موسسة النفق لحضر الا نفاق
Al –Nafaq Transboring EST.

More Than 30 Years
TUNNELING

WORK EXPERTS AND PROVIDES FAST RELIABLE SERVICES ACROSS U.A.E

موسسة النفق لحضر الا نفاق
Al –Nafaq Transboring EST.

For More Information Contact Us

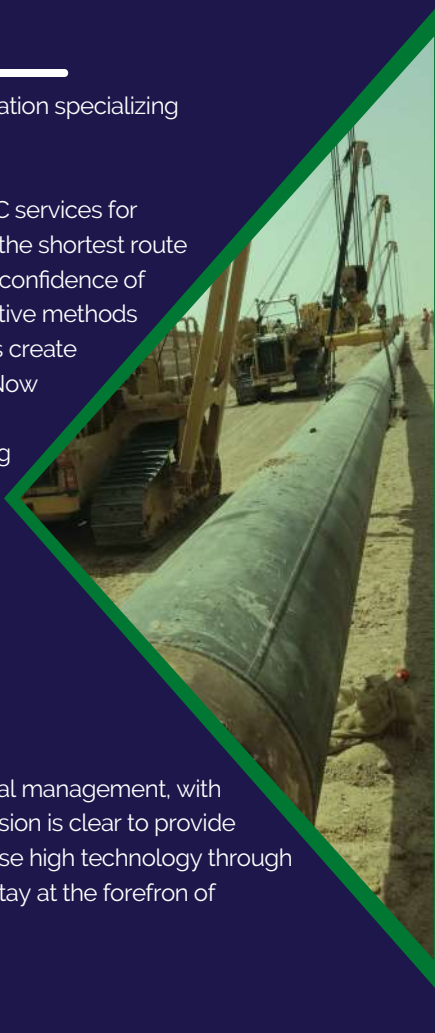
+971 3 7217 016
+971 3 7217 016
alnafaq@outlook.com
Al-Ain, UAE
P.O Box #23854

WHAT SETS US APART

Founded in 1981, Al- Nafaq Tranboring is an organization specializing in Non-Disruptive Road Crossing Works (NDRC).

Al-Nafaq has installed many cases by offering NDRC services for underground cable lines and installing pipelines on the shortest route without disturbing the surface. We have gained the confidence of clients by completing complex projects with innovative methods and enhanced equipment. Our topnotch capabilities create value and provide smart solutions for our projects. Now we've fully developed our engineering intellect and have pushed our boundaries when it comes to being a specialist in the drilling industry in U.A.E.

Al-Nafaq has become one of the leading industry in horizontal directional drilling, auger boring, and pipe jacking.



OUR VISION

We place utmost importance in integrity and industrial management, with respect to advancing culture in the workplace. Our vision is clear to provide Excellence in the field of tunneling work and showcase high technology through safety and use the best engineering processes and stay at the forefron of technology.

AUGER BORING

Augers are the perfect choice for a variety of landscaping, digging and drilling applications. This service is utilized to drill on a level plane through rotating a steel cutting head / cutter head.

Most of the auger boring is utilized to introduce pipe packaging under railways, expressways, airplane terminal runways, lined channels and so on.

HORIZONTAL DIRECTIONAL DRILLING

The tools and techniques used in the horizontal directional drilling (HDD) process are an outgrowth of the NDRC drilling industry.

The components of a horizontal drilling rig is used for pipeline construction, water lines, and sewers and installing cable lines respectively, it's a huge and technical process screened under the team of experts and technical engineers.

PIPELINE JACKING

Pipe Jacking is a specialist tunneling method for installing underground pipelines with the minimum surface disruption. It is most ideal for new sewer construction. It is also used for sewer replacement and relining water mains, sewerage pipelines.

Al-Nafaq has the capacity to drill deep huge spaces without disturbing the level of the surface.

Our Expertise

Our expertise lies in what we do, our plant and machinery are imported with the surety of its performance and unfaltering delivery.

Our team of mechanical engineers have strong hands in drilling for, Etisalat, Service cables, Storm water lines and Sewerage. We guarantee the highest technical standards of workmanship even under the most adverse soil conditions.

Our Equipment

Horizontal directional drilling machine, Thrust boring machine, and Pipe jacking machine are used in our services. We continuously enhance our machinery to achieve greater service standards, and with that, we go through a highly mechanical process under the supervision of safe and secure environment.

With the team of finest shaft managers and quality engineers, we proceed with our work in every way possible to deliver staunch and genuine service.

Once Something Is A Passion, It Becomes The Best Thing Alive!

موسسة النفق لحضر الا نفاق

Al –Nafaq Transboring EST.

Any type of drilling in all over UAE.
We are here to provide you the best organisation
to work in any condition.

مؤسسة النفق لحفر الإنغاق
AL NAFAQ TRANSBORING EST.

AL NAFAQ TRANSBORING EST.

(FORMERLY AL NAFAQ TUNNELS EST. FOR DRILLING)

THE TUNNELING GROUP, WITH PRECISION

HORIZONTAL DIRECTIONAL DRILLING
AUGER BORING & PIPE JACKING

TUNNELING WORK SPECIALIST FOR MORE THAN 31 YEARS IN U.A.E.

AL AIN, UNITED ARAB EMIRATES
TEL: 03-7217016 - Fax: 037217010 - Mobile: 050 - 663 6133

AL NAFAQ TRANSBORING EST.

(FORMERLY AL NAFAQ TUNNELS EST. FOR DRILLING)
THE TUNNELING GROUP, WITH PRECISION

TABLE OF CONTENTS

COPY OF REGISTRATION

Commercial License

رخصة تجارية

License No	:	CN-1123359	:	رقم الرخصة
ADCCI No	:	120777	:	عضوية الغرفة
Establishment Card MOHRE	:		:	وزارة الموارد البشرية والتوطين بطاقة المنشأة
Establishment Card GDRFA	:		:	الادارة العامة للإقامة وشؤون الأجانب - بطاقة المنشأة
Legal Form	: Establishment		: مؤسسة فردية	الشكل القانوني
			: مؤسسة النفق لحفر الأنفاق	الإسم التجاري
Trade Name	: AL NAFAQ TRANSBORING EST			
Establishment Date	:	02/09/2001	:	تاريخ تأسيس المنشأة
Issue Date	:	11/11/2020	:	تاريخ الإصدار
Expiry Date	:	10/11/2021	:	تاريخ الإنتهاء

الصلة Role	الجنسية Nationality	الملاك / الشركاء Owners / Partners	الرمز No.
مالك Owner	الإمارات العربية المتحدة United Arab Emirates	محمد جمعه حسن محمد البلوشى MOHAMMED JUMA HASAN MOHAMMED ALBLOOSHI	20004226

Commercial Activities : الأنشطة التجارية :

- Water Passages Drilling and Deepening - مقاولات حفرالممرات المائية وتعميقها
- Service Duct Connection Drilling - مقاولات حفر قنوات التمديدات الخدمية

Address : العنوان : المنطقة الصناعية, الصفرة, 17 : السابع عشر, مبنى, السيد دغاش عبدالله سعيد مسلم و اخرين

(تم تحصيل رسوم خدمات الدفاع المدني)

Official Email	:	rostomdrillingest@gmail.com	:	البريد الإلكتروني الرسمي
Official Mobile	:	971547018338	:	رقم التواصل الرسمي

حكومة دبي
GOVERNMENT OF DUBAI

اقتصادية دبي
DUBAI ECONOMY

رخصة مهنية
Professional License

License Details / تفاصيل الرخصة

License No.	**935334**		رقم الرخصة
Trade Name	AL NAFAQ TRANSBORING EST - DUBAI BRANCH		الإسم التجارى
Legal Type	Branch of Company Registered in other emirates		الشكل القانونى
Expiry Date	16/02/2022	تاريخ الإنتهاء	**Issue Date** 17/02/2021 تاريخ الإصدار
D&B D-U-N-S ®	0	الرقم العالمي	**Main License No.** 935334 رقم الرخصة الام
Register No.		رقم السجل التجارى	**DCCI No.** عضوية الغرفة

مؤسسة النفق لحفر الأنفاق - فرع دبي

فرع لشركة مقرها في امارة أخرى

License Members / الاطراف

Share / الحصص	Role / الصفة	Nationality / الجنسية	Name / الاسم	No./رقم الشخص
100.00%	Co. Owner / مالك الشركة	United Arab Emirates / الامارات	مؤسسة النفق لحفر الأنفاق AL NAFAQ TRANSBORING EST	908476
	Manager / مدير	Pakistan / باكستان	يونس اقبال كيانى YOUNAS IQBAL KAYANI	908487

License Activities / نشاط الرخصة التجارية

Water Well Drilling Contracting — اعمال حفر أبار المياه وصيانتها

Service Lines Coring & Ditching Contracting — حفر قنوات التمديدات الخدمية

Address / العنوان

Phone No		تليفون	**P.O. Box** صندوق بريد
Fax No		فاكس	**Parcel ID** 242-138 رقم القطعة
Mobile No	971-50-6634204	هاتف متحرك	ملك مؤسسة دبي العقارية - القصيص الصناعية الأولى S.2 كراج رقم

Email / البريد الإلكتروني

Remarks / الملاحظات

Print Date 17/02/2021 15:53 تاريخ الطباعة **Receipt No.** 13822485 رقم الإيصال

الإمارات
THE EMIRATES

يمكنك الآن تجديد رخصتك التجارية من خلال الرسائل النصية القصيرة، أرسل رقم الرخصة إلى 6969 (دو/اتصالات) للحصول على اذن الدفع.
Now you can renew your trade license by sending a text message (SMS). Send your trade license number to 6969 (Du/ Etisalat) to receive payment voucher.

BRIXTON ASSESSMENT SERVICES

Certificate of Registration

This is to certify that the management system of the

Al Nafaq Transboring Est.

P.O. Box: 23854, Al Ain, Abu Dhabi, United Arab Emirates

has been assessed and found to be in compliance with the requirements of standard details below

ISO 9001:2015

This certificate is valid for the following

Water passages drilling and deepening
Service duct connection drilling
Pipe jacking works
Horizontal directional drilling works (HDD)

CERTIFICATE - CERTIFICAT - ZERTIFIKAT - CERTIFICATO

Certificate No : BA-BAS-B0018445

Initial Certification Date : 5/12/2020
Certification Issue Date : 5/12/2020
Certificate valid till : 5/11/2023

1st Surveillance Due : 4/12/2021
2nd Surveillance Due : 4/12/2022
Recertification Date : 4/12/2023

Certification Manager
Brixton Assessment Services

Further clarification regarding the scope of the certificate and the applicability of ISO 9001:2015 requirements may be obtained by consulting the organization.

This certificate remains valid while the holder maintains the management system in accordance with the standard above, which will be audited by Brixton Assessment Services through surveillance. This certificate remains the property of Brixton Assessment Services. Lack of fulfillment of conditions as set out in the certification agreement may render this certificate invalid.
Office 7, 35-37 Ludgate Hill, London, EC4M7 JN, United Kingdom. www.bascert.com

BRIXTON ASSESSMENT SERVICES

Certificate of Registration

This is to certify that the management system of the

Al Nafaq Transboring Est.

P.O. Box: 23854, Al Ain, Abu Dhabi, United Arab Emirates

has been assessed and found to be in compliance with the requirements of standard details below

ISO 14001:2015

This certificate is valid for the following

Water passages drilling and deepening
Service duct connection drilling
Pipe jacking works
Horizontal directional drilling works (HDD)

Certificate No : BA-BAS-B0018446

Initial Certification Date : 5/12/2020
Certification Issue Date : 5/12/2020
Certificate valid till : 5/11/2023

1st Surveillance Due : 4/12/2021
2nd Surveillance Due : 4/12/2022
Recertification Date : 4/12/2023

Certification Manager
Brixton Assessment Services

Further clarification regarding the scope of the certificate and the applicability of 14001:2015 requirements may be obtained by consulting the organization.

This certificate remains valid while the holder maintains the management system in accordance with the standard above, which will be audited by Brixton Assessment Services through surveillance.This certificate remains the property of Brixton Assessment Services. Lack of fulfillment of conditions as set out in the certification agreement may render this certificate invalid.
Office 7, 35-37 Ludgate Hill, London, EC4M7 JN, United Kingdom. www.bascert.com

CERTIFICATE - CERTIFICAT - ZERTIFIKAT - CERTIFICATO

BRIXTON ASSESSMENT SERVICES

Certificate of Registration

This is to certify that the management system of the

Al Nafaq Transboring Est.

P.O. Box: 23854, Al Ain, Abu Dhabi, United Arab Emirates

has been assessed and found to be in compliance with the requirements of standard details below

ISO 45001:2018

This certificate is valid for the following

Water passages drilling and deepening
Service duct connection drilling
Pipe jacking works
Horizontal directional drilling works (HDD)

Certificate No : BA-BAS-B0018447

Initial Certification Date : 5/12/2020
Certification Issue Date : 5/12/2020
Certificate valid till : 5/11/2023

1st Surveillance Due : 4/12/2021
2nd Surveillance Due : 4/12/2022
Recertification Date : 4/12/2023

Certification Manager
Brixton Assessment Services

Further clarification regarding the scope of the certificate and the applicability of ISO 45001:2018 requirements may be obtained by consulting the organization.

This certificate remains valid while the holder maintains the management system in accordance with the standard above, which will be audited by Brixton Assessment Services through surveillance. This certificate remains the property of Brixton Assessment Services. Lack of fulfillment of conditions as set out in the certification agreement may render this certificate invalid.

Office 7, 35-37 Ludgate Hill, London, EC4M7 JN, United Kingdom. www.bascert.com

CERTIFICATE - CERTIFICAT - ZERTIFIKAT - CERTIFICATO

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

هيئة مياه وكهرباء أبوظبي
Abu Dhabi Water & Electricity Authority

FAXED ON 31 MAY 2016

Company Name : AL NAFAQ TRANSBORING EST. Fax:0097137217010
Attention : Essmat Gendy
Registration Number :9914368 Date : 31 MAY 2016
Subject : Pre-Qualification Status

We have pleasure to inform you that **M/s. AL NAFAQ TRANSBORING EST., United Arab Emirates, Code No. 9914368.** has been pre-qualified as a possible source to supply of the following services. which has been rated as per the schedule below:

S.No	WG Criteri	WG No.	WG Description	Current Status	Decision	Validation Date	Remarks
1	C3	3101800	HORIZONTAL DIRECTIONAL DRILLING HDD	GOOD	RPQSC/ 10/2972/20	23-May-2021	
2	C3	2300800	DRILLING & WELL DEVELOPMENT	BELOW AVERAGE	2/2009	30-Jul-2014	

However you have to maintain and update your company records in ADWEA Commercial directory to avoid any inactivation due to such.These record shall be maintained and updated through e-registration system and shall include but not limited to the following documents once they are renewed.

1. Respective licenses
2. Agency certificates and Agreements where applicable
3. Any other changes in your address,contact person,owners/sponsors etc.

Please note that at the time of release of enquiries, a further short listing takes place based on exhibited interest at that time and the specifics of material/equipment in question as needed.

You are advised to quote your registration No.(**9914368**) in all future correspondence.

Regards,

Bader Ahmed Al Hammadi
Supply Department Manager

Cc: Company Registration Section
Cc: Assets Directorate / Projects Directorate/Supply Department

C3:VERY GOOD: > 100M, GOOD: 50M-100M, AVERAGE: 10M-49M, BELOW AVERAGE: 3-9M,99M
C5:VERY GOOD: > 10M, GOOD: 3M-10M, AVERAGE: 1M-2.99M, BELOW AVERAGE: 25K-0.99M

ADWEC TRANSCO

›m Fax No. : 02-8180030

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

FACSIMILE TRANSMITTAL SHEET

TO: AL NAFAQ TRANSBORING EST.	**FROM: MANAGER, SUPPLY DEPARTMENT**
ATTN: GENERAL MANAGER	**DATE: 06th November 2013**
FAX NUMBER: 03- 7222602 **PHONE NUMBER: 03- 7641818**	**TOTAL NO. OF PAGES INCLUDING COVER: ONE**
YOUR REFERENCE NUMBER: NONE	**OUR REFERENCE NUMBER:** **SD/CRS/AM/ 2379/13**
RE: N/A	**SUBJECT:** **APPROVAL AS CONTRACTOR**

☐ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

This has reference to your request for registration and pre-qualification with ADSSC.

Please be informed that your company have been pre-qualified and included in our records as a possible Contractor for the following Work Group:

SR No.	WORK GROUP	WORK GROUP DESCRIPTION
1	3101800	HORIZONTAL DIRECTIONAL DRILLING (HDD & Thrust Boring Drilling works up to **1200** mm Diameter)

For any queries regarding the above subject, please contact Mr. Ali Abu Hlaiqa phone No. 02 – 8180 331.

Best Regards,

06 NOV 2013

Mohamed S. Saif Al Nuaimi
Supply Dept. Manager

Cc: Head of Commercial Registration Section

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

دائرة الشؤون البلدية
DEPARTMENT OF MUNICIPAL AFFAIRS
بلدية مدينة العين
AL AIN CITY MUNICIPALITY

التاريخ : ٣٠/ ١١ / ٢٠١٤
إشارتنا : ب ع/ ب ت ا/ط/ ص/ ٢٨٣٩

لمن يهمه الأمر

بالإشارة إلى الموضوع أعلاه و طلب السادة/ مؤسسة النفق لحفر الأنفاق تفيد إدارة الطرق الداخلية والبنية التحتية – بلدية مدينة العين ،،، بأن المؤسسة المذكورة قد نفذت أعمال حفر و دفع آلي (N.D.R.Cs) أسفل أصول الطرق والبنية التحتية حسب المتطلبات و الاشتراطات و ذلك لتمديد خطوط الخدمات المعتمدة من الجهات المعنية بمناطق متفرقة بمدينة العين كان أداءها مقبول .

و قد أعطيت هذه الشهادة بناءً على رغبة و طلب المؤسسة دون تحمل الإدارة أدني مسؤولية تجاه الغير .

وتفضلوا بقبول وافر التحية والاحترام .

م . ناصر مفتاح العرياني
مدير إدارة الطرق الداخلية والبنية التحتية

نسخة إلى:
- مكتبي الحفظ
- قسم جودة المواد

ص.ب 1003 العين، الإمارات العربية المتحدة. هاتف: 8000 712 3 971+، فاكس: 8001 712 3 971+
P. O. Box 1003, Al Ain, United Arab Emirates. Tel: +971 (3) 7128 000, Fax: +971 (3) 7128 001
am.abudhabi.ae

هيئة مياه وكهرباء أبوظبي
Abu Dhabi Water & Electricity Authority

To : **AL NAFAQ TRANSBORING EST.** **Fax No.:03-7214224**

ATTN. : **Manager**

From : **COMPANIES REGISTRATION SECTION Fax No.:02-694 3294**

Abu Dhabi Water & Electricity (ADWEA)
PO Box 6120 – Tel. (009712) 6943261 Abu Dhabi U.A.E.

Date: 09 FEB 2010

REF: ADWEA/BS/REG/HAS/511/10

Co. Code: 9914368

Subject: Change in Company Name

With reference to your letter dated 08/02/10, please be informed that the company name has been changed from **AL NAFAQ WELL DRILLING EST.** to **AL NAFAQ TRANSBORING EST.** in ADWEA Commercial Directory.

We kindly request you to update your company profile through the following ADWEA website for E-registration:

www.adwea.com

for any assistance, please contact:

Companies Registration Section
Tel: 02-694 3032
Fax: 02-694 3294
E-mail: SupplySupport@adwea.ae

Regards,

ADWEA
RP & P Dept
Company Registration Section
Abu Dhabi Water & Electricity Authority

Companies Registration Section

هيئة مياه وكهرباء أبوظبي
Abu Dhabi Water & Electricity Authority

To: M/s. Al Nafaq Well Drilling Est. **Fax No.:** 03 - 7214224

Attn: Manager

From: COMPANY REGISTRATION SECTION **Fax No.:** 02-694 3294

Abu Dhabi Water & Electricity (ADWEA)
PO Box 6120 – Tel. (009712) 6943261 Abu Dhabi U.A.E.

Date: 30 JUL 2009 **REF: ADWEA/BP&P/REG/HAS/2306/09**

Company ID. No.: 9914368

Subject: PREQUALIFICATION STATUS

With reference to site survey of M/s. Al Nafaq Well Drilling Est. on 07/05/2009, code # 9914368, please be informed that based on the evaluation, your company have been qualified and included in our records as a possible source for supply of the following services:

WG No.	WG Description
2300800	DRILLING & WELL DEVELOPMENT

Please note that at the time of release of enquiries, a further short listing takes place based on exhibited interest at that time and the specifics of material/ equipment in question as the need may be.

You are advised to quote your registration No. (9914368) in all future correspondence.

Regards,

Company Registration Section

هيئة مياه وكهرباء أبوظبي
Abu Dhabi Water & Electricity Authority

Approval of your Application/Questionnaire ID 5876 for Registration as CONTRACTOR.

From: **supplysupport@adwea.gov.ae**
Sent: Sunday, November 30, 2008 10:29:44 AM
To: alkamal2002@hotmail.com
Cc: supplysupport@adwea.gov.ae

Please be informed that based on the evaluation of submitted Application, your com

Work Group ID	W. G. Description
3101800	HORIZONTAL DIRECTIONAL DRILLING HDD

Please note that at the time of release of enquiries, a further short listing take

You are advised to quote your Registration No. 9914368 in all future correspondenc

Regards,

HEAD, SUPPLY SUPPORT DEPARTMENT
ADWEA

Date: Mon, 17 Jun 2013 08:13:32 +0400
From: CRS@adwea.ae
To: alkamal2002@hotmail.com
Subject: 9914368-UPD02 : Acceptance of Submitted ADWEA Registration/Updating

M/S AL NAFAQ TRANSBORING EST.
Please be informed that based on the review of your submitted Application, your company name is considered in our commercial directory as per your application Number 9914368-UPD02.

It is important to be aware that you have to follow the pre-qualification process for any products/services you seek to pre-qualify as applicable for ADWEA projects. Please note that at the time of release of enquiries, a further short listing takes place based on the specific scope of work.

Also, you are responsible to provide ADWEA with any updated information related to your company. ADWEA shall not be held responsible for any impact on your dealing with us, if your information is not updated from your side through our E-Registration web site.

Regards,

ADWEA COMPANIES REGISTRATION SECTION/ SUPPLY DEPARTMENT
Support Desk: +971 2 6943032
Support Email: CRS@adwea.ae

Re: 9914368-UPD03 : Acceptance of Submitted ADWEA Registration/Updating

On April 15, 2014 at 12:41 AM "CRS@adwea.ae" <CRS@adwea.ae> wrote:

M/S AL NAFAQ TRANSBORING EST. Please be informed that based on the review of your submitted Application, your company name is considered in our commercial directory as per your application Number 9914368-UPD03.

It is important to be aware that you have to follow the pre-qualification process for any products/services you seek to pre-qualify as applicable for ADWEA projects. Please note that at the time of release of enquiries, a further short listing takes place based on the specific scope of work.
Also, you are responsible to provide ADWEA with any updated information related to your company. ADWEA shall not be held responsible for any impact on your dealing with us, if your information is not updated from your side through our E-Registration web site.

Regards,

ADWEA COMPANIES REGISTRATION SECTION/ SUPPLY DEPARTMENT
Support Desk: +971 2 6943032
Support Email: CRS@adwea.ae

---------- Original Message ----------
From: "CRS@adwea.ae" <CRS@adwea.ae>
To: essmat.gendy@alnafaq.com
Date: March 9, 2015 at 6:51 AM
Subject: 9914368-UPD05 : Acceptance of Submitted ADWEA Registration/Updating

M/S AL NAFAQ TRANSBORING EST.
Please be informed that based on the review of your submitted Application, your company name is considered in our commercial directory as per your application Number 9914368-UPD05.

It is important to be aware that you have to follow the pre-qualification process for any products/services you seek to pre-qualify as applicable for ADWEA projects. Please note that at the time of release of enquiries, a further short listing takes place based on the specific scope of work.

Also, you are responsible to provide ADWEA with any updated information related to your company. ADWEA shall not be held responsible for any impact on your dealing with us, if your information is not updated from your side through our E-Registration web site.

Regards,

ADWEA COMPANIES REGISTRATION SECTION/ SUPPLY DEPARTMENT
Support Desk: +971 2 6943032
Support Email: CRS@adwea.ae

REFERENCES

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

AECOM

AECOM Middle East Limited
ايكوم ميدل ايست ليمتد
PO Box 1419, Al Ain
United Arab Emirates
www.aecom.com

+971 3 702 6600 tel
+971 3 755 4727 fax

Ref: AAN-GAD-GEN-CAP-00001-0

25 September 2013

To Whom It May Concern

This is to certify that **Al Nafaq Transboring Est**. have been employed as NDRC Sub-Contractor by our main contractors and they have successfully carried out number of NDRC works in various areas in Al Ain for where we are consultant.

The NDRC's are in various areas both in the main project and isolated properties located in and around Al Ain City.

Sl. No	Details of the Project	Main Contractor	Quantity (Almost)	Status
1	ADSSC Contract No O-1190	NBHH	467	Completed
2	ADSSC Contract No O-1359	NBHH	757	Completed
3	ADSSC Contract No O-1426	NBHH	1125	Completed
4	ADSSC Contract No O-10666	NBHH	1300	In Progress
5	Al Ain Municipality Storm Water	NBHH	1737	Completed
6	ADSSC Contract No O-2078	TAMAS	610	In Progress
7	ADSSC Contract No O-1696	BIN HAM	450	Completed
8	ADSSC Contract No O-10987	BIN HAM	250	In Progress
9	ADSSC Contract No O-2156	AL SALMEEN	420	Completed

This Certificate was issued on their request without any liability towards AECOM.

AECOM
AECOM Middle East Limited

Tony Coll
Director, Energy, UAE & District Manager, Al Ain
Tony.coll@aecom.com

NBH
مؤسسة نايل وبن حرمل هيدرواكسبورت
NAEL & BIN HARMAL HYDROEXPORT EST.

25 September 2013

TO WHOM IT MAY CONCERN

This is to certify that Messrs. Al Nafaq Transboring Est. were the Sub-Contractors for many of our **NDRC works** carried out in various areas in Al Ain, under the following projects:

1. **ADSSC Contract No. O-1190**
2. **ADSSC Contract No. O-1359**
3. **ADSSC Contract No. O-1426**
4. **ADSSC Contract No. O-10666**
5. **Al Ain Municipality – Storm Water Drainage, Contract-1**

The sub-contract work included road crossing, trees crossing, box culverts etc. associated with sewer and storm water drainage networks and ranged in length from 5 Mtr. to 105 Mtr.

Messrs. Al Nafaq have a well experienced group of skilled workers who can carry out any type of NDRC work.

We are totally satisfied with their performance and they carried out all the work without any complaint from the Consultants and Clients. Their NDRC works were being well appreciated by our Consultants as well as by us.

For **Nael & Bin Harmal Hydroexport Est.**

Eng. Walid Ibrahim
Project Manager

ABU DHABI - U. A. E. - P.O.Box : 28102 - Tel. : +971(2)6273344 - Fax : +971(2)6271165 - ت : ٢٨١٠٢ - ف : ٦٢٧١١٦٥ (٢)٩٧١+
AL AIN - U. A. E. - P.O.Box : 19602 - Tel. : +971(3)7220066 - Fax : +971(3)7210006 - ت : ١٩٦٠٢ - ف : ٧٢١٠٠٠٦ (٣)٩٧١+
DUBAI - U. A. E. - P.O.Box : 29703 - Tel. : +971(4)3377479 - Fax : +971(4)3377497 - ت : ٢٩٧٠٣ - ف : ٣٣٧٧١٧٩ (٤)٩٧١+
E-mail : binharma@emirates.net.ae - www.nbhydroexport.com

آل سالمين
AL SALMEEN
General Contracting Est.

Date: 16th February 2013.

TO WHOM IT MAY CONCERN

This is to certify that Messrs. Al Nafaq Tunnels Est. for drilling were the Sub-contractor for many of our NDRC works being carried out in various areas in Al Ain.

The sub-contract work included road crossing, trees crossing etc. associated with Water and sewer networks and ranged in length from 5mtr. to 105 mtrs. with sleeve dia. from 750mm to 1200 mm.

Messrs. Al Nafaq have a well experienced group of skilled workers who can carried out any type of NDRC's work.

We were totally satisfied with their performance and workman ship. They carried out all the work without any complaint from the consultant and clients, their NDRC's work were being well appreciated by our consultants as well as by us.

Al Salmeen General Cont. Est.

Kashif Imran
Head of Tenders & Procurement Department

P.O.Box : 15516
Tel. : 03 7638844 , Fax : 03 7632600
Al Ain, United Arab Emirates
E-mail : info@alsalmeen.com
Website : www.alsalmeen.com

P.O.Box : 46428
Tel. : 02 5965777 , Fax : 02 6422537
Abu Dhabi, United Arab Emirates
E-mail : info@alsalmeen.com
Website : www.alsalmeen.com

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

NBH
نايل وبن حرمل
عضو مجموعة نايل وبن حرمل
A Member of the NAEL & BIN HARMAL Group

مؤسسة نايل وبن حرمل هيدرواكسبورت
NAEL & BIN HARMAL HYDROEXPORT EST.

Date: - 01/06/2015

TO WHOM IT MAY CONCERN

Project : **Contract No. A-10342 – Rehabilitation / Replacement of Main Pipelines, Replacement of Valves and Installation of Chambers & Miscellaneous System Improvement /Modification Works at Different Areas in Al Ain Region.**

Consultant : **M/s. Ital Consult**

Client : **AADC**

We would like to confirm the working of M/s. Al Nafaq Transboring Est. as an approved subcontractor of M/s. Nael & Bin Harmal Hydroexport est. for the NDRC works as followings:-

1. **Thrust Boring Method** with Steel Sleeves:- (dia 400mm, 600mm & 900mm).
2. **Horizontal Directional Drilling (HDD) Method** with HDPE Sleeves:- (dia 250mm, 315mm, 400mm, 500mm & 710mm).

For NAEL & BIN HARMAL HYDROEXPORT EST.

Nael & Bin Harmal Hydroexport Est. A - 10342

Eng. Amr Fikry
Sr. Project Manager

مؤسسة نايل وبن حرمل هيدرو اكسبورت
NAEL & BIN HARMAL HYDROEXPORT EST.

October 15, 2001

TO WHOM IT MAY CONCERN

This is to certify that Messrs. Al Nafaq Tunnels Est. for Drilling which is belong to Mr. Shamroz Hassan Khan were the sub-contractors for many of our NDRC works being carried out in various areas in Al Ain. (details of the Project enclosed herewith.)

The sub-contract work included road crossing, trees crossing, box culverts etc. associated with sewer and stormwater drainage networks and ranged in length from 5 Mtr. to 105 Mtr with sleeve dia from 750mm to 1200mm.

Messrs. Al Nafaq have a well-experienced group of skilled workers who can carried out any type of NDRC's work.

We were totally satisfied with there performance and they carried out all the work without any complaint from the consultants and Clients, their NDRC's work were being well appreciated by our consultants as well as by us.

for Nael & Bin Harmal Hydroexport Est.,

Nemer T. Saliba
Head of Planning Department.

P.O.Box: 25102, Tel: 6270344, Fax: 6271195 - Abu Dhabi - U.A.E.
E-mail : binharma@emirates.net.ae

UNITED ARAB EMIRATES

Date : September 10, 1992

TO WHOM IT MAY CONCERN

ABU DHABI SEWERAGE SCHEME
CONTRACT NO. 502/2

SHAHAMA SEWERAGE FACILITIES

NON DISRUPTIVE ROAD CROSSINGS

We hereby confirm that the Non Disruptive Road Crossing Works on above Contract were carried out by Mr. Shamroz Khan. These works consisted of approximately 25 Nos. of NDRCs with a total length of 1275 LM, and were executed by steel sleeve pipe jacking method, installation of GRP transmission pipes (200mm to 600mm diameter), surveying services, grouting of annulus and testing.

The works were carried out in a professional manner and in accordance with the Technical Specifications and both Client's / Consultant's satisfaction.

This information is given at the request of Mr. Shamroz Khan

LANCE JOHNSON
PROJECT MANAGER, CONSTRUCTION
P.O. Box 4671
Abu Dhabi

Consulting

October 21,2001

TO WHOM IT MAY CONCERN

This is to certify that Messrs. Al Nafaq Tunnels Est. for Drilling have been employed as NDRC Sub-contractor by the main contractor Messrs Nael & Bin Hamal Hydroexport Est and that they have successfully carried out number of NDRC's on contract M40A (Roads, Stormwater Drainage and Sewerage in Al Bagh-Al Bateen area in Al Ain) for which we are consultants.

The NDRC's are in various areas, both in the main project and isolated properties located in and around Al Ain city, with an approximate total quantity of 500 L.M.

This certificate was issued on their request without any liability of any kind to HCMEL

Contract M 40 A
Hyder Consulting Middle East Limited
AL AIN

Mahmoud Eweidat
Resident Engineer
Hyder Consulting Middle East Limited

AL AIN MAIN DRAINAGE

For the Al Ain Sewerage Projects Committee, Government of Abu Dhabi

Tel. No. Al Ain 641929 (Head Office)
Al Ain 642405 (Residence)

D. C. CRAIG F.I.C.E.,
CHIEF RESIDENT ENGINEER (Sewerage)
P. O. BOX : 1415
AL AIN - ABU DHABI - (U. A. E.)

Your Ref.

Date 20/11/1995

Our Ref.

Mr. Shamroz Khan
Al Ain. U.A.E.

Dear Sirs,

CONTRACT NO. M32
Subject:- N.D.R.C Works

This is to confirm that the N.D.RC work on above mention contract have been successfully completed (Including grouting) by Mr. Shamroz Khan to my satisfaction.

Yours faithfully,

D.R. Wynne
Resident Engineer - Contract M30A
D. Balfour & Sons - Al Ain.

DW/ICM.

LIST OF EQUIPMENTS

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

LIST OF EQUIPMENT

Sr. No	DESCRIPTION	QUANTITY
1	Horizontal Directional Drilling Machines a) VERMEER D50*100 A available Dia 26" for long drives and 36" for short drives including mixing unit , locator welding machine for HDPE pipes and all the accessories. b) VERMEER 36/50 Series II Available Dia 24" including mixing Unit, locator, welding machine for HDPE pipes and all the accessories. c) DDW-250 (25THDD) d) Drilling Machine PL-8000 Available Dia 160mm including mixing Unit, Monitor, Small welding machine for HDPE pipes and all the accessories.	4
2	Low bed Trailer	2
3	Auger Boring Machine	4
4	250CFM Air Compressor	6
5	10KG. Jack Hammer	6
6	Pressure Jack (100 Ton)	2
7	Pressure Jack (150 Ton)	1
8	Pressure Jack (200 Ton)	2
9	Pressure Jack (350 Ton)	1
10	Pressure Jack (370 Ton)	1
11	Generator	5
12	Hydraulic Power Pack	6
13	Cutting and welding Set	3
14	L.V.D.C (Pickup)	2
15	Toyota Land Cruiser	1
16	Camry	1

17	Mini Bus	1
18	Nisan	1
19	Toyota	2
20	Computers	4

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

TT Trading FZC
P.O.Box: 8427 Sharjah, United Arab Emirates
Tel: +971 6 5571914 Fax: +971 6 5571941
web: www.tttradingfzc.com email: tttradingfzc@gmail.com

Date:01/09/2014

Ref No.TT/TXS/NFQ/2014

DDW-250 (25THDD)

DDW-250 SPECIFICATIONS			
MAIN RIG	**UNIT**	**SPECIFICATIONS**	**MARK**
Engine Power	kW	125	
Engine Rated Speed	rpm	2200	
Fuel Tank Capacity	L	200	
Working Pressure	Mpa	21	
Hydr.oil Tnak Capacity	L	500	
Thrust Force	kN	250	
Pull Back Force	kN	250	
Carriage Speed	m/s	24	
Rotary Torque	Nm	9000	
Rotary Speed	r/min	0-130	
Max.Clamp Force	kN	250	
Max.Break Torque	Nm	20000	
Entry Drill Angle	°	12--16	
Free working length	m	3.55	
Ground Drive Speed	km/h	1.5	
Rig Dimension	mm	6400*2280*2150	
Weight	kg	7600	
Down Hold Tools			
Diameter of drill pipe	mm	Φ73	One piece forged
Length of each pipe	m	3	
Max construction of pullback pipe	mm	Φ150~500	Depend on soil condition


Vermeer
Vermeer
NAVIGATOR

VERMEER D50X100A

Manufacturer : Vermeer
Model : D50x100A

Year : 2005
SN: VRS180YXY1000278

Vermeer D 50x100 A * - Technical Specification	
Rotation	10,000ft-lb/13,558 Nm
	220,44 kN
Pressure	168,89 kN
Thrust	50,000lbs
Pullback	50,000lbs
Drive power	138 kW
Weight	13245 kg

Model Shown
24/30-150

Model Shown 72/84-2.6MXHD

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

Barbco INC.

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AUGER BORING MACHINES

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  - 30-200 Series
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  - 36-630 Series
  - 48-750 Series
  - 48-950 Series
  - 60-1MHD Series
  - **Extrem Duty**
    - 48-1.35MXHD Series
    - 60-1.8MXHD Series
    - 72-2.6MXHD Series
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- **Directional Drills**
- **Mud Systems**
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Model Shown 72/84-2.6MXHD

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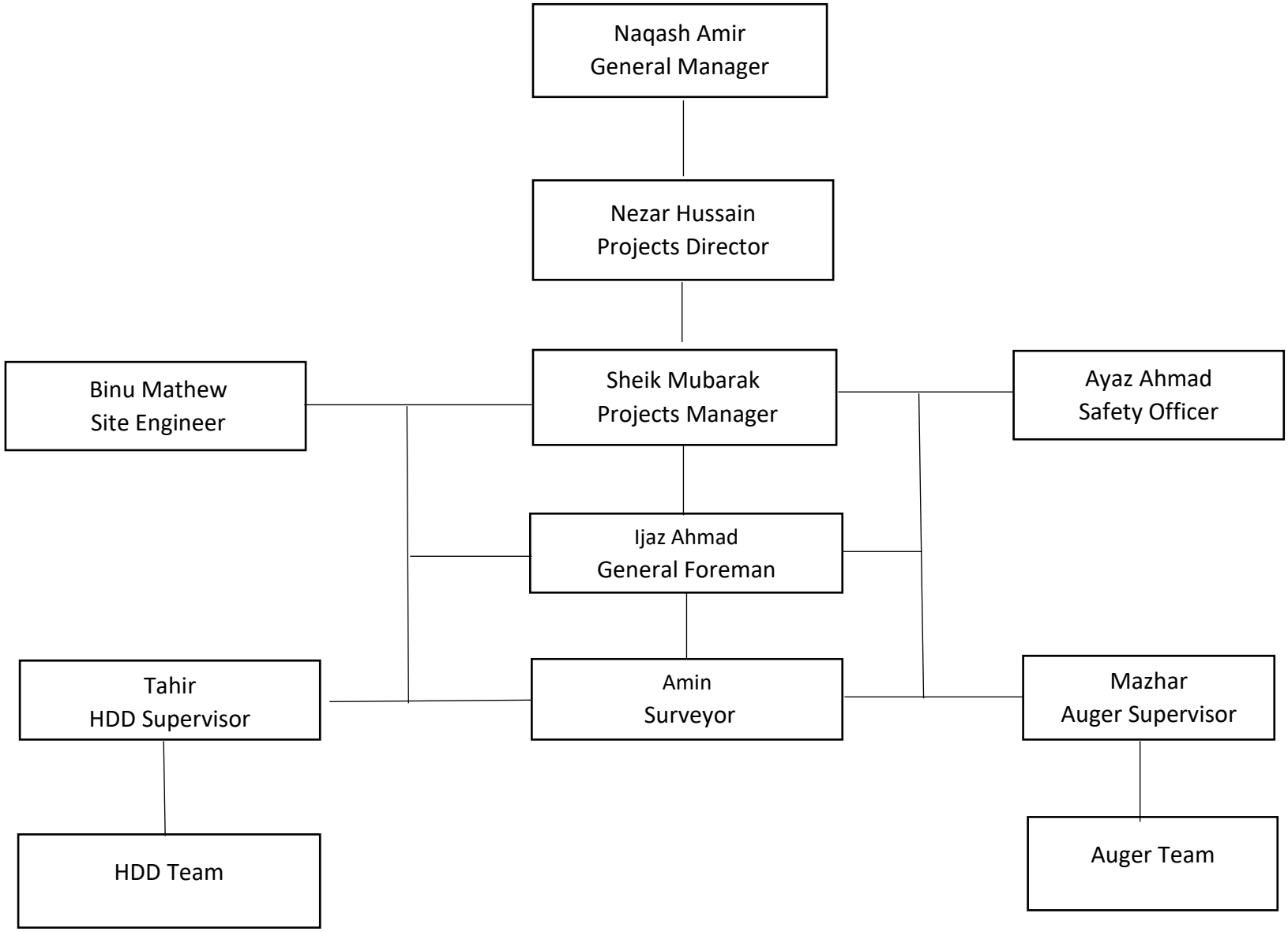
Fax: 330-488-2022
Email: info@barbco.com
Web: Barbco.com

315 Pekin Rd S.E.
East Canton, Ohio 44730-9462

PERSONAL & ORGANIZATION CHART

Al Nafaq Transboring Est.
Organization Chart



SUMMARY OF MANPOWER

Sr. No	TITLE	TOTAL NO.
1	Projects Director	1
2	ENGINEER	2
3	Safety Officer	2
4	FOREMAN	2
5	SURVEYOR	1
6	PIPE FITER	2
7	WELDER	1
8	DRIVER	3
9	OPERATOR	2
10	LABOURER	12
GRAND TOTAL		26

PREVIOUS APPROVALS

AECOM

AECOM Middle East Limited
PO Box 1473, Al Ain
United Arab Emirates
www.aecom.com

Ref: AAN-CSC-CMG-LTR-SUV-Y16-00271

22 February 2016

Projects Division Manager
Abu Dhabi Sewerage Services Co. (ADSSC)
P. O. Box 108801
Abu Dhabi, U.A.E

Dear Sirs,

Contract No. O-11966: Construction of Sewerage Connections and Related Works in Al Ain
Subject: Method Statement (MS-08 – Rev. 2) – Pipeline Construction by NDM (Thrust Boring)

With reference to the above subject, please find attached a copy of the Contractor's letter 0087-NBHH-O11966-06-MS-JP, dated 17 February 2016, enclosing Method Statement (MS-08 – Rev. 2) – Pipeline Construction by NDM (Thrust Boring) for approval.

Please note that we have checked and reviewed the submittal and we recommend it for approval

Your earliest approval of the above will be highly appreciated

Yours faithfully,

AECOM
AECOM Middle East Limited

Oussama Nehme
Associate Director
Oussama.Nehme@aecom.com

encl: As mentioned above

cc: Engr. Mohammed Al Harrasi - Al Ain Projects Management Dept. Manager, ADSSC
Engr. Abdulla Al Jaberi- Projects Manager, ADSSC, Al Ain

AECOM

AECOM Middle East Limited
PO Box 1419, Al Ain
United Arab Emirates
www.aecom.com

+971 3 722 6600 tel
+971 3 755 4727 fax

RECEIVED
2016
O-11966

Ref: AAN-CSC-CMG-LTR-SUV-Y16-00308

1 March 2016

Messrs. Nael & Bin Harmal Hydroexport Est.,
P.O. Box 19602
Al Ain

Fax No: 03 721 0006

Dear Sirs,

O-11966 Construction of Sewerage Connections and Related Works in Al Ain
Subject: Method Statement for Pipeline Construction by NDM (Thrust Boring)

With reference to ADSSC's letter ADSSC/PROJ/00004528, dated 28 February 2016, informing that the submitted method statement is approved subject to the following:

1. Approval of ADSSC Safety Engineer on the enclosed OHS Risk Assessment, AHA and EIA.
2. Consultant enclose comments.
3. Support of existing services and adjacent structures.
4. Dealing with different ground conditions.
5. Contractor shall carry out all the work in sequence as per regular procedure.

This approval does not relieve you from your contractual obligation.

Yours faithfully,

AECOM
AECOM Middle East Limited

Oussama Nehme
Associate Director
Oussama.Nehme@aecom.com

cc: Engr. Mohammed Al Harrasi, Al Ain Projects Management Dept. Manager, ADSSC
Engr. Abdulla Al Jaberi - Project Manager, ADSSC

GOVERNMENT OF ABU DHABI
Department of Municipal Affairs-Municipal & Infrastructure Assets Sector
Al Ain City Municipality - Internal Roads & Infrastructure Division
QC Material Control Section

NDRC APPROVAL SUBMITTAL

All sections of the form shall be completed and all attachments enclosed.

Project info

1. **Project:** Construction of Mitigation Measures of Groundwater Rise in Al Ain City
2. **Client:** Abu Dhabi General Services "Musanada"
3. **Consultant:** Alloraiq International Engineering Consultants LLC
4. **Main Contractors:** Hydropower Energy & General Construction LLC - SP
5. **Drilling Sub Contractor:** Al Nafaq Tranboring Est.
6. **Proposed NDRC Method (Micro Tunnelling/Directional Drilling/ Pipe Jacking/ Auger Boring): PIPE JACKING**
7. **Coordinates of NDRC Location:** E=371913.476 N=2679711.507

Subcontractor

8. We declare that NDRC design parameters (Jacking/Pulling force, stress analysis on pipe, face stability, ground surface movement etc) have been developed based on the soil parameters the respected NDRC location and accordingly the most appropriate and suitable NDRC has been proposed and the mathod statement made which in our openion will serve the purpose of NDRC without closing any settlement/damage to the payment. In the event of any damage/settlement beyond the exaptable limit (±6mm) within *three years* from date of completion of NDRC at the location in question, we shall be fully responsible for its reinstatement to the requirements of AACM at no additional cost to AACM.

9. Sign, Date Stamp — 10. Drilling Sub cont. PM

Main Cont.

11. Based on the quarranttee/undertaking provided by the sub contractor we declare that in the event any failure or damage to the road furniture within the vicinity of NDRC location, we will reinstated the damaged assests to the requirements of AACM at our own cost.

12. Sign, Date Stamp — 13. Project Manager

Consultant

14. We declare that the proposed NDRC method, its design parameter, method statement, proposed by the drilling Sub-Contractor have been verified, found suitable and approved by us. Information enclosed with the application submitted true picture of the site condition and we recommend for endorsement

15. Sign, Date Stamp → — 16. Resident Engineer

Client

14. We have no objection to the approval of the proposed drilling sub contractor choosen by the main contractor who shall be responsible for the maintenance of the road in the event of any damage/settlement in the vicinity of NDRC location.

17. Sign, Date Stamp → — 18. Client's Authorised Personel

19. Sub contractor's Attacments

i	License & CoC Certificate of Main Contractor	√
ii	License & CoC Certificate of drilling Sub-Contractor	√
iii	Summary of Information in AACM designated format	√
iv	Plan, route and location	√
v	Soil condition report (along with colour photographs of TP/BH) applicable to corresponding NDRC location	√
vi	Brief description of NDRC method/s and equipment proposed for use at the designated location choosen based on soil condition. (enclose brochure of the NDRC Machine & if possible color photographs of each operation from any of the previously completed project.)	√
vii	Shop drawings showing depth of sleeve pipe (from FRL) dia. of sleeve and carrier pipe, over break details, position of entry & exit pits, etc. all with respect existing road furniture.	√
viii	Copy of approved NDRC design calculation (jacking/pulling force, stress analysis on pipe line,ground surface settlement) method statement for NDRC including copy of the approval letter from the Consultant	√
ix	Brief description on the method of excavation, face stability/wall support details as well as method statement for backfilling (as per AACM Specs. of entry & exit pit including schedule of backfilling operation.	√
x	Shop drawing detailing overbreak management, characteristics of drilling fluid/lubrication/ flush details etc including properties and details of grout and grouting procedure (as applicable)	√
xi	Sketch & schedule of ground surface movement monitoring system & base line reading for the monitoring points taken during initial survey.	√
xii	List of previously completed NDRC works in Al Ain giving details of the location , name of Client & the NDRC method adopted.	√
xiii	Value and duration of Bank guarrantee.	√

AACM

☑ 28. Endorsed ☐ 29. Not Endorsed ☐ 30. Needs more Input 31. Comments as enclosed/attached

32. Comments: As document attached and regarding the method proposed from (pipe jacking) from consultant & contractor shall be provide undertake letter to AACm from contractor.

33. Signatures with dates — 34. QUALITY ENGINEER / PROJECT ENGINEER — 35. HEAD OF MATERIALS QC SECTION

☐ 36. Closed ☑ 37. Open ☐ 38. Open for .....3..... Work days

- consultant shall be moniter all work done in site & make sure follow comply with route and plan.

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

شركة ابوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

Ref: ADSSC/PROJ/ 60004528
Date: 25 FEB 2016

To	:	AECOM Middle East Ltd. P.O. BOX 1419 Al Ain	**From** **Fax**	: Projects Management Department Al Ain : +971-2-6947089
Attn.	:	Oussama Nehme Associate Director		
Cc	:	Eng. Mubarak Al Dhaheri - Deputy Managing Director Eng. Omar Al Hashimi - Projects Division Director		

Project : O - 11966 Construction of Sewerage Connections and Related Works in Al Ain

Dear Sirs,

Subject : Method Statement For Pipeline Construction by NDM (Thrust Boring)

Reference to your letter's ref. AAN-CSC-CMG-LTR-SUV-Y16-00271 dated 22 February. 2016 (copy attached) concerning the above subject; please be informed that the submitted method statement can be approved subject to the following:

- Approval of ADSSC Safety Engineer on the enclosed OHS Risk Assessment, AHA and EIA.
- Consultant enclose comments.
- Support of existing services and adjacent structures.
- Dealing with different ground conditions
- Contractor shall carry out all the work in sequence as per regular procedure.

Please note that ADSSC acceptance is based on expectations that you have reviewed/evaluated your recommendation in order to confirm satisfaction /achievement of the contract and system requirements, and have ensured that it is fit for purpose. Your issuance of approval to the contractor will be considered as confirmation.

Acceptance of your recommendation doesn't relieve you or the contractor of any obligations and doesn't waive any requirement missed from the subject method statement or entitle the contractor of any additional cost or time.

This is for your action.
Yours Sincerely,

Eng. Mohammed Al Harrasi
Al Ain Projects Management Dept. Manager
Projects Division
Attach: As above

AECOM MIDDLE EAST LIMITED
ADS-CSC-CMG-LTR-Y16-00161
ACT INFO FUP
26 FEB 2016
Site- 6019315550
N/a

Govt. Of Abu Dhabi
Department of Municipal Affairs - Al Ain Municipality
Sector of Infrastructure & Assets - Division of Internal roads & Infrastructure
QC Material Control Section
SUBMITTAL FOR SUB CONTRACTOR ' S APPROVAL
Form "PASC" Previously Approved Sub-Contractor

All sections of the form must be completed and attachment enclosed.

Subcontractor's Section

1. **Project Name and/ or Area:** Construction of Mitigation Measures of Groundwater Rise in Al Ain City
2. **Consultant:** Abu Dhabi General Services "Musanada"
3. **Contractor:** Hydropower Energy & Gen Cons LLC
4. **Date Submitted:** 21/01/2020
5. **Submittal No.:** 00430-00SIT-ZZ-HYD-PQN-CIV-002
6. **Rev.** 01
7. **Sub Contractor's Name & Address:** Al Nafaq Transboring Est. PO Box 23854 Al Ain, UAE
8. **Scope of Activity:** NDRC Works
9. **Contract Documents Ref:**
10. **Previous Executed Contract & its Scope of Application and/or limitation**
11. **Proposed area/s of application/Works:** Al Ain City (Al Dewan, Al Jabal, Al Sanaiya)
13. **"We confirm that the manpower and machinery proposed for this contract are under under our sponsorship and ownership and the information given above is true and authentic"** — 14. Sign, Date Stamp → 15. Subcontractor Project Manager:-

12. Sub contractor's Attachments

1	License	√
2	CoC certificate	√
3	Appointment Letter of Authorized Sub Contractor from Main Contractor	√ √
4	Organization chart of Sub Contractor	√
5	Previous work's approvals	√
6	List of Total equipment & manpower	√
7	Total No. of projects executing presently.	√
8	List of manpower dedicated for this contract	√
9	List of equipment dedicated for this contract	√
10	CVs of proposed Engineers and Skilled Staff	√
11	Approved Method Statement of works	√
12	Contract Documents	N/A
13	ISO Certifications, if any.	√
14	Satisfactory completion certificate of previous project /s	√
15		
16		
17		
18		

CONTRACTOR

16. **"We confirm that the above mentioned Subcontractor possess all the equipments necessary to perform his job satisfactorily in accordance with the requirement of Contract Documents & the information given above is authentic"** — 17. Sign, Date Stamp → 18. ME/EM Eng.:-

Consultant

20. **We certify that the subcontractor is capable of executing the job on time and in line with the requirements of contract documents** ☐ 21. Approved
☐ 22. Not Approved ☐ 23. Returned with comments
24. Comments: Recommended for Kind Review & Approval
An earlier AACM comments has been Incorporated

25. Sign, Date, Stamp
26. A.R.E. / M.E.
27. R.E.

CLIENT

☑ 28. Endorsed ☐ 29. Not Endorsed ☐ 30. Needs more Input ☐ 31. Not Reviewed - Returned for Fundemental NC

32. Comments:

33. Signatures with dates
34. QUALITY ENGINEER / PROJECT ENGINEER
35. HEAD OF MATERIALS QC SECTION

☐ 36. Closed ☐ 37. Open ☐ 38. Open for ..... Work days

HYDROPOWER ENERGY 09 FEB 2020 2:22pm Sign.: RECIEVED

مـــؤسســـة الـــنـــفـــق لحـــفـــر الإنـــفـــاق
AL NAFAQ TRANSBORING EST.

JACOBS®

Khalifa Park & Building, 6th Floor
P.O. Box: 2136, Abu Dhabi, U.A.E.
Tel: +971 2 402 6400 Fax: +971 2 447 1252
E-mail: jacobsme@jacobs.com

Our Ref. : MM/UE00420I/FCC/C2/2207
Date : 14th January 2016

M/s. Al Fahjan Transportation & Gen. Cont. Est.
P.O. Box: 1588
Al Ain
United Arab Emirates

Tel.: 03 – 721 7444
Fax: 03 – 721 8444

Attention : Eng. Mousa Ali Mousa Al Shabani – Project Manager

Project : Internal Roads at Various Locations in Al Ain Stage 18 - (Contract No. 2)

Subject : Prequalification for NDM Works Alternative Sub Contractor M/s. Al Nafaq Transboring Est.

Dear Sir,

With reference to your letter ref: AFE/012/C-110/15/1483 dated 4th January 2016 regarding the above mentioned subject, please find attached M/s. Dorsch letter ref: O11087/C2/0993/16 dated 13th January 2016 confirm that your submitted prequalification for NDM works Alternative sub-contractor M/s. Al Nafaq is conditionally approved by Dorsch & ADSSC.

This is for your information and necessary action.

Yours faithfully,
For Jacobs International Holdings Inc.

JACOBS INTERNATIONAL HOLDINGS INC.

Mohammed Moizuddin
Resident Engineer
Mohammed.Moizuddin@jacobs.com

CC: Eng. Fatima Al Horrosi – (P.M - AACM)
File

AL FAHJAN TRANSP. & GEN. CONT. EST.
AL NAFAQ

Dorsch Gruppe

DC Abu Dhabi

Dorsch Holding GmbH Abu Dhabi
Salam Street
P.O. Box 26417
Abu Dhabi
United Arab Emirates

Phone +971 2 672 19 23
Fax +971 2 672 08 09
E-Mail info@dorsch.ae
Internet www.dorsch.de

Head office: Offenbach, Germany
Trade reg. Offenbach a.M. No. HRB 42115
VAT No. DE247139650
Managing Directors
Dipl.-Ing. Jürgen Röder
Dipl.-Ing. Olaf Hoffmann
Andreas Rianecker

Ref: **AA/10/2012/494**
Tel: +971 3 7848379
Fax: +971 3 7848428
Date: 10th January 2016

Abu Dhabi Sewerage Services Company
PO Box 108801
Abu Dhabi, UAE

Attn. : **Mr. Mohammad Al Harrasi**
Projects Management Department Manager – Al Ain

Contract : **Internal Road at Various Locations in Al Ain - Stage 18 - Contract 2**
Sewerage Works

Subject : **Prequalification For NDM Works – Alternative Subcontractor**
M/s Al Nafaq Transboring Est.

Dear Sir,

Reference to Jacobs letter ref. MM/UE0042/DOR/C2/2131 dated 27th December 2015, along with the Contractor's letter No. AFE/012/C-110/15/1452 dated 23rd december 2015, regarding the above mentioned subject.

Please be informed that the prequlification of Subcontractor M/s Al Nubia General Contracting Co. LLC, was previosly accepted by ADSSC for NDM Works in this contract, vide ADSSC letter ref. ADSSC/AA/PROJ/00004157 dated 30th April 2015, but due to the site existing conditions to changh the type procedure of NDM from Microtunelling Type to Pipe Jacking / Thrust Boring Type, the contractor is proposing M/s Al Nafaq Transboring Est. as an alternative subcontractor for NDM Works.

Please be informed that we have reviewed the attached submitted prequlification for NDM Works Subcontractor M/s Al Nafaq Transboring Est., and found to be acceptable subject to the following:-

1. Detailed method statement with HSE portions as per ADSSC standards along with shop drawings for the proposed location shall be submitted for Engineer's review and approval.
2. Undertaking letter shall be provided in the format specified by ADSSC.
3. Borehole logs for the NDM locations shall be attached with the submittal.

Accordingly, we recommend the same for your kind review and approval.

This recommendation for conditional approval does not relieve the Contractor from any of his responsibilities and obligations under this contract.

Thank you for your kind review and approval.

Yours faithfuliy,
DORSCH Holding GmbH – DC Abu Dhabi

دورش هولدنج جي ام بي اتش
Dorsch Holding GmbH
Dorsch Consult Abu Dhabi
P.O. Box: 26417, Abu Dhabi

Nihad Hammad
Projects Resident Engineer

Idris Al Haj
Senior Projects Manager

Cc: DC-File, AYM, AHM, IDR, HAS, NIHAD

Enc: As stated above

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

Ref: ADSSC/PROJ/AA/ [illegible]
Date: [illegible]

To: Dorsch Consulting
P.O. BOX: 28417 Abu Dhabi

From: Projects Management Dept
Al Ain

Fax: +971-3-7044763

Attn: Eng. Idris Al Haj
Senior Projects Manager

Cc: Eng. Mubarak Al Dhahiri - Deputy Managing Director
Eng. Omar Al Hashim- Projects Division Director

Project: Internal Roads For Various Locations in Al Ain-Stage 16-Contract 2
Dear Sirs,

Subject: Pre-qualification of Proposed alternative NDM subcontractor-M/s Al Nafaq Transboring Est. Cont Co.LLC

Reference is made to your Letter O-11087/C2/0855/16 received 10th of January 2016 ,regarding the above subject , please be informed that your recommendation are accepted subject to your comments in addition to the following :

1. Approval is related only to work with thrust boring drilling, as per the work group mentioned at ADSSC qualifications letter ,since HDD is not relevant for the gravity lines.
2. Approval by any concerned authority on the proposed subcontractor and methodology of work is contractor's full responsibility.
3. Performance of work and adherence with approved work program.
4. Cost saving ,to be considered and applied, for alteration of work methodology from micro tunneling ,as per original contract ,to thrust boring drilling as proposed.

Please note that ADSSC acceptance is based on expectations that you have reviewed/evaluated your recommendation in order to confirm satisfaction /achievement of the contract and system requirements, and have ensured that it is fit for purpose. Your issuance of approval to the contractor will be considered as confirmation.

Acceptance of your recommendation doesn't relieve you or the contractor of any obligations and doesn't waive any requirement missed from the subject process/, or entitle the contractor of any additional cost or time.

This is a computer generation.

Eng. Mohammed Al Harrasi
Al Ain Projects Management Department Manager
Projects Division

Attach: As Referenced

Dorsch Consult Abu Dhabi
RECEIVED

مـــؤسســـة الـــنـــفـــق لحـــفـــر الإنـــفـــاق
AL NAFAQ TRANSBORING EST.

Dorsch Gruppe

DC Abu Dhabi

Dorsch Holding GmbH Abu Dhabi
Salam Street
P.O. Box 26417
Abu Dhabi
United Arab Emirates

Phone +971 2 672 19 23
Fax +971 2 672 08 99
E-Mail info@dorsch.ae
Internet www.dorsch.de

Head office: Offenbach, Germany
Trade reg. Offenbach a.M. No. HRB 42115
VAT No. DE247139650
Managing Directors:
Dipl.-Ing. Jürgen Röder
Dipl.-Ing. Olaf Hoffmann
Andreas Rienecker

Ref: AA/10/2012/494
Tel +971 3 7848379
Fax +971 3 7848428
Date: 13th January 2016

Jacobs International Holding Inc.
PO Box 3135
Abu Dhabi, UAE

Attn : **Mr. Mohammed Molzuiddin**
Resident Engineer

Contract : **Internal Road at Various Locations in Al Ain - Stage 18, Contract 2**

Subject : **Prequalification For NDM Works Alternative Subcontractor**
M/s Al Nafaq Transboring Est.

Dear Sir,

With reference to your letter ref. MM/UE004201/DOR/C2/2131 dated 27th December 2016 along with Contractor's letter ref. AFE/012/C-110/15/1452 dated 23rd December 2015, regarding the above mentioned subject.

Please find attached the ADSSC letter ref. ADSSC/PROJ/AA/00004465 dated 12th January 2016, issuing conditional acceptance of the submitted Prequalification For NDM Works Alternative Subcontractor M/s Al Nafaq Transboring Est., subject to the conditions stated in ADSSC letter and our attached recommendation letter ref. O11087/C2/0856/16 dated 10th January 2016.

This conditional approval does not relieve the Contractor from any of his responsibilities and obligations under this Contract.

Please forward the same to the Contractor for his necessary action.

Yours faithfully,
DORSCH Holding GmbH Abu Dhabi

Nihad Hammad
Projects Resident Engineer

دورش هولدنج جي م.م.
Dorsch Holding GmbH
Dorsch Consult Abu Dhabi
P.O. Box 26417, Abu Dhabi

Idris Al Haj
Senior Projects Manager

Cc: Projects Division Manager – ADSSC (Al Ain)
DC-Files, AYM, Al-IM, IDR, HAS, NIHAD

Encl.: As stated above

MM/2207 14th Jan 16 - F.C

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

00003677

Ref: ADSSC/AA/PROJ/
Date: 06 AUG 2014

To	:	MWH UK Limited P.O. BOX 45591 Abu Dhabi	**From** **Fax**	: Projects Management Department Al Ain : +971-3-7044753

Attn. : Eng. Yacoub Petro
Senior Project Manager/ Commercial Manager

Cc : Eng. Mubarak Al Dhaheri - Deputy Managing Director
Eng. Omar Al Hashimi - Projects Division Director

Project : O - 11242 Construction Works for Replacement and Enhancement of Septic Tanks in Al Ain Region – Part 1

Dear Sirs,

Subject : NDRC Sub - Contractor (Al Nafaq Trans-boring Est.)

Reference is made to your letter no. 1764 dated 22 Jul. 14 (copy attached) regarding the above subject; please be informed that your recommendation is accepted subject to the following:

- Engineer's enclosed comments.
- Safety arrangements all the time in order to cope with the progress without any incident.
- Suitability of soil to be verified. Method of tunnelling to be proved in order to verify casing pipe specification, jacking force, back wall calculations, the report shall be reviewed and approved by consultant design Engineer.
- Contractor shall submit drawings to the Engineer for approval in advance of commencing the site activity in accordance with the specification.
- Support of existing services and adjacent structure shall be provided.

Please note that ADSSC acceptance is based on expectations that you have reviewed/ evaluated your recommendation in order to confirm satisfaction/ achievement of the contract and system requirements, and have ensured that it is fit for purpose. Your issuance of approval to the contractor will be considered as confirmation.

This is for you information and further action.

Yours Sincerely,

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

P.P **Eng. Mohammed Al Harrasi**
Al Ain Projects Management Dept. Manager
Projects Division

Attach: As noted
H:G/AA/ Corr/14/ 316 - O-11242

مـــؤسســـة الـــنـــفـــق لحـــفـــر الإنـــفـــاق
AL NAFAQ TRANSBORING EST.

BILFINGER

Tebodin Middle East Ltd.
P.O. Box 2652, Abu Dhabi, United Arab Emirates

CODE Contracting Co. (L.L.C.)
P.O. Box 25224
Abu Dhabi
U. A. E.

Attn: Project Manager
Mr. Maged Gamil Naguib

Contact person	Reference	Phone	E-mail
Roman Hofa / M.Tauseef	10705-12/CODE/A-11168/L-332/RH/LM	050-6162315	Roman.hofa@tebodin.com

تيبودين
الشرق الأوسط
المحدودة

Project: Replacement of Old Water Networks & House Connections, AADC Contract No. A-11168

July 07, 2015

Subject: **Prequalification Documents of M/s Al Nafaq Transboring East-UAE for NDRC Works by HDD Method**

Dear Sir,

A. Reference:

A1. M/s AADC letter ref. no. AADC/PRJ/W-353 dated 5th June 2015 (copy attached).

A2. M/s TME letter ref. No. 10705-12/AADC/A-11168/L-224/RH/LM dated 25th June 2015.

A3. M/s. CODE letter ref. No. CODE/346/1924/2015 dated 15th June 2015, received 24th June 2015

We have reviewed your submission forwarded to us via letter. ref. (A1) comprising prequalification documents of M/s Al Nafaq Transboring Est- UAE, who have been proposed by CODE for carrying out remaining NDRC works under the subject contract with the use of HDD method.

Our comments on this submission are as follows:

B. Comments

B1. M/s Al Nafaq Transboring Est- UAE (ANTE) have been accepted for execution of NDRC works under the subject contract with the use of HDD method.

B2. ANTE should submit the size details of the HDPE sleeve to be used and confirm the specified SDR rating.

TEB-PF + encl, NR, RH, MT

Tebodin

Tebodin Middle East Ltd.
Ahmed Ghanem Mazrou Building
Hamdan Street
Tourist Club Area
P.O. Box 2652
Abu Dhabi
United Arab Emirates

Phone +971 2 406 60 00
Fax +971 2 672 74 06
tebodin@emirates.net.ae
www.tebodin.com
www.bilfinger.com

Trade register no. CN-1001554

BILFINGER

B3. The HDD horizontal deviation shall be within the limits of respective corridor approved by Al Ain Town Planning Dept.

B4. ANTE should obtain necessary approvals for HDD NDRC from the Al Ain Municipality Road Department / DOT.

B5. Before commencement of HDD work, ANTE must submit the following documents:

- Work Program comprising human resources and equipment
- Soil Investigation Report

B6. ANTE should carry out all works referred to in the submitted Method Statement in compliance with ADWEA/AADC Standard Specifications, HSE procedures and the contract requirements.

C. Status:

C1. The current status of this submittal is **"Approved Except As Noted".**

Please note that this approval is associated with mandatory follow up of comments B1 thru B6 above and does not relieve M/s CODE from their responsibility of conformity to the relevant specification, standards and application requirements.

Yours faithfully,
Tebodin Middle East Ltd

CONTRACT A-11168 TEBODIN MIDDLE EAST LTD.

Roman Hofa
Resident Engineer

Muhammad Tauseef
Assistant Resident Engineer

Encl: As above

Copy to AADC:
- Projects Delivery Division Manager
- Eng. Tariq Abu Ghali, Projects Engineer
- File No.2

always close

مـــؤسســـة الـــنـــفـــق لحـــفـــر الإنـــفـــاق
AL NAFAQ TRANSBORING EST.

شركة العين للتوزيع
Al Ain Distribution Company

Our Ref.: AADC/PRJ/W-353

Date: 05 / 07 / 2015

To : **Tebodin Middle East Ltd.**
PO Box: 2652 (Fax 02-6727406) Abu Dhabi

Project : **A-11168** – Replacement of Old Water Networks & House Connections

Subject : **Prequalification Documents of M/s. Al Nafaq Transboring Est. (UAE) for NDRC Works by HDD Method**

With reference to your letter no.: 10705-12/CODE/A-11168/L-224/RH/LM dated 25.06.2015 regarding the above mentioned subject, please be informed that we concur with your recommendations to approve M/s. Al Nafaq Transboring Est. as sub-contractor for NDRC works using the HDD method.

This is for your information and further necessary action.

Regards,

Eng. Saeed Abdulla Al Shamsi
Acting Water Projects Department Manager

TEBODIN M.E. LTD
CONTRACT A-11168
05 JUL 2015
10705-12
DISTR. CIRC.
RH
MT
ACTION
DATE NAME REMARKS

Attachments: As Stated

Cc: Water Projects Department Manager AADC
File # 16

Tareq AbuGhali

مـــؤسســـة الـــنـــفـــق لحـــفـــر الإنـــفـــاق
AL NAFAQ TRANSBORING EST.

BILFINGER

Tebodin Middle East Ltd.
P.O. Box 2652, Abu Dhabi, United Arab Emirates

MACE Contractors Company L.L.C
P.O. Box 2307
Abu Dhabi
U. A. E.

Attn: Yahia M. Mohamedain
Project Manager

Contact person	Reference	Phone	E-mail
Roman Hofa/Arun	10705-12/MACE/A-10915.1/L-200/RH/LM	050-6162315	roman.hofa@tebodin.com

تيبودين
الشرق الأوسط
المحدودة

Tebodin

Tebodin Middle East Ltd.
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tebodin@emirates.net.ae
www.tebodin.com
www.bilfinger.com

Trade register no. CN-1001554

Project: Replacement of Existing Old Mains and Distribution Networks, AADC Contract No. A-10915.1 **July 09, 2015**

Subject: **Proposed Subcontractor for NDRC Works with Horizontal Directional Drilling & Thrust Boring Methods – M/s Al Nafaq Transboring**

Dear Sir,

A. **Reference:**

A1. Meeting with AADC Engineer on 8th July 2015.
A2. M/s AADC letter ref. No. AADC/PRJ/W-349 dated 5th July 2015 (copy attached)
A3. M/s TME letter ref. No. 10705-12/AADC/A-10915.1/L-145/RH/LM dated 24th June 2015
A4. Meeting with AADC Engineer.
A5. M/s. MACE letter ref. A-10915-MACE-TME-0174 dated 02nd June 2015.

Please be informed that M/s AADC and TME have reviewed your submission forwarded to TME via letter ref (A5) concerning the captioned subject. Following the review our comments on the submittal are as follows:

B. **Comments:**

B1. M/s Al Nafaq are registered in the ADWEA's Registration Section. However, they have to fulfil all the requirements as per ADWEA procedures, to complete the prequalification process for obtaining full ADWEA approval, followed by listing them in the ADWEA Vendor List.

B2. The final approval shall be purely based on M/s Al Nafaq performance and successful completion of NDRC works in compliance with technical, safety and works program requirements. Moreover please note that this conditional approval is valid for contract A-10915.1 only.

PF+ENCL., NR, RH, APS

always close

BILFINGER

B3. The proposed Method Statement for the subject work is not approved due to the following:

- The sleeve sizes should be kept as small as possible taking also into consideration sufficient space for passage of grout, and the spacer sizes shall be revised to keep the carrier pipe as close as possible to the sleeve center.
- The profile of HDPE sleeve for the horizontal directional drilling (HDD) method needs to be maintained with the sag under the roads not larger than the minimum required by HDD technical procee3dings.

Therefore the Method Statement needs to be revised accordingly.

B4. The NDRC works shall be carried out in accordance with Clause 8 of w-p-ss-010 of ADWEA specification and fulfilling all requirements of AAM.

B5. MACE shall submit soil investigation report and design calculation for the proposed NDRC locations.

B6. Drawings showing the NDRC details, layouts and cross sections of driving pits and receiving pit dimensions shall be submitted prior to start of the works at site.

B7. NOC and other required approvals shall be obtained from the concerned authorities prior to start of the work at site.

B8. Contractor shall submit work program before commencement of NDRC activities.

B9. Contractor shall strictly follow all safety requirements as per AADC/ADWEA HSE standard specification.

C. <u>Status:</u>

C1. The status of subject submittal as **"Approved Except As Noted"** above.

You are requested to incorporate the above mentioned comments and resubmit for final AADC/TME approval.

This is for your information and further necessary action.

Yours faithfully,
Tebodin Middle East Ltd

Roman Hofa
Resident Engineer

Arun Sankar
Assistant Resident Engineer

Encl: As Above
Copy to:
AADC
- Projects Delivery Division Manager
- Eng. Saeed Sayo, Project Engineer
- File No.02

شركة العين للتوزيع
Al Ain Distribution Company

Ref: AADC/PRJ/W- 349

Date: 05 July 2015

To : M/s. Tebodin Middle East Ltd.
PO Box: 2652 (Fax: 02-6727406) Abu Dhabi

Project : Contract # A-10915.1
Replacement of Existing Old Mains and Distribution Networks in Al Ain Region

Subject : **NDRC Work by Horizontal Directional Drilling & Thrust Boring Methods and Material Submittal # 035-Rev 0 for HDPE Spacers**

With reference to your letters # 10705-12/AADC/A-10915.1/L-145&146/RH/LM dated 24.06.2015, please be informed that the proposed methods for the subject work are not approved, the following are our comments:

- The sleeve sizes should be kept as small as possible, and the spacers sizes to be revised accordingly
- The HDPE sleeve for horizontal directional drilling method to be maintained in horizontal position under the roads
- We concur with your comment under B12 for the proposed subcontractor, keeping in mind that this conditional approval is valid only for contract A-10915.1
- The HDPE spacers manufactured by M/s RACI, Italy is approved subject to select the suitable height considering the sleeve internal diameters

We return the original sets of the submittals for incorporating our above comments.

Regards,

Eng. Saeed Abdullah Al Shamsi
Acting Water Projects Department Manager

Attachment: (as stated)

A-10915.1
05 JUL 2015
10705-12
RH
AADS

Copy to:
- Water Projects Delivery Department Manager
- File # 16

Telephone: +971 3 763 6000, Fax: +971 3 711 7555 | PO Box 1065, Al Ain, United Arab Emirates | www.aadc.ae

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

Dorsch Gruppe

Ref: AA/10/2012/494
Tel +971 3 7848379
Fax +971 3 7848428
Date: 28 May 2014

M/s. ARCO General Contracting
P. O. Box 212842
Dubai, UAE

Attention : **Eng. Hisham Jallad**
Operations Manager

Project : **Contract No. 10/2012**
Construction and Execution of a Network for Irrigation and Improving the Main Entrance for the Eastern Sector

Subject : **Prequalification of Sub-contractor for NDM Works**

Dear Sir,

With reference to your letter ref. no. 10/2012ALN/ARC/2014/AS/MA-402 dated 13 May 2014 regarding the submittal for NDM subcontractor.

Please be informed that M/s Al Nafaq Transboring Est. is hereby approved as subcontractor for the Horizontal Directional Drilling Works in the above mentioned project subject to satisfactory performance.

Please note that this approval will not relieve you from the responsibility for conformity to the contract requirements.

This is for your information and further necessary action.

Yours faithfully,

DORSCH Holding GmbH Abu Dhabi

Mohamed Noor Obeid
Irrigation Engineer

Samir Sayed Ahmed
Resident Engineer

CC:
- *Dr. Mahmoud Sabouni – AAM*
- *Eng. RaudhaAldhaheri - AAM*
- *DC File, Mousa, Samir*

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

KEO
كيو انترناشيونال كونسلتنس
KEO International Consultants

Ref: 7188-CM00-A-10142-KEO-ALSA-LT-RR-0462
17 February 2013

ALSA Engineering & Construction Co. LLC
P.O. Box 54294
Abu Dhabi.

Attention: **Engineer Faisal Naranath, Project Manager**

Contract: **A-10142- Supply & Installation of Water Distribution Networks for New Development Areas in Al Ain Region**

Subject: **Sub-Contractor for the NDRC (HDD & Auger) Works (Alternate)**
M/s. Al Nafaq Transboring Est (Abu Dhabi)

Dear Sir,

With reference to your letter # AE-222-GEN-13-284 dated 03 January 2013 proposing M/s. Al Nafaq Transboring Est, Abu Dhabi as alternate subcontractor to carry out Road Crossing (NDRC by HDD & Thrust Boring) for the project, please find attached AADC letter approving your proposal of alternate sub-contractor with following comments:

1. M/s Al Nafaq shall be approved as Sub-Contractor for NDRC works by **Thrust boring method only.** The approval shall be purely based on their performance and successful completion of the NDRC work.
2. Site Engineer of the Sub-Contractor shall be available at NDRC location during all operations of NDRC works.
3. The NDRC works shall be carried out in accordance with the approved Method Statement complying with Clause 8 of Document # W-P-SS-010 (R3) of the ADWEA Specification and fulfilling all requirements of AAM.
4. The Sub-Contractor shall obtain necessary approvals from the concerned authorities including Al Ain Municipality Road Section.
5. NDRC locations shall be approved by AADC.

This is for your information and necessary further action.

Yours faithfully,
For **KEO International Consultants**

7188CM PROJECT OFFICE
KEO
كيو انترناشيونال كونسلتنس
KEO International Consultants

Rifaz Rasheed
Resident Engineer

Encl: As Stated (AADC# AADC/PRJ/W.278 Dated 17 February 2013)
Copy to: Projects Delivery Division Manager, AADC
PMCM, KEO, Abu Dhabi
File

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

SCANNED

11606
23 OCT 2012

Ref: ADSSC/AA/PROJ/ 002273
Date: 22 OCT 2012

To	:	AECOM Middle East Ltd. P.O. BOX 1419 Al Ain	**From**	: Projects Management Department Al Ain **Fax** : +971-3-7044753

Attn. : Oussama N. Nehme
Associate Director – Waste Water/Drainage

Cc : Eng. Mubarak Al Dhaheri - Deputy Managing Director
Eng. Salem Al Suwaidi - Projects Division Manager

Project : O - 10987 Sewerage Connections and Related Works for Isolated Properties in Al Ain Region Phase 4

Dear Sirs,

Subject : Pre – Qualification Documents of M/S Al Nafaq Transboring Est.

Reference is made to your letter no. 41 dated 18 Oct. 12 (copy attached) regarding the above subject; please be informed that your recommendation is accepted subject to the following:

- Contractor to confirm the ability of the proposed sub-contractor to cover the contract's requirements.
- Consultant shall review all of the proposed method for NDRC; which may vary according to geotechnical investigation report.
- Contractor to submit the details of the main key persons and operators of the proposed sub-contractor with their previous experience in the same field.
  Further details of grout mix design, and placement of grouting over break line to be provided.
- Contractor shall be responsible for alignment of sleeve (vertical and horizontal) after executing the works as per specifications.
- Support of existing services and adjacent structure shall be provided.
- Safety arrangements all the time in order to cope with the progress without any incident.
- This approval shall not relieve contractor from any technical and contractual obligations or waive any specification requirements internally/ mistakenly missed from the subjected M.O.S.

This is for your further action.

Yours Sincerely,

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

Eng. Mohammed Al Harrasi
Al Ain Projects Management Dept. Manager
Projects Division

AECOM MIDDLE EAST LTD.
Al Ain
24 OCT 2012
INC. NO 137
NAME | ACT. | INFO. | FILE
RH

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

SCANNED

AECOM MIDDLE EAST LIMITED
AL AIN
10328
16 OCT 2011
Ltr
Site
Cover

Ref: ADSSC/AA/PROJ 001485
Date: 16 OCT 2011

To : AECOM Middle East Limited
P.O. BOX 1419
Al Ain

From : Projects Management Department
Al Ain
Fax : +971-3-7044753

Attn. : Oussama N. Nehme
Associate Director – Waste Water/Drainage

Cc : Eng. Mubarak Al Dhaheri - Deputy Managing Director
Eng. Salem Al Suwaidi - Projects Division Manager

Project: O-10666-Sewerage Connections and Related Works for Isolated properties in Al Ain

Dear Sirs,

Subject: Sub Contractor – NDRC Works

Further to your letter ref. AH/90057310.20-P1/M18125 dated 2nd of October 2011 regarding the above subject; Please be informed that your recommendation is accepted subject to the following:

1. AHA & risk assessment to be submitted to ADSSC Safety Engineer for review and assessment.
2. Project related specifications and requirements shall be strictly followed.

This approval does not relieve the contractor from any technical and contractual obligations.

This is for your information and further action.

Yours Sincerely,

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company
قسم المشاريع - العين
PMD - AL AIN

Eng. Mohammed Al Harrasi
Al Ain Projects Management Dept. Manager
Projects Division

AECOM
MIDDLE EAST LTD.
AL AIN
16 OCT 2011
BRC. NO. 271 OUT. NO.
NAME | ACT. | INFO. | F.UP
AHA | ✓
PROJECT
JOB NO.
FILE NO. 5

Date : 26th August 2020
Our Ref : PU1982/MRF10177/RN/0325/20

SUB - CONTRACT AGREEMENT

This Agreement is made this 27th day of August 2020 by and between **TAMAS Projects,** whose registered address is P.O. Box 46447, Abu Dhabi – U.A.E., Telephone (02) 6919400 (hereinafter referred to as the Contractor) represented by **Mr. Khaled Mesilhy** in his capacity as **Commercial Director.**

AND

AL NAFAQ TRANSBORING EST., P.O. Box 23854, Al Ain, U.A.E., Telephone 03 7217016 (herein after referred to as the Sub-Contractor) represented by **Mr. Naqash Amir** in his capacity as **General Manager**.

Whereas the Contractor has been awarded by the **Al Ain Distribution Company** (hereinafter referred to as **AADC** or **Employer** or **Client**), Contract No: **A-15155 – New Networks for Existing Development and Main Pipelines Replacement at Different areas in Al Ain Region** (hereinafter referred to as the Contract).

Whereas the Contractor desires the Sub-Contractor to execute the NDRC Works in accordance with the Contract Conditions, Specifications, and Drawings (hereinafter referred to as the Works).

1. INTRODUCTION :

The above introduction is considered as an integral part of this Agreement. Any change in the contact address of any of the Parties shall be notified to the other Party in writing.

2. DOCUMENTS :

Below stated documents are all integrated and shall form this Sub-Contract Agreement with the following priority:

2.1 This Sub-Contract Agreement along with its Terms & Conditions.
2.2 Pertinent Project's BOQ, Specifications & Drawings.
2.3 Your offer Ref. Q-20-0041 dated 25th August 2020

Note: Above documents hold power of priority exactly in the above order. The Sub-Contractor's quotation and relevant documents/attachments are only to support this agreement and shall not substitute it in any way, shape or form. In case of discrepancies between these stated documents, this Sub-Contract Agreement Terms and Conditions shall supersede the Sub-Contractor offer's terms & conditions.

SUB-CONTRACTOR	CONTRACTOR
(Authorized Signatory & Company Stamp)	(Authorized Signatory & Company Stamp)

NE Al Ain- U.A.E. P.O. BOX: 23854

P.O.Box 46447, Abu Dhabi, UAE
Tel: +971 2 6919400, Fax: +971 2 6919500
A Limited Liability Company

www.tamaspro.com

P.O.Box 393899, Dubai, UAE
Tel: +971 4 5135106, Fax: +971 4 5135117
hq@tamaspro.com

AECOM

AECOM Middle East Limited
ايكـــوم ميـــدل ايســـت ليمـــتـــد
PO Box 1419, Al Ain, United Arab Emirates
T +971 3 702 6600 F +971 3 755 4727 www.aecom.com

Ref: EN/90315207-P3/M13802

Messrs. Nael & Bin Harmel Hydroexport Est.
P.O Box 1198
Al Ain

22 September 2009

Dear Sirs,

O-1426: TSE Lines from 6 MIG Reservoir at Al Maqam Interchange to Various Locations
Subject: Sub-Contractor for NDRC Works

We refer to your letter 0062-NBHH-O1426-05-AA-JK of 29 August 2009 and attach ADSSC letter ref. ADSSC/AA/PROJ/000106 of 17 September 2009 conditionally approving your Sub-Contractor for the NDRC works.

You are requested to strictly incorporate and consider all of ADSSC comments stated in the above mentioned letter.

The above is for your attention and necessary action.

Yours faithfully,

Emad Nagulb
Resident Engineer
emad.nageeb@aecom.com

cc Engr. Mohd Al Hamasi – Al-Ain Projects Management Dept. Manager, ADSSC
Engr. Naseer Al Nuaimi, Project Manager, ADSSC, Al Ain

NBH 0-1426

Distrbn.	INF.	ACT.
M.D		
C.M	✓	
P.M	✓	
D.P.M		
OFFICE Engineer	✓	
PLANNING Engineer		
Q.S	✓	
Project Engineer		
P.E (M&E)		
[illegible] Eng		
[illegible]		
[illegible]		
[illegible]		
[illegible]		
[illegible]		
Safety Officer		
ACC/ADM		
Sub Cont.		
Others		
File Ref.	✓	

SCANNED

شركة أبوظبي لخدمات الصرف الصحي
Abu Dhabi Sewerage Services Company

AECOM Middle East Limited
AL AIN
07647
NAME ACT INFO F UP
22 SEP 2009 ON
Site EN

Ref: ADSSC/AA/PROJ/ 000106
Date: 17 SEP 2009

To : Maunsell Consultancy Services Ltd.
P.O. BOX 1419
Al Ain

From : Projects Management Dept.
Al Ain
Fax : +971-3-7044753

Attn. : Oussama N. Nehme
Associate Director – Waste Water/Drainage

Cc : Eng. Mubarak Al Dhaheri - Deputy Managing Director
Eng. Salem Al Suwaidi - Projects Division Manager

Project : O-1426 – TSE Lines from 6 MIG Reservoir at Al Maqam Interchange to Various Locations.

Dear Sirs,

Subject : Sub-Contractor for NDRC Works

Reference is made to your letter ON/90815207-P3/M13077 dated 31st August 2009, regarding the above; please be informed that your recommendation is accepted subject to the following:

- Geotechnical investigation report shall be submitted by the contractor with the proposed tunnelling technique and side support system to be adopted. Consultant should review the technical proposal method for NDRC with the consideration of site condition and advise accordingly.
- Contractor to submit a separate method of statement for the specified diameter in the mentioned contract.
- Safety arrangements for compliance with safety requirements at all times in order to cope with the progress without any incident.
- Support of existing services and adjacent structures shall be provided.
- Approval of the ADSSC Safety Engineer.
- This approval shall not relieve contractor from any contractual or technical obligations as per contract.
- Engineer's enclosed comments.

This is for your action.

Yours Sincerely,

P.P.
Eng. Mohammed Al Harrasi
Al Ain Projects Management Dept. Manager
Projects Division

M13502 22/9/09 NBHK

AECOM

AECOM Middle East Ltd
ايكوم الشرق الأوسط ليمتد
PO Box 1419, Al Ain, United Arab Emirates
T +971 3 702 8600 F +971 3 755 4727 www.aecom.com

Ref: KM/AA/606152207/0138

Messrs. Naci & Bin Harmal Hydroexport Est.
P.O. Box 1198
Al Ain

05 September 2009

Dear Sirs,

Project: O-1359 - Sewerage Connections and Related Works for Isolated Properties in Al Ain Region, Phase 2
Subject: Sub-Contractor - NDRC Works

Please find attached a copy of the letter from ADSSC Ref. ADSSC/AA/PROJ/000073 dated 01 September 2009 regarding the NDRC Sub-Contractor M/S Al Nafaq Tunnels Est. Your submittal for the Sub-Contactor has been approved with comments.

This approval does not relieve you from your contractual obligation.

Yours faithfully,

5/9/09 05

K.M.Musthapha
Resident Engineer

cc: Engr. Mohamed Al Hanash - Al Ain Project Management Dept. Manager, ADSSC, Al Ain
Engr. Saeed Al Hadidi - Project Manager, ADSSC, Al Ain

NBH - O 1359		
Distrbn.	INF.	ACT.
M.D.		
P.M.	✓	
Q.S.	✓	
P.E. (Drainage)		
P.E. (M&E)		
QA / QC Eng.		
Chief Surveyor	✓	
Draughtsmen		
Foreman		
Lab Techn.		
Safety Officer		
ACC / ADM		
Others		
File Ref. ✓		

SCANNED

CANSULT MAUNSELL | AECOM
AL AIN
INC. NO. 07103
DATE | ACT. | INFO. | F.UP
01 SEP 2009
PROJECT
JOB NO.
FILE NO.

Ref: ADSSC/AA/PROJ/ 000073
Date: 01 SEP 2009

To : AECOM Middle East Ltd.
P.O. BOX 1419
Al Ain

From : Projects Management Department
Al Ain
Fax : +971-3-7044753

Attn. : Oussama N. Nehme
Associate Director Waste Water\ Drainage

Cc : Eng. Mubarak Al Dhaheri - Deputy Managing Director
Eng. Salem Al Suwaidi - Projects Division Manager

Project : O -1359 Sewerage Connections & Related Works Isolated Properties in Al Ain Region Phase 2

Dear Sirs,

Subject : Sub – Contractor – NDRC Works (Rev. 1)

Reference is made to your letter ref. KM/AA/90815207/0121 dated 24 August 2009, regarding the above; please be informed that your recommendation is accepted subject to the following:

- Geotechnical investigation report shall be submitted by the contractor with the proposed tunneling technique and side support system to be adopted. Consultant should review the technical proposal method for NDRC with the consideration of site condition and advise accordingly.
- Safety arrangements for compliance with safety requirements at all times in order to cope with the progress without any incident.
- This approval shall not relieve contractor from any contractual or technical obligations as per contract.
- Project's related specification and requirements shall be strictly followed.
- Support of existing services and adjacent structures.
- Approval of the ADSSC Safety Engineer.
- Engineer's enclosed comments.

This is for your action.

Yours Sincerely,

Eng. Mohammed Al Harrasi
Al Ain Projects Management Dept. Manager
Projects Division

Attach: As noted

CANSULT MAUNSELL
AECOM
AL AIN
03 SEP 2009
INC. NO 226
SIGNE | ACT. | INFO. | F.UP
RE | | ✓ |

Telephone: +971 2 694 3333, Facsimile: +971 2 694 3773 | PO Box 108691, Abu Dhabi, United Arab Emirates | www.adssc.ae info@adssc.ae

CANSULT MAUNSELL | AECOM

Maunsell Consultancy Services Ltd – Al Ain
PO Box 1419, Al Ain, United Arab Emirates
T +971 3 754 1929 F +971 3 755 4727 [illegible]@maunsell.com

RECEIVED
24 JUN 2007
NBH
G 4002

Ref: KM/GA/90808405 50/051

Messrs. Nael & Bin Harmal Hydroexport Est.
P.O. Box: 1198
Al Ain

24 June 2007

Dear Sirs,

Project: G4002 - Drainage for Isolated Properties in Al Ain
Subject: Sub Contractor for NDRC

Please find attached your copy of the approval for NDRC sub contractor M/s. Al Nafaq Tunnels Est for Drilling Al Ain. The approval is given with comments and hence you are instructed to follow the comments.

This approval does not relieve you from your contractual obligation.

Yours faithfully,

2007/06/24

K.M. Mustafa
Resident Engineer

cc: Eng. Khalid A. Azim - (Project Engineer, ADSSC)

NBH - G 4002		
Distribn.	INF	ACT
M.D.		
P.M.		
Q.S.		
P.E. (Drainage)		
P.E. (M&E)		
QA / QC Eng.		
Chief Surveyor		
Land Surveyor		
Draughtsman		
Foreman		
Lab Techn.		
Safety Officer		
ACC / ADM		
Others	✓	
File Ref.		

SCANNED

CANSULT MALINSELL | AECOM
AL AIN
INC. NO. 07103
NAME | ACT | INFO | F.UP
01 SEP 2009

Ref: ADSSC/AA/PROJ/ 000073
Date: 01 SEP 2009

To : AECOM Middle East Ltd.
P.O. BOX 1419
Al Ain

From : Projects Management Department
Al Ain
Fax : +971-3-7044753

Attn. : Oussama N. Nehme
Associate Director Waste Water\ Drainage

Cc : Eng. Mubarak Al Dhaheri - Deputy Managing Director
Eng. Salem Al Suwaidi - Projects Division Manager

Project : O -1359 Sewerage Connections & Related Works Isolated Properties in Al Ain Region Phase 2

Dear Sirs,

Subject : Sub – Contractor – NDRC Works (Rev. 1)

Reference is made to your letter ref. KM/AA/90815207/0121 dated 24 August 2009, regarding the above; please be informed that your recommendation is accepted subject to the following:

- Geotechnical investigation report shall be submitted by the contractor with the proposed tunnelling technique and side support system to be adopted. Consultant should review the technical proposal method for NDRC with the consideration of site condition and advise accordingly.
- Safety arrangements for compliance with safety requirements at all times in order to cope with the progress without any incident.
- This approval shall not relieve contractor from any contractual or technical obligations as per contract.
- Project's related specification and requirements shall be strictly followed.
- Support of existing services and adjacent structures.
- Approval of the ADSSC Safety Engineer.
- Engineer's enclosed comments.

This is for your action.

Yours Sincerely,

PMD - AL AIN

Eng. Mohammed Al Harrasi
Al Ain Projects Management Dept. Manager
Projects Division

Attach: As noted

CANSULT MALINSELL
AECOM
AL AIN
01 SEP 2009
INC. NO. 226
NAME | ACT | INFO | F.UP
RE | | ✓ |

Telephone: +971 2 694 3333, Facsimile: +971 2 694 3773 | PO Box 108601, Abu Dhabi, United Arab Emirates | www.adssc.ae info@adssc.ae

ADSSC

(2)+(19)

CANSULT MAUNSELL AECOM
AL AIN
INC NO. 50678
31 MAY 2007
NAME | ACT. | INFO. | FUP
ON
RM

Ref: ADSSC/PROJ/ 2461

Date: 29 MAY 2007

To: Maunsell Consultancy Services Ltd
P.O. BOX 1419 Al Ain

Attn: Oussama N. Nehme
Associate Director – Waste Water /Drainage

Project: G-4002-Drainage For Isolated Properties in Al Ain

Dear Sir,

Subject: **Sub Contractor For NDRC**

Reference is made to your letter Ref. AH/90808405.50/ M19070 Dated 27. May. 2007 regarding the above subject. Please be informed that the proposal is approved subject to the following:

- The contractor should submit a detailed shop drawing and method statement for each pipe size prior to commencement of any NDRC activity during the project.
- The sub contractor quality management plan to be provided .

This is for your action

Yours Sincerely,

PROJECTS DIVISION

Eng. Salem Al Suwaidi
Projects Division Manager

Hyder Consulting

Date :02/04/2003
Ref. : AU10002/C.25.0/ME/1279

Al Muhairy General Contractor Co.
P.O.Box 1288
Al Ain
UAE

Dear Sir,

Development of Sanaiya Stage – 2

Sub: **NDRC Sub – Contractor**

We refer to your letter reference J/224/1437 dated 02/03/03 and the submittal for NDRC sub – contractor.

This is to advise that M/S. Al Nafaq Tunnels Est. are hereby approved for the above works.

Copy of the approval letter is hereby attached.

Yours faithfully,

حايدر كونسلتنج ميدل ايست
Hyder Consulting Middle East
Sanaiya Stage - 2
Al Ain العين

Mahmoud F. Ewaidat
SR. Resident Engineer
Hyder Consulting Middle East Limited

Cc. RE, ARE, File.

AL MUHAIRY GEN. CONT. CO.
DEV. OF SANAIYA STAGE 2 (J-224)
Received Date 02-04-03

Tan	Copy	Act	Sgn	T/N	Copy	Act	Sgn
PM				C.A.S			
D.PM				Q.S.			
SEC				ADMIN			
C.E.				ACCT			
LT.E.				H. ASST			
CR.E.				H. SUP			
AD.E.				LAB			
AS.E.				STORE			
SE.E.				B. CON			
PRC.E.				M.C.			
SUP				STAR			

LIST OF WORKS COMPLETED

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

List of Projects executed in last 12 months

Sl.No	Client Name	Project Details
1	AG Facilities	New water distribution network & reinforcement of existing old main & distribution network
2	Mechanical and Civil Engineers Company(MACE)	Project No-55710 - water network connections for Ain Al Faidah & Hafeet
3	Mechanical and Civil Engineers Company(MACE)	Project No-013229 - Asset Enhancement scheme in Al Ain city - Phase 1
4	Mechanical and Civil Engineers Company(MACE)	Project No-013153 - NDRC work for Lines to Link Samha and Shahama areas
5	Mechanical and Civil Engineers Company(MACE)	Project No-013152 - Rehabilation & Replacement of Existing Sewer Lines in AbuDhabi,Part 5
6	Mechanical and Civil Engineers Company(MACE)	Project No-A14278 - HDD works for Abudhabi Location
7	Tamas Pro	P1069 - HDD Works in Al Ain
8	Nael Bin Harmal Hydro Export LLC	Construction of sewerage connection and related work in Al Ain Project No. O13019
9	Nael Bin Harmal Hydro Export LLC	Internal Roads at various locations in Al Ain, Stage 21
10	Nael Bin Harmal Hydro Export LLC	Project No. O – 11966 - Construction of sewerage connection in Al Ain
11	Noor Al Sahara	NDRC works for Minor roads and parking in Al Ain, stage 21
12	Prime Engineering	NDRC works for Project No. A-16108
13	Al Ryum contracting	Construction of Main,Secondary irrigation lines and Reservoirs the eastern sector of Al Ain
14	Al Fahjan Gen Contracting	Development of Asharej and Markhaniya Roundabot , Al Ain
15	Hydropower Energy and General construction	Development of Dewan , Sanaiyah and Dawar jabal area, Al Ain
16	National projects and Construction (Trojan)	Decontamination camp in Al Adlah, Abu Dhabi

DETAIL OF THE ADSSC PROJECTS CARRIED OUT BY M/s. AL NAFAQ TRANSBORING EST.

Sr. No	PERIOD	PROJECT	CONSULTANT	CLIENT	CONTRACTOR	PIPE DIA	TOTAL LENGTH
20	2004-2006	CONTRACT : M41/2	MAUNSELL	AAM / ADSSC	NEAL & BIN HARMAL	GRP 150- 300MM	1200 LM
21	2004-2007	CONTRACT : M30C	GIBB	AAM	NEAL & BIN HARMAL	VARIOUS PIPES	500 LM
22	2006-2007	AL QUAA		AAM	AL MUHAIRY	VARIOUS PIPES	400 LM
23	2006-2007	CONTRACT : M35	KEO	ADSSC	NEAL & BIN HARMAL	RC 2200MM	80 LM
24	2006-2008	CONTRACT : M41/1	MAUNSELL	AAM	AL SALMEEN	VARIOUS PIPES	1200 LM
25	2007	CONTRACT : M44/1	MAUNSELL	ADSSC	BIN HAM	GRP 150MM	60 LM
26	2007	INTERNAL ROADS & INFRASTRUCTURE WORKS IN AL AIN INDUSTRIAL CITY	HYDER	AAIC	AL JABER	GRP 1200MM	100 LM
27	2007	CONTRACT : G-4053	MAUNSELL	ADSSC	METITO	HDPE 315MM	100 LM
28	2007-2008	CONTRACT : A-1760	MAUNSELL	ADWEA	AL SALMEEN	VARIOUS PIPES	800 LM
29	2007-2011	SHABHAT	MAUNSELL	ALDAR	NEAL & BIN HARMAL	VARIOUS PIPES	500 LM
30	2007-2009	CONTRACT : G-4002	MAUNSELL	ADSSC	NEAL & BIN HARMAL	GRP 150-400MM	1798 LM
31	2008	PAWDA PALACE	MAUNSELL	DOPA	NEAL & BIN HARMAL	GRP 200MM	300 LM
32	2008-2009	INTERNAL ROADS IN ALAIN STAGE-15	MAUNSELL	AAM	AL FAHJAN	UPVC 315MM	300 LM
33	2008-2010	CONTRACT : O-1190	MAUNSELL	ADSSC	NEAL & BIN HARMAL	UPVC 150-500MM	544 LM
34	2009-2010	CONTRACT : O-1359	AECOM	ADSSC	NEAL & BIN HARMAL	UPVC 150-225MM	941 LM
35	2009-2011	CONTRACT : O-1426	AECOM	ADSSC	NEAL & BIN HARMAL	GRP 100-1000MM	1562 LM
36	2010-2011	CONTRACT : O1696	AECOM	ADSSC	BIN HAM	GRP 400MM	441 LM
37	2010-2012	CONTRACT : O-2178	AECOM	ADSSC	TAMAS	GRP 150-300MM	1012 LM
38	2010-2010	STROM WATER DRAINAGE, CONTRACT-1	AECOM	AAM	NEAL & BIN HARMAL	UPVC, GRP & RC 280-900MM	1680 LM
39	2010-	CONTRACT : O-2156	AECOM	ADSSC	AL SALMEEN	UPVC & GRP280-900MM	

Details of The ADSSC Projects Carried Out By M/s. Al Nafaq Transboring Est.							
Sr. No	**Period**	**Project**	**Consultant**	**Client**	**Contractor**	**Pipe Dia**	**Total Length**
1	2006-2007	CONTRACT : M35	KEO	ADSSC	NAEL & BINHARMAL	RC 2200MM	80 LM
2	2007	CONTRACT : M 44/1	MAUSELL	ADSSC	BIN HAM	GRP 150MMM	60 LM
3	2007	CONTRACT : G-4053	MAUSELL	ADSSC	METTITO	HDPE 315MM	100LM
4	2007-2009	CONTRACT :G-4002	MAUSELL	ADSSC	NAEL & BINHARMAL	GRP 150-400MM	1798 LM
5	2008-2010	CONTRACT :O-1190	MAUSELL	ADSSC	NAEL & BINHARMAL	UPVC, GRP 150-500MM	544 LM
6	2009 Till	CONTRACT : O-1359	AECOM	ADSSC	NAEL & BINHARMAL	UPVC 150-225MM	941 LM
7	2009 Till	CONTRACT : O-1426	AECOM	ADSSC	NAEL & BINHARMAL	GRP 100-1000MM	1562 LM
8	2010-2011	CONTRACT : O-1696	AECOM	ADSSC	BIN HAM	GRP 400MM	500 LM
9	2010 – 2012	CONTRACT : O - 2178	AECOM	ADSSC	TAMAS	UPVC, GRP 150-400MM	300 LM
10	2010- 2011	CONTRACT : O-2156	AECOM	ADSSC	AL SALMEEN	UPVC, GRP 150-900MM	412 LM
11	2011- 2015	CONTRACT : O-10666	AECOM	ADSSC	NAEL & BINHARMAL	UPVC, GRP 150-900MM	1708 LM
12	2012-2016	CONTRACT : O-10987	AECOM	ADSSC	BIN HAM	UPVC, GRP 150-900MM	1479 LM
13	2014 -2015	CONTRACT : O-11242	MWH	ADSSC	NAEL & BINHARMAL	UPVC, GRP 150-900MM	260 LM
14	2016	CONTRACT: 2	JACOBS	Al Ain Municipality	AL FAHJAN	UPVC, GRP 225-900MM	34 LM
15	2015-2016	CONTRACT : O-11837	MWH	ADSSC	MACE	UPVC, GRP 150-900MM	Still in Progress
16	2016 Till	CONTRACT : O-11966	AECOM	ADSSC	NAEL & BINHARMAL	UPVC, GRP 150-900MM	Still in progress

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

HDDM EXPERIENCE

LIST OF MAJOR EXPERIENCE FOR THE LAST 7 YEARS

CONTRACTOR COMPANY NAME	**Al Nafaq Transboring Est.**	**REGISTRATION NUMBER**	**9914368**

WORK GROUP (WG) DESCRIPTION							
SR. NO	**PROJECT TITLE**	**CLIENT NAME**	**DETAIL SCOPE OF WORK**	**YEAR**	**VALUE FOR THIS WG (DHS)**	**TOTAL CONTRACT VALUE (DHS)**	**ROLE IN PROJECT**
1	Re-placement of NGL Pipeline Project	GASCO	Installed 24" Gas Pipe Line Across New Tariff-MLD Road	2010	220,000.00	250,000.00	S
2	Water Distribution – Mirfa & Surrounding area.	A/D Municipality	Directional drilling at Mirfa New Hotel round for water pipe line	2010	210,000.00	760,000.00	S
3	Ground Water Lowering Project	A/D Municipality	Directional drilling at Khalifa 'B' Ground Water Lowering Project (IMECO) at 28 locations – Gravity flow.	2011	305,000.00	480,000.00	S
4	Al Bateen Executive Airport Airfield Lighting Project	ADAC	Directional drilling across runway – Al Bateen Airport 6way duct at six locations.	2011	380,000.00	420,000.00	S
5	Power Connection Dodsal	Dodsal (P) Ltd.	Install 200mm HDPE pipe across Tarif – Madinet	2012	36,000.00	165,000.00	S

	Facility Project		Zayed Road opposite M/s. Dodsal site office.				
6	Takreer General Utilities Plant Expansion Project	Takreer	Install 3nos. 280mm plus 2nos. 125mm HDPE pipe bundled and pulled across Ruwais – Sila highway	2012	350,000.00	545,000.00	S
7	Takreer General Utilities Plant Expansion Project	Takreer	Install 3nos. 280mm and 2nos. 125mm HDPE pipe bundled and pulled infront of substation near Gayathi road	2012	220,000.00	550,000.00	S
8	Du – F.O. Cable Link to Tower # 2042	Du	Install 4” 110mm 4nos. HDPE across Umm-Al Nar – Dubai Road highway	2012	170,000.00	650,000.00	S
9	AIS Security System for Oilfield Areas	GASCO	Install 2way 4” HDPE pipe across Buhassa Road near GASCO security gate, Buhassa oil field area	2013	45,000.00	120,000.00	S
10	F.O. Cable and Ducts at Zaker Area	ETISALAT	Installation of 300mm HDPE pipe at six locations ZAKER – Al Weggon Road.	2013	150,000.00	240,000.00	S
11	P-200, F.O. Cable Inside of Abu Dhabi Link to Towers	Du	Installation of 4way 110mm duct across IP-118 Sector W-34 for ‘du’ – TABREED Link.	2013	115,000.00	160,000.00	S
12	New F.O. Cable Link to Mizera	ETISALAT	Install 2way road crossings at 22locations, Mizera – Hameem highway for ETISALAT Military F.O. cable at Liwa	2013	462,000.00	620,000.00	S
13	Inter Refinery	GS Eng/Robt	Install 12” C.S Pipe +6” HDPE pipe at	2014	7,800,000.00	1,600,000.00	S

	Pipeline Project-Phase-II	.Stone.	Al Ain				
14	Falcon Eye Project	Al Otaiba Transport	NDRC to install 2 nos 75mm + 1 no 50mm HDPE pipe tied together at Moh'd Bin Zayed City, Madinet Zayed and Baniyas Sector.	2014	4,000,000.00	1,200,000.00	S
15	Habshan-Maqat-Taweela (HMT) Gas pipe line Project.	M/S Dodsal (P) Ltd.	NDRC work to install 1200mm C.S pipe at crossing nos-20 & 22 Near Abu Dhabi Cricket Stadium	2014	10,000,000.00	488,680.00	S
16	HDD Works in Al Ain to Install HDPE Pipe	AAM	NDRC Works by HDD at Al Ain Mezyad Road	2014	110,000.00 in progress	540,000.00	S

Sr. NO	Contract	Client	Main Contractor	Year	Diameter	Quantity L/M	Role
17	AADC Contract No A-6310	AADC	CODE	2015	315mm & 400mm	800.00	S
18	AADC Contract No.A-10342	AADC	NBHH	2015	315, 400, 500 & 600mm	1000.00	S
19	AADC Contract No A-11168	AADC	NBHH	2015	160, 225 & 315mm dia	600.00	S
20	AADC Contract No A-10915.1	AADC	MACE	2015 & 2016	250, 315, 400 & 500mm	800.00	S
21	Du Project.PR No.121147	DU	Site Tech.	2017	110mm dia x 4way including crossing under Oil & Gas Lines in Liwa	3000.00	S
22	P1069	DOT	TAMAS	2018 Onward	110mm dia x 4way	2900.00	S
23	AADC Stage 21	AADC	NBHH	2018 Onward	900 mm dia	900.00	S
24	Stage 22	AADC	NBHH	2018 Onward	900mm dia.	700.00	S
25	A-14426.1 & A-14430.1	AADC	Net. Electro	2018 Onward	160mm dia 2 way	800.00	S
26	001/31040	AADC	AG facilities	2018 Onward	400mm, 500mm & 600 mm dia 1 way	1100.00	S

مـــؤسســـة الـــنـــفـــق لحـــفـــر الإنـــفـــاق
AL NAFAQ TRANSBORING EST.

QUALITY MANUAL

DOC No : NTE-QM-01

Rev. No.: 00

Prepared by:	Reviewed By:	Approved By:
NTE	MR	GM

Integrated Management System (IMS) Manual

Quality Management System (ISO 9001:2015)
Environmental Management System (ISO 14001:2015)
Occupational Health & Safety Management System (ISO 45001:2018)

Rev 00

This manual is property of

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Review and Approval

Revision	Date	Summary of Changes	Prepared By:	Reviewed & Approved By:
00	25 Feb 2020	Initial Release	Management Representative	General Manager

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Designation	General Manager
Signature & Date	

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INTRODUCTION

Founded in 1981, Al- Nafaq Transboring is an organization specializing in Non-Disruptive Road Crossing Works (NDRC) by Horizontal Directional Drilling (HDD),Thrustboring and Pipe Jacking. Al-Nafaq has installed many cases by offering NDRC services for underground cable lines and installing pipelines on the shortest route without disturbing the surface. We have gained the confidence of clients by completing complex projects with innovative methods and enhanced equipment. Our topnotch capabilities create value and provide smart solutions for our projects. Now we've fully developed our engineering intellect and have pushed our boundaries when it comes to being a specialist in the drilling industry in U.A.E. Al-Nafaq is one of the leading industry in horizontal directional drilling, auger boring, and pipe jacking

Our expertise lies in what we do, our plant and machinery are imported with the surety of its performance and unfaltering delivery. Our team of mechanical engineers have strong hands in drilling for, Etisalat, infrastructures underground sewerages, water pipe lines, recycle water pipe line, Electrical cables Service cables, Storm water lines and Sewerage. We guarantee the highest technical standards of workmanship even under the most adverse soil conditions.

Horizontal directional drilling machine, Thrust boring machine, and Pipe jacking machine are used in our services. We continuously enhance our machinery to achieve greater service standards, and with that, we go through a highly mechanical process under the supervision of safe and secure environment. With the team of finest shaft managers and quality engineers, we proceed with our work in every way possible to deliver staunch and genuine service.

Vision:

We place utmost importance in integrity and industrial management, with respect to advancing culture in the workplace. Our vision is clear to provide Excellence in the field of tunneling work and showcase high technology through safety and use the best engineering processes and stay at the forefron of technology.

1.0 PURPOSE

The purpose of this manual is to outline Al Nafaq Transboring Est. integrated management system that applies to the organization's activities. It is established, documented, implemented and maintained following the principle of "Plan-Do-Check-Act" (PDCA):

Plan – Establish the objectives and processes necessary to deliver the results in accordance with the Quality Policy, Environmental Policy, and Occupational Health & Safety Policy.

Do – Implement the procedures, processes, and programs in order to achieve the QEHS objectives.

Check – Regularly monitor and measure the processes against the Quality Policy, Environmental Policy, and Occupational Health & Safety Policy, QEHS objectives, and legal requirements, and report the results for review.

Act – Regularly review the QEHS to determine its continuing suitability, adequacy, and effectiveness. Take actions to continually improve the IMS performance.

2.0 NORMATIVE REFERENCES

The following documents were used as reference during the preparation of the IMS:

- International Standard ISO 9001:2015 Quality Management System - requirements
- International Standard ISO 14001:2015 Environmental Management Systems – requirements
- International Standard ISO 45001:2018 Occupational Health and Safety Management Systems – requirements

3.0 TERMS AND DEFINITION

Terms	Definitions
Accident	Incident which has given rise to injury, illness or fatality.
Asset	Anything that has a value in the organization.
Audit	Systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled.
Competence	Ability to apply knowledge and skills to achieve intended results.
Confidentiality	Property that information is not made available or disclosed to unauthorized individuals, entities, or processes.
Conformity	Fulfilment of a requirement.
Consultation	Seeking views before making decision.
Continual Improvement	Recurring activity to enhance performance.
Contractor	External organization providing services to the organization in accordance with agreed specifications, terms and conditions.
Corrective action	Action to eliminate the cause of a nonconformity and to prevent recurrence.
Customer	Anyone who receives products or services (outputs) from a supplier. Customers can be either people or organizations and can be either external or internal to the supplier organization.
Documented Information	Information required to be controlled and maintained by an organization and the medium on which it is contained.
Documents	Documents are that guiding information which is used for performing the activities. (For example: Standards, Manual, Procedures, Work Instructions, and Blank Formats, etc.).
Environment	Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans and their interrelationships.
Environmental Aspect	Element of an organization's activities or products or services that can interact with the environment.

Terms	Definitions
Environmental condition	State or characteristic of the environment as determined at a certain point in time.
Environmental Impact	Change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspect.
Environmental Management System	Part of the management system used to manage environmental aspects, fulfil compliance obligations and address risk and opportunities.
Ill health	Identifiable, adverse physical or mental condition arising from and/ or made worse by a work activity and/ or work-related situation.
IMS Manual	It is the Al Nafaq Transboring Est.documents which describe the scope and applicability of the elements of ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018.
Incident	Work-related event(s) in which an injury or illness (regardless of severity) or fatality occurred, or could have occurred. It includes accidents, near-miss, near-hit, close calls and dangerous occurrence.
Injury and ill health	Adverse effect on the physical, mental or cognitive condition of a person.
Interested party	Person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity.
Legal requirements and other requirements	Legal requirements that an organization has to comply with and other requirements that an organization has to or chooses to comply with
Management system	Set of interrelated or interacting elements of an organization to establish policies, objectives, and processes to achieve those objectives.
Measurement	Process to determine a value.
Monitoring	Determining the status of a system, a process, or an activity.
Nonconformity	Nonfulfillment of a requirement.
Objective	Result to be achieved.
Occupational Health & Safety	Conditions and factors that affect, or could affect the health and safety of employees or other workers (including temporary workers and contracted personnel), visitors, or any other person in the workplace.
Occupational Health & Safety Management System	Part of the organization's management system that is used to develop and implement its OHS policy and manage its OHS risks.
OHS Hazard	Source with a potential to cause injury and ill health.
OHS Risk	Combination of the likelihood of occurrence of a work-related hazardous event or exposure and the severity of injury or ill health that can cause by the event or exposure.
Opportunity	Circumstances or set of circumstances that can lead to improvement of performance.
Organization	Organization refers to the company, corporation, or unit to which this International Standard applies.

Terms	Definitions
Outsource	Make an arrangement where an external organization performs part of an organization's function or process.
Participation	Involvement in decision making.
Performance	Measurable results.
Personnel Protective Equipment (PPE)	These include but shall not be limited to hard hats, masks, gloves, safety shoes, eye goggles, and chemical-resistant aprons that are worn to protect the person from any potential harm.
Policy (Quality, Health & Safety, Environment)	Intentions and direction of an organization, as formally expressed by the top management.
Prevention of pollution	use of processes, practices, techniques, materials, products, services or energy to avoid, reduce or control (separately or in combination) the creation, emission or discharge of any type of pollutant or waste, in order to reduce adverse environmental impacts.
Procedure	Specified way to carry out an activity or a process.
Process	Set of interrelated or interacting activities which transforms inputs into outputs.
Quality	Degree to which an inherent characteristic fulfils criteria.
Quality Management System	Set of interrelated or interacting elements to establish policy & objectives and to achieve those objectives to direct and control an organization with regard to quality.
Record	Record is that information which provides objectives evidence of conformity to the requirements.
Requirement	Need or expectation that is stated, generally implied or obligatory
Resource	Resource includes application of Manpower, Material, Method, Machine, and Money to meet the requirements.
Risk	Effect of uncertainty
Risk and opportunities	Potential adverse effects (threats) and potential beneficial effects (opportunities)
Supplier	A person or an organization that provides products or services. A supplier can be either internal or external to an organization.
Top management	Person or group of people who directs and controls an organization at the highest level
Worker	Person performing work or work related activities that are under the control of the organization
Workplace	Place under the control of the organization where a person needs to be or to go for work purposes

4.0 CONTEXT OF THE ORGANIZATION

4.1 UNDERSTANDING THE ORGANIZATION AND ITS CONTEXT

About Al Nafaq Transboring:

Founded in 1981, Al- Nafaq Transboring is an organization specializing in Non-Disruptive Road Crossing Works (NDRC) by Horizontal Directional Drilling (HDD),Thrustboring and Pipe Jacking. Al-Nafaq has installed many cases by offering NDRC services for underground cable lines and installing pipelines on the shortest route without disturbing the surface. We have gained the confidence of clients by completing complex projects with innovative methods and enhanced equipment. Our topnotch capabilities create value and provide smart solutions for our projects. Now we've fully developed our engineering intellect and have pushed our boundaries when it comes to being a specialist in the drilling industry in U.A.E. Al-Nafaq is one of the leading industry in horizontal directional drilling, auger boring, and pipe jacking

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AUGER BORING
Augers are the perfect choice for a variety of landscaping, digging and drilling applications. This service is utilized to drill on a level plane through rotating a steel cutting head / cutter head. Most of the auger boring is utilized to introduce pipe packaging under railways, expressways, airplane terminal runways, lined channels and so on.

HORIZONTAL DIRECTIONAL DRILLING
The tools and techniques used in the horizontal directional drilling (HDD) process are an outgrowth of the NDRC drilling industry. The components of a horizontal drilling rig is used for pipeline construction,
water lines, and sewers and installing cable lines respectively, it's a huge and technical process screened under the team of experts and technical engineers.\

PIPELINE JACKING
Pipe Jacking is a specialist tunneling method for installing underground pipelines with the minimum surface disruption. It is most ideal for new sewer construction. It is also used for sewer replacement and relining water mains, sewerage pipelines. Al-Nafaq has the capacity to drill deep huge spaces without disturbing the level of the surface.

Al Nafaq Transboring Est.Internal and External Context

Al Nafaq Transboring Est. determines and identifies factors that may affect the ability to satisfy Al Nafaq Transboring Est.customers and stakeholders, as well as factors that may adversely affect the stability of Al Nafaq Transboring Est. process or management system's integrity. Al Nafaq

Transboring Est. will then monitor and review this information to ensure that a continual understanding is derived and maintained. To facilitate the understanding of our context, we regularly consider issues that influence our context during management review meetings and are conveyed via minutes and business planning documents.

Al Nafaq Transboring Est.has determined and identified the internal and external issues that are relevant to its business and strategic direction and its ability to achieve its management system policies. These issues are described in the tables below (see Annexure A & B for full details).

Table 1 – Internal Context

Internal Issues (details are documented in Annexure A)
▪ Breakdown of infrastructure and equipment used for Al Nafaq Transboring Est.operations.
▪ Loss of files on the data storage; Limited software functionality.
▪ Shared specified business information could be used improperly.
▪ Limited staff leads to stretching their roles and their responsibilities that might lead to higher workload; Failure to perform required task.
▪ Policies and procedures are not being followed accordingly.
▪ Unable to perform the required task due to lack of competency.
▪ Unsafe working conditions might be a threat to employees' health and safety.
▪ Unavailability of enough resource to fulfill client requirement; Unavailability of manpower to supervise/ execute the project.
▪ Wrong budget allocation; Poor project/ operations expense planning.

Table 2 – External Context

External Issues (details are documented in Annexure B)
▪ Failure to comply with all the relevant legal/ local authority regulations that might result to financial lost due to penalties.
▪ Approving wrong suppliers, risks of selecting suppliers based on price only while disregarding quality, risks of market monopolies.
▪ Rapid change and advances in technology, increase in capital expenditures.
▪ Significant competitors at this time; over demanding customers' increasingly complex requirements.
▪ Standards required by clients.
▪ Delay in deliveries and works.
▪ Working in a hot environment.
▪ Waste management implementation.

4.2 NEEDS AND EXPECTATIONS OF INTERESTED PARTIES

Al Nafaq Transboring Est. recognizes that we have a unique set of interested parties whose needs and expectations change and develop over time, and furthermore that only a limited set of their respective needs and expectations are applicable to our operations or to our integrated management systems. Such needs and expectations are shown in the table below (see Annexure C for full details).

Interested Party	Needs and expectations
Clients / Students	▪ Quality products and services at competitive price ▪ Compliance to Client's standards and specifications ▪ On-time delivery and turn over ▪ Prompt response to concerns (including complaints) ▪ Moral satisfaction from the fact that the customer does not pollute the environment when using the services
External Providers (suppliers, contractors, subcontractors)	▪ Communication of the purchase requirement with accurate specification (products & services) ▪ Terms and condition ▪ Mutual benefits & continuity ▪ On-time payment ▪ Compliance to Al Nafaq Transboring Est. policy and procedures ▪ Minimizing OSH hazards and risk
Competitors	▪ Obtain new projects ▪ Improve competency in the market ▪ Improve client management and relationship ▪ Improve brand image in the market ▪ Introducing new technologies in the market ▪ Provide specialized & unique services in the market
Regulatory bodies (local, federal, international)	▪ Complying to legal requirements ▪ Compliance to ACTIVET requirements ▪ No legal requirement conflicts in the provided services ▪ Safety of employees, environmental protection and promote sustainable development
Department of Economic Development (DED)	▪ On time renewal of Commercial License
Workers or Employees	▪ Job satisfaction, job security, career growth, competitive salary, motivation, respect, defined roles and responsibilities, work-life balance ▪ Safe workplace ▪ Ensuring favorable conditions for occupational safety and health. ▪ Providing means of protection and protective clothing.

Interested Party	Needs and expectations
Business Owners or Shareholders	▪ Profitability and growth of the organization, employee engagement, efficiency in operation ▪ Honest and quality work ▪ Minimization of risks and losses, including penalties ▪ Improve QHSE performance
Society	▪ Wellness of the nation ▪ Safe products or services which has positive impact on human health and the environment

4.3 DETERMINING THE SCOPE OF THE INTEGRATED MANAGEMENT SYSTEM

Al Nafaq Transboring Est.has established documentation (manual, policies, processes and procedures, etc.) to effectively control and manage its activities. These documentations serve the purpose of fulfilling the requirements of ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 and to be coherent with the quality policy, environmental policy, and occupational health & safety policy and QHSE objectives. Al Nafaq Transboring Est. had determined the scope of the integrated management system by considering external and internal issues, requirement of relevant interested parties, the planned or performed work-related activities and products & services of the organization.

The scope of Al Nafaq Transboring Est.Integrated Management System is, **" Drilling and deeping of water passages and Service duct drilling."**

Justification for Non-Applicability:
Al Nafaq Transboring Est. found no exclusions to any of the requirements of the Quality Management System ISO 9001:2015.

4.4 THE INTEGRATED MANAGEMENT SYSTEM AND ITS PROCESSES

The established, documented, implemented and maintained Al Nafaq Transboring Est.IMS ensures its ability to consistently provide quality products and services that meet stakeholders' expectation, provide and maintain a safe & healthy workplace, promote environmental protection, employee and community development as well as to comply with applicable statutory and regulatory requirements, thereby ensuring customer satisfaction.

Quality Management System

Al Nafaq Transboring Est. has determined the processes needed for its QMS and their application throughout the organization and has accordingly:

- determined the inputs required and the outputs expected from these processes
- determined the sequence and interaction of these processes
- determined and applied the criteria and methods (including monitoring, measurements, and

related performance indicators) needed to ensure the effective operation and control of these processes
- determined the resources needed for these processes and ensure their availability
- assigned the responsibilities and authorities for these processes
- addressed the risks and opportunities
- evaluated the processes and implemented any changes needed to ensure that these processes achieve their intended results
- improved the processes and the QMS.

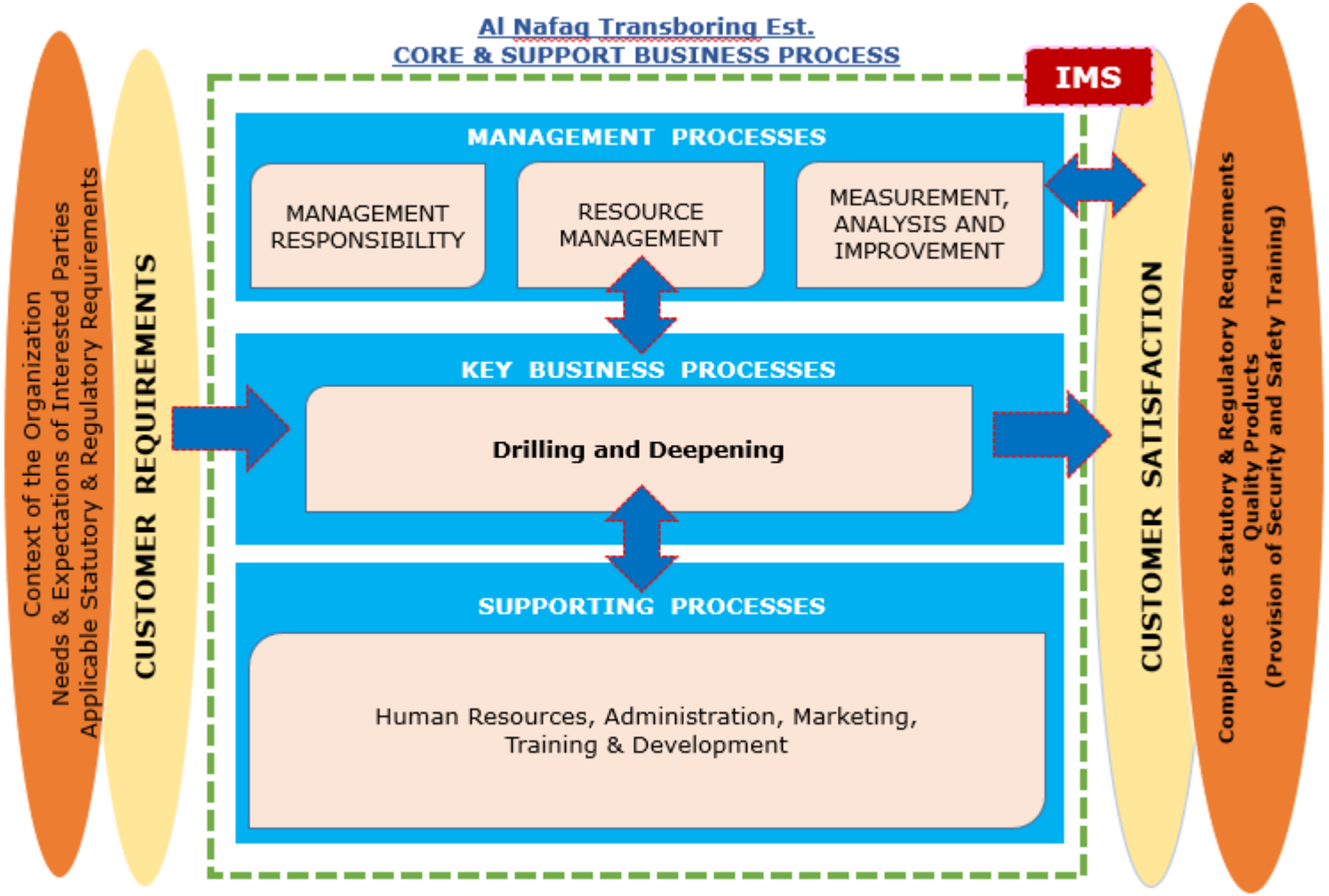
Health & Safety and Environmental Management System

Al Nafaq Transboring Est. has established, documented and implemented an HSE management system, including the processes needed and their interactions, in accordance with the requirements of ISO 45001:2018 & ISO 14001:2015 standard and is maintained and continually improved through the use of HSE policy, objectives, audit results, analysis of data, correction and corrective actions and management review.

Documented information is maintained to support Al Nafaq Transboring Est.for the operation of its processes wherever applicable, to ensure that these processes are carried out as planned.

The overall business process of Al Nafaq Transboring Est. is illustrated below (Figure 2). During management review, Top Management evaluates processes and makes changes needed in order to ensure that the processes achieve the intended results and improve the processes.

Figure 2: Core & Support and Business Process



5.0 LEADERSHIP

5.1 LEADERSHIP AND COMMITMENT

5.1.1 GENERAL

Al Nafaq Transboring Est.top management ensures and demonstrate leadership and commitment with respect to the IMS and its processes. This is evidenced through:

- Taking accountability of the effectiveness of the IMS;
- Ensuring the policies and objectives are established and should be compatible with the strategic direction and context of the organization;
- Ensuring IMS policies are communicated, understood and applied in the organization;
- Ensuring intended results of IMS.

Al Nafaq Transboring Est.management also demonstrate their commitment to the development and improvement of the IMS through their involvement in the internal audit process, carrying out management reviews and through proactive involvement in the continual improvement activities– where emphasis is placed on improving both effectiveness and efficiency of our key QHSE processes.

5.1.2 CUSTOMER FOCUS

Al Nafaq Transboring Est.top management ensures that customer requirements are determined, understood and consistently met to enhance customer satisfaction.

Customer complaints and customer feedback are continually monitored and measured to identify opportunities for improvement. Al Nafaq Transboring Est.continually interact directly with the customers to ensure that Al Nafaq Transboring Est. meets the needs and expectations of the customers.

Al Nafaq Transboring Est. have established an interactive website www.arcoedu.com to provide customers with quick access to information and points of contact within the organization.

5.2 POLICY

The Quality Policy and HSE Policy is the overall intention and direction of the organization formally expressed by the top management towards the quality of its product, processes, and services; the prevention of work-related injury and ill health to workers and to provide safe and healthy workplaces; and the protection of our environment & commit to control pollution.

The Top Management and the QHSE Management Representatives ensure the establishment and regular update of the quality policy and ensure that it is documented, implemented and maintained.

The Top Management shall authorize the Quality policy, Environmental policy, and Occupational Health & Safety policy. The QHSE Management Representative and the Human Resources Manager shall ensure that the Quality policy, Environmental policy, and Occupational Health & Safety policy is communicated and understood within all the levels in the organization by driving awareness through orientation and other suitable means. To enhance the visibility of the policy among those who closely interact with the company, the policy is also exhibited at strategic locations. All the employees are given the training to understand the crux of the Quality policy, Environmental policy, and Occupational Health & Safety policy and are advised to comply with the

requirements to fulfil the policy commitments.

The Top Management and QHSE Management Representative shall ensure that the Quality policy, Environmental policy, and Occupational Health & Safety policy is reviewed for its continuing suitability and effectiveness at least once a year or during management review. As appropriate, the revisions shall be made by the Top Management and/ or QHSE Management Representative. The revisions made by the QHSE Management Representative shall be approved by the Top Management.

The Top Management's commitment for implementing and maintaining the Quality policy, Environmental policy, and Occupational Health & Safety policy throughout the organization is demonstrated by ensuring that the QHSE objectives and targets are set, tracked, monitored, and reviewed.

5.3 ORGANIZATIONAL ROLES, RESPONSIBILITIES, ACCOUNTABILITIES AND AUTHORITIES

Responsibilities and authorities for relevant roles are assigned by top management and communicated within the organization.

Al Nafaq Transboring Est.top management has defined and communicated the roles, responsibilities, and authorities of personnel through the organizational chart, job descriptions and work instructions.

In order to ensure that the manpower of the organization is utilized efficiently and effectively in the realization of Quality policy, Environmental policy, and Occupational Health & Safety policy and the achievement of objectives, the management has determined the optimum personnel requirements. A periodically reviewed and updated Organization Structure document is maintained, keeping in view of the man-power attritions, external employment conditions, project requirements, changes in technology, etc. Documents related to these are maintained by the human resources team and are reviewed and updated when necessary. The roles, responsibilities, and authorities of each position are defined in any of the following:

- organizational structure
- quality manual
- policies and procedures
- job description

The overall organizational structure of Al Nafaq Transboring Est.is maintained.

Specific roles and responsibilities are:

Top Management

- Providing leadership and direction for implementing, maintaining and improving the IMS within the organization;
- Ensuring that the Quality policy, Environmental policy, and Occupational Health & Safety policy are communicated within the organization and to other relevant interested parties;
- Establishing and ensuring implementation of the organizational policies and procedures;
- Ensuring employees' involvement to IMS initiatives;
- Ensuring that QHSE objectives, targets and plans are established, implemented, monitored and measured;
- Approving and providing appropriate adequate resources;

- Chairing Management Review Meetings to evaluate the performance of IMS.

QHSE Management Representative

- Ensure that processes needed for the IMS are established, documented, implemented and maintained in accordance to the requirements of ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018.
- Planning, conducting and reporting of Internal Audits;
- Coordinating with Certification bodies for certification;
- Reporting to Top Management on the performance of IMS and recommending actions needed for improvement;
- Ensuring desired level of awareness amongst the staffs on Quality policy, Environmental policy, and Occupational Health & Safety policy, objectives and procedures; and
- Providing regular updates to employees on the changes and development to IMS.

Department Managers

- Ensuring that activities and operations are performed in accordance to approved procedure/ guidelines etc. ;
- Identifying and providing adequate resources for implementing and improving IMS;
- Planning and implementing actions necessary to improve performance in the respective areas of operations;
- Ensuring that necessary trainings are provided to staffs for enhancing the competency of employees;
- Determining and implementing necessary corrections and corrective actions when planned results are not achieved; and
- Implementing recommended measures for continual improvement.

Employees

- Performing work in accordance approved Quality Policy and HSE Policy and procedures;
- Following the various provisions of IMS relevant to their work and communicated from time to time;
- Participating in trainings as and when arranged and provided; and
- Participating in development and improvement of IMS by providing feedback and suggestions.

5.4 CONSULTATION AND PARTICIPATION OF WORKERS

Al Nafaq Transboring Est. established, implemented and maintains processes for consultation and participation of workers at all levels and function, as well as representatives of employees in development, planning, operation, performance evaluation and actions to improve the OH&S management system.

The consultation shall take place at all stages of risk assessment, incident investigation, development and review of policies and objectives, root cause analysis, correction and corrective actions identification and contractors' activities.

Consultation can be carried out through individual or group meetings, direct or indirect means with staff and all stakeholders (e.g. emails, suggestions boxes, surveys, etc.), toolbox talks or during the inspection or walk around the area.

6.0 PLANNING

6.1 ACTIONS TO ADDRESS RISKS AND OPPORTUNITIES

6.1.1 GENERAL

Al Nafaq Transboring Est.management is responsible for incorporating risk-based thinking into the organization's culture. Accordingly, Al Nafaq Transboring Est. adopts a risk-based approach as an essential principle in guiding the IMS. Al Nafaq Transboring Est.identifies and evaluates risks that impact the products and services, in order to prevent undesirable effects and to achieve improvements. While evaluating the risks, the improvement opportunities are also targeted alongside. This includes the adoption of new practices, launching new products, opening new markets, addressing new customers, building partnerships, using new technology and other desirable and viable possibilities to meet the needs of the organization and clients.

The overall aim of risk and opportunity management within Al Nafaq Transboring Est.is to ensure that the capabilities and resources are employed in an efficient and effective manner to take advantage of opportunities and to mitigate risks.

6.1.1.1 ENVIRONMENTAL ASPECTS

Al Nafaq Transboring Est.has established, is implementing and maintaining a procedure to:

- Define the mechanism for the identification and significant evaluation of the environmental aspects, in order to determine those aspects which have actual or potential significant impacts upon the environment.
- Where ever practicable, prefer the use of processes, practices, techniques, products or energy to avoid, reduce or control the creation and emission and/or discharge of any type of pollutant or waste, in order to reduce adverse environmental aspects.
- Classify wastes generated by various activities, segregation and controlled disposal of hazardous wastes through authorized / licensed third party Waste Management Company.
- Maintain an inventory of waste generated with a view to establish base line data and implement waste reduction measures.

Identification of Environmental Aspects and Impacts

Potential environmental aspects and impacts for all activities, products and services under normal, abnormal and emergency operating conditions are identified by evaluating their interactions with the environment through:

- Legal and other requirements
- Identification of waste streams
- Processes

In addition to current activities, consideration shall be given to relevant past/ planned activities and indirect environmental impacts as a result of goods and services purchased.

Evaluation for Significance of the Identified Environmental Aspects

Evaluation of identified environment aspects is conducted. Where ever any environmental aspects

are identified as significant, such aspects shall be managed to prevent, minimize or mitigate the environmental impacts. Where ever practicable, preventive measures consisting of a combination of the following shall be taken into consideration:

- Planned programmes for improvement;
- Controls to maintain performance, e.g. Operation control and Emergency preparedness and response procedure to ensure that they are in line with environmental policy;
- Investigation and development of opportunities for further improvement.

6.1.1.2 Hazard identification, risk assessment and determining controls

Al Nafaq Transboring Est. believes that incidents, ill-health and other emergency situations can be prevented by handling hazards and risks proactively. These pro-active measures include the identification of OHS hazards & risk and assessing the level of significance; and that appropriate control measures are determined and implemented in order to mitigate any OHS consequences.

To ensure that the process of risk management is carried out in a proper manner, a documented procedure is prepared specifying the mechanisms and processes involved in:

- Identifying risks related to Al Nafaq Transboring Est.activities, processes and operations;
- Determining and deciding who will be harmed;
- Assessing risks and deciding the appropriate control measures;
- Implementation of the selected control measures;
- Monitoring, reviewing and recording the performance.

The hazard identification, risk assessment and determination of controls are applied to all processes, activities and operations of Al Nafaq Transboring Est. including that of the contractors and visitors in the workplace. Employees, contractors and/or visitors are consulted and encouraged to participate in providing inputs to the risk assessments.

Legal and other requirements applicable to Al Nafaq Transboring Est. are also identified, considered during the risk assessments and complied to.

Results of hazard identification, risk assessment and determination of controls are documented and maintained in a risk register. This shall be communicated to all relevant workers for implementation of controls.

6.1.3 COMPLIANCE OBLIGATIONS

Al Nafaq Transboring Est. is committed to comply with all applicable legal requirements that are directly related to the QHSE. In order to ensure this, the company has developed and documented a procedure for legal requirements compliance, which addresses the following:

- Identification;
- Communication;
- Access;
- Monitoring;
- Evaluation of Compliance

A Legal Requirements Register is established, maintained and updated, which identifies all federal laws, ministerial decrees and sector regulations that are applicable to Al Nafaq Transboring Est.

6.1.4 PLANNING ACTION

Al Nafaq Transboring Est. shall plan its actions to address:

- the identified risks and opportunities

- legal requirements and other requirements
- emergency preparedness and respond to emergency situations

Al Nafaq Transboring Est. shall integrate and implement these planned actions within its processes or other business processes and evaluate the effectiveness of these action.

6.2 QHSE OBJECTIVES AND PLANNING TO ACHIEVE THEM

In support of the Quality Policy, Environmental Policy and Occupational Health & Safety Policy, the Top Management ensures that objectives and measurable goals/ targets are defined, established and communicated at relevant roles/ levels in the organization.

The objectives and targets are to be measurable, wherever practicable, and consistent with the Quality Policy, Environmental Policy and Occupational Health & Safety Policy and are aimed at continually improving the effectiveness of the IMS.

In setting and reviewing the QHSE objectives and targets, the organization considers the legal and other requirements, the significant risks that are associated with the organization's activities, processes & products, the risk levels, the technological landscape, the organizations financial, operational and business requirements, and the views of relevant interested parties.

The Departments has implemented a system to achieve the QHSE objectives and targets. This includes a description of how the objectives and targets shall be achieved, what are the resources required, responsibility and authority required, and time-scales by which the targeted objectives are achieved. The actual performance against the set quality objectives and targets are monitored, reviewed and updated regularly by the responsible Department Heads.

At regular and planned intervals, at least annually, the management team reviews the progress of achievement of the QHSE objectives and gives necessary support to ensure the attainment of the objectives and targets. The results are used as a basis for identifying areas for continually improving the effectiveness of the IMS.

6.3 PLANNING OF CHANGES

The integrated management system is planned and implemented in order to meet the objectives and the requirements of ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018. The planning process involves establishing and communicating our policies, objectives and associated operational procedures.

Whenever Al Nafaq Transboring Est. determines a need for changes to the IMS, the top management takes responsibility to carry them out in a planned manner. They ensure that all personnel is made aware of any changes which may affect their process and that subsequent monitoring is undertaken to ensure that IMS changes are effectively implemented. Whenever Al Nafaq Transboring Est. determines a need for changes to the integrated management system in either the procedures, processes, documented information requirements, technologies engaged, material used, product or services specifications etc.; these changes are routed to the relevant Departments for review and approval considering the risks and opportunities associated with the changes. The changes will be decided based on the level of change.

7.0 SUPPORT

7.1 RESOURCES

7.1.1 GENERAL

Al Nafaq Transboring Est. has determined and provided the resources needed for the establishment, implementation, maintenance and continual improvement of the IMS. This includes assigning sufficient resources to:

- implement and maintain the IMS and continually improve its effectiveness, and the capabilities and constraints on existing internal resources and what needs to be obtained from external providers; and
- Enhance customer satisfaction by meeting customer requirements.

The Department Heads identify and plan for adequate resources during the annual budgeting process. The budgets are reviewed and resources are allocated (and adjusted/ revised) as necessary.

These resources include manpower, infrastructure, knowledge management and documentation requirements.

7.1.2 PEOPLE

Al Nafaq Transboring Est. ensures that adequate manpower resources are available to effectively implement the IMS as well as to effectively control and operate Al Nafaq Transboring Est.processes. The company ensures that all personnel has the required education, skills, training and experience to perform their assigned tasks.

In line with above, employee qualifications are reviewed at the time of hiring by Human Resources team and records of employees' qualifications like CV, Educational Certificates, Training Certificates etc. all are obtained and kept in respective employee files.

7.1.3 INFRASTRUCTURE

Al Nafaq Transboring Est.management determines, provides and maintains the infrastructure and facilities needed to deliver the products and services including:

- workspace and associated utilities
- process equipment namely hardware and software, equipment/ machines
- supporting services namely transportation, communication and information system

All maintenance and improvement opportunities with regard to equipment and facilities are monitored by the respective Department Heads who coordinate with the maintenance teams to ensure that the infrastructure is in good working condition.

7.1.4 ENVIRONMENT FOR THE OPERATION OF PROCESSES

Al Nafaq Transboring Est.determines, provides and maintains the work environment needed to

achieve conformity of products and services delivered by the Company. A suitable working environment is provided to all employees and our clients to ensure a high standard of output.

Al Nafaq Transboring Est.continually reviews the work environment to have a positive influence on motivation, satisfaction and overall performance of the organization.

Al Nafaq Transboring Est.management will continue to monitor and study human and physical factors in the work environment to ensure that these do not pose a compromise to the organization's performance and commitment. Safety equipment is made available, wherever and whenever required.

Workplace conditions are monitored to maintain a safe and conducive working environment.

7.1.5 MONITORING AND MEASURING RESOURCES

Al Nafaq Transboring Est.determines and provides the resources required to monitor and measure conformity of products and services delivered by the Company. Al Nafaq Transboring Est.ensures that the resources used are suited and compatible with the type of monitoring and measurement activities. The resources are maintained in accordance with the prescribed norms to ensure that they continue to be fit for the purpose of monitoring and measuring. A documented information is retained as evidence of fitness for purpose of the monitoring and measuring resources as appropriate.

7.1.6 ORGANIZATIONAL KNOWLEDGE

Al Nafaq Transboring Est.recognizes that organizational knowledge is a valuable resource that supports the integrated management system.

To ensure that organizational knowledge is retained and transferred, organizational knowledge is recorded in documented information and is embedded in our processes, products and services.

At Al Nafaq Transboring Est., organizational knowledge is preserved through the documented information such as the policies, manuals, procedures, records, emails, sessions, meetings etc. which were maintained in Department's share points and folders.

Sources of knowledge could be both internal and external. Internal sources include documentation, knowledge gained from experience and coaching, lessons learned from failures and successes, nonconformities and results of improvements in the processes, products, and services. On the other hand, sources of external knowledge include international standards (and keeping up to date with the latest and current versions), information gained from attending service and industry conferences and from the latest innovations in the industry, or knowledge gathered from our clients, stakeholders or interested parties.

7.2 COMPETENCE

Al Nafaq Transboring Est.ensures that all persons under its control, doing work can impact the organization's IMS, is competent on the basis of appropriate education, training, and relevant work experience.

Personnel requisitions are processed after defining the required education, skills, training and experience when hiring new employees or when transferring employees from one function to

another. Human Resources and the requisitioning Department are jointly responsible for ensuring that competent personnel is deployed to the new position/ function/ assignment. A system is also established to ensure that adequate and appropriate manpower is provided in order to meet customer requirements and perception. Al Nafaq Transboring Est. maintains documented 'personal records' which comprises of details on competence requirement and availability.

All new employees will undergo induction and orientation training. This includes awareness of the customer satisfaction, compliance with the regulatory and statutory requirements, and compliance with the organizations' policies, procedures, and guidelines on IMS. Where applicable, additional/ advanced training is provided in order to achieve or improve the competency requirement of the job.

Every employee is oriented on his/her job description which contains the responsibilities and authorities for his/her function. The superior is responsible for ensuring that his/her subordinate is aware of the objectives, goals, and targets that his/her subordinate is required to achieve.

The training needs of employees in relation to the effective implementation and maintenance of the IMS will be continually identified. The Human Resources together with the Department Heads conducts the annual training needs analysis to identify the training needs of their subordinates, and the training plans are developed corresponding to the identified training needs.

As part of the employee performance appraisal, on an annual basis, all employees go through an evaluation and competence review with their Department Heads that assesses their performance and to discuss the competency requirements in relation to the goals and targets for the coming year.

The training can be an internal training or external training course. The effectiveness of the training provided is evaluated by suitable means depending on the nature of training conducted. Corrective and improvement actions are provided when the conducted training found ineffective.

Appropriate employee records of experience, education, qualification, training, and the result of training effectiveness evaluation of employees, are maintained by Human Resources along with the QHSE Management Representative.

7.3 AWARENESS

Al Nafaq Transboring Est.management is aware that the success of its integrated management systems relies on the understanding and awareness of its staff. All employees are trained in the relevance and importance of their activities and how they contribute to the achievement of our policies and objectives.

Where required, awareness training and monitoring are conducted in-house, although, for more technical training, external courses are utilized.

All new staff undergoes on boarding process performed by Human Resources.

Al Nafaq Transboring Est.management also ensures that all personnel are aware of the following:

- quality policy, environmental policy and occupational health & safety policy – displayed prominently at various locations in the organization
- QHSE objectives applicable to their Departments
- their contribution to the effectiveness of the IMS, including the benefits of improved performance
- the implications of not conforming to the QHSE requirements

7.4 COMMUNICATION

Al Nafaq Transboring Est.has established communication mechanisms (i.e. Notice board, emails, internal memos, network drive) to facilitate the flow of information (i.e. general information, Management systems information, or projects related information) within its workers and other interested parties (clients, suppliers, government and regulatory authorities).

7.4.1 INTERNAL COMMUNICATION

Internal communications shall be implemented to ensure those personnel at each relevant level are aware of the following:

- The importance of conformance with the quality policy, environmental policy and occupational health & safety policy, procedures and system
- The potential consequences of system non-conformances
- Individual roles and responsibilities in achieving conformance with procedures, including emergency preparedness and response

Internal communications may be accomplished by the use of:

- Awareness training of personnel, as appropriate in line with job function
- Use of site or office board for posting relevant information
- Electronic mail, circulars, announcement, SharePoint, etc.
- Team meetings and minutes of meeting

7.4.2 EXTERNAL COMMUNICATION

External communication relates to connection to external parties addressing the non-employee stakeholders which includes customers, business prospects, public-at-large, government, etc. These are usually in the nature of public announcements, marketing material, any significant changes in policies & procedures and legal requirements that impact interaction with the organization, responses to any incidents, press releases, etc.

All external communications concerning health & safety and environmental aspects of the organization shall be directed to Top management for proper response and filing.

7.5 DOCUMENTED INFORMATION

The documented information required for Al Nafaq Transboring Est. is controlled to ensure that it is available and suitable for use, where and when it is needed and also adequately protected.

Al Nafaq Transboring Est. has established and maintained procedures for the systematic control of the company's documented information management system. The system ensures that:

- documents are assigned with a reference number, current revision status, effective date, page

number, Al Nafaq Transboring Est. logo, etc.

- revision is made for preventing the unintended use of obsolete documents and/or identification if they are retained for any purpose
- correct document is available at all points of use
- documents remain legible, traceable and readily identifiable
- documents of external origin are identified, stored and their distribution is controlled.

The IMS documents are reviewed and approved for adequacy prior to issue.

8.0 OPERATION

8.1 OPERATIONAL PLANNING AND CONTROL

8.1.1 GENERAL

Consistent with the quality policy, environmental policy, occupational health & safety policy, objectives, goals and targets, the organization shall identify the operations and activities that are associated with the product/ process quality, identified significant environmental aspects, and the OHS hazards. Implementations of controls including management of change are necessary for those operations and processes in order to manage the risks.

Those operations and activities shall be carried out under controlled conditions, which shall include establishing, implementing and maintaining:

- documented procedure or work instruction where their absence could lead to deviation from the quality policy, environmental policy, occupational health & safety policy, objectives and targets;
- the stipulated operating criteria for each of the operations and processes where their absence could lead to deviation from the quality policy, environmental policy, occupational health & safety policy, objectives and targets;
- the controls related to the purchase of equipment, services, materials, components, chemicals and other goods;
- the controls related to the activities, processes, vehicles, and equipment (including machines, tools, etc.) of employees, contractors, suppliers, visitors and all the persons in the workplace who are under the control of the organization; and
- communication of the applicable procedures, work instructions and guidelines to the employees, contractors, suppliers, and visitors.

8.1.2 ELIMINATING HAZARDS AND REDUCING OHS RISKS

Control measures are determined and decided as per the hierarchy of controls. In order to manage, control and reduce the risk to an acceptable level or ALARP Level (As Low As Reasonably Practicable), Al Nafaq Transboring Est. management would consider the following OHS Hierarchy of Controls:

- Elimination of the Hazard
- Substitution
- Engineering Control / Isolation
- Administrative Control
- Personal Protective Equipment

8.1.3 ELIMINATING HAZARDS AND REDUCING OHS RISKS

Al Nafaq Transboring Est. implements proper management of changes in order to ensure that such changes do not pose any risk to its employees, contractors/subcontractors, visitors and the community as a whole. The purpose is to ensure that all permanent and temporary changes are managed and controlled, including;

- New products, services and processes, or changes to existing products, services and processes, including
  - workplace locations and surroundings
  - work organization
  - working conditions
  - equipment
  - workforce
- changes to legal requirements and other requirements
- changes in knowledge or information about hazards and OHS risks
- development in knowledge and technology

Al Nafaq Transboring Est. will review the consequences of unintended changes, taking action to mitigate any adverse effects as necessary.

8.2 REQUIREMENTS OF PRODUCTS AND SERVICES

8.2.1 CUSTOMER COMMUNICATION

Al Nafaq Transboring Est. shall communicate with customers by providing regular updates on products and services handled by Al Nafaq Transboring Est.

Products and services information is provided through the established catalogues, interactive website etc. to provide customers with quick access to information and points of contact within the organization.

During tenders/ quotation stage, all communications and clarifications are addressed to relevant personnel indicated in the tender documents. Respective Department Heads becomes the focal point of all communications with the client.

Amendments and variations in contracts, purchase order, etc are normally agreed in writing. Where verbal instruction is given, this will be confirmed in writing to the client.

Al Nafaq Transboring Est. shall also obtain feedback from customers in order to identify areas of strength and opportunities for improvement. Handling or controlling of customer property are also communicated with the customer while it is under Al Nafaq Transboring Est. control or it is being used.

8.2.2 DETERMINING THE REQUIREMENTS FOR PRODUCTS AND SERVICES

Products and Services are offered to customers based on their specific requirements, which are documented through Contracts, Purchase Order, etc. In designing these services, Al Nafaq

Transboring Est. determines the statutory and regulatory requirements related to product/ service, requirements not stated by the customer but necessary for specific or intended use (where known), any additional requirements determined by Al Nafaq Transboring Est.

8.2.3 REVIEW OF THE REQUIREMENTS FOR PRODUCTS AND SERVICES

Before offering any products and services to customers, Al Nafaq Transboring Est. carries out an internal capability review, by involving the concerned Departments, to ensure that the same can be delivered using internal resources or external resources or a combination of both. A review is also conducted considering the following:

- requirements specified by the customer, including the requirements for delivery and post-delivery.
- requirements not stated by the client, but necessary for the specified or intended use, when known.
- requirements specified by Al Nafaq Transboring Est.
- applicable statutory and regulatory requirements
- contract or order requirements differing from those previously expressed

Al Nafaq Transboring Est. ensures that the requirements are confirmed by the organization before acceptance and only thereafter a proposal is submitted to the customer. A documented information shall be retained of the review of requirements for products and services.

8.2.4 CHANGES TO REQUIREMENTS FOR PRODUCTS AND SERVICES

Any changes to the products or services, shall be formally agreed with the Customer and fully documented so that such changes are incorporated into the final product or service.

Al Nafaq Transboring Est. ensures that related and relevant documented information are amended and those relevant persons are made aware of the changed requirements.

8.3 DESIGN AND DEVELOPMENT OF PRODUCTS AND SERVICES

8.3.1 GENERAL

Al Nafaq Transboring Est. has established the appropriate process to monitor the design and development phases to ensure that projects will be delivered in a timely manner that comply with client and statutory requirements.

8.3.2 DESIGN AND DEVELOPMENT PLANNING

During the design and development planning, Al Nafaq Transboring Est. will monitor on the following:

- The design and development stages;
- The review, verification and validation that are appropriate to each design and development stage, and
- The responsibilities and authorities for design and development through project roles and

responsibilities.

Through the planning phase, Al Nafaq Transboring Est. regularly communicate with the responsible persons for timely completion of the tasks and determination of areas for improvements.

The output of planning is checked, as appropriate, as the design and development progresses.

8.3.3 DESIGN AND DEVELOPMENT INPUTS

Al Nafaq Transboring Est. oversees the section concerned in their process of collecting requirements from clients as inputs relating to training needs and designs.

Design and development requirements are reviewed internally by the designated team of the relevant companies and sometimes jointly with consultants for its adequacy.

The process of monitoring of the determined inputs for the design and development are maintained in appropriate records.

Al Nafaq Transboring Est. ensures that the designated team of the company review the inputs to warrant that the requirements are complete, unambiguous and not in conflict with each other and that it includes:

- Functional and performance requirements;
- Applicable legal (statutory / regulatory) requirements;
- Where applicable, information derived from previous similar designs, and
- Other requirements essential for design and development.

8.3.4 DESIGN AND DEVELOPMENT CONTROLS

An established process exists in the relevant companies to perform systematic reviews of design and development at suitable stages in accordance with the design and development planning. Thus, Al Nafaq Transboring Est. ensures that these processes are implemented.
Reviews are performed:

- To evaluate the ability of the results of design and development to meet requirements; and
- To identify any problem and propose necessary actions.

Participants in such reviews include representatives of the section concerned with the design and development stage*(s)* being reviewed by consultants *(where appropriate)*.

Records of the results of the monitoring of the review processes and any necessary actions are maintained.

Al Nafaq Transboring Est. performs the monitoring of the verification of design and development processes in accordance with design and development planning to ensure that the design and development outputs have met the design and development input requirements.

Records of the results of the monitoring of verification and any necessary actions / approvals of customers are maintained.

Al Nafaq Transboring Est. monitors the design and development process in accordance with design and development planning, to ensure that the resulting constructed facility is capable of meeting the requirements for the specified application or intended use, where known.

Validation is performed independently or jointly with the consultants upon completion of the different project.

Records of the results of the monitoring of validation (as approvals for completion and any necessary actions) are maintained.

8.3.5 DESIGN AND DEVELOPMENT OUTPUTS

Al Nafaq Transboring Est. monitors the relevant section in their development of the design outputs by the project team or consultants like specification, project plan and drawings for the projects. Al Nafaq Transboring Est. ensures that the project team developed the outputs in a manner suitable for verification against the design and development inputs and are reviewed for adequacy and approved prior to release to the customer for final approval.

It is ensured by Al Nafaq Transboring Est. that the output submitted by the consultants or internal team:

- Meets the input requirements for design and development;
- Provides appropriate information for purchasing and service provision;
- Contains required projects acceptance criteria; and
- Specify the characteristics of the project that are essential for its safe and proper use.

8.3.6 Design and Development Changes

Al Nafaq Transboring Est. monitors the design and development changes identified and recorded by the relevant companies in their project design and development. Al Nafaq Transboring Est. has ensured that the project teams assigned review, verify and validate, as appropriateand approve the changes before making recommendation to the customers for final approval and implementation.

Records of the results of monitoring of the review of changes and any necessary actions are maintained.

8.4 CONTROL OF EXTERNALLY PROVIDED PROCESSES, PRODUCTS AND SERVICES

8.4.1 GENERAL

Suppliers of products, materials and services are selected on their ability to meet the Al Nafaq Transboring Est.requirements; as well giving due consideration to the quality, statutory obligations, time-scale and cost. A list of approved suppliers /contractors is maintained by the Purchasing Department or concern person.

The performance of suppliers/contractors is monitored on annual basis. Suppliers showing inadequate

performance are asked to implement corrective actions and are discontinued if there is no improvement.

8.4.2 TYPE AND EXTENT OF CONTROL

Procured products or services are verified to ensure their conformity with the specified requirements. These verifications will be done by the designated Departments either at the external provider's premises or on the manufacturing site/office at the time of delivery. The verification will be in line with the requirements stated in the purchase order and relevant specifications to ensure that purchased products and services do not adversely affect the company's ability to consistently deliver conforming products and services to its customers.

8.4.3 INFORMATION FOR EXTERNAL PROVIDERS

The Procurement team, with the recommendation of the requesting Department, prepares a description of the product or service to be purchased specifying the purchase requirement before communicating to the external provider.

Communication with external providers is done to inform them of the requirements for:

- the processes, products, and services to be provided
- the approval of:
  - products and services
  - methods, processes, and equipment
  - the release of products and services
- competence, including any required qualification of persons
- their interactions with the organization
- control and monitoring of their performance
- verification or validation activities that are intended to perform at their premises.

8.5 PRODUCTION AND SERVICE PROVISION

8.5.1 CONTROL OF PRODUCTION AND SERVICE PROVISION

While delivering products and services to customers, Al Nafaq Transboring Est. ensures that these are carried out under controlled conditions. This includes the following:

- there are adequate controls over the provision of services by ensuring availability of adequate documented information throughout the execution of the project
- suitable monitoring and measurement methods are in place to ensure that the quality of the product and/or service provided is not in any way affected
- availability and use of suitable monitoring and measuring resources
- availability of necessary infrastructure for execution of projects
- appointing of competent personnel
- implementation of release, delivery, and post-delivery activities

8.5.2 IDENTIFICATION AND TRACEABILITY

The product identification and traceability are identified during all stages of manufacture through the

use of the following, where applicable: markings, authorize stamps, tags, labels, inspection and test records, physical locations or other suitable means.

All equipment including hardware and software are suitably identified for traceability.
Relevant records for identification and traceability are maintained.

8.5.3 PROPERTY BELONGING TO CUSTOMERS OR EXTERNAL PROVIDERS

At Al Nafaq Transboring Est., customer supplied properties are suitably identified, verified and protected for use. Any unsuitable, lost and damaged customer-supplied item is reported to the customer and appropriate documented information is maintained.

Customer property received at Al Nafaq Transboring Est. includes company documents, records, intellectual property, equipment, premises, personal data, etc.

8.5.4 PRESERVATION

During internal processing and delivery, the products and raw materials are preserved by proper identification, handling, storage, packaging and protection in order to prevent the product or raw materials from damage and deterioration.

8.5.5 POST-DELIVERY ACTIVITIES

Al Nafaq Transboring Est. ensures to meet the requirements for post-delivery activities associated with the products and services as agreed in the scope of work with the customer.

In determining the extent of post-delivery activities that are required, Al Nafaq Transboring Est. considers the following:

- statutory and regulatory requirements
- the potential undesired consequences associated with its products and services
- nature, use and intended lifetime of its products and services
- client requirements
- client feedback.

8.5.6 CONTROL OF CHANGES

Whenever Al Nafaq Transboring Est. determines a need for changes during the project/ service provisions, the top management controls the changes to ensure continuing conformity with the requirements.

Documented information describing the results of the review of changes, the person(s) authorizing the change, and any necessary actions arising from the review shall be retained.

8.6 RELEASE OF PRODUCTS AND SERVICES

Al Nafaq Transboring Est. has implemented planned arrangements at appropriate stages, to verify that the product requirements have been met.

The release of products and services to the customer, do not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, as applicable, by the customer.

Documented information is retained on the release of products and services.

8.7 CONTROL OF NONCONFORMING OUTPUTS

Al Nafaq Transboring Est. ensures that outputs that do not conform to the requirements are identified and controlled to prevent unintended use or delivery. Al Nafaq Transboring Est. takes appropriate action based on the nature of the nonconformity and its effect on the conformity of products and services. This also applies to nonconforming products or services detected after delivery of products, during or after the provision of services.

Al Nafaq Transboring Est. deals with nonconforming outputs in one or more of the following ways:

- correction
- segregation, containment, return or suspension of provision of products or services
- informing the customer
- obtaining authorization for acceptance under concession.

Conformity to the requirements is verified when nonconforming outputs are corrected.

Documented information is retained on the nature of nonconformities and any subsequent actions taken, including concessions obtained.

8.8 EMERGENCY PREPAREDNESS AND RESPONSE

Al Nafaq Transboring Est. has identified all potential emergency situations through its risk management process. Specific emergency procedures have been determined, developed and implemented in order to ensure that HSE is capable of responding to and handling all identified emergencies.

Firefighting, fire prevention, chemical spills prevention and medical emergencies are among the identified emergency response situation that can be carried out within Al Nafaq Transboring Est. in case of fire, chemical spills and medical incidents. As part of prevention and control programs, fire detection system, firefighting equipment and first aid kits are readily made available in Al Nafaq Transboring Est.

Al Nafaq Transboring Est. ensures that competent and trained emergency responders by selecting key employees capable of responding and dealing with emergencies. Emergency mock drills and evacuations are carried out on a consistent and regular basis.

The emergency plan and procedures are often reviewed by the HSE Committee, after the occurrence of an incident.

9.0 PERFORMANCE EVALUATION

9.1 MONITORING, MEASUREMENT, ANALYSIS AND EVALUATION

9.1.1 GENERAL

In order to evaluate the performance and effectiveness of the IMS, Al Nafaq Transboring Est. has determined appropriate QHSE objectives and the methods for monitoring, measurement, analysis, and evaluation.

IMS monitoring, measurement, analysis and evaluation are planned in order to:

- demonstrate conformity to service requirements
- ensure conformity to the IMS
- continually improve the effectiveness of the IMS
- determine and implement as necessary, the applicable methods, including statistical techniques

Al Nafaq Transboring Est. has also determined the periodicity of such reviews and the timelines for analysis and evaluation of the results. Results of the monitoring and measuring shall be evaluated at appropriate levels and functions in the organization. Top Management will evaluate the performance of IMS during the management review.

Al Nafaq Transboring Est. also ensure that monitoring and measuring equipment is calibrated or verified as applicable, used and maintain as appropriate.

9.1.2 CUSTOMER SATISFACTION

Al Nafaq Transboring Est.accords great importance to customer satisfaction as it considers the same to be a priority commitment to its customer. Al Nafaq Transboring Est. aims to satisfy its customers through several means which include on-time delivery, providing timely response to customer inquiries, feedbacks, and complaints, conducting analysis, and determining & implementing the appropriate corrective actions for complaints. As part of this process, Al Nafaq Transboring Est. monitors the information and trends relating to customer perception as to whether the organization has fulfilled the customers' requirements.

Customer's feedback on Al Nafaq Transboring Est. performance and areas that require improvement are obtained by conducting customer satisfaction surveys. Based on the survey results, customer satisfaction is analyzed, appropriate corrective actions are taken to improve the performance of service.

Customer complaints, whether received in writing, verbally or electronically are immediately acknowledged by concerned Department and necessary action is initiated.

All complaints are analyzed and closed after detailed investigation. Complaints and feedback results are analyzed and shared with the concerned Department for continual improvement. These are also reviewed in the Management Review meetings.

9.1.3 ANALYSIS AND EVALUATION

Department Heads collect and analyze data using appropriate analytical techniques to determine the suitability and effectiveness of IMS processes applicable to their area(s) of responsibility and to identify opportunities for improvement. At a minimum, data is analyzed to assess achievement of the corporate level objectives and customer requirements.

Data is analyzed for monitoring and evaluating the following:

- characteristics of processes, services, and their trends
- conformity to service, customer and legal requirements
- customer satisfaction and perception
- external service provider performance
- results of actions taken to address risks and opportunities
- effective implementation of IMS planning
- improvement opportunities identified during internal audits and management reviews.

9.1.4 EVALUATION OF COMPLIANCE

Al Nafaq Transboring Est. has establish, implement and maintain a process to evaluate the fulfilment of its compliance. The Top management and QHSE MR shall be primarily responsible for ensuring that controls are in place to maintain compliance.

Al Nafaq Transboring Est. evaluates compliance at least once a year and takes appropriate actions if necessary.

Related documented information are retained by the QHSE MR.

9.2 INTERNAL AUDIT

Al Nafaq Transboring Est. conducts Internal Audit at planned intervals to determine if the IMS:

- conforms to the requirements of ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 standards as well as Al Nafaq Transboring Est. own requirements specified in the IMS
- is effectively implemented and maintained.

The established and documented Procedure for Internal Audit defines the responsibilities and requirements for planning, execution of the audit, reporting of the audit results and maintaining of the audit records. Audit objectives, criteria, and scope are defined.

The audits are carried out by the trained and qualified Internal Audit team, who are independent of the processes being audited in order to ensure objectivity and impartiality of the audit process. As a general rule, an Auditor cannot audit his/her own work.

When nonconformities are identified, the concerned personnel of the area audited is requested to propose and promptly implement all necessary corrections and corrective actions without undue delay to eliminate the nonconformity and its causes. The implementation and effectiveness of the actions taken are verified by a follow-up audit and verification results are reported.

9.3 MANAGEMENT REVIEW

9.3.1 GENERAL

Management Review is conducted at planned intervals, chaired by the Top Management or his nominated Deputy/Deputies, and attended by the Department Heads to ensure continued suitability, adequacy, and effectiveness of the implemented IMS.

9.3.2 MANAGEMENT REVIEW INPUTS

Inputs for management review shall be as follows which are circulated as agenda:

- Status of actions from previous management reviews;
- Changes in external and internal issues that are relevant to the IMS;
- Client satisfaction and feedback from relevant interested parties;
- Process performance and conformity of services;
- Monitoring and measurement results;
- Audit results;
- The performance of external providers;
- Adequacy of resources;
- Effectiveness of actions taken to address risks and opportunities;
- Opportunities for continual improvement;
- Changes in the needs and expectations of interested parties, including compliance obligations;
- Changes in significant environmental aspects;
- Changes is risks and opportunities;
- The extent to which policies and objectives have been achieved;
- Fulfilment of compliance obligations;
- Relevant communications from interested parties, including complaints
- Evaluations of compliance with applicable legal requirements and other requirements;
- Results of consultation and participation of workers;
- Status of incident investigations, nonconformities and corrective actions;

Note: The above agenda may not be necessarily discussed all at the same time and additional topics maybe added for discussion at the discretion of the Top Management.

9.3.3 MANAGEMENT REVIEW OUTPUTS

It is ensured that decisions and actions arising from Management Reviews are consistent with the company's commitment to continual improvement. These outputs may include the following:

- Improvement on the effectiveness of the IMS and its processes
- Improvement on products/services related to client requirements
- Proposed action plan for improvements, and
- Resource needs (If any).

10.0 IMPROVEMENT

10.1 GENERAL

Al Nafaq Transboring Est. determines and selects opportunities for improvement and implements actions to ensure customer requirements are met and customer satisfaction is enhanced.

This is achieved by:

- improving products and services meeting/exceeding current and future needs and expectations (continual improvements, innovation, etc.)
- correcting, preventing or reducing any undesirable effects that impact customer satisfaction (corrections, corrective actions, etc.)
- improving the performance and effectiveness of the IMS (identified through management reviews).

10.2 NONCONFORMITY AND CORRECTIVE ACTION

In the event of occurrence of nonconformity, Al Nafaq Transboring Est. corrects the same and takes adequate measures to deal with the consequences. Al Nafaq Transboring Est. also performs root cause analysis of the nonconformity and implements corrective action to prevent the recurrence of nonconformities.

A documented information is established, implemented and maintained for providing a systematic approach to corrective action implementation that includes:

- reacting to the nonconformity and, as applicable
  - take action to control and correct it
  - deal with the consequences
- evaluating the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere, by
  - Reviewing and analyzing the nonconformity
  - determining the causes of the nonconformity
  - determining if similar nonconformities exist, or could potentially occur
- implementation of any action needed
- reviewing the effectiveness of the corrective action taken
- updating risks and opportunities determined during planning, if necessary
- make changes to the quality management system, if necessary.

Al Nafaq Transboring Est. shall retain documented information of the nature of the nonconformities and any subsequent actions taken and the results of any corrective action.

10.3 INCIDENT INVESTIGATION

Al Nafaq Transboring Est. has established a standard process for systematic method of investigation and analysis for all types of incidents with the objective to:

- determine basic and intermediate causes of health & safety incidents and other contributing

factors;
- analyse the corrective actions and opportunities for continual improvement;
- communicate the results of investigations.

The results of all incidents are recorded and maintained.

10.3 CONTINUAL IMPROVEMENT

Al Nafaq Transboring Est. continually improves the suitability, adequacy, and effectiveness of its integrated management system through reviews of results of analysis and evaluations and from the outputs of the management reviews.

The data of actual performance are analyzed and compared with the goals/targets, and appropriate actions are taken for continual improvement.

ANNEXURE A – INTERNAL CONTEXT

ANNEXURE B – EXTERNAL CONTEXT

ANNEXURE C – NEEDS & EXPECTATIONS OF INTERESTED PARTIES

QUALITY, ENVIRONMENTAL AND HEALTH & SAFETY OBJECTIVES, TARGETS AND PLANS

OBJECTIVES	TARGETS	PLANS
1. To promote a quality culture.		
To meet client's requirements and satisfaction.	• 100% completion of all types of trainings conducted as per planned schedule versus actual date of training delivery. • 90% of the total no. of trainees for the year rated good to very good overall satisfaction rating. • Client's complaints responded within 5 working days.	• Identify client's specifications accurately. • Implement the process for Client's Complaints Handling and Satisfaction Measurement. • Check, evaluate and analyse customer satisfaction at the end of each project/ training delivered. • Establish communication line to address customer complaints and inquiries.
2. To promote a healthy and safety culture.		
Have a safe working environment	• 100% awareness of employees within office and on-site and contractors on the basic health and safety principles and practices.	• Establish, implement and maintain Occupational Health and Safety (OH&S) Management System, procedures and activities. • Communicate safety policy, objectives, plans and practices to all levels of the organization. • Check, evaluate and analyse health and safety performance at least once a year. • Discuss OH&S performance and identify actions for improvements during Management Review Meeting. • Provide venue for participation and consultation for health and safety issues (e.g. OH&S Meeting).
Eliminate incidents (accident/ near-miss) both office and sites	• Zero accidents/incidents • Zero Lost Time Injuries (LTI)	• Establish, implement and maintain risk assessment and near-miss identification procedures and activities. • Establish, implement and maintain accident/incident investigation procedures and activities. • Hold HS meetings among management and employees to discuss occupational health and safety issues.

OBJECTIVES	TARGETS	PLANS
3. To protect the environment and natural resources		
To reduce power consumption.	• 100% of the employees are aware of energy conservation activities. • 10 % reduction of power consumption based on last year data	• Conduct awareness on the employees on energy conservation activities. • Posting of energy conservation tips to helps remind employees to conserve energy. • Reduction of air conditioning (ACU) operating hours whenever possible. • Implement energy conservation tips and ensure to turn off PC and lights when not in use & before going home. • Monitoring of the electric bill.
To reduce water consumption.	• 100% of the employees are aware of water conservation activities. • 10 % reduction of water consumption based on last year data	• Conduct awareness on the employees on water conservation activities. • Posting of water conservation tips in the rest rooms and other lavatory to helps remind employees to use water wisely. • Implement water conservation tips. • Regular checking of water pipes for possible leaks. • Monitoring of the water bill.
To reduce water consumption.	• 100% of the employees are aware of water conservation activities. • 10 % reduction of water consumption based on last year data	• Conduct awareness on the employees on water conservation activities. • Posting of water conservation tips in the rest rooms and other lavatory to helps remind employees to use water wisely. • Implement water conservation tips. • Regular checking of water pipes for possible leaks. • Monitoring of the water bill.
To reduce bond paper consumption.	• 100% of the employees are aware of bond paper consumption. • Reduce consumption of bond paper from 3 rims to 2 rims every month for each department.	• Awareness on 3Rs (Reduce, Reuse, Recycle). • Segregate used bond papers to be recycled. • Use of projector instead of printed hand-outs in meetings.

OBJECTIVES	TARGETS	PLANS
4. To continually improve the QHSE performance in the organization		
Improvement of QHSE performance	• QHSE policy, objectives and plans documented and communicated to all employees and stakeholders • Management review meeting • Corrective actions for non-conformities documented and monitored for effectiveness • Increased competencies of employees	• Document, implement, review and improve the QHSE policy, objectives and plans • Implement and monitor documented information on management review, internal audit, corrective actions and other documented information as being necessary for the effectiveness of QHSE management system • Plan and conduct management review meeting • Plan and conduct internal audit • Implement corrective actions for non-conformances identified • Provide coaching and trainings for employees

General Manager

Effective Date: Feb 25, 2020

QHSE POLICY

NTE-POL-01

AL NAFAQ TRANSBORING EST. comprehensive quality assurance, environment, health and safety programs are as per the ISO 9001, ISO 14001 and ISO 45001 which focus on reducing internal costs, rework, wastes and Increasing customer satisfaction.

AL NAFAQ TRANSBORING EST. policy is to adhere to Quality of all kind Drilling and Deeping of Water passages and service duct connection; and maintains timeline and budget with no compromise on quality.

AL NAFAQ TRANSBORING EST. recognizes that Health, Safety and environment issues are fundamental to the Construction & Maintenance business and a proactive approach is required at our end. AL NAFAQ TRNSBORING is committed to meet the requirements of all applicable legislation related to construction.

AL NAFAQ TRANSBORING EST. fully recognizes and believes that all risk is preventable and aim for zero fatality due to the construction activities. The QHSE Policy incorporates:

- Quality, Environmental and Occupational Health & Safety Management System.
- Promote the Safe Conduct of Work and Train Employees about Safety and Health Consciousness.
- Provision of daily Safety training before starting project work.
- A culture of Risk Based Thinking

AL NAFAQ TRANSBORING EST. is committed to continually improve product and services that meets customer satisfaction.

General Manager

Effective Date: Feb 25, 2020

SAFETY PLAN

HSE PLAN

1. OBJECTIVES AND TARGETS

This safety program has been established to coordinate all available means of eliminating or controlling hazards and risks associated with the completion of construction and to:

1. Minimize personal injuries.
2. Maximize property conservation.
3. Achieve greater efficiency and
4. Reduce direct and indirect costs.

The effectiveness of the safety program will depend upon the active participation and sincere co-operation of all supervisors and employees, and the co-ordination of their effort in carrying out the following basic responsibilities:

1. Plan all work to avoid personal injury, property damage and loss of productive time.
2. Maintain a system prompt detection and correction of unsafe practices and conditions.
3. Provide for the protection of adjacent public property, for the safety of the public, at all construction sites.
4. Establish and conduct an educational program to stimulate and maintain interest and participation of all employees through:

a) Safety meeting and safety communications.
b) Investigation of all accidents and potential incidents to determine cause and to take necessary corrective action to eliminate potential problems.
c) Use of proper work methods, protective equipment and mechanical guards.
d) Employee safety instruction applicable to all assigned work.
e) Safety training programs.
f) Keeping records of accidents and losses, including an accident experience summary.

2. ORGANISATION AND RESPONSIBILITES.

Leadership and Commitment from Top Management

The contractor shall take the initiative in accident prevention. His responsibility cannot be delegated to subcontractors, suppliers or other persons. The safety superintendent is appointed to perform safety inspection services under the direction of the contractor’s project manager. It is recognized that many potential hazards will be promptly corrected by mutually accepted means of informal and formal

communication between the contractor's project manager and the engineer. The hierarchy of authorities and responsibilities are explained in the organization chat.

The prime contractor is responsible for all safety and he shall:

1. Submit a safety program with a management statement of policy in the relation to the following:

   The company's safety policy including detailed disciplinary action to be taken with respect to employee violating safety rules.

   The company's awareness and knowledge of all local safety codes applicable to its contract.

2. Maintain an orientation and indoctrination program of all employees which includes a review of:

   Hazards present in his work assignment and the general area which he works.

   Personal protective equipment to be worn.

   Methods of reporting any unsafe conditions.

3. The prime contractor shall assure subcontractor compliance with the safety program.

4. The prime contractor shall provide adequate project sign boards and safety sign boards and construction fence around working area.

5. The prime contractor shall ensure that tool box meeting will be conducted prior to start any new activity at site and displayed on the safety boards.

6. Regular safety meeting will be conducted and minutes of meeting shall be submitted to client site representatives.

7. Specific hazards and protective measures related to different activities, at site shall be detailed.

8. The top management shall establish a procedure for accident / incident investigation in line with client requirements.

9. Top management shall provide all resources to maintain safe work condition.

Project Signage

The project signboard and construction fence around working area shall be provided, as specified, to isolate the public and neighborhood.

HSE MEETINGS

A safety meeting is held regularly on the job site. Meetings are conducted by the Safety Officer and the Job Foreman and sub contractors to communicate (N1) the

requirement of HSE plan to the respective site staffs. Monthly safety meetings will be held in the site with Project Manager, Safety Officer, and Site Foreman in the presence of site consultants and other site persons will be invited if necessary. The topics discussed during the Safety Meeting shall be minutes.

Site staff meetings are held on regular basis regularly with the engineers and foreman. Staff meeting are minutes. Previous weeks incidents are discussed as well as problem area, Traffic Safety, Fire Protection/Prevention, Health and Hygiene, Housekeeping etc….

Tool Box Meeting :

Toolbox box meeting will be conducted on daily basis by foreman and safety tool box talks will be given by site safety officer on weekly basis or whenever a new activity is carried out. The form of recording the Toolbox Talk is attached in the appendix.

3. POLICY AND OBJECTIVES

HEALTH AND SAFETY POLICY STATEMENT

It is the contractor's responsibility to the workers, the engineer and to the general public to assure them of an organization, which is effectively implementing the highest safety standards, in compliance with all regulations. In case of conflict between regulations, the most stringent regulation must be followed.

Upon the failure of the contractor to comply with the safety provisions of the contract documents, the engineer shall immediately alert the contractor's project manager of the safety superintendent of the need to take prompt remedial action.

HEALTH, SAFETY & ENVIRONMENT POLICY

Al Nafaq Transboring Est which is the significant construction field hazards is committed to the protection from accidental losses to the employees and property assets.

In fulfilling this commitment will be provide and maintain a safe healthful work environment by:

a. Complying with the relevant UAE legislation requirements and other requirements from clients like ADCO, GASCO, TAKREER pertaining to HSE risk.

b. Protecting the employees, contractor's and interested parties from occupational risk exposures by creating a safe work environment with the goal of freedom from personal injury of occupational illness.

c. Providing appropriate training to everyone to ensure safe practices are observed by all whilst undertaking their duties.

d. Carrying out periodical safety inspections and safety audits to identify hazards and non-conformities and mitigate the same.

e. Devote adequate resources to develop appropriate programs procedures for the implementation of this policy.

f. Review the HSE systems which include policy, procedures, work instructions etc., periodically and also assess any Health and Safety incidents to ensure that it remains relevant and appropriate to the company's activities.

g. We have a responsibility not to endanger the environment due to our operations and will do our best to preserve it to the possible extent.

4. LEADERSHIP AND COMMITMENT

I. Managing Director	• Responsible for the total HSE Performance Thorough periodical review and monitoring of the project. • Ensuring continues improvement of HSE performance to achieve zero accident.
II. Safety Officer	• Assisting the Project Manager in implementing the guidelines given in this document including of risk assessment. • Conducting safety inspection in the entire work site on a continues basis, making on the sport corrections of unsafe acts of the workmen and taking suitable steps to eliminate all the unsafe conditions. He will give an inspection report to the Project Manager every day (format to be used) indicating all the unsafe condition noticed by him at site highlighting the status of respecting the same. He will also issue Non Conformance report (NCR) on serious safety lapses Blank forms will be issued to the clients/consultants for their use. • Planning the requirement of first aid, fire fighting and safety appliances well in advance and arranging to get the same at site. • Ensuring that accident report in the prescribed format is sent to all concerned. • Organizing the inspection of ladders, power tools and machinery on a regular basis based on the enclosed checklist (Annexure 16, 17 & 18) and maintaining a record of such inspection. • Conducting safety meeting of all staff members which will be chaired by the Project Manager, every fortnight. Maintaining the minutes of such meetings. • Providing inducting to all the staff and workmen at site and maintaining record conducting such programs. • Providing assistance to all the site supervisors to ensure that they give tool box talk to their respective

	employees every week. • Ensuring that Safety & Health Environment Policy is understood by all workforces in their own language during induction training. • Monitoring HSE Plan implementation.
III. Project Manager	• Responsible for the total compliance of the Health, Safety, and Environment Plan. The project engineers, site managers and the safety officer will assist him in fulfilling this responsibility. • Arranging to provide adequate resources to the site management to comply with all the provisions of this Health, Safety and Environment Plan. • Chairing the safety review meetings every fortnight. • Ensuring that risk assessment is available for the entire critical job and to ensure updating the same at regular intervals whenever needed.
IV. Site Manager	• Coordinate all activities of the site and to report it to the project management. • Directly responsible for all HSE related activities and to provide all assistance to the site HSE team by coordinating with the management.
V. Site Engineer	• Responsibilities for enforcing strictly the HSE Plan at site. He shall also ensure to rectify unsafe conditions pointed out by the Safety Officer through the respective engineers/supervisors in whose area the said unsafe condition is noted. • Monitor the implementation of this Health, Safety and Environment plan with the Safety Officer on a daily basis.
VI. Supervisor/Foreman	• Understanding this health, safety and environment plan fully and following the same in their day to day activities. • Giving safety instruction to their workmen on a daily basis as a part of the job instructions. Highlighting the possible hazards in that days work and the precautions to be taken. • Keeping their work area neat and clean, especially at heights free from loose materials. • Taking an active part in the site safety meetings. • Preventing horseplay of workmen. • Organizing toolbox talks to their workmen every week. • Taking suitable corrective measures on the observations made by the safety officer or the site. • Sending the employees to the safety officer before deploying them at site so that safety induction can be given to them.
VII. Workers	• Working safety in such a manner as to ensure own

	safety as well as that of fellow workers and others. • Using and properly maintaining all personal protective equipment provided. • Be aware of safety devices for all tools under control, properly using and maintaining all of them. • Reported any uncorrected unsafe condition or act to supervisor. • Will receive from the Safety Engineer Accident Reports, record them and forward with his opinion to GM.
VIII. Quality Control Engineer	• Will propose corrective / preventive actions if needed. • Prepare annual report.
IX. Site Manager	• Be responsible for the supervisor of his safety supervisor. • Cooperate with the owners designated safety representatives. • Authorize necessary immediate action to correct substandard safety conditions existent, reported or observed. • Review and take necessary immediate action on safety records through directives or personal interviews with superintends, job foreman or subcontractor's management. • Attend safety meetings as required by the engineer.

4.1 MOTIVATION AND COMMUNICATION

GENERAL.

The effectiveness of the safety program will depend upon the active participation and sincere co-operation of all supervisors and employees and the co-ordination of their effort in carrying out the basic responsibilities such as establishing and conducting an educational program to stimulate and maintain interest and participation of all employees through :

g) Safety meeting and safety communications

h) Investigation of all accidents and potential incident to determine cause and to take necessary corrective action to eliminate potential problems.

i) Use of proper work methods, protective equipment and mechanical guards.

j) Employee safety instruction applicable to all assigned work.

k) Safety training programming.

l) Keeping records of accidents and losses, including an accident experience summary.

m) Usage of proper signage boards.

The requirement of HSE Plan shall be communicated to all persons including contractor's, subcontractor's and visitors by regular safety meetings, induction training. Site Engineer/Site Foreman shall brief the requirement of HSE Plan on daily basis to their workmen prior to the commencement of any job.

Regular Toolbox Talks shall be conducted by the Safety Officer and Site Engineer / Site Foreman to communicate the HSE Plan.

4.2 SIGNALS, WARNING SIGNS AND SIGNALMEN.

SIGNALS

A uniform signal system shall be used on all operations of similar nature.

Signal in use shall be posted at the operator's position, signal control points, and such other points as necessary to properly inform those concerned.

Signal system shall be protected against unauthorized use, breakage, weather, or interferences. Any malfunction shall be cause to stop all motion.

An appropriate warning sign boards shall be displayed in the site.

SIGNALMEN

Only persons, who are dependable, fully qualified, and experienced in the operations being direct, shall be used as signalmen.

Where hand signals are used only one (1) person should be designated to give signal to the operator. However, in cases where two (2) or more pieces of equipment are used for a lift, two (2) or more signalmen may be used. They shall relay signals under the direction of chief signalmen assigned to control the entire hosting operation.

When the point of operation not in full and direct view of the machine or equipment operator, the following shall be used:

1. A dependable signalman, fully qualified by experience with the operation being directed.

2. Radio or telephone communications, electrically operated signals, or any combination thereof. Such equipment shall be protected against damage by weather of breakage, and unauthorized use or interference.

A traffic signalman or appropriate controls, shall be provided when operations or equipment on or adjacent to a highway create a traffic hazard.

Signalman shall not walk behind trucks and similar equipment, when moving them into loading or discharging position, but shall station themselves well clear of the equipment, in such position that they may be seen by the operator.

Danger signs shall used only where an immediate hazard exists. The predominating colour of those signs shall be red.

Caution signs shall used only to warn against potential hazards or to caution against unsafe practices. The predominating colour shall be yellow.

Instructional safety signs shall be where there is need for general instructions and suggestions relative to safety measure. The predominating colour shall be green.

UNSAFE / NEAR MISS REPORTING SYSTEM

All the employees are encouraged to report unsafe act/condition and Near Misses to the management. Safety Officer / Foreman will record all incidents and take necessary actions and communicate these to all employees by safety meetings, displaying the reports on the notice board. All the report will be submitted to ADCO by monthly HSE Reports.

4.3 HSE MEETING PROGRAM

Regular HSE meetings will be conducted at site (Refer 2.3) monthly safety meeting with project manager, site manager with consultant will be conducted and record the minutes of meetings.

4.4 HSE PROMOTION AND AWARENESS

I. PURPOSE

To establish a procedure on how to promote safety within Al Nafaq Transboring Est through an annual action plan that intends to be proactive in approach in managing safety at the workplace through group and /or mass participation.

II. RESPONSIBILITY AND PROCEDURE

A. The Project Manager shall establish the annual safety plan for Al Nafaq Transboring Est.

B. The safety officer shall discuss and establish the safety issues, concerns and trends of the proceeding year. Historical data such as accident frequency rates, accident severity rates, types of injuries, cause of accidents and injuries, industrial norms, age group, years of working experience etc. can be depended upon. Future statutory requirements or changes in the statutes should also be taken into consideration.

With the safety issues or concerns established, the Project Engineer or the Safety Committee (if any) should then draw up an action plan to resolve the needs in order that safety performance could be improved. Amongst the various approaches, some common activities of safety action plans are:

a. Inspection of all hand tools-powered or otherwise.

b. Visual inspection of all electrical sockets, plugs, extension cables external wirings of machines and tools.

c. Fire safety inspection of workplace and workers' restroom.

d. Inspect and promote the use of personal protective equipment (PPE).

e. Inspection of storage places.

f. Identify training needs such as in areas of usage of hand tools, welding and other hot works, how to use and maintain PPE, working at heights, falling hazards, electrical safety, pneumatic guns and tools and operation of hosts.

g. Review the annual safety performance.

h. Propose to Project Manager the annual safety action plan.

i. Organize safety awareness month.

j. Organize safety quiz.

k. Maintain and update safety notice board or safety corner.

C. The safety officer shall present to project manager the annual safety action plan proposals together with the budget requirements.

D. The project manager shall give his feedback or rejection of proposals.

E. The management and supervisory staff should support the annual safety action plan by releasing workers for training or participate in safety activities.

F. Workers should participate actively in the safety activities organized and to attend training sessions organized for them in support of the safety action plan.

4.5 HSE COMPETENCE REQUIREMENT

All the key personnel who work in the site like project manager, safety officer, site engineer shall be approved from ADCO to meet the competency level prior to mobilization.

4.6 HSE TRAINING + ORIENTATION

Establishment of Safety Training

Each employee receives basic Safety Orientation and Training.

Training program should be based on clearly defined objective that determine the scope of training and guide the selection and preparation of training materials. They should indicate what the trainee is to know or do by the end of the training period.

An effective construction safety program based on proper job performance. When people are trained to do their job properly, they will do them safely. This in turn means that supervisors must know the proper way of doing a job as well as how to supervise.

The Craft Chiefs/Supervisors/Foremen of each discipline will lead their respective group on discussions on subjects defined in the following Safety Checklist.

An ‘’HSE Matrix and Training Program” is given Page No. 13.

SAFETY TRAINING PLAN FOR THE YEAR 2014-2015

S. NO.	DESCRIPTION	MONTH	VENUE	ATTENDEES
1.	Basic construction safety	Every month different topics depending on activities on going	In house	For all skilled personals and all operatives and relevant site staffs.
2.	Safety induction training		In house	To all employees
3.	Safety training for safety engineer	November	Out side	Trainee safety engineer
4.	Scaffold competent person training		Out side	Scaffold in charge
5.	Working at heat stress		In house	Supervisors and foremen
6.	Excavation safety		In house	Supervisors and foremen
7.	Basic fire and safety		In house	Supervisors and foremen
8.	Working at heights		In house	Supervisors and foremen
9.	Electrical safely		In house	Electricians

Please note that regular toolbox meeting, and safety meeting shall be conducted prior to start any new activities.

4.7 Safety and Check List

Accident Prevention Organization

a) Schedule for posting safety material.

b) Personal protective equipment.

c) Safety meetings scheduled and posted.

House Keeping and Sanitation

a) General neatness of working areas.

b) Regular disposal of waste and trash.
c) Passageways and walkways clear.

d) Adequate lighting.

e) Projecting nails.

f) Waste containers provided and used.

g) Sanitary facilities adequate and clean.

h) Drinking water tested and approved.

i) Adequate supply of water.

First Aid

a) First aid supplies

b) First aid inspection on the job.

c) Telephone numbers and locations nearby physicians/hospitals.

Hand Tools

a) Proper tool being used for each job.

b) Neat storage, safe carrying.

c) Inspection and maintenance.

d) Damaged tools repaired or replaced promptly.

Power Tools

a) Good housekeeping where tools are used

b) Tools and cords in good condition.

c) Proper grounding

d) Proper instruction in use

e) All mechanical safeguard in use

f) Tools neatly stored when not in use

g) Right tool being used for the job at hand

h) Wiring properly installed

i) Enough man used to handle material

Power Actuated Tools

a) Compliance with local laws and ordinances

b) All operators qualified

c) Tools and charges protected from unauthorized use

d) Competent instruction and supervision

e) Tools checked and in good working order

f) Tools not used on any but recommended materials

g) Safety goggles or face shields

h) Flying hazard checked by backing up or removal of personal or use of captive stud tool.

Ladders

a) Stock ladders inspected and in good condition

b) Stock ladders not spliced

c) Properly secured, top and bottom

d) Built-up ladders constructed of sound material

e) Proper maintenance and storage.

Hoists, Cranes and Derricks

a) Inspect cables and sheaves

b) Check slings and chains, hooks and eyes

c) Equipment firmly supported

d) Outriggers used if needed

e) Power lines inactivated, removed, or at safe distance

f) Proper loading of capability at lifting radius

g) All equipment properly lubricated and maintained

h) Signalman where needed

i) Signals understood and observed

Heavy Equipment

a) Regular inspection and maintenance

b) Lubrication and repair of moving parts

c) Lights, brakes, warning signals operative

Motor Vehicles

a) Regular inspection and maintenance

b) Qualified operators

c) Local regulation observed

d) Brakes, lights, warning devices operative

e) Weights limit and load sizes controlled

f) Personnel carried in a safe manner

Equipment Maintenance

a) Planned maintenance and inspection program

b) Adequate equipment records

c) Proper oils, fuels, lubricants used

Garages and Repair Shops

a) Fire hazards

b) Disposition of fuels and lubricants

c) Good housekeeping

d) Lighting

Barricades

a) Floor openings planked over or barricaded

Handling and Storage of Materials

a) Neat storage area, clear passage ways

b) Materials neatly stacked

c) Stacks on firm footings, not too high

d) Proper number of men for each operation

e) Men picking up loads correctly

f) Materials protected from heat and moisture

g) Extinguishers and other fire protection

h) Traffic routing and control

Excavation and Shoring

a) Shoring and sheeting as needed for oil and depth

b) Materials not too close to edge of excavations

c) Lighting at night

d) Water controlled

e) Equipments at safe distance from edge

Pile Driving

a) Proper Storage procedures

b) Unloading only by properly instructed workmen

c) Steam lines, slings, etc., in operation condition

d) Pile driving rigs properly supported

Welding and Cutting

a) Qualified operators

b) Screens and shields

c) Goggles, gloves, clothing

d) Equipment in operation condition

e) Electrical equipment grounded

f) Power cables protected and in good repair

g) Fire extinguishers of proper type nearby

h) Inspection for fire hazards

i) Flammable materials protected

j) Gas cylinders chained upright

k) Gas lines protected and in good condition

Steel Erection

a) Hard hats, shoes, gloves

b) Tag-lines for tools

c) Hoisting apparatus checked

Concrete Construction

a) Forms properly installed and braced

b) Adequate shoring, plumbed and cross braced

c) Shoring remains in place until strength is attained

d) Proper curing period and procedures

e) Mixing and transport equipment supported and traffic planned and routed

f) Adequate runways

g) Protection from cement dust

h) Hard hats, shoes, shirts, covering skin

i) Nails and stripped form material removed from area.

Electrical Installation

a) Correct sizing of equipment

b) Proper grounding of equipment and conductors

c) Placement of signalman and guard structures

d) Use of proper tools, slings, grips and anchors

e) Safe splicing of cables.

5. EVALUATION AND RISK MANAGEMENT

The company has developed a Risk Register for the all the activities mentioned in the scope. The company follow the ADCO's Identification & Evaluation of HSE Aspects/Hazards and risk assessment procedure.

A. Before the onset of a project, the Site Engineer is to anticipate and review the potential hazards that might exist or appear due to the magnitude, nature and location of the project. He will submit the copy of risk register with HSE Plan to ADCO.

He is to establish the safety controls to be complied with whist working at the worksite. This set of guidelines will be added to the list of appendices of hazard identified. All safety controls set are to be reviewed and approved by the project manager before implementation.

B. The Project Manager is to review the safety guidelines drawn up by the project engineer and make improvement if necessary before approval for implementation at the worksite.

C. The Safety Officer is to inspect the worksite and help implement the safety guidelines by highlighting any non-compliance to site supervisory or management staff.

D. Safety Committee Members (if any) are also to exercise their role and responsibility by encouraging compliance to safe work procedures.

E. All Employees Including Sub-contractors and their Employees are to comply with safe work procedures laid down. The there are any doubts; clarification should be sought from site supervisors or management.

مؤسسة النفق لحفر الإنفاق
AL NAFAQ TRANSBORING EST.

HDD SAFETY MANUAL

JOBSITE SAFETY

HDD safety requires essentially the same philosophy as construction. Safety must start at the management level, and every employee must be committed to the safety program if it is to be effective. Each HDD job is different, but all must be approached with safety as the primary consideration. A well-planned effort by trained personnel allows construction to continue profitably without compromising safety.

Safety Plan and Checklist

- Operations and maintenance procedures that comply with applicable regulations;
- Emergency procedures for utility strikes;
- Emergency procedures for other high risk activities;
- Detailed emergency evacuation plan;
- Employee training program;
- Records of incidents, accidents and training.

As with any operation, it is important to work safely and have procedures and contingency plans in place to handle emergencies. Safety and communication procedures should be well established and all personnel on site should be instructed on protocol. The following is a list of issues that should be addressed when designing a safety program and contingency plans:

- Safety starts at the top;
- Identify the chain of command;
- Clearly outline corporate safety philosophy and develop safe work procedures;
- Require participation by all salary and wage personnel;
- State the Personal Protective Equipment policy;
- Every employee has the right and obligation to refuse dangerous work;
- Orientation of new employees is essential;
- A Competent Person and trained first aid personnel are required on every site;
- First aid equipment and fire extinguishers must be available at an identified location in every commercial vehicle and on site;
- Provide location and access to local emergency facilities;
- Communicate effectively.

The following is a list of issues that should be addressed when developing safety procedures for specific activities:

- Identify and define the activity;
- Identify related safety hazards;
- Develop written step-by-step procedure for performing the activity;
- Eliminate, isolate or control the identified hazards with procedures;
- Continuously monitor for changing hazards;
- Review and revise procedures when an incident or accident occurs;
- Closely supervise new, inexperienced employees.

The following is a list of issues that should be addressed before starting work at a new location.

These issues should be reviewed with everyone present at the beginning of each shift:

• Discuss specific hazards and procedures;
• Discuss location of emergency facilities;
• Discuss evacuation plan and emergency procedures
• Brief all personnel, subcontractors and visitors as they arrive;
• Record discussions and attendees.

It is imperative that site-specific hazards are identified and appropriate safety procedures are discussed, as every site has unique safety issues that need to be addressed. Crews should be aware of specific safety and emergency procedures.

Responsible Personnel

1. **Competent Person**

The Competent Person is responsible for ensuring that a safety briefing is provided for all authorized jobsite personnel prior to beginning operations and periodically during the project, and to assign duties to suitably qualified personnel. The Competent Person is also responsible for ensuring that generally accepted construction safety practices and suitable procedures are understood and followed by all personnel.

2. **Operators**

Operators of drilling, tracking and support equipment must be deemed competent by the Competent Person, or supervised by a qualified operator. Operators must have continuous 2-way radio contact with the drill locator and product side personnel to coordinate the drilling operation. Backup radios or spare batteries should be available.

3. **Support**

Support personnel should be briefed by the Competent Person upon arrival, and must follow and maintain all safety procedures throughout the job. Support personnel and visitors must be informed of hazards, their responsibilities, and any restrictions of activities.

Hazards

Prior to commencement of any boring activity, a hazard analysis should be performed to identify all perceived hazards. Procedures should then be created to remove, isolate or otherwise control

As with any construction operation, compliance with all OSHA, State and Local Regulations is required, regarding general safety practices for activities including:

• Vehicle operation
• Mobile equipment operation
• Noise
• Traffic control
• Verification of utilities
• Security of jobsite and isolation of hazards
• Manual lifting
• Trench Shoring and Sloping
• Confined-space Entry
• Hand tools
• Power tools
• Fall protection.
• Material handling

Activities that are specific to HDD must also be addressed including:

• Rig operation
• Pilot bore tracking

• Utility clearances
• Electrical strike protection
• Rotating drill pipe
• Drilling fluid system operation
• Working on product side
• Communications
• Handling loose drill pipe
• Making/breaking tool joints

Underground

Underground hazards to consider include:
• Electrical power cables, which can cause serious injury or electrocution if connected
• Fluid and gas pipes, which may transport asphyxiating, toxic, flammable, and/or explosive gases or liquids
• Fiber optic cables carry laser light signals, which can cause eye damage
• Low-pressure sewage and storm water lines. These pose a unique hazard potential if an HDD gas or electric line installation has been installed that has intersected the sewage line without detection. Subsequent maintenance or repair activity could cause a gas leak, explosion, or electrocution.

Surface

The job site surface should be thoroughly evaluated for indications of possible underground hazards.
• Transformer boxes should be checked by qualified utility workers to determine the number and orientation of lines entering the box. Ground grids should also be checked
• Manholes within the drill area should be opened and inspected, without entry, to determine the underground utility it services. The direction of flow in a sewer should be checked to determine the approximate grade. This information can be used to project depth of the utility where the bore is being made
• Wires attached to poles should be assumed to be live
• Water and gas shutoff depths should be confirmed to provide initial confirmation of the depth of the pipe and facilitate the potholing process. A minimum of 150 to 200mm (6” to 8”) should be added to depths for valves going to house services. Additional clearance may be required for large valves. This information can be used to facilitate potholing, and is not by itself a safe method of verifying the depth or location of the utility before construction.
• Out buildings (i.e. storage sheds) should be checked to determine if they have electrical wires or other utility services that may not be marked on any plans
• Gas barbeque grills, outdoor lighting, etc. should be identified and services confirmed
• Ditch line depressions in the landscape or obvious changes in vegetation may reveal previous excavation and should be investigated
• Road repairs may indicate the presence of recently installed or repaired utilities.
• Marker signs or casing vents at or near property lines indicate underground hazards
• Private utilities and utilities that do not subscribe to the one-call system are not marked by One Call operators. The Contractor should check State and local regulations and Contract Documents to determine responsibility for verifying locations of unmarked utilities.

Overhead

Overhead lines must be avoided. Overhead lines are of particular concern during mobilization/demobilization, while handling drill pipe, or loading and unloading heavy equipment. If the voltage is unknown, always maintain at least 6m (20 ft.) of separation

between equipment and power lines. If the voltage is known, OSHA regulations outline the required minimum separation. If necessary, place highly visible markers on either side of the overhead hazard or designate an individual to notify equipment operators as they approach.

Verify Utility Locates

The location of all identified utilities must be verified using non-destructive methods of excavation. The bore profile must be designed to maintain acceptable clearances between underground utilities and structures, and the final reamed hole. Possible migration of the back reamer from the pilot bore toward the utility, due to excessive steering or a tight radius, must be carefully considered when establishing clearances. As easements become increasingly congested, it may be necessary to increase the easement widths to accommodate demand for new utilities.

If there is any risk to the utility from the drilling activity, a 'window' must be excavated at or near the utility to visually monitor the potentially hazardous situation. A vacuum unit is required to remove the drilling fluid during this process, and high pressure drilling fluid hazards must be addressed. If the bore passes closely by a utility, it may be necessary to continuously monitor the separation after the drill head or reamer passes the 'window', as the drill string or product pipe may subsequently contact the utility during the completion of the installation.

Communication is a critical ingredient of any successful horizontal directional drilling project. It is imperative that the drill locator and the drill rig operator have an understanding of the job prior to commencement of the work. They should walk the planned bore path with the tracking equipment to evaluate any potential fields of electromagnetic (active) interference and look for signs of reinforced concrete or other possible passive interference that may hinder the operation, and discuss the identified hazards.

During the actual boring process, if abnormal readings are found with the tracking equipment, the contractor should stop, back up, and verify previous readings prior to commencing the bore.

This is critical; as deviation from the planned bore profile could result in an underground utility strike. Care must also be taken during the pullback to ensure that utilities are not damaged due to the upsizing by the enlarged back reamer and possible straightening of the bore during back reaming and product installation.

Traffic Control (Pedestrian and Vehicle)

Necessary traffic control must be maintained throughout the project. Typically, mobilization/demobilization, material handling, and intermittent movement of mobile equipment require traffic control if the activity conflicts with vehicle or pedestrian traffic. Traffic control includes permits, planning, notification, flag persons, warning signs and barricades. The work area, particularly around the drill rig and entrance/exit pits, must also be secured to prevent unauthorized entry. Emergency vehicles and buses must have access during construction.

Safe Practices, Safety Equipment

Safe practices must include identification of hazards, as well as isolation, control or removal of hazards. Personal protective equipment that is required on an HDD job-site is similar to that required on other construction job-site. Examples include:

- Hard hat meeting OSHA criteria
- Safety glasses, goggles or face shields meeting OSHA criteria

• Hearing protection
• Highly visible reflective clothing
• Work boots
• Work gloves
• Any other safety equipment mandated by other rules or required by the Owner or regulatory agency
• Dielectric boots and gloves
• Suitable communication devices
• Remote break out wrenches for working on the drill string

If the drilling unit is equipped with an Electrical Strike Sensing System, its use should follow manufacturer's recommendations. The system may include audible and visual warning alarms, grounding mats, and personal protective equipment. Electrical sensing stakes must be driven into the ground and the strike alert system tested prior to operation.

Drilling Precautions

The following precautions should be observed during the drilling operation:
• If a hazardous situation is suspected, work should be stopped until an evaluation is made and appropriate corrective action taken.
• Potential "pinch points" on the drill rig and support equipment must be identified and avoided
• Safe clearances (at least 900mm (3 ft.) or as specified by regulatory authorities) must be maintained between the bore and all utilities. The minimum clearance must take into consideration the final reamed diameter and the bend radius of the pilot bore
• Workers must stay clear of the rotating drill string
• The drill must not be operated when personnel are working on or near the drill string
• The drill must not be operated without positive communication with the drill locator or exit side personnel
• The manufacturer's specified maximum torque and thrust/pullback capacity of the drill pipe must not be exceeded
• Remote breakout wrenches must be used safely. Drilling machine torque or backhoes with wrenches should never be used to make or break tool joints.

Reaming and Installation Precautions

The following precautions should be observed during reaming and product installation:
• Two-way radio communication must be maintained at all times between the entry and exit sides
• The drill pipe must not be rotated until all personnel have been notified and acknowledgement has been made by all personnel
• Workers must never step over rotating drill pipe and must maintain a safe distance when working near rotating drill pipes
• When crossing existing underground utilities, the utility must be exposed at the crossing location and monitored during the crossing.

WELDING AND CUTTING

Generally electric and heating welding and cutting machine are safe operations and not injurious to health proving the necessary precautions are taken and basic safety rules observed.

1. General Requirements

- The supervisor of any operation that involves electric and heating welding and cutting must ensure that the proper equipment is available and utilized in a safe manner.
- Never weld or cut on old empty drums, they may have contained volatile liquids and remaining vapours can be highly explosive.
- A general purpose dry powder fire extinguisher must always be available whilst work is in progress and all mobile welding generators should be equipped with a similar type of extinguisher.

Hand Tools

1. **Picks and Shovels**

Point and blade shaft, shafts free from cracks or splinters.

2. **Spanners and Hydraulic wrenches**

Jaw unsprayed or split, no cracks, heads of slugging wrenches no mushroomed. Pipe wrenches jaw, teeth, knurl, Pin and spring, clean and undamaged.

3. **Saws**

Hacksaw fitted with correct type of blade suitably tensioned. Wood saws teeth properly set for cutting HDPE & PVC Pipes.

Power Tools

All electrical tools in this category must be of double insulted type or properly grounded, the lead is to be as short as practicable fitted with a grounded plug and any splices made off properly not merely taped. Before use, every tool must be checked to ensure it conforms to the supply voltage and switches or controls function correctly.

Response to Events

If an existing utility is struck during the boring operation, emergency procedures must be initiated to reduce the likelihood of human injury. Procedures to follow in the event of utility strikes are summarized below by type of utility.

1. **Electrical Strike**

If an electrical strike occurs, workers should not move. The voltage difference between the equipment and the ground or even between a person’s feet may be sufficient to cause injury or death. Do not touch the machine, drill pipe, water system, mud-mixing system, or anything connected to the drill as these items may be highly charged. The drill operator should remain calm and reverse the direction of advance in an attempt to break contact with the electrical line.
The electrical utility company must be contacted immediately. The drill operator should follow the manufacturer’s procedure to determine if the drill is electrically charged before attempting to dismount the drill.

2. **Gas Strike**

If a gas line strike occurs, evacuate the area immediately. The drill operator should shut down all engines and under no circumstance should the operator attempt to reverse the bore to break contact as further movement may cause a spark. Emergency services and the gas utility company should be contacted immediately.

4. **Fiber Optic Strike**

If a fiber-optic strike occurs, workers must not look into the cut ends of the cable, which can cause severe eye damage. Drilling must stop immediately and the utility owner must be contacted.

5. **Communications Line Strike**

If a communications line strike occurs, drilling must stop immediately and the utility company should be contacted.

6. **Sanitary/Storm Sewer And Water Strike**

If a water or sewer line strike occurs, drilling should be stopped immediately and all bystanders should be warned that a strike has occurred and that they should stay away. Medical attention should be obtained for personnel who have come into contact with sewage. As with any strike, the utility owner should be contacted immediately.

Conclusion

Hazards that are specific to HDD include the rotating drill string, making up and breaking out of tool joints, and unknown utility strike potential. However, the most common incidents and accidents on an HDD site are those that are common to other construction activities including slips, trips, and falls, excavation cave-ins, pinched fingers and toes, vehicle accidents, and back injuries. The common hazards and hazards specific to HDD equipment and operations must be identified and isolated or removed to avoid incidents and accidents.

The investment of time and money in training or hiring an experienced crew is minimal when compared to the cost of injuries or damaged utilities. Safety procedures must be followed throughout the job to reduce the likelihood of incidents or accidents.

JACKING & RECEIVING PITS

Backfilling of Driving Pit & Receiving Pit for te HDD

Method Statement:

Procedure to complete the backfilling of driving pit and receiving pit for non disruptive road crossing (Horizontal Drilling) as,

1. By layers of 25cms from bottom of pits (the sizes of these pits are varied according to depth and site condition) till reach 45cms below the existing ground level with material of 20% CBR and compacted to 95% MDD to be tested according to the compaction test date.
2. For the two of the last three layers to reach the original ground level, ie, 0.15m below OGL, using the material of 30% CBR and compacted to 95% MDD to be tested according to the compaction date.
3. For the last layer (top layer of surface) to reach the original ground level, using the material of 60% CBR and compacted to 98% MDD to be tested according to the compaction date.
4. Double drum rollers and plate compactors will be used for compaction as of sub-grade and sub-base, to get minimum dry density of 95% and 98% respectively.

   Note: For the last layer (top layer of surface), method statement refers to roads like surface. If, that type is not required for the specific location, we can do as item no. 2 of this method statement.

METHOD STATEMENT FOR HDD

Method Statement - HDD Works

I N D E X

Method Statement HDD Works

1.0 Purpose and Scope

- This document details the manner in which the Horizontal Directional Drilling will be undertaken for the Projects.

2.0 References:

- Abu Dhabi Municipality Projects committee General Specification for Civil Works.
- ISO 9001: 2008

3.0 Responsibilities:

3.1 Subcontractor's Manager (AL NAFAQ Const.)

To bear overall responsibility for timely and quality execution of works and ensures the effective use of resources and manpower.

3.2 Subcontractor's Site Supervisor / Rig Operator (AL NAFAQ)

Site supervisor - To be informed a week before commencement of operations.

Rig Operator – To be informed a week before commencement of operations.

To organize all erection operations according to safety and quality procedure as well as making sure the work is done along the surveyed pipeline route in accordance to the instructions received from the Contractor.

3.3 Subcontractor's Safety Inspector / Engineer

To ensure the implementation of the project safety plan and that all the HDD activities are carried out in an environment friendly manner while maintaining the health and safety of involved personnel.

3.4 Contractor's Superintendent

To ensure the pipe string is welded and air tested as required per Project Satisfaction for road crossing.

To check the implementation HDD works and laying of the pipe as per the specifications and approved Method Statement.

3.5 Contractor's Safety Officer or Responsible Person for HSE

Shall be present during HDD works and ensure that all the Project Safety procedures are strictly followed and the works are completed without compromising the HSE requirements at the work areas. Ensure that the police permits and road section permits are available at site.

4.0 Subcontractors:

- **Al Nafaq** will implement all the scope of the drilling at the site.

5.0 Tool, equipments and manpower.

5.1 Tools:

- Drilling head / Bit : 2 Nos.
- Drilling Pipes : 50 Nos.
- Swivel : 2 Nos.
- Reamer : 10 Nos.
- Pull head : 1 No.
- DCI Locator – Log & Bore Profile Information.

5.2 Equipments:

- See Attached Appendix - 1

5.3 Manpower:

- See attached Appendix – 2

6.0 Safety:

- Approved HDD shop drawings from the concern Engineer.
- The form for job safely analysis should be filled by any tasks with a high risk to fatal accidents or permanent disability, serious ill-health and/or major damage to material or property or another activity.

- All persons should wear the PPE.
- Tool box talk (TBT) on this method statement to all operatives involved in the operation.
- All plant and vehicles to be fitted fire extinguishers.
- The main contractor must provide all necessary clearances/NOC prior from all concern authorities before commencing the work to avoid any damages in the existing services.
- Before erecting the machine, it should be cleaned and the area should be free from any equipment, tools or any various items.
- Before starting the process, the machine should be inspected.
- Drilling process shall be supervised by trained and responsible personnel.
- The area should be surrounded be warning tape and adequate warning signs to be use around and at proper distance from the drilling areas.
- Risk Assessment - (See Attached Appendix-3).

7.0 Products Required

- Bentonite
- Easy mud
- Soda ash

8.0 Prior Activities:

- Process sequences should be prepared by AL NAFAQ technical office
- Technical department (Method) at **AL NAFAQ** Head office will prepare the required detailed and settlement calculation sheet.
- Process will start after the concern Engineer approval.

9.0 Quality Control measures

AL NAFAQ has been granted ISO 9001:2008 and it is implementing all the quality, environmental health and safety management procedures. AL NAFAQ will follow its own safety procedures and manual to reflect management's intention towards providing a safe and healthy environment for its workers, employees and the public in general. AL NAFAQ will regularly develop its safety procedure and manual according to international standards.

AL NAFAQ is committed to complete the projects on or before the scheduled time within the allocated budget and at the highest quality standards possible.

AL NAFAQ will comprehend the requirements of its client and will confirm to those requirements at all times, from the beginning. AL NAFAQ will work towards the development of safe environment and will ensure that the execution of its projects in: no way affect the safety and sanctity of the environment. AL NAFAQ Quality Assurance (QA) system is composed of:

- Establishing the project Quality Control (QC) system.
- Supervising and checking each partial work quality, form the control horizontal network from the civil work, installation, decoration to other subcontractors; vertical network from the site supervisor to the working teams.
- Setting the quality communication feedback system on the base of the testing, survey, technology management, quality inspection, response for the information communication and quick reaction of the abnormal quality phenomenon, the correct instruction can be soon set to the performance department to correct any quality deviation.
- Preventing all types of accidents.
- Stating explicitly that working in a health, safety and environmental (HSE) atmosphere is an employment condition.
- Giving the full authority for the employee to stop any type work in case of any hazardous or insecure circumstances.
- Evaluating and re-examining HSE manuals and policies on regular basis and make sure to deliver them to all staff members.

10.0 Procedure

10.1 Drilling & installation of a pipeline by HDD is generally accomplished in three stages :

- **Stage 1:**
  - Directionally drilling a small diameter pilot hole along a designed directional path.
- **Stage 2**:
  - Enlarging this pilot hole to a diameter suitable for installation of the pipeline.
- **Stage 3 :**
  - Pulling the pipeline back into the enlarged pre-reamed 450mm hole.

10.2 Construction Sequence and Details:

10.2.1 Site Planning and Design:

Before starting any drilling process, we have to follow steps listed below.

- Trial pit will be done first before preparation of drilling profile, the drilling profile will based on the data of existing utilities and project requirements.
- It would be followed by surveying the topography of the land to design drilling profile and also planning the set up for the drilling equipment.
- Mobilization of drilling equipment and personnel on job site will follow.
- Identification of entry point and exit point with the owner representative.
- Review of longitudinal profile versus site condition.
- Equipment set-up will follow after all review on depth, entry and exit point was done.

10.2.2 Preparation of Job

1. Clear and approved longitudinal drawing must be ready.
2. Arranging the working area/space for the Horizontal Drilling Rig machine and accessories. Based on the site inspection conducted, the site is sufficient for the drilling activities and it conforms to the space needed from the rig side which is at least 5-meter wide.
3. Marking of driving and receiving pits which will be excavated.
4. Setting the machine according to the longitudinal profile, to the exact location and approved design profile.
5. Electricity for lighting and other uses will be generated by the machine itself, another stand-by generator for the lighting will be available on Job if required.

SITE SET UP

10.2.3 HIORIZONTAL DIRECTIONAL DRILLING (HDD) SET-UP & PROCEDURE

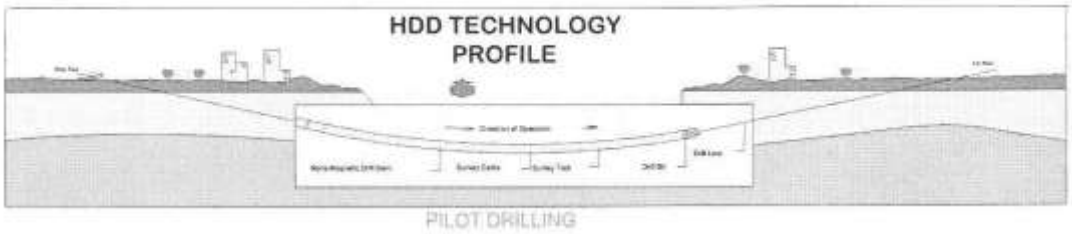
The following is a brief summary of work procedures to be performed in such a manner that the HDD operation can be carried out accurate to the required technical specification▼ and the depth should not less than 3m from the existing road level and the exit and entry angles shall be between 8 & 12 degree so that the final quality is assured.

After all clarifications, site planning and other on site conditions the Horizontal Drilling Machine and equipment will be set-up on the approved location point. The Drilling Machine is to be anchored to the ground.

Major Stage of Horizontal directional Drilling will follow.

1) Pilot Hole
2) Reaming
3) Product Pipe Installation and Pulling

Pilot Hole



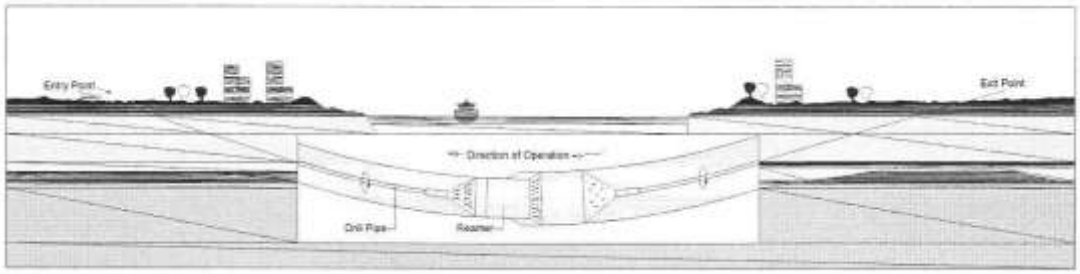
PILOT DRILLING

Pilot drilling is the first stage of HDD work. It is a boring of the design path of the crossing which monitored and controlled by the Guidance system. During the pilot whole phase of drilling, the entire activity is guided by the Locator for accuracy of the drill hole to the design path.

Bentonite and other admix for drilling fluid is used remove the cuttings from the bore and to reduce friction on the drill pipe during the pilot, reaming and pipe pulling of phases. Stabilizing the interface between the drilled hole and the underground soil is one of the major rules of bentonite. The mechanical drilling bit will vary on ground condition/formation to be use for ground cutting.

Bentonite as admix for drilling fluid is use to reduce friction on drill pipe, reamer, pulling of product pipe. Stabilizing the interface of whole and natural ground would be one of the major rules of bentonite. The mechanical drilling bit is use for ground cutting.

Reaming



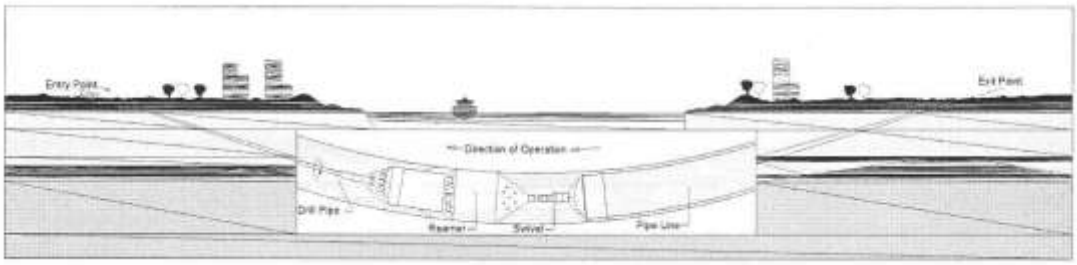
Completion of Pilot Drilling it must be check and approved by the Client regarding of entry and exit point is needed before the reaming process will start

The Second Stage of the directional drilling process Reaming involves the enlarging of the pilot hole to the required diameter in order to install the product pipe. The hole needs to be enlarged to a diameter larger than the product line to be installed.

For 16 inch HDPE product pipe as an example, we will need to enlarge the hole to a size 18 inches depending on the actual underground condition. A back-reamer of this diameter is attached to the drill pipe at exit point. The hole is then enlarged by pulling and rotating reamer towards the machine, The drilling fluid on last reaming stage will have an add mix to stable the hole while the machine is on motion towards the opposite side of the crossing for pulling of pipe set-up

Pipe Description	Corresponding Size of Reamed Hole
400mm HDPE	**450mm**

Product Pipe Installation



After completing the reaming process, it will be necessary to excavate a trench with correct slope to eliminate the over bend of the product pipe enters the reamed hole, reducing the friction on pipe for a smooth and successful installation.

The Product pipe should position along the axis of the bore hole in exit side. During product pipe pulling the reamer will be in front of the product pipe which will be connected by the reamer in between, the full length of pipe string will rest over pipe rollers if necessary.

The third and final stage is pulling of the product pipe. This operation will continue “nonstop” until the pipe is completely installed into the reamed hole. It may require the HDD contractor to work 24 hours if needed to complete the installation of the product pipe and finalize the crossing.

▼In case the product pipes are sleeves & carrier pipes, the two pipes should be dragged together and this procedure depends on the site conditions.

11.0 Drilling Fluid (Mud) System

Drilling Mud:

"Drilling mud" is normally utilized to lubricate the cutting head during the drilling operation and stabilized the reamed bore path prior to and during pull-back. The drilling mud" usually consists of a mixture of fresh water and Bentonite clay; however, other materials such as polymers – are sometimes used. Bentonite is a naturally occurring clay mineral that forms a mud when mix with water. Drilling fluids are characterized by their viscosity, gel strength, filtration, fluid loss, pH, and lubricity. The principal functions of drilling fluids used in HDD are:

1. Transporting drill cutting to the surface by suspending and carrying them slurry that flows in the annulus between the bore wall and the drill/product pipe.
2. Cleaning build-up on drill bits or reamer cutters directing fluids streams to the cutters.
3. Cooling the down hole tools and electronic equipment.
4. Lubricating to reduce the friction between the drill/product and the bore wall.
5. Stabilizing the bore path, especially in loose and soft soils, by building a low- permeability filter cake and exerting a positive hydrostatic pressure reduce obtrusion of the bore path, and prevent formation fluids (I.e., groundwater) from flowing into the bore (loss of circulation).
6. Providing hydraulic power to down hole mud motors.

For HDD, the proper drilling fluid mixture and delivery pressure is heavily dependent upon the type of soil encountered. It must be formulated for the geological conditions. For simplicity, soil conditions may be defined as either a coarse soil (sand and gravel) or a fine soil (clay, slit, and shale). In general, for the coarse soils Bentonite should be used, while fine soils polymers (possibly added to a Bentonite base) are recommended.

▼Bentonite Mix Design is based on soils reports and geotechnical information including any requirements for additives.

In this project we will use 6 to 8 bags of bentonite per cubic meter, and additive will be added to the bentonite slurry to form permanent solid filler in the hole as it hardens after the installation. PAC Polymer or EZ-mad will be used as additives in order to achieve the required thickness of drilling fluid.

The below table showing the recommended drill fluid design mixture for specific ground condition:

Soil Type	Desired Funnel Viscosity	High- Yelid Bentonite	PAC Polymer	Liquid Polymer(PHPA)
Clay	40-45	1-1.5 Sacks		1qt.+
	40-45	When drilling with polymer only		2-3 qt.
Clay Loam		1to 1.5 Sacks	2qt	1qt
Sand Loam	50-60	1.5 To 2 Sacks	2qt	
Sand	55-65	2 To 2.5 Sacks	2qt	
Aggregate	65 +	2.5 + Sacks	2qt	

"For this project, since the ground condition is composed mostly of loose and sand, we will be using 6 to 8 bag of bentonite per cubic meter and we will be adding additives with the bentonite slurry to form a permanent solid filter in the hole around the cable ducts as it hardens after the installation. Pac-R or EZ-mud will be used as additives in order to achieve the required thickness of drilling fluid. These additives are used primarily as a borehole stabilizer to prevent reactive shale and clay from swelling arid sloughing. It also provides lubricity, fluid viscosity and improves carrying capacity of air/foam injection fluids."

In case of difficulty to use additives for strength acquisition purpose, cement grout slurry will be used to push out the bentonite slurry & replace it to permanently maintain the stability of the hole. Cement grout will fill the void around the cable ducts to the entire length of drilling. Applicability of grouting for this will be investigated. as a result it will fill any gap between the intended pipes that will be pulled.

Mixing System:

A self-contained, closed, drilling fluid mixing system of sufficient size to mix and deliver drilling fluid composed of bentonite clay, potable water, and appropriate additives. The mixing system must be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping and ensure thorough mixing. The drilling fluid reservoir tank must be a minimum of 1,000 gallons. Agitate the drilling fluid during drilling operations.

Drilling Fluids:

Use drilling fluid composed of potable water and bentonite clay. Supply water from an authorized source with a pH of 8.5-10. Treat any water of a lower pH or with excessive calcium with the appropriate amount of sodium carbonate or equal. No additional material may be used in drilling fluid without prior approval from the Owner. The bentonite mixture used must have the minimum viscosities as measured by a March funnel:

Soil Description	Mix Timing
Rocky Clay	60 Seconds
Hard Clay	40 Seconds
Soft Clay	45 Seconds
Sandy Clay	90 Seconds
Stable Sand	80 Seconds
Loose Sand	110 Seconds
Wet Sand	110 Seconds

These viscosities may be varied to best fit the soil conditions encountered, or as determined by the operator. No additional fluid shall be used without prior approval from the Owner.

12.0 Site Reinstatement & Restoration

12.1. Dispose of Excess Bentonite

12.2. After completion of installation of 400mm HDPE pipe by sub contractor, the main contractor will make the required compactions and the subcontractor will backfill and restore site to original prior to commencement of work.

SETTLEMENT CALCULATION

Settlement to road surface is calculated using formula:

Smax = $\frac{0.313\ V_L\ D^2}{i\sqrt{2\pi}}$ (O' Reilly & New)

Where Smax = Maximum Settlement

V_L = Volume Loss due to rotational motion.

D = Dia. Of Tunnel

i = The distance from point of inflexion to C/L of tunnel

i = 0.28zo – 0.12 (Silty sand soils)

Zo = Depth of Tunnel Axis

In this "DU" Project Zo = 3.0 meter

i = 0.28 x 3.0 – 0.12

= 0.84 – 0.12 = 0.72

D = 0.6m

Volume of tunnel = $\frac{\prod}{4}$ x 0.6^2

= $0.28274m^3$

Volume of pipes = $\frac{\prod}{4}$ x (0.56^2)

= $0.24630m^3$

Volume of loss = $0.28274 – 0.24630 = 0.03644m^3$

Smax = $\frac{\mathbf{0.313 \times 0.03644 \times 0.6^2}}{\mathbf{0.72}\sqrt{2\pi}}$

= 0.001283m

= 1.30mm < 6mm

Appendix 1

1. Equipments

    - Vermeer – D50 X 100 A, D36 X50 and China Machine TT25
    - Bentonite Mixer and lowbed Lawry for each unit
    - Water tanker
    - JCP or Small Excavator

Appendix 2

2. Manpower

    - Project Manager
    - Site Supervisor
    - Safety Officer
    - Surveyor
    - Machine Operator
    - Machine Locater
    - General Labors
    - Drivers

METHOD STATEMENT FOR NDRC THRUST BORING

1. Scope:

This method statement covers the NDRC work by Thrust Boring steel sleeve for Sewer and Water pipes.

2. Reference:

Not Applicable

3. SUB-CONTRACTOR:

Not Applicable

4. Products:

a) Steel Sleeve
b) Carrier pipes
c) 3” Steel Angle Bar
d) 3” Steel Flat Bar
e) GI Nuts Bolts
f) 3mm Neoprene Rubber
g) Grout

5. TOOLS & EQUIPMENT:

A. 2005 BARBCO 36/48-500

Full Specifications

Power Train: **Engine:** Deutz Turbocharged Air Cooled, Direct Injected Diesel w/ Electric Start, 100.4 HP. @ 2500 RPM **Clutch:** 13" Diameter	**Hydraulic System:** **Pump:** #25 Oil Gear, 5000 PSI (continuous), 5800 PSI (Intermittent), 38gpm @ 2300 rpm **Cylinders:** Two 8" Bore x 36" Stroke, 583,086 lbs. Max Thrust

Transmission: Eaton Fuller FS-4205A, 5 Speed **Gearbox:** Fairfield #20, 54.2:1 Ratio **Auger Drive:** 4" Hex **Max Output:** 1st gear: 115,491 ft. lbs. torque @ 4 rpm 2nd gear: 62,408 ft. lbs. torque @ 8 rpm 3rd gear: 35,150 ft. lbs. torque @ 12 rpm 4th gear: 21,233 ft. lbs. torque @ 20 rpm 5th gear: 14,347 ft. lbs. torque @ 30 rpm Rev gear: 115,491 ft. lbs. torque @ 4 rpm	**Dimensions:** 36" Mode: 22.5" CL, 54" Height 42" Mode: 25.5 " CL, 57" Height 48" Mode: 30 "CL, 59.5" Height Width: 60" Length: 144" **Weights:** Base Unit: 4020 lbs. Power Pack: 5500 lbs. 36" Casing: 750 lbs. 42" Casing: 875 lbs. 48" Casing: 1185 lbs. Master Track: 2530 lbs. Ext. Track: 1875 lbs. **Options:** 42" Push Kit 48 " Push Kit Rapid Travel System Vandalism Shield

b) Excavator
c) Wheel Loader
d) Plate Compactor
e) Water Tanker
f) Rollers
g) Survey equipment
h) Ladder, Flagging Tape / Warning Tape, Nylon Lifting Slings

6. PRIOR ACTIVITIES:

a) Site visit, trial pits and or other soils investigation.

b) Check pit locations for utility services and other obstructions.
c) Set out thrust and receiving pits according to the approved designs. Place warning signs and barriers and a small site rest area. Securely fence off the area. Obtain necessary approvals.
d) Select auger cutting head and make production design, including pits.

7. PERSONAL REQUIRED:

a) Auger Machine Operator
b) Surveyor
c) Forman
d) Welders
e) Skilled labor.

8. Safety Hazard & Precaution:

a. Before using any equipment, all operators should receive thorough training in the use of this equipment. The manual should be used as a training tool.
b. A copy of the manual should remain on the jobsite and be accessible to all personnel at all times.
c. Personnel on the jobsite should receive training on safety practices, procedures, safety signs, and hazards. Operators, support personnel, repair technicians, and visitors should be aware of their responsibilities and any restrictions to their activities.
d. Be sure all new, inexperienced employees receive a complete orientation to the jobsite and thorough training in their job duties. Never allow inexperienced personnel to operate or work near the machine unless they are carefully supervised.
e. The meaning of the hazard alert signs on the equipment is explained in the "Safety Alerts" section of the manual.
f. Follow all regulations, but not limited to:
g. Drilling operation
h. Rotating drill pipe
i. Handling loose drill pipe
j. Making/breaking tool joints
k. Verification of utilities and utility clearances
l. Electrical strike protection
m. Vehicle operation
n. Trench shoring and sloping
o. Mobile equipment operation
p. Confined space entry
q. Noise
r. Hand and power tools
s. Traffic control
t. Fall protection
u. Security of jobsite and isolation of hazards

v. Material handling and manual lifting
w. Know and use the recommended protective equipment required when operating this machine. Examples are:
   - Hard hats meeting OSHA criteria
   - Safety glasses, goggles, or face shields meeting OSHA criteria
   - Work boots
   - Work gloves
   - Highly visible reflective clothing
   - Hearing protection
   - Boots and gloves made for electrical insulation / water resistant.
   - Any other safety equipment mandated by other rules or required by the Owner or regulatory agency

x. If a hazardous situation is suspected, stop work until an evaluation is made and appropriate corrective action taken.
y. Know and use hand signals required for specific jobs and know who has the responsibility for signaling.
z. Have a fire extinguisher and complete first aid kit on site. Have at least one of your workers trained in first aid.

9. Quality Control:

a) All materials are to be checked before the commencement of the work for the worthiness/defectiveness. If found anything not acceptable, to be marked and removed from the site.
b) Prior to starting the work, obtain approved shop drawings.
c) For all other matters related to QA/QC, please refer main contractor's approved QA/QC plan.

10. Procedure:

The normal method of auger thrust boring in the Emirates is to bore using a used steel casing pipe and to leave the casing in place for the carrier or service pipe to be threaded through later.
Other methods with which the casing is withdrawn as the service pipe is pulled in, to take its place, are suitable only for self-supporting soils such as firm clay or rock.

Thus the procedure is:

a) Excavate the thrust pit which will normally be 11m long by 3.5m wide (Larger width is needed when to install more than one pipe from the same pit). And the bottom will be approx. 724/470/570mm (plus 50-100mm concrete blinding) below the invert of the carrier pipe. Dewatering may be needed so there is the need to obtain the permission to discharge. If the front edge of the pits is stable it can be within 5m. of a road edge but no closer, (according to the Municipality Specifications) If 3.05m long sleeve pipes are used, the thrust pits will be 7m long.
Receiving pits can be quite small, e.g. 2m long by 3m wide & at the same bottom of the jacking pit. With the same distance from the edge of the road (5meters)

Dewatering will be carried out by the main contractor who should ensure that water does not flow into the bore through the cutting head. It may be sufficient to provide deep wells in the pits or well-points may be needed alongside the road to be crossed for ten to twenty meters from the line of the crossing.

b) When the boring machine i.e. ready for installation a bed of 50 to 100mm of blinding concrete shall be cast in the driving pit. Level accuracy is vital at this stage. Following this a concrete thrust wall will be cast to evenly distribute the thrust on the ground behind. For short drives there may be no need to cast a concrete base in the pit. The depth of cover over the sleeve should preferably be three times the sleeve diameter – never less than three meters. The soil type and density has to be known before a final decision regarding the depth is made.

c) The pipe guide rails will be fixed in front of the jacking unit firmly and exactly to the required level and normally horizontal (for a horizontal crossing). This is absolutely critical for a successful drive.

d) Straight lengths of used steel pipes shall be purchased, cut, normally, into 6.1m lengths for the drives. Other lengths of 3.05 pipe can be used, for instance to reduce the length of the drive pits. The face of the steel pipe has to be cut perfectly.

e) The cutting head of the machine should not be more than 2cm overlap.

f) The cutting head and first 6.1m of auger are fitted in the first pipe and boring commenced. The width of the first auger should be adjusted to produce a very snug (tight) fit in the lead pipe.

g) Before this stage has been reached a grid of level points will have been set along the route of the bore and a firm, undisturbed bench mark established nearby in order to accurately monitor for surface movement. Level readings will be taken for reference before work commences and then daily the progress. After completion levels will be taken at the end of a week, the end of a month and at handover stages.

h) After the first length of steel sleeve has been jacked into place, during removing Auger and cutting head all the material coming out. After check alignment and level by surveying instrument or laser point. Then second section is welded to it using a full circumferential butt weld, the outer surface of the weld being left smooth.

i) Another auger will be added and the installation procedure repeated until the cutting head reached to the receiving pit, exiting manhole or open trench. This pit should be at least three meters from the edge of the road being crossed to ensure that any soil breaking into the pit will not affect the road.

j) The cutting head will be removed and the augers pulled back to the driving pit and the newly inserted sleeve cleaned manually.

k) The sleeve will be checked for accuracy, alignment, curvature, level, ovality, etc. to ensure that the service pipe can be easily passed through it.

l) The equipment will be moved as soon as the sleeve is found to be acceptable.

m) For maintain the correct line and level by using survey instruments whenever it requires. The position of the pipe is noted by the site engineer, the initial point of the sleeve at all times during the drive. Site engineer monitors the position of the pipe relative to the reference value, thus giving pipe position (high or low, left or right) relative to the design position.

n) After completion of pushing the steel sleeve by Auger we check the line and level for the steel pipe and we take the exact line and level for the carrier pipe with the help of survey instruments.

A 3” Steel angle bar fixed by welding in the correct bottom level of the carrier. Then 3mm thick flat bar moon clamps ( ) will be fixed through welding in the correct line. After that we put neoprene rubber of 3mm thick in the clamp to avoid the scratch on the carrier pipes.

Then we start laying the carrier pipe one by one and fix the clamps through nuts and bolts. After fixing the nuts and bolts we make angle support in between the top of the clamp and top of the pipe. Then we fix the other pipe in the same manner. The same procedure will continues unto the required length.

o) During execution of the entire job, air blower, lights and PPE are provided into the sleeve for the safety of miners working inside.

p) Upon completion of Auger Boring we make 4 holes of diameter 4” like ventilation in every 1 meter into the sleeve pipe, it helps the concrete fill the gap between the steel pipe and ground. Then we fix six inch grouting pipe vertically one meter height in the top of the pipe both end jacking and receiving. One side will keep ventilation and the other side for connecting the concrete pump

After that we lay the carrier pipe in the correct line and level then check with the consultant then we close the both end between steel and carrier pipe.

Masonry the gap between steel sleeve and ground in the both end we close by cement and supported with channels by welding to the steel pipe to accommodate any concrete pressure.

The grout will push from the downstream end towards upstream. Pumping process will continue till the grout reaches the upstream end ventilation pipe and will allow overflow to some extent to confirm the completion process.

METHOD STATEMENT FOR PIPE JACKING

Excavation of jacking and receiving pits with dimension to suit site condition, made by hydraulic excavator will be carried out by the main contractor to the depth required, i.e. approximately 30cm below the invert level of the sleeve on both the ends. During and end of excavation, monitor the soil condition / strata and take photographs with consultant for future reference and it should be made document as soil condition report. This can be used as soil investigation report.

On the bottom of jacking pit, a concrete blinding will be placed, then two guide rails parallel to the line and sleeve gradient will be laid and fixed with bolts to the concrete to ensure correct entry of the sleeve into the facing ground.

Also, a special cradle for hydraulic jacks positioning is lowered into the pit and settled at the backside with the line and gradient relevant to the line and gradient of the sleeve.

At the backside of the jacking pit, a thrust wall will be made of concrete in as such a way that jack force transferred from the tunnel to the adjacent ground will not cause any movement of the wall. Additionally, a steel plate will be placed against the trust wall to distribute the point loading from jack.

Hydraulic jack is powered from a diesel power-pack operated on miner's instruction by the operator.

The sleeve pipe (diameter 900mm and thickness 10mm) are used and to the alignment of the designed path during execution of all tunnelling jobs. The dimensions of the jacking pit and receiving pits are made to suit the site and equipment. On the sleeve, air vents holes to be made to relieve the air inside while grouting.

The receiving pit can be considered as the existing manhole. As the jack's stroke is 1.5m, spacers of various lengths made of the same steel sleeve will be used to push the sleeve on the whole length of each one unit.

During the period of mobilization and setting up of equipment, other activities are carried out in order to prepare first sleeve unit of pushing operation.

The front edge of the sleeve to be cut in bevelled and carved to suit the circumference of the existing manhole. A cutting ring welded around the front edge of the sleeve will be used. In cause of dune sand area there will not be any cutting ring to avoid the extra cavity.

Once the first sleeve unit is ready, it is lowered onto the guide rails and offered to the front face of the pit for making and cutting an entry point. Afterwards, the sleeve is pushed into the ground about 30cm maximum.

The soil inside the pipe is hand dug using mechanical / pneumatic tools, then loaded to a wheeled skip and taken out to jacking pit, from where it is lifted and deposited on the surface in a safe distance.

The operation is repeated till the first sleeve unit is pushed into the ground almost on the whole length. A piece around 40cm is left out of the front wall of the jacking pit for further connection with the next sleeve unit.

The next sleeve unit is lowered onto the guide rails and offered to the end of the first sleeve unit.

The sections of sleeve pipes are connected together by welding the whole perimeter on joints and four numbers 4" holes are made circumference of the sleeve every one meter run for grouting around the sleeve.

The set of above mentioned operations is repeated till the pipe jacking is completed on the whole length of the NDRC.

During execution of the entire job, air blower, lights and PPE are provided into the sleeve for the safety of miners working inside.
Control of alignment and level is taken out every 2-3 meters as the work progresses.

MAINTAINING LINE AND LEVEL

In order to maintain the correct line and level, a graduated target plate is located within the shield. The site engineer notes the position of the visible spot on the target, this position is used as a reference value to locate the relative position of the shield at all times during the drive. At each push, the site engineer monitors the position reference value with the help of level instrument and theodalite, thus giving a shield position (high or low, right or left) relative to the design position. Based on this information, the operator manipulates the amount of steering required to correct any positional error to maintain a correct course.
Extending or retracting a combination of steering rams causing the front of the shield to articulate in the required direction carries out the steering. As the pipe follows the shield, the correct line and level will be maintained. At all times, the amount of steering applied is kept to a minimum.

Fixing Carriers Pipes

After completion of the pipe jacking we check the line and level for the steel pipe and we take the exact line and level for the carrier pipe with the help of survey instruments.
A 3” Steel angel bar fixed by wielding in the correct bottom level of the carrier, then 3mm thick flat bar moon clamps will fixed through welding in the correct line, after that we put neoprene rubber 3mm thick in the clamp to avoid the scratched of the carrier pipes.
Then we start laying the carrier pipe one by one and fix the clamps through nuts and bolts. After fixing the nuts and bolts we make angle support in between the top of the clamp and top of the pipe. Then we fix the other pipe in the same manner. The same procedure will continues unto the required length.

Grouting

Upon completion of pipe jacking we make 4 number holes of diameter 4” like ventilation in every meter, it helps the concrete fill the gap between the steel pipe and ground. Then we fix six inch grouting pipe vertically one meter height in the top of the pipe both end jacking and receiving. One side will keep ventilation and the other side for connecting the concrete pump.

After that we lay the carrier pipe in the correct line and level then check with the consultant then we close the both end between steel and carrier pipe by m/s plate wielding or masonry the gap between steel sleeve and ground in the both end we close by cement.
During grouting the grout will push through the downstream end. Pumping process will continue till the grout reaches the upstream end ventilation pipe. When the grout will overflow from the ventilation pipe grouting process is completed.

Before Starting any works connected with thrust bore, the following will be fixed on site:

- Horizontal axis of thrust bore extended over jacking pit and finishing pit.
- Minimum two level bench marks.

All points (Horizontal and Vertical) will be fixed in solid way (for example, steel bars placed in ground with noted cross for horizontal axis and sharped round steel bars placed in ground for vertical axis). Accuracy for horizontal points no more than +/- 2.0mm and for vertical axis no more than +/- 2.0mm and for (levelling). After finishing jacking pit excavation and before installation, thrust engine will be fixed new one point inside jacking pit.

It is expected that accuracy for horizontal points inside jacking pit will be no more than +/-2.0mm. It is expected that accuracy for horizontal points inside jacking pit will be no more than +/-2.0mm. Assuming above accuracy it is easy to compute.

In vertical axis (for levelling), setting out accuracy depends on accuracy of level (instrumental). Will be used Zeiss Ni 025 level with autolevelling prism. Saying simply, if level is 100m from levelling rod, an error of reading from rod cannot be more than +1.0mm.

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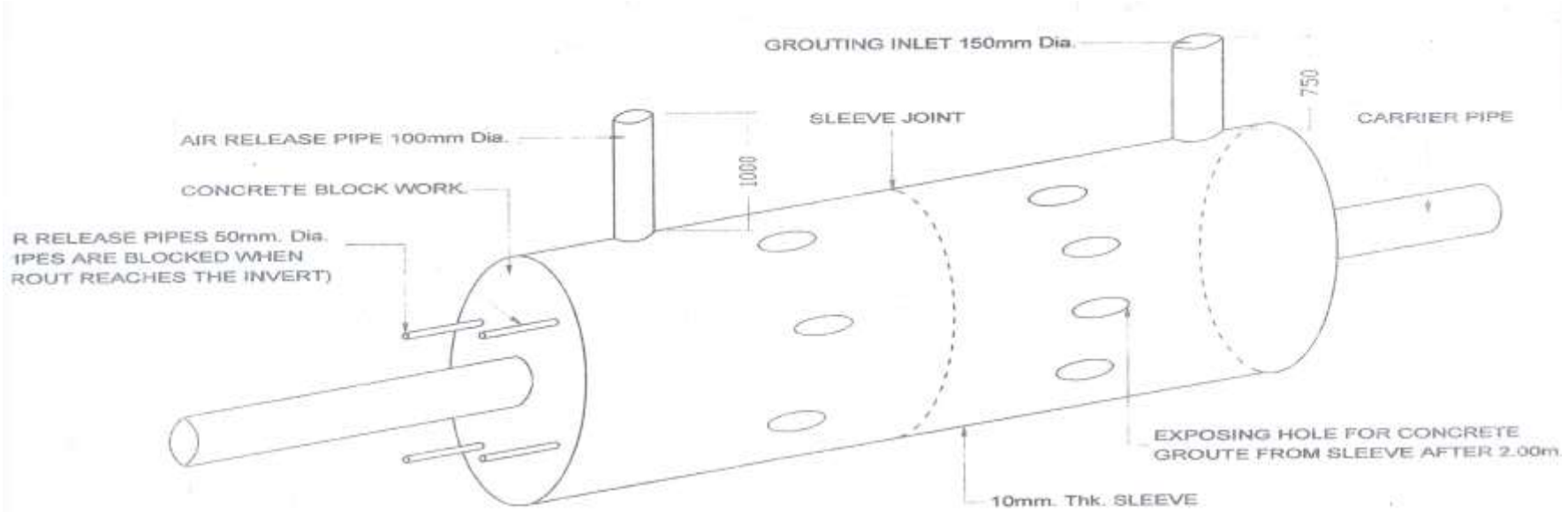

NOTE

LL DIMENSIONS ARE IN MILLI METERS.

NDRC GROUTING DETAILS

(N.T.S)

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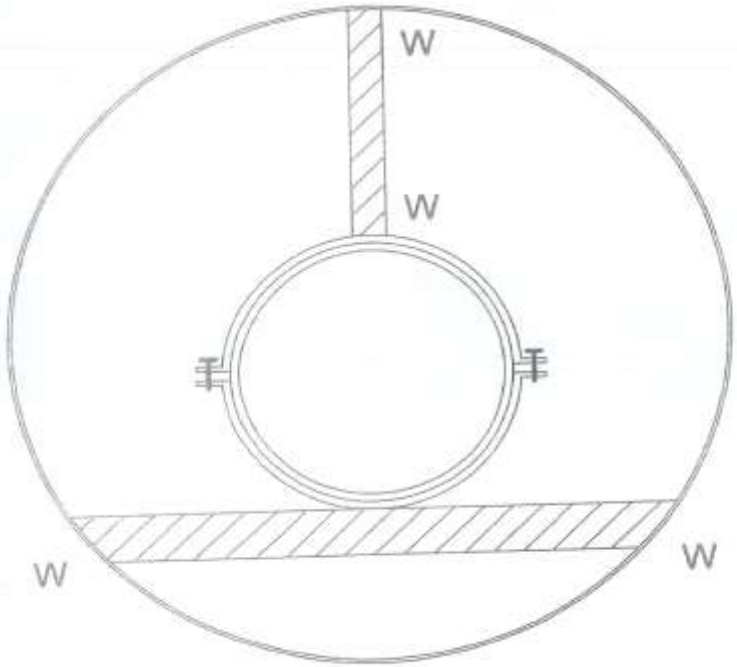
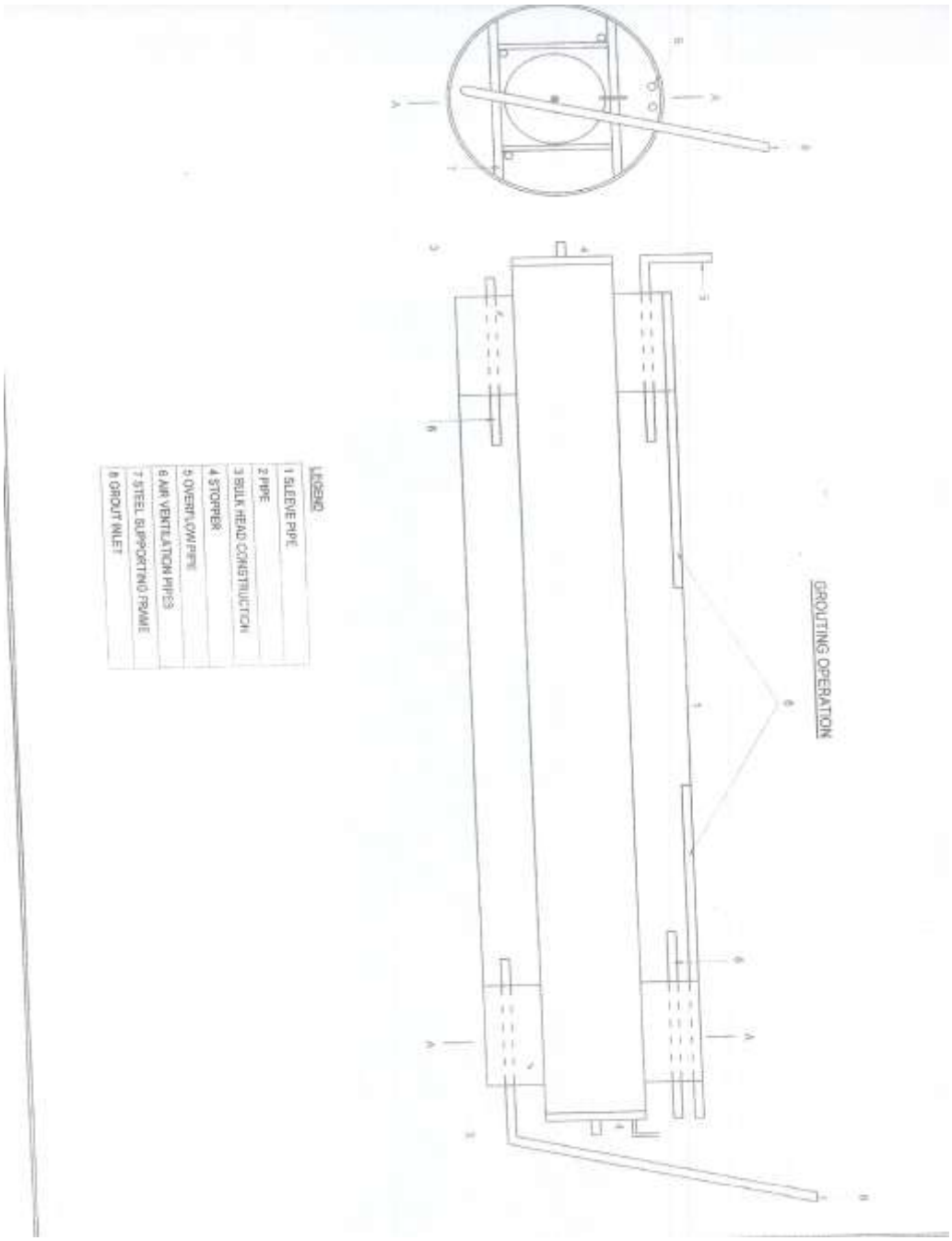
METHOD OF ASSEMBLING PIPE Ø300mm INSIDE THE SLEEVE PIPE 30" AN EXAMPLE



STIFFNER ANGLE 50 X 50
STEEL SLEEVE PIPE O.D. 30"
PIPE Ø 300 mm
RUBBER WASHER 2mm
M 8 BOLT
CLAMPING RING (FLAT BAR 50mmX4
BRACKET CHANNEL 75mm X 40mm
W---- WELDS


LEGEND
1 SLEEVE PIPE
2 PIPE
3 SILIK HEAD CONSTRUCTION
4 STOPPER
5 OVERFLOW PIPE
6 AIR VENTILATION PIPES
7 STEEL SUPPORTING FRAME
8 GROUT INLET
GROUTING OPERATION

RISK ANALYSIS REGISTER

HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation P	S	Risk Level H/M/L	Control Measures	Residual Risk	Remarks
1	Welding Operation									
1.1	Storing of Welding Materials	Fire and Explosion	Materials exposed to naked flame	Property damage.	1	3	L	Store the items separately with small amounts for the site at a safe distance from accommodation. Smoking or any other source of naked flame is not allowed in the storage area Provide suitable Fire extinguishers near the area.	1	
				Severe Burns to the near by persons	1	3	L	First aid trainer and kits should be available at site Emergency Vehicle should be available at site	1	

P – Probability
S – Severity

Risk Level = Probability x Severity 1-3 = L 4-6=M 7-9=H

HAZARD IDENTIFI ATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS | PROJECT : VARIOUS | CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
1.2	Welding Operation	Fumes and dust	While doing the welding	Health Hazards	2	3	M	Employees should made aware of the consequence s of the inhalation of smoke and fumes through toolbox meeting. Follow the manufacturer safety instructions. Follow the safety instructions Avoid moisture and contaminants in the mould and materials being welded. Use proper PPE like Goggles and gloves and mask.	1	
		Fire and Explosion	Due to improper material handling	Severe Burns to the near by persons	1	3	L	First aid trainer and kits should be available at site	1	

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S – Severity

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
	Chemical Handling	Fires	Improper Handling	Burns to the nearby persons	1	3	L	Emergency Vehicle should be available at site First aid trainer and kits should be available at site Emergency Vehicle should be available at site Follow and practise Emergency preparedness procedure Follow MSDS Instructions and safety instructions while doing the work.		
2	**Working on Mechanical Steel Bar Cutting Machine**									
	Lifting of Steel bars and positioning in the machine	Ergonomics Hazards	Not properly Handled the material	Backache and awkward movement	1	2	L	Follow the manual handling procedure. Minimum two persons required to lift the steel bars. when manual handling is not practicable lifting equipment to be used.	1	

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS | PROJECT : VARIOUS | CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
	Cutting and bending operation	Electrical Hazards	Open electrical wires, improper grounding	Electrical shocks and burns	2	3	M	Do regular maintenance on the machines and do the regular safety inspection. Follow the work instruction before starting the machines. All the machines should be connected to the mechanical tripping devices like RCB/ ELCB. And regular checks are required. First aid box and trainer is required at site Emergency Vehicle should be kept ready. Maintenance to be carried out by a competent person.		

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS | PROJECT : VARIOUS | CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
		Mechanical Hazards like cutting and crushing	Exposed to sharp edges	Small cut or loosing of fingers/ hand	2	3	M	Do the regular maintenance and inspection of all machines to avoid unsafe working condition. Provide proper PPE like gloves goggles. Periodic inspection is required. Make aware of employees about the hazards involved in this work through proper toolbox meeting.	1	
		Trips and falls	Any projected materials and poor housekeeping	Minor injury	1	2	L	Proper house keeping should be practised.	1	

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
		Fire hazards	Electrical spark fro loose connection and spark from the mechanical machines	Minor injury and property damage	1	2	L	Keep one fire extinguisher near the area. Perform visual inspection prior to commencing work.	1	
3.	**Excavation Process**									
	Prior to commencing the work	Buried materials /Services hazards	Live electrical wires contact	Electrical shocks	1	3	L	Seek work permit from Consultant before starting the work. Make sure that there are no utility services lines existing by using cable tracers and drawings. Mark the area and provide barriers and correct sign boards	1	
			Breaking of Drainage					Seek work permit from Consultant before	1	

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
			pipe and other utilities pipes					starting the work. Make sure that there are no utility services lines exits by using cable tracers and drawings. Mark the area and provide barriers and correct sign boards		
	Whilst work is in process	Collapsing of sand	Loose soil, improper shoring,	Minor/ major injury	3	3	H	Fix the shoring properly with adequate support. Shoring and sheeting as needed for soil and depth Materials not too close to edge of excavation Continues supervision is required. Check the dewatering system is working. Install the timbering as soon as the excavation sides are trimmed. Check for any water or soil which may seeping through support work Check for signs of the earth peeling or cracking at supported faces. Ensures that soil heaps and materials are kept	1	

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS | PROJECT : VARIOUS | CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
								back from the edges of the excavation Ensure that back filling is carried out correctly and in a planned sequences and maintained.		
		Trips and falls	Due to poor barricade	Minor / Major injury	3	3	H	Ensure that there are adequate barriers, notices and warning lights Ensure that all passing traffic is kept well back from the edges of excavation. Ensure that persons are not working too close to machines or each other. Ensure that persons are wearing suitable PPE Ensure that no materials will be kept on the edges of excavation.	1	
		Falling of materials from height	Due to poor house keeping and keeping the materials at the edges of excavation	Minor/ Major injury	3	3	H	Ensure that persons are not working too close to machines or each other. Ensures that there are adequate barriers, notices and warning lights. Ensure that persons are wearing suitable PPE	1	

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Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
								Ensure that no materials will be kept on the edges of excavation.		
4	**Working at Heat Stress.**									
	Working at heat stress	De hydride Heat stroke Heat Exhaust Heat cramps	Exposure to hot and climate.	Minor/ major injury due to secondary reaction like falls from height or trips and falls Fatal due to heat stoke	3	3	H	Conduct the toolbox meeting and ensure that all employees knows about the symptoms of heat stress. Ensure that labour were drinking adequate water and with adequate brake or rest to reduce the heat exposure time. Monitor the temperature (Weather temperature) and take appropriate action Wear Appropriate clothing. Loose fitting lightweight. Wear hat and sun glasses Make sure the availability of drinking water. Make sure to provide frequent rest periods in shades during extreme hot conditions.	1	

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER.

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
								Emergency vehicle should be available to transport the victim immediately.		
	Jack Hammer Operation									
	Breaking piles using jack hammer	Projectile materials	Concrete debris hit the face	Eye /Face injury	2	3	M	Follow proper method to do the work Wear proper PPE like Goggles, helmet, gloves etc..	1	
		Health Hazards	Continues using of jack hammer	Work related Upper limb disorders (WRULD)	2	3	M	Job rotation to the employees. Avoid any awkward movements and follow the Manual handling instructions Set Correct air pressure	1	
				White Fingers	2	3	M	Job rotation to the employees. Avoid any awkward movements and follow the Manual handling instructions	1	

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Risk Level = Probability x Severity 1-3 = L 4-6=M 7-9=H

HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
								Set Correct air pressure Use proper PPE like Gloves		
		Sound	In normal operation sound will be there due to vibration of the jack hammer	Ear pain, Threshold shift, Temporary Deafness	2	3	M	Set Correct air pressure Use Proper PPE like ear plug. Limit exposure in accordance with HSE Control of Noise at Work Regulation 2005 & 1989.	1	
		Dust	Due to normal operation and poor house keeping	Respiratory disorders	2	3	M	Maintain Good house keeping Use proper PPE Like dust mask.	1	No further controls are required
	Gas Welding work	Back Fire, Flash Black	Major fire and explosion	Property damage	2	3	M	Use flash back arrestor and regulators Keep the cylinders up right and chained. Use the cylinder trolley	1	No further controls are required

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS | PROJECT : VARIOUS | CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation P	Risk Evaluation S	Risk Level H/M/L	Control Measures	Residual Risk	Remarks
		High Temperature Flying metals sparks	Due to hot materials	Burns Injuries to eye	2	3	M	Use Hand gloves and personal protective clothing Use Safety glasses, face shield must also be used while using portable tools.	1	No further controls are required
		Gas Leakage	Leak from hose, connections, and valves	Fire and property damage	2	3	M	Periodic checks to the hose and connections. Periodic maintenance to the valves. Keeping fire extinguishers while doing the welding. Avoid smoking and naked flame	1	No further controls are required
		Generation of Toxic Gases & Fumes	Smoke from the process	Respiratory disorders.	2	3	M	Use proper PPE like Mask	1	No further controls are required
				Concreting Work						
	Preparation of concreting pump	Road Hazards	Collision of vehicles	Major Injury	2	3	M	Provide road signal and person to control the traffic. Barricade the pump area. Provide proper signal man	1	No Further controls required
		Working at heat stress	Refer heat stress assessment							
	While concreting	Spillage and sprinkle of concrete to the person	Improper connection between pump and flexible hose	Minor injury	2	2	M	Ensure the connection of flexible hose Provide signal man to the operator	1	No further controls are required

Risk Level = Probability x Severity 1-3 = L 4-6=M 7-9=H

P – Probability
S – Severity

HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
		Trips and falls	Collection of concrete waste	Injury	2	2	M	Remove the debris immediately from the site		No further controls are required
	Heavy Lifting/ use of cranes									
	Operation of crane	Over turning of crane	Due to over loading Crane being defective Operated by in competent person Improper out trigger movement Fast movement Reversing Operating in a uneven surface Over speed Not following proper lifting techniques	Major injury and property damages	2	3	M	Follow safe crane operation and get 3rd party certification. Operator and signalman should be a competent person. Proper supervision is required. Out triggers should be fully extended and placed in even surfaces. Weekly maintenance has to done Check the alarm condition break and tyre condition daily Follow the correct lifting techniques procedures.	1	No further controls are required
		Fall of	Hook failure	Major/	2	3	M	Regular maintenance and	1	No further controls

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Risk Level = Probability x Severity 1-3 = L 4-6=M 7-9=H

HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGIS[illegible]

CONSULTANT: VARIOUS | PROJECT : VARIOUS | CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
		materials	Usage of damaged slings/ rope/ chain Loads were not secured properly Not following the proper lifting techniques. Over Loading	Minor Injury.				checking of hooks, ropes, chains, and slings Get third party certification for slings Proper supervision required to check the load has been secured.		are required
	Working at Confined space or tanks									
	Working in the cable trench , manhole area, tanks	Short of oxygen atmosphere	Due to atmospheric condition like smoke etc..	Asphyxias Fatal or reaching coma stage	2	3	M	Follow the Work permit system. Ensure the atmospheric condition before starting the work Follow confined space safety instruction Keep the rescue equipments ready at site Use Proper PPE	1	No further controls are required
		Noise	Due to echo	Minor ear problems	2	1	L	Use proper PPE	1	No further controls required
		Trips and falls	Due to poor housekeepin	Minor/ major	2	3	M	Do regular safety inspection to ensure the	1	No further controls required

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Risk Level = Probability x Severity 1-3 = L 4-6=M 7-9=H

HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
			g and lighting	injuries				good house keeping.		
		Ergonomics hazards	Due to shortage of area for free movements.	Back problems	2	1	L	Conduct the tool box meeting and ensure that the message is well understood.	1	No further controls required
		Fire hazards	Due to presence of volatile atmosphere	Minor/ major injuries	2	3	M	Follow the Work permit system. Ensure the atmospheric condition before starting the work Follow confined space safety instruction Keep the fire fighting equipments ready at site. Provide proper ventilation Use Proper PPE	1	No further controls required
		Engulfment	Due to water or fluid present in the space Pipe line connection to the tank	Drowning/ Minor/ major injuries	1	2	L	Follow the work permit system	1	No further controls required
		Fall of material from	Due to poor house keeping	Minor/ major injuries	2	3	M	Do regular safety inspection to ensure the good house keeping.	1	No further controls required

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CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

Month and Year:

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
		heights								
	Working on air compressor machine									
	Using air compress for cleaning and jack hammer purpose	Sound Fire hazards from oil Trips and falls from oil leakage Electrical hazards	Improper usage of machineries	Minor / major injuries	2	3	M	Periodic Maintenance of air compressor	1	No further controls required
	Working on diesel operated machine like diesel engine , concrete mixer									
	Working and maintenance of machine	Fire Hazards,	Improper usage of machineries	Major/ Minor Injuries	2	3	M	Periodic Maintenance of machineries. Do not add fuel while the machine is running Use funnel / hand pump for fuelling Provide fire fighting equipments near the machine No smoking/ no hot work in the vicinity.	1	No further controls required
		Sounds	Poor maintenance	Minor ear problems	2	1	L	Proper maintenance of machineries Use proper PPE	1	No further controls required
		Diesel	Work	Land	2	1	L	Use proper tray for	1	No further controls

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HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL REGISTER

CONSULTANT: VARIOUS PROJECT : VARIOUS CLIENT:

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SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
		spillage	negligence	Contamination				collection of contaminated waste oil		required
	Use storage of dangerous chemicals	Fire and Explosion	Materials exposed to naked flame	Property damage.	1	3	L	Store the items separately with small amounts (Which is required) for the site. Identify the items and label it Follow MSDS for storing the materials. Smoking or any other source of naked flame is not allowed in the storage area Provide adequate fire fighting equipments near the area. Follow the emergency preparedness procedure	1	No further controls are required.
				Severe Burns to the near by persons	1	3	L	First aid trainer and kits should be available at site Emergency Vehicle should be available at site	1	No further controls are required.
				Fatality due to high explosion	1	3	L	First aid trainer and kits should be available at site Emergency Vehicle	1	No further controls are required.

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					P	S				
				and smoke				should be available at site Follow and practise Emergency preparedness procedure		

SN	Activity	Hazards	Condition for hazard realization	Consequences	Risk Evaluation		Risk Level H/M/L	Control Measures	Residual Risk	Remarks
					P	S				
	Housekeeping									
	Multiple activities that propotes build-up of waste and debris	Fire	Poor House-keeping	Property damage	2	2	M	Housekeeping to be implemented strictly. Proper waste skips shall be provided. Fire extinguishers shall be provided.	1	No further controls are required.

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					P	S				
	Transport of Personnel									
		Road Exposure	Driving of Vehicle	Personal Injury	2	3	M	Speed limits to be observed. Training to all drivers. Vehicle condition to be checked weekly.	M	No further controls are required.
	Working with compressed Gas Cylinder									
	Gas cutting works	Back fire	Major fire and explosion	Personal injury or property damage	2	3	M	Use flash back arrestor. Keep the cylinders in upright position and secured them by chain. Use trolley when handling check for any leakage.		

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Risk Level = Probability x Severity 1-3 = L 4-6=M 7-9=H

EARTHWORKS								
SN	HAZARD(s)	RISK (s)	RISK EVALUATION		RISK LEVEL (H/M/L)	CONTROL MEASURES	RESIDUAL RISK	
			P	S			P	S
1	Moving vehicles	Injury to personnel due to vehicular accident Running into excavation Collisions	3	3	9	• Ensure all operators and drivers have a valid UAE driving license. • Separation of vehicular and workers/pedestrian routes. • Provide concrete barriers where vehicle are likely to run into excavation. • Ensure speed limit on site. • Ensure equipments must be third party inspected.	1	2

2	Excavation	Slips & trips Falling of personnel, Materials, & Equipments Cave-ins due to improper shoring or protection against soil collapse	4	4	16	• Competent person must conduct on-site inspection on the actual, physical analysis of the soil and design sufficient and suitable control measures. • Tool Box Talk must be conducted before each job starts. • Ensure dewatering system installed • Ensure appropriate PPE is provided and worn. • Avoid spoil materials stacked in edges (1.0 m. distance from edge.) • Barricaded all open areas with warning signs. • Permit to work system must be implemented and signed by the consultant representative. • Site supervisors and safety assistant must be present at all times. • Ensure proper shoring or excavation safety procedures are followed as per design by the competent person. • Provide the PPE and must be worn all the time.	2	2