

المنطقة الخامسة - (غرب الدلتا)

السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة.. وبعد،،

بالإحالة إلى مشروع القطار الكهربائي فائق السرعة (برج العرب - العلمين)
نتشرف بأن نرفق لسيادتكم طيه المقايسة المعدلة للقطاع الآتي:

الشركة	من كم	الى كم	اتجاه
شركه القمه للمقاولات العموميه	361+300	361+500	اعمال الجسر الترابي و طبقات الاساس و خرسانات الميول

برجاء من سيادتكم التفضل بالأحاطه والتوجيه بالازم

وتفضلوا بقبول فائق الاحترام والتقدير،،

رئيس الإدارة المركزية

المنطقة الخامسة- غرب الدلتا

عميد مهندس /
٢٠٢٣ / ١٢ / ١٧

"هاني محمد محمود طه"

مشروع القطار الكهربائي فائق السرعة قطاع (برج العرب-العلمين)
المقايسة المعدلة لبنود الأعمال الجسر الترابي وطبقات الاساس وخرسانات الميول لشركة القمة للمقاولات العمومية
القطاع من المحطة ٣٦١+٣٠٠ الى ٣٦١+٥٠٠

رقم البند	بيان الأعمال	الوحدة	الكمية	الفئة	الاجمالي
١	أعمال الحفر				
١-١	بالمتر المكعب اعمال حفر باستخدام المعدات الميكانيكية لجميع انواع التربة عدا التربة الصخرية و تسوية السطح بالآلات الترسوية والرش بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة (95% من الكثافة الجافة القصوى) ومحمل على البند تحميل ونقل التربة الزائدة لمسافة ٥٠٠ متر من محور الطريق ويتم التنفيذ طبقا للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا لاصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. يتم احتساب علاوة ١ جنية لكل ١ كم بالزيادة.	م٣	١٧٠١٩	٢٠	٣٤٠,٣٨٠
٣-١	بالمتر المكعب اعمال حفر باستخدام المعدات الميكانيكية فى التربة المتناسكة (الاراضى الزراعية) او الاماكن ذات منسوب مياه مرتفع (طبقا لرؤية المهندس المشرف) عدا التربة الصخرية وتسوية السطح بالآلات الترسوية والرش بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى اقصى كثافة جافة (95% من الكثافة الجافة القصوى) ومحمل على البند تحميل ونقل التربة الزائدة لمسافة ٥٠٠ متر من محور الطريق والفئة تشمل عمل تشوينات وذلك باستخدام الاراضى الزراعية المجاورة لنقل ناتج الحفر على مراحل باستخدام وسيلة النقل المناسبة لضيق اماكن المرور وذلك طبقا لرؤية المهندس المشرف ويتم التنفيذ طبقا للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا لاصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. يتم احتساب علاوة ١ جنية لكل ١ كم بالزيادة	م٣	٣٠٠٠	٣٣	٩٩,٠٠٠
٢	أعمال الازالة والتطهير				
٢-٢	بالمتر المسطح اعمال تطهير الموقع من الاشجار والمزروعات والمخلفات فى مناطق الدلتا ذات الطبيعة الزراعية الكثيفة والتخلص منها بالمقالب العمومية تمهيدا لاعمال الرقع المساحى لكامل حدود المشروع طبقا للشروط والمواصفات وتعليمات المهندس المشرف.	م٢	٩٧٢	٥	٤,٨٦٠
٣	إعمال الردم				
١-٣	بالمتر المكعب اعمال توريد وتشغيل اترية صالحة للردم و مطابقة للمواصفات والتشغيل باستخدام المعدات بسمك لا يزيد عن ٥٠ سم حتى منسوب ٢ متر و بسمك لا يزيد عن ٢٥ سم لاستكمال المنسوب التصميمى لتشكيل الجسر والاكتاف (نسبة تحمل كاليفورنيا لا تقل عن ١٥%) و رشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة (95% من الكثافة الجافة القصوى) ويتم التنفيذ طبقا للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا لاصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. - مسافة النقل ٢ كم - يتم احتساب علاوة ١,٤ جنية لكل ١ كم بالزيادة او النقصان - السعر يشمل عمل تشوينات وتخليط واختبارات ونقل لموقع العمل حتى مسافة ٢ كم - السعر يشمل قيمة المادة المحجرية	م٣	١٨٠٠٠	٨٥	١,٥٣٠,٠٠٠
	علاوة مسافة نقل للتربة لمسافة ٩٤ كم = ١,٤*٩٢ = ١٢٨,٨ جنية	م٣	١٤٤٠٠	١٢٨,٨٠	١,٨٥٤,٧٢٠
	علاوة مسافة نقل للرمل لمسافة ٩٣ كم = ١,٤*٩١ = ١٢٧,٤ جنية	م٣	٣٦٠٠	١٢٧,٤٠	٤٥٨,٦٤٠
	علاوة تحصيل رسوم الكارثة والموازين طبقا للائحة الشركة الوطنية	م٣	١٨٠٠٠	١٣	٢٣٤,٠٠٠

مدير مشروعات الهيئة
 م/محمد حسني فياض

مدير المشروع الهيئة
 م / مارجرى مجدي زاهر

مدير المشروع الاستشارى



مشروع القطار الكهربائي فائق السرعة قطاع (برج العرب-العلمين)
المقايضة المعدلة لبنود الأعمال الجسر الترابي وطبقات الاساس وخرسانات الميول لشركة القمة للمقاولات العمومية
القطاع من المحطة ٣٦١+٣٠٠ إلى ٣٦١+٥٠٠

طبقات الاساس				٥
٦٣٩,٤٠٠	٢٧٨	٢٣٠٠	٣م	بالمتر المكعب اعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصى حجم للحبيبات ١٠٠ مم والا تزيد نسبة المار من منخل ٢٠٠ عن ١٢ % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن ٢٥ % والا تزيد نسبة الفاقد بجهاز لوس انجلوس عن ٣٠ % والا يزيد الامتصاص عن ١٥ % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ٨٠ ميجاباسكال ويتم فردها علي طبقتين باستخدام الات التسوية الحديثة علي ان لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٥ سم و رشها بالمياة الاصولية للوصول الي نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الي اقصى كثافة جافة قصوي (لا تقل عن ٩٥ %) من الكثافة المعنوية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبنء بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف -مسافة النقل لا تقل عن ٢٠ كم - يتم احتساب علاوة ١,٢ جنيه لكل ١ كم بالزيادة او النقصان
١٩٣,٢٠٠	٨٤,٠	٢٣٠٠	٣م	علاوة مسافة النقل ٩٠ كم = ١,٢*٢٧٠ = ٨٤ جنيه
٥٧,٥٠٠	٢٥	٢٣٠٠	٣م	علاوة تحصيل رسوم الكارثة والموازين طبقا للائحة الشركة الوطنية
٥٣٦,٤٠٠	٢٩٨	١٨٠٠	٣م	بالمتر المكعب أعمال توريد وفرش طبقة أساس من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصى حجم للحبيبات ما بين ٣١,٥ مم الي ٤٠ مم والا يزيد نسبة المار من منخل ٢٠٠ عن ٥ % والتدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن ٨٠ % والا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ١٢٠ ميجاباسكال والا يزيد نسبة الفاقد بجهاز لوس انجلوس عن ٣٠ % والا يزيد الامتصاص عن ١٥ % ويتم فردها علي طبقتين باستخدام الات التسوية الحديثة علي ان لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٠ سم و رشها بالمياة الاصولية للوصول الي نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الي اقصى كثافة جافة قصوي (لا يقل عن ١٠٠ %) من الكثافة المعملية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم تنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبنء بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف . -مسافة النقل ٢٠ كم - يتم احتساب علاوة ١,٢ جنيه لكل ١ كم بالزيادة او النقصان
١٥١,٢٠٠	٨٤,٠	١٨٠٠	٣م	علاوة مسافة النقل ٩٠ كم = ١,٢*٧٠ = ٨٤ جنيه
٤٥,٠٠٠	٢٥	١٨٠٠	٣م	علاوة تحصيل رسوم الكارثة والموازين طبقا للائحة الشركة الوطنية
٢,٥٧٣,٠٠٠	٣١٠	٨٣٠٠	٣م	المتر المكعب توريد وتنفيذ ورم احجار بسمكات تتراوح بين ١ الى ٢ الى ٤ سم او بين ١ الى ٢ الى ٦ بنسبة ١:١:١ بنسبة امتصاص لا تزيد عن ٣% ولا تحتوي على اى المواد الناعمة او البودرة (امارة من منخل ٢٠٠) نهائيا او مواد طفلية او بيت النمل يتم تنفيذها كطبقة تأسيس بالقطاع اسفل سطح المياة بعمق ١٠٠ سم حتى اعلى منسوب المياة الارضية بحوالى ٥٠ سم ويتم الدمك الجيد للطبقة بهراس الا بعد اعتماد الاحجار واعتماد التجارب المعملية والبنء يشمل اجراء التجارب المعملية والحقلية (اختبار الواح التحميل قطر ٣٠ سم) على ان لا تزيد نسبة EV12EV عن ٢,٥ باستخدام حمل مقدار ٨ kn طبقا لما هو وارد بالمواصفات الخاصة بالعملية على كل السطح العلوى ونهو العمل طبقا لاصول الصناعة الممتازة. -مسافة النقل ٢٠ كم. -الفئة شاملة القيمة المادة المحجرة. - يتم احتساب علاوة ١,٢ جنيه لكل ١ كم بالزيادة او النقصان
٦٩٧,٢٠٠	٨٤,٠	٨٣٠٠	٣م	علاوة مسافة النقل ٩٠ كم = ١,٢*٧٠ = ٨٤ جنيه
٢٠٧,٥٠٠	٢٥	٨٣٠٠	٣م	علاوة تحصيل رسوم الكارثة والموازين طبقا للائحة الشركة الوطنية

مدير مشروعات الهيئة
 م/محمد حسني فياض

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المقايضة المعدلة لبنود الأعمال الجسر الترابي وطبقات الاساس وخرسانات الميول لشركة القمة للمقاولات العمومية
القطاع من المحطة ٣٦١+٣٠٠ الى ٣٦١+٥٠٠

				البلاطات الخرسانية	٦
٢٦٦,٠٠٠	٢٦٦	١٠٠٠	٢م	بالمتر المسطح أعمال توريد وصب خرسانة عادية سمك ١٥ سم لحماية الأكتاف والميول الجانبية تتكون من ٣م ٠,٨ سن دولوميت متدرج + ٣م ٠,٤ رمل حرش + ٣٥٠ كجم أسمنت بورتلاندي عادي وإضافة Fiber reinforcement علي أن يكون السن نظيف ومغسول والرمل خالي من الشوائب والطفلة والأملاح والمواد الغريبة والبند يشمل تجهيز واستعداد مناسب التربة الطبيعية أسفل البلاطة للوصول إلى المناسب التصميمي علي أن تحقق الخرسانة إجهاد لا يقل عن ٢٥٠ كجم / سم ٢ وتشطيب السطح والتنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع محتلاته طبقاً لمواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف .	١-٦
٢٦٤,٠٠٠	٢,٢٠٠	١٢٠	٣م	بالمتر المكعب أعمال توريد وصب خرسانة عادية لخدمات الحماية والميول الجانبية تتكون من ٣م ٠,٨ سن دولوميت متدرج + ٣م ٠,٤ رمل حرش و الإضافات طبقاً لتعليمات الاستشاري (فبر + سكا) على أن يكون نظيف ومغسول والرمل خالي من الشوائب والطفلة والأملاح والمواد الغريبة مع وضع فوم (بالفاصل) بسمك ٢ سم (طبقاً لتعليمات الاستشاري) والبند يشمل اعمال الحفر والشدات و كل مايلزم لنهو العمل على تحقيق الخرسانة إجهاد لا يقل عن ٢٥٠ كجم/سم ٢ وملء الفواصل بالبيتومين المرمل والتنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع محتلاته طبقاً لمواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف	٢-٦
				أعمال التربة المسلحة	١١
				بالمتر المسطح توريد وتركيب طبقة من النسيج الصناعي جيوتكستائل مستورد التداخل لا يقل عن ١٠% و يتم التنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع محتلاته طبقاً لمواصفات الهيئة العامة للطرق والكبارى.	٢-١١
٣٧٨,٠٠٠	٤٢	٩٠٠٠	٢م	ذات وزن لا يقل عن ٤٠٠ كجم/م ٢	
				بالمتر المسطح توريد وتركيب طبقة من النسيج الصناعي جيوجريد مستورد التداخل لا يقل عن ١٠% و يتم التنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع محتلاته طبقاً لمواصفات الهيئة العامة للطرق والكبارى.	٣-١١
١٤٨,٠٠٠	٣٧	٤٠٠٠	٢م	ذات قوة شد ٣٠ ك . نيوتن في الاتجاهين Biaxial	
١٠,٦٧٨,٠٠٠	الإجمالي				
(عشرة ملايين وستمائة وثمانية وسبعون ألف جنيه مصري فقط لا غير)					

مدير مشروعات الهيئة
 م/محمد حسني فياض
 ٥٥

مدير المشروع الهيئة
 م / مار جريت مجدي زاهر

مدير المشروع الاستشاري
 م/ عبد العزيز مصطفى

مدير المشروع المقاول
 م/ خالد عادل شحيد



MATERIAL INSPECTION REQUEST



Contractor Company	Al - Qina Co. for Contracting (361+300, 001+500)		Designer Company	[SPECTRUM] Engineering Consulting Office																					
Issued by Contractor	Name	Sign	Date/Serial Number	Time																					
	Eng. Mohamed Asayed		01/12/2023 PLT [FL-4]	1:00 PM																					
Received by GARU CONSULTANT	Eng. Mazen Essamy	MIR	<table border="1"> <tr> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> <td>20</td> </tr> <tr> <td>514</td> <td>515</td> <td>516</td> <td>517</td> <td>518</td> <td>519</td> <td>520</td> <td>521</td> <td>522</td> <td>523</td> </tr> </table>	11	12	13	14	15	16	17	18	19	20	514	515	516	517	518	519	520	521	522	523		
11	12	13	14	15	16	17	18	19	20																
514	515	516	517	518	519	520	521	522	523																

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

Description of Materials	FILL		
Location to be Used	From	361+300	TO 361+500
MAR & UIR Approval No	UIR F-4	Date	02/12/2023
	FDT F-3		17/10/2023
Supplier Name	3001	Sand A3	QT - 22
Test Requirement	Specification		EARTHWORK SPECIFICATIONS & TESTING REPORT (CG2)-41.2) VERSION 2 BY CIVECON GROUP
Reference Photos	No/Yes	Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT	NUMBER	2	03/12/2023	COMIBASSAL
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The PLT Test Result is Approved.	1-P.L.T was carried- out by material engineer for both contractor and GARU Consultant (By COMIBASSAL Lab.) 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 Sayed			A
QA/QC *	Eng. Mazen Essamy			
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* 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

P14 E-4

Technical report

of Plate Loading Test (DIN 18134)

General	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة القمة للمقاولات
Project	:	ELECTRIC EXPRESS TRAIN-DRY PORT
Sample	:	Middle embankment (-1.5)
Station	:	ST(361+350) : ST(361+450)
Date of Test	:	03/12/2023
QC	:	2456-2



COMIBASSAL International Controllers

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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Internal inspection and laboratories sector

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361+350

600

Table 1: 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	0.17
2	14.14	0.050	0.39
3	21.21	0.075	0.62
4	28.28	0.100	0.84
5	35.35	0.125	1.01
6	42.42	0.150	1.15
7	49.49	0.175	1.27
8	56.56	0.200	1.42
9	63.63	0.225	1.56
10	70.7	0.250	1.69
11	56.56	0.200	1.68
12	49.49	0.175	1.60
13	35.35	0.125	1.50
14	21.21	0.075	0.97
15	1.414	0.005	0.52

Table 2: 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	0.52
16	7.07	0.025	0.89
17	14.14	0.050	1.05
18	21.21	0.075	1.18
19	28.28	0.100	1.28
20	35.35	0.125	1.38
21	42.42	0.150	1.47
22	49.49	0.175	1.52
23	56.56	0.200	1.59
24	63.63	0.225	1.72

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0,max}$) MN/m ²	0.250	0.250
s_0 (mm)	-0.064	0.599
s_1 (mm/(kN/m ²))	9.970	0.519
s_2 (mm/(MN ² /m ²))	-12.247	-17.017
$E_s = 1.5 \cdot s / (s_1 + s_2 \cdot \sigma_{0,max})$	65.13	105.51
E_v/E_s	1.62	





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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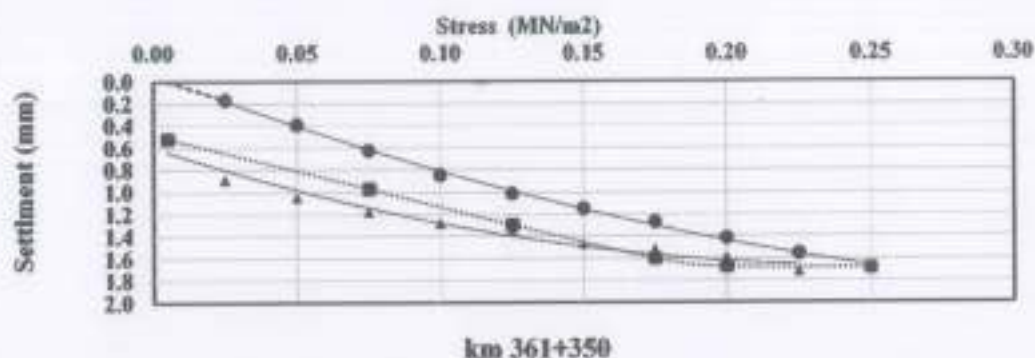


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- 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





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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361+450

600

Table 4: 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	7.97	0.025	0.07
2	14.14	0.050	0.21
3	21.21	0.075	0.34
4	28.28	0.100	0.43
5	35.35	0.125	0.62
6	42.42	0.150	0.79
7	49.49	0.175	0.93
8	56.56	0.200	1.00
9	63.63	0.225	1.10
10	70.7	0.250	1.18
11	56.56	0.200	1.17
12	49.49	0.175	1.14
13	35.35	0.125	1.03
14	21.21	0.075	0.76
15	1.414	0.005	0.34

Table 5: 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	0.34
16	7.97	0.025	0.45
17	14.14	0.050	0.59
18	21.21	0.075	0.71
19	28.28	0.100	0.79
20	35.35	0.125	0.85
21	42.42	0.150	0.90
22	49.49	0.175	1.04
23	56.56	0.200	1.10
24	63.63	0.225	1.15

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{hmax}) MN/m ²	0.250	0.250
s_0 (mm)	-0.116	0.333
a_1 (mm/(MN/m ²))	6.711	5.417
a_2 (mm/(MN/m ²))	-5.760	-7.898
$E = 1.5 \sigma / (a_1 + a_2 \cdot \sigma_{hmax})$	85.36	120.64
$E \pm 2\% \pm 1$	1.53	





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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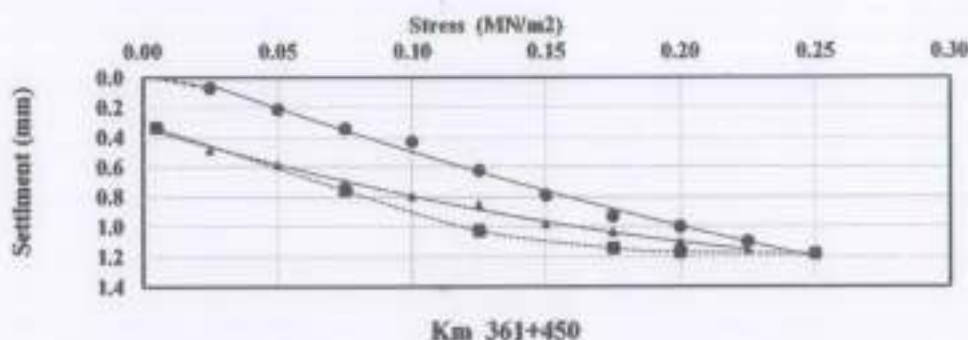


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- 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





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Conclusions:

The present test results which obtained from the plate loading tests of the native soil on middle embankment layer of the electric express train project at location (from 361+350 to 361+450) in accordance to the German standard , DIN 18134 are illustrated in table 7 .

Table 7 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
361+350	65.13	105.51	1.62
361+450	85.36	130.64	1.53

Lab Director

Eng / Eman Kandil



Geotechnical Consultant

Dr / Mohamed Mostafa Badry



MATERIAL INSPECTION REQUEST



Contractor Company	Al - Qma Co. for Contracting (trials 361+300 to 361+500)			Designer Company	[SPECTRUM] Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date	Serial Number	Time			
	Eng. Mohamed Asayed		05/09/2023	PLT (FL-1)	1:00 PM			
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	C1	C2	C3	C4	C5
				514	FW	C5	06	00

CODE 1	S1 to S21	O1 to S3	Rg 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	filter				
Location to be Used	From	361+300	TO	361+500	
MAR & UIR Approval No.	UIR FL-1		Date	05/09/2023	
Supplier Name	394T/ش		coarse Agg. Filter	QT - 14	
Test Requirement			Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG23-41.2) VERSION 2 BY ENVECON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT	NUMBER	2	06/09/2023	COMIBASSAL
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allah (ER)
1-THE PLT TEST RESULT IS APPROVED.	1-PLT was carried - out - by material engineer for both contractor and GARB consultant (BY COMIBASSAL LAB.)
	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 Sayed			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allah		7-9-2023	Awc

* Designer

** Alignment/Bridges: Consultant only



COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Technical report

of Plate Loading Test (DIN 18134)



General	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة القمة للمقاولات
Project	:	Electric Express Train
Sample	:	Coarse agg. Filter layer
Station	:	ST(361+300) TO ST(361+520)
Date of Test	:	06/09/2023
QC	:	1884



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

Introduction:

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

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

Test methods :

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

Description of experiment:

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





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Sec (361+300) to (361+520)

St(361+460)

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	0.12
2	14.14	0.050	0.24
3	21.21	0.075	0.49
4	28.28	0.100	0.65
5	35.35	0.125	0.88
6	42.42	0.150	1.05
7	49.49	0.175	1.18
8	56.56	0.200	1.30
9	63.63	0.225	1.45
10	70.7	0.250	1.57
11	56.56	0.200	1.55
12	49.49	0.175	1.52
13	35.35	0.125	1.39
14	21.21	0.075	1.27
15	1.414	0.005	1.13

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	1.13
16	7.07	0.025	1.20
17	14.14	0.050	1.32
18	21.21	0.075	1.38
19	28.28	0.100	1.47
20	35.35	0.125	1.53
21	42.42	0.150	1.55
22	49.49	0.175	1.57
23	56.56	0.200	1.61
24	63.63	0.225	1.64

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)	-0.144	1.111
a_1 (mm/(MN/m ²))	9.124	4.243
a_2 (mm/(MN ² /m ⁴))	-9.054	-8.635
$K_2 = 1.5 \sigma' (a_1 + a_2 \cdot \sigma_{0.250})$	65.59	215.85
$E_v/2/E_v I$	3.29	





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

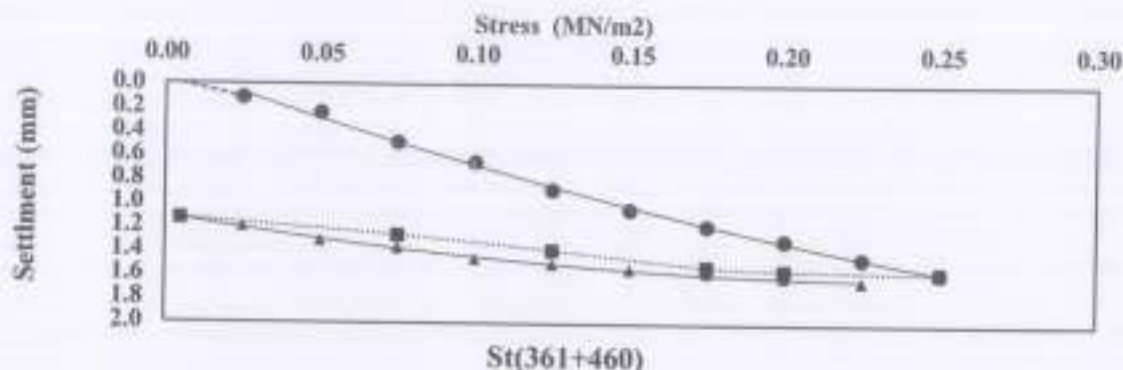


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- 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_z Normal stress MN/m²





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Sec (361+300) to (361+520)

St(361+500)

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	0.14
2	14.14	0.050	0.24
3	21.21	0.075	0.36
4	28.28	0.100	0.50
5	35.35	0.125	0.61
6	42.42	0.150	0.71
7	49.49	0.175	0.85
8	56.56	0.200	1.00
9	63.63	0.225	1.10
10	70.7	0.250	1.28
11	56.56	0.200	1.26
12	49.49	0.175	1.23
13	35.35	0.125	1.05
14	21.21	0.075	0.92
15	1.414	0.005	0.70

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	0.70
16	7.07	0.025	0.77
17	14.14	0.050	0.85
18	21.21	0.075	0.92
19	28.28	0.100	0.99
20	35.35	0.125	1.05
21	42.42	0.150	1.11
22	49.49	0.175	1.17
23	56.56	0.200	1.24
24	63.63	0.225	1.29

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)	0.028	0.694
a_1 (mm/(MN/m ²))	4.221	3.183
a_2 (mm/(MN ² /m ⁴))	2.870	-2.462
$E_v = 1.5 \pi / (a_1 + a_2 \cdot \sigma_{0, max})$	91.12	175.25
E_v2/E_v1	1.92	





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 (EQAC) under No. 031706/1A

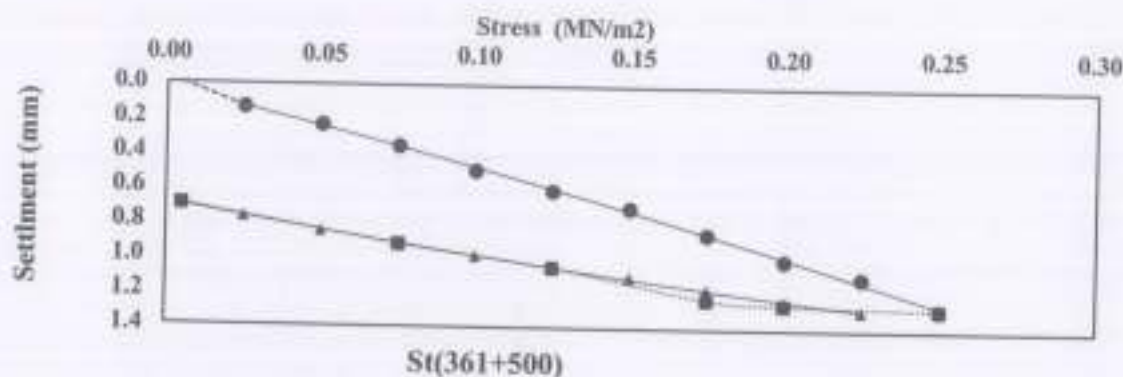


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- 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





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

Conclusions:

The present test results which were obtained from the plate loading tests of the native soil on coarse aggregate filter layer of the electric express train project at location from St(361+300) to St(361+520)km in accordance to the German standard , DIN 18134 are illustrated in table 7 .

Table 7 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
St(361+460)	65.59	215.85	3.29
St(361+500)	91.12	175.25	1.92

Lab Director 
Eng / Eman Kandil



Geotechnical Consultant

Dr / Mohamed Mostafa Badry



MATERIAL INSPECTION REQUEST



المكتب الهندسي
للمواصلات والبنية التحتية
(GARB)



Contractor Company	Al - Qena Co. for Contracting (361+300 - 361+500)			Designer Company	(SPECTRUM) Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/Serial Number		Time			
	Eng. Mohamed Asayed		15/11/2023	PLT (FL-1DR)	1:00 PM			
Received by GARB CONSULTANT	Eng. Mazen Essamy	MIR	11	12	13	14	15	16
			11	EW	CS	16	11	23

1000 - 1	11 to 12	01 to 10	Up XXX Axis
1000 - 2	Station Reference	Dapot Reference	For Kilometer point only Start Km is used
1000 - 3	Work Activity		
1000 - 4	Sub Element of Activity		

Description of Materials	FILTER				
Location to be Used	From	361+300	TO	361+500	
MAR & UIR Approval No	UIRFL-1DR		Date	14/11/2023	
Supplier Name	ش 3001		Sand A3	QT - 18	
Test Requirement			Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (G23-RL2) VERSION 2 BY CIVISCON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT	NUMBER	2	18/11/2023	COMIBASSAL
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The PLT Test Result is Approved.	1-P.L.T was carried- out by material engineer for both contractor and GARB Consultant (By COMIBASSAL Lab.) 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 Sayed			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		18-11-2023	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

Technical report

of Plate Loading Test (DIN 18134)



General	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة القمة للمقاولات
Project	:	ELECTRIC EXPRESS TRAIN-DRYPORT
Sample	:	coarse aggregate Filter
Station	:	ST(361+300) : ST(361+500)
Date of Test	:	18/11/2023
QC	:	2374-3



COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Introduction:

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

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

Test methods :

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

Description of experiment:

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





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

361+300

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	0.08
2	14.14	0.050	0.24
3	21.21	0.075	0.39
4	28.28	0.100	0.54
5	35.35	0.125	0.67
6	42.42	0.150	0.82
7	49.49	0.175	0.96
8	56.56	0.200	1.11
9	63.63	0.225	1.25
10	70.7	0.250	1.37
11	56.56	0.200	1.35
12	49.49	0.175	1.32
13	35.35	0.125	1.21
14	21.21	0.075	1.10
15	1.414	0.005	0.87

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	0.87
16	7.07	0.025	0.94
17	14.14	0.050	1.01
18	21.21	0.075	1.11
19	28.28	0.100	1.18
20	35.35	0.125	1.25
21	42.42	0.150	1.32
22	49.49	0.175	1.38
23	56.56	0.200	1.43
24	63.63	0.225	1.48

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0, max}$) MN/m ²	0.250	0.250
s_0 (mm)	-0.070	0.843
s_1 (mm/(MN/m ²))	6.236	3.845
s_2 (mm/(MN/m ²))	-1.839	-4.561
$E_v = 1.5 \cdot s_1 / (s_1 + s_2)$	77.90	166.34
E_v2/E_v1	2.14	





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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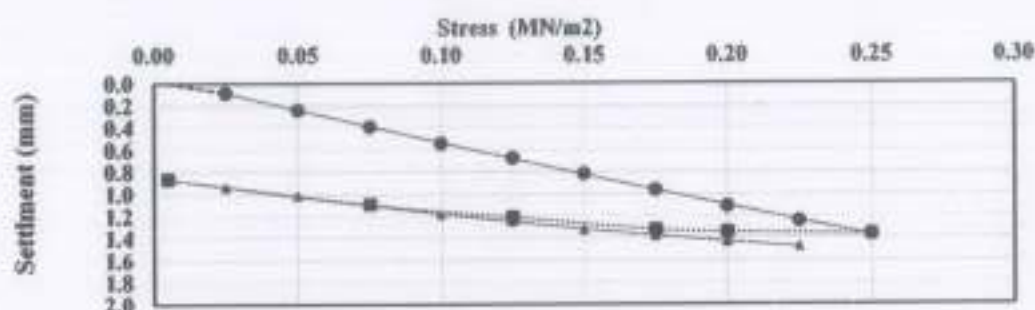


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- 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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361+500

600

Table 4: 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	0.10
2	14.14	0.050	0.30
3	21.21	0.075	0.52
4	28.28	0.100	0.73
5	35.35	0.125	0.92
6	42.42	0.150	1.08
7	49.49	0.175	1.23
8	56.56	0.200	1.36
9	63.63	0.225	1.51
10	70.7	0.250	1.65
11	56.56	0.200	1.63
12	49.49	0.175	1.61
13	35.35	0.125	1.49
14	21.21	0.075	1.36
15	1.414	0.005	0.93

Table 5: 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	0.93
16	7.07	0.025	1.02
17	14.14	0.050	0.79
18	21.21	0.075	1.22
19	28.28	0.100	1.31
20	35.35	0.125	1.42
21	42.42	0.150	1.50
22	49.49	0.175	1.57
23	56.56	0.200	1.64
24	63.63	0.225	1.71

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{n, max}$) MN/m ²	0.250	0.250
s_p (mm)	-0.139	0.837
a_1 (mm/(MN/m ²))	9.589	4.678
a_2 (mm/(MN ² /m ⁴))	-9.923	-3.061
$E_v = 1.5 \sigma' / (a_1 + a_2 \sigma'_{n, max})$	63.31	115.00
E_v / E_v	1.82	





COMIBASSAL International Controllers

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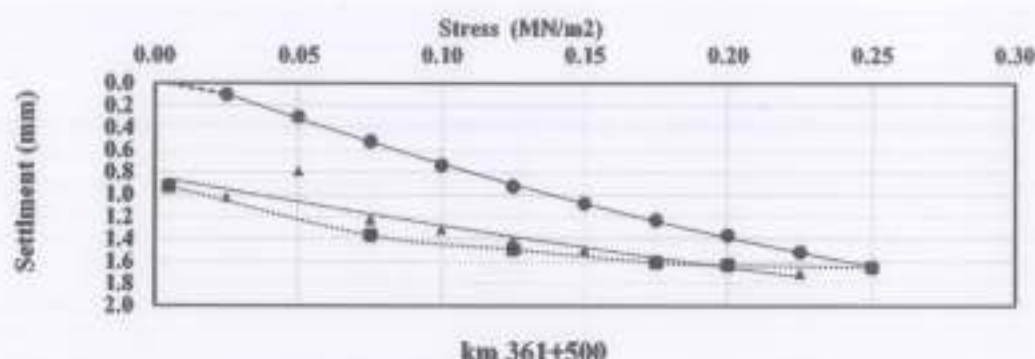


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

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





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Conclusions:

The present test results which obtained from the plate loading tests of the native soil on coarse aggregate layer of the electric express train project at location (from 361+300 to 361+500) in accordance to the German standard , DIN 18134 are illustrated in table 7.

Table 7 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
361+300	77.90	166.34	2.14
361+500	63.31	115.00	1.82

Lab Director

Eng / Eman Kandil

Eman



Geotechnical Consultant

For Dr. H.

Dr / Mohamed Mostafa Badry



MATERIAL APPROVAL REQUEST



الهيئة العامة
للسكك الحديدية
(GAR)



الهيئة العامة
للمياه والكهرباء



Contractor Company	Al - Qma Co. for Contracting			Designer Company	(SPECTRUM) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Asayed		05/08/2023 (M.A.R.) (G.T. 817)	08:00							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	C1 S14	C2 EW	C3 CS	SO 5	MM 8	YY 23	DD 8	MM 8

CODE-I	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference	Dapot Reference	For Kilometer point only Start Km is used
Code - g	Work Activity		
Code - t	Sub Element of Activity		

Description of Materials	Filling Material (Middle Embankment)		
Location to be Used	From Station (361+300) to Station (361+500)		
Sample only	Yes	Materials Type	Soil
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CNECCH 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 Site Laboratory is Approved 2-This Sample Representative (5000 m3) only	1-All tests were carried-out by material engineer for both contractor and GARB Consultant. 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Asayed			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		13-8-2023	Awc

* Designer

** Alignment/Bridges: Consultant 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

PT 12
5

SOIL REPORTS FOR ELECTRIC EXPRESS TRAIN PROJECT

Contractor :

شركة القمة للمقاولات

Date :

13/08/2023

QC :

1537-3



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

Report NO.	1537-03
Date of report	13-8-2023



I- Introduction

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة القعة للمقاولات
Sample :	Middle Embankment.
Station :	St(361+300) to st(361+500)
Date of Test :	06/08/2023

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	2.113
	OMC	8.0%
3- Liquid limit, plastic limit and plasticity index	LL	24%
	PL	21.0%
	PI	3.0%
4- California bearing ratio (CBR)	CBR ratio	33%

IV- Notes

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

LAB DIRECTOR

Eng / Eman kandil

Eman



Geotechnical consultant

For: *Dr. M.*
Dr. Mohamed Mostafa Badry





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APPENDIX





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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	380.00	380.00	3.80	96.2	
3/4	410.00	790.00	7.90	92.1	
1/2	620.00	1410.00	14.10	85.9	
3/8	585.00	1795.00	17.95	82.1	
No.4	890.00	2685.00	26.85	73.2	
No.10	75.00	75.00	7.50	67.7	
No.40	360.00	360.00	36.00	46.8	
No.200	805.00	805.00	80.50	14.3	

Total sample weight = 10000.00 pass No.4 = 7315.0 Total fine aggregates weight = 1000 gm
% 73.2

Size analysis distribution curve



Soil classification:



Kilo 23 Alexandria - Cairo Desert Road - Merghem

Tel: 002 03 4704595 - 002 034701191

Email: chdept@comibassal.com

WebSite: www.comibassal.com



49 El Horria Ave. Alex, Egypt

Tel: 002 033920176 - 002 033931482

Fax: 002 033900476

Email: internal-inspection@comibassal.com



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 :- 2
Volume of mould = 2200 cm³
Weight of mould = 5665 g
G.S = 2.61 g/cm³

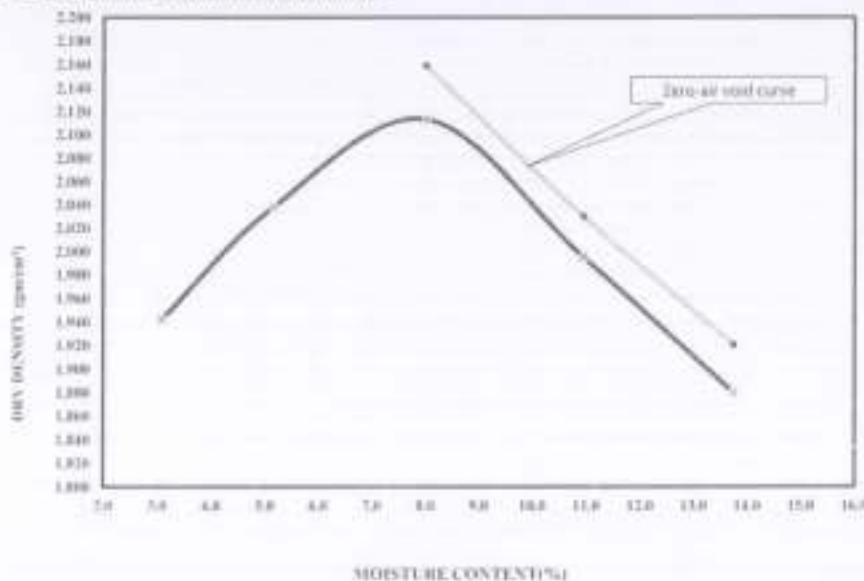
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10070	10380	10686	10535	10370
Weight of mould (g)	5665	5665	5665	5665	5665
Weight of wet soil (g)	4405	4715	5021	4870	4705
Volume of mould (cm ³)	2200	2200	2200	2200	2200
Wet density (g/cm ³)	2.002	2.143	2.282	2.214	2.139
Dry density (g/cm ³)	1.942	2.038	2.113	1.995	1.880
Zero-air Void curve			2.159	2.030	1.921

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)	243.4	239.2	233.7	228.3	223.4
Weight of container (g)	30.0	30.0	30.0	30.0	30.0
moisture content (%)	3.1	5.2	8.0	10.9	13.8

C - Dry density-Moisture relationship:-



M.D.D= 2.113 gm/cm³
O.M.C= 8 %





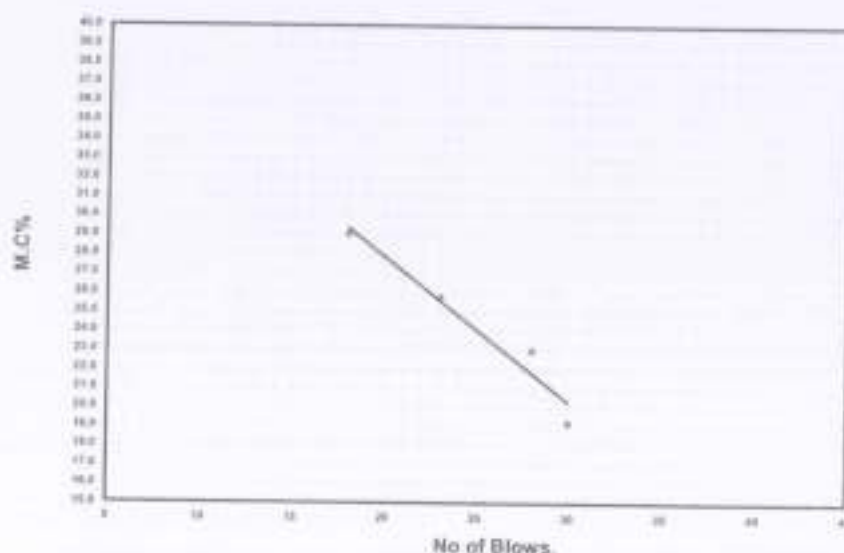
COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

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.	30	28	23	18		
Container No.	j	c	s	m	F	J
Mass of wet soil +container	52.00	50.50	46.90	41.00	27.00	32.00
Mass of dry soil +container	47.00	44.80	41.80	36.50	26.10	30.20
Mass of container	21.00	20.00	22.00	21.00	21.60	22.00
Mass of moisture	5.00	5.70	5.10	4.50	0.90	1.80
Mass of dry soil	26.00	24.80	19.80	15.50	4.50	8.20
Moisture content	19.23	22.98	25.76	29.03	20.00	21.95



Results:

Liquid Limit (L.L.) : 24 %
Plastic Limit (P.L.) : 21.0 %
Plasticity Index (P.I.): 3.0 %



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Fax : 002 033900476

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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/LA

Report	:	642 - 3 - Center
Date	:	13/08/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة القبة للمقاولات
Project	:	Electric express train
Sample	:	Gravel and Sand
Station	:	ST (361 + 300) : (361 + 500)
Date of Test	:	6-8-2023

Temperature : 30 °C

Humidity : 50%

ANALYSIS	RESULTS	TEST METHOD
ORGANIG MATTER	NEGATIVE	ASTM D 2974

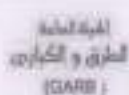


LAB DIRECTOR
CH/ Mostafa Asker

Moustafa



MATERIAL APPROVAL REQUEST



Contractor Company	Al - Qnsa Co. for Contracting			Designer Company	SPECTRUM Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/Serial Number		Time			
	Eng. Mohamed Asayed		07/09/2023 (M.A.R.) (G.T. 18)		08:00			
Received by GARB CONSULTANT	Eng. Mazen Essamy		CS	CS	CS	CS	MS	YY
			334	8W	C	8	8	23

CODE 1	S1 to S21	D1 to S8	Sp XXX Note
	Station Reference	Depth Reference	For Kilometer point only Start Km is used
CODE 2	Work Activity		
CODE 3	Sub Element of Activity		

Description of Materials	FILTER		
Location to be Used	From Station (361+300) to Station (361+500)		
Sample only	Yes	Materials Type	FILTER
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (SC21-41, 2) VERSION 2 BY CYECON 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 Site Laboratory is Approved. 3-This Sample Representative (3000 m3) only.		1-All tests were carried-out by material engineer for both contractor and GARB Consultant. 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS

Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Asayed			A
QA/QC*	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		10-9-2023	AWC

* Designer

** Approver/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

AGGREGATE REPORTS FOR ELECTRIC EXPRESS TRAIN PROJECT

Contractor : شركة القمة للمقاولات
Date of report : 10-09-2023
QC : 1887-1



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

Report no.	1887/001
Date of report	10-09-2023



I-Introduction

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة القمة للمقاولات
Sample :	Coarse Aggregate Filter layer.
Station :	St(361+300) to st(361+500)
Date of Test :	01-09-2023

II- Sample description:

Coarse Aggregate mix

III- Required tests and Results:

Required tests		Results
1- Specific gravity (SG), absorption and degradation.0	SSD	2.615
	Absorption	1.68%
	Degradation	0.2%
2- Grain size analysis	Grain size analysis	As shown in figures
3- Los Angeles test	Abrasion ratio	30.0%

IV- Notes

- 1- Samples were brought by : Contractor.
- 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





COMIBASSAL International Controllers Internal inspection and laboratories sector

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APPENDIX





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Results

Speed	Rotate at 30 to 33 Rpm For 500 Revolution
Trial Grading	A
Intital Weight (W1) gms	5000
Weight of tested sample (W2) gms Retained on sieve No.12	3502
% Wear By Weight Passing on Sieve No.12	30.0%





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Internal inspection and laboratories sector

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

Weight of sample	2500
Weight of saturated - dry surface sample (B)	2537
Weight of saturated sample in water (C)	1567
Weight of dry sample after heating (A)	2495

Results:-

Saturation surface dry specific gravity = $B / (B - C)$	2.615
Bulk specific gravity = $A / (B - C)$	2.572
Apparent specific gravity = $A / (A - C)$	2.689
Absorption of water = $(B - A) / A * 100$	1.68
Degradation of aggregate = $(2500 - A) / A * 100$	0.2





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Report :	707 - 1 - Center
Date :	10/09/2023

CHEMICAL ANALYSIS

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة القبة للمقاولات العمومية
Project :	Electric express train
Sample :	Coarse Aggregate Filter Layer
Station :	ST (361 + 300) : (361 + 500)
Date of Test :	1-9-2023

Temperature : 28 °C

Humidity : 45%

ANALYSIS	RESULTS	TEST METHOD
CHLORIDE	0.0011%	ASTM D 2974
SULPHATE	0.0038%	
ORGANIG MATTER	NEGATIVE	

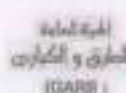


LAB DIRECTOR
CH/ Mostafa Asker

Mostafa



MATERIAL APPROVAL REQUEST



Contractor Company	Al - Qina Co. for Contracting		Designer Company	SPECTRUM Engineering Consulting Office							
Issued by Contractor	Name	Eng. Mohamed Assayed	Date/Serial Number	18/10/2023							
	Sign		(M.A.R.) (Q.T. 28)	08:00							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAP	CL	CS	CS	DD	HW	TY	HW	NH
				254	EW	CS	23	10	23	8	0

CODE - 1	S1 to S21	H1 to H1	Sp 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	FERMA		
Location to be Used	From Station (361+300) to Station (361+500)		
Sample only	Yes	Materials Type	Soil
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (G23-41.2) 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 Site Laboratory is Approved.		1-All tests were carried-out by material engineer for both contractor and GARB Consultant.	
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.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Assayed			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		7.11.2023	Awc

* Designer

** Alignment/Bridges/Culvert only



COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

I- Introduction

General Consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة القعة للمقاولات
Sample : Ferma
Station : St(360+300) to st(361+500)
Date of Test : 28/10/2023
QC : 2213-5



II- Sample description:

Gravel and sand.

III- Required tests and Results

Required Tests		Results
1- Grain size analysis and classification and Percentage of MATERIALS FINER THAN No. 200 (75 μ m)	Grain size analysis	As showed in appendix
	Classification	A-1-b
	Pass From No.200	14.5%
2- Modified compaction (Proctor test)	MDD	2.111
	OMC	7.0%
3- Liquid limit, plastic limit and plasticity index	LL	23.2%
	PL	21.1%
	PI	2.1%
4- California bearing ratio (CBR)	CBR ratio	30%

IV- Notes

- 1- Samples were brought by : Contractor.
- 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

Kilo 23 Alexandria - Cairo Desert Road - Merghem

Tel: 002 03 4704595 - 002 034701191

Email : civdept@comibassal.com

WebSite : www.comibassal.com

Geotechnical consultant

Dr. Mohamed Mostafa Badry

49 El Horria Ave. Alex, Egypt

Tel: 002 033920176 - 002 033931482

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Email : internal-inspection@comibassal.com





COMIBASSAL International Controllers

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APPENDIX





COMIBASSAL International Controllers

Internal inspection and laboratories sector

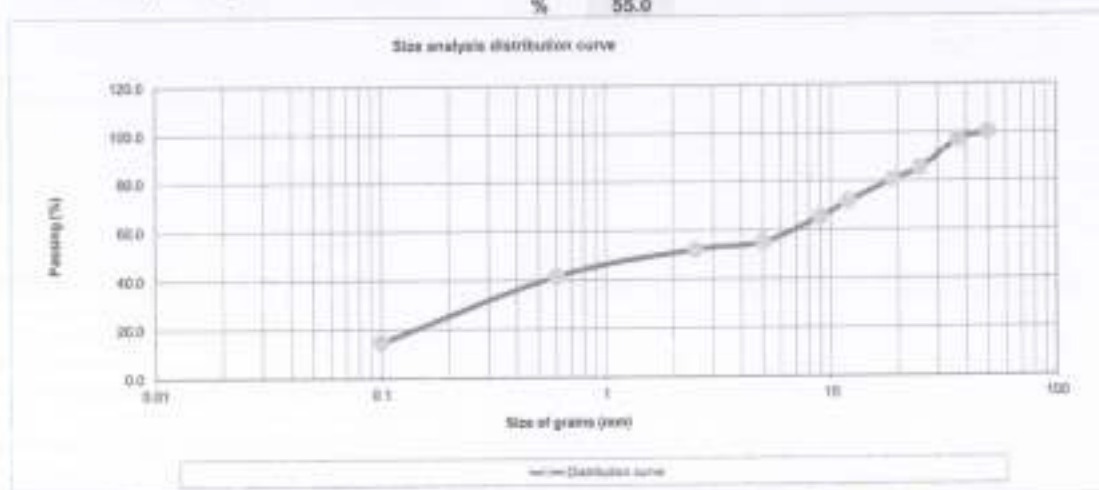
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PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27



	WEIGHT RETAINED (gm)	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	311.00	311.00	3.11	96.9	
1	1162.00	1473.00	14.73	85.3	
3/4	471.00	1944.00	19.44	80.6	
1/2	897.00	2841.00	28.41	71.6	
3/8	632.00	3473.00	34.73	65.3	
No.4	1032.00	4505.00	45.05	55.0	
No.10	53.00	53.00	5.30	52.0	
No.40	246.00	246.00	24.60	41.4	
No.200	736.00	736.00	73.60	14.5	

Total sample weight = 10000.00 pass No.4= 5495.0 Total fine aggregates weight = 1000 gm
% 55.0



Soil classification: A - 1 - b



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Modified Proctor Test Report ASTM - D 1557

Mould Number :- 2
Volume of mould = 2165 cm³
Weight of mould = 5821 g
G.S = 2.58 g/cm³



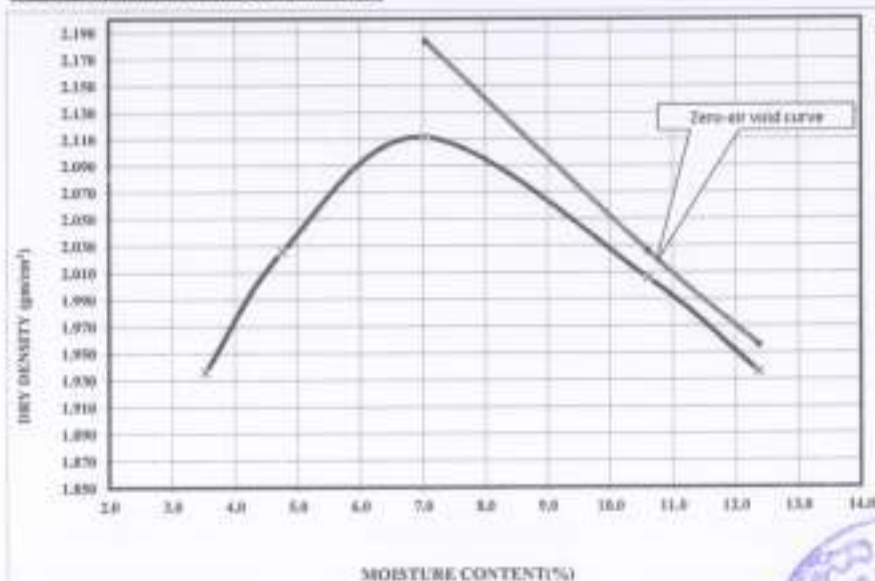
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10160	10415	10714	10624	10530
Weight of mould (g)	5821	5821	5821	5821	5821
Weight of wet soil (g)	4339	4594	4893	4803	4709
Volume of mould (cm ³)	2165	2165	2165	2165	2165
Wet density (g/cm ³)	2.004	2.122	2.260	2.218	2.175
Dry density (g/cm ³)	1.936	2.025	2.111	2.006	1.936
Zero-air Void curve			2.184	2.026	1.956

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	240.0	235.6	229.0	226.0
Weight of container (g)	30.0	30.0	31.0	31.0	32.0
moisture content (%)	3.5	4.8	7.0	10.6	12.4

C - Dry density-Moisture relationship:-



M.D.D= 2.111 gm/cm³
O.M.C= 7.00 %





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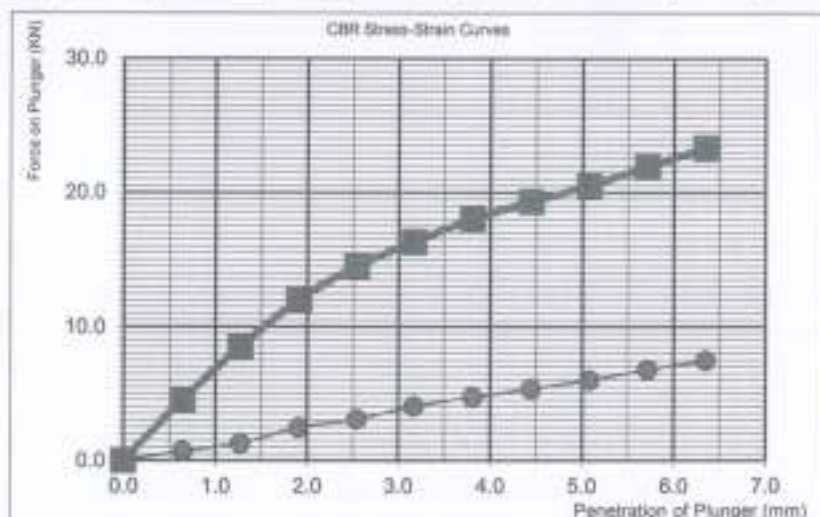
Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011



Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56				
MOULD NO	2				
WT OF MOULD+SOIL	10260				
WT OF MOULD	5385				
WT OF SOIL	4875				
VOLUME OF MOULD	2160				
WET DENSITY	2.257				
	MC before soaking		Weight of Rammer	4.54Kg	
TIN NO	1		MDD	Kg/m3	2.111
WT OF WET SOIL+TIN	250.00		OMC	%	7.0
WT OF DRY SOIL+TIN	232				
WT OF WATER	18.00				
WT OF TIN	32				
WT OF DRY SOIL	200				
MOISTURE CONTENT	9.0				
DRY DENSITY	2.071				

Pen	Reading (Div)	Bearing (KN)	CBR
mm	56	56	standar
0.00	0	0.0	0.0
0.64	70	0.7	4.5
1.27	130	1.3	8.5
1.91	250	2.5	12.0
2.54	312	3.1	14.5
3.17	411	4.0	16.3
3.81	480	4.7	18.0
4.45	544	5.3	19.3
5.08	610	6.0	20.5
5.71	690	6.8	21.9
6.35	760	7.5	23.3





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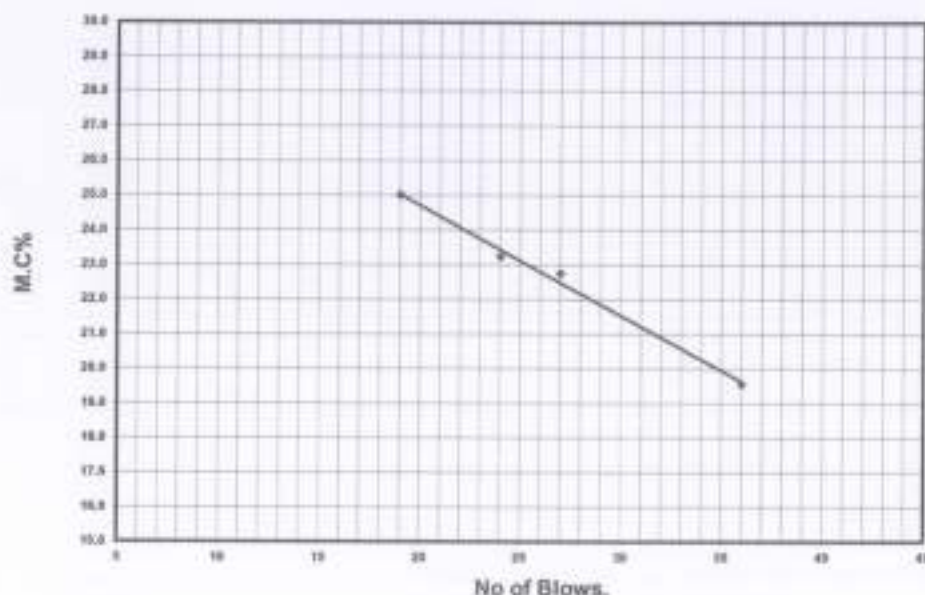
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Liquid and Plastic Limits Test

ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit				Plastic Limit	
NO of B.	36	27	24	19		
Container No	S	D	F	G	H	K
Mass of wet soil + container	48.30	48.90	47.70	50.00	30.60	30.00
Mass of dry soil + container	44.80	44.60	43.40	45.00	30.10	29.10
Mass of container	26.90	25.70	24.90	25.01	27.80	24.70
Mass of moisture	3.50	4.30	4.30	5.00	0.50	0.90
Mass of dry soil	17.90	18.90	18.50	19.99	2.30	4.40
Moisture content	19.55	22.75	23.24	25.01	21.74	20.45



Results:

Liquid Limit (L.L.) : 23.2 %
 Plastic Limit (P.L.) : 21.1 %
 Plasticity Index (P.I.) : 2.1 %





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Report	:	819 - 5 - Center
Date	:	07/11/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة القبة للمطاولات
Project	:	Electric express train
Sample	:	FERMA
Station	:	ST (360 + 300) : (361 + 500)
Date of Test	:	28-10-2023

Temperature : 27 °C

Humidity : 40%

ANALYSIS	RESULTS	TEST METHOD
ORGANIG MATTER	NEGATIVE	ASTM D 2974

LAB DIRECTOR
CH/ Mostafa Asker

Mostafa

