NCC
Al Nubla General Contracting Co. LLC

OUR OFFICES:
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Table of Content

WELCOME TO AL NUBLA GENERAL CONTRACTING CO. LLC

We are pleased to have this opportunity to introduce you to NCC and its history in the United Arab Emirates.

The company was established in Abu Dhabi in 1995 with a focus in general contracting work. In 2008, we established a branch in Dubai 2008. NCC is an ISO certified company with ISO 9001, ISO 14001 & OHSAS 18001certificates.

In early 1997 we launched our tunneling division using the state of the art micro tunneling technology and pipe jacking method. Since that time we have successfully constructed and more than 80 KM of pipe lines of varying diameters by the non-disruptive method using the ISEKI TCC 600, ISEKI TCC 800, HERRENKNECHT AVN 600, AVN 800B, AVN 800A, AVN 1000, AVN 1200, AVN 1400, AVN 1600, AVN 1800 & AVN 2500 micro tunneling machines in diverse ground conditions, with and without ground water tables at different soil strata.

Pipe lines constructed by the non-disruptive method were primarily in the Emirate of Abu Dhabi for such clients as Abu Dhabi Municipality, Abu Dhabi Sewerage Services Company (ADSSC), the public works and ADWEA & TRANSCO (ADDC). We have also carried out tunneling works in Dubai for Dubai Municipality and M/s. DEWA, as well as in Sharjah and Ajman for the local municipalities. The construction of pipe lines utilizing the non-disruptive method has been carried out by using micro tunneling technologies in two ways: (a) by encasing the carrier pipe which in most cases GRP/GRE with a reinforced concrete and jack it directly to the correct line and level or (b) by jacking a steel or RC pipe as a sleeve, installing the carrier pipe in side it and grouting the annulus space by a non-shrink grout or a foam concrete.

We have constructed more than 900 lines with lengths varying from 35meters to 300 meters utilizing the non-disruptive method. As part of our continued growth and development, we have recently equipped the company to carry out long drives of up to 600 meters for pipe diameters of 1200mm & above, and an internal diameter of up to 3 meters.

The constructed pipelines were related to 77 projects in the U.A.E. for sewerage, Irrigation and water pipe lines.

We have successfully jacked more than 80 Km of pipe lines, ranging from 500mm to 2400mm in internal diameter, crossing under existing road (sub main & main roads), existing services, existing gas and fuel lines and under lakes.

We have further successfully jacked pipes with a cover ranging from 2 meter to 22 meters in varying soil conditions.

The company currently owns 17 tunneling machines valued at over 40 million dirhams. Our machines are sourced from leading manufacturers of tunneling machines to ensure we remain at the cutting edge of the tunneling business.

Two (2) of our machines are manufactured by ISEKI-Japan and thirteen (15) are manufactured by Herrenknecht – Germany. The machines are of varying diameters and can jack pipes from 500mm ID to 3000mm ID pipes.

While our commitment to the advances in technology put us at the forefront of the tunneling business, we acknowledge that this would not be possible without our staff. We take pride in our expert staff and highly trained and experienced operators and their commitment to the company and to our valued clients. We have and continue to invest in our staff by developing ongoing training programs because we firmly believe that the long term success and sustainability of a business is directly linked to its management and staff.

Message from the GM

On behalf of Al Nubla General Contracting Co., LLC, I would like to express our sincere gratitude to the UAE and to our valued clients who have supported us for nearly 3 decades.

Since the establishment of NCC in 1995 we have developed and accumulated considerable skills and experience. We started with small general contracting works and our commitment to the highest standards of quality, service and excellence over the years have helped us to develop into a highly specialized company which has become a leader in tunneling works, handling large projects with a high degree of mechanization and tight deadlines for completion.

We realize that in an ever changing and increasingly competitive business environment, consistency and high performance are required for survival and continuous growth.

Our success has been derived from our ability to respond to the needs of the UAE as it continues to grow as a world market player and our commitment and drive to continue to formulate new visions, redefine our mission and reinforce our core values.

We have focused on implementing processes and procedures that enable us to be more efficient and responsive as we continue to grow, and at the same time allowing us to provide our clients with the latest technology and best possible prices without comprising quality or service.

Nazih El Chouli
General Manager

I.S.O Certification

Certificate of Registration

Awarded to

AL NUBLA GENERAL CONTRACTING CO. LLC

at

P.O. BOX NO: 35152, FALAH STREET, ABU DHABI, UAE

Quality Registrar Systems certify that the management system of the above organization has been audited and found to be in compliance with the requirements of the management system standard details below:

ISO 14001:2004

Scope of work

CIVIL CONSTRUCTION, MICROTUNNELING AND PIPE JACKING WORKS FOR INFRASTRUCTURE

Certificate No: AQU-28092
Registration No: 4145359
Originally Registered: 20 FEB 2013
Latest Issue: 20 FEB 2013
Valid up-to: 19 FEB 2014

Scheme Manager
Quality Registrar Systems

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This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies (Europe) Limited who have assessed QRS as a Certifying Body for compliance with ISO 17021: 2011 "Conformity Assessment - Requirements for bodies providing audit and certification of management systems". This certificate is only valid when confirmed by the register listed in the international Register of Quality Assessed Organizations. www.iqaes.com

Certificate of Registration

Awarded to

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at

P.O. BOX NO: 35152, FALAH STREET, ABU DHABI, UAE

Quality Registrar Systems certify that the management system of the above organization has been audited and found to be in compliance with the requirements of the management system standard details below:

OHSAS 18001:2007

Scope of work

CIVIL CONSTRUCTION, MICROTUNNELING AND PIPE JACKING WORKS FOR INFRASTRUCTURE

Certificate No: AQU-30213
Registration No: 4145360
Originally Registered: 20 FEB 2013
Latest Issue: 20 FEB 2013
Valid up-to: 19 FEB 2014

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Certificate of Registration

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Quality Registrar Systems certify that the management system of the above organization has been audited and found to be in compliance with the requirements of the management system standard details below:

ISO 9001:2008

Scope of work

CIVIL CONSTRUCTION, MICROTUNNELING AND PIPE JACKING WORKS FOR INFRASTRUCTURE

Certificate No: AQU-30263
Registration No: 4145358
Originally Registered: 20 FEB 2013
Latest Issue: 20 FEB 2013
Valid up-to: 19 FEB 2014

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Equipments

Sr. No.	Description	Qty	Machine Diameter (Mm)	Remarks
1	Unclemole Iseki Tcc 600 Micro Tunneling Machine	1	760mm	Owned
2	Iseki Micro Tunneling Machine Tcc 800	1	975mm	Owned
3	Herrenknecht Micro Tunneling Machine Avn 600	1	760mm	Owned
4	Herrenknecht Micro Tunneling Machine Avn 800b	3	975mm	Owned
5	Herrenknecht Micro Tunneling Machine Avn 800a	1	1100mm	Owned
6	Herrenknecht Micro Tunneling Machine Avn 1000	4	1295mm	Owned
7	Herrenknecht Micro Tunneling Machine Avn 1200	2	1495mm	Owned
8	Herrenknecht Micro Tunneling Machine Avn 1400 With An Extension Kit	1	1740mm	Owned
9	Herrenknecht Micro Tunneling Machine Avn 1600	1	1960mm	Owned
10	Herrenknecht Micro Tunneling Machine Avn 1800	1	2200mm	Owned
11	Herrenknecht Micro Tunneling Machine Avn 2500 (For 2400mm Upto 2600mm Id Pipe/ 3000 Mm Od)	1	3000mm	Owned
12	Seperation Plant From Schauenburg 1 Of 500 M^3/Hr. , 2 Of 300 M^3/Hr. , 2 Of 220 M^3/Hr. , 1 Of 150 M^3/Hr.	6	-	OWNED
13	Seperation Plant Locally Manufactured Of 150 M^3/Hr.	6	-	Owned
14	Cranes	3	-	Owned
15	Compressor	3	-	Owned
16	Welding Machines	8	-	Owned
17	3 Ton Pick - Up	1	-	-
18	1.5 Ton Double Cabin Pick-Up	5	-	Owned
19	14 Seated Bus	3	-	Owned
20	1000 Kva Generator	2	-	Owned
21	500 Kva Generator	2	-	Owned
22	350 Kva Generator	6	-	Owned
23	320 Kva Generator	2	-	Owned
24	100 Kva Generator	1	-	Owned
25	60 Kva Generator	2	-	Owned
26	Equipment For Pipe Jacking Works	3	Sets	Owned
27	Safety Equipment Including Calibrated Gas Monitor	6	Sets	Owned

TUNNELING MACHINE

We are proposing to use the remotely controlled laser guided tunneling machine developed & supplied by M/s. Herrenknecht - Germany & ISEKI - Japan.
The Herrenknecht & ISEKI Micro tunneling Machines have proved over the world the successful for construction of non-disruptive pipe lines in different ground conditions.

AVN MACHINE SET UP

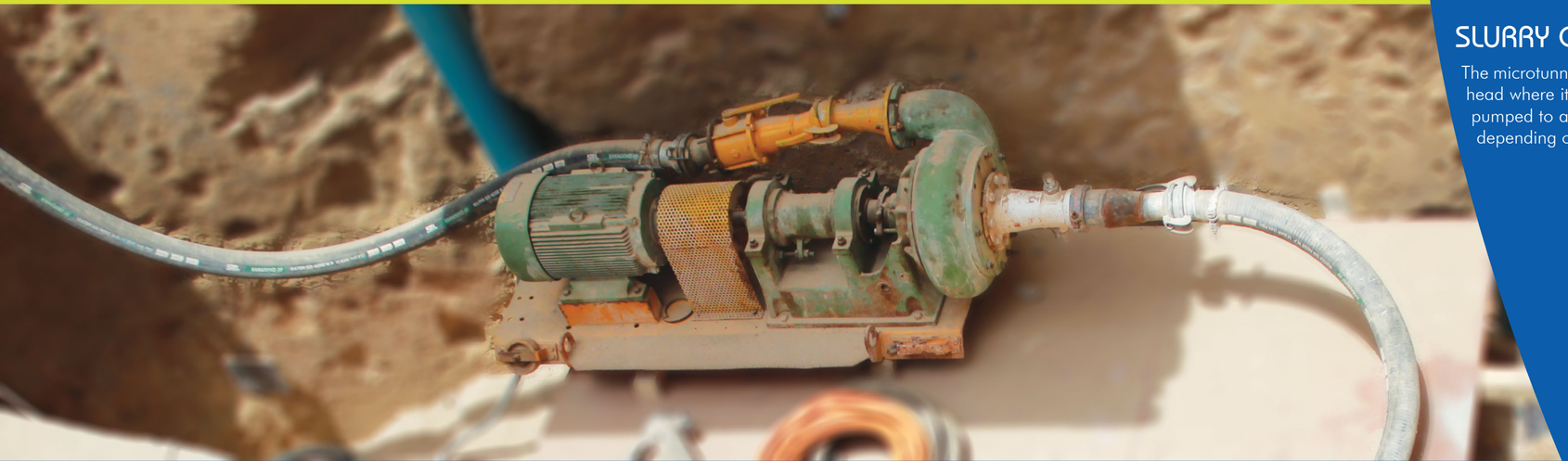
The Herrenknecht Machine shield has a cutting disc that is driven by hydraulic motor with power back located at the surface. Behind the cutting disc is a slurry chamber where the excavated material is mixed with water, in the form of slurry, from the face of the tunnel is removed by a pumped circulation system into the settling tanks on the surface.

COMMON EQUIPMENT FOR THE MICRO TUNNELING MACHINES

A brief description of the common equipment is given below.
Jacking frame: Depending upon machine size, the suitable jacking frame will be utilized. Available jacking frames with us from 250 Ton capacity to 1200 Ton capacity.

CONTROL CABIN

All the proposed tunnelling machines are remote controlled and require a control cabin to operate them. This control cabin contains the computer controlled operation system in addition to hydraulic power pack that provides power to the machine and the jacking frame. The control cabin is common to all the machines.



SLURRY CIRCUIT PUMPS

The microtunnelling excavation process is facilitated by use of a slurry water circuit. Clean water is pumped to the cutter head where it is mixed with the material that has been broken up by the cutter head to form a 'slurry'. The 'slurry' is pumped to a separation unit to remove the solids. This circuit requires 1 feed pump and 1 or 2 slurry return pumps, depending on the pipe diameter and drive length.

PIT OR SHAFT SEAL

The microtunnelling excavation process utilises a water ‘slurry circuit’ to remove excavated material. For lubrication bentonite is injected around the pipe into the ‘annulus’. It is necessary to retain the bentonite and slurry circuit within the annulus and therefore a seal is fixed within the drive pit or shaft for this purpose.

BENTONITE INJECTION SYSTEM

It is necessary to lubricate the pipeline using a bentonite injection system. This system consists of a mixing unit and injection pump. The bentonite injection is computer controlled from the control cabin and ensures an even coating of bentonite to the outside of the pipe thus keeping jacking loads to an absolute minimum.

SLURRY SEPARATION UNIT

A Schauenburg separation unit will be deployed to site to separate the solid material from the slurry water. The unit uses a series of sieve screens and hyrdocyclones and will remove solids from the slurry water down to a cut point of 63 microns particle size.

500 KVA GENERATOR

The tunnelling equipment and ancillary equipment all require electrical power to operate. This is supplied by a 500 Kva generator.

MOBILE CRANE

For the initial lowering of the machine and the subsequent lowering of the pipe sections a mobile crane will be provided. The capacity of this crane will be dependent on the site situation and where it is possible to position the crane

The exact site set up will be determined the available space at locations.

Operational Procedure

JACKING FRAME SET UP

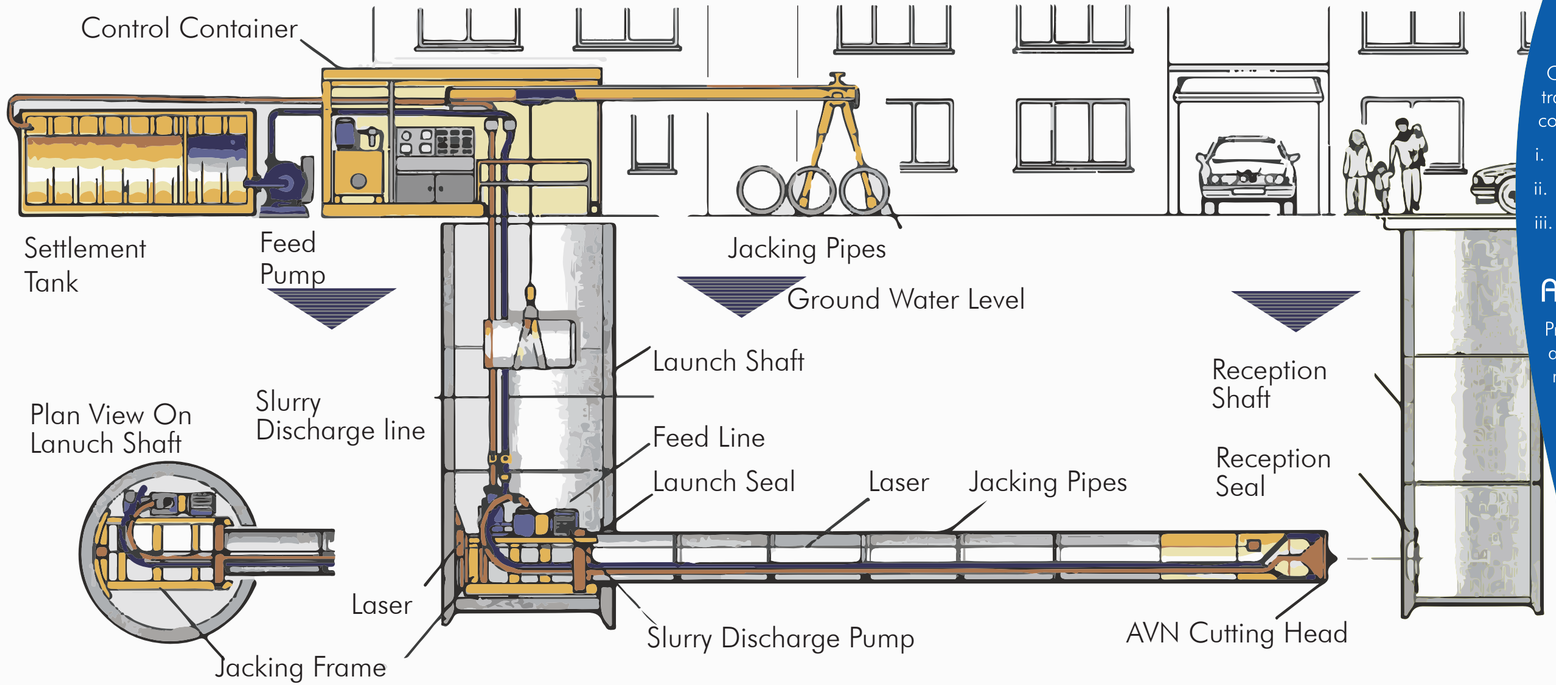
Once the drive pit or shaft has been excavated to formation level a concrete blinding will be poured as a working platform. The jacking frame will be positioned on this blinding and aligned accurately to both the horizontal and vertical design alignment of the pipe to be installed.

Once the set the area behind the thrust plate will be shuttered and the thrust block poured. The thrust block will consist of mass concrete; generally it is not necessary for the thrust block to be reinforced. The purposed of the thrust block is to evenly distribute the load between the smooth steel thrust plate (visible below at the rear of the jacking frame) and the uneven ground / piles. It is envisaged that this block will be approximately 1.0m thick, however the dimensions are critical and will not have an impact on the jacking process. The picture beside shows both the set up stage and the final state of a typical jacking frame set up.

DRIV-E PIT SEAL

As mentioned briefly in the equipment list a shaft seal will need to be fixed in the drive pit bottom. Each shaft seal is manufactured to specifically suit the diameter of pipe to be installed. The purpose of this seal is to retain the bentonite lubrication and any ground or slurry water that is present within the annulus, between pipe and ground.

The first step is to construct and concrete 'front wall' on which the seal will be fixed. The seal is simple rubber gasket held in place by a steel frame. The pictures beside show examples of a completed front wall and seal.



MICROTUNNELLING PROCESS

Once the set up of the jacking frame and surface equipment is complete the jacking operation can commence. The illustration below shows the basic procedure for microtunnelling. There are 3 main items that will differ for the set up on this contract:

i. Mobile crane will be utilised.

ii. The shafts here are shown as circular concrete rings whereas open or simply supported pits can be used.

iii. A full separation plant will be utilised whereas a simple settlement tank arrangement is shown beside.

ALIGNMENT CONTROL

Prior to launching the machine a laser is fixed in the pit bottom. This laser is aligned to the correct horizontal alignment and vertical grade in a position that ensures it shines onto the laser target within the machine. The laser target within the machine detects the laser beam through a series of light sensors and is able to determine the position of this beam. This information is relayed to the control cabin and a graphical display indicates the horizontal and vertical position of the machine to the operator.

The machine itself is articulated and the angle of this articulation is controlled by hydraulic cylinders. By opening and closing the cylinders the operator is able to control both the vertical and horizontal direction of the cutter head. It is this control that allows the operator to ensure the laser beam remains on the target throughout the length of the tunnel drive and therefore the machine and pipeline within design tolerances.

MACHINE LAUNCH AND EXCAVATION PROCEDURE

Each machine consists of 2 main parts, or ‘cans’, the machine can and the trailing can. The machine can is the front part of the machine and contains all the mechanical components such as the cutting wheel, main drive motor and gear box. The trailing can is empty and is there to prevent any rolling of the machine being transferred to the pipe, there are injection ports in the trailing can that allow bentonite lubrication to be injected very close to the machine if required.

Microtunneling

The machine is powered hydraulically. The source of this hydraulic power is a power pack situated in the can immediately installed after the machine. Initially the machine is lowered onto the jacking frame and the cutter head carefully pushed into the shaft seal using the jacking frames hydraulic jacks. Once in position all the services are connected, the service connections consist of

- Hydraulic connections to the machine.
- Slurry circuit pipe work connections.
- Electrical control cables.
- Power Cable to the Power Pack Can

Once all connections are made the machine is ready to advance. To begin with water is circulated through the machines bypass circuit. This circuit allows the water flow to stabilise before it is directed through the cutter head chamber to the open ground. The ground conditions are assumed to be sand, and therefore slurry being directed at the ground without the machine going forward could potentially cause over excavation and subsequent settlement, this is the reason for stabilising the flow through the bypass circuit prior to advancing the machine. Once the flow is stabilised pressure will be applied by the jacking frame to the machine, this pressure will cause the cutter head to contact the ground and commence excavation. The operator is able to see that excavation has commenced once he observes an increase in torque on the cutter head from his control screen. Once the torque has reached the correct level, depending on machine diameter, the operator will then direct the slurry flow through the cutter head chamber to remove the excavated material.

The operator will continue to apply pressure with the jacking frame and monitor the slurry flow and cutter head torque as the machine moves forward. He will also monitor the position of the laser beam on the target and make adjustments to the direction of the cutter head as necessary.

Once the machine is fully advanced into the ground, approx. 3.0m, the excavation process will stop. When the excavation process stops remote controlled valves are closed to ensure the cutter head chamber and the ground is stabilised. All services are then disconnected and the trailing can lowered and connected to the back of the machine can. All services are then reconnected and the excavation process continued. Once again after the trailing can is fully advanced into the ground the excavation process will stop, services disconnected and the first pipe lowered and fixed to the back of the trailing can. Once again the services are reconnected and the excavation process resumes. This procedure will be repeated until the machine has been pushed as far as the reception shaft where it will be removed.

USE OF BENTONITE IN THE PIPE ANNULUS

The microtunnelling machine excavates a larger diameter hole that the pipe that is being installed. During the microtunnelling operation it is necessary to fill this gap, known as the annulus, with a bentonite slurry. The bentonite pressure within the annulus is maintained by a computer controlled system operated from the control container, and this pressure needs to be sufficient to displace the ground water if present. The bentonite offers support to prevent ground collapsing into the annulus and causing settlement, it also provides lubrication to ensure jacking forces are kept to minimum.

The points of injection of bentonite slurry will differ depending on the diameter of the pipe. In the case of the 600 and 800 dia. pipes it is only possible to inject at the trailing can and the pit seal as it is not practicably possible to enter the pipe. However in the case of diameter above 800 dia. pipe injection ports will be cast into the concrete sleeve allowing injection along the pipeline during microtunnelling.

NOTE

Microtunnelling is a repetitive process that is carried out like for like on numerous different projects. Whilst the pipe diameters will change from project to project the process remains the same.

INTERMEDIATE JACKING STATIONS (IJS)

If due to the length of the line the jacking loads will exceed the capacity of the main jacking frame or capacity of the pipe it may be necessary to introduce into the pipe string an IJS, these allow the pipes to be pushed section by section. Thus reducing the jacking load on the main jacking station. Once the line is finished the IJS cylinder will be removed and the IJS closed.

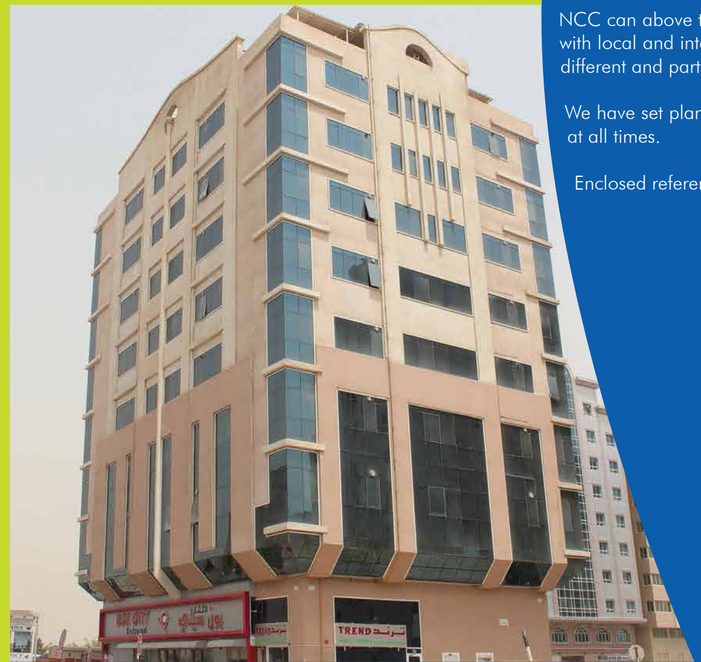
GROUTING (EXTERNAL)

On completion of the microtunnelling operation it is necessary to attempt to displace as much of the bentonite slurry in the annulus with cement grout. Prior to all microtunnelling operations under roads settlement calculation will be prepared, these calculations will estimate the amount of long terms settlement that will occur based on the amount of bentonite that is displaced by grouting. Grout will be either site mixed or delivered

In the case of the small diameter pipes, 600 and 800, it is only possible to inject the cement grout from either end of the pipe into the annulus. The volume injected into the annulus will be measured and compared to the volume of assumed displacement given in the settlement calculation, this will indicate the long term settlement expectations. In the case of the 1000 Dia. and above it will be possible to grout from within the pipe and therefore the amount of bentonite displacement that is achievable on this diameter.

NOTE

The settlement calculations do not assume that the annulus will be completely filled with cement grout. The calculations indicate that some minor settlements may occur as it is impossible to ensure the annulus is 100% full, however the potential settlement should remain within the allowance for long term settlement detailed in the specification.



Construction

Al Nubla General Contracting Co. LLC. NCC is capable with its current advanced classification and highly qualified team & resources to undertake projects involving, Civil Works; Concrete & Steel Structural complete with infrastructures, substructures and superstructures with all MEP services along with finishing works; internals & externals. These capabilities are very well enabled with an outstanding support of its steadily built qualified & experienced team of engineers, coupled with a professional project management system that is highly alert to Quality standards an cautious to Environmental aspects.

NCC can above the all mentioned extensive strengths & supports exceed limits of expectations by Strategically Partnering with local and international construction, engineering, engineering management and consultants specialists to cope with different and particular projects at any level of complexity.

We have set plans and determined to sustain growth and maximize performance to cater with our clients full satisfaction at all times.

Enclosed references and information are simple parts of the rich story of NCC, please enjoy going through...

AL NUBLA
GENERAL CONTRACTING CO. L.L.C.

NCC

شركة النبلاء
للمقاولات العامة ذ.م.م.

MGT/ 04 / 006

REV # 00

SAFETY POLICY

Ensure the education, interest and awareness training of new employees in safe working methods before the assumption of duty.

Ensure that the organization is a safe place, and the environment, facilities, equipment and substances are subject to safe systems of work to prevent risks to health or safety.

Promote personal responsibility and effort on the part of everyone to avoid and prevent health hazards and injuries to themselves and to others who may be affected by their acts or omissions and to co-operate with the organization to comply with its duties, requirements and statutory obligations

Ensure the use of defensive driving techniques by car drivers and machinery operators.

Ensure that safety is a line management responsibility.

Monitor effectiveness of safety policy.

Display and publicize this statement and review it at least bi-annually.

Nazih El Choufi

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AL NUBLA
GENERAL CONTRACTING CO. L.L.C.

NCC

شركة النبلاء
للمقاولات العامة ذ.م.م.

Environmental Policy

The management and staff at *Al Nubla General Contracting Co. LLC.* are committed to provide quality products and services to its customers through continual environment improvement and prevention of pollution in all areas of work within Environmental Management System.

The guiding principles to implement the Environmental Policy will be:

- **Compliance With Applicable Legal & Other Requirements**
  Identification, implementation and monitoring of all legal and other requirements related to Trading including HICGS.
- **Training and Awareness on Environmental Issues**
  Provide relevant training and awareness to employees as well as other quarters of society to improve environmental and industrial awareness at all levels of work.
- **Continual Improvement In EMS**
  Introduce and effectively implement a system of continual improvement in the company by establishing SMART environmental objectives and targets in all functions and areas of work at *Al Nubla General Contracting Co. LLC.* to ensure suitability and continuity of EMS.

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للمقاولات العامة ذ.م.م.

MGT/ 04 / 001

REV # 00

QUALITY POLICY

PERFECT TEAMWORK TO PROVIDE HIGH QUALITY

PRODUCTS TO OUR VALUABLE CUSTOMERS AS PER

THEIR REQUIREMENTS ON TIME, EVERY TIME

OBJECTIVES

- *Usage of best raw material and On Time Delivery*
- *Quality checking at every stage.*
- *To cover all safety health and environmental issues.*
- *Immediate action upon customer complaints.*
- *Adoption of up date know how for the enhancement of performance.*

Nazih El Choufi

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Organisation Chart