الهيئة العامة
للطرق و الكباري
(GARB)
وزارة النقل

قائمة كمية الأعمال الواردة بالمستخلص الجاري-2- فوكة

رقم البند و بيانه : (2-5)بالمتر المكعب أعمال توريد وفرش طبقة أساس من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصي حجم للحبيبات ما بين 31.5 مم الي 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 (Ev2) من تجربة لوح التحميل عن 120 ميجابسكال والا يزيد نسبة الفاقد بجهاز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15 % ويتم فردها علي طبقتين باستخدام الات التسوية الحديثة علي ان لا يزيد سمك الطبقة بعد تمام الدمك عن 20 سم و رشها بالمياة الاصولية للوصول الي نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الي اقصي كثافة جافة قصوي (لا يقل عن 100%) من الكثافة المعملية و الفئة تشمل اجراء التجارب المعملية والحقلية ويتم تنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف . مسافة النقل لا تقل 20 كم , يتم احتساب علاوة 1.2 جنيه لكل 1 كم بالزيادة او النقصان , السعر يشمل اتاوة المحاجر الرسمية للشركة الوطنيه وعلي الشركة المنفذة تقديم ما يثبت تسديد الاتاوة للشركة الوطنيه.

تـنفيـذ : شركة أبناء عبدالسلام الفقي للمقاولات و الاستشارات الهندسية

كمية المقايسة (م3) : 5,855.00 مقدار العمل السابق (م3) : 0.00

البند	طلب الفحص	المسافة الكيلومترية		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 وأقصي حجم للحبيبات 100 مم والا تزيد نسبة المار من منخل 200 عن 12 % و التدرج الوارد بالاشترطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 25 % و الا تزيد نسبة الفاقد بجهاز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15% و الا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجابسكال و يتم فردها علي طبقتين باستخدام الات التسوية الحديثة علي ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الي نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الي اقصي كثافة جافة قصوي (لاتقل عن 95 %) من الكثافة المعملية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف مسافة النقل لا تقل عن 20 كم , يتم احتساب علاوة 1.2 جنيه لكل 1 كم بالزيادة او النقصان . يتم صرف قيمة المواد المحجرية في حالة تقديم ما يثبت تسديد الاتاوة للشركة الوطنيه .	1	385+007.5	385+100	92.5	2.99	276.575
	2	385+100	385+300	200	2.99	598.000
	3	385+860	386+007.5	147.5	2.99	441.025
	4	385+300	385+500	200	2.99	598.000
	5	385+007.5	385+100	92.5	2.86	264.550
	6	385+100	385+300	200	2.87	574.000
	7	385+860	386+007.5	147.5	2.86	421.850
	8	385+500	385+660	160	2.99	478.400
	9	385+660	385+860	200	2.99	598.000
	10	385+300	385+500	200	2.86	572.000
	11	385+660	385+860	200	2.87	574.000
	12	385+500	385+660	160	2.86	457.600
الاجمالـي الكـلي (م3)						5,854.00

مهندس الشركة
(شركة عبدالسلام الفقي)
م / [illegible]

مهندس الاستشاري
مكتب XYZ
م / محمد خليل

مهندس الاستشاري
م / عماد نبيل
م / عبدالعزيز [illegible]

مهندس الهيئة
م / مارجريت مجدي

شركة أبناء عبد السلام عبد الحميد الفقي وشركاه للمقاولات والاستشارات الهندسية

مشروع القطار السريع غرب النيل

SPECTRUM CONSULTING
سبكترم للاستشارات الهندسية

الهيئة العامة
للطرق و الكباري
(GARB)
وزارة النقل

قائمة كمية الأعمال الواردة بالمستخلص الجاري-2- إتجاة فوكة

رقم البند و بيانه : (5-2) بالمتر المكعب اتعمال توريد وفرش طبقة تأسيس (Subballast) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات علاوة نقل السن لمسافة 103 كم = 103 (المسافة الكلية من المحجر للموقع) - 20 كم (المحمل على البند)) *1.20 للكم)= 83*1.20 = 99.60جنية

تـنفيـذ : شركة أبناء عبدالسلام الفقي للمقاولات و الاستشارات الهندسية

كمية المقايسة (م3) : 5,855.00 مقدار العمل السابق (م3) : 0.00

البند	طلب الفحص	المسافة الكيلومترية		الطول	مساحة المقطع	الكمية
		من الكم	الى الكم			
بالمتر المكعب اتعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصي حجم للحبيبات 100 مم والا تزيد نسبة المار من منخل 200 عن 12 % و التدرج الوارد بالاشترطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 25 % و الا تزيد نسبة الفاقد بجهاز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15% و الا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجابسكال و يتم فردها علي طبقتين باستخدام الات التسوية الحديثة علي ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الي نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الي اقصي كثافة جافة قصوي (لاتقل عن 95 %) من الكثافة المعملية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف - مسافة النقل لا تقل 20 كم - يتم احتساب علاوة1.20 جنيه لكل 1 كم بالزيادة او النقصان - السعر يشمل القيمة المحجرية.	1	385+007.5	385+100	92.5	2.99	276.575
	2	385+100	385+300	200	2.99	598.000
	3	385+860	386+007.5	147.5	2.99	441.025
	4	385+300	385+500	200	2.99	598.000
	5	385+007.5	385+100	92.5	2.86	264.550
	6	385+100	385+300	200	2.87	574.000
	7	385+860	386+007.5	147.5	2.86	421.850
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	9	385+660	385+860	200	2.99	598.000
	10	385+300	385+500	200	2.86	572.000
	11	385+660	385+860	200	2.87	574.000
	12	385+500	385+660	160	2.86	457.600
الاجمالي الكلي (م3)						5,854.00

مهندس الشركة
(شركة عبدالسلام الفقي)
م / عبدالسلام عبدالعليم الفقي

مهندس الاستشاري
مكتب XYZ
م / محمد خليل

مهندس الاستشاري
مكتب د / عصام
م/عبدالعزيز مصطفى

مهندس الهيئة
م / مارجريت مجدي

شركة أبناء عبدالسلام عبدالعليم الفقي للمقاولات والاستشارات الهندسية

SPECTRUM CONSULTING
سبكترم للاستشارات الهندسية

الهيئة العامة
للطرق و الكباري
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وزارة النقل

قائمة كمية الأعمال الواردة بالمستخلص الجاري-2- إتجاة فوكة

رقم البند و بيانه : (5-2) بالمتر المكعب اتعمال توريد وفرش طبقة تأسيس (Subballast) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات علاوة كارتة تحصيل رسوم وموازين الشركة الوطنية 25 جنية للمتر

تنفيذ : شركة ابناء عبدالسلام الفقي للمقاولات و الاستشارات الهندسية

كمية المقايسة (م3) : 5,855.00 مقدار العمل السابق (م3) : 0.00

البند	طلب الفحص	المسافة الكيلومترية		الطول	مساحة المقطع	الكمية
		من الكم	الى الكم			
بالمتر المكعب اتعمال توريد وفرش طبقة تأسيس (prepared Subgrade) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصي حجم للحبيبات 100 مم والا تزيد نسبة المار من منخل 200 عن 12 % و التدرج الوارد بالاشترطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 25 % و الا تزيد نسبة الفاقد بجهاز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15% و الا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجابسكال و يتم فردها علي طبقتين باستخدام الات التسوية الحديثة علي ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الي نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الي اقصي كثافة جافة قصوي (لاتقل عن 95 %) من الكثافة المعملية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف - مسافة النقل لا تقل 20 كم - يتم احتساب علاوة1.20 جنيه لكل 1 كم بالزيادة او النقصان - السعر يشمل القيمة المحجرية.	1	385+007.5	385+100	92.5	2.99	276.575
	2	385+100	385+300	200	2.99	598.000
	3	385+860	386+007.5	147.5	2.99	441.025
	4	385+300	385+500	200	2.99	598.000
	5	385+007.5	385+100	92.5	2.86	264.550
	6	385+100	385+300	200	2.87	574.000
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	10	385+300	385+500	200	2.86	572.000
	11	385+660	385+860	200	2.87	574.000
	12	385+500	385+660	160	2.86	457.600
الاجمالـى الكلـى (م3)						5,854.00

مهندس الشركة
(شركة عبدالسلام الفقي)
م /

مهندس الاستشاري
مكتب XYZ
م / محمد خليل

مهندس الاستشاري
مكتب د / عمام
م / عبدالعزيز مصطفى

مهندس الهيئة
م / مارجريت مجدي

شركة ابناء عبد السلام عبد الحفيظ الفقي وشركاه للمقاولات والاستشارات الهندسية

SPECTRUM CONSULTING
سبكترم للاستشارات الهندسية

مشروع القطار السريع غرب النيل

وزارة النقل

الهيئة العامة للطرق والكباري

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

المقايسة لبنود الاعمال تنفيذ شركة عبدالسلام الفقي

القطاع من المحطة ٣٨٥+٠٠٠ الى ٣٨٦+٠٠٠ بطول ١ كم اتجاه أوكة رقم العقد (٢٠٢٣/٢٠٢٢/٨٣٤) .

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفئة	الاجمالى
٣	اعمال الردم				
٣.٢	بالمتر المكعب اعمال تحميل وتوريد ونقل تربة صالحة للردم مطابقة للمواصفات وتشغيلها باستخدام الات التسوية بسمك لا يزيد عن ٥٠ سم حتي منسوب ٢٠ 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 (٩٥ % 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 و الكباري وتعليمات المهندس المشرف. - في حالة طلب جهاز الإشراف زيادة نسبة الدمك عن ٩٥ % يحسب زيادة ١ جنيه على زيادة نسبة الدمك لكل ١ % - مسافة النقل حتى ٢ كم و يتم احتساب علاوة ١,١ جنيه لكل كم بالزيادة او النقصان - السعر يشمل عمل تشوينات و تخليط و اختبارات و نقل لموقع العمل حتى مسافة ٢ كم	م٣	17110.00	85.00	1454350.00
	علاوة مسافة نقل للتربة لمسافة ١٢٢ كم = ١,١*١٢٠ =١٦٨ جنيه	م٣	13688.00	168.00	2299584.00
	علاوة مسافة نقل للرمل لمسافة ٧٥ كم = ١,١*٧٣ =١٠٢,٢ جنيه	م٣	3422.00	102.20	349728.40
	علاوة تحصيل رسوم الكارتة و الموازين طبقا للائحة الشركة الوطنية	م٣	17110.00	13.00	222430.00
٥	طبقات الاساس				
٥.١	بالمتر المكعب العمل 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 % و الا تزيد نسبة الفاقد بجهاز لوس انجلوس عن ٣٠ % والا يزيد الامتصاص عن ١٥% و الا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ٨٠ ميجابسكال و يتم فردها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٥ سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى اقصى كثافة جافة قصوى (لاتقل عن ٩٥ %) من الكثافة المعملية والحقلية تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف مسافة النقل لا تقل عن ١٠ كم ،يتم احتساب علاوة ١,٢ جنيه لكل ١ كم بالزيادة او النقصان , يتم صرف قيمة المواد المحجوزة في حالة تقديم ما يثبت تسديد الاتاوة للشركة الوطنيه .	م٣	8037.00	278.00	2234286.00
	علاوة مسافة النقل ١٠٢ كم = ١,٢*٨٣ = ٩٩,٦	م٣	8037.00	99.60	800485.20
	علاوة تحصيل رسوم الكارتة و الموازين طبقا للائحة الشركة الوطنية	م٣	8037.00	25.00	200925.00
٥.٢	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 ١١٠ ميجابسكال والا يزيد نسبة الفاقد بجهاز لوس انجلوس عن ٣٠ % والا يزيد الامتصاص عن ١٥ % ويتم فردها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٠ سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة قصوى (لا يقل عن ١٠٠%) من الكثافة المعملية و الفلة تشمل اجراء التجارب المعملية والحقلية ويتم تنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف , مسافة النقل لا تقل ٢٠ كم ،يتم احتساب علاوة ١,٢ جنيه لكل ١ كم بالزيادة او النقصان ، السعر يشمل اتاوة المحاجر الرسمية للشركة الوطنيه وعلى الشركة المنفذة تقديم ما يثبت تسديد الاتاوة للشركة الوطنيه.	م٣	5855.00	298.00	1744790.00
	علاوة مسافة النقل ١٠٢ كم = ١,٢*٨٣ = ٩٩,٦	م٣	5855.00	99.60	583158.00
	علاوة تحصيل رسوم الكارتة و الموازين طبقا للائحة الشركة الوطنية	م٣	5855.00	25.00	146375.00
٥	البلاطات الخرسانية				
٥.٢	بالمتر المسطح أعمال توريد وصب خرسانة عادية سمك ١٥ سم لحماية الأكتاف والميول الجانبية تتكون من ٠,٨ م٣ من دولوميت مكرج + ٠,١ م٣ رمل حرش + ٢٥٠ كجم أسمنت بورتلاندي عادي و اضافة fiber reinforcement على أن يكون السن نظيف ومغسول والرمل خالي من الشوائب والطفلة والأملاح والمواد الغريبة والبند يشمل تجهيز واستعدال مناسيب التربة الطبيعية أسفل البلاطة للوصول إلي المناسيب التصميميه على أن تحقق الخرسانة اجهاد لا يقل عن ٢٥٠ كجم / سم٢ وتشطيب السطح والتنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقاً لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف .	م٢	10045.57	266.00	2672121.62
٥.٣	بالمتر المكعب اعمال توريد و صب خرسانة عادية لتدعيم العمليات و الميول الجانبية تتكون من ٠,٨ م٣ من دولوميت مكرج +٠,١٥ م٣ رمل حرشو الاضافات طبقا لتعليمات الاستشاري (فيبر - سيكا) على ان يكون السن نظيف و مغسول و الرمل خالي من الشوائب و الطفلة و الاملاح و المواد الغريبة مع وضع لوم (بلاستيك) بسمك ٢ سم (طبقا لتعليمات الاستشاري) و البند يشمل اعمال الحفر و الشدات و كل ما يلزم لتهو العمل على ان تحقق الخرسانة اجهاد لا يقل عن ٢٥٠ كجم / سم٢ و ملء الفواصل بالبيتومين المرمل و التنفيذ طبقا لأصول الصناعة و الرسومات التفصيلية المعتمدة و البند بجميع مشتملاته طبقا لمواصفات الهيئة العامة للطرق و الكباري و تعليمات المهندس المشرف	م٣	480.00	2200.00	1056000.00
١١	اعمال التربة المسلحة				
١١.١	بالمتر المسطح توريد و تركيب طبقة من النسيج الصناعي جيوجريد مستوردالتداخل لا يقل عن ١٠ % و يتم التنفيذ طبقا لاصول الصناعة و الرسومات التفصيلية المعتمدة و البند بجميع مشتملاته طبقا لمواصفات الهيئة العامة للطرق و الكباري				
	ات قوة شد ٢٠ ك . نيوتن في الاتجاهين Biaxial	م٢		23.00	
	ات قوة شد ٣٠ ك . نيوتن في الاتجاهين Biaxial	م٢	3669.37	37.00	135766.69
	الاجمالى				13900000.00

يعتمد
رئيس الادارة المركزية
منطقة غرب الدلتا
(بالاسكندرية / مرسى مطروح)
عقيد مهندس /
"هانى محمد محمود طه"

مدير عام مشروعات المنطقة الخاصة
م / محمد حسنى قباش

مدير المشروع المالك
م / مارجريت مجدي

مدير المشروع الاستشاري
م / مصطفى رياض

مدير المشروع المقاول
م / احمد عبدالمنصف

SPECTRUM CONSULTING

شركة أبناء عبد السلام عبد العظيم الفقي وشركاه للمقاولات والاستثمارات الهندسية

CamScanner

MATERIAL APPROVAL REQUEST

Contractor Company	Eng. AbdElsalam ELFeky For Contracting			Designer Company				(SPECTRUM) Engineering Consulting Office			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	Eng. Mohamed Ismael			26/3/2023				8:00			
				QT SB (1)							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				385	EW	CS	28	3	23	8	0

شركة عبد السلام عبد الحميد الفقي وشركاه للمقاولات والاستشارات الهندسية

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	Subballast Layer Total Quantity (5000 m³)		
Location to be Used	From Station 385+007.5) to Station (386+007.5)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG71-41.2) 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. 2-This Sample Representive (5000 m3) 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-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng.	2023		AWC

* Designer

** Alignment/Bridges: Culvert only

11/4

I- Introduction

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبدالسلام الفقى للمقاولات
Sample	:	Sub-Ballast
Station	:	St(385+007.5) to st(386+007.5)
Date of Test	:	28/03/2023
QC	:	900

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	2.188
	OMC	5.9%
3- Liquid limit, plastic limit and plasticity index	LL	Non plastic
	PL	Non plastic
	PI	Non plastic
4- California bearing ratio (CB	CBR ratio	96%
5- Specific gravity (SG), absorption and degradation	S S D	2.520
	Absorption	1.2%
	Degradation	0.2%
6- Los Angeles test	Abrasion ratio	27.0%

LAB DIRECTOR
Eman.
Eng / Eman kandil

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

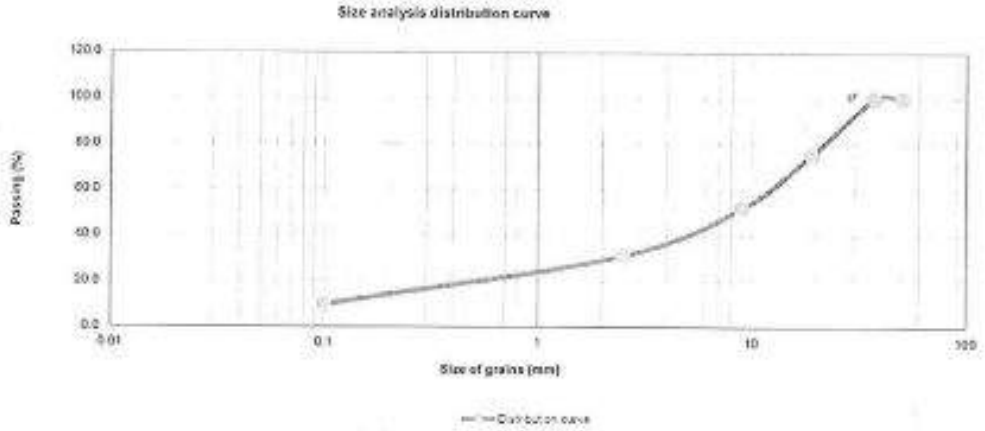
APPENDIX

COMIBASSAL International Controllers
Internal inspection and laboratories sector
Accredited by : Egyption General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egyption Accreditation council (EGAC) under No. 031706/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS
ASTM C-136 / AASHTO T27

	WEIGHT RETAINED (gm)	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDURD SPECIFICATION LIMITS	
2	0.00	0.00	0.00	100.0		
1 1/2	0.00	0.00	0.00	100.0		
1	847.00	847.00	8.47	91.5		
3/4	1603.00	2450.00	24.50	75.5		
1/2	1697.00	4147.00	41.47	58.5		
3/8	656.00	4803.00	48.03	52.0		
No.4	1325.00	6128.00	61.28	38.7		
No.10	98.00	98.00	19.60	31.1		
No.200	375.00	375.00	75.00	9.7		

total sample weight= 10000.00 pass No.4= 3872.0 Total fine aggregates weight = 500 gm
pass% 38.7



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

Kilo 23 Alexandria - Cairo Desert Road - Merghem
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Modified Proctor Test Report
ASTM - D 1557

Mould Number :- 3
Volume of mould = 2188 cm^3
Weight of mould = 7256 g
G.S = 2.6 g/cm3

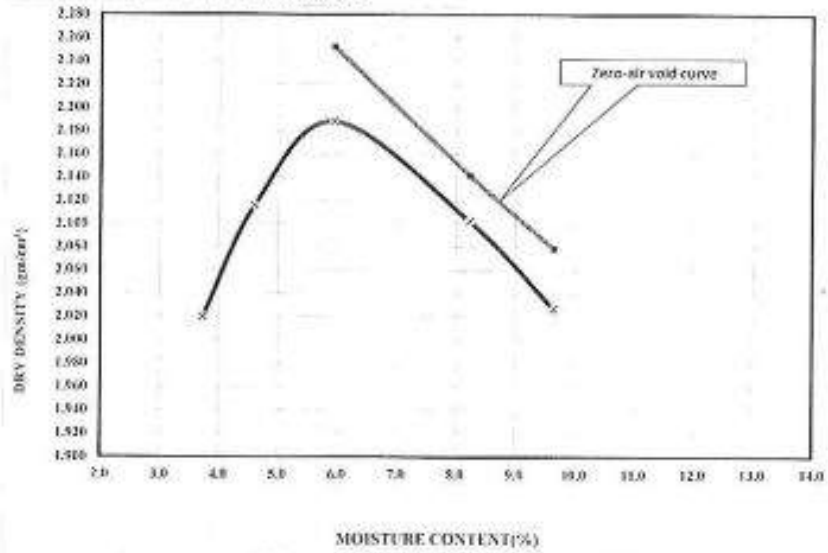
A- Density Calculations :-

	1	2	3	4	5
Weight.of wet soil+mould (g)	11840	12098	12335	12234	12119
Weight.of mould (g)	7256	7256	7263	7256	7256
Weight.of wet soil (g)	4584	4842	5072	4978	4863
Volume of mould (cm^3)	2188	2188	2188	2188	2188
Wet density (g/cm^3)	2.095	2.213	2.318	2.275	2.223
Dry density (g/cm^3)	2.020	2.116	2.188	2.102	2.027
Zero-air Void curve			2.253	2.142	2.079

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	239.0	236.0	231.0	228.0
moisture content%	3.7	4.6	5.9	8.2	9.6

C - Dry density-Moisture relationship:-



M.D.D= 2.188 gm/cm^3
O.M.C= 5.9 %

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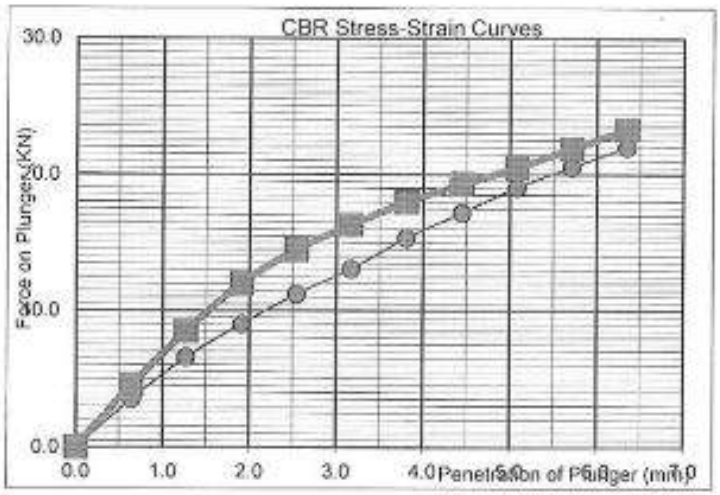
Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56			Swell %			
MOULD NO	1				56		
WT OFMOULD+SOIL	12305			Start	0.00		
WT OF MOULD	7250			End	0.00		
WT OF SOIL	5055			Swell	0.00		
VOLUME OF MOULD	2190						
WET DENSITY	2.308						
	MC before soaking			Weight of Rammer			4.54Kg
TIN NO	1				MDD	Kg/m3	2.188
WT OF WET SOIL+TIN	250.00						
WT OF DRY SOIL+TIN	241				OMC	%	5.9
WT OF WATER	9.00						
WT OF TIN	82				PROVING RING		
WT OF DRY SOIL	159	2.125			Div/KN		
MOISTURE CONTENT	5.7						
DRY DENSITY	2.185				Capacity (KN)		50

Pen mm	97			Bearing (KN)			CBR		
	56			56			standar	56	
0.00	0			FALSE			0.0		
0.64	355			3.5			4.5		
1.27	670			6.6			8.5		
1.91	920			9.0			12.0		
2.54	1145			11.2			14.5	85	
3.17	1335			13.1			16.3		
3.81	1567			15.4			18.0		
4.45	1753			17.2			19.3		
5.08	1945			19.1			20.5	96	
5.71	2097			20.6			21.9		
6.35	2245			22.0			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	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)	2525
Weight of saturated sample in water (C)	1523
Weight of dry sample aftre heating (A)	2496

Results:-

Saturation surface dry spicific gravity = B / (B-C)	2.520
Bulk spicific gravity = A / (B-C)	2.491
Apparent spicific gravity = A /(A-C)	2.565
Asorbtion of water = (B-A)/A*100	1.2
Degradation of aggregate = (2500-A)/ A*100	0.2

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COMIBASSAL International Controllers
Internal inspection and laboratories sector
Accredited by : Egyption General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egyption Accreditation council (EGAC) under No. 031706/1A

Report	:	399 - 2 - Center
Date	:	11/04/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقى للمقاولات
Project	:	Electric express train
Sample	:	Sub Ballast
Station	:	ST (385 + 007.5) : (386 + 007.5)
Date of Test	:	28-3-2023

Temperature : 18 °C Humidity : 40%

ANALYSIS	RESULTS	TEST METHOD
CHLORIDE	0.0039%	ASTM D 2974
SULPHATE	0.0025%	
ORGANIG MATTER	NEGATIVE	

LAB DIRECTOR
CH/ Mostafa Asker
For Amany Amin

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

MATERIAL APPROVAL REQUEST

Contractor Company	Eng. AbdElsalam El-Feky For Contracting			Designer Company				(SPECTRUM) Engineering Consulting Office				
Issued by Contractor	Name	Sign		Date/Serial Number				Time				
	Eng. Mohamed Ismael			17 /5 /2023				8:00				
				QT 59 (2)								
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	C1-	C2	C3	DD	MM	YY	HH	MM	
				385	EW	CS	18	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		
	Sub Element of Activity		

Description of Materials	Subballast Layer Total Quantity (5000 m³)		
Location to be Used	From Station 385+007.5) to Station (386+007.5)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG-21-41.2) 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. 2-This Sample Representive (5000 m3) 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-R
Contractor	Eng. Mohamed Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges/Culvert only

15/6

I- Introduction

General Consultant	:	SYSTRA
Consultant	:	Spectrum
Contractor	:	شركة عبد السلام الفقي للمقاولات
Sample	:	Sub-Ballast
Station	:	St(386+007.5)to st(385+007.5)
Date of Test	:	18/5/2023
QC	:	1409-1

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	2.210
	OMC	6.3%
3- Liquid limit, plastic limit and plasticity index	LL	Non plastic
	PL	Non plastic
	PI	Non plastic
4- California bearing ratio (CBR)	CBR ratio	95%
5- Specific gravity (SG), absorption and degradation	S S D	2.518
	Absorption	1.2 %
	Degradation	0.2%
6- Los Angeles test	Abrasion ratio	27.0%

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
Eman
Eng / Eman kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

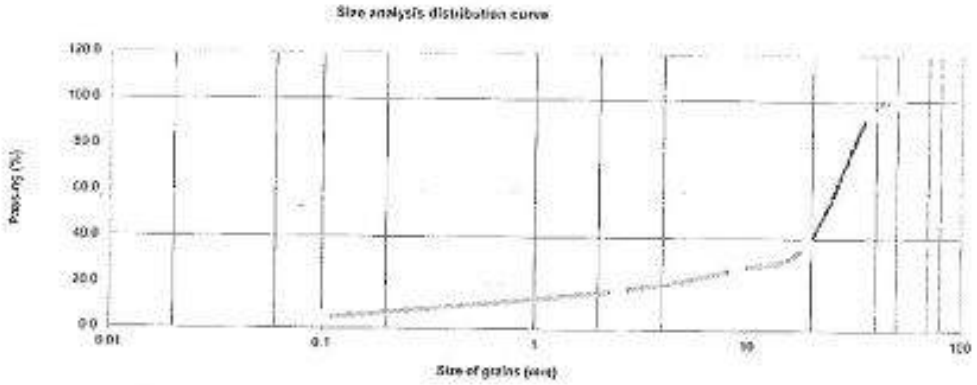
APPENDIX

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

PARTICLE SIZE DISTRIBUTION ANALYSIS
ASTM C-136 / AASHTO T27

	WEIGHT RETAINED (gm)	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDURD SPECIFICATION LIMITS	
2	0.00	0.00	0.00	100.0		
1 1/2	556.00	556.00	5.56	94.4		
1	3721.00	4277.00	42.77	57.2		
3/4	1973.00	6250.00	62.50	37.5		
1/2	773.00	7023.00	70.23	29.8		
3/8	312.00	7335.00	73.35	26.7		
No.4	684.00	8019.00	80.19	19.8		
No.10	74.00	74.00	14.80	16.9		
No.200	392.00	392.00	78.40	4.3		

Total sample weight = 10000.00 pass No.4- 1981.0 Total fine aggregates weight = 500 gm



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 = 2199 cm^3
Weight of mould = 5890 g
G.S = 2.65 g/cm3

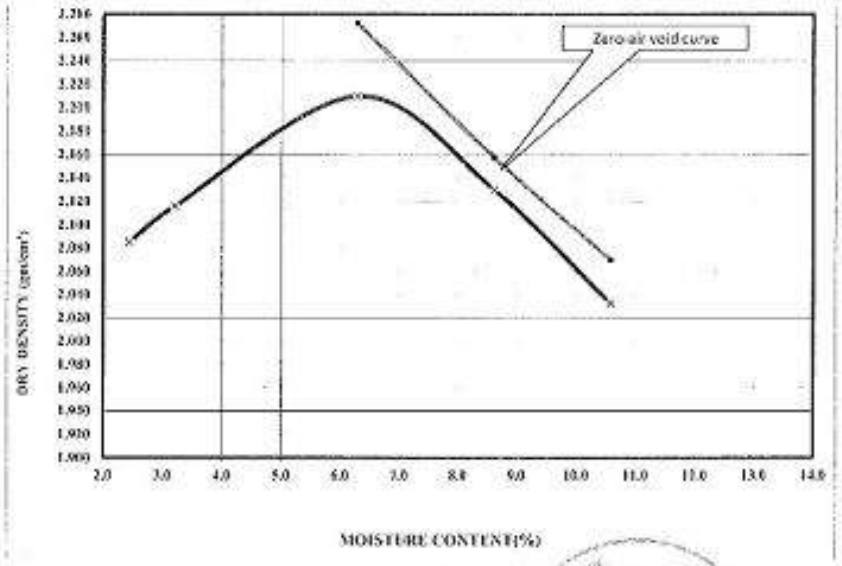
A- Density Calculations :-

	1	2	3	4	5
Weight.of wet soil+mould (g)	10586	10691	11054	10977	10832
Weight.of mould (g)	5890	5890	5890	5890	5890
Weight.of wet soil (g)	4696	4801	5164	5087	4942
Volume of mould (cm^3)	2199	2199	2199	2199	2199
Wet density (g/cm^3)	2.136	2.183	2.348	2.313	2.247
Dry density (g/cm^3)	2.085	2.116	2.210	2.130	2.032
Zero-air Void curve			2.272	2.158	2.070

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)	246.0	244.2	237.0	232.0	234.5
Weight.of container (g)	82.0	63.0	30.0	23.0	88.0
moisture content(%)	2.4	3.2	6.3	8.6	10.6

C - Dry density-Moisture relationship:-



M.D.D= 2.210 gm/cm^3
O.M.C= 6.3 %

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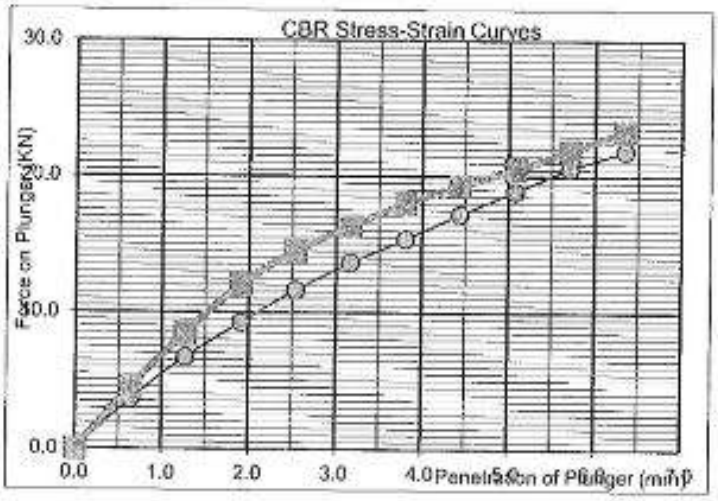
Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56			Swell %			
MOULD NO	1				56		
WT OFMOULD+SOIL	12360			Start	0.00		
WT OF MOULD	7250			End	0.00		
WT OF SOIL	5110			Swell	0.00		
VOLUME OF MOULD	2190						
WET DENSITY	2.333						
	MC before soaking			Weight of Rammer			4.54Kg
TIN NO	1				MDD	Kg/m3	2.210
WT OF WET SOIL+TIN	250.00						
WT OF DRY SOIL+TIN	241				OMC	%	6.3
WT OF WATER	9.00						
WT OF TIN	82				PROVING RING		
WT OF DRY SOIL	159	2.125			Div/KN		
MOISTURE CONTENT	5.7						
DRY DENSITY	2.208				Capacity (KN)		50

Pen mm	97			Bearing (KN)			CBR		
	56			56			standar	56	
0.00	0			FALSE			0.0		
0.64	368			3.6			4.5		
1.27	684			6.7			8.5		
1.91	943			9.2			12.0		
2.54	1186			11.6			14.5	89	
3.17	1392			13.6			16.3		
3.81	1567			15.4			18.0		
4.45	1753			17.2			19.3		
5.08	1925			18.9			20.5	95	
5.71	2097			20.6			21.9		
6.35	2230			21.9			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	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)	2526
Weight of saturated sample in water (C)	1523
Weight of dry sample aftre heating (A)	2496

Results:-

Saturation surface dry spicific gravity = B / (B-C)	2.518
Bulk spicific gravity = A / (B-C)	2.489
Apparent spicific gravity = A /(A-C)	2.565
Asorbtion of water = (B-A)/A*100	1.2
Degradation of aggregate = (2500-A)/ A*100	0.2

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Report	:	553 - 1 - Center
Date	:	15/06/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقى للمقاولات
Project	:	Electric express train
Sample	:	Sub Ballast
Station	:	ST (386 + 007.5) : (385 + 007.5)
Date of Test	:	18-5-2023

Temperature : 25 °C Humidity : 40%

ANALYSIS	RESULTS	TEST METHOD
CHLORIDE	0.0046%	ASTM D 2974
SULPHATE	0.0180%	
ORGANIG MATTER	NEGATIVE	

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LAB DIRECTOR
CH/ Mostafa Asker

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MATERIAL INSPECTION REQUEST

شركة أبناء عبد السلام عبد الحميد الفقي وشركاه للمقاولات والإستشارات الهندسية

Contractor Company	Eng. AbdElsalam ElFeky For Contracting			Designer Company				(SPECTRUM) Engineering Consulting Office				
Issued by Contractor	Name	Signature		Date/Serial Number				Time				
	Eng. Mohamed Ismael			10/6/2023 PLT (14)				12:00 PM				
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	C1	C2	C3	DD	MM	YY	HH	MM	
				385	EW	CS	11	6	23	3	0	

CODE-1	S1 to S21	D1 to S3	Xp 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 (SUB BALLAST 2)			
Location to be Used	From	385+007.5	TO	385+500
MAR & UIR Approval No	UIR SB (005)	Date	3/5/2023	
	UIR SB (006)		3/5/2023	
	UIR SB (010)		17/5/2023	
	M.A.R.(QT SB 1)		28/3/2023	
Supplier Name				
Test Requirement	PLATE LOAD TEST ON FILL LAYER FERMA	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CGZ1-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	PLT BY Comibassal LABORATORY	NUMBER	20	11/6/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Loade Test Result by third party is Approved.	1-9 Point was carried- out by (Comibassal) 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 Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		15/6	AWC

* Designer

** Alignment/Bridges. Culvert only

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Technical report

of Plate Loading Test (DIN 18134)

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد الستار الفي للمقاولات
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Subsoil layer (2)
Station	:	St(385+275)to st(385+500)
Date of Test	:	11/06/2023
QC	:	1380

Introduction

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Test methods:

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Description of equipment:

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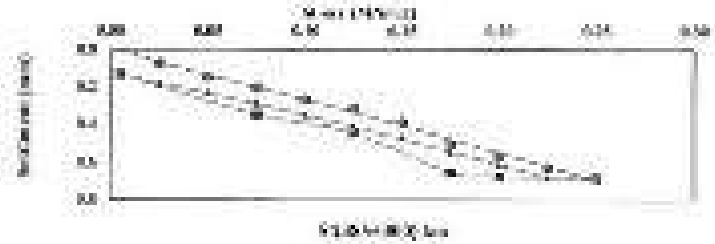

Fig. 3: Good settlement curves (falling curves connecting the Table 4 and Table 5 for the first and second loading cycles)

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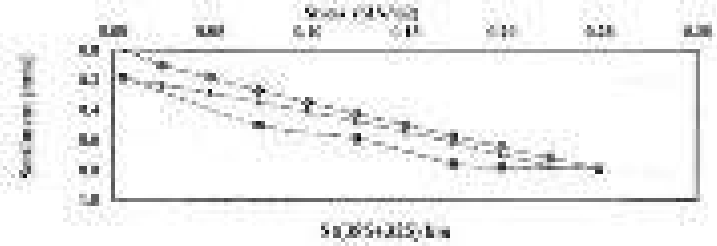

Fig. 5. Load and deflection curves. Bolting is according to Table 7 and Table 8 for the first and second loading cycles.

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Fig. 4. [illegible]

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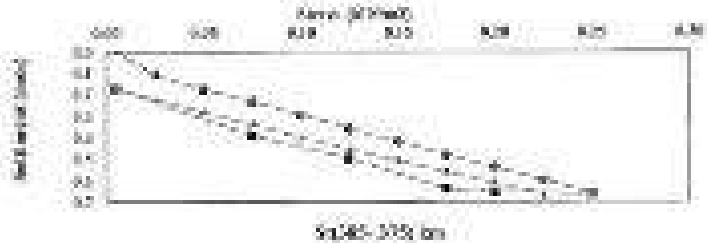

Fig. 8. [illegible]

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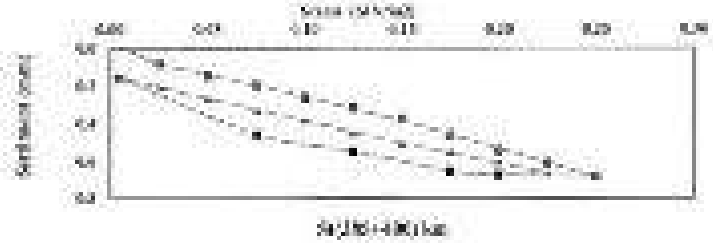

Fig. 4: Load settlement curves, Holding curves according to Table 10 and Table 11 for the first and second loading cycles

- Measurement with intermediate loading cycle
- Measurement with intermediate unloading cycle
- Measurement with intermediate unloading cycle
- Calibration beam
- Normalized loading curve

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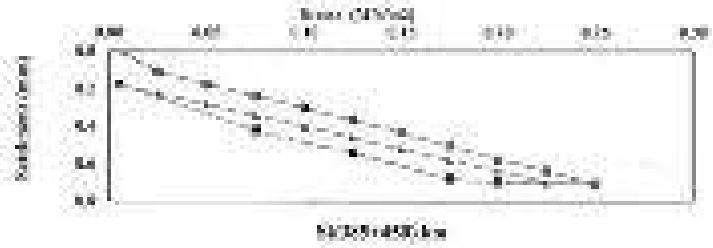

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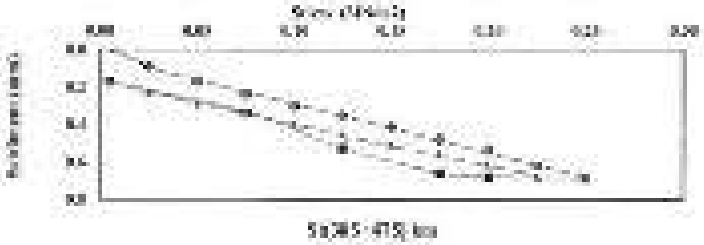
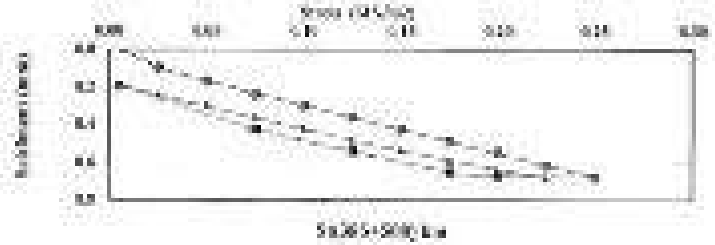


Fig. 3 Comparison between [illegible] according to Table 20 and Table 21 for the first and second loading cycles

- [illegible] from the first loading cycle
- [illegible] from the unloading cycle
- [illegible] from the second loading cycle

[illegible]



Conclusion:

[illegible]

[illegible] Test results

Condition	Fv1(N/cm²)	Fv2(N/cm²)	Fv2/Fv1 ratio
[illegible]	[illegible]	[illegible]	1.17
[illegible]	[illegible]	[illegible]	1.09
[illegible]	[illegible]	[illegible]	1.04
[illegible]	[illegible]	[illegible]	1.14
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	1.17

Lab Director
Eng/ [illegible]

Operational Director
Dr/ Mohamed Mostafa Bedey

COMIBASSAL International Controllers

Internal inspection and laboratories sector

Technical report

of Plate Loading Test (DIN 18134)

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام نفي للمقاولات
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Subballast layer (2)
Station	:	St(385+025)to st(385+250)
Date of Test	:	11/06/2023
QC	:	1382

[illegible]

Introduction:

[illegible]

Test methods:

[illegible]

Description of equipment:

[illegible]

COMIBASSAL International Controllers

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[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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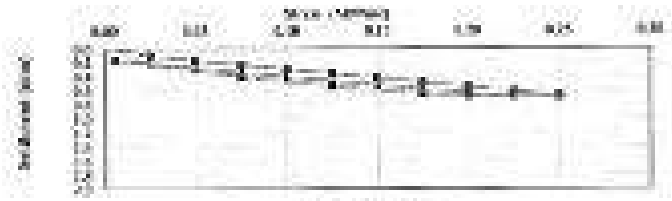

[illegible]

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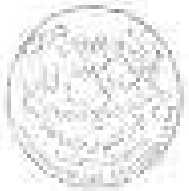

[illegible]

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[illegible]

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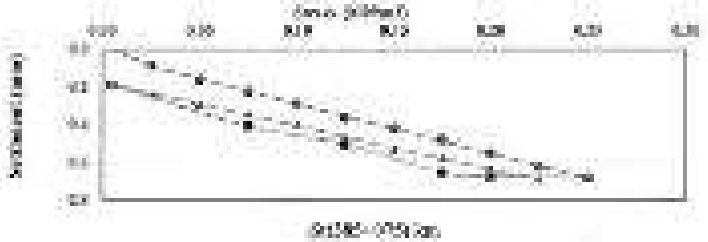

Fig. 3. [illegible]

[illegible]

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[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]
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[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	

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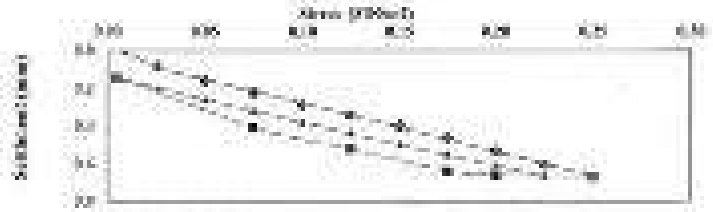


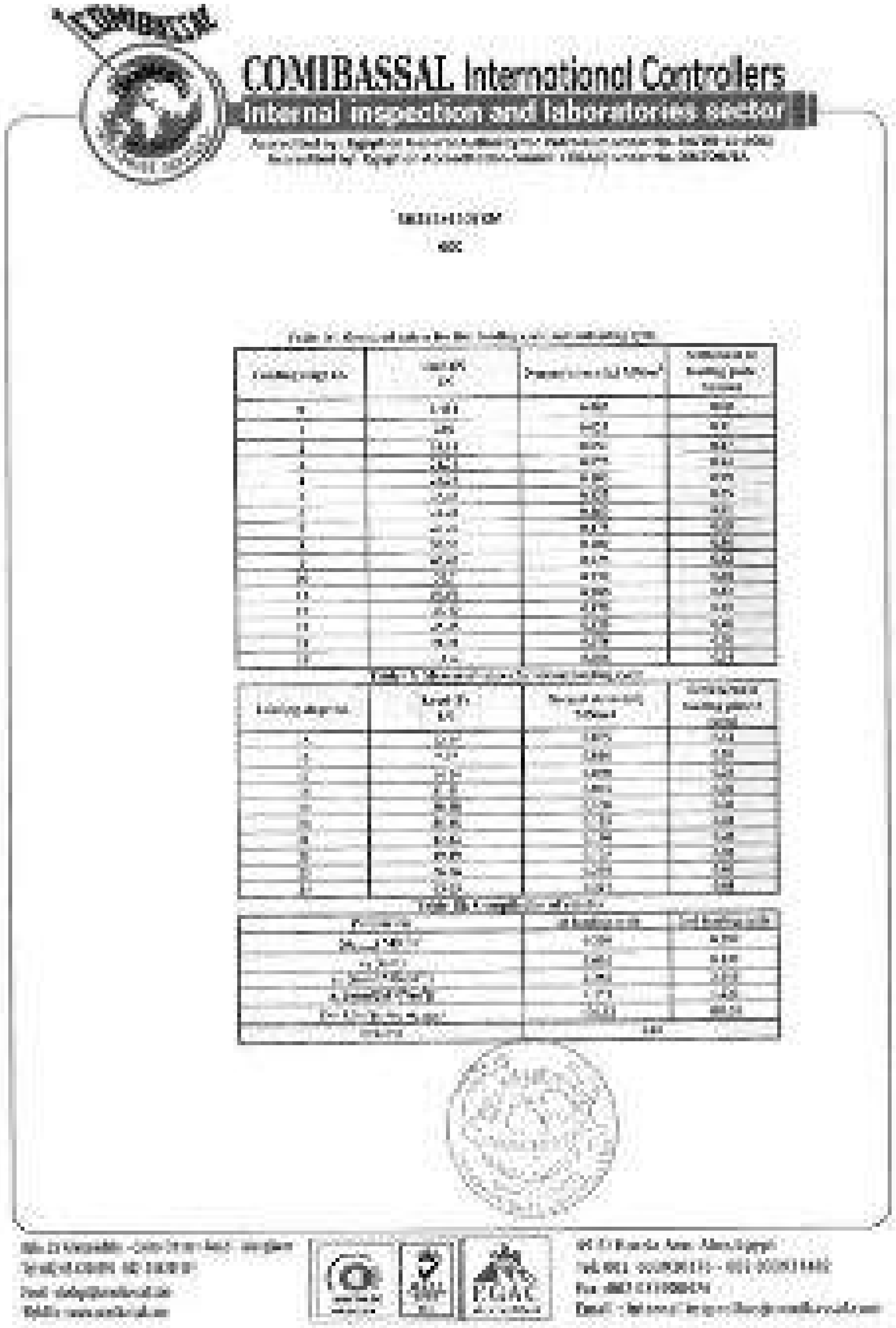
Sa385 125 lm

Tel: [illegible]

Fax: [illegible]

Email: [illegible]

Website: [illegible]



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COMIBASSAL International Controllers

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[illegible]

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[illegible]

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[illegible]

Fig. 1 Load and stress curve, filling series counted by in Table 2A and Table 2B for the first and second loading cycle

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[illegible]

[illegible]

[illegible]

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[illegible]

[illegible]

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54(215+230) kai

Fig. [illegible] Measurement curves, [illegible] Fig. [illegible], Table 21 and Table 26 for the first and second loading cycles

- [illegible]
- [illegible]
- [illegible]

[illegible]

[illegible]

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[illegible]

[illegible]

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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

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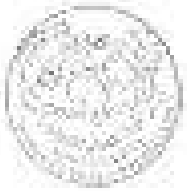
Internal inspections and laboratories sector



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[illegible]

[illegible]

COMIBASSAL International Controllers

Internal inspection and laboratories sector

Email:

Web Site:

Email:

COMIBASSAL International Controllers

Internal inspection and laboratories sector

Dear Sir/Madam:

[illegible]

Table 01 - [illegible]

Location	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Lab Director

Eng. [illegible]

Consultant Chemist

Dr. / Mohamed [illegible]

[illegible]

[illegible]

UNIVERSAL INSPECTION REQUEST

Contractor Company		Owner or Consultant	
Issued by Contractor		Inspection to be carried out	Time
Inspection Date			

EXPLANATION OF WORK TO BE INSPECTED

Description	Drawing	Area

Planned Inspection Date	Planned Inspection Time

COMPLETED INSPECTION

Installation Satisfactory	Some Installation Unsatisfactory	Installation Unsatisfactory	Other as indicated
Signature	Name		

Comments for Eng. Mohamed Ghazi (PTC)

Comments for Eng. Mohamed Bayoumi (PTC)

INSPECTION REPORT

Organisation	Name	Sign	Date	Time	Approval Status	Please FAX if Not Attend
Contractor	Eng. Ahmed Abu Al-Ismail					
PTC Survey	Eng. Mohamed Ghazi					
QA/QC	Eng. Mohamed Bayoumi					
Safety	Eng. Mohamed El Sayed					
Consultant Representative	Eng. Tarek Sarsoud					

GENERAL INSPECTION REQUEST

Contractor Company			
Submitted by Contractor		Date	Time
			11:00 AM

MATERIAL INSPECTION REQUEST

[illegible]

Contractor Company	[illegible] Contracting Company	Designer Company	[illegible]
Issued by Contractor	Name: Eng. [illegible]	Sign	Time: 4:00 PM
Received by [illegible] CONSULTANT	Eng. [illegible]		

[illegible]

[illegible]	[illegible]	[illegible]

[illegible]

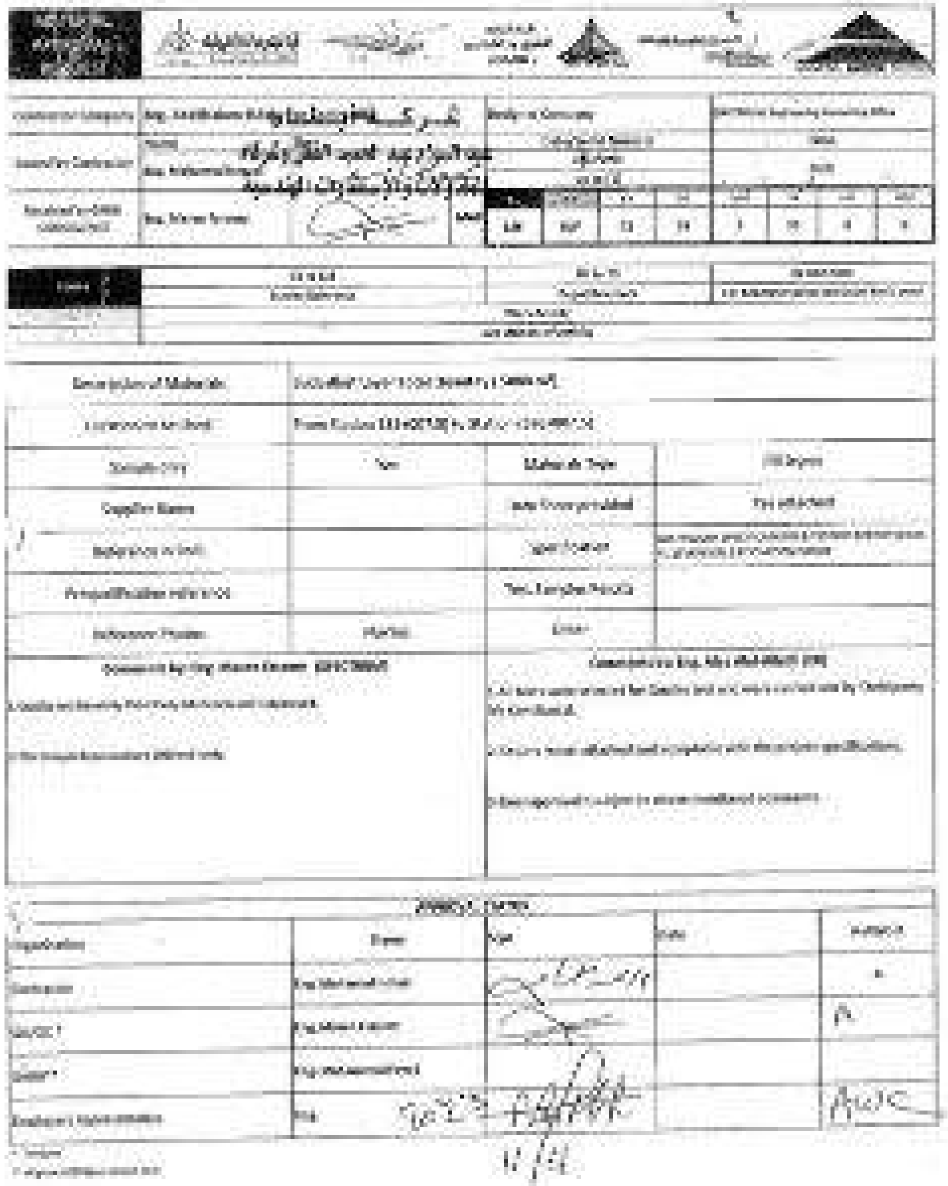
Planned Inspection Time

[illegible]

Comments by Eng. [illegible]

Comments by Eng. [illegible]

Organization	Name	Sign	Date	Time	Approval Status	
Contractor	Eng. [illegible]				A	
[illegible]	Eng. [illegible]				[illegible]	
[illegible]	Eng. [illegible]				A	
[illegible]	Eng. [illegible]					
Employer's Representative	Eng. John Sawy		17-9-2020		[illegible]	



Description of Materials	[illegible]		
Location to be Used	[illegible]		
Sample Qty	[illegible]	Materials Type	[illegible]
Supplier Name		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		Test Sample Results	
Inspection Position	[illegible]	[illegible]	

Organization	Name	Sign	Date	[illegible]
Contractor	[illegible]			
[illegible]	[illegible]			
[illegible]	[illegible]			
Employer's Representative	[illegible]			

MATERIAL INSPECTION REQUEST

Contractor Company	Eng. AbdElsalam ELFeky for Contracting			Designer Company				(SPECTRUM) Engineering Consulting Office	
Issued by Contractor	Name	Sign		Date/Serial Number				Time	
	Eng. Mohamed Ismael			13/6/2023				12:00 PM	
				PLT (15)					
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				385	EW	CS	12	6	23	3	0

شركة أبدالسلام عبد الحميد الفقي وشركاه
عبد السلام عبد الحميد الفقي وشركاه
للمقاولات والاستشارات الهندسية

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 (SUB BALLAST 2)			
Location to be Used	From	385+500	TO	386+007.5
MAR & UIR Approval No	UIR SB (007)	Date	16/5/2023	
	UIR SB (011)		28/5/2023	
	UIR SG (012)		30/3/2023	
	M.A.R.(QT SB 2)		18/5/2023	
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	20	13/6/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Plate Loade Test Result by third party is Approved.	1-9 Point was carried- out by (Comibassal) 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 Ismael			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif 2023	Alaa 15/6		AWC

* Designer

** Alignment/Bridges Culvert only

Technical report

of Plate Loading Test (DIN 18134)

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام القني للمقاولات
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Subballast layer (2)
Station	:	St(385+525)to st(385+750)
Date of Test	:	12/06/2023
QC	:	1405

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 300 mm have a thickness of 25mm and are provided with equally spaced stiffners 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 regime 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.

[illegible]

[illegible]

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

Loading stage no.	Load (P) kN	Normal stress (σ_n) kN/m²	Settlement of loading plate S (mm)
0	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]

Table 1.2 Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_n) kN/m²	Settlement of loading plate S (mm)
15	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]

Table 3: Summarization of results

Parameters	1st loading cycle	2nd loading cycle
$K_{(max)}$ kN/m²	[illegible]	[illegible]
$S_{(max)}$	[illegible]	[illegible]
S_1 (mm) [illegible]	[illegible]	[illegible]
S_2 (mm) [illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	

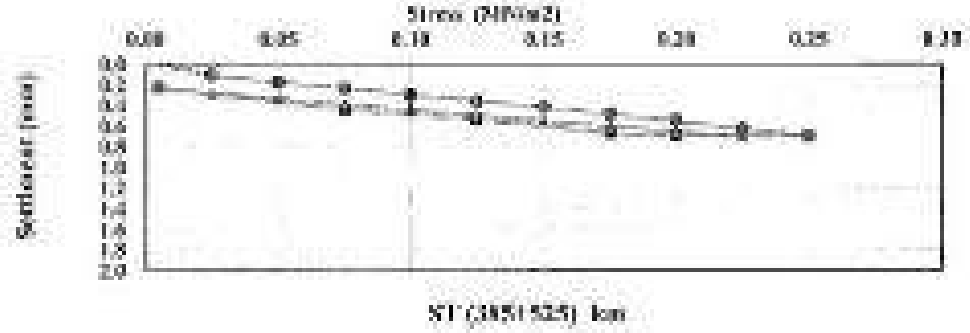


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the second loading cycle
- Measurement points from the second loading cycle
- δ: Settlement in mm
- σ_0: Applied stress (MPa/m²)

SQ[illegible]+550] KM

600

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

Loading stage no.	Load (P) kN	Normal stress (σ) MN/m²	Settlement of loading plate (δ) 5/mm
0	1.414	0.005	0.20
1	7.07	0.025	0.18
2	14.14	0.050	0.16
3	21.21	0.075	0.02
4	28.28	0.100	0.47
5	35.35	0.125	0.53
6	42.42	0.150	0.48
7	49.49	0.175	0.47
8	56.56	0.200	0.52
9	63.63	0.225	0.58
10	70.7	0.250	0.58
11	56.56	0.200	0.54
12	49.49	0.175	0.52
13	42.42	0.150	0.52
14	35.35	0.125	0.48
15	28.28	0.100	0.45

Table 5: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ) MN/m²	Settlement of loading plate (δ) 5/mm
15	1.414	0.005	0.15
16	7.07	0.025	0.21
17	14.14	0.050	0.26
18	21.21	0.075	0.34
19	28.28	0.100	0.38
20	35.35	0.125	0.44
21	42.42	0.150	0.49
22	49.49	0.175	0.55
23	56.56	0.200	0.59
24	63.63	0.225	0.65

Table 6: Compilation of results

Parameter	1st loading cycle	2nd loading cycle
σ_{max} (MN/m²)	0.250	0.250
s_u (mm)	0.038	0.141
s_u (mm)/(MN/m²)	0.001	0.001
s_u (mm)/(MN/m²)	0.000	0.004
[illegible]	181.32	300.45
[illegible]	1.00	

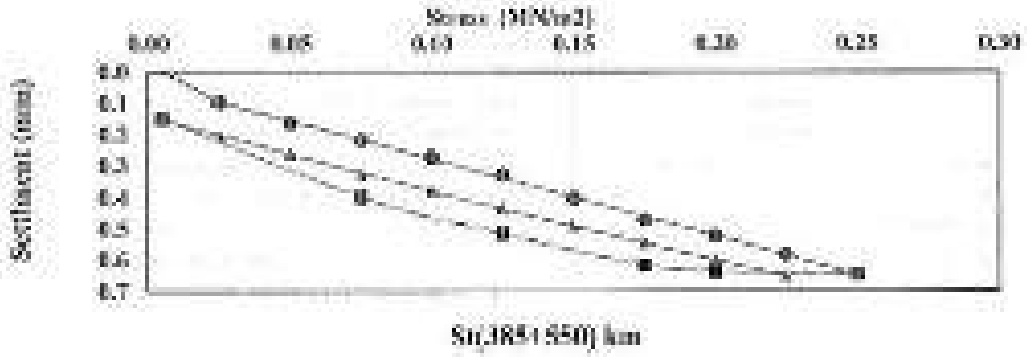


Fig. 21 Load-settlement curves, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

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

S1[285+575] KM

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

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
0	1.414	0.005	0.08
1	7.07	0.025	0.08
2	14.14	0.050	0.15
3	21.21	0.075	0.24
4	28.28	0.100	0.28
5	35.35	0.125	0.31
6	42.42	0.150	0.48
7	49.49	0.175	0.52
8	56.56	0.200	0.58
9	63.63	0.225	0.66
10	70.7	0.250	0.72
11	56.56	0.200	0.72
12	49.49	0.175	0.70
13	35.35	0.125	0.68
14	21.21	0.075	0.50
15	1.414	0.005	0.16

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ) MN/m2	Settlement of loading plate S (mm)
15	1.414	0.005	0.16
16	7.07	0.025	0.28
17	14.14	0.050	0.29
18	21.21	0.075	0.45
19	28.28	0.100	0.57
20	35.35	0.125	0.52
21	42.42	0.150	0.57
22	49.49	0.175	0.54
23	56.56	0.200	0.61
24	63.63	0.225	0.78

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{max}) MN/m²	0.250	0.200
σ_0 (MPa)	0.005	0.150
σ_1 (mm/MN/m²)	3.049	1.791
σ_2 (mm/MN/m²)	-0.966	1.741
E_{v1} (MN/m²)	155.24	155.35
K (MN/m³)	1.38	

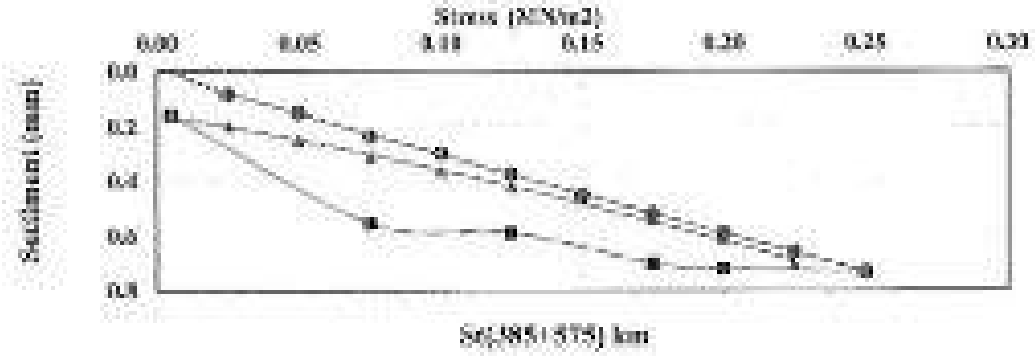

Fig. 5: Load settlement curve, fitting curves according to Table 7 and Table 8 for the first and second loading cycles

- ● 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_N: Normal stress MN/m²

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ECO

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

Loading stage no.	Load (F) KN	Normal stress (σ_n) N/mm²	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	0.17
3	21.21	0.075	0.24
4	28.28	0.100	0.30
5	35.35	0.125	0.35
6	42.42	0.150	0.41
7	49.49	0.175	0.51
8	56.56	0.200	0.56
9	63.63	0.225	0.63
10	70.7	0.250	0.70
11	63.63	0.225	0.67
12	49.49	0.175	0.67
13	35.35	0.125	0.54
14	21.21	0.075	0.45
15	1.414	0.005	0.17

Table (2): Measured values for second loading cycle

Loading stage no.	Load (F) KN	Normal stress (σ_n) N/mm²	Settlement of loading plate S (mm)
15	1.414	0.005	0.17
16	7.07	0.025	0.23
17	14.14	0.050	0.28
18	21.21	0.075	0.36
19	28.28	0.100	0.41
20	35.35	0.125	0.49
21	42.42	0.150	0.54
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
$\Delta\sigma_{max}$ (N/N/)	0.198	0.200
a_1 (mm)	0.015	0.149
a_2 (mm/(N/N/)²)	2.028	2.021
a_3 (mm/(N/N/)³)	1.251	-1.151
[illegible]	[illegible]	[illegible]
D.M(%)	1.34	

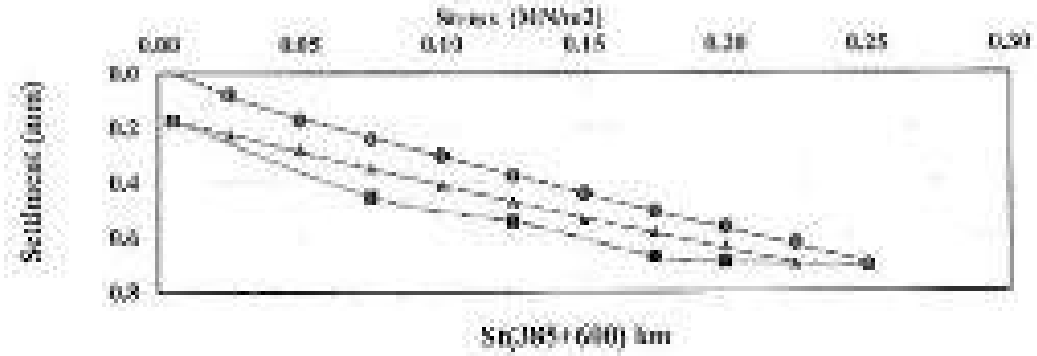

Fig. 4: Load-settlement curve, fitting curves according to Table 10 and Table 11 for the first and second loading cycles

- ● Measurement points from the first loading cycle
- ■ Measurement points from the reloading cycle
- ▲ Measurement points from the second loading cycle

S: Settlement in mm

σ_n: Normal stress MN/m²

[illegible]

[illegible]

Table [illegible]: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) kN	Normal stress (σ) MN/m²	Settlement at loading plate S (mm)
0	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]

Table [illegible]: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ) MN/m²	Settlement of loading plate S (mm)
15	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]

Table [illegible]: Computations of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{max}) MN/m²	[illegible]	[illegible]
s_o (mm)	[illegible]	[illegible]
s_1 (mm) MN/m²	[illegible]	[illegible]
s_2 (mm) MN/m²	[illegible]	[illegible]
$E_v = 1.5 \sigma (s_1 - s_o)/s_1$	[illegible]	[illegible]
E_v/E_v'	1.89	

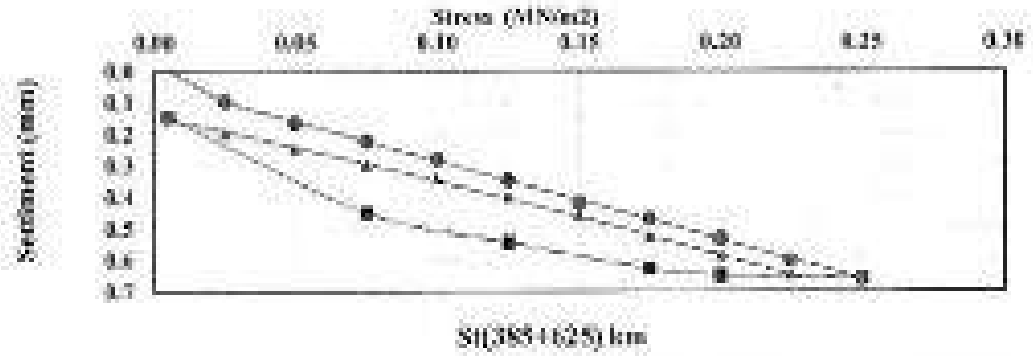

Fig. 5: Load-settlement curve, fitting curves according to Table 15 and Table 16 for the first and second loading cycles

- ■ Measurement points from the first load cycle
- ■ Measurement points from the unloading cycle
- △ Measurement points from the second load cycle
- S: settlement in mm
- σ_N: Normal stress MN/m²

[illegible]

[illegible]

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

Loading stage no.	Load (F) kN	Normal stress (σ_n) N/mm²	Settlement of loading plate S (mm)
0	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]

Table 17: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) N/mm²	Settlement of loading plate S (mm)
15	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]

Table 18: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
(σ_{max}) N/mm²	[illegible]	[illegible]
σ_n (mm)	[illegible]	[illegible]
σ_n (mm) (N/mm²)	[illegible]	[illegible]
σ_n (mm) (N/mm²)	[illegible]	[illegible]
$E_v = 1.5 r(\Delta \sigma_n / \Delta S)$ (kg/cm²)	[illegible]	[illegible]
E_v/E_{v1}	[illegible]	

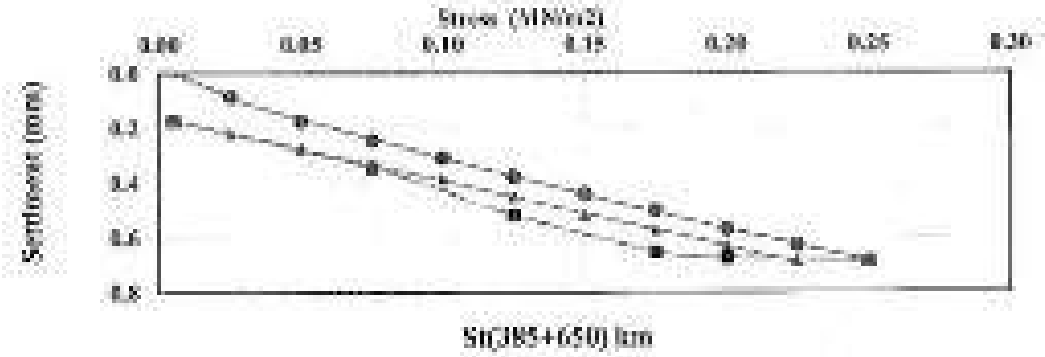

Fig. 6: Load-settlement curve, fitting curves according to Table 16 and Table 17 for the first and second loading cycles

- ● 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

[illegible]

[illegible]

Table 19: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
0	1.414	0.005	0.08
1	7.07	0.025	0.14
2	14.14	0.050	0.18
3	21.21	0.075	0.23
4	28.28	0.100	0.28
5	35.35	0.125	0.34
6	42.42	0.150	0.34
7	49.49	0.175	0.38
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	42.42	0.150	0.48
14	35.35	0.125	0.42
15	1.414	0.005	0.28

Table 20: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
16	1.414	0.005	0.18
17	7.07	0.025	0.24
18	14.14	0.050	0.28
19	21.21	0.075	0.32
20	28.28	0.100	0.35
21	35.35	0.125	0.40
22	42.42	0.150	0.46
23	49.49	0.175	0.50
24	56.56	0.200	0.56
25	63.63	0.225	0.61

Table 21: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$\sigma_{n,max}$ MN/m²	0.250	0.250
s_1 (mm)	0.008	0.015
s_2 (mm)[illegible]	1.006	1.007
s_3 (mm)[illegible]	2.506	0.007
E_{v2} = 1.5 (1/s1/s2/s3)	[illegible]	214.15
[illegible]	0.06	

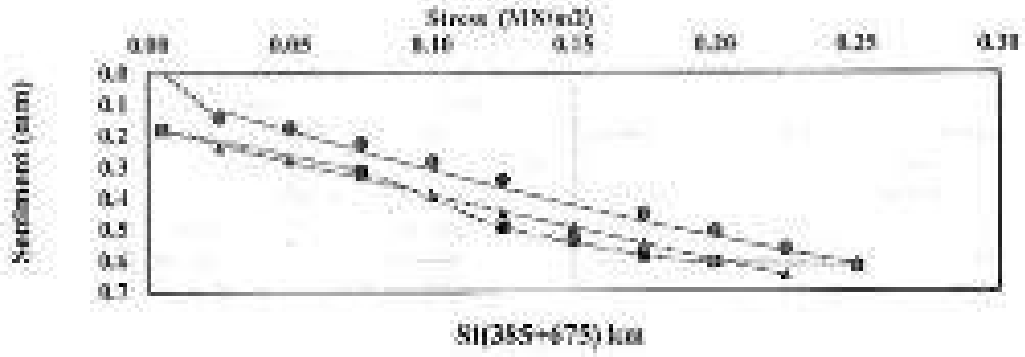

Fig. 7: Load-settlement curve, fitting curves according to Table 19 and Table 20 for the first and second loading cycles

- ● Measurement points from the first loading cycle
- ■ Measurement points from the second loading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_N Normal stress MN/m²

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Table 21: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Displacement of loading plate δ (mm)
0	1.414	0.005	0.08
1	7.07	0.025	0.08
2	14.14	0.050	0.10
3	21.21	0.075	0.08
4	28.28	0.100	0.27
5	35.35	0.125	0.32
6	42.42	0.150	0.38
7	49.49	0.175	0.41
8	56.56	0.200	0.48
9	63.63	0.225	0.51
10	70.7	0.250	0.61
11	56.56	0.200	0.61
12	49.49	0.175	0.59
13	42.42	0.150	0.51
14	21.21	0.075	0.35
15	1.414	0.005	0.24

Table 22: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Displacement of loading plate δ (mm)
15	1.414	0.005	0.24
16	7.07	0.025	0.25
17	14.14	0.050	0.24
18	21.21	0.075	0.28
19	28.28	0.100	0.34
20	35.35	0.125	0.35
21	42.42	0.150	0.44
22	49.49	0.175	0.50
23	56.56	0.200	0.56
24	63.63	0.225	0.61

Table 23: Compilation of results

Parameter	1st loading cycle	2nd loading cycle
D_{Normal} MN/m³	0.198	0.219
a_1 (mm)	0.001	0.017
a_1 (mm)/(MN/m²)	2.191	1.503
a_2 (mm)/(MN/m²)	0.005	0.007
$E_0 = 1.5 \times (a_1+a_2)^{-1}$	109.31	111.32
Deflection	0.12	

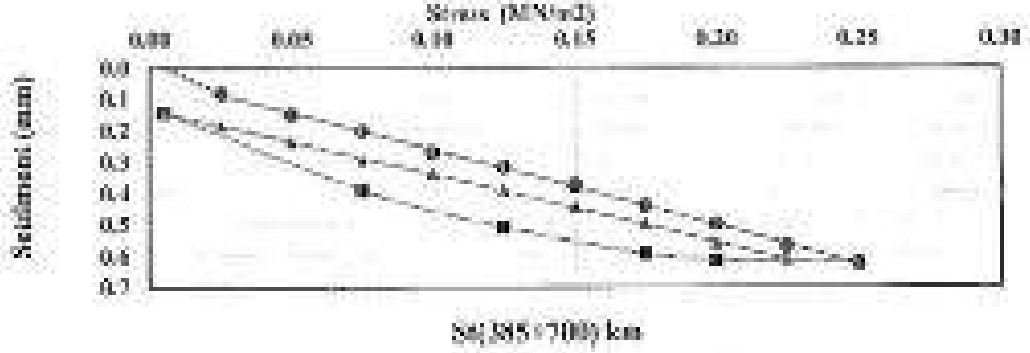

Fig. 8: Load-settlement curve, fitting curves according to Table 22 and Table 23 for the first and second loading cycles

- ◆ Measurement points from the first loading cycle
- ■ Measurement points from the unload ing cycle
- ▲ Measurement points from the second loading cycle
- S settlement in mm
- σ_n normal stress MN/m²

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Table 25: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
0	1.414	0.005	0.08
1	7.07	0.025	0.09
2	14.14	0.050	0.17
3	21.21	0.075	0.22
4	28.28	0.100	0.28
5	35.35	0.125	0.33
6	42.42	0.150	0.39
7	49.49	0.175	0.45
8	56.56	0.200	0.51
9	63.63	0.225	0.59
10	70.7	0.250	0.65
11	56.56	0.200	0.54
12	49.49	0.175	0.50
13	35.35	0.125	0.50
14	21.21	0.075	0.38
15	1.414	0.005	0.17

Table 26: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
15	1.414	0.005	0.17
16	7.07	0.025	0.22
17	14.14	0.050	0.32
18	21.21	0.075	0.39
19	28.28	0.100	0.55
20	35.35	0.125	0.64
21	42.42	0.150	0.69
22	49.49	0.175	0.50
23	56.56	0.200	0.60
24	63.63	0.225	0.68

Table 27: Compilation of results

Formulation	1st loading cycle	2nd loading cycle
(σ_{max}) MN/m²	0.250	0.250
σ_n (min)	0.025	0.150
σ_n (max) MN/m²	2.330	2.174
σ_n (min) MN/m²	0.007	0.038
[illegible]	195.26	266.54
[illegible]	1.10	

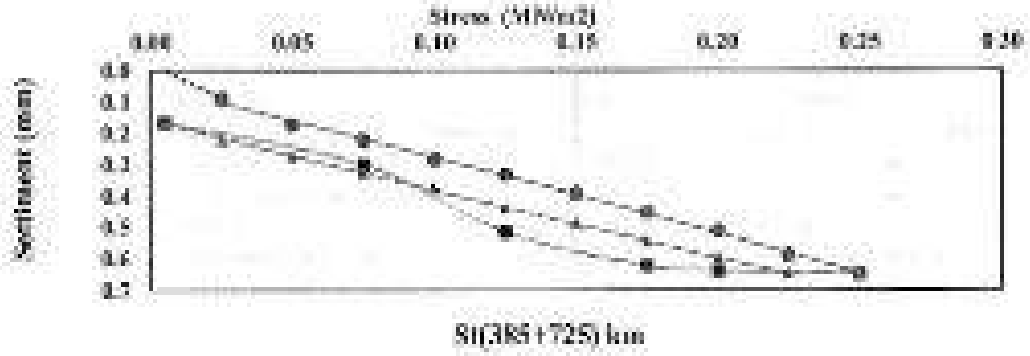

Fig. 5: Load-settlement curve, fitting curves according to Table 25 and Table 26 for the first and second loading cycles

- ● Measurement points from the first loading cycle
- ■ Measurement points from the second loading cycle
- ▲ Measurement points from the second loading cycle
- S: Settlement in mm
- σ_N: Normal stress MN/m²

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Table 20: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
0	1.04	0.005	0.00
1	7.80	0.025	0.10
2	14.14	0.050	0.16
3	21.21	0.075	0.21
4	28.28	0.100	0.27
5	35.35	0.125	0.32
6	42.42	0.150	0.36
7	49.49	0.175	0.46
8	56.56	0.200	0.52
9	63.63	0.225	0.60
10	70.7	0.250	0.65
11	56.56	0.200	0.64
12	49.49	0.175	0.62
13	35.35	0.125	0.42
14	21.21	0.075	0.35
15	1.04	0.005	0.17

Table 21: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
16	1.04	0.005	0.17
16	7.80	0.025	0.21
17	14.14	0.050	0.21
18	21.21	0.075	0.35
19	28.28	0.100	0.38
20	35.35	0.125	0.44
21	42.42	0.150	0.49
22	49.49	0.175	0.54
23	56.56	0.200	0.59
24	63.63	0.225	0.65

Table 22: Compilation of results

Parameter	1st loading cycle	2nd loading cycle
$E_{v(1st)}$ MN/m²	0.158	0.200
a_1 (mm)	0.041	0.057
a_2 (mm)(MN/m²)	2.006	1.416
a_3 (mm)(MN/m²)²	0.027	-0.258
E_{v2} = 0.5 × 30 × $E_{v(1st)}$	186.69	309.11
E_{v2}/E_{v1}	1.11	

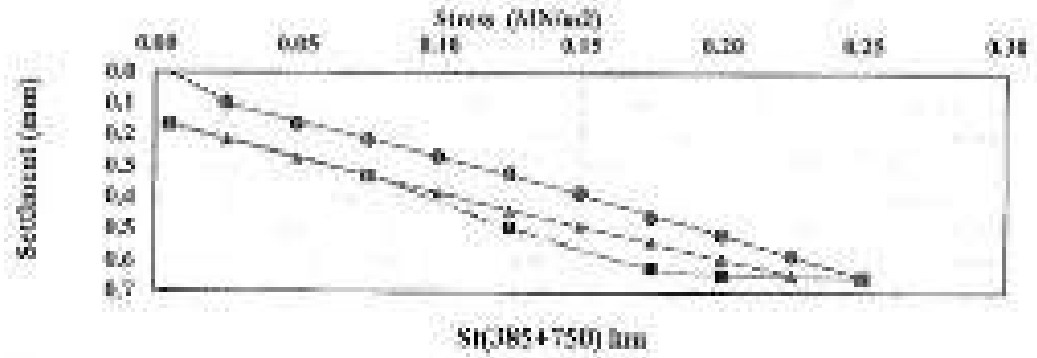

Fig. 5: Load-settlement curve, fitting curves according to Table 28 and Table 29 for the first and second loading cycles

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

Conclusions:

The present test results which obtained from the plate loading tests of the native Sub-Ballast layer of the electric express train project at location (from km 385+525 to km 385+750) in accordance to the German Standard , DIN 18134 are illustrated in table 31 .

Table 31 : Test results

Location	Ev1(MN/m^2)	Ev2(MN/m^2)	Ev2/Ev1 ratio
St(385+525) km	174.54	212.72	1.22
St(385+550) km	184.51	200.45	1.09
St(385+575) km	155.24	183.39	1.18
St(385+600) km	168.06	190.40	1.15
St(385+625) km	180.11	196.45	1.09
St(385+650) km	168.14	189.41	1.13
St(385+675) km	196.17	214.28	1.08
St(385+700) km	189.23	211.33	1.12
St(385+725) km	187.36	206.74	1.10
St(385+750) km	186.09	209.41	1.12

Lab Director
Eng / Essam Kandil

Geotechnical Consultant
Dr / Mohamed Mostafa Badry

COMIBASSAL International Controllers
Internal inspection and laboratories sector
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Accredited by : Egyptian Accreditation council (EGAC) under No. 0026/08/16

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(385+775)to st(386+000)
Date of Test	:	12/06/2023
QC	:	1405

Villa 15 Alexandria - Cairo Desert Road - Borgheen
Tel: 03 5 [illegible] - 33 [illegible]
Email: [illegible]
Website: www.comibassal.com

49 El Horria Ave. Alex,Egypt
Tel: 002 033938176 - 002 033931482
Fax: 002 033900476
Email : internal-inspection@comibassal.com

Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by plotting 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 30 ton).

Description of experiment:

1- Loading, unloading and reloading regime 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 increament 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.

[illegible]

[illegible]

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

Loading stage no.	Load (P) kN	Measured stress (σ) MPa/m²	Settlement of loading plate × (mm)
0	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]

Table 2: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Measured stress (σ) MPa/m²	Settlement of loading plate S (mm)
15	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
[illegible] MPa/m²	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	

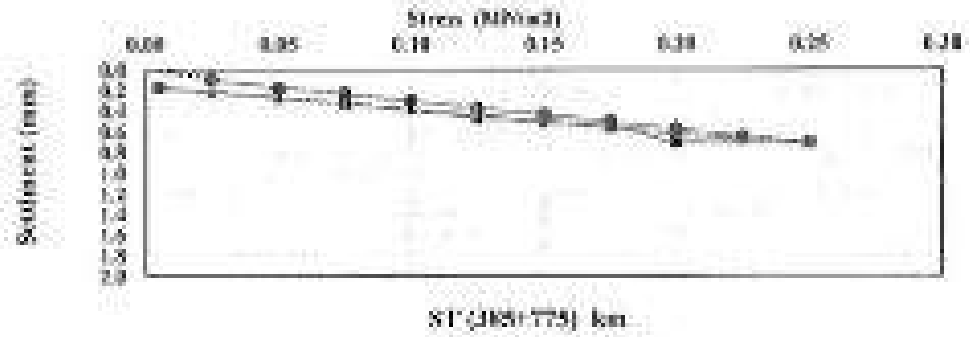

Fig. 3: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- Measurement points from the second loading cycle

s: Settlement in mm

q_s: Normal stress MN/m²

SI[385+800] KM

EDD

Table 2: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ) MNm²	Settlement of loading plate S (mm)
0	1.134	0.005	0.00
1	7.37	0.029	0.10
2	10.34	0.059	0.18
3	21.21	0.092	0.25
4	28.28	0.109	0.31
5	35.35	0.125	0.36
6	42.42	0.159	0.45
7	49.49	0.179	0.49
8	55.56	0.199	0.55
9	63.63	0.229	0.61
10	70.7	0.259	0.69
11	63.63	0.229	0.66
12	49.49	0.179	0.60
13	35.35	0.125	0.51
14	21.21	0.092	0.38
15	1.134	0.005	0.17

Table 3: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ) MNm2	Settlement of loading plate S (mm)
15	1.134	0.009	0.17
16	7.07	0.029	0.23
17	10.34	0.059	0.28
18	21.21	0.092	0.34
19	28.28	0.109	0.39
20	35.35	0.125	0.45
21	42.42	0.159	0.51
22	49.49	0.179	0.57
23	55.56	0.199	0.63
24	63.63	0.229	0.69

Table 4: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$M_{o(avg)}$ MNm²	0.198	0.203
S_o (mm)	0.658	0.341
S_1 (mm) (MNm²)	2.180	1.511
S_2 (mm) (MNm²)	0.122	-1.364
$S_o = (S_1 - S_2)/(\sigma_1 - \sigma_2)$	181.51	108.18
E (MPa)	1.89	

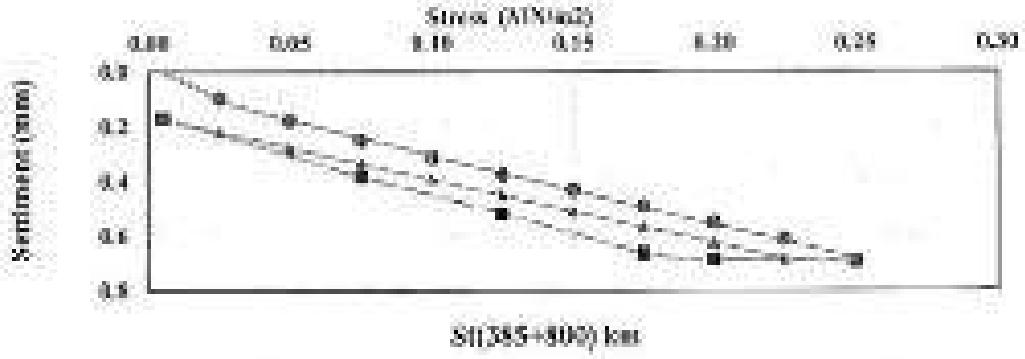

Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- ◆ Measurement points from the first loading cycle
- ■ Measurement points from the second loading cycle
- △ Measurement points from the second loading cycle

S: Settlement in mm

σ_N: Normal stress MN/m²

[illegible]

[illegible]

Table [illegible] Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) (N)	Normal stress (σ_n) (MN/m²)	Settlement of loading plate S (mm)
0	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]

Table [illegible] Measured values for second loading cycle

Loading stage no.	Load (F) (N)	Normal stress (σ_n) (MN/m²)	Settlement of loading plate S (mm)
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]

Table [illegible] Computations of results

Parameters	1st loading cycle	2nd loading cycle
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	

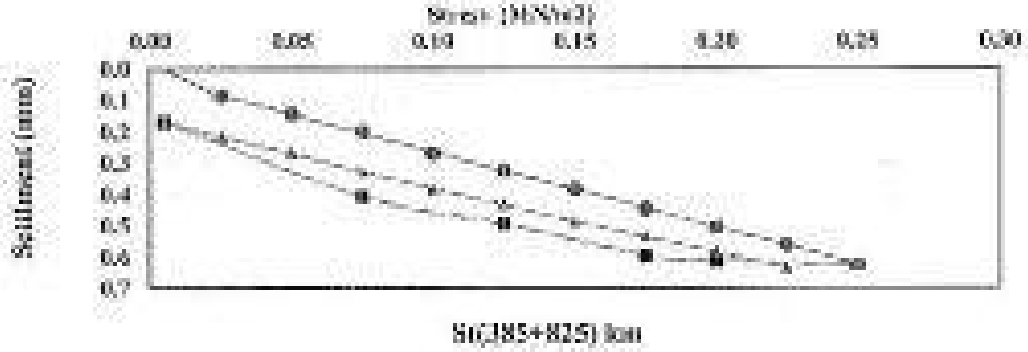

Fig. 3: Load-settlement curves, fitting curves according to Table 7 and Table 8 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the second loading cycle
- Measurement points from the second loading cycle
- S: Settlement in mm
- σ_0: Nominal stress MN/m²

[illegible]

[illegible]

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

Loading stage no.	Load (F) KN	Normal stress (σ) MN/m²	Settlement of loading plate X (mm)
0	1.414	0.005	0.08
1	7.07	0.025	0.19
2	14.14	0.050	0.17
3	21.21	0.075	0.33
4	28.28	0.100	0.29
5	35.35	0.125	0.38
6	42.42	0.150	0.41
7	49.49	0.175	0.47
8	56.56	0.200	0.53
9	63.63	0.225	0.58
10	70.7	0.250	0.65
11	56.56	0.200	0.55
12	49.49	0.175	0.53
13	35.35	0.125	0.52
14	21.21	0.075	0.41
15	1.414	0.005	0.15

Table 11: Measured values for second loading cycle

Loading stage no.	Load (F) KN	Normal stress (σ) MN/m²	Settlement of loading plate X (mm)
15	1.414	0.005	0.15
16	7.07	0.025	0.31
17	14.14	0.050	0.37
18	21.21	0.075	0.35
19	28.28	0.100	0.37
20	35.35	0.125	0.40
21	42.42	0.150	0.45
22	49.49	0.175	0.53
23	56.56	0.200	0.59
24	63.63	0.225	0.65

Table 12: Computation of results

Parameters	1st loading cycle	2nd loading cycle
[illegible] MN/m²	0.250	0.250
[illegible]	0.880	0.152
[illegible] MN/m²]	1.461	2.318
[illegible] MN/m²]	0.840	0.649
[illegible]	[illegible]	[illegible]
[illegible]	1.14	

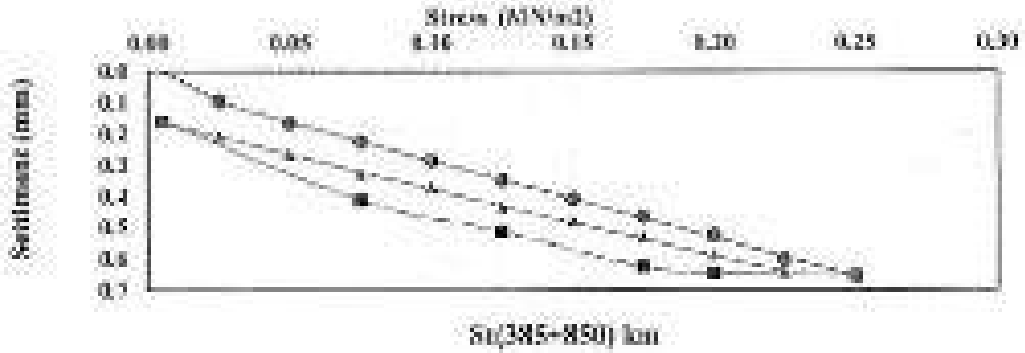

Fig. 4. Load-settlement curve, fitting curves according to Table 10 and Table 11 for the first and second loading cycles.

- ● Measurement points from the first loading cycle
- ■ Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- δ: settlement in mm
- σ_N: Normal stress MN/m²

[illegible]

[illegible]

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

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Displacement of loading plate S (mm)
0	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]

Table 14: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m²	Displacement of loading plate S (mm)
15	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]

Table: 15 Compilation of results

Parameters	1st loading cycle	2nd loading cycle
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

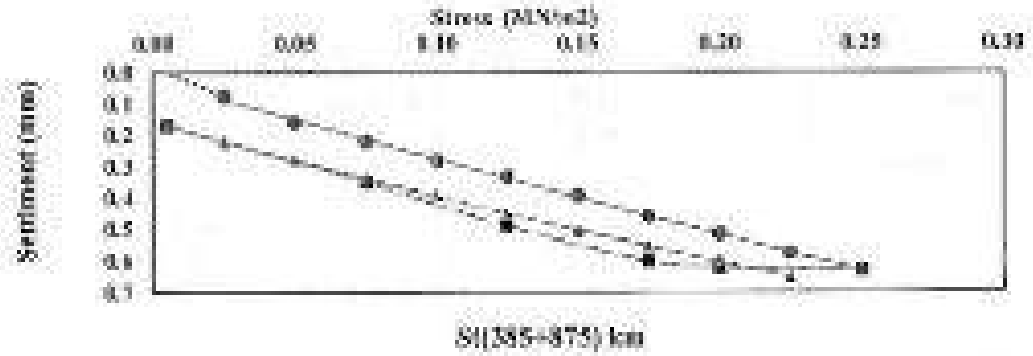

Fig. 5: Load-settlement curve, fitting curves according to Table 13 and Table 14 for the first and second loading cycles

- ● Measurement points from the first loading cycle
- ■ Measurement points from the second loading cycle
- ▲ Measurement points from the second unloading cycle

S: Settlement in mm

σ_0: Normal stress MN/m²

51[335+300] KM

E03

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

Loading stage no.	Load (P) kN	Normal stress (σ) MN/m²	Settlement of loading plate S (mm)
0	1.14	0.005	0.00
1	7.07	0.015	0.05
2	14.14	0.030	0.14
3	21.21	0.045	0.23
4	28.28	0.060	0.29
5	35.35	0.075	0.38
6	42.42	0.090	0.41
7	49.49	0.105	0.47
8	56.56	0.120	0.52
9	63.63	0.135	0.60
10	70.7	0.150	0.64
11	63.63	0.135	0.62
12	49.49	0.105	0.61
13	35.35	0.075	0.49
14	21.21	0.045	0.43
15	1.14	0.005	0.18

Table 17: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ) MN/m2	Settlement of loading plate S (mm)
16	1.14	0.005	0.18
17	7.07	0.015	0.24
18	14.14	0.030	0.33
19	21.21	0.045	0.36
20	28.28	0.060	0.42
21	35.35	0.075	0.48
22	42.42	0.090	0.53
23	49.49	0.105	0.57
24	56.56	0.120	0.61
25	63.63	0.135	0.66

Table 18: Computation of results

Parameters	1st loading cycle	2nd loading cycle
$M_{v,1}$ (MN/m²)	0.350	0.250
s_1 (mm)	0.615	0.133
s_2 (mm) (MN/m²)	2.600	3.000
s_2 (mm) (N/m²)	-0.015	-2.413
E_{v2} = (2.1/(s₂*s₁))*σ (MN/m²)	180.67	30.189
Ev2/Ev1	1.03	

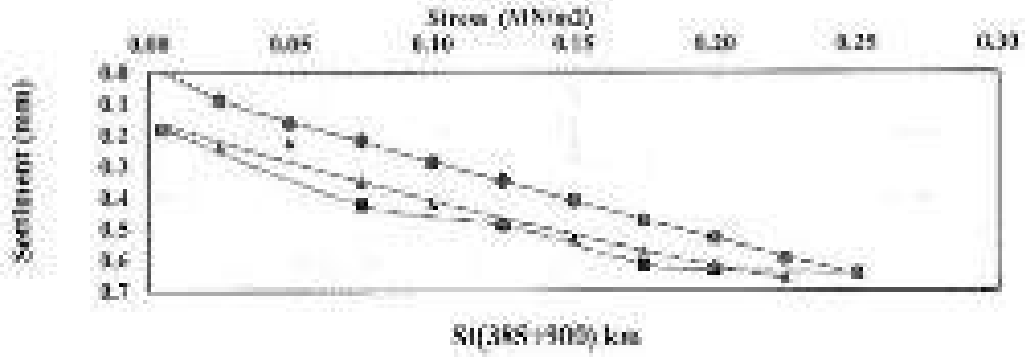

Fig. 6: Load-settlement curve, fitting curves according to Table 16 and Table 17 for the first and second loading cycles

- ● Measurement points from the first loading cycle
- ■ Measurement points from the second loading cycle
- ▲ Measurement points from the second loading cycle

S Settlement in mm

σ_N Normal stress MN/m²

51[305+325]-KM

[illegible]

Table 19: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
0	0.114	0.000	0.00
1	7.07	0.025	0.18
2	14.14	0.050	0.17
3	21.21	0.075	0.21
4	28.28	0.100	0.25
5	35.35	0.125	0.34
6	42.42	0.150	0.48
7	49.49	0.175	0.56
8	56.56	0.200	0.62
9	63.63	0.225	0.58
10	70.7	0.250	0.64
11	56.56	0.200	0.62
12	49.49	0.175	0.61
13	35.35	0.125	0.43
14	21.21	0.075	0.31
15	0.114	0.000	0.17

Table 18: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_n) MN/m²	Settlement of loading plate S (mm)
15	0.114	0.000	0.17
16	7.07	0.025	0.22
17	14.14	0.050	0.29
18	21.21	0.075	0.34
19	28.28	0.100	0.38
20	35.35	0.125	0.44
21	42.42	0.150	0.50
22	49.49	0.175	0.55
23	56.56	0.200	0.58
24	63.63	0.225	0.58

Table 21: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$k_{s,avg}$ (MN/m³)	0.250	0.198
s_0 (mm)	0.016	0.142
s_1 (mm)(MN/m²)⁻¹	2.365	3.371
s_2 (mm)(MN/m²)⁻²	0.010	0.956
[illegible]	199.32	210.20
[illegible]	1.11	

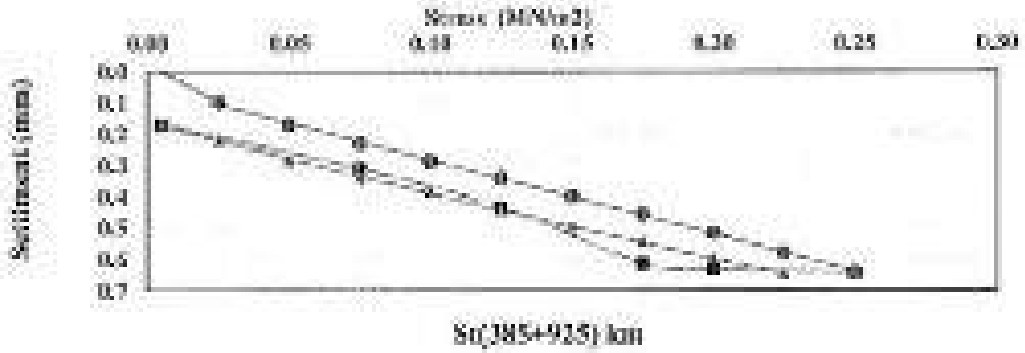

Fig. 3: Load-settlement curve, fitting curves according to Table 38 and Table 39 for the first and second loading cycles

- ● Measurement points from the first loading cycle
- ■ Measurement points from the calibrating cycle
- ▲ Measurement points from the second loading cycle
- S: Settlement in mm
- σ_N: Normal stress MN/m²

51[985+950] KM

930

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

Loading stage no.	Load (F) KN	Normal stress (σ_n) (MPa)	Settlement of loading plate (mm)
0	1.414	0.005	0.03
1	7.07	0.025	0.10
2	14.14	0.050	0.17
3	21.21	0.075	0.25
4	28.28	0.100	0.32
5	35.35	0.125	0.37
6	42.42	0.150	0.45
7	49.49	0.175	0.52
8	56.56	0.200	0.59
9	63.63	0.225	0.64
10	70.7	0.250	0.69
11	63.63	0.225	0.68
12	56.56	0.200	0.65
13	49.49	0.175	0.61
14	42.42	0.150	0.57
15	35.35	0.125	0.53
16	28.28	0.100	0.48
17	21.21	0.075	0.43
18	14.14	0.050	0.37
19	7.07	0.025	0.30
20	1.414	0.005	0.22

Table 23: Measured values for second loading cycle

Loading stage no.	Load (F) KN	Normal stress (σ_n) MPa	Settlement of loading plate S (mm)
15	1.414	0.005	0.58
16	7.07	0.025	0.62
17	14.14	0.050	0.71
18	21.21	0.075	0.77
19	28.28	0.100	0.78
20	35.35	0.125	0.84
21	42.42	0.150	0.85
22	49.49	0.175	0.88
23	56.56	0.200	0.93
24	63.63	0.225	0.98

Table 24: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$[K_{s,max}]$ (MPa/m)	0.250	0.200
u_0 (mm)	0.016	0.164
u_1 (mm)(MPa/m^2)	3.100	2.132
u_2 (mm)(MPa/m^3)	-2.405	-0.767
$K_{s,0}$ (MPa/m) (Q, u_0)	166.53	192.11
K_s(MPa)	1.05	

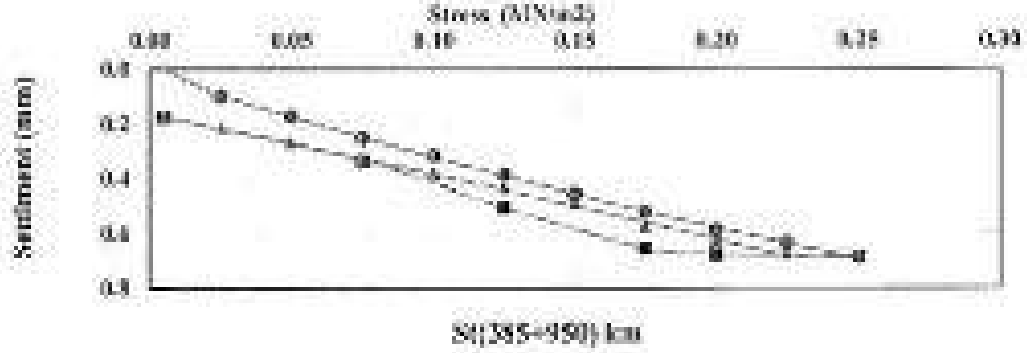

Fig. 8: Load-settlement curve, fitting curves according to Table 22 and Table 23 for the first and second loading cycles.

- 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: Nominal stress MN/m²

S(395+975) KM

EOD

Table 23: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_n) MN/m²	Normal displacement loading plate S (mm)
0	1.410	0.005	0.00
1	7.07	0.025	0.05
2	14.14	0.050	0.10
3	21.21	0.075	0.15
4	28.28	0.100	0.20
5	35.35	0.125	0.25
6	42.42	0.150	0.30
7	49.49	0.175	0.35
8	56.56	0.200	0.40
9	63.63	0.225	0.45
10	70.7	0.250	0.50
11	56.56	0.200	0.40
12	49.49	0.175	0.35
13	42.42	0.150	0.30
14	35.35	0.125	0.25
15	1.414	0.005	0.10

Table 24: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ_n) MN/m²	Normal displacement loading plate S (mm)
16	1.414	0.005	0.10
17	7.07	0.025	0.20
18	14.14	0.050	0.25
19	21.21	0.075	0.30
20	28.28	0.100	0.35
21	35.35	0.125	0.40
22	42.42	0.150	0.50
23	49.49	0.175	0.55
24	56.56	0.200	0.61
25	63.63	0.225	0.66

Table 25: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_n)_{max}$ MN/m²	0.250	0.250
a_1 (mm)	0.006	0.172
a_2 (mm/MN/m²)	1.554	1.169
a_3 (mm/MN/m²)	0.621	0.308
E_{vo} = 1/a (MN/m²)	160.87	181.81
E_{vo}/E_{vf}	1.19	

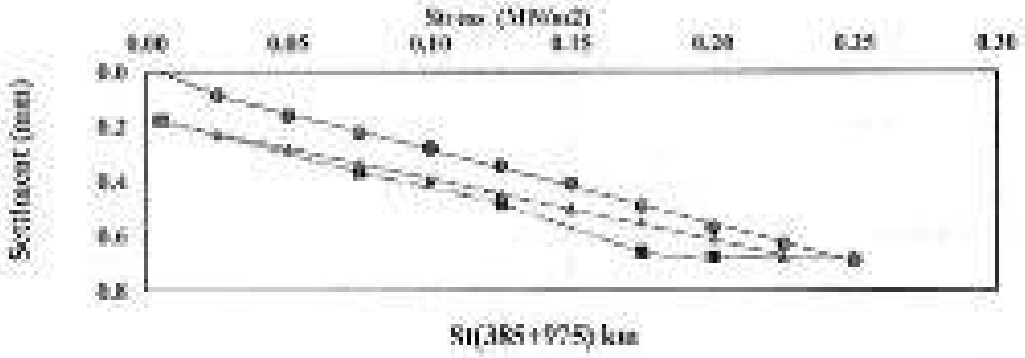

Fig. 9: Load-settlement curve, fitting curves according to Table 25 and Table 26 for the first and second loading cycles

- ● Measurement points from the first loading cycle
- ■ Measurement points from the second loading cycle
- ▲ Measurement points from the second loading cycle
- S: settlement in mm
- σ_N: Normal stress MN/m²

[illegible]

600

Table 20: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (P) kN	Normal stress (σ) MN/m²	Strain gauge at loading plate (ε) (mm)
0	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]

Table 20: Measured values for second loading cycle

Loading stage no.	Load (P) kN	Normal stress (σ) MN/m²	Strain gauge at loading plate (ε) (mm)
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]

Table 20: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
M_{max} (MN/m²)	[illegible]	[illegible]
η_1 (mm)	[illegible]	[illegible]
η_2 (mm) (MN/m²)	[illegible]	[illegible]
η_3 (mm) (MN/m²)	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	

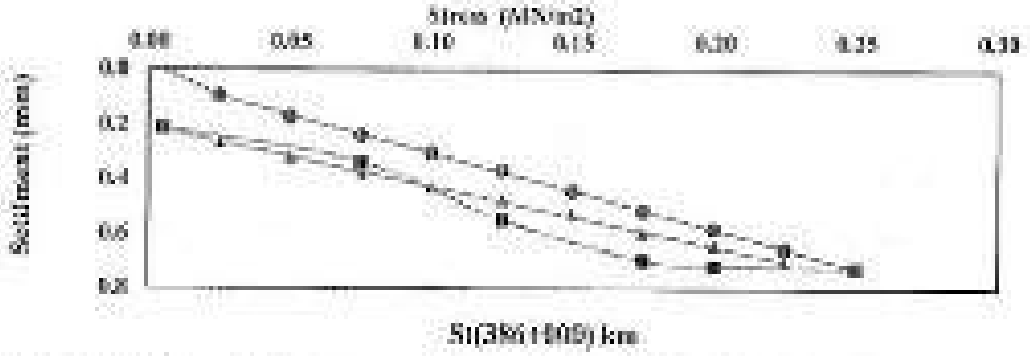

Fig. 8: Load-settlement curve. Sitting curves according to Table-28 and Table-29 for the first and second loading cycles

- ● Measurement points from the first loading cycle
- ■ Measurement points from the second loading cycle
- ▲ Measurement points from the second loading cycle

S: Settlement in mm

σ_n: Normal stress MN/m²

Conclusions:

The present test results which obtained from the plate loading tests of the native soil as sub ballast layer of the electric express train project at location (From km 385+775 to km 386+0.00) in accordance to the German standard , DIN 18134 are illustrated in table 31 .

Table 31 (Test results

Location	Ev1(MN/m²)	Ev2(MN/m²)	Ev2/Ev1 ratio
St(385+775) km	164.50	147.44	0.90
St(385+800) km	184.53	200.45	1.09
St(385+825) km	187.63	215.05	1.14
St(385+850) km	182.08	207.75	1.14
St(385+875) km	183.91	207.76	1.13
St(385+900) km	180.67	204.09	1.13
St(385+925) km	189.54	210.50	1.11
St(385+950) km	166.53	192.11	1.15
St(385+975) km	167.87	201.81	1.20
St(386+000) km	161.27	207.11	1.27

Lab Director
Eng / Emam Kandil

Geotechnical Consultant
Dr / Mohamed Mostafa Badry

UNIVERSAL INSPECTION REQUEST

RECEIPT of NOTIFICATION Minimum Notice Period not less than 24 Hours

Contractor Company	Abd EL-Salam EL-Feky Contracting Company	Designer Company*	Consulting Engineer/Consulting Office
Issued by Contractor	Name: Ahmed Abd-Alnasser	Sign:	Date Serial Number: 15/05/2023 (R5/02/007)
			Time: 4:00 PM
Received by SAPRI CONSULTANT	Eng. Mostafa Fouad	Sign:	Date: 16 / 05 / 23 / 16 / 05 / 2023 / 12 / 00

Code	01 to 031 (Section Number/Info)	01 to 03 Depot Reference	For Note: Notice period for any Inspection is needed

Work Activity

Sub Elements of Activity

EXPLANATION OF WORK TO BE INSPECTED

Description	Drawing	Item
From St. 000+000 To St. 000+007.5	Subdivision 2	Subdivision

INSPECTION DETAILS For Notification of Inspection in the Planned Inspection Time

Planned Inspection Date	Planned Inspection Time

COMPLIANCE EVIDENCE (Indicate Attachment as appropriate)

Checklist Attached	Test Results Attached	Calibration Attached	Other (as indicated)
Supporting References: Plan and Profile REV. 32	Reference: MMR (QF 183) MMR (QF 183/01)		WS Reference: Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CQ21-01 LIV REVISION 1) DIVISION 00/01. TECHNICAL REPORT (CQC1-120 LIV REVISION 1) DIVISION 00/01.

Comments by Eng. Mohamed Khalil (WS)

1. Attached Master Sheet approved by SPECTRUM .

Comments by Eng. Ibrahim Fouad (SAPRI/SAND)

1- تم استلام قطاع وفحص بصري
2- تم مراجعة ثبات الشاقول

Comments by Eng. Alaa Abdallah (CC)

1-coordinates & levels and width checked by ROAD
satisfied
2- para. 31 & X-sec./Sheet Should Approved from SYSTRA.
3-Final approval is subject to above mentioned comments

INSPECTION RESULT

	Name	Sign	Date	Time	Approval Status A/AWC/R	Please Tick if not Attend
Organization					A	
Contractor	Eng. Ahmed Abd-Alnasser					
WS Survey	Eng. Mohamed Khalil					A
SAPRI**	Eng. Mostafa Ayad					
SAND**	Eng. Mohammed Fayad					
Consultants Representative*	Eng. Ibrahim Suwad		16-5-23			AWC

Rev. 1.0
File Name : INR-F.1.0.0

UNIVERSAL INSPECTION REQUEST

RECEIPT of NOTIFICATION-Minimum Notice Period not less than 24 Hours

The work is intended to be ready for inspection on planned date signed

Contractor Company	Abd EL-Salam EL-Sokary Marking Company	Designer Company*	Supervising Engineering Consulting Office
Issued by Contractor	Eng. Ahmed [illegible]	Date/Serial Number 27/05/2023 (U523/011)	Time 4:00 PM

Received by GWR CONSULTANT	Eng. Mostafa Syed		IBR	CT	SD	CS	CC	YR	YY	MK	SM
				30	05	05	20	05	2023	15	00

00001	33 to 333 (Series Reference)	01 to 03 (Legal Reference)	By SOC Use For SOC Use only (Serial Number)
00000	Road Activity		
00000	Road Engineering Activity		

EXPLANATION OF WORK TO BE INSPECTED

Description	Element	Item
Road 11 303+000 to 305+000	Subbase 2	Subbase

INSPECTION DETAILS (Not including will be notified on Planned Inspection Date)

Planned Inspection Date	Planned Inspection Time

COMPLIANCE EVIDENCE (Attached or available on request)

Checklist Attached	Test Results Attached	Calibration Attached	Other as indicated

Drawing References	References	MS References
Plan and Profile REV. 3?	MAR / CT 001) MAR / CT 00 [illegible]	-Specification MATERIAL OF CONCRETE 001 & TESTING REPORT KSH-41 25-001-C01 BY CIVICON GROUP. -TECHNICAL REPORT C0001-C01 01/18/2023 OF CIVICON GROUP.

Comments by: Eng. Mohamed Shalll (Civil)

1- Attached Master Sheet approved by SPECTRUM .

Comments by: Eng. Eng. Mostafa Syed (SPECTRUM)	Comments by: Eng. Alaa Abd-Alhadi (CS)
1- تم اجراء القطع لعمق بسيري 2- تم مراجعة شريط الشاخص	1- coordinates & levels and width checked by GWR consultant 2- (BSX, 31 & X-sec./10m) Should Approved from SPECTRUM. 3- final approval is subject to above recorded comments.

INSPECTION RESULT

Organisation	Name	Sign	Date	Time	Approval Status A-AWC-R	Please Tick if Not Attend
Contractor	Eng. Ahmed Abd-Alhameed				A	
QYZ Survey	Eng. Mohamed Khalil				AWC	
GWCC*	Eng. Mostafa Syed					A
GWCC**	Eng. Mohammed Fayed					
Employer Representative	Eng. John Bong		28-5-2023			AWC

*Designer
File Name: IRS-F1031

UNIVERSAL INSPECTION REQUEST

RECEIPT of NOTIFICATION Minimum Notice Period not less than 24 Hours

Contractor Company	Abd EL-Salam EL-Gebaly Company	Designer Company*	SPECTRUM Engineering Consulting Office
Issued by Contractor	Name: Eng. Ahmed Abd-Alhameed	Date/Serial Number: 27/05/2023 (R350)(012)	Time: 4:00 PM
Received by CAHB CONSULTANT	Eng. Moustafa Ryad		

CH	RESIDENCE	CC	YY	YY	MM	MM
MB	CN	CS	20	05	2023	15	05

CODE-1	R1 to R21 (Casting Backup Bars)	D1 to D3 (Expansion Reinforcement)	R0 R00 S-N0 (Pier Kilo: Gabal Ayat, Sally, Shark Khalid Lines)
CODE-2	Work Activity		
CODE-3	Item Element or Activity		

EXPLANATION OF WORK TO BE INSPECTED

Description	Element	Item
From St. 800+000 To St. 800+050	Submitted ?	Satisfactory

INSPECTION DETAILS (Must be completed in order to Accept Inspection Time)

Planned Inspection Date	Planned Inspection Time

COMPLIANCE EVIDENCE (...the box and as appropriate)

Checklist Attached	Test Results Attached	Calibration Attached	Other as Indicated

Drawing Reference	References	MS Reference
Plan and Profile REV. 32	MAN (QT 503) MAN (QT 50 [illegible]	Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT [0321-41-LAN-100001] BY CONCON GROUP. -TECHNICAL REPORT [0321-11-12] VARIOUS 1 BY CONCON GROUP.

Comments by: Eng. Mohamed Khalil (DVS)

1- Attached Marker Sheet approved by SPECTRUM.

Comments by: Eng. Ibrahim Mostafa Ryad (SPECTRUM)	Comments by: Eng. Ahmed Abd-Alhameed (CN)
1- تم استلام الأقلام لتمس بحري 2- تم مراجعة شيت الماكينو	1- Embankments & Levels and width checked by GPS correctness 2- pave. 32 & X-sec /30m Should Approved from SYSTRA. 3- Final approval is subject to above mentioned comments.

INSPECTION RESULT

Organization	Name	Sign	Date	Time	Approval Status A/AWC/R	Punch Ticket Not Attend
Contractor	Eng. Ahmed Abd-Alhameed				A	
QC Survey	Eng. Mohamed Khalil				AWC	
CAHB*	Eng. Moustafa Ryad				A	
CAHB**	Eng. Mohammed Rajab					
Drainage & Roads Review	Eng. [illegible]		28-5-23		AWC	

* Consultant
File Name : MI-4-1.XXX

MATERIAL APPROVAL REQUEST

Submitted by Company	Eng. Abdulhadi [illegible]	Bridge and Company	[illegible]
Issued by Contractor	Name: Eng. Mohamed Ismail	Date/Time of Submission: [illegible]	Page: 1 of 1
Received by ISMS CONSULTANT	Eng. Moaiad Rawaey		

شـــركـــة [illegible] لمقاولات عبد السلام وعبد الحميد الفقي وشركاه للمقاولات والاستشارات الهندسية

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	5	6

CONTRACT	[illegible]	[illegible]	[illegible]
	Notice Reference	Project Reference	[illegible]
	Work Activity		
	Sub Work Activity		

Description of Materials	Subballast Layer Total Quantity (5030 m³)		
Location to be Used	From Station 355+007.5) to Station (355+007.5)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Not attached
Reference in BoQ		Specification	[illegible]
Proposed location reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Moaiaa Rawaey (SPECIALIST)

[illegible]

[illegible]

Comments by: Eng. Alaa Abd-Alhadi (ISM)

1-All tests were delivered for Quality test and were carried out by third party [illegible]

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

3-Final approval is subject to above mentioned comments.

APPROVAL STATUS

Authority	Name	Sign	Date	A/AMC/R
[illegible]	Eng. Mohamed Ismail	[illegible]		A
[illegible]	Eng. Moaiaa Rawaey	[illegible]		A
[illegible]	Eng. Mohammad Ismail	[illegible]		
[illegible] Representative	Eng.	2023 [illegible] 11/4		AWC

A: [illegible] only

MATERIAL APPROVAL REQUEST

Contractor Company	Eng. Abdulkader [illegible] For Contracting			Employer Company				[illegible]		
Issued by Contractor	Name			Date/Serial Number				Time		
	Eng. Mohamed Ismael			07/9/2021				9:00		
				Grid (2)						
Received by SWR CONSULTANT	Eng. Moaz Essamy		SWR	CL	CD	FS	DS	MM	VV	FV	MM
				280	5W	05	18	5	85	5	6

[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]		
	[illegible]		

Description of Materials	Subbalast Layer Total Quantity (5930 m³)
Location to be Used	From Station 365+007.5 to Station 369+027.5

Sample only	Yes	Materials Type	Fill Layer 1
Supplier Name		Data Sheet provided	Yes Attached
Reference to BoQ		Specification	[illegible]
Prequalification reference		Test Sample Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Moaz Essamy [SWR]

1. Quantity and Results by Field Density Lab Certification Approved.

2. [illegible] Sample Approval Sheet (5930 m³) [illegible]

Comments by: Eng. Alaa Abd-Alkarim [IR]

1. All tests were collected for Quality control and were carried out by "IWR" party Lab Coordinated.

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

3. Final approval is subject to above conditions and comments.

APPROVAL STATUS

Organization	Name	Sign	Date	A/A/NC/R
Contractor	Eng. Mohamed Ismael			A
SWR/QC *	Eng. Moaz Essamy			A
CARE**	Eng. Mohamed Ismael			
Employers Representative	Eng. Alaa Abd-Alkarim		15/6	A/NC

* Supplier

** Engineer/Subject Consultants

MATERIAL INSPECTION REQUEST									
Contractor Company	Eng. Abdlkalam El Fell For Contracting			Designer Company		SPECTRUM Engineering Consulting Office			
Issued by Contractor	Name			Date/Serial Number		Time			
	Eng. Mohamed Ismail			10/6/2023 (M.I.R.16(SG))		3:00 PM			
Received by GARB CONSULTANT	Eng. Moaen Essamy		MR	C1	C2	C3	C4	MM	YY
				385	SW	CS	11	6	23

CODE 1	S1 to S21	D1 to S1	Rp XXX Sxxx
	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	(Subballast2).			
Location to be Used	From	385+007.5	TO	385+500
MAR & UIR Approval No	UIR SB-005	Date	3/5/2023	
	UIR SB-006		3/5/2023	
	UIR SB-010		17/5/2023	
	M.A.R.(QT 581)		28/3/2023	
Supplier Name				
Test Requirement	F.D.T(ASTM D 1556)	Specification	DATAWORK SPECIFICATIONS & TESTING REPORT (C621-R1.2) VERSION 2 BY CIMECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	50	11/6/2023	
2					
3					
4					

Comments by: Eng. Moaen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by Third party lab Combossal . 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. Moaen Essamy			A
GARB**	Eng. Mohamed Fayed			
Employers Representative	Eng. Alaa Abd-Allatif for		12-6-2023	AWC

* Designer

** Alignment/Bridges/Culverts only

COMIBASSAL International Controllers
Internal inspection and laboratories sector
Accredited by : Egyption General Authority for Petroleum under No. 34/29-11-2001
Accredited by : Egyption Accreditation council (EGAC) under No. 031706/1A

Report NO. : 1386/01/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عبد السلام الفقي للمقاولات
Project : Electric express train
Sample : Sub ballast (2)
Date of test : 11-6-2023

Results :

Points NO.	1	2	3	4	5
Description	St (385+010)	St (385+020)	St (385+030)	St (385+040)	St (385+050)
Initial wt. (grs)	11340	9070	10070	6720	9230
Wt.after filling the cone and the hole (grs)	8230	4980	6910	3640	6100
Wt. of wet Sample from hole (grs)	2490	2430	2540	2470	2460
Wt. of sand filling hole (grs)	1590	1590	1640	1570	1610
Wt. of sand filling cone (grs)	1520	1520	1520	1520	1520
Density of standard sand (γs) (grs/cm³)	1.50				
Volume of hole (cm³)	1060.00	1060.00	1093	1046.7	1073.3
Wt.of wet Sample (grs)	200				
Wt.of sample after drying (grs)	188.1	191.7	191	190.5	191.2
Wet Density (γwet) (grs/cm³)	2.349	2.292	2.323	2.359	2.292
Moisture ratio (%)	6.2	4.5	5.0	4.9	4.8
Dry Density (γdry) (grs/cm³)	2.234	2.187	2.213	2.249	2.191
(γmax.dry) (grs/cm³)	2.188				
Compaction Ratio (%)	102	100	101	103	100

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

Kilo 23 Alexandria - Cairo Desert Road - Mergheem
Tel: 002 03 4704595 - 002 034701191
Email : civdept@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 : Egyptian General Authority for Petroleum under No. 36/29-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 036706/1A

Report NO. : 1386/02/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	6	7	8	9	10
Description	St (385+060)	St (385+070)	St (385+080)	St (385+090)	St (385+100)
Intial wt. (grm)	8750	9600	10400	7210	6150
Wt.after filling the cone and the hole (grm)	5630	6530	7390	4670	3660
Wt. of wet Sample from hole (grm)	2480	2500	2450	2550	2430
Wt. of sand filling hole (grm)	1600	1630	1580	1630	1500
Wt. of sand filling cone (grm)	1520	1520	1520	1520	1520
Density of standered sand (ϒs) (grm/cm³)	1.50				
Volume of hole (cm³)	1066.67	1066.67	1053	1080.0	1060.0
Wt.of wet Sample (grm)	200				
Wt.of sample after drying (grm)	188.1	189.3	191	193.6	195.8
Wet Density (ϒwet) (grm/cm³)	2.326	2.301	2.326	2.361	2.250
Moisture ratio (%)	6.2	6.1	4.7	4.9	4.8
Dry Density (ϒdry) (grm/cm³)	2.210	2.169	2.221	2.250	2.147
(ϒmax.dry) (grm/cm³)	2.188				
Compaction Ratio (%)	101	100	102	103	100

Lab director
Eman
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

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

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/IA

Report NO. : 1386/03/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	11	12	13	14	15
Description	St (385+110)	St (385+120)	St (385+130)	St (385+140)	St (386+150)
Initial wt. (grm)	11320	8300	10180	9670	6580
Wt.after filling the cone and the hole (grm)	8100	5160	7600	6660	3490
Wt. of wet Sample from hole (grm)	3680	2470	2510	2470	2505
Wt. of sand filling hole (grm)	1702	1582	1582	1572	1572
Wt. of sand filling cone (grm)	1518	1518	1518	1518	1518
Density of standered sand (ϒs) (grm/cm³)	1.50				
Volume of hole (cm³)	1134.67	1064.67	1055	1048.0	1048.0
Wt.of wet Sample (grm)	200				
Wt.of sample after drying (grm)	190.1	190.3	191	190.6	190.8
Wet Density (ϒwet) (grm/cm³)	2.362	2.342	2.366	2.357	2.388
Moisture ratio (%)	5.2	5.1	4.7	4.9	4.8
Dry Density (ϒdry) (grm/cm³)	2.246	2.228	2.273	2.246	2.290
(ϒmax.dry) (grm/cm³)	2.186				
Compaction Ratio (%)	103	102	104	103	104

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

Kilo 23 Alexandria - Cairo Desert Road - Mergheni
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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

Report NO. : 1386/D4/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	16	17	18	19	20
Description	St (385+160)	St (385+170)	St (385+180)	St (385+190)	St (385+200)
Initial wt. (gm)	9600	6000	8810	7510	6810
Wt.after filling the cone and the hole (gm)	6600	3360	4880	4900	3920
Wt. of wet Sample from hole (gm)	2530	2550	2540	2600	2490
Wt. of sand filling hole (gm)	1632	1602	1612	1592	1592
Wt. of sand filling cone (gm)	1518	1518	1518	1518	1518
Density of standered sand (ϒs) (gm/cm³)	1.60				
Volume of hole (cm³)	1066.00	1068.00	1075	1128.0	1061.3
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	191.5	188.6	191	190.3	190.7
Wet Density (ϒwet) (gm/cm³)	2.325	2.368	2.364	2.295	2.337
Moisture ratio (%)	4.4	4.9	4.7	5.1	4.9
Dry Density (ϒdry) (gm/cm³)	2.227	2.216	2.257	2.185	2.228
(ϒmax.dry) (gm/cm³)	2.188				
Compaction Ratio (%)	102	104	103	100	102

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

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COMIBASSAL International Controllers
Internal inspection and laboratories sector
Accredited by : Egyptian General Authority for Petroleum under No. 36/29-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 036706/1A

Report NO. : 1386/05/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام القلي للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	21	22	23	24	25
Description	St (385+210)	St (385+220)	St (385+230)	St (385+240)	St (385+250)
Initial wt. (gm)	11200	6200	9600	6700	7350
Wt.after filling the cone and the hole (gm)	6200	6050	6700	3640	4250
Wt. of wet Sample from hole (gm)	2610	2600	2670	2515	2490
Wt. of sand filling hole (gm)	1662	1692	1692	1692	1622
Wt. of sand filling cone (gm)	1618	1618	1618	1618	1618
Density of standerd sand (ρs) (gm/cm³)	1.50				
Volume of hole (cm³)	1081.33	1081.33	1121	1068.0	1081.3
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	190.6	191.7	191	190.7	191.6
Wet Density (ρwet) (gm/cm³)	2.410	2.359	2.292	2.355	2.303
Moisture ratio (%)	5.0	4.3	4.9	4.9	4.3
Dry Density (ρdry) (gm/cm³)	2.295	2.258	2.184	2.245	2.208
(ρmax.dry) (gm/cm³)	2.188				
Compaction Ratio (%)	105	103	100	103	101

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

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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. 031708/1A

Report NO. : 1389/06/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	36	37	38	39	40
Description	St (385+260)	St (385+270)	St (385+280)	St (385+290)	St (385+300)
Initial wt. (gm)	8250	7900	7200	6750	6420
Wt.after filling the cone and the hole (gm)	5170	4700	4080	3650	3300
Wt. of wet Sample from hole (gm)	2495	2840	2500	2520	2480
Wt. of sand filling hole (gm)	1602	1682	1642	1682	1662
Wt. of sand filling cone (gm)	1018	1018	1018	1018	1018
Density of standered sand (ϒs) (gm/cm³)	1.50				
Volume of hole (cm³)	1068.00	1121.33	1095	1054.7	1058.0
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	191.5	190.5	192	191.5	190.5
Wet Density (ϒwet) (gm/cm³)	2.336	2.354	2.284	2.380	2.322
Moisture ratio (%)	4.4	4.9	4.3	4.4	4.8
Dry Density (ϒdry) (gm/cm³)	2.237	2.244	2.189	2.288	2.215
(ϒmax.dry) (gm/cm³)	2.188				
Compaction Ratio (%)	102	103	100	105	101

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

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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. 031708/1A

Report NO. : 1386/07/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام للفني للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	31	32	33	34	35
Descripiise	St (385+310)	St (385+320)	St (385+330)	St (385+340)	St (385+350)
Intial wt. (gm)	6360	7740	10350	8930	8650
Wt.after filling the cone and the hole (gm)	6380	4610	7380	3940	6750
Wt. of wet Sample from hole (gm)	2440	2450	2590	2470	2420
Wt. of sand filling hole (gm)	1542	1552	1532	1572	1582
Wt. of sand filling cone (gm)	1518	1518	1518	1518	1518
Density of standered sand (ds) (gm/cm³)	1.58				
Volume of hole (cm³)	1028.68	1074.67	1009	1048.0	1064.7
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	190.5	190.8	191	190.3	190.2
Wet Density (γwet) (gm/cm³)	2.374	2.357	2.344	2.367	2.295
Moisture ratio (%)	5.0	4.8	4.5	5.1	5.2
Dry Density (γdry) (gm/cm³)	2.261	2.210	2.243	2.243	2.182
(γmax.dry) (gm/cm³)	2.188				
Compaction Ratio (%)	103	101	103	102	100

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

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COMIBASSAL International Controllers
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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. 081706/1A

Report NO. : 1386/08/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقى للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	36	37	38	39	40
Description	St (385+360)	St (385+370)	St (385+380)	St (385+390)	St (385+400)
Initial wt. (grm)	6720	9400	9400	6080	8640
Wt.after filling the cone and the hole (grm)	3550	6340	6330	2870	5490
Wt. of wet Sample from hole (grm)	2680	2530	2640	2550	2580
Wt. of sand filling hole (grm)	1622	1600	1663	1672	1633
Wt. of sand filling cone (grm)	1518	1518	1518	1518	1518
Density of standered sand (ɣs) (grm/cm³)	1.50				
Volume of hole (cm³)	1081.33	1068.00	1035	1114.7	1058.0
Wt.of wet Sample (grm)	200				
Wt.of sample after drying (grm)	191.6	190.7	190	191.4	190.3
Wet Density (ɣwet) (grm/cm³)	2.293	2.369	2.356	2.268	2.256
Moisture ratio (%)	4.4	4.9	5.2	4.5	5.1
Dry Density (ɣdry) (grm/cm³)	2.196	2.259	2.243	2.189	2.188
(ɣmax.dry) (grm/cm³)	2.188				
Compaction Ratio (%)	100	103	102	100	100

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
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COMIBASSAL International Controllers
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Accredited by : Egyption Accreditation council (EGAC) under No. 0317068/A

Report NO. : 1386/09/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	41	42	43	44	45
Description	St (385+410)	St (385+420)	St (385+430)	St (385+440)	St (385+450)
Initial wt. (gm)	10300	7050	6410	7890	7980
Wt.after filling the cone and the hole (gm)	7360	3980	3380	4730	3940
Wt. of wet Sample from hole (gm)	2460	2420	2530	2560	2460
Wt. of sand filling hole (gm)	1582	1582	1612	1642	1632
Wt. of sand filling cone (gm)	1518	1518	1518	1518	1518
Density of standard sand (γs) (gm/cm³)	1.50				
Volume of hole (cm³)	1054.67	1054.67	1078	1094.7	1081.3
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	189.6	191.5	191	192.8	193.8
Wet Density (γwet) (gm/cm³)	2.332	2.295	2.354	2.329	2.283
Moisture ratio (%)	4.9	4.4	4.5	4.2	4.9
Dry Density (γdry) (gm/cm³)	2.223	2.197	2.245	2.236	2.194
(γmax.dry) (gm/cm³)	2.188				
Compaction Ratio (%)	102	100	103	102	100

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
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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

Report NO. : 1306/10/center
Date : 12/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub ballast (2)
Date of test	:	11-6-2023

Results :

Points NO.	46	47	48	49	50
Description	St (385+460)	St (385+470)	St (385+480)	St (385+490)	St (385+500)
Initial wt. (gm)	6400	7500	9000	6570	7330
Wt.after filling the cone and the hole (gm)	3400	4360	6570	3430	4240
Wt. of wet Sample from hole (gm)	2500	2540	2470	2520	2490
Wt. of sand filling hole (gm)	1582	1622	1632	1622	1572
Wt. of sand filling cone (gm)	1510	1510	1510	1510	1510
Density of standard sand (γs) (gm/cm³)	1.50				
Volume of hole (cm³)	1041.33	1085.33	1066	1091.3	1049.0
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	191.5	191.8	191	192.0	190.8
Wet Density (γwet) (gm/cm³)	2.401	2.349	2.313	2.330	2.376
Moisture ratio (%)	4.4	4.3	4.9	4.2	4.8
Dry Density (γdry) (gm/cm³)	2.299	2.253	2.204	2.237	2.267
(γmax.dry) (gm/cm³)	2.188				
Compaction Ratio (%)	105	103	101	102	104

Lab director
Eman
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

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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 the set time above

Contractor Company	Abd EL-Salam El-Fiky Contracting Company	Designer Company*	SPECTRUM Engineering Consulting Office
Issued by Contractor	Name: Ahmed Abd-Almoneif Sign	Date/Serial Number: 2/05/2023 IRSB2(005)	Time: 11:00 AM
Received by GARB CONSULTANT	Eng. Mohamed Nagib	UIR	

CT	GRID	CS	SQ	MM	YY	HH	MM
385	EW	CS	03	05	2023	11	00

CODE-1	S1 to S21 Station Reference	D1 to D3 Depot Reference	Kp XXX Note For this 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. 885+607.5 To St. 885+500	Subballast 2	Subballast

INSPECTION DETAILS the following will be made 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) (SB(001)	-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CO21-41.2)VERSION2 BY CWECON GROUP. -TECHNICAL REPORT (CG21-122.1) VERSION 1 BY CWECON GROUP.

Comments by: Eng. Mohamed Khalil (XYZ)
1- Attached Master Sheet approved by SPECTRUM .

Comments by: Eng. Mohamed Nagib (SPECTRUM)
1- تم استلام الطلاع فحص بصري
2- تم مراجعة ثبوت المناسيب

Comments by: Eng. Alaa Abd-Allatif (GR)
1-coordinates & levels and width checked by GARB consultant
2- (REV. 31 & 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 A-AWC-R	Please Tick If Not Attend
Contractor	Eng. Ahmed Abd-Almoneif				A	
XYZ Survey	Eng. Mohamed Khalil				AWC	
QA/QC*	Eng. Mohamed Nagib				A	
GARB**	Eng. Mohammed Fayed					
Employers Representative	Eng. John Sawy				AWC	

* Designer
File Name : MS-F L032

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	Eng. Ahmed Abd-Almontef	Date/Serial Number	Time
		2/05/2023 IRSB2(008)	11:00 AM
Received by GARB CONSULTANT	Eng. Mohamed Nagib	UIR	

C1	C2	C3	DD	MM	YY	HH	MM
SBS	RW	CS	03	05	2023	11	00

CODE-1	S1 to S21 Station Reference	D1 to D3 Depot Reference	Xp 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. 385+100 To St. 385+108	Subbellast 2	Subbellast

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) (SB(002)	-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.1)VERSION0 BY CIVECON GROUP. -TECHNICAL REPORT (CG21-132.1) 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- تم استلام القطاع فحص بصري
2- تم مراجعة شبه المناسيب

Comments by: Eng. Alaa Abd-Allatif (GR)

1-coordinates & levels and width checked by GARB consultant
2- (REV. 31 & X-sec./30m) Should Approved from SYSTRA.
3-Final approval is subject to above mentioned comments.

INSPECTION RESULT

Organisation	Name	Sign	Date	Time	Approval Status A-AWC-R	Please Tick if Not Attend
Contractor	Eng. Ahmed Abd-Almontef				A	
XYZ Survey	Eng. Mohamed Khalil				AWC	
QA/QC*	Eng. Mohamed Nagib				A	
GARB**	Eng. Mohammed Fayad					
Employers Representative	Eng. John Samy		3-5-2023		AWC	

* Designer

File Name : R8-F-L002

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

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 Abd-Almonef		16/05/2023 IR.SB2 (010)	4:00 PM

Received by GARB CONSULTANT	Eng. Moustafa Ryad		UIR	CI	CR	CS	DD	MM	YY	HH	MM
				885	6W	CS	17	05	2023	12	00

CODE-1	S1 to S21 Station Reference	D1 to D3 Depot Reference	Km XXX Note For Km 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. 885+300 To St. 885+500	Subballast 2	Subballast

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 581) MIR) (SO (684)	-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. Eng. Moustafa Ryad (SPECTRUM)

1- تم استلام القطاع فحص بصري
2- تم مراجعة ثبيت المناسيب

Comments by: Eng. Alaa Abd-Allatif (GR)

1-coordesates & 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 A-AWC-R	Please Tick If Not Attend
Contractor	Eng. Ahmed Abd-Almonef				A	
XYZ Survey	Eng. Mohamed Khalil				AWC	
QA/QC*	Eng. Moustafa Ryad				A	
GARB**	Eng. Mohammed Fayad					
Employers Representative	Eng. John Samy		17-5-23		AWC	

* Designer

File Name : MS-F.L032

MATERIAL APPROVAL REQUEST

Contractor Company	Eng. AbdElsalam ElFeky & Partners شـــركـــة المهندس عبد السلام عبد الحميد الفقي وشركاه للمقاولات والاستشارات الهندسية		Designer Company		(SPECTRUM) Engineering Consulting Office
Issued by Contractor	Name: Eng. Mohamed Ismael	Sign	Date/Serial Number: 2023/2023 QT SR (1)		Time: @00
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR		

CS	CD	CS	OD	MM	YY	HH	MM
385	EW	C5	28	3	23	8	0

6000-L	S1 to S21	Q1 to S3	Rp XXX Rate
	Station Reference	Depot Reference	For Kilometric 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 385+007.5) to Station (386+007.5)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (0521-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Mazen Essamy (SPECTRUM)

-Quality test Result By Third Party lab Combosol is Approved.

-This Sample Representive (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 Combosol.

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 Ismael			A
SA/OC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohamed Fayad			
Employers Representative	Eng.			AWC

* Designer

** Engineer/Bridge Co-ordinator

2023

11/4

MATERIAL INSPECTION REQUEST

Contractor Company	Eng. Abdllsalam El Fair for Contracting		Designer Company							SPECTRUM Engineering Consulting Office	
Issued by Contractor	Name		Date/Serial Number							Time	
	Eng. Mohamed Ismail		12/6/2023							3:00 PM	
			(M.I.R.SB)(008)								
Received by GARB CONSULTANT	Eng. Maen Essamy		MIR	CS	[illegible]	CS	SO	MM	YY	HH	MM
				385	EW	CS	13	6	23	1	0

CODE-1	30 to 521	01 to 59	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE-2	Work Activity		
	Sub Element of Activity		

Description of Materials	(Subballast2).			
Location to be Used	From	385+500	TO	386+007.5
MAR & UIR Approval No	UIR SB-007	Date	16/5/2023	
	UIR SB-011		28/5/2023	
	UIR SB-0012		30/5/2023	
	M.A.R.(QT 592)		18/5/2023	
Supplier Name				
Test Requirement	F.D.T(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-AL-2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	50	12/6/2023	
2					
3					
4					

Comments by: Eng. Maen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by Third party lab Combascal . 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. Maen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif for		13-6-2023	AWC

* Designer

** Alignment/Bridges Drivers only

COMIBASSAL International Controllers
Internal inspection and laboratories sector
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Accredited by : Egyptian Accreditation council (EGAC) under No. 031708/IA

Report NO. :1404/01/center
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Points NO.	1	2	3	4	5
Description	St (385+510)	St (385+530)	St (385+530)	St (385+540)	St (385+550)
Initial wt. (gm)	7140	6380	6640	7730	8900
Wt.after filling the cone and the hole (gm)	3850	3930	3980	4470	4990
Wt. of wet Sample in hole (gm)	2450	2530	2580	2470	2550
Wt. of sand filling hole (gm)	1560	1610	1630	1610	1690
Wt. of sand filling cone (gm)	1650	1650	1650	1650	1650
Density of standard sand (ρs) (gm/cm³)	1.50				
Volume of hole (cm³)	1040.00	1073.33	1087	1073.3	1106.7
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	192.3	193	192	193.4	193.2
Wet Density (γwet) (gm/cm³)	2.308	2.357	2.301	2.301	2.304
Moisture ratio (%)	4.0	3.6	4.2	3.4	3.6
Dry Density (γdry) (gm/cm³)	2.205	2.276	2.209	2.225	2.225
(γmax dry) (gm/cm³)	2.210				
Compaction Ratio (%)	102	103	100	101	101

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

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

Report NO. :1404/02/center
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام القلي للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Points NO.	6	7	8	9	10
Description	St (385+560)	St (385+570)	St (385+580)	St (385+590)	St (385+600)
Initial wt. (gm)	11000	8200	10700	7300	6870
Wt.after filling the core and the hole (gm)	8320	5900	7480	4601	3580
Wt. of wet sample from hole (gm)	2970	2420	2450	2499	2940
Wt. of sand filling hole (gm)	1630	1550	1560	1620	1640
Wt. of sand filling core (gm)	1650	1650	1660	1650	1650
Density of standard sand (γs) (gm/cm³)	1.50				
Volume of hole (cm³)	1086.67	1033.33	1040	1080.0	1093.3
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	190.3	193	193	193.0	190.5
Wet Density (γwet) (gm/cm³)	2.395	2.352	2.330	2.284	2.323
Moisture ratio (%)	4.0	3.6	3.8	3.6	3.4
Dry Density (γdry) (gm/cm³)	2.274	2.268	2.214	2.206	2.248
γ(max.dry) (gm/cm³)	2.210				
Compaction Ratio (%)	103	103	100	100	102

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
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Report NO. :1404/03/center
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Poles NO.	11	12	13	14	15
Description	St (385+610)	St (385+620)	St (385+630)	St (385+640)	St (385+650)
Initial wt. (gm)	10650	7270	9430	6830	8760
Wt.after filling the cone and the hole (gm)	7570	4820	6230	2770	5460
Wt. of wet Sample from hole (gm)	2980	2450	2400	2460	2930
Wt. of sand filling hole (gm)	1630	1600	1600	1610	1640
Wt. of sand filling cone (gm)	1050	1050	1050	1050	1050
Density of standard sand (γs) (gm/cm³)	1.50				
Volume of hole (cm³)	1086.67	1066.67	1073	1073.3	1093.3
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	193.2	190	193	192.0	191.5
Wet Density (γwet) (gm/cm³)	2.356	2.325	2.242	2.202	2.314
Moisture ratio (%)	3.5	5.3	3.8	4.2	4.4
Dry Density (γdry) (gm/cm³)	2.276	2.203	2.256	2.200	2.216
(γmax.dry) (gm/cm³)	2.210				
Compaction Ratio (%)	103	100	102	103	100

Lab director
Eng : Eman. E. Kandil

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

Report NO. :1404/04/center
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Points NO.	16	17	18	19	20
Description	St (385+600)	St (385+670)	St (385+680)	St (385+690)	St (385+700)
Initial wt. (gm)	10526	8250	9580	8190	7530
Wt.after filling the cone and the hole (gm)	7250	4960	6350	3895	4206
Wt. of wet Sample from hole (gm)	2470	2500	2430	2560	2570
Wt. of sand filling hole (gm)	1580	1640	1560	1644	1620
Wt. of sand filling cone (gm)	1650	1650	1650	1650	1650
Density of standard sand (γs) (gm/cm³)	1.50				
Volume of hole (cm³)	1060.00	1093.33	1040	1096.0	1080.0
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	192	193	190	193.4	188.3
Wet Density (γwet) (gm/cm³)	2.330	2.287	2.337	2.318	2.389
Moisture ratio (%)	4.2	3.6	5.3	3.4	5.5
Dry Density (γdry) (gm/cm³)	2.237	2.207	2.220	2.241	2.264
(γmax.dry) (gm/cm³)	2.210				
Compaction Ratio (%)	101	100	100	101	102

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
Dr. Mohamed Mostafa Badry

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Report NO. : 1404/05/center
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام طلق للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Points NO.	21	22	23	24	25
Description	St (285+710)	St (285+720)	St (285+730)	St (285+740)	St (285+750)
Initial wt. (gm)	11020	7690	10100	7040	6890
Wt.after filling the cone and the hole (gm)	7850	4400	7060	3940	3390
Wt. of wet Sample from hole (gm)	2550	3060	3040	3475	3500
Wt. of sand filling hole (gm)	1625	1615	1615	1585	1605
Wt. of sand filling cone (gm)	1545	1545	1545	1545	1545
Density of standard sand (γ_s) (gm/cm³)	1.50				
Volume of hole (cm³)	1085.33	1076.67	1077	1056.7	1123.3
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	193.6	192.6	192	193.2	193.4
Wet Density (γ_{wet}) (gm/cm³)	2.354	2.322	2.378	2.342	2.336
Moisture ratio (%)	3.3	3.8	4.2	3.5	3.4
Dry Density (γ_{dry}) (gm/cm³)	2.279	2.236	2.281	2.263	2.238
($\gamma_{max.dry}$) (gm/cm³)	2.250				
Compaction Ratio (%)	101	101	101	102	101

Lab director
Eman
Eng : Eman. E. Kandil

Geotechnical consultant
For Dr. M.
Dr. Mohamed Mostafa Badey

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Report NO. :1464/06/center
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Points NO.	26	27	28	29	30
Description	St (385+760)	St (385+770)	St (385+780)	St (385+790)	St (385+800)
Initial wt. (gm)	8030	8080	7450	6490	10890
Wt after filling the cone and the hole (gm)	5730	4880	4300	3390	7700
Wt. of wet Sample from hole (gm)	2925	2900	2900	2460	3685
Wt. of sand filling hole (gm)	1685	1645	1665	1585	1645
Wt. of sand filling cone (gm)	1545	1545	1545	1545	1545
Density of standard sand (γ_s) (gm/cm³)	1.55				
Volume of hole (cm³)	1110.80	1098.67	1070	1063.3	1036.7
Wt.of wet Sample (gm)	203				
Wt.of sample after drying (gm)	193.6	193.2	193	193.8	192.1
Wet Density (γ_{wet}) (gm/cm³)	2.275	2.268	2.283	2.332	2.375
Moisture ratio (%)	5.4	5.5	5.8	5.4	6.1
Dry Density (γ_{dry}) (gm/cm³)	2.201	2.202	2.284	2.251	2.202
($\gamma_{max.dry}$) (gm/cm³)	2.210				
Compaction Ratio (%)	100	100	104	102	103

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
For Dr. H.
Dr. Mohamed Mostafa Badry

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Accredited by : Egyption Accreditation council (EGAC) under No. 091706/IA

Report NO. :1404/07/center
Date : 13/6/2023

Field Detr. Of Density Of Soil in Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام طلق للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Points NO.	31	32	33	34	35
Description	St (385+850)	St (385+820)	St (385+830)	St (385+840)	St (385+850)
Initial wt. (gm)	10040	7700	9770	8820	8900
Wt.after filling the cone and the hole (gm)	7000	4490	6590	3400	5830
Wt. of wet Sample from hole (gm)	2450	2605	2490	2420	2580
Wt. of sand filling hole (gm)	1585	1605	1635	1575	1575
Wt. of sand filling cone (gm)	1545	1545	1545	1545	1545
Density of standard sand (γs) (gm/cm³)	1.50				
Volume of hole (cm³)	1063.33	1110.00	1090	1050.0	1050.0
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	191	192	193	190.2	190.6
Wet Density (γwet) (gm/cm³)	2.384	2.347	2.384	2.362	2.381
Moisture ratio (%)	4.7	4.2	3.7	5.2	4.9
Dry Density (γdry) (gm/cm³)	2.280	2.253	2.302	2.237	2.269
(γmax dry) (gm/cm³)	2.210				
Compaction Ratio (%)	100	102	100	101	103

Lab director
Eman
Eng : Eman. E. Kandil

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

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Report NO. :1404/06/conter
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقي للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Points NO.	36	37	38	39	40
Description	St (385+660)	St (385+670)	St (385+680)	St (385+690)	St (385+800)
Initial wt. (gm)	8440	8290	7350	6900	6450
Wt.after filling the cone and the hole (gm)	6280	5540	4150	3700	3395
Wt. of wet Sample from hole (gm)	2530	2450	2500	2800	2470
Wt. of sand filling hole (gm)	1635	1685	1655	1655	1660
Wt. of sand filling cone (gm)	1645	1545	1545	1545	1545
Density of standard sand (ρs) (gm/cm³)	1.50				
Volume of hole (cm³)	1089.00	1079.00	1103	1103.3	1086.7
Wt of wet Sample (gm)	200				
Wt of sample after drying (gm)	190	190.8	192	193.0	191.0
Wet Density (ρwet) (gm/cm³)	2.321	2.332	2.347	2.356	2.246
Moisture ratio (%)	5.3	4.8	4.1	4.2	4.7
Dry Density (ρdry) (gm/cm³)	2.205	2.225	2.255	2.262	2.211
(ρmax.dry) (gm/cm³)	2.188				
Compaction Ratio (%)	101	102	103	103	101

Lab director
Eng : Eman. E. Kandil

Geotechnical consultant
For Dr. M
Dr. Mohamed Mostafa Badry

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

Report NO. :1404/05/center
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عبد السلام الفقي للمقاولات
Project : Electric express train
Sample : Sub-ballast layer (2)
Date of test : 12-6-2023

Results :

Points NO.	41	42	43	44	45
Description	St (385+810)	St (385+820)	St (385+830)	St (385+840)	St (385+850)
Initial wt. (gm)	10190	6340	7410	8900	6120
Wt.after filling the cone and the hole (gm)	7030	3720	4750	5840	4580
Wt. of wet Sample from hole (gm)	2480	2450	2530	2470	2420
Wt. of sand filling hole (gm)	1615	1575	1635	1595	1565
Wt. of sand filling cone (gm)	1545	1545	1545	1545	1545
Density of standard sand (γd (gm/cm³)	1.50				
Volume of hole (cm³)	1076.67	1050.00	1058	1063.3	1063.3
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	193.8	193	192	193.5	193.4
Wet Density (γwet) (gm/cm³)	2.303	2.333	2.301	2.323	2.276
Moisture ratio (%)	3.2	3.6	4.2	3.4	3.4
Dry Density (γdry) (gm/cm³)	2.232	2.252	2.208	2.247	2.201
(γmax.dry) (gm/cm³)	2.188				
Compaction Ratio (%)	102	103	102	103	101

Lab director
Eman
Eng : Eman. E. Kandil

Geotechnical consultant
for Dr. H -
Dr. Mohamed Mostafa Badry

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Report NO. :1404/10/center
Date : 13/6/2023

Field Detr. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عبد السلام الفقى للمقاولات
Project	:	Electric express train
Sample	:	Sub-ballast layer (2)
Date of test	:	12-6-2023

Results :

Points NO.	46	47	48	49	50
Description	St (385+900)	St (385+970)	St (385+980)	St (385+990)	St (386+030)
Initial wt. (gm)	10000	9280	6870	8340	7560
Wt after filling the cone and the hole (gm)	6610	6870	2000	5170	4380
Wt. of wet Sample from hole (gm)	3510	2530	2500	3480	2520
Wt. of sand filling hole (gm)	1545	1675	1030	1025	1035
Wt. of sand filling cone (gm)	1545	1545	1545	1545	1545
Density of standard sand (ρs) (gm/cm³)	1.60				
Volume of hole (cm³)	1090.67	1195.07	1000	1003.3	1000.0
Wt.of wet Sample (gm)	200				
Wt.of sample after drying (gm)	192.3	193.5	193	190.6	190.5
Wet Density ((ρwet) gm/cm³)	2.389	2.269	2.254	2.388	2.312
Moisture cntn (%)	4.0	3.4	3.9	4.9	5.0
Dry Density ((ρdry) gm/cm³)	2.301	2.192	2.208	2.199	2.202
((ρmax dry) (gm/cm³)	2.188				
Compaction Ratio (%)	101	100	101	100	101

Lab director
Eng : Eman. E. Kandil

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

Kilo 23 Alexandria - Cairo Desert Road - Mergheem
Tel: 002 03 4704595 - 002 034701191
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Email : internal-inspection@comibassal.com

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 above

Contractor Company	Abd EL-Salam EL-Feky Contracting Company	Designer Company*	SPECTRUM Engineering Consulting Office
Issued by Contractor	Name: Eng. Ahmed Abd-Almonsef	Sign	Date/Serial Number: 15/06/2023 IRSB2(007)	Time: 4:00 PM
Received by GARB CONSULTANT	Eng. Moustafa Ryad		

GL	GB	CL	CD	MM	YY	HH	MM
385	EW	CS	16	05	2023	12	00

CODE-1	S1 to S11 Station Reference	D1 to D3 Depot Reference	Kp XXX Note For Kilo meter point only Short Km is used
CODE-2	Work Activity		
CODE-3	Sub Element of Activity		

EXPLANATION OF WORK TO BE INSPECTED

Description	Element	Item
From St. 385+060 To St. 385+007.5	Subballast 2	Subballast

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 SB2) MIR) (SB(003)	-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (C021-41.3)(VERSION2 BY CWECON GROUP. -TECHNICAL REPORT (C021-122.1) VERSION 1 BY CWECON GROUP.	

Comments by: Eng. Mohamed Khalil (XYZ)

1- Attached Master Sheet approved by SPECTRUM.

Comments by: Eng. Eng. Moustafa Ryad (SPECTRUM)

1- تم استلام القطاع فحص بصري

2- تم مراجعة ثبيت الملاشيب

Comments by: Eng. Alaa Abd-Allatif (GR)

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 A-AWC-R	Please Tick If Not Attend
Contractor	Eng. Ahmed Abd-Almonsef				A	
XYZ Survey	Eng. Mohamed Khalil					
QA/QC*	Eng. Moustafa Ryad					A
GARB**	Eng. Mohammed Fayed					
Employers Representative	Eng. John Samuel		16.5.2023			AWC

* Designer

File Name : MS-F L002

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-Fakharany Contracting Company			Designer Company*		(SPECTRUM) Engineering Consulting Office					
Issued by Contractor	Eng. Ahmed Abd-Almonsef	Sign		Date/Serial Number		27/05/2023 IRSB2(011)			Time		4:00 PM
Received by GARB CONSULTANT	Eng. Moustafa Ryad		UIR	C1	C2	C3	CO	MM	YY	HH	MM
				885	6W	CS	28	05	2023	12	00

CODE-1	S1 to S21 Station Reference	D1 to D3 Depot Reference	Km 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. 385+660 To St. 385+660	Subballast 2	Subballast

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 SB2) MIR) (SB 006)	-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (C021-4L2)VERSION2 BY CIVECON GROUP. -TECHNICAL REPORT (DG15-132.1) 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 (EH)
1- تم استلام القطاع فحص بصري 2- تم مراجعة شيت المتابعين	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 A-AWC-R	Please Tick if Not Attend
Contractor	Eng. Ahmed Abd-Almonsef				A	
XYZ Survey	Eng. Mohamed Khalil				AWC	
QA/QC*	Eng. Moustafa Ryad					A
GARB**	Eng. Mohammed Fayad					
Employers Representative	Eng. John Sony		28-5-2023			AWC

* Designer

File Name : MS-F.L032

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-Fiky Contracting Company	Designer Company*	(SPECTRUM) Engineering Consulting Office
Issued by Contractor	Name / Sign: Eng. Ahmed Abd-Almonef	Date/Serial Number: 27/05/2023 IB:SB2(012)	Time: 4:00 PM
Received by GARB CONSULTANT	Eng. Moustafa Ryad		

	CI	DISC	CS	CD	MM	YY	HH	MM
UIR	385	RW	CS	28	05	2023	12	00

CODE 1	81 to 821 Station Reference	01 to 03 Depot Reference	Km 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. 385+500 To St. 385+660	Subballast 2	Subballast

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 502) MIR) (SB (005)	-Specification: EARTHWORK SPECIFICATIONS & TESTING REPORT (CG01-61.3)(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. Eng. Moustafa Ryad (SPECTRUM)	Comments by: Eng. Alaa Abd-Allah(GR)
1- تم استلام القطاع فحص بصري 2- تم مراجعة شيت المناسيب	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 A-AWC-R	Please Tick if Not Attend
Contractor	Eng. Ahmed Abd-Almonef				A	
XYZ Survey	Eng. Mohamed Khalil				AWC	
QA/QC*	Eng. Moustafa Ryad				A	
GARB**	Eng. Mohammed Fayad					
Employers Representative	Eng. John Samy		28-5-2023		AWC	

* Designer
File Name : MS-F.L002

MATERIAL APPROVAL REQUEST

Contractor Company	Eng. Abdlkalam ELFeky For Contracting شـــركـــة عبد السلام عبد الحميد الفقي وشركاه للمقاولات والاستشارات الهندسية	Designer Company	(SPECTRUM) Engineering Consulting Office
Issued by Contractor	Name: Eng. Mohamed Ismael	Date/Serial Number: 2023/2023 QT 59 (1)	Time: 9:00
Received by GARB CONSULTANT	Eng. Maen Essamy	MMR	

C1	C2	C3	D1	MM	YY	HH	MM
385	EW	CS	28	3	23	8	0

CODE 4	S1 to S35	D1 to D3	Rp XXX Note
	Station Reference	Depot Reference	Pari Kilometer point only Start Km is used
	Work Activity		
	Sub Element of Activity		

Description of Materials	Subbalast Layer Total Quantity (5000 m³)		
Location to be Used	From Station 385+007.5) to Station (386+007.5)		
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 OVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	

Comments by: Eng. Maen Essamy (SPECTRUM)

-Quality test Result By Third Party lab Combassal is Approved.

-This Sample Representation (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 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-R
Contractor	Eng. Mohamed Ismael			A
DA/QC *	Eng. Maen Essamy			A
GARB**	Eng. Mohammed Fouad			
Employers Representative	Eng.			AWC

* Designer

** Alignment/Bridges Cultvert only

2023 11/4

MATERIAL APPROVAL REQUEST

Contractor Company	Eng. AbdElsalam ElFeky for Contracting	Designer Company	(SPECTRUM) Engineering Consulting Office
Issued by Contractor	Name: Eng. Mohamed Ismail	Sign	Date/Serial Number: 17/5/2023 — QF 58 (2)
			Time: 8:00
Received by GARB CONSULTANT	Eng. Mazen Essamy	MAR	

CL	CQL	CS	DD	MM	YY	HH	MM
385	EW	CS	18	5	23	8	0

0001-1	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	Subballast Layer Total Quantity (5000 m³)		
Location to be Used	From Station 385+007.5) to Station (386+007.5)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name		Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (D021-42.2) VERSION 1 BY CIVILCON 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 Combassil is Approved.

2-This Sample Representive (5000 m3) only.

Comments by: Eng. Alaa Abd-Allatif (EH)

1-All tests were selected for Quality test and were carried-out by Third party lab Combassil.

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 Ismail			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayed			
Employers Representative	Eng. Alaa Abd-Allatif	15/6		AWC

* Designer

** Alignment/Bridges/Culvert only