخ الطلب	الطول	مساحة المقطع	الكمية
		من الكم	الى الكم				
بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والقصى حجم للحبيبات 100 مم والا تزيد نسبة العار من متخل 200 عن 12 % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاتيفورتيا عن 25 % والا تزيد نسبة الغالف بجهز لوس الجيوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال و يتم فرداها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى القصى كثافة جافة قصوي (لا تقل عن 95 %) من الكثافة المعملية والفترة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف	IR SG 01	382+500	382+700	13-5-2023	200.0	4.12	824.00
بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والقصى حجم للحبيبات 100 مم والا تزيد نسبة العار من متخل 200 عن 12 % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاتيفورتيا عن 25 % والا تزيد نسبة الغالف بجهز لوس الجيوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال و يتم فرداها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى القصى كثافة جافة قصوي (لا تقل عن 95 %) من الكثافة المعملية والفترة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف	IR SG 02	382+700	382+800	16-5-2023	100.0	4.12	412.00
بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والقصى حجم للحبيبات 100 مم والا تزيد نسبة العار من متخل 200 عن 12 % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاتيفورتيا عن 25 % والا تزيد نسبة الغالف بجهز لوس الجيوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال و يتم فرداها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى القصى كثافة جافة قصوي (لا تقل عن 95 %) من الكثافة المعملية والفترة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف	IR SG 03	382+500	382+700	22-5-2023	200.0	3.92	784.00
بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والقصى حجم للحبيبات 100 مم والا تزيد نسبة العار من متخل 200 عن 12 % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاتيفورتيا عن 25 % والا تزيد نسبة الغالف بجهز لوس الجيوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال و يتم فرداها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى القصى كثافة جافة قصوي (لا تقل عن 95 %) من الكثافة المعملية والفترة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف	IR SG 04	382+800	383+000	23-5-2023	200.0	4.12	824.00
بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والقصى حجم للحبيبات 100 مم والا تزيد نسبة العار من متخل 200 عن 12 % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاتيفورتيا عن 25 % والا تزيد نسبة الغالف بجهز لوس الجيوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال و يتم فرداها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى القصى كثافة جافة قصوي (لا تقل عن 95 %) من الكثافة المعملية والفترة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف	IR SG 05	382+700	382+800	23-5-2023	100.0	3.92	392.00
بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والقصى حجم للحبيبات 100 مم والا تزيد نسبة العار من متخل 200 عن 12 % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاتيفورتيا عن 25 % والا تزيد نسبة الغالف بجهز لوس الجيوس عن 30 % والا يزيد الامتصاص عن 15 % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال و يتم فرداها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى القصى كثافة جافة قصوي (لا تقل عن 95 %) من الكثافة المعملية والفترة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف	IR SG 06	382+800	383+000	28-5-2023	200.0	3.91	782.00
الاجمالي (م3) :							
4,018.00							

مهندس الهيئة
م / مارجريت مجدي



مهندس الشركة
(شركة عبدالسلام الفقي)
عبد السلام عبد الحميد الفقي وشركاه
مهندسة استشارات الهندسية



قائمة الكميات الواردة بالمستخلص جاري (١)

مشروع : القطار الكهربائي السريع (العين السخنة - العاصمة الإدارية - العلمين - مطروح) قطاع غرب النيل في المسافة من الكم ٥٠٠+٣٨٢ الى الكم ٠٠٠+٣٨٢ بطول ٠,٥ كيلو متر .

رقم البند و بيانه : (١٠٥) بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات المادة ١٦١ جنية للمتر
تسفيد : شركة ابناء عبدالسلام الفني للمقاولات والاستشارات الهندسية

كمية المقايسة (م³) :		5,500.00		مقدار العمل السابق (م³) :		0.00	
البند	طلب الفحص	المسافة الكيلومترية		تاريخ الطلب	الطول	مساحة المقطع	الكمية
		من الكم	الى الكم				
بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات واتمى حجم الحبيبات ١٠٠ مم والا تزيد نسبة المار من متخل ٢٠٠ عن ١٢ % والا تزيد نسبة المار بالاشراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن ٢٥ % والا تزيد نسبة الفاقد بجهاز لوس انجلوس عن ٢٠ % والا يزيد الامتصاص عن ١٥ % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ٨٠ ميجانيسكال ويتم فردها على طبقتين باستخدام الات التسوية الحديثة علي ان لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٥ سم و رشها بالمياه الاصولية للوصول الي نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الي طمي كثافة جافة قصوي (لا تقل عن ٩٥ %) من الكثافة المعملية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصياغة والرسومات التفصيلية المعتمدة والبند يجمع مشتعلاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندسي المشرف [مسافة النقل لا تقل عن ٢٠ كم] يتم احتساب علاوة ١,٣ جنيه لكل ا كم بالزيادة او النقصان	IR SG 01	382+500	382+700	13-5-2023	200.0	4.12	824.00
	IR SG 02	382+700	382+800	16-5-2023	100.0	4.12	412.00
	IR SG 03	382+500	382+700	22-5-2023	200.0	3.92	784.00
	IR SG 04	382+800	383+000	23-5-2023	200.0	4.12	824.00
	IR SG 05	382+700	382+800	23-5-2023	100.0	3.92	392.00
	IR SG 06	382+800	383+000	28-5-2023	200.0	3.91	782.00
الاجمالي الكلي (م³)							
4,018.00							

مهندس الهيئة
م / مارجريت مجدي



مهندس الاستشاري



مهندس الشركة
شركة عبدالسلام الفني
عبد السلام عبد الحميد للفنن وشركاه
للمقاولات والاستشارات الهندسية

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : القطار الكهربائي السريع (العين السخنة - العاصمة الادارية - العلمين - مطروح) قطاع غرب النيل في المسافة من الكم 500+382 الى الكم 000+383 بطول 0.5 كيلو متر .

رقم البند و بيانه : (1-5) بالمتر المكعب اعمال توريد وفرش طبقة تاسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات علاوة نقل السن لمسافة 100 كم = 100 (المسافة الكلية من المحجر للموقع) - 20 كم (المحمل على البند) = 1.20* 80 = 1.3* 104 جنية

تسليفت : شركة أبناء عبدالسلام الفقي للمقاولات والاستشارات الهندسية

0.00

مقدار العمل السابق (م3) :

5,500.00

كمية المقايسة (م3) :

البتد	طلب الفحص	المسافة الكيلومترية		تاريخ الطلب	الطول	مساحة المقطع	الكمية
		من الكم	الى الكم				
IR SG 01		382+500	382+700	13-5-2023	200.0	4.12	824.00
IR SG 02		382+700	382+800	16-5-2023	100.0	4.12	412.00
IR SG 03		382+500	382+700	22-5-2023	200.0	3.92	784.00
IR SG 04		382+800	383+000	23-5-2023	200.0	4.12	824.00
IR SG 05		382+700	382+800	23-5-2023	100.0	3.92	392.00
IR SG 06		382+800	383+000	28-5-2023	200.0	3.91	782.00
الإجمالي (كم3)							4,018.00

مهندس الهيئة
م / مارجريت مجدي



مهندس الاستشاري
مكتب 192
م / محمد خليل
مشروع القطار الكهربائي السريع

مهندس الشركة
(شركة عبدالسلام الفقي)

شركة أبناء
عبدالسلام الفقي وشركاه
مستشاراة الهندسية

قائمة الكميات الواردة بالمستخلص جاري (١)

مشروع : القطار الكهربائي السريع (العين السخنة - العاصمة الادارية - العلمين - مطروح) قطاع غرب النيل في المسافة من الكم ٣٨٢+٥٠٠ الى الكم ٣٨٣+٠٠٠ بطول ٠,٥ كيلو متر .

رقم البند و بيانه : (١٠٥) بالمتر المكعب اتعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات علاوة كارتة تحصيل رسوم وموازين الشركة الوطنية ٢٥ جنية للمتر

تنفيذ : شركة ابناء عبدالسلام الفني للمقاولات والاستشارات الهندسية

0.00

مقدار العمل السابق (م) :

5,500.00

كمية المقايضة (م) :

البند	طلب الفحص	المسافة الكيلومترية		تاريخ الطلب	الطول	مساحة المقطع	الكمية
		من الكم	الى الكم				
IR SG 01		382+500	382+700	13-5-2023	200.0	4.12	824.00
IR SG 02		382+700	382+800	16-5-2023	100.0	4.12	412.00
IR SG 03		382+500	382+700	22-5-2023	200.0	3.92	784.00
IR SG 04		382+800	383+000	23-5-2023	200.0	4.12	824.00
IR SG 05		382+700	382+800	23-5-2023	100.0	3.92	392.00
IR SG 06		382+800	383+000	28-5-2023	200.0	3.91	782.00
الاجمالي الكمي (م)							4,018.00

مهندس الهيئة
م / مارجريت مجدي



مهندس الشركة
(شركة عبدالسلام الفني)
عبد السلام عبد الحميد الفني وشركاه
للمقاولات والاستشارات الهندسية

١٥
شركة أبناء
عبد الحميد الفتي وشركاه
بمزايا الهندسة



قائمة كمية الأعمال الواردة بالمستخلص الجاري ١٠

رقم البند و بيانه : (٢٠٥) بالمتر المكعب العمل توريد وفرش طبقة تأسيس (Subballast) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات المادة المحجيرة ١٧٥ جنية للمتر

تسفيد : شركة ابناء عبدالسلام الفقي للمقاولات والاستشارات الهندسية

كمية المقايضة (م٣) : 3,322.79 مقدار العمل السابق (م٣) : 0.00

البند	طلب الفحص	المسافة الكيلومترية		تاريخ الطلب	الطول	مساحة المقطع	الكمية
		من الكم	الى الكم				
IR SB 01		382+500	382+800	31-5-2023	300	2.99	897.000
IR SB 02		382+800	383+000	06/04/2023	200	2.99	598.000
IR SB 03		382+500	382+800	06/07/2023	300	2.88	864.000
IR SB 04		382+8000	383+000	06/07/2023	200	2.84	568.000
الاجمالي الكلي (م٣)							2,927.00

مهندس الشركة
(شركة عبدالسلام الفقي)
م / محمد خليل
م / مارجريت مجدي

مهندس الاستشاري
مكتب XYZ
م / محمد خليل



مهندس الهيئة
م / مارجريت مجدي



قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : القطار الكهربائي السريع (العين السخنة - العاصمة الادارية - العلمين - مطروح) قطاع غرب النيل في المسافة من الكم 500+382 الى الكم 000+383 بطول 0.5 كيلو متر .

رقم البلد و بيانه : (2-5) بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (Subballast) من الاحجار الصلبة المترجرة ناتج تكسير الكسارات والمطابقة للمواصفات علاوة نقل السن لمسافة 100 كم = 100 (المسافة الكلية من المحجر للموقع) - 20 كم (المحمل على البند) (1.3* 104 = 1.3*80 = 104 جنيه

تسليم : شركة أبناء عبدالسلام الفلي للمقاولات والاستشارات الهندسية

0.00

مقدار العمل السابق (3م) :

3,322.79

كمية المقايسة (3م) :

الكمية	مساحة المقطع	الطول	تاريخ الطلب	المسافة الكيلومترية		طلب الفحص	البند
				الى الكم	من الكم		
897.000	2.99	300	31-5-2023	382+800	382+500	IR SB 01	المتر المكعب أعمال توريد وفرش طبقة أساس من الاحجار الصلبة المترجرة ناتج تكسير الكسارات والمطابقة للمواصفات والحجم المحببات ما بين 31.5 مم الى 40 مم والا يزيد نسبة المار من منخل 200 عن 5% والتدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 80 % والا يقل معامل المرونة (E_{v2}) من تجربة لوح التحميل عن 120 ميجاباسكال والا يزيد نسبة الفاقد بجهاز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15 % ويتم فردها علي طبقتين باستخدام الات التسوية الحديلة علي ان لا يزيد سمك الطبقة بعد تمام الدمك عن 20 سم و رشها بالعباء الاصولية للوصول الي نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الي أقصى كثافة جافة قصوي (لا يقل عن 100% من الكثافة المعملية و الفنة تشمل اجراء التجارب المعملية والتحقيقية ويتم تنفيذ طبقا لاصول المصناعة والرسومات التفصيلية المعتمدة والبلد بجميع مستملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف . مسافة النقل لا تقل 20 كم , يتم احتساب علاوة 1.3 جنيه لكل 1 كم بالزيادة , السعر لا يشمل قيمة المواد المحجيرة
598.000	2.99	200	4/6/2023	383+000	382+800	IR SB 02	
864.000	2.88	300	7/6/2023	382+800	382+500	IR SB 03	
568.000	2.84	200	7/6/2023	383+000	382+8000	IR SB 04	
2,927.00							

الاجمالي فكي (3م)

مهندس الهيئة
م / مارجريت مجدي



مهندس الشركة
(شركة عبدالسلام الفلي)

شركة أبناء
عبدالسلام عبد الحميد الفلي وشركاه
للمقاولات والهندسة



قائمة كمية الأعمال الواردة بالمستخلص الجاري-١

رقم البند و بيانه : (٢٠٥) بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (Subballast) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات علاوة كارتة تحصيل رسوم وموازين الشركة الوطنية ٢٥ جنية للمتر

تنفيذ : شركة ابناء عبدالسلام الفقي للمقاولات والاستشارات الهندسية

0.00

مقدار العمل السابق (م٣) :

3,322.79

كمية المقايضة (م٣) :

الكمية	مساحة المقطع	الطول	تاريخ الطلب	المسافة الكيلومترية		طلب الفحص	البند
				من الكم	الى الكم		
897.000	2.99	300	31-5-2023	382+800	382+500	IR SB 01	المر المكعب اعمال توريد وفرش طبقة اساس من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات والقصى حجم للحبيبات ما بين ٢١,٥ مم الى ٤٠ مم والا يزيد نسبة المار من ماخل ٢٠٠ عن ٥٥% والتدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن ٨٠% والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ١٢٠ ميجانيسكال والا يزيد نسبة الفاقد بجهاز لوس الجلوس عن ٣٠% والا يزيد الانكماش عن ١٥% ويتم فرزها على طريقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٠ سم و ريشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى القصى كثافة جافة قصوى (لا يقل عن ٩٨%) من الكثافة المعملية و الفنة تشمل اجراء التجارب المعملية والحقلية ويتم تنفيذ طبقا لاصول الصناعة والرسومات التأسيسية المعتمدة وابتد بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف . مسافة النقل لا تقل ٢٠ كم ، يتم احتساب علاوة ١,٢ جنية لكل ١ كم بالزيادة ، السعر لا يشمل قيمة المواد المخزونة
598.000	2.99	200	06/04/2023	383+000	382+800	IR SB 02	
864.000	2.88	300	06/07/2023	382+800	382+500	IR SB 03	
568.000	2.84	200	06/07/2023	383+000	382+800	IR SB 04	
2,927.00	الاجمالي الكلي (م٣)						

مهندس الهيئة
م / مارجريت مجدي



مهندس الاستشاري



مهندس الشركة
(شركة عبدالسلام الفقي)

عبد السلام عبد الحميد الفقي وشركاه
للمقاولات والاستشارات الهندسية

محضر معاينة مسافة

انه في يوم الاثنين الموافق 2024 / 2 / 5 و بحضور كلا من :-

1. م / مارجريت مجدي الهيئة العامة للطرق والكباري

2. م / عبدالعزيز مصطفى سبيكترم للاستشارات الهندسية

3. م / احمد عبد المنصف شركة عبدالسلام الفقي

تم النزول و المعاينة وطبقا للتعليمات الواردة بالمقايضة بمسافة نقل التوريد للاتربة والرمال الصالحة والسن للردم من المحجر حتي محور مسار الطريق وجد انه :-

يتم نقل الاتربة والرمال من المحجر الي محور مسار القطار السريع ببرج العرب لقطاع شركة عبدالسلام الفقي قطاع من المحطة 500+382 الى 500+383

مسافة قدرها 120 كم للاتربة و 73 للرمال و 100 للسن من المحجر حتي محور مسار القطار كما هو موضح بالمرفق.

التوقيعات

م / احمد عبد المنصف

م / عبدالعزيز مصطفى

م / مارجريت مجدي



شركة أبناء

عبد السلام عبد العبيد الفقي وشركاه
للمقاولات والاستشارات الهندسية

التوقيع /

التوقيع /