

السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة وبعد ،،،،

نتشرف ان نرفق لسيادتكم عدد ١ مقياسة معدلة ٢ لمشروع اعمال انشاء الجسر الترابي للقطار الكهربائي السريع ٦ أكتوبر

أبوسمبل (القطاع الخامس) من الكم ٥٧٩ + ٦٤٠ حتي الكم ٦٤١ + ٢٣٦ على ان تراجع الأسعار بمعرفة الإدارة بالقاهرة .

اعداد المكتب الاستشاري سبكترم للاستشارات الهندسية وعلي مسئوليته .

تنفيذ شركة الذهبى للمقاولات

برجاء التكرم بالعلم والتوجيه باللازم

وتفضلوا بقبول وافر التحية والإحترام ،،،،

تحريرا فى ٢٠٢٣/١٢/١٩

المرفقات / عدد (١) مقياسة



مهندس /

عماد حسين



الهيئة العامة للطرق والكبارى

وزارة النقل

مقايسة معدلة 2) جزئية لبنود لأعمال (

مشروع : الجسر الترابى للقطار السريع (أكتوبر / أبو سمبل)

القطاع الخامس من الكم 629 + 110.13 إلى الكم 715 + 624.63 بطول 86.52 كم

من إحداثى E 489929.6671 و N 2874215.5671

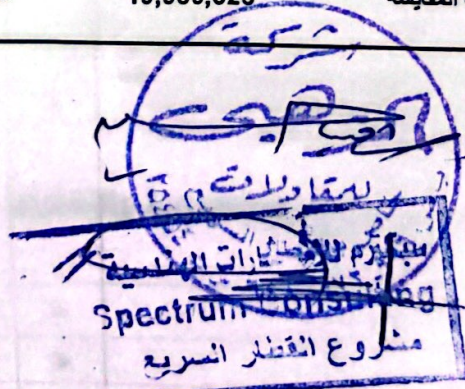
إلى إحداثى E 440168.6522 و N 2817778.3175

إستشارى القطاع سبكترم للإستشارات الهندسية د . م . / عماد الدين نبيل

تنفيذ الشركة : / الذهبى للمقاولات فئة : الرابعة بقيمة : مليون

من الكم 640 + 579 إلى الكم 641 + 236 بطول 657 م

قيمة المقايسة 19,959,325 مليون



المقاول /

الإستشارى /

المنطقة الثامنة بقنا /

أعمال إنشاء الجسر الترابي للقطار الكهربائي السريع (أكتوبر / أيسمبل)

من محطة 110.13 + 629 حتى محطة 624.63 + 715 بطول 86.5145 كم

تنفيذ شركة / الذهبى يوسف للمقاولات العمومية من محطة 640+579 الي 641+236 بطول 657 م

الاجمالي	سعر الفقة	الكمية	الوحدة	بيان الأعمال	م البند
				إعمال الحفر	2
575,000	23.00	25,000.000	3م	بالمتر المكعب اعمال حفر باستخدام المعدات الميكانيكية لجميع أنواع التربة عدا التربة الصخرية وتسوية السطح بالأت التوسية والرش بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة (95%) من الكثافة الجافة القصوى) ومحمل على البند تحميل ونقل الأتربة الزائدة لمسافة 500 متر من محور الطريق ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التنفيذية المعتمدة والبند بجميع مشتملاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. - علاوة 1 جنبة /كم لمسافة نقل نتائج الحفر وتصنيع 1.1 جنبة/كم ابتداء من 4/5/2023 - علاوة زيادة السولار 0.7 جنبة /3م ابتداء من 4/5/2023	2-1
28	1.10	25,000	3م	علاوة مسافة النقل 1 كم	
17,500	0.70	25,000.000	3م	علاوة زيادة السولار	
				إعمال الردم Embankment	3
17,604,997	60.00	293,416.617	3م	أعمال تحميل وتوريد ونقل أتربة مطابقة للمواصفات وتشغيلها باستخدام آلات التسوية بسك لا يزيد عن 50 سم حتى منسوب (2- متر) اسفل منسوب الغرمة و بسك لا يزيد عن 25 سم اعلى من منسوب (2- متر) من منسوب الغرمة لاستكمال المنسوب التصميمي لتشكيل الجسر والاكثاف (نسبة تحمل كاليفورنيا حتى 15%) ورشها بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة (95%) من الكثافة الجافة القصوى) ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التنفيذية المعتمدة والبند بجميع مشتملاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. - فى حالة طلب جهاز الإنتراف زيادة نسبة الدمك عن 95% بحسب زيادة 1 جنبة على زيادة نسبة الدمك لكل 1%. - مسافة النقل حتى 2 كم و يتم احتساب علاوة 1.4 جنبة لكل كم بالريادة أو النقصان وتصيح 1.5 جنبة /كم ابتداء من 4/5/2023. - السعر يشمل عمل تشوينات و تخليط و اختبارات و نقل لمواقع العمل حتى مسافة 2 كم . - علاوة زيادة السولار 1.9 جنبة /3م ابتداء من 4/5/2023 - السعر لا يشمل قيمة المادة المحجيرة.	3-1
				طبقة تأسيس Prepared Subgrade	4
650,000	130.00	5,000.000	3م	بالمتر المكعب أعمال توريد وفرش طبقة تأسيس (Prepared Subgrade) من الأحجار الصلبة المترجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصى حجم للحبيبات 100 مم وألا تزيد نسبة المار من مخل 200 عن 12% والتدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 25% وألا تزيد نسبة الفاقد بجهاز لوس أنجلوس عن 30% وألا يزيد الامتصاص عن 15% وألا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال ويتم فردها على طبقتين باستخدام آلات التسوية الحديثة على أن لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم ورشها بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة قصوى (لا تقل عن 95%) من الكثافة المعملية والفقة تشمل إجراء التجارب المعملية والحقلية ويتم التنفيذ طبقاً لأصول الصناعة والرسومات التنفيذية والبند بجميع مشتملاته طبقاً للمواصفات الفنية للمشروع وتقرير الاستشارى وتعليمات المهندس المشرف. - مسافة النقل لا تقل عن 20 كم. - يتم احتساب علاوة 1.2 جنبة لكل 1 كم بالزيادة أو النقصان وتصيح 1.3 جنبة /كم ابتداء من 4/5/2023. - السعر لا يشمل قيمة المواد المحجيرة. علاوة زيادة السولار 1.8 جنبة /3م ابتداء من 4/5/2023	4-1
884,000	104.00	8,500.000	3م	مسافة نقل 100 كم	
212,500	25.00	8,500.000	3م	كارتة توريد الأساس	
15,300	1.80	8,500.000	3م	علاوة زيادة السولار	
19,959,325				الاجمالي	

يعتمد
رئيس الإدارة المركزية
المنطقة الثامنة (قنا)
السيد المهندس / عماد حسين
التوقيع

مهندس هيئة الطرق والكبارى
(المنطقة الثامنة - قنا)
المهندس /
التوقيع

مدير المشروع (الاستشارى)
المهندس /
التوقيع

مهندس الشركة المنفذة
المهندس /
التوقيع

شركة
الذهبى
للمقاولات
خاص بالقطار الكهربائي
٢٠٢٥
٦٤٨ - ٥٧٢ - ٦٤٨



مجلس أمانة حيدر كوت



التاريخ: 25/11/2023

اسم المشروع: مشروع القطار الكهربائي السريع (KOR - HAWA - JORDAN) (القطاع الخامس)

قامت شركة بريلات كونسولتانت الهندسية المعمارية (استشاري الأعمال المعمارية لبيدة الطرق والبنية التحتية)

بإعداد الكميات البنائية الخشبية لشركة الأهلي القمار لاند

م	من المنطقة رقم	إلى المنطقة رقم	المساحة	كمية ريشم الخشب	الامتداد
1	540+120	540+200	أصل القطع	14051.66	أصل قطع على (REV05)
إجمالي الكمية				14051.66	

حضر بناري (2)
الموافق:
تسليم ميزانية شبكة
الملاحظات: مرسومة
شيت الشيفر موضح به الكميات



استشاري المعمارية / مكتب بريلات
مستشاري الأعمال المعمارية
4

مهندس السرعة المتقدمة
أحمد محمد محمد

بريلات كونسولتانت للاستشارات الهندسية
HSR - Blue Line - Sec.05
استشاري الأعمال المعمارية بالنظام الخاص



حصر كميات القطع مستخلص جاري (2) شركة الذهبي
(637+952-643+863) مشروع القطار السريع القطاع
الخامس (قوس /ارمنت)

Station	Cut Area (Sq.M.)	Cut Volume (Cu.M.)	Cum. Cut Vol. (Cu.M.)
640+120.00	4.61	46.07	46.07
640+140.00	83.74	883.49	929.56
640+160.00	276.03	3,597.70	4,527.26
640+180.00	309.59	5,856.19	10,383.46
640+200.00	57.23	3,668.21	14,051.66
اجمالي الكمية بالمتر المكعب		14,051.66	

إمالة كوئست للمهندسين
HSR - Blue Line - Sep.05
استشاري الأعمال المسجلة بالقطاع الخامس



RECEIPT of NOTIFICATION - MINIMUM NOTICE Period (not less than 24 Hours)

It is hereby confirmed that the contractor has received the notification to attend the inspection.

Location Name		Contractor Company		Designer Company	
From 640+120 to 640+200		EL-ZAHABY contraction		(SPECTRUM) Engineering Consulting Office	
Issued by Contractor	Name Eng. Ahmed Shoaib Hassan	Sign 	Date 26/11/2023	Time 10:00 AM	
Contractor QR Reference	ZF-AS-BUILT (01)				Revision 5
Received by DR			UN	CP	EW

CODE 1 11-11-11 Contract Reference	CODE 2 11-11-11 Survey Reference	CODE 3 11-11-11 For Contractor and Eng	CODE 4 11-11-11 Track Activity	CODE 5 11-11-11 For Drawing of Assets
--	--	--	--------------------------------------	---

DESCRIPTION OF WORK TO BE INSPECTED		
Area	Element	Note
	From 640+120 to 640+200	As-built (حضر كتيبات القطع)
Inspection Description: as-built (حضر كتيبات القطع)		

Planned Inspection Data		Planned Inspection Time	
		10:00 AM	

COMPLIANCE CHECKED (Mark as Satisfactory or Not)			
Checklist Attached <input type="checkbox"/>	Test Results Attached <input type="checkbox"/>	Callibration Attached <input type="checkbox"/>	Other as Indicated <input type="checkbox"/>
Drawing Reference	ITP Reference	MS Reference	

Comments by (Contractor)	Comments by (SPECTRUM) DR	Comments by (SPECTRUM) DR
تم التفتيش على البنية التحتية منطقة العمل والبنية التحتية منطقة العمل والبنية التحتية نسبة 100%	تم التفتيش على البنية التحتية منطقة العمل والبنية التحتية منطقة العمل والبنية التحتية نسبة 100%	

INSPECTION RESULT					Approval Status	Issue Task if not satisfied
Organization	Name	Sign	Date	Time	AS-BUILT	
Brilliant Survey	أحمد شوايب حسن		27-11-2023			
SPECTRUM	أحمد شوايب حسن		28/11/23			
QA/QC						
Employer representation						

POINT NUM	NORTH	EAST	ELEVATION	DESCRIPTION	الوصف
127726	2863809.677	491427.591	128.183	CUT	قطع
127727	2863812.013	491431.401	128.162	CUT	قطع
127728	2863815.788	491436.124	128.021	CUT	قطع
127729	2863820.177	491441.846	127.859	CUT	قطع
127730	2863815.479	491454.198	128.232	CUT	قطع
127731	2863810.8	491450.1	128.227	CUT	قطع
127732	2863806.097	491446.127	128.229	CUT	قطع
127733	2863802.591	491440.038	128.307	CUT	قطع
127734	2863799.369	491434.965	128.287	CUT	قطع
127735	2863796.675	491430.99	128.207	CUT	قطع
127736	2863787.563	491433.001	128.48	CUT	قطع
127737	2863791.272	491438.223	128.376	CUT	قطع
127738	2863795.922	491443.9	128.301	CUT	قطع
127739	2863799.81	491448.952	128.299	CUT	قطع
127740	2863803.522	491454.215	128.258	CUT	قطع
127741	2863808.164	491459.979	128.468	CUT	قطع
127742	2863799.882	491464.712	128.545	CUT	قطع
127743	2863794.819	491459.746	128.319	CUT	قطع
127744	2863789.829	491455.165	128.443	CUT	قطع
127745	2863786.461	491449.987	128.471	CUT	قطع
127746	2863783.399	491443.95	128.608	CUT	قطع
127747	2863780.384	491438.582	128.655	CUT	قطع
127748	2863778.595	491434.527	128.646	CUT	قطع
127749	2863767.442	491439.542	128.504	CUT	قطع
127750	2863771.434	491445.25	128.448	CUT	قطع
127751	2863775.851	491450.751	128.531	CUT	قطع
127752	2863780.318	491456.828	128.224	CUT	قطع
127753	2863784.921	491462.655	128.341	CUT	قطع
127754	2863789.004	491467.754	128.268	CUT	قطع
127755	2863792.525	491471.712	128.514	CUT	قطع
127756	2863783.078	491477.783	128.65	CUT	قطع
127757	2863778.685	491472.714	128.214	CUT	قطع
127758	2863773.935	491468.15	128.211	CUT	قطع
127759	2863769.788	491464.735	128.133	CUT	قطع
127760	2863764.103	491457.987	128.318	CUT	قطع
127761	2863763.84	491451.866	128.319	CUT	قطع
127762	2863760.928	491446.015	128.463	CUT	قطع
127763	2863757.565	491442.09	128.512	CUT	قطع
127764	2863745.369	491446.123	128.104	CUT	قطع
127765	2863750.724	491450.92	128.335	CUT	قطع

الهيئة الوطنية للأمن والنقل
HSR - Blue Line - Sec.05
استشاري الأعمال المتكاملة بالقطاع الخاص

تم الموقع للطعام من 540+120 الى 540+200 بتاريخ 2023-11-26

أحمد محمد محمد



POINT NUM	NORTH	EAST	ELEVATION	DESCRIPTION	الوصف
127766	2863755.879	491457.358	128.171	CUT	قطع
127767	2863760.439	491463.479	128.217	CUT	قطع
127768	2863764.516	491468.656	128.215	CUT	قطع
127769	2863768.729	491474.096	128.076	CUT	قطع
127770	2863772.85	491479.551	128.143	CUT	قطع
127771	2863775.839	491482.833	128.267	CUT	قطع
127772	2863767.969	491490.209	128.391	CUT	قطع
127773	2863762.068	491484.55	128.087	CUT	قطع
127774	2863756.568	491479.238	128.228	CUT	قطع
127775	2863751.201	491473.724	128.163	CUT	قطع
127776	2863746.832	491467.422	128.194	CUT	قطع
127777	2863743.566	491460.443	128.297	CUT	قطع
127778	2863739.827	491452.138	128.156	CUT	قطع
127779	2863735.393	491464.775	128.166	CUT	قطع
127780	2863731.93	491470.14	128.403	CUT	قطع
127781	2863745.535	491477.393	128.18	CUT	قطع
127782	2863750.11	491482.522	128.218	CUT	قطع
127783	2863755.134	491489.223	128.22	CUT	قطع
127784	2863761.728	491495.155	128.246	CUT	قطع
127785	2863753.746	491505.697	128.308	CUT	قطع
127786	2863748.842	491499.826	128.021	CUT	قطع
127787	2863744.398	491494.909	128.021	CUT	قطع
127788	2863738.556	491489.678	128.335	CUT	قطع
127789	2863735.246	491484.759	128.167	CUT	قطع
127790	2863734.2	491478.377	128.111	CUT	قطع
127791	2863734.547	491470.367	128.135	CUT	قطع
127792	2863735.692	491463.487	128.238	CUT	قطع
تم الموقع للطعام من 640+120 الى 640+200 بتاريخ 2023-11-26					

إمبانت كوتيجات للتشييد الخاصة
 HSR - Bypass Line Sec.05
 استشاري الأعمال المتكاملة للطعام

أحمد شفيق جليل



تم الموقع للطعام من 640+120 الى 640+200 بتاريخ 2023-11-26



مجلس الشركة مصر كابوت



تاريخ: 25/10/2023

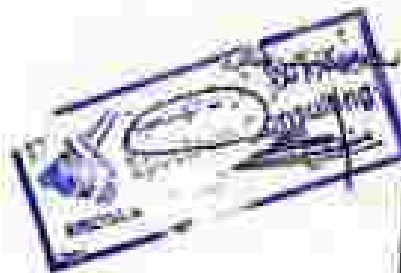
إلى: المندوبين الموزعين (الكابوت) حول المخطط (المخطط النهائي)

لقد تم الاتفاق على أن تكون المخططات النهائية (المخططات) هي التي سيتم استخدامها في المخططات النهائية (المخططات)

بموجب المخططات النهائية (المخططات) المرفقة بالملف

رقم	من المخططات	في المخططات	المخطط	المبلغ بالعملة	المخطط
1	630+720	630+120	المخطط رقم 1	57555.35	المخطط رقم 1 (REV00)
2	630+580	630+720	المخطط رقم 2	4467.34	المخطط رقم 2 (REV05)
3	630+780	630+920	المخطط رقم 3	6400.58	المخطط رقم 3 (REV05)
4	641+280	641+700	المخطط رقم 4	40872.17	المخطط رقم 4 (REV00)
5	642+220	642+480	المخطط رقم 5	10635.97	المخطط رقم 5 (REV05)
المجموع الكلي				128031.31	

مجلس الشركة مصر كابوت
المندوبين
المندوبين
المندوبين
المندوبين



المندوبين
المندوبين
المندوبين
المندوبين

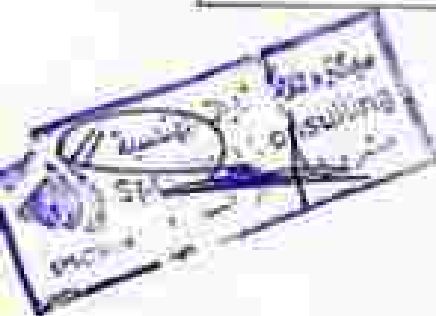
المندوبين
المندوبين
المندوبين
المندوبين

المندوبين
المندوبين
المندوبين
المندوبين



حصر كميات الردم مستخلص جاري (2) شركة الذهبى
(637+952-643+863) مشروع القطار السريع القطاع
الخامس (قوص / ارمينت)

Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
638+720.00	81.08	810.78	810.78
638+740.00	86.15	1,672.25	2,483.03
638+760.00	89.3	1,754.50	4,237.53
638+780.00	91.69	1,809.96	6,047.49
638+800.00	82.87	1,745.60	7,793.09
638+820.00	93.47	1,763.37	9,556.46
638+840.00	130.87	2,243.40	11,799.86
638+860.00	139.32	2,701.92	14,501.78
638+880.00	135	2,743.19	17,244.97
638+900.00	132.92	2,679.18	19,924.15
638+920.00	131.13	2,640.52	22,564.67
638+940.00	177.65	3,087.78	25,652.45
638+960.00	191.18	3,688.30	29,340.75
638+980.00	196.98	3,881.67	33,222.42



برقيات كونسولت للإستشارات الهندسية
HSR - Blue Line - Sec.05
إستشارى الأعمال المساحية بالقطاع الخامس



Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
639+000.00	204.27	4,012.56	37,234.98
639+020.00	190.9	3,951.73	41,186.71
639+040.00	165.5	3,564.07	44,750.78
639+060.00	166.94	3,324.41	48,075.19
639+080.00	154.71	3,216.42	51,291.61
639+100.00	154.15	3,088.56	54,380.17
639+120.00	163.37	3,175.19	57,555.36
639+580.00	12.79	127.86	57,683.22
639+600.00	20.01	327.93	58,011.15
639+620.00	27.24	472.45	58,483.60
639+640.00	34.28	615.2	59,098.80
639+660.00	45.98	802.61	59,901.41
639+680.00	41.84	878.13	60,779.54
639+700.00	31.64	734.79	61,514.33
639+720.00	19.19	508.36	62,022.69
639+780.00	44.98	449.76	62,472.45
639+800.00	38.63	836.06	63,308.51
639+820.00	32.93	715.59	64,024.10



درجات کوئٹہ لائسنسنگ ایجنسی
HSR - Blue Line - Sec.0s
انسٹانسی لائسنسنگ ایجنسی



Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
639+840.00	30.28	632.1	54,856.20
639+860.00	37.18	674.58	55,330.78
639+880.00	39.76	769.4	56,100.18
639+900.00	34.12	738.81	56,838.99
639+920.00	24.31	584.28	57,423.27
641+260.00	125.61	1,256.08	58,679.35
641+280.00	122.24	2,478.53	71,157.88
641+300.00	131.61	2,538.59	73,696.47
641+320.00	121.04	2,526.52	76,222.99
641+340.00	124.99	2,460.31	78,683.30
641+360.00	118.24	2,432.34	81,115.64
641+380.00	121.69	2,399.27	83,514.91
641+400.00	119.02	2,407.10	85,922.01
641+420.00	109.13	2,281.56	88,203.57
641+440.00	80.83	1,899.68	90,103.25
641+460.00	90.34	1,711.74	91,814.99
641+480.00	94.91	1,852.48	93,667.47
641+500.00	84.89	1,797.94	95,465.41
641+520.00	79.41	1,643.00	97,108.41

إمارة أبوظبي
HSR-Bridge-sec.05
مخطط العمل المساعد القطاع الخامس



Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
641+540.00	72.99	1,524.02	98,632.43
641+560.00	61.44	1,344.33	99,976.76
641+580.00	72.47	1,339.16	101,315.92
641+600.00	66.58	1,390.53	102,706.45
641+620.00	67.79	1,343.68	104,050.13
641+640.00	49.04	1,168.28	105,218.41
641+660.00	46.26	953.04	106,171.45
641+680.00	46.11	923.77	107,095.22
641+700.00	53.08	991.9	108,087.12
641+720.00	51.31	1,043.88	109,131.00
641+740.00	43.64	949.52	110,080.52
641+760.00	31.68	753.24	110,833.76
641+780.00	24.48	561.68	111,395.44
642+220.00	39.04	390.41	111,785.85
642+240.00	40.74	797.82	112,583.67
642+260.00	42.71	834.53	113,418.20
642+280.00	48.82	915.35	114,333.55
642+300.00	48.27	970.9	115,304.45

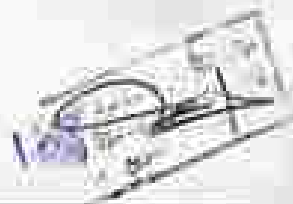
إمارة أبوظبي
HSR - Blue Line - Sec.05
إستشاري الأعمال المتعددة القطاع الخامس



Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
642+320.00	52.13	1,004.02	116,308.47
642+340.00	65.65	1,177.82	117,486.29
642+360.00	69.57	1,352.22	118,838.51
642+380.00	68.51	1,380.79	120,219.30
642+400.00	77.55	1,460.60	121,679.90
642+420.00	80.79	1,583.49	123,263.39
642+440.00	80.54	1,613.37	124,876.76
642+460.00	83.45	1,639.89	126,516.65
642+480.00	88.02	1,714.66	128,231.31
اجمالي الكمية بالمتر المكعب		128,231.31	

إمارة أبوظبي
إدارة الطرق
HSR - Abu Dhabi - Sec.05
إمارة أبوظبي





REPORT TO THE
SEC. GEN. (P&W)



REPORT TO THE
SEC. GEN. (P&W)

1st floor

2nd floor

3rd floor

4th floor

5th floor

6th floor

7th floor

8th floor

9th floor

10th floor

11th floor

12th floor

13th floor

14th floor

15th floor

16th floor

17th floor

18th floor

19th floor

20th floor

21st floor

22nd floor

23rd floor

24th floor

25th floor

26th floor

27th floor

28th floor

29th floor

30th floor

31st floor

32nd floor

33rd floor

34th floor

35th floor

36th floor

37th floor

38th floor

39th floor

40th floor

41st floor

42nd floor

43rd floor

44th floor

45th floor

46th floor

47th floor

48th floor

49th floor

50th floor

51st floor

52nd floor

53rd floor

54th floor

55th floor

56th floor

57th floor

58th floor

59th floor

60th floor

61st floor

62nd floor

63rd floor

64th floor

65th floor

66th floor

67th floor

68th floor

69th floor

70th floor

71st floor

72nd floor

73rd floor

74th floor

75th floor

76th floor

77th floor

78th floor

79th floor

80th floor

81st floor

82nd floor

83rd floor

84th floor

85th floor

86th floor

87th floor

88th floor

89th floor

90th floor

91st floor

92nd floor

93rd floor

94th floor

95th floor

96th floor

97th floor

98th floor

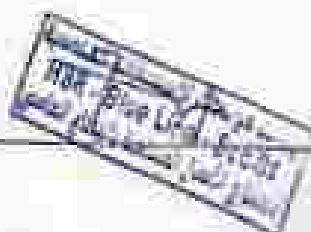
99th floor

100th floor

[illegible]

A hand-drawn sketch of a building with a sign on top. The sign reads "COMPUTER TRAINING INC. (949) 341-1020". To the right of the building is a table with the following data:

Total Volume of Orders (10/1/94-10/31/94)	
Oct 94	5,100
Nov 94	5,000
Dec 94	5,000
Jan 95	5,000
Feb 95	5,000
Mar 95	5,000
Apr 95	5,000
May 95	5,000
Jun 95	5,000
Jul 95	5,000
Aug 95	5,000
Sep 95	5,000
Oct 95	5,000
Nov 95	5,000
Dec 95	5,000
Jan 96	5,000
Feb 96	5,000
Mar 96	5,000
Apr 96	5,000
May 96	5,000
Jun 96	5,000
Jul 96	5,000
Aug 96	5,000
Sep 96	5,000
Oct 96	5,000
Nov 96	5,000
Dec 96	5,000
Jan 97	5,000
Feb 97	5,000
Mar 97	5,000
Apr 97	5,000
May 97	5,000
Jun 97	5,000
Jul 97	5,000
Aug 97	5,000
Sep 97	5,000
Oct 97	5,000
Nov 97	5,000
Dec 97	5,000
Jan 98	5,000
Feb 98	5,000
Mar 98	5,000
Apr 98	5,000
May 98	5,000
Jun 98	5,000
Jul 98	5,000
Aug 98	5,000
Sep 98	5,000
Oct 98	5,000
Nov 98	5,000
Dec 98	5,000
Jan 99	5,000
Feb 99	5,000
Mar 99	5,000
Apr 99	5,000
May 99	5,000
Jun 99	5,000
Jul 99	5,000
Aug 99	5,000
Sep 99	5,000
Oct 99	5,000
Nov 99	5,000
Dec 99	5,000
Jan 00	5,000
Feb 00	5,000
Mar 00	5,000
Apr 00	5,000
May 00	5,000
Jun 00	5,000
Jul 00	5,000
Aug 00	5,000
Sep 00	5,000
Oct 00	5,000
Nov 00	5,000
Dec 00	5,000
Jan 01	5,000
Feb 01	5,000
Mar 01	5,000
Apr 01	5,000
May 01	5,000
Jun 01	5,000
Jul 01	5,000
Aug 01	5,000
Sep 01	5,000
Oct 01	5,000
Nov 01	5,000
Dec 01	5,000
Jan 02	5,000
Feb 02	5,000
Mar 02	5,000
Apr 02	5,000
May 02	5,000
Jun 02	5,000
Jul 02	5,000
Aug 02	5,000
Sep 02	5,000
Oct 02	5,000
Nov 02	5,000
Dec 02	5,000
Jan 03	5,000
Feb 03	5,000
Mar 03	5,000
Apr 03	5,000
May 03	5,000
Jun 03	5,000
Jul 03	5,000
Aug 03	5,000
Sep 03	5,000
Oct 03	5,000
Nov 03	5,000
Dec 03	5,000
Jan 04	5,000
Feb 04	5,000
Mar 04	5,000
Apr 04	5,000
May 04	5,000
Jun 04	5,000
Jul 04	5,000
Aug 04	5,000
Sep 04	5,000
Oct 04	5,000
Nov 04	5,000
Dec 04	5,000
Jan 05	5,000
Feb 05	5,000
Mar 05	5,000
Apr 05	5,000
May 05	5,000
Jun 05	5,000
Jul 05	5,000
Aug 05	5,000
Sep 05	5,000
Oct 05	5,000
Nov 05	5,000
Dec 05	5,000
Jan 06	5,000
Feb 06	5,000
Mar 06	5,000
Apr 06	5,000
May 06	5,000
Jun 06	5,000
Jul 06	5,0

[illegible]

Scanned with CamScanner

Handwritten signature and date: 10/10/2020

Handwritten signature and date: 10/10/2020



Table 1: Student Details

Sl. No.	Name of the Student	Roll No.	Grade	Section
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Table 2: Student Details

Sl. No.	Name of the Student	Roll No.	Grade	Section
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

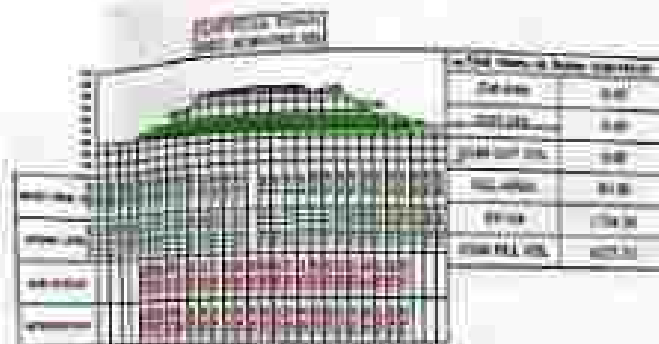
Table 3: Student Details

Sl. No.	Name of the Student	Roll No.	Grade	Section
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20


Table 4: Student Details

Sl. No.	Name of the Student	Roll No.	Grade	Section
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Signature of the Head of the Institution _____ Date: _____		Signature of the Head of the Institution _____ Date: _____	
Signature of the Head of the Institution _____ Date: _____		Signature of the Head of the Institution _____ Date: _____	
Signature of the Head of the Institution _____ Date: _____		Signature of the Head of the Institution _____ Date: _____	



Project Name	
Project Location	
Project Description	
Project Owner	
Project Manager	
Project Engineer	
Project Date	
Project Status	
Project Notes	
Project Drawings	
Project Specifications	
Project Schedule	
Project Budget	
Project Risk	
Project Impact	
Project Conclusion	

		Date: _____ Page: _____	
Name: _____ Address: _____ City: _____		State: _____ Zip: _____	
School: _____ Teacher: _____		Parent: _____ Phone: _____	

Mathematics

Unit	Topic	Score
1	Number and Numeration	100
2	Measurement	100
3	Geometry	100
4	Algebra	100
5	Statistics	100
6	Science	100
7	Language Arts	100
8	History	100
9	Physical Education	100
10	Art	100
11	Music	100
12	Health	100
13	Environmental Studies	100
14	Foreign Languages	100
15	Other	100
Total		1500

Mathematics

Unit	Topic	Score
1	Number and Numeration	100
2	Measurement	100
3	Geometry	100
4	Algebra	100
5	Statistics	100
6	Science	100
7	Language Arts	100
8	History	100
9	Physical Education	100
10	Art	100
11	Music	100
12	Health	100
13	Environmental Studies	100
14	Foreign Languages	100
15	Other	100
Total		1500

Mathematics

Unit	Topic	Score
1	Number and Numeration	100
2	Measurement	100
3	Geometry	100
4	Algebra	100
5	Statistics	100
6	Science	100
7	Language Arts	100
8	History	100
9	Physical Education	100
10	Art	100
11	Music	100
12	Health	100
13	Environmental Studies	100
14	Foreign Languages	100
15	Other	100
Total		1500

Mathematics

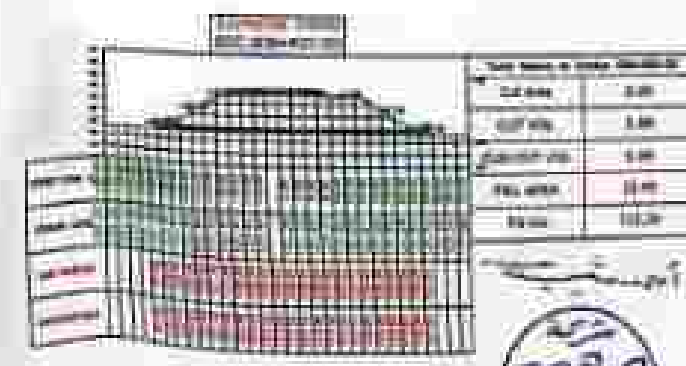
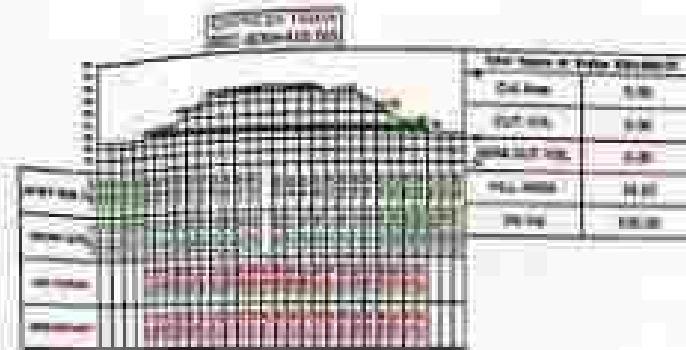
Unit	Topic	Score
1	Number and Numeration	100
2	Measurement	100
3	Geometry	100
4	Algebra	100
5	Statistics	100
6	Science	100
7	Language Arts	100
8	History	100
9	Physical Education	100
10	Art	100
11	Music	100
12	Health	100
13	Environmental Studies	100
14	Foreign Languages	100
15	Other	100
Total		1500

Handwritten signature

Handwritten text







PROJECT INFORMATION

Project Name: [Blank]

Client: [Blank]

Location: [Blank]

Scale: [Blank]

DESIGNER INFORMATION

Designer: [Blank]

Address: [Blank]

Phone: [Blank]

APPROVALS

Client Signature: [Blank]

Designer Signature: [Blank]

Stamp: [Blank]

NOTES

[Blank]



MSR - Blue Line, Inc.

[illegible]

شركة المدين للمطارات و الترانزيت المصرية :

Project : Electric Express Train - Sector (5) - Gaze to Arment.
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements.
Test Location : Station (641+300 to 641+440)
Test Date : 25/07/2023
Report Date : 26/07/2023
Type of soil : Original earth.
Report No. : 1 : 2

Dear Gentlemen,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 300 mm and 300 mm diameter
2. The thickness of plates 20 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement.
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with coils capacity 750 bar (Enerpac).
7. Reaction loading system by roller compactor with weight approximately 15 ton.
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the limit values are 5.0 kPa/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each stage in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, in 60 %, 20 %, and approximately 2 % of the maximum load.
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The test report content the following:
 - location of test site - Dimension of loading plate.
 - Measuring device used - Type of soil.
 - Type of Bedding material below the plate -Weathering condition.
 - Time and date of measurements - Unusual observation made during test.
 - Dial gauge reading and corresponding normal stress - Loading-settlement curve.
 - Description of the soil condition below the plate after testing.

Report

- Type of soil : Original earth
- Job requirement : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	25/07/2023
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	Eval E_{v2} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (MPa)}$	
1	641+300	641+400	641+350	-4.5	76.4	140.8	1.77
2	641+400	641+440	641+420	-4.5	106.4	118.5	1.11

Signature /

[Handwritten Signature]





Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة الأهلي للمقاولات والتوريدات المعمية
Project : Electric Express Train - Sector (2) - Giza to Asyut
Test Date : 25/07/2023
report date : 26/07/2023
Location : Station (641+385)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.25	19.80	0.20	19.75	0.22	0.21
2	1.00	19.55	0.45	19.43	0.51	0.48
3	2.50	19.38	0.62	19.45	0.63	0.61
4	3.30	19.12	0.88	19.13	0.86	0.87
5	4.17	18.83	1.17	18.78	1.22	1.20
6	5.00	18.69	1.31	18.54	1.43	1.39

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.38	1.23	18.86	1.34	1.29
2	1.25	19.85	1.13	19.73	1.27	1.21
3	0.100	19.80	1.07	19.86	1.13	1.12

Loading Stage (2)

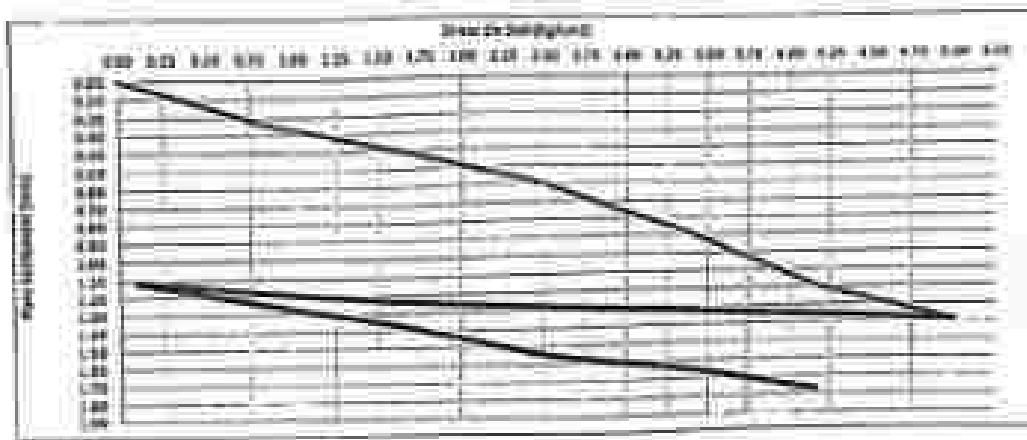
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	18.80	1.20	18.75	1.28	1.25
1	1.00	18.66	1.34	18.58	1.42	1.38
2	2.50	18.33	1.46	18.40	1.63	1.55
3	3.30	18.04	1.56	18.28	1.72	1.64
4	4.17	17.75	1.65	18.10	1.89	1.79



Company Name
Project
Test Date
Report Date
Location
Test No.

الاسم المختبر و الترخيص المعمية :
(Shabou Express Trade - Sector 2) - Cairo to Sohag
250710023
250710023
(Station (B41+548))
(57)

Noncompetitive Static Plate Load Tests of Soils Q19.18134



Loading (T)	0	1	2	3	4	5	6
Stress (kg)	0	366	1172.8	1796.3	2392.8	2946.1	3420.6
Stress (N/mm ²)	0.00	0.83	1.20	1.56	2.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.41	0.61	0.97	1.30	1.36

D (mm) = 300	Settlement = 0.28	Stress = 693	Settlement = 0.28
Settlement = 0.28	Stress = 693	Settlement = 0.28	Stress = 693

Loading (T)	0	1	2	3	4	5
Stress (kg)	0	268.295	1172.8	1796.3	2392.8	2946.1
Stress (N/mm ²)	0.00	0.63	1.56	2.33	2.33	4.17
Settlement (mm)	1.12	1.25	1.36	1.36	1.64	1.78

D (mm) = 300	Settlement = 1.25	Stress = 1.97	Settlement = 1.25
Settlement = 1.25	Stress = 1.97	Settlement = 1.25	Stress = 1.97

Unloading (T)	1	2	3	4
Stress (kg)	3523	3786	654	71
Stress (N/mm ²)	6.00	2.30	1.200	0.10
Settlement (mm)	1.30	1.25	1.23	1.12

Exhibit = 1.21

Settlement of settlement during the loading stage.

Settlement of settlement during the unloading stage.

S = Plate diameter (mm)

Settlement = The difference between (S1 and S2) from the maximum loading (settlement) (mm)

Settlement = The difference between (S1 and S2) from the maximum loading (settlement) (mm)



Company Name	: شركة الأمن للمحلات و التوزيعات
Project	: Metro Express Train - Setor 02 - Zona Sul/Min
Test Date	: 26/07/2023
report date	: 26/07/2023
Location	: Station (441+430)
Test No.	: 02

Nonrepetitive Static Plate Load Tests of Soils

Learning Goals (1)

Load (kg)	Stress (N/mm ²)	Strain (mm/mm)	Modulus of Elasticity (N/mm ²)
0	0.00	0.00	
1	0.05	0.001	
2	0.10	0.002	
3	0.15	0.003	
4	0.20	0.004	
5	0.25	0.005	
6	0.30	0.006	
7	0.35	0.007	
8	0.40	0.008	

Unloading Stone (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	N/mm ²		mm		mm	
1	2.50	18.05	0.37	18.35	1.07	1.02
2	1.25	18.05	0.34	18.36	1.02	0.95
3	0.100	18.17	0.87	18.26	0.92	0.90

Learning Stage (2)

Loading	Stress	Defl 1	Settlement	Defl 2	Settlement	Average
	kg/cm ²		mm		mm	
0	0.03	10.00	1.10	10.00	1.10	1.10
1	1.05	14.75	1.24	14.75	1.27	1.25
2	2.40	19.60	1.40	19.61	1.48	1.43
3	3.33	23.45	1.53	23.40	1.69	1.55
4	4.17	28.31	1.69	28.38	1.72	1.71



Customer Name

Project

Test Date

Report Date

Location

Test No.

الاسم التجاري للمشروع

Service Provided From: Technical - Quality Control

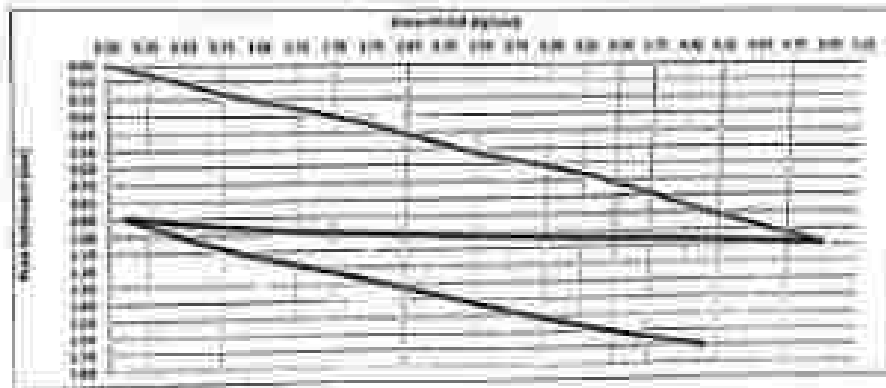
2007/02/01

2007/02/01

Sharia (Giza-427)

02

Representative Results (Data Load Tests of Buys) ENR 18754



Load (kN)	1	2	3	4	5	6	7
Specimen 1	0	0.00	1.00	1.00	1.00	1.00	1.00
Specimen 2	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Displacement (mm)	0.00	0.10	1.10	1.10	1.10	1.10	1.10

Displacement (mm)	1	2	3	4
Specimen 1	0.00	0.00	0.00	0.00
Specimen 2	0.00	0.00	0.00	0.00
Displacement (mm)	0.00	0.00	0.00	0.00

Displacement	0.00	0.10	1.10	1.10	1.10	1.10
Displacement	0.00	0.10	1.10	1.10	1.10	1.10

Displacement = 0.10

Load (kN)	1	2	3	4	5	6	7
Specimen 1	0	0.00	1.00	1.00	1.00	1.00	1.00
Specimen 2	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Displacement (mm)	0.00	0.10	1.10	1.10	1.10	1.10	1.10

Displacement	0.00	0.10	1.10	1.10	1.10	1.10
Displacement	0.00	0.10	1.10	1.10	1.10	1.10

ENR 18754 - Maximum of deformation during the loading stage

ENR 18754 - Maximum of deformation during the loading stage

ENR 18754 - Displacement (mm)

ENR 18754 - Displacement (mm) - Difference between ENR 18754 and ENR 18754

ENR 18754 - Difference of deformation corresponding to ENR 18754 and ENR 18754



3 El Mark El Abdel Street
Zamalek, Cairo
Tel & Fax : 27367231 - 27363093



3 في الملك الألفين
الزمالك - القاهرة
تليفون : 27367231 - 27363093
www.cel-egypt.com

شركة الأهلي للمطارات و التوريدات العمومية :

Project : Electric Express Train - Sector (5) – Omra to Amman.
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2013-04 and project requirements
Test Location : Station (641+440 to 641+540)
Test Date : 13/06/2023
Report Date : 13/06/2023
Type of soil : Original Earth at level
Report No. : 1

Dear Gentleman,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 350 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 100 mm (Ernstbrac)
7. Reaction loading system by roller compactor with weight approximately 15 ton
8. Calibration certificates are attached.

Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the limit values are 5.0 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 %, 25 %, and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached)
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The test report content the following:
 - location of test site - Dimension of loading plate.
 - Measuring device used - Type of soil.
 - Type of Bedding material below the plate -Weathering condition.
 - Time and date of measurements - Unusual observation made during test.
 - Dial gauge reading and corresponding normal stress - Loading-settlement curve.
 - Description of the soil condition below the plate after testing.

Report

- Type of soil : Original Earth
- Job requirement : $E_{v2} > 30 \text{ MPa}$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	12/08/2023
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{v2}/E_{v1} Ratio
	From	To			E_{v1} (Mpa)	E_{v2} (Mpa)	
1	641+440	641+540	641+500	-4.5	112.3	132.2	1.18

Signature / 

Company Name : شركة الاهل للتحريات و التوثيق المعمية
Project : Electric Express Train - Sector (3) - Delta to Aswan
Test Date : 12/08/2022
report date : 13/08/2022
Location : Station (641+500)
Test No. : 21

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	0.00	15.00	0.00	0.00
1	0.93	15.88	0.11	15.30	0.80	0.45
2	1.60	15.95	0.35	15.00	1.00	0.68
3	2.50	15.43	0.57	15.33	1.18	0.88
4	3.33	15.28	0.72	15.77	1.33	0.98
5	4.17	15.06	0.94	15.35	1.51	1.23
6	5.00	15.04	1.06	15.37	1.73	1.40

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	15.07	0.93	15.16	1.64	1.29
2	1.25	15.20	0.80	15.48	1.51	1.18
3	0.100	15.33	0.47	15.79	1.22	0.94

Loading Stage (2)

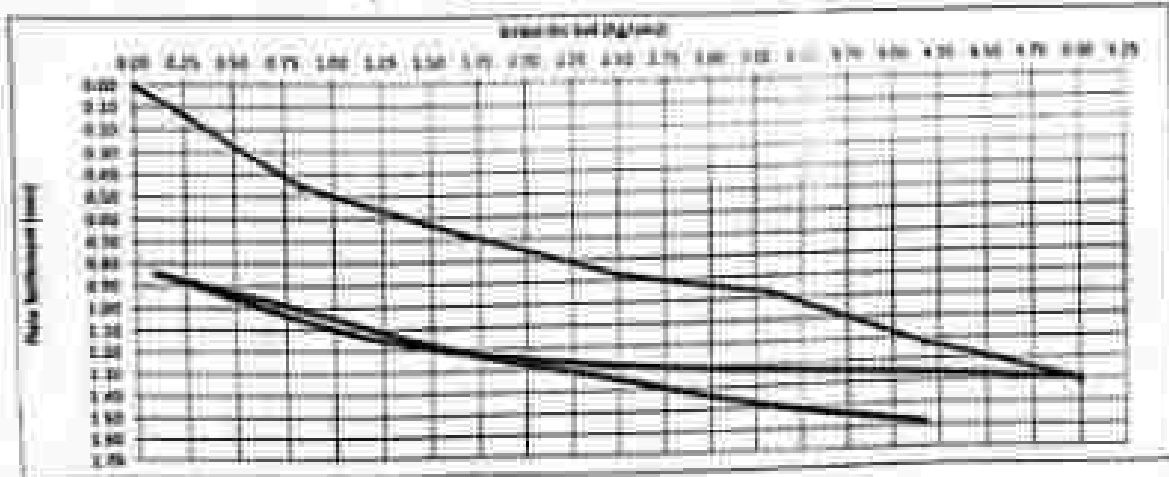
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.93	15.42	0.58	15.35	1.44	1.01
1	1.60	15.23	0.77	15.36	1.66	1.22
2	2.50	15.11	0.88	15.38	1.81	1.35
3	3.33	14.99	1.05	15.21	1.87	1.45
4	4.17	14.88	1.11	17.56	2.08	1.59



Company Name
Project
Test Date
Report Date
Location
Test No.

الاسم: مشروعات و التجهيزات المدنية
: Electric Express Train - Sector (2) - Giza to Assiut
: 11/06/2023
: 11/06/2023
: Station (R&T=500)
: 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (T)	0	1	2	3	4	5	6
Stage (Kg)	0	888	1772.8	2658.3	3543.8	4429.1	5314.9
Stress (Kg/cm²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.40	0.68	0.88	0.99	1.23	1.40

Unloading (T)	1	2	3	4
Stage (Kg)	3525	1768	884	71
Stress (Kg/cm²)	3.00	2.50	1.250	0.10
Settlement (mm)	1.40	1.29	1.18	0.94

D (mm) =	300	S1 (mm) =	0.40	S2 (mm) =	1.40	ΔS =	0.38
E=1 (MPa) =	0.7197 kN/cm²		112.2				

$E_{s1}/E_{s2} = 1.28$

Loading (T)	0	1	2	3	4	5
Stage (Kg)	0	888.398	1772.8	2658.3	3543.8	4429.1
Stress (Kg/cm²)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.94	1.01	1.22	1.35	1.48	1.59

D (mm) =	300	S1 (mm) =	1.18	S2 (mm) =	1.81	ΔS =	0.23
E=1 (MPa) =	0.7197 kN/cm²		112.2				

S₁ = modulus of deformation during the loading stage.

S₂ = modulus of deformation during the Reloading stage.

D = Plate diameter (mm).

ΔS = The difference between S₁ and S₂ from the maximum loading (mm) (Figure 5).

ΔS = Difference in settlement (mm) (Figure 5).



Company : شركة المعامل للمحلات و التربة المصرية

Project : Electric Express Train - Section (E) - Orma to Assiut
Subject : 1. Determine the deformation and strength characteristics of soil by the plate loading test according specifications DD 18134:2012-04 and project requirements
Test Location : Station (541+040 to 541+040)
Test Date : 17/08/2022
Report Date : 19/08/2022
Type of soil : Original Earth at level (-3.00)
Report No. : 1.1

Dear Gentleman,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 300 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic stickers to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction force to the loading plates
6. Dial indicator measuring device with scale capacity 100 Bar (25mm)
7. Reaction loading system by water compactor with weight approximately 15 ton
8. Calibration certificates are attached.

Test Procedure

1. Clear the ground in test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. After installing the test apparatus pressing about 90 seconds
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate the limit values are 5.0 kg/cm²
6. The test shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached
7. Each change in load (from stage to stage) shall be continued within one minute
8. The test shall be released in 3 stages, to 50 %, 25 %, and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the maximum stage of the first cycle and that the full test is not repeated
10. At each stage the test shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min
11. Remove the loads



Report

1. Evaluation and representation of results
2. Load Settlement curve.
3. The test report content the following-
 - location of test site - Dimension of loading plate.
 - Measuring device used - Type of soil.
 - Type of Bedding material below the plate -Weathering condition.
 - Time and date of measurements - Unusual observation made during test.
 - Dial gauge reading and corresponding normal stress - Loading-settlement curve.
 - Description of the soil condition below the plate after testing.

Report

- Type of soil : Original Earth
- Job requirement : $E_v > 40 \text{ MPa}$

Date	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	17/08/2023
- Unusual observation made during test.	NO
- Description of the soil conditions below the plate after testing	No deterioration

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	Exp. Ev. Ratio
	From	To			E_v (Mpa)	E_v (Mpa)	
1	641+540	641+040	641+500	-3.5	102.3	105.6	1.14
2	641+540	641+940	641+600	-3.0	90.6	106.0	1.22
3	641+540	641+940	641+800	-2.3	91.0	137.4	1.51



Company Name : شركة المعلى للمقاولات والتوريدات المدنية
Project : El-Dokki Express Tolls - Sector (B) - Giza & around
Test Date : 12/08/2023
Report Date : 18/08/2023
Location : Station (B414-000)
Test No. : 01

Nonresistive Static Plate Load Tests of Soil
per 18135

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.05	0.00	15.05	0.00	0.00
1	0.83	15.01	0.13	15.02	0.12	0.13
2	1.00	15.08	0.24	15.01	0.25	0.24
3	2.30	15.38	0.80	15.42	0.88	0.80
4	3.30	15.21	0.78	15.28	0.74	0.76
5	4.17	15.03	0.97	15.08	0.98	0.95
6	4.50	14.98	1.11	15.03	1.07	1.00

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.30	15.15	1.05	15.08	1.09	1.00
2	1.00	15.18	0.88	15.22	0.78	0.80
3	0.100	15.21	0.81	15.03	0.20	0.30

Loading Stage (2)

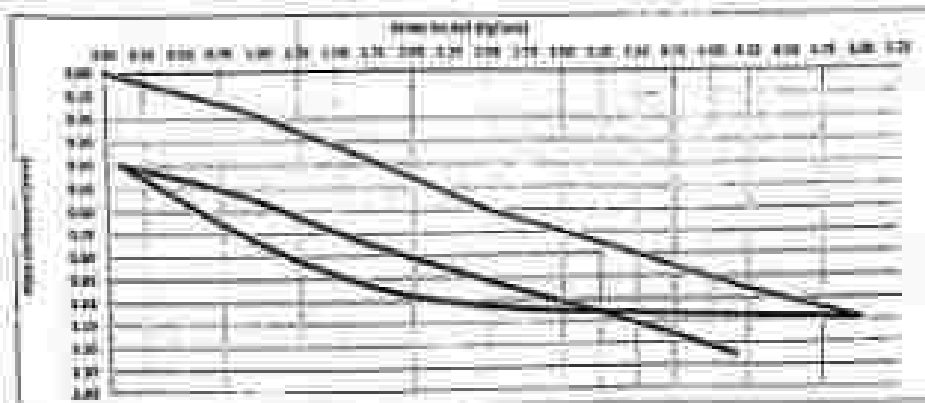
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.07	0.00	15.08	0.01	0.00
1	1.00	15.09	0.73	15.08	0.72	0.73
2	2.30	15.08	0.94	15.11	0.80	0.90
3	3.30	15.01	1.09	15.08	1.00	1.00
4	4.17	15.05	1.27	15.06	1.16	1.20



Company Name
Project
Test Date
Report No.
Location
Test No.

المبنى رقم ١٢٣٤٥٦٧٨٩
Elevation of Upper Floor - Factor (S) = 0.50 in Accord.
10000000
10000000
Station (641+000)
01

Normalised Static Plate Load Tests of Soils
(EN 1912)



Loading (1)	0	1	2	3	4	5	6
Stage/Fail	0	0.05	0.10	0.15	0.20	0.25	0.30
Stress (kg/cm²)	0.00	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.00	0.05	0.10	0.15	0.20	0.25	0.30

SPN-loading (1)	1	2	3	4
Stage/Fail	0.05	0.10	0.15	0.20
Stress (kg/cm²)	0.05	0.10	0.15	0.20
Settlement (mm)	0.05	0.10	0.15	0.20

SPN-loading (1)	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.05	0.10	0.15	0.20	0.25	0.30

SPN-loading (1) = 0.05

Loading (2)	0	1	2	3	4	5	6
Stage/Fail	0	0.05	0.10	0.15	0.20	0.25	0.30
Stress (kg/cm²)	0.00	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.00	0.05	0.10	0.15	0.20	0.25	0.30

SPN-loading (1)	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.05	0.10	0.15	0.20	0.25	0.30

- SPN-loading (1) = 0.05
SPN-loading (2) = 0.10
SPN-loading (3) = 0.15
SPN-loading (4) = 0.20
SPN-loading (5) = 0.25
SPN-loading (6) = 0.30



3 El Malek El Afal Street
Zamalek, Cairo
Tel & Fax : 23367231 - 23367232



3 El Malek El Afal
Zamalek - Cairo
Tel & Fax : 23367231 - 23367232
www.cel-egypt.com

Company Name	شركة النهر للمقاولات والتوريدات المعمية
Project	Electricity Expenses Table - Source (2) - Group in Amount
Test Date	17/06/2023
report date	10/06/2023
Location	Station (943+000)
Task No.	02

Supplemental Statewide Lead Tests of Schools
BY 1973

Laminated Glass

Loadings	Stress	Dist 1	Settlement	Dist 2	Settlement	Average
	kg/cm ²		mm		mm	
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.80	10.00	0.10	10.00	0.10	0.10
2	1.60	10.00	0.20	10.00	0.20	0.20
3	2.40	10.00	0.30	10.00	0.30	0.30
4	3.20	10.00	0.40	10.00	0.40	0.40
5	4.00	10.00	0.50	10.00	0.50	0.50
6	4.80	10.00	0.60	10.00	0.60	0.60

United Way 520-221-1111

Loadings	Stress kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	1.50	33.00	1.34	34.75	1.30	1.32
2	1.25	28.45	0.93	29.25	0.79	0.86
3	0.1000	15.45	0.43	15.60	0.39	0.41

Downloaded from <http://ajphaphysiol.org/> at University of Illinois on June 12, 2015

Location	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Hybrid		mm		mm	
0	0.00	10.00	0.01	10.00	0.00	0.00
1	1.00	10.20	0.77	10.04	0.50	0.65
2	2.50	10.08	0.62	10.17	0.73	0.63
3	3.30	10.00	1.00	10.00	0.90	1.04
4	4.17	10.00	1.77	10.00	1.00	1.15



3 El Nilek El Afila Street
Zamalek, Cairo.
Tel & Fax : 2737111 - 2737001



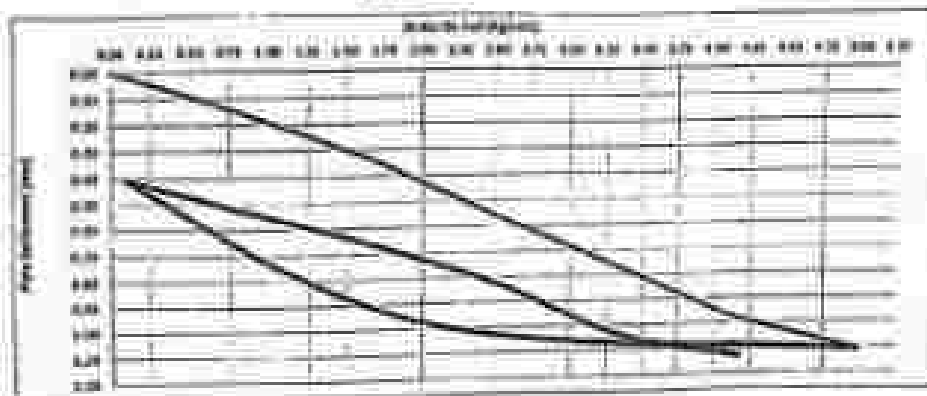
٣ في الملك الأفضل
الزمالك - القاهرة

تلفون : فاكس :
www.eel-egypt.com

Company Name
Project
Test Date
Report Date
Location
Test No.

المبنى المحاسنات والوجه القبلى
El Mansour El Mansour - Sector 22 - New El Mansour
1/10/2022
1/10/2022
Sector 22 (El Mansour)
02

Immediate Static Plate Load Tests at Sds City 19724



Loading (kN)	0	1	2	3	4	5	6
Settlement (mm)	0	0.5	1.0	1.5	2.0	2.5	3.0
Settlement (mm)	0.00	0.50	1.00	1.50	2.00	2.50	3.00

Loading (kN)	1	2	3	4
Settlement (mm)	0.5	1.0	1.5	2.0
Settlement (mm)	0.50	1.00	1.50	2.00

Q _{ult} (kN)	100	Q _{ult} (kN)	100	Q _{ult} (kN)	100
Settlement (mm)	0.5	Settlement (mm)	0.5	Settlement (mm)	0.5

Q_{ult} (kN) = 100

Loading (kN)	0	1	2	3	4	5
Settlement (mm)	0	0.5	1.0	1.5	2.0	2.5
Settlement (mm)	0.00	0.50	1.00	1.50	2.00	2.50

Q _{ult} (kN)	100	Q _{ult} (kN)	100	Q _{ult} (kN)	100
Settlement (mm)	0.5	Settlement (mm)	0.5	Settlement (mm)	0.5

Q_{ult} = Ultimate load capacity during the loading stage
Q_{ult} = Ultimate load capacity during the loading stage
Q_{ult} = Ultimate load capacity during the loading stage

Q_{ult} = Difference in settlement between Q_{ult} and Q_{ult} from the maximum loading stage
Q_{ult} = Difference in settlement between Q_{ult} and Q_{ult} from the maximum loading stage



3 El Malek El Ahdal Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27363093



3 في الملك الأهلى
الزمالك - القاهرة
هاتف : 27367231 - 27363093
www.cel-egypt.com

Company Name : شركة الاهلي للتقنيات والدراسات الهندسية
Project : Giza Express Train - Station (2) - Giza (2) Station
Test Date : 17/08/2023
Report Date : 18/08/2023
Location : Station (041+000)
Test No. : 43

Nonresistive Static Plate Load Tests of Soils DIN.18124

Location: Station (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
0	0.00	25.20	0.00	25.20	0.00	0.00
1	0.25	25.20	0.14	25.22	0.18	0.16
2	0.50	25.15	0.26	25.21	0.20	0.23
3	0.75	25.10	0.41	25.22	0.42	0.44
4	1.00	25.10	0.50	25.20	0.70	0.71
5	1.25	25.10	0.55	25.20	0.75	0.80
6	1.50	25.10	1.00	25.20	1.12	1.11

Unconsolidated Station (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
1	0.25	25.15	0.02	25.25	0.05	0.04
2	0.50	25.14	0.02	25.20	0.07	0.05
3	0.75	25.14	0.03	25.10	0.00	0.00

Location: Station (2)

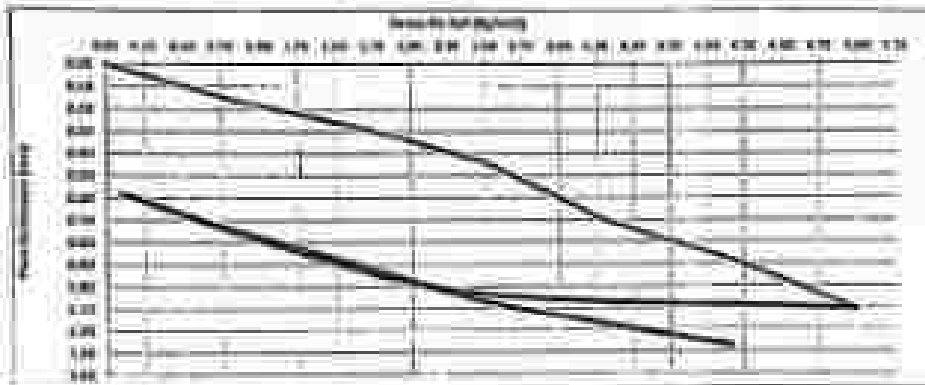
Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
0	0.00	25.20	0.71	25.21	0.76	0.74
1	0.25	25.11	0.88	25.18	0.92	0.91
2	0.50	25.05	1.00	25.21	1.05	1.03
3	0.75	25.00	1.10	25.10	1.10	1.10
4	1.00	25.00	1.05	25.05	1.20	1.20



Company Name
Project
Test Date
Report Date
Location
Test No.

البحر المارون والبركات البحرية
- Bridge Expansion (Rate - Section IV) - Lane 10 - Jeddah
- 15/05/2023
- 06/06/2023
- Station (Km/100)
- 05

Nondestructive Static Plate Load Tests of Soils CEN 18124



Loading (kN)	0	1	2	3	4	5	6
Settlement (mm)	0	0.05	0.10	0.15	0.20	0.25	0.30

Unloading (kN)	1	2	3	4
Settlement (mm)	0.05	0.10	0.15	0.20

Q (kN/m²) = 205	Q ₁ (kN/m²) = 107	Q ₂ (kN/m²) = 107
-----------------	------------------------------	------------------------------

Q₂ (kN/m²) = 107

Loading (kN)	0	1	2	3	4	5
Settlement (mm)	0	0.05	0.10	0.15	0.20	0.25

Q (kN/m²) = 205	Q ₁ (kN/m²) = 107	Q ₂ (kN/m²) = 107
-----------------	------------------------------	------------------------------

Q₁ = Modulus of subgrade reaction during the loading stage.
Q₂ = Modulus of subgrade reaction during the unloading stage.
Q = Plate diameter (mm)
Q₁ = The difference between Q₁ and Q₂ from the respective loading (or unloading) stage.
Q₂ = Difference in settlements corresponding to Q₁ and Q₂ from the respective loading (or unloading) stage.



3 El Malyk El Afdal Street
Zamalek, Cairo.
Tel & Fax: 27367131 - 27363893



3 في الملك الافضل
الزمالك - القاهرة
تليفون • فاكس • 27367131 - 27363893
www.cel-egypt.com

Testing date : 18/05/2023
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Sohag to Qena
Station : from 641+240 to 641+300
Level : -5.0 M
S. Description : Middle Embankment
Code : 05

• Sieve Analysis:

Sieve size (IN)	Passing %
2	100
1.5	100
1	98.8
¾	96.2
½	92.2
3/8	88.8
4	82.4
10	74.4
40	38.5
200	10.7

Test	Results	
Soil Classification	A-1-b	
Modified Proctor	Max Dry Density	2.06
	OMC	3.0 %
L.L	0	
P.I	0	
CBR	21.2 %	

Notes:

Lab (CEL)

Lab. Engineer

Signature

Consultant (Spectrum)

Engineer

Signature

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 18/7/2023
Soil type : Soil Embankment
Location : ST: From 641+240 To 641+300
Level : -5.0 M
Report No. : 05

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	641+260	1505	2.17	5.8	2.05	99.7%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.06 gm/cm³
- At optimum moisture content = 7.0 %

Signature: 

Dr. MAREE HADJIM
Dr. Samir
MAREE HADJIM 09/03/2023



م. ماري حداد
د. سامر
م. ماري حداد 09/03/2023

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Dear Gentleman,

Attached here with the delivered on 18 / 5 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature: 
مكتب معامل الاستشارات الهندسية
شارع 3 شبراخيت - الدقهية - مصر

Company Name : شركة الزهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	100
25	1	98.8
19	3/4	96.2
12.50	1/2	92.2
9.50	3/8	88.8
4.75	4	82.4
2.00	10	74.4
0.425	40	38.5

CEL
Signature: 
مكتب معامل الاستشارات الهندسية

VE Mark E Mail: cel@cel.com
Zagreb, Cro
Tel: +386 (0)1 4777777



مكتب معامل الاستشارات الهندسية
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Materials finer than 75 μm (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μm (No.200)	10.7

Signature



CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة النهي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 

ST. Mary El-Hadram
20100, Cairo
Tel: 011 204000000 | 011 204000000



ST. Mary El-Hadram
20100, Cairo
Tel: 011 204000000 | 011 204000000

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 95

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	74.4	Max 50 %	-----	-----
0.425 mm (No. 40)	38.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	10.7	Max 15 %	Max 15 %	Max 15 %
Liquid Limit -----		-----	-----	-----
Plasticity Index -----	0	Max 6 %	Max 6 %	Max 10 %

The test results are (Comply / Not Comply) with specifications limits

Signature


مهندس محمد الدقى
مدير المختبر
CEL

17 Main El-Helwan Road
Zakaria City
Helwan Governorate 1254604



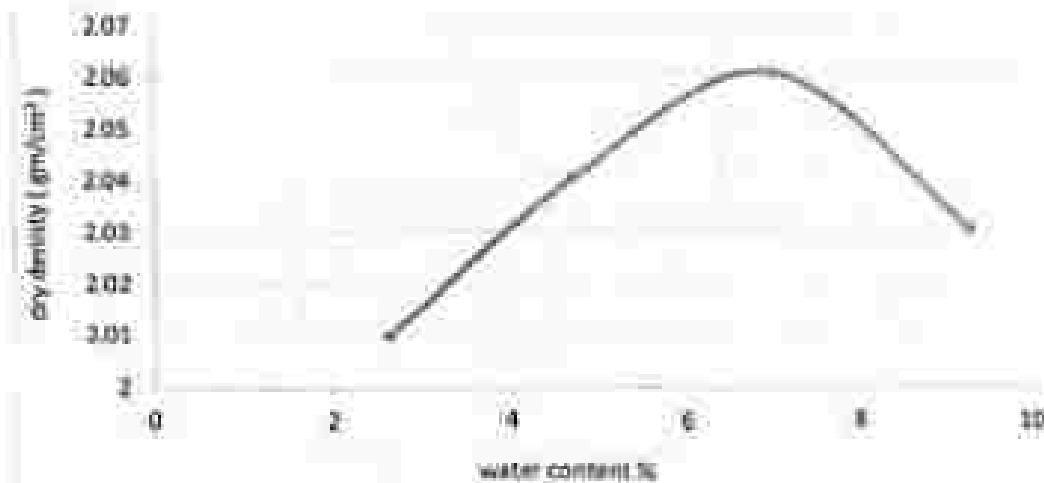
17 Main El-Helwan Road
Zakaria City
Helwan Governorate 1254604

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.06
- Optimum moisture content % : 7.0 %

Signature



ج.ع. محمد ع. أحمد
Zouheir Elmaghrabi
S.A.M. 2023/05/23/005

IAS
ACCREDITED

Company Name : شركة الأدهبي
Project : Electric Express Train - HSR From Qous To Armut
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.22
1.27	0.050	0.61
1.91	0.075	1.01
2.54	0.100	1.46
3.18	0.125	1.74
3.81	0.150	1.85
4.45	0.175	1.76
5.08	0.200	1.58
6.35	0.250	1.19

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 Inch (2.54 mm) penetration	St. Value	Sample results	21.2 %
	6.90	1.46	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.06 \text{ (gm /cm}^3\text{)}$
At = 7.0 % optimum water content.
- 3- Surcharge load 1000 kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature: _____

ASMAH ALABEDIN
Jawab / Resp
TAKFAL 23062023 200000

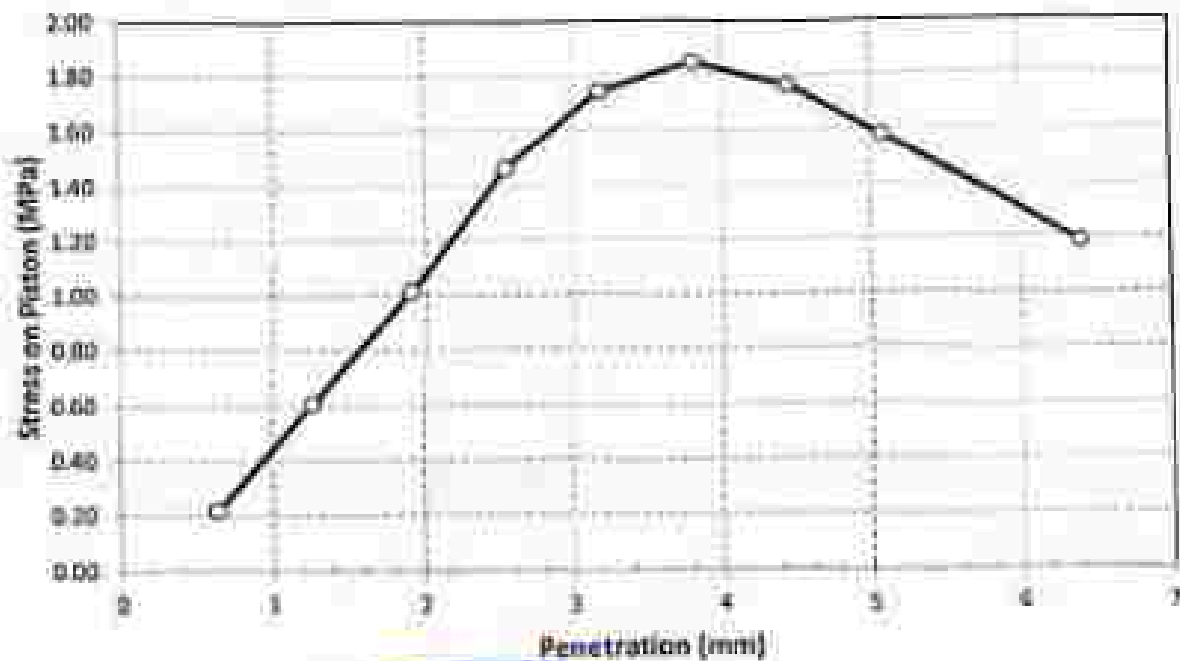


CEL

Consulting Engineering Bureau & Laboratories
مكتب محاميل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9126620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Load Penetration Curve of CBR Test ASTM D-1883



Signature: 
CEL

SEMIAN E. Foad Elwan
Engineer, CMB
Tel/Fax: 2780201 - 2780201

IAS
ACCREDITED

إمارة دبي
مكتب محاميل
مكتب الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qaux To Arman
Testing Date : 25/7/2023
Soil type : Middle Embankment
Location : St From 641+220 To 641+300
Level : -4.5 M
Report No. : 11

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+240	1557	2.10	5.8	1.99	95.4%	Comply
2	641+280	1767	2.10	5.8	1.98	95.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.08 gm/cm³
- At optimum moisture content = 2.0 %

Signature /


Mohamed Elmaghrabi
212, 201, 425
2012/07/25

111 MAH EL ARAB STREET
Fayoum, Egypt
Toll free 0800 200 000



Mohamed Elmaghrabi
Chief Engineer
2012/07/25

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Dear Gentleman ,

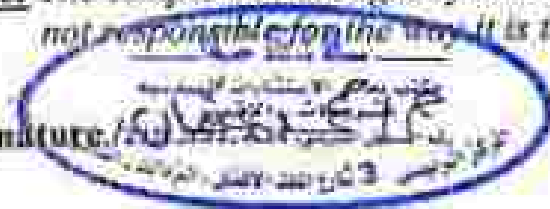
Attached here with the delivered on 20 / 7 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature:



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	100
25	1	97.3
19	3/4	95.4
12.50	1/2	91.6
9.50	3/8	87.4
4.75	4	81.5
2.00	10	71.3
0.425	40	36.8

Signature

Signature of the Engineer
Dr. Mohamed El-Dokki
2023/7/24
2023/7/24



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 6+1+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.4


Signature / م. ع. المغرabi

Dr. Mohamed Elmaghrabi
Engineer, Civil
2014-2015-2016-2017-2018-2019



Dr. Mohamed Elmaghrabi
Engineer, Civil
2014-2015-2016-2017-2018-2019

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 

Dr. Mohamed El-Sayed El-Sayed
Geotechnical Engineer
14/7/2023 12:00:00



Dr. Mohamed El-Sayed El-Sayed
Geotechnical Engineer
14/7/2023 12:00:00

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	71.3	Max 50 %	—	—
0.425 mm (No. 40)	36.8	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.4	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /

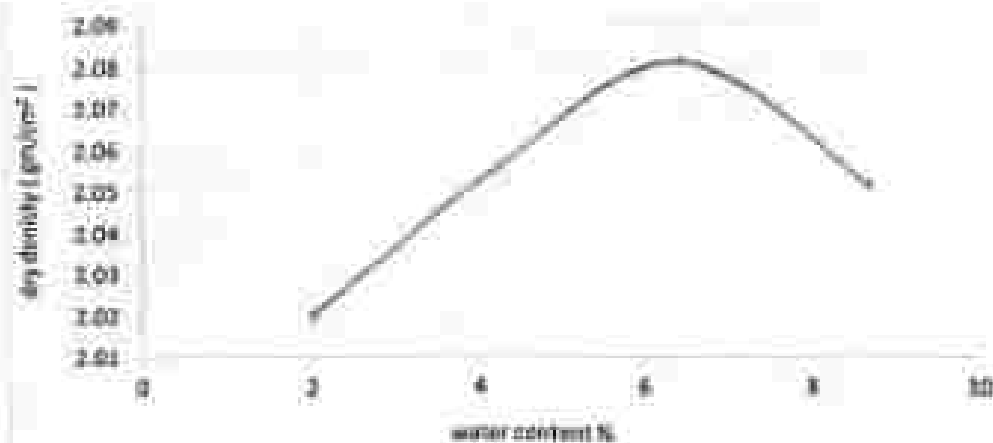
10 MAR 2024
Zohair G. G.
T. 011 3333 3333



10 MAR 2024
Zohair G. G.
T. 011 3333 3333

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armut
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- **Max dry density (gm/cm^3)** : 2.08
- **Optimum moisture content (%)** : 6.4 %

Signature

J. Paul E. Pittman
Drexel College
Philadelphia, Pennsylvania



1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	0.66
1.91	0.075	1.07
2.54	0.100	1.52
3.18	0.125	1.78
3.81	0.150	1.88
4.45	0.175	1.77
5.08	0.200	1.56
6.35	0.250	1.12

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	22 %
	6.90	1.52	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.08 \text{ (gm/cm}^3\text{)}$
At ≈ 0.4 optimum water content.
- 3- Surcharge load 4.5 kg
- 4- CBR > 10 for middle and lower embankments according project spec page No 35.

Signature / 

11/07/2023
Fouad, Lab
N/A/01/2023-2024/001



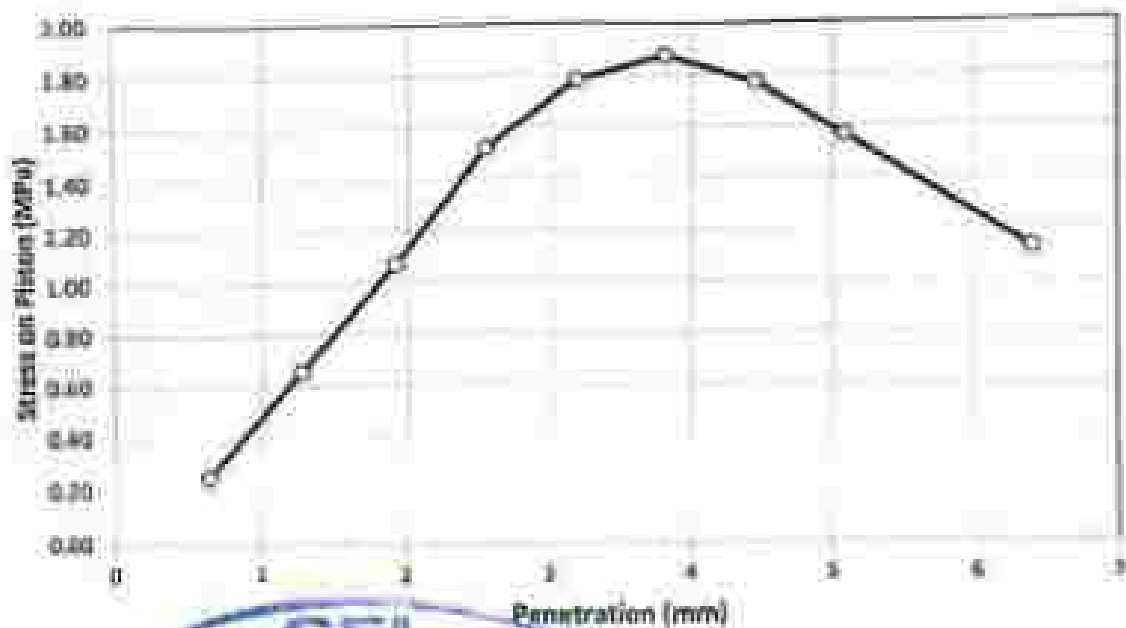
11/07/2023
Fouad, Lab
N/A/01/2023-2024/001

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test ASTM D-1883



CEL
مكتب محاسن الاستشارات الهندسية
Signature: 

11-11-2023
10:00 AM
11-11-2023

IAS
ACCREDITED



Consulting Engineering Bureau & Laboratories
مكتب معمار الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 01/08/2023
Soil type : Middle Embankment
Location : St From 641+320 To 641+360
Level : >5 M
Report No. : 21

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+340	1426	2.24	5.8	2.12	99.6%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.13 gm/cm³
- At optimum moisture content = 6.4 %

Signature / _____

Tested By: _____
Checked By: _____
Supervised By: _____



Report No: _____
Date: _____
Page: _____

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	3/4	90.0
12.50	1/2	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

Signature:  

3P-MQA-ET-001 Rev
Zohair Gali
1443 H - 329722 - 2266081



مركز
مختبر
مختبر

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الزهبي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.3

Signature /



10/10/2023
Zaiden, Gen.
Date: 2023/07/26

IAS
HOCHS. INT'L
Consulting Engineering Bureau & Laboratories

26/7/2023
26/7/2023
26/7/2023

Company Name : شركة الذبي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-a)
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10).	72.91	Max 50 %	-----	-----
0.425 mm (No. 40).	39.87	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit:		-----	-----	-----
Plasticity index:	0	Max 6 %	Max 6 %	Max 10 %

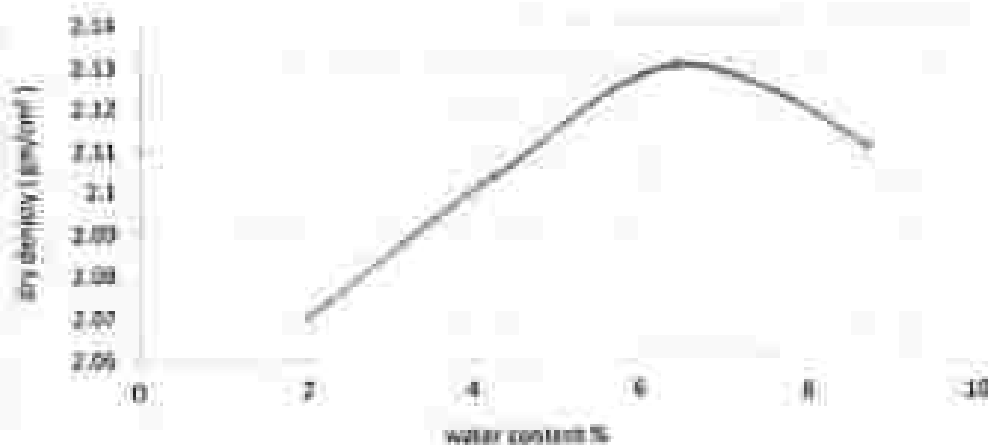
The test results are (☒ Comply ☐ Not Comply) with specifications limits.

Signature



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

[Handwritten Signature]
[Circular Stamp]

18 Mark E-0411 Date
Fakim, Cam
18/07/2023 (20/08/23)

IAS
ACCREDITED
LABORATORY

[Handwritten Signature]
[Handwritten Signature]
[Handwritten Signature]

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.99	2.43	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.13 (gm/cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.30 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 38.

Signature : 

Youssef El-Bachy
Lab. Dir.
Date : 26/7/2023

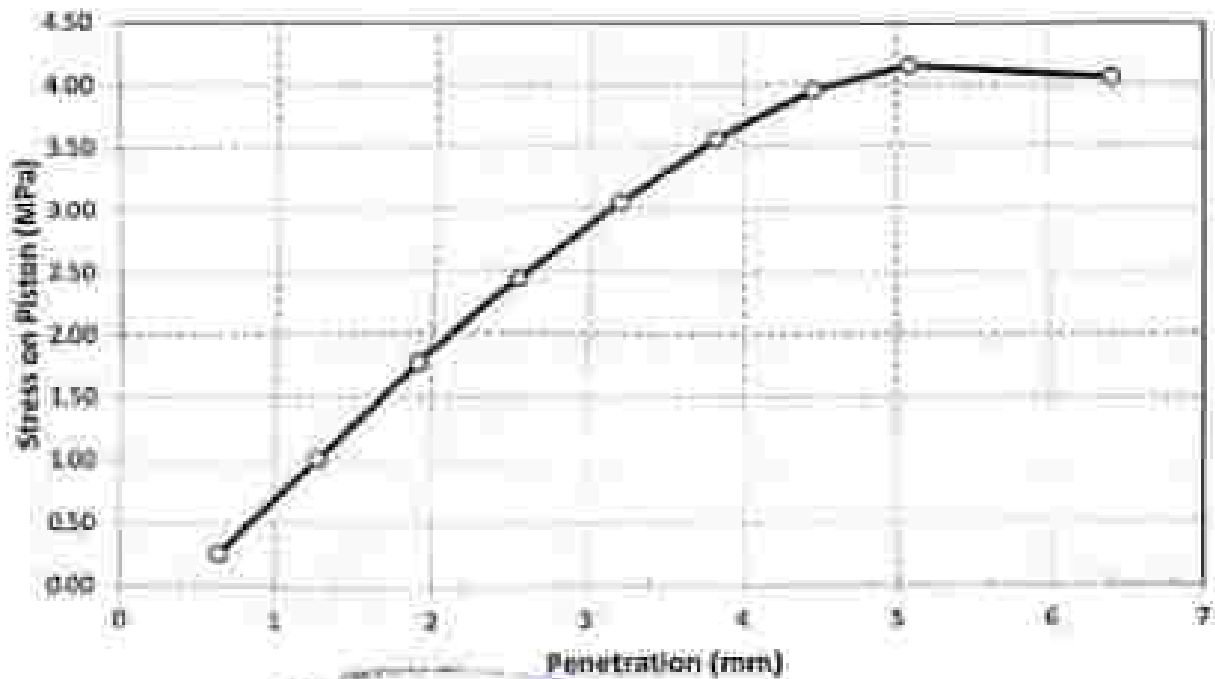


26/7/2023
26/7/2023

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test

ASTM D-1883



Signature: 

CEL

Consulting Engineering Bureau & Laboratories
مكتب مفاعيل الاستشارات الهندسية

Company Name : شركة الاهي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 02/08/2023
Soil type : Middle Embankment
Location : St From 641+360/641+420
Level : -4.5M
Report No. : 24

Compaction test by using Sand – Cone Test Method
ASTM D-1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+390	1185	2.16	5.3	2.05	98.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.08 gm/cm³
- At optimum moisture content = 6.4 %

Signature


Hani Al-Ahmed
2023/08/02
مدير المختبر
مختبر مفاعيل الاستشارات الهندسية

17/2024 P. 06/11/2024
06/11/2024
06/11/2024

IAS
ACCREDITED

06/11/2024
06/11/2024
06/11/2024

Reporting No. : 05-2

Scanned with CamScanner

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qons To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	100
25	1	97.3
19	¾	95.4
12.50	½	91.6
9.50	3/8	87.4
4.75	4	81.5
2.00	10	71.3
0.425	40	36.8

CEL
مكتب معامل الاستشارات الهندسية
شروط وأحكام العمل
2019/05/14
Signature: 

REMIKE PALLON
Zurich, Geo
Tel: +41 78 811 1111



إمضاء المهندس
2023/07/26
م. محمد عبد الله



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 12/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Materials finer than 75 μm (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	11.4

Signature: 

1. **NAME:** _____
 2. **DATE:** _____
 3. **TIME:** _____



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature  **CEL**
مهندس
الاسماء محمد احمد
الاسماء محمد احمد
الاسماء محمد احمد

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No. 10)	71.3	Max 50 %	—	—
0.425 mm (No. 40)	36.8	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.4	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

CEL
Signature: 
Mohamed Elmaghrabi
م. محمد المصطفى

18 Mohamed Elmaghrabi
Zayed City
T4456 274977 - 274930



Signature: 
Name: Hossam
Title: Engineer

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



IAS
ACREDITED

Abstract

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	0.66
1.91	0.075	1.07
2.54	0.100	1.52
3.18	0.125	1.78
3.81	0.150	1.88
4.45	0.175	1.77
5.08	0.200	1.56
6.35	0.250	1.12

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	22 %
	6.30	1.52	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was corrected to dry density of $\approx 2.08 \text{ (gm/cm}^3\text{)}$
At $\approx 6.4 \text{ (mm)}$ water content.
Surcharge load 4.50 Kg.

- 4- CBR > 1 for middle and lower embankments according project spec page No 3E.

Signature: 

J. EL RAH EL ARABY
Engr. CEL
Tel: 011 206577 - 206578



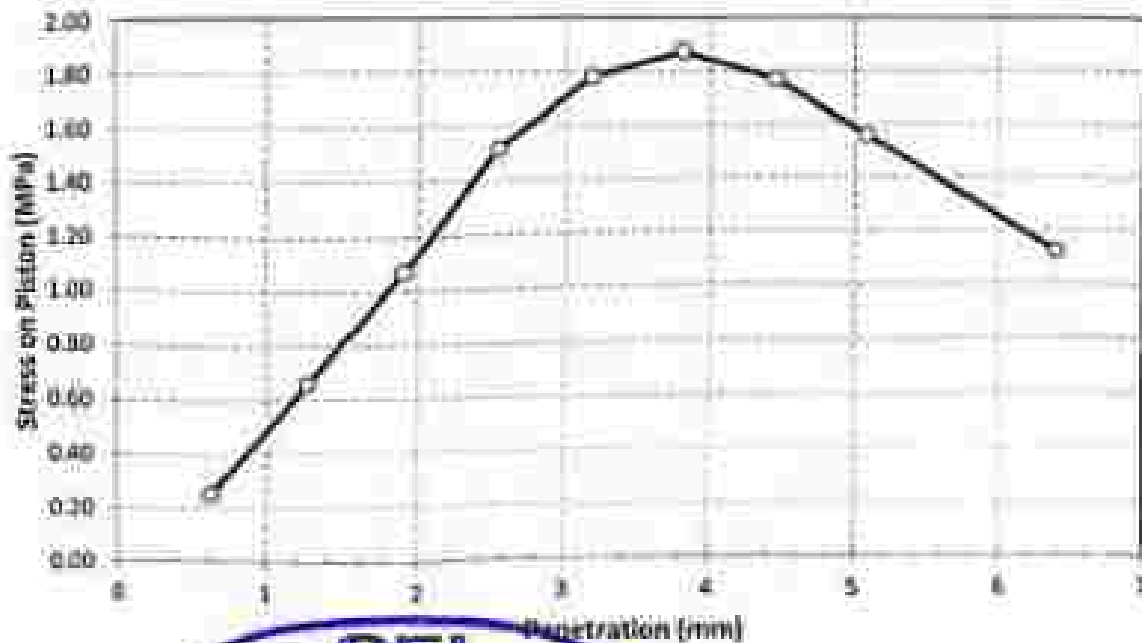
تم التحقق من
البيانات
بواسطة
مكتب
المعايير
والقياسات
مصر

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature: 
CEL
210 07 4320

16 H266 E Armanat
Zoubeir Omer
Tel: 011 2080121 - 011 2080122

IAS
ACCREDITED
www.ias-lab.com

26/7/2023
05-2

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 05/08/2023
Soil type : Middle Embankment
Location : St From 641+300/641+360
Level : -4.5 M
Report No. : 28

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+250	1570	2.14	5.8	2.02	95.0%	Comply

• Degree of compaction based on proctor test dated At :

• Max. dry density = 2.13 gm/cm³

• At optimum moisture content = 6.4 %

Signature : 
مهندس محمد عبد الله محمد
28/08/2023

11/08/2023

05/08/2023

05/08/2023

IAS
ACCREDITED

05/08/2023

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.9 M)
Delivery Date : 21/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Dear Gentleman,


Attached here with the delivered on 22/7/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature


Dr. Mohamed El-Dokki
Manager of Laboratory

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 053

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	¾	90.0
12.50	½	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

Signature: 
O. Alkassab

30 Mada E 2001 (Said)
Cairo, Egypt
Tel: 011 2380 22 475430



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.3

Signature / 


Company Name	: شركة الذهبى
Project	: Electric Express Train – HSR From Qous To Armanat
Location	: (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample	: Soil Embankment (Upper Embankment 0.0 M)
Delivery Date	: 22/7/2023
Reporting Date	: 26/7/2023
Reporting No.	: 05-3

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	71.91	Max 50 %	—	—
0.425 mm (No. 40).	39.87	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	11.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature



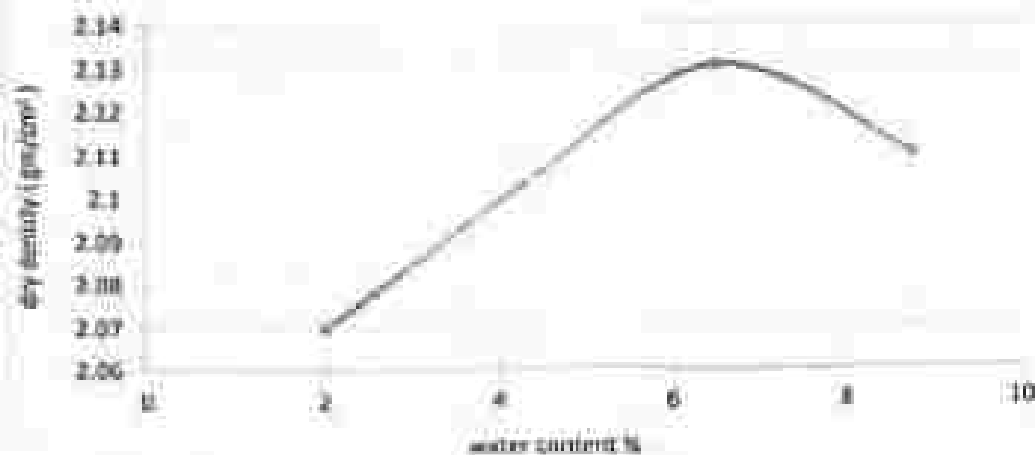
ECMARE ALKOTHE
Zaiden, Cairo
TEL: 011 2254221 - 25411021



مكتب محامل الاستشارات الهندسية
القاهرة - مصر
011 2254221 - 25411021

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

11 Mark E. 2021/04/04
24/07/2023
14/10/2023 14:00:00



إبراهيم محمد
مهندس
مهندس

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.90	2.43	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.13 (gm /cm³)
At 4% optimum water content.
- 3- Surcharge load 450 K.g.

- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature: 

Dr. Mary E. Ali, BSc
Zainab, City
SAUDI ARABIA - JEDDAH



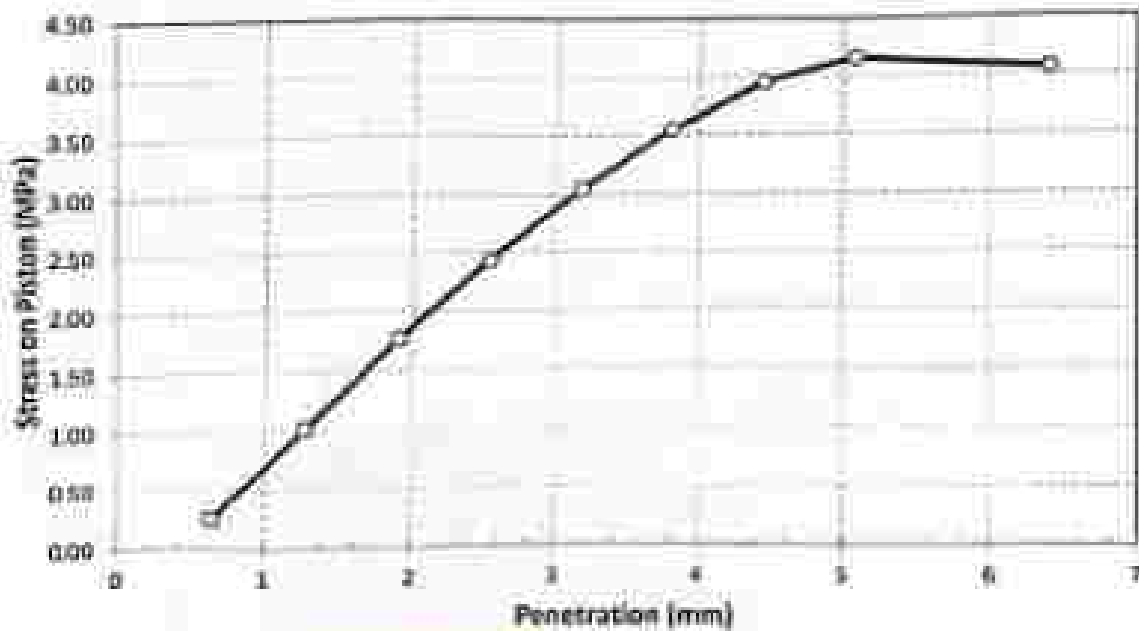
Dr. Mary E. Ali, BSc
Zainab, City
SAUDI ARABIA - JEDDAH

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test ASTM D-1883



Signature: 
CEL
219 001 427

14/08/2023
2023-08-14
2023-08-14

IAS
ACCREDITED

2023-08-14
2023-08-14
2023-08-14

Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 05/08/2023
Soil type : Middle Embankment
Location : St From 641+220 To 641+300
Level : -4.0 M
Report No. : 26

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+250	1574	2.19	6.4	2.06	96.7%	Comply
2	641+280	1581	2.13	5.2	2.03	95.2%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.13 gm/cm³
- At optimum moisture content = 6.4 %

Signature /


عبدالله محمد
011 801 427
مهندس Osama Elmaghrabi

18/08/2023
Osama Elmaghrabi
Geotechnical Engineer



18/08/2023
Osama Elmaghrabi
Geotechnical Engineer

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Dear Gentleman ,

Attached here with the delivered on 22 / 7 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Procter Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



SENIOR ENGINEER
Zaidi, CEng
Tel: 011 221 437 (2000)



إدارة الهندسة
إدارة الهندسة
إدارة الهندسة

Company Name : شركة الذئبي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	3/4	90.0
12.50	1/2	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

Signature

CEL
مكتب محامل الاستشارات الهندسية
Signature: [Handwritten Signature]
[Handwritten Text]

11, Main E. Axis Road
Zaraka, Qom
Sulfaa Street, 3200700



المقر الرئيسي
مكتب محامل الاستشارات الهندسية
[Handwritten Text]



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الاهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.3


Signature: 

CEL Data Engineering
Zakaria, Qadi
Mobile: 2792222222



CEL Data Engineering
Zakaria, Qadi
Mobile: 2792222222

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 


EL Mounir EL EL EL EL EL
2023-07-26
2023-07-26

IAS
ACCREDITED
Testing Laboratory

2023-07-26
2023-07-26
2023-07-26

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-h			
2.00 mm (No.10):	72.91	Max 50 %	————	————
0.425 mm (No. 40):	39.87	Max 30 %	Max 50 %	————
0.075 mm (No. 200):	11.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		————	————	————
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 

MO. ELKAYAT, P.E., Ph.D.
Bureau Chief
Mohamed Elmaghrabi, M.Sc., Ph.D.

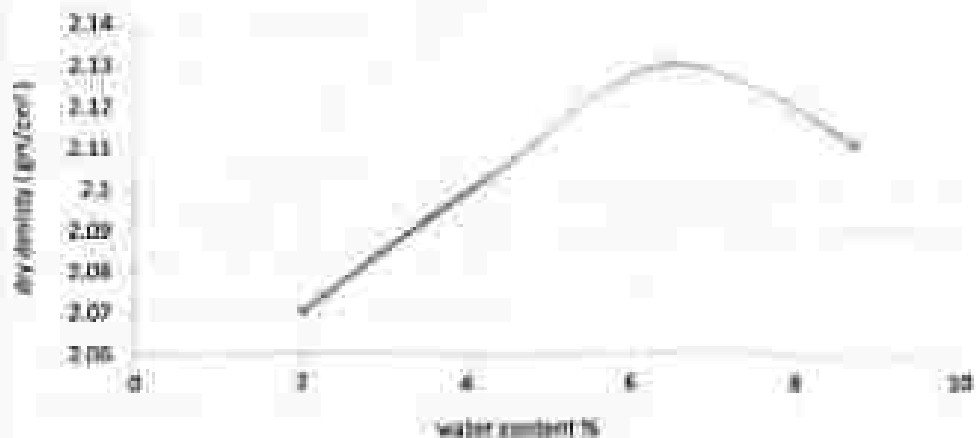


CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862830
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

Dr. Hani F. Al-Jarrah
Dr. Hani F. Al-Jarrah
Dr. Hani F. Al-Jarrah

IAS
ACCREDITED
BY

المركز
للمواصفات
والاعتماد

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.93	2.43	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.13 (g/cc)
- 3- At 0.5% optimum water content.
- 3- Surber load = 50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature: 

Dr. Hany M. El-Dokki
Zakaria, Egypt
TAM: 011-2765222 / 2765223

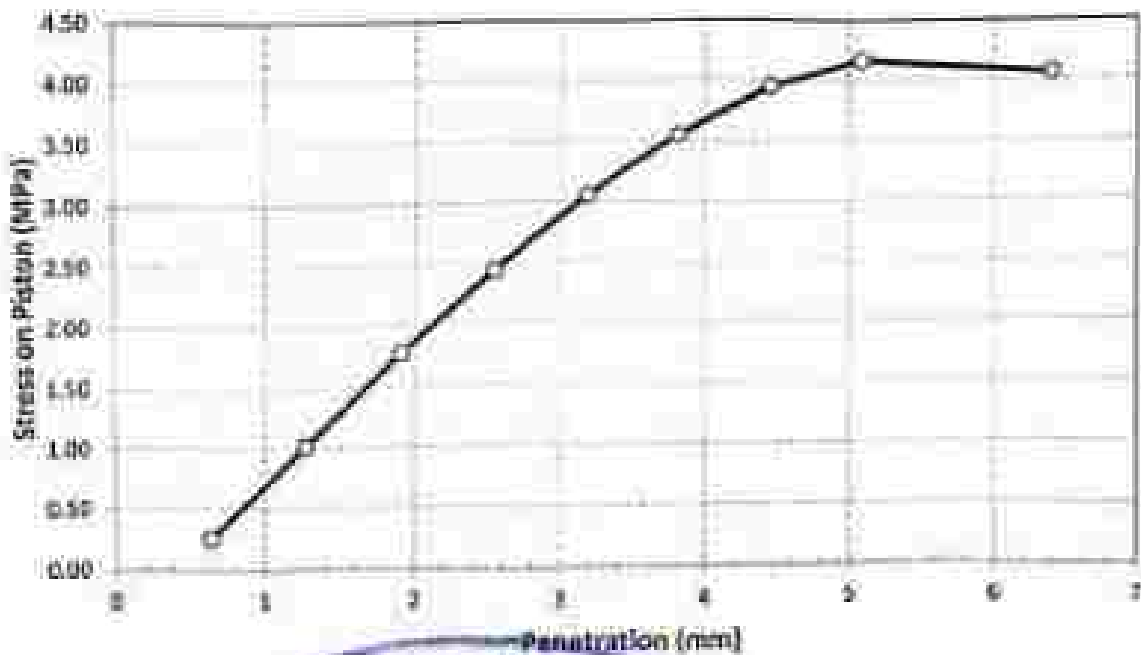


Dr. Hany M. El-Dokki
TAM: 011-2765222 / 2765223

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test

ASTM D-1883



Signature

CEL
مكتب محاسن الاستشارات الهندسية
م. محمد عبد الله
م. محمد عبد الله
م. محمد عبد الله

CEL

Environmental Compliance
Environmental Compliance Department
Environmental Compliance Unit

Company Name: [Name]
Address: [Address]
Trading Name: [Name]
Ref No: [Number]
Location: [Location]
Date: [Date]
Report No: [Number]

Environmental Compliance Report - [Name]
CEL/1/1/1/1

Item	Name	Quantity (kg)	Unit (kg)	Volume (m³)	Weight (kg)	Value (€)	Remarks
1	CEL/1/1/1/1	1000	1.00	1.0	1.00	10.00	Sample
2	CEL/1/1/1/1	1000	1.00	1.0	1.00	10.00	Sample
3	CEL/1/1/1/1	1000	1.00	1.0	1.00	10.00	Sample

Notes: [Notes]

- 1. [Text]
- 2. [Text]
- 3. [Text]



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Dear Gentleman,

Attached here with the delivered on 22/7/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	¾	90.0
12.50	½	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

Signature 

CE/MAK E-MAIL: mak@cel.com
TEL: 011-23333333

IAS
ACCREDITED

2023-07-26
2023-07-26



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.3

Signature 

Dr. Mohamed E. Abdelhady
Engineer, Civil
Cell No. 01022012770963



Dr. Mohamed E. Abdelhady
Engineer, Civil
Cell No. 01022012770963

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862630
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 23/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No.10)	72.91	Max 50 %	—	—
0.425 mm (No. 40)	39.87	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are **comply** (Not Comply) with specifications limits

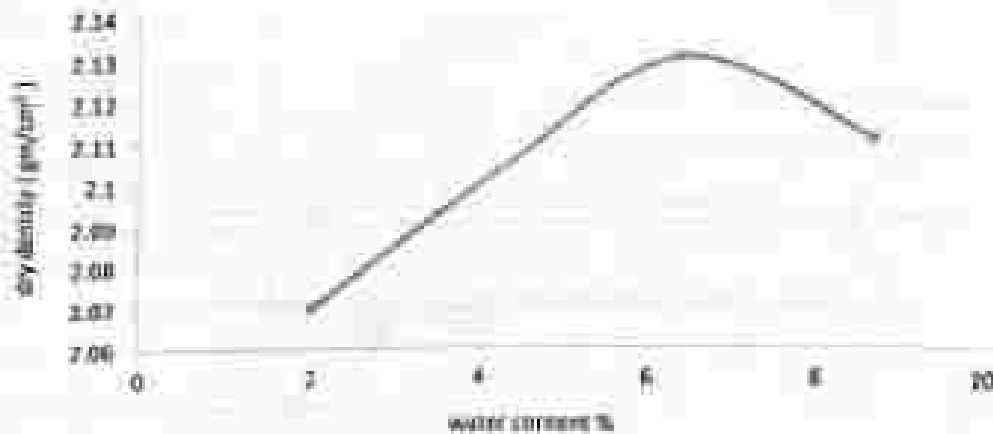
Signature

Dr. Mohamed Elmaghrabi
Engineer
Said Elmaghrabi (776007)



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max. dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

[Handwritten Signature]
CEL
3011 ST 207
القاهرة - مصر
مكتب الاستشارات الهندسية

10, Mark El Helwan
Zagazig City
14416, Tanta - (Tanta)



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 4.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.90		

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.13 \text{ (gm/cc)}$
At = 6.4 % optimum water content.
- 3- Springing **5000 50 Kg**
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature

J. El-Mahdy E. El-Mahdy
Lab. Manager
Date: 26/7/2023



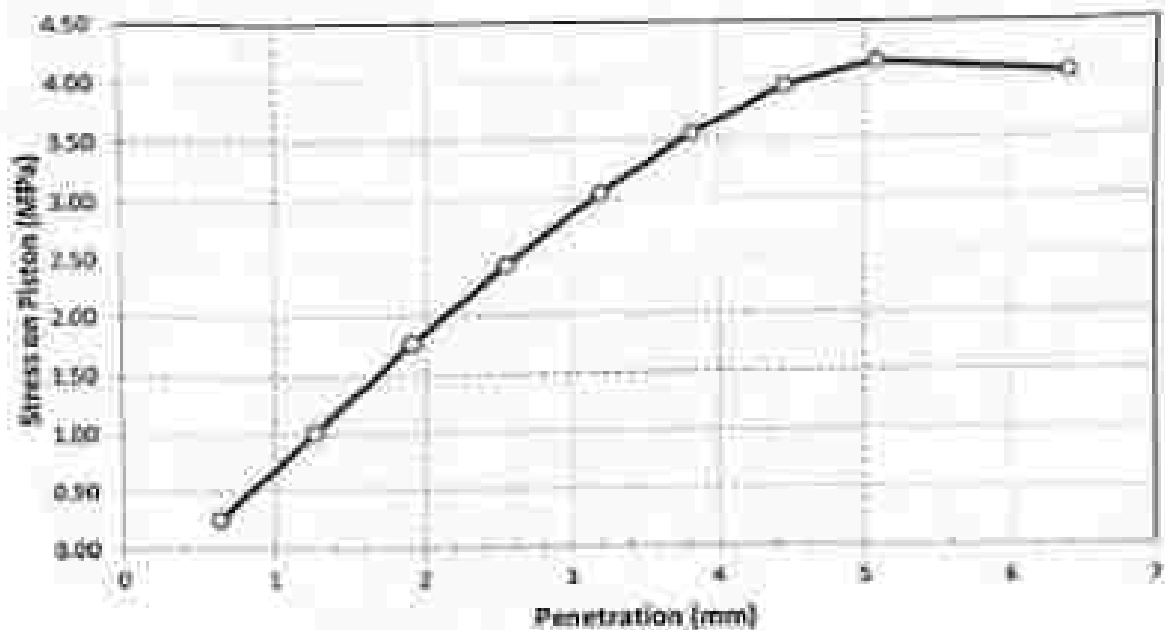
Dr. Mohamed El-Mahdy
Lab. Manager
Date: 26/7/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test ASTM D-1883



Signature 
219.481.424
2023/07/26

ST: 641+100
E=32.9226620
N=25.8862030

IAS
ACCREDITED

2023/07/26
2023/07/26

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Dear Gentleman,

Attached here with the delivered on 26/7/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



Youssef Attia
Lab Manager (Lab. No. 3)
Lab. No. 3 (Lab. No. 3)



Lab. No. 3 (Lab. No. 3)
Lab. No. 3 (Lab. No. 3)

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.2
37.5	1.5	95.2
25	1	91.5
19	3/4	88.2
12.50	1/2	84.5
9.50	3/8	80.2
4.75	4	73.5
2.00	10	70.1
0.425	40	35.4

Signature


CEL
مكتب مهندسين والاستشارات الهندسية
شركة الذهبي
الرياض - المملكة العربية السعودية
الهاتف : 011 422 2015
الفاكس : 011 422 2016
البريد الإلكتروني : info@cel-saudi.com


11/11/2023
Dr. Ali
11/11/2023 11:00:00

IAS
AGREED
11/11/2023

Company Name : شركة النخعي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	10.3

Signature 

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature

CEL
مكتب معامل الاستشارات الهندسية
شركة الذهبى
26/7/2023
30/7/2023
05-4

Dr. Mohamed El-Mohamed
Project Engineer
Civil Engineering

IAS
REGISTERED
ENGINEERING

26/7/2023
30/7/2023
05-4

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armut
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	70.1	Max 50 %	—	—
0.425 mm (No. 40)	35.4	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	10.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /

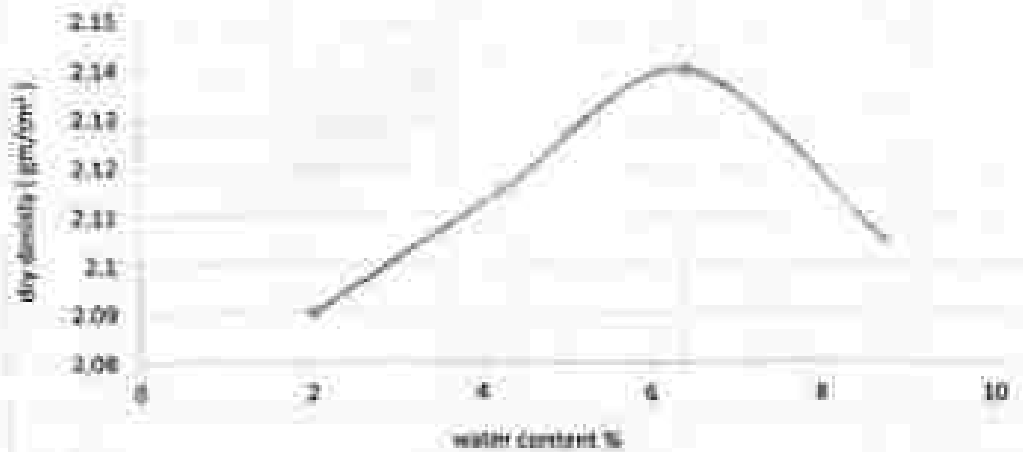


319.891.437
319.891.437
319.891.437



Company Name : شركة الاهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.14
- Optimum moisture content % : 6.4 %

Signature

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9224620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	inch	
0.64	0.025	0.36
1.27	0.050	1.09
1.91	0.075	1.83
2.54	0.100	2.49
3.18	0.125	2.94
3.81	0.150	3.30
4.45	0.175	3.55
5.08	0.200	3.65
6.35	0.250	3.55

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	36 %
	6.90	2.49	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.14 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Sample for road base.
- 4- CBR > 20 for middle and lower embankments according project spec page No 36.

Signature

AE-0204 E-MH-000
Dr. H. G.
T/A Fax 00202 25000000

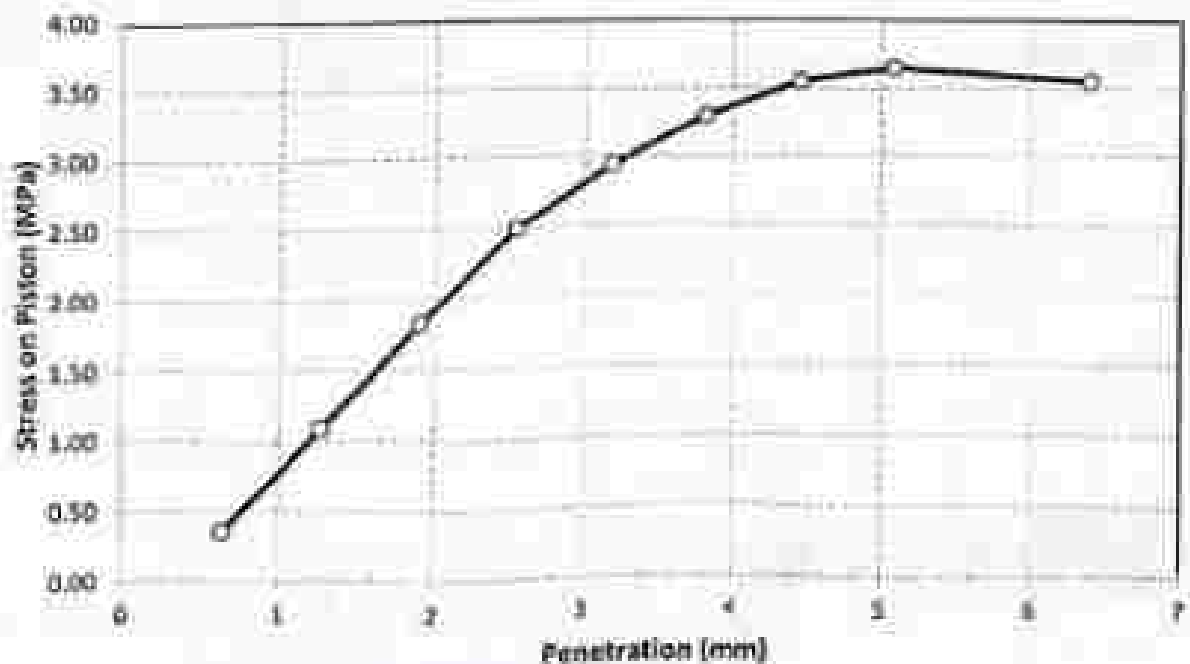


CEL

Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature / 
CEL
مكتبه معامل الاستشارات الهندسية
2023/07/26
المرجع: 05-2

13. Max. Penetration
From CBR
Test Result: 0.00

IAS
REGISTERED
CONSULTANT

13. Max. Penetration
From CBR
Test Result: 0.00

Compaction test by using Sand - Cone Test Method
ASTM D-1556

* Degree of conduction based on probe test dated At:

- At optimum moisture content

5. Results



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Dear Gentleman,

Attached here with the delivered on 4/8/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883.

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature 


Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	89.6
25	1	83.4
19	3/4	82.3
12.50	1/2	81.3
9.50	3/8	80.9
4.75	4	72.6
2.00	10	56.3
0.425	40	31.4

Signature: 
CEL
مهندس / محمد عبد الله محمد
م.ع. ٢٠٢٣ / ٨ / ٨

11 El-Maria El-Ahmed Street
Zarqa, Jordan
Tel/Fax: 0755711 - 0755954



مركز خدمات
البيانات
مركز خدمات
البيانات

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاميل الاستشارات الهندسية

Company Name : شركة الاهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	13.8

Signature 

1st Mark E. Abbas Street
Zarqa, Amman
Tel/Fax: 2154721 - 2154660



1st Mark E. Abbas Street
Zarqa, Amman
Tel/Fax: 2154721 - 2154660

Company Name : شركة الذهب
 Project : Electric Express Train – HSR From Qoos To Armanat
 Location : (ST: 641+500) E= 492410,988 N=2862759,57
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 4/8/2023
 Reporting Date : 8/8/2023
 Reporting No. : 04-2

**Results of liquid limit and plasticity index
 of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /

CEL
 محمد بن عبد الله
 08/08/2023

17, Mark E. Al-Jarrah
 Zarqa, Jord
 Tel/Fax 77027777 7702000



مركز اختبار
 فضاء
 77027777 7702000

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,688 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Soil Classification

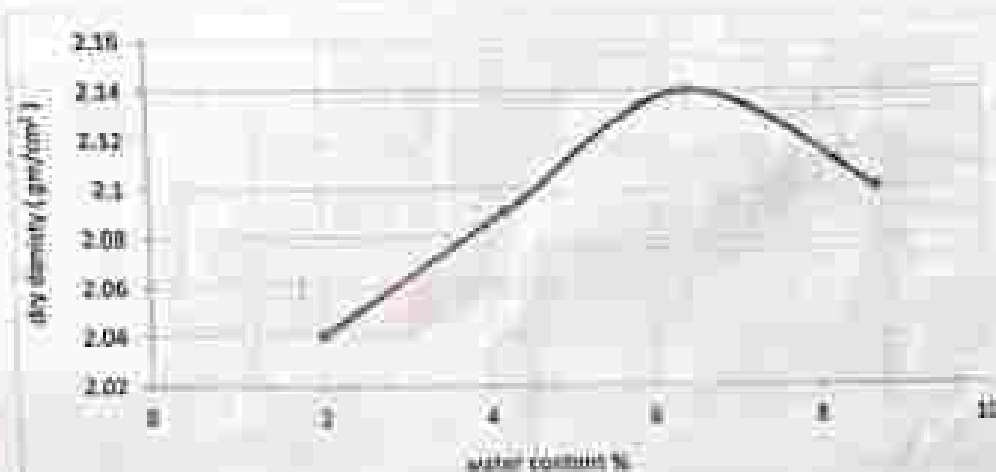
TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10).	56.3	Max 50 %	-----	-----
0.425 mm (No. 40).	31.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	13.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are **Comply** (or Not Comply) with specifications limits

Signature

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (g/cm³) : 2.14
- Optimum moisture content % : 6.4 %

Signature

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.26
1.27	0.050	1.01
1.91	0.075	1.67
2.54	0.100	2.28
3.18	0.125	2.94
3.81	0.150	3.50
4.45	0.175	4.08
5.08	0.200	4.54
6.35	0.250	5.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value 6.90	Sample results 2.28	33.1 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was corrected to dry density of $\approx 2.14 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content
- 3- Surcharge load 4.50 Kgf
- 4- CBR > 10 for middle and lower subgrade materials according project spec page No 36:

Signature /

S.E. Mervat E. Attia Sherif
Zerath, Cairo
Tel/Fax : 0226702000 - 0226702001



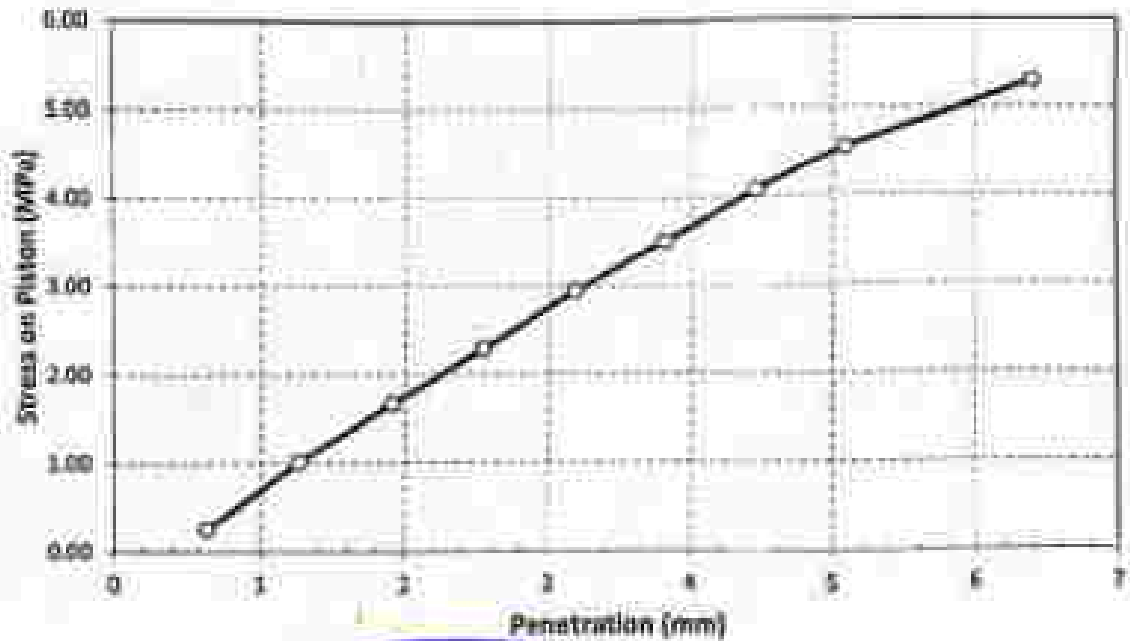
م. مervat E. Attia Sherif
م. مervat E. Attia Sherif
م. مervat E. Attia Sherif

CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature

CEL
Signature

30 Mark E-PSH Test
Zurab, Gali
Tel: 011 2076200 - 2261291

IAS
ACCREDITED
Testing Laboratory

إبراهيم محمد العبد
مهندس
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Dear Gentleman,

Attached here with the delivered on 26/7/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1183

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / 


Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862630
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.2
37.5	1.5	95.2
25	1	91.5
19	¾	88.2
12.50	½	84.5
9.50	3/8	80.2
4.75	4	73.5
2.00	10	70.1
0.425	40	35.4

Signature A



301 Maple St. #200
Zurich, Conn.
Tel./Fax: 203/239-2000



1. *Phragmites australis* (Cav.) Trin. ex Steud.

Company Name : شركة الفهيي
Project : Electric Express Train - HSR From Qous To Arman.
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.3

Signature : 



CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature



10 Mark E. Alarabi
Zaidy, Cars
Tel Fax: 206577 206577



For the Client
Name
Date
Signature

Company Name : شركة الأعبي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	70.1	Max 50 %	—	—
0.425 mm (No. 40).	35.4	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	10.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply ☐ Not Comply) with specifications limits

Signature /



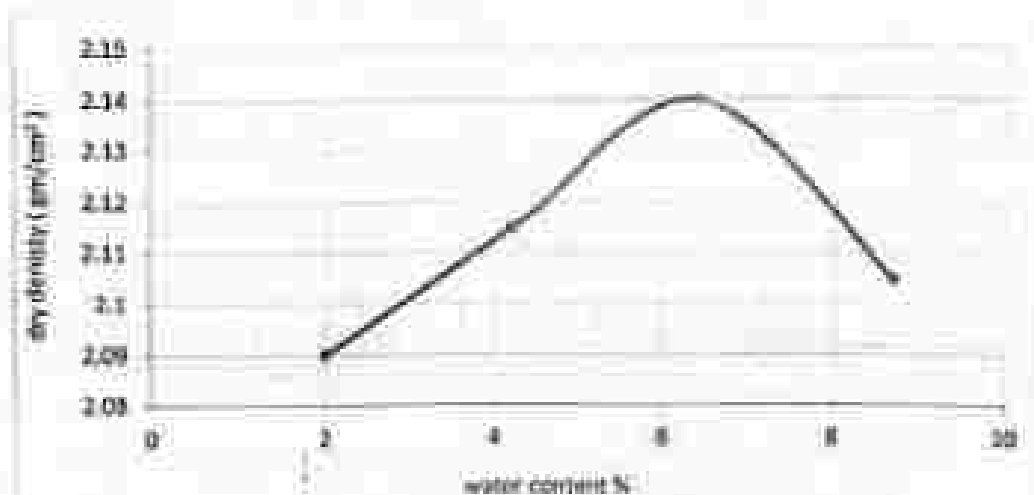
1-Ei Malek E-Rahai Street
Zurich, Ger.
Tel/Fax : 2296557 - 2296558



أ.م. هادي الأعبي
إبراهيم الأعبي
م.م. هادي الأعبي

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.14
- Optimum moisture content % : 6.4 %

Signature /

مهندس مسؤول الاختبار
محمد المصطفى المصطفى
010 001 424 001 424
010 001 424 001 424

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.09
1.91	0.075	1.83
2.54	0.100	2.49
3.18	0.125	2.94
3.81	0.150	3.30
4.45	0.175	3.55
5.08	0.200	3.65
6.35	0.250	3.55

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value 6.90	Sample results 2.49	36 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 (gm /cm³)
At 96.4 % optimum wet compaction.
- 3- So, charge load = 4.50 Kg
- 4- CBR > 10 for all depths of the embankment according project spec page No 36.

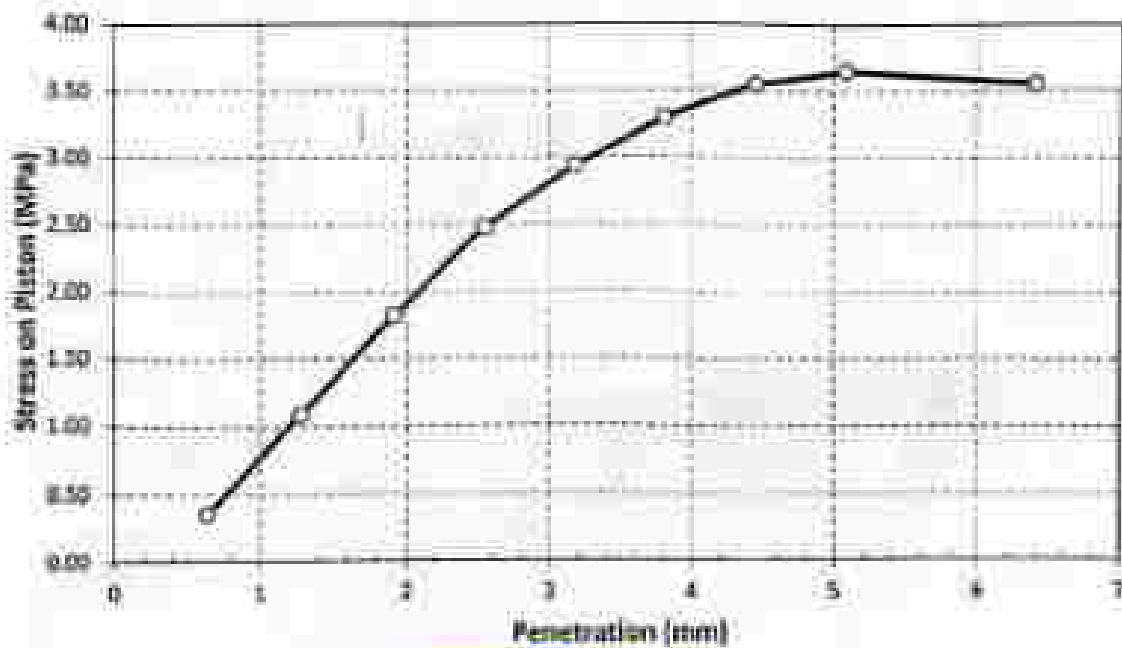
Dr. Hossam M. Elmaghrabi
Zurab, Cairo
Tel: Fax: 2046221-2046200



Dr. Hossam M. Elmaghrabi
Zurab, Cairo
Tel: Fax: 2046221-2046200

Company Name : شركة الأزهبي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /



16 Milla E 41st St
Embar, Cairo
T: +966 2 264521-2730009



مكتب محامل الاستشارات
هندسة
16 ميله 41 شارع
عمبره - القاهرة

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qons To Arman
Testing Date : 16/08/2023
Soil type : Middle Embankment
Location : St From 641+440 To 641+500
Level : - 4.5 M
Report No. : 37

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+480	1100	2.18	5.8	2.06	96.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

• Signature : 



Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Dear Gentleman,

Attached here with the delivered on 26 / 7 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.2
37.5	1.5	95.2
25	1	91.5
19	¾	88.2
12.50	½	84.5
9.50	3/8	80.2
4.75	4	73.5
2.00	10	70.1
0.425	40	35.4

Signature


CEL
مكتب معامل الاستشارات الهندسية
019 921 411
القاهرة - مصر

11, Mousa El Attar Street
Zakaria, Giza
Tel/Fax: 019/921 411 - 019/921 412



مركز معمل الاستشارات
مكتب المعمل
019/921 411 - 019/921 412

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.3

Signature



CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /

CEL
مكتب معامل الاستشارات الهندسية
م. محمد عبد الله محمد

3 El-Minia El-Ahli Street
El-Minia, Egypt
Tel/Fax: 010365021 - 2710000



م. محمد عبد الله محمد
م. محمد عبد الله محمد
م. محمد عبد الله محمد

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226629 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	70.1	Max 50 %	-----	-----
0.425 mm (No. 40)	35.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	10.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

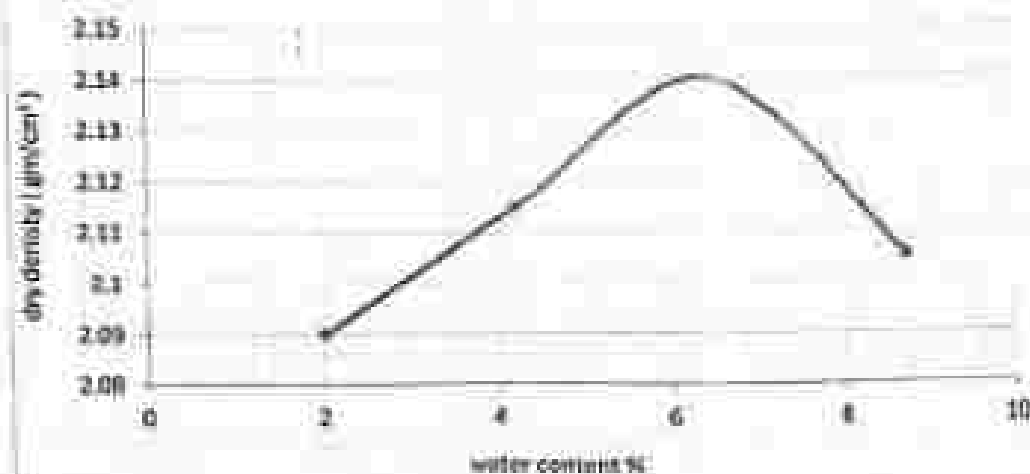
The test results are (☒ Comply ☐ Not Comply) with specifications limits.

Signature /



Company Name : شركة الفضي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.14
- Optimum moisture content % : 6.4 %

Signature

3 El Mahk El Akad Street
Zarqa, Giza
Tel/Fax: 2260517 - 2260340

IAS
ACCREDITED
Testing Laboratory

إلى السيد المهندس
المهندس
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.09
1.91	0.075	1.83
2.54	0.100	2.49
3.18	0.125	2.94
3.81	0.150	3.30
4.45	0.175	3.55
5.08	0.200	3.65
6.35	0.250	3.55

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	36 %
	6.90	2.49	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 (gm/cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load = 200
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

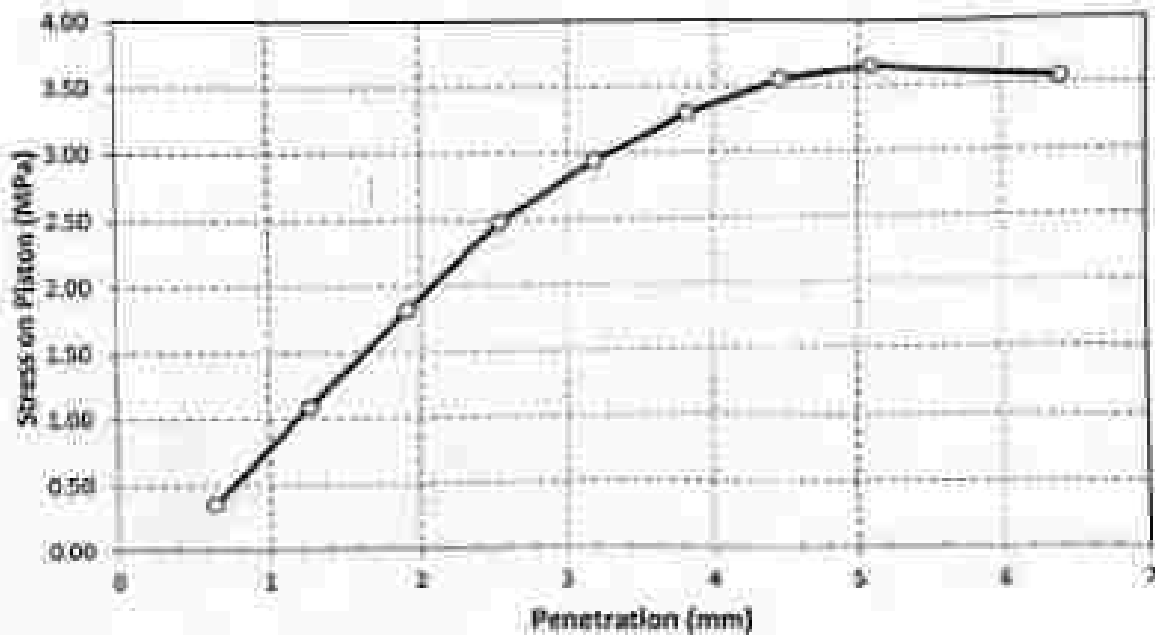
Signature: 
Engineer: M. M. El-Sayed
Lab. No. 010
Tel: Fax: 22567211 - 22567212



Signature: 
Engineer: M. M. El-Sayed
Lab. No. 010
Tel: Fax: 22567211 - 22567212

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32,9226620 N=25,8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature



2 El Mark El Agha Street
Zagazig, Egypt
Tel/Fax (0103525) - 3770000



مركز التحليلات
للمواد والبيئة
مصر - القاهرة

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 21/08/2023
Soil type : Middle Embankment
Location : St From 641+460 To 641+540
Level : - 4 M
Report No. : 41

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+490	1457	2.20	5.8	2.08	97.1%	Comply
2	641+520	1610	2.20	5.3	2.09	97.5%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

• Signature / 

El Mansour El Moutaie
Zamalek, Cairo
Tel & Fax: 27365031 - 27365033



إلى السيد المهندس
م. م. م. م. م. م.
م. م. م. م. م. م. م.

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Dear Gentleman,

Attached here with the delivered on 4 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /





Consulting Engineering Bureau & Laboratories
مكتب معمل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Arment

Testing Date : 06/09/2023

Soil type : Middle Embankment

Location : St From 641+440 To 641+620

Level : - 3 M

Report No. : 55

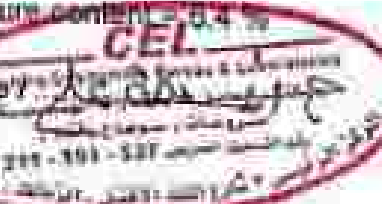
Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+470	2046	2.22	5.3	2.10	95.2%	Comply
2	641+500	1856	2.22	5.5	2.10	95.2%	Comply
3	641+530	1353	2.22	5.5	2.11	95.4%	Comply
4	641+560	1544	2.22	5.3	2.10	95.2%	Comply
5	641+590	1398	2.21	5	2.11	95.3%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.4 %

Signature :


Engineer Mohamed El-Mahdy
Consulting Engineering Bureau & Laboratories
CEL
249 - 191 - 187
249 - 191 - 187

3 El Mah El-Ahmed Street
Zamalek, Cairo
Tel/Fax: 27307531 - 27307550



شركة الذهبى
الاستشارات الهندسية
مكتب معمل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qons To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman,

Attached here with the delivered on 31/8/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature /



3 El Malek El Alad Street
Zerokh, Cairo
Tel& Fax: 27367211 - 27363083



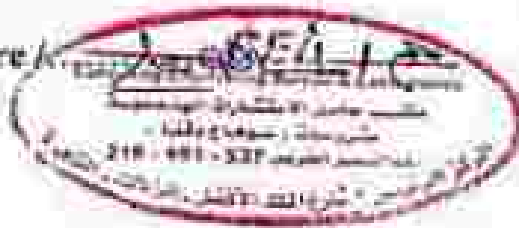
إدارة معمل الاستشارات
الإمارة: القاهرة
التمويل: مصر

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.9

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 

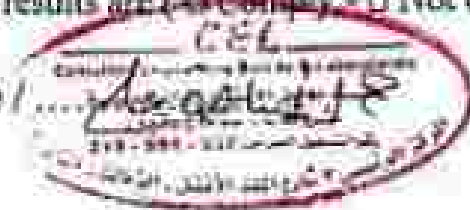
Company Name : شركة الأهرى
Project : Electric Express Train – HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	41.2	Max 50 %	—	—
0.425 mm (No. 40)	28.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (~~Not~~ Comply - ☒ Not Comply) with specifications limits

Signature /


CEL
Consulting Engineering Bureau & Laboratories
215 - 588 - 517
شركة الأهرى للاستشارات الهندسية - القاهرة

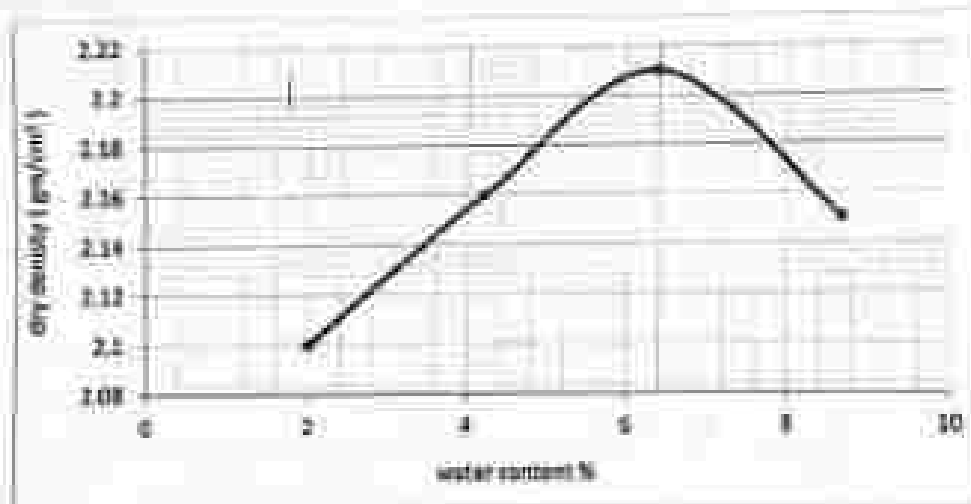
J E Maki E-About Show
Zemzet, Cairo
Tel/Fax: 215/5231 - 215/5203



إبراهيم العبد
إبراهيم العبد
شركة الأهرى

Company Name : شركة النخيل
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature



3 El-Mark El-Ahmed Street
Zamalek, Cairo
Tel/Fax: 22305231 - 22310003



مختبر
مختبر
مختبر

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

1 P. Mounir E. Al-Sayid
Director, Cairo
Tel/Fax: 2285237 - 2285238

مهندس مounir E. Al-Sayid
مدير
الهاتف: 2285237 - 2285238



د. محمد السيد
مهندس
الهاتف: 2285237 - 2285238

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman ,

Attached here with the delivered on 31 / 8 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature 
مكتب معامل الاستشارات الهندسية
شركة الذهبى
رقم الترخيص الهندسى ١٤٤١ - ١٤٤٢ - ١٤٤٣
الشارع الرئيسى ٢ شارع الهندسة - القاهرة - مصر ١١٥١١١١



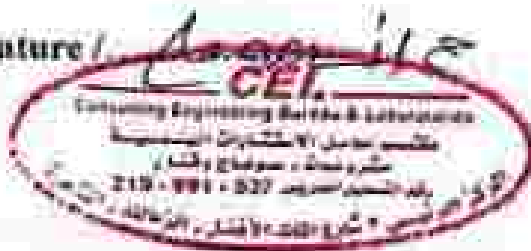
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.9

Signature /



3 E Malek El Abdel Street
Zeroben, Cairo.
Tel/Fax: 27367231 - 27367683



إلى السيد المهندس
إلى السيد المهندس
إلى السيد المهندس

CEL

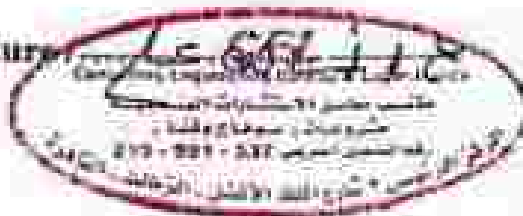
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature



3 El-Malak El-Ahmed Street
Zamalek, Cairo
Tel&Fax: 27367237 - 27360003



مركز فليلك الاندوس
فرعك القاهرة
التميز والجودة



Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

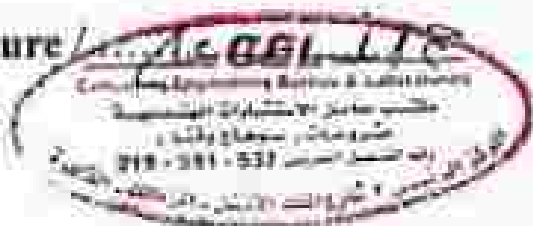
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	41.2	Max 50 %	-----	-----
0.425 mm (No. 40).	28.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /



S E Mostak E Attia Elwan,
Technical Exam



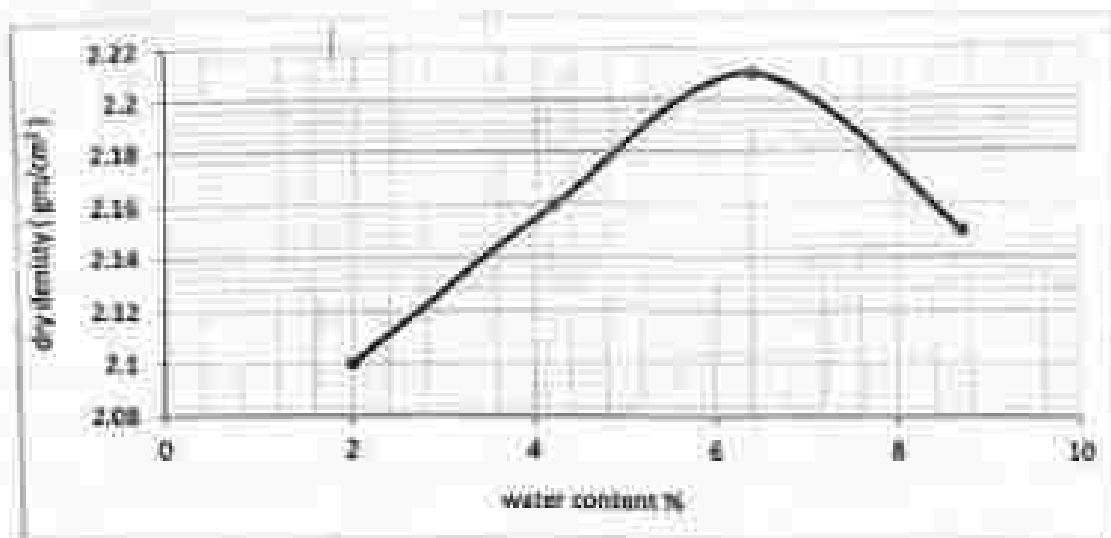
أ.م.ع. مصطفى
عبدالله

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.99	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm /cm}^3\text{)}$
At $\approx 6.4 \%$ optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for mid and low embankments, according project spec page No 36.

Signature

Dr. El Mostafa El Ghayour
Zarqa, Jordan
Tel & Fax: 02047531 - 02765345



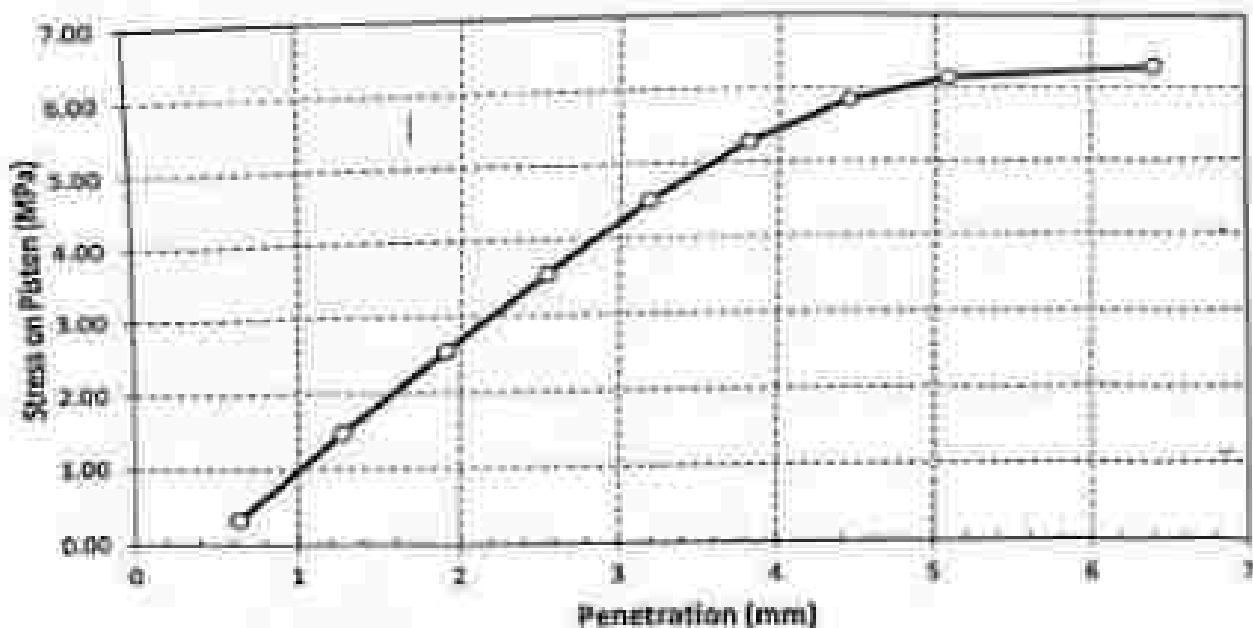
مركز البحوث والدراسات
الهندسية
الزرقاء - الأردن
هاتف وفاكس: 02047531 - 02765345

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature

CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
218 - 211 - 237
القاهرة - مصر

3 El Madi El Arad Street
Zakaria, Cairo
T/A Fax : 27162331 - 27163050

IAS
ACCREDITED
Testing & Calibration

مركز اختبار المعايير
التركيبة : القاهرة
تليفون : 27162331 - 27163050

Company Name : شركة الذهبى

Project : Electric Express Train – HSR From Qous To Armant

Testing Date : 12/09/2023

Soil type : Middle Embankment

Location : St From 641+160 To 641+300

Level : -2 M

Report No. : 58

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+180	1792	2.25	5.5	2.13	97.0%	Comply
2	641+230	1698	2.24	5.3	2.13	96.8%	Comply
3	641+260	1374	2.25	5.5	2.14	97.1%	Comply
4	641+290	1058	2.22	5.5	2.10	95.6%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density =2.20 gm/cm³
- At optimum moisture content = 6.4 %

• Signature: 

15 El Mahdi St. Max El Shehry
Zorah, Cairo
Tel/Fax: 2734720 - 2734701



15 شارع المهدى
زهره القاهرة
هاتف/فاكس: 2734720 - 2734701

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Dear Gentleman,

Attached here with the delivered on 7/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	90.1
19	¾	84.2
12.50	½	77.2
9.50	3/8	71.5
4.75	4	59.9
2.00	10	46.3
0.425	40	28.0

Signature /



3 El Mulek El-Rous Street,
Zamalek, Cairo
Tel/Fax: 27362521 - 27362001



م. محمد العبدى
إبراهيم الشاهد
م. محمد العبدى
TEL: 011-2524111

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.6

Signature /



3 E. Malek E. Aldal Street
Zoraba, Cairo
Tel/Fax : 27362021 - 27362000



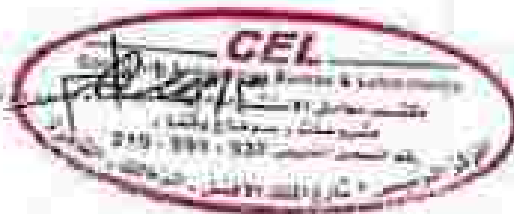
مركز البحوث والدراسات
مركز البحوث والدراسات
مركز البحوث والدراسات

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



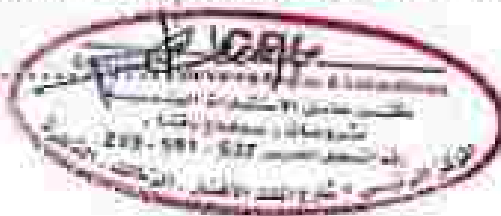
Company Name : شركة الأهلي
 Project : Electric Express Train - HSR From Qous To Arment
 Location : ST:641+400 E= 492410,088 N=2862759,57
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 7/09/2023
 Reporting Date : 11/09/2023
 Reporting No. : 10-3-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	46.3	Max 50 %	—	—
0.425 mm (No. 40)	28.0	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	9.6	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /



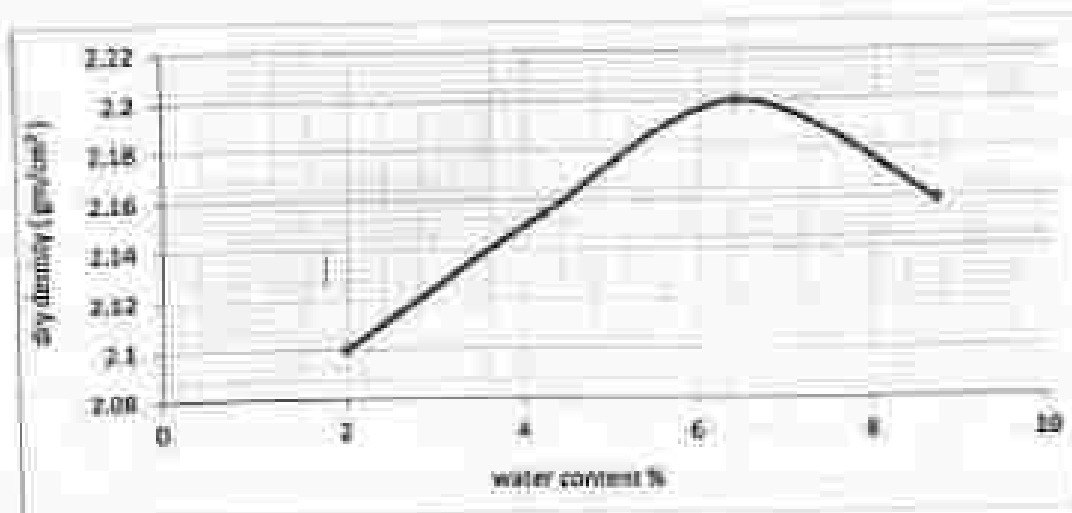
J E-Mohr E-Abdo Street
 Zayed, Cairo
 Tel/Fax: 27362071 - 27362083



إبراهيم محمد
 فؤاد محمد
 المهندس - مهندس

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.60
2.54	0.100	3.60
3.18	0.125	4.56
3.81	0.150	5.31
4.45	0.175	6.09
5.08	0.200	6.56
6.35	0.250	7.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52.1 %
	6.98	3.60	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20(gm /cm³)
A1 = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

3 El Mallah El Aush
Zirak, Cairo
Tel/Fax: 23307237 - 23307661



أمر المهندس
إبراهيم العبدو
المهندس
23307237 - 23307661

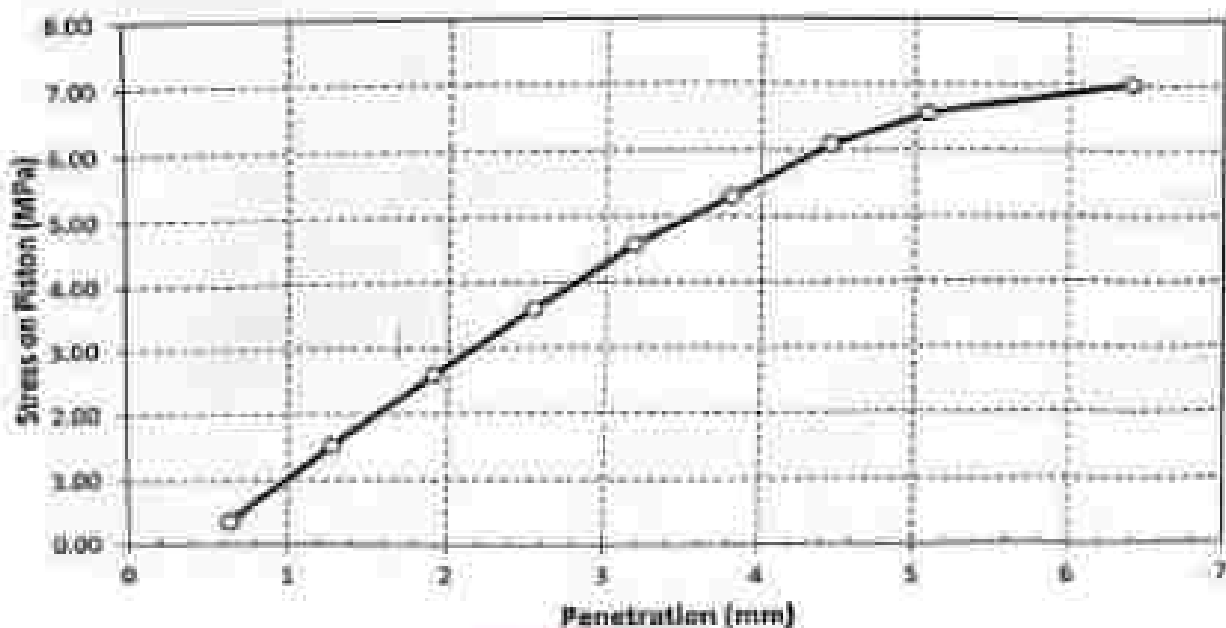
CEL

Consulting Engineering Bureau & Laboratories
مكتب محال الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Load Penetration Curve of CBR Test

ASTM D-1883



Signature /



3 D Mohd El Attar El Sher
Zaria, Cam
Tel/Fax : 27049531 - 27049532

IAS

مكتب محال الاستشارات
الهندسية
مكتب محال الاستشارات
الهندسية

CEL

Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

Company Name : شركة الدقي
Project : Electric Express Train – HSR From Qous To Armut
Testing Date : 16/09/2023
Soil type : Middle Embankment
Location : St From 641+200 to 641+300
Level : -1.5 M
Report No. : 63

**Compaction test by using Sand – Cone Test Method
ASTM D- 1555**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+220	1826	2.24	6	2.11	95.9%	Comply
2	641+240	1440	2.23	6.4	2.10	95.2%	Comply
3	641+260	1633	2.23	6	2.11	95.7%	Comply
4	641+280	1042	2.28	5.8	2.16	98.1%	Comply

Degree of compaction based on proctor test dated A1

Max. dry density = 2.18 gm/cm³

Optimum moisture content = 5.4%

Signature



3 El Maza El Ahdal Street
Zamalek, Cairo
Tel/Fax: 23367231 - 23367232



شركة الدقي
مركز الدقي
الهاتف: 23367231 - 23367232

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman ,

Attached here with the delivered on 12 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken


Signature
219 - 331 - 342
21/09/2023

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

CEL
Consulting Engineering Bureau & Laboratories
Signature: 
278 - 281 - 282
شارع محمد عبد الحليم أبو العز، القاهرة

JEMSA E Atou Street
Zamalek, Cairo
Tel/Fax: 2230231 - 2230303



إلى مكتب المختبر
قريّة القاهرة
شماره التليفون : 22302311

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

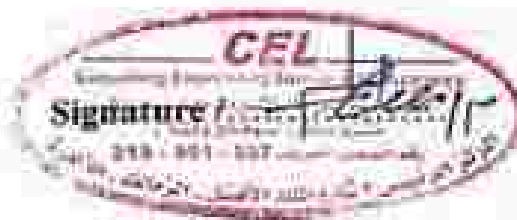
Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	9.9


Signature *[Handwritten Signature]*
مدير المختبر الهندسى

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qons To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



Company Name : شركة الاهي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature / 
 مهندس / 
 رقم الترخيص: 209 - 001 - 033
 رقم الهاتف: 27367301 - 27363683

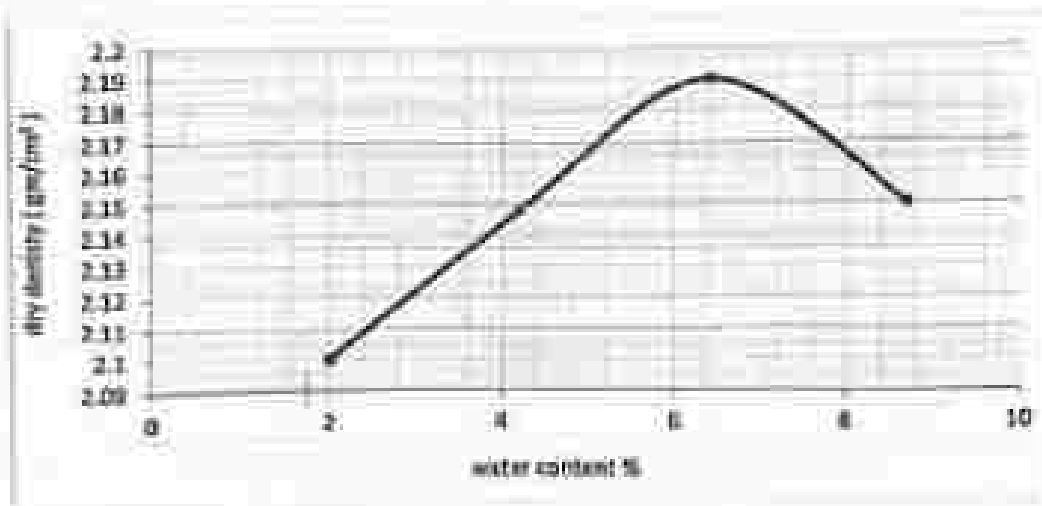
3 El Mouni & Abdel Street
Zamalek, Cairo
Tel/Fax: 27367301 - 27363683



مركز المحامل الهندسية
الزمالك - القاهرة
الهاتف: 27367301 - 27363683

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature : 
215 - 458 / 422 / 423 / 424 / 425 / 426 / 427 / 428 / 429 / 430 / 431 / 432 / 433 / 434 / 435 / 436 / 437 / 438 / 439 / 440 / 441 / 442 / 443 / 444 / 445 / 446 / 447 / 448 / 449 / 450 / 451 / 452 / 453 / 454 / 455 / 456 / 457 / 458 / 459 / 460 / 461 / 462 / 463 / 464 / 465 / 466 / 467 / 468 / 469 / 470 / 471 / 472 / 473 / 474 / 475 / 476 / 477 / 478 / 479 / 480 / 481 / 482 / 483 / 484 / 485 / 486 / 487 / 488 / 489 / 490 / 491 / 492 / 493 / 494 / 495 / 496 / 497 / 498 / 499 / 500 / 501 / 502 / 503 / 504 / 505 / 506 / 507 / 508 / 509 / 510 / 511 / 512 / 513 / 514 / 515 / 516 / 517 / 518 / 519 / 520 / 521 / 522 / 523 / 524 / 525 / 526 / 527 / 528 / 529 / 530 / 531 / 532 / 533 / 534 / 535 / 536 / 537 / 538 / 539 / 540 / 541 / 542 / 543 / 544 / 545 / 546 / 547 / 548 / 549 / 550 / 551 / 552 / 553 / 554 / 555 / 556 / 557 / 558 / 559 / 560 / 561 / 562 / 563 / 564 / 565 / 566 / 567 / 568 / 569 / 570 / 571 / 572 / 573 / 574 / 575 / 576 / 577 / 578 / 579 / 580 / 581 / 582 / 583 / 584 / 585 / 586 / 587 / 588 / 589 / 590 / 591 / 592 / 593 / 594 / 595 / 596 / 597 / 598 / 599 / 600 / 601 / 602 / 603 / 604 / 605 / 606 / 607 / 608 / 609 / 610 / 611 / 612 / 613 / 614 / 615 / 616 / 617 / 618 / 619 / 620 / 621 / 622 / 623 / 624 / 625 / 626 / 627 / 628 / 629 / 630 / 631 / 632 / 633 / 634 / 635 / 636 / 637 / 638 / 639 / 640 / 641 / 642 / 643 / 644 / 645 / 646 / 647 / 648 / 649 / 650 / 651 / 652 / 653 / 654 / 655 / 656 / 657 / 658 / 659 / 660 / 661 / 662 / 663 / 664 / 665 / 666 / 667 / 668 / 669 / 670 / 671 / 672 / 673 / 674 / 675 / 676 / 677 / 678 / 679 / 680 / 681 / 682 / 683 / 684 / 685 / 686 / 687 / 688 / 689 / 690 / 691 / 692 / 693 / 694 / 695 / 696 / 697 / 698 / 699 / 700 / 701 / 702 / 703 / 704 / 705 / 706 / 707 / 708 / 709 / 710 / 711 / 712 / 713 / 714 / 715 / 716 / 717 / 718 / 719 / 720 / 721 / 722 / 723 / 724 / 725 / 726 / 727 / 728 / 729 / 730 / 731 / 732 / 733 / 734 / 735 / 736 / 737 / 738 / 739 / 740 / 741 / 742 / 743 / 744 / 745 / 746 / 747 / 748 / 749 / 750 / 751 / 752 / 753 / 754 / 755 / 756 / 757 / 758 / 759 / 760 / 761 / 762 / 763 / 764 / 765 / 766 / 767 / 768 / 769 / 770 / 771 / 772 / 773 / 774 / 775 / 776 / 777 / 778 / 779 / 780 / 781 / 782 / 783 / 784 / 785 / 786 / 787 / 788 / 789 / 790 / 791 / 792 / 793 / 794 / 795 / 796 / 797 / 798 / 799 / 800 / 801 / 802 / 803 / 804 / 805 / 806 / 807 / 808 / 809 / 810 / 811 / 812 / 813 / 814 / 815 / 816 / 817 / 818 / 819 / 820 / 821 / 822 / 823 / 824 / 825 / 826 / 827 / 828 / 829 / 830 / 831 / 832 / 833 / 834 / 835 / 836 / 837 / 838 / 839 / 840 / 841 / 842 / 843 / 844 / 845 / 846 / 847 / 848 / 849 / 850 / 851 / 852 / 853 / 854 / 855 / 856 / 857 / 858 / 859 / 860 / 861 / 862 / 863 / 864 / 865 / 866 / 867 / 868 / 869 / 870 / 871 / 872 / 873 / 874 / 875 / 876 / 877 / 878 / 879 / 880 / 881 / 882 / 883 / 884 / 885 / 886 / 887 / 888 / 889 / 890 / 891 / 892 / 893 / 894 / 895 / 896 / 897 / 898 / 899 / 900 / 901 / 902 / 903 / 904 / 905 / 906 / 907 / 908 / 909 / 910 / 911 / 912 / 913 / 914 / 915 / 916 / 917 / 918 / 919 / 920 / 921 / 922 / 923 / 924 / 925 / 926 / 927 / 928 / 929 / 930 / 931 / 932 / 933 / 934 / 935 / 936 / 937 / 938 / 939 / 940 / 941 / 942 / 943 / 944 / 945 / 946 / 947 / 948 / 949 / 950 / 951 / 952 / 953 / 954 / 955 / 956 / 957 / 958 / 959 / 960 / 961 / 962 / 963 / 964 / 965 / 966 / 967 / 968 / 969 / 970 / 971 / 972 / 973 / 974 / 975 / 976 / 977 / 978 / 979 / 980 / 981 / 982 / 983 / 984 / 985 / 986 / 987 / 988 / 989 / 990 / 991 / 992 / 993 / 994 / 995 / 996 / 997 / 998 / 999 / 1000

3 E-Mark, E-Armat Street
Zamalek, Cairo
Tel/Fax: 27367231 - 27363093



في مكتب المعامل
في مكتب المعامل
في مكتب المعامل

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge used 4.50 Kg.
- 4- CBR ≥ 10 for middle and lower embankments according project spec page No 35.

Signature _____

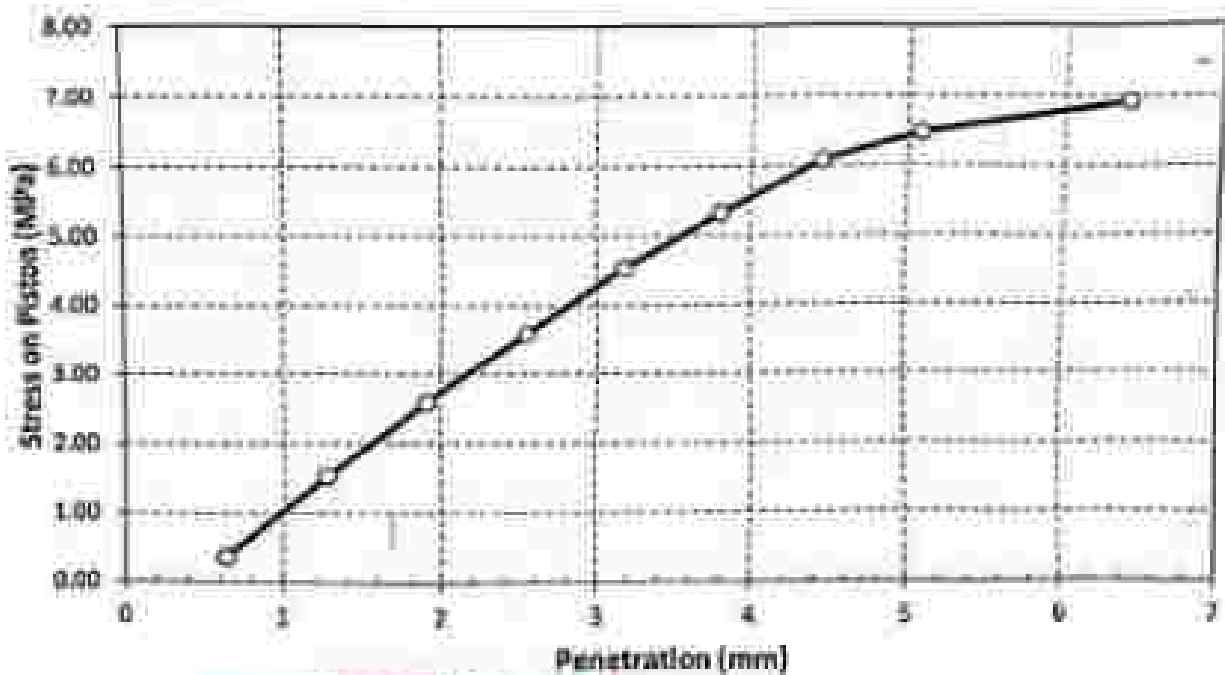
10 Malek
Dr. Malek Gani
Tel/Fax: 27367221 - 27367242



إبراهيم محمد الجليلي
إبراهيم الجليلي
مهندس - م.ع.م

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test
ASTM D-1883



Signature: 
2023-09-12
CEL

Contents

شركة المعاملات والدراسات الهندسية

Project : Electric Traction Tests - Sector (2) - Giza to Aswan.
Subject : Determine the deformation and strength characteristics of soil by the
plate loading test according specifications DIN 18126/2312-04 and project requirements
Test Location : Station 541+230 to 541+300
Station : 541+240
Level : A.S
Test Code : 150502023
Report Date : 15/05/2023
Type of soil : Original earth
Report No. : 1

Dear Gentlemen,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 300 mm and 200 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel strips/clamps with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction loads to the loading plates
6. Dial indicator/measuring device with scale vertically 750 for (0/100mm)
7. Reaction loading system by roller-compass with weight approximately 12 ton
8. Calibration certificates are attached.

Test Procedure:

1. Clear the ground surface area to the required level with undisturbed soil
2. Install loading plates 300 mm and 200 mm diameter, Hydraulic jack and 3 dial gauges
3. Prior to testing the test setup preloading about 20 seconds
4. The dial-gauge and the dial-gauge shall be zeroed out
5. For a 300 mm loading plate, the test values are 3.2 kN/m²
6. The load shall be applied in six stages, in approximately equal increments, with the required maximum vertical stress is reached
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, i.e. 33 %, 25 %, and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the percentage stage of the first cycle (as final test load is not reached)
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The test report content the following:-

- Location of test site - Dimension of loading plate.
- Measuring device used - Type of soil.
- Type of Binding material below the plate -Weathering condition.
- Time and date of measurements - Unusual observation made during test.
- Dial gauge reading and corresponding normal stress - Loading-settlement curve.
- Description of the soil condition below the plate after testing.

Result

- Type of soil : Original earth
- Job requirement : $E_{vd} = 40 \text{ MPa}$

Item	Description
Type of loading material below the plate	Water of soil
Plate Diameter (mm)	300
Size of measuring	1.00mm/0.01
Unusual observation made during test	NO
Description of the soil condition below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{vd}/E_{vs} Ratio
	From	To			E_{vd} (MPa)	E_{vd} (Mpa)	
1	041+230	041+300	041+240	-1.2	33.8	140.7	4.13



Company Name : شركة الأهلي للمقاولات والتوريدات المعمورة
Project : Electric Express Train - Sector (2) - Quesna Area
Test Date : 16/09/2023
Report date : 19/09/2023
Station : 641+340
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
004 18134

Loading Stage (1)

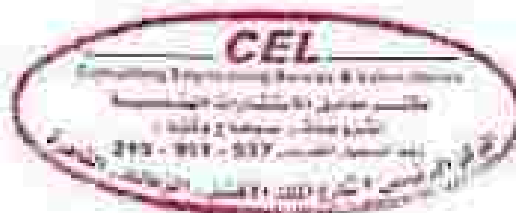
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	0.00	15.00	0.00	0.00
1	0.83	15.20	0.75	15.25	0.70	0.74
2	1.66	15.45	1.50	15.50	1.45	1.40
3	2.50	15.65	1.80	15.65	1.75	2.00
4	3.33	15.85	2.30	15.75	2.00	2.50
5	4.17	15.95	2.55	15.85	2.60	2.87
6	5.00	16.15	3.40	16.10	3.00	3.64

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	15.45	2.30	15.55	2.07	3.00
2	1.66	15.25	2.35	15.35	2.45	2.64
3	0.83	15.05	2.55	15.05	2.92	2.40

Loading Stage (2)

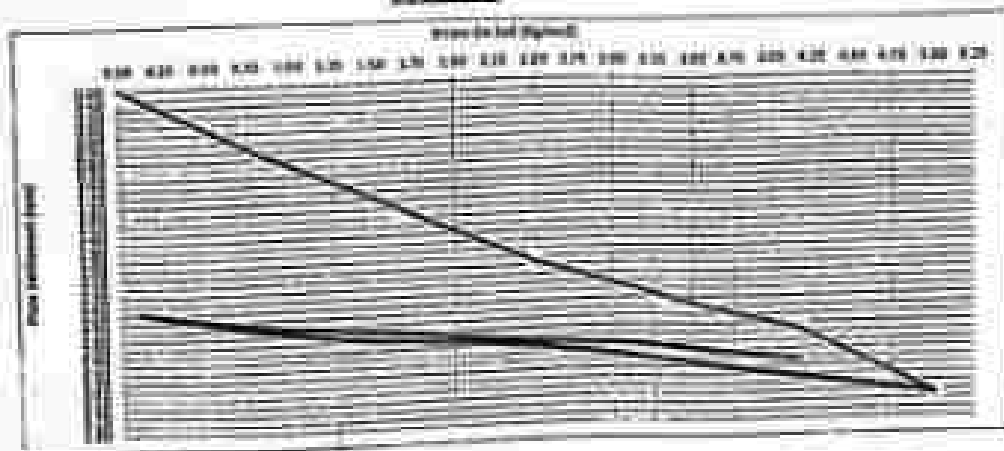
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	2.15	15.05	2.17	2.60
unloading	1.66	15.15	2.20	15.05	2.38	2.80
stress is reached						
2	3.30	15.44	2.35	15.45	2.55	2.95
3	3.33	15.55	2.42	15.55	2.69	3.00
4	4.17	15.45	2.57	15.55	2.88	3.23



Company Name
Project
Test Item
report date
Station
Test No.

إدارة الطرق القومية و الطرق المحلية
Bypass Train - Sector (2) - Giza to Ismailia
18/09/2023
18/09/2023
041+245
- 1

Nonrespective Static Plate Load Tests of Soils DPT 18134



Loading (T)	0	1	2	3	4	5	6
Load(kN)	0	36.4	172.8	176.3	232.4	294.7	302.5
Settle (mm)	0.00	0.12	1.86	2.20	3.32	4.17	4.25
Settlement (mm)	0.00	0.12	1.86	2.20	3.32	4.17	4.25

Unloading (T)	1	2	3	4
Load(kN)	36.4	176.3	294.7	302.5
Settle (mm)	4.25	3.32	2.20	1.86
Settlement (mm)	4.25	3.32	2.20	1.86

Q (kN/m²) =	300	Q1 (kN/m²) =	1.27	Q2 (kN/m²) =	1.27	Q3 =	1.20
Q1 (kN/m²) =	0.1770744263	Q2 =	0.18				

Factor = 1.20

Loading (T)	0	1	2	3	4	5	6
Load(kN)	0	36.4	172.8	176.3	232.4	294.7	302.5
Settle (mm)	0.00	0.12	1.86	2.20	3.32	4.17	4.25
Settlement (mm)	0.00	0.12	1.86	2.20	3.32	4.17	4.25

Q (kN/m²) =	100	Q1 (kN/m²) =	0.18	Q2 (kN/m²) =	1.00	Q3 =	0.11
Q1 (kN/m²) =	0.1770744263	Q2 =	1.00				

Q1 = Modulus of compression during the loading stage.

Q2 = Modulus of deformation during the unloading stage.

Q3 = Final modulus (mm).

Q4 = The difference between Q1 and Q2 from the maximum loading (mm).

Q5 = Difference in settlements corresponding to Q1 and Q2 from the maximum loading (mm).



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 12/09/2023
Soil type : Middle Embankment
Location : St From 641+300 To 641+420
Level : ± 2 M
Report No. : 59

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+325	1644	2.29	5.2	2.17	98.7%	Comply
2	641+350	1053	2.23	5.8	2.11	95.7%	Comply
3	641+380	1051	2.26	5.8	2.14	97.3%	Comply
4	641+410	1387	2.24	5.8	2.11	96.0%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتبه محاسب الاستشارات الهندسية
10/ Middle Embankment - HSR From Qous To Arman

10/ Middle Embankment - HSR From Qous To Arman
Dresden, Cairo
T/A For 2024/09 - 27/09/2023

IAS
ACCREDITED
Cairo, Egypt

المهندس
أحمد محمد
مهندس الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Dear Gentleman,

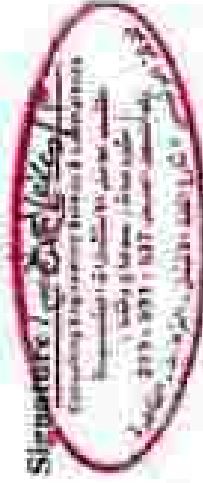
Attached here with the delivered on 7 / 9 / 2023

This sample is representative for 5.000 MP

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity Index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



30 MAH E MAH Boud
Zouaiya, Cam.
Tel/Fax: 2194707 - 2194708



مركز الاعتمادية
International
Accreditation
Authority

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الطائي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.1
37.5	1.5	97.3
25	1	92.1
19	3/4	86.2
12.50	1/2	78.2
9.50	3/8	72.5
4.75	4	57.9
2.00	10	44.3
0.425	40	26.0

Signature:  J.E. Mulla
Date: 11/09/2023
By: J.E. Mulla
For: J.E. Mulla

J. E. Mulla (E) Mulla (Snr)
General Manager
Tel: 011-22222222 (22222222)

IAS
ACCREDITED
Testing Laboratory

مركز اختبار
مركز اختبار
مركز اختبار

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبارات

Company Name : شركة النخعي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.2

CEL
Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبارات
Signature: *[Signature]*
Date: 11/09/2023

Dr. Ezzamel El Ashm
Director, Civil
Tel: 011 2556753 - 07062001

IAS
ACCREDITED

Dr. Ezzamel El Ashm
Director, Civil
Tel: 011 2556753 - 07062001



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

الترقية الفنية : Company Name :

Project : Electric Express Train – HSR From Quus To Armand

Location : ST:641+400 E=492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date: 7/09/2023

Renewing Date : 11/09/2023

Reporting No. : 103

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



**I E MATHS © 2008 Green
Zander, Co., Inc.
Tel/Fax: 679-2001 / 275-2009**



© 2000 Blackwell Science Ltd
Journal of Internal Medicine 247: 105-112

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Soil Classification

TEST	Results (%)	Limits according Projects Spec		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	44.3	Max 50 %	-----	-----
0.425 mm (No. 40)	26.0	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	10.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature : 
Dr. Hani El-Mohamed
مهندس هاني محمد العبد
2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023

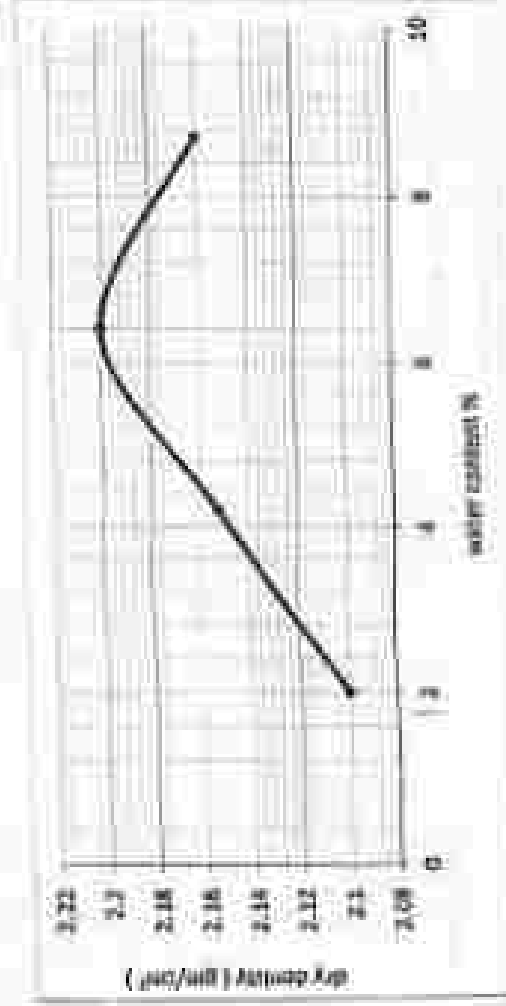
10 Hana El-Mohamed
Dr. Hani, Cairo
Tel. No. 25387531 - 27753003

IAS
ACCREDITED
مختبر معتمد

Dr. Hani El-Mohamed
Dr. Hani, Cairo
Tel. No. 25387531 - 27753003

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature : 
مهندس
مكتب محامل والاستشارات الهندسية
شارع النيل - حي النور - القاهرة
تليفون : 3731 - 3732 - 3733
فاكس : 3731 - 3732 - 3733

Company Name : شركة الأهلي

373 Mohd Elattar Street,
Zamalek, Cairo,
Tel/Fax : 37317231 - 37317233

IAS
ACCREDITED
Testing Laboratory

مكتب محامل والاستشارات الهندسية
مكتب محامل والاستشارات الهندسية
مكتب محامل والاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

mm	penetration		stress on piston (Mpa)
	mm	Inch	
0.64		0.025	0.34
1.27		0.050	1.50
1.91		0.075	2.57
2.54		0.100	3.57
3.18		0.125	4.54
3.81		0.150	5.27
4.45		0.175	6.06
5.08		0.200	6.34
6.35		0.250	6.90
CBR Result	Stress (Mpa)		CBR 100 %
	5t Value	Sample results	
At 6.1 inch (2.34 mm) penetration	6.00	3.57	51.7 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.20(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.

3- Exchange load 4.50 Kg

- 4- Call 7-10 for middle of add lower embankments according project spec page No 36

Signature: 
Date: 11/09/2023
Time: 11:00 AM
Tel No: 2256231-2256233

IAS

إدارة المسح
إدارة التربة
إدارة المسح
إدارة المسح

شركة الأهلي : Company Name :

Project
: Electric Express Train – HSR From Qom To ArmandLocation
: ST:641+400 E= 492410.088 N=2861759.57

: Soil Embankment (Upper Embankment 0.0 M)

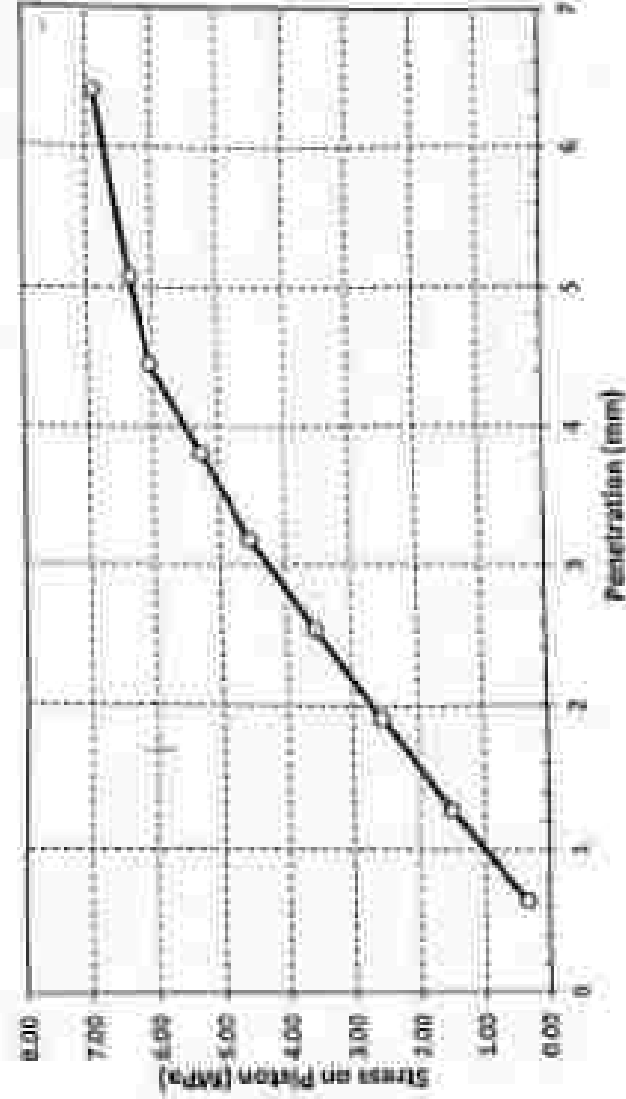
Delivery Date: 7/09/2023

Reporting Date : 11/09/2023

Reporting No. : 10-3

Load Penetration Curve of CBR Test

ASTM D-1863



Signature: *[Handwritten Signature]*

© 2000 by The McGraw-Hill Companies
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without prior written permission from The McGraw-Hill Companies, Inc.

IAS

of the
of the
of the

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qons To Armanit
Testing Date : 14/09/2023
Soil type : Middle Embankment
Location : St From 641+420 to 641+540
Level : -2.5 M
Report No. : 62

Compaction test by using Sand - Cone Test Method
ASTM D-1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gmf/cm ³	Moisture Content %	Dry Density (gms/cm ³)	Degree of Compaction (%)	Acceptance
1	641+445	1418	2.29	6.4	2.15	97.8%	Comply
2	641+475	1698	2.24	6	2.12	96.1%	Comply
3	641+495	1404	2.20	6.4	2.07	94.2%	Comply
4	641+525	1058	2.22	6	2.09	95.1%	Comply

Degree of compaction based on proctor test given AC

Max. dry density = 2.19 g/cm³

At optimum moisture content = 6.4 %

Signature

Signature
مكتب محاسن الاستشارات الهندسية
شركة الأهلي
الرياض - 11564 - 11565 - 11566
الهاتف : 219 - 899 - 927
الفاكس : 219 - 899 - 927

J E Mousa El Abbai Street
Zagazig, Cairo
Toll Free 27507220 - 27507221

IAS
ACCREDITED
إستشارات محاسن

الرياض - 11564 - 11565 - 11566
الهاتف : 219 - 899 - 927
الفاكس : 219 - 899 - 927

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 12 / 9 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية
10410 1040 - 1040 1040 1040 1040
10410 1040 - 1040 1040 1040 1040

Youssef El-Masry
Cairo, Egypt
10410 1040 - 1040 1040 1040 1040

IAS
ACCREDITED

10410 1040 - 1040 1040 1040 1040
10410 1040 - 1040 1040 1040 1040
10410 1040 - 1040 1040 1040 1040

CEL

Consulting Engineering Division & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة النقيس

Project : Electric Express Train - HSR From Qous To Arمنت

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M.)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-412.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	3/4	84.4
12.50	1/2	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

CEL
Signature/موقع المهندس
Date/تاريخ: 12/09/2023
By/من قِبل: [Signature]

3 Elm Street, Al Hamd State
Tasmeem, Cairo

TAS

دار محمد النقيس
القاهرة

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 F= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than: Sieve Size 75 μ m (No.200)	9.0

Signature: *[Signature]*
Name: *[Name]*
Title: *[Title]*
Date: *[Date]*

JE-MAN B Akmal Shari
Zandva, Cairo
Tel: (011) 27545311 - 27545310

IAS
Accreditation

إدارة الجودة
إدارة البيئة
إدارة السلامة

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
Date: 12/09/2023
Time: 10:10 AM

100 Mulla E Abbas Ghani
Zamalek, Cairo
Tel: 011 27711727 - 27711700

IAS
ACCREDITED

12/09/2023
10:10 AM
100 Mulla E Abbas Ghani

CEL

Consulting Engineering Bureau & Laboratories
مكتب ومعامل الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanat

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	45.9	Max 50 %	—	—
0.425 mm (No. 40)	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☒ Not Comply) with specifications limits

CEL
Signature
Date: 12/09/2023
By: [Signature]
For: [Signature]

3 Elmoad E-Moad Street
Zakaria, Cairo
Tel: 011-2766173 - 2765363

IAS
ACCREDITED

مركز خدمات
البناء
القاهرة - مصر
011-2766173 - 2765363

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Arment

Location

: ST:641+400 E= 492410.088 N=2862759.57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

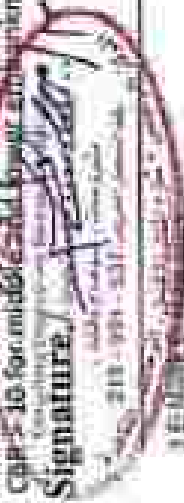
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1553

penetration		stress on piston (Mpa)	
mm	Inch		
0.64	0.025	0.36	
1.27	0.050	1.52	
1.91	0.075	2.59	
2.54	0.100	3.59	
3.18	0.125	4.54	
3.81	0.150	5.33	
4.45	0.175	6.09	
5.08	0.200	6.49	
6.35	0.250	6.92	
CBR Result	Stress (Mpa)		CBR 100 %
	5. Value	Sample results	
At 0.3 inch (7.62 mm) penetration	6.90	3.59	52 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 gm /cm³
At = 6.4 % optimum water content.
- 3- Sample tested 4.50 Kg.

Signature: 

1 E-Marketing
Zeynep, Can
Tel: Fax: 27700211 - 27700203

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الإستشارات الهندسية

Company Name : شركة الذخبي

Project

: Electric Express Train - HSR From Qous To Arment

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 08/09/2023

Reporting Date

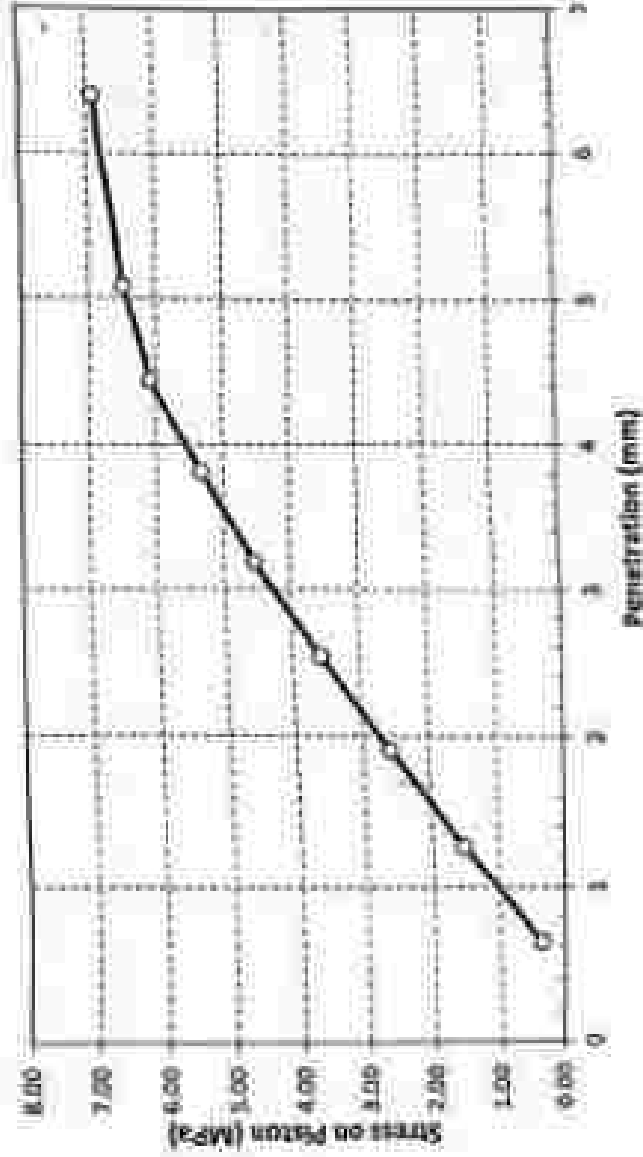
: 12/09/2023

Reporting No.

: 10-4

Load Penetration Curve of CBR Test

ASTM D-1583



Signature

Signature
CEL
Consulting Engineering Bureau & Laboratories
Qous, Qous, Qous
Tel: 011 233 1000 - 011 233 1001
Fax: 011 233 1002 - 011 233 1003

3 ELMAR EL ARAB (Qous)
Qous, Qous
Tel: 011 233 1000 - 011 233 1001

IAS
ACCREDITED

Qous, Qous, Qous
Qous, Qous, Qous
Qous, Qous, Qous

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 26/09/2023
Soil type : Middel Embankment
Location : St + From 641+300 To 641+420
Level : ± 1.75 M
Report No. : 72

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+330	1803.5	2.20	5.4	2.08	95.1%	Comply
2	641+350	1559.0	2.22	5.8	2.10	95.7%	Comply
3	641+360	1559.7	2.22	5.5	2.10	95.9%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.6%	Comply
5	641+400	1543.1	2.21	6	2.08	95.2%	Comply
6	641+410	1388.9	2.23	6.4	2.10	95.8%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.10 gm/cm³

At optimum moisture content = 6.4 %

Signature

(Signature)
2023/09/26

Dr. Ehab E. Al-Hadi
Dr. Ehab E. Al-Hadi
2023/09/26

IAS
REGISTERED
INSPECTION

2023/09/26
2023/09/26
2023/09/26

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 8 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



Signature :
Date : 12/09/2023

IAS
Institution

Signature :
Date : 12/09/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088. N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	$\frac{3}{4}$	84.4
12.50	$\frac{1}{2}$	77.7
9.50	$\frac{3}{8}$	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature: 
CP: 

1E-1000 E-1000 (mm)
2E-1000 E-1000 (mm)
3E-1000 E-1000 (mm)

IAS
ACCREDITED

1E-1000 E-1000 (mm)
2E-1000 E-1000 (mm)
3E-1000 E-1000 (mm)

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D.1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.9

Signature / 
Date: 12/09/2023

Mr. M. E. 2023/09/12
Zouheir, Cairo
Tel: 011 2770573 - 011 2770574

IAS
ACCREDITED

Mr. M. E. 2023/09/12
Zouheir, Cairo
Tel: 011 2770573 - 011 2770574

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة النخعي

Project : Electric Express Train – HSR From Qous To Arman

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 

Signature

Dr. Hisham E. Alwan Shari
Civilian, Civil
Civilian (1984) : 10/10/1984

IAS
ACCREDITED
CONFORMANCE

Dr. Hisham E. Alwan Shari
Civilian, Civil
Civilian (1984) : 10/10/1984

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanit
Location : ST:641+400 E= 491410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10)	45.9	Max 20 %	-----	-----
0.425 mm (No. 40)	27.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are ☒ Comply - ☐ Not Comply) with specifications limits

Signature /

A/Ennah E-Atat Fillel
Armeny Garm
Tel: 011 2552517 - 2753003

IAS
ACCREDITED
International Association of
Soil and Water Testing

مركز اختبار التربة
البيانات الفنية
الهاتف : 011 2552517 - 2753003

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Armanat

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 08/09/2023

Reporting Date

: 12/09/2023

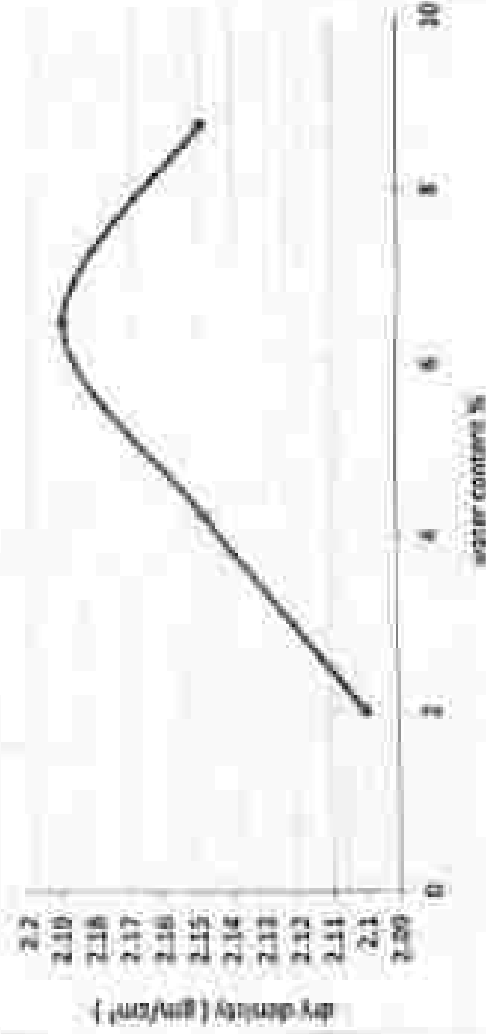
Reporting No.

: 10-4

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature /

[Handwritten Signature]
2023/09/12 14:00
2023/09/12 14:00

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanit

Location : ST:641+400 E= 492410.098 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration	stress on piston (Mpa)	
	mm	Inch
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CHB Result	Stress (Mpa)		CHB 100 %
At 0.1 inch (2.54 mm) penetration	So. Value	Sample results	51 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At = 6.4 % minimum water content.
- 3- Surrogate test 4.50 Kg

CHB > 10 for middle and lower embankments according project spec page No 36.

Signature /

El Mostafa El Mostafa
Arabic, Chem.
Lab No. (20603) - (206003)



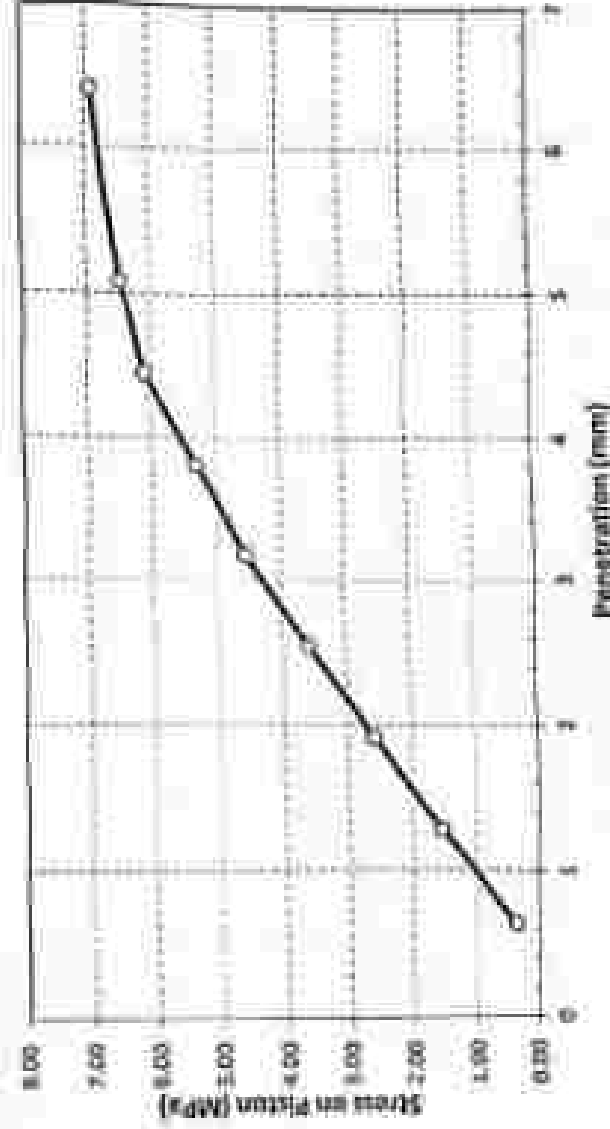
إيزي اس
الاعتماد
مكتب محاسب الاستشارات الهندسية

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature : 

AS-1000 (E-2000) 1000
Penetration (mm)
1000 (E-2000) 1000

IAS

1000 (E-2000) 1000
Penetration (mm)
1000 (E-2000) 1000

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Armut

Testing Date : 27/09/2023

Soil type : Middle Embankment

Location : St + From 641+300 To 641+420

Level : - 1.5 M

Report No. : 73

Compaction test by using Sand - Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	1752.1	2.26	5.8	2.14	97.5%	Comply
2	641+340	1529.2	2.26	5.8	2.14	97.1%	Comply
3	641+360	1545.8	2.24	5.6	2.12	96.2%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.2%	Comply
5	641+400	1473.6	2.27	6	2.14	97.3%	Comply

Degree of compaction based on Proctor test dated At

:Max. dry density = 2.20 gm/cm³

At optimum moisture content = 6.8 %

Signature

2023-09-27 15:00:00

2023-09-27 15:00:00

11-Elash B. Elash B.
Director, Civil
Tel: 011 2766231 - 2766260



مركز
مختبر
مختبر

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman ,

Attached here with the delivered on 19 / 9 / 2023

This sample is representative for 5.000 MP

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



Youssef E. Hattou
Youssef E. Hattou
23/09/2023 10:10:00



Youssef E. Hattou
23/09/2023 10:10:00

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهبي

Project

: Electric Express Train – HSR From Qous To Armut

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 19/09/2023

Reporting Date

: 23/09/2023

Reporting No.

: 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	3/4	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



10/09/2023
Charles City
Upper Embankment 0.0 M



مكتب استشارات الهندسة والبحوث
شركة الأهلي
مكتب استشارات الهندسة والبحوث

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

CEL
Signature of the Engineer
مهندس محاسن
شركة الأهلي
219 - 004 - 537
بوم الشهاب، القاهرة، الجيزة، مصر

CE Mark E-496766
Quality Control
Lab No. 230621-1250601

IAS
ACCREDITED
Testing Laboratory

إبراهيم محمد
إبراهيم محمد
إبراهيم محمد

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	41.5	Max 50 %	—	—
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	91	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☒ Not Comply) with specifications limits

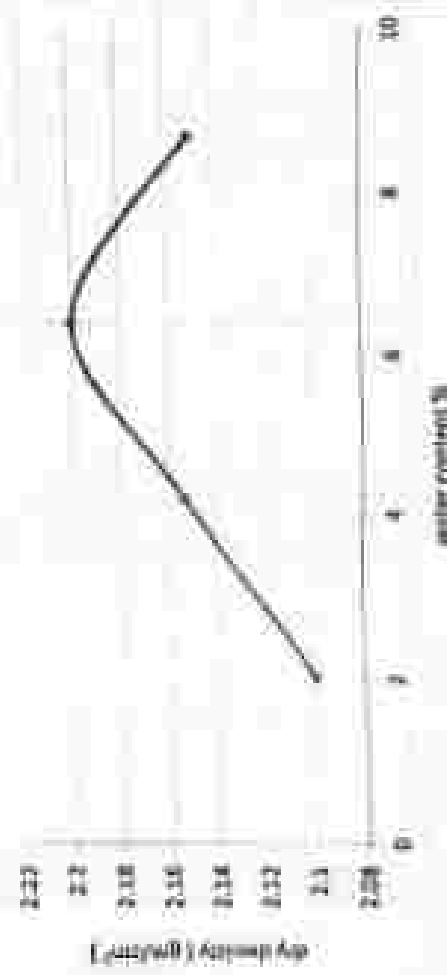
Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شارع النيل (سويديج ولفا)
219 - 991 - 537
رقم الترخيص الهندسي: 219 - 991 - 537
الطابق الأرضي - شارع النيل - القاهرة - الجيزة - مصر

CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST-641+400 E= 492410.088 N=2962759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (g/cm³) : 2.26
- Optimum moisture content % : 6.4 %

Signature **CEL**
مكتب دراسات الهندسية
شركة الأهلي
210 - 994 - 537
رقم التسجيل: 537 - 210
مركز القاهرة لدراسات البترول والغاز

10/ Mervat Alsharhan
Zagazig, Canal
144740 0754052 0754050

IAS
REGISTERED

10/ مervat الشرحان
القاهرة، قناة السويس
144740 0754052 0754050

شركة الأهلي : **Company Name**

Project : Electric Express Train – IISR From Oons To Armmat

Location : ST:641+400 E=492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date: 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Test Results of California Bearing Ratio on Base Material
ASTM D 1553

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
	St. Value 6.90	Sample results 3.73	
At 0.1 inch (2.54 mm) penetration			54 %

10

1. Attached graph shows penetration resistance versus penetrometer magnitude.
2. The sample was compacted to dry density of $= 2.25 \text{ (gm/ccm}^3\text{)}$
 $A_1 = 0.4\%$ sodium water content.

Q. 2. Explain the following:

4. $\mathcal{C} \geq 10$ for $m_{\text{eff}} = 2.5$ at $\mu_{\text{eff}} = 100$ GeV.

Copyright © 2004 by John Wiley & Sons, Inc.

15

2000

2000

1000

2000

IAS
INTEGRATED ASSESSMENT SYSTEM

1. *Chlorophyll a* (Chl *a*)
 2. *Chlorophyll b* (Chl *b*)
 3. *Chlorophyll c* (Chl *c*)
 4. *Chlorophyll d* (Chl *d*)
 5. *Chlorophyll e* (Chl *e*)
 6. *Chlorophyll f* (Chl *f*)
 7. *Chlorophyll g* (Chl *g*)
 8. *Chlorophyll h* (Chl *h*)
 9. *Chlorophyll i* (Chl *i*)
 10. *Chlorophyll j* (Chl *j*)
 11. *Chlorophyll k* (Chl *k*)
 12. *Chlorophyll l* (Chl *l*)
 13. *Chlorophyll m* (Chl *m*)
 14. *Chlorophyll n* (Chl *n*)
 15. *Chlorophyll o* (Chl *o*)
 16. *Chlorophyll p* (Chl *p*)
 17. *Chlorophyll q* (Chl *q*)
 18. *Chlorophyll r* (Chl *r*)
 19. *Chlorophyll s* (Chl *s*)
 20. *Chlorophyll t* (Chl *t*)
 21. *Chlorophyll u* (Chl *u*)
 22. *Chlorophyll v* (Chl *v*)
 23. *Chlorophyll w* (Chl *w*)
 24. *Chlorophyll x* (Chl *x*)
 25. *Chlorophyll y* (Chl *y*)
 26. *Chlorophyll z* (Chl *z*)
 27. *Chlorophyll aa* (Chl *aa*)
 28. *Chlorophyll ab* (Chl *ab*)
 29. *Chlorophyll ac* (Chl *ac*)
 30. *Chlorophyll ad* (Chl *ad*)
 31. *Chlorophyll ae* (Chl *ae*)
 32. *Chlorophyll af* (Chl *af*)
 33. *Chlorophyll ag* (Chl *ag*)
 34. *Chlorophyll ah* (Chl *ah*)
 35. *Chlorophyll ai* (Chl *ai*)
 36. *Chlorophyll aj* (Chl *aj*)
 37. *Chlorophyll ak* (Chl *ak*)
 38. *Chlorophyll al* (Chl *al*)
 39. *Chlorophyll am* (Chl *am*)
 40. *Chlorophyll an* (Chl *an*)
 41. *Chlorophyll ao* (Chl *ao*)
 42. *Chlorophyll ap* (Chl *ap*)
 43. *Chlorophyll aq* (Chl *aq*)
 44. *Chlorophyll ar* (Chl *ar*)
 45. *Chlorophyll as* (Chl *as*)
 46. *Chlorophyll at* (Chl *at*)
 47. *Chlorophyll au* (Chl *au*)
 48. *Chlorophyll av* (Chl *av*)
 49. *Chlorophyll aw* (Chl *aw*)
 50. *Chlorophyll ax* (Chl *ax*)
 51. *Chlorophyll ay* (Chl *ay*)
 52. *Chlorophyll az* (Chl *az*)
 53. *Chlorophyll aza* (Chl *aza*)
 54. *Chlorophyll abz* (Chl *abz*)
 55. *Chlorophyll acz* (Chl *acz*)
 56. *Chlorophyll adz* (Chl *adz*)
 57. *Chlorophyll aez* (Chl *aez*)
 58. *Chlorophyll afz* (Chl *afz*)
 59. *Chlorophyll agz* (Chl *agz*)
 60. *Chlorophyll ahz* (Chl *ahz*)
 61. *Chlorophyll aiz* (Chl *aiz*)
 62. *Chlorophyll ajz* (Chl *ajz*)
 63. *Chlorophyll akz* (Chl *akz*)
 64. *Chlorophyll alz* (Chl *alz*)
 65. *Chlorophyll amz* (Chl *amz*)
 66. *Chlorophyll anz* (Chl *anz*)
 67. *Chlorophyll aoz* (Chl *aoz*)
 68. *Chlorophyll apz* (Chl *apz*)
 69. *Chlorophyll aqz* (Chl *aqz*)
 70. *Chlorophyll arz* (Chl *arz*)
 71. *Chlorophyll asz* (Chl *asz*)
 72. *Chlorophyll atz* (Chl *atz*)
 73. *Chlorophyll auz* (Chl *auz*)
 74. *Chlorophyll avz* (Chl *avz*)
 75. *Chlorophyll awz* (Chl *awz*)
 76. *Chlorophyll axz* (Chl *axz*)
 77. *Chlorophyll ayz* (Chl *ayz*)
 78. *Chlorophyll ayz* (Chl *ayz*)
 79. *Chlorophyll azz* (Chl *azz*)
 80. *Chlorophyll azaa* (Chl *aza*)
 81. *Chlorophyll abz* (Chl *abz*)
 82. *Chlorophyll acz* (Chl *acz*)
 83. *Chlorophyll adz* (Chl *adz*)
 84. *Chlorophyll aez* (Chl *aez*)
 85. *Chlorophyll afz* (Chl *afz*)
 86. *Chlorophyll agz* (Chl *agz*)
 87. *Chlorophyll ahz* (Chl *ahz*)
 88. *Chlorophyll aiz* (Chl *aiz*)
 89. *Chlorophyll ajz* (Chl *ajz*)
 90. *Chlorophyll akz* (Chl *akz*)
 91. *Chlorophyll alz* (Chl *alz*)
 92. *Chlorophyll amz* (Chl *amz*)
 93. *Chlorophyll anz* (Chl *anz*)
 94. *Chlorophyll aoz* (Chl *aoz*)
 95. *Chlorophyll apz* (Chl *apz*)
 96. *Chlorophyll aqz* (Chl *aqz*)
 97. *Chlorophyll arz* (Chl *arz*)
 98. *Chlorophyll asz* (Chl *asz*)
 99. *Chlorophyll atz* (Chl *atz*)
 100. *Chlorophyll auz* (Chl *auz*)
 101. *Chlorophyll avz* (Chl *avz*)
 102. *Chlorophyll awz* (Chl *awz*)
 103. *Chlorophyll axz* (Chl *axz*)
 104. *Chlorophyll ayz* (Chl *ayz*)
 105. *Chlorophyll ayz* (Chl *ayz*)
 106. *Chlorophyll azz* (Chl *azz*)
 107. *Chlorophyll azaa* (Chl *aza*)
 108. *Chlorophyll abz* (Chl *abz*)
 109. *Chlorophyll acz* (Chl *acz*)
 110. *Chlorophyll adz* (Chl *adz*)
 111. *Chlorophyll aez* (Chl *aez*)
 112. *Chlorophyll afz* (Chl *afz*)
 113. *Chlorophyll agz* (Chl *agz*)
 114. *Chlorophyll ahz* (Chl *ahz*)
 115. *Chlorophyll aiz* (Chl *aiz*)
 116. *Chlorophyll ajz* (Chl *ajz*)
 117. *Chlorophyll akz* (Chl *akz*)
 118. *Chlorophyll alz* (Chl *alz*)
 119. *Chlorophyll amz* (Chl *amz*)
 120. *Chlorophyll anz* (Chl *anz*)
 121. *Chlorophyll aoz* (Chl *aoz*)
 122. *Chlorophyll apz* (Chl *apz*)
 123. *Chlorophyll aqz* (Chl *aqz*)
 124. *Chlorophyll arz* (Chl *arz*)
 125. *Chlorophyll asz* (Chl *asz*)
 126. *Chlorophyll atz* (Chl *atz*)
 127. *Chlorophyll auz* (Chl *auz*)
 128. *Chlorophyll avz* (Chl *avz*)
 129. *Chlorophyll awz* (Chl *awz*)
 130. *Chlorophyll axz* (Chl *axz*)
 131. *Chlorophyll ayz* (Chl *ayz*)
 132. *Chlorophyll ayz* (Chl *ayz*)
 133.

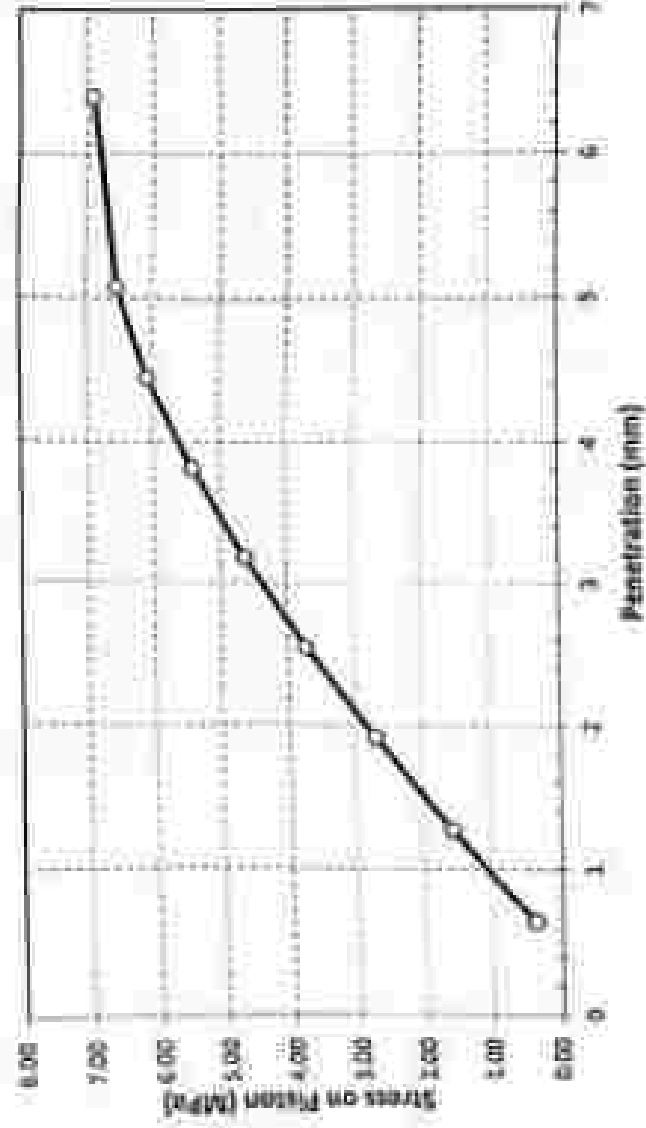
CEL

Commuting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature: 
مهندس: 
219 - 091 - 537
رقم التسجيل المهني: 537 - 091 - 219
الجهة: شركة الأهلي للاستشارات الهندسية

U. Mark E. Alkhatib
Engineer
14/FW 27N/20 - J720000

IAS
ACCREDITED
Engineering Laboratory

شركة الأهلي
مكتب محامل
14/FW 27N/20 - J720000

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاختبارات والمختبرات

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 28/09/2023
Soil type : Middle Embankment
Location : St From 6+1+420 To 6+1+540
Level : ± 2 M
Report No. : 78


Compaction test by using Sand – Cone Test Method
ASTM D-1556

RTest #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	6+1+410	1575.0	2.23	6.4	2.15	97.0%	Comply
2	6+1+435	1660.4	2.26	6	2.13	96.7%	Comply

Degree of compaction based on proctor test dated At

(Max. dry density = 2.20 gm/cm³)

At optimum moisture content = 8.4 %

Signature: 
CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاختبارات والمختبرات
طريق القاهرة - سوهاج - وادي النيل
219 - 091 - 537
بازار السجون القديم - سوهاج - مصر
الهاتف 091 537 219

Dr. Mervat Abdel-Ghaffar
Engineer, Civil
Tel: 091 537 219

IAS
ACCREDITED
إجازة مصرية

Dr. Mervat Abdel-Ghaffar
Engineer, Civil
Tel: 091 537 219

Company Name : شركة الدقي
Project : Electric Express Train - HSR From Qous To Armanit
Location : ST:641+400 E=492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	¾	85.2
12.50	½	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



10-5
10-5
10-5

IAS
ACCREDITED

10-5
10-5
10-5

CEL


Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanf
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	41.5	Max 50 %	-----	-----
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	91	Max 15 %	Max 15 %	Max 15 %
Liquid Limit				
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شركة الأهلي : بوساطة وقلبي
رقم التسجيل المهنى : 537 - 091
البريد الإلكتروني : E.Attia@cel-eg.com

Signature: E. Attia Sher
E. Attia Sher
E.Attia@cel-eg.com / 23/09/2023

IAS

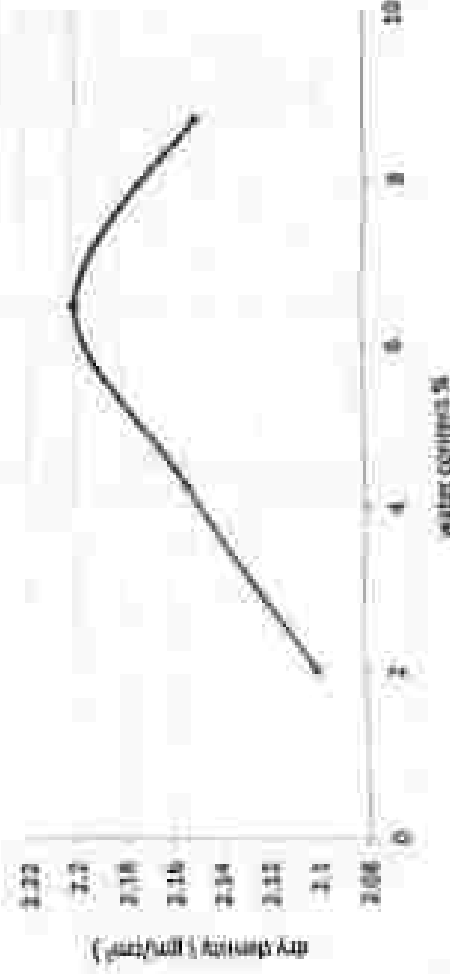
إبراهيم الشريف
إبراهيم الشريف
E.Attia@cel-eg.com / 23/09/2023

CEL


Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cc) : 2.20
- Optimum moisture content % : 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شارع ميناء د سويحان ولسان
رقم التسجيل الهندسي 249 - 891 - 537
المقر الرئيسي : ليبيا - المدينة المنورة - الرياض - الجوهرة - القصير

10-1008 E-1008 Qous
Qous, Libya
Tel: 00966 3336201 3336202

IAS
ACCREDITED
by IAS

مركز معمل الاستشارات
الهندسية
شارع ميناء د سويحان ولسان

Consulting Engineering Bureau & Laboratories
200-221 31st Avenue, Suite 200

شركة الخشب : Company Name :

Project : Electric Express Train – HSR From Qous To Arment

Location
: ST:641+400 E=492410.088 N=7862759.57

Type of sample : Soil Embankment / Upper Embankment (0.0 M)

Delivery Date : 19/09/2023

Renewal Date : 23/09/2023

Reporting No. 1103

Test Results of California Bearing Ratio on Base Materials

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
	St Value 4.50	Sample results 3.73	
At 0.1 inch (2.54 mm) penetration			54 %

10

1. Attached graph shows penetration resistance versus penetration magnitude.
2. The sample was compacted to dry density of $\approx 2.28(\text{gm/ccm}^3)$
 $A_1 = 6.4\%$ optimum water content

A1-6.4 "6" and "10mm" number corrected

1. *Callitriche* sp.

Stacy L. Smith

1339

215-991-5330

Author's address: Department of Mathematics, University of California, San Diego, La Jolla, CA 92037, USA.
E-mail: shrawan@ucsd.edu

[illegible]

1000

IAS

1. *What is the purpose of this study?*

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات والمختبرات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qoms To Armand

Location : ST:641+400 E= 492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

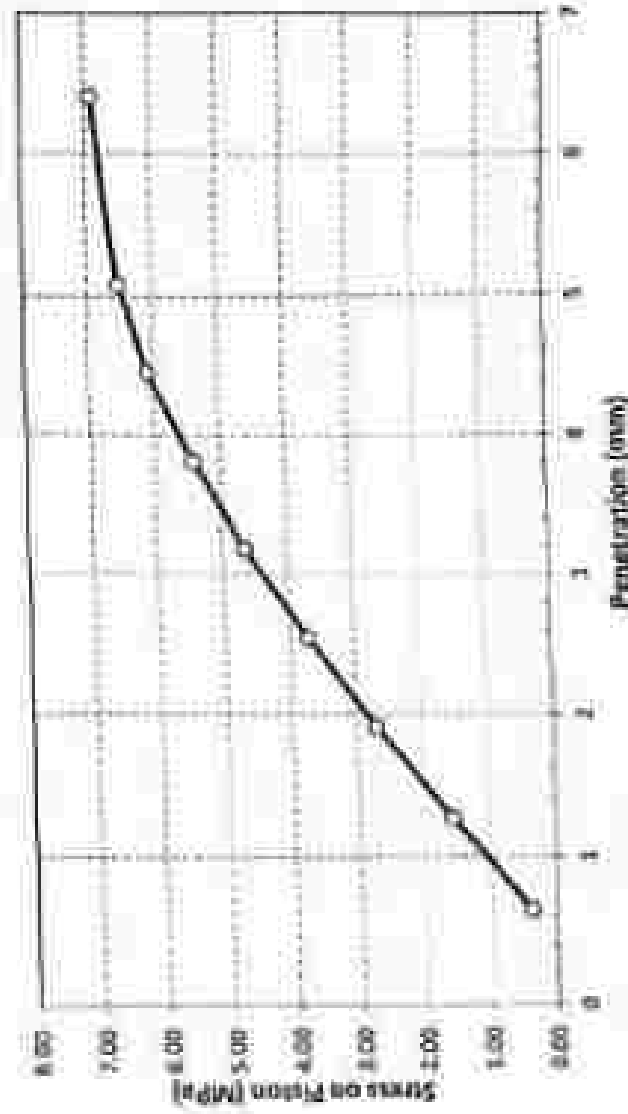
Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



CEL
Consulting Engineering Bureau & Laboratories
Signatures
219 - 091 - 537
رقم تسجيل المهندسين
مكتب استشارات والمختبرات الهندسية

U. Mostafa, MSc. Eng.
2010a, Cairo
Lab No. 2010a, (02/10/2023)

IAS
ACCREDITED
To ISO 9001:2015

م. مصطفى
2010أ، القاهرة
عدد المختبر 2010أ، (02/10/2023)

Scanned with CamScanner

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman,

Attached here with the delivered on 19/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity Index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1853

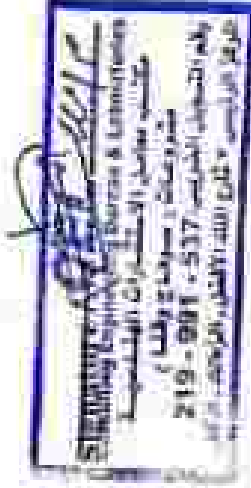
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
210 - 994 - 537
رقم التسجيل المهنى: 145 - 146 - 147 - 148 - 149 - 150 - 151 - 152 - 153 - 154 - 155 - 156 - 157 - 158 - 159 - 160 - 161 - 162 - 163 - 164 - 165 - 166 - 167 - 168 - 169 - 170 - 171 - 172 - 173 - 174 - 175 - 176 - 177 - 178 - 179 - 180 - 181 - 182 - 183 - 184 - 185 - 186 - 187 - 188 - 189 - 190 - 191 - 192 - 193 - 194 - 195 - 196 - 197 - 198 - 199 - 200 - 201 - 202 - 203 - 204 - 205 - 206 - 207 - 208 - 209 - 210 - 211 - 212 - 213 - 214 - 215 - 216 - 217 - 218 - 219 - 220 - 221 - 222 - 223 - 224 - 225 - 226 - 227 - 228 - 229 - 230 - 231 - 232 - 233 - 234 - 235 - 236 - 237 - 238 - 239 - 240 - 241 - 242 - 243 - 244 - 245 - 246 - 247 - 248 - 249 - 250 - 251 - 252 - 253 - 254 - 255 - 256 - 257 - 258 - 259 - 260 - 261 - 262 - 263 - 264 - 265 - 266 - 267 - 268 - 269 - 270 - 271 - 272 - 273 - 274 - 275 - 276 - 277 - 278 - 279 - 280 - 281 - 282 - 283 - 284 - 285 - 286 - 287 - 288 - 289 - 290 - 291 - 292 - 293 - 294 - 295 - 296 - 297 - 298 - 299 - 300 - 301 - 302 - 303 - 304 - 305 - 306 - 307 - 308 - 309 - 310 - 311 - 312 - 313 - 314 - 315 - 316 - 317 - 318 - 319 - 320 - 321 - 322 - 323 - 324 - 325 - 326 - 327 - 328 - 329 - 330 - 331 - 332 - 333 - 334 - 335 - 336 - 337 - 338 - 339 - 340 - 341 - 342 - 343 - 344 - 345 - 346 - 347 - 348 - 349 - 350 - 351 - 352 - 353 - 354 - 355 - 356 - 357 - 358 - 359 - 360 - 361 - 362 - 363 - 364 - 365 - 366 - 367 - 368 - 369 - 370 - 371 - 372 - 373 - 374 - 375 - 376 - 377 - 378 - 379 - 380 - 381 - 382 - 383 - 384 - 385 - 386 - 387 - 388 - 389 - 390 - 391 - 392 - 393 - 394 - 395 - 396 - 397 - 398 - 399 - 400 - 401 - 402 - 403 - 404 - 405 - 406 - 407 - 408 - 409 - 410 - 411 - 412 - 413 - 414 - 415 - 416 - 417 - 418 - 419 - 420 - 421 - 422 - 423 - 424 - 425 - 426 - 427 - 428 - 429 - 430 - 431 - 432 - 433 - 434 - 435 - 436 - 437 - 438 - 439 - 440 - 441 - 442 - 443 - 444 - 445 - 446 - 447 - 448 - 449 - 450 - 451 - 452 - 453 - 454 - 455 - 456 - 457 - 458 - 459 - 460 - 461 - 462 - 463 - 464 - 465 - 466 - 467 - 468 - 469 - 470 - 471 - 472 - 473 - 474 - 475 - 476 - 477 - 478 - 479 - 480 - 481 - 482 - 483 - 484 - 485 - 486 - 487 - 488 - 489 - 490 - 491 - 492 - 493 - 494 - 495 - 496 - 497 - 498 - 499 - 500 - 501 - 502 - 503 - 504 - 505 - 506 - 507 - 508 - 509 - 510 - 511 - 512 - 513 - 514 - 515 - 516 - 517 - 518 - 519 - 520 - 521 - 522 - 523 - 524 - 525 - 526 - 527 - 528 - 529 - 530 - 531 - 532 - 533 - 534 - 535 - 536 - 537 - 538 - 539 - 540 - 541 - 542 - 543 - 544 - 545 - 546 - 547 - 548 - 549 - 550 - 551 - 552 - 553 - 554 - 555 - 556 - 557 - 558 - 559 - 560 - 561 - 562 - 563 - 564 - 565 - 566 - 567 - 568 - 569 - 570 - 571 - 572 - 573 - 574 - 575 - 576 - 577 - 578 - 579 - 580 - 581 - 582 - 583 - 584 - 585 - 586 - 587 - 588 - 589 - 590 - 591 - 592 - 593 - 594 - 595 - 596 - 597 - 598 - 599 - 600 - 601 - 602 - 603 - 604 - 605 - 606 - 607 - 608 - 609 - 610 - 611 - 612 - 613 - 614 - 615 - 616 - 617 - 618 - 619 - 620 - 621 - 622 - 623 - 624 - 625 - 626 - 627 - 628 - 629 - 630 - 631 - 632 - 633 - 634 - 635 - 636 - 637 - 638 - 639 - 640 - 641 - 642 - 643 - 644 - 645 - 646 - 647 - 648 - 649 - 650 - 651 - 652 - 653 - 654 - 655 - 656 - 657 - 658 - 659 - 660 - 661 - 662 - 663 - 664 - 665 - 666 - 667 - 668 - 669 - 670 - 671 - 672 - 673 - 674 - 675 - 676 - 677 - 678 - 679 - 680 - 681 - 682 - 683 - 684 - 685 - 686 - 687 - 688 - 689 - 690 - 691 - 692 - 693 - 694 - 695 - 696 - 697 - 698 - 699 - 700 - 701 - 702 - 703 - 704 - 705 - 706 - 707 - 708 - 709 - 710 - 711 - 712 - 713 - 714 - 715 - 716 - 717 - 718 - 719 - 720 - 721 - 722 - 723 - 724 - 725 - 726 - 727 - 728 - 729 - 730 - 731 - 732 - 733 - 734 - 735 - 736 - 737 - 738 - 739 - 740 - 741 - 742 - 743 - 744 - 745 - 746 - 747 - 748 - 749 - 750 - 751 - 752 - 753 - 754 - 755 - 756 - 757 - 758 - 759 - 760 - 761 - 762 - 763 - 764 - 765 - 766 - 767 - 768 - 769 - 770 - 771 - 772 - 773 - 774 - 775 - 776 - 777 - 778 - 779 - 780 - 781 - 782 - 783 - 784 - 785 - 786 - 787 - 788 - 789 - 790 - 791 - 792 - 793 - 794 - 795 - 796 - 797 - 798 - 799 - 800 - 801 - 802 - 803 - 804 - 805 - 806 - 807 - 808 - 809 - 810 - 811 - 812 - 813 - 814 - 815 - 816 - 817 - 818 - 819 - 820 - 821 - 822 - 823 - 824 - 825 - 826 - 827 - 828 - 829 - 830 - 831 - 832 - 833 - 834 - 835 - 836 - 837 - 838 - 839 - 840 - 841 - 842 - 843 - 844 - 845 - 846 - 847 - 848 - 849 - 850 - 851 - 852 - 853 - 854 - 855 - 856 - 857 - 858 - 859 - 860 - 861 - 862 - 863 - 864 - 865 - 866 - 867 - 868 - 869 - 870 - 871 - 872 - 873 - 874 - 875 - 876 - 877 - 878 - 879 - 880 - 881 - 882 - 883 - 884 - 885 - 886 - 887 - 888 - 889 - 890 - 891 - 892 - 893 - 894 - 895 - 896 - 897 - 898 - 899 - 900 - 901 - 902 - 903 - 904 - 905 - 906 - 907 - 908 - 909 - 910 - 911 - 912 - 913 - 914 - 915 - 916 - 917 - 918 - 919 - 920 - 921 - 922 - 923 - 924 - 925 - 926 - 927 - 928 - 929 - 930 - 931 - 932 - 933 - 934 - 935 - 936 - 937 - 938 - 939 - 940 - 941 - 942 - 943 - 944 - 945 - 946 - 947 - 948 - 949 - 950 - 951 - 952 - 953 - 954 - 955 - 956 - 957 - 958 - 959 - 960 - 961 - 962 - 963 - 964 - 965 - 966 - 967 - 968 - 969 - 970 - 971 - 972 - 973 - 974 - 975 - 976 - 977 - 978 - 979 - 980 - 981 - 982 - 983 - 984 - 985 - 986 - 987 - 988 - 989 - 990 - 991 - 992 - 993 - 994 - 995 - 996 - 997 - 998 - 999 - 1000 - 1001 - 1002 - 1003 - 1004 - 1005 - 1006 - 1007 - 1008 - 1009 - 1010 - 1011 - 1012 - 1013 - 1014 - 1015 - 1016 - 1017 - 1018 - 1019 - 1020 - 1021 - 1022 - 1023 - 1024 - 1025 - 1026 - 1027 - 1028 - 1029 - 1030 - 1031 - 1032 - 1033 - 1034 - 1035 - 1036 - 1037 - 1038 - 1039 - 1040 - 1041 - 1042 - 1043 - 1044 - 1045 - 1046 - 1047 - 1048 - 1049 - 1050 - 1051 - 1052 - 1053 - 1054 - 1055 - 1056 - 1057 - 1058 - 1059 - 1060 - 1061 - 1062 - 1063 - 1064 - 1065 - 1066 - 1067 - 1068 - 1069 - 1070 - 1071 - 1072 - 1073 - 1074 - 1075 - 1076 - 1077 - 1078 - 1079 - 1080 - 1081 - 1082 - 1083 - 1084 - 1085 - 1086 - 1087 - 1088 - 1089 - 1090 - 1091 - 1092 - 1093 - 1094 - 1095 - 1096 - 1097 - 1098 - 1099 - 1100 - 1101 - 1102 - 1103 - 1104 - 1105 - 1106 - 1107 - 1108 - 1109 - 1110 - 1111 - 1112 - 1113 - 1114 - 1115 - 1116 - 1117 - 1118 - 1119 - 1120 - 1121 - 1122 - 1123 - 1124 - 1125 - 1126 - 1127 - 1128 - 1129 - 1130 - 1131 - 1132 - 1133 - 1134 - 1135 - 1136 - 1137 - 1138 - 1139 - 1140 - 1141 - 1142 - 1143 - 1144 - 1145 - 1146 - 1147 - 1148 - 1149 - 1150 - 1151 - 1152 - 1153 - 1154 - 1155 - 1156 - 1157 - 1158 - 1159 - 1160 - 1161 - 1162 - 1163 - 1164 - 1165 - 1166 - 1167 - 1168 - 1169 - 1170 - 1171 - 1172 - 1173 - 1174 - 1175 - 1176 - 1177 - 1178 - 1179 - 1180 - 1181 - 1182 - 1183 - 1184 - 1185 - 1186 - 1187 - 1188 - 1189 - 1190 - 1191 - 1192 - 1193 - 1194 - 1195 - 1196 - 1197 - 1198 - 1199 - 1200 - 1201 - 1202 - 1203 - 1204 - 1205 - 1206 - 1207 - 1208 - 1209 - 1210 - 1211 - 1212 - 1213 - 1214 - 1215 - 1216 - 1217 - 1218 - 1219 - 1220 - 1221 - 1222 - 1223 - 1224 - 1225 - 1226 - 1227 - 1228 - 1229 - 1230 - 1231 - 1232 - 1233 - 1234 - 1235 - 1236 - 1237 - 1238 - 1239 - 1240 - 1241 - 1242 - 1243 - 1244 - 1245 - 1246 - 1247 - 1248 - 1249 - 1250 - 1251 - 1252 - 1253 - 1254 - 1255 - 1256 - 1257 - 1258 - 1259 - 1260 - 1261 - 1262 - 1263 - 1264 - 1265 - 1266 - 1267 - 1268 - 1269 - 1270 - 1271 - 1272 - 1273 - 1274 - 1275 - 1276 - 1277 - 1278 - 1279 - 1280 - 1281 - 1282 - 1283 - 1284 - 1285 - 1286 - 1287 - 1288 - 1289 - 1290 - 1291 - 1292 - 1293 - 1294 - 1295 - 1296 - 1297 - 1298 - 1299 - 1300 - 1301 - 1302 - 1303 - 1304 - 1305 - 1306 - 1307 - 1308 - 1309 - 1310 - 1311 - 1312 - 1313 - 1314 - 1315 - 1316 - 1317 - 1318 - 1319 - 1320 - 1321 - 1322 - 1323 - 1324 - 1325 - 1326 - 1327 - 1328 - 1329 - 1330 - 1331 - 1332 - 1333 - 1334 - 1335 - 1336 - 1337 - 1338 - 1339 - 1340 - 1341 - 1342 - 1343 - 1344 - 1345 - 1346 - 1347 - 1348 - 1349 - 1350 - 1351 - 1352 - 1353 - 1354 - 1355 - 1356 - 1357 - 1358 - 1359 - 1360 - 1361 - 1362 - 1363 - 1364 - 1365 - 1366 - 1367 - 1368 - 1369 - 1370 - 1371 - 1372 - 1373 - 1374 - 1375 - 1376 - 1377 - 1378 - 1379 - 1380 - 1381 - 1382 - 1383 - 1384 - 1385 - 1386 - 1387 - 1388 - 1389 - 1390 - 1391 - 1392 - 1393 - 1394 - 1395 - 1396 - 1397 - 1398 - 1399 - 1400 - 1401 - 1402 - 1403 - 1404 - 1405 - 1406 - 1407 - 1408 - 1409 - 1410 - 1411 - 1412 - 1413 - 1414 - 1415 - 1416 - 1417 - 1418 - 1419 - 1420 - 1421 - 1422 - 1423 - 1424 - 1425 - 1426 - 1427 - 1428 - 1429 - 1430 - 1431 - 1432 - 1433 - 1434 - 1435 - 1436 - 1437 - 1438 - 1439 - 1440 - 1441 - 1442 - 1443 - 1444 - 1445 - 1446 - 1447 - 1448 - 1449 - 1450 - 1451 - 1452 - 1453 - 1454 - 1455 - 1456 - 1457 - 1458 - 1459 - 1460 - 1461 - 1462 - 1463 - 1464 - 1465 - 1466 - 1467 - 1468 - 1469 - 1470 - 1471 - 1472 - 1473 - 1474 - 1475 - 1476 - 1477 - 1478 - 1479 - 1480 - 1481 - 1482 - 1483 - 1484 - 1485 - 1486 - 1487 - 1488 - 1489 - 1490 - 1491 - 1492 - 1493 - 1494 - 1495 - 1496 - 1497 - 1498 - 1499 - 1500 - 1501 - 1502 - 1503 - 1504 - 1505 - 1506 - 1507 - 1508 - 1509 - 1510 - 1511 - 1512 - 1513 - 1514 - 1515 - 1516 - 1517 - 1518 - 1519 - 1520 - 1521 - 1522 - 1523 - 1524 - 1525 - 1526 - 1527 - 1528 - 1529 - 1530 - 1531 - 1532 - 1533 - 1534 - 1535 - 1536 - 1537 - 1538 - 1539 - 1540 - 1541 - 1542 - 1543 - 1544 - 1545 - 1546 - 1547 - 1548 - 1549 - 1550 - 1551 - 1552 - 1553 - 1554 - 1555 - 1556 - 1557 - 1558 - 1559 - 1560 - 1561 - 1562 - 1563 - 1564 - 1565 - 1566 - 1567 - 1568 - 1569 - 1570 - 1571 - 1572 - 1573 - 1574 - 1575 - 1576 - 1577 - 1578 - 1579 - 1580 - 1581 - 1582 - 1583 - 1584 - 1585 - 1586 - 1587 - 1588 - 1589 - 1590 - 1591 - 1592 - 1593 - 1594 - 1595 - 1596 - 1597 - 1598 - 1599 - 1600 - 1601 - 1602 - 1603 - 1604 - 1605 - 1606 - 1607 - 1608 - 1609 - 1610 - 1611 - 1612 - 1613 - 1614 - 1615 - 1616 - 1617 - 1618 - 1619 - 1620 - 1621 - 1622 - 1623 - 1624 - 1625 - 1626 - 1627 - 1628 - 1629 - 1630 - 1631 - 1632 - 1633 - 1634 - 1635 - 1636 - 1637 - 1638 - 1639 - 1640 - 1641 - 1642 - 1643 - 1644 - 1645 - 1646 - 1647 - 1648 - 1649 - 1650 - 1651 - 1652 - 1653 - 1654 - 1655 - 1656 - 1657 - 1658 - 1659 - 1660 - 1661 - 1662 - 1663 - 1664 - 1665 - 1666 - 1667 - 1668 - 1669 - 1670 - 1671 - 1672 - 1673 - 1674 - 1675 - 1676 - 1677 - 1678 - 1679 - 1680 - 1681 - 1682 - 1683 - 1684 - 1685 - 1686 - 1687 - 1688 - 1689 - 1690 - 1691 - 1692 - 1693 - 1694 - 1695 - 1696 - 1697 - 1698 - 1699 - 1700 - 1701 - 1702 - 1703 - 1704 - 1705 - 1706 - 1707 - 1708 - 1709 - 1710 - 1711 - 1712 - 1713 - 1714 - 1715 - 1716 - 1717 - 1718 - 1719 - 1720 - 1721 - 1722 - 1723 - 1724 - 1725 - 1726 - 1727 - 1728 - 1729 - 1730 - 1731 - 1732 - 1733 - 1734 - 1735 - 1736 - 1737 - 1738 - 1739 - 1740 - 1741 - 1742 - 1743 - 1744 - 1745 - 1746 - 1747 - 1748 - 1749 - 1750 - 1751 - 1752 - 1753 - 1754 - 1755 - 1756 - 1757 - 1758 - 1759 - 1760 - 1761 - 1762 - 1763 - 1764 - 1765 - 1766 - 1767 - 1768 - 1769 - 1770 - 1771 - 1772 - 1773 - 1774 - 1775 - 1776 - 1777 - 1778 - 1779 - 1780 - 1781 - 1782 - 1783 - 1784 - 1785 - 1786 - 1787 - 1788 - 1789 - 1790 - 1791 - 1792 - 1793 - 1794 - 1795 - 1796 - 1797 - 1798 - 1799 - 1800 - 1801 - 1802 - 1803 - 1804 - 1805 - 1806 - 1807 - 1808 - 1809 - 1810 - 1811 - 1812 - 1813 - 1814 - 1815 - 1816 - 1817 - 1818 - 1819 - 1820 - 1821 - 1822 - 1823 - 1824 - 1825 - 1826 - 1827 - 1828 - 1829 - 1830 - 1831 - 1832 - 1833 - 1834 - 1835 - 1836 - 1837 - 1838 - 1839 - 1840 - 1841 - 1842 - 1843 - 1844 - 1845 - 1846 - 1847 - 1848 - 1849 - 1850 - 1851 - 1852 - 1853 - 1854 - 1855 - 1856 - 1857 - 1858 - 1859 - 1860 - 1861 - 1862 - 1863 - 1864 - 1865 - 1866 - 1867 - 1868 - 1869 - 1870 - 1871 - 1872 - 1873 - 1874 - 1875 - 1876 - 1877 - 1878 - 1879 - 1880 - 1881 - 1882 - 1883 - 1884 - 1885 - 1886 - 1887 - 1888 - 1889 - 1890 - 1891 - 1892 - 1893 - 1894 - 1895 - 1896 - 1897 - 1898 - 1899 - 1900 - 1901 - 1902 - 1903 - 1904 - 1905 - 1906 - 1907 - 1908 - 1909 - 1910 - 1911 - 1912 - 1913 - 1914 - 1915 - 1916 - 1917 - 1918 - 1919 - 1920 - 1921 - 1922 - 1923 - 1924 - 1925 - 1926 - 1927 - 1928 - 1929 - 1930 - 1931 - 1932 - 1933 - 1934 - 1935 - 1936 - 1937 - 1938 - 1939 - 1940 - 1941 - 1942 - 1943 - 1944 - 1945 - 1946 - 1947 - 1948 - 1949 - 1950 - 1951 - 1952 - 1953 - 1954 - 1955 - 1956 - 1957 - 1958 - 1959 - 1960 - 1961 - 1962 - 1963 - 1964 - 1965 - 1966 - 1967 - 1968 - 1969 - 1970 - 1971 - 1972 - 1973 - 1974 - 1975 - 1976 - 1977 - 1978 - 1979 - 1980 - 1981 - 1982 - 1983 - 1984 - 1985 - 1986 - 1987 - 1988 - 1989 - 1990 - 1991 - 1992 - 1993 - 1994 - 1995 - 1996 - 1997 - 1998 - 1999 - 2000 - 2001 - 2002 - 2003 - 2004 - 2005 - 2006 - 2007 - 2008 - 2009 - 2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023 - 2024 - 2025 - 2026 - 2027 - 2028 - 2029 - 2030 - 2031 - 2032 - 2033 - 2034 - 2035 - 2036 - 2037 - 2038 - 2039 - 2040 - 2041 - 2042 - 2043 - 2044 - 2045 - 2046 - 2047 - 2048 - 2049 - 2050 - 2051 - 2052 - 2053 - 2054 - 2055 - 2056 - 2057 - 2058 - 2059 - 2060 - 2061 - 2062 - 2063 - 2064 - 2065 - 2066 - 2067 - 2068 - 2069 - 2070 - 2071 - 2072 - 2073 - 2074 - 2075 - 2076 - 2077 - 2078 - 2079 - 2080 - 2081 - 2082 - 2083 - 2084 - 2085 - 2086 - 2087 - 2088 - 2089 - 2090 - 2091 - 2092 - 2093 - 2094 - 2095 - 2096 - 2097 - 2098 - 2099 - 2100 - 2101 - 2102 - 2103 - 2104 - 2105 - 2106 - 2107 - 2108 - 2109 - 2110 - 2111 - 2112 - 2113 - 2114 - 2115 - 2116 - 2117 - 2118 - 2119 - 2120 - 2121 - 2122 - 2123 - 2124 - 2125 - 2126 - 2127 - 2128 - 2129 - 2130 - 2131 - 2132 - 2133 - 2134 - 2135 - 2136 - 2137 - 2138 - 2139 - 2140 - 2141 - 2142 - 2143 - 2144 - 2145 - 2146 - 2147 - 2148 - 2149 - 2150 - 2151 - 2152 - 2153 - 2154 - 2155 - 2156 - 2157 - 2158 - 2159 - 2160 - 2161 - 2162 - 2163 - 2164 - 2165 - 2166 - 2167 - 2168 - 2169 - 2170 - 2171 - 2172 - 2173 - 2174 - 2175 - 2176 - 2177 - 2178 - 2179 - 2180 - 2181 - 2182 - 2183 - 2184 - 2185 - 2186 - 2187 - 2188 - 2189 - 2190 - 2191 - 2192 - 2193 - 2194 - 2195 - 2196 - 2197 - 2198 - 2199 - 2200 - 2201 - 2202 - 2203 - 2204 - 2205 - 2206 - 2207 - 2208 - 2209 - 2210 - 2211 - 2212 - 2213 - 2214 - 2215 - 2216 - 2217 - 2218 - 2219 - 2220 - 2221 - 2222 - 2223 - 2224 - 2225 - 2226 - 2227 - 2228 -

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
15	1	90.2
19	3/8	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1

CEL
Consulting Engineering Bureau & Laboratories
Signature: *[Signature]*
شركة الأهلي
210 - 094 - 537
رقم الترخيص الهندسي 2763/001
القرار رقم 2763/001 - 2763/001

31 Mark E-Mat Shair
Zaidan, Gass
Cell No. 2763/001 - 2763/001

IAS
ACCREDITED
International Association of
Societies of Testing Engineers

31 Mark E-Mat Shair
Zaidan, Gass
Cell No. 2763/001 - 2763/001



Project	: Electric Express Train – HSR From Qoms To Arman
Location	: ST:641+400 E= 492410.088 N=2862759.57
Type of sample	: Soil Embankment (Upper Embankment 0.0 M)
Delivery Date	: 19/09/2023
Reporting Date	: 23/09/2023
Reporting No.	: 10-5

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

1000

Company Name	شرية الفضي
Project	: Electric Express Train – HSR From Qous To Armanit
Location	: ST:641+400 E=492410,088 N=2862759,57
Type of sample	: Soil Embankment (Upper Embankment 0.0 M)
Delivery Date	: 19/09/2023
Reporting Date	: 23/09/2023
Reporting No.	: 10-5

301 Classification

TEST	Results (%)	Limits according Projects Specs			
		(A-1-a)	(A-1-g)	(A-1-b)	(A-2-d)
Group Classification					
2.00 mm (No. 10)	41.5	Max 50 %	—	—	—
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	—	—
0.075 mm (No. 200)	.91	Max 15 %	Max 15 %	Max 15 %	Max 15 %
Liquid Limit					
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %	

The test results are (☐ Comply - ☐ Not Comply) with specifications limits



University of Illinois at Chicago
Chicago, Illinois 60607-7143
USA



www.elsevier.com/locate/jmb

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الطهي

Project : Electric Express Train - HSR From Qous To Arment

Location : ST:641+400 E= 492410,088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0,0 M)

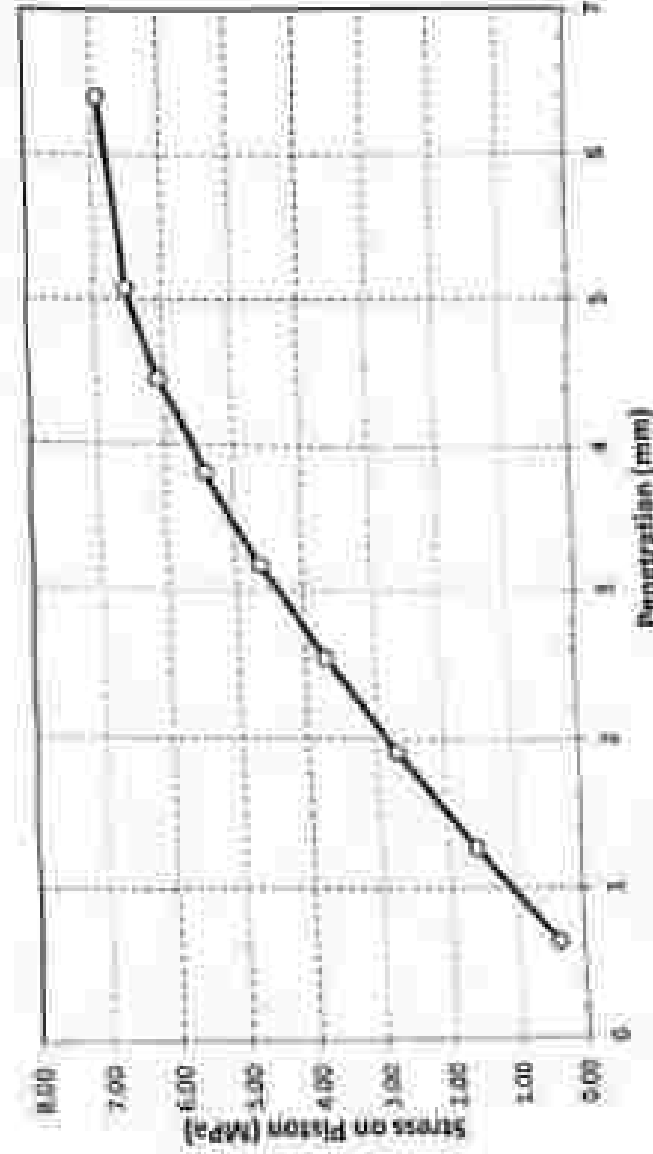
Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature **CEL**
مكتبة محامل الاستشارات الهندسية
شارع صلاح / حي جوارح واديا
2119 - 0591 - 037
رقم التسجيل المرفوض 24600
المركز الرئيسي في شارع الملك فيصل - الرياض - 11564

(Printed) E. Alkhatib
Checked: (Date)

IAS

إبراهيم الخياط
23/09/2023
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanit
Testing Date : 25/09/2023
Soil type : Upper Embankment
Location : St + From 641+200 To 641+300
Level : ± 1.25 M
Report No. : 71

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+230	1768.9	2.23	6	2.11	96.2%	Comply
2	641+260	1716.7	2.23	6.4	2.11	96.4%	Comply
3	641+290	1770.8	2.23	6.4	2.09	95.6%	Comply

Degree of compaction based on proctor test dated At:

Max. dry density = 2.15 gm/cm³

At optimum moisture content = 6.4 %

Signature /

[Handwritten Signature]

El Mostafa El Agha Elsay
Geotech. Eng.
Tel: 011 2656231 - 2656000



الاستشارات
الهندسية
مكتب دراسات
والاستشارات الهندسية

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qom To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (DN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature: 
The Representative of the Client
Date: 12/09/2023
Name: Mr. (Name of the Representative)

VE: Mr. E. Al-Jabbar
For: Mr. (Name of the Representative)
Cell: 011-2555555 (011-2555555)

IAS
ACCREDITED

011-2555555 (011-2555555)
011-2555555 (011-2555555)
011-2555555 (011-2555555)

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبارات

Company Name : شركة الأهلي
Project : Electric Express Train - HSM From Ques To Armat
Testing Date : 09 / 11 / 2023
Soil type : Middle Embankment
Location : St From 638+850 To 639+000
Level : -4 M
Report No. : 101

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptanc e
1	638+900	1532.6	2.25	5.8	2.13	95.4%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.23 gm/cm³

At optimum moisture content = 6.4 %

Signature / 



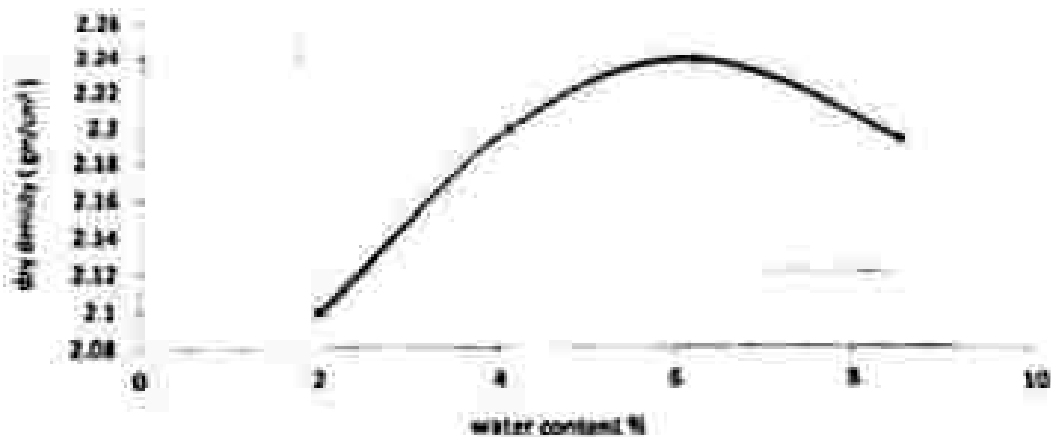
10, Male F-140, Street
Zaraka, Car
Tel/Fax 210022 210100



مكتب استشارات الهندسة والاختبارات
الرياض - شارع الملك فهد
تلفون / فاكس 210022 210100

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qom To Arman
Location : ST: 639+000 E=32°54'25.6" N=29°53'59.1"
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 08-11

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.23
- Optimum moisture content % : 6.4 %

Signature / 



3 El Mada E Alda Stour
Zamalek, Cairo
Tel & Fax: 27367231 - 27367463



الهيئة العامة للغرفة التجارية بالقاهرة
رقم الترخيص: 219/921-437
الهيئة العامة للغرفة التجارية بالقاهرة

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبارات

Company Name : شركة قاضي
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 09 / 11 / 2023
Soil type : Middle Embankment
Location : St From 638+800 To 639+000
Level : +4 M
Report No. : 101

Compaction test by using Sand - Cone Test Method
ASTM D- 1555

Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Ac
638+900	1532.6	2.25	5.8	2.13	95.4%	1

Degree of compaction based on proctor test dated At

Max. dry density = 2.23 gm/cm³

At optimum moisture content = 6.4 %

Signature /م. إ. قاضي



El Mah El Al Soud
General Corp
NA Fax 202652 202050



م. إ. قاضي
م. إ. قاضي
م. إ. قاضي

Company Name : شركة القاهر
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 639+000 E=31°54'25.6" N=25°53'59.1"
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 08-11

Dear Gentleman,

Attached here with the delivered on 18 / 10 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

note The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

nature / *طبيعة*



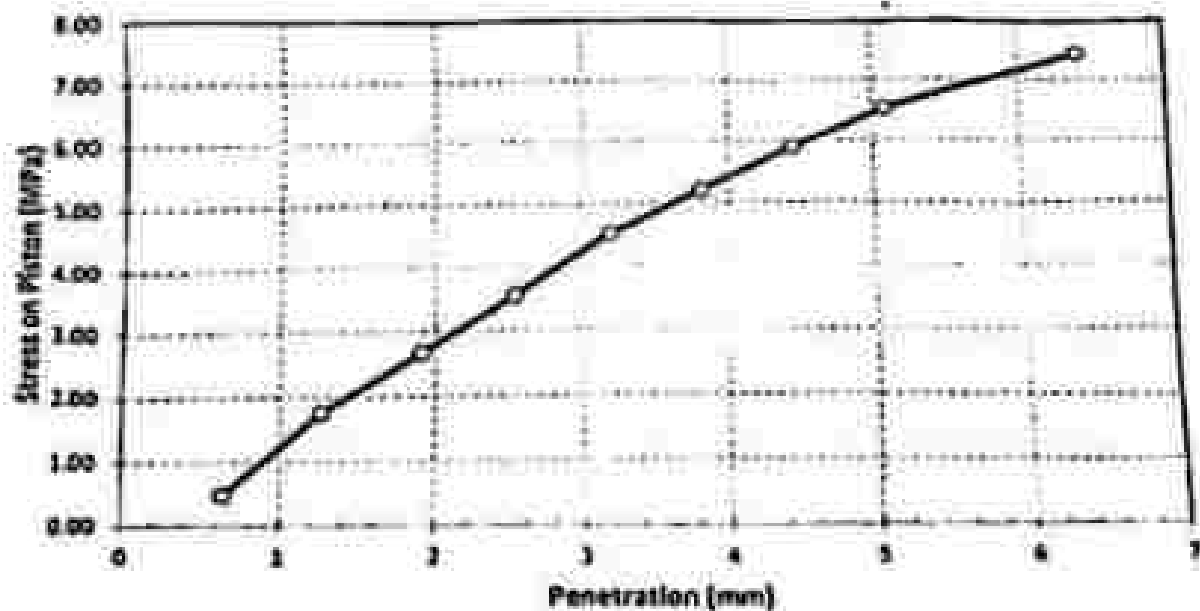
Dr. Maher El Attal Sherar
Hydra, Cairo
M.Fax: 27207621 - 27207621



مكتب استشارات الهندسة والاختبارات
بغداد - العراق
الهاتف: 27207621 - 27207621

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanet
Location : ST: 639+000 E=32°54'25.6" N=25°53'59.1"
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 08-11

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / (أحمد) / أحمد

3 D-Malek El-Ahmed Street
Zakaria, Cairo
Tel/Fax: 27362431 - 27362430



مكتب محاسن الاستشارات والمختبرات
قوس - القاهرة
مكتب محاسن الاستشارات والمختبرات

CELConsulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الأهلي
 Project : Electric Express Train - HSR From Qous To Arment
 Location : ST: 639+000 E=32°54'25.6" N=25°53'59.1"
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 18/10/2023
 Reporting Date : 22/10/2023
 Reporting No. : 08-11

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.5
37.5	1.5	94.3
25	1	89.4
19	¾	84.8
12.50	½	70.9
9.50	3/8	66.7
4.75	4	48.0
2.00	10	42.1
0.425	40	27.5

Signature /



3 El Matak El Ahsa Green
 Giza, Cairo
 Tel/Fax: 21300373 - 21300363



رقم الترخيص 437
 رقم م.م.م. 213
 3 شارع النيل، القاهرة

Scanned with CamS

Scanned with CamScanner

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاعمال المخبرية

Company Name : شركة قاضي
Project : Electric Express Train - JISR From Ques To Arment
Testing Date : 12 / 11 / 2023
Soil type : Middle Embankment
Location : M From K38+720 To K38+850
Level : -4 M
Report No. : 102

Compaction test by using Sand - Cone Test Method
ASTM D- 1559

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	638+760	1488.9	2.32	5.8	2.20	98.5%	Comply
2	638+810	1556.9	2.29	5.8	2.16	97.1%	Comply
3	638+860	1581.9	2.26	5.8	2.14	95.8%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density = 2.23 gm/cm³

At optimum moisture content = 6.4 %

Signature



15, Main Street,
Zurich, Can.
Tel/Fax: 206722 206723

IAS
ACCREDITED
ISO 9001:2015

15, Main Street,
Zurich, Can.
Tel/Fax: 206722 206723

Company Name : شركة قاضي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 639+000 E=32°54'25.6" N=25°53'59.1"
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 08-11

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.9

Signature / **ع نسامة**



El Malek El Aloul Street
Heliopolis, Cairo
Tel & Fax : 2736723 - 2736363



المهندس
محمود

2023/10/22 10:16:19

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qont To Armanat
Location : ST: 639+000 E=31°54'25.6" N=25°53'59.1"
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 08-11

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10).	42.1	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	10.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /



3 B NAB E ALI St
Zamalek, Cairo
Tel& Fax : 2734521 - 2734560



إلى السيد المهندس
م. م. م. م.
م. م. م. م.

Company Name : شركة الأهلي
 Project : Electric Express Train - HSR From Qous To Armant
 Location : ST: 639+000 E=32°54'25.6" N=25°53'59.1"
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 18/10/2023
 Reporting Date : 22/10/2023
 Reporting No. : 08-11

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /... 



3 El Mahal El Aghal Street
 Zouhri, Cairo
 Tel & Fax : 21076237 - 2106360



تيل
 21076237 - 2106360

Company Name : شركة قاضي
Project : Electric Express Train - HSR From Ques To Arment
Testing Date : 12 / 11 / 2023
Soil type : Middle Embankment
Location : St From 638+000 To 638+100
Level : -4 M
Report No. : 103

**Compaction test by using Sand - Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gmv cm ³	Moisture Content %	Dry Density (gmv cm ³)	Degree of Compaction (%)	Accept
1	638+025	1495.8	2.32	5.8	2.19	98.2%	Com
2	638+050	1536.1	2.29	5.8	2.16	96.9%	Com
3	638+085	1612.5	2.25	5.8	2.12	95.2%	Com

Degree of compaction based on proctor test dated At

Max. dry density = 2.23 gmvcm³

At optimum moisture content = 6.4 %

Signature /


CEL
مكتب استشارات والهندسة
210 VET 437
210 VET 437

SE Mark E-ALC
Zarqa, Carr
TAR Fax 2706737 2706730

IAS
ACCREDITED

مكتب استشارات
والهندسة
مكتب استشارات
والهندسة

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبار

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qina To Aswan
Testing Date : 30 /10/2023
Soil type : Middle Embankment
Location : St. From 639+020 To 639+120
Level : - 5 M
Report No. : 97.2

**Compaction test by using Sand - Cone Test Method
ASTM D-1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	639+050	1531.9	2.30	5.8	2.17	98.3%	Comply
2	639+080	1520.1	2.28	5.8	2.15	97.4%	Comply
3	639+110	1381.3	2.25	5	2.15	97.1%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.21 gm/cm³

At optimum moisture content = 5.4 %

Signature /



Tel: 011 2284721
Fax: 011 2284721
E-mail: info@cel-eg.com



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3 El Mark E-Med Street
Cairo City
11564 Egypt





مركز الدراسات والبحوث
الهندسية
مكتب محامى الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	————	————
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	————
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	————	————	————	————
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 


10/09/2023
12/09/2023
10/09/2023

IAS
ACCREDITED
by IAS

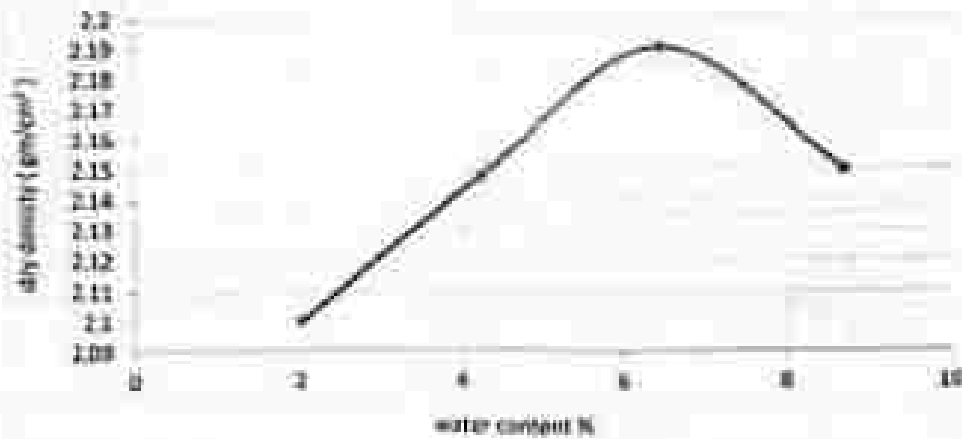
م.م. محمد العبد
م.م. محمد العبد
م.م. محمد العبد

CEL


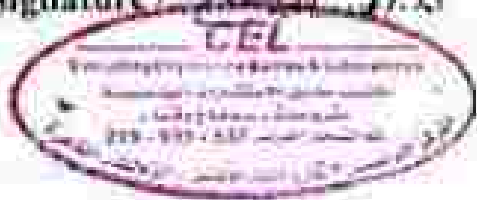
Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature: 

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية
الرياض - 115
الهاتف: 3397522 - 3397521
الفاكس: 3397522 - 3397521

S. E. Alkhatib & Alkhatib
Zaria, Giza
Tel/Fax: 3397522 - 3397521

IAS
ACCREDITED

م. المهندس
الرياض - 115
الهاتف: 3397522 - 3397521
الفاكس: 3397522 - 3397521

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

[Signature]
S. P. EL-SAYED
Director / Engineer
Tel: (011) 27600000 - 27600001



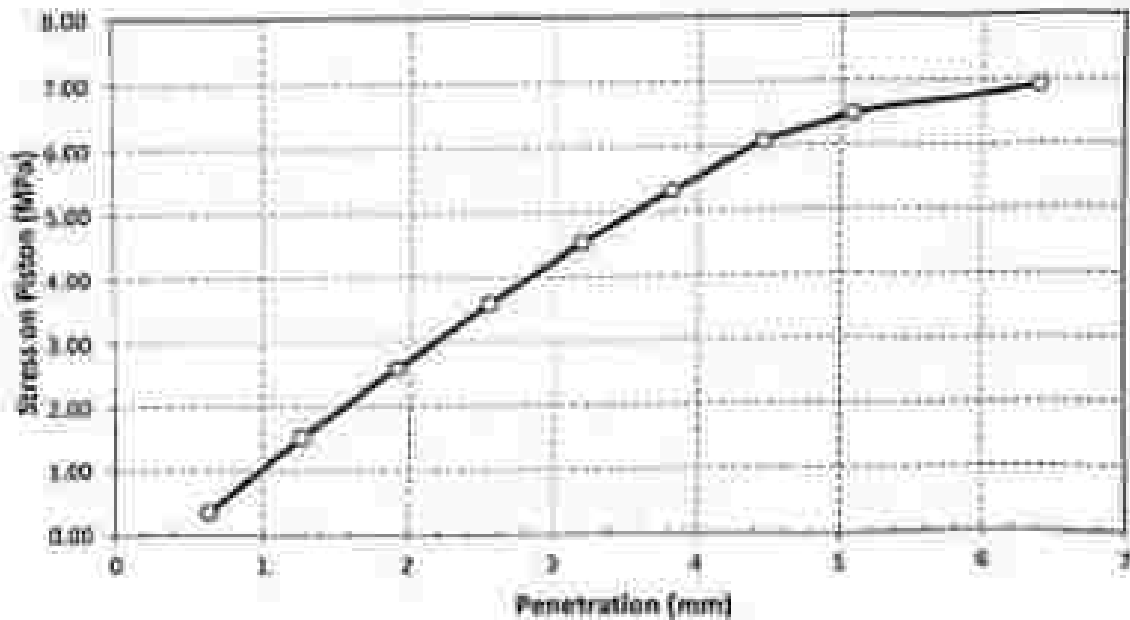
في المختبر
في الموقع
مكتب
مكتب

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 19-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
القاهرة - مصر
2019 - 2023
2019 - 2023

15/ Mark E. Alaa Omer
Zurab Gali
15/11/2023 22:45:48

IAS
ACCREDITED

15/11/2023 22:45:48
15/11/2023 22:45:48

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 25/09/2023
Soil type : Middle Embankment
Location : St + From 641+540 TO 641+760
Level : - 2.5 M
Report No. : 70

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+620	1490	2.23	5.5	2.1	96.6%	Comply
2	641+670	1335	2.30	5.8	2.2	99.1%	Comply
3	641+699	1610	2.21	6.4	2.1	95.1%	Comply
4	641+705	1413	2.29	5.8	2.2	98.9%	Comply
5	641+730	1535	2.25	6	2.1	97.0%	Comply
6	641+750	1490	2.28	6.4	2.1	97.8%	Comply
7	641+765	1525	2.27	6	2.1	97.6%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.19 gm/cm³

At optimum moisture content = 6.4 %

Signature



E. Elie El-Agnaf
Engineer
Tel/Fax: 204023- 273580

IAS
ACCREDITED
Testing Laboratory

م.م. المهندس
إبراهيم العنبر
م.م. المهندس
1078/12/2023/111

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 8 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / (ع.ع.ال.ل) ع



1 E-Mark E. Alal Ghazal
Zarqa, Amman
Tel/Fax: 219927 - 219928


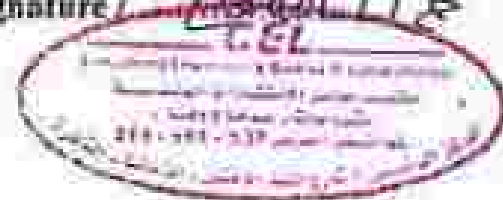


مركز اختبار
الزرقاء - عمان
الهاتف - الفاكس : 219927 - 219928

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature : 


111 Nahr El Jebel Street
Zakaria, Cairo
S.A.Fax 206623 2750393



أتمنى لكم النجاح
إبراهيم الشاذلي
مدير المختبر

CEL

Consulting Engineering Bureau & Laboratories

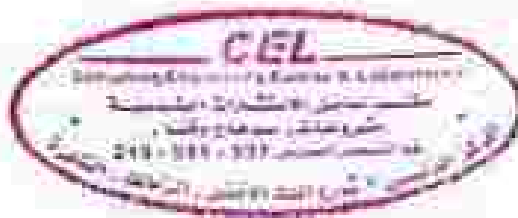
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	9.9

Signature / 



3E Main E-Post Street
Zakaria, Cairo
S.A. Fax: 2736253 2553005





د. محمد عبد الحليم
المهندس - المهندس
المهندس (مهندس) / المهندس

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
The stamp is an oval shape with a purple border. Inside, it contains the text 'CEL' in large letters, followed by 'Consulting Engineering Bureau & Laboratories' in English and Arabic. Below that, it says 'Accredited by IAS' and 'ISO 9001:2015'.

Dr. Samir E. Al-Hadithi
General Manager
Tel: 011 200 2000



Dr. Samir E. Al-Hadithi
General Manager
Tel: 011 200 2000

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qous To Armanat

Location : ST:641+400 E= 492410,088. N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	$\frac{3}{4}$	84.4
12.50	$\frac{1}{2}$	77.7
9.50	$\frac{3}{8}$	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature 

Signature

1E-1000 E-1000
2E-1000 E-1000
3E-1000 E-1000

IAS
ACCREDITED

1E-1000 E-1000
2E-1000 E-1000
3E-1000 E-1000

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D.1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.9

Signature / 
Date: 12/09/2023

Mr. Mohamed E. Abdel Wahed
Zorob, Geni
Tel: 011-2770573 - 011-2770574

IAS
ACCREDITED

Mr. Mohamed E. Abdel Wahed
Zorob, Geni
Tel: 011-2770573 - 011-2770574

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة النخعي

Project : Electric Express Train – HSR From Qous To Arman

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 

Signature

10/ Moud E. Alan Staff
Cairo, Egypt
0111 5555 1111

IAS
ACCREDITED
CONFORMANCE

2019 ISO 9001:2015
2019 ISO 14001:2015
2019 ISO 45001:2018

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanit
Location : ST:641+400 E= 491410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10)	45.9	Max 20 %	-----	-----
0.425 mm (No. 40)	27.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are ☒ Comply - ☐ Not Comply) with specifications limits

Signature /

A/Ennah E-Atat Fillel
Armeny Garm
Tel: 011 2552517 - 2753003

IAS
ACCREDITED
إستشارات الهندسية

مركز اختبار المعايير
البيانات الفنية
الرقم: 011 2552517 - 2753003

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Armanat

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 08/09/2023

Reporting Date

: 12/09/2023

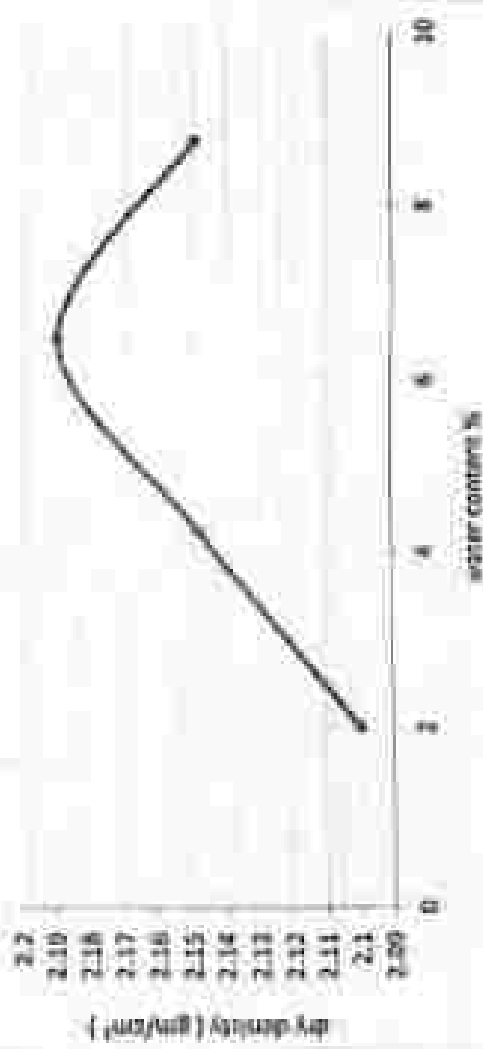
Reporting No.

: 10-4

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature /

[Handwritten Signature]
2023/09/12 14:00
2023/09/12 14:00

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanit

Location : ST:641+400 E= 492410.098 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration	stress on piston (Mpa)	
	mm	Inch
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CHB Result	Stress (Mpa)		CHB 100 %
At 0.1 inch (2.54 mm) penetration	So. Value	Sample results	51 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At = 6.4 % minimum water content.
- 3- Superimpose load 4500 Kg

CHB > 10 for middle and lower embankments according project spec page No 36.

Signature /

El Mostafa El Mostafa
Arabic, Chem.
Lab No. (2000000) - 2000000



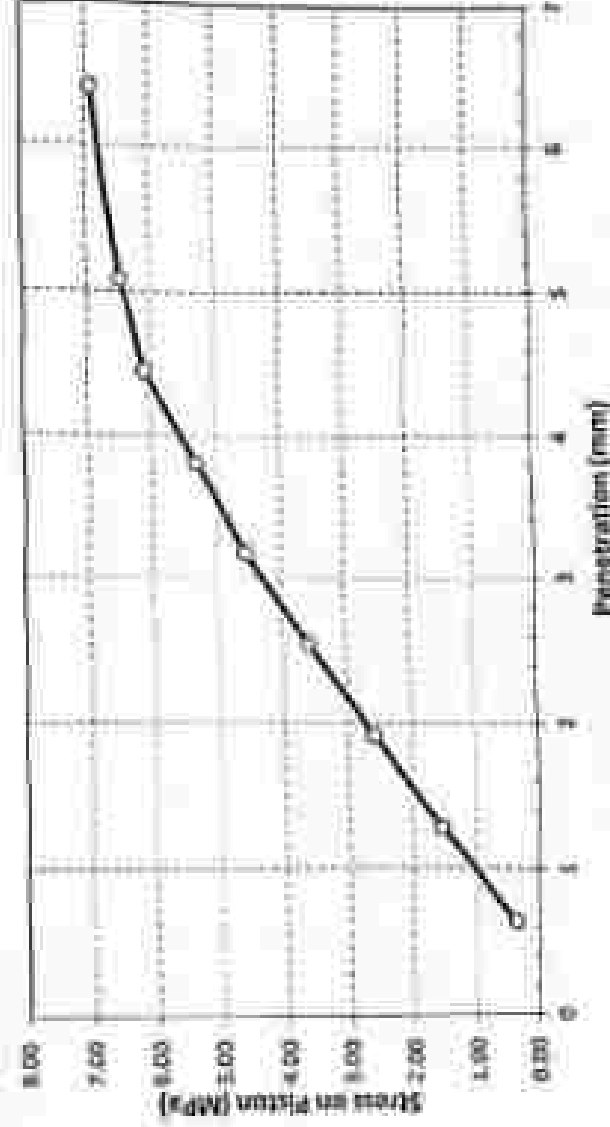
إبراهيم مصطفى
أحمد مصطفى
مركز التحليلات الكيميائية

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature : 

AS-1000 (E-2000) 1000
Penetration (mm)
1000 (E-2000) 1000

IAS

1000 (E-2000) 1000
Penetration (mm)
1000 (E-2000) 1000

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Armut

Testing Date : 27/09/2023

Soil type : Middle Embankment

Location : St + From 641+300 To 641+420

Level : ± 1.5 M

Report No. : 73

Compaction test by using Sand - Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	1752.1	2.26	5.8	2.14	97.5%	Comply
2	641+340	1529.2	2.26	5.8	2.14	97.1%	Comply
3	641+360	1545.8	2.24	5.6	2.12	96.2%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.2%	Comply
5	641+400	1473.6	2.27	6	2.14	97.3%	Comply

Degree of compaction based on Proctor test dated At

:Max. dry density = 2.20 gm/cm³

At optimum moisture content = 6.8 %

Signature 

El-Hadi E. El-Hadi
Senior Civil
Tel: 011 2766231 - 2766660



مهندس
رئيس
مكتب
الهندسة

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman ,

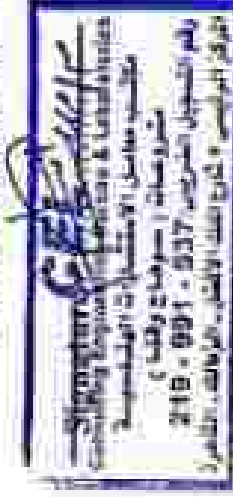
Attached here with the delivered on 19 / 9 / 2023

This sample is representative for 5.000 MP

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



Youssef E. Hattou
Youssef E. Hattou
23/09/2023 10:10:00



Youssef E. Hattou
23/09/2023 10:10:00

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهبي

Project

: Electric Express Train – HSR From Qous To Armut

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 19/09/2023

Reporting Date

: 23/09/2023

Reporting No.

: 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	3/4	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



10/1000 E. El-Hay El-Dokki
Cairo City
Egypt 11561 (11/5/2023)

IAS
ACCREDITED

مركز جودة
إدارة
مختبر

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

CEL
Signature of the Engineer
مهندس الاستشارات الهندسية
شركة الأهلي
219 - 004 - 537
بوم الشهاب، القاهرة، الجيزة، مصر

CE Mark E-4967867
Zachin, Gao
Lab No. 2306211250608

IAS
ACCREDITED
Testing Laboratory

إبراهيم محمد
إبراهيم محمد
إبراهيم محمد

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	41.5	Max 50 %	—	—
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	91	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☒ Not Comply) with specifications limits

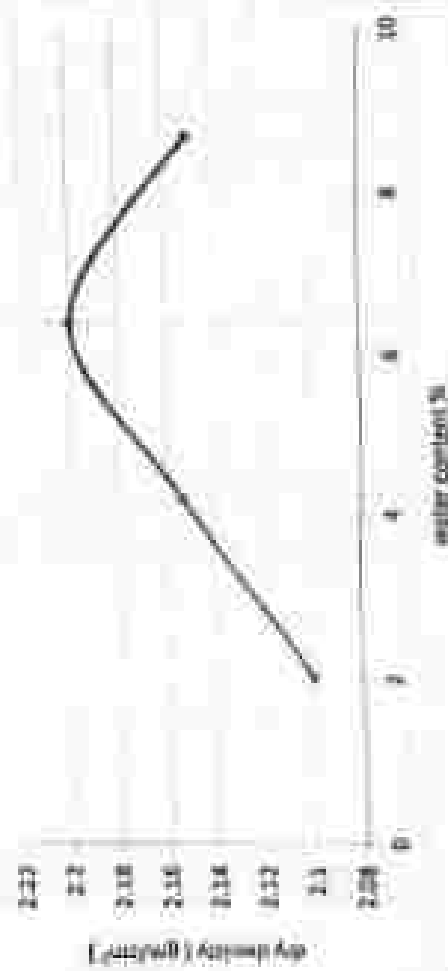
Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شارع النيل (سويديج ولسية)
219 - 991 - 537
رقم الترخيص الهندسي 219 - 991 - 537
الطابق الأرضي - شارع النيل - القاهرة - الجيزة - مصر

CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST-641+400 E= 492410.088 N=2962759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (g/cm³) : 2.26
- Optimum moisture content % : 6.4 %

Signature **CEL**
مكتب دراسات الهندسية
شركة الأهلي
210 - 994 - 537
رقم التسجيل: 537 - 210 - 994
مركز التسجيل: 537 - 210 - 994

10/10/2023
2023/09/23
10/10/2023

IAS
REGISTERED

10/10/2023
2023/09/23
10/10/2023

شركة الأهلي : **Company Name**

Project : Electric Express Train – IISR From Oons To Armmat

Location : ST:641+400 E=492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date: 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Test Results of California Bearing Ratio on Base Materials
ASTM D 1553

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
	St. Value 6.90	Sample results 3.73	
At 0.1 inch (2.54 mm) penetration			54 %

2

1. Attached graph shows penetration resistance versus penetrometer magnitude.
2. The sample was compacted to dry density of $= 2.25 \text{ (gm./cm}^3\text{)}$
 $A_1 = 0.4\%$ sodium water content.

Q. 2. Explain the following:

4. $\mathcal{C} \geq 10$ for $m_{\text{eff}} = 2.5$ at $\mu_{\text{eff}} = 100$ GeV.

Copyright © 2004 by John Wiley & Sons, Inc.

15

2000

2000

1000

2000

LIAS
INCORPORATED

1990-1991
1991-1992
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
2023-2024
2024-2025
2025-2026
2026-2027
2027-2028
2028-2029
2029-2030
2030-2031
2031-2032
2032-2033
2033-2034
2034-2035
2035-2036
2036-2037
2037-2038
2038-2039
2039-2040
2040-2041
2041-2042
2042-2043
2043-2044
2044-2045
2045-2046
2046-2047
2047-2048
2048-2049
2049-2050
2050-2051
2051-2052
2052-2053
2053-2054
2054-2055
2055-2056
2056-2057
2057-2058
2058-2059
2059-2060
2060-2061
2061-2062
2062-2063
2063-2064
2064-2065
2065-2066
2066-2067
2067-2068
2068-2069
2069-2070
2070-2071
2071-2072
2072-2073
2073-2074
2074-2075
2075-2076
2076-2077
2077-2078
2078-2079
2079-2080
2080-2081
2081-2082
2082-2083
2083-2084
2084-2085
2085-2086
2086-2087
2087-2088
2088-2089
2089-2090
2090-2091
2091-2092
2092-2093
2093-2094
2094-2095
2095-2096
2096-2097
2097-2098
2098-2099
2099-2100
2100-2101
2101-2102
2102-2103
2103-2104
2104-2105
2105-2106
2106-2107
2107-2108
2108-2109
2109-2110
2110-2111
2111-2112
2112-2113
2113-2114
2114-2115
2115-2116
2116-2117
2117-2118
2118-2119
2119-2120
2120-2121
2121-2122
2122-2123
2123-2124
2124-2125
2125-2126
2126-2127
2127-2128
2128-2129
2129-2130
2130-2131
2131-2132
2132-2133
2133-2134
2134-2135
2135-2136
2136-2137
2137-2138
2138-2139
2139-2140
2140-2141
2141-2142
2142-2143
2143-2144
2144-2145
2145-2146
2146-2147
2147-2148
2148-2149
2149-2150
2150-2151
2151-2152
2152-2153
2153-2154
2154-2155
2155-2156
2156-2157
2157-2158
2158-2159
2159-2160
2160-2161
2161-2162
2162-2163
2163-2164
2164-2165
2165-2166
2166-2167
2167-2168
2168-2169
2169-2170
2170-2171
2171-2172
2172-2173
2173-2174
2174-2175
2175-2176
2176-2177
2177-2178
2178-2179
2179-2180
2180-2181
2181-2182
2182-2183
2183-2184
2184-2185
2185-2186
2186-2187
2187-2188
2188-2189
2189-2190
2190-2191
2191-2192
2192-2193
2193-2194
2194-2195
2195-2196
2196-2197
2197-2198
2198-2199
2199-2200
2200-2201
2201-2202
2202-2203
2203-2204
2204-2205
2205-2206
2206-2207
2207-2208
2208-2209
2209-2210
2210-2211
2211-2212
2212-2213
2213-2214
2214-2215
2215-2216
2216-2217
2217-2218
2218-2219
2219-2220
2220-2221
2221-2222
2222-2223
2223-2224
2224-2225
2225-2226
2226-2227
2227-2228
2228-2229
2229-2230
2230-2231
2231-2232
2232-2233
2233-2234
2234-2235
2235-2236
2236-2237
2237-2238
2238-2239
2239-2240
2240-2241
2241-2242
2242-2243
2243-2244
2244-2245
2245-2246
2246-2247
2247-2248
2248-2249
2249-2250
2250-2251
2251-2252
2252-2253
2253-2254
2254-2255
2255-2256
2256-2257
2257-2258
2258-2259
2259-2260
2260-2261
2261-2262
2262-2263
2263-2264
2264-2265
2265-2266
2266-2267
2267-2268
2268-2269
2269-2270
2270-2271
2271-2272
2272-2273
2273-2274
2274-2275
2275-2276
2276-2277
2277-2278
2278-2279
2279-2280
2280-2281
2281-2282
2282-2283
2283-2284
2284-2285
2285-2286
2286-2287
2287-2288
2288-2289
2289-2290
2290-2291
2291-2292
2292-2293
2293-2294
2294-2295
2295-2296
2296-2297
2297-2298
2298-2299
2299-2300
2300-2301
2301-2302
2302-2303
2303-2304
2304-2305
2305-2306
2306-2307
2307-2308
2308-2309
2309-2310
2310-2311
2311-2312
2312-2313
2313-2314
2314-2315
2315-2316
2316-2317
2317-2318
2318-2319
2319-2320
2320-2321
2321-2322
2322-2323
2323-2324
2324-2325
2325-2326
2326-2327
2327-2328
2328-2329
2329-2330
2330-2331
2331-2332
2332-2333
2333-2334
2334-2335
2335-2336
2336-2337
2337-2338
2338-2339
2339-2340
2340-2341
2341-2342
2342-2343
2343-2344
2344-2345
2345-2346
2346-2347
2347-2348
2348-2349
2349-2350
2350-2351
2351-2352
2352-2353
2353-2354
2354-2355
2355-2356
2356-2357
2357-2358
2358-2359
2359-2360
2360-2361
2361-2362
23

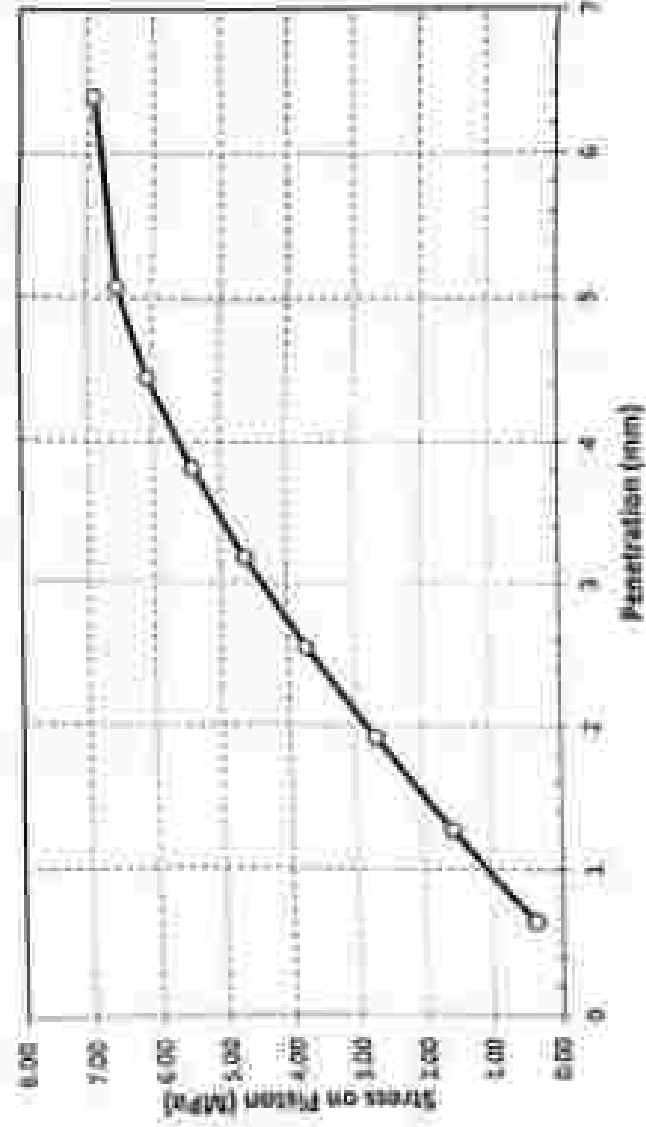
CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature: 
Dr. Hany E. Attia
219 - 091 - 537
219 - 091 - 537
219 - 091 - 537

Dr. Hany E. Attia
General Manager
Tel: 2796750 - 2796750

IAS
ACCREDITED
By the Ministry of Planning

Dr. Hany E. Attia
General Manager
Tel: 2796750 - 2796750

CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armand

Location : ST:641+400 E= 492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Dear Gentleman,

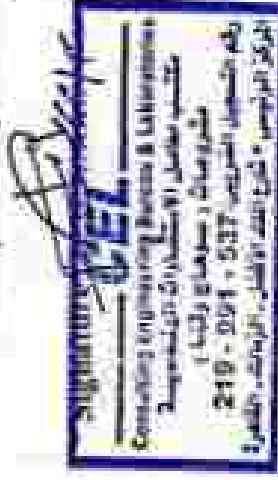
Attached here with the delivered on 19 / 9 / 2023

This sample is representative for 5 000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Spec.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



(Signature)
Name
Title

IAS
REGISTERED

تم إنشاؤه
في 19/09/2023
بواسطة

Company Name : شركة الدقي
Project : Electric Express Train - HSR From Qous To Armanit
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	¾	85.2
12.50	½	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



U. M. M. Y. A. S. S. I. M.
U. M. M. Y. A. S. S. I. M.
U. M. M. Y. A. S. S. I. M.

IAS
ACCREDITED

U. M. M. Y. A. S. S. I. M.
U. M. M. Y. A. S. S. I. M.
U. M. M. Y. A. S. S. I. M.

CEL


Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	41.5	Max 50 %	-----	-----
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	91	Max 15 %	Max 15 %	Max 15 %
Liquid Limit				
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شركة الأهلي : بوساطة وزارة
رقم التسجيل المهنى : 537 - 091 - 210
البريد الإلكتروني : cel@cel.net.eg - cel@cel.net

SENIOR E. Attia Sher
Senior Geotechnical Engineer
DATE: 2023/09/23

IAS

إبراهيم الشير
مهندس جيوتقني
مكتب معامل الاستشارات الهندسية

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Arman

Location : ST:641+400 E= 492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 19/09/2023

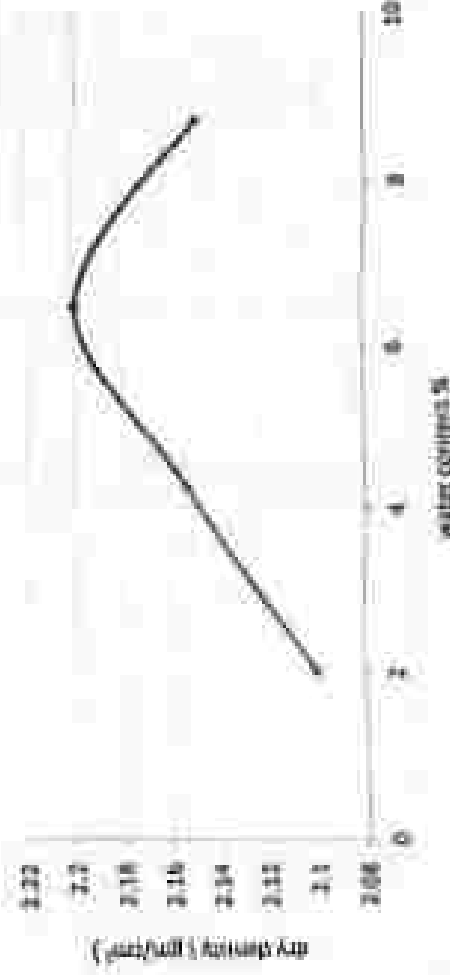
Reporting Date : 23/09/2023

Reporting No. : 10-5

Moisture - Density relation of soil


Test result (Modified proctor test)

ASTM D-1557



• Max dry density (gm/cc) : 2.20

• Optimum moisture content % : 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شركة الذهبى - صوباء ولفاء
رقم الترخيص الهندسي: 249 - 891 - 537
المقر الرئيسي: كبريا - الدمام - المنطقة الصناعية

10-1008 E-1008 Qous

Qous, Qous

10-1008 E-1008 Qous

IAS
ACCREDITED
by IAS

شركة الذهبى
Qous, Qous
10-1008 E-1008 Qous

Consulting Engineering Bureau & Laboratories
200-221-2311, Jeddah 21560

شركة الخشب : Company Name :

Project : Electric Express Train – HSR From Qous To Arment

Location: ST:641-400 E=492410.088 N=7862759.57

Type of sample : Soil Embankment / Upper Embankment (0.0 M)

Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. 1103

Test Results of California Bearing Ratio on Base Materials
ASTM D 1583

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	8.50	3.73	54 %

10

1. Attached graph shows penetration resistance versus penetration magnitude.
2. The sample was compacted to dry density of $\approx 2.28(\text{gm/ccm}^3)$
 $A_1 = 6.4\%$ optimum water content

A1 = 0.4, 4% calibration, variable contrast

1. *Callitriche* (Ericaceae)

Stacy L. Smith

1339

215-991-5300

Author's address: Department of Mathematics, University of California, San Diego, La Jolla, CA 92037, USA.
E-mail: shashikanth@ucsd.edu

[illegible]

1000

IAS

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات والهندسة

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qoms To Armand

Location : ST:641+400 E= 492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

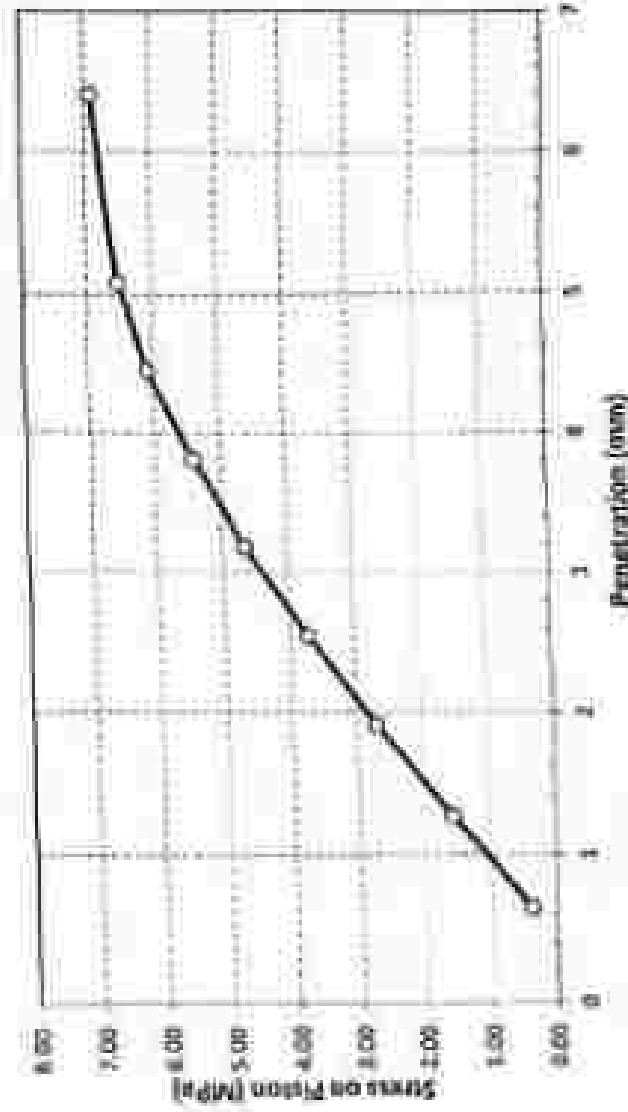
Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



CEL
Consulting Engineering Bureau & Laboratories
شركة الأهلي
219 - 091 - 537
رقم تسجيل الهندسة 219 - 091 - 537
مركز الهندسة - شارع النيل - القاهرة - جمهورية مصر العربية

U. Mostafa, M.Sc. Eng.
2010A, Cairo
Lab No. 2010A/01 (2010A/01)

IAS
ACCREDITED
To ISO 9001

مركز الهندسة
شارع النيل
القاهرة - مصر

Scanned with CamScanner

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman,

Attached here with the delivered on 19/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity Index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1853

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
210 - 994 - 537
رقم التسجيل المخصص : 145 - 146 - 147 - 148 - 149 - 150

10 Mark F. Al-Ham
Director Gen.
Cell No. 210-994-537

IAS
ACCREDITED

مركز الاعتماد
International
Accreditation
Authority

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
15	1	90.2
19	3/8	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1

CEL
Consulting Engineering Bureau & Laboratories
Signature: *[Signature]*
شركة الأهلي
210 - 094 - 537
رقم الترخيص الهندسي
الرقم الرئيسي : 537 - 094 - 210

31 Mark E-Mat Shair
Zaidan, Gass
Cell No. 20622 276307

IAS
ACCREDITED
International Association of
Testing Agencies

مكتب محاميل الاستشارات الهندسية
31 Mark E-Mat Shair
Zaidan, Gass



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

شركة الأهلي :
Company Name

- : Electric Express Train - HSR From Qom To Armand

: ST:641+400 E= 492410.088 N=2862759.57

Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. 10-5

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Consulting Engineer
SHAWARAH
مهندسة استشارية
شوارح (ش.م.ع.)
219 - 994 - 537
الرياض - 11562
2007

© 2000 Blackwell Science Ltd

MC

1000

Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Soil Classification

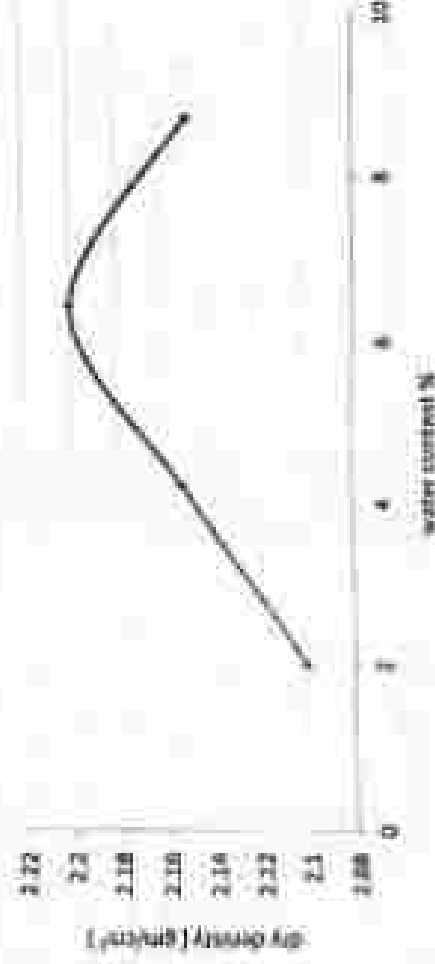
TEST	Results (%)	Limits according Projects Specs			
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-d)	
2.00 mm (No.10)	41.5	Max 50 %	—	—	
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	—	
0.075 mm (No. 200)	.9	Max 15 %	Max 15 %	Max 15 %	
Liquid Limit	—	—	—	—	
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %	

The test results are (☒ Comply - ☐ Not Comply) with specifications limits



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armand
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum water content (%) : 6.4 %

Signature
Consulting Engineering Bureau & Laboratories
شركة الأهلي
رقم التسجيل المهنى: 219 - 984 - 527
المركز الرئيسي: شارع النيل - القاهرة

10/10/2023
Zaidan Gills
10/10/2023

IAS
Institution
of Architects

10/10/2023
10/10/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الطهي

Project : Electric Express Train - HSR From Qous To Arment

Location : ST:641+400 E= 492410,088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0,0 M)

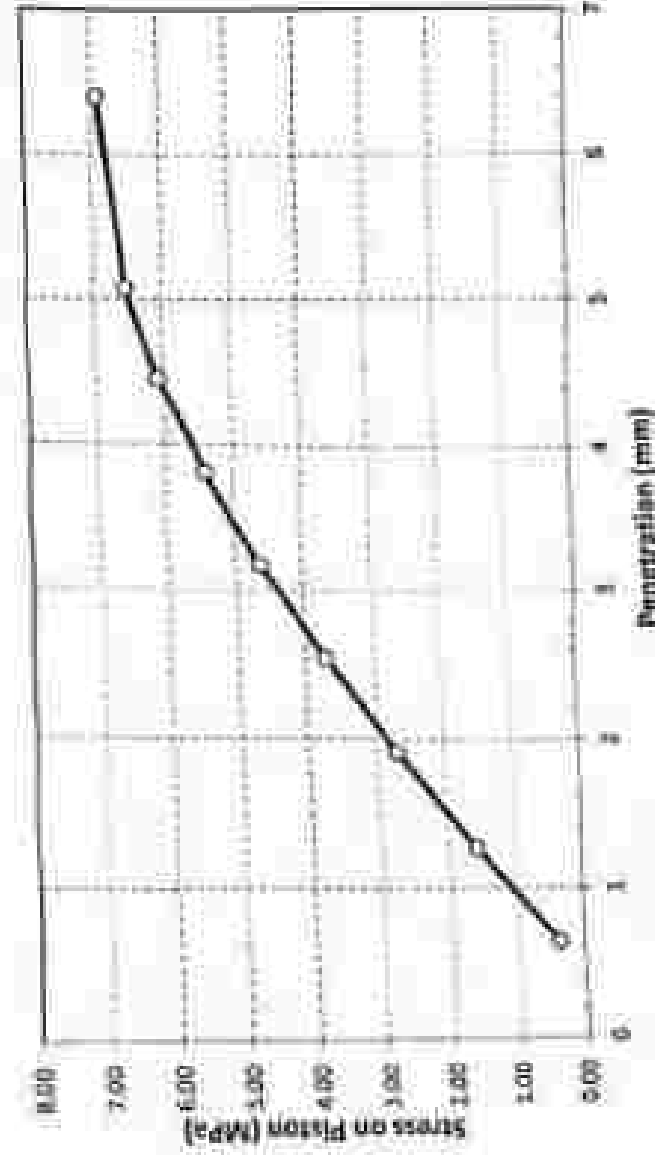
Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature **CEL**
مكتبة محامل الاستشارات الهندسية
شارع صلاح / حي جوارح واديا
2119 - 0591 - 037
رقم التسجيل المبرمج : 0400
المركز الرئيسي : شارع الملك فيصل - الرياض - 11564

(Printed) E. Alkhatib
Checked: (Date)

IAS

إبراهيم الخياط
23/09/2023
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanit
Testing Date : 25/09/2023
Soil type : Upper Embankment
Location : St + From 641+200 To 641+300
Level : ± 1.25 M
Report No. : 71

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+230	1768.9	2.23	6	2.11	96.2%	Comply
2	641+260	1716.7	2.25	6.4	2.11	96.4%	Comply
3	641+290	1770.8	2.23	6.4	2.09	95.6%	Comply

Degree of compaction based on proctor test dated At:

Max. dry density = 2.15 gm/cm³

At optimum moisture content = 6.4 %

Signature /

[Handwritten Signature]

El Mostafa El Agha Elsay
Geotech. Eng.
Tel: 011 2656231 - 2656000



الهيئة العامة
للإسنادات
011 2656231 - 2656000

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qom To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (DN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	$\frac{3}{4}$	84.4
12.50	$\frac{1}{2}$	77.7
9.50	$\frac{3}{8}$	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature: 
The Representative of the Client
Date: 12/09/2023
Name: Mr. (Name of the Representative)

VE: Mr. E. Al-Jarrah
For: Mr. (Name of the Representative)
Cell: 011-2556721 17762003

IAS
ACCREDITED

011-2556721
011-2556721
011-2556721

Company Name : شركة كهرباء
Project : Electric Express Train - HSR From Qum To Armut
Location : ST:641+400 K=492410.055 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (No.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	0.9

Signature : *Abdullah 215*



By : Mr. Fahmy Elwan
Project No. : 10-4



By : Mr. Fahmy Elwan
Project No. : 10-4

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامى الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3 El Mark E-Med Street
Cairo City
11564 Egypt





مركز خدمات العملاء
البريد الإلكتروني
info@cel-eg.com

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	————	————
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	————
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	————	————	————	————
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 


10/09/2023
12/09/2023
10/09/2023

IAS
ACCREDITED
by IAS

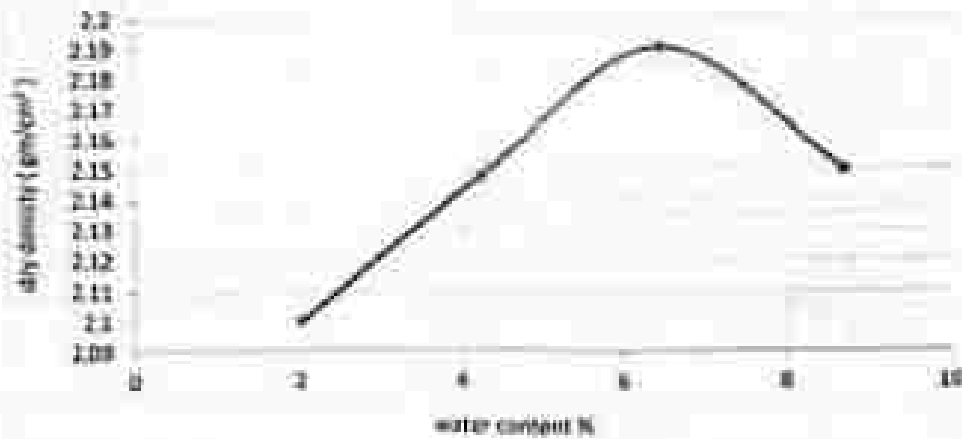
م.م. محمد العبد
م.م. محمد العبد
م.م. محمد العبد

CEL


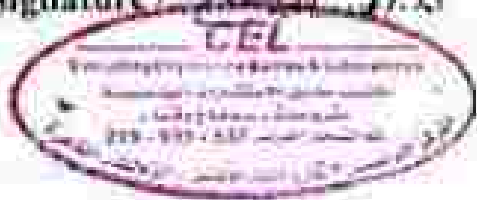
Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature: 

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية
الرياض - 955 - 557
الهاتف: 3396520 - 3396521

S. E. Alkhatib & Alkhatib
Zurich, CH
Tel/Fax: 0041 76 2296520 - 2296521

IAS
ACCREDITED

م. ع. الخياط
الهاتف: 3396520
الفاكس: 3396521

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /


J.P. EL-HAYAT
Engineer / P.E.
Tel: (011) 27600000 - 27600001



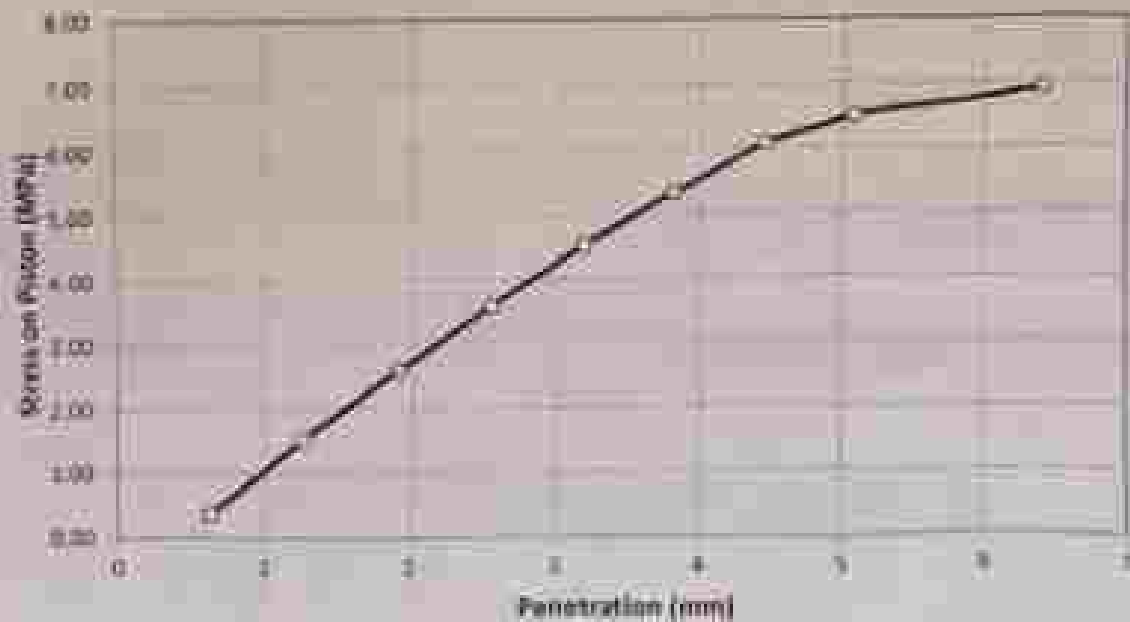
في المختبر
في الموقع
مكتب
مكتب

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company Name : شركة النخيل
Project : Electric Express Train - HSR From Qom To Arvand
Location : ST-641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature: *[Handwritten Signature]*
[Circular Stamp/Seal]

William Corporation
Dallas, Texas
Tel: (214) 343-1111

IAS
ACCREDITED

Copyright © 2014
All Rights Reserved
www.iasinc.com

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 25/09/2023
Soil type : Middle Embankment
Location : St + From 641+540 TO 641+760
Level : - 2.5 M
Report No. : 70

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+620	1490	2.23	5.5	2.1	96.6%	Comply
2	641+670	1335	2.30	5.8	2.2	99.1%	Comply
3	641+699	1610	2.21	6.4	2.1	95.1%	Comply
4	641+705	1413	2.29	5.8	2.2	98.9%	Comply
5	641+730	1535	2.25	6	2.1	97.0%	Comply
6	641+750	1490	2.28	6.4	2.1	97.8%	Comply
7	641+765	1525	2.27	6	2.1	97.6%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.19 gm/cm³

At optimum moisture content = 6.4 %

Signature

E. El-Husseini
Engineer
Tel/Fax: 204023- 273580



م. المهندس
إبراهيم الحسني
تلفون - فاكس : 204023 / 273580

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 8 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / ... (ع.ع.ال.ل) ع



1 E-Mark E. Al-Jalal
Zarqa, Jordan
Tel/Fax: 2279227 - 2279228



مركز اختبار
البناء والبنية
الهندسية

CEL

Consulting Engineering Bureau & Laboratories

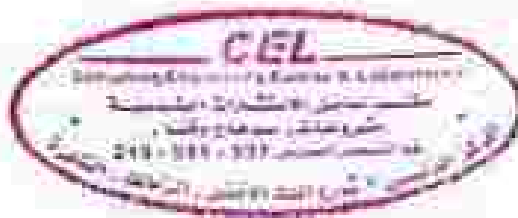
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	9.9

Signature / 



3E Main E-Post Street
Zakaria, Cairo
S.A. Fax: 2736253 2563005





د. محمد عبد الله
المهندس - المهندس
المهندس (مهندس) / المهندس

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature : 

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
QOS - QOS - QOS
QOS - QOS - QOS

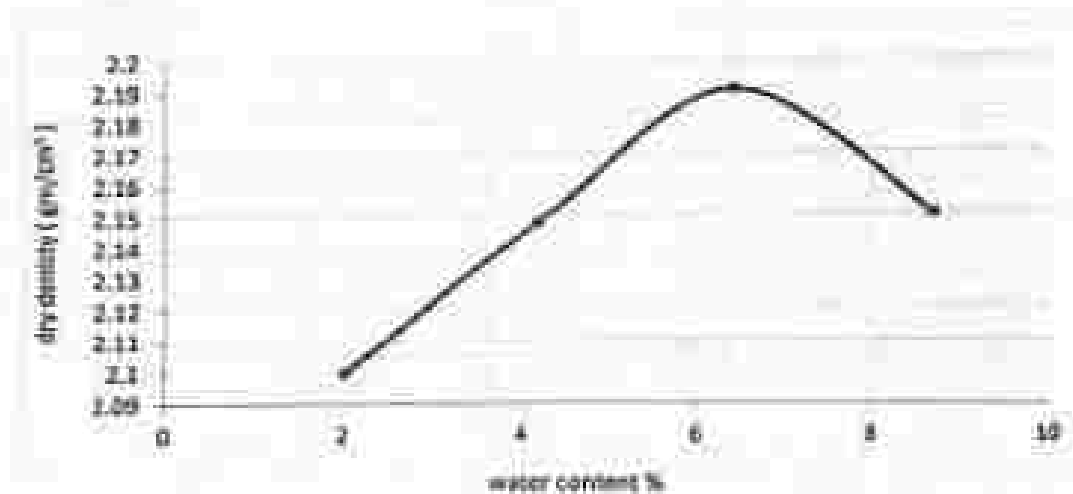
10-0410-088-57
QOS - QOS - QOS
QOS - QOS - QOS



QOS - QOS - QOS
QOS - QOS - QOS
QOS - QOS - QOS

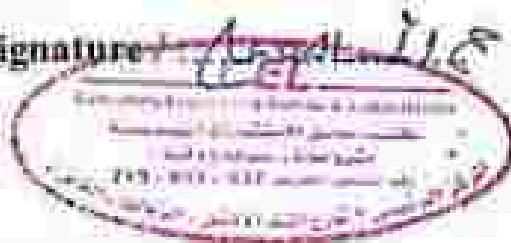
Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature :



14, Zuhair Al-Jalal Street
Dhulayh Camp
Baghdad - Iraq
Tel: 00964 7700211 - 7700000



مركز معاد الاستشارات
الهندسية
شماره 14، زهير الجلال
خيمه ذولايه

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

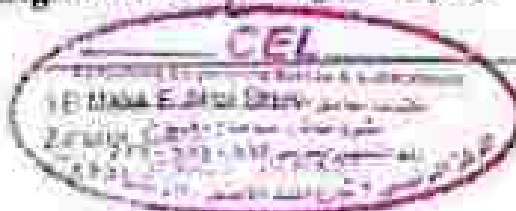
penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature : *[Signature]*



إدارة المختبر
البيانات
التاريخ : 12/09/2023

CEL

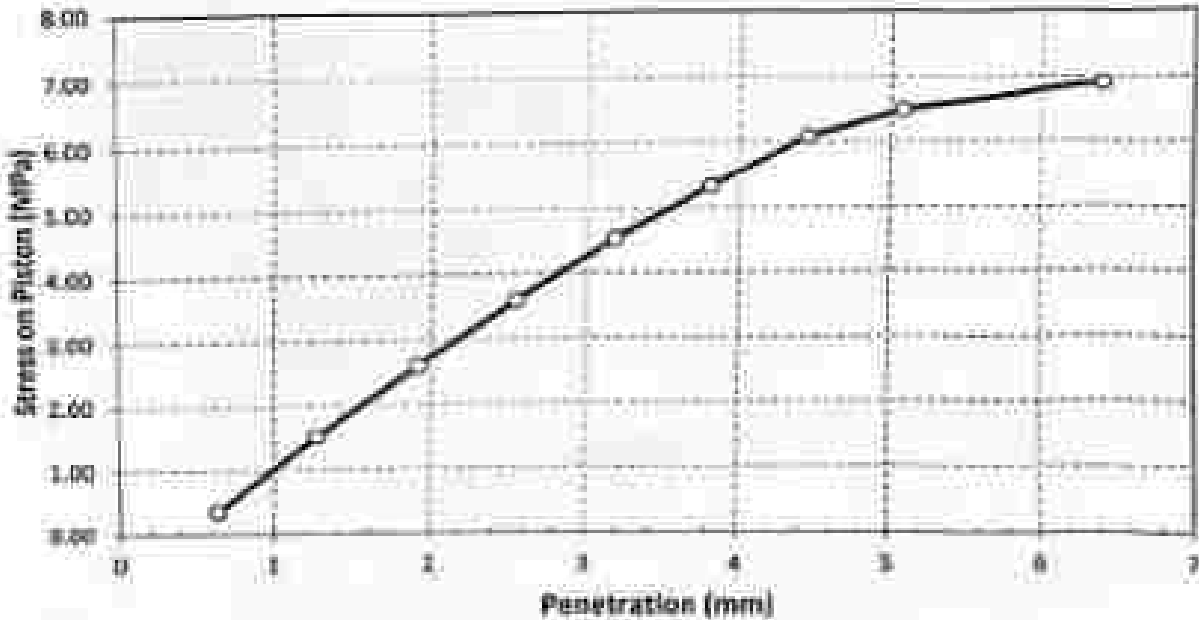
Consulting Engineering Bureau & Laboratories

مكتب محاميل الاستشارات الهندسية

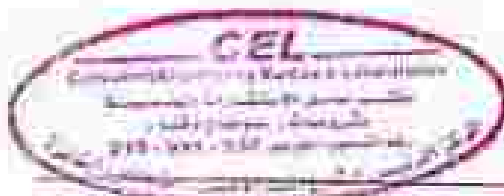
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test

ASTM D-1883



Signature / *[Signature]*



CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 17/09/2023
Soil type : Lower Embankment
Location : St + From 641+200 To 641+300
Level : - 13 M
Report No. : 74

Compaction test by using Sand – Cons Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+220	2106.9	2.23	6.4	2.09	95.1%	Comply
2	641+240	1763.2	2.26	5.8	2.13	97.0%	Comply
3	641+260	1281.3	2.29	5.6	2.17	98.6%	Comply
4	641+280	1658.3	2.23	6.4	2.10	95.3%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.20 gm/cm³

At optimum moisture content = 6.4%

Signature 

11 Mike El-Helwan
Zakaria City
ASTM 2007-2008



إدارة المختبر
مركز القاهرة
مختبر المعايير

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman,

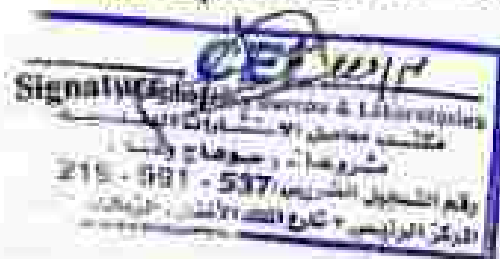
Attached here with the delivered on 19 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Notes: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



J E NABK E AHM SHAR
Bureau Chief
T: 011-27600000

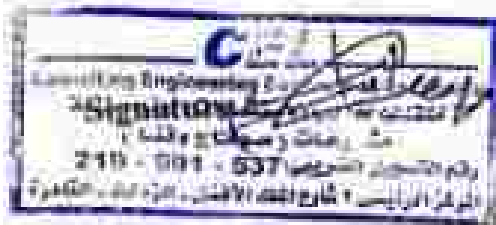


مركز اختبار
مركز اختبار
مركز اختبار

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	3/4	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



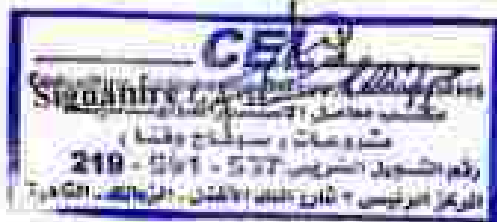


Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



11, Hana & Hana Street
Zirakia, Cairo
Tel: 011-3304520 - 3304521



إمارة القاهرة
رقم التسجيل المهنى
5337 - 5141 - 219

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	41.5	Max 50 %	-----	-----
0.425 mm (No. 40).	25.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	31	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature: 
 Dr. Mohamed Elmaghrabi
 Head of the Department of Microbiology
 Faculty of Medicine, Assiut University
 Assiut, Egypt
 Phone: 091-219-533
 Fax: 091-219-533
 E-mail: elmaghrabi@assut.edu.eg

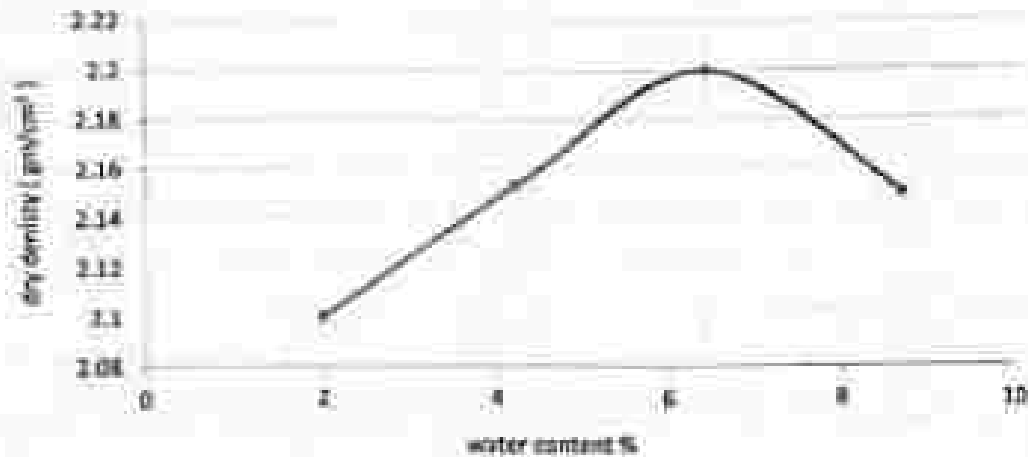
TE: Mark E. Allen, Spec.
 Address: Camp
 Tel: 601-276-2244 276-2244



1. **المادة 1:** يُعتمد هذا القانون.
 2. **المادة 2:** يُعتمد هذا القانون.
 3. **المادة 3:** يُعتمد هذا القانون.

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
219 - 991 - 537
القاهرة - مصر

VE Mark E. Alaa Shahr
Zorah, Giza
25116 25117 25118

IAS
ACCREDITED
Engineering Laboratory

إمارة القاهرة
القاهرة
25116 25117 25118

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5


Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	54 %
	6.90	3.73	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.20(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.

Signature: 
مكتب معامل الاستشارات الهندسية
239 - 381 - 537
رقم التسجيل المكون من 9 ارقام
الموقع الإلكتروني: www.cel-lab.com

23/09/2023 22:00:00



مدير المختبر
مهندس الاستشارات
مهندس المختبر

CEL

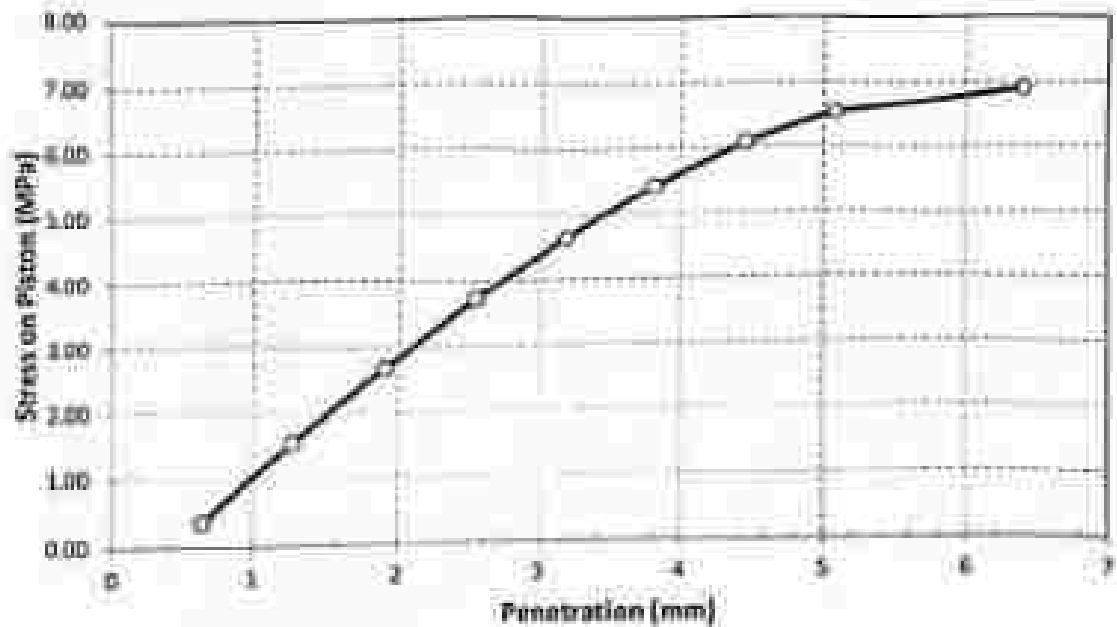
Consulting Engineering Bureau & Laboratories

مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature 
Engineer
219 - 00
مكتب محامل الاستشارات الهندسية
رقم التسجيل 219 - 00
الشارع الرئيسي - القاهرة - مصر

CE Mark E Attestation
23/09/2023
Lab No: 224500-20230923

IAS
ACCREDITED
Testing Laboratory

تم إعداد التقرير
بمكتب محامل الاستشارات الهندسية
في 23/09/2023



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 03 /10/2023
Soil type : Upper Embankment
Location : St From 641+300 TO 641+420
Level : - 1.25 M
Report No. : S1-2

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	911.1	2.32	6.4	2.18	98.5%	Comply
2	641+340	1409.7	2.32	6	2.19	98.9%	Comply
3	641+360	1558.3	2.34	6.4	2.20	99.7%	Comply
4	641+380	1391.7	2.24	6	2.11	95.5%	Comply
5	641+400	1228.5	2.27	6.4	2.13	96.5%	Comply

Degree of compaction based on proctor test dated At

Max. dry density =2.21 gm/cm³

At optimum moisture content = 9.4 %

Signature /



3 Elm St. E. 4th Floor
Irvine, Calif.
Tel & Fax: 949/251-3730/3730393



مركز اختبار
مركبات القطار
شركة الذهبى

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Dear Gentleman,

Attached here with the delivered on 26 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883.

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / 



16 Mga B Abd Ghaf
Zamalek, Cairo
T: 210 274727 - 2746331



م. م. محمد
م. م. محمد
م. م. محمد

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	91.3
19	¾	85.1
12.50	½	74.9
9.50	3/8	71.4
4.75	4	52.7
2.00	10	35.0
0.425	40	20.9

Signature / 



1 El Madinet El Aghia Street
Zoores, Cairo.
Tel&Fax: 27364531 - 27364569



أمر إنشاء المختبر
رقم 1454
تاريخ 11/11/2013

Created with CamScanner

Company Name : شركة الأدهي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.2

Signature / 



Dr. EMMANUEL ADAMI SHIH
Director, Cairo
Tel/Fax 213191437 - 213191437



مركز اختبار المواد
مركز اختبار المواد
مركز اختبار المواد

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3D Mohd El Asly Sherif
Dokki, Cairo
Tel & Fax : 2736723 - 2732903



إلى مكتب الاستشارات
فيما يلي التوقيع
الشارع الرئيسي 3 كم من مدينة القاهرة، جمهورية مصر العربية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	35.0	Max 50 %	-----	-----
0.425 mm (No. 40).	20.9	Max 20 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature / ... /



3 El Mada El Mada Street
Zewail, Cairo
Tel Fax: 2736723 - 2736760



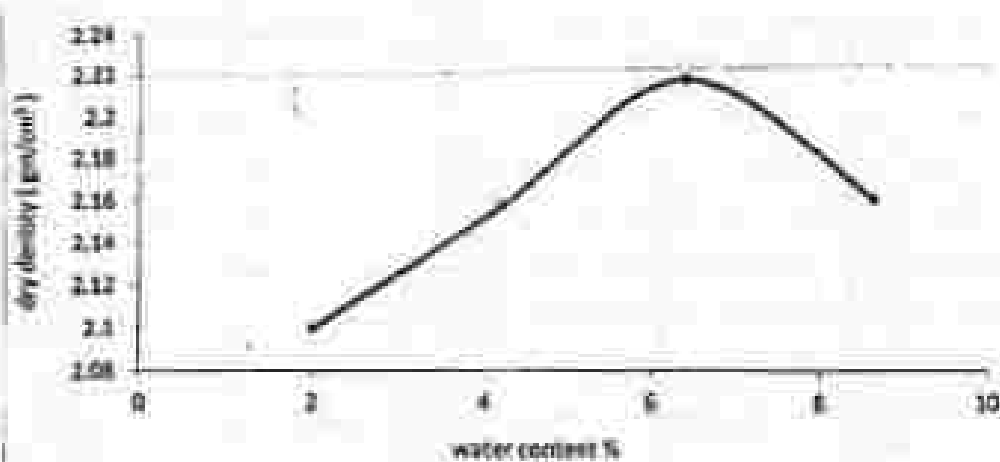
المحكمة الهندسية
الهيئة العامة
الرقم 107 / 2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

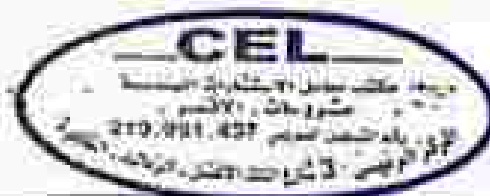
Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature / ح. نديم



10 Malek El Abdel Street
Zakaria, Cairo
Tel/Fax: 27367523 - 27367560



إشراف المهندس
إبراهيم أحمد
مهندس
مهندس

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Armant

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 26/09/2023

Reporting Date : 30/09/2023

Reporting No. : 10-7

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.48
1.27	0.050	1.61
1.91	0.075	2.73
2.54	0.100	3.76
3.18	0.125	4.67
3.81	0.150	5.47
4.45	0.175	6.14
5.08	0.200	6.59
6.35	0.250	6.96

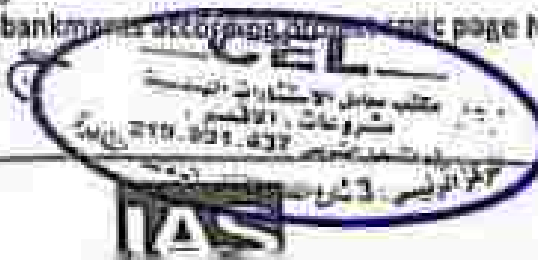
CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	54.5 %
	6.96	3.76	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according to spec page No 36.

Signature / 

3 El Mahr El Ahrn Street
Zamalek, Cairo



3 El Mahr El Ahrn
Zamalek, Cairo

CEL

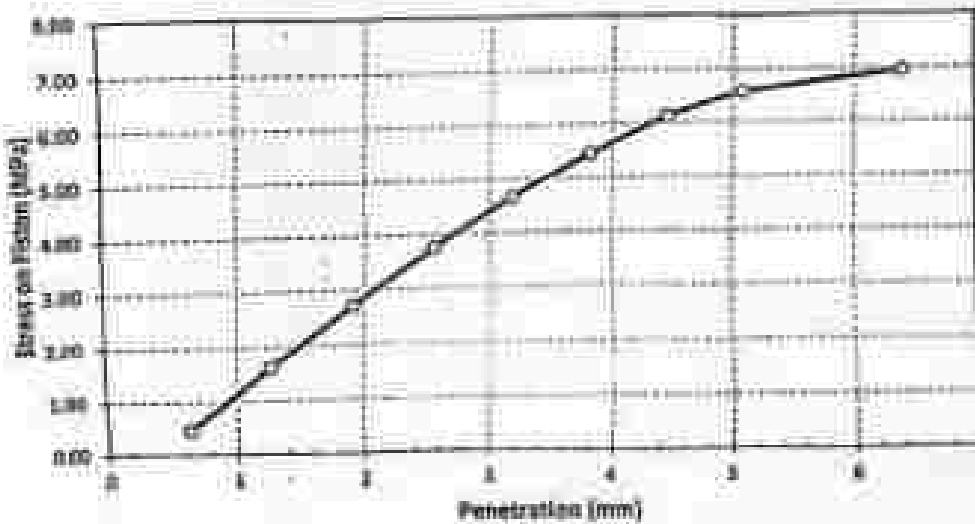
Consulting Engineering Bureau & Laboratories

مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qoms To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Load Penetration Curve of CBR Test

ASTM D-1883



Signature /



3D Mark & Audit Group
Zurich, CH
Tel/Fax: 2706151 - 2706152

إم. محمد علي
2023 / 09 / 30
مكتب محامل الاستشارات الهندسية

Scanned with CamScanner

Scanned with CamScanner

Company Name : شركة الاهي
Project : Electric Express Trains - HSR From Ques To Armat
Testing Date : 05 /10/2023
Soil type : Middle Embankment
Location : St. From 641+620 To 641+800
Level : - 1.75 M
Report No. : 85

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+640	1725.0	2.26	6.4	2.12	96.0%	Comply
2	641+680	1643.1	2.25	6.4	2.12	95.8%	Comply
3	641+700	1464.6	2.28	5.8	2.16	97.7%	Comply
4	641+720	1604.2	2.22	5.5	2.11	95.4%	Comply
5	641+740	1513.9	2.29	5.6	2.17	98.1%	Comply
6	641+760	1495.8	2.24	5.8	2.12	95.0%	Comply
7	641+780	1509.7	2.30	6	2.17	98.0%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.21 gm/cm³

At optimum moisture content = 5.4 %

Signature /


م.م. المهندس محمد الاهي
219 991 431
القاهرة - مصر

3 El Mask El Ahly Street
Zakaria, Cairo
Tel Fax: 2736531 - 2736000



الم.م. المهندس
محمد الاهي
219 991 431
القاهرة - مصر

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Dear Gentleman,

Attached here with the delivered on 27 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / 



3 El Mans El Ahd Seel
Zagazig, Egypt
T&F no 2246721 / 2246709



أول مكتب مختبر
جودة
شهادة اعتراف

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	95

Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	37.5	Max 50 %	-----	-----
0.425 mm (No. 40)	23.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	9.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / 



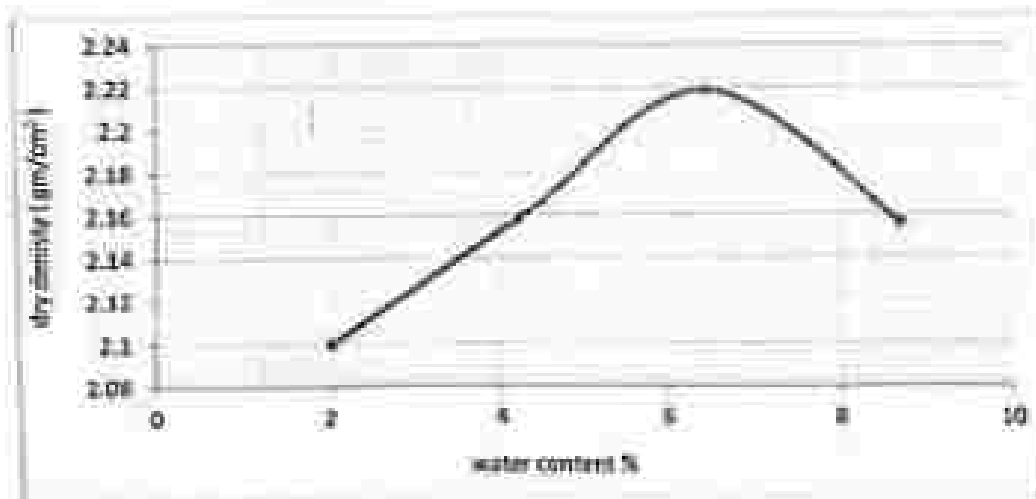
SEI Nook E Aldi Street
Zandara, Cairo
Tel/Fax: 22367231 - 22367683



مركز خدمات العملاء
إدارة الجودة
مبنى 3 شارع 3 القاهرة
210 191 427 - 210 191 427

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature / ...



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.64
1.91	0.075	2.74
2.54	0.100	3.79
3.18	0.125	4.68
3.81	0.150	5.48
4.45	0.175	6.16
5.08	0.200	6.60
6.35	0.250	7.01

CBR Result	Stress (Mpa)		CBR 100 %
At 6.3 inch (2.54 mm) penetration	St. Value	Sample results	55 %
	6.90	3.79	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.21(gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project specification.

Signature / ... 



Bldg 2110 1031 432 Street
Bldg 2110 1031 432
Tel/Fax: 27507231 - 27507233



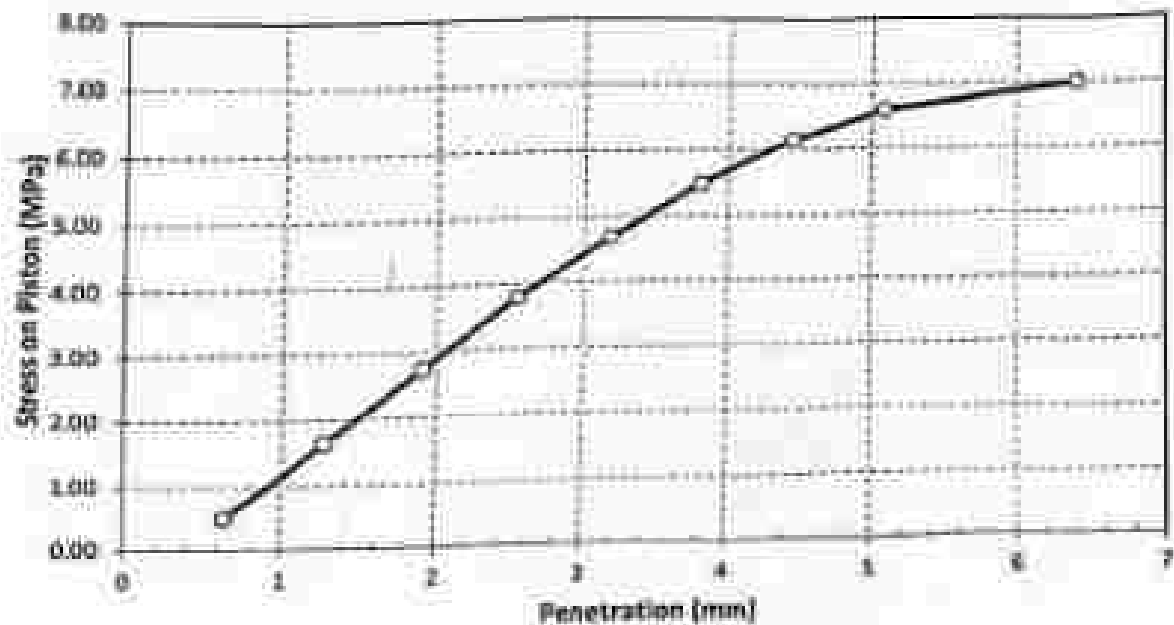
Dr. Hisham Al-Sayid
Dr. Hisham Al-Sayid
Dr. Hisham Al-Sayid

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهرى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Load Penetration Curve of CBR Test ASTM D-1883



Signature / 



3 El Mahk El Arab Street
Zamalek, Cairo
Tel/Fax: 27362231 - 27362233



3 شارع التحرير
القاهرة - مصر
27362231 - 27362233

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الاهي :
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 05 /10/2023
Soil type : Upper Embankment
Location : St From 641+300 To 641+420
Level : -1 M
Report No. : 87

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Molsture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	1405.6	2.31	5.5	2.19	99.0%	Comply
2	641+340	1538.9	2.23	5.8	2.11	95.4%	Comply
3	641+360	1466.0	2.29	5.6	2.17	98.3%	Comply
4	641+380	1356.9	2.29	5.6	2.17	98.2%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.21 gm/cm³

At optimum-molsture content = 6.4

Signature /



3 El Motek El Ahij Street
Zamalek, Cairo
Tel& Fax: 27357231 - 27353333



إدارة المراسلات
البريد الإلكتروني
info@cel-eg.com
www.cel-eg.com

Company Name : شركة الاهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=3862759,57
Type of sample : Soil Embankment (Upper Embankment 0.6 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Dear Gentleman,

Attached here with the delivered on 27/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-421.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / 



3 El Mada E Atay Sime
Zuhayr, Cairo
Tel Fax 2745000 - 2745000



إلى السيد /
الرجاء التفضل
بالتوقيع

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.6
37.5	1.5	97.4
25	1	95.3
19	¾	81.1
12.50	½	76.7
9.50	3/8	72.1
4.75	4	53.3
2.00	10	37.8
0.425	40	23.5

Signature / (محمّد) محمد



5B Maki El Atia Street
Zamalek, Cairo
Tel&Fax: 020400211 - 020400209



أمر المهندس
إبراهيم محمد
مهندس - مقيم

Company Name : شركة للذهب
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.6
37.5	1.5	97.4
25	1	95.3
19	3/4	81.1
12.50	1/2	76.7
9.50	3/8	72.1
4.75	4	53.3
2.00	10	37.8
0.425	40	23.5

Signature / Qasim Ali



3 El Madi St. 1st Floor
Zagazig, Egypt
Tel/Fax: 203-3551-3700/3701



في هذا العدد

Scanned with CamScanner

Scanned with CamScanner

Company Name : شركة الاهي
Project : Electric Express Train - HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.5

Signature / 



3 El Shalk El Akad Street
Dokki, Cairo
Tel Fax: 37310521 - 37310563



الموافقة على التقرير
إمضاء المهندس
أحمد محمد

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3 El Maha El Akad Street
Zarqa, Carr.
Tel & Fax: 7730751 - 7730300



أمر ملك الإصدار
الرقم: ٢٠٢٣/١٠٠٠٠٠
تاريخ: ١٠/١٠/٢٠٢٣

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	37.5	Max 50 %	-----	-----
0.425 mm (No. 40).	23.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

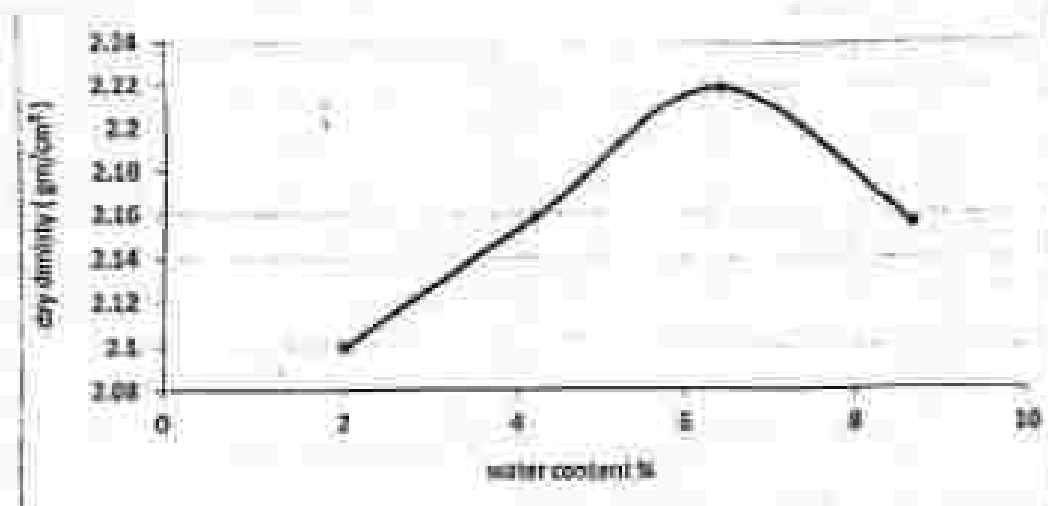
The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature / ...



1 B Nake El Ahd Street
Zakaria, Cairo
Tel/Fax: 2034723 - 2034763



مركز خدمات العملاء
رقم الهاتف: 2034723
الفاكس: 2034763

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.64
1.91	0.075	2.74
2.54	0.100	3.79
3.18	0.125	4.68
3.81	0.150	5.48
4.45	0.175	6.16
5.08	0.200	6.60
6.35	0.250	7.01

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	55 %
	6.90	3.79	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 (\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project specification.

Signature / ... 



15 El Male El Atlas Street
Zakaria, Cairo
Tel/Fax: 27367237 - 27367663



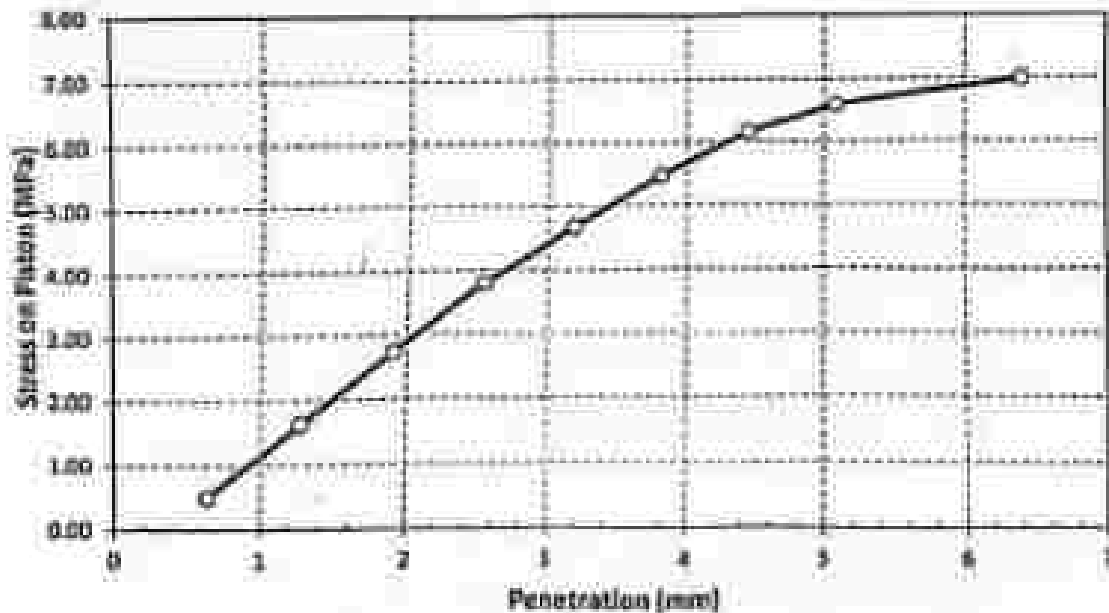
أ.م.ع. محمد الذهبى
م.ع. أحمد الذهبى
م.ع. خالد الذهبى

CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Load Penetration Curve of CBR Test ASTM D-1883



Signature / التوقيع



10 Mark E Road Drive
Zaria, Cairo
Tel Fax : 27907371 - 27907370



م. محمد الذهبى
التمكين للمهندسين
للمهندسين - القاهرة

Company Name : شركة الذهبى
Project : Electric Express Trains - HSR From Qous To Armani
Testing Date : 16 /10/2023
Soil type : Middle Embankment
Location : St. From 641+420 TO 641+620
Level : -1.75 M
Report No. : 89

**Compaction test by using Sand - Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+440	1557.6	2.31	6.4	2.17	97.9%	Comply
2	641+460	1554.9	2.25	6.4	2.11	95.1%	Comply
3	641+480	1471.7	2.30	6	2.17	97.9%	Comply
4	641+500	1620.7	2.28	6.4	2.14	96.3%	Comply
5	641+520	1635.2	2.25	6.4	2.11	95.2%	Comply
6	641+540	1500.0	2.30	6.4	2.17	97.6%	Comply
7	641+580	1295.9	2.32	6	2.19	98.5%	Comply
8	641+600	1725.5	2.26	6	2.13	96.0%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.22 gm/cm³

At optimum moisture content = 6.4 %

Signature



3 El Nasr El Ahsa Street
Zamalek, Cairo
Tel & Fax : 21965211 - 21910090



مركز التفتيش
إبراهيم الجليلي
مهندس استشاري

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Dear Gentleman,

Attached here with the delivered on 27 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature 



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.4
37.5	1.5	94.6
25	1	90.2
19	$\frac{3}{4}$	79.8
12.50	$\frac{1}{2}$	73.9
9.50	$\frac{3}{8}$	70.0
4.75	4	51.6
2.00	10	38.5
0.425	40	22.0

Signature / 



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	8.9

Signature /.....



CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



1 B MARI EL AHMED STREET
DOKKI, CAIRO
TEL: 011 57602111, 57602000



مكتب معامل الاستشارات
الهاتف : 210 301 427
الفاكس : 3 شارع النيل - القاهرة

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	35.5	Max 50 %	—	—
0.425 mm (No. 40)	22.0	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	8.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / ... 



30 Malek El Attar Street
Zamalek, Cairo
Tel/Fax: 27367221 - 27367613



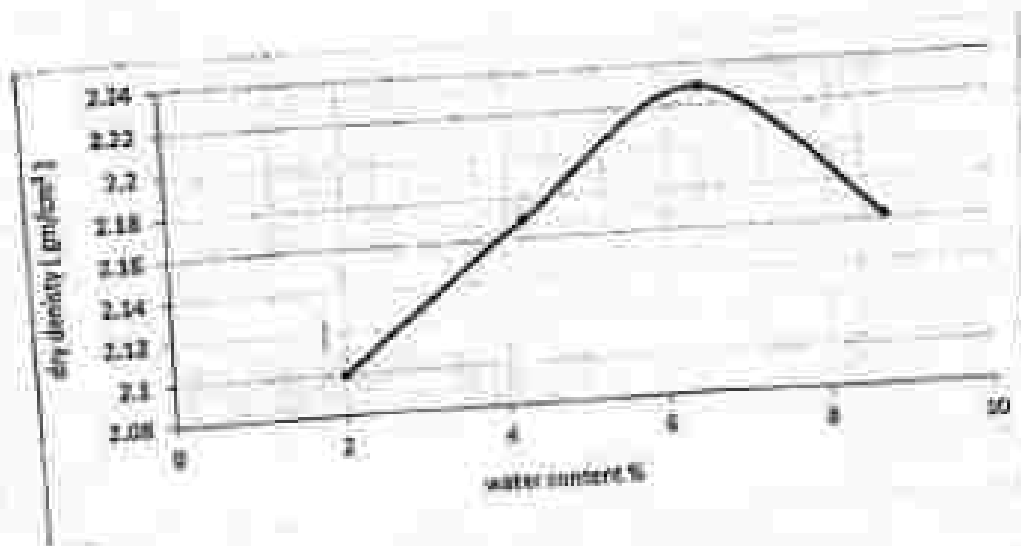
أ.م.ع. محمد العبدالله
م.ع. محمد العبدالله
27367221 - 27367613

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Molsture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.22
- Optimum molsture content % : 6.4 %

Signature / 



3 El Shrek El Hada Street
Zamalek, Cairo
Tel/Fax: 27367531 - 27763703



أ.م. المهندس
إيمان الدودة
مهندس المختبر

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.48
1.27	0.050	1.66
1.91	0.075	2.75
2.54	0.100	3.81
3.18	0.125	4.70
3.81	0.150	5.49
4.45	0.175	6.18
5.08	0.200	6.65
6.35	0.250	7.01

CBR Result	Stress (Mpa)		CDR 100 %
At 6.35 inch (158 mm) penetration	St. Value	Sample results	55.2 %
	6.00	3.81	

- Notes:
- 1- Attached graph shows penetration resistance versus penetration magnitude.
 - 2- The sample was compacted to dry density of $\approx 2.22(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
 - 3- Surcharge load 4.50 Kg.
 - 4- CBR > 10 for middle and lower embankments according to ASTM D 1557.

Signature / 

3 El Masrah El Akhdi Street
Zamalek, Cairo
Tel/Fax : 23387021 - 23387023



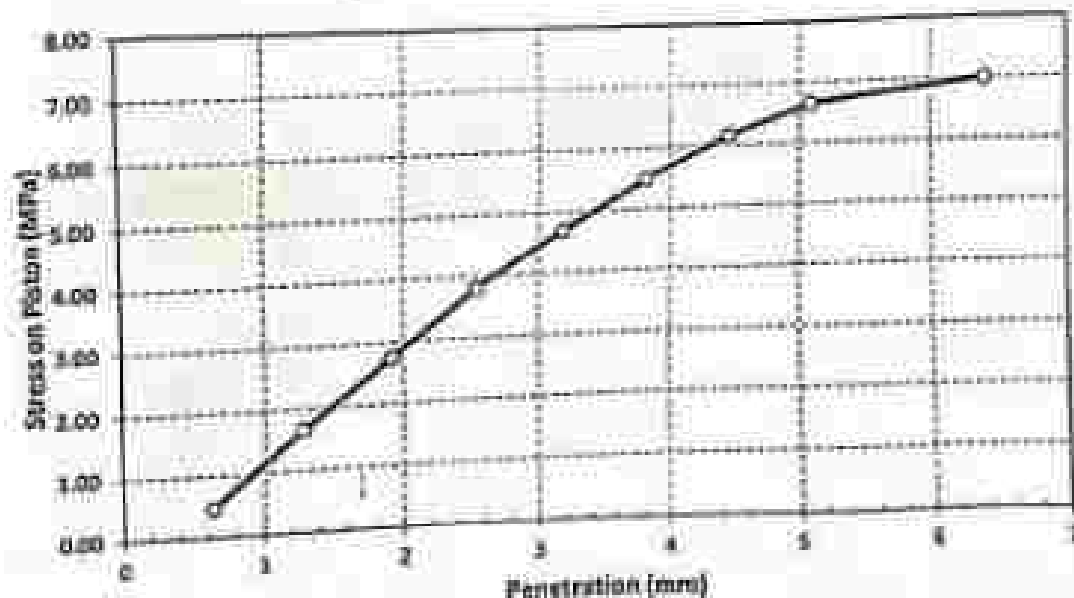
30 شارع الميمنية
الزمالك - القاهرة
هاتف - فاكس : 23387021 - 23387023

CEL

Consulting Engineering Bureau & Laboratories
مكتب مفاعيل الاستشارات والهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Load Penetration Curve of CBR Test ASTM D-1883



Signature / (محمد عبد الله)



3 El Mahdy El Agha Street
Zamalek, Cairo
Tel/Fax (202) 4721 - 2112000



إلى مكتب الاستشارات
2112, 201, 437
القاهرة - مصر

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Dear Gentleman,

Attached here with the delivered on 27/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature 



3 El-Nasr El-Arabi Street,
Zamalek, Cairo,
TSA No. 20001 - 00000



في مكتب الاستشارات
الهندسية
مصر - القاهرة
رقم الترخيص: 437

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.4
37.5	1.5	94.6
25	1	90.2
19	3/4	79.8
12.50	1/2	73.9
9.50	3/8	70.0
4.75	4	51.6
2.00	10	38.5
0.425	40	22.0

Signature / ...



10 Mark & Mail Box
Zurich, CH
Tel/Fax: 0041 22 700 00 00



إلى السيد المهندس
مكتب ماسح المساحة
مكتب ماسح المساحة

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	8.9

Signature /.....



3 El Hadek El Akad Street
Zakaria, Cairo
Tel. Fax : 2736723 - 2736897



أ. م. محمد الجبيل
رئيس مجلس إدارة
مكتب معامل الاستشارات الهندسية

Company Name : شركة النهي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3 ENNAH EARTH SHC
Zeynep, Cairo
Tel/Fax: 21097231 - 21097232



مركز اختبار التربة
الرياض - المملكة العربية السعودية
الهاتف : 21097231 - 21097232

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qons To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-b)
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-b)
2.00 mm (No.10)	38.5	Max 30 %	—	—
0.425 mm (No. 40)	22.0	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	8.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / ... 



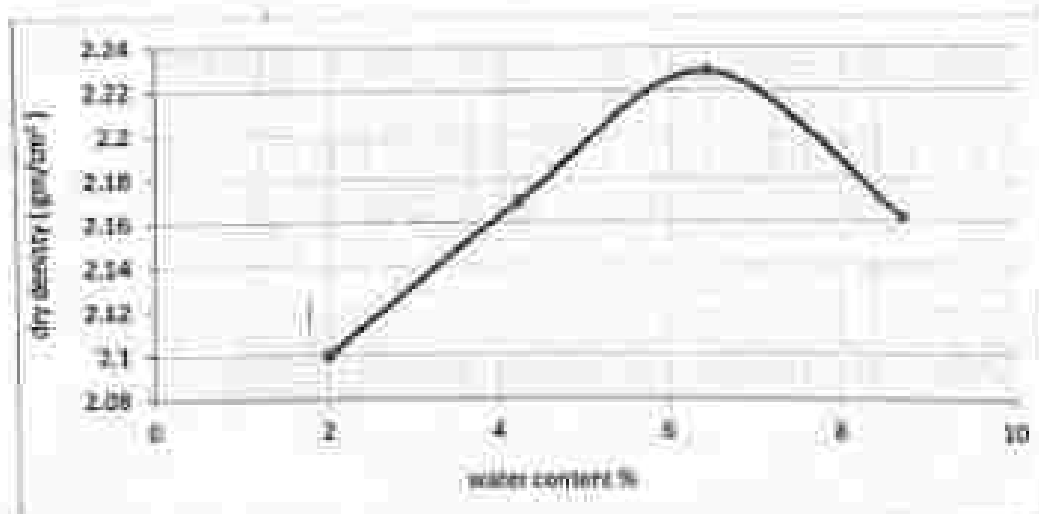
50 Mark E-Had Street
Bahrain, Qatar
Tel/Fax: 2330733 - 2330893



إدارة المختبرات
البيانات
تحت إشراف

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.22
- Optimum moisture content % : 6.4 %

Signature / 



15-15114 E-Asia Street
Zewara, Cairo
164 161 2240001 - 2240003



في المهندس
الهيئة العامة
بمصر - القاهرة
1973-1974-1975-1976-1977-1978-1979-1980-1981-1982-1983-1984-1985-1986-1987-1988-1989-1990-1991-1992-1993-1994-1995-1996-1997-1998-1999-2000-2001-2002-2003-2004-2005-2006-2007-2008-2009-2010-2011-2012-2013-2014-2015-2016-2017-2018-2019-2020-2021-2022-2023

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.48
1.27	0.050	1.66
1.91	0.075	2.75
2.54	0.100	3.81
3.18	0.125	4.70
3.81	0.150	5.49
4.45	0.175	6.18
5.08	0.200	6.65
6.35	0.250	7.01

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	55.2 %
	6.90	3.81	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.22(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according to **CEL** No. 7

Signature : *[Signature]*



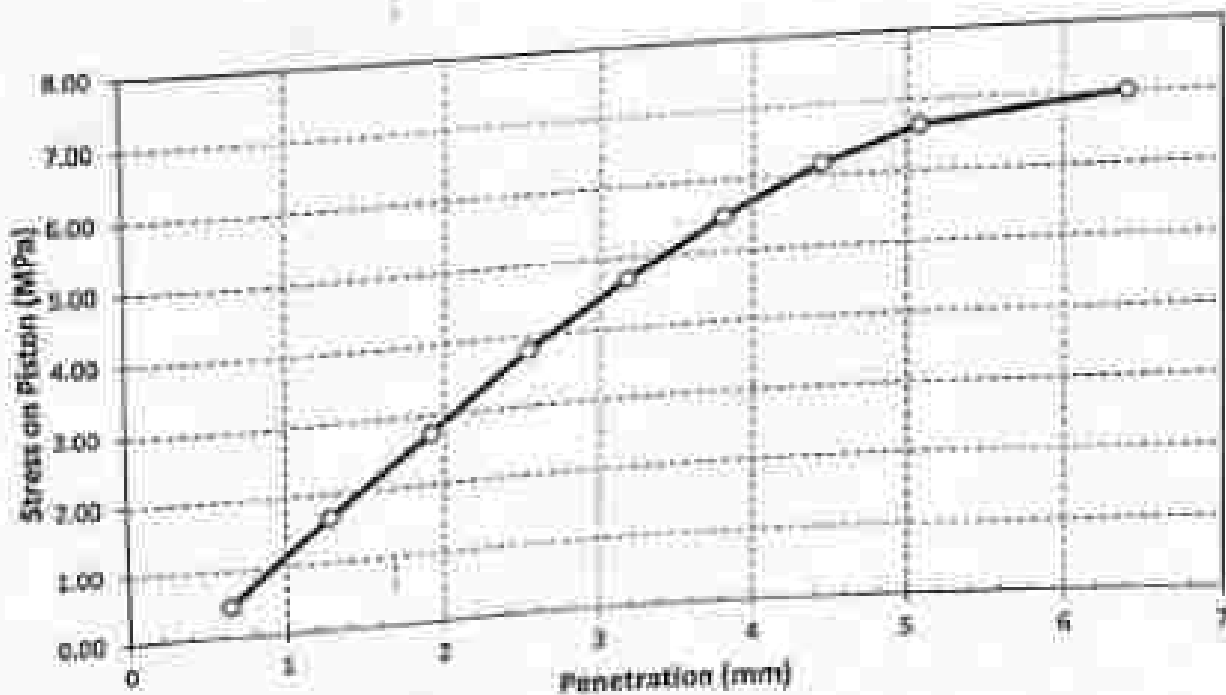
5 E MAHDI ELATHE Street
Zorobal, Cairo
Tel, Fax: 22107021 - 22107023



27/09/2023
الوقت: 10:00
الوقت: 10:00

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97
25	1	90
19	¾	85.4
12.50	½	77.2
9.50	3/8	73.3
4.75	4	69.6
2.00	10	58.5
0.425	40	40.7

Signature / 



18 Mark E Alal Sheh
Zagazig, Egypt
Tel/Fax: 2760421 - 2760420



المهندس / محمد عبد الله
مهندس / محمد عبد الله
مهندس / محمد عبد الله

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Soil Classification

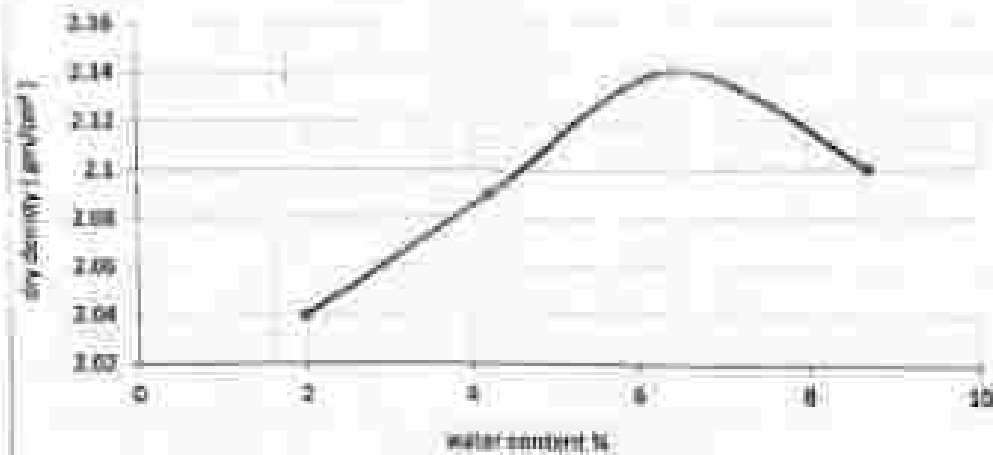
TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	58.5	Max 50 %	—	—
0.425 mm (No. 40).	40.7	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	14.0	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity Index	0	Max 5 %	Max 6 %	Max 10 %

The test results are (☒ Comply ☐ Not Comply) with specifications limits

Signature /  

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



• Max dry density (gm/cm³)

2.14

• Optimum moisture content %

6.1%

Signature

[Handwritten Signature]



J E MARR E Road Show
Zaraka, Cairo
Tel Fax: 27362701 - 27362702



مركز فحص المواد
شركة الأهلي
مكتب الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.45
1.27	0.050	1.00
1.91	0.075	1.52
2.54	0.100	2.11
3.18	0.125	2.53
3.81	0.150	2.96
4.45	0.175	3.39
5.08	0.200	3.71
6.35	0.250	4.33

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	30.6%
	6.90	2.11	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.14 \text{ (gm/cm}^3\text{)}$
At = 6.4 % optimum water content
- 3- Surcharge load 450 Kgf
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

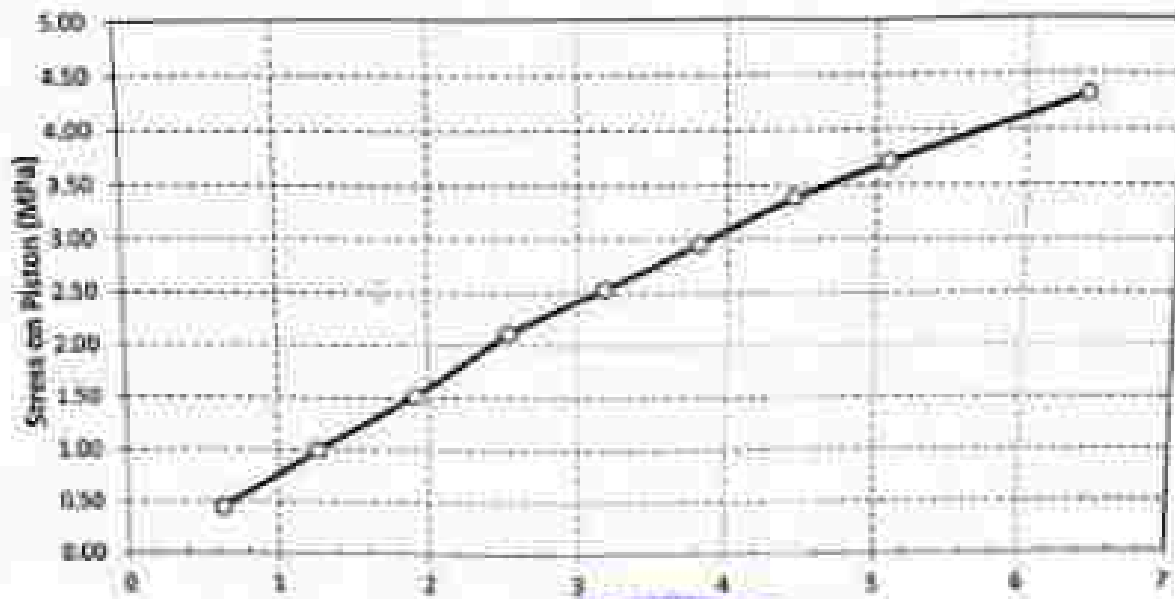
3 D Mark E. Alsol Stew
Fardos, Cairo
Tel Fax: 2367127 - 2367083



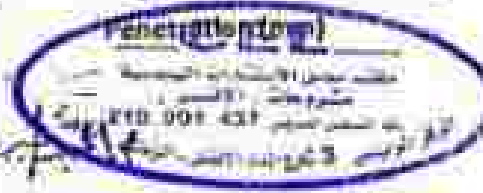
مركز خدمات العملاء
إيميل: info@cel.com
فيسبوك: CEL

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / 



15 Mile E. Alot Shaw
Zimmi City
NA Fax: 206227 - 279000



28/8/2023
م. م. م. م.
م. م. م. م.

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Dear Gentleman,

Attached here with the delivered on 14 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	98.5
25	1	88.3
19	¾	77.8
12.50	½	70.3
9.50	3/8	66.7
4.75	4	61.6
2.00	10	47.8
0.425	40	28.1

Signature: 

3 El Maha El Alai Street
Zamalek, Cairo
Tel & Fax : 2360721 - 2360700



إم. السيد
م. السيد
م. السيد

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	13.5

CEL
Signature: 
مهندس محمد عبد الله عبد الله

3 El Mask El Akad Street
Zamalek, Cairo
Tel/Fax : 02567007 - 02560003

IAS
ACCREDITED

إلى هيئة المسحور
فرعك القاهرة
شماره هاتفى ٠٢٥٦٧٠٠٠٧ - ٠٢٥٦٠٠٠٣



Consulting Engineering Bureau & Laboratories
مكتبه محامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
Dr. Ehab El-Ashry
215/021-257
م. الذهبى 3 شارع عبد المنعم العبدى

J E Male El Ashry Street
Zagazig, Egypt
Tel/Fax: 01017621 - 01010003



م. الذهبى 3 شارع عبد المنعم العبدى
01017621-01010003
01017621-01010003

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Soil Classification

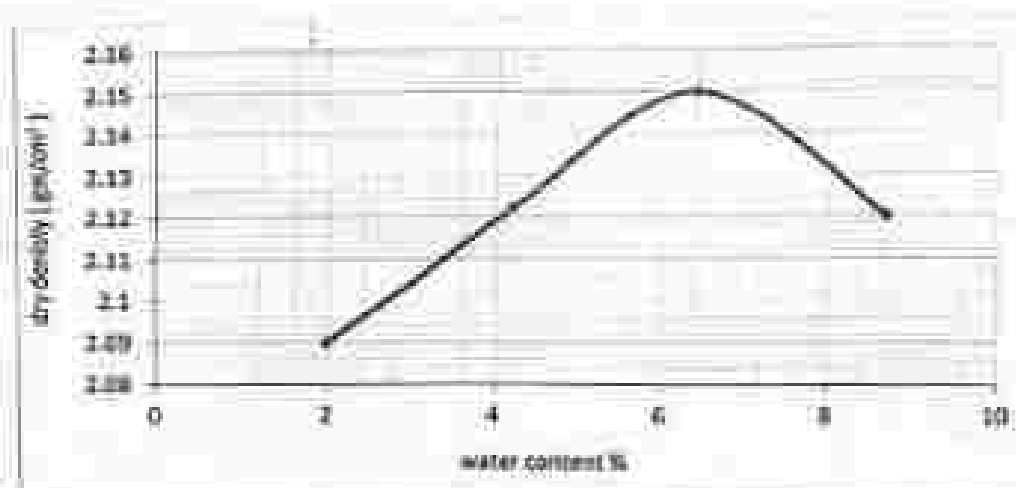
TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	47.8	Max 50 %	—	—
0.425 mm (No. 40).	26.1	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	13.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature 

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.15
- Optimum moisture content % : 6.4 %

Signature

Signature of the Engineer
Dr. Mohamed El-Ahadi
210, 551, 437
210, 551, 437

1 El Nile El Agha Street
Zamalek, Cairo
Tel/Fax: 27167021 - 27183003

IAS
ACCREDITED
BY ISO 9001

إدارة مشاريع
الهندسة المدنية
الهندسة المعمارية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	inch	
0.64	0.025	0.75
1.27	0.050	1.52
1.91	0.075	2.23
2.54	0.100	2.99
3.18	0.125	3.65
3.81	0.150	4.21
4.45	0.175	4.67
5.08	0.200	4.97
6.35	0.250	5.07

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	43.4 %
	6.90	2.99	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.15 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load = 10 kg
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 


2-E-Mohd E-Hassan
Zirah, Giza
Tel/Fax: 2130521 - 2130000



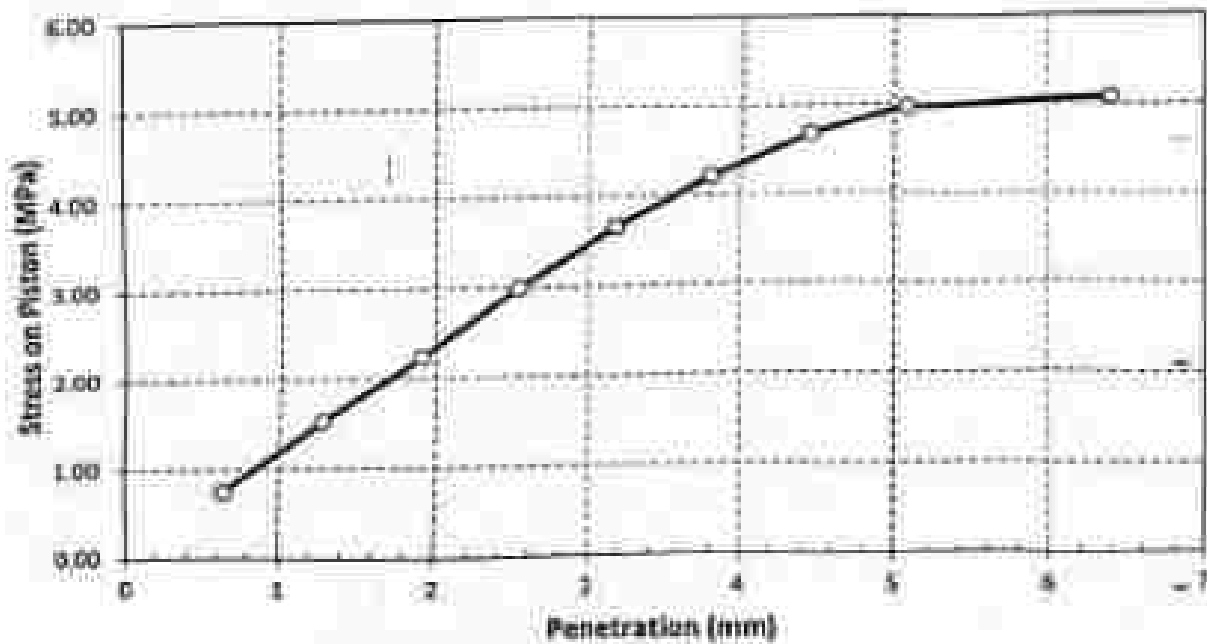
المركز الهندسي
الاستشاري
للحلول
www.ias-engineering.com

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature 
CEL
Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

3 El Marki El Akad Street
Zirahat, Cairo
Tel/Fax: 2330721 - 2330388

IAS
ACCREDITED
Testing Laboratory

إمارة القاهرة
شركة الاستشارات
الهندسية
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 29/08/2023
Soil type : Upper Embankment
Location : St From 641+440/641+620
Level : - 3.5 M
Report No. : 47

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

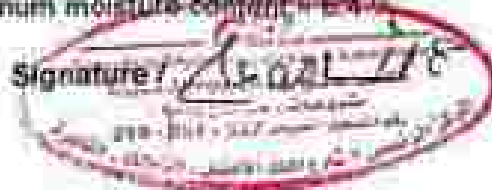
Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+480	1405	2.28	5.5	2.16	99.0%	Comply
2	641+520	1544	2.22	5.4	2.10	96.4%	Comply
3	641+560	835	2.28	5.8	2.16	98.9%	Comply
4	641+600	1516	2.22	5.6	2.10	96.3%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.16 gm/cm³
- At optimum moisture content = 5.4%

•

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Dear Gentleman,

Attached here with the delivered on 24 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883.

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IS)	Passing %
50	2	99.1
37.5	1.5	92.4
25	1	88.2
19	3/4	83.4
12.50	1/2	78.5
9.50	3/8	70.1
4.75	4	56.2
2.00	10	37.9
0.425	40	15.2

Signature /

Dr. Hani E. Alami
Zandén, Cairo
Tel/Fax: 27362211 - 27362283



إدارة المعاملات
مركز القاهرة
للمقاييس والمعايير

CEL

Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	45

Signature

3 E Hana E Alsa Street
Zaraka, Cairo
Tel/Fax: 27363021 - 27363083



شركة الاستشارات الهندسية
إدارة الجودة
شماره تسجيل: 27363083

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 
2408 218-091-827

1 El Nile El Ahdal Street
Zamalek, Cairo
Tel/Fax: 27369231 - 27369262



مركز المعاملات
الزمالك، القاهرة
هاتف: 27369231 - 27369262

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qons To Armanat
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	37.9	Max 50 %	—	—
0.425 mm (No. 40)	15.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	4.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 

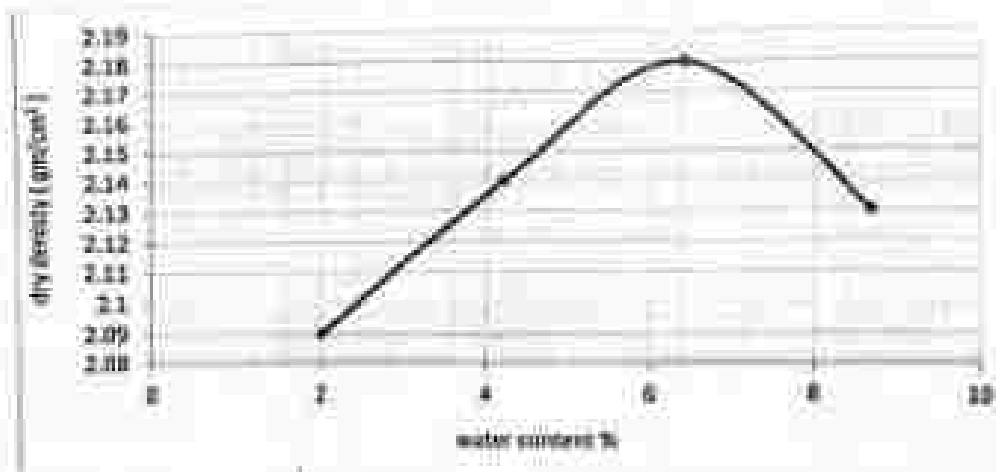
1 El Mans El Amir Street
Zaria, Cairo
Tel Fax: 3362771 - 3362063



مركز المختبرات الهندسية
القاهرة - القاهرة
تليفون - فاكس : 3362771 - 3362063

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.18
- Optimum moisture content % : 6.4 %

Signature /

JEMAM E Alaa Street
Zoraba, Cairo
Tel/Fax: 3736224 - 3736263



28 أغسطس 2023
مكتب الدراسات الهندسية
الهندسة المدنية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.30
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.30
3.18	0.125	4.16
3.81	0.150	4.77
4.45	0.175	5.22
5.08	0.200	5.47
6.35	0.250	5.58

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	47.8 %
	8.90	3.30	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.18 \text{ (gm/cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load ~~50%~~ **50%**
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

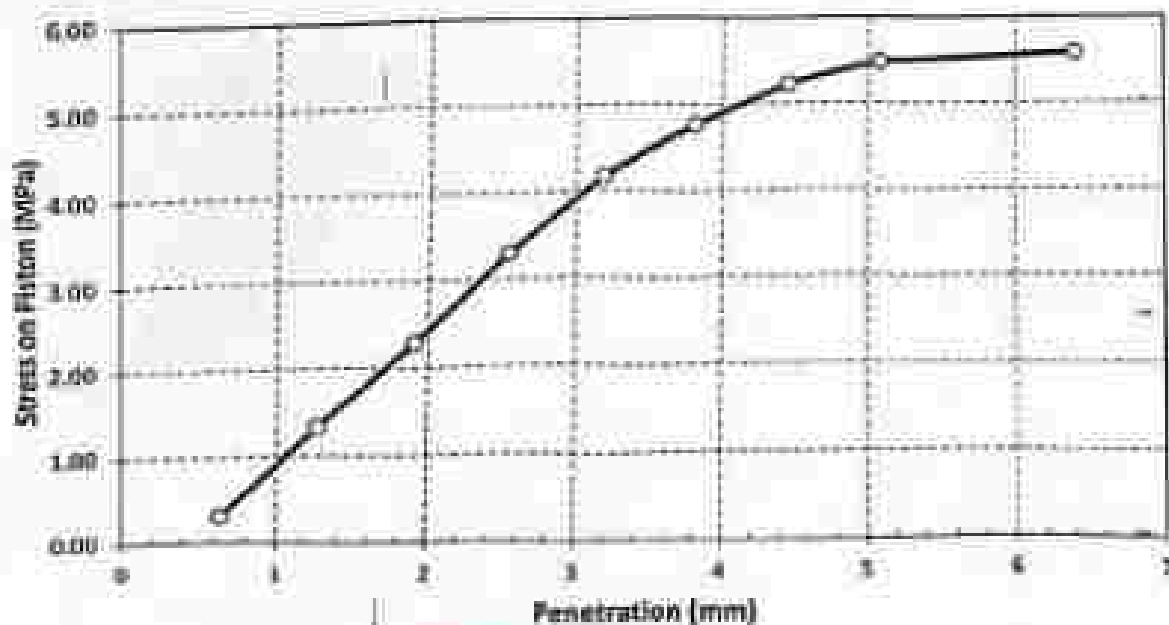
3 D-Mile El Alai Drive
Zestis, Cairo
Tel Fax: 2230721 - 2730083



مكتب الاستشارات الهندسيه
الرياضه العربيه
الرياضه العربيه

Company Name : شركة الذعبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /

[Handwritten Signature]
CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

3 El Mahdi El Attia Street
Zamalek, Cairo
Tel-Fax : 27367271 - 27368669



مركز المعايير القياسية
الهيئة العامة
شعبة (01) - 1434
TQM-11-2011/11/11

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - BSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Dear Gentleman,

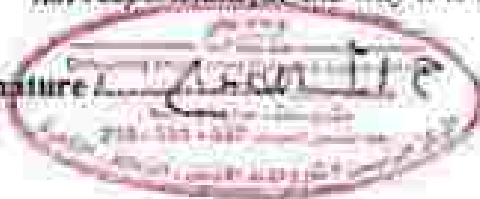
Attached here with the delivered on 24 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



3 El-Hayek El-Arabi Street
Zakaria, Cairo
Tel & Fax: 27367231 - 27363093



إلى السيد المهندس
مركز القاهرة
للتحليلات
البيئية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-421

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.1
37.5	1.5	92.4
25	1	88.2
19	¾	83.4
12.50	½	78.5
9.50	3/8	70.1
4.75	4	56.2
2.00	10	37.9
0.425	40	15.2

Signature /


Engineer /

3 El Mah E Alot Street
Zamalek, Cairo
Tel/Fax : 0115272711 - 27350000



28 أغسطس 2023
مكتب الذهبى
(01152727271 - 27350000)



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	4.5

Signature /

101 Main E And Street
Zamalek, Cairo
Tel/Fax (1156722) - (2730308)



مركز معمل الاستشارات
القاهرة - القاهرة
الهاتف : (1156722) - (2730308)

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature/

3-B Nile E-Abad Street
Zorah, Cairo
Tel/Fax: 2736721 - 2736703



إدارة البناء والاساسات
الزراعة - القاهرة
الطريق - القاهرة - 2736721 - 2736703

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10).	37.9	Max 50 %	—	—
0.425 mm (No. 40).	15.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	4.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / 

30 Miles El Hda Street
Zakia, Cairo
Tel/Fax: 2336723 - 2336723



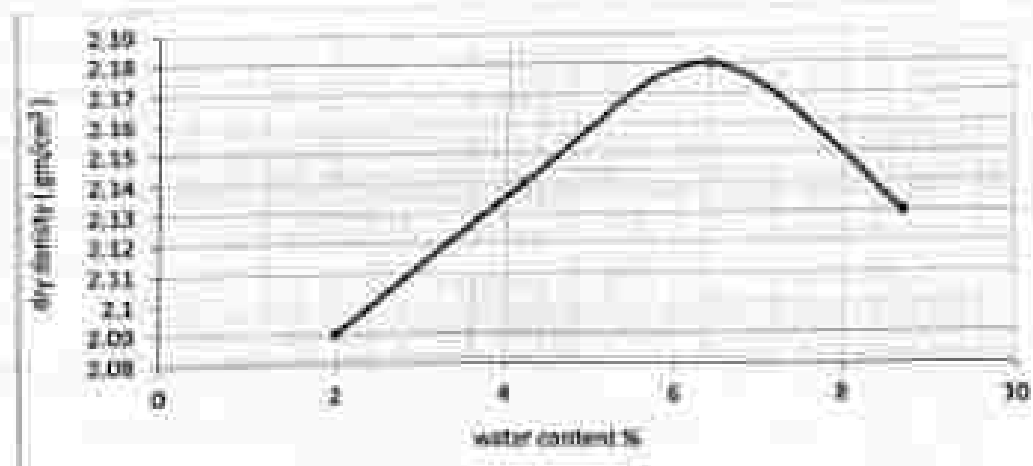
30 ميل هدا
زكية القاهرة
هاتف/فاكس: 2336723 - 2336723

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الاهي
Project : Electric Express Train - HSR From Qous To Armat -
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.18
- Optimum moisture content % : 6.4 %

Signature

3 El Nil St. 1st Floor
Zamalek, Cairo
Tel & Fax: 27367231 - 27360040

IAS
ACCREDITED
Testing Laboratory

إمارة القاهرة
القاهرة - مصر
الهندسة المدنية - الجيوتقنية

Company Name : شركة الذفري
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1557

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.30
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.30
3.18	0.125	4.16
3.81	0.150	4.77
4.45	0.175	5.22
5.08	0.200	5.47
6.35	0.250	5.58

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	47.8 %
	6.90	3.30	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.18 \text{ (gm/cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page no 36.

Signature: 

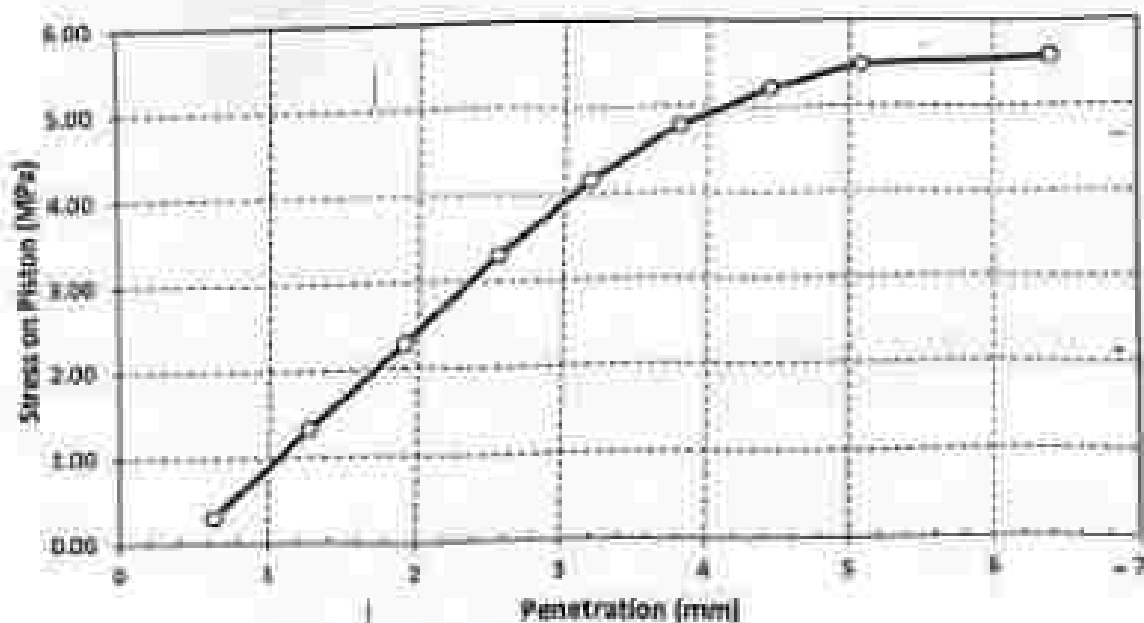
3 El Malek El Atad Street
Zarqa, Jord
Tel Fax: 07957231 - 07960093



3 El Malek El Atad Street
Zarqa, Jord
Tel Fax: 07957231 - 07960093

Company Name : شركة الاهي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / 

Dr El Mahdi El Mahi Ghannem
Zamalek, Cairo
Tel/Fax: 33367527 - 33363888



م. المهندس المصطفى
م. المهندس المصطفى
م. المهندس المصطفى

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Testing Date : 03/09/2023
Soil type : Middle Embankment
Location : St From 641+620 To 641+720
Level : - 3 M
Report No. : 54

Compaction test by using Sand - Cone Test Method
ASTM D-1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+650	1058	2.22	5.3	2.11	95.6%	Comply
2	641+680	1404	2.20	5.3	2.09	95.1%	Comply
3	641+710	1063	2.24	5.5	2.12	96.5%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

• Signature : 


3 El-Mark El-Mat Street
Zamalek, Cairo
Tel/Fax : 3760021 - 3760088



المركز الهندسي
الاستشارات
مكتب معامل الاستشارات الهندسية

CEL

Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Quas To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10


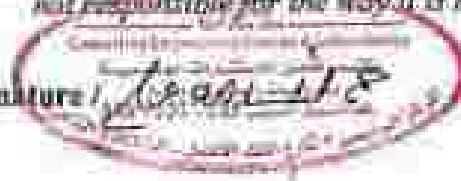
Dear Gentleman,

Attached here with the delivered on 24 / 8 / 2023.

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature / 


115 Main St. 1st Floor
Doha, Qatar
Tel: Fax: 2766227 - 2766228




المعتمد
مكتبه المعتمد
2766227 - 2766228

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	98.4
25	1	92.3
19	¾	89.1
12.50	½	80.6
9.50	3/8	70.6
4.75	4	59.4
2.00	10	40.9
0.425	40	25.1

CEL
Signature: 
210-731-233
شركة الذهبى للاستشارات الهندسية

3 El Misha El Asha Street
Zakaria, Cairo
Tel&Fax : 27367231 - 27363659



شركة الذهبى للاستشارات
المعتمدة
210-731-233 / 27363659

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	12.5

Signature

[Handwritten Signature]
مختبر الاستشارات الهندسية
مكتب معمل الاستشارات الهندسية
218-521-422
218-521-422



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
2023/08/28

3 El Male El Aghal Street
Zamalek, Cairo
Tel. Fax : 23362221 - 23360663



في مكتب الاستشارات
الهندسية الذهبى
القاهرة - مصر
HSE-19-003-195

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qoms To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	40.9	Max 50 %	—	—
0.425 mm (No. 40).	25.1	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	12.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /



3 El Mina El Had Street
Zindagi, Cairo
Tel Fax: 27362211 - 27362053



شركة مهندسات الاستشارات الهندسية
مكتب مهندسات الاستشارات الهندسية
شركة مهندسات الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	inch	
0.64	0.025	0.30
1.27	0.050	1.42
1.91	0.075	2.43
2.54	0.100	3.45
3.18	0.125	4.41
3.81	0.150	5.12
4.45	0.175	5.73
5.08	0.200	6.04
6.35	0.250	6.24

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value 6.90	Sample results 3.45	50 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.20 \text{ (gm./cm}^3\text{)}$
At $\approx 6.4 \%$ optimum water content.
- 3- Surcharge load 4.50 K_s
- 4- CBR > 10 for middle and lower embankments according project spec page No 35.

Signature : 

10 Mark E-Road Blvd
Zirahh, Cairo
Tel Fax: 2736231 - 2736233



مركز دراسات
البنية التحتية
الطرق - القاهرة

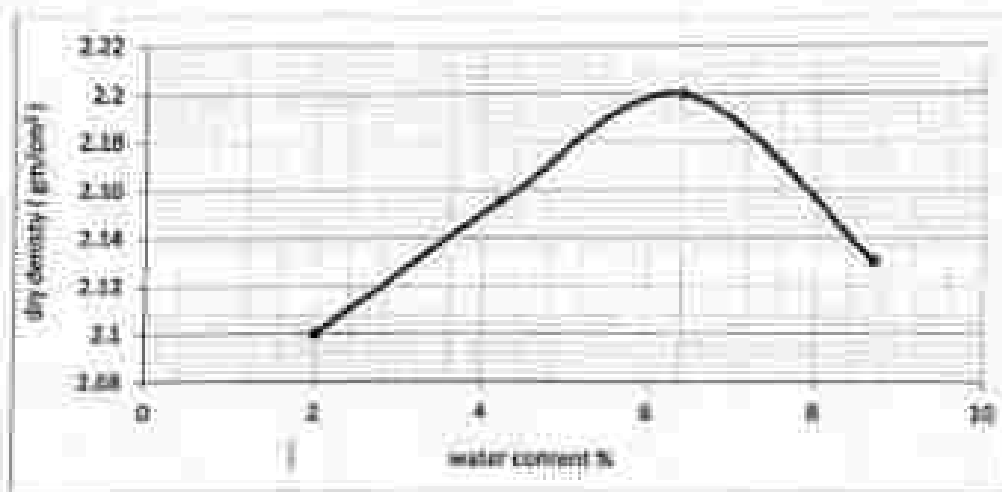
CEL

Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Molsture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature /

1 El Mahdy El Aini Street
Dokki, Cairo
Tel/Fax : 23662271 - 23662243

IAS
ACCREDITED
Quality Management

في مكتب الاستشارات
الهندسية
شركة الذهبى
23662271 - 23662243

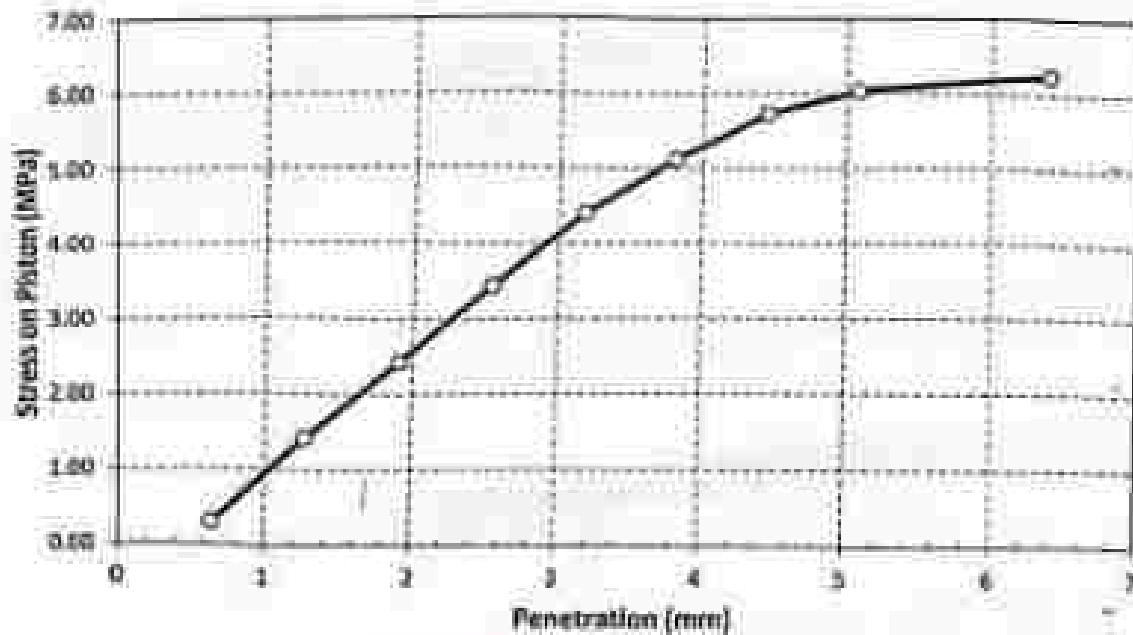
CEL

Consulting Engineering Bureau & Laboratories

مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat –
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Load Penetration Curve of CBR Test ASTM D-1883



Signature



3 El Masr El Atay Street
Zamalek, Cairo
Tel/Fax : 27360231 - 27360230



أمر المصادقة
أمر المصادقة
أمر المصادقة

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armut
Testing Date : 03/09/2023
Soil type : Middle Embankment
Location : St From 641+000 To 641+160
Level : - 1.75 M
Report No. : 52

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+030	1644	2.29	5.5	2.17	98.4%	Comply
2	641+060	1058	2.22	5.3	2.11	95.8%	Comply
3	641+090	1065	2.23	5.5	2.12	96.3%	Comply
4	641+120	1404	2.20	5.5	2.09	95.0%	Comply
5	641+150	1647	2.20	5.3	2.09	95.0%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

Signature : 

3 El Mina El Ahl Dum
Zagazig, Egypt
Tel/Fax : 77367001 - 77367002



إدارة المختبر
مركز الأبحاث
البيانات والمعلومات



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأدهي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Dear Gentleman,

Attached here with the delivered on 24 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422
2. Material finer than sieve No. 200 according to ASTM D-1140,
3. Liquid limits and plasticity index of soil according to ASTM D-4318,
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature 
Mohamed El-Hadi
24/8/2023

5 El-Mah El-Hadi Street
Zewail, Cairo
Tel/Fax: 22367231 - 22367232



مركز معمل الأدهي
الزوايل | القاهرة
هاتف/فاكس: 22367231 - 22367232



Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qina To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	98.4
25	1	92.3
19	3/4	89.1
12.50	1/2	80.6
9.50	3/8	70.6
4.75	4	39.4
2.00	10	40.9
0.425	40	25.1

Signature: 
CEL
CONSULTING ENGINEERING BUREAU & LABORATORIES
115, 3RD FLOOR, EL-DOKKI, CAIRO
TEL: 011 391 1111

Signature of the Client
Date: 28/08/2023
Name: Mr. Mohamed El-Sayed



Signature of the Engineer
Date: 28/08/2023
Name: Mr. Mohamed El-Sayed



Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	12.5



3 El Mada El Had Street
Zandara, Cairo
Tel/Fax: 23360231 - 23360093



إدارة الهندسة
الاستشارات
الهندسية



Consulting Engineering Bureau & Laboratories
مكتب معمل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armani -
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
Dr. Hisham Al-Ashour
Head of Laboratory
2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023

3 El Malek El Arabi Street
Zamalek, Cairo
Tel/Fax: 27307501 - 27300080



Dr. Hisham Al-Ashour
Head of Laboratory
2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	40.9	Max 50 %	—	—
0.425 mm (No. 40).	25.1	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	12.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature

[Handwritten Signature]
م. عبد الله
219-504-527
219-504-527
م. عبد الله

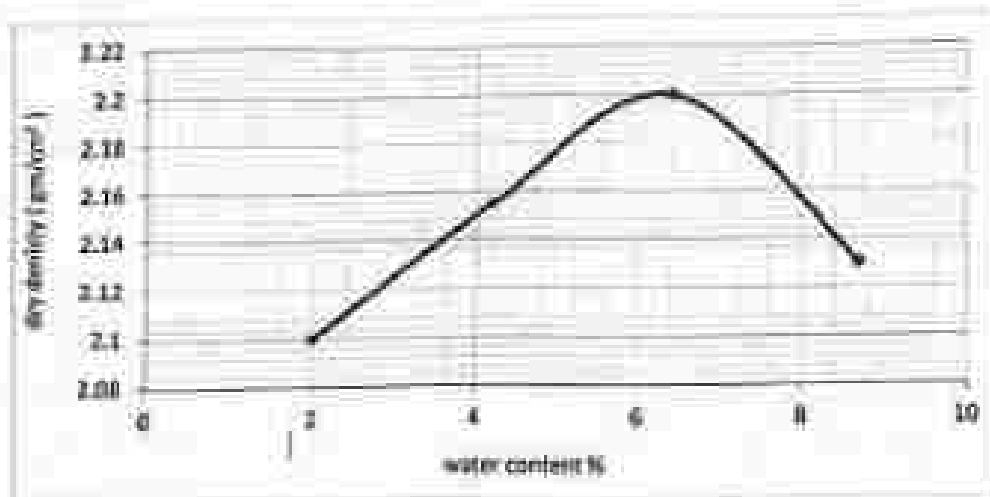
521 Main E- Road Street
Zaria, Cairo
SAFRI 2150121 - 2150100



م. عبد الله
219-504-527
219-504-527
م. عبد الله

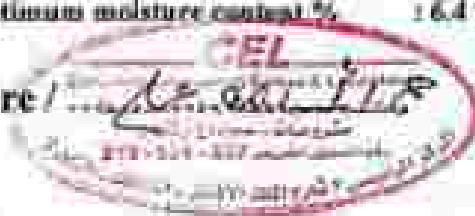
Company Name : شركة الزهبي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature /



3 El Mans El Mout Street
Zakaria, Cairo
Tel/Fax: 27367231 - 27363081



إدارة المختبر
الهيئة العامة
للبحوث والدراسات
الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.30
1.27	0.050	1.42
1.91	0.075	2.43
2.54	0.100	3.45
3.18	0.125	4.41
3.81	0.150	5.12
4.45	0.175	5.73
5.08	0.200	6.04
6.35	0.250	6.24

CBR/Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	50 %
	6.30	3.45	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20 (gms /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load = 5035g
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

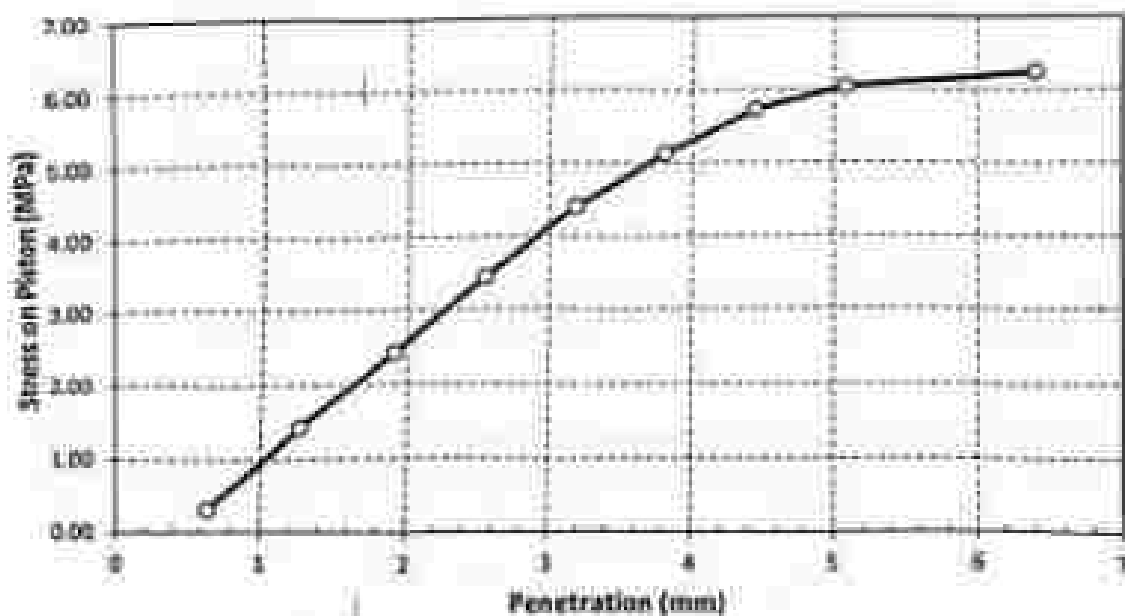
3 El Most El Atai Street
Zamalek, Cairo
Tel/Fax : 3366722 - 3366300



د. جمال الدين
إبراهيم محمد
مدير المختبر

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Load Penetration Curve of CBR Test



Signature

20 Mark E. 41st Street
Brooklyn, Calif.
Tel/Fax: 310/671-2777 • 310/671-2777



9 من علماء الإسلام
 في مكة المكرمة
 1430 هـ



Consulting Engineering Bureau & Laboratories
مكتب معمل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Arment

Testing Date : 06/09/2023

Soil type : Middle Embankment

Location : St From 641+440 To 641+620

Level : - 3 M

Report No. : 55

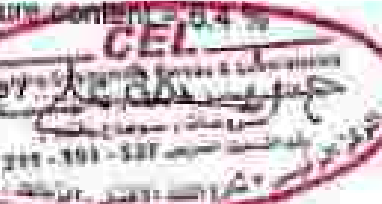
Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+470	2046	2.22	5.3	2.10	95.2%	Comply
2	641+500	1856	2.22	5.5	2.10	95.2%	Comply
3	641+530	1353	2.22	5.5	2.11	95.4%	Comply
4	641+560	1544	2.22	5.3	2.10	95.2%	Comply
5	641+590	1398	2.21	5	2.11	95.3%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.4 %

Signature :


Engineer Mohamed El-Mahdy
Consulting Engineering Bureau & Laboratories
CEL
249 - 191 - 187
249 - 191 - 187

3 El Mah El-Ahmed Street
Zamalek, Cairo
Tel/Fax: 27307531 - 27307550



شركة الذهبى
الهندسة والاستشارات
مكتب معمل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qons To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman,

Attached here with the delivered on 31/8/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature /



3 El Malek El Alad Street
Zerokh, Cairo
Tel& Fax: 27367211 - 27363083



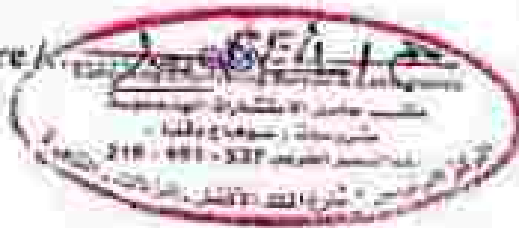
إدارة معمل الاستشارات
الزمالك - القاهرة
الهاتف : 27367211 - 27363083

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.9

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 

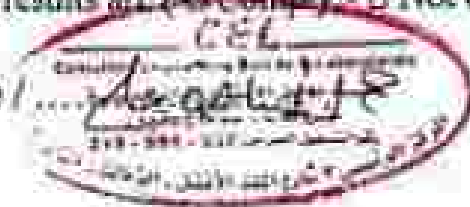
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	41.2	Max 50 %	—	—
0.425 mm (No. 40)	28.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (~~Not~~ Comply - ☒ Not Comply) with specifications limits

Signature /


CEL
Consulting Engineering Bureau & Laboratories
215 - 588 - 517
شركة الذهبى للاستشارات الهندسية - القاهرة

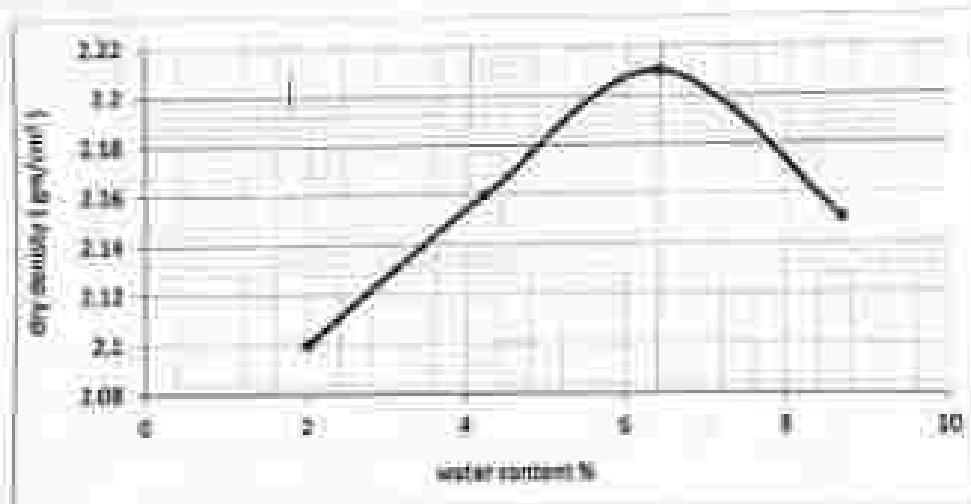
J E Maki E-About Show
Zemzet, Cairo
Tel/Fax: 215/5231 - 215/5203



إدارة المختبر
إبراهيم محمود
مهندس / Engineer

Company Name : شركة النخيل
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature



3 El-Mark El-Ahmed Street
Zamalek, Cairo
Tel/Fax: 22305231 - 22310003



إدارة المختبر
مختبر
مختبر

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Test Results of California Bearing Ratio on Base Materials ASTM D 1557

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

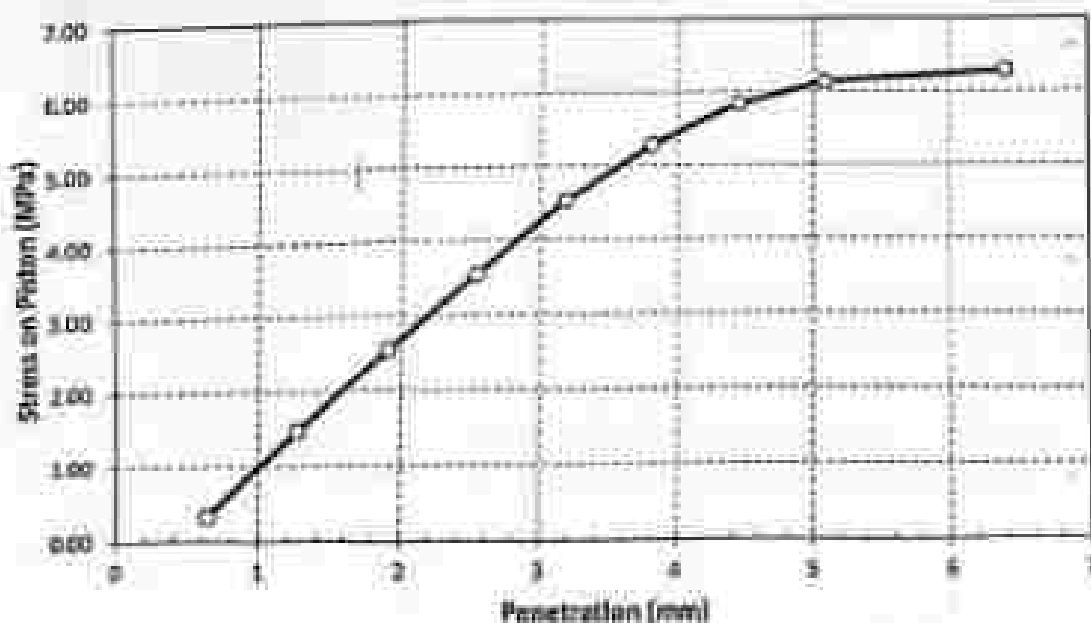
1 P. Mounir E. Al-Sayid
Director, Cairo
Tel/Fax: 2285237 - 2285238



Dr. Mounir E. Al-Sayid
Director, Cairo
Tel/Fax: 2285237 - 2285238

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Load Penetration Curve of CBR Test ASTM D-1583



Signature _____



3 E. 2nd St. E. Apt. 202
 Fort Collins, Colo.
 Tel./Fax: 970/221-1111 • JFW@FCCO.EDU



* مركز البحوث
 * مركز البحوث
 * مركز البحوث

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبارات

Company Name : شركة النقي
Project : Electric Express Train - HSR From Qous To Arمنت
Testing Date : 07/09/2023
Soil type : Middle Embankment
Location : St From 641+160 To 641+300
Level : -2 M
Report No. : 58

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	641+180	1792	2.25	5.5	2.13	96.6%	Comply
2	641+230	1698	2.24	5.3	2.13	96.3%	Comply
3	641+260	1374	2.25	5.5	2.14	96.5%	Comply
4	641+290	1058	2.22	5.3	2.10	95.1%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 6.4%
-

Signature / 
Engineer / 
Date : 07/09/2023
Place : Qous

HEMAD E. Al-Hadi
General Manager
Tel: 011-331-1311

IAS
Engineering & Construction

Qous
07/09/2023

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman,

Attached here with the delivered on 31 / 8 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature 
مكتب معامل الاستشارات الهندسية
شركة الذهبى
رقم الترخيص الهندسى ١٤٤١ - ١٤٤٢ - ١٤٤٣
الشارع الرئيسى ٢ شارع الهندسة - القاهرة



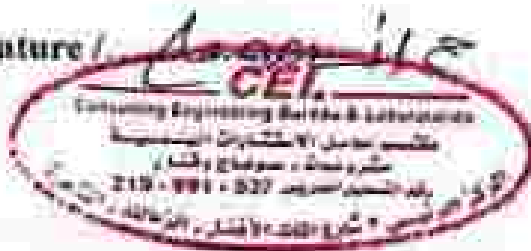
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.9

Signature /



3 E Malek El Abdel Street
Zerzen, Cairo.
Tel/Fax: 27367231 - 27359683



إلى السيد المهندس
السيد المهندس
السيد المهندس

CEL

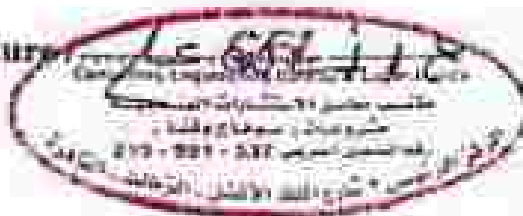
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature



3 El-Malak El-Ahmed Street
Zamalek, Cairo
Tel&Fax: 27367237 - 27360003



مركز فليلك الاندس
فرعك الهندسي
الهندسة المدنية

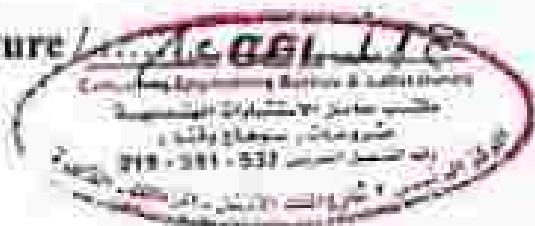


Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	41.2	Max 50 %	-----	-----
0.425 mm (No. 40).	28.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature



3 E-Mail E-Alerts Direct
Twitter: @EAlerts



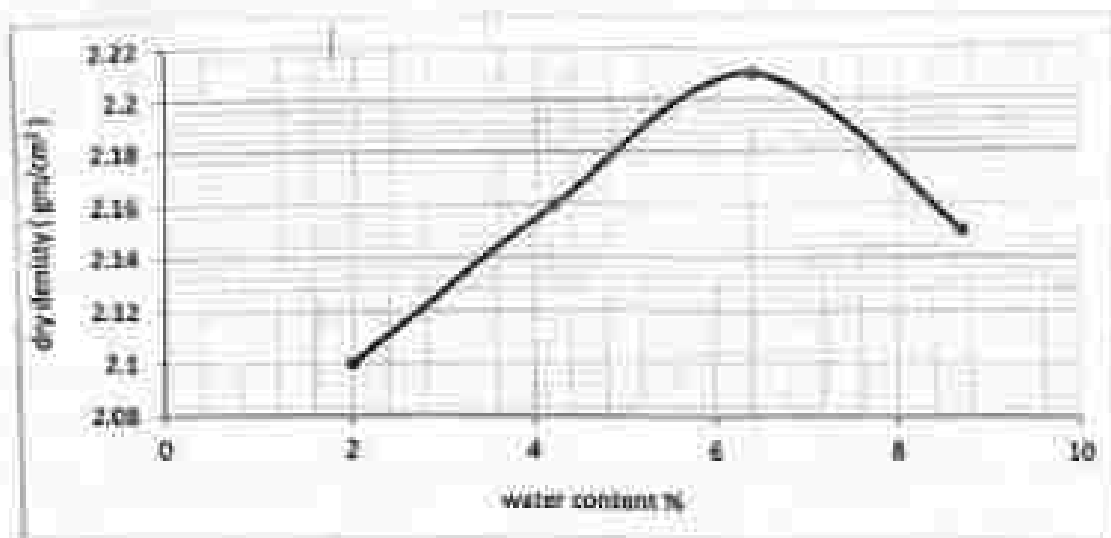
1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.99	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm /cm}^3\text{)}$
At $\approx 6.4 \%$ optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for mid and low embankments, according project spec page No 36.

Signature

Dr. El Mostafa El Ghayour
Zarqa, Jordan
Tel & Fax: 02047531 - 02765345



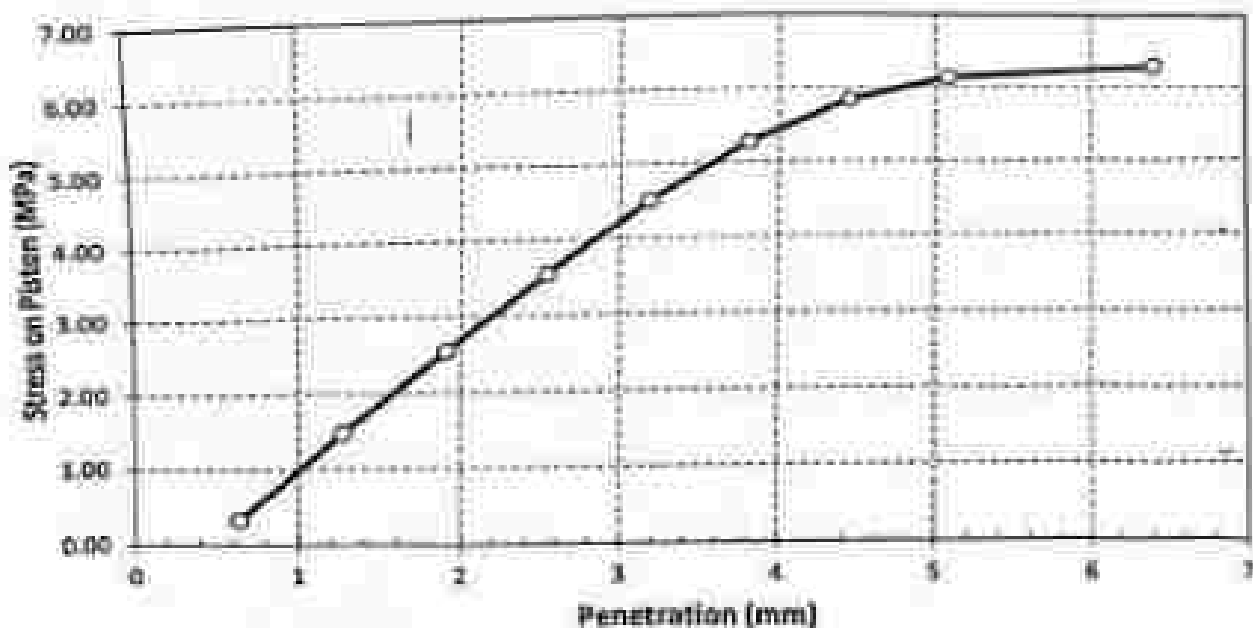
مركز البحوث والدراسات
الزرقاء - الأردن
هاتف: 02047531 - 02765345

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature

CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
218 - 591 - 537
القاهرة - مصر

3 El Madi El Arad Street
Zakaria, Cairo
T/A Fax : 27162331 - 27162350

IAS
ACCREDITED
Testing & Calibration

مركز اختبار المعايير
التركيبة : القاهرة
تليفون : 27162331 - 27162350

Company Name : شركة الذهبى

Project : Electric Express Train – HSR From Qous To Armant

Testing Date : 12/09/2023

Soil type : Middle Embankment

Location : St From 641+160 To 641+300

Level : -2 M

Report No. : 58

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+180	1792	2.25	5.5	2.13	97.0%	Comply
2	641+230	1698	2.24	5.3	2.13	96.8%	Comply
3	641+260	1374	2.25	5.5	2.14	97.1%	Comply
4	641+290	1058	2.22	5.5	2.10	95.6%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density =2.20 gm/cm³
- At optimum moisture content = 6.4 %

• Signature: 

15/ Main B. Max 55/577
Zotatin, Card
Tel/Fax: 2724720 - 2724701



إلى المهندس
مكتب الذهبى
مكتب الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Dear Gentleman,

Attached here with the delivered on 7/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature /


The stamp is an oval-shaped red ink mark. It contains the text 'CEL' at the top, followed by 'Consulting Engineering Bureau & Laboratories' in English and Arabic. Below this, there is a signature in Arabic script. At the bottom of the stamp, the phone number '27360221 - 27360083' is printed.

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.6

Signature /



3 E. Malek E. Aldal Street
Zoraba, Cairo
Tel/Fax : 27352021 - 27352020



مركز المعايير
مركز المعايرة
مركز القياس

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	90.1
19	¾	84.2
12.50	½	77.2
9.50	3/8	71.5
4.75	4	59.9
2.00	10	46.3
0.425	40	28.0

Signature /



3 El Mulek El-Rous Street,
Zamalek, Cairo
Tel/Fax: 27362521 - 27362001



م. محمد العبدى
إبراهيم الشاهد
م. محمد العبدى
TEL: 011-27362521

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



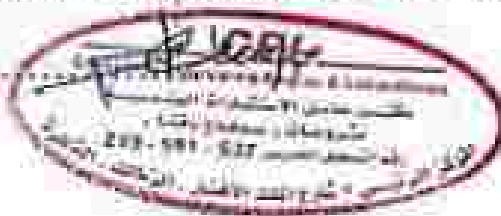
Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	46.3	Max 50 %	—	—
0.425 mm (No. 40)	28.0	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	9.6	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /



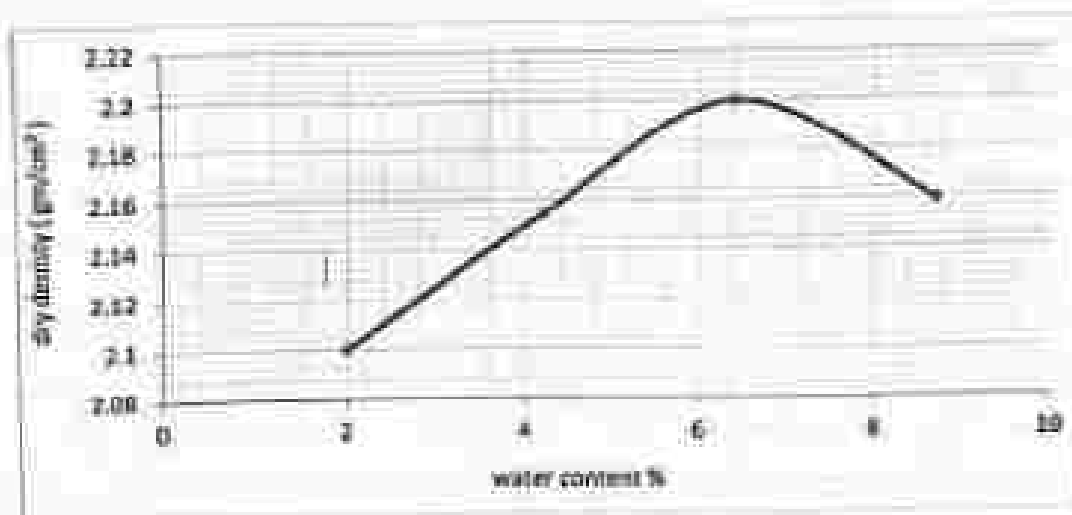
J E-Mohr E-Abdo Street
Zamalek, Cairo
Tel/Fax: 27362207 - 27362283



إبراهيم محمد
إبراهيم محمد
273-581-527

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.60
2.54	0.100	3.60
3.18	0.125	4.56
3.81	0.150	5.31
4.45	0.175	6.09
5.08	0.200	6.56
6.35	0.250	7.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52.1 %
	6.98	3.60	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20(gm /cm³)
A1 = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

3 El Mallah El Aush
Zirak, Cairo
Tel Fax: 23307237 - 23307661



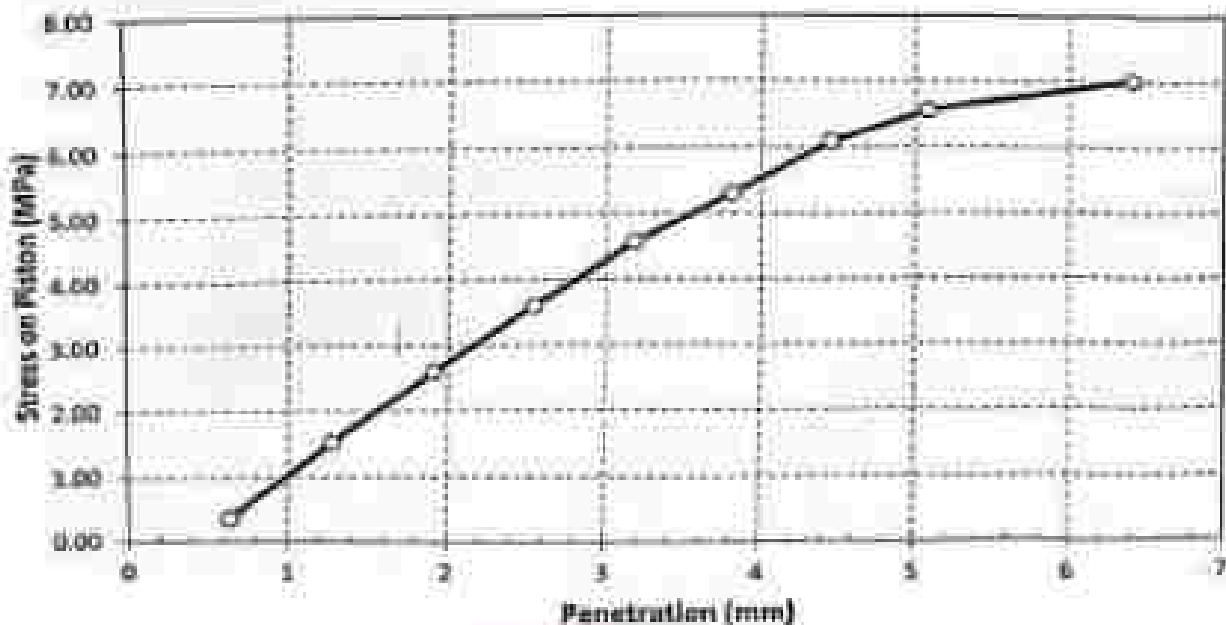
أحمد السيد العيسوي
إبراهيم - المهندس
المهندس - المهندس

CEL

Consulting Engineering Bureau & Laboratories
مكتب محال الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature /



3 D Mohd El Attar Elmer
Zaria, Cam
Tel/Fax : 27049531 - 27049532

IAS

شركة الاستشارات الهندسية
مكتب محال الاستشارات
مكتب محال الاستشارات

CEL

Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

Company Name : شركة الدقي
Project : Electric Express Train – HSR From Qous To Armut
Testing Date : 16/09/2023
Soil type : Middle Embankment
Location : St From 641+200 to 641+300
Level : -1.5 M
Report No. : 63

**Compaction test by using Sand – Cone Test Method
ASTM D- 1555**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+220	1826	2.24	6	2.11	95.9%	Comply
2	641+240	1440	2.23	6.4	2.10	95.2%	Comply
3	641+260	1633	2.23	6	2.11	95.7%	Comply
4	641+280	1042	2.28	5.8	2.16	98.1%	Comply

Degree of compaction based on proctor test dated A1

Max. dry density =2.18 gm/cm³

Optimum moisture content =5.4%

Signature



3 El Maza El Ahdal Street
Zamalek, Cairo
Tel/Fax: 23367231 - 23363283



شركة الدقي
مركز القاهرة
الهاتف 23367231 - 23363283

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman ,

Attached here with the delivered on 12 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

CEL
Consulting Engineering Bureau & Laboratories
Signature: 
278 - 281 - 337
شارع محمد عبد الحليم أبو الفوارس - القاهرة

JEMila E Atou Street
Zaraka, Cairo
Tel/Fax: 2230231 - 2230303



إلى مكتب المختبر
قريّة القاهرة
شماره التليفون : 22302311

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

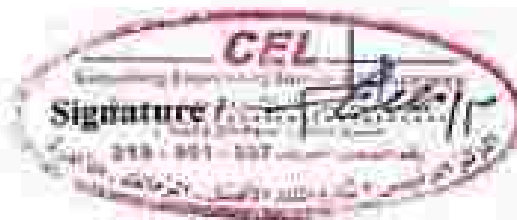
Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	9.9


Signature *[Handwritten Signature]*

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qons To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



Company Name : شركة الاهي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature / 

 مهندس / 
 رقم الترخيص: 200 - 001 - 033
 رقم الترخيص: 200 - 001 - 033

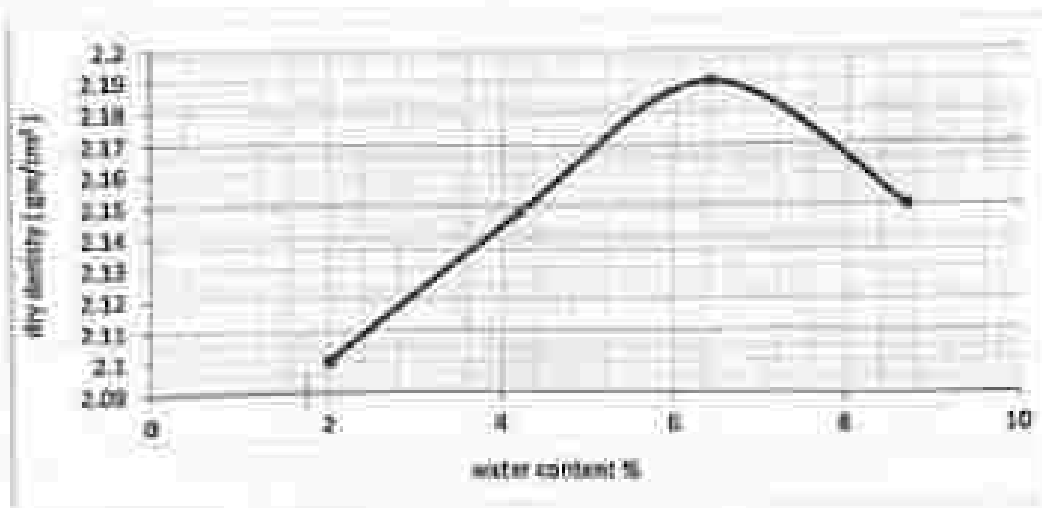
3 El Mank El Atad Street
Zamalek, Cairo
Tel/Fax: 27367331 - 27363683

IAS
ACCREDITED
Testing Laboratory

مركز المحامل الهندسية
الزمالك - القاهرة
الهاتف: 27367331 - 27363683

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature : 
215 - 458 / 422 / 423 / 424 / 425 / 426 / 427 / 428 / 429 / 430 / 431 / 432 / 433 / 434 / 435 / 436 / 437 / 438 / 439 / 440 / 441 / 442 / 443 / 444 / 445 / 446 / 447 / 448 / 449 / 450 / 451 / 452 / 453 / 454 / 455 / 456 / 457 / 458 / 459 / 460 / 461 / 462 / 463 / 464 / 465 / 466 / 467 / 468 / 469 / 470 / 471 / 472 / 473 / 474 / 475 / 476 / 477 / 478 / 479 / 480 / 481 / 482 / 483 / 484 / 485 / 486 / 487 / 488 / 489 / 490 / 491 / 492 / 493 / 494 / 495 / 496 / 497 / 498 / 499 / 500 / 501 / 502 / 503 / 504 / 505 / 506 / 507 / 508 / 509 / 510 / 511 / 512 / 513 / 514 / 515 / 516 / 517 / 518 / 519 / 520 / 521 / 522 / 523 / 524 / 525 / 526 / 527 / 528 / 529 / 530 / 531 / 532 / 533 / 534 / 535 / 536 / 537 / 538 / 539 / 540 / 541 / 542 / 543 / 544 / 545 / 546 / 547 / 548 / 549 / 550 / 551 / 552 / 553 / 554 / 555 / 556 / 557 / 558 / 559 / 560 / 561 / 562 / 563 / 564 / 565 / 566 / 567 / 568 / 569 / 570 / 571 / 572 / 573 / 574 / 575 / 576 / 577 / 578 / 579 / 580 / 581 / 582 / 583 / 584 / 585 / 586 / 587 / 588 / 589 / 590 / 591 / 592 / 593 / 594 / 595 / 596 / 597 / 598 / 599 / 600 / 601 / 602 / 603 / 604 / 605 / 606 / 607 / 608 / 609 / 610 / 611 / 612 / 613 / 614 / 615 / 616 / 617 / 618 / 619 / 620 / 621 / 622 / 623 / 624 / 625 / 626 / 627 / 628 / 629 / 630 / 631 / 632 / 633 / 634 / 635 / 636 / 637 / 638 / 639 / 640 / 641 / 642 / 643 / 644 / 645 / 646 / 647 / 648 / 649 / 650 / 651 / 652 / 653 / 654 / 655 / 656 / 657 / 658 / 659 / 660 / 661 / 662 / 663 / 664 / 665 / 666 / 667 / 668 / 669 / 670 / 671 / 672 / 673 / 674 / 675 / 676 / 677 / 678 / 679 / 680 / 681 / 682 / 683 / 684 / 685 / 686 / 687 / 688 / 689 / 690 / 691 / 692 / 693 / 694 / 695 / 696 / 697 / 698 / 699 / 700 / 701 / 702 / 703 / 704 / 705 / 706 / 707 / 708 / 709 / 710 / 711 / 712 / 713 / 714 / 715 / 716 / 717 / 718 / 719 / 720 / 721 / 722 / 723 / 724 / 725 / 726 / 727 / 728 / 729 / 730 / 731 / 732 / 733 / 734 / 735 / 736 / 737 / 738 / 739 / 740 / 741 / 742 / 743 / 744 / 745 / 746 / 747 / 748 / 749 / 750 / 751 / 752 / 753 / 754 / 755 / 756 / 757 / 758 / 759 / 760 / 761 / 762 / 763 / 764 / 765 / 766 / 767 / 768 / 769 / 770 / 771 / 772 / 773 / 774 / 775 / 776 / 777 / 778 / 779 / 780 / 781 / 782 / 783 / 784 / 785 / 786 / 787 / 788 / 789 / 790 / 791 / 792 / 793 / 794 / 795 / 796 / 797 / 798 / 799 / 800 / 801 / 802 / 803 / 804 / 805 / 806 / 807 / 808 / 809 / 810 / 811 / 812 / 813 / 814 / 815 / 816 / 817 / 818 / 819 / 820 / 821 / 822 / 823 / 824 / 825 / 826 / 827 / 828 / 829 / 830 / 831 / 832 / 833 / 834 / 835 / 836 / 837 / 838 / 839 / 840 / 841 / 842 / 843 / 844 / 845 / 846 / 847 / 848 / 849 / 850 / 851 / 852 / 853 / 854 / 855 / 856 / 857 / 858 / 859 / 860 / 861 / 862 / 863 / 864 / 865 / 866 / 867 / 868 / 869 / 870 / 871 / 872 / 873 / 874 / 875 / 876 / 877 / 878 / 879 / 880 / 881 / 882 / 883 / 884 / 885 / 886 / 887 / 888 / 889 / 890 / 891 / 892 / 893 / 894 / 895 / 896 / 897 / 898 / 899 / 900 / 901 / 902 / 903 / 904 / 905 / 906 / 907 / 908 / 909 / 910 / 911 / 912 / 913 / 914 / 915 / 916 / 917 / 918 / 919 / 920 / 921 / 922 / 923 / 924 / 925 / 926 / 927 / 928 / 929 / 930 / 931 / 932 / 933 / 934 / 935 / 936 / 937 / 938 / 939 / 940 / 941 / 942 / 943 / 944 / 945 / 946 / 947 / 948 / 949 / 950 / 951 / 952 / 953 / 954 / 955 / 956 / 957 / 958 / 959 / 960 / 961 / 962 / 963 / 964 / 965 / 966 / 967 / 968 / 969 / 970 / 971 / 972 / 973 / 974 / 975 / 976 / 977 / 978 / 979 / 980 / 981 / 982 / 983 / 984 / 985 / 986 / 987 / 988 / 989 / 990 / 991 / 992 / 993 / 994 / 995 / 996 / 997 / 998 / 999 / 1000

3 E-Mark, E-Armat Street
Zamalek, Cairo
Tel/Fax: 27367231 - 27363093



في مكتب المعامل
في مكتب المعامل
في مكتب المعامل

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge used 4.50 Kg.
- 4- CBR ≥ 10 for middle and lower embankments according project spec page No 35.

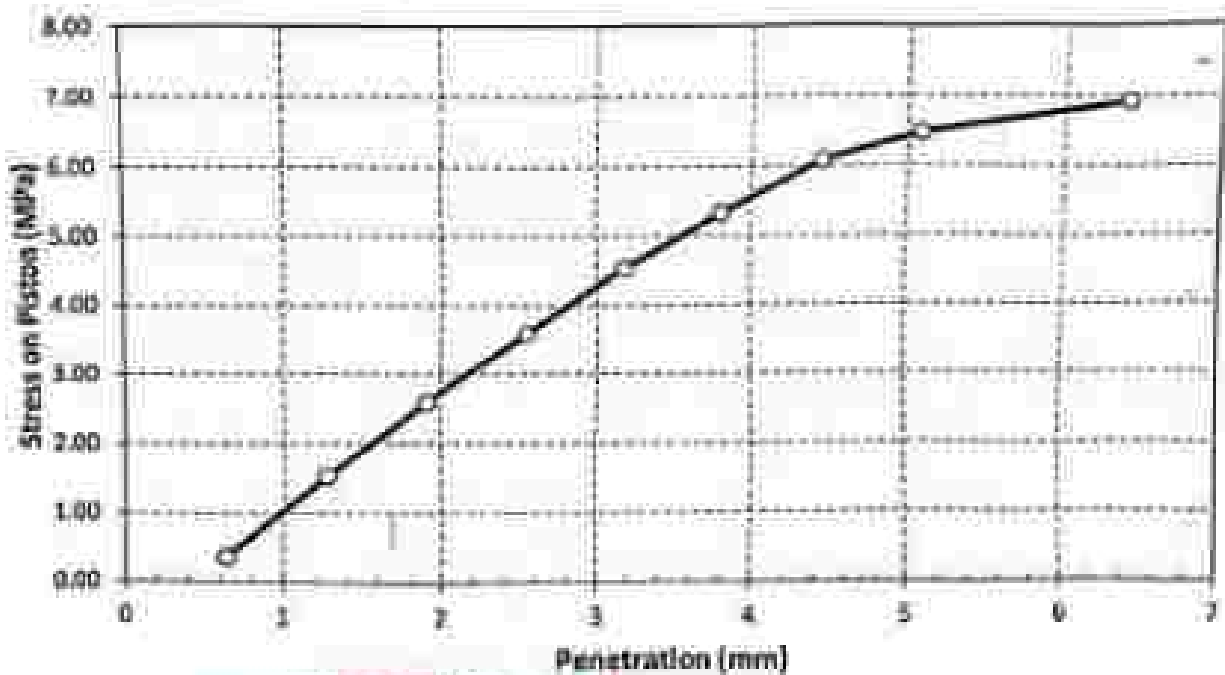
Signature: 
210 - 271 - 537
10 Malek Drakin, Cairo
Tel/Fax: 27367201 - 27367602



إبراهيم محمد الجبالي
إبراهيم الجبالي
مهندس - م.د.ع.م.

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test
ASTM D-1883



Signature: 
2023-09-12
273-703-CEL

Contents : شركة الاهلي للمقاولات والتوريدات المعمارية :

Project : Electric Traction Tests - Sector (2) - Giza to Asyut.
Subject : Determine the deformation and strength characteristics of soil by the
plate loading test according specifications DIN 18126/2312-04 and project requirements
Test Location : Station 541+230 to 541+300
Station : 541+240
Level : A.S
Test Code : 150502023
Report Date : 15/05/2023
Type of soil : Original earth
Report No. : 1

Dear Gentlemen,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 300 mm and 200 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel strips/plates with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction loads to the loading plates
6. Dial indicator measuring device with scale vertically 750 for (0/100mm)
7. Reaction loading system by roller-compass with weight approximately 12 ton
8. Calibration certificates are attached.

Test Procedure:

1. Clear the ground surface area to the required level with undisturbed soil
2. Install loading plates 300 mm and 200 mm diameter, Hydraulic jack and 3 dial gauges
3. Prior to testing the test setup preloading about 20 seconds
4. The dial-gauge and the dial-gauge shall be zeroed out
5. For a 300 mm loading plate, the test values are 3.2 kN/m²
6. The load shall be applied in six stages, in approximately equal increments, with the required maximum vertical stress is reached
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, i.e. 33 %, 25 %, and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the percentage stage of the first cycle (as final test load is not reached)
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The test report content the following:-

- Location of test site - Dimension of loading plate.
- Measuring device used - Type of soil.
- Type of Binding material below the plate -Weathering condition.
- Time and date of measurements - Unusual observation made during test.
- Dial gauge reading and corresponding normal stress - Loading-settlement curve.
- Description of the soil condition below the plate after testing.

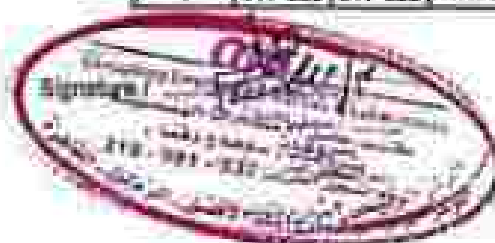
Result

- Type of soil : Original earth
- Job requirement : $E_{vd} = 40 \text{ MPa}$

Item	Description
Form of loading material below the plate	Water of soil
Plate Diameter (mm)	300
Rate of measurement	1.00mm/0.005
Unusual observation made during test	NO
Description of the soil condition below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{vd}/E_{vs} Ratio
	From	To			E_{vd} (MPa)	E_{vd} (Mpa)	
1	041+220	041+300	041+240	-1.2	33.8	140.7	4.13



Company Name : شركة الأهلي للمقاولات والتوريدات المعمورة
Project : Electric Express Train - Sector (2) - Quesna Area
Test Date : 16/09/2023
Report date : 19/09/2023
Station : 641+340
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
004 18134

Loading Stage (1)

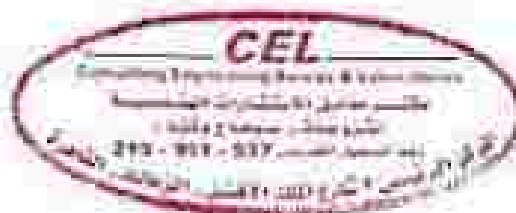
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	0.00	15.00	0.00	0.00
1	0.83	15.20	0.75	15.25	0.70	0.74
2	1.66	15.45	1.50	15.50	1.45	1.40
3	2.50	15.70	1.80	15.65	1.75	2.00
4	3.33	15.95	2.25	15.75	2.00	2.50
5	4.17	16.20	2.55	15.90	2.60	2.87
6	5.00	16.45	2.40	16.20	2.80	3.64

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	17.45	2.37	16.30	2.87	3.00
2	1.66	17.25	2.35	16.05	2.45	2.94
3	0.83	17.05	2.38	15.80	2.92	2.40

Loading Stage (2)

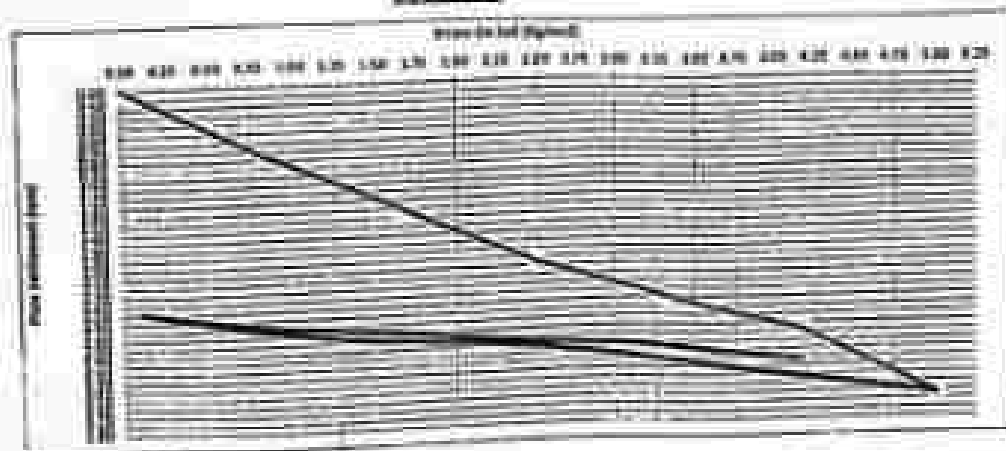
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	17.02	2.18	15.65	2.17	2.68
unloading	1.66	17.28	2.22	15.65	2.38	2.80
stress is reached						
2	3.30	17.64	2.35	15.45	2.55	2.95
3	3.33	17.58	2.42	15.35	2.69	3.00
4	4.17	17.41	2.57	15.35	2.88	3.23



Company Name
Project
Test item
report date
Station
Test No.

[illegible]

Nondestructive Static Plate Load Tests of Soils



Leading (T)	0	1	2	3	4	5	6
Simple (L4)	0	366	1073.8	1760.5	2332.8	2886.7	3433.3
Series (L4) (M2)	0.00	0.33	1.08	2.09	3.30	4.77	6.39
Settlement (M2)	0.00	0.74	1.90	2.68	3.56	4.67	5.94

Outcasing (%)	1	2	3	4
Superficial	5.53	17.68	88.4	73
Deep (Highly)	0.00	2.50	1.250	0.76
Bottomout (none)	2.94	3.22	2.84	2.62

Eligible = 208	Eligible = 127	Eligible = 127	AS # 128
Not eligible = 11,972,665/2	128		

Leading (J)	0	1	2	3	4	5
Image(X)	0	208.20	1772.8	1784.3	2052.4	2346.1
Waves (Platform)	0.10	0.83	1.86	2.80	3.38	4.17
Surfswell (m/s)	0.48	2.48	2.40	2.48	1.80	2.20

2.1 (group) =	100	2.2 (group) =	0.10	2.3 (group) =	100	2.4 =	0.11
2.5 (group) =	0.10	2.6 (group) =	100	2.7 =	0.11	2.8 =	0.11

Fig. 1. *Structure of processing during the testing stage*

Group = Individuals = all 2 different classes = Spring and Fall = 2000 = 1000

11. *Journal of the American Medical Association*, 2000; 284: 1039-1044.

© 2004 by The McGraw-Hill Companies, Inc. All rights reserved. Printed in the United States of America. This publication is protected by copyright. Any unauthorized distribution or reproduction of this work is prohibited. All trademarks are the property of their respective owners.

Fig. 4. Following the different treatments, the 1.2 and 1.7 g/m² are the maximum falling rain.



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 12/09/2023
Soil type : Middle Embankment
Location : St From 641+300 To 641+420
Level : ± 2 M
Report No. : 59

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+325	1644	2.29	5.2	2.17	98.7%	Comply
2	641+350	1053	2.23	5.8	2.11	95.7%	Comply
3	641+380	1051	2.26	5.8	2.14	97.3%	Comply
4	641+410	1387	2.24	5.8	2.11	96.0%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتبه محاسب الاستشارات الهندسية
10/ Middle Embankment - HSR From Qous To Armanat

10/ Middle Embankment - HSR From Qous To Armanat
Dresden, Cairo
T/A For 2024/09 - 27/09/2023

IAS
ACCREDITED
Cairo, Egypt

المهندس
مهندس
مهندس

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Dear Gentleman,

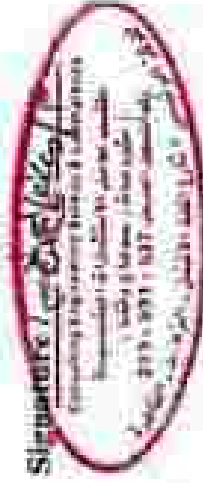
Attached here with the delivered on 7 / 9 / 2023

This sample is representative for 5.000 MP

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



30 MAH E MAH Boud
Zoulikha, Cam.
Tel: 06-2204070 - 2204080



مكتب الاستشارات الهندسية
Zoulikha, Cam.
Tel: 06-2204070 - 2204080


CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الطائي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.1
37.5	1.5	97.3
25	1	92.1
19	3/4	86.2
12.50	1/2	78.2
9.50	3/8	72.5
4.75	4	57.9
2.00	10	44.3
0.425	40	26.0

Signature:  J.E. Mulla
Date: 11/09/2023
By: J.E. Mulla
For: J.E. Mulla

J.E. Mulla (E) Mulla (Snr)
General Care
Tel: 011-22222222 (07/2023)

IAS
ACCREDITED
Testing Laboratory

مكتب استشارات الهندسة
مكتب استشارات الهندسة
مكتب استشارات الهندسة

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبار

Company Name : شركة النخعي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.2

CEL
Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبار
Signature: *[Signature]*
www.cel-lab.com

Dr. Ezzamel El Ashm El Ashm
Director, Civil
Tel: No. 7756753 - 37762303

IAS
ACCREDITED

Dr. Ezzamel El Ashm El Ashm
Director, Civil
Tel: No. 7756753 - 37762303

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qous To Arimat

Location : ST:641+460 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 7/09/2023

Reporting Date : 11/09/2023

Reporting No. : 10-3

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



16 Main E. Al-Hadi Street
Zandieh, Cairo
Tel: Fax: 01116211 - 2756200



شركة الأهلي
مكتب محاسن الاستشارات الهندسية
8111 - 8111 - 8111

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Soil Classification

TEST	Results (%)	Limits according Projects Spec		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	44.3	Max 50 %	-----	-----
0.425 mm (No. 40)	26.0	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	10.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature: 
Dr. Hani El-Mohamed
مهندس هاني محمد العبد
2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023

10 Hana El-Mohamed
Dr. Hani, Cairo
Tel. No. 25387531 - 27753003

IAS
ACCREDITED
إستشارات محاسن

Dr. Hani El-Mohamed
Dr. Hani, Cairo
Tel. No. 25387531 - 27753003

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسب الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Arment

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 7/09/2023

Reporting Date : 11/09/2023

Reporting No. : 10-3

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

mm	penetration		stress on piston (Mpa)
	mm	Inch	
0.64		0.025	0.34
1.27		0.050	1.50
1.91		0.075	2.57
2.54		0.100	3.57
3.18		0.125	4.54
3.81		0.150	5.27
4.45		0.175	6.06
5.08		0.200	6.34
6.35		0.250	6.90
CBR Result	Stress (Mpa)		CBR 100 %
	5t Value	Sample results	
At 6.1 inch (2.34 mm) penetration	6.00	3.57	51.7 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.20(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.

3- Exchange load 4.50 Kg

- 4- Call 7-10 for middle of add lower embankments according project spec page No 36

Signature:

2023/09/11 11:05:00
2023/09/11 11:05:00
Tel: 011 2256231 - 2256233

IAS

م. محمد الشاذلي
م. خالد الشاذلي
م. محمد الشاذلي

CEL

Consulting Engineering Bureau & Laboratories
مكتبية معامل الاستشارات الهندسية

Company Name : شركة تانسي

Project : Electric Express Train - HSR From Qom To Arman

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

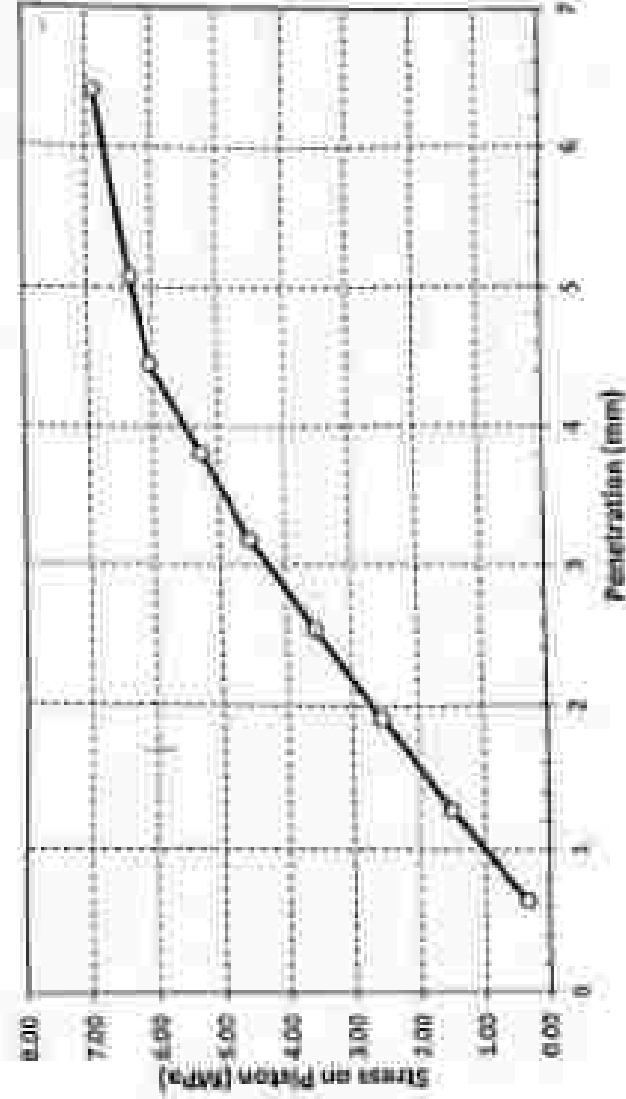
Delivery Date : 7/09/2023


Reporting Date : 11/09/2023

Reporting No. : 10-3

Load Penetration Curve of CBR Test

ASTM D-1883



Signature: 
H.E. Nader El Attas
Zonal, Civil
Tel: 011-2220721 - 2220722

H.E. Nader El Attas
Zonal, Civil
Tel: 011-2220721 - 2220722

IAS
ACQUINITY

م. نادر العتاس
م. نادر العتاس
Tel: 011-2220721 - 2220722

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qons To Armanit
Testing Date : 14/09/2023
Soil type : Middle Embankment
Location : St From 641+420 to 641+540
Level : -2.5 M
Report No. : 62

Compaction test by using Sand - Cone Test Method
ASTM D-1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gmf/cm ³	Moisture Content %	Dry Density (gms/cm ³)	Degree of Compaction (%)	Acceptance
1	641+445	1418	2.29	6.4	2.15	97.8%	Comply
2	641+475	1698	2.24	6	2.12	96.1%	Comply
3	641+495	1404	2.20	6.4	2.07	94.2%	Comply
4	641+525	1058	2.22	6	2.09	95.1%	Comply

Degree of compaction based on proctor test given AC

Max. dry density = 2.19 gms/cm³

At optimum moisture content = 6.4 %

Signature

Signature
مكتب محاسن الاستشارات الهندسية
شركة الأهلي
الرياض - جدة - مكة المكرمة
الهاتف : 800 - 999 - 927
الفاكس : 800 - 999 - 927

J E Mohd El Aidi Sher
Zanalla, Cairo
Toll Free 27507201 - 2750703

IAS
ACCREDITED
إستشارية

الرياض - جدة - مكة المكرمة
الهاتف : 800 - 999 - 927
الفاكس : 800 - 999 - 927

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 12 / 9 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: 
Consulting Engineering Bureau & Laboratories
محاسن استشارات الهندسية
10410 1040 - 1040 1040
10410 1040 - 1040 1040

Youssef El-Masry
Cairo, Egypt
10410 1040 - 1040 1040

IAS
ACCREDITED

10410 1040 - 1040 1040
10410 1040 - 1040 1040
10410 1040 - 1040 1040

CEL

Consulting Engineering Division & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة النقيس

Project : Electric Express Train - HSR From Qous To Armut

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M.)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	3/4	84.4
12.50	1/2	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

CEL
Signature/موقع المهندس
Date/تاريخ: 12/09/2023
By/من قِبل: [Signature]

3 Elm St. El Alton State
Alton, IL 62002

TAC

For Client Use
موقع العميل

Company Name : شركة الأمان

Project

: Electric Express Train – HSR From Qous To Armand

Location

: ST:641+400 E=492410.088 N=2862759.57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 18/09/2023

Reporting Date

12/09/2023

Reporting No.

Materials finer than 75 μm (no. 200) sieve

By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than: Sieve Size: 75 μm (No. 200)	9.9

Signature: *[Handwritten Signature]*

2019

10

THEY ARE

IAS

1. *Phragmites australis* (Cav.) Trin. ex Steud.

[illegible]

1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
Date: 12/09/2023
Time: 10:10 AM

100 Mulla E Abbas Ghani
Zamalek, Cairo
Tel: 011 27711727 - 27711700

IAS
ACCREDITED

12/09/2023
10:10 AM
100 Mulla E Abbas Ghani

CEL

Consulting Engineering Bureau & Laboratories
مكتب ومعامل الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanat

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☒ Not Comply) with specifications limits

CEL
Signature
Date: 12/09/2023
By: [Signature]
For: [Signature]

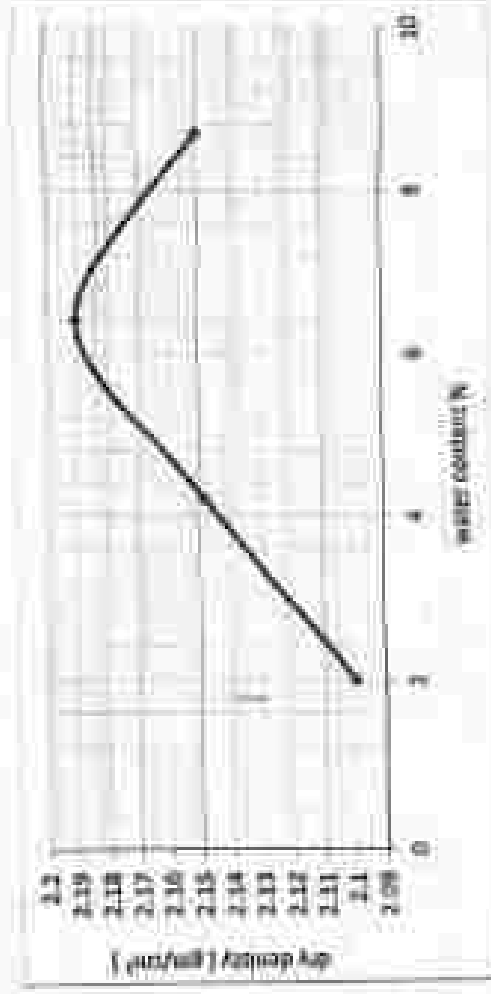
3 Elmoad E-Moad Street
Zakaria, Cairo
Tel: 011-2766173 - 2765363

IAS
ACCREDITED

مركز خدمات العملاء
الرياض - مصر
011-2766173 - 2765363

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qout To Armat -
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (g/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature: *[Handwritten Signature]*
Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة
218 - 201 - 212 - 213 - 214 - 215 - 216 - 217 - 218 - 219 - 220 - 221 - 222 - 223 - 224 - 225 - 226 - 227 - 228 - 229 - 230 - 231 - 232 - 233 - 234 - 235 - 236 - 237 - 238 - 239 - 240 - 241 - 242 - 243 - 244 - 245 - 246 - 247 - 248 - 249 - 250 - 251 - 252 - 253 - 254 - 255 - 256 - 257 - 258 - 259 - 260 - 261 - 262 - 263 - 264 - 265 - 266 - 267 - 268 - 269 - 270 - 271 - 272 - 273 - 274 - 275 - 276 - 277 - 278 - 279 - 280 - 281 - 282 - 283 - 284 - 285 - 286 - 287 - 288 - 289 - 290 - 291 - 292 - 293 - 294 - 295 - 296 - 297 - 298 - 299 - 300 - 301 - 302 - 303 - 304 - 305 - 306 - 307 - 308 - 309 - 310 - 311 - 312 - 313 - 314 - 315 - 316 - 317 - 318 - 319 - 320 - 321 - 322 - 323 - 324 - 325 - 326 - 327 - 328 - 329 - 330 - 331 - 332 - 333 - 334 - 335 - 336 - 337 - 338 - 339 - 340 - 341 - 342 - 343 - 344 - 345 - 346 - 347 - 348 - 349 - 350 - 351 - 352 - 353 - 354 - 355 - 356 - 357 - 358 - 359 - 360 - 361 - 362 - 363 - 364 - 365 - 366 - 367 - 368 - 369 - 370 - 371 - 372 - 373 - 374 - 375 - 376 - 377 - 378 - 379 - 380 - 381 - 382 - 383 - 384 - 385 - 386 - 387 - 388 - 389 - 390 - 391 - 392 - 393 - 394 - 395 - 396 - 397 - 398 - 399 - 400 - 401 - 402 - 403 - 404 - 405 - 406 - 407 - 408 - 409 - 410 - 411 - 412 - 413 - 414 - 415 - 416 - 417 - 418 - 419 - 420 - 421 - 422 - 423 - 424 - 425 - 426 - 427 - 428 - 429 - 430 - 431 - 432 - 433 - 434 - 435 - 436 - 437 - 438 - 439 - 440 - 441 - 442 - 443 - 444 - 445 - 446 - 447 - 448 - 449 - 450 - 451 - 452 - 453 - 454 - 455 - 456 - 457 - 458 - 459 - 460 - 461 - 462 - 463 - 464 - 465 - 466 - 467 - 468 - 469 - 470 - 471 - 472 - 473 - 474 - 475 - 476 - 477 - 478 - 479 - 480 - 481 - 482 - 483 - 484 - 485 - 486 - 487 - 488 - 489 - 490 - 491 - 492 - 493 - 494 - 495 - 496 - 497 - 498 - 499 - 500 - 501 - 502 - 503 - 504 - 505 - 506 - 507 - 508 - 509 - 510 - 511 - 512 - 513 - 514 - 515 - 516 - 517 - 518 - 519 - 520 - 521 - 522 - 523 - 524 - 525 - 526 - 527 - 528 - 529 - 530 - 531 - 532 - 533 - 534 - 535 - 536 - 537 - 538 - 539 - 540 - 541 - 542 - 543 - 544 - 545 - 546 - 547 - 548 - 549 - 550 - 551 - 552 - 553 - 554 - 555 - 556 - 557 - 558 - 559 - 560 - 561 - 562 - 563 - 564 - 565 - 566 - 567 - 568 - 569 - 570 - 571 - 572 - 573 - 574 - 575 - 576 - 577 - 578 - 579 - 580 - 581 - 582 - 583 - 584 - 585 - 586 - 587 - 588 - 589 - 590 - 591 - 592 - 593 - 594 - 595 - 596 - 597 - 598 - 599 - 600 - 601 - 602 - 603 - 604 - 605 - 606 - 607 - 608 - 609 - 610 - 611 - 612 - 613 - 614 - 615 - 616 - 617 - 618 - 619 - 620 - 621 - 622 - 623 - 624 - 625 - 626 - 627 - 628 - 629 - 630 - 631 - 632 - 633 - 634 - 635 - 636 - 637 - 638 - 639 - 640 - 641 - 642 - 643 - 644 - 645 - 646 - 647 - 648 - 649 - 650 - 651 - 652 - 653 - 654 - 655 - 656 - 657 - 658 - 659 - 660 - 661 - 662 - 663 - 664 - 665 - 666 - 667 - 668 - 669 - 670 - 671 - 672 - 673 - 674 - 675 - 676 - 677 - 678 - 679 - 680 - 681 - 682 - 683 - 684 - 685 - 686 - 687 - 688 - 689 - 690 - 691 - 692 - 693 - 694 - 695 - 696 - 697 - 698 - 699 - 700 - 701 - 702 - 703 - 704 - 705 - 706 - 707 - 708 - 709 - 710 - 711 - 712 - 713 - 714 - 715 - 716 - 717 - 718 - 719 - 720 - 721 - 722 - 723 - 724 - 725 - 726 - 727 - 728 - 729 - 730 - 731 - 732 - 733 - 734 - 735 - 736 - 737 - 738 - 739 - 740 - 741 - 742 - 743 - 744 - 745 - 746 - 747 - 748 - 749 - 750 - 751 - 752 - 753 - 754 - 755 - 756 - 757 - 758 - 759 - 760 - 761 - 762 - 763 - 764 - 765 - 766 - 767 - 768 - 769 - 770 - 771 - 772 - 773 - 774 - 775 - 776 - 777 - 778 - 779 - 780 - 781 - 782 - 783 - 784 - 785 - 786 - 787 - 788 - 789 - 790 - 791 - 792 - 793 - 794 - 795 - 796 - 797 - 798 - 799 - 800 - 801 - 802 - 803 - 804 - 805 - 806 - 807 - 808 - 809 - 810 - 811 - 812 - 813 - 814 - 815 - 816 - 817 - 818 - 819 - 820 - 821 - 822 - 823 - 824 - 825 - 826 - 827 - 828 - 829 - 830 - 831 - 832 - 833 - 834 - 835 - 836 - 837 - 838 - 839 - 840 - 841 - 842 - 843 - 844 - 845 - 846 - 847 - 848 - 849 - 850 - 851 - 852 - 853 - 854 - 855 - 856 - 857 - 858 - 859 - 860 - 861 - 862 - 863 - 864 - 865 - 866 - 867 - 868 - 869 - 870 - 871 - 872 - 873 - 874 - 875 - 876 - 877 - 878 - 879 - 880 - 881 - 882 - 883 - 884 - 885 - 886 - 887 - 888 - 889 - 890 - 891 - 892 - 893 - 894 - 895 - 896 - 897 - 898 - 899 - 900 - 901 - 902 - 903 - 904 - 905 - 906 - 907 - 908 - 909 - 910 - 911 - 912 - 913 - 914 - 915 - 916 - 917 - 918 - 919 - 920 - 921 - 922 - 923 - 924 - 925 - 926 - 927 - 928 - 929 - 930 - 931 - 932 - 933 - 934 - 935 - 936 - 937 - 938 - 939 - 940 - 941 - 942 - 943 - 944 - 945 - 946 - 947 - 948 - 949 - 950 - 951 - 952 - 953 - 954 - 955 - 956 - 957 - 958 - 959 - 960 - 961 - 962 - 963 - 964 - 965 - 966 - 967 - 968 - 969 - 970 - 971 - 972 - 973 - 974 - 975 - 976 - 977 - 978 - 979 - 980 - 981 - 982 - 983 - 984 - 985 - 986 - 987 - 988 - 989 - 990 - 991 - 992 - 993 - 994 - 995 - 996 - 997 - 998 - 999 - 1000

30000 El Attia Road
Zamalek, Cairo
Tel: No. (02) 50201 - (02) 5000



مركز فحص المواد
مركز فحص المياه
مركز فحص التربة

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Arment

Location

: ST:641+400 E= 492410.088 N=2862759.57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023


Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1553

penetration		stress on piston (Mpa)	
mm	Inch		
0.64	0.025	0.36	
1.27	0.050	1.52	
1.91	0.075	2.59	
2.54	0.100	3.59	
3.18	0.125	4.54	
3.81	0.150	5.33	
4.45	0.175	6.09	
5.08	0.200	6.49	
6.35	0.250	6.92	
CBR Result	Stress (Mpa)		CBR 100 %
	At 0.3 inch (7.54 mm) penetration	<div><div>% Value</div><div>6.90</div></div> <div><div>Sample results</div><div>3.59</div></div>	
			52 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 gm /cm³
At = 6.4 % optimum water content.
- 3- Sample tested 4.50 Kg.

4- CBR is 10 for mid&low embankments according project spec page No 35.
Signature: 
211-999-5311
1 E-Mail: info@cel-lab.com
Dzaker, Cam
Ref. No: 27/09/23 - 07/03/03

Company Name : **خزينة الخبيث :**

Protect : Electric Express Train – HSR From Qous To Armand

Location
: ST:641+400 E=492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

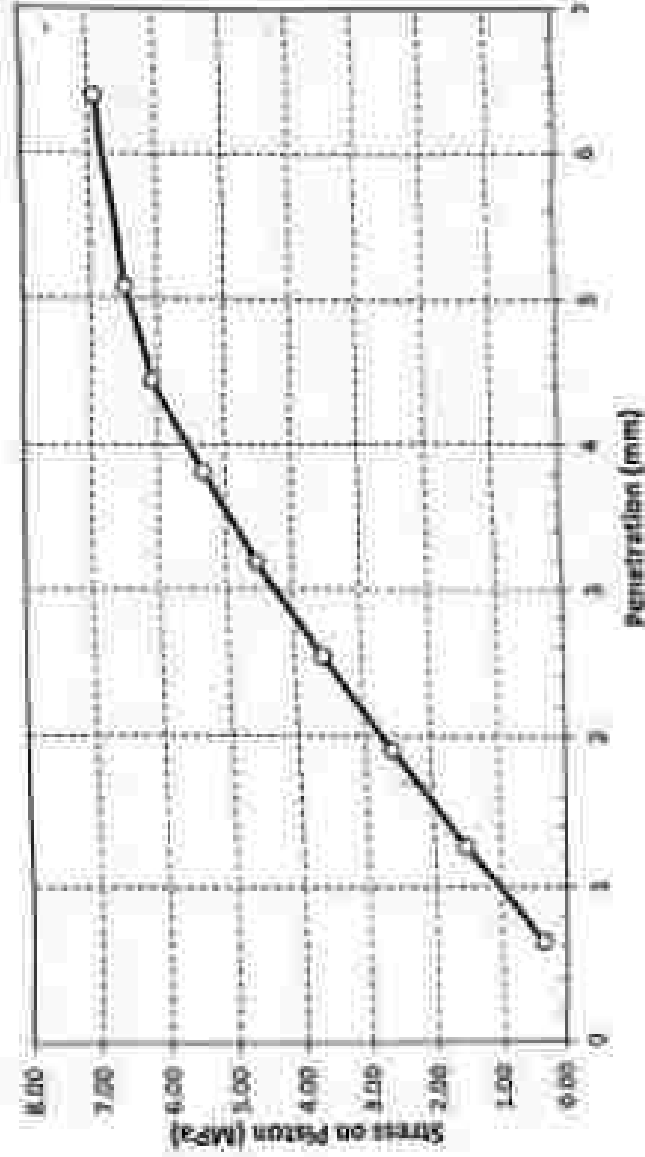
Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. 101

Load Penetration Curve of CBR Test

ASTM D-1993



Simulatore

Logo of the American Society of Professional Engineers (ASPE). The logo is an oval shape with a red border. Inside the oval, the text "ASPE" is written in large, bold, black letters. Below "ASPE", the text "American Society of Professional Engineers" is written in a smaller, black, serif font. At the bottom of the oval, the text "1952" is written in a small, black, serif font.

3. **Estimate the upper bound**
Answer: 600
Tell for yourself: 700000

IAS

1. *What is the purpose of the study?*
 2. *What are the research questions?*
 3. *What are the hypotheses?*

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 26/09/2023
Soil type : Middel Embankment
Location : St + From 641+300 To 641+420
Level : ± 1.75 M
Report No. : 72

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+330	1803.5	2.20	5.4	2.08	95.1%	Comply
2	641+350	1559.0	2.22	5.8	2.10	95.7%	Comply
3	641+360	1559.7	2.22	5.5	2.10	95.9%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.6%	Comply
5	641+400	1543.1	2.21	6	2.08	95.2%	Comply
6	641+410	1388.9	2.23	6.4	2.10	95.8%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.10 gm/cm³

At optimum moisture content = 6.4 %

Signature

(Signature)
2023/09/26

Dr. Ezzat E. Al-Hadi
Dr. Ezzat E. Al-Hadi
2023/09/26

IAS
REGISTERED
IN THE STATE OF ILLINOIS

2023/09/26
2023/09/26
2023/09/26

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 8 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



Signature :
Date : 12/09/2023

IAS
Institution

Signature :
Date : 12/09/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qous To Armanat

Location : ST:641+400 E= 492410,088. N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	$\frac{3}{4}$	84.4
12.50	$\frac{1}{2}$	77.7
9.50	$\frac{3}{8}$	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature:  

1E-1000 E-1000 (mm)
2E-1000 E-1000 (mm)
3E-1000 E-1000 (mm)

IAS
ACCREDITED

1E-1000 E-1000 (mm)
2E-1000 E-1000 (mm)
3E-1000 E-1000 (mm)

Company Name	: شركة النفيس
Project	: Electric Express Train – HSR From Qous To Armanat
Location	: ST:641+400 E= 492410,088 N=2862759,57
Type of sample	: Soil Embankment (Upper Embankment 0.9 M)
Delivery Date	: 08/09/2023
Reporting Date	: 12/09/2023
Reporting No.	: 10-4

Materials finer than 75 μm (no. 200) sieve
By washing ASTM D.1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μm (No.200)	9.9

Signature / 

JOHN BAKER, JR., Editor
Bakersfield, Calif.
and Mrs. J. B. Baker, Jr., and family

IAS

Author's address: Department of Mathematics, University of California, San Diego, La Jolla, CA 92037, USA.
E-mail: shashank@ucsd.edu

Company Name : شركة النخعي
 Project : Electric Express Train – HSR From Qous To Arman
 Location : ST:641+400 E= 492410,088 N=2862759,57
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 08/09/2023
 Reporting Date : 12/09/2023
 Reporting No. : 10-4

**Results of liquid limit and plasticity index
 of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 
 12/09/2023
 12/09/2023

10/10/2023
 10/10/2023

IAS
 ACCREDITED
 Laboratory

10/10/2023
 10/10/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 491410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10)	45.9	Max 20 %	-----	-----
0.425 mm (No. 40)	27.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are ☒ Comply - ☐ Not Comply) with specifications limits

Signature /



A/Eng. E. Alattaf Elisei
Quality Control
Tel: 011 2552517 - 2753003

IAS
ACCREDITED
International Association of
Soil Testing Engineers

مركز اختبار التربة
الاعتماد الدولي
الهاتف: 011 2552517 - 2753003

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Armanat

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 08/09/2023

Reporting Date

: 12/09/2023

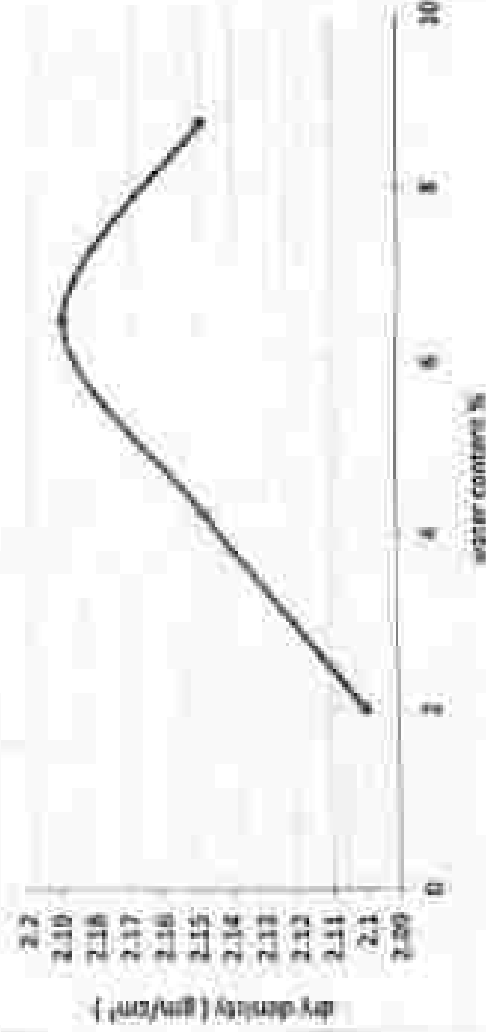
Reporting No.

: 10-4

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature /

[Handwritten Signature]
2023/09/12 14:00
2023/09/12 14:00

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanit

Location : ST:641+400 E= 492410.098 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration	stress on piston (Mpa)	
	mm	Inch
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CHB Result	Stress (Mpa)		CHB 100 %
At 0.1 inch (2.54 mm) penetration	So. Value	Sample results	51 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At = 6.4 % minimum water content.
- 3- Surrogate test 4.50 Kg

CHB > 10 for middle and lower embankments according project spec page No 36.

Signature /

El Mostafa El Mostafa
Amr, Gen.
Lab No. (20073) - 226000



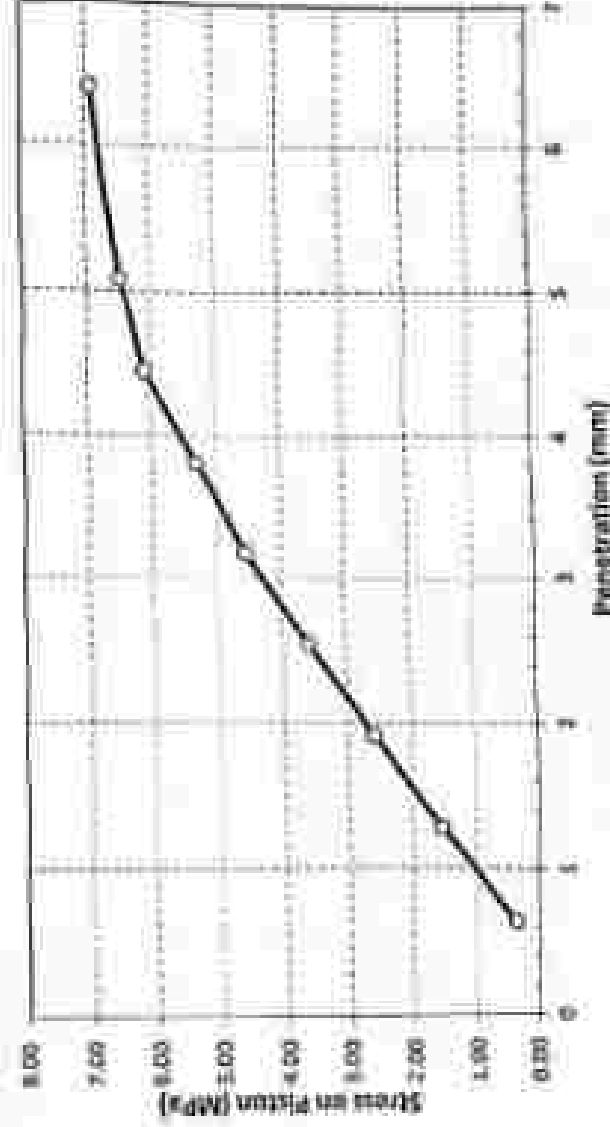
إيزي اس
مركز
مختبر

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature : 

AS-1000 (E-2000) 1000
Penetration (mm)
1000 (E-2000) 1000

IAS

1000 (E-2000) 1000
Penetration (mm)
1000 (E-2000) 1000

CEL

Consulting Engineering Bureau & Laboratories
مكتب معمار الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Armut

Testing Date : 27/09/2023

Soil type : Middle Embankment

Location : St + From 641+300 To 641+420

Level : ± 1.5 M

Report No. : 73

Compaction test by using Sand - Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	1752.1	2.26	5.8	2.14	97.5%	Comply
2	641+340	1529.2	2.26	5.8	2.14	97.1%	Comply
3	641+360	1545.8	2.24	5.6	2.12	96.2%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.2%	Comply
5	641+400	1473.6	2.27	6	2.14	97.3%	Comply

Degree of compaction based on Proctor test dated At

:Max. dry density = 2.20 gm/cm³

At optimum moisture content = 6.8 %

Signature

2023-09-27 15:00:00

2023-09-27 15:00:00

11-Elash B. Elash B.
Director, Civil
Tel: 011 2766231 - 2766260



مركز
إدارة
الجودة
مصر