**عطاء توريد وتنفيذ 6000 متر أنابيب حديدية وقطع ري زراعية وإنشاء خزان توزيع فولاذي 1000 م3 ومحطة ضخ وخزان توازن فولاذي250 م3 في منطقة كفر لاقف -قلقيلية**

**دعوة عطاء**

**السادة المقاولون،**

**الموضوع: مشروع توريد وتنفيذ6000 متر أنابيب حديدية وقطع ري زراعية وإنشاء خزان توزيع فولاذي 1000 م3 ومحطة ضخ وخزان توازن فولاذي250 م3 في منطقة كفر لاقف -قلقيلية**

تحية،

يتشرف مجلس قروي كفر لاقف بدعوتكم للتقدم لعطاء مشروع **الري في منطقة كفر لاقف و** تشمل وثائق العطاء على دفتر العطاء بما يحتويه من دعوة العطاء والشروط العامة للتعاقد والمواصفات الفنية وتعليمات للمقاولين وجداول الكميات وكذلك المخططات.

يجب على المقاول الاطلاع التام على كامل الوثائق وقراءتها جيداً وزيارة موقع العمل والتحقق من الكميات قبل تعبئة دفتر العطاء.

على المتعهد تعبئة نموذج إجابة دعوة العطاء المرفق وتقديم عرضه قبل الساعة ............. يوم \_\_\_\_\_\_\_\_\_\_\_ بتاريخ \_\_\_/\_\_\_/\_\_\_2020 إلى مقر مجلس قروي كفر لاقف . وسوف تفتح العطاءات الساعة ................... يوم \_\_\_\_\_\_\_\_\_\_\_\_\_ بتاريخ \_\_\_/\_\_\_/\_\_\_\_2020 في مقر مجلس قروي كفر لاقف

* ثمن وثائق العطاء200 شيقل غير مستردة.
* **الزياره الميدانيه بتاريخ ......../ /2020 الساعه التاسعة صباحا انطلاقا من مقر مجلس كفر لاقف.**

**ملاحظات :**

* المشروع يشمل تقديم فواتير ضريبية.
* رسوم الإعلان في الصحيفة على من يرسو عليه العطاء.
* لجنة فتح العطاء غير مقيدة بقبول أقل الأسعار ودون إبداء الأسباب.
* يلتزم من يرسو عليه العطاء توفير شهادة خصم مصدر.
* يحق للجنة العطاء تجزئة العطاء حسب ما ترتئيه مناسبا لمصلحة المشروع.
* يجب إرفاق كفالة بنكية أو شيك بنكي مصدق **بقيمة5% من قيمة العطاء** (كفالة دخول عطاء) **وباسم مجلس كفر لاقف** ولن ينظر في أي عطاء ما لم يكن مرفقاً بكفالة دخول العطاء

مع الاحترام،،،

الجزء الأول: تعليمات للمقاولين

**1)** يجب على كل مقاول قراءة دفتر العطاء بالكامل وختم كل صفحة منه.

**2)** يجب تعبئة الجزء الثاني والثالث من دفتر العطاء بالكامل وختمه ولن يقبل أي عطاء ما لم يكن هذان الجزأين معبأين بالكامل.

**3)** يجوز للمقاول الحضور شخصياً أو إرسال من ينوب عنه حين فتح العطاء.

**4)** إذا قل عدد المقاولين المتقدمين لهذه المناقصة عن ثلاثة فانه يحق للمسئولين عن هذا المشروع إعادة طرح العطاء.

**5)** في مرحلة تقييم واختيار المقاول سوف تؤخذ في الحسبان الأمور التالية:

أ- سعر الوحدة في بنود جدول الكميات.

ب- مدة تنفيذ المشروع.

ج- خبرة وقدرة المقاول على التنفيذ استنادا إلى النماذج المرفقة وتوفر الطاقم والمعدات ( يجب تعبئة النماذج عن الخبرات والطاقم الفني والمعدات).

د- برنامج العمل المرفق.

**6) وثائق العطاء:**

سوف تزود وثائق العطاء المنصوص عليها في دعوة العطاء للمقاولين المتقدمين للعطاء و يعتبر ثمن هذه الوثائق والبالغ 200 شيقل غير مستردة.

**7) مكونات العطاء:**

على المقاولين أن يتقدموا لكامل الأشغال الموضحة في العطاء. سوف لن تقبل العروض المقدمة لأجزاء من الأشغال. على المقاولين تقديم عروضهم على النماذج المرفقة وكل الكميات يجب أن تدون كتابة ورقما. وفي حالة التعارض تعتمد الكتابة.

على المقاولين المتقدمين لهذا العطاء تعبئة الوثائق التالية بالخط الأسود كتابة أو طباعة وتوقيعها يدوياً بالحبر.

- صيغة العطاء.

- صيغة الكفالة المالية.

- جداول الكميات.

- شهادة زيارة الموقع.

- نموذج الخبرة والطاقم والمعدات.

- البيانات والمواصفات الفنية للمعدات والقطع والمواد المورده في المشروع

**8) زيارة الموقع وفحص وثائق العطاء:**

على المقاولين المتقدمين لهذا العطاء زيارة الموقع والحصول على كافة المعلومات الضرورية وعلى مسئوليتهم الشخصية. ويجب عليه فحص وثائق العطاء بدقة وان يأخذ بعين الاعتبار أي مخاطر أو مسؤوليات محتملة.يتحمل المقاول كافة تكاليف الاتصالات والزيارات الميدانية والتحضيرات لدخول المناقصة.

**9) الكميات:**

يتالف المشروع من عدة اعمال: ا- انشاء محطة ضخ (بوستر) وخزان توازن سعة 250 متر مكعب بالقرب من بير صير الجوفي. ب- خط ناقل 6" من محطة الضخ في صير باتجاه اراضي كفر لاقف وصولا لخزان التوزيع. ج- خزان توزيع معدني ارضي سعة 1000 متر مكعب د- خطوط توزيع زراعية للاراضي الزراعيه في المنطقة. إن الكميات التقديرية لمختلف بنود الأشغال مثبتة في جدول الكميات المرفق ضمن وثائق العطاء. تعتبر هذه الكميات غير ثابتة وخاضعة للتغير ولا يحق للمقاول المطالبة بزيادة أسعار الوحدة إذا ما حصل واختلفت الكميات سواءً زيادة أو نقصانا مها كانت نسبة التغير وحتى (25%). ويعتبر سعر الوحدة المقدم من قبل المقاول مع الكميات الفعلية المقاسة بحضور المقاول هي الأساس في تحديد الدفعات والحساب النهائي للأشغال.

**10) برنامج العمل:**

على كل مقاول تقديم تخطيط لسير العمل وبرنامج لتنفيذ كافة الأشغال المتضمنة في العطاء. سوف يعتمد برنامج التنفيذ كأحد البنود الأساسية عند تقييم العروض وإحالة العطاء.

كذلك على المقاول تقديم تقارير يومية عن سير العمل موقعة من قبله ويتم المصادقة عليها من قبل مراقب المجلس القروي ومهندس الاشراف. كما وعليه تقديم مقترحات التنفيذ ( Shop Drawings ) ويتم تعديلها أو الموافقة عليها من قبل مهندس الاشراف.

**11) التجهيزات والآليات:**

على كل متقدم لهذا العطاء أن يقدم جدولاً بالتجهيزات والآليات الرئيسية التي سيستخدمها في هذا المشروع ونوع عملها، عمرها وعددها.

**12) الأشخاص المنفذين:**

على المقاول تقديم قائمة بالأشخاص ذوي الكفاءة والذي يقترح المقاول تنفيذ الأعمال بواسطتهم أو تحت إدارتهم ويرفق تسجيلاً لخبراتهم ومؤهلاتهم.

**13) الكفالات البنكية:**

يقوم المقاول بتقديم كفالة بنكية بقيمة 5% من قيمة العطاء سارية المفعول لمدة ثلاثة شهور(كفالة دخول عطاء) تعاد إليه بعد فتح العطاء إذا لم يرسى عليه وإذا تم إرساء العطاء عليه فانه يقوم باستبدال هذه الكفالة بنكية أخرى (حسن تنفيذ) تعادل 10% من قيمة العطاء صادرة من بنك معتمد سارية المفعول لمدة تنفيذ العطاء من تاريخ توقيع الاتفاقية على أن يعاد 5% من قيمة الكفالة بعد الانتهاء من تنفيذ الأعمال المتفق عليها وتعاد قيمة التامين المتبقية (5%) بعد انتهاء مدة الصيانة والمحددة بمدة عام من تاريخ الاستلام النهائي للمشروع.

إذا خرق المقاول شرط من شروط العقد عليه إصلاحه أو تعويضه وإذا لم يتمكن من إصلاحه يوجه إليه صاحب العمل كتابا في فترة زمنية أقصاها يومين لإصلاح الأضرار وإذا رفض يتم الاحتفاظ بقيمة كفالة الضمان لتغطية أي ضرر.

**14) التأمينات:**

في حالة ما تم إرساء العطاء يجب إرفاق تأمينات عمل سارية المفعول (لمدة تنفيذ المشروع) خاصة بالمشروع, وتشمل طاقم المشروع وبما فيهم مهندس المشروع من مجلس قروي كفر لاقف وجميع العمال المهرة وغير المهرة العاملين في المشروع. كما يشمل التامين الطرف الثالث لأي حوادث قد تنشا أثناء تنفيذ المشروع. كما يؤمن المقاول معدات العمل وبما في ذلك الآليات أو الروافع أو أي معدات ميكانيكية أو كهربائية قد تسبب في عمل حوادث للعاملين. يتحمل المقاول أي اضرار قد تحدث لممتلكات الغير وعلى المقاول تصليح أي اضرار واعادة الوضع كما كان عليه قبل تنفيذ المشروع.

**15) خبرات المقاول:**

على المقاول تقديم وصف لخبراته وأعماله خلال الخمس سنوات الماضية ويجب أن تتضمن هذه لمعلومات:

- اسم الجهة صاحبة العمل وعنوانها.

- وصف الأعمال المنجزة.

- قيمة العطاءات المنفذة.

**16) التسعير:**

جدول الكميات يجب أن يكون مسعر بالدولار (والعطاء يشمل ضريبة القيمة المضافة). ويتحمل مقدم العطاء أي تكاليف او مصروفات تتعلق بحمع المعلومات او باعداد وتسليم العطاء. وعلى المقاول زيارة الموقع ومعاينة كافة التفاصيل الفنية والاعمال المطلوبة والتحضيرات اللازمة لتنفيذ المشروع خصوصا انه هناك عدة اعمال مطلوبة ومحملة على العطاء بشكل عام او ضمن تسعيرة البنود والتي تسهل الوصول لمختلف مواقع المشروع وتنفيذه. ويمكن للمقاول الاستفسار عن أي اعمال او بنود قبل تسعير وتقديم العطاء. ويمكن تقديم أي استفسار قبل ثلاثة ايام على الاقل من تقديم العطاء وسيتم الرد على هذه الاستفسارات قبل يومين من تقديم العطاء وتكون المراسلات في كل الحلالات بشكل خطي. ويمكن لمالك المشروع تعديل أي مواصفات او بنود في العطاء قبل التسليم ويتم تبيلغ المقاولين بهذه التغيرات قبل يومين من تسليم العطاء

**17) تعديل الأخطاء:**

في حالة وجود خطا في مجموع تكلفة أي بند من بنود العطاء فسوف يعتمد سعر الوحدة المدون ويعتمد المجموع المصحح كمجموع نهائي لهذا البند ويقدر المبلغ الإجمالي حسب هذا التصحيح. وفي حالة وجود تصحيح أو قشط من قبل المقاول، يجب بعد التعديل أن يوقع ويختم من قبله.

**18) تسليم وتقييم العروض:**

توقع وثائق العطاء في كل صفحة وتسلم في مغلف مغلق مدون عليه اسم المشروع مرفقاً بعرض المقاول وكذلك الرسومات. على المقاول تسليم عرضه باليد وفي المقر المعلن عنه، بتاريخ أقصاه الساعة واليوم المحددين في دعوة العطاء. سوف لن ينظر في أي عرض لم يستوفي الشروط الموضحة. يجوز لمقدمي العطاءات تعديل أو سحب عطاءاتهم بإخطار كتابي قبل الموعد النهائي المذكور أعلاه. قبل الموعد النهائي للتقديم. يجب إعداد أي إخطار بالتعديل أو السحب ، وختمه ، وتمييزه ، وتقديمه ، كما يجب وضع علامة "تعديل" أو "سحب" على الظرف. يتم تقيم العروض المستوفيه لشروط تقديم العطاء فنيا وماليا. والعرض الفائز الذي يحقق افضل عرض مستوفي الشروط ويحقق اعلى درجات التقييم الفني والمالي. وبحق للجنة فتح العطاء اعادة طرح العطاء في حال لم يحقق أي من العطاءات المقدمة الشروط والمواصفات المطلوبة ولجنة العطاء غير ملزمة بقيول اقل الاسعار. سوف لن ينظر في أي عرض يحتوي على تحفظات على أسعار أو وثائق. سوف تعتمد العطاءات المدققة وبشكل واضح ورسمي أينما تطلبت وثائق العطاء ذلك.

**19) توقيع العرض:**

- إذا كان المتقدم شخص فيجب عليه كتابة اسمه كاملاً ووضع خاتمه.

- إذا كان المتقدمون شركاء فيجب توقيع أحد الشركاء مع إرفاق وثيقة رسمية تؤكد صلاحيته وتخويله في التوقيع نيابة عن شريكه كما يجب وضع اسم وعنوان شريكه.

- إذا كان المتقدمون شركات متعاونة معاً فيجب التوقيع من قبل مديري هذه الشركات وكذلك إرفاق وثائق رسمية مخولة لهم بالتوقيع.

- المقاول الذي ترشحه لجنة فتح العطاء كفائر عليه تحضير كافة البيانات والمعلومات المطلوبة منه قبل توقيع الاتفاقية (وتشمل البيانات الفنية، والمالية المطلوبة).

**20) رفض العطاء:**

يحتفظ صاحب العمل بحق رفض أي عرض مقدم، ليس ملزماً بقبول اقل الأسعار. سوف يأخذ صاحب العمل عدة عوامل عند تقييم العروض تؤثر على نوعية العمل وكيفية التنفيذ (سوف يتم رفض أي عرض لم يرفق معه كفالة بنكية أو شيك مصدق لدخول العطاء).

**21) تحليل الأسعار:**

يحتفظ صاحب العمل بحق طلب تفسير وتحليل للأسعار المقدمة من قبل المقاول إذا ارتأى ارتفاع أو انخفاض في سعر معين وعلى المقاول الاستجابة لهذا الطلب وتقديم التحليل المطلوب.

**22) غرامات:**

يلتزم المقاول بإنهاء العمل خلال المدة المتفق عليها وإذا فشل المقاول بتنفيذ العمل في هذه المدة فانه يتعهد بدفع غرامه مقدارها ( 200 دولار) لكل يوم تأخير. يحتسب المبلغ المقتطع من أول يوم تأخير دون إشعار. يستطيع المقاول تقديم تبريراً لتأخيره إذا كان يتعلق بإجراء اتخذه المشغل في مدة أقصاها (3) يوم من تاريخ هذا الإجراء وإذا لم يتم تقديم هذا التبرير خطياً خلال المدة المذكورة أعلاه لا يعتبر أي سبب للتأخير.

**23) آلية الدفع:**

1. ليست هناك دفعات تحضيرية للمشروع.
2. يتم الدفع عن الأعمال بعد تقديم مطالبة مالية وفواتير ضريبية بالمواد المشتراة والأعمال المنجزة بذلك وموافقة مهندس المشروع على الأعمال من حيث مطابقتها للمواصفات الفنية والكميات المنفذة، ويتم دفع نسبة 90% من الدفعة في غضون شهر من تاريخ تقديم الدفعة.

**24)** الاحتفاظ بسجل للدوام اليومي للعمال يتم اعتماده يوميا من المهندس المشرف على المشروع. كما يقدم المقاول خطة عمل أسبوعية يوضح فيها موقع العمل ونوع النشاط والآليات والعمالة المستخدمة. وفي حال عمل أي تعديل على الخطة فعلى المقاول إشعار المهندس المشرف بالتعديل قبل موعد التعديل بيومين على الأقل.

**25)** يقوم المقاول بعمل لافتة في موقع بئر المشروع على حسب النموذج المعد لهذه الغاية وتكون تكاليف عمل هذه اللافته محملة ضمن أسعار وحدات المشروع.

**26)** على المقاول تقديم صور فوتوغرافية وأخرى رقمية لكافة مراحل العمل في المشروع.

**27)** على المقاول العلم بأنه سيتم فرض غرامة مالية بسبب نقص إجراءات السلامة من إشارات تحذيرية و غيره بواقع 100 دولار يوميا. ويتحمل كامل المسؤولية عن سلامة العمال والموظفين والمواد والآليات اللازمة لتنفيذ المشروع ولا يعتبر فريق عمل المشروع مسؤلا في حال حدوث خطا مقصود أو عرضي في أثناء تنفيذ المشروع ولا يحق المطالبة بتعويضات مالية أو عينية.

**28)** أسعار البنود المختلفة في جدول الكميات تتضمن أعمال التنظيف من بقايا العمل وإصلاح أي خراب ناتج عن أعمال المشروع وإرجاع كل شيء إلى سابق عهده و عليه يكون المقاول متحملا لكافة المسؤوليات التي تنتج عن الأضرار بالمنشات أو الممتلكات ضمن محيط منطقة العمل .

**29)** على المقاول البدء بتنفيذ المشروع بعد توقيع العقد مباشرة مع العلم بأن فترة تنفيذ المشروع هي **120 يوما تقويميا**. وتكون أوقات وأيام العمل المسموح بها منسجمة مع أوقات الدوام والعطل الرسمية لمجلس قروي كفر لاقف وفي حال رغب المقاول بالعمل خارج هذه الأوقات المحددة فان عليه التنسيق واخذ الموافقة المسبقة من المهندس المشرف، على أن لا يشمل العمل في هذه الأوقات بدء عملية الفك أو التركيب المضخات واعمال صب الباطون أو بدء التشغيل للمشروع لأول مرة. وبعد الانتهاء من تجربة وتشغيل محطة الضخ يقدم المقاول تقرير فني بالنتائج لأول عشرة ساعات تشغيل وتقرير آخر بعد انتهاء 100 ساعة من التشغيل يوضح فيها كامل المعلومات الميكانيكية والكهربائية المتعلقة باستهلاك الطاقة ، والإنتاجية من الأمتار المكعبة في الساعة.

**30)** الشركة المتقدمة للمشروع يجب أن تكون تحمل شهادة تسجيل وتصنيف سارية المفعول من لجنة التصنيف الوطنية في قطاع المياه والمجاري.

# نماذج العطاء

تأهيل المورد

اسم الشركة/ المورد:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

العنوان :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

هاتف: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ فاكس:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

الشخص المسؤول :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ المركز :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**اولا- خبرة الشركة**

**يرجى ذكر المشاريع التي تم تنفيذها بمجال (توريد ولحام انابيب معدنية جديدة وقطع ري زراعية وانشاء خزانات فولاذية ومحطات ضخ لمياه الري الزراعية ).**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| موقع المشروع | **(وصف للمشروع)** | سنة تنفيذ المشروع | اسم المؤسسة المشرفة على تنفيذ المشروع | القيمة الاجمالية للعمل | جهة الاتصال من قبل المؤسسة المشرفة على تنفيذ المشروع |
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شهادات خبرة العمال

**يرجى ذكر اسماء العاملين بمجال العطاء:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| اسم الرباعي | نوع العمل | موقع المشروع | سنة تنفيذ المشروع | المؤسسة المشرفة  على تنفيذ المشروع | جهة الاتصال من قبل المؤسسة المشرفة  على تنفيذ المشروع | ملاحظات |
|  |  |  |  |  |  |  |
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**الجهاز الفني:**

**يرجى ذكر الطاقم الفني والاداري والمالي لشركتكم :**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| رقم | الاسم الرباعي | المركز | المؤهل | سنوات الخبرة |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
| **5** |  |  |  |  |

المعدات و الأدوات التي تملكها الشركة:

1- 2-

3- 4-

5- 6-

7- 8-

المعدات المستأجرة ( يرفق عقد الإيجار ):

1- 2-

-3

أقر انا صاحب الشركة المتقدمه للعطاء بأن كافة المعلومات المتعلقة بخبرة الشركة والسائقين والعاملين صحيحه واتحمل مسؤولية اي خلل في هذه المعلومات .

**تاريخ تقديم السيرة الذاتية: .................................................**

**ملاحظة : يجب ارفاق كافة المستندات التي تتعلق بأهلية وخبرة المقاول الفنية والمالية على تنفيذ الاعمال**

**و ميزانيات مالية للاعوام 3 الماضية , و السيرة الذاتية للشركة والعاملين فيها .**

**التوقيع مع ختم الشركة**

:.............................................................................................

كفالة عطاء

التاريخ :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**إلى السادة: مجلس قروي كفر لاقف**

يسرنا إعلامكم بأن مصرفنا\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/فرع\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ يقدم عن المورد \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ كفالة مالية وقدرها (بالأرقام ):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (كتابة):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (دولار)، وذلك ككفالة دخول للعطاء المقدم من قبله لكم بخصوص ........................................................

ولتأمين قيامه بالتزاماته كمناقص متقدم للعطاء المذكور، وفقاً للشروط المتعلقة بذلك والتي قدم عطائه المذكور على أساسها.

إنّ هذه الكفالة سارية المفعول لمدة (90) يوماً من تاريخ صدورها أو لحين توقيع الاتفاقية مع أحد الموردين المتقدمين للعطاء.

ونتعهد بأن نصرف المبلغ المذكور أعلاه عند أول طلب منكم بذلك, بصرف النظر عن الأسباب الداعية لهذا الطلب أو أية اعتراضات من قبل المورد المذكور.

المصرف\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ فرع: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

توقيع المفوض بالتوقيع: الاسم:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ التوقيع :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ختم المصرف:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**اقــــــــــــــــــــــــــــــــــــرار**

أقر انا صاحب شركة .................................................. بأن كافة المعلومات أعلاه في نموذج العطاء صحيحة وفي حال تم اكتشاف أي خلل عند التنفيذ من قبل مجلس كفر لاقف او من يمثله لا يحق لي المطالبة بأي مبالغ مالية تترتب على ذلك.

**اسم مقدم العطاء الرباعي:................................................**

**رقم الهوية: .............................................................**

**العنوان:..................................................................**

**رقم الهاتف:................................ ............................**

**تاريخ تقديم العطاء:......................................................**

**التوقيع مع ختم الشركة :.................................................**

**المرفقات المطلوبة بالعطاء**

1. وثائق العطاء الاصلية بملف مغلق ومختوم بختم مقدم العطاء
2. كفالة دخول عطاء بقيمة 5% من قيمة العطاء تسري لغاية 90 يوما بدءا من تاريخ فتح العطاء .
3. نسخ أصلية لوثائق تحدد الوضع القانوني، ومكان التسجيل، ومكان عمل مقدم العطاء الأساسي، ووكالة رسمية للموقع على العطاء لإلزام مقدم العطاء.
4. القيمة الإجمالية للأعمال التي أنجزت في السنوات الثلاث الماضية.
5. الخبرة في تنفيذ أشغال مماثلة في الطبيعة والحجم في السنوات الثلاث الماضية وتفاصيل كل عمل لا زال قيد التنفيذ أو متعاقد عليه؛ والعملاء الذين يمكن الاتصال بهم للحصول على معلومات إضافية حول هذه العقود.
6. قائمة بالمعدات الرئيسية المقترحة لتنفيذ العقد.
7. مؤهلات وخبرات العاملين الرئيسيين في إدارة الموقع والتقنيين المقترحين في العقد.
8. تقارير حول الوضع المالي لمقدم العطاء مثل بيانات الربح والخسارة وتقارير الحسابات للسنوات الثلاث الماضية.
9. دليل على توفر رأس مال العامل لهذا العقد (التسهيلات الائتمانية المتاحة والموارد المالية المتوفرة الأخرى).
10. التفويض بمراجعة مصارف مقدم العطاء.
11. معلومات حول أية دعاوى قضائية حالية أو خلال الثلاث سنوات الماضية، متورط بها مقدم العطاء، أو كان، أطرافها المعنية المبالغ المختلف عليها والإحالات.
12. [اية وثائق تتطلبها لجنة فتح العطاء]
13. خصم المصدر ساري المفعول.

نموذج امر مباشرة

**التاريخ :.....................**

**إلى : .................................**

**من : مجلس قروي كفر لاقف**

**الموضوع : امر مباشرة بالعمل**

بالاستناد للاتفاقية الموقعة من طرفنا معكم بخصوص عطاء رقم **توريد وتنفيذ 6000 متر أنابيب زراعية وخزانات معدنية ومحطة ضخ زراعية لموقع كفر لاقف محافظة قلقيلية** ووفقاً للعطاء المقدم من قبلكم والموافق عليه من قبل لجنة العطاءات، وبالتقيد التام بكافة المواصفات الفنية وجداول الكميات، فإننا نصدر إليكم أمر المباشرة ببدء العمل في المواقع )...................) ابتداء من تاريخ ..................... وانهاء العمل بالمواقع المتفق عليها خلال (................) أيام تقويمية ابتداءً من التاريخ المذكور أعلاه.

**وتفضلوا بقبول فائق الاحترام والتقدير.**

**مجلس قروي كفر لاقف**

نموذج اتفاقية

**فريق أول: مجلس قروي كفر لاقف ممثل** **برئيس المجلس**

**فريق ثاني:** ............................................المحترمين

حيث أن الفريق الأول يقوم ....................................,وضمن إطار هذا المشروع يرغب في  **توريد وتنفيذ 6000 متر أنابيب زراعية وخزانات معدنية ومحطة ضخ زراعية لموقع كفر لاقف محافظة قلقيلية . وذلك** بموجب مواصفات فنية محددة عرضها بتفصيل بعطاء معلن للموردين.

* وحيث أن الفريق الثاني يصرح بأنه شركة/مورد مرخص/ة بموجب شهادة تسجيل رسمية تحمل تسجيل ضرائبي رقم ........................
* وحيث أن الفريق الثاني يصرح بأنه يمتلك الخبرات الفنية والمقدرة المالية اللازمة لتنفيذ الاعمال الواردة في وثائق العطاء للمشروع المذكور.
* وحيث أن الفريق الثاني قد تقدم بعرض لتنفيذ هذا العطاء ومرفق لهذه الاتفاقية ويشكل جزءا لا يتجزءا منها.
* وحيث أن الفريق الأول قد أرسى العطاء على الفريق الثاني بموجب قرار الإحالة الصادر عن لجنة عطاءات المشروع المذكور بتاريخ................وبمبلغ إجمالي قدره ..............................دولارا امريكيا شامل الضريبة الصفرية.

فقد اتفق الفريقان على ما يلي من الشروط و البنود:

1. تعتبر مقدمة هذه الاتفاقية جزءا لا يتجزأ منها.
2. تعتبر كافة المرفقات والملحقات بهذه الاتفاقية جزءا لا يتجزأ منها.
3. يتعهد الفريق الثاني بتنفيذ الاعمال الواردة في وثائق العطاء للمشروع المذكور وفقا للمواصفات الفنية المدرجة في دفتر العطاء الذي قدم عرضه استناداً له.
4. يقر الفريق الثاني بأنه قرأ وتفهم كافة وثائق العطاء المرفقة لهذه الاتفاقية وانه قام بالتوقيع عليها تأكيداً منه بذلك، و يتعهد بالتقيد التام بكافة ما ورد فيها.
5. يقر الفريق الثاني بأنه ملتزم بكل ما جاء في إجابته على دعوة العطاء المرفقة لهذه الاتفاقية.
6. يتعهد الفريق الثاني بالالتزام والتقيد التام بكافة البنود والمواصفات التي وردت في عرضه لتنفيذ العطاء.
7. يتعهد الفريق الثاني بإحضار المواد الواردة في العطاء إلى المواقع التي يحددها الفريق الأول وعلى نفقته الخاصة وتحت مسؤوليته المطلقة وذلك بموجب مواصفات وشروط وتعليمات دفتر العطاء وجدول الكميات.
8. يتعهد الفريق الثاني بعدم المباشرة ببدء العمل في اعمال التوريد والتنفيذ إلا بعد الحصول على موافقة خطية من الفريق الأول واستلام أمر المباشرة بالعمل ، وخلافا لذلك يقوم الفريق الثاني بإزالة كل ما تم انجازه إذا ما طلب منه ذلك وعلى نفقته الخاصة.
9. الفريق الثاني مسئول مسؤولية مطلقة عن كافة شروط السلامة العامة والأمان سواء للعاملين معه أو المتواجدين في موقع عمل الاليات. ولا يحق له مطالبة الفريق الأول بأي تعويضات أو أضرار من اعمال التوريد والتنفيذ لبنود المشروع.
10. اتفق الفريقان على أن تكون القيمة المالية لاتفاقية ............................دولارا امريكيا شاملة للضريبة الصفرية وشاملة للمواد الضرورية المستخدمة وأجرة العمل والمعدات والنقل وغيرها من أعمال الإعداد والتحضير.
11. الفريق الثاني مسئول مسؤولية مطلقة عن جودة وسلامة العمل ومطابقتها للمواصفات الفنية والكميات المدرجة في العطاء المذكور، ويتحمل كافة التبعات المالية والقانونية لأي خلل بما في ذلك إزالة أي اعمال منفذه إذا اقتضى ألأمر وتعويض الضرر والعطل الناشئ من ذلك.
12. يعتبر استلام أي من مندوبين الفريق الأول بمثابة إقرار أولي، ولا يعني ذلك بأي حال من الأحوال إقرارا بالموافقة على سلامة وصحة الكميات والمواصفات، طالما لم يدعم ذلك ويقترن بتوقيع المشرف على المشروع والمعين من قبل الفريق الأول.
13. يتعهد الفريق الثاني بإنهاء كافة الأعمال خلال فترة**............ يوم** تقويميا بدءا من تاريخ صدور واستلام أمر المباشرة بالتوريد.
14. يتعهد الفريق الثاني بوضع المواد التي يتم استلامها من قبل لجنة الفحص والاستلام المنتدبة من قبل الفريق الأول في مكان واحد قبل نقلها لمواقع التوريد المتفق عليها
15. يتعهد الفريق الثاني بإزالة المواد التي يتم رفضها من قبل لجنة الفحص والاستلام لعدم مطابقتها للمواصفات. وعلى المورد توفير بدائل لها وتوافق عليها لجنة الفحص والاستلام خلال مدة ستة أيام.
16. في حال عدم التقيد بالتنفيذ أو في حال التأخير في التوريد يحق للفريق الأول سحب قيمة كفالة العطاء مباشرة ودون حاجة للرجوع للفريق الثاني أو موافقته على ذلك.
17. يقوم الفريق الأول بدفع التزاماته المالية للفريق الثاني بموجب هذه الاتفاقية على النحو التالي:
18. تصرف الدفعات المستحقة من قبل الفريق الأول كما هو منصوص عليها بالعطاء، وبالتحديد بعد شهر كحد أقصى من تاريخ تقديم المورد للمطالبة المالية وبعد موافقة مجلس كفر لاقف وتوفر النقود في حسابه لخاص بالمشروع مدعمة بالوثائق التالية:
19. بيان تفصيلي للفاتورة يوضح المواد الموردة والمنجزة وكمياتها وأسعارها ومبالغها الإجمالية.
20. كتاب الاستلام النهائي الموقع من لجنة الاستلام يقر بمطابقة المواد الموردة والأعمال المنجزة للمواصفات الفنية المنصوص عليها بالعطاء.
21. صورة عن اتفاقية العمل الموقعة بين الفريقين.
22. أي نقص في هذه الوثائق أو في التوقيعات او اية اوراق يطلبها مدير المشروع كمتطلب للمشروع يمنح الفريق الأول الحق في رفضها وإعادتها للشركة المنفذة لإكمالها دون اعتبار ذلك تأخيرا من جانبه بصرف الدفعة.
23. يحق للفريق الأول زيادة بنود العطاء أو تقليصها بنفس الأسعار حتى نسبة25% من قيمة العطاء وبعد ذلك يتم زيادة البنود أو تقليصها فقط بموافقة الفريقين.
24. يحق للفريق الأول إجراء اختبارات فنية على المواد التي تم توريدها وترفض أية مواد غير مطابقة للمواصفات و الفحوصات وتكون على حساب الفريق الثاني.
25. يحال أي خلاف بموجب هذه الاتفاقية للتحكيم الإلزامي أولا.

و بناءا على ما ذكر أعلاه فقد جرى توقيع هذه الاتفاقية وإبرامها هذا اليوم \_\_\_\_\_\_\_\_\_\_\_\_ الموافق \_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| **فريق أول** | **فريق ثاني** |
| الاسم: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | الاسم: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| التوقيع: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | التوقيع: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| الختم: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | الختم: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**إجابة دعوة عطاء**

**السادة / مجلس قروي كفر لاقف**

أنا الموقع أدناه المتعهد \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ قرأت بإمعان المواصفات الفنية وجداول الكميات وأطلعت على المخططات والرسومات الخاصة بالمناقصة وأقر بأنني فهمت الوثائق جميعها. وقمت بزيارة الموقع وأطلعت على إمكانية العمل وبناءاً على ما سبق أسندت عطائي هذا.

أتعهد بأن أنفذ كامل الأعمال المنصوص عليها بموجب هذه الوثائق وبالأسعار المسجلة في جدول الكميات حسب المواصفات والشروط والمخططات.

قيمة العطاء شاملة جميع أنواع الضرائب بالأرقام \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_، بالحروف \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

أتعهد بإنجاز العمل خلال (**مائة وعشرون يوما تقويميا)** من أمر المباشرة بالعمل. تعتبر أسعاري شاملة لضريبة القيمة المضافة أو أية ضرائب أخرى مستحقة. قيمة العطاء بالدولار غير خاضعة لجدول غلاء المعيشة أو أية اختلافات في أسعار العملة أو المواد.

في حالة عدم إنجاز العمل في الفترة المذكورة أتعهد بدفع غرامة قدرها (**200 دولار يوميا**) عن كل يوم تأخير.

أرفق كفالة بنكية مصدقة / شيك بنكي مصدق بقيمة \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

تعتبر هذه كفالة لتنفيذ عرضي وفي حالة عدم التزامي الكامل ببنود العرض فمن حقكم مصادرة هذا المبلغ في حالة إحالة العطاء علي.

أتعهد بتنفيذ أعمال التصليحات وأعمال الصيانة لمدة سنة من تاريخ تسليم المشروع وان أرفق كفالة بنكية بقيمة 5 % من تكلفة المشروع الحقيقية عند انتهاء جميع الأعمال تكون كفالة صيانة للأعمال التي تم تنفيذها.

**التاريخ**  **توقيع المتعهد و الختم الرسمي**

**المواصفات الفنية**

**The specifications and bill of quantities were used for construction of agricultural water supply project. The unit price in any item in the tables below must include the following notes and conditions as follows:**

* The exact lengths of the required pipes, the exact number of the required fittings and the exact quantities of any other materials will be determined during the implementation of the works. The water supply pipes will partially cover the community lands; therefore, the pipes exact locations will be determined during the field visit.
* The prices of the new pipes and works that will includes (supply, distribution, installation) and include all the costs of all types of materials and all works as man or machines works. This should include all works materials that are necessary to carry on the connections on the water network and connect the pipes and fittings to the farms connections. During the field visit, the contractors will be notified on the locations of these pipes.
* The project shall be implemented according to PWA general technical specification for water supply system 1999, and pipes specifications as ISO 4435, Ps 9 -2011.
* Standards specified in these Specifications shall be of the latest editions or shall be according to standards and references which are equivalent
* The requirements of the latest editions of Standard sand References to be taken into consideration without contradiction with these mentioned in the technical specifications.
* For the equivalent standards, certificate of equivalence issued by Palestine Standards Institution (PSI) should be submitted by the contractor at his own expense.
* All the works should be done by coordination with the Kufr Laqif Council and any relevant institution, Submission of shop drawing to be approved by the supervisor engineer before starting any work activity.
* All the works should be include repair any damage of any service at full satisfaction of relevant Contracting Authority, Restoring the existing surface to original status and approval of the Engineer, Testing and flushing of the new pipeline.
* The price of pipes and fittings installation includes the restoration of the site conditions along the route of all pipelines (as before excavation concrete, asphalt not let than 6 cm thickness, stones.....etc) for any type of soil for off-roads sewer pipe lines routes, including those pipe lines between parcel borders. The unit price for pipes or fittings installation must includes removal of soil layers, debris, rocks, wall segments or any obstacles (e.g., loose stonewall (Salasel)) and moving the excavated unwanted material outside community to an approved location for dump civil construction works, all according to specifications and as directed by the Engineer. (Note: whenever is needed, the contractor must build the loose stonewall to its original shape in addition to suitable excavated materials is to be used for embankment).
* The price of pipes and fittings installation includes the restoration of the existing, asphalt roads, carriage ways, sidewalks, dirt roads or existing base coarse on shoulders and where pipes routes are or crossed by pipes or chambers, including the provision of new base coarse layer to the original profile but not less than 25 cm thick for base coarse, including material tests, compaction according to GTS complete to its original profile. The asphalt layer must be 6 cm minimum, and underlain by a prime coat at rate of 1 kg/m2. The price of installation includes the disposal of surplus material as directed by the supervisor engineer and according to the PWA- GTS specifications.
* The wining contractor should submit a program of his work capacity based on the available staff and equipments. The contractor should not open more trenches and lengths that exceed his work capacity more than 2-days ahead. The winning contractor should do all works during the work hours of the supervisor engineer. No backfilling or casting concrete or opening new trenches, or taking test samples, locating pipes and fittings without the approval of the supervisor engineer and acceptance of excuses to carry on any these works without prior approval and the winning contractor will bear the costs to redo the work even it encounters the removal of cast reinforced concrete. The wining contractor should immediately clean the site of work from any excess materials to approved locations. The price of the pipes supply and installation includes the water pipes tests including the Pressure Test. The winning contractor must provide to the site of work all tools and equipment and for performing pressure testing on completed lines (min 12- 15 bars). The pressure loss after commencing test should not exceed max 1 bar in 6-hours.
* Supply and Installing a new pipes, fittings, steel sheets, Electrical Control Panel, as described in the specifications and The BOQ including all needed accessories and instruments that may be needed according to the Engineer

**The total price in this tender includes all the costs to carry on the following works (even if they are not mentioned in BoQ items.**

* Carry out pump unit miscellaneous civil works as in the BOQ.
* Submit as built drawings for implemented pipelines and other works
* Carry out pipeline installations from the existing irrigation well site outlet pipeline and the across the road until reaching the distribution tank including opening or widening or adding base course to access the roads
* All necessary works to carry the main connection and for all types of fittings between the water source (groundwater well) and the balance tank /booster pump site.
* Construct the inlet and outlet, and washout manholes for main connections for the balance tank and distribution tank.
* Installing all fitting and make all connections according to the attached BOQ and drawings.
* The price for this tender includes supplying, transporting and unloading in the site of work and anywhere along pipeline route. This includes the tanks’ locations and booster pump. The types of works includes opening new roads widening existing roads or treatment of sub grade or laying basecourse to enable movements of machines as tractor or any vehicle or any other works to accomplish all pipes works and tanks works.

**Terms of Executions – Commitments of Works**

* 1.1 The Contractor shall commence work within 3 (three) days from the date of the start-up order.
* 1.2 The Contractor shall execute and complete the Works and in accordance with generally accepted construction practices, observing all local standards and implementing all regulations in force. The Contractor guarantees that the principles and methods of construction and the materials used are suitable for the local conditions.
* 1.3 The Contractor shall supply booster pump and all the pipes and equipment and fittings needed to the implementation of works according to the tender documents.
* 1.4 The Contractor shall supply all needed materials, coordinating with the supervisor engineer and according the specifications mentioned in the tender documents.
* 1.5 The Contractor shall supply and assemble the valves and needed parts according the specifications mentioned in the tender documents and according the directions of supervising engineers.
* 1.6 All the goods and supplies purchased for the implementation of the works must be new and renewed.
* 1.7 The Contractor will receive all the work instructions from the supervising engineer.
* 1.8 Before proceeding with the order of the needed materials, the Contractor shall get a written approval from the supervising engineers.
* 1.9 All fittings and equipments must be subject to in site testing and approved in writing by supervising engineer. The supervising engineer will make sure that all the fittings and equipment match with the specifications agreed in this contract, then they will issue a written approval.
* 1.10 The Contractor shall be responsible of substituting any part or material, or disjoin and assemble other parts, if these are not conforming to the specifications stated in this contract.
* 1.11 The Contractor shall complete all works including testing and operating all parts of the project. The Contractor shall check and operate the pump and the control panel for all possible modes of operation.
* 1.12 The Contractor will complete all works in all parts and he shall not leave any parts not achieved.
* 1.13 The Contractor shall submit a weekly plan of activities and locations in which he will work.
* 1.14 The Contractor shall observe that there are working locations and will have to prepare access the arrival and distribution of materials and workers to the project's location.
* 1.15 The Contractor shall document (photos, and/or video films) all works phases - before, during and after finishing the works - in all locations by photographic pictures.
* 1.16 The Contractor shall be responsible of guarding and safety the materials and location during the implementation process.
* 1.17 The Contractor shall clean and remove all rubbishes and transfer it to the suitable place out of project location.
* 1.18 The Contractor shall prepare and fix logo panel in project locations according the mentioned specifications in agreement conditions of tender documents (see. Visibility Panels).

###### **The Electrical Mechanical Works :-**

1. Supplying, delivering, and installing for Kufr Laqif work site an electrical full automatic control panel. It include inverter (with minimum harmonics) with water proof electrical board (control panel) to drive the motor of the booster pumping unit and shall be used to start, run, stop, protect and control the above mentioned motor . The electrical board shall be made of steel frame 2.0 mm, thermal paint and insulation IP66 of three compartments.
2. The main board shall be constructed in a form of three cabinets separated, located together against the wall and anchored to the floor by concrete foundation. The first cabinet for utility's Electric meter, and the second for pump electrical motor, and the third for control.
3. The main elect. Panel shall be painted in accordance with the rules for paintings and painted with two coats of zinc chromate primer and red oxide antirust pained at least 60 microns thick, and final light green or other color paint at least 30 microns thick.
4. Executing all connection between the various compartments and from the compartment to the doors and all the output connections shall be made by means of terminals corresponding is size and cross-section of conductors.
5. Nameplates and as built drawings shall be mounted at the front of the board behind the doors and above every switch and group of lamps.
6. Executing an earthing unit (4 connections) complete by using suitable electrical bass bars as needed and fixed a cable bridges between the fittings and the main earth connections, and the all earthing resistant not increase than 2 ohm. Only.
7. Executing all electrical connections complete between the Power Supply, main Electrical panel. , Electrical Motor and other fitting to complete the work as needed
8. The work also include supplying all materials, cables and wires needed to finish all the work

###### **Conditions of Control.**

* The proposed new pump unit shall pump water directly from the balance tank, through a pipe line 6" to the distribution tank
* The electric Motor for the pump shall start by using an inverter and soft start/stop conditions using float sensors inside the balance tank.
* Power Supply (3ph-380/400 v - 50 Hz).
* The control scheme shall utilize a pressure barrel with 2- pressure switches to sense the pump outlet state and the upper Res. State.
* The pump must stop when the flow switch indicates that there is no water flow after a time delay (1-60 sec) and it should not be permitted to work again without manual start (Reset).
* The electrical motor for the pump must stop after a time delay (1-60sec) when the high pressure switch indicates that high pressure on the outlet line is more than must be and it should be started automatically after a time delay (1-10hr).
* The elect. Motor for the pump must stop after a time delay (1-60 sec) when the pressure out let comes down and the pressure switch indicate that the pressure is less than it must be and it should not be permitted to work again without manual start (Reset).
* The pumping unit could be operated automatically or manually, with or without a timing clock as desired with all protection control.
* The wiring inside the main electrical board should utilize numbered connect plug and trenches.
* The electrical panel for the control system must be supplied with DC current at 24v.
* Install suitable capacitor at full load, with complete protection as needed (3ph-380/400 v+ H.R.C fuses).
* The contractor should handle an (As Built Drawing) to the supervision Engineer.

**Bill of Quantities**

جدول الكميات

**1-Pipes and fittings for Kufr Laqif/ Qalqilya Governorate**

| Item No. | Description works | Unit | QTY | Unit price $ | Total price($) |
| --- | --- | --- | --- | --- | --- |
| 1. **SUPPLYING, TRANSPORTING & INSTALLING PIPES AND FITTINGS:**   *Supplying, transporting and unloading in the site of work in Kufr Laqif/Qalqilya Governorate the following pipes and fittings, all to be new and not used before or renewed, and they must have the (Techen stamp or local and international equivalent).The working pressure for the fittings is 16 Bar as a minimum unless otherwise is required*.. | | | | | |
| 1.1 | Supply anywhere in the project site new **6"** nominal diameter pressure steel pipes, 3.96 mm wall thickness, with the (Techen Stamp or equivalent) on each pipe. The pipes must be newly manufactured, smoothly, chamfered rounded on the edges and no signs of corrosion or welding along the pipe. The pipes should be manufactured according to specifications S9 or equivalent. The price includes all necessary works to supply the pipes to the site of work including transport costs, loading and unloading. | M.L | 5000 | 17 | 85000 |
| 2.1 | Ditto 1.1, but for **4"** nominal diameter. | M.L | 1000 | 15 | 15000 |
| 3.1 | Supply to the site of work **6" cast iron wedge gate valve** for 16 Bar working pressure (W.P).-enamel coated. Complete with flanges, gaskets, bolts and nuts, (None rising stem) with hand wheel for each valve. All in accordance with ISO Standard No. 5996 or local and international equivalent. The general specifications are according to Annex S2. | Piece | 4 | 450 | 1800 |
| 4.1 | Ditto 3.1, but for **4"** nominal diameter. | Piece | 4 | 400 | 1600 |
| 5.1 | Supplying of **6" Strainer** of cast iron body for 16 bar working pressure complete with companion flanges, gaskets, bolts and nuts. The general specifications are according to Annex S6. | Piece | 1 | 300 | 300 |
| 6.1 | Supply to the site of work **2 inches** (steel **Compound air valve with 2" globe valve-double orifice)** complete As ARI, 16 bar or local and international equivalent and according to general specifications mentioned in Annex 1, S3. | Piece | 2 | 350 | 700 |
| 7.1 | Supply to the site of work **(6") Dresser** for (16) Bar working pressure) complete (flanges, gaskets, nuts, bolts etc.) with two tie rods 600 mm long, diameter of 5/8" and 4 ears for each dresser. | Piece | 4 | 125 | 500 |
| 8.1 | Ditto 7.1, but for **4"** nominal diameter | Piece | 4 | 100 | 400 |
| 9.1 | Supply to site of work **(6") cast iron swing check** valve, complete with complete with counter weight, flanges, gaskets, bolts and nuts, for 16 Bar working pressure) -Epoxy coated with extended arm and lid (cover) in accordance with BS. No. 5153 or local and international equivalent and according to general specifications mentioned in Annex 1, S1. | Piece | 1 | 900 | 900 |
| 10.1 | Supply **6" Reducer, or T or steel elbow** at either 90 or 45 degrees angle | Piece | 60 | 30 | 1800 |
| 11.1 | Ditto 10.1, but for **4"** nominal diameter | Piece | 20 | 30 | 600 |
| 121 | Supply **6" Woltman water meter** complete with flanges, gaskets, bolts and nuts for 16 Bar (W.P)- Epoxy coated. The measuring unit should be removable type without removing the body from the pipe (interchangeable type). The water meter should be according to ISO 4064 or equivalent as S5 | Piece | 1 | 750 | 750 |
| 13.1 | Supply and apply all paints to make two faces for **6"** lines, one as **red oxide primer** as lead-free, oil-based, high-quality, rust-resistant as shown in **Annex S8b** and where necessary within the project area (on old existing pipes or the new pipes). The other face is made of **zinc oxide oil-based paint**, high-quality, corrosive-resistant as shown in **Annex S8b.** The viscosity of the paint may be modified by the addition of a solvent such as turpentine, or thinner. Pigment and filler materials as titanium dioxide, linseed oil, or alkyd resins as bindersand where necessary within the project area (on old existing pipes or the new pipes). The price for this item includes all painting works and paint materials and quantities; the price is calculated based on the meter length. | M.L | 5000 | 1.5 | 7500 |
| 14.1 | Ditto 13.1, but for **4"** nominal diameter | M.L | 1000 | 1.5 | 1500 |
| 15.1 | **Distribution of pipes 6"** according to the attached map route using machine carriers and workers to distribute in open areas (where no dirt roads) the 6" pipes on the route of pipelines. The price includes all necessary works and costs for installing by **welding** 6" inches steel pipes and accessories (as 2" or 3" or 4" or 6" coupling, tees and nipples, plugs) including all necessary farms’ openings to irrigate the farms and to install future branches across these pipes. This is according to specifications S8a and the price includes all costs of welding bars, costs of welding machine and power. The price for this item includes all costs of works and materials necessary including the excavations depth not less than 80 cm, width 50 cm, basecourse grade B backfilling, compaction 98%, reinstatement to the same conditions (asphalt roads, concrete roads). This is to install the 6," pipes at the main road crossings and internal main roads and where necessary. This includes the roads inside the land of Kufr Laqif and the main roads. The pipe must be buried in the ground along the street and despite the length. The contractor should investigate all underground (main and secondary) longitudinal and crossings and roads where the pipes buried in the ground according to the above specifications. The price includes all works and materials necessary to carry out the main connections of the outlet existing 6" pipes at the booster pump site and to connect to the water supply groundwater well and the supply line to the distribution reservoir. This is including excavation, backfilling, cutting, shaping, and welding and the backfill materials as specified in annex S8a. All works and materials according to the specifications S10. Therefore, the contractor should follow the route of the pipe and watch carefully the entire road crossing and the entire width at each section and the number of crossing and total lengths of crossings because there no payment for this work and must be included in the 6" unit price. The price for this item includes the installation works includes all costs of excavations, cutting, shaping, fixing, welding, paintings, for all 6" fittings to be installed on the 6" pipes lines as water meters, strainers, NRV, dressers, air valves, gate valves..etc. | M.L | 5000 | 3.5 | 17500 |
| 16.1 | **Ditto** 15.1 but for **4"** pipes, | M.L | 1000 | 3 | 3000 |
| 17.1 | **Champers:** Supplying and placing ready mixed concrete B250 for the inlet outlet and overflow manholes of the reservoir. The unit price including supplying, placing reinforcing steel bars, (ASTM designation A-615 or equivalent, strees =4200 kg/cm2), the price includes all excavation and back-filling, leveling and compacting around the chamber according to the Engineer instructions.  The price includes the supply of all materials and works to install 3-fence aprons placed at the inlet, outlet and over flow clean pits. The size for each apron (open shed) must be enough to hold all fittings compounded in the apron and with at least 0.5 meter extra size from all sides of the fittings. The apron is built on solid and leveled base made of reinforced concrete slab 12cm thickness and mesh steel bars 5bars (Ø10 mm) in each meter in both directions. It includes building the apron floor tie beams 30 heights and 20 cm wide reinforced with 4 Ø10 mm and Ø8 mm stirrups each 20 cm. Fix in the tie beams steel tubes RHS 80\*40\*2 mm galvanized tube each meter center to center. The tubes total height 2.0 m of which 1.7 meter installed at right angle and 0.3 meter at angle 60 degrees pointing outward. A galvanized steel mesh around each apron space and opening of 15\*5 cm, and 6- mm thickness over the tubes’ height. The mesh is to the tube by welding 10 points at each tube. The apron contains full open door (90 cm wide) of the same design materials and height as for the apron with main frame (profile RHS 80\*40\*2mm, double braced in the middle height to fix a sliding rod and lock. The mesh is welded to the apron frame with the same specifications. The price for this item includes all works as excavation, backfilling, transportation, cutting, shaping, welding, painting to connect with old networks pipes, and at the booster pump station and the existing concrete reservoir. | M3 | 6 | 500 | 3000 |
| 18.1 | **Fence:** Supplying and placing ready mixed concrete B250 for building fence at the booster site and distribution tank site. The unit price including supplying, placing reinforcing steel bars includes all works, shuttering curing testing, concrete, excavation and back-filling, leveling and compacting around the fence according to the engineer instructions. The price per unit of this item include concrete civil and steel works to carry the fencing and gate construction works as follows:  The fence is built on solid and leveled base. It includes building tie beams 50 (around the tanks’ site) heights and 20 cm wide reinforced with 6 Ø10 mm and Ø8 mm stirrups each 20 cm. Fix in the tie beams steel tubes RHS 80\*40\*2 mm galvanized tube each meter center to center. The tubes total height 2.5 m of which, 40 cm inside the concrete ties beam and 1.8 meter installed at right angle and 0.3 meter at angle 60 degrees pointing outward. A galvanized steel mesh along the RHS tubes. The mesh is made of galvanized bars size 15\*5 cm, and 5- mm diameter over the whole tubes’ height. The mesh is fixed to the tubes by welding 15 welding points at each tube. The fence contains a gate 4.0 meter wide and 2m height. The gate is made of two leaves (each 2\*2m) main frame 8x8 cm x 4 mm galvanized tubes. The frame is fixed on two main columns 10\*10 cm \*4 mm galvanized tubes. The main columns are fixed inside concrete footing 50\*50\*40 cm with steel mesh The internal bracing of standing galvanized tubes 4\*4 cm \*2mm each 20 cm along each leave. Adding 0.5 m height barbed wires on top each leave. The price for this item includes fixing sliding bar inside concrete foundation 80\*40\*40 cm. Adding finger main lock at the middle between the two leaves. The price includes, all works as welding, painting, excavation, backfilling, cutting, shaping. The price for this item includes fixing beside the main gate an access door (90 cm wide) of the same height and design specifications and materials of the main gate. | M3 | 12 | 600 | 7200 |
| 19.1 | Supply and install **2"** nominal diameter pressure steel pipes coated with a layer of PE, 3.65 mm wall thickness, with the (Techen Stamp or equivalent) on each pipe. The price including all works as excavations, road crossings to connect the farms to the main distribution pipes. | M.L | 250 | 10 | 2500 |
| 20.1 | Supply and install in the site of work **(2") threaded ball valve** for 16 Bar (W.P) local or international equivalent. | Piece | 50 | 40 | 2000 |
| 21.1 | Supply to the site of work **2" Woltman water meter** complete with flanges, gaskets, bolts and nuts for 16 Bar (W.P)- Epoxy coated. The measuring unit should be removable type without removing the body from the pipe (interchangeable or replaceable type). The water meter should be according to ISO 4064 or equivalent according to specifications mentioned in Annex 1, S5. | Piece | 50 | 200 | 10000 |
| 22.1 | Supply **2" black steel** coupling, with internal threads from one side and for welding from the other side not less than 10 cm length. The price includes supplying suitable steel plug. | Piece | 100 | 10 | 1000 |
| 23.1 | Supply **2" strainer** before each **2"** water meter complete with flanges, gaskets, bolts and nuts for 16 Bar (W.P)- Epoxy coated. | Piece | 50 | 100 | 5000 |
| 24.1 | **Water meter steel box:** The price includes supply l of galvanized steel box cover (45 length\*30 width\*35 height) cm. The thickness of the sheets is not less than 2 mm and the price include lock as for all water meters one master key. | Piece | 50 | 30 | 1500 |
| **Total of supplying and installing pipes and fittings including vat** | | | | | **171050** |

**2- 1000 m3 steel reservoir**

| **Item No.** | Description works | unit | QTY | Unit  Price $ | Total  Price $ |
| --- | --- | --- | --- | --- | --- |
| 1.2 | Supply and Install metallic corrugated galvanized steel irrigation distribution reservoir with a volume capacity of **1000 m3** of water in Kufr Laqif-Qalqilya Governorate.  **Total Height** of the reservoir after assembly of the steel sheets is 2.56 m and the height level of water will be no more than 2.15 m. The wall sheets are metallic corrugated galvanized steel thickness of not less than 1.5 mm  The outer Radius of the reservoir is 11.8 m.  Total Height of the reservoir after assembly of the steel sheets is 2.56 m. The lining sheet is finished by smooth finish using polyester fabric and avoiding punching or scratching of the sheets. Therefore, the upper sheets edges nuts be covered with PE cover at edge sheets.  The whole reservoir should be removable (simple assembly and disassembly)  The fabric lining size must be enough to cover the whole tank area and extra length not less than 20 cm below the tank top level; the extra length must cover all tank wall form all sides as shown in the attached drawings and at the same level. The liner covers is fixed to the tank frame using ropes, (metallic cables not less than 4 mm thickness the cables to be fixed on sheet wall and bolts between two nuts and washers), the plastic ties to insure tightens and connection. The cover is fixed using metal rings and maximum spacing between rings does not exceed 50 cm and metallic tie between each two ties. The rings must be tightened to insure maximum tension with NO sagging in the cover.    All pipes to be fixed on the supporting Reinforced concrete beam using ring 1” pipes and welded to the 4” pipes (filled with concrete). The 1” pipes to be as galvanized ring 3.25 mm thickness as shown in the drawings.  The price includes the supply and installation of all piping for inlet, outlet, and washout and over flow as shown in the attached drawings. The pipes must be made of 6” galvanized steel pipe thickness not less than 3.96 mm lined from inside with cement mortar and lined from outside with PE layer 1.8 mm thicknesses. The reinforced concrete ring includes the supply and fix of 4” (According to drawing) galvanized pipes with thickness not less than **3**mm in circumference of the tank **filled with concrete**. The distance between each two pipes is **2.0** m (center-to-center of each two pipes) and the height of the pipes is the same as the height 2.56 m of the tank and taking into consideration the slope height which ranges between zero and 25 cm). The 4” pipes must be all filled with concrete inside to the top level. And to be connected from the above busing galvanized RHS profile 8\*4 cm \*3 mm thickness and the upper middle by ring of 1” galvanized steel pipe 3.25 mm as show in the attached drawings.  The pipe system inside the tank must be equipped with all necessary materials to insure tight joints for any small water leakages. The 6” steel pipe inlet lined from inside with cement mortar and epoxy painted or, PE from outside the thickness of the steel 3.96mm. The supply and installation shall include but not be necessary limited to:   * The price for this item includes the preparation of the site as follows: Excavation in all types of rocks and Leveling of foundation; the leveled foundation shall have a diameter of at least **two meters larger than the diameter of the reservoir and the size of the stone walls.**. The price of this item includes all works necessary to open a road (if necessary) and to transport all materials to construct the reservoir. This includes excavation and backfilling, and compaction works. Backfilling of materials base course grade B base course in layers (each layer thickness max. 30 cm) and maintain 98% sub grade of the tank (rock cutting, backfilling to reach at least 40 cm level above the highest point of adjacent land or roads). Excavation is done in all types of rock and soil and transport outside the site of any excess excavations to accepted place by the local authority. The price for this item includes building wall stones all over the reservoir sides and where the reservoir foundation above the adjacent ground level. The price includes excavation, cutting and leveling the surrounding reservoir basement for building stone walls; which is made of boulders non fractured hard limestone dimensions not less than 150\*100\*50cm. The dimension 150 cm is toward reservoir center, and 100 cm wide, and 50 cm thickness) and act as a retaining wall. The area between the stone wall and the concrete beam surrounding tank must be leveled and compacted with basecourse and cast reinforced concrete base 10 cm thickness along stone wall base and reinforced by steel mesh (Ø10mm all around the reservoir finish level). The maximum step of stone wall height at any side should not exceed 1.5 meter then make new step or enough slope from the base to the finished base course ground level. The stone walls are added everywhere necessary around the reservoir from all side sides; so as to obtain fully stable reservoir base against movement and water drainage from the roads and surrounding. The price includes clean the site and transport excavated and unwanted materials away from the site to accepted location by the village council. * Supply and lay two-base course layers each should not be less than 15 cm thickness after compaction; the overall layer shall be compacted to not less than 30 cm and relative compaction 98% including testing report. * Supply and add a clean silica sand layer (free silt and clay) with min. 15 cm thick; this layer shall be installed inside the tank above the base coarse layer. * Fixing of the tank (assembly) including all materials and works that were mentioned or not mentioned in the specifications and must insure stable, level and tight reservoir. * The price for this item includes the supply of materials (as for all reservoir 6" pipes and fittings show in the attached drawings and where to be placed: **one inlet pipe**, **two main outlets pipes**, another **one outlet pipe for clean and over flow** pipes) and according to standard fittings specification for all pipes and fittings. This includes supply and install of all internal and external 6" pipes, and these fittings as follows (#,diam, PN16 all according to Annex: **five** **gate** valves diam 6" , **five** dressers diam6", **two** compound steel **air** valves 2 double orifice" with 2" globe valve and couplings, 6" **float valve** complete including float ball valve and piping 1", supply and install 1” transparent water level indicator with 1" globe valve and 1" couplings , **three strainers** 6", **Nor Return Valve** 6", **two water meter** 6", **jacks, elbows**, Tees, couplings….etc as shown in the attached drawings. The price for this item includes all works as (welding, cutting, shaping, transporting, distribution….etc) to connect the piping system to the reservoir (Inlet & outlet, wash out, over flow) as shown in the attached drawings   The price includes supply and install a reinforced concrete B-300 ring beam (**50cm depth\*25cm width**) shall be constructed around the tank at the ground level. The outer face of the beam must be **fair face finish** or by using plaster 3 -faces of plaster (rough, smooth, and shebreez) using standard percentages of plaster materials. The supporting concrete beam reinforcements details are as follows:  **Use 9 steel bars, Ø12 mm** as shown in the attached drawing  Use stirrups Ø 8mm each 20 cm. over all the beam  Before casting concrete, obtaining the approval of the field supervisor is mandatory. The price includes having 2 concrete samples for compression testing.  The tank shall be equipped with a transparent vertical pipe connected to the outlet to indicate the internal water level and to be properly fixed.  The lining, cover PE materials must be encased from inside with **plastic cover sheets over the entire walls to avoid punching of the PE lining** and all materials should be suitable for human drinking water and to have at least the following specifications:  **Fabric, Type polyester 1100 Dtx, 200 gm/m2**  **Total Weight 740 gm/m2.**  **Breaking strength: 280/260 kg/5cm.**  **Tear strength: 110/100 kg.**  **Adhesion 12 kg/5cm.**  All corrugated sheets shall be fixed vertically without any buckling; no spaces or voids shall be left between the sheets.  The price includes fixing with galvanized bolts and nuts of the corrugated galvanized steel sheets of the tank. The overlapping shall not be less than 25 cm in both directions: vertical and horizontal. The bolts spacing shall be two bolts each 5 cm over the entire tank assembly.  **The price include supply and install Steel Cover Shed (All According to the attached drawings)**: Supply and install all materials to build a steel shed to cover the tank against light and to achieve complete confinement using steel boxes and frames and covered with corrugated steel sheets 0.5 mm. The tank roof includes door opening 90\*90 cm made of galvanized sheets 2 mm and frame 4\*4 cm \*2 mm and lock. The roof cover includes 9 main footings 60\*60\*50 B-300 reinforced with a mesh of steel diam 10 mm. Supply and Install (S&I) Main RHS box steel Galvanized 10\*10\*cm \*4 mm to be fixed inside the foundations and to the level of tank taking into consideration the differences in height due slope for rain water drainage as show in the drawing. S&I to RHS Galvanized 10\*10\*cm \*4 mm to connect the main supporting columns and end at outer supporting 4” Galvanized pipes. S&I Other RHS boxes 8\*8cm \*3 mm to be installed between the main supporting beams and on the other direction each 3 m. S&I RHS boxes 8\*4cm \*2mm over the entire space maximum each 90 cm center to center as shown in the drawing. All welded steel profiles must be painted two faces. The whole RHS boxes to be fixed on the supporting 4**"** galvanized pipes and RHS ring 8\*4cm \*3mm. S&I corrugated galvanized steel sheets 0.5 mm over the entire reservoir space to the outer edge of the galvanized ring and fixed with bolts to the steel frames and shown in the drawings. The inner supporting frames are fixed in the concrete foundation and extend to the sand level and ends with steel cap steel plate 25\*25 cm \*1 cm thickness. The upper supporting frames start with the same cap/plate and the polyester liner laid on the inner plated and bolted tightly to the upper plate by 8 bolts daim 14 mm. The main supporting farmers to be fixed by welding as rigid connections using standard welding bars and specifications. To avoid punching of inner liner the reservoir must be filled by 30 cm of water height before start welding. The secondary frames are to be fixed on skids before welding.  **The price includes water quantities to fill the tank (1000 mcub) to the top level and conduct all necessary test as overflow, closure by the float valve and to carry the leakage test.**  The local authority reserves the right for carrying additional testing for any part of the works included in the contract, during and/ or after the execution of the work. In the event that the results of such tests are not satisfactory and not in conformity with the specifications requirements, the contractor shall bear the costs and any other implications of such tests. | L.S | 1 | 50000 | 50000 |
| **Total of supplying, installing & transporting of the 1000 m3 steel tank including vat** | | | | | **50000** |

**3)- Booster Pump**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TOTAL**  **Price($)** | **UNIT**  **Price($)** | | | **QTY** | | **UNIT** | **DESCRIPTION OF WORKS** | **Item NO.** |
| **The contractor must submit the materials specifications, certificate of origin, catalogs and on site testing report which shows that the materials are matching with the manufacturer specifications.** The contractor shall submit in his offer and supply maintenance manuals, catalogs, characteristic curves, testing certificates, shipping, lading documents and specifications of pumps, motor, fittings, mechanical and electrical control devices, cables, wiring and all accessories and ancillaries to complete the work. All to be new and not renewed in accordance with the specified specifications. The contractor should verify the design equipments by conducting field visits to the pump site and must be before ordering any equipment or materials as follows: the contactor must check and verify and match between the reality and the design quantities mentioned in this tender. If he notices any difference or no matching, then he must inform the supervisor engineer and find together a suitable solution to such conditions. The contractor should be responsible technically and financially to supply the suitable materials. All connections including the electrical and mechanical fittings should be according to the PWA general pumping standards and the layout view. | | | | | | | | 1.3 |
|  |  |  |  | |  | | **Supply to the site of the balancing tank at Seer well site, Main Electrical Control Panel Unit**: suitable for **80 m3/hr** at total dynamic head **200 m**, for the mode of operation, a control board according to the following specifications and supervisor instructions:  **Main Electrical Control Panel Unit**: Price includes all works to carry on the electrical connections and cables to main grid and panels and supply and install suitable new control panel for pumping **80m3 @ 200** meter, and installing in the site for the mode of operation, a control board according to the following specifications and supervisor instructions: control panel box shall be made of **three major compartments** and the price for this item include all equipments and works mentioned below: The first compartment is for main hour meter and fusses- Main Company Breaker. The price include all cables and connection necessary to connect between the main 3-phase power source at the Booster site (transformer) and the Main Electric Control Board inside the pumping room. Cables size (XPLE high quality insulation 90 CO) **3x95** + **1x50 mm2.** The price includes all materials and works to install the above cables including whatever of electric, mechanical fittings and accessories as PVC and steel trenches, anchors with clamps, jumpers, stays including base, anchors steel wires, The cables must be lay inside 4"PVC/as rubber pipes of flexible spring type two layers. The price includes excavation inside all types of soil and rock trenches not less than 40\*30 cm and lay the cable inside these trenches and adding pure sand as backfilling to all size of the trenches and casting in the last 10 cm of the trenches with plain concrete over the pipes. **The second compartment** is for the **125 hp inverter** as Siemens/ ABB, or equivalent as shown specifications, main breaker as Siemens, contactors, capacitor(s) bank, main cables inlet/outlet.), It shall be IP56 protected, thermally painted paint as (RAL 7302). All main cables and wiring are inside ducts and must be closed with special plastic cover and protected against human electric shock. **The third compartment** includes all control circuits, and secondary contactor, breakers for the high voltage cabinet or the low voltage. The control panel must be fixed to the wall by six Jumbo screws and laid on a reinforced concrete foundation 40-50 cm above the ground. The contractor should submit as built drawing including soft and hard copy drawings. In case the contractor will use any digital control equipment including PLC, HMI screen; then he must submit the cable, the software, and new version of computer laptop as hp i7- double core and any other accessories that are necessary to operate and maintain these digital equipment; meanwhile the price for this item includes to train the well’s operator and technical staff on how to use and program the PLC and control panel and all installed equipment in this tender. The training period should not be less than 9-hours training hours over three separate days including safe operation, manual instructions, faults and calibration of equipments (inverter, breakers, timers, etc..).  The labeled nameplates should be mounted at the front of the main board behind the doors and above every switch and group of lamps. Control electric lamps 24v must be fixed to control all operation system, the starter shall be used to start, run, stop , protect and control manually and automatically by using the general required installation of the following equipments completely. The price for this item includes:   * The power circuit must consist of the following: **main circuit breaker** MCCB 3**\*200 A**, 25KA adjustable for the **company** and for **generator** (as MOLLER) **two pieces**. The price includes supplying and installing **manual change over with mechanical and electrical interlocks** switch 4\***200 A**, SOCOMEC type for manual operation. * Bus bar **300A/0.6KV** (3 phases and neutral and earth) * Complete unit 4p \* 20KA **surge arrestors** of replaceable type. With box fuse **3\*63A**. * Digital screen inverter **125 hp** see the annex. Solid state frequency converter as ABB type (with **bypass contactor 125 hp** as MOELLER type equipped with over /under load, over temperature and all control system needed with all protections rated at suitable power that matches the pump motor with (0.8-1.2) over load range). The inverter must be programmed to meet with manufacturers obligations for start-up and shut down of the submersible turbine with minimum harmonics   **Capacitor Banks**: Capacitor banks with discharge resistors compensating reactor dry type 400v 50 Hz to reach power factor not less than 0.97 Ducati. Three phase capacitor with resistors **20 KVAR** Ducati type.   * **Digital multi meter** which is able to read directly from a screen (V, Hz, KW, A, PF). * **Low and high voltage controllers, phase sequence and phase failure controllers (devices) and relay(s)** of best quality as MOELLER. * **On-off push** button set and emergency off button. * **Reset** push buttons red color 22 mm. * **Overload** relay unit rated at 1-1.5 of motor full load including digital motor screen protection control board. * **Temperature relay** unit and rated for the submersible motor. It includes thermal protection relay and thermistor sensor, including cable screened twisted pair (screen earthed at one end only) digital motor screen protection control board with all cables and connections. * HRC fuses **3\*63 A** complete Fernaz type. * WHM 50\*50mm. * **24 h clock** with 150 hr mechanical reserve. * Suitable **automatic breaker** **200 A** with adjustable thermal and magnetic protection (ISC>=25KA) NZM. * (0-500V) 96\*96mm **Voltmeter** with selector switch between phases and neutral. * (0-300 A) 96\*96mm ammeter for the three phases. * 3 phase fuse holders set , 10\*38mm , with suitable fuses , * **Suitable earth leakage relay** class **A (AC and Dc trip).** * Contactor with discharge 40 KVAR Moeller type. * **Running hour** timer * **Manual motor speed** controller and mouthed on outside board (range 0.8-1.2 normal speed) * **On-off** lamps for inside doors cabinets * **Breakers** for service as Siemens type. * **Relays** and timers 24 V for no flow switch and high-pressure, low-pressure sensors, temperature. * Three phase 50 Hz 390V (**KWh-meter**), /5A-200/5 CT’s. The KW-h meter as electromechanical meter or solid state and pre-paid card electric type. * 24V/ 50Hz **indication lam**ps installed in front of the control cabinet.. * 3 position selector switch **A-O-M**. * 220-2\* 12V (AC) **transformer 100VA.** * The price includes **all cables** to be used for control purposes shall have the following cross section: * **(3\*95 mm2 +50 mm2**) for the internal connections inside main board and the contractor has to check and order the exact required length (as item 2 properties). * 1.5 mm2 for the coil driving wheel circuits. * 2.5 mm2 for the circuits of tension measurements. * 1.5 mm2 for the sensors. * 4.0 mm2 for the circuits of intensity measurements. * All terminals shall be carefully protected to assure electrical insulation. * Switches, measuring instruments, and warning lights shall be installed in the front side of the panel. * The control panel shall be manufactured with enough space **(minimum 40% free space of the total size)** to insure easy maintenance and no interface between the wiring for all circuits. * **All wires must be coded clearly** and fixed with special wire heads to avoid loose connection. * All timers (PSK), relays and contactors shall be of best quality as Siemens * The contractor shall supply any other materials and devices that might be missed here and considered to be essential to complete the work without claiming any changes in unit prices. * The control panel must be equipped with an alarming bell (100 dB at 50 meters distance) and flashing red alarm (should be visible from 300 meter during day time). **Alarms for all cases of failure as: voltage drop, low or high voltage or phase failure, phase sequence, high or low pressure and no flow, high temperature etc…** * The control panel **must be equipped with** control circuit for both the water sensor water level sensor. * **Temperature control** as digital screen * The alarm must be muted with/without general reset and there should a special button in the front door to stop/reset it alone. * Circuits must consist of the all necessary materials to operate and protect the system automatically and manually, the wiring color system, numbering all the components. The price includes the design of the whole system of control the contractor is intending to carry. The contractor should also submit at the end of work a s built drawing.   The control panel deign should include:   * Transformer 230/24V 150VA * Water level relay HK type. * **High water level relay controller** inside the balance tank: Manual/automatic starts of booster pump using either float valve or proximity sensor. * **Low water level relay controller** inside the balance tank: Manual/automatic shutoff booster pump using either float valve or proximity sensor * 220V AC /120 Watt and **two fans** with filter in each compartment, one for taking in air and the other for taking out the air with grid ( for the panel) complete with thermostat protection. * SIREN (alarm system)   Alarm system 24V are equipped **ON-delay timers** for :   1. High pressure outlet 2. Low pressure outlet 3. No flow 4. Soft start faults 5. High temperature 6. Low, high voltage, phase sequence , failure   The motor must not restart more than the recommended number of starts per hour and day by the manufacturers.   * The price includes **all works, as excavation** works for installing pressure switches, flow switch and level sensor and all the electrical parts with suitable conduits and metal ducts to complete the works. * The price includes installing and testing for the mode of operation all mentioned devices and sensors. The control panel must be equipped with earthling unit so the price includes. * **Earthling**: The price of the control panel includes supplying and installing complete earth unit with earth equalizer compressing C40 box copper B.B. 25 mm2, with minimum two concrete manholes as foundation lines , two earth electrodes, D>19m, L=1.5m and any other missing materials to earth the pumping station . The price includes testing earth unit so as to fulfill the standard requirements (resistance less than 1.5-2 ohm). The across different fittings in the piping system. * The price also include supply all materials (as cables, in-out sockets and install, two outlets as 3-phase complete service unit for the pumping room including Main MCB 5\*20A -10 KA MOLLER type. MCB 2 \*10A – 10KA Moeller type the control * The price include all cable materials and works to conduct the electrical connections of the water level sensors or float vales inside the balance tank; moreover, the thermistor sensor inside the motor -(the cable 3x1.5 mm2 , the cable should be of suitable length. Use flexible thermal conduits, cable glands, wire terminals& labeling at both ends and all the accessories needed to complete the work as excavation & backfilling, the cable from the control panel to the head of pump motor. * **Wiring and Lighting the pumping room** Supplying and executing all materials needed for inside and outside lighting of the station (pump and station yard) including all works, trenches, cables, sockets etc. according to the following: * Supply and install 4x36 W flourcent surface mounted (water proof) IP56 for outside the room * Supply and install single split one air conditioner inside the pumping room, size **2-ton (24000 BTU/hr)** inverter technology and EER > 13. * One phase sockets number four * Lighting the room from inside by six double-glass fluorescent lamps (36 w , water proof). * 3x30 w emergency 10 hours duration lighting fixture to be fixed in accordance with the supervisor engineer's instructions. * The lighting service should be controlled by a separate DGB. Its power source is directly controlled through a double pole MCB. * Lighting the outside of the rooms by External four projectors each of 150W HyLite LED Prism, as Philips water proof IP 56 with aluminum body (high quality) (the price includes all materials and works to carry the inside and outside wiring and lighting. The projectors, will be switched on from the service DGB. Distribution box for lighting suitable for 24 v circuit breaker (DBG). Also the price includes conduits, (3x2.5mm) and all size of cables& all accessories needed to complete the work. Supplying materials and executing 5 intake power sockets: one as three-phase and the other four as one-phase. The price includes supplying electric cables, leads, on-off keys, power sockets, trenches…etc. The price includes all any other missed works or materials to execute the lightening item |
| 13000 | 13000 | | 1 | | L.S | |
| 25000 | 25000 | | 1 | | pump | | **Supply and install** in the site of the well a **booster pump turbine** with a capacity of **80 m3/hour at a total dynamic head of 200 m.** It has to be installed inside a new room (shed) as shown in the specifications below. All bowel stages of the turbine made from casting iron, impellers bronze zinc free, stainless steel column, a stainless steel screen filter for the pump and any other additions to achieve the required head and quantity. Operating efficiency should not be less than 73%, The booster technical data are as follows:   * Liquid water is suitable drinking. * Design capacity (m3/h): **80** * Design anticipated total head (TDH) (m): * Anticipated turbine discharge at TDH at **200 m** * Shut-off head limits (m):minimum **280m** * Pump overall efficiency at the intended point is not less than 73% * Minimum bowl efficiency at run out capacity (78 %) * NPSHA at maximum run out capacity (m): 6 * NPSHA at maximum anticipated TDH (m): 4 * Motor and pump operating speed (rpm): 2900-3000 * Stainless steel column, stainless steel screen filter * Closed impellers manufactured from bronze and cast iron bowels available and replicable in local market * the pump shall be capable to run at shut off head for a few minutes without mechanical problems * The electrical motor must be supplied with RTD (PT 100) temperature protection. The type of motor connection must be suitable to present the motor temperature digitally. The price include all wiring, PT cables and connections and works required to connect the motor inside the well and the main control panel with relay and off-alarm * Contractor has to connect the motor to the control panel upon his responsibility and the price includes all cables as follows:   The price includes supplying all cables and materials and executing all electrical connections needed between the following elements and despite of the length required: A- cable one (including works and materials) to connect between the main 3-phase power source (Municipality Transformer) and the Main Electric Control Board inside the pumping room as ABC type **3x95+1x50** mm2 B- a cable between the Main Electric Control Board and the electric motor. The cable size and specifications are as follows green color, copper conductors are solid and made of pure copper XPLE, PVC insulated, with inner sheath, 600 V, conductors sizes 3x50+1x25 mm2. The price includes supply and install suitable flexible joint and all materials and works to install the above cables including whatever of electric, mechanical fittings and accessories as PVC and steel trenches, anchors with clamps, jumpers, stays including base, anchors steel wires, standard wood columns. The cables must be lay inside 4"PVC/as rubber pipes of flexible spring type two layers. The price includes excavation inside all types of soil and rock trenches not less than 40\*30 cm and lay the cable inside these trenches and adding pure sand as backfilling to all size of the trenches and casting in the last 10 cm of the trenches with plain concrete over the pipes. The price includes supplying and installing all electric motor control devices (as RTDs thermal, over load) and any other connections including cabling inside or outside the pumping station relevant to this work and according to standard specifications for this work. The opening tender committee will receive an offer about type and motor specifications, catalogues, and an in site testing report which shows that the motor is matching with these specifications.   * The motor shall be designed and built for continuous 24-hours continuous service at any and all points within the required range of operation without overheating, cavitations excessive vibration and strain. * Motor has to be new and furnished with a stainless steel name plate with data of the serial no., speed, Kw, input voltage, full load, Hz, power etc.) and motor must be at least 1.25 larger than Pump brake horse power or 1.15 larger than the total Input Horsepower to the Electrical Motor. * All works from supplying, installing connecting running and testing are under the contractor's expenses. * All works must be according to the Palestinian standards and engineer’s instructions and the specification and drawings. * The price also includes any missing works not mentioned to execute this work. * The contractor must submit the motor specifications, certificate of origin, catalogues and on site testing report which shows that the motor is matching with the manufacturer specifications. * The booster pump shall be capable to run at on/off without electro-mechanical problems. * The turbine and motor torque design should be duty inverter at speed range the design torque values between 1:10   The price includes supplying and installing all required flanges, coupling, 6" flexible joint, reducers, flexible joint, bolts, spacers, sleeves, nuts, etc. to connect between the turbine outlet, and pumping pipes and fittings. The price also includes casting reinforced concrete foundation and to hold the motor and pump. The price includes supply and install suitable size reinforced concrete foundation (2-mesh steel bars 10 mm diameter @ 15 cm in all directions). The price for this item includes all works to accomplish fittings’ installations as 6” gate vales, 6" water meters, 6" dressers, 6" strainers, 6" check valve, 6" flexible joint, 2 " PRV, 2 " air valve..etc.   * The size of the concrete foundation must be suitable to hold the booster pump and motor. * The contractor shall do in site testing the booster in accordance with the performance curve and submitting the test report. Before installing any new materials, the contractor must get the initial records for the proposed balancing reservoir including: the reservoir supply capacity in m3/hr and suction. , water level inside the (dynamic and static). * The booster electric motor of suitable power must be inverter duty, 3000 rpm, and basic run as 50 Hz, 380/400 volts and motor efficiency not less than 0.9 with 1.15 service factor (squirrel cage induction motor). The motor has to be inverter duty as 10:1 (6-60 Hertz) Speed Range Constant Torque voltage 220/380-420. The motor shall be of standard construction and suitable high thrust bearing to carry the loads of the rotating radial thrust, equipped with weather protection type-1 standard, insulation class H complete thermal protection unit, complete current overload unit. * The electrical motor must be supplied with RTD (PT 100-3/4 cables) temperature protection. The type of motor connection must be suitable to present the motor temperature digitally inside the control panel. The price of this item includes all costs of materials and works to install and test the RTD control device.   The price for the booster pump includes testing the pump and matching with factory performance curve. The price includes all works and materials to connect the booster pump to the balance tank and install inlet/outlet connections to the existing well pipe at pump site. The price includes all works to connect the reservoir inlet connection at the well outlet. Moreover; it includes the connection of the booster inlet to the outlet balance tank. The price for this item includes the supply and installation of all fittings of all sizes related to the installation of booster pump accessories as: 1” 2”, 3”, 4”, 6” steel pipes, and all 45 or 90 elbows, Tees, adapters, reducers, 6” flexible joints, couplings, bolts, flanges, couplings; meanwhile to execute these main connections as follows: a- connect the balance tank to the well source supply pipe b- connect the balance tank outlet to the booster transmission line. c- Supply and install 3”, 4”, 6” steel pipes to connect the booster with the balance tank, pressure reducing outlet and the balance tank cleaning pipe and tank overflow to the adjacent disposal site. The price includes all works and any type of fittings to install the booster pump and connect to the balance tank including float valve, transparent pipes indicator 1", steel pipes 1" with globe valve.  .  The price for this item includes all work and materials to build a **pumping room** concrete/ steel for the booster pump as follows:  Room net Dimensions: 8 m\*5 m \*3.3 m (see the attached drawing)   * Prepare the room foundation including excavation in all types of rocks and soils. The foundation must be leveled on solid base and sub base to the anticipated level decided by the supervisor engineer (the room concrete floor level must be 50 cm below the ground level of the balance tank). This includes leveling and laying a base course layer (200 m2) at the booster pump site of grade A- minimum thickness after compaction (98%) is 20 cm. * Supply and casting reinforced concrete base over the entire room dimension (8\*5 m) and thickness 20 cm B-300 and reinforced with a bottom mesh of steel bars 14 mm diameters in both directions at 20 cm, and top layer mesh of steel bars 12 mm diameters in both directions at 20 cm. The price include constructing a corridor of reinforced concrete (mesh 10 mm steel at 20 cm in both directions) concrete 10 cm thinness B-250 width 1 meter around the **pumping room and the balance tank** * Supply materials and casting 6- reinforced concrete columns **50x20 cm.** The columns concrete is B300, 6 bars diameter 14 mm and stirrups 5/meter and diameter 8mm and build as shown in the pumping room layout. The height of columns above concrete base ranges between 3 meters to achieve the rainwater collection slope. * Supply and install all materials to build concrete brick wall on top of the concrete base raft foundation and up to column upper level, using hollow concrete block 40\*20\*20 cm over the entire room sides including the internal partition wall and leaving 2-doors openings from outside for the room and one door opening inside the pumping room, meanwhile two openings for windows (see the drawing). * Supply and casting reinforce concrete tie beam with slope (20-50) cm height X 20 cm wide of reinforced concrete (B-300) on top of the last row of hollow concrete block. Reinforcement includes 6 bars diameter 12 mm and stirrups 5/meter and diameter 8mm. * Supply and Install on top of concrete tie beams 10 galvanized steel boxes 10x10 cm x 4 mm each length 5.4 m. The steel boxes must be fixed inside the concrete tie beams before casting using steel plate and maintain smooth finish with top surface of the tie beams. * Supply and install roof **sandwich panel** corrugated galvanized steel sheets one unit over the length 0.5 mm to cover the room roof. The sandwich panels core is made of polyurethane/polyisocyanurate foam insulation materials (pur/pir)  must be larger than the room at least 30 cm in all directions and with steel rain water steel U- collector and drain 4” pvc pipes fixed to the walls. * Supply and install steel guard for the two room windows: 2X1.2 m and 1X1 m using galvanized steel frame 4\*4 cm, thickness 4 mm and inside frame using galvanized steel bars 16 mm each 8 cm. * Supply and install aluminum 7000 window 2\*1.2 m and 1\*1 m fixed from two leaves in addition to a third leave as fine mesh for ventilation. * Supplying and executing three steel doors and frame with dimension one 160X240 cm, and two 100X220 cm, and the doors are fixed from all side on reinforced concrete frame 20 cm width. The door sheets from inside and outside (2 mm thickness) is fixed over box beams each of 8\*4\*cm and 2.5 mm thickness every 40 cm height. The door is composed of 2 main parts. The outside frame is made of galvanized steel frame not less than 23 cm and 3 mm thickness fixed to reinforced concrete sides 20\*20\*over the whole door sides. The price includes all materials needed to complete the work such as, double joint locks and main locks; oil base face and hummarite finish paints. * The price for this item includes painting two faces for all steel work one as primer coat and the second oil base and the color according to the supervisor engineer instructions. * Supplying and installing all materials needed such as cement, sand, fine aggregate, water, ect. For executing the internal plastering (3 coats). The first coat is sand and cement 1:1, the second coat is mix of cement, fine sand and crushed powder limestone 1:2:3 , and finally a soft coat * The price include supplying and installing all materials needed such as cement, sand, fine aggregate, water, ect. For executing the external plastering (4 coats, the last coat should be white shipreez) with 2 coats of Super creel and super Gameesh paint above texture according to the standard specifications and instructions of supervisor engineer. | 2.3 |
| 150 | 150 | | 1 | | piece | | **Flow Control switch:** Supplying and installing an electrical flow switch suitable for 6" pipes -25 bar, powered by a 24 v-dc power source. Price includes all cables required to connect it with the control panel. | 3.3 |
| 200 | 100 | | 2 | | piece | | **Pressure Control switch** Supply and install two pressure switches 1-25 bar. Price includes all cables required to connect it with the control panel. | 4.3 |
| 400 | 400 | | 1 | | Num. | | **Gate valve**: Supply and assemble gate valve, 3" complete, 25 bar. Price includes excavation, cutting, welding, adding screws, bolts and accessories that are needed to assemble the valve. The valves could be installed anywhere within the project area and according to specifications mentioned in Annex 1, S2 , as shown pumping layout view. | 5.3 |
| 100 | 100 | | 1 | | Num. | | **Dresser conical record:** Supply and assemble 2" dresser complete. Price includes rods and screws, bolts, excavation, cutting, welding, and adding accessories that are needed to assemble the dresser with NP 25 bar, as shown pumping layout view. | 6.3 |
| 1200 | 1200 | | 1 | | Num. | | **Relief valve:** Supply and install a 3 inches pressure relief valve, 25 bar, complete, The price includes excavation, cutting, welding, adding 2” record, screws, bolts and accessories that are needed to assemble the valve and according to specifications Annex 1/ S7 | 7.3 |
| 500 | 500 | | 1 | | Num. | | Supplying and installing of **6" Strainer** of cast iron body for 25 bar working pressure complete with companion flanges, gaskets, bolts and nuts. The general specifications are according to Annex S6. The installation works includes all costs of excavations, cutting, shaping, welding, paintings, either on new or old pipe lines. | 8.3 |
| 50 | 50 | | 1 | | Num. | | Supply and install in the site of work **(2") valve** for 16 Bar (W.P) local or international equivalent. The installation works includes all costs of excavations, cutting, shaping, welding, paintings, either on new or old pipe lines. | 9.3 |
| 500 | 500 | | 1 | | Num. | | Supply and install in the site of work **2 inches** (Steel **compound air valve-double orifice)** complete As ARI, 25 bar or local and international equivalent and according to general specifications mentioned in Annex 1, S3. The price includes the installation of 2" ball valve and 2” black coupling welded on the steel pipes. The installation works includes all costs of excavations, cutting, shaping, welding, paintings, either on new or old pipe lines. | 10.3 |
| 700 | 700 | | 1 | | Num. | | **Pressure Surge Tank:**  Supplying and installing of a pressure Surge Tank 25 bar size (500 liter). The contractor shall supply and install all the pipes and fittings to connect with outlet main 6 " pipes of the pump and should be according to specifications. The price include, complete instrumentation of the pressure Tank including all fittings and steel pipes and fittings. The price includes supplying and installing all necessary materials and works to connect to the pressure switches and casting a suitable reinforced foundation under Tank, and above the pump ground level, as shown pumping layout view | 11.3 |
| 1200 | 1200 | | 1 | | Num. | | Supply and install **6 " Woltman water meter** complete with flanges, gaskets, bolts and nuts for 25 Bar (W.P)- Epoxy coated. The measuring unit should be removable type without removing the body from the pipe (interchangeable type). The price includes all necessary works and costs for installing by **welding** steel coupling and nipples and all necessary accessories for the farms’ openings to irrigate the farms and to install future branches across these pipes. The water meter should be according to ISO 4064 or equivalent as S5 | 12.3 |
| 600 | 600 | | 1 | | Num. | | Supply and install in the site of work **6" cast iron wedge gate valve** for 25 Bar working pressure (W.P).-enamel coated. Complete with flanges, gaskets, bolts and nuts, (None rising stem) with hand wheel for each valve. All in accordance with ISO Standard No. 5996 or local and international equivalent. The general specifications are according to Annex S2. The installation works includes all costs of excavations, cutting, shaping, welding, paintings, either on new or old pipe lines. | 13.3 |
| 450 | 450 | | 1 | | Num. | | Ditto 13.3" gate valve .but 16 Bar working pressure | 14.3 |
| 1200 | 1200 | | 1 | | Num. | | Supply and install in the site of work **(6") cast iron swing check** valve, complete with complete with counter weight, flanges, gaskets, bolts and nuts, for 25 Bar working pressure) -Epoxy coated with extended arm and lid (cover) in accordance with BS. No. 5153 or local and international equivalent and according to general specifications mentioned in Annex 1, S1. The installation works includes all costs of excavations, cutting, shaping, welding, | 15.3 |
| 200 | 200 | | 1 | | Num. | | Supply to the site of work **(6") Dresser** for (25) Bar working pressure) complete (flanges, gaskets, nuts, bolts etc.) with two tie rods 600 mm long, diameter of 5/8" and 4 ears for each dresser. | 16.3 |
| 150 | 150 | | 1 | | Num. | | Ditto 16.3 6" dresser but 16 Bar working pressure | 17.3 |
| 500 | 500 | | 1 | | L.S | | **Pressure barrel**: Supplying and installing of a pressure barrel. The contractor shall supply and install all the pipes and fittings to connect with outlet main 6” pipes of the pump and should be according to specifications. The price include, complete instrumentation of the pressure barrel including all fittings and steel pipes ½” , and two-1/2 inch ball valves, pressure stabilizer needle valve at the entrance, foot valve- valve-for directional flow, couples, nibbles, elbows with nuts, bolts, flanges and gaskets as needed to install the pressure barrel. The price includes supplying and installing all necessary materials and works to connect to the pressure switches and casting a suitable reinforced foundation under barrel, and above the pump ground level, | 18.3 |
| **46100** | **Total of supplying and installing materials (including vat) of the booster pump and its fittings** | | | | | | | |

**4)-250 m3 steel reservoir**

| **Item No.** | Description works | unit | QTY | Unit  Price $ | Total  Price $ |
| --- | --- | --- | --- | --- | --- |
| 4.1 | Supply and Install metallic corrugated galvanized steel irrigation balance reservoir with a volume capacity of **250 m3** of water at well site in Kufr Laqif-Qalqilya Governorate.  **Total Height** of the reservoir after assembly of the steel sheets is 330 cm and the height level of water will be no more than 300 cm. The wall sheets are metallic corrugated galvanized steel thickness of not less than 1.5 mm  The outer Radius of the reservoir is 5 m.  Total Height of the reservoir after assembly of the steel sheets is 3.30 m. The lining sheet is finished by smooth finish using polyester fabric and avoiding punching or scratching of the sheets. Therefore, the upper sheets edges nuts be covered with PE cover at edge sheets.  The whole reservoir should be removable (simple assembly and disassembly)  The fabric lining size must be enough to cover the whole tank area and extra length not less than 20 cm below the tank top level; the extra length must cover all tank wall form all sides as shown in the attached drawings and at the same level. The liner covers is fixed to the tank frame using ropes, (metallic cables not less than 4 mm thickness the cables to be fixed on sheet wall and bolts between two nuts and washers), the plastic ties to insure tightens and connection. The cover is fixed using metal rings and maximum spacing between rings does not exceed 50 cm and plastic tie between each two ties. The rings must be tightened to insure maximum tension with NO sagging in the cover.    All pipes to be fixed on the supporting 1” pipes and welded to the 4” pipes (filled with concrete). The 1” pipes to be as galvanized ring 3.25 mm thickness as shown in the drawings.  The price includes the supply and installation of all piping for inlet, outlet, and washout and over flow as shown in the attached drawings. The pipes must be made of 6” galvanized steel pipe thickness not less than 3.96 mm lined from inside with cement mortar and lined from outside with PE layer 1.8 mm thicknesses. The reinforced concrete ring includes the supply and fix of 4” pipes (According to drawing) galvanized pipes with thickness not less than **3** mm in circumference of the tank filled with concrete. The distance between each two pipes is **2.00** m (center-to-center of each two pipes) and the height of the pipes is the same as the height **330 cm** of the tank plus the slope height which ranges between zero and 20 cm). The 4” pipes must be filled with concrete inside to the top. And to be connected from the above busing galvanized RHS profile 8\*4cm \*3 mm thickness and the upper middle by ring of 1” galvanized steel pipe 3.25 mm as show in the attached drawings.  The pipe system inside the tank must be equipped with all necessary materials to insure tight joints for any small water leakages. The 6” steel pipe inlet lined from inside with cement mortar and epoxy painted or, PE from outside the thickness of the steel 3.96mm. The supply and installation shall include but not be necessary limited to:   * The price for this item includes the preparation of the site as follows: Excavation in all types of rocks and Leveling of foundation; the leveled foundation shall have a diameter of at least **two meters larger than the diameter of the reservoir and the size of the stone walls.**. The price of this item includes all works necessary to open a road (if necessary) and to transport all materials to construct the reservoir. This includes excavation and backfilling, and compaction works. Backfilling of materials base course grade B base course in layers (each layer thickness max. 30 cm) and maintain 98% sub grade of the tank (rock cutting, backfilling to reach at least 40 cm level above the highest point of adjacent land or roads). Excavation is done in all types of rock and soil and transport outside the site of any excess excavations to accepted place by the local authority. The price for this item includes building wall stones all over the reservoir sides and where the reservoir foundation above the adjacent ground level. The price includes excavation, cutting and leveling the surrounding reservoir basement for building stone walls; which is made of boulders non fractured hard limestone dimensions not less than 200 cm\*150\*50cm. The dimension 200 cm is toward reservoir center, and 150 cm wide, and 50 cm thickness) and act as a retaining wall. The area between the stone wall and the concrete beam surrounding tank must be leveled and compacted with basecourse and cast reinforced concrete base 10 cm thickness along stone wall base and reinforced by steel mesh (Ø10mm all around the reservoir finish level). The maximum step of stone wall height at any side should not exceed 1.5 meter then make new step or enough slope from the base to the finished base course ground level. The stone walls are added everywhere necessary around the reservoir from all side sides; so as to obtain fully stable reservoir base against movement and water drainage from the roads and surrounding. The price includes clean the site and transport excavated and unwanted materials away from the site to accepted location by the village council. * The height of the tank ground level must be least at 50 cm higher than booster pump ground floor level. * Supply and lay 2-base course layers each should not be less than 15 cm thickness after compaction; the overall layer shall be compacted to not less than 30 cm and relative compaction 98% . * Supply and add a sand layer with min. 15 cm thick; this layer shall be installed inside the tank above the base coarse layer. * Fixing of the tank (assembly) including all materials and works that were mentioned or not mentioned in the specifications and must insure stable, level and tight reservoir. * The price for this item includes the supply of materials (all reservoir 6” pipes and fittings show in the attached drawings and where placed on inlet pipe, two outlets pipes, clean and over flow pipes) and according to standard fittings specification for all pipes and fittings. This includes supply and install of all internal and external 6” pipes, and these fittings as follows (#,diam, PN16 all according to Annex 1): **four gate valves diam 6”** , **four dressers diam6**”, **two air valve 2”** with 2” globe valve and couplings, **6” float valve** complete including float ball valve and piping 1”, supply and install 1” transparent water level indicator with 1” globe valve and 1” couplings , **two strainers 6**”, Non **Return Valve 6”, two water meter 6”**, jacks, elbows, Tees, couplings….etc as shown in the attached drawings. The price for this item includes all works as (welding, cutting, shaping, transporting, distribution….etc) to connect the piping system to the reservoir (Inlet & outlet, wash out, over flow) as shown in the attached drawings   The price includes supply and install a reinforced concrete B-300 ring beam (50cm depth\*25cm width) shall be constructed around the tank at the ground level. The outer face of the beam must be fair face finish or by using plaster 3 -faces of plaster (rough, smooth, and shebreez) using standard percentages of plaster materials. The supporting concrete beam reinforcements details are as follows:  Use 9 steel bars, Ø12 mm as shown in the attached drawing  Use stirrups Ø 8mm each 20 cm. over all the beam  Before casting concrete, obtaining the approval of the field supervisor is mandatory. The price includes having 2 concrete samples for compression testing.  The tank shall be equipped with a transparent vertical pipe connected to the outlet to indicate the internal water level and to be properly fixed.  The lining, cover PE materials must be encased from inside with plastic cover sheets over the entire walls to avoid punching of the PE lining and all materials should be suitable for drinking water and to have at least the following specifications:  **Fabric, Type polyester 1100 Dtx, 200 gm/m2**  **Total Weight 740 gm/m2.**  **Breaking strength: 280/260 kg/5cm.**  **Tear strength: 110/100 kg.**  **Adhesion 12 kg/5cm.**  All corrugated sheets shall be fixed vertically without any buckling; no spaces or voids shall be left between the sheets.  The price includes fixing with bolts and nuts of the corrugated galvanized steel sheets of the tank. The overlapping shall not be less than 25 cm in both directions: vertical and horizontal. The bolts spacing shall be two bolts each 5 cm over the entire tank assembly.  **Steel Cover Shed (All According to the attached drawings)**: Supply and install all materials to build a steel shed to cover the tank against light and to achieve complete confinement using steel boxes and frames and covered with corrugated steel sheets 0.5 mm. The tank roof includes door opening 90\*90 cm made of galvanized sheets 2 mm and frame 4\*4 cm \*2 mm and lock. The roof cover includes 4 main footings 60\*60\*50 B-300 reinforced with a mesh of steel diam 10 mm. Supply and Install (S&I) Main RHS box steel Galvanized 10\*10\*cm \*4 mm to be fixed inside the foundations and to the level of tank taking into consideration the differences in height due slope for rain water drainage as show in the drawing. S&I to RHS Galvanized 10\*10\*cm \*4 mm to connect the main supporting columns and end at outer supporting 4” Galvanized pipes. S&I Other RHS boxes 10\*10cm \*4 mm to be installed between the main supporting beams as shown in the attached drawings. S&I RHS boxes 8\*4cm \*2mm over the entire space maximum each 90 cm center to center as shown in the drawing. All welded steel profiles must be painted two faces. The whole RHS boxes to be fixed on the supporting 4” galvanized pipes and RHS ring 8\*4cm \*3mm. S&I corrugated galvanized steel sheets 0.5 mm over the entire reservoir space to the outer edge of the galvanized ring and fixed with bolts to the steel frames and shown in the drawings. The inner supporting frames are fixed in the concrete foundation and extend to the sand level and ends with steel cap steel plate 25\*25 cm \*1 cm thickness. The upper supporting frames start with the same cap/plate and the polyester liner laid on the inner plated and bolted tightly to the upper plate by 8 bolts daim 14 mm. The main supporting farmers to be fixed by welding as rigid connections using standard welding bars and specifications. To avoid punching of inner liner the reservoir must be filled by 30 cm of water height before start welding. The secondary frames are to be fixed on skids before welding.  **The price includes water quantities to fill the tank (200 mcub) to the top level and conduct all necessary test as overflow, closure by the float valve and to carry the leakage test..**  The village council reserves the right for carrying additional testing for any part of the works included in the contract, during and/ or after the execution of the work. In the event that the results of such tests are not satisfactory and not in conformity with the specifications requirements, the contractor shall bear the costs and any other implications of such tests. | L.S | 1 | 25000 | 25000 |
| **Total of supplying ,installing & transporting of the 250 m3 steel tank including vat** | | | | |  |

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**Summary of the bill**

|  |  |  |
| --- | --- | --- |
| **Item** | **Description** | **Price (US $)** |
| **1.** | **Total of supplying and installing pipes and fittings including vat** |  |
| **2.** | **Total of supplying, installing & transporting of the 1000 m3 steel tank including vat** |  |
| **3.** | **Total of supplying, installing & transporting of the booster pump including vat** |  |
| **4.** | **Total of supplying, installing & transporting of the 250 m3 steel tank including vat** |  |
| **Total of all works including vat** | |  |
| **Final total in words including vat** | | |

**Name of company /contractor:**

**Address:**

**Date:**

**Signature and stamp:**

**Annex 1: Fittings Materials Specifications**

**S1: Check valves**

1. Body: Cast Iron
2. Disc: Cast Iron
3. Cover: Cast Iron
4. Seat Holder Cast: Iron
5. Body Seat Ring: Bronze ASTM B62
6. Disc Seat Ring: Rubber (BUNA-N) ASTM D 2000 AA 7008
7. Hinge Pin: Stainless Steel
8. Plug: Malleable Iron
9. Cover: Bolt & Nut: Steel
10. Seat Holder Bolt: Stainless Steel
11. Cover Gasket: Rubber (BUNA-N)
12. Coating: fusion bonded epoxy inside and outside

**S2: Gate valves none rising stem:**

1. Body: Cast Iron
2. Bonnet: Cast Iron
3. Packing Box: Cast Iron
4. Disc Cast: Iron
5. Hand Wheel: Cast Iron
6. Body Seat Ring: Bronze
7. Disc Seat Ring: Bronze
8. Gland Cast: Iron
9. Stem Nut: Bronze
10. Stem Bronze
11. Bonnet Gasket: steel
12. Packing Box Gasket: steel
13. Bonnet Bolt & Nut: Steel
14. Gland Stud & Nut: Steel
15. Packing Box Stud & Nut: Steel
16. Top Nut: Steel
17. Washer: Steel
18. Packing: Graphite Fiber Commercial
19. Operating Nut: Cast Iron A 126 Class B
20. Coating: Electro statically applied epoxy inside and outside,

**S3: Combination Air Valve**

1. Body: PN21 Sphero Nodular ASTM-536 60-40-18
2. Rolling Seal: Rubber E.P.D.M
3. Clamping Stem: Reinforced Nylon
4. Float: Foamed Polypropylene
5. Base: Brass ASTM B-124
6. O-Ring: Buna-N
7. Cover : PN21 Cast iron ASTM A-48 CL-35B
8. Nozzle Seat: Bronze ASTM B-62 B-271 C83600
9. Nozzle Seal: Rubber E.P.D.M
10. O-Ring: Buna-N
11. Bolt and Nut: Galvanized Steel, Chromate Plated
12. Float: Stainless Steel 304L
13. Body: PN21 Cast iron ASTM A-48 CL-35B
14. Sleeve: Reinforced Nylon
15. Threaded Outlet: Brass
16. Coating: fusion bonded epoxy inside and outside

**S4: Butterfly Valves: (GEAR)**

1. Stem: Stainless steel
2. Body: Cast iron
3. Bushing: Brass
4. O ring: EPDM
5. Bushing (spacer): Polymeric
6. Disc: Stainless steel
7. Liner: EPDM
8. Washer: Bronze
9. Retaining ring: Spring steel
10. Plug: Plastic
11. Coating: Fusion bonded epoxy inside and outside

**S5: Water meter specification and materials.**

1. Working pressure 16 or 25 bars as required.
2. Max. temperature 60 C
3. Body: cast iron
4. Coating: epoxy
5. Connection: Flanged ends for 4” and above diameters or records 3” and less diameters

**S6: Strainers Specifications:**

1. Body: cast iron ASTM 126 class B
2. Cover: cast iron ASTM 126 class B
3. Screen: stainless steel
4. Gasket: Buna -N
5. Plug: steel
6. Bolts: steel
7. Coating: fusion bonded epoxy inside and outside

**S7: Control Valves specifications (float valves and pressure reducing valves)**

1. Connection: flanged
2. Water temperature up to 60 C
3. Working pressure 16 bars
4. Valve body and cover ductile iron (ASTM A-536)
5. Valve internals: stainless steel and bronze
6. Control trim: brass
7. Elastomers: Buna-N
8. Coating: fusion bonded epoxy

**S8a: the price per meter length includes all of the following.** Spreading along the route of pipe lines, welding two passes of the steel pipes including welding of readymade elbows (the unit price per meter length is valid for all the 6”, 4”,3” pipes and include all welding costs between each two pipes, or between pipes and elbows, or pipes and tees….etc. The price also includes the shaping and welding of elbows on site so as the pipe line will be always in the center of the route. The price include all welding of Tees, nipples and couplings for branches as 4”, 3”, 2″&1″, ¾” with plug for the future customers and as required by the supervisor engineer. Any pipes irregularities or damages must be repaired. Installation works are not limited to the routes specified in the attached drawing, but new route lines are expected as well and without variation in the technical specification and quality of works and unit prices in the whole tender items. No additional prices for the unit price what so ever the site of work is rough or far from the dirt roads. The distribution and welding works must be carried out in all intended pipes routes without variation in unit prices. Each Main pipe route line must be connected to the source well. The welding, cutting and shaping are including in the unit price (per meter length), and the welding costs include shaping and cutting without using elbows in case the outside angle is less than 22 degrees or the internal angle more than 168 degrees. The price of welding all types of elbows, tees, and other fittings are included in the unit price of the steel pipes and no payments for welding all these connections.

**S8b: Painting works include** adding two faces (red oxide as priming paint and zinc oxide base oil paint for finish). The pipe surface must be painted with two coats from all sides, particularly lower part to the ground. Therefore, the pipe must hold on supports above the ground minimum 30 cms, and then released to ground down after the paint was dry. Prepare the surface and stir the paint before use or mix using a power agitator. Before applying paint, a thinner liquid has to be added to the pipes surface to clean away oil and grease, use a detergent to remove excess dirt and contaminants. Remove the metallic debris such as mill scale and rust using disc sanders, sandpaper or wire brushes which ensures an adhesive surface.

**S9: Irrigation Steel Pipes Welded Black Steel Pipes,** [**ASTM A53**](http://www.techstreet.com/cgi-bin/detail?product_id=911886) **Or as API5L:**

**A53 Type F**, which is longitudinally furnace butt welded or continuous welded (Grade A only), **A53 Type E**, which is longitudinally [electric resistance welded](http://en.wikipedia.org/wiki/Seam_welding) (Grades A)

**S10: Road crossing for 6”, 4” and 3” pipes**. The price per unit length for any pipe diameter in this tender includes all costs of excavation (80\*50 cm) and basecourse backfill 98% relative compaction and where along roads and road crossings as shown in the drawings. This includes all excavation works necessary for making pipes trenches across the whole road width (whatever is the road width). The width of trench should be not less than 50 cm plus the pipe diameter. The total trench depth should be not less than 70 cm plus the pipe diameter. The backfill materials must include soft back fill as follows: fine aggregates 2-3 mm diameters (symismya) below 10 cm below the pipe bottom plus pipe diameter and 10 cm above the pipe top crown (total soft backfill thickness inside the trench equal 20 cm plus the pipe diameter). The final backfill up to the original ground level must of compacted base course grade B.

**S11**- **Solid state frequency inverter**

* Wide Voltage Range: 320 ~ 480V
* Input Frequency Range: 40 ~ 65Hz
* Output Voltage Range: 0 ~ rated input voltage
* Output Frequency Range: 0 ~ 500Hz
* Overload Capacity: 60s with 150% of rated current, 2s with 180% of rated current
* From 0.75 ~ 7.5KW Plastic house; 11 ~ 630KW is metal house
* Control Mode: High Quality V/F Control
* Speed Accuracy: V/F + 0.5% of maximum speed
* 20 channels for frequency setting
* Analog signal: 0 ~ 10V,-10V ~ 10V,0 ~ 20mA.
* Pulse setting input: 0~50 KHz.
* Built-in RS485 communication port
* Solid state programmable screen and PLC configurations
* All model are integrated IGBT
* The malfunction ratio is 0.8% within 24 months warranty

**Booster Pump**: The contractor should attach in his offer type of booster pump and details information on it including data sheet. In any case, he should include the manufacturer brand name, performance and testing curves (and due point), full specifications of manufacturing materials and dimensions of the stages, bowels, main shaft, retainers, stabilizers, lockers, etc. . The contractor must submit the pump original performance/testing curve from the company or from an approved turbines test lab. Before installing any new materials, the contractor must get the initial records for existing conditions of the well including: the well pumping capacity in m3/hr; electric power capacity, voltage drop..etc. these tests must be reported before start any import and supply orders. Therefore, the contractor must prepare suitable meters to carry on these measures. The contractor will not be paid any money for taking these records and their cost will be considered as undeclared/indirect costs that are already included in the booster price.

**Fittings:** All fittings in this project must meet the standard specifications. The contractor should install them wherever the supervisor engineer decides within each project area and not to claim any variation for that. The installation process includes all works such as excavation in all kinds of rocks and soils, welding, shaping, cleaning the site of work and painting.

**Civil works: The rate of the items in this tender includes all the materials and works specified below and as follows:**

* The price of construction includes all works and materials necessary to accomplish all activities according to works standards and supervisor engineer instructions and as follows:
* The price for the material item includes but not limited to the following types of materials. Any other material necessary to maintain the wells, to construct the booster pumps and service rooms; all works and materials must be prepared and its price is included in price for item unit.
* **Aggregates** for casting concrete and plastering materials: Supply all materials as crushed aggregates (fine and coarse materials as clean silica sand and medium size well graded gravel, sand, water for the construction, floors, plastering the walls, All costs of transportation and any other costs for supply are included in the unit price. Concrete and steel specifications are according to Annex. The materials will be used for casting concrete for the foundation, columns, walls, are reinforced with steel bars mesh according to the attached drawings.
* **Cement:** for casting, plastering the walls, and any other types of cement works around the project area . All costs of transportation and any other costs for supply are included in the unit price. Rate also includes the supply of clean water suitable for drinking to be used for all concrete work (casting, plastering and curing).
* **Steel:** all sizes of bars for reinforcing the pools floor, walls, roofs and any other concrete works.
* **Painting**: For water proofing material as epoxy/or nitcote resin or other materials suitable for water proofing inside the water tanks. The materials should be suitable for the insulation of the walls. The quantity must be enough to carry two faces all over the walls. The painting materials must be mixed and prepared and installed according to the manufacturer instructions. The tenderer must supply brand names of such product and catalogues including manufacturing company for the intended painting materials that are going to be used for pools construction. The price of materials painting includes the materials necessary to paint the steel cover as two faces (red oxide priming paint and zinc oxide base oil paint. All costs of transportation and any other costs for supply are included in the unit price.

**The rate in each of the BoQ items includes all labor costs as workers and all machines works costs that are necessary to construct the civil works; the rate includes but not limited to the following types of works and labor. The units prices of all items mentioned in the BOQ include all conditions and technical specifications which are shown under this item below.**

* The unit price in the items below includes the transportation of materials to the work site. Therefore, the contractor should visit the sites and put his prices according to all the necessary works for this sub –items and all other items in this project.
* Cleaning the site from any excess of building materials, sediments stones or rocks accumulated inside or outside the well’s site.
* The rate of the items in this tender include all works and water prices to prepare concrete mix, walls’ plaster and to cure the casting concrete and plaster for three days at least and where necessary within the project area.
* All works necessary for casting reinforced and non reinforced concrete layers: include floors walls, roofs…etc.
* All works necessary for paintings: Includes two coats of water proofing materials according to the manufacturer’s instructions.
* The price for this item includes all works and costs to fill the reservoirs. In the case of any noticeable leakage, the contactor should maintain the leaky place and redo the test

**Technical Specifications for cement plastering**

* The plaster materials should be clean of impurities and fixed percentage of water, cement, and sand and crouched limestone.
* Its finish must be smooth with no cracks according to the supervisor instruction
* The walls must be cured and cleaned with water to insure the walls stability. Any organic materials including oils and stone or concrete bumps. The thick grooves must be cleaned and grouted with small stones and cement before plastering.
* The first face must be rough as nails composed of crushed limestone, silica and cement (1:1)
* Any casted concrete or plaster must be cured with water for three days three times a day.
* The second face is smooth and composed of cement /lime and very fine crushed limestone respectively as 1:1:1.
* The third face is composed only of liquid cement
* The fourth face is composed of water proof materials as epoxy l.
* In case parts of the walls are loose, then the walls must be reinforced by steel mesh to avoid block collapsing.
* Technical specification for concrete works. The dimensions are according to the supervisor engineer instructions.
* The steel development length is not less than 60 D. Casting concrete of slump 5 cm and testing concrete by having 2-cubes 10\*10 cm of each patch or car mixer. Any casted concrete or plaster must be cured with water for three days three times a day.
* Any casted concrete must be done by using vibrator and skilled operator. In case of segregation it must be treated with special filler-expansion materials and according to the supervisor engineer instructions. If segregation too much, then the contractor must be alleged to remove the casted structure and redo the work.
* All concrete casting must be using ready mix concerted. Only in special site conditions it is allowed to used onsite
* All materials and works costs and necessary for shuttering, fixing steel, casting concrete are included in the unit prices for this tender.

**Hot Applied Rubberized Asphalt Waterproofing/Roofing Membrane**

Hot-Applied Rubberized Waterproofing Membrane is a hot-applied asphalt-based composition which is specifically formulated as a fluid material which is applied to form a continuous adhered waterproofing system. It is composed of a specially selected blend of refined asphalts, synthetic rubber and mineral stabilizers. It is modified with additives to promote adhesion During application, the membrane material is simply melted in an appropriate indirectly heated melter, poured or pumped onto the prepared surface, and then leveled to thickness of at least ( 4 mm) to form a seamless waterproofing membrane. Hot-Applied Rubberized Waterproofing Membrane is generally used in the waterproofing of various types of Portland cement concrete surfaces including precast and poured in place roofs, bridge decks, tunnels, and parking structures. The physical properties of the membrane permit its use in re-roofing operations over a variety of substrates, and for waterproofing of other surfaces including gypsum and wood surfaces. Rough surfaces tend to promote air entrapment in the compound during application, which might result in pin holing through the waterproofing membrane. Such surfaces also require use of more materials. Apply primer at 1 to 1.5 m²/ l, avoiding an excessive or over-spraying application. Bonding of the primer is not permitted. The primer shall be dry before applying the hot rubberized asphalt.

**Electric Cables**

The cable is **flat with a light blue outer sheath**, drinkable conductors for permanent submersion in potable water, to respective depths and up –to 600 meters. It is water resistance tested according to the European standard EN 505825-2-21 (AD8 condition complete submersion in water) and meets the requirements of BS 6920, and IEC 60228 covering the suitability of non-metallic materials and products for use in contact with water. The **EPR (Ethylene Propylene Rubber)** insulation and Elastomeric Cross-linked outer sheath should provide a robust and **water-tight** barrier.

The voltage rating is **0.6/1kV** and a temperature rating of -25oC to +90oC. It is suitable for use in water of a maximum temperature of 80oC

the conductor main construction properties are as follows:

* **Class 5** (Flexible Conductor) fine stranded tinned pure Copper
* Voltage rating: (0.6/1kv) 600 V between the conductor and earth, and 1000 V rms between adjacent conductors.
* Inner Insulation: **EPR** (Ethylene Propylene Rubber)
* **Outer sheath/ Jacket**: Elastomeric Cross-linked compound including filler materials

**Ready Mix Concrete**

a- Standard Specification for Ready-Mixed Concrete :ASTM C94/C94M-03

b- Testing Hardened Concrete Compressive strength: BS EN 12390-4

**Steel Bars**

1. Standard Specification for reinforcement Steel Bars. ASTM 615/ Grade 60
2. Specification for mild steel. BS 1722-9

**Cement Specifications**

Ordinary Grey Portland Cement Grade 42.5 Conforming To Standard Gb175-1999 Having Chemical Properties:

L.O.I. : Max 5.0

Mgo : Max 5.0

So3 : Max 3.5

Fineness : 0.08mm Sieve Max 10

Soundness : Sound Setting Time

Initial Set : Min 45 Minutes

Final Set : Max 10 Hours

Compressive Strength :

3 Days : 21 Mpa ,

28 Days : 42.5 Mpa

Bending Strength

3 Days : 4.0 Mpa,

28 Days : 6.5 Mpa

**A3-4: Aggregates**

* grading As C-144 ASTM
* durability As ASTM D3744-03
* particle shape and surface texture As ASTM D 5821-01
* abrasion and skid resistance As ASTM D7428-08
* unit weights and voids As ASTM C29/C29M-07
* absorption and surface moisture As ASTM C70-06
* Fine aggregates or sand as ASTM C778-06

**Asphalt:**

### ASTM D 449 Standard Specification for Asphalt Used in Waterproofing

**Base course materials:** it should be a result of hard crushed rocks as dolomite limestone free of organic and soil materials as follows:

* Gypsum materials 2% maximum
* Soil materials 6%
* Dry specific weight 2.1 ton/m3

**Base course Materials gradation by weight or according to the local standards**

|  |  |  |
| --- | --- | --- |
| **Specifications Limits (%)** | | **Sieve no** |
| **Grade B** | **Grade A** |
| 100 | - | 2’’ |
| 70-100 | 100 | 1.5’’ |
| 55-82 | 75-100 | 1’’ |
| 50-80 | 60-90 | ¾’’ |
| 45-75 | 45-80 | ½’’ |
| 40-70 | 40-70 | 3/8’’ |
| 30-60 | 30-65 | 4 # |
| 20-50 | 20-40 | 10 # |
| 10-30 | 8-20 | 40 # |
| 5-12 | 5-10 | 200 # |

**Base Course Test:**

Before starting any base course supply to work site, the contractor should carry on the following tests and show that supply source or the quarry materials matches and pass these tests **or according to the local standards**:

|  |  |
| --- | --- |
| Crushed percent by sodium sulphate | According to AASHTO –T104, maximum 10% |
| Percentage of loss by magnesium sulphate | According to AASHTO –T104, maximum 12% |
| Percentage of loss by abrasion test Los Anglos Machine | 5% |
| Absorption ratio after 24 hours of immersion in water | % 10 maximum |
| Abrasion percentage after 24 hours immersion in water | % 5 maximum |
| Plasticity index | (AASHTO T 90) maximum 6% |
| Sand Equivalent | %30 minimum |
| CBR | 3-meter |

**Hot Applied Rubberized Asphalt Waterproofing/Roofing Membrane**

Hot-Applied Rubberized Waterproofing Membrane is a hot-applied asphalt-based composition which is specifically formulated as a fluid material which is applied to form a continuous adhered waterproofing system. It is composed of a specially selected blend of refined asphalts, synthetic rubber and mineral stabilizers. It is modified with additives to promote adhesion During application, the membrane material is simply melted in an appropriate indirectly heated melter, poured or pumped onto the prepared surface, and then leveled to thickness of at least ( 4 mm) to form a seamless waterproofing membrane. Hot-Applied Rubberized Waterproofing Membrane is generally used in the waterproofing of various types of Portland cement concrete surfaces including precast and poured in place roofs, bridge decks, tunnels, and parking structures. The physical properties of the membrane permit its use in re-roofing operations over a variety of substrates, and for waterproofing of other surfaces including gypsum and wood surfaces. Rough surfaces tend to promote air entrapment in the compound during application, which might result in pin holing through the waterproofing membrane. Such surfaces also require use of more materials. Apply primer at 1 to 1.5 m²/ l, avoiding an excessive or over-spraying application. Bonding of the primer is not permitted. The primer shall be dry before applying the hot rubberized asphalt.

|  |  |
| --- | --- |
| **Property**  Recommended Application Temperature  204°C) Flow, 140°F (60°C) | **Requirements**  380-400°F (193-  3 mm max. |
| Cone Penetration, 77°F (25°C) | 110 max. |
| 122°F (50°C)  Toughness Ratio  Rating | 200 max. Toughness  5.5 joule min.  0.04 min. Adhesion  1.0 min. |
| Water Vapor Permeance | 1.7 ng/Pa. m2.s |
| Water Absorption  0.18g max loss | 0.35g max gain or |
| Low Temperature Flexibility, -13°F (-25°C) Pass |  |
| Crack Bridging -13°F (-25°C) | Pass 10 Cycles |
| Heat Stability, 5 hours | Pass |
| Viscosity at Application Temp. | 2-15 seconds |
| Flash Point, C.O.C.  45°F (25°C) min above recommended app. temp. | 500°F (260°C) min or |