الهيئة العامة
للطـرق والكبـاري

المنطقة الخامسة – ( غرب الدلتا)

**السيد المهندس / رئيس قطاع التنفيذ والمناطق**

تحية طيبة.. وبعد،،

بالإحالة إلى مشروع القطار السريع (العين السخنه- العاصمه الإدارية – برج العرب مرسى مطروح )

نتشرف بأن نرفق لسيادتكم طيه المقايسات المعدلة للقطاعات الأتية:

اولاً : القطاع السابع (فوكه / مطروح ) :

| م | المسافـــــــة | | الطول | الشركة | التكلفة | الإتجاه |
|---|---|---|---|---|---|---|
| | من | إلى | (كم) | | ( مليون ) | |
| 1 | 524+880 | 525+000 | 0.12 | شركة المصطفى للمقاولات | 7.223 | الاتجاهين |

برجاء من سيادتكم التفضل بالاحاطه والتوجيه بالازم

وتفضلوا بقبول فائق الأحترام والتقدير،،

رئيس الإدارة المركزية

المنطقة الخامسة- غرب الدلتا

عميد مهندس/

"هاني محمد محمود طه"

جمهورية مصر العربية
وزارة النقل
Arab Republic Of Egypt
الهيئة العامة للطرق والكباري
القطار الكهربائي السريع
Electric Express Train
SYSTRA SHAKER
ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل
ALMOSTAFA
CONTRACTING COMPANY

# مشروع القطار الكهربائى السريع

## المقايسة المعدلة لبنود الاعمال بعد التفاوض بتاريخ 18/12/2023 للقطاع السابع (فوكه - مطروح) - شركة المصطفى للمقاولات (أحمد مصطفى عبدالمحسن)

## القطاع من المحطة 880+524 إلي المحطة 000+525 (مرحلة الحفر وتشكيل الجسور والتأسيس و الأساس والخرسانة)

| رقم البند | بيان الأعمال | الوحدة | الكمية | الفئة | الاجمالى |
|---|---|---|---|---|---|
| 1 | اعمال الازالة و التطهير | | | | |
| 1-1 | بالمتر المسطح اعمال تطهير الموقع من الاشجار والمزروعات و المخلفات فى مناطق الدلتا ذات الطبيعة الزراعية الكثيفة والتخلص منها بالمقالب العمومية تمهيدا لاعمال الرفع المساحي لكامل حدود المشروع طبقا للشروط والمواصفات و تعليمات المهندس المشرف. | م2 | 6,000.16 | 5.00 | 30,000.82 |
| 2 | اعمال الحفر | | | | |
| 2-2 | بالمتر المكعب اعمال حفر باستخدام المعدات الميكانيكية فى التربة المتماسكة عدا التربة الصخرية (باستخدام البلدوزر) وتسوية السطح بالات التسوية والرش بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة (95% من الكثافة الجافة القصوى) ومحمل على البند تحميل ونقل الاتربة الزائدة لمسافة 500 متر من محور الطريق و يتم التنفيذ طبقا للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا لاصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف.<br>يتم احتساب علاوة 1 جنيه لكل 1 كم بالزيادة. | م3 | 2,200.00 | 30.50 | 67,100.00 |
| 3 | اعمال الردم | | | | |
| 3-1 | بالمتر المكعب اعمال توريد وتشغيل اتربة صالحة للردم و مطابقة للمواصفات والتشغيل باستخدام الات التسوية بسمك لا يزيد عن 50 سم حتى منسوب -2 متر و بسمك لا يزيد عن 25 سم لاستكمال المنسوب التصميمى لتشكيل الجسر والاكتاف (نسبة تحمل كاليفورنيا لا تقل عن 15%) و رشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة (95 % من الكثافة الجافة القصوى) ويتم التنفيذ طبقا للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا لاصول الصناعة ومواصفات الهيئة العامة للطرق و الكبارى وتعليمات المهندس المشرف.<br>-فى حالة طلب جهاز الإشراف زيادة نسبة الدمك عن 95 % يحسب زيادة 1 جنية على زيادة نسبة الدمك لكل 1 %<br>- مسافة النقل 2 كم ويتم احتساب علاوة 1.5 جنيه لكل 1 كم بالزيادة أو النقصان<br>-السعر يشمل قيمة المادة المحجرية | م3 | 10,531.71 | 101.40 | 1,067,915.75 |
| | علاوة مسافة النقل 302.5 كم | م3 | 10,531.71 | 450.75 | 4,747,169.86 |
| | علاوة تحصيل رسوم الكارتة والموازين طبقا للائحة الشركة الوطنية | م3 | 10,531.71 | 13.00 | 136,912.28 |
| 4 | طبقات الاساس | | | | |
| 4-1 | بالمتر المكعب اعمال توريد وفرش طبقة تأسيس ( prepared Subgrade ) من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصى حجم للحبيبات 100 مم والا تزيد نسبة المار من منخل 200 عن 12 % و التدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 25 % و الا تزيد نسبة الفاقد بجهاز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15% و الا يقل معامل المرونة (Ev2 ) من تجربة لوح التحميل عن 80 ميجابسكال و يتم فردها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول الى اقصى كثافة جافة قصوي ( لاتقل عن 95 % ) من الكثافة المعملية والفة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف<br>-مسافة النقل لا تقل عن 20 كم<br>- يتم احتساب علاوة 1.3 جنيه لكل 1 كم بالزيادة او النقصان | م3 | 980.00 | 146.40 | 143,472.00 |
| | قيمة مادة محجرية بمشتملاتها | | 980.00 | 161.00 | 157,780.00 |
| | علاوة مسافة النقل 83 كم | | 980.00 | 81.90 | 80,262.00 |
| | علاوة تحصيل رسوم الكارتة والموازين طبقا للائحة الشركة الوطنية | | 980.00 | 25.00 | 24,500.00 |
| 4-2 | بالمتر المكعب اعمال توريد وفرش طبقة أساس من الاحجار الصلبة المتدرجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصى حجم للحبيبات ما بين 31.5 مم الى 40 مم والا يزيد نسبة المار من منخل 200 عن 5% والتدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 80 % والا يقل معامل المرونة (Ev2 ) من تجربة لوح التحميل عن 120 ميجابسكال والا يزيد نسبة الفاقد بجهاز لوس انجلوس عن 30 % والا يزيد الامتصاص عن 15 % ويتم فردها على طبقتين باستخدام الات التسوية الحديثة على ان لا يزيد سمك الطبقة بعد تمام الدمك عن 20 سم و رشها بالمياة الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة قصوي ( لا يقل عن 100%) من الكثافة المعملية و الفة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف .<br>-مسافة النقل لا تقل عن 20 كم<br>- يتم احتساب علاوة 1.3 جنيه لكل 1 كم بالزيادة او النقصان | م3 | 710.00 | 151.30 | 107,423.00 |
| | قيمة مادة محجرية بمشتملاتها | | 710.00 | 175.00 | 124,250.00 |
| | علاوة مسافة النقل 233 كم | | 710.00 | 276.90 | 196,599.00 |
| | علاوة تحصيل رسوم الكارتة والموازين طبقا للائحة الشركة الوطنية | | 710.00 | 25.00 | 17,750.00 |
| 5 | البلاطات الخرسانية | | | | |
| 5-1 | بالمتر المسطح أعمال توريد وصب خرسانة عادية بسمك 15 سم لحماية الأكتاف والميول الجانبية تتكون من 0.8 م3 من دولوميت متدرج + 0.4 م3 رمل حرش والإضافات طبقا لتعليمات الاستشاري ( فيبر + سيكا ) على أن يكون السن نظيف ومغسول والرمل خالي من الشوائب والطفلة والأملاح والمواد الغريبة مع وضع فوم بالفواصل بسمك 2 سم طبقا لتعليمات الاستشاري والبند يشمل تجهيز واستعدال مناسيب التربة الطبيعية أسفل البلاطة للوصول إلي المناسيب التصميمية على أن تحقق الخرسانة اجهاد لا يقل عن 250 كجم / سم2 وتشطيب السطح وملئ الفواصل بالبتومين المرمل والتنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف . يتم اضافة علاوة قدرها 5 جنيه بعد اول 10 متر رأسي على ان تضاف لكل مسطح ( لا يقل عن 5 متر رأسي). . | م2 | 600 | 457.00 | 274,200.00 |
| 5-2 | بالمتر المكعب اعمال توريد وصب خرسانة عادية لقدمات الحمايات والميول الجانبية تتكون من 0.8 م3 من دولوميت متدرج + 0.4 م3 رمل حرش والاضافات طبقا لتعليمات الاستشاري (فيبر + سيكا ) على أن يكون السن نظيف ومغسول والرمل خالي من الشوائب والطفلة والأملاح والمياه الغريبة مع وضع فوم (بالفاصل) بسمك 2 سم ( طبقا لتعليمات الاستشاري ) والبند يشمل أعمال الحفر والشدات وكل مايلزم لتمهيد العمل على ان تحقق الخرسانة اجهاد لا يقل عن 250 كجم/سم2 وملء الفواصل بالبتومين المرمل والتنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف . يتم اضافة علاوة قدرها 5 جنيه بعد اول 10 متر رأسي على ان تضاف لكل مسطح ( لا يقل عن 5 متر رأسي). . | م3 | 18.00 | 2665.2 | 47,973.60 |
| | الإجمالى | | | | 7,223,308.30 |
| | ( سبعة ملايين ومائتان وثلاثة وعشرون الفا وثلاثمائة وثمانية جنيها وثلاثون قرشا لاغير ) | | | | |

مدير المشروع المقاول
م / مصطفى ثابت

مدير المشروع الاستشاري
م / خالد فوزي

مدير المشروع المالك
م / إبراهيم الحناوي

مدير عام المشروعات
م / أحمد حسني فياض

يعتمد
رئيس الادارة المركزية
منطقة غرب الدلتا
الاسكندرية - مرسى مطروح
عميد مهندس /
" هانى محمد محمود طه "

الهيئة العامة
للطـرق والكبـاري

# محضر استلام موقع

**مشروع:** أعمال الجسر الترابى والاعمال الصناعية لمسار القطار الكهربائى السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

**تنفيذ:** شركة المصطفى للمقاولات "أحمد مصطفى عبدالمحسن"

**إشراف : المنطقة الخامسة ــ منطقة غرب الدلتا**

طبقاً للعقد رقم ( 2024/2023/926 ) بتاريخ : 02/01/2024

إنه في يوم الخميس الموافق 2024/01/02 اجتمع كل من:-

1- السيد المهندس / محمد حسني فياض — مدير عام المشروعات - الهيئة العامة للطرق والكباري

2- السيد المهندس /إبراهيم عبد الله الحناوي — مهندس العملية - الهيئة العامة للطرق والكباري

3- السيد المهندس / مصطفى محمد ثابت — مدير مشروع - شركة المصطفى للمقاولات

وذلك للمرور على مسار العملية المذكورة عاليه لاستلام الموقع :-

وقد تبين أن الموقع خالياً من العوائق الظاهرية ويسمح بالبدء في التنفيذ وبناء عليه يعتبر تاريخ 2024/01/02 هو تاريخ استلام الموقع وبدء الأعمال بالعملية.

واقفل المحضر على ذلك ووقع الحضور

**التوقيعات**

3- مصطفى ثابت

2-

1-

رئيس الإدارة المركزية
منطقة غرب الدلتا
الاسكندرية - مرســـــى مطروح
عميد . مهندس /
"هاني محمد محمود طه"

الهيئة العامة
للطرق و الكباري
(GARB)

وزارة النقل

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : أعمال الجسر الترابي والاعمال الصناعية لمسار القطار الكهربائي السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 1-1 ) أعمال تطهير الموقع من الاشجار و المزروعات و المخلفات

تـــنفيـــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0.0 م2

| بيان الاعمال بالمقايسة | الموقع الكيلومتري | | الابعاد ( متر ) | | الكمية |
|---|---|---|---|---|---|
| | من | الى | طول | العرض | |
| القطاع الأول | 524+880 | 524+920 | 40 | 32.45 | 1298.00 |
| اجمالي الكميات خلال فترة المستخلص الحالية (م$^2$) | | | | | 1298.00 |
| الاجمالـي الكلـي (م$^2$) | | | | | 1298.00 |

| مهندس الشركة | مهندس الاستشاري | مهندس الاستشاري | مهندس الهيئة |
|---|---|---|---|
| م / مصطفي ثابت | مكتب XYZ | مكتب د/خالد قنديل | م / إبراهيم الحناوى |
| | م / محمد خليل | م/خالد فوزي | |

الهيئة العامة
للطرق و الكبارى
(GARB)
وزارة النقل

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : أعمال الجسر الترابى والاعمال الصناعية لمسار القطار الكهربائى السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 3-1 ) أعمال توريد و تشغيل اتربة صالحة للردم مطابقة للمواصفات

تـــنفيـــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0.0 م3

| بيان الاعمال بالمقايسة | الموقع الكيلومتري | | الابعاد ( متر ) | | الكمية |
|---|---|---|---|---|---|
| | من | الى | طول | مساحة المقطع | |
| القطاع الأول | 524+880 | 524+920 | 40 | 79.07 | 3162.60 |
| اجمالي الكميات خلال فترة المستخلص الحالية (م$^3$) | | | | | 3162.60 |
| الاجمالـي الكلـي (م$^3$) | | | | | 3162.60 |

مهندس الشركة
م / مصطفي ثابت

مهندس الاستشاري
مكتب XYZ
م / محمد خليل

مهندس الاستشاري
مكتب د/خالد قنديل
م/خالد فوزي
٢٠٢٤/١/٢٢

مهندس الهيئة
م / إبراهيم الحناوى

الهيئة العامة
للطـرق والكبـاري

قائمة كميات بالمستخلص جاري ( 1 )

## مشروع : أعمال الجسر الترابي والاعمال الصناعية لمسار القطار الكهربائي السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 1-3 ) علاوة مسافة النقل 302.5 كم

علاوة مسافة النقل

تـــنفيـــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0 م3

| بيان بالكميات | الكمية | |
|---|---|---|
| الكمية طبقاً لقوائم الكميات | 3162.60 | |
| اجمالي الكميات خلال فترة المستخلص الحالية (م3) | | 3162.60 |
| الاجمالـي الكلي ($م^3$) | | 3162.60 |

مهندس الشركة
م / مصطفي ثابت

مهندس الإستشاري (xyz)
م / محمد خليل

مهندس الإستشاري
مكتب د/خالد قنديل
م / خالد فوزي

مهندس الهيئة العامة
للطرق والكباري
م / ابراهيم الحناوي

الهيئة العامة
للطرق و الكباري
(GARB)
وزارة النقل

قائمة كميات بالمستخلص جارى (1)

مشروع : أعمال الجسر الترابى والاعمال الصناعية لمسار القطار الكهربائى السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 1-3 ) رسوم الكارتة والموازين طبقاً للمادة(36) من الشروط العامة والمواصفات طبقاً لما جاء بالقائمة الموحدة لاسعار الطرق لاعمال طبقة الأتربة

الكارتات والموازين

تــنفيــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0 م3

| بيان بالكميات | الكمية |
|---|---|
| الكمية طبقاً لقوائم الكميات | 3162.60 |
| اجمالي الكميات خلال فترة المستخلص الحالية (م3) | 3162.60 |
| الاجمالـي الكلي ($م^3$) | 3162.60 |

| مهندس الشركة | مهندس الاستشاري مكتب XYZ | مهندس الاستشاري مكتب د / خالد قنديل | مهندس الهيئة |
|---|---|---|---|
| م/ مصطفي ثابت | م / محمد خليل | م / خالد فوزي | م / إبراهيم الحناوي |

الهيئة العامة
للطرق و الكبارى
(GARB)
وزارة النقل

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : أعمال الجسر الترابي والاعمال الصناعية لمسار القطار الكهربائى السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 4-1 ) أعمال توريد و فرش طبقة تأسيس (Prepared subgrade)

تـــنفيـــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0.0 م3

| بيان الاعمال بالمقايسة | الموقع الكيلومتري | | الابعاد ( متر ) | | الكمية |
|---|---|---|---|---|---|
| | من | الى | طول | مساحة المقطع | |
| القطاع الأول | 524+880 | 524+900 | 20 | 8.04 | 160.80 |
| اجمالي الكميات خلال فترة المستخلص الحالية ($م^3$) | | | | | 160.80 |
| الاجمالـي الكلـي ($م^3$) | | | | | 160.80 |

| مهندس الشركة | مهندس الاستشاري | مهندس الاستشاري | مهندس الهيئة |
|---|---|---|---|
| م / مصطفي ثابت | مكتب XYZ | مكتب د/خالد قنديل | م / إبراهيم الحناوى |
| | م / محمد خليل | م/خالد فوزي | |

الهيئة العامة
للطـرق والكبـاري

قائمة كميات بالمستخلص جاري ( 1 )

مشروع : أعمال الجسر الترابى والاعمال الصناعية لمسار القطار الكهربائى السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+800 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 1-4 ) علاوة مسافة النقل 83 كم

علاوة مسافة النقل

تـــنفيـــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0 م3

| بيان بالكميات | الكمية | |
|---|---|---|
| الكمية طبقاً لقوائم الكميات | 160.80 | |
| اجمالي الكميات خلال فترة المستخلص الحالية (م3) | | 160.80 |
| الاجمالـي الكلي ($م^3$) | | 160.80 |

مهندس الشركة
م / مصطفي ثابت

مهندس الإستشاري (xyz)
م / محمد خليل

مهندس الإستشاري
مكتب د/خالد قنديل
م / خالد فوزي

مهندس الهيئة العامة
للطرق والكباري
م / ابراهيم الحضاوي

قائمة كميات بالمستخلص جارى (1 )

مشروع : أعمال الجسر الترابى والاعمال الصناعية لمسار القطار الكهربائى السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 1-4 ) رسوم الكارتة والموازين طبقاً للمادة(36) من الشروط العامة والمواصفات طبقاً لما جاء بالقائمة الموحدة لاسعار الطرق لاعمال طبقة التأسيس

الكارتات والموازين

تــنفيــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0 م3

| بيان بالكميات | الكمية | |
|---|---|---|
| الكمية طبقاً لقوائم الكميات | 160.80 | |
| اجمالي الكميات خلال فترة المستخلص الحالية (م3) | | 160.80 |
| الاجمالـي الكلي ($م^3$) | | 160.80 |

| مهندس الشركة | مهندس الاستشاري<br>مكتب XYZ | مهندس الاستشاري<br>مكتب د / خالد قنديل | مهندس الهيئة |
|---|---|---|---|
| م/ مصطفي ثابت | م / محمد خليل | م / خالد فوزي<br>٢٠٢٤/١/٢٢ | م / إبراهيم الحناوي |

الهيئة العامة
للطرق و الكبارى
(GARB)
وزارة النقل

قائمة الكميات الواردة بالمستخلص جاري (1)

مشروع : أعمال الجسر الترابى والاعمال الصناعية لمسار القطار الكهربائى السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 4-2 ) أعمال توريد و فرش طبقة الأساس

تـــنفيـــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0.0 م3

| بيان الاعمال بالمقايسة | الموقع الكيلومتري | | الابعاد ( متر ) | | الكمية |
|---|---|---|---|---|---|
| | من | الى | طول | مساحة المقطع | |
| القطاع الأول | 524+880 | 524+900 | 20 | 5.85 | 117.00 |
| اجمالي الكميات خلال فترة المستخلص الحالية (م$^3$) | | | | | 117.00 |
| الاجمالـي الكلـي (م$^3$) | | | | | 117.00 |

| مهندس الشركة | مهندس الاستشاري | مهندس الاستشاري | مهندس الهيئة |
|---|---|---|---|
| م / مصطفي ثابت | مكتب XYZ | مكتب د/خالد قنديل | م / إبراهيم الحناوى |
| | م / محمد خليل | م/خالد فوزي | |

الهيئة العامة
للطـرق والكبـاري

قائمة كميات بالمستخلص جاري ( 1 )

مشروع : أعمال الجسر الترابى والاعمال الصناعية لمسار القطار الكهربائى السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 880+524 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 2-4 ) علاوة مسافة النقل 233 كم

علاوة مسافة النقل

تــنفيــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0 م3

| بيان بالكميات | الكمية | |
|---|---|---|
| الكمية طبقاً لقوائم الكميات | 117.00 | |
| اجمالي الكميات خلال فترة المستخلص الحالية (م3) | | 117.00 |
| الاجمالـي الكلي ($م^3$) | | 117.00 |

مهندس الشركة
م / مصطفي ثابت

مهندس الإستشاري (xyz)
م / محمد خليل

مهندس الإستشاري
مكتب د/خالد قنديل
م / خالد فوزي

مهندس الهيئة العامة
للطرق والكباري
م / ابراهيم الحناوي

الهيئة العامة
للطرق و الكباري
(GARB)
وزارة النقل

قائمة كميات بالمستخلص جارى (1)

مشروع : أعمال الجسر الترابي والاعمال الصناعية لمسار القطار الكهربائي السريع الخط الأول ( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح (مرحلة الحفر وتشكيل الجسور والتأسيس والأساس والخرسانة) لتنفيذ المسافة من الكم 524+880 الى الكم 525+000 بطول 0.12 كم

رقم البند و بيانه : ( 2-4 ) رسوم الكارتة والموازين طبقاً للمادة(36) من الشروط العامة والمواصفات طبقاً لما جاء بالقائمة الموحدة لاسعار الطرق لاعمال طبقة الأساس

الكارتات والموازين

تــنفيــذ : شركة المصطفي للمقاولات

مقدار العمل السابق : 0 م3

| بيان بالكميات | الكمية | |
|---|---|---|
| الكمية طبقاً لقوائم الكميات | 117.00 | |
| اجمالي الكميات خلال فترة المستخلص الحالية (م3) | | 117.00 |
| الاجمالـي الكلي ($م^3$) | | 117.00 |

| مهندس الشركة | مهندس الاستشاري<br>مكتب XYZ | مهندس الاستشاري<br>مكتب د / خالد قنديل | مهندس الهيئة |
|---|---|---|---|
| م/ مصطفي ثابت | م / محمد خليل | م / خالد فوزي | م / إبراهيم الحناوي |

# MATERIAL INSPECTION REQUEST

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Company | AL-MOSTAFA COMPANY | | | | Designer Company | K.K | | | | | | |
| Issued by Contractor | Name | Sign | | | Date | Time | | | | | | |
| | MOSTAFA THABET | Mostafa Thabet | | | 26-02-2023 | | | | | | | |
| Received by ER | | | MIR | | C1 | C2 | C3 | DD | MM | YY | HH | MM |
| | | | | | KP 524 | E-W | D.T | 26 | 02 | 2023 | | |

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

| | | | | | |
|---|---|---|---|---|---|
| Description of Materials | REPLACEMENT FILL MATERIAL RESULTS | | | | |
| Location to be Used | From | TO | | | |
| | 524+900 | 524+920 | FILL (-3.00 m) | | |
| | 524+880 | 524+920 | FILL (-2.50 m) | | |
| | 524+880 | 524+920 | FILL (-2.00 m) | | |
| | 524+820 | 524+920 | FILL (-1.75 m) | | |
| | 524+820 | 524+920 | FILL (-1.50 m) | | |
| | 524+820 | 524+920 | FILL (-1.25 m) | | |
| | 524+800 | 524+920 | FILL (-1.00 m) | | |
| | 524+800 | 524+920 | FILL (-0.75 m) | | |
| | 524+800 | 524+920 | FILL (-0.50 m) | | |
| MAR Approval No | | | | Date | |
| Supplier Name | | | | | |
| Test Requirement | | | Specification | Clause | |
| Reference Photos | Yes attached / No | | Other | | |

| Item | Description | Unit | Quantity | Arrival Date | Note |
|---|---|---|---|---|---|
| 1 | Sieve analysis | M3 | 5000 | 26-02-2023 | |
| 2 | Classification | M3 | 5000 | 26-02-2023 | |
| 3 | Proctor & O.M.C | M3 | 5000 | 26-02-2023 | |
| 4 | L.L & P.L & PI | M3 | 5000 | 26-02-2023 | |
| 5 | C.B.R | M3 | 10000 | 26-02-2023 | |

| Comments by: | Comments by: |
|---|---|
| A sample has been taken from fill material by K.K office to (GOUMA BADR LAB) and the results founded meet the specifications and accepted. | |

**APPROVAL STATUS**

| Organisation | Name | Sign | Date | A-AWC-R |
|---|---|---|---|---|
| Contractor | Mostafa Thabet | Mostafa Thabet | | |
| QA/QC * | Abdallah SAMY | Abdallah | | |
| GARB** | | | | |
| Employers Representative | | | | |

# SUBMISSION of TEST RESULTS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Company | AL-MOSTAFA COMPANY | | | Designer Company | K.K | | | | | |
| Issued by Contractor | Name | Sign | | Date | Time | | | | | |
| | Mostafa Thabet | Mostafa Thabet | | 28-02-2023 | | | | | | |
| Received by ER | | | STR | C1 | C2 | C3 | DD | MM | YY | HH | MM |
| | | | | K.P 524 | E-W | Q.T | 28 | 02 | 2023 | | |

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

NB: Package 1 Only (Package 2 via Aconex)

**THE FOLLOWING TEST RESULTS ARE ATTACHED FOR REVIEW**

| | |
|---|---|
| Description of Test Materials | Soil (A-1-b) |
| Location of Test | K.P (524) |

| Item | Specification | Test Requirement | Test Result Attachment | Remarks |
|---|---|---|---|---|
| 1 | ASTM D 75 | Aggregate sampling | According to specification | |
| 2 | ASTM C 136 | Sieve Analysis | According to specification | |
| 3 | ASTM D 1440 | Passing sieve #200 | 13.2 | |
| 4 | ASTM D 4318 | Atterberg limit | N.P | |
| 5 | ASTM D 2974 | Moisture content | 6.3 | |
| 6 | ASTM D 1557 | Modified proctor | 2.16 | |
| 7 | ASTM D 1883 | C.B.R | 53.0 | |

| Comments by: | Comments by: |
|---|---|
| | |

**APPROVAL STATUS**

| Organisation | Name | Sign | Date | A-AWC-R |
|---|---|---|---|---|
| Contractor | Mostafa Thabet | | | A |
| Designer | Hassan | 28/2/2023 | | A |
| GARB * | | | | |
| Employers Representative | | | | |

* Alignment / Bridges: Culvert Only

Electric Express Train - HSR

AL Nuby Central Lab

# California Bearing Ratio TEST

| | | | | | |
|---|---|---|---|---|---|
| Testing Date : | 1/3/202023 | Code | FROM STA : | | 525+000 |
| Location : | K.P (524+800) | MO (2) | | | |
| Company Name | AL Mustafa | | | | |

## -: Test Results

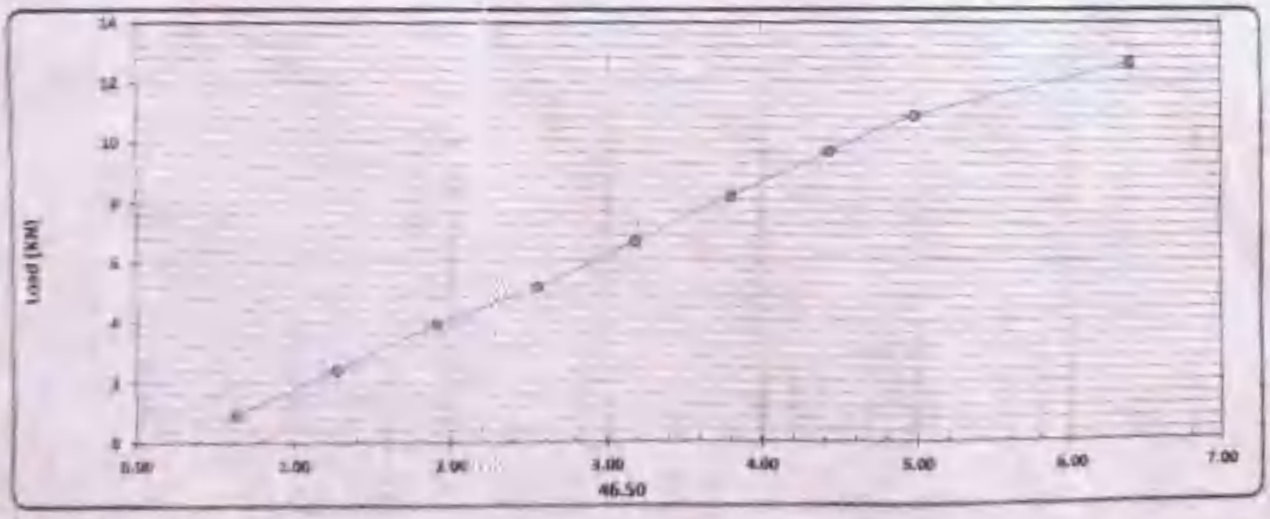
| Compaction % for Mold | |
|---|---|
| Mold No. | 1 |
| Mold Vol. ($cm^3$) | 2150 |
| Mold WT. (gm) | 6890 |
| Mold WT. + Wet WT. (gm) | 9811 |
| Wet WT. (gm) | 4921 |
| Wet Density ($g/cm^3$) | 2.288 |
| Dry Density ($g/cm^3$) | 2.154 |
| Proctor Density ($g/cm^3$) | 2.160 |
| Compaction % | 99.7 |

| Moisture Ratio After Compacted Mold | |
|---|---|
| Tare No. | 10 |
| Tare WT. (gm) | 43.7 |
| Tare WT. +Wet WT. (gm) | 150 |
| Tare WT. +Dry WT. (gm) | 144.1 |
| 3398 | 5.9 |
| Dry WT. (gm) | 100.4 |
| Moisture Content % | 5.9 |
| | |

| Swelling | |
|---|---|
| Mold No. | 1 |
| Date | 1/3/202023 |
| Initial Height (mm) | 5.00 |
| Final Height (mm) | 5.15 |
| Difference | 0 |
| Sample Height (mm) | 120.00 |
| Swelling Ratio % | 0.1% |

## Loading Reading :

| 46.50 | 0.64 | 1.27 | 1.91 | 2.54 | 3.18 | 3.86 | 4.45 | 5.00 | 6.40 |
|---|---|---|---|---|---|---|---|---|---|
| Load Reading (mm) | 0.03 | 0.08 | 0.13 | 0.17 | 0.22 | 0.27 | 0.32 | 0.36 | 0.42 |
| Load (KN) | 0.9 | 2.4 | 3.9 | 5.1 | 6.6 | 8.1 | 9.6 | 10.8 | 12.6 |




## Calculations :-

| Penetration | Load | Standard Load | CBR | Mold - Compaction | Compaction | CBR |
|---|---|---|---|---|---|---|
| (mm) | (Kn) | (lb) | ( % ) | ( % ) | ( % ) | Result in % |
| 2.50 | [illegible] | 13.4 | [illegible] | 100 | 95 | 47.5% |
| 5.00 | [illegible] | 20.0 | [illegible] | | | 53.0% |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :

Consultant Engineer

Name :

Sign :

Electric Express Train - HSR

Testing Lab | AL Nuby Central Lab

# California Bearing Ratio TEST

| | | | | | |
|---|---|---|---|---|---|
| Testing Date : | 1/3/202023 | Code | | | |
| Location : | K.P (524+800) | MO (2) | | | 525+600 |
| Company Name : | AL Mustafa | | | | |

## -: Test Results

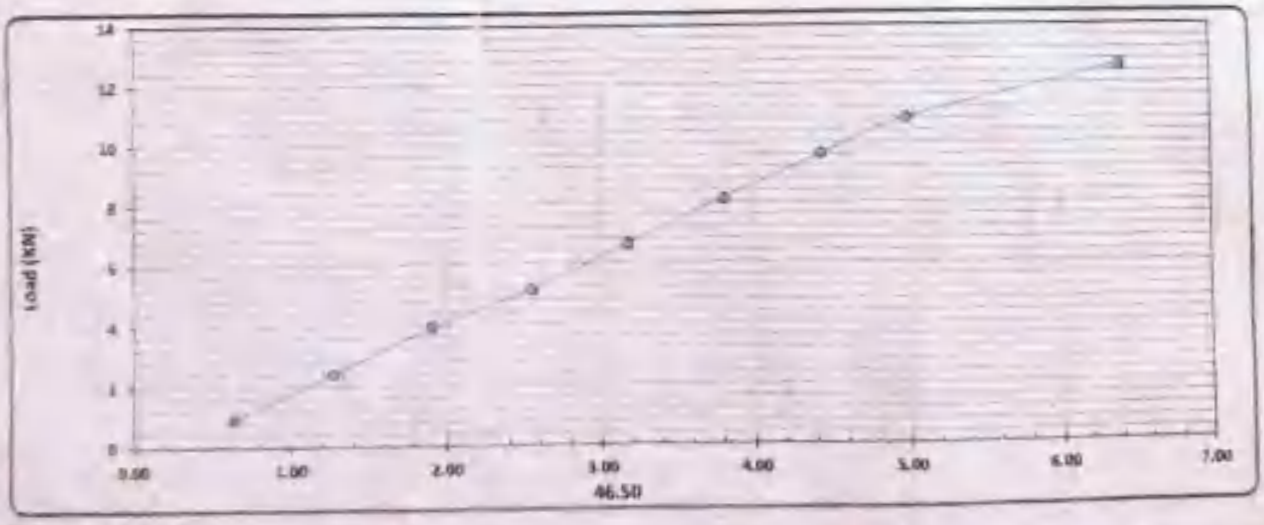
| Compaction % for Mold | |
|---|---|
| Mold No. | 1 |
| Mold Vol. ($cm^3$) | 2150 |
| Mold WT. (gm) | 4890 |
| Mold WT. + Wet WT. (gm) | 9811 |
| Wet WT. (gm) | 4921 |
| Wet Density ($g/cm^3$) | 2.288 |
| Dry Density ($g/cm^3$) | 2.184 |
| Proctor Density ($g/cm^3$) | 2.160 |
| Compaction % | 99.7 |

| Moisture Ratio After Compacted Mold | |
|---|---|
| Tare No. | 10 |
| Tare WT. (gm) | 43.7 |
| Tare WT. + Wet WT. (gm) | 150 |
| Tare WT. + Dry WT. (gm) | 144.1 |
| Diff. | 5.9 |
| Dry WT. (gm) | 100.4 |
| Moisture Content % | 5.9 |
| | |

| Swelling | |
|---|---|
| Mold No. | 1 |
| Date | 1/3/202023 |
| Initial Height (mm) | 5.00 |
| Final Height (mm) | 5.15 |
| Difference | 0 |
| Sample Height (mm) | 120.00 |
| Swelling Ratio % | 0.1 % |

## Loading Reading :

| 46.50 | 0.64 | 1.27 | 1.91 | 2.54 | 3.18 | 3.80 | 4.45 | 5.00 | 6.40 |
|---|---|---|---|---|---|---|---|---|---|
| Load Reading (mm) | 0.03 | 0.08 | 0.13 | 0.17 | 0.22 | 0.27 | 0.32 | 0.36 | 0.42 |
| Load (KN) | 0.9 | 2.4 | 3.9 | 5.1 | 6.6 | 8.1 | 9.6 | 10.8 | 12.6 |




## Caiculations : -

| Penetration | Load | Standard Load | CBR | Mold - Compaction | Compaction | CBR |
|---|---|---|---|---|---|---|
| (mm) | (Kn) | (lb) | ( % ) | ( % ) | ( % ) | % من قيمة |
| 2.50 | [illegible] | 13.4 | [illegible] | 100 | 98 | 37.5% |
| 5.00 | [illegible] | 20.0 | [illegible] | | | 53.0% |

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 7 From FOKA To MARSA MATROUH

From Station 604+000 To Station 249+177

Operating Lab | AL Nuby Central Lab

# PARTICLE SIZE DISTRIBUTION OF SOIL

| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE: | 26-2-2023 | Code | zone | 524+500 | 525+000 |
| LOCATION | K.P (524+800) | NO (2) | | | |
| NAME COMPANY | AL Mustafa | | | | |

1-visual inspection test

2-Gradient test

| A-gradation of bulk materials | | | | SAMPLE WEIGHT (g) | | 25246.00 | | gm | | table classify |
|---|---|---|---|---|---|---|---|---|---|---|
| sieve size | 2 | 1.5 | 1 | 4/3 | 2/1 | 8/3 | # 4 | PASS | | soil classify |
| Mass retained (g) | 0.0 | 2215.0 | 2143.0 | 1987.0 | 2104.0 | 2201.0 | 2141.0 | | | A-1-b |
| Cumulative Retained (g) | 0.0 | 2215.0 | 4357.0 | 6344.0 | 8448.0 | 10649.0 | 12790.0 | | PRO | 2.16 |
| Cumulative Retained % | 0.0 | 8.8 | 17.3 | 25.1 | 33.5 | 42.2 | 50.7 | | WC | 6.30 |
| Cumulative Passing % | 100.0 | 91.2 | 82.7 | 74.9 | 66.5 | 57.8 | 49.3 | | CBR | 53% |

| B-soft material gradation | | | | WT.OF sample | | 500.00 | | gm |
|---|---|---|---|---|---|---|---|---|
| sieve size | 10 | 40 | 200 | | | | | |
| Cumulative Retained (g) | 26.60 | 160.00 | 346.70 | | | | | |
| Cumulative Retained % | 5.32 | 32.00 | 73.34 | | | | | |
| Cumulative Passing % | 94.68 | 68.00 | 26.66 | | | | | |

| C-General gradient | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| sieve size(in) | 2 | 1.5 | 1 | 3/4 | 1/2 | 3/8 | # 4 | # 10 | # 40 | # 200 |
| sieve size(mm) | 50.0 | 37.5 | 25.0 | 19.0 | 12.5 | 9.5 | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 100.0 | 91.2 | 82.7 | 74.9 | 66.5 | 57.8 | 49.3 | 38.7 | 23.8 | 13.2 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| ATTERBERG LIMITS | LIQUID LIMIT ( L.L ) | PLASTIC LIMIT ( P.L ) | PLASTIC INDEX ( P.I ) |
|---|---|---|---|
| | N.P | N.P | N.P |

Contractor

Consultant

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 7 From FOKA TO MARSA MATROUH

From Station 504+600 To Station 559+177

# PROCTOR TEST

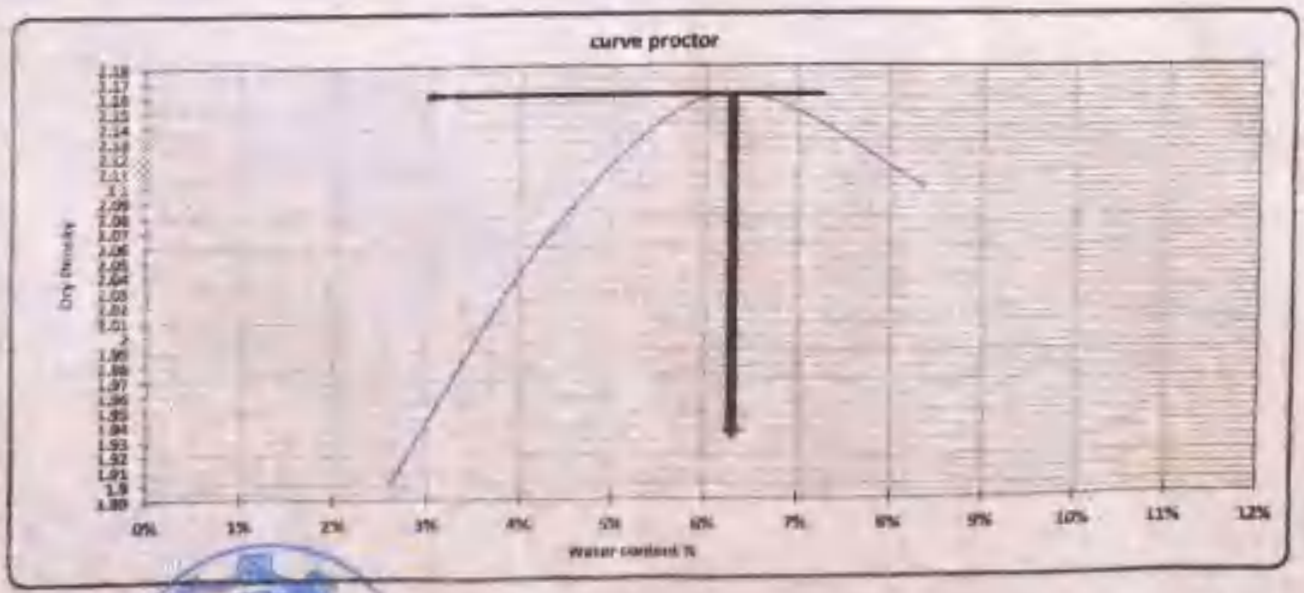
| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE: | 28-2-2023 | Code | zone | 524+500 | 525+000 |
| LOCATION | KP (524+800) | | | | |
| NAME COMPANY | AL Mustafa | BO (2) | | | |

| | |
|---|---|
| Weight of empty mold : | 6037.0 |
| Mold Volume: | 2183.0 |

| | |
|---|---|
| MAX Dry Density | 2.16 |
| Water content % | 6.3 |

| Trial no : | 1 | 2 | 3 | 4 | |
|---|---|---|---|---|---|
| Wt. Of Mold+ wet soil | 10145.0 | 10575.0 | 10865.0 | 10821 | |
| WT. WET SOIL | 4108.0 | 4538.0 | 4828.0 | 4784.0 | |
| Wt. Density | 1.953 | 2.158 | 2.296 | 2.275 | |

| Tare No. | 20 | 18 | 73 | 7 | 10 | 8 | 11 | 20 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Tare wt. | 60.0 | 77.7 | 42.5 | 42.6 | 43.3 | 46.7 | 46.3 | 60.3 | | |
| Wt. Of wet soil & tare | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | | |
| Wt. Of dry soil & tare | 146.7 | 143.1 | 145.5 | 145.6 | 143.7 | 144.0 | 141.9 | 143.2 | | |
| Wt. Of water | 3.3 | 6.9 | 4.5 | 4.4 | 6.3 | 6.0 | 8.1 | 6.8 | | |
| Wt. Of dry soil | 123.0 | 267.8 | 103.0 | 103.0 | 100.4 | 97.3 | 95.6 | 82.9 | | |
| Water content % | 2.7% | 2.6% | 4.4% | 4.3% | 6.3% | 6.2% | 8.5% | 8.2% | | |
| AV. Water content % | 2.6% | | 4.3% | | 6.2% | | 8.3% | | | |
| Dry Density | 1.903 | | 2.069 | | 2.161 | | 2.100 | | | |




Contractor

Consultant

Hassan

# MATERIAL INSPECTION REQUEST

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Company | AL-MOSTAFA COMPANY | | | | Designer Company | K.K | | | | | | | |
| Issued by Contractor | Name | Sign | | | Date | Time | | | | | | | |
| | MOSTAFA THABET | Mostafa Thabet | | | 26-03-2023 | | | | | | | | |
| Received by ER | | | | MIR | C1 | C2 | C3 | DD | MM | YY | HH | MM | |
| | | | | | KP 524 | C-W | O.T | 26 | 03 | 2023 | | | |

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

| | | | |
|---|---|---|---|
| Description of Materials | REPLACEMENT FILL MATERIAL RESULTS | | |
| Location to be Used | From | TO | |
| | 524+900 | 524+920 | FILL (-0.25 m) |
| | 524+880 | 524+920 | FERMA |
| | 524+920 | 525+000 | FILL (-3.00 m) |
| | 524+920 | 525+000 | FILL (-2.50 m) |
| | 524+920 | 525+000 | FILL (-2.00 m) |

| | | | |
|---|---|---|---|
| MAR Approval No | | Date | |
| Supplier Name | | | |
| Test Requirement | | Specification | Clause |
| Reference Photos | Yes attached / No | Other | |

| Item | Description | Unit | Quantity | Arrival Date | Note |
|---|---|---|---|---|---|
| 1 | Sieve analysis | M3 | 5000 | 26-03-2023 | |
| 2 | Classification | M3 | 5000 | 26-03-2023 | |
| 3 | Proctor & O.M.C | M3 | 5000 | 26-03-2023 | |
| 4 | L.L & P.L & PI | M3 | 5000 | 26-03-2023 | |
| 5 | C.B.R | M3 | 10000 | 26-03-2023 | |

| Comments by: | Comments by: |
|---|---|
| **A sample has been taken from fill material by K.K office to (GOUMA BADR LAB) and the results founded meet the specifications and accepted.** | |

**APPROVAL STATUS**

| Organisation | Name | Sign | Date | A-AWC-R |
|---|---|---|---|---|
| Contractor | Mostafa Thabet | Mostafa Thabet | | |
| QA/QC * | Abdallah SAMY | | | |
| GARB** | | | | |
| Employers Representative | | | | |

# SUBMISSION of TEST RESULTS

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Company | AL-MOSTAFA COMPANY | | | | Designer Company | K.K | | | | | |
| Issued by Contractor | Name | Sign | | | Date | Time | | | | | |
| | Mostafa Thabet | Mostafa Thabet | | | 28-03-2023 | | | | | | |
| Received by ER | | | STR | C1 | C2 | C3 | DD | MM | YY | H H | MM |
| | | | | K.P 524 | E.W | O.T | 28 | 03 | 2023 | | |

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

NB: Package 1 Only (Package 2 via Aconex)

**THE FOLLOWING TEST RESULTS ARE ATTACHED FOR REVIEW**

| | |
|---|---|
| Description of Test Materials | Soil (A-1-a) |
| Location of Test | K.P (524) |

| Item | Specification | Test Requirement | Test Result Attachment | Remarks |
|---|---|---|---|---|
| 1 | ASTM D 75 | Aggregate sampling | According to specification | |
| 2 | ASTM C 136 | Sieve Analysis | According to specification | |
| 3 | ASTM D 1440 | Passing sieve #200 | 12.8 | |
| 4 | ASTM D 4318 | Atterberg limit | N.P | |
| 5 | ASTM D 2974 | Moisture content | 6.4 | |
| 6 | ASTM D 1557 | Modified proctor | 2.16 | |
| 7 | ASTM D 1883 | C.B.R | 56.0 | |

| Comments by: | Comments by: |
|---|---|
| | |

**APPROVAL STATUS**

| Organisation | Name | Sign | Date | A-AWC-R |
|---|---|---|---|---|
| Contractor | Mostafa Thabet | | | A |
| Designer | Hassan | | | A |
| GARB * | | | | |
| Employers Representative | | | | |

* Alignment / Bridges: Culvert Only

# Electric Express Train - HSR

## California Bearing Ratio TEST

| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE | 28/3/2023 | | ZONE | 524+500 | 525+000 |
| location | K.P524+500 | | | | |
| NAME COMPANY | Al Moustafa | | | | |

operate by: GOMAA BADER LAB

**-: Test Results**

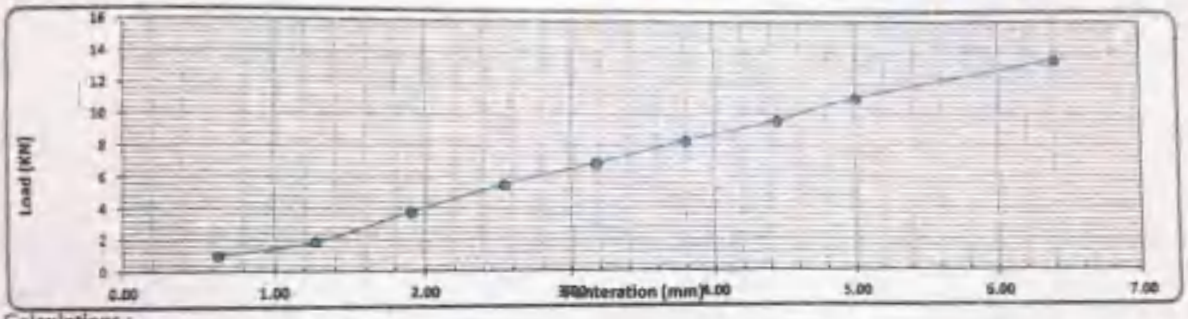
| Compaction % for Mold | |
|---|---|
| Mold No. | 1 |
| Mold Vol. ($cm^3$) | 2177.8 |
| Mold WT. (gm) | 10444 |
| (mold WT. + wet WT. (gm) | 21346 |
| Wet WT. (gm) | 4902 |
| Wet Density ($g/cm^3$) | 2.251 |
| Dry Density ($g/cm^3$) | 2.121 |
| Proctor Density ($g/cm^3$) | 2.168 |
| Compaction % | 98 |

| Moisture Ratio After Compacted Mold | |
|---|---|
| Tare No. | 4 |
| Tare WT. (gm) | 24.61 |
| Tare WT. +Wet WT. (gm) | 196.46 |
| Tare WT. +Dry WT. (gm) | 181.86 |
| Wt. Of water | 7.6 |
| Dry WT. (gm) | 124.3 |
| Moisture Content % | 6.1 |
| | |

| Swelling | |
|---|---|
| Mold No. | 2 |
| Date | |
| Initial Height (mm) | |
| Final Height (mm) | |
| Difference | 0 |
| Sample Height (mm) | |
| Swelling Ratio % | |

**Loading Reading :**

| penetration | 0.64 | 1.27 | 1.91 | 2.54 | 3.18 | 3.80 | 4.45 | 5.00 | 6.40 |
|---|---|---|---|---|---|---|---|---|---|
| Load Reading (kg) | 97.00 | 187.00 | 379.00 | [illegible] | 697.00 | 845.00 | 978.00 | [illegible] | 1376.00 |
| Load (KN) | 1.0 | 1.8 | 3.7 | [illegible] | 6.8 | 8.3 | 9.6 | [illegible] | 13.5 |




**Calculations : -**

| Penetration | Load | Standard Load | CBR | Mold - Compaction | Compaction | CBR |
|---|---|---|---|---|---|---|
| (mm) | (Kg) | (lb) | ( % ) | ( % ) | ( % ) | % 100 نقطة |
| 2.50 | [illegible] | 13.4 | 41.8% | 98 | 100 | 41.7% |
| 5.00 | [illegible] | 28.0 | 55.8% | | | 56.0% |

Lab. Specialist

Name :

Sign :

المعمل المركزى
شركة جمعه بدر نوح

Consultant Engineer

Name :

Sign :

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 3 From FOKA TO MARSA MATROUH

From Station [illegible] To Station 586+111

# PROCTOR TEST

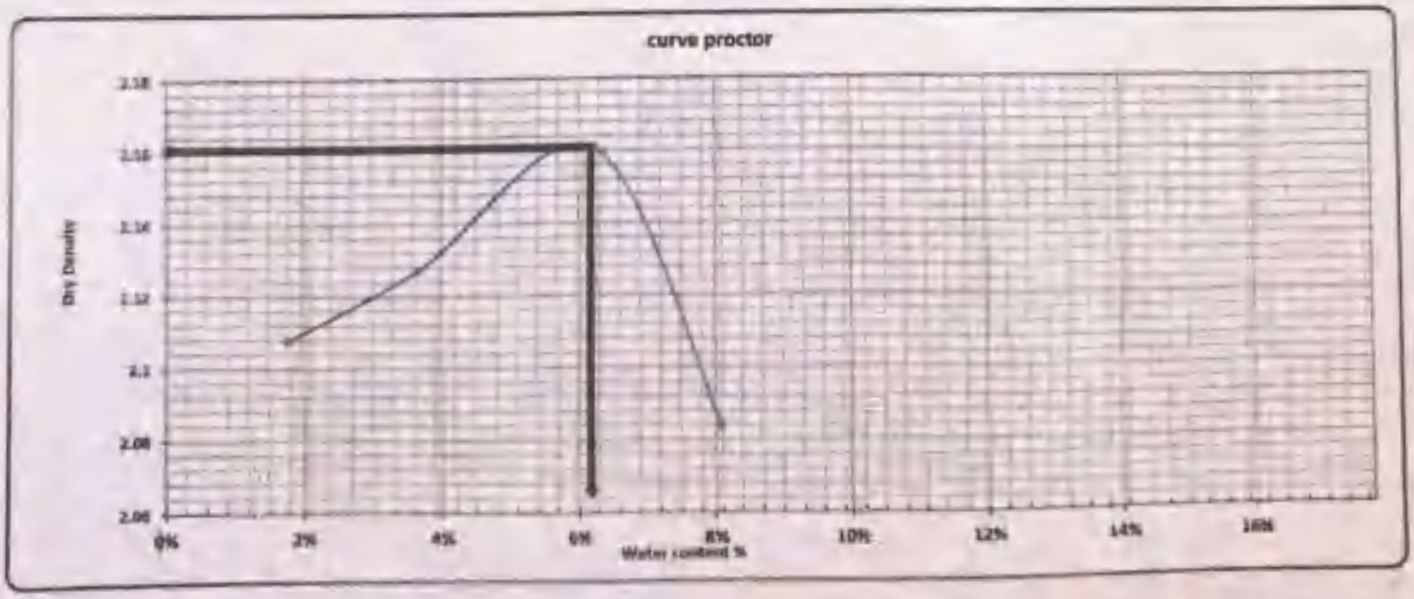
| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE | 27/3/2023 | [illegible] | ZONE | 524+500 | 525+000 |
| location | K.P524+800 | [illegible] | | | |
| NAME COMPANY | AL Moustafa | | | | |

operate by GOMAA BADER LAB

| | | | |
|---|---|---|---|
| Weight of empty mold : | 6536.0 | MAX Dry Density | 6.488 |
| Mold Volume: | 2104.9 | Water content % | 2.16 |

| trial no : | 1 | 2 | 3 | 4 | | |
|---|---|---|---|---|---|---|
| Wt. Of Mold+ wet soil | 11060.0 | 11196.9 | 11376.0 | 11286 | | |
| WT. WET SOIL | 4524.0 | 4660.0 | 4840.0 | 4750.0 | | |
| Wt. Density | 2.149 | 2.209 | 2.299 | 2.257 | | |

| Tare No. | 3 | 3 | 1 | 1 | 2 | 2 | 14 | 14 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tare wt. | 25.34 | 25.34 | 26.92 | 26.92 | 22.84 | 22.84 | 27 | 27 | | | | |
| Wt. Of wet soil & tare | 146.39 | 146.39 | 150.66 | 150.66 | 148.34 | 148.34 | 121.85 | 121.85 | | | | |
| Wt. Of dry soil & tare | 144 | 144 | 143.76 | 143.76 | 133.25 | 133.25 | 114.57 | 114.57 | | | | |
| Wt. Of water | 2.3 | 2.3 | 4.9 | 4.9 | 7.1 | 7.1 | 7.3 | 7.3 | | | | |
| Wt. Of dry soil | 118.9 | 118.9 | 126.8 | 126.8 | 110.4 | 110.4 | 87.6 | 87.6 | | | | |
| Water content % | 2.0% | 2.0% | 3.9% | 3.9% | 6.4% | 6.4% | 8.3% | 8.3% | | | | |
| AV.Water content % | 2.0% | | 3.9% | | 6.4% | | 8.3% | | | | | |
| Dry Density | 2.108 | | 2.127 | | 2.161 | | 2.084 | | | | | |




Contractor

المعمل المركزى
شركة جمعه بدر نوح

Consultant

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 7 From FOKA To MARSA MATROUH

From Station 564+099 To Station 569+177

# PARTICLE SIZE DISTRIBUTION OF SOIL

| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE | 26/3/2023 | code | ZONE | 524+500 | 525+000 |
| location | K.P524+800 | [illegible] | | | |
| NAME COMPANY | AL. Moustafa | | | | |
| 1-visual inspection test | operate by | GOMAA BADER LAB | | | |

2-Gradient test

| A-gradation of bulk materials | | | | SAMPLE WEIGHT (g) | | 33045.00 | | gm | | table classify |
|---|---|---|---|---|---|---|---|---|---|---|
| sieve size | 2 | 1.5 | 1 | 4/3 | 2/1 | 8/3 | # 4 | PASS | | soil classify |
| Mass retained (g) | 220.0 | 1880.0 | 3300.0 | 2000.0 | 5590.0 | 2520.0 | 4460.0 | | | A-1-a |
| Cumulative Retained (g) | 220.0 | 2100.0 | 5400.0 | 7400.0 | 12990.0 | 15510.0 | 19970.0 | | PRO | 2.151 |
| Cumulative Retained % | 0.7 | 6.4 | 16.9 | 23.0 | 39.9 | 47.8 | 61.3 | | WC | 6.4 |
| Cumulative Passing % | 99.3 | 93.6 | 83.1 | 77.0 | 60.1 | 52.2 | 38.7 | | CBR | 55.0% |

| B-soft material gradation | | | | WT.OF sample | | 600.00 | | gm |
|---|---|---|---|---|---|---|---|---|
| sieve size | 10 | 40 | 200 | | | | | |
| Cumulative Retained (g) | 89.00 | 170.00 | 355.00 | | | | | |
| Cumulative Retained % | 15.00 | 34.00 | 67.00 | | | | | |
| Cumulative Passing % | 85.00 | 66.00 | 33.00 | | | | | |

| C-General gradient | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| sieve size(in) | 2 | 1.5 | 1 | 3/4 | 1/2 | 3/8 | # 4 | # 10 | # 40 | # 200 |
| sieve size(mm) | 50.8 | 37.5 | 25.0 | 19.0 | 12.5 | 9.5 | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 99.3 | 93.6 | 83.1 | 77.0 | 60.1 | 52.2 | 38.7 | 33.3 | 29.5 | 17.9 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] |
| | N.P | N.P | N.P |

Contractor

Consultant

Hassan

المعمل المركزى
شركة جمعه بدر نوح

# MATERIAL INSPECTION REQUEST

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Company | AL-MOSTAFA COMPANY | | | | Designer Company | K.K | | | | | |
| Issued by Contractor | Name | Sign | | | Date | Time | | | | | |
| | MOSTAFA THABET | Mostafa Thabet | | | 11-04-2023 | | | | | | |
| Received by ER | | | MIR | C1 | C2 | C3 | DD | MM | YY | HH | MM |
| | | | | S.P 524 | E.W | D.T | 11 | 04 | 2023 | | |

| CODE-1 | S1 to S21 Station Reference | D1 to 53 Depot Reference | Kp XXX Note For Kilometer point only Start Km is used |
|---|---|---|---|
| CODE - 2 | Work Activity | | |
| CODE - 3 | Sub Element of Activity | | |

| Description of Materials | PREPARED SUBGRADE MATERIAL RESULTS | | | | |
|---|---|---|---|---|---|
| Location to be Used | From | TO | | | |
| | 524+780 | 525+000 | P.SUB 1 (+0.25) | | |
| | 524+500 | 525+000 | P.SUB 2 (+0.50) | | |
| MAR Approval No | | | | Date | |
| Supplier Name | | | | | |
| Test Requirement | | | Specification | Clause | |
| Reference Photos | Yes attached / No | | Other | | |

| Item | Description | Unit | Quantity | Arrival Date | Note |
|---|---|---|---|---|---|
| 1 | Sieve analysis | M3 | 5000 | 11-04-2023 | |
| 2 | Classification | M3 | 5000 | 11-04-2023 | |
| 3 | Proctor & O.M.C | M3 | 5000 | 11-04-2023 | |
| 4 | L.L & P.L & PI | M3 | 5000 | 11-04-2023 | |
| 5 | C.B.R | M3 | 10000 | 11-04-2023 | |

| Comments by: | Comments by: |
|---|---|
| A sample has been taken from fill material by K.K office to (Al NOUBI LAB) and the results founded meet the specifications and accepted. | |

**APPROVAL STATUS**

| Organisation | Name | Sign | Date | A-AWC-R |
|---|---|---|---|---|
| Contractor | Mostafa Thabet | Mostafa Thabet | | |
| QA/QC * | Abdallah SAMY | Abdallah | | |
| GARB** | | | | |
| Employers Representative | | | | |

* Designer

** Alignment / Bridges: Culvert Only

# SUBMISSION of TEST RESULTS

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Company | AL-MOSTAFA COMPANY | | | | Designer Company | | K.K | | | | | |
| Issued by Contractor | Name | Sign | | | Date | | Time | | | | | |
| | Mostafa Thabet | Mostafa Thabet | | | 11-04-2023 | | | | | | | |
| Received by ER | | | MAR | | C1 | C2 | C3 | DD | MM | YY | H H | MM |
| | | | | | K.P 524 | E-W | O.T | 11 | 04 | 2023 | | |

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

| NB: Package 1 Only (Package 2 via Aconex) | | | | |
|---|---|---|---|---|
| **THE FOLLOWING TEST RESULTS ARE ATTACHED FOR REVIEW** | | | | |
| Description of Test Materials | Soil (A-1-a) | | | |
| Location of Test | K.P (524) | | | |
| Item | Specification | Test Requirement | Test Result Attachment | Remarks |
| 1 | ASTM D 75 | Aggregate sampling | According to specification | |
| 2 | ASTM C 136 | Sieve Analysis | According to specification | |
| 3 | ASTM D 1440 | Passing sieve #200 | 8.30 | |
| 4 | ASTM D 4318 | Atterberg limit | N.P | |
| 5 | ASTM D 2974 | Moisture content | 6.50 | |
| 6 | ASTM D 1557 | Modified proctor | 2.175 | |
| 7 | ASTM D 1883 | C.B.R | 89.90 | |

| Comments by: | Comments by: |
|---|---|
| | |

| APPROVAL STATUS | | | | |
|---|---|---|---|---|
| Organisation | Name | Sign | Date | A-AWC-R |
| Contractor | Mostafa Thabet | | | A |
| Designer | Youssef Rafat | Youssef | | A |
| GARB * | | | | |
| Employers Representative | | | | |

* Alignment / Bridges: Culvert Only

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 7 From FOKA To MARSA MATROUH

From Station 504+000 To Station 569+177

| Opreating Lab | AL Nuby Central Lab |
|---|---|

# PARTICLE SIZE DISTRIBUTION OF SOIL

| TESTING DATE: | 11-4-2023 | Code | Zone | 524+500 | 525+000 |
|---|---|---|---|---|---|
| LOCATION | K.P (524+800) | MQ (P-1) | | | |
| NAME COMPANY | Al Mustafa | | | | |

1-visual inspection test

2-Gradient test

| A-gradation of bulk materials | | | | SAMPLE WEIGHT (g) | | 17419.00 | | gm | Table classify | |
|---|---|---|---|---|---|---|---|---|---|---|
| sieve size | 2 | 1.5 | 1 | 4/3 | 2/1 | 8/3 | # 4 | PASS | Soil Classify | A-1-a |
| Mass retained (g) | 122.0 | 1836.0 | 2489.0 | 812.0 | 961.0 | 1098.0 | 4079.0 | | PRO | 2.175 |
| Cumulative Retained (g) | 122.0 | 1958.0 | 4447.0 | 5069.0 | 6030.0 | 7128.0 | 11207.0 | | WC | 6.50 |
| Cumulative Retained % | 0.7 | 11.2 | 25.6 | 29.1 | 34.6 | 40.9 | 64.3 | | CBR | |
| Cumulative Passing % | 99.3 | 88.8 | 74.4 | 70.9 | 65.4 | 59.1 | 35.7 | | Los Angles | 30.96 |

| B-soft material gradation | | | | WT.OF sample | | 500.00 | | gm |
|---|---|---|---|---|---|---|---|---|
| sieve size | 10 | 40 | 200 | | | | | |
| Cumulative Retained (g) | 133.00 | 258.00 | 383.00 | | | | | |
| Cumulative Retained % | 26.60 | 51.60 | 76.60 | | | | | |
| Cumulative Passing % | 73.40 | 48.40 | 23.40 | | | | | |

| C-General gradient | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| sieve size(in) | 2 | 1.5 | 1 | 3/4 | 1/2 | 3/8 | # 4 | # 10 | # 40 | # 200 |
| sieve size(mm) | 50.0 | 37.5 | 25.0 | 19.0 | 12.5 | 9.5 | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 99.3 | 88.8 | 74.4 | 70.9 | 65.4 | 59.1 | 35.7 | 26.2 | 17.3 | 8.3 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| ATTERBERG LIMTS | LIQUID LIMIT (L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|---|---|---|---|
| | N.P | N.P | N.P |

| Contractor | Consultant |
|---|---|
| | Yousef Rafat |

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 7 From FOKA TO MARSA MATROUH

From Station 504+000 To Station 569+177

# PROCTOR TEST

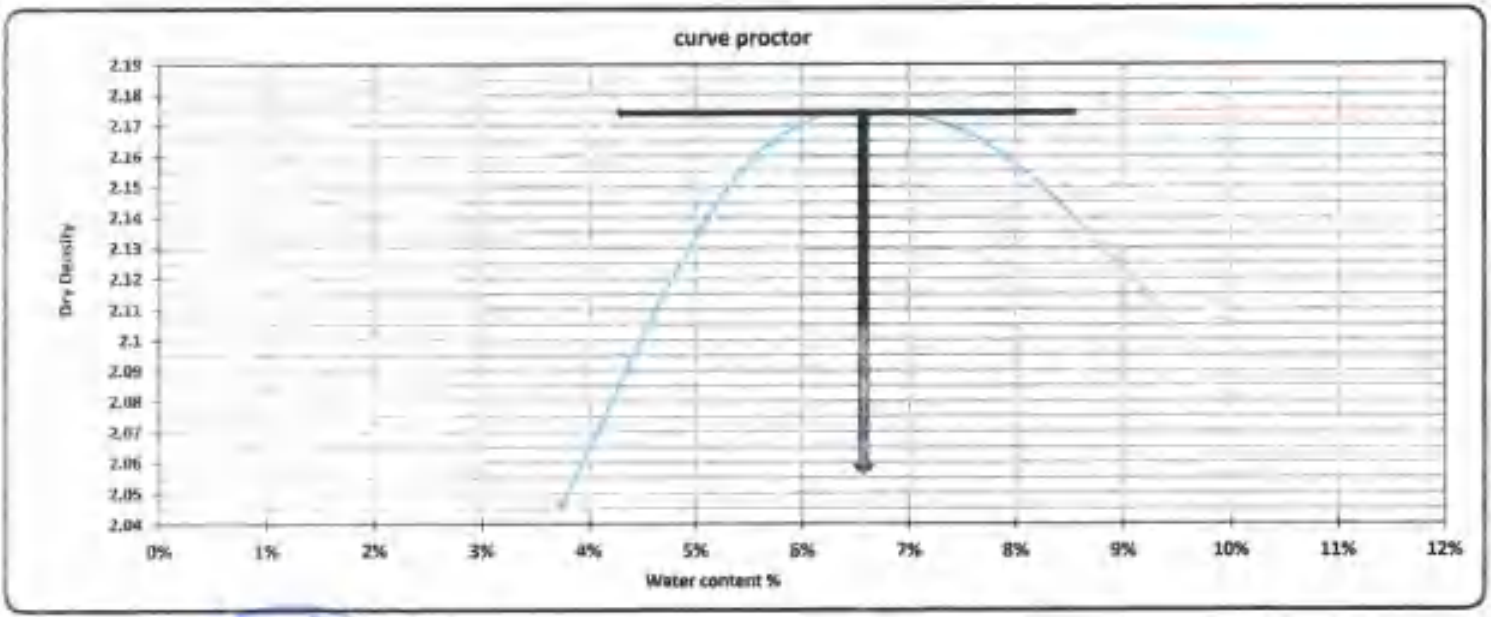
| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE: | 11-4-2023 | Code | zone | 524++500 | 525+000 |
| LOCATION | K.P (524+800) | MO (P-1) | | | |
| NAME COMPANY | Al Mustafa | | | | |

| | |
|---|---|
| Weight of empty mold : | 6037.0 |
| Mold Volume: | 2113.0 |

| | |
|---|---|
| MAX Dry Density | 2.175 |
| Water content % | 6.5 |

| trial no : | 1 | 2 | 3 | 4 | |
|---|---|---|---|---|---|
| Wt. Of Mold+ wet soil | 10523.0 | 10854.0 | 10962.0 | 10899 | |
| WT. WET SOIL | 4486.0 | 4817.0 | 4925.0 | 4862.0 | |
| Wt. Density | 2.123 | 2.280 | 2.331 | 2.301 | |

| Tare No. | 75 | 16 | 22 | 40 | 8 | 15 | 26 | 19 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Tare wt. | 88 | 33.9 | 84.1 | 46.4 | 46.8 | 31.9 | 55 | 44.4 | | |
| Wt. Of wet soil & tare | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | | |
| Wt. Of dry soil & tare | 146.5 | 145.9 | 145.0 | 144.5 | 142.7 | 141.8 | 141.7 | 140.7 | | |
| Wt. Of water | 3.5 | 4.1 | 5.0 | 5.5 | 7.3 | 8.2 | 8.3 | 9.3 | | |
| Wt. Of dry soil | 91.5 | 112.0 | 90.9 | 98.1 | 95.9 | 109.9 | 86.7 | 96.3 | | |
| Water content % | 3.8% | 3.7% | 5.5% | 5.6% | 7.6% | 7.5% | 9.6% | 9.7% | | |
| AV.Water content % | 3.7% | | 5.6% | | 7.5% | | 9.6% | | | |
| Dry Density | 2.046 | | 2.160 | | 2.167 | | 2.099 | | | |




Contractor

Consultant

Youssef Rafat

| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE: | 11-4-2023 | code | zone | 524+500 | 525+000 |
| LOCATION | K.P (524+800+) | MO (P-1) | | | |
| NAME COMPANY | Al Mustafa | | | | |

Los Anglos abrasion AASHTO-T96

Results:-

| Weight of sample before test (gm) | Weight of sample after test (gm) | Abrasion ratio (%) |
|---|---|---|
| 5000 | 3452 | 30.96 |

Lab. Specialist
Name :
Sign :

Lab. Engineer
Name :
Sign :

Consultant Engineer
Name : Youssef Rafat
Sign :

# Electric Express Train - HSR

Qarabag LLC — Al Nuby Central Lab

## California Bearing Ratio TEST

| | | Code | | | |
|---|---|---|---|---|---|
| Testing Date | 13-4-2023 | MO (P-1) | FROM STA : | 524+500 | 525+000 |
| Location | K.P (524+800) | | | | |
| Company Name | Al Mustafa | | | | |

-: Test Results

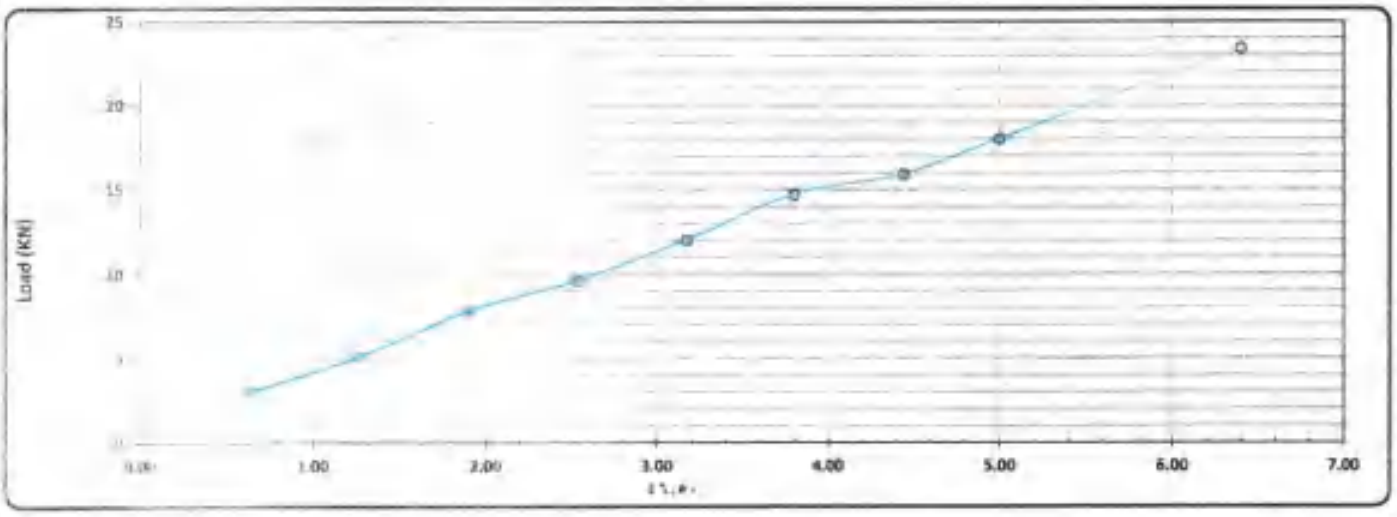
| Compaction % for Mold | |
|---|---|
| Mold No | 3 |
| Mold Vol. ($cm^3$) | 2025 |
| Mold Wt. (gm) | 5034 |
| Mold WT. + Wet Wt. (gm) | 9725 |
| Wet Wt. (gm) | 4691 |
| Wet Density ($g/cm^3$) | 2.317 |
| Dry Density ($g/cm^3$) | 2.175 |
| Proctor Density ($g/cm^3$) | 2.175 |
| Compaction % | 100.0 |

| Moisture Ratio After Compacted Mold | |
|---|---|
| Tare No. | 15 |
| Tare WT. (gm) | 31.9 |
| Tare WT. +Wet WT. (gm) | 150 |
| Tare WT. +Dry WT. (gm) | 142.8 |
| Water WT. (gm) | 7.2 |
| Dry WT. (gm) | 110.9 |
| Moisture Content % | 6.5 |
| | |

| Swelling | |
|---|---|
| Mold No. | 3 |
| Date | 13-4-2023 |
| Intial Height (mm) | 0.00 |
| Final Height (mm) | 0.00 |
| Difference | 0 |
| Sample Height (mm) | 120.00 |
| Swelling Ratio % | 0.0% |

Loading Reading :

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 46.50 | 0.64 | 1.27 | 1.91 | 2.54 | 3.18 | 3.80 | 4.45 | 5.00 | 6.40 |
| Load Reading (mm) | 0.10 | 0.17 | 0.26 | 0.32 | 0.40 | 0.49 | 0.53 | 0.60 | 0.78 |
| Load (KN) | 3.0 | 5.1 | 7.8 | 9.6 | 12.0 | 14.7 | 15.9 | 18.0 | 23.4 |




Calculations :

| Penetration | Load | Standard Load | CBR | Mold - Compaction | Compaction | CBR |
|---|---|---|---|---|---|---|
| (mm) | (Kn) | (lb) | ( % ) | ( % ) | ( % ) | CBR عند نسبة ٩٨ % |
| 2.50 | 9.60 | 13.4 | 71.9% | 100 | 98 | 70.5% |
| 5.00 | 18.00 | 20.0 | 89.9% | | | 88.1% |

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : Yousef Rafat |
| Sign : | Sign : | Sign : |

# MATERIAL INSPECTION REQUEST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Company | AL-MOSTAFA COMPANY | | | Designer Company | K.K | | | | | |
| Issued by Contractor | Name | Sign | | Date | Time | | | | | |
| | MOSTAFA THABET | مصطفى ثابت | | 10-09-2023 | | | | | | |
| Received by ER | | | MIR | C1 / C2 / C3 | C2 | C3 | DD | MM | YY | HH / MM |
| | | | | S.P S24 | L40 | 0.7 | 10 | 09 | 2023 | |

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

| | | | | | |
|---|---|---|---|---|---|
| Description of Materials | SUB-BALLAST MATERIAL RESULTS | | | | |
| Location to be Used | From | TO | | | |
| | 524+500 | 525+000 | SUB BALLAST 1 (+0.70) | | |
| | 524+500 | 525+000 | SUB BALLAST 2 (+0.90) | | |
| MAR Approval No | | | | Date | |
| Supplier Name | | | | | |
| Test Requirement | | | Specification | Clause | |
| Reference Photos | Yes attached / No | | Other | | |

| Item | Description | Unit | Quantity | Arrival Date | Note |
|---|---|---|---|---|---|
| 1 | Sieve analysis | M3 | 5000 | 10-09-2023 | |
| 2 | Classification | M3 | 5000 | 10-09-2023 | |
| 3 | Proctor & O.M.C | M3 | 5000 | 10 09 2023 | |
| 4 | L.L & P.L & PI | M3 | 5000 | 10-09-2023 | |
| 5 | C.B.R | M3 | 10000 | 10-09-2023 | |

| Comments by: | Comments by: |
|---|---|
| **A sample has been taken from fill material by K.K office to (Al TAWAKOL LAB) and the results founded meet the specifications and accepted.** | |

**APPROVAL STATUS**

| Organisation | Name | Sign | Date | A-AWC-R |
|---|---|---|---|---|
| Contractor | مصطفى ثابت | مصطفى ثابت | | |
| QA/QC * | Hassan | | | |
| GARB** | | | | |
| Employers Representative | | | | |

* Designer

** Alignment / Bridges: Culvert Only

SUBMISSION of TEST RESULTS

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Contractor Company | AL-MOSTAFA COMPANY | | | | | Designer Company | K.K | | | | |
| Issued by Contractor | Name | Sign | | | | Date | Time | | | | |
| | Mostafa Thabet | مصطفى ثابت | | | | 12-09-2023 | | | | | |
| Received by ER | | | MAR | C1 | C2 | C3 | DD | MM | YY | H H | MM |
| | | | | KP 524 | S.W | D.T | 02 | 09 | 2023 | | |

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

NB: Package 1 Only (Package 2 via Aconex)

**THE FOLLOWING TEST RESULTS ARE ATTACHED FOR REVIEW**

| | |
|---|---|
| Description of Test Materials | Soil (A-1-a) |
| Location of Test | K.P (524) |

| Item | Specification | Test Requirement | Test Result Attachment | Remarks |
|---|---|---|---|---|
| 1 | ASTM D 75 | Aggregate sampling | According to specification | |
| 2 | ASTM C 136 | Sieve Analysis | According to specification | |
| 3 | ASTM D 1440 | Passing sieve #200 | 4.65 | |
| 4 | ASTM D 4318 | Atterberg limit | N.P | |
| 5 | ASTM D 2974 | Moisture content | 7.10 | |
| 6 | ASTM D 1557 | Modified proctor | 2.23 | |
| 7 | ASTM D 1883 | C.B.R | 93.4 | |

| Comments by: | Comments by: |
|---|---|
| | |

**APPROVAL STATUS**

| Organisation | Name | Sign | Date | A-AWC-R |
|---|---|---|---|---|
| Contractor | مصطفى ثابت | مصطفى ثابت | | A |
| Designer | Hassan | Dec 12 2023 | | A |
| GARB * | | | | |
| Employers Representative | | | | |

* Alignment / Bridges: Culvert Only

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 7 From FOKA To MARSA MATROUH

From Station 504+000 To Station 568+177

| Operating lap | Al Tawkol Central Lab |
|---|---|

# PARTICLE SIZE DISTRIBUTION OF SOIL

| TESTING DATE: | 10-09-2023 | code | ZONE | 524+500 | 525+000 |
|---|---|---|---|---|---|
| LOCATION | K.P (524+750) | (mix) SUB BALLAST (1) | Material | SUB BALLAST | |
| NAME COMPANY | Al Mostafa | | QUANTITY | 5000 M | |

visual inspection test

Gradient test

| gradation of bulk materials | | | | SAMPLE WEIGHT (gm) | | 41486.000 | | gm | | table classify |
|---|---|---|---|---|---|---|---|---|---|---|
| sieve size | 2 " | 1.5 " | 1 " | 3/4 " | 1/2 " | 3/8 " | # 4 | PASS | | soil classify |
| Mass retained (g) | 0.0 | 1254.0 | 4775.0 | 4523.0 | 6850.0 | 6960.0 | 5070.0 | 12054.0 | CLASS | A-1-a |
| umulative Retained (g) | 0.0 | 1254.0 | 6029.0 | 10552.0 | 17402.0 | 24362.0 | 29432.0 | | PRO | 2.230 |
| Cumulative Retained % | 0.0 | 3.0 | 14.5 | 25.4 | 41.9 | 58.7 | 70.9 | | WC | 7.1 |
| Cumulative Passing % | 100.0 | 97.0 | 85.5 | 74.6 | 58.1 | 41.3 | 29.08 | | CBR | 93.40 |
| | | | | | | | | | LA | 25.4 |
| | | | | | | | | | S.G | 2.520 |

| soft material gradation | | | | WT.OF sample | | 500.00 | | gm |
|---|---|---|---|---|---|---|---|---|
| sieve size | #10 | #40 | #200 | | | | | |
| umulative Retained (g) | 150.00 | 320.00 | 420.00 | | | | | |
| Cumulative Retained % | 30.00 | 64.00 | 84.00 | | | | | |
| umulative Passing % | 70.00 | 36.00 | 16.00 | | | | | |

General gradient

| sieve size(in) | 2 " | 1.5 " | 1 " | 3/4 " | 1/2 " | 3/8 " | # 4 | # 10 | # 40 | # 200 |
|---|---|---|---|---|---|---|---|---|---|---|
| sieve size(mm) | 50.0 | 37.5 | 25.0 | 19.0 | 12.5 | 9.5 | 4.75 | 2.00 | 0.425 | 0.075 |
| umulative Passing % | 100.0 | 85.00 | 85.5 | 74.60 | 58.1 | 41.3 | 29.1 | 23.3 | 10.5 | 4.60 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| ATTERBERG LIMTS | LIQUID LIMIT ( L.L ) | PLASTIC LIMIT (P.L) | PLASTIC INDEX (P.I) |
|---|---|---|---|
| | N.L | N.P | N.PI |

| Contractor | Consultant |
|---|---|
| ENG AHMED HALEEM | Hassan |

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 7 From FOKA To MARSA MATROUH

From Station 504+000 To Station 588+177

## Absorbtion & Aggregate specific gravity AASHTO-T85

| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE: | 10/09/2023 | code | Station | 524+500 | 525+000 |
| LOCATION | K.P (524+750) | (mos) SUB BALLAST (1) | Material | SUB BALLAST | |
| NAME COMPANY | Al Mostafa | | QUANTITY | 5000 M | |

| | | |
|---|---|---|
| Weight of sample | 2500 | gm |
| Weight of saturated surface dry sample (B) | 2540 | gm |
| Weight of saturated sample in water (C) | 1553 | gm |
| Weight of dry sample after heating (A) | 2490 | gm |

**Results:-**

| | | |
|---|---|---|
| Bulk specific gravity = A / (B-C) | 2.523 | |
| Bulk specific gravity (S.S.D) = B / (B-C) | 2.573 | |
| Apparent specific gravity = A /(A-C) | 2.657 | |
| Absorbation = ( B-A)/A | 2.008 | % |

## Los Anglos Abrasion AASHTO-T96

**Results:-**

| Weight of sample before test (gm) | Weight of sample after test (gm) | Abrasion ratio (%) |
|---|---|---|
| 5000 | 3730 | 25.40 |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name : AHMED HALEEM

Sign :

Consultant Engineer

Name : Hassan

Sign :

Electric Express Train - HSR

From El Ain El Sokhna City To El Alamein - MATROUH

Section - 7 From FOKA TO MARSA MATROUH

From Station 504+000 To Station 586+177

# MODIFIED PROCTOR TEST ASTM D-1557

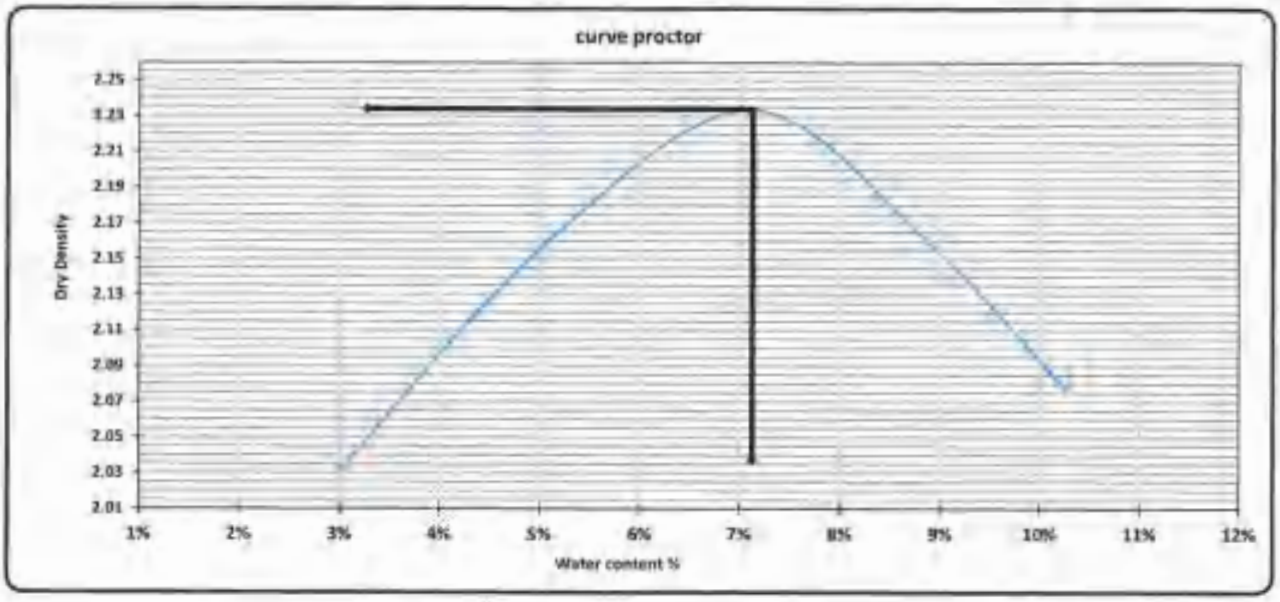
| | | | | | |
|---|---|---|---|---|---|
| TESTING DATE: | 11-09-2023 | code | ZONE | 524+500 | 525+000 |
| LOCATION | K.P (524+750) | (mss) SUB BALLAST (1) | Material | SUB BALLAST | |
| NAME COMPANY | Al Mostafa | | QUANTITY | 5000 M | |

| | |
|---|---|
| Weight of empty mold : | 5620.0 |
| Mold Volume: | 2124.0 |

| | |
|---|---|
| MAX Dry Density | 2.233 |
| Water content % | 7.1% |

| trial no : | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Wt. Of Mold+ wet soil | 10070.0 | 10430.0 | 10700.0 | 10615 | 10485 |
| WT. WET SOIL | 4450.0 | 4810.0 | 5080.0 | 4995.0 | 4865.0 |
| Wt. Density | 2.095 | 2.265 | 2.392 | 2.352 | 2.290 |

| Tare No. | 10 | 11 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| Tare wt. | 53.3 | 53.1 | 56.4 | 53.2 | 55.2 | 53.6 | 53.2 | 56.1 | 55.3 | 53.2 |
| Wt. Of wet soil & tare | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 |
| Wt. Of dry soil & tare | 147.2 | 147.1 | 145.5 | 145.4 | 143.65 | 143.70 | 142.0 | 142.5 | 141.8 | 141.2 |
| Wt. Of water | 2.8 | 2.9 | 4.5 | 4.6 | 6.3 | 6.3 | 8.0 | 7.5 | 9.0 | 8.8 |
| Wt. Of dry soil | 93.9 | 94.0 | 89.1 | 92.2 | 88.5 | 90.1 | 88.8 | 86.4 | 85.7 | 88.0 |
| Water content % | 3.0% | 3.1% | 5.1% | 5.0% | 7.2% | 7.0% | 9.0% | 8.7% | 10.5% | 10.0% |
| AV.Water content % | 3.0% | | 5.0% | | 7.1% | | 8.9% | | 10.3% | |
| Dry Density | 2.033 | | 2.156 | | 2.233 | | 2.160 | | 2.078 | |




Contractor

Consultant

# Electric Express Train - HSR

## California Bearing Ratio TEST

| | | | | | |
|---|---|---|---|---|---|
| Testing Date : | 12/9/2023 | Code | FROM STA : | 524+500 | 525+000 |
| Location : | K.P (524+750) | (mos) SUB BALLAST(1) | : Material | SUB BALLAST | |
| Company Name | Al Mostafa | | : Layer Thickness | 500M | |

**-: Test Results**

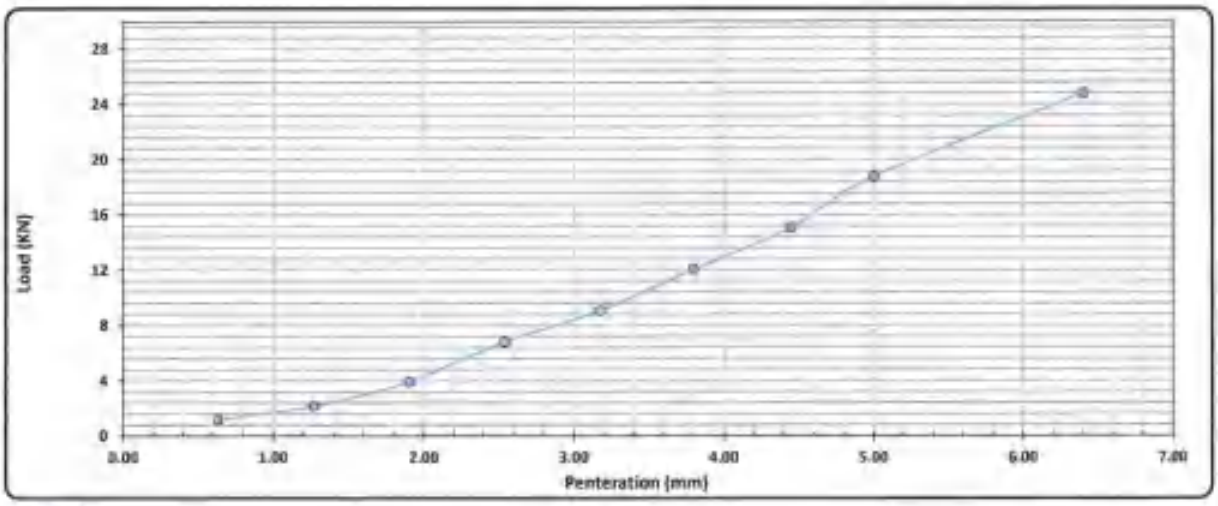
| Compaction % for Mold | |
|---|---|
| Mold No. | 1 |
| Mold Vol.($cm^3$) | 2120 |
| Mold WT. (gm) | 5310 |
| Mold WT. + Wet WT. (gm) | 10385 |
| Wet WT. (gm) | 5075 |
| Wet Density ($g/cm^3$) | 2.394 |
| Dry Density ($g/cm^3$) | 2.238 |
| Proctor Density ($g/cm^3$) | 2.231 |
| Compaction % | 100.3 |

| Moisture Ratio After Compacted Mold | |
|---|---|
| Tare No. | 15 |
| Tare WT. (gm) | 55 |
| Tare WT. +Wet WT. (gm) | 150 |
| Tare WT. +Dry WT. (gm) | 143.8 |
| Water WT. (gm) | 6.2 |
| Dry WT. (gm) | 88.8 |
| Moisture Content % | 7.0 |

| Swelling | |
|---|---|
| Mold No. | 1 |
| Date: | 12/9/2023 |
| Intial Height (mm) | 0.00 |
| Final Height (mm) | 0.00 |
| Difference | 0.00 |
| Sample Height (mm) | 120 |
| Swelling Ratio % | 0.00% |

**Loading Reading :**

| Penteration (mm) | 0.64 | 1.27 | 1.91 | 2.54 | 3.18 | 3.80 | 4.45 | 5.00 | 6.40 |
|---|---|---|---|---|---|---|---|---|---|
| Load Reading (Kg) | 130 | 240 | 435 | 755 | 1005 | 1340 | 1675 | 2105 | 2755 |
| Load (KN) | 1.2 | 2.2 | 3.9 | 6.8 | 9.0 | 12.1 | 15.1 | 18.8 | 24.8 |




**Calculations :-**

| Penteration | Load | Standard Load | CBR | Mold - Compaction | Compaction | CBR |
|---|---|---|---|---|---|---|
| (mm) | (Kn) | (lb) | ( % ) | ( % ) | ( % ) | 100 عند نسبة % |
| 2.50 | 6.80 | 13.4 | 50.9% | 100.3 | 100 | 50.7% |
| 5.00 | 18.77 | 20.0 | 93.7% | | | 93.4% |

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | Al Mustafa | | |
| Location | 524+820 | To | 524+920 |
| Taste Date | 21/3/2023 | | |
| **Layer level** | **-1.5** | | |

| | |
|---|---|
| Station | 524+900 |

## EQUIPMENT AND TEST PROCEDURE

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**

**F = load**

**Δs = settlement**

**D = diameter of the plate**

**The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used**

**The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack**

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 14.92 | 13.45 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.4 | 0.707 | 0.01 | 14.80 | 13.40 | | 0.120 | 0.050 | | 0.085 |
| 2.000 | 18.8 | 5.652 | 0.08 | 14.40 | 13.15 | | 0.520 | 0.300 | | 0.410 |
| 3.000 | 37.7 | 11.304 | 0.16 | 14.02 | 12.95 | | 0.900 | 0.500 | | 0.700 |
| 4.000 | 58.9 | 17.663 | 0.25 | 13.80 | 12.85 | | 1.120 | 0.600 | | 0.860 |
| 5.000 | 77.7 | 23.315 | 0.33 | 13.55 | 12.70 | | 1.370 | 0.750 | | 1.060 |
| 6.000 | 98.9 | 29.673 | 0.42 | 13.35 | 12.60 | | 1.570 | 0.850 | | 1.210 |
| 7.000 | 117.8 | 35.325 | 0.50 | 13.10 | 12.50 | | 1.820 | 0.950 | | 1.385 |
| 8.000 | 58.9 | 17.663 | 0.25 | 13.15 | 12.58 | | 1.770 | 0.870 | | 1.320 |
| 9.000 | 29.4 | 8.831 | 0.12 | 13.25 | 12.65 | | 1.670 | 0.800 | | 1.235 |
| 9.000 | 2.4 | 0.707 | 0.01 | 13.85 | 13.02 | | 1.070 | 0.430 | | 0.750 |
| 10.000 | 2.4 | 0.707 | 0.01 | 13.85 | 13.02 | | 1.070 | 0.430 | | 0.750 |
| 11.000 | 18.8 | 5.652 | 0.08 | 13.60 | 12.85 | | 1.320 | 0.600 | | 0.960 |
| 12.000 | 37.7 | 11.304 | 0.16 | 13.40 | 12.75 | | 1.520 | 0.700 | | 1.110 |
| 13.000 | 58.9 | 17.663 | 0.25 | 13.30 | 12.70 | | 1.620 | 0.750 | | 1.185 |
| 14.000 | 77.7 | 23.315 | 0.33 | 13.15 | 12.65 | | 1.770 | 0.800 | | 1.285 |
| 15.000 | 98.9 | 29.673 | 0.42 | 13.00 | 12.55 | | 1.920 | 0.900 | | 1.410 |

| | | v | ΔS | Δσ |
|---|---|---|---|---|
| $0.7\sigma_1$ | 0.35 | 1.05688 | 0.39313 | 0.2 |
| $0.3\sigma_1$ | 0.15 | 0.66375 | | |
| $0.7\sigma_2$ | 0.35 | 1.31278 | 0.14276 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.17002 | | |
| D (mm) | 300 | | | |
| $E_{V1}$ | 114.47 | | | |
| $E_{V2}$ | 315.22 | | | |
| Area ( sq m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 2.75 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta_s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta\varepsilon$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$


| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : Hassan |
| Sign : | Sign : | Sign : |

# Plate Load Test Results

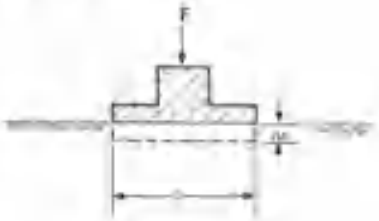
| | | | | |
|---|---|---|---|---|
| Company Name | المصطفي | | | |
| Location | 524+800 | To | 524+920 | |
| Taste Date | 11-04-2023 | | | |
| **Layer level** | **ferma** | | | |

| | |
|---|---|
| Station | 524+880 |

## EQUIPMENT AND TEST PROCEDURE :-

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

Δs = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.94 | 19.90 | | 0.060 | 0.100 | | 0.080 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.82 | 19.80 | | 0.180 | 0.200 | | 0.190 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.55 | 19.72 | | 0.450 | 0.280 | | 0.365 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.36 | 19.61 | | 0.640 | 0.390 | | 0.515 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.19 | 19.52 | | 0.810 | 0.480 | | 0.645 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.96 | 19.40 | | 1.040 | 0.600 | | 0.820 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.76 | 19.31 | | 1.240 | 0.690 | | 0.965 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.84 | 19.38 | | 1.160 | 0.620 | | 0.890 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.94 | 19.49 | | 1.060 | 0.510 | | 0.785 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.18 | 19.60 | | 0.820 | 0.400 | | 0.610 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.18 | 19.60 | | 0.820 | 0.400 | | 0.610 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.14 | 19.56 | | 0.860 | 0.440 | | 0.650 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.05 | 19.50 | | 0.950 | 0.500 | | 0.725 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.95 | 19.46 | | 1.050 | 0.540 | | 0.795 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.88 | 19.41 | | 1.120 | 0.590 | | 0.855 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.78 | 19.36 | | 1.220 | 0.640 | | 0.930 |

| | | ν | ΔS | Δσ |
|---|---|---|---|---|
| $0.7\sigma_1$ | 0.35 | 0.69313 | 0.35 | 0.2 |
| $0.3\sigma_1$ | 0.15 | 0.34313 | | |
| $0.7\sigma_2$ | 0.35 | 0.87167 | 0.38166 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 0.69 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 128.57 | | | |
| $Ev_2$ | 247.71 | | | |
| Area (Sq.m) | 0.07065 | | | |

| Ev2/Ev1 | 1.93 | | |
|---|---|---|---|

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

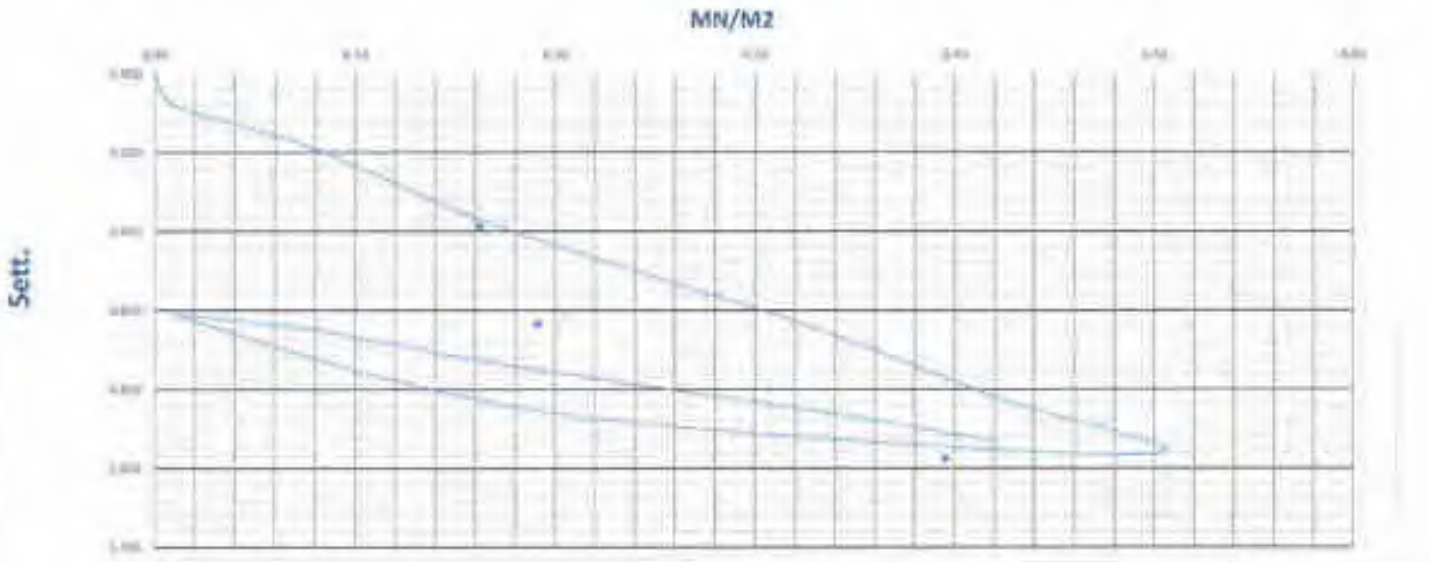
$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta\varepsilon$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : Youssef Rafla |
| Sign : | Sign : | Sign : |

# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | المصطفي | | | | |
| Location | 524+800 | To | 524+920 | Station | 524+840 |
| Taste Date | 11-04-2023 | | | | |
| **Layer level** | **ferma** | | | | |

## EQUIPMENT AND TEST PROCEDURE :-

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**


F = load

= settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.94 | 19.96 | | 0.060 | 0.040 | | 0.050 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.81 | 19.88 | | 0.190 | 0.120 | | 0.155 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.61 | 19.81 | | 0.390 | 0.190 | | 0.290 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.35 | 19.72 | | 0.650 | 0.280 | | 0.465 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.20 | 19.68 | | 0.800 | 0.320 | | 0.560 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.05 | 19.62 | | 0.950 | 0.380 | | 0.665 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.90 | 19.58 | | 1.100 | 0.420 | | 0.760 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.95 | 19.63 | | 1.050 | 0.370 | | 0.710 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.06 | 19.69 | | 0.940 | 0.310 | | 0.625 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.28 | 19.79 | | 0.720 | 0.210 | | 0.465 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.28 | 19.79 | | 0.720 | 0.210 | | 0.465 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.23 | 19.77 | | 0.760 | 0.230 | | 0.495 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.16 | 19.76 | | 0.840 | 0.240 | | 0.540 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.10 | 19.72 | | 0.900 | 0.280 | | 0.590 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.05 | 19.66 | | 0.950 | 0.340 | | 0.645 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.98 | 19.60 | | 1.020 | 0.400 | | 0.710 |

| | | | | |
|---|---|---|---|---|
| | | v | ΔS | Δσ |
| $0.7\,\sigma_1$ | 0.35 | 0.58187 | 0.30875 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.27313 | | |
| $0.7\sigma_2$ | 0.35 | 0.65944 | 0.13444 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 0.525 | | |
| D (mm) | 300 | | | |
| $E_{v1}$ | 145.75 | | | |
| $E_{v2}$ | 334.72 | | | |
| Area ($A_{pl}$,m²) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| $E_{v2}/E_{v1}$ | 2.30 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

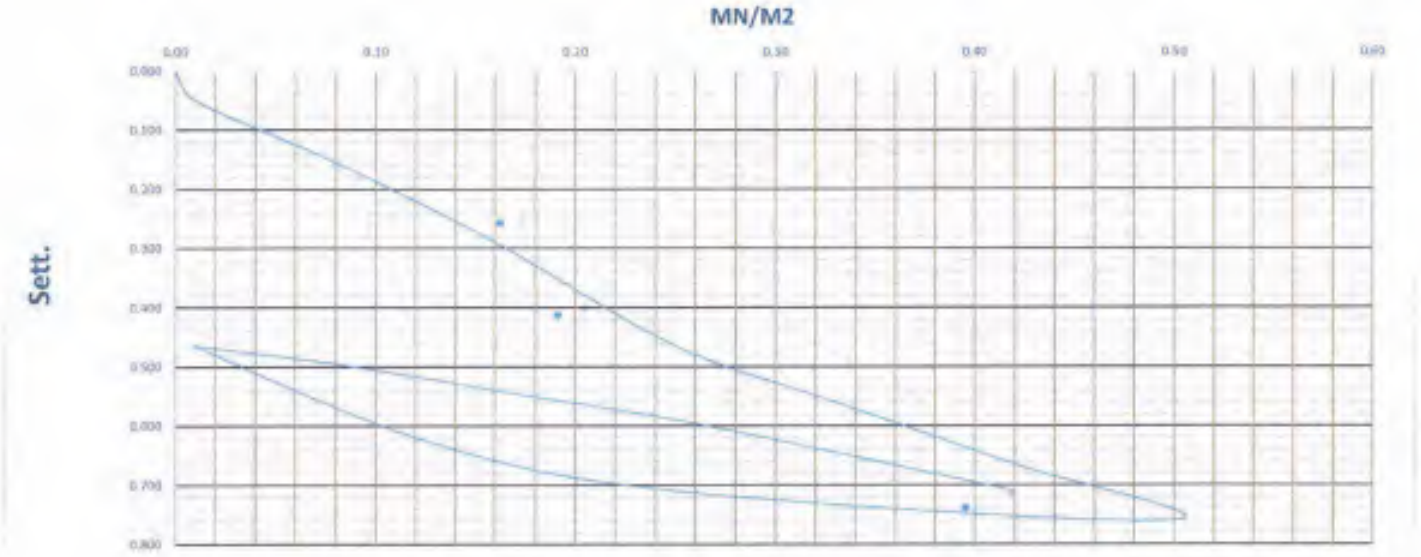
$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : Youssef Rafat |
| Sign : | Sign : | Sign : |

# Plate Load Test Results

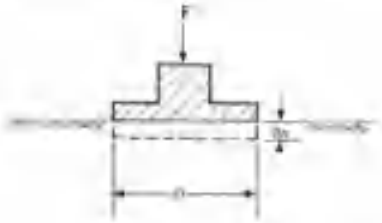
| | | | | |
|---|---|---|---|---|
| Company Name | المصطفي | | | |
| Location | 524+820 | To | 524+900 | |
| Taste Date | 16-04-2023 | | | |
| **Layer level** | **P.S.G + 0.5** | | | |

| | |
|---|---|
| Station | 524+880 |

## EQUIPMENT AND TEST PROCEDURE :-

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




$F$ = load

$\Delta s$ = settlement

$D$ = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 cm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.95 | 19.87 | | 0.050 | 0.130 | | 0.090 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.55 | 19.61 | | 0.450 | 0.390 | | 0.420 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.10 | 19.40 | | 0.900 | 0.600 | | 0.750 |
| 4.000 | 53.3 | 17.663 | 0.25 | 18.85 | 19.10 | | 1.150 | 0.900 | | 1.025 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.66 | 18.98 | | 1.340 | 1.020 | | 1.180 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.46 | 18.82 | | 1.540 | 1.180 | | 1.360 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.25 | 18.66 | | 1.750 | 1.340 | | 1.545 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.33 | 18.74 | | 1.670 | 1.260 | | 1.465 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.42 | 18.82 | | 1.580 | 1.180 | | 1.380 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.69 | 19.03 | | 1.310 | 0.970 | | 1.140 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.69 | 19.03 | | 1.310 | 0.970 | | 1.140 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.64 | 19.00 | | 1.360 | 1.000 | | 1.180 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.55 | 18.93 | | 1.450 | 1.070 | | 1.260 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.44 | 18.85 | | 1.560 | 1.150 | | 1.355 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.36 | 18.77 | | 1.640 | 1.230 | | 1.435 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.26 | 18.70 | | 1.740 | 1.300 | | 1.520 |

| | | $\Delta s$ | $\Delta S$ | $\Delta \sigma$ |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.35 | 1.19813 | 0.48937 | 0.2 |
| 0.3 $\sigma_2$ | 0.15 | 0.70875 | | |
| 0.7$\sigma_2$ | 0.35 | 1.45389 | 0.23388 | 0.2 |
| 0.3$\sigma_1$ | 0.15 | 1.22 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 91.95 | | | |
| $Ev_2$ | 192.40 | | | |
| Area (Sqm) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 2.09 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

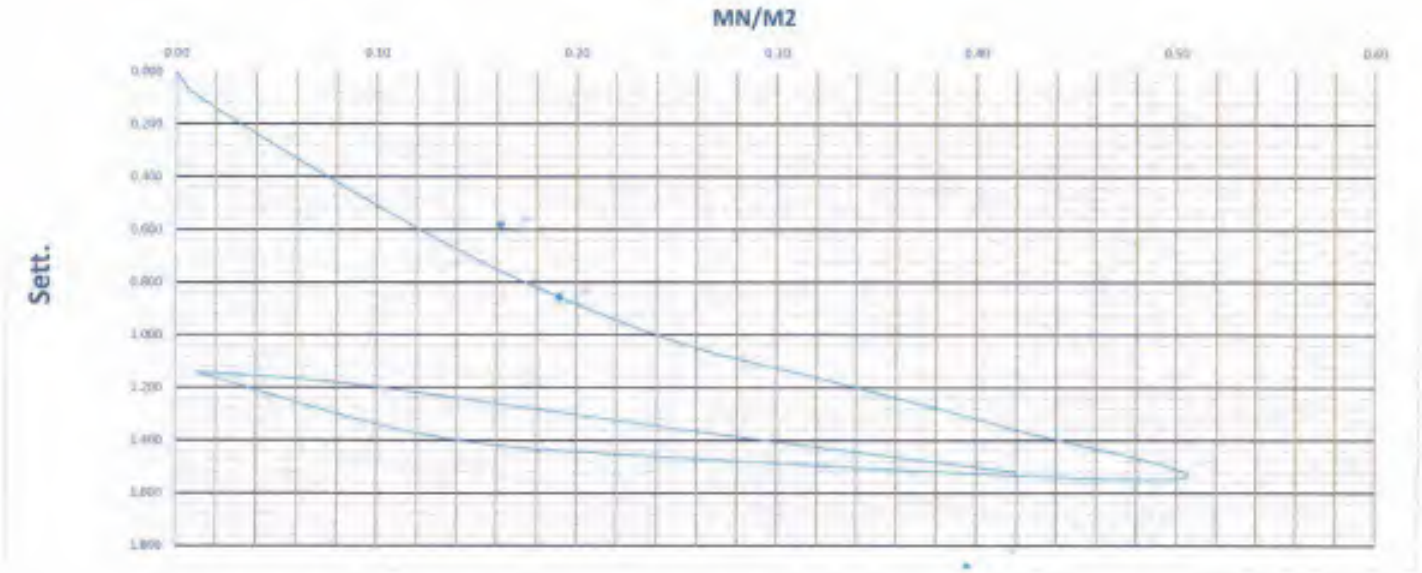
$E_v$ = deformation modulus

$D_\sigma$ = load increment

$D_s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

17/7/2023

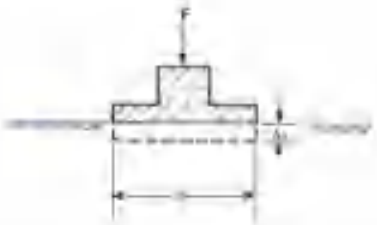
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | المصطفى | | | | |
| Location | 524+820 | To | 524+900 | Station | 524+830 |
| Taste Date | 16-04-2023 | | | | |
| Layer level | P.S.G + 0.5 | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.

The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.




F = load

s = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used.

The load is applied in 5 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading Steps No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.75 | 19.95 | | 0.250 | 0.050 | | 0.150 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.15 | 19.65 | | 0.850 | 0.350 | | 0.600 |
| 3.000 | 34.2 | 11.304 | 0.16 | 18.75 | 19.40 | | 1.250 | 0.600 | | 0.925 |
| 4.000 | 53.3 | 17.663 | 0.25 | 18.42 | 19.15 | | 1.580 | 0.850 | | 1.215 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.15 | 19.03 | | 1.850 | 0.970 | | 1.410 |
| 6.000 | 89.8 | 29.673 | 0.42 | 17.92 | 18.85 | | 2.080 | 1.150 | | 1.615 |
| 7.000 | 106.8 | 35.325 | 0.50 | 17.68 | 18.71 | | 2.320 | 1.290 | | 1.805 |
| 8.000 | 53.4 | 17.663 | 0.25 | 17.75 | 18.80 | | 2.250 | 1.200 | | 1.725 |
| 9.000 | 26.7 | 8.831 | 0.12 | 17.85 | 18.90 | | 2.150 | 1.100 | | 1.625 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.15 | 19.12 | | 1.850 | 0.880 | | 1.365 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.15 | 19.12 | | 1.850 | 0.880 | | 1.365 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.07 | 19.06 | | 1.930 | 0.940 | | 1.435 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.02 | 19.00 | | 1.980 | 1.000 | | 1.490 |
| 13.000 | 53.3 | 17.663 | 0.25 | 17.87 | 18.91 | | 2.130 | 1.090 | | 1.610 |
| 14.000 | 70.5 | 23.315 | 0.33 | 17.77 | 18.85 | | 2.230 | 1.150 | | 1.690 |
| 15.000 | 89.8 | 29.673 | 0.42 | 17.65 | 18.78 | | 2.350 | 1.220 | | 1.785 |

| | | s | Δδ | Δσ |
|---|---|---|---|---|
| $0.7\sigma_1$ | 0.35 | 1.44875 | 0.56437 | 0.2 |
| $0.3\sigma_1$ | 0.15 | 0.88438 | | |
| $0.7\sigma_2$ | 0.35 | 1.71111 | 0.2661 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.50561 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 79.23 | | | |
| $Ev_2$ | 218.34 | | | |
| Area / Sq.m | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 2.76 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

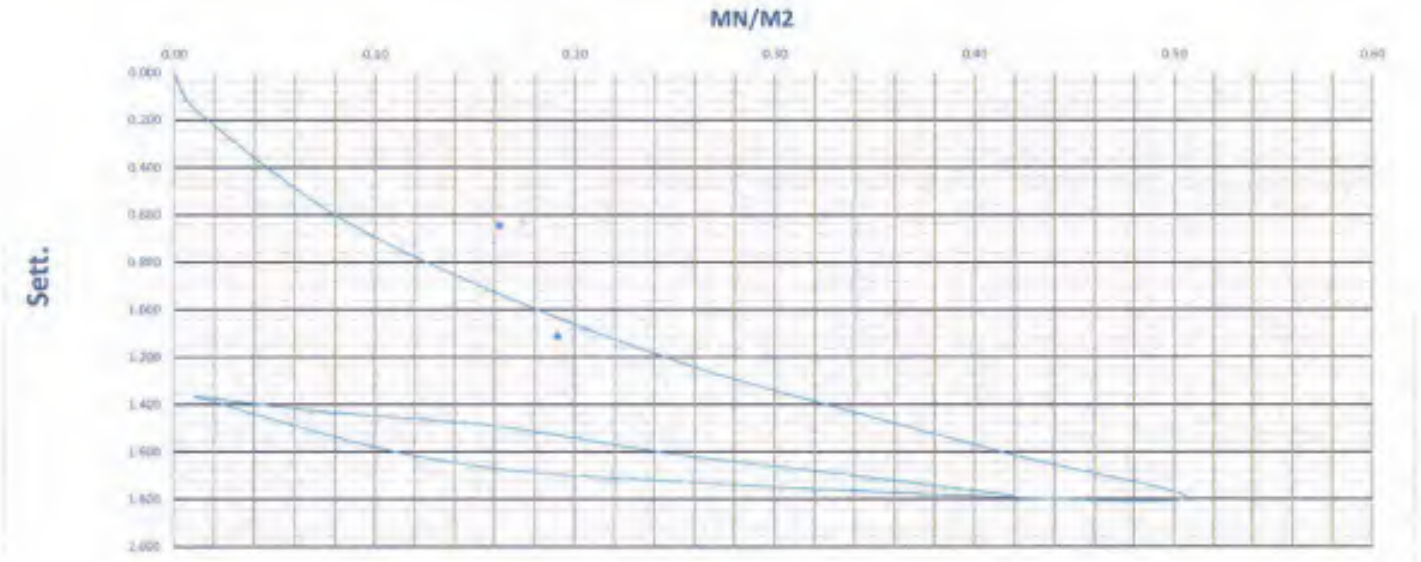
$E_v$ = deformation modulus

$D_\sigma$ = load increment

$D_s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : 17/7/2023 |

Owner Consultant | Contractor Consultant | Contractor | Owner

# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | المصطفي | | | | |
| Location | 524+820 | To | 524+900 | Station | 524+860 |
| Taste Date | 16-04-2023 | | | | |
| **Layer level** | **P.S.G + 0.5** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**


F = load

s = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading | Load | Load | Stress | Dial 1 | Dial 2 | Dial 3 | Sett. 1 | Sett. 2 | Sett. 3 | Avg. Sett. |
|---|---|---|---|---|---|---|---|---|---|---|
| Stage No. | Bar | KN | kN/M2 | mm | mm | mm | mm | mm | mm | mm |
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.88 | 19.90 | | 0.120 | 0.100 | | 0.110 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.40 | 19.65 | | 0.600 | 0.350 | | 0.475 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.15 | 19.30 | | 0.850 | 0.700 | | 0.775 |
| 4.000 | 53.3 | 17.663 | 0.25 | 18.82 | 19.12 | | 1.180 | 0.880 | | 1.030 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.70 | 18.90 | | 1.300 | 1.100 | | 1.200 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.42 | 18.70 | | 1.580 | 1.300 | | 1.440 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.30 | 18.60 | | 1.700 | 1.400 | | 1.550 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.40 | 18.70 | | 1.600 | 1.300 | | 1.450 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.60 | 18.80 | | 1.400 | 1.200 | | 1.300 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.70 | 19.00 | | 1.300 | 1.000 | | 1.150 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.70 | 19.00 | | 1.300 | 1.000 | | 1.150 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.65 | 18.95 | | 1.350 | 1.050 | | 1.200 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.60 | 18.90 | | 1.400 | 1.100 | | 1.250 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.45 | 18.80 | | 1.550 | 1.200 | | 1.375 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.40 | 18.75 | | 1.600 | 1.250 | | 1.425 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.32 | 18.62 | | 1.680 | 1.380 | | 1.530 |

| | | s | ΔS | Δσ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 1.34375 | 0.60625 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.7375 | | |
| $0.7\sigma_2$ | 0.35 | 1.44833 | 0.19833 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.25000 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 74.23 | | | |
| $Ev_2$ | 226.90 | | | |
| Area (Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 3.06 | | |

$$E_s = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

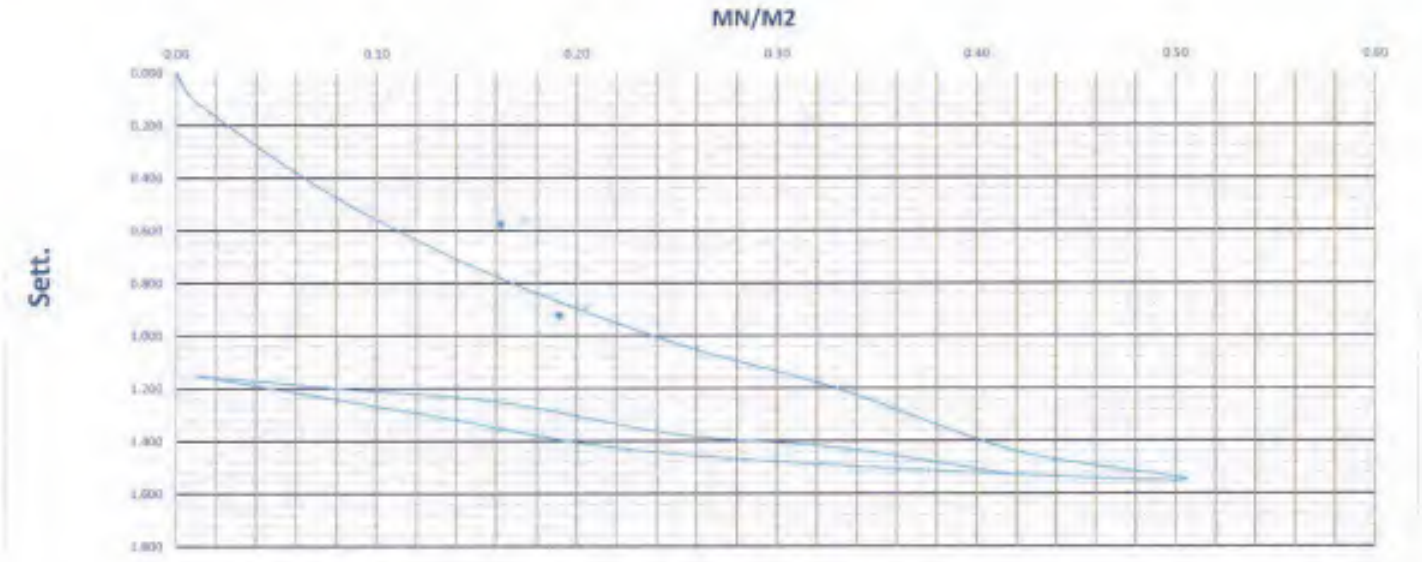
$E_s$ = deformation modulus

$D_\sigma$ = load increment

$D_s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

17/12/20

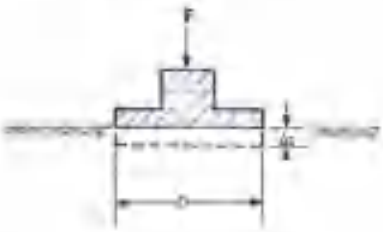
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+500 | To | 524+580 | Station | 524+520 |
| Taste Date | 9-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

s = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading Stage No. | Load Rate | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.80 | 19.75 | | 0.200 | 0.250 | | 0.225 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.60 | 19.55 | | 0.400 | 0.450 | | 0.425 |
| 0.000 | 34.2 | 11.304 | 0.16 | 19.25 | 19.26 | | 0.750 | 0.740 | | 0.745 |
| 4.000 | 53.3 | 17.663 | 0.25 | 18.80 | 19.05 | | 1.200 | 0.950 | | 1.075 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.55 | 18.95 | | 1.450 | 1.050 | | 1.250 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.40 | 18.80 | | 1.600 | 1.200 | | 1.400 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.05 | 18.72 | | 1.950 | 1.280 | | 1.615 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.10 | 18.76 | | 1.900 | 1.240 | | 1.570 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.18 | 18.89 | | 1.820 | 1.110 | | 1.465 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.31 | 19.00 | | 1.690 | 1.000 | | 1.345 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.31 | 19.00 | | 1.690 | 1.000 | | 1.345 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.30 | 18.99 | | 1.700 | 1.010 | | 1.355 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.22 | 18.95 | | 1.780 | 1.050 | | 1.415 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.16 | 18.86 | | 1.840 | 1.140 | | 1.490 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.14 | 18.80 | | 1.860 | 1.200 | | 1.530 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.06 | 18.71 | | 1.940 | 1.290 | | 1.615 |

| | | $\nu$ | $\Delta S$ | $\Delta\sigma$ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 1.21168 | 0.50688 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.705 | | |
| $0.7\sigma_2$ | 0.35 | 1.54889 | 0.18389 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.305 | | |
| D (mm) | 300 | | | |
| $E_{V1}$ | 88.78 | | | |
| $E_{V2}$ | 244.71 | | | |
| Area (Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| $E_{v2}/E_{v1}$ | 2.76 | | |

$$E_s = 0.75 \cdot B \cdot \Delta\sigma / \Delta s$$

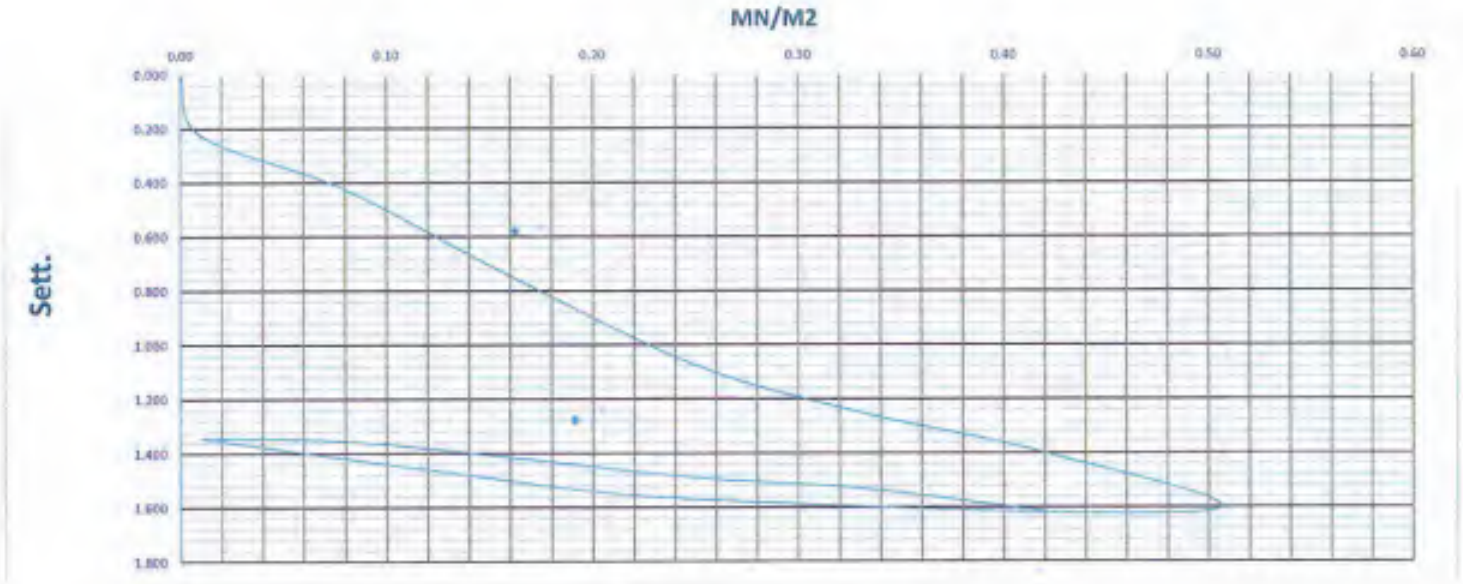
$E_s$ = deformation modulus

$D\sigma$ = load increment

$Ds$ = settlement increment

$B$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Common Consultant | Contractor | Owner

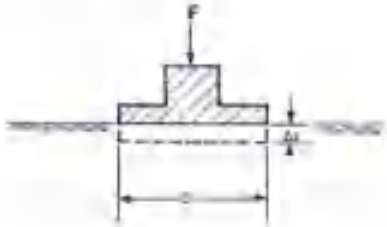
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+500 | To | 524+580 | Station | 524+540 |
| Taste Date | 9-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

Δs = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Set. 1 mm | Set. 2 mm | Set. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.85 | 19.79 | | 0.150 | 0.210 | | 0.180 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.63 | 19.57 | | 0.370 | 0.430 | | 0.400 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.27 | 19.28 | | 0.730 | 0.720 | | 0.725 |
| 4.000 | 53.3 | 17.663 | 0.25 | 18.85 | 19.06 | | 1.150 | 0.940 | | 1.045 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.50 | 18.99 | | 1.500 | 1.010 | | 1.255 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.35 | 18.85 | | 1.650 | 1.150 | | 1.400 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.07 | 18.70 | | 1.930 | 1.300 | | 1.615 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.12 | 18.76 | | 1.880 | 1.240 | | 1.560 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.17 | 18.90 | | 1.830 | 1.100 | | 1.465 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.33 | 19.02 | | 1.670 | 0.980 | | 1.325 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.33 | 19.02 | | 1.670 | 0.980 | | 1.325 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.32 | 18.99 | | 1.680 | 1.010 | | 1.345 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.25 | 18.93 | | 1.750 | 1.070 | | 1.410 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.17 | 18.84 | | 1.830 | 1.160 | | 1.495 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.10 | 18.80 | | 1.900 | 1.200 | | 1.550 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.05 | 18.70 | | 1.950 | 1.300 | | 1.625 |

| | | $\varepsilon$ | $\Delta S$ | $\Delta\sigma$ |
|---|---|---|---|---|
| $0.7\sigma_1$ | 0.35 | 1.23188 | 0.5275 | 0.2 |
| $0.3\sigma_1$ | 0.15 | 0.68438 | | |
| $0.7\sigma_2$ | 0.35 | 1.56667 | 0.28166 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.365 | | |
| D (mm) | 300 | | | |
| $F_{\sigma_1}$ | 85.31 | | | |
| $F_{\sigma_2}$ | 223.14 | | | |
| Area ( Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| $E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$ | | | |

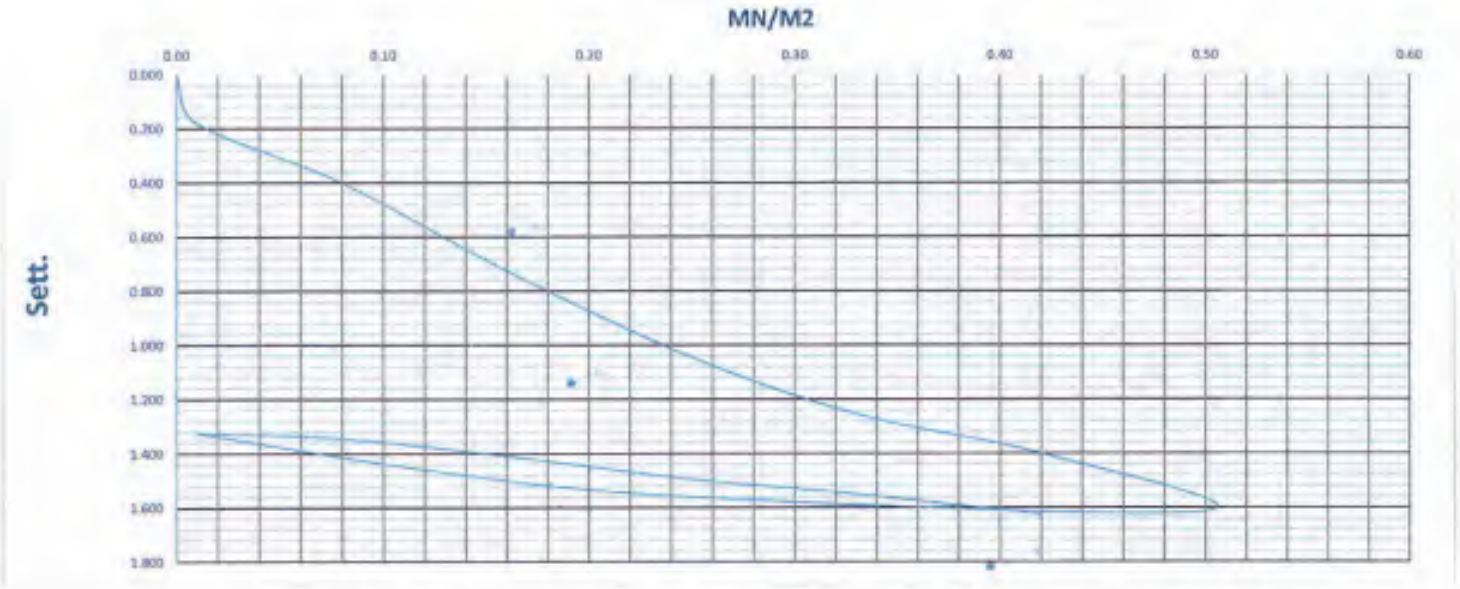
$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

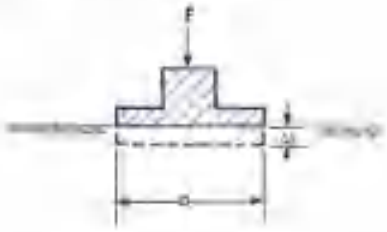
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+500 | To | 524+580 | Station | 524+560 |
| Taste Date | 9-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modules of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

s = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a rollovable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.87 | 19.80 | | 0.130 | 0.200 | | 0.165 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.50 | 19.59 | | 0.500 | 0.410 | | 0.455 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.20 | 19.32 | | 0.800 | 0.680 | | 0.740 |
| 4.000 | 53.3 | 17.663 | 0.25 | 18.80 | 19.08 | | 1.200 | 0.920 | | 1.060 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.51 | 18.93 | | 1.490 | 1.070 | | 1.280 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.25 | 18.87 | | 1.750 | 1.130 | | 1.440 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.04 | 18.62 | | 1.960 | 1.380 | | 1.670 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.12 | 18.77 | | 1.880 | 1.230 | | 1.555 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.17 | 18.93 | | 1.830 | 1.070 | | 1.450 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.35 | 19.05 | | 1.650 | 0.950 | | 1.300 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.35 | 19.05 | | 1.650 | 0.950 | | 1.300 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.33 | 18.99 | | 1.670 | 1.010 | | 1.340 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.22 | 18.95 | | 1.780 | 1.050 | | 1.415 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.18 | 18.83 | | 1.820 | 1.170 | | 1.495 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.13 | 18.78 | | 1.870 | 1.220 | | 1.545 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.08 | 18.70 | | 1.920 | 1.300 | | 1.610 |

| | | $I_s$ | $\Delta S$ | $\Delta\sigma$ |
|---|---|---|---|---|
| $0.7\sigma_1$ | 0.35 | 1.23875 | 0.53437 | 0.2 |
| $0.3\sigma_1$ | 0.15 | 0.70438 | | |
| $0.7\sigma_2$ | 0.35 | 1.55944 | 0.47944 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.38 | | |
| D (mm) | 300 | | | |
| $Es_1$ | 84.21 | | | |
| $Es_2$ | 250.78 | | | |
| Area ($S_0$,m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Es2/Es1 | 2.98 | | |

$$E_s = 0.79 \cdot D \cdot \Delta\sigma / \Delta s$$

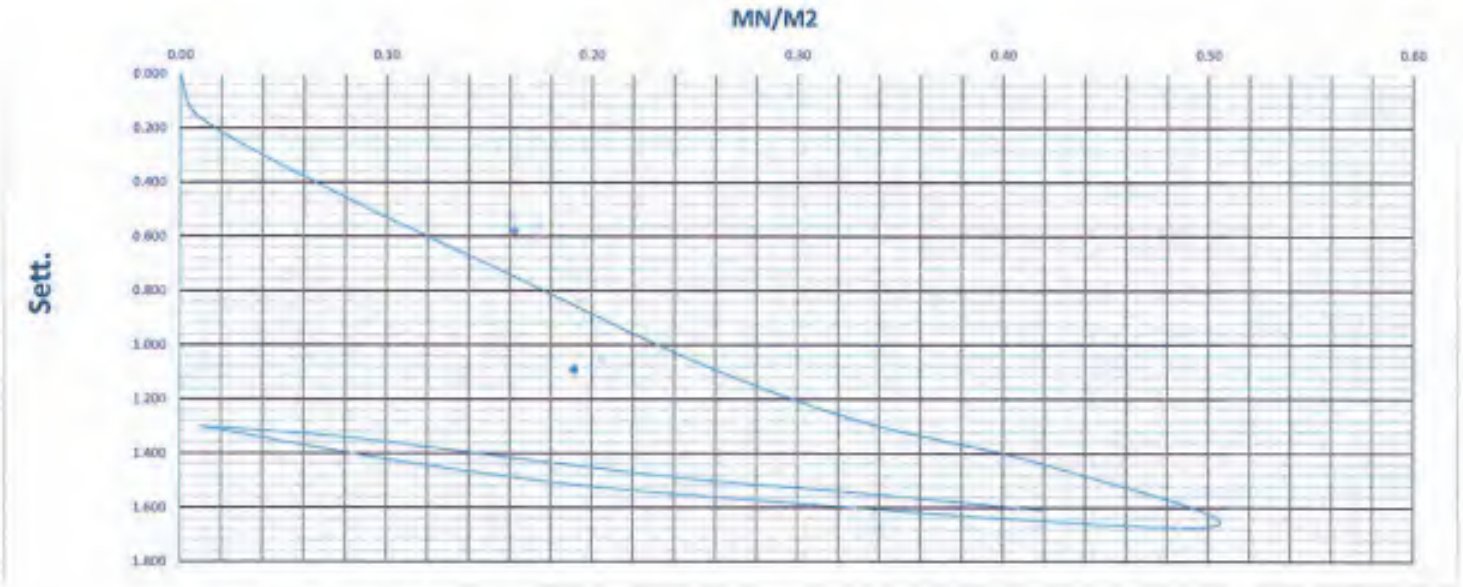
$E_s$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

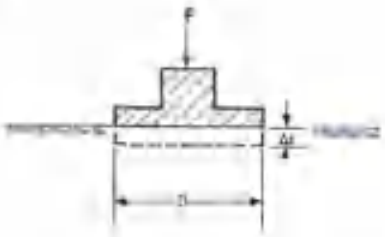
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+580 | To | 524+660 | Station | 524+585 |
| Taste Date | 9-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**



F = load

$\Delta s$ = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.85 | 19.76 | | 0.150 | 0.240 | | 0.195 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.62 | 19.52 | | 0.380 | 0.480 | | 0.430 |
| 0.000 | 34.2 | 11.304 | 0.16 | 19.34 | 19.29 | | 0.660 | 0.710 | | 0.685 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.00 | 19.09 | | 1.000 | 0.910 | | 0.955 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.89 | 18.93 | | 1.110 | 1.070 | | 1.090 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.55 | 18.86 | | 1.450 | 1.140 | | 1.295 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.44 | 18.70 | | 1.560 | 1.300 | | 1.430 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.49 | 18.82 | | 1.510 | 1.180 | | 1.345 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.56 | 18.92 | | 1.440 | 1.080 | | 1.260 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.69 | 19.09 | | 1.310 | 0.910 | | 1.110 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.69 | 19.09 | | 1.310 | 0.910 | | 1.110 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.67 | 19.05 | | 1.330 | 0.950 | | 1.140 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.62 | 19.01 | | 1.380 | 0.990 | | 1.185 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.55 | 18.92 | | 1.450 | 1.080 | | 1.265 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.51 | 18.84 | | 1.490 | 1.160 | | 1.325 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.48 | 18.72 | | 1.520 | 1.280 | | 1.400 |

| | | s | $\Delta S$ | $\Delta\sigma$ |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.35 | 1.17688 | 0.52375 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.65313 | | |
| 0.7$\sigma_2$ | 0.35 | 1.34167 | 0.17166 | 0.2 |
| 0.3$\sigma_2$ | 0.15 | 1.17 | | |
| D (mm) | 300 | | | |
| $Es_1$ | 85.92 | | | |
| $Es_2$ | 262.14 | | | |
| Area (Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| E2/E1 | 3.05 | | |

$$E_s = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

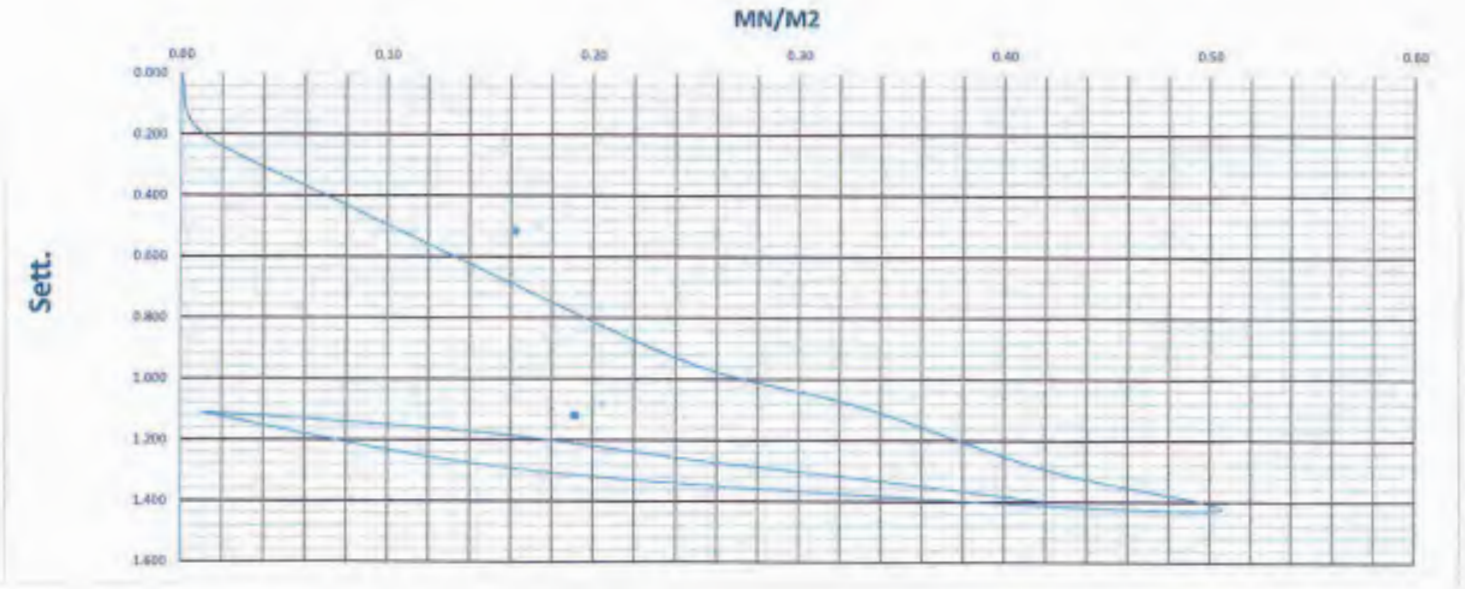
$E_s$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+580 | To | 524+660 | Station | 524+600 |
| Taste Date | 9-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**


F = load
Δs = settlement
D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Settl. 1 mm | Settl. 2 mm | Settl. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.85 | 19.78 | | 0.150 | 0.220 | | 0.185 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.61 | 19.55 | | 0.390 | 0.450 | | 0.420 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.33 | 19.32 | | 0.670 | 0.680 | | 0.675 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.02 | 19.12 | | 0.980 | 0.880 | | 0.930 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.92 | 18.95 | | 1.080 | 1.050 | | 1.065 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.57 | 18.87 | | 1.430 | 1.130 | | 1.280 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.45 | 18.71 | | 1.550 | 1.290 | | 1.420 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.49 | 18.83 | | 1.510 | 1.170 | | 1.340 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.57 | 18.95 | | 1.430 | 1.050 | | 1.240 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.70 | 19.12 | | 1.300 | 0.880 | | 1.090 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.70 | 19.12 | | 1.300 | 0.880 | | 1.090 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.67 | 19.07 | | 1.330 | 0.930 | | 1.130 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.63 | 19.00 | | 1.370 | 1.000 | | 1.185 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.50 | 18.93 | | 1.500 | 1.070 | | 1.285 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.47 | 18.85 | | 1.530 | 1.150 | | 1.340 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.42 | 18.77 | | 1.580 | 1.230 | | 1.405 |

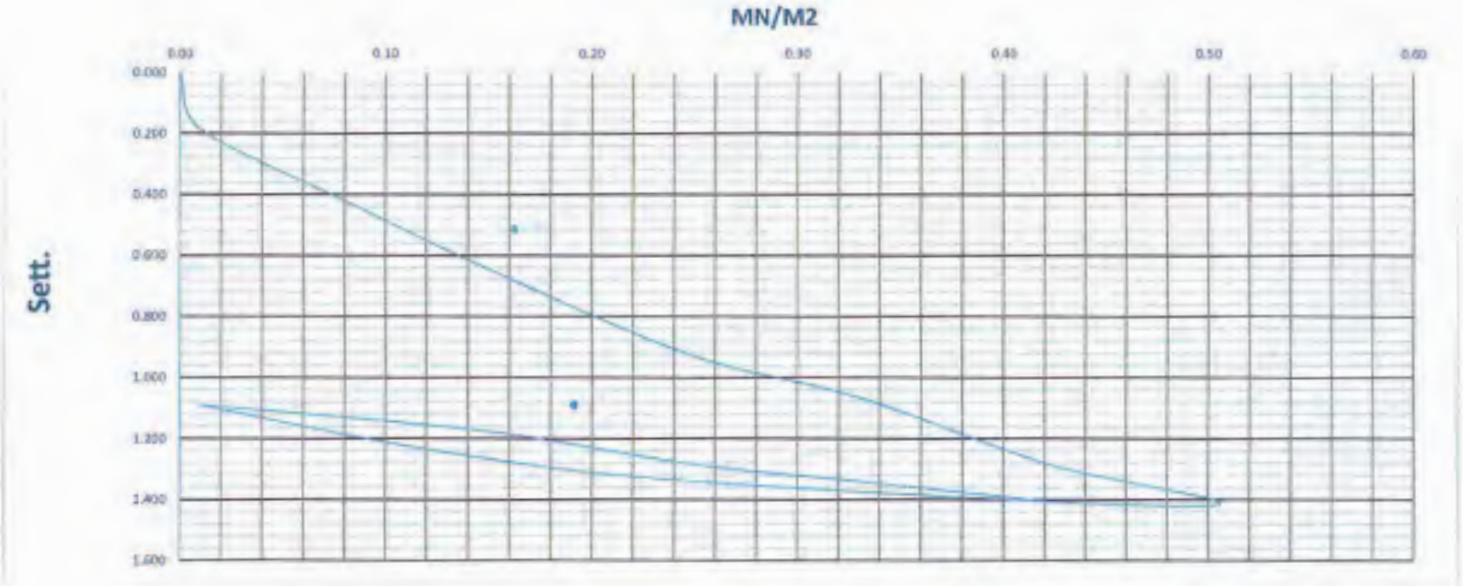
| | | | | |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.35 | 1.1575 | 0.51437 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.64313 | | |
| 0.7$\sigma_2$ | 0.35 | 1.35444 | 0.18444 | 0.2 |
| 0.3$\sigma_2$ | 0.15 | 1.17 | | |
| D (mm) | 300 | | | |
| $E_{V1}$ | 87.48 | | | |
| $E_{V2}$ | 243.98 | | | |
| Area (Sq.m) | 0.07069 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 2.79 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus
$\Delta\sigma$ = load increment
$\Delta s$ = settlement increment
$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

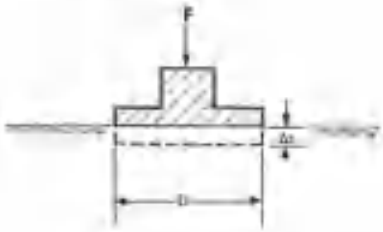
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+580 | To | 524+660 | Station | 524+620 |
| Taste Date | 9-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

Δs = settlement

D = diameter of the plate

The diameter *D* of the plate is generally 0.30 m. For very coarse grained material also plates with diameter *D* = 0.60 m and *D* = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading | Load | Load | Stress | Dial 1 | Dial 2 | Dial 3 | Sett. 1 | Sett. 2 | Sett. 3 | Δs1-Δs2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Step No. | Bar | KN | MN/M2 | mm | mm | mm | mm | mm | mm | mm |
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.90 | 19.80 | | 0.100 | 0.200 | | 0.150 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.65 | 19.58 | | 0.350 | 0.420 | | 0.385 |
| 0.000 | 34.2 | 11.304 | 0.16 | 19.38 | 19.38 | | 0.620 | 0.620 | | 0.620 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.07 | 19.18 | | 0.930 | 0.820 | | 0.875 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.94 | 18.99 | | 1.060 | 1.010 | | 1.035 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.65 | 18.90 | | 1.350 | 1.100 | | 1.225 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.47 | 18.78 | | 1.530 | 1.220 | | 1.375 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.52 | 18.83 | | 1.480 | 1.170 | | 1.325 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.59 | 18.96 | | 1.410 | 1.040 | | 1.225 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.75 | 19.16 | | 1.250 | 0.840 | | 1.045 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.75 | 19.16 | | 1.250 | 0.840 | | 1.045 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.70 | 19.10 | | 1.300 | 0.900 | | 1.100 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.65 | 19.04 | | 1.350 | 0.960 | | 1.155 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.55 | 18.93 | | 1.450 | 1.070 | | 1.260 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.48 | 18.85 | | 1.520 | 1.150 | | 1.335 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.43 | 18.79 | | 1.570 | 1.210 | | 1.390 |

| | | s | Δs | Δσ |
|---|---|---|---|---|
| 0.7 $\sigma_3$ | 0.35 | 1.00378 | 0.50313 | 0.2 |
| 0.3 $\sigma_4$ | 0.15 | 0.59063 | | |
| 0.7$\sigma_3$ | 0.35 | 1.34722 | 0.19222 | 0.3 |
| 0.3$\sigma_3$ | 0.15 | 1.15501 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 80.44 | | | |
| $Ev_2$ | 234.11 | | | |
| Area ( $S_0$,m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| F/2/Ev1 | 2.62 | | |

$$E_v = 0.75 \cdot B \cdot \Delta\sigma / \Delta s$$

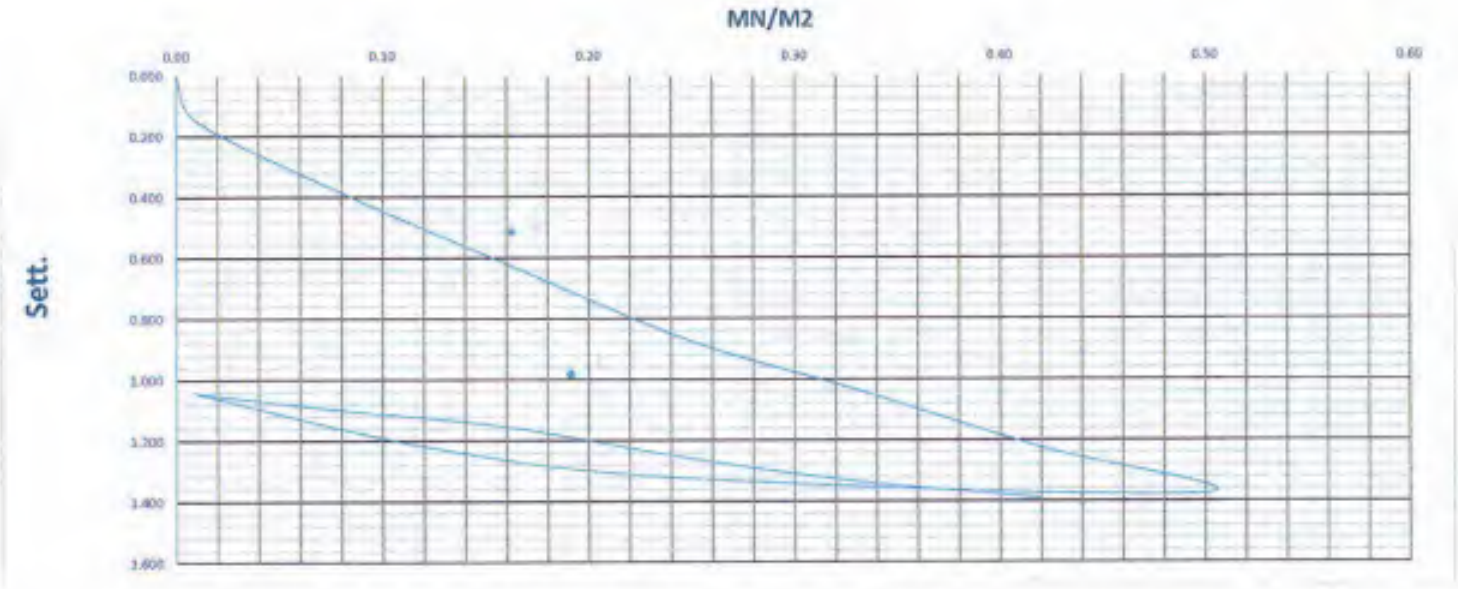
$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

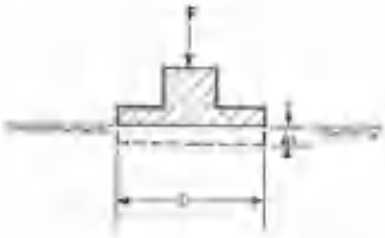
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+580 | To | 524+660 | Station | 524+640 |
| Taste Date | 9-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE :-

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load
s = settlement
D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is released in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load kN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.85 | 19.83 | | 0.150 | 0.170 | | 0.160 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.63 | 19.61 | | 0.370 | 0.390 | | 0.380 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.35 | 19.34 | | 0.650 | 0.660 | | 0.655 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.17 | 19.12 | | 0.830 | 0.880 | | 0.855 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.98 | 18.94 | | 1.020 | 1.060 | | 1.040 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.68 | 18.86 | | 1.320 | 1.140 | | 1.230 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.46 | 18.78 | | 1.540 | 1.220 | | 1.380 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.52 | 18.84 | | 1.480 | 1.160 | | 1.320 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.61 | 18.99 | | 1.390 | 1.010 | | 1.200 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.72 | 19.12 | | 1.280 | 0.880 | | 1.080 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.72 | 19.12 | | 1.280 | 0.880 | | 1.080 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.68 | 19.08 | | 1.320 | 0.920 | | 1.120 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.62 | 19.04 | | 1.380 | 0.960 | | 1.170 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.55 | 18.94 | | 1.450 | 1.060 | | 1.255 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.49 | 18.86 | | 1.510 | 1.140 | | 1.325 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.45 | 18.80 | | 1.550 | 1.200 | | 1.375 |

| | | $\nu$ | $\Delta S$ | $\Delta\sigma$ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 1.09875 | 0.47813 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.62063 | | |
| $0.7\sigma_2$ | 0.35 | 1.33611 | 0.17611 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.16 | | |
| D (mm) | 300 | | | |
| $E_{v1}$ | 94.32 | | | |
| $E_{v2}$ | 255.51 | | | |
| Area ($S_{v1}$,e) | 0.01965 | | | |

| | | | |
|---|---|---|---|
| $E_{v2}/E_{v1}$ | 2.71 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

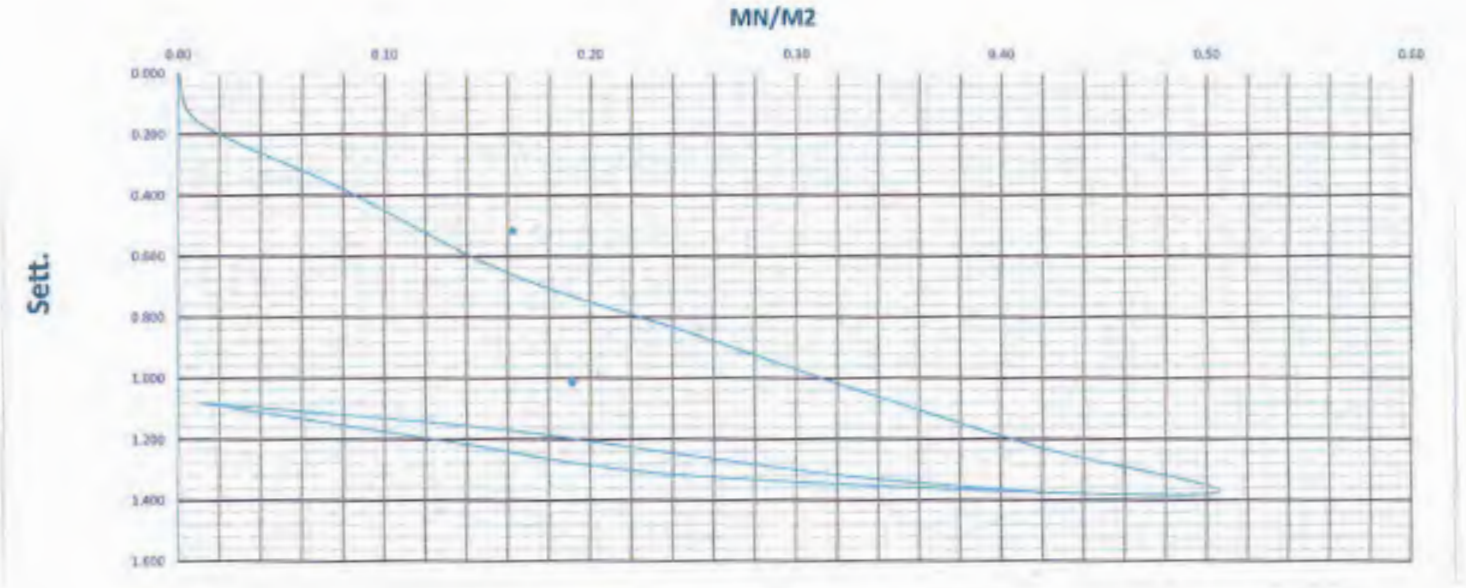
$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Client | Owner

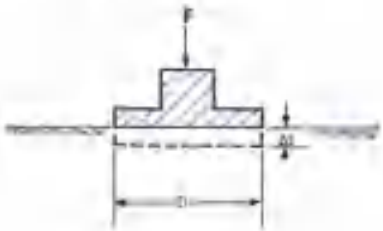
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+660 | To | 524+740 | Station | 524+665 |
| Taste Date | 8-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE :-

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

Δs = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.86 | 19.85 | | 0.140 | 0.150 | | 0.145 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19,71 | 19.60 | | 0.290 | 0.400 | | 0.345 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19,47 | 19.30 | | 0.530 | 0.700 | | 0.615 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19,30 | 19.10 | | 0.700 | 0.900 | | 0.800 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19,10 | 18.93 | | 0.900 | 1.070 | | 0.985 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18,95 | 18.80 | | 1.050 | 1.200 | | 1.125 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.81 | 18.73 | | 1.190 | 1.270 | | 1.230 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.83 | 18.75 | | 1.170 | 1.250 | | 1.210 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18,90 | 18.81 | | 1.100 | 1.190 | | 1.145 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.98 | 18.93 | | 1.020 | 1.070 | | 1.045 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.98 | 18.93 | | 1.020 | 1.070 | | 1.045 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.97 | 18.92 | | 1.030 | 1.080 | | 1.055 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.93 | 18.86 | | 1.070 | 1.140 | | 1.105 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18,90 | 18.80 | | 1.100 | 1.200 | | 1.150 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.88 | 18.76 | | 1.120 | 1.240 | | 1.180 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.84 | 18.72 | | 1.160 | 1.280 | | 1.220 |

| | | s | Δs | Δσ |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.35 | 1.03313 | 0.45188 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.58125 | | |
| 0.7$\sigma_2$ | 0.35 | 1.18889 | 0.12389 | 0.2 |
| 0.3$\sigma_2$ | 0.15 | 1.065 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 99.50 | | | |
| $Ev_2$ | 363.23 | | | |
| Area ( Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 3.65 | | |

$$E_s = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

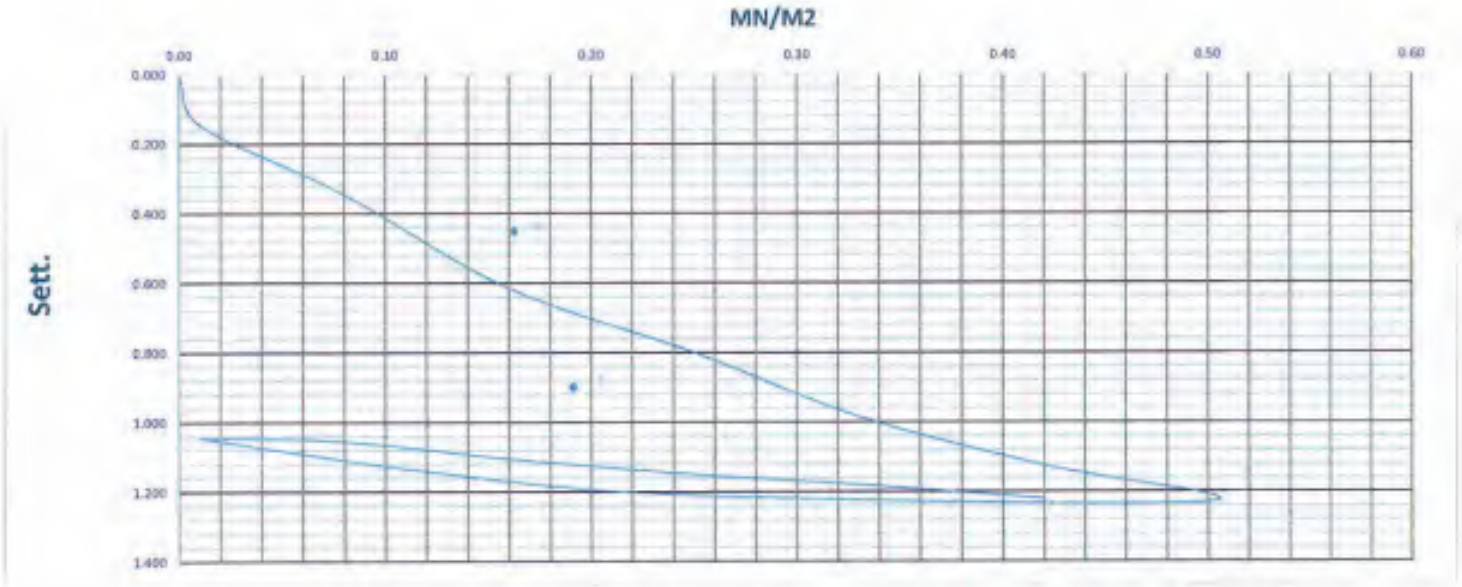
$E_s$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

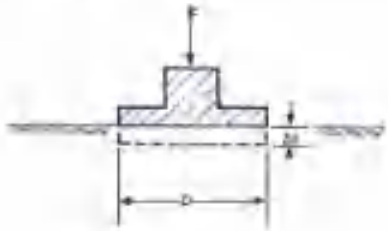
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+660 | To | 524+740 | Station | 524+690 |
| Taste Date | 8-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

s = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Def 1 mm | Def 2 mm | Def 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.89 | 19.92 | | 0.110 | 0.080 | | 0.095 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.73 | 19.63 | | 0.270 | 0.370 | | 0.320 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.45 | 19.36 | | 0.550 | 0.640 | | 0.595 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.32 | 19.14 | | 0.680 | 0.860 | | 0.770 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.13 | 18.95 | | 0.870 | 1.050 | | 0.960 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.97 | 18.84 | | 1.030 | 1.160 | | 1.095 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.80 | 18.70 | | 1.200 | 1.300 | | 1.250 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.85 | 18.77 | | 1.150 | 1.230 | | 1.190 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.92 | 18.83 | | 1.080 | 1.170 | | 1.125 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.97 | 18.94 | | 1.030 | 1.060 | | 1.045 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.97 | 18.94 | | 1.030 | 1.060 | | 1.045 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.95 | 18.93 | | 1.050 | 1.070 | | 1.060 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.92 | 18.87 | | 1.080 | 1.130 | | 1.105 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.90 | 18.82 | | 1.100 | 1.180 | | 1.140 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.87 | 18.75 | | 1.130 | 1.250 | | 1.190 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.81 | 18.70 | | 1.190 | 1.300 | | 1.245 |

| | | v | $\Delta S$ | $\Delta \sigma$ |
|---|---|---|---|---|
| $0.7\ \sigma_1$ | 0.35 | 0.95938 | 0.39875 | 0.2 |
| $0.3\ \sigma_1$ | 0.15 | 0.56063 | | |
| $0.7\sigma_2$ | 0.35 | 1.20222 | 0.12722 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.075 | | |
| D (mm) | 300 | | | |
| $\Sigma v_1$ | 132.85 | | | |
| $\Sigma v_2$ | 353.72 | | | |
| Area (Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| $\Sigma v2/\Sigma v1$ | 2.13 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

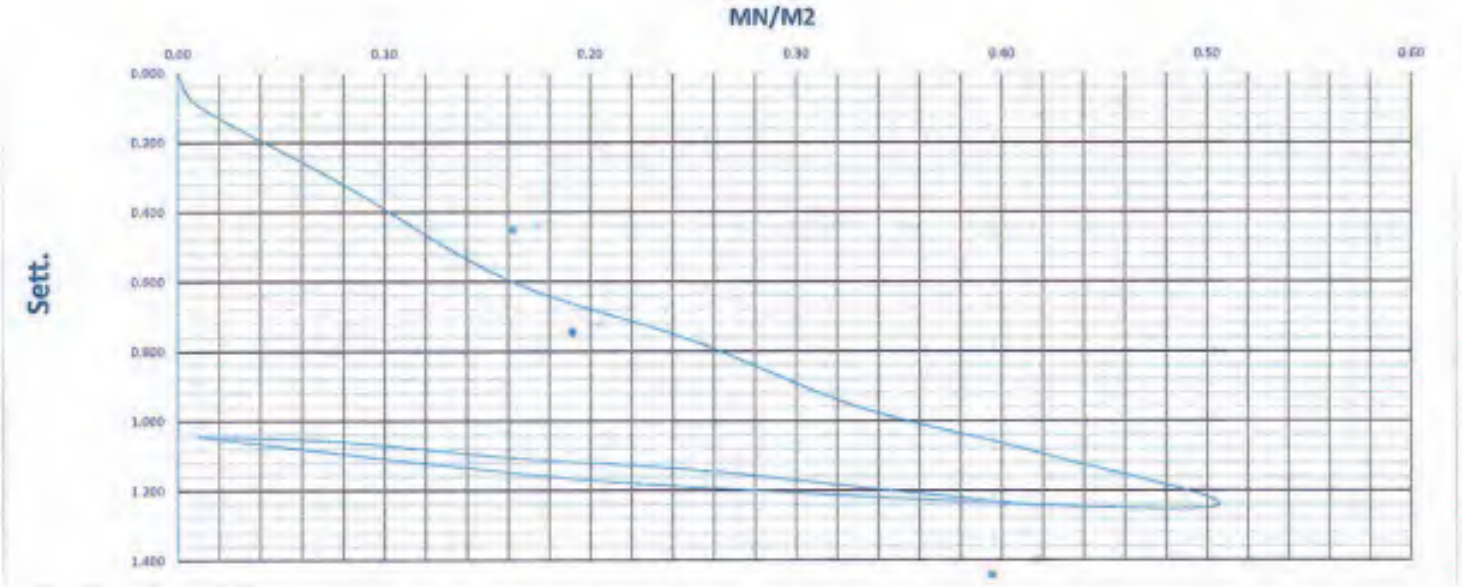
$E_v$ = deformation modulus

$D\sigma$ = load increment

$Ds$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

المعمل المركزى رقم ( ١ )

Owner Consultant | Contractor Consultant | Contractor | Owner

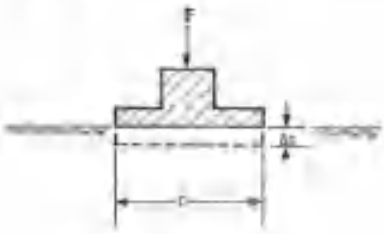
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+660 | To | 524+740 | Station | 524+720 |
| Taste Date | 8-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied in a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

Δs = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load kN | Stress MN/m2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.92 | 19.90 | | 0.080 | 0.100 | | 0.090 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.74 | 19.59 | | 0.260 | 0.410 | | 0.335 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.50 | 19.28 | | 0.500 | 0.720 | | 0.610 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.25 | 19.16 | | 0.750 | 0.840 | | 0.795 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.17 | 18.91 | | 0.830 | 1.090 | | 0.960 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.94 | 18.81 | | 1.060 | 1.190 | | 1.125 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.70 | 18.68 | | 1.300 | 1.320 | | 1.310 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.80 | 18.75 | | 1.200 | 1.250 | | 1.225 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.90 | 18.80 | | 1.100 | 1.200 | | 1.150 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.05 | 18.94 | | 0.950 | 1.060 | | 1.005 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.05 | 18.94 | | 0.950 | 1.060 | | 1.005 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.98 | 18.90 | | 1.020 | 1.100 | | 1.060 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.90 | 18.85 | | 1.100 | 1.150 | | 1.125 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.81 | 18.82 | | 1.190 | 1.180 | | 1.185 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.82 | 18.73 | | 1.180 | 1.270 | | 1.225 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.74 | 18.70 | | 1.260 | 1.300 | | 1.280 |

| | | s | ΔS | Δσ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 0.96313 | 0.3875 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.57563 | | |
| $0.7\sigma_2$ | 0.35 | 1.23722 | 0.12222 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.11501 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 116.13 | | | |
| $Ev_2$ | 360.20 | | | |
| Area (Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 3.1 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

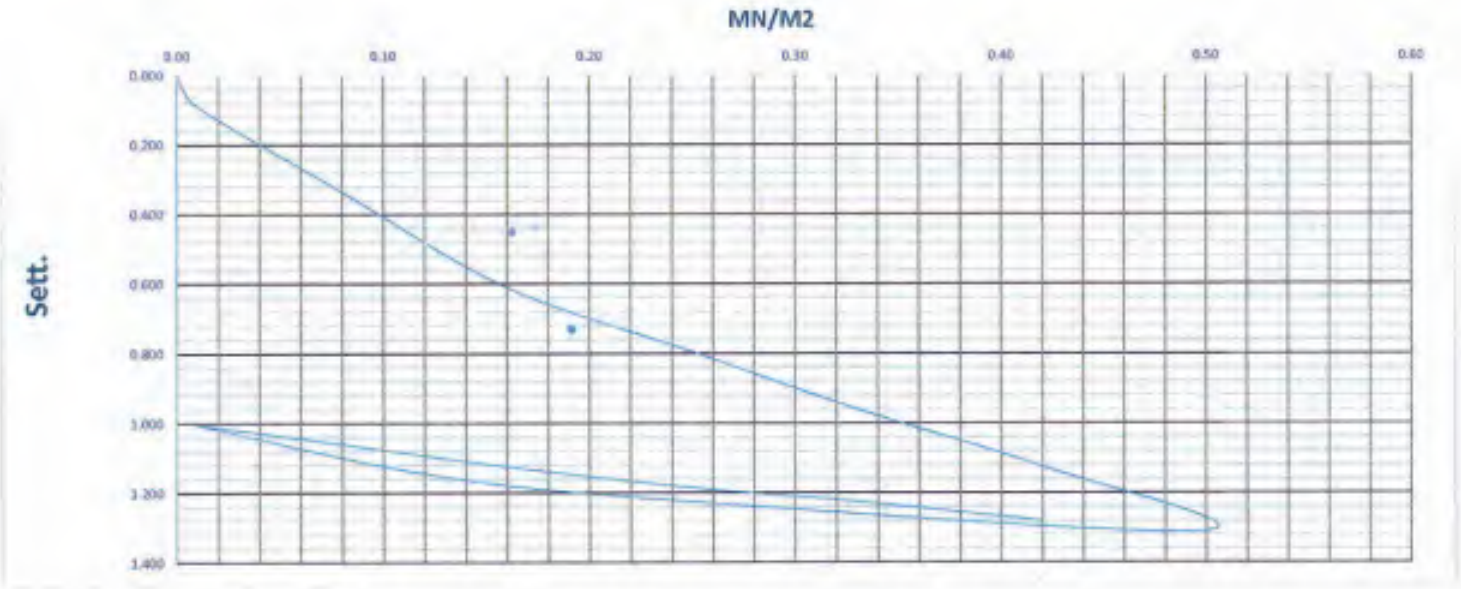
$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

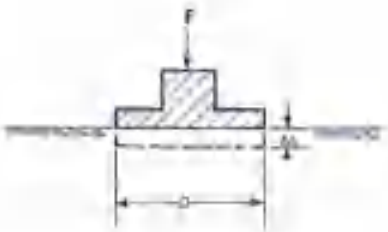
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+740 | To | 524+820 | Station | 524+760 |
| Taste Date | 7-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

s = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress N/MM2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.92 | 19.95 | | 0.080 | 0.050 | | 0.065 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.80 | 19.87 | | 0.200 | 0.130 | | 0.165 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.60 | 19.80 | | 0.400 | 0.200 | | 0.300 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.32 | 19.70 | | 0.680 | 0.300 | | 0.490 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.20 | 19.65 | | 0.800 | 0.350 | | 0.575 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.05 | 19.60 | | 0.950 | 0.400 | | 0.675 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.91 | 19.59 | | 1.090 | 0.410 | | 0.750 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.96 | 19.65 | | 1.040 | 0.350 | | 0.695 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.07 | 19.70 | | 0.930 | 0.300 | | 0.615 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.28 | 19.79 | | 0.720 | 0.210 | | 0.465 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.28 | 19.79 | | 0.720 | 0.210 | | 0.465 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.26 | 19.78 | | 0.740 | 0.220 | | 0.480 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.15 | 19.75 | | 0.850 | 0.250 | | 0.550 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.10 | 19.70 | | 0.900 | 0.300 | | 0.600 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.04 | 19.65 | | 0.960 | 0.350 | | 0.655 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.96 | 19.58 | | 1.040 | 0.420 | | 0.730 |

| | | $\nu$ | $\Delta S$ | $\Delta\sigma$ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 0.60937 | 0.32625 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.28312 | | |
| $0.7\sigma_2$ | 0.35 | 0.67167 | 0.17067 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 0.495 | | |
| D (mm) | 300 | | | |
| $E_{V1}$ | 137.93 | | | |
| $E_{V2}$ | 153.72 | | | |
| Area (Sqm) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| $E_{V2}/E_{V1}$ | 1.85 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

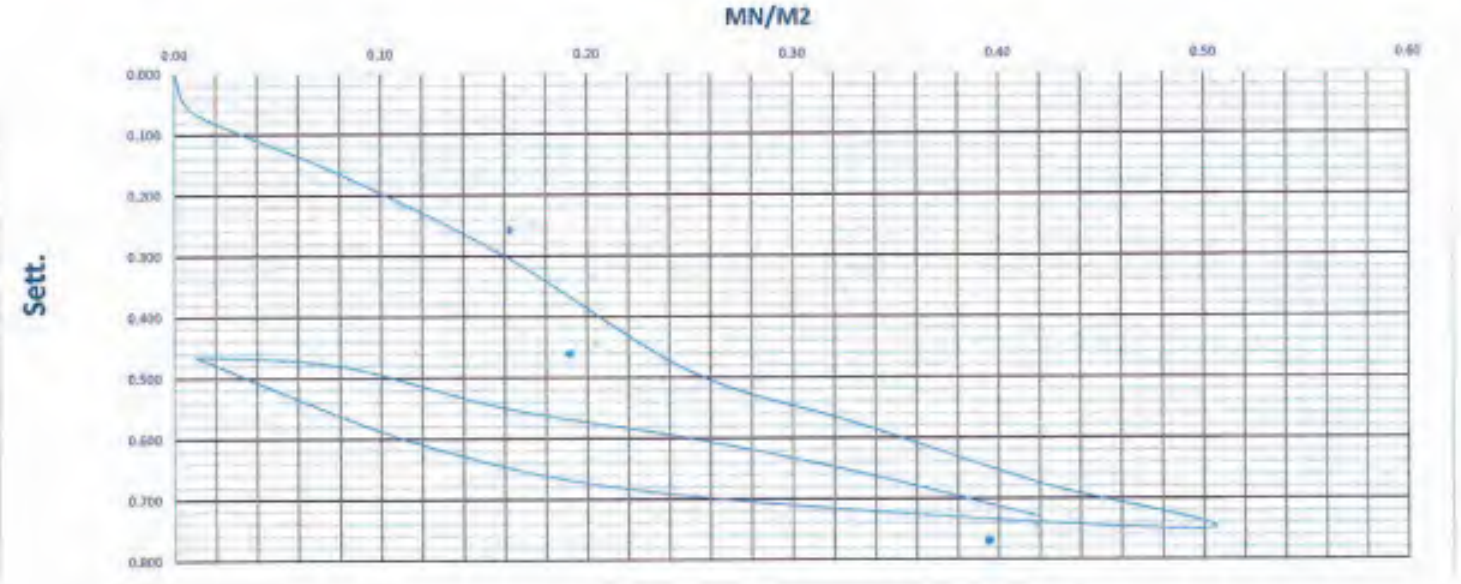
$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

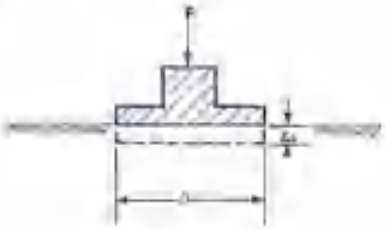
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+740 | To | 524+820 | Station | 524+780 |
| Taste Date | 7-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




P = load

$\Delta s$ = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Settl. 1 mm | Settl. 2 mm | Settl. 3 mm | Avg. Settl. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.90 | 19.92 | | 0.100 | 0.080 | | 0.090 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.70 | 19.85 | | 0.300 | 0.150 | | 0.225 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.52 | 19.78 | | 0.480 | 0.220 | | 0.350 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.32 | 19.68 | | 0.680 | 0.320 | | 0.500 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.18 | 19.64 | | 0.820 | 0.360 | | 0.590 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.02 | 19.60 | | 0.980 | 0.400 | | 0.690 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.88 | 19.55 | | 1.120 | 0.450 | | 0.785 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.97 | 19.65 | | 1.030 | 0.350 | | 0.690 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.10 | 19.72 | | 0.900 | 0.280 | | 0.590 |
| 9.900 | 2.1 | 0.707 | 0.01 | 19.30 | 19.80 | | 0.700 | 0.200 | | 0.450 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.30 | 19.80 | | 0.700 | 0.200 | | 0.450 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.25 | 19.77 | | 0.750 | 0.230 | | 0.490 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.16 | 19.74 | | 0.840 | 0.260 | | 0.550 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.06 | 19.70 | | 0.940 | 0.300 | | 0.620 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.00 | 19.66 | | 1.000 | 0.340 | | 0.670 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.92 | 19.59 | | 1.080 | 0.410 | | 0.745 |

| | | $\Delta s$ | $\Delta S$ | $\Delta \sigma$ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 0.60687 | 0.2725 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.33438 | | |
| $0.7\sigma_2$ | 0.35 | 0.68967 | 0.15666 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 0.53 | | |
| D (mm) | 300 | | | |
| $E_{v1}$ | 165.14 | | | |
| $E_{v2}$ | 287.24 | | | |
| Area (Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 1.74 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

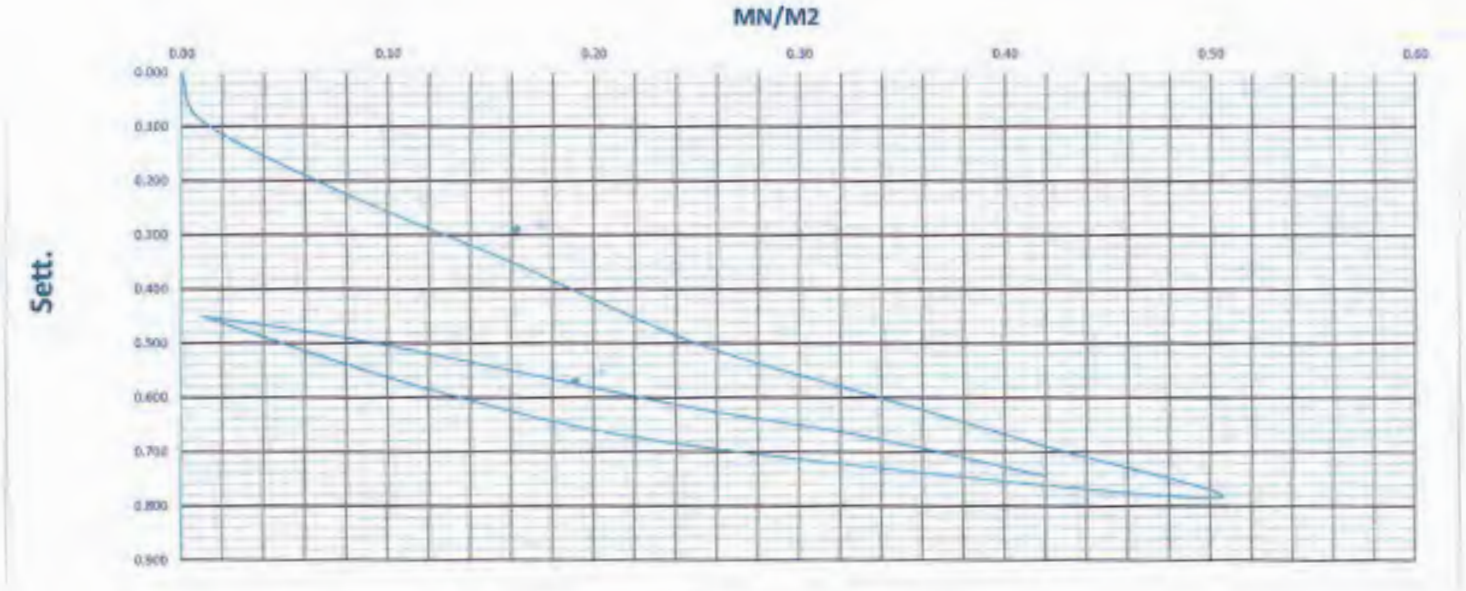
$E_v$ = deformation modulus

$\Delta S$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

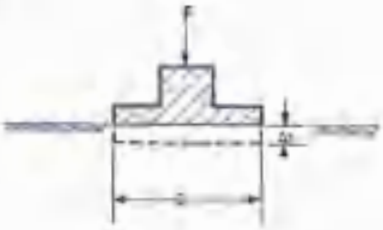
# Plate Load Test Resuhs

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+740 | To | 524+820 | Station | 5241600 |
| Taste Date | 7-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE :-

**The basis of the given equation is Roussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

Δs = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Set. 1 mm | Set. 2 mm | Set. 3 mm | Ave. Set. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.97 | 19.98 | | 0.030 | 0.020 | | 0.025 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.83 | 19.88 | | 0.170 | 0.120 | | 0.145 |
| 0.080 | 34.2 | 11.304 | 0.16 | 19.50 | 19.75 | | 0.500 | 0.250 | | 0.375 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.30 | 19.67 | | 0.700 | 0.330 | | 0.515 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.15 | 19.64 | | 0.850 | 0.360 | | 0.605 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.00 | 19.58 | | 1.000 | 0.420 | | 0.710 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.85 | 19.52 | | 1.150 | 0.480 | | 0.815 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.90 | 19.60 | | 1.100 | 0.400 | | 0.750 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.00 | 19.72 | | 1.000 | 0.280 | | 0.640 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.20 | 19.80 | | 0.800 | 0.200 | | 0.500 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.20 | 19.80 | | 0.800 | 0.200 | | 0.500 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.18 | 19.70 | | 0.820 | 0.300 | | 0.560 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.10 | 19.65 | | 0.900 | 0.350 | | 0.625 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.06 | 19.57 | | 0.940 | 0.430 | | 0.685 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.00 | 19.52 | | 1.000 | 0.480 | | 0.740 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.92 | 19.45 | | 1.080 | 0.550 | | 0.815 |

| | | s | Δs | Δσ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 0.61613 | 0.27188 | 0.2 |
| $0.3\,\sigma_2$ | 0.15 | 0.34425 | | |
| $0.7\sigma_2$ | 0.35 | 0.75667 | 0.13666 | 0.2 |
| $0.3\sigma_3$ | 0.15 | 0.62001 | | |
| D (mm) | 300 | | | |
| $E_{v1}$ | 165.52 | | | |
| $E_{v2}$ | 329.28 | | | |
| Area ($m_2$) | 0.07069 | | | |

| | | | |
|---|---|---|---|
| $E_{v2}/E_{v1}$ | 1.99 | | |

$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$

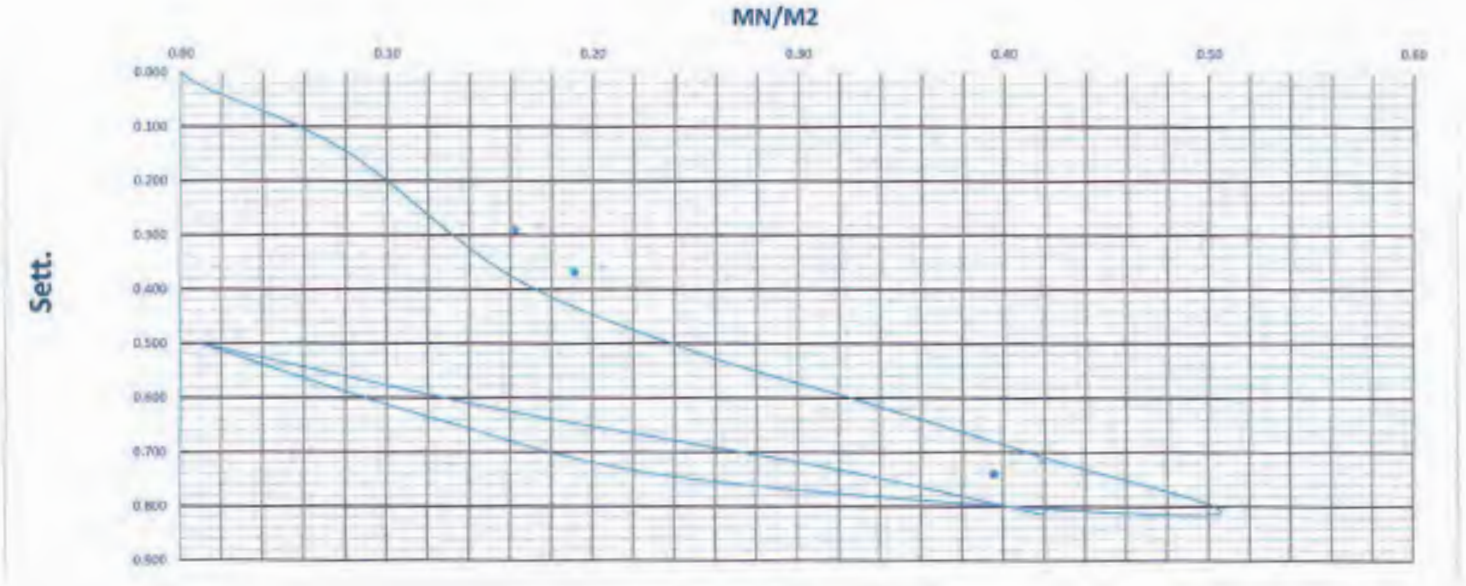
$E_v$ = deformation modulus

$\Delta S$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

Owner Consultant | Contractor Consultant | Contractor | Owner

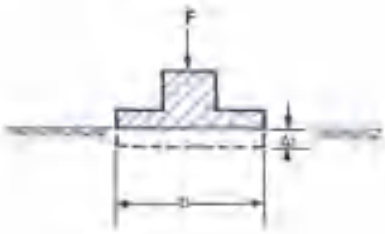
# Plate Load Test Results

| | | | | | |
|---|---|---|---|---|---|
| Company Name | AL MOSTAFA | | | | |
| Location | 524+740 | To | 524+820 | Station | 524+815 |
| Taste Date | 7-09-2023 | | | | |
| **Layer level** | **P.S.G +0.50** | | | | |

## EQUIPMENT AND TEST PROCEDURE : -

**The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.**

**The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.**




F = load

Δz = settlement

D = diameter of the plate

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

**Diameter = 300mm**

| Loading Stage No | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.97 | 19.96 | | 0.030 | 0.040 | | 0.035 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.80 | 19.80 | | 0.200 | 0.200 | | 0.200 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.50 | 19.55 | | 0.500 | 0.450 | | 0.475 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.25 | 19.31 | | 0.750 | 0.690 | | 0.720 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.05 | 19.12 | | 0.950 | 0.880 | | 0.915 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.84 | 18.93 | | 1.160 | 1.070 | | 1.115 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.62 | 18.60 | | 1.380 | 1.400 | | 1.390 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.72 | 18.68 | | 1.280 | 1.320 | | 1.300 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.80 | 18.90 | | 1.200 | 1.100 | | 1.150 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.93 | 19.07 | | 1.070 | 0.930 | | 1.000 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.93 | 19.07 | | 1.070 | 0.930 | | 1.000 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.92 | 19.04 | | 1.080 | 0.960 | | 1.020 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.88 | 18.90 | | 1.120 | 1.100 | | 1.110 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.82 | 18.82 | | 1.180 | 1.180 | | 1.180 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.75 | 18.74 | | 1.250 | 1.260 | | 1.255 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.70 | 18.66 | | 1.300 | 1.340 | | 1.320 |

| | | q | ΔS | Δσ |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.35 | 0.87438 | 0.43375 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.44063 | | |
| 0.7$\sigma_1$ | 0.35 | 1.26944 | 0.22944 | 0.2 |
| 0.3$\sigma_1$ | 0.15 | 1.04 | | |
| D (mm) | 300 | | | |
| $EV_1$ | 103.75 | | | |
| $EV_2$ | 196.13 | | | |
| Area ( Sq m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| $EV_2/EV_1$ | 1.89 | | |

$$E_s = 0.75 \cdot h \cdot \Delta\sigma / \Delta s$$

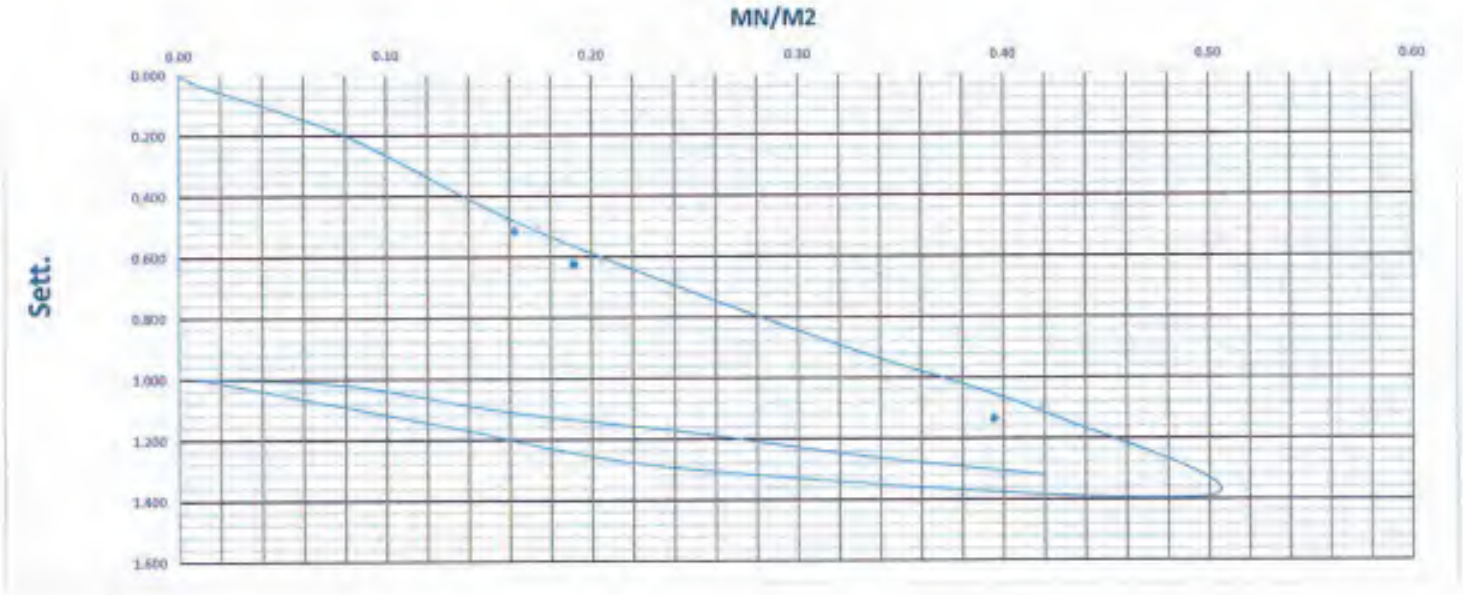
$E_s$ = deformation modulus

$D\sigma$ = load increment

$Ds$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$.




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : | Name : |
| Sign : | Sign : | Sign : |

| Owner Consultant | Contractor Consultant | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 760 | To | 524 + 900 |
| Taste Date | 28-09-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| Station | 524+895 |
|---|---|

## EQUIPMENT AND TEST PROCEDURE :-

The diameter D of the plate is generally 0.30 m. For very coarse grained material also plates with diameter D = 0.60 m and D = 0.762 m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

Diameter = 300mm

| Loading Stage No. | Load (kg) | Load (kN) | Stress (kN/m2) | Dial 1 (mm) | Dial 2 (mm) | Dial 3 (mm) | Set. 1 (mm) | Set. 2 (mm) | Set. 3 (mm) | Avg. Set. (mm) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.95 | 19.96 | | 0.050 | 0.040 | | 0.045 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.80 | 19.60 | | 0.200 | 0.400 | | 0.300 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.59 | 19.40 | | 0.410 | 0.600 | | 0.505 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.40 | 19.20 | | 0.600 | 0.800 | | 0.700 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.30 | 18.92 | | 0.700 | 1.080 | | 0.890 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.10 | 18.80 | | 0.900 | 1.200 | | 1.050 |
| 7.000 | 104.8 | 35.321 | 0.50 | 19.00 | 18.54 | | 1.000 | 1.460 | | 1.230 |
| 8.000 | 123.4 | 37.863 | 0.25 | 19.02 | 18.55 | | 0.980 | 1.450 | | 1.215 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.08 | 18.63 | | 0.920 | 1.390 | | 1.155 |
| 9.890 | 2.1 | 0.707 | 0.01 | 19.18 | 18.81 | | 0.820 | 1.190 | | 1.005 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.18 | 18.81 | | 0.820 | 1.190 | | 1.005 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.17 | 18.80 | | 0.830 | 1.200 | | 1.015 |
| 12.000 | 36.2 | 11.304 | 0.16 | 19.10 | 18.77 | | 0.900 | 1.230 | | 1.065 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.05 | 18.66 | | 0.950 | 1.340 | | 1.145 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.03 | 18.59 | | 0.970 | 1.410 | | 1.190 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.01 | 18.52 | | 0.990 | 1.480 | | 1.235 |

| | | | | |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.35 | 0.82625 | 0.35687 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.47539 | | |
| 0.7 $\sigma_2$ | 0.35 | 1.2 | 0.173 | 0.2 |
| 0.3 $\sigma_2$ | 0.15 | 1.025 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 120.00 | | | |
| $Ev_2$ | 257.14 | | | |
| Area (sq.m) | 0.07069 | | | |

| | | | |
|---|---|---|---|
| K=Ev2/Ev1 | 2.14 | | |

$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

9/5/M1

Sett.

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Client Cashilbak | Consultant Consultant | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 760 | To | 524 + 900 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| | |
|---|---|
| Section | 524-865 |

## EQUIPMENT AND TEST PROCEDURE :-

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 6 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading | Load | Load | Pressure | Dial 1 | Dial 2 | Dial 3 | Sett. 1 | Sett. 2 | Sett. 3 | Sett. Mean |
|---|---|---|---|---|---|---|---|---|---|---|
| Stage No. | Kn | KN | kN/m2 | mm | mm | mm | mm | mm | mm | mm |
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.96 | 19.97 | | 0.040 | 0.030 | | 0.035 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.78 | 19.88 | | 0.220 | 0.120 | | 0.170 |
| 3.000 | 34.2 | 11.298 | 0.16 | 19.59 | 19.78 | | 0.410 | 0.220 | | 0.315 |
| 4.000 | 53.3 | 17.643 | 0.25 | 19.40 | 19.62 | | 0.600 | 0.380 | | 0.490 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.23 | 19.50 | | 0.770 | 0.500 | | 0.635 |
| 6.000 | 85.8 | 28.673 | 0.42 | 19.12 | 19.44 | | 0.880 | 0.560 | | 0.720 |
| 7.000 | 106.8 | 35.325 | 0.50 | 19.02 | 19.37 | | 0.980 | 0.630 | | 0.805 |
| 8.000 | 53.4 | 17.643 | 0.25 | 19.08 | 19.41 | | 0.940 | 0.590 | | 0.765 |
| 9.000 | 26.7 | 8.821 | 0.12 | 19.14 | 19.49 | | 0.860 | 0.570 | | 0.690 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.54 | 19.87 | | 0.460 | 0.390 | | 0.525 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.34 | 19.67 | | 0.660 | 0.390 | | 0.525 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.22 | 19.55 | | 0.880 | 0.430 | | 0.565 |
| 12.000 | 34.2 | 11.298 | 0.16 | 19.21 | 19.52 | | 0.750 | 0.480 | | 0.615 |
| 13.000 | 53.3 | 17.643 | 0.25 | 19.14 | 19.47 | | 0.860 | 0.530 | | 0.695 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.09 | 19.41 | | 0.940 | 0.590 | | 0.765 |
| 15.000 | 85.8 | 28.673 | 0.42 | 19.02 | 19.38 | | 0.980 | 0.620 | | 0.800 |

| | | $\Delta$ | $\Delta\Delta$ | $\Delta\sigma$ |
|---|---|---|---|---|
| $0.7\sigma_1$ | 0.35 | 0.64582 | 0.34875 | 0.2 |
| $0.3\sigma_1$ | 0.15 | 0.29688 | | |
| $0.7\sigma_2$ | 0.35 | 0.77279 | 0.16777 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 0.605 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 129.03 | | | |
| $Ev_2$ | 268.23 | | | |
| Area (Sq.m) | 0.07065 | | | |

| Ev2/Ev1 | 2.08 | | |
|---|---|---|---|

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$D_\sigma$ = load increment

$D_s$ = settlement increment

$H$ = diameter of the plate, generally 0.30 m

| Lab Specialist | Lab Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Client Consultant | Construction Consultant | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 760 | To | 524 + 900 |
| Taste Date | 28-09-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

## EQUIPMENT AND TEST PROCEDURE :-

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material steel plates with diameter $D = 0.60$ m and $D = 0.762$ m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Stage No | Load Bar | Load KN | Stress N/mm² | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.97 | 19.93 | | 0.030 | 0.070 | | 0.050 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.53 | 19.51 | | 0.470 | 0.490 | | 0.480 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.41 | 19.24 | | 0.590 | 0.760 | | 0.675 |
| 4.000 | 53.2 | 17.663 | 0.25 | 19.16 | 18.95 | | 0.820 | 1.050 | | 0.935 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.98 | 18.76 | | 0.940 | 1.240 | | 1.090 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.26 | 18.51 | | 0.740 | 1.490 | | 1.115 |
| 7.000 | 106.8 | 35.325 | 0.50 | 19.21 | 18.32 | | 0.790 | 1.680 | | 1.235 |
| 8.000 | 53.4 | 17.663 | 0.25 | 19.22 | 18.37 | | 0.780 | 1.630 | | 1.205 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.34 | 18.39 | | 0.700 | 1.610 | | 1.155 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.36 | 18.57 | | 0.640 | 1.430 | | 1.035 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.36 | 18.57 | | 0.640 | 1.430 | | 1.035 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.35 | 18.56 | | 0.650 | 1.440 | | 1.045 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.34 | 18.52 | | 0.660 | 1.480 | | 1.070 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.31 | 18.42 | | 0.690 | 1.580 | | 1.135 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.28 | 18.30 | | 0.720 | 1.700 | | 1.210 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.24 | 18.25 | | 0.760 | 1.750 | | 1.270 |

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load-span between $0.3\,\sigma_{max}$ and $0.7\,\sigma_{max}$.

| | | $s_1$ | $\Delta s$ | $\Delta\sigma$ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 1.01 | 0.36 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.65 | | |
| $0.7\sigma_2$ | 0.35 | 1.22353 | 0.57353 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 0.855 | | |
| D (mm) | 300 | | | |
| $E_{V1}$ | 125.00 | | | |
| $E_{V2}$ | 297.33 | | | |
| Area ($cm^2$) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Excess | 0.01 | | |

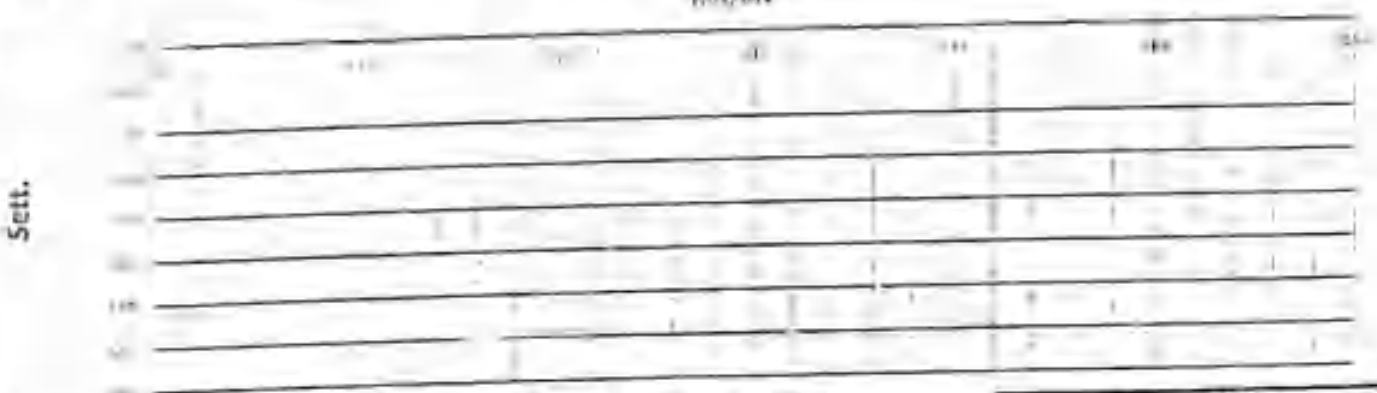
$$E_v = \Delta\sigma \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Contractor Name/Rep | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 760 | To | 524 + 900 |
| Taste Date | 28-09-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| | |
|---|---|
| | 524+825 |

## EQUIPMENT AND TEST PROCEDURE : :

The diameter D of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweights for the hydraulic jack

Diameter = 300mm

| Loading Stage No. | Load Ton | Load kN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.90 | 19.90 | | 0.100 | 0.040 | | 0.070 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.70 | 19.80 | | 0.300 | 0.200 | | 0.250 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.30 | 19.70 | | 0.700 | 0.300 | | 0.500 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.03 | 19.58 | | 0.970 | 0.420 | | 0.695 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.81 | 19.40 | | 1.190 | 0.600 | | 0.895 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.65 | 19.22 | | 1.350 | 0.780 | | 1.065 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.41 | 18.05 | | 1.590 | 0.950 | | 1.270 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.45 | 19.08 | | 1.550 | 0.920 | | 1.235 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.54 | 19.13 | | 1.460 | 0.870 | | 1.165 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.71 | 19.22 | | 1.290 | 0.780 | | 1.035 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.71 | 19.22 | | 1.290 | 0.780 | | 1.035 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.70 | 19.21 | | 1.300 | 0.790 | | 1.045 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.62 | 19.16 | | 1.380 | 0.840 | | 1.110 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.50 | 19.11 | | 1.500 | 0.890 | | 1.195 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.43 | 19.08 | | 1.570 | 0.920 | | 1.245 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.39 | 19.03 | | 1.620 | 0.970 | | 1.295 |

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the most span between $0.3\,\sigma_{max}$ and $0.7\,\sigma_{max}$

| | | | |
|---|---|---|---|
| $0.7\sigma_1$ | 0.35 | 0.883567 | 0.11688 |
| $0.3\sigma_1$ | 0.15 | 0.468716 | |
| $0.7\sigma_2$ | 0.35 | 1.25611 | 0.29111 |
| $0.3\sigma_2$ | 0.15 | 1.033 | |
| D (mm) | 300 | | |
| $E_{V1}$ | 187.85 | | |
| $E_{V2}$ | 223.78 | | |
| Area (sq.mm) | Average | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 1.91 | | |

$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

MN/M2

Sett.

| Lab. Specialist | Lab. Engineer | Contractor Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Client Consultant | Contractor Consultant | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 760 | To | 524 + 900 |
| Taste Date | 28-09-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| Station | 524+800 |
|---|---|

## EQUIPMENT AND TEST PROCEDURE :

The diameter D of the plate is generally 0.30 m. For very coarse grained material also plates with diameter D = 0.60 m and D = 0.762 m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Stage No | Load Bar | Load KN | Time Minute | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg Sett mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.97 | 19.83 | | 0.030 | 0.170 | | 0.100 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.70 | 19.56 | | 0.300 | 0.420 | | 0.360 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.61 | 19.38 | | 0.390 | 0.610 | | 0.500 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.50 | 19.08 | | 0.500 | 0.920 | | 0.710 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.40 | 18.87 | | 0.600 | 1.130 | | 0.865 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.27 | 18.75 | | 0.730 | 1.250 | | 0.990 |
| 7.000 | 106.8 | 33.324 | 0.50 | 19.12 | 18.52 | | 0.880 | 1.480 | | 1.180 |
| 8.000 | 53.4 | 17.663 | 0.25 | 19.16 | 18.54 | | 0.840 | 1.460 | | 1.150 |
| 8.000 | 36.7 | 8.831 | 0.12 | 19.19 | 18.64 | | 0.810 | 1.360 | | 1.085 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.30 | 18.80 | | 0.700 | 1.200 | | 0.950 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.30 | 18.80 | | 0.700 | 1.200 | | 0.950 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.28 | 18.79 | | 0.720 | 1.210 | | 0.965 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.23 | 18.70 | | 0.760 | 1.300 | | 1.030 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.22 | 18.60 | | 0.780 | 1.400 | | 1.090 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.20 | 18.50 | | 0.800 | 1.500 | | 1.150 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.12 | 18.43 | | 0.880 | 1.570 | | 1.225 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| 0.7 $\sigma_1$ | 0.35 | 0.82373 | 0.38125 | 0.2 | |
| 0.3 $\sigma_1$ | 0.15 | 0.4825 | | | |
| 0.7 $\sigma_2$ | 0.35 | 1.16087 | 0.18667 | 0.2 | |
| 0.3 $\sigma_2$ | 0.15 | 0.38 | | | |
| D (mm) | 300 | | | | |
| $Ev_1$ | 131.87 | | | | |
| $Ev_2$ | 241.07 | | | | |
| Area (sq.m) | 0.07065 | | | | |

| | | | |
|---|---|---|---|
| $E_2/E_1$ | 1.83 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation the settlement values from the load span between 0.3 σ = ___ and 0.7 σ = ___

REMARKS

Sett.

| Lab Specialist | Lab Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : Yassief Refaat |
| Sign : | Sign : | Sign : |

| Owner Consultant | Contractor Consultant | CENTRAL LAB | Client |
|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 760 | To | 524 + 900 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.00 | | |

| Station | 524+760 |
|---|---|

## EQUIPMENT AND TEST PROCEDURE : -

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used.

The load is applied in 8 load increments of equal size. Under each load step the settlement must come to a noticeable rest (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is released in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Stage No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Set. 1 mm | Set. 2 mm | Set. 3 mm | Set. Total mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.87 | 19.87 | | 0.130 | 0.130 | | 0.130 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.63 | 19.72 | | 0.370 | 0.280 | | 0.325 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.46 | 19.57 | | 0.540 | 0.430 | | 0.485 |
| 4.000 | 51.3 | 17.663 | 0.25 | 19.30 | 19.42 | | 0.700 | 0.580 | | 0.640 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.14 | 19.25 | | 0.860 | 0.750 | | 0.805 |
| 6.000 | 89.6 | 29.673 | 0.42 | 19.02 | 19.14 | | 0.980 | 0.860 | | 0.920 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.90 | 19.01 | | 1.100 | 0.990 | | 1.045 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.92 | 19.05 | | 1.080 | 0.950 | | 1.015 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.00 | 19.18 | | 1.000 | 0.820 | | 0.910 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.10 | 19.30 | | 0.900 | 0.700 | | 0.800 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.10 | 19.30 | | 0.900 | 0.700 | | 0.800 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.09 | 19.29 | | 0.910 | 0.710 | | 0.810 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.05 | 19.22 | | 0.950 | 0.780 | | 0.865 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.00 | 19.15 | | 1.000 | 0.850 | | 0.925 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.96 | 19.09 | | 1.040 | 0.910 | | 0.975 |
| 15.000 | 89.6 | 29.673 | 0.42 | 18.90 | 19.03 | | 1.100 | 0.970 | | 1.035 |

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$

| | | | | |
|---|---|---|---|---|
| 0.3 $\sigma_0$ | 0.35 | 0.61063 | 0.38563 | 0.2 |
| 0.7 $\sigma_0$ | 0.85 | 0.9463 | | |
| 0.7 $\sigma_0$ | 0.85 | 0.94632 | 0.19632 | 0.2 |
| 0.3 $\sigma_0$ | 0.35 | 0.82 | | |
| D (mm) | 300 | | | |
| $P_{0.7}$ | 134.26 | | | |
| $P_{0.3}$ | 787.23 | | | |
| Area ($\pi r^2$) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| $\Delta s$ | 0.65 | | |

$$E_v = 0.75 \cdot D \cdot \frac{\Delta\sigma}{\Delta s}$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

MN/M2

Sett.

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : Yousef Rafat |
| Sign : | Sign : | Sign : |

| Contractor Consultant | CENTRAL LAB | Contractor | |
|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 640 | To | 524 + 760 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| | |
|---|---|
| Station | 524+661 |

## EQUIPMENT AND TEST PROCEDURE :-

The diameter D of the plate is generally 0.30 m. For very coarse grained material also plates with diameter D = 0.60 m and D = 0.762 m are used

The load is applied in 5 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

Diameter = 300mm

| Loading Step No. | Load Bar | Load KN | Stress | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.95 | 19.95 | | 0.050 | 0.050 | | 0.050 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.70 | 19.80 | | 0.300 | 0.140 | | 0.220 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.60 | 19.52 | | 0.400 | 0.480 | | 0.440 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.57 | 19.30 | | 0.430 | 0.700 | | 0.565 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.36 | 19.20 | | 0.650 | 0.800 | | 0.725 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.25 | 19.07 | | 0.750 | 0.930 | | 0.840 |
| 7.000 | 106.8 | 35.325 | 0.50 | 19.15 | 18.93 | | 0.850 | 1.070 | | 0.960 |
| 8.000 | 53.4 | 17.663 | 0.25 | 19.18 | 18.98 | | 0.820 | 1.020 | | 0.920 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.21 | 18.84 | | 0.790 | 0.960 | | 0.875 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.33 | 19.15 | | 0.670 | 0.850 | | 0.760 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.33 | 19.15 | | 0.670 | 0.850 | | 0.760 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.32 | 19.14 | | 0.680 | 0.860 | | 0.770 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.26 | 19.07 | | 0.740 | 0.930 | | 0.835 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.21 | 19.01 | | 0.790 | 0.980 | | 0.890 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.16 | 18.95 | | 0.840 | 1.050 | | 0.945 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.15 | 18.91 | | 0.850 | 1.090 | | 0.970 |

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$

| | | | |
|---|---|---|---|
| 0.7 $\sigma_2$ | 0.35 | 0.795 | 0.3725 |
| 0.3 $\sigma_1$ | 0.15 | 0.4125 | |
| 0.7 $\sigma_2$ | 0.35 | 0.94275 | 0.16275 |
| 0.3 $\sigma_1$ | 0.15 | 0.78 | |
| D (mm) | 300 | | |
| $D\Delta_1$ | 138.53 | | |
| $D\Delta_2$ | 278.45 | | |
| Area (kg/m²) | 0.07065 | | |

| | | | |
|---|---|---|---|
| Ev1/Ev2 | 1.98 | | |

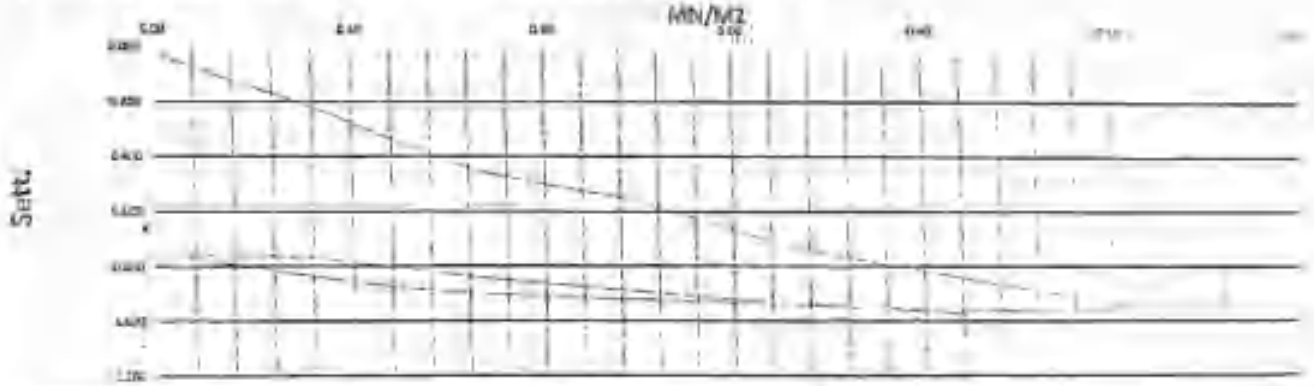
$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

D = diameter of the plate (generally 0.30 m)




| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| | | | |
|---|---|---|---|
| Laboratory Consultant | CENTRAL LAB | | |

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 500 | To | 524 + 640 |
| Taste Date | 28-09-2023 | | |
| Layer level | SUB BALLAST +0.00 | | |

## EQUIPMENT AND TEST PROCEDURE :-

The diameter D of the plate is normally 0.30 m. For very coarse grained material also plates with diameter D = 0.60 m and D = 0.762 m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Stage No. | Load Div | Load KN | Stress kN/m² | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.98 | 19.97 | | 0.020 | 0.030 | | 0.025 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.88 | 19.75 | | 0.120 | 0.250 | | 0.185 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.75 | 19.58 | | 0.250 | 0.440 | | 0.345 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.61 | 19.34 | | 0.390 | 0.660 | | 0.525 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.44 | 19.24 | | 0.560 | 0.760 | | 0.660 |
| 6.000 | 88.8 | 29.373 | 0.42 | 19.34 | 19.07 | | 0.660 | 0.930 | | 0.795 |
| 7.000 | 100.8 | 35.325 | 0.50 | 19.20 | 18.80 | | 0.800 | 1.100 | | 0.950 |
| 8.000 | 53.4 | 17.663 | 0.25 | 19.29 | 19.03 | | 0.710 | 0.970 | | 0.835 |
| 9.000 | 20.7 | 6.831 | 0.12 | 19.31 | 19.10 | | 0.690 | 0.900 | | 0.795 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.48 | 19.30 | | 0.520 | 0.700 | | 0.610 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.48 | 19.30 | | 0.520 | 0.700 | | 0.610 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.44 | 19.28 | | 0.560 | 0.740 | | 0.650 |
| 12.000 | 34.2 | 11.308 | 0.16 | 19.33 | 19.29 | | 0.670 | 0.800 | | 0.735 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.28 | 19.13 | | 0.720 | 0.870 | | 0.795 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.24 | 19.05 | | 0.760 | 0.950 | | 0.855 |
| 15.000 | 88.8 | 29.373 | 0.42 | 19.16 | 19.00 | | 0.820 | 1.000 | | 0.910 |

| | | a | b | c |
|---|---|---|---|---|
| 0.2 $\sigma_1$ | 0.35 | 0.424711 | 0.24437 | 0.2 |
| 0.3 $\sigma_1$ | 0.53 | 0.321 | | |
| 0.7 $\sigma_1$ | 0.81 | 0.867221 | 0.17722 | 0.2 |
| 0.9 $\sigma_1$ | 0.99 | 0.69 | | |
| D (mm) | 300 | | | |
| $\Delta\sigma_1$ | 134.58 | | | |
| $\Delta\sigma_2$ | 253.82 | | | |
| $\Delta s_1$ (0.7 $\sigma_1$) | 0.47001 | | | |

| | | | |
|---|---|---|---|
| $\Delta s_2$ (0.7 $\sigma_2$) | 1.09 | | |

$$E_v = 0.71 \cdot \beta \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\beta$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For the calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.7 $\sigma_{max}$ and 0.7 $\sigma_{max}$

MN/M2

Sett.

| Lab Specialist | Lab Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Owner Consultant | Contractor Consultant | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 500 | To | 524 + 640 |
| Taste Date | 28-09-2023 | | |
| Layer level | SUB BALLAST +0.00 | | |

| | |
|---|---|
| Station | 524+595 |

## EQUIPMENT AND TEST PROCEDURE :-

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 8 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Stage No. | Load Bar | Load kN | Stress kN/cm² | Dial 1 mm | Dial 2 mm | Dial 3 mm | Set. 1 mm | Set. 2 mm | Set. 3 mm | Ave. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.92 | 19.97 | | 0.080 | 0.030 | | 0.055 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.60 | 19.70 | | 0.400 | 0.300 | | 0.350 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.25 | 19.43 | | 0.750 | 0.570 | | 0.660 |
| 4.000 | 53.3 | 17.663 | 0.25 | 18.90 | 19.05 | | 1.100 | 0.950 | | 1.025 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.70 | 18.97 | | 1.300 | 0.730 | | 1.015 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.50 | 19.13 | | 1.500 | 0.870 | | 1.185 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.25 | 18.50 | | 1.750 | 1.100 | | 1.425 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.30 | 19.03 | | 1.700 | 0.970 | | 1.335 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.43 | 19.06 | | 1.570 | 0.940 | | 1.255 |
| 8.000 | 2.1 | 0.707 | 0.01 | 18.62 | 19.11 | | 1.380 | 0.890 | | 1.135 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.62 | 19.11 | | 1.380 | 0.890 | | 1.135 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.61 | 19.10 | | 1.390 | 0.900 | | 1.145 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.59 | 19.08 | | 1.500 | 0.920 | | 1.210 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.40 | 19.05 | | 1.600 | 0.950 | | 1.275 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.30 | 19.03 | | 1.700 | 0.970 | | 1.335 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.25 | 19.00 | | 1.750 | 1.000 | | 1.375 |

| | | a | Δs | Δσ |
|---|---|---|---|---|
| $0.7\sigma_1$ | 0.35 | 0.973 | 0.25375 | 0.2 |
| $0.3\sigma_1$ | 0.15 | 0.82125 | | |
| $0.7\sigma_2$ | 0.35 | 1.34289 | 0.19895 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.113 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 127.21 | | | |
| $Ev_2$ | 238.24 | | | |
| Ave.Sett. | 0.0000 | | | |

| | | | |
|---|---|---|---|
| Ev=Ev2/Ev1 | 1.87 | | |

$$E_v = a \cdot (1 - \nu^2) \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

For this calculation $\Delta\sigma$ and $a$ are usually taken from the load span between $0.3\,\sigma_{max}$ and $0.7\,\sigma_{max}$


| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Owner Consultant | Contractor Consultant | CENTRAL LAB | Contractor |
|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 500 | To | 524 + 640 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| | |
|---|---|
| Station | 524+575 |

## EQUIPMENT AND TEST PROCEDURE : -

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After this, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Stage No. | Load Per | Load KN | Stress KN/m² | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Adj. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.80 | 19.87 | | 0.200 | 0.130 | | 0.165 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.43 | 19.52 | | 0.570 | 0.480 | | 0.525 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.21 | 19.31 | | 0.790 | 0.690 | | 0.740 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.07 | 19.21 | | 0.930 | 0.790 | | 0.860 |
| 5.000 | 70.5 | 23.315 | 0.33 | 18.90 | 19.08 | | 1.100 | 0.920 | | 1.010 |
| 6.000 | 89.8 | 29.673 | 0.42 | 18.81 | 18.99 | | 1.190 | 1.010 | | 1.100 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.62 | 18.80 | | 1.380 | 1.200 | | 1.290 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.65 | 18.83 | | 1.350 | 1.170 | | 1.260 |
| 9.000 | 26.7 | 8.831 | 0.12 | 18.81 | 18.89 | | 1.190 | 1.110 | | 1.150 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.95 | 18.97 | | 1.030 | 1.020 | | 1.040 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.91 | 18.97 | | 1.056 | 1.030 | | 1.040 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.91 | 18.94 | | 1.090 | 1.060 | | 1.075 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.83 | 18.92 | | 1.170 | 1.080 | | 1.125 |
| 13.000 | 53.3 | 17.663 | 0.25 | 18.74 | 18.88 | | 1.260 | 1.120 | | 1.190 |
| 14.000 | 70.5 | 23.315 | 0.33 | 18.68 | 18.85 | | 1.320 | 1.150 | | 1.235 |
| 15.000 | 89.8 | 29.673 | 0.42 | 18.62 | 18.82 | | 1.380 | 1.180 | | 1.280 |

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$

| | | $s$ | $\Delta S$ | $\Delta\sigma$ |
|---|---|---|---|---|
| 0.7 $\sigma_o$ | 0.35 | 0.525 | 0.21186 | 0.2 |
| 0.3 $\sigma_o$ | 0.15 | 0.71313 | | |
| 0.7 $\sigma_u$ | 0.35 | 1.245 | 0.115 | 0.2 |
| 0.3 $\sigma_u$ | 0.15 | 1.13 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 717.39 | | | |
| $Ev_2$ | 533.34 | | | |
| Area (Sq.m) | 0.0706 | | | |

| Evaluation | 1.37 | | |
|---|---|---|---|

$E_v = 0.19 \cdot D \cdot \frac{\Delta\sigma}{\Delta s}$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

MN/M2

Sett.

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Contractor Consultant | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 500 | To | 524 + 640 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

## EQUIPMENT AND TEST PROCEDURE : -

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Step No | Load kN | Load kg | Stress kN/m² | Dial I mm | Dial II mm | Dial III mm | Δs I mm | Δs II mm | Δs III mm | Avg Set mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.95 | 19.95 | | 0.050 | 0.050 | | 0.050 |
| 2.000 | 17.1 | 3.652 | 0.08 | 19.85 | 19.86 | | 0.150 | 0.140 | | 0.145 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.65 | 19.68 | | 0.350 | 0.318 | | 0.330 |
| 4.000 | 53.3 | 17.683 | 0.25 | 19.51 | 19.52 | | 0.490 | 0.480 | | 0.485 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.36 | 19.40 | | 0.640 | 0.600 | | 0.620 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.23 | 19.30 | | 0.770 | 0.700 | | 0.735 |
| 7.000 | 106.8 | 35.325 | 0.50 | 19.10 | 19.11 | | 0.900 | 0.890 | | 0.895 |
| 8.000 | 53.8 | 17.663 | 0.25 | 19.15 | 19.15 | | 0.850 | 0.850 | | 0.850 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.20 | 19.25 | | 0.800 | 0.750 | | 0.775 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.29 | 19.34 | | 0.710 | 0.660 | | 0.685 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.29 | 19.34 | | 0.710 | 0.660 | | 0.685 |
| 11.000 | 17.1 | 3.652 | 0.08 | 19.28 | 19.33 | | 0.720 | 0.670 | | 0.695 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.23 | 19.28 | | 0.770 | 0.720 | | 0.745 |
| 13.000 | 53.3 | 17.683 | 0.25 | 19.18 | 19.25 | | 0.820 | 0.750 | | 0.785 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.15 | 19.20 | | 0.850 | 0.800 | | 0.825 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.10 | 19.12 | | 0.900 | 0.880 | | 0.890 |

| | | | | |
|---|---|---|---|---|
| 0.1 $\sigma_1$ | 0.35 | 0.595 | 0.29012 | 0.2 |
| 0.3 $\sigma_1$ | 0.45 | 0.21000 | | |
| 0.7 $\sigma_1$ | 0.35 | 0.83044 | 0.12444 | 0.2 |
| 0.9 $\sigma_1$ | 0.35 | 0.765 | | |
| D (mm) | 300 | | | |
| $E_{V1}$ | 15630 | | | |
| $E_{V2}$ | 33473 | | | |
| Area (Δs-σ) | | | | |

| | | | |
|---|---|---|---|
| $E_{V2}/E_{V1}$ | 2.14 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate (generally 0.30 m)

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.1 $\sigma_{max}$ and 0.7 $\sigma_{max}$.


| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : Fawzy R.S-b |
| Sign : | Sign : | Sign : |

| | | | |
|---|---|---|---|
| Owner Consultant | Contractor Consultant | CENTRAL LAB | Contractor |

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 500 | To | 524 + 840 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| | |
|---|---|
| Station | 524+535 |

## EQUIPMENT AND TEST PROCEDURE : -

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Steps No. | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.99 | 19.99 | | 0.010 | 0.010 | | 0.010 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.72 | 19.75 | | 0.280 | 0.250 | | 0.265 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.37 | 19.37 | | 0.630 | 0.630 | | 0.630 |
| 4.000 | 53.1 | 17.663 | 0.25 | 19.15 | 19.11 | | 0.850 | 0.890 | | 0.870 |
| 5.000 | 70.5 | 23.313 | 0.33 | 19.03 | 18.93 | | 0.970 | 1.150 | | 1.060 |
| 6.000 | 89.9 | 29.673 | 0.42 | 18.85 | 18.65 | | 1.150 | 1.350 | | 1.250 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.60 | 18.50 | | 1.400 | 1.500 | | 1.450 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.72 | 18.55 | | 1.280 | 1.450 | | 1.365 |
| 9.000 | 25.7 | 8.859 | 0.12 | 18.78 | 18.60 | | 1.210 | 1.400 | | 1.305 |
| 9.000 | 2.1 | 0.707 | 0.01 | 18.90 | 18.75 | | 1.100 | 1.250 | | 1.175 |
| 10.000 | 2.1 | 0.707 | 0.01 | 18.90 | 18.75 | | 1.100 | 1.250 | | 1.175 |
| 11.000 | 17.1 | 5.652 | 0.08 | 18.89 | 18.74 | | 1.110 | 1.260 | | 1.185 |
| 12.000 | 34.2 | 11.304 | 0.16 | 18.85 | 18.69 | | 1.150 | 1.310 | | 1.230 |
| 13.000 | 53.1 | 17.663 | 0.25 | 18.79 | 18.60 | | 1.210 | 1.400 | | 1.305 |
| 14.000 | 70.5 | 23.313 | 0.33 | 18.72 | 18.52 | | 1.280 | 1.480 | | 1.380 |
| 15.000 | 89.9 | 29.673 | 0.42 | 18.60 | 18.40 | | 1.400 | 1.600 | | 1.500 |

For the calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between $0.1\,\sigma_{max}$ and $0.7\,\sigma_{max}$

| | | s | Δs | Δσ |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.59 | 1.075 | 0.44666 | 0.2 |
| $0.1\,\sigma_1$ | 0.13 | 0.62833 | | |
| $0.7\sigma_2$ | 0.33 | 1.40667 | 0.21167 | 0.2 |
| $0.1\sigma_2$ | 0.13 | 1.195 | | |
| D (mm) | 300 | | | |
| $P_{N1}$ | 106.70 | | | |
| $P_{N2}$ | 212.80 | | | |
| Area (sq.m) | 0.0706 | | | |

| | | | |
|---|---|---|---|
| Factor | 2.11 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

MN/M2

Sett.

| Lab. Specialist | Lab.Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : Yousef Kaljab |
| Sign : | Sign : | Sign : |

| | | | |
|---|---|---|---|
| Plate Consultant | Concrete Consultant | CENTRAL LAB | Contractor |

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 640 | To | 524 + 760 |
| Taste Date | 28-09-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| | |
|---|---|
| Station | KM-524 |

## EQUIPMENT AND TEST PROCEDURE : :

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.760 m are used.

The load is applied in 8 load increments of equal size. Under each load step the settlement must come to A noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serves as counterweight for the hydraulic jack

Diameter = 300mm

| Loading Stage No | Load Bar | Load KN | Stress MN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg. Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.96 | 19.95 | | 0.040 | 0.050 | | 0.045 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.90 | 19.64 | | 0.100 | 0.360 | | 0.230 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.80 | 19.32 | | 0.200 | 0.680 | | 0.440 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.75 | 18.07 | | 0.250 | 0.930 | | 0.590 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.70 | 18.80 | | 0.300 | 1.200 | | 0.750 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.61 | 18.60 | | 0.390 | 1.400 | | 0.895 |
| 7.000 | 106.9 | 35.325 | 0.50 | 19.50 | 18.43 | | 0.500 | 1.570 | | 1.035 |
| 8.000 | 53.4 | 17.663 | 0.25 | 19.63 | 18.58 | | 0.370 | 1.420 | | 0.895 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.68 | 18.71 | | 0.320 | 1.290 | | 0.805 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.72 | 18.56 | | 0.280 | 1.020 | | 0.650 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.72 | 18.98 | | 0.250 | 1.020 | | 0.650 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.69 | 18.93 | | 0.310 | 1.070 | | 0.690 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.64 | 18.81 | | 0.360 | 1.190 | | 0.775 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.60 | 18.73 | | 0.400 | 1.270 | | 0.835 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.57 | 18.59 | | 0.430 | 1.410 | | 0.920 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.53 | 18.43 | | 0.470 | 1.550 | | 1.010 |

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$

| | | | | |
|---|---|---|---|---|
| | | | | |
| 0.7 $\sigma_1$ | 0.35 | 0.7723 | 0.01971 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.01371 | | |
| 0.7 $\sigma_2$ | 0.35 | 0.91 | 0.21 | 0.2 |
| 0.3 $\sigma_2$ | 0.15 | 0.71 | | |
| D (mm) | 300 | | | |
| $E_{v1}$ | 125.64 | | | |
| $E_{v2}$ | 214.28 | | | |
| $E_{v2}/E_{v1}$ | 1.7052 | | | |

| | | | |
|---|---|---|---|
| $E_{v2}/E_{v1}$ | 1.71 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

MN/M2

Sett.

| Lab Specialist | Lab Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Owner Consultant | Contractor Consultant | CENTRAL LAB | Contractor | Project |
|---|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 640 | To | 524 + 760 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| Station | 524+733 |
|---|---|

## EQUIPMENT AND TEST PROCEDURE :-

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Stage No. | Load Bar | Load kN | Stress kN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Ave Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.99 | 19.97 | | 0.010 | 0.030 | | 0.020 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.97 | 19.94 | | 0.030 | 0.060 | | 0.045 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.88 | 19.80 | | 0.120 | 0.120 | | 0.120 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.80 | 19.82 | | 0.200 | 0.180 | | 0.190 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.72 | 19.74 | | 0.280 | 0.260 | | 0.270 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.58 | 19.68 | | 0.410 | 0.320 | | 0.365 |
| 7.000 | 106.8 | 35.325 | 0.50 | 19.51 | 19.60 | | 0.490 | 0.400 | | 0.445 |
| 8.000 | 53.4 | 17.663 | 0.25 | 19.56 | 19.64 | | 0.440 | 0.360 | | 0.400 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.68 | 19.71 | | 0.300 | 0.250 | | 0.325 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.78 | 19.85 | | 0.220 | 0.150 | | 0.185 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.78 | 19.85 | | 0.220 | 0.150 | | 0.185 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.70 | 19.83 | | 0.300 | 0.170 | | 0.235 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.65 | 19.81 | | 0.350 | 0.190 | | 0.270 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.60 | 19.76 | | 0.400 | 0.240 | | 0.320 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.50 | 19.71 | | 0.505 | 0.290 | | 0.395 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.45 | 19.01 | | 0.550 | 0.390 | | 0.470 |

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between 0.1 $\sigma_{max}$ and 0.7 $\sigma_{max}$

| | | ν | $\Delta\sigma$ | $\Delta s$ |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.32 | 0.211 | 0.184338 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.11963 | | |
| 0.7 $\sigma_2$ | 0.55 | 0.41187 | 0.12565 | 0.2 |
| 0.3 $\sigma_2$ | 0.15 | 0.28503 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 244.87 | | | |
| $Ev_2$ | 121.28 | | | |
| Area / Span | 44786 | | | |

| Ev2/Ev1 | 1.69 | | |
|---|---|---|---|

$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

Sett.

MN/M2

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Owner Consultant | Contractor Consultant | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 640 | To | 524 + 760 |
| Taste Date | 28-09-2023 | | |
| Layer level | SUB BALLAST +0.00 | | |

| | |
|---|---|
| Point | 524+715 |

## EQUIPMENT AND TEST PROCEDURE :-

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.762$ m are used.

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Step No | Load No | Load KN | Stress KN/M2 | Dial 1 mm | Dial 2 mm | Dial 3 mm | Set 1 mm | Set 2 mm | Set 3 mm | Avg Set mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.98 | 19.97 | | 0.020 | 0.030 | | 0.025 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.75 | 19.50 | | 0.250 | 0.500 | | 0.375 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.62 | 19.15 | | 0.380 | 0.850 | | 0.615 |
| 4.000 | 53.3 | 17.603 | 0.25 | 19.52 | 18.92 | | 0.480 | 1.080 | | 0.780 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.45 | 18.60 | | 0.550 | 1.400 | | 0.975 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.37 | 18.46 | | 0.630 | 1.540 | | 1.085 |
| 7.000 | 106.8 | 35.325 | 0.50 | 19.20 | 18.30 | | 0.800 | 1.700 | | 1.250 |
| 8.000 | 53.3 | 17.663 | 0.25 | 19.29 | 18.33 | | 0.710 | 1.670 | | 1.190 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.43 | 18.37 | | 0.570 | 1.630 | | 1.100 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.53 | 18.59 | | 0.470 | 1.410 | | 0.940 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.53 | 18.59 | | 0.470 | 1.410 | | 0.940 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.52 | 18.53 | | 0.480 | 1.470 | | 0.975 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.48 | 18.46 | | 0.520 | 1.540 | | 1.030 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.44 | 18.32 | | 0.560 | 1.680 | | 1.120 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.40 | 18.25 | | 0.600 | 1.750 | | 1.175 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.32 | 18.18 | | 0.680 | 1.820 | | 1.250 |

For this calculation $\Delta\sigma$ and $\Delta s$ are usually taken from the load span between $0.3\,\sigma_{max}$ and $0.7\,\sigma_{max}$

| | | k | SS | ds |
|---|---|---|---|---|
| $0.7\,\sigma_1$ | 0.35 | 0.94062 | 0.35582 | 0.2 |
| $0.3\,\sigma_1$ | 0.15 | 0.385 | | |
| $0.7\sigma_2$ | 0.35 | 1.19187 | 0.61688 | 0.2 |
| $0.3\sigma_2$ | 0.15 | 1.01 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 125.34 | | | |
| $Ev_2$ | 247.71 | | | |
| Area [sq.m] | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Poisson's ratio | 0.35 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate generally 0.30 m

MN/M2

Sett.

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

| Owner Consultant | Contractor Consultant | CENTRAL LAB | Contractor | Date |
|---|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 640 | To | 524 + 760 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| | |
|---|---|
| Station | 524+685 |

## EQUIPMENT AND TEST PROCEDURE :-

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D$ = 0.60 m and $D$ = 0.762 m are used

The load is applied in 5 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

Diameter = 300mm

| Loading Steps No | Load Bar | Load kN | Stress MN/M² | Dial 1 mm | Dial 2 mm | Dial 3 mm | Sett. 1 mm | Sett. 2 mm | Sett. 3 mm | Avg Sett. mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.85 | 19.90 | | 0.150 | 0.100 | | 0.125 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.63 | 19.60 | | 0.370 | 0.400 | | 0.385 |
| 9.000 | 34.2 | 11.304 | 0.16 | 19.41 | 19.40 | | 0.590 | 0.600 | | 0.595 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.22 | 19.21 | | 0.780 | 0.790 | | 0.785 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.10 | 19.09 | | 0.900 | 0.960 | | 0.930 |
| 6.000 | 88.8 | 29.673 | 0.42 | 19.01 | 18.84 | | 0.990 | 1.060 | | 1.025 |
| 7.000 | 106.8 | 35.325 | 0.50 | 18.90 | 18.80 | | 1.100 | 1.200 | | 1.150 |
| 8.000 | 53.4 | 17.663 | 0.25 | 18.94 | 18.85 | | 1.060 | 1.150 | | 1.105 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.04 | 18.90 | | 0.960 | 1.100 | | 1.030 |
| 9.000 | 2.1 | 0.707 | 0.01 | 19.17 | 19.11 | | 0.830 | 0.890 | | 0.860 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.17 | 19.11 | | 0.830 | 0.890 | | 0.860 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.15 | 19.07 | | 0.850 | 0.930 | | 0.890 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.13 | 18.97 | | 0.870 | 1.030 | | 0.950 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.08 | 18.93 | | 0.920 | 1.070 | | 0.995 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.00 | 18.87 | | 1.000 | 1.130 | | 1.065 |
| 15.000 | 88.8 | 29.673 | 0.42 | 18.92 | 18.81 | | 1.080 | 1.190 | | 1.135 |

For this calculation $s_0$ and $p_1$ are usually taken from the load span between 0.3 $\sigma_{max}$ and 0.7 $\sigma_{max}$

| | | $s$ | $\Delta S$ | $\Delta\sigma$ |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.35 | 0.81562 | 0.34687 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.58875 | | |
| 0.7 $\sigma_2$ | 0.35 | 1.08056 | 0.49181 | 0.2 |
| 0.3 $\sigma_2$ | 0.15 | 0.82 | | |
| D (mm) | 300 | | | |
| $Ev_1$ | 125.72 | | | |
| $Ev_2$ | 280.28 | | | |
| Area (sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| Ev2/Ev1 | 2.14 | | |

$$E_v = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_v$ = deformation modulus

$D_\sigma$ = load increment

$D_s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

MN/M2

Sett.

| Lab Specialist | Lab Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : Yousef Rajab |
| Sign : | Sign : | Sign : |

| Contractor Consultant | CENTRAL LAB | Contractor | Owner |
|---|---|---|---|

# Plate Load Test Results

| | | | |
|---|---|---|---|
| Company Name | AL MOSTAFA | | |
| Location | 524 + 640 | To | 524 + 760 |
| Taste Date | 1-10-2023 | | |
| Layer level | SUB BALLAST +0.90 | | |

| | |
|---|---|
| Station | 524+685 |

## EQUIPMENT AND TEST PROCEDURE :-

The diameter $D$ of the plate is generally 0.30 m. For very coarse grained material also plates with diameter $D = 0.60$ m and $D = 0.763$ m are used.

The load is applied in 5 load increments of equal size. Under each load step the settlement must come to a noticeable end (< 0.02 mm/minimute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack.

Diameter = 300mm

| Loading Stage No. | Load | Load | Stress | Dial 1 | Dial 2 | Dial 3 | Set 1 | Set 2 | Set 3 | Avg. Settl. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Kn | Kg | kN/M2 | mm | mm | mm | mm | mm | mm | mm |
| 0.000 | 0.0 | 0.000 | 0.00 | 20.00 | 20.00 | | 0.000 | 0.000 | | 0.000 |
| 1.000 | 2.1 | 0.707 | 0.01 | 19.95 | 19.95 | | 0.050 | 0.050 | | 0.050 |
| 2.000 | 17.1 | 5.652 | 0.08 | 19.70 | 19.86 | | 0.300 | 0.140 | | 0.220 |
| 3.000 | 34.2 | 11.304 | 0.16 | 19.60 | 19.52 | | 0.400 | 0.480 | | 0.440 |
| 4.000 | 53.3 | 17.663 | 0.25 | 19.52 | 19.30 | | 0.480 | 0.700 | | 0.565 |
| 5.000 | 70.5 | 23.315 | 0.33 | 19.35 | 19.20 | | 0.650 | 0.800 | | 0.725 |
| 6.000 | 89.8 | 29.673 | 0.42 | 19.25 | 19.07 | | 0.750 | 0.930 | | 0.840 |
| 7.000 | 106.8 | 35.325 | 0.50 | 19.15 | 18.93 | | 0.850 | 1.070 | | 0.960 |
| 8.000 | 53.4 | 17.663 | 0.25 | 19.19 | 18.98 | | 0.820 | 1.020 | | 0.920 |
| 9.000 | 26.7 | 8.831 | 0.12 | 19.21 | 19.04 | | 0.790 | 0.960 | | 0.875 |
| 10.000 | 2.1 | 0.707 | 0.01 | 19.33 | 19.15 | | 0.670 | 0.850 | | 0.760 |
| 11.000 | 17.1 | 5.652 | 0.08 | 19.32 | 19.14 | | 0.680 | 0.860 | | 0.770 |
| 12.000 | 34.2 | 11.304 | 0.16 | 19.26 | 19.07 | | 0.740 | 0.930 | | 0.835 |
| 13.000 | 53.3 | 17.663 | 0.25 | 19.21 | 19.01 | | 0.790 | 0.990 | | 0.890 |
| 14.000 | 70.5 | 23.315 | 0.33 | 19.18 | 18.95 | | 0.820 | 1.050 | | 0.935 |
| 15.000 | 89.8 | 29.673 | 0.42 | 19.15 | 18.91 | | 0.850 | 1.090 | | 0.970 |

For this calculation $\Delta s$ and $\Delta s$ are usually taken from the load span between $0.3\,\sigma_{max}$ and $0.7\,\sigma_{max}$

| | | s | Δs | Δσ |
|---|---|---|---|---|
| 0.7 $\sigma_1$ | 0.21 | 0.735 | 0.3225 | 0.2 |
| 0.3 $\sigma_1$ | 0.15 | 0.41275 | | |
| 0.7 $\sigma_2$ | 0.35 | 0.84278 | 0.18278 | 0.2 |
| 0.3 $\sigma_2$ | 0.13 | 0.79 | | |
| D (mm) | 300 | | | |
| $P\sigma_1$ | 139.27 | | | |
| $P\sigma_2$ | 278.45 | | | |
| Area (Sq.m) | 0.07065 | | | |

| | | | |
|---|---|---|---|
| $P\sigma_2/P\sigma_1$ | 1.99 | | |

$$E_s = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

$E_s$ = deformation modulus

$\Delta\sigma$ = load increment

$\Delta s$ = settlement increment

$D$ = diameter of the plate, generally 0.30 m

MN/M2

Sett.

| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|---|---|---|
| Name : | Name : AHMED HALEEM | Name : |
| Sign : | Sign : | Sign : |

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

وزارة النقل
الهيئة العامة للطرق والكباري والنقل البري

مشروع: أعمال الجسر الترابى والاعمال الصناعية لمشروع القطار الكهربائى السريع
( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح

## محضر تحديد مسافة نقل (الأتربة)

أنه في يوم الأحد الموافق 2024/01/02 وبناءاً على طلب شركة المصطفى للمقاولات لتحديد مسافة نقل الأتربة من محجر (المصرية) على طريق وادي النطرون العلمين للمشروع المذكور أعلاه تم زيارة المحجر من قبل :

1. المهندس / حسن عبدالسلام سليمان — مهندس جيولوجي مكتب د.خالد قنديل
2. المهندس / مصطفى محمد ثابت — مدير مشروع شركة المصطفى للمقاولات

وتبين أن المحجر على مسافة 302.5 كم من منتصف قطاع شركة المصطفى للمقاولات

إحداثي المحجر : N 30° 33' 19.7" E 29° 45' 06.7"

وعلى ذلك تم التوقيع,,,

2. مصطفى محمد ثابت

1. حسن عبدالسلام

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

وزارة النقل
الهيئة العامة للطرق والكباري
والنقل البري

مشروع: أعمال الجسر الترابى والاعمال الصناعية لمشروع القطار الكهربائى السريع
( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح

## محضر تحديد مسافة نقل (طبقة الأساس)

أنه في يوم الأحد الموافق 2024/01/02 وبناءاً على طلب شركة المصطفى للمقاولات لتحديد مسافة نقل طبقة الأساس للمشروع المذكور أعلاه تم زيارة الكسارة من قبل :

1. المهندس / عبدالله سامي — مهندس جيولوجي مكتب د.خالد قنديل
2. المهندس / مصطفى محمد ثابت — مدير مشروع شركة المصطفى للمقاولات

وتبين أن الكسارة على مسافة 233 كم من منتصف قطاع شركة المصطفى للمقاولات

إحداثي الكسارة : N 36° 38′ 33″ E 29° 42′ 28″

وعلى ذلك تم التوقيع,,,

2. مصطفى محمد ثابت

1. عبدالله سامي

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

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والنقل البري

مشروع: أعمال الجسر الترابى والاعمال الصناعية لمشروع القطار الكهربائى السريع
( العين السخنة - العاصمة الادارية - العلمين - مطروح ) قطاع فوكة مطروح

## محضر تحديد مسافة نقل (طبقة التأسيس)

أنه في يوم الأحد الموافق 2024/01/02 وبناءاً على طلب شركة المصطفى للمقاولات لتحديد مسافة نقل طبقة التأسيس للمشروع المذكور أعلاه تم زيارة الكسارة من قبل :

1. المهندس / أحمد أبوزيد — مهندس جيولوجي مكتب د.خالد قنديل
2. المهندس / مصطفى محمد ثابت — مدير مشروع شركة المصطفى للمقاولات

وتبين أن الكسارة على مسافة 83 كم من منتصف قطاع شركة المصطفى للمقاولات

إحداثي الكسارة : N 36° 38′ 33″ E 29° 42′ 28″

وعلى ذلك تم التوقيع,,,

2. مصطفى محمد ثابت

1. أحمد أبوزيد