

# Environmental Monitoring Report

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Project No. 37378-014, 37378-013  
Quarterly Report  
April 2021

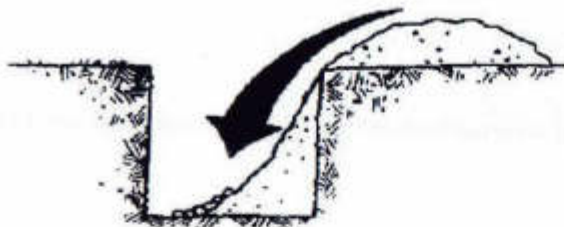
## Sri Lanka: Jaffna and Kilinochchi Water Supply Project – Additional Financing

Part 2 of 2 (pages 81-145)

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2. Spoil pile slide - poor excavating procedures where the excavated material is not placed far enough away from the edge of the excavation.



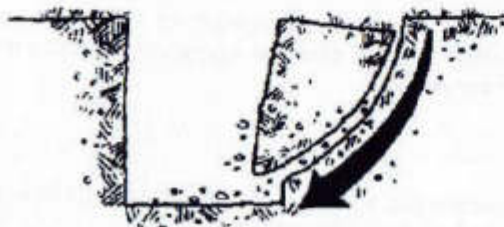
3. Side wall shear - common to clay-type soils, which are exposed to drying.



4. Slough-in (cave-in) - common to previously excavated material, sand and gravel mix.



5. Rotation - clay type soils when saturated with water.



## **11. FIRE AND EVACUATION**

### **Fire**

Hazards and accidents related to fire is quite common and we will be thoroughly prepared to overcome such situations.

### **Fire Triangle**



### **Fire prevention**

As with any risk prevention is the key to any strategy for control. The following represents key actions that our Site Manager will take to ensure that the fire risk is minimal:

- We will ensure that all flammable substances are stored in an area set apart from the main work area and with good natural ventilation.
- Flammable gases in particular will be stored where there is good natural ventilation.
- Hoses and valves on gas cylinders will be checked regularly to ensure that they are in good condition.
- We will keep the work area free from combustible material such as packaging and waste.
- If hot work is to be carried out, we will ensure that the area around is well protected and that a fire watchperson will observe the area for at least 1 hr after the work has ceased.
- We will control hot work through the issue of a hot work permit.
- All hot work on drums or other similar vessels will be prohibited.
- We will also declare work and storage areas as absolutely "No Smoking" areas and display signs prominently.
- We will not permit the use of other sources of ignition to be present and recommend the use of only suitably protected electrical equipment in areas where flammable material and vapours are present.

### **Fire Detection & warning**

We will provide a suitable means of fire detection and warning to all sites. This could be in the form of klaxon, whistle, and bell or by word of mouth if the site is small.

### Fire Fighting

Fires are classified according to type. There are 5 main types plus electrical fires.

Class A fires involving organics solids like paper, wood etc

Class B fires involving flammable liquids

Class C fires involving flammable gases

Class D fires involving metals.

Class F fires involving cooking oil and fat

In addition there are fires that involve electrical equipment

### Which Portable Fire Extinguishers to Use

We present the following chart indicates the type of portable fire extinguisher to use against different fires:

	Water	Foam	ABC Dry Powder	Dry Special Powder	CO2 Gas	Wet Chemical
Fires involving freely burning material such as wood, paper, textiles and other carbonaceous materials.	✓	✓	✓			✓
Fires involving flammable liquids. Such as petrol and spirits. BUT NOT alcophol or cooking oil.		✓	✓		✓	
Fires involving flammable gasses such as example propane and butane.			✓			
Fires involving flammable metals such as magnesium and lithium.				✓		
Fires involving electrical equipment should be treated as normal but They must be isolated first. Dry powder or CO2 will be used if this is not possible..			✓		✓	
Fires involving cooking oil, fat, olive oil, maize oil, lard and butter.						✓

- We will locate fire extinguishers as close as possible to the work areas and no more than at a 30m distance.
- They will be so located that the carrying handle is 1m from the floor for heavier units and 1.5m for the smaller ones.

### Fire Evacuation

Fire prevention and mitigation are important precautionary measures, but a fire evacuation will take place in the event that it cannot be dealt with easily.

- We will provide a suitable means of escape in case of fire must be provided which shall be kept free from obstructions at all times.
- Two escape routes will be made available in case of fire.
- Clear prominently placed sign boards will guide the escape route which will be and opened outwards to lead to a place of safety.

- The fire evacuation procedures will be in place and briefed to all persons at site during site induction.
- A fire evacuation drill will be carried out at least once a year, or once during the execution of the project.



## **12. PIPE HANDLING**

### **Stockpiling Pipe**

1. Only personnel directly involved in pipe handling operations should enter the stockpile site.
2. Support skids should be sufficiently level prior to placing the pipe to ensure integrity of the piles.
3. Pipe racks must be substantially constructed and placed level on a solid foundation.
4. Provision must be made to prevent pipe from accidentally rolling off the storage rack.
5. The pipe shall extend one meter (three feet) beyond cross timbers and employees shall work at the ends of pipe keeping hands clear.
6. Each tier of pipe shall be adequately blocked when stringers are used between tiers.
7. Rolling pipe into a stockpile will not be permitted.
8. Short lengths (3 meters shorter than maximum length) shall be stockpiled on top rung only.
9. Chocks or skid stakes shall be used at each skid line to prevent the possibility of the stockpile collapsing.
10. The area where pipe is to be stockpiled shall be kept clear of all debris and garbage removed to an approved dump site.

### **Unloading Pipe**

1. Extreme care shall be exercised in spotting the lifting equipment at pipe unloading sites so that there is adequate clearance of overhead obstructions.
2. All personnel shall keep in the clear when cutting steel bands or wire securing the pipe to the railroad car or trailer. Extreme care must be used around band choppers.
3. The guide lines shall be of sufficient length to enable employees hooking pipe to stand clear while guiding the pipe.
4. All slings, hooks, cables and guide lines shall be inspected daily by the operator and shall be repaired or replaced when found defective. All pipe hooks must be certified.

### **Stringing Pipe**

1. No pipe stringing shall take place within 500m of blasting operations.
2. When hauling pipe by truck, sled or tractor boom, the load shall be adequately and properly secured with a belt every 3m.
3. Signs and flags shall be placed on each side of the point on a highway where trucks are entering and leaving the right-of-way.
4. Loads of skids being hauled to the line shall be secured.

### **Lifting Operations**

We envisage many lifting operations to be carried out. We will plan them meticulously so that no damages are caused in the process, especially to the D.I. pipes.

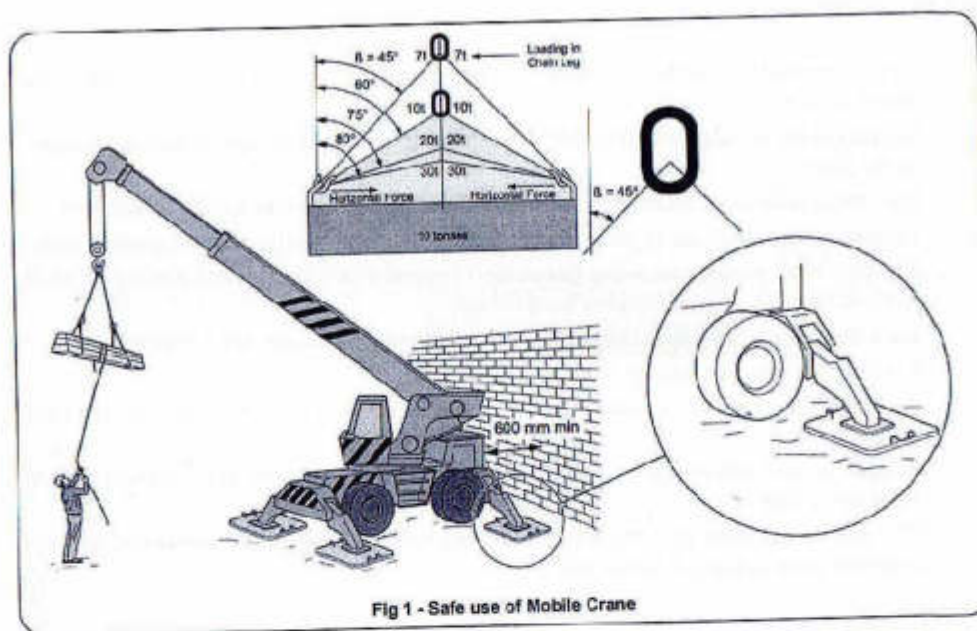


Fig 1 - Safe use of Mobile Crane

### Typical problems

Lifting operations are high risk if they are not planned and executed properly. In order to avoid typical causes of lifting failures we will:

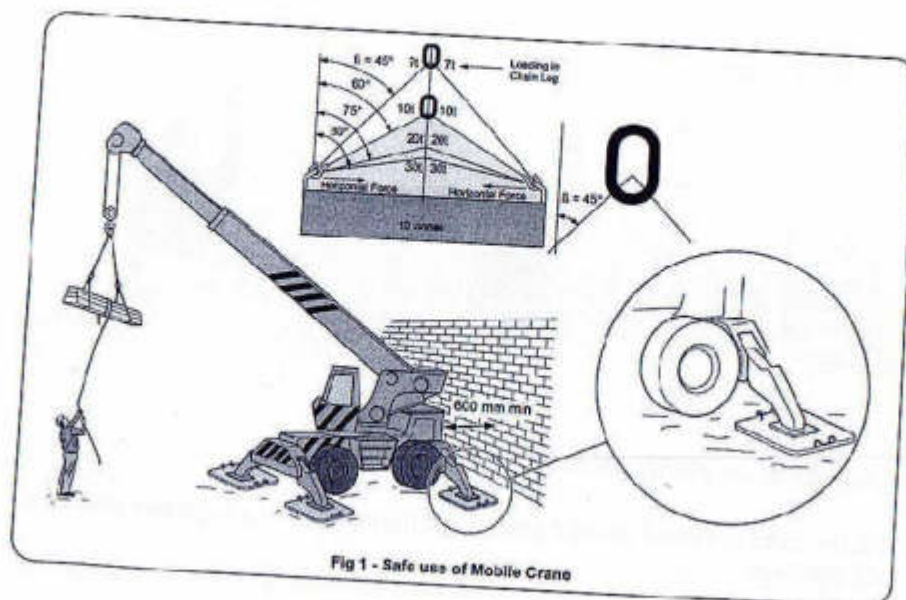
- Employ competent operators and workers.
- Maintain equipment well.
- Use appropriate equipment being used
- Prevent abuse of equipment
- Provide accurate information about the load characteristics
- Check the suitability of ground where mobile cranes are used.
- Approve operations only in good weather conditions.
- Prevent poor slinging of the load
- Avoid undue pressurization on operator and workers to get the job done on time.

### Planning the lift

We will plan the lift in the following manner:

- Confirm the size of the load to be lifted and identify its centre of gravity.
- Ensure that an appropriate size of crane is obtained with a sufficient safety margin.
- A competence record of crane supplier, the operator, slinger and signaler to be provided and confirmed.
- Ensure that a lifting risk assessment has been carried out and has taken into account the load, ground conditions and any adjacent structures, buildings.
- Check on ground conditions.
- If the ground is unsuitable for the load a special base maybe provided to position the crane and its' out riggers.





### Executing the lift

When executing the lift we will:

- Ensure that the mobile crane in operation has its documentation in respect of its last inspection/examination, at least within the last 12 months.
- Check lifting slings to be used and that they have also been inspected within the last 6 months and there is an inspection record.
- Check competence evidence of driver, slinger and signaller if provided.

### Signaling



Left



Right



Lower



Danger



Stop



Raise

Prior to lifting operations we will also ensure:

- That the crane is located on solid ground and the outriggers and spreader plates are fully deployed.
- That the crane is correctly positioned on level ground with correctly pressurized tyres.
- Crane shall be positioned at a minimum of 600mm distance from the trench or structure to prevent any person becoming trapped.
- No overhead power lines or other structures will interfere with the operation.
- That the crane shall have a fully operational automatic safe working load indicator, and over-wind protection.
- That all unauthorized persons are kept out of the area in which the work is being conducted.
- That the crane hook is positioned over the centre of gravity of the load. (See figure below)

### Slinging

#### Typical problems

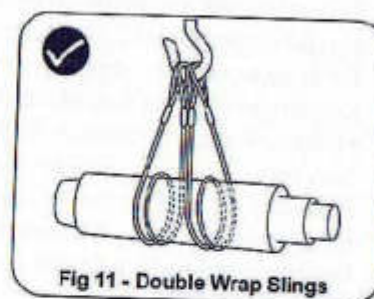
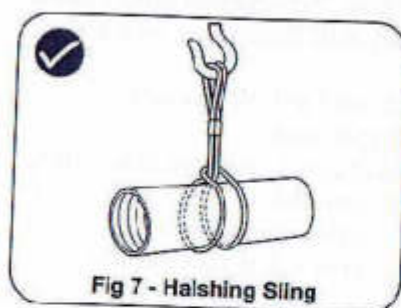
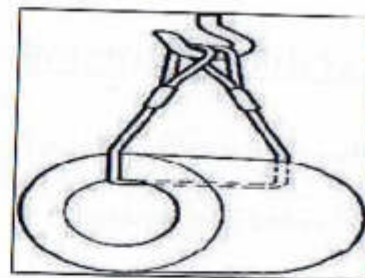
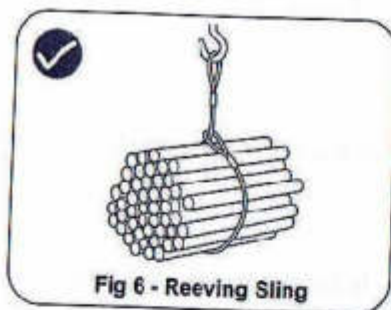
Whilst lifting failures can occur with the use of cranes and similar lifting machines many failures arise as a result of incorrect methods or use of slinging equipment. We ascertain the following to conduct a perfect, hazard free lifting procedure:

- That slinging operatives are trained and competent;  
Slings and other lifting tackle are well maintained and therefore suitable for the purpose.

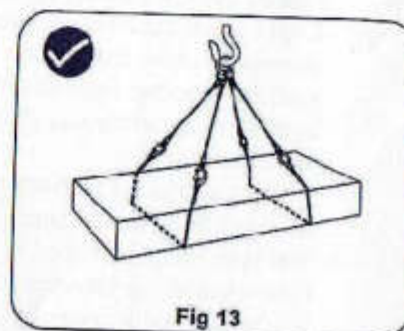
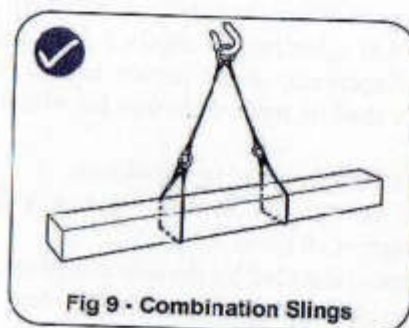
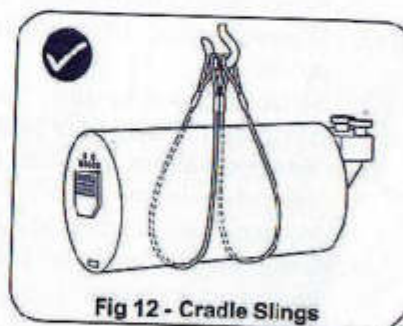
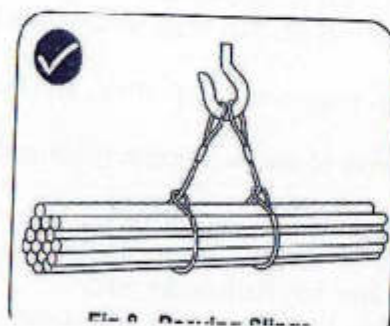
#### Wind strengths

- Lifting operations can only be carried out when the conditions are safe to do so. While considering weather conditions we will take note of
- The wind speed and it's direction. The manufacturer of the lifting machine will have specified the wind strength at which lifting should not be carried out.

We present the following illustrations of correct types of universally accepted slinging and locking arrangements for lifting different items;



The above systems are ideal for lifting hollow cylindrical lengths such as D.I. pipes.





### **13. MACHINERY, EQUIPMENT & VEHICLES**

Following points were identified as for putting attention during the construction work.

#### **Machinery and Equipment.**

1. Only employees who have demonstrated competency in knowledge and operating capability should be allowed to operate machinery and equipment.
2. Do not operate equipment, which is in an unsafe condition. All operators must make a careful inspection of their equipment at the start of each shift. Equipment deficiencies are to be reported to your supervisor immediately.
3. Equipment operator Log/Hoist Books, where required, shall be located on the equipment and the operator shall ensure they are kept up to date.
4. Seat belts, where supplied by Manufacturer shall be maintained and worn at all times.
5. All heavy equipment shall be equipped with an operational back up alarm.
6. It is the responsibility of workers when approaching working equipment to be knowledgeable of the danger zone and to identify their presence to the Operator.

#### **Vehicles**

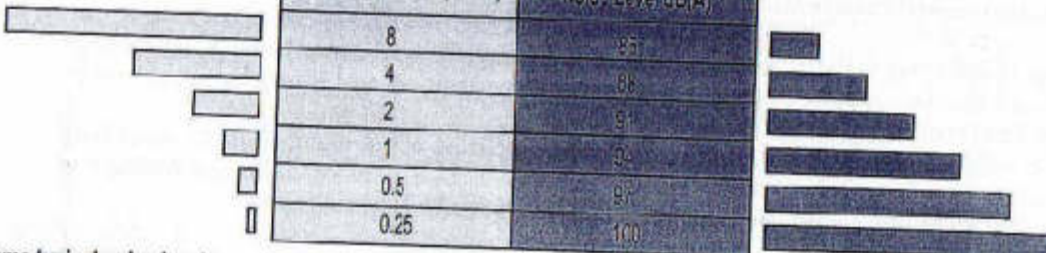
1. Only employees possessing a valid drivers license may operate company vehicles. The proper class of licence must correspond with the vehicle being operated.
2. Where possible, drivers shall submit a current drivers abstract prior to commencing duties.
3. Suitable provision shall be made for seating employees when they are being transported by vehicle or boat.
4. Vehicles shall not be operated on roadways in excess of maximum capacity allowed by the applicable government regulations or permit.
5. No stops shall be made on a trestle or bridge for unloading or picking up employees.
6. Crew vehicles shall be pulled off to the side of the road or right-of-way when employees are boarding or disembarking. Insure four-way flashers are used.
7. When employees are being transported by vehicle, loose equipment or material shall not be carried in the passenger compartment.
8. Buses and vehicle cabs shall not be used to transport flammable material (i.e. propane bottles, gas cans, pumps, generator sets).
9. Each vehicle shall be inspected daily by the driver to whom the vehicle is assigned. All necessary inspection reports shall be filled out and submitted as required. Any defect shall be reported immediately to the driver's Supervisor or the person in charge of equipment maintenance. Any hazardous defects shall be repaired before the vehicle is put into use.
10. No person shall be allowed on the bed of a truck during winching operations.
11. All loads must be adequately secured to prevent movement while being transported.
12. Seat belts when equipped in vehicles shall be worn at all times.
13. Four wheel drive vehicles shall be operated as recommended by the manufacturer.
14. All backup alarm systems, where equipped on vehicles, shall be in working order.
15. All vehicles shall be operated in a safe and responsible manner.
16. Vehicles shall be parked in a visible location and away from the work area.
17. Where required, vehicle driver's Log Books shall be properly completed and submitted on a regular basis as required by Government regulation.
18. Before backing up a vehicle, ensure there is a clear line of vision and travel established.

#### 14. EXPOSURE TO NOISE.

Though this project is launched to develop a certain infra structure facility, the general public will not tolerate any inconvenience. We will have the following matters in mind and attempt to minimize noise pollution not only to the public, but to the workers too, which may be directly exposed to noise pollution:

- Exposure to loud noise over long periods can lead to hearing loss. In some cases this may be severe. It is also compounded in late life with normal loss of hearing associated with old age.
- The upper exposure limit is 85dB (A) and 140 Pa peak at which hearing protection zones will have to be established. At this point we will provide hearing protectors to workers.
- The maximum permitted exposure averaged over a working week of 5 x 8 hour days is 87dB (A) and 200 Pa peak which is not recommended to exceed.

Each of the exposures listed in the table below are in fact equivalent to the equipment list below.



Exposure period (hours)	Noise Level dB(A)
8	85
4	88
2	91
1	94
0.5	97
0.25	100

Some typical noise levels

Some typical noise levels:

Typical Construction Equipment Typical Sound level dB (A).

Electric hand tools	99
Air hand tools	100
Fork lift trucks	101
Hammer drills	102
Dumper trucks	103
Concrete mixer	104
Petrol driven tools	105
Circular bench saw	107
Excavators	109
Crawler cranes	110
Ready mix equipment	112
Loading shovel	114
Rock drill	115
Generators	117
Compressors	122



**Table 1 - typical Noise Levels of Construction Equipment**  
**Controlling noise on site**

As with all other risks, the hierarchy of control will apply so that risk avoidance is/eliminated first before other measures are considered. With this regard we will ensure the following to prevent noise pollution:

- Ensure that any plant procured is designed to produce low levels of noise.
- When machinery or equipment to be used at site and emits a high noise level, such as a generator or compressor, we will locate it in an area set apart where it will not directly affect those working on the site. In the alternative we will ensure that it has some acoustic covers. This is very vital when working in residential areas.
- Identify all geographical areas where hearing protection is required through the use of signs etc.

**Environmental considerations**

The above refers to the occupational effects of noise on those who may be working on site. It should also be noted that if the site is located within a built up area it may have an effect on the local residents.

We will be very concerned of this when work is carried out at night. In many cases local authorities will impose certain restrictions in terms of noise emissions. The Site Manager or Engineer will check what the local requirements are with the local authority.

## **15. PERSONAL PROTECTIVE EQUIPMENT**

### **Personal Protective Equipment**

#### **General**

All hazards should be avoided or eliminated wherever it is practicable to do so. However where it is this may not be possible owing to the nature of the work. In such circumstances we will provide the workers some or all of the following essential safety gear.

It will be compulsory to wear or use them during the execution of work they are entrusted with. At the inception we will brief all workers at the site on the importance of using personal protective equipment. If a worker is observed not using his equipment he will be penalized some manner, he will be requested to leave the site, if he continues violate the practice.



Head protection: Colour coded head protection will be provided to the entire staff which they will be expected to wear on site at all times to prevent head injury.

Workers – Yellow, Supervisory staff – White, Consultant – Blue and Safety Officer - Red



Foot protection: Appropriate safety footwear shall be provided and worn by all persons on site at all times. Any Person violating this rule will be requested to leave the site.



Hearing protection: Hearing protection should be made available on site where the noise levels are likely to exceed 80 dB (A)



Eye protection: Eye protection will be available at site. It will include glasses, goggles and face shields. And workers will be encouraged to use them during welding, grinding or such activities where there is a risk of arc flash.



Hand/arm protection: Gloves will provide protection against a number of hazards. This includes protection against cuts and abrasions, and when handling chemical substances. Gloves also provide a degree of protection from electrocution and arc flash.



Respiratory protection: We will make all efforts to prevent exposure to gases, vapours, dust and fume.. If this cannot be achieved respiratory protective equipment will be provided.



**Flash Protection:** Where there is a risk of arc flash at either high or low voltage basic appropriate clothing shall be provided with arc flash clothing

## **16. TRAFFIC CONTROL**

### **Flagging**

1. Control of traffic in construction zones shall be done in accordance with general regulations. Where required, a traffic control plan must be submitted to local regulatory authorities. Only competent trained personnel are to be used for flagging operations.
2. All personnel, engaged in the practice of flagging, will be dressed as follows to promote high visibility when approached by on-coming motorists.
  - a. High Visibility Vest (Fluorescent)
  - b. Fluorescent Stop and Slow Paddles
3. In high speed traffic conditions the retention of local police to ensure required speed reductions is highly recommended.
4. During the night operations, flag personnel will utilize, at all times, a red flashlight or similar signaling device.

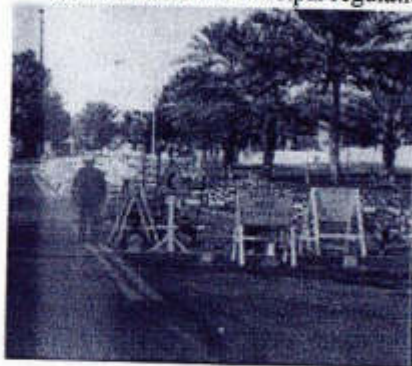
### **Signage**

We will make use of four basic categories of safety signs:

1. Safe condition - Signs that indicate safe condition can be rectangular or square in shape.
2. Prohibition- Signs that prohibit an activity or behaviour that is likely to increase a danger is circular.
3. Hazard warning- Signs that give warning of a particular hazard or danger and are triangular in shape with a black pictogram on a yellow background with black edging. (Not indicated below.)
4. Mandatory signs which indicate a requirement that must be complied with.

Following points are needed to put attention

1. All traffic signs and traffic control devices used on job sites are installed for the safety and convenience of the travelling public and shall be erected in accordance with Government or Municipal regulations.





2. Barricades, flashers, or flares, warning signs and/or temporary fencing shall be erected on each side of the road or railroad before excavation commences.
3. Poorly maintained, defaced, damaged or dirty construction signs are ineffective and shall be replaced, repaired or cleaned without delay.
4. Warning signs shall not be removed until road and highway crossings are properly leveled, shoulders repaired and ditches cleared.
5. Vehicles shall not be parked on the roadway or shoulder before the pipeline crossing.

Safety signs can also be displayed in combinations. At the inception of the site we will identify what signage is required where. We may also include the installation of a site notice board which can indicate what protective equipment will be required to be used in critical areas of the site.



## **17. DEMOLITION AND BLASTING.**

Demolition and blasting:

We expect to encounter rock during excavation of trenches. These rock formations are unpredictable and have to be removed to facilitate pipe-laying. Both, demolition and explosive blasting are potentially very hazardous activities, especially if they are located in congested areas, and thus we will take extreme care to prevent accidents.

**We foresee the following typical hazards:**

- Structural collapse.
- Pre-tensioned structures
- Falls from height
- Falls through fragile material
- Interaction with plant and vehicles on site
- Falling material.
- Dealing with hazardous materials
- Injury due to flying debris and shrapnel.
- Injury due to release of compressed air or the explosion itself.

Demolition can be carried out by hand, by mechanical means using various types of cutting/impact tools or by explosive methods. Demolition by hand is the most hazardous and it will obviously put the person who undertakes the work in a position of high risk. Blasting is more dangerous as packing of explosive material will be done manually.

### **Planning the work**

As with all construction work planning is a vital part in securing the health and safety of those who will undertake the work and those who might be affected by it. This is particularly the case where the general public might be at risk from the demolition or blasting activities. We avoid these activities during the night.

We will obtain as much information as possible is obtained about the structure to be demolished or the rock to be blasted.

This will include the following:

- Information about the design of the structure to be demolished and others nearby.
- Type of construction and methods used
- Details of any underground or overhead utility services such as gas, electricity, water, and drainage
- Details of any possible hazardous substances or contamination
- Possible dangers to the public and the neighborhood.
- Safe disposal of any waste arising.

Our main responsibility is to ensure that a competent and skilled workers and operators are employed to plan and undertake the work.

This will include as part of the pre-qualification in consideration of the following:

- Experience of the type of work being carried out.
- Years in the construction sector.
- References from previous employees, verbal or documented.
- Evidence of competence of employees, general and safety.
- Selection and control over any proposed sub contractors
- Accident and incident performance
- Awareness of statutory compliance
- Monitoring arrangements general and site supervision.

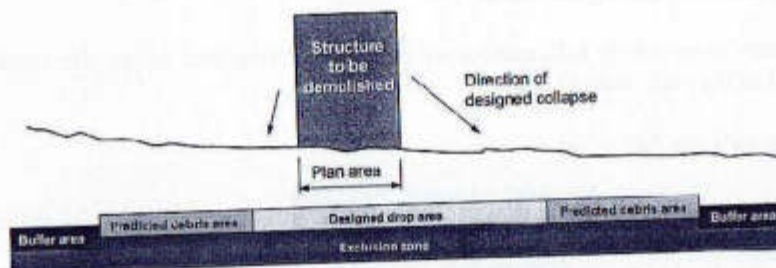
### Safety controls

#### 1. Site security

The demolition or blasting area must be clearly defined and demarcated with both a physical barrier and suitable signage. We will use temporary fencing where the work is likely to encroach on to public highway or pavement. A permit may be required from the local authority. The important aspect is to ensure that unauthorized persons are kept out of the demolition or blasting site.

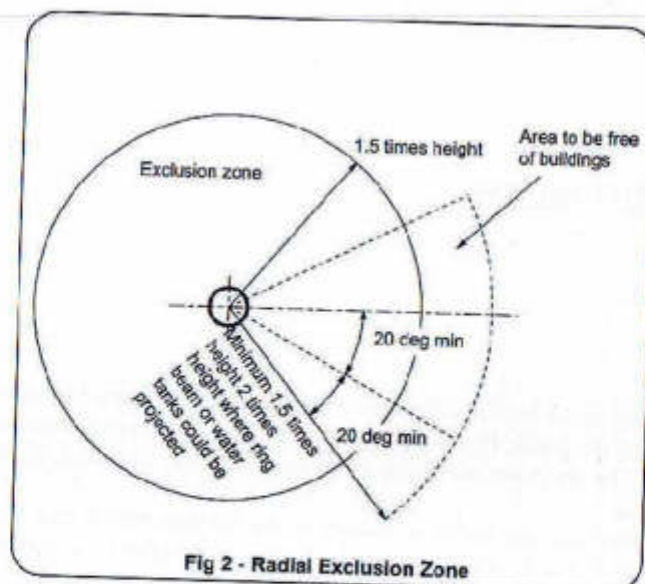
#### 2. Protection of people.

It is essential that the demolition or blasting is planned to ensure those who will undertake the work, any other persons on the site who could be affected. It is important therefore to set up an exclusion zone.



We will create an "Exclusion Zone" as depicted in the above figure. In certain cases if necessary, we will erect a suitable protective screen or fan to prevent any flying debris or shrapnel from injuring people even some distance away, as shown below.

We will also inform the general public of the area that such an event is taking place by making an announcement by public address system or sounding an alarm such as siren.



### 3. Other hazards

We are aware that in addition to the above, there will be the presence other hazards that may arise during demolition or blasting. We will be prepared to overcome the following as described under relevant categories of this document:

- Noise and vibration
- Dust and fume
- Lead and other contaminants
- Fire and explosion
- Oxy-acetylene cutting.



## 18. WORK ON RDA ROADS

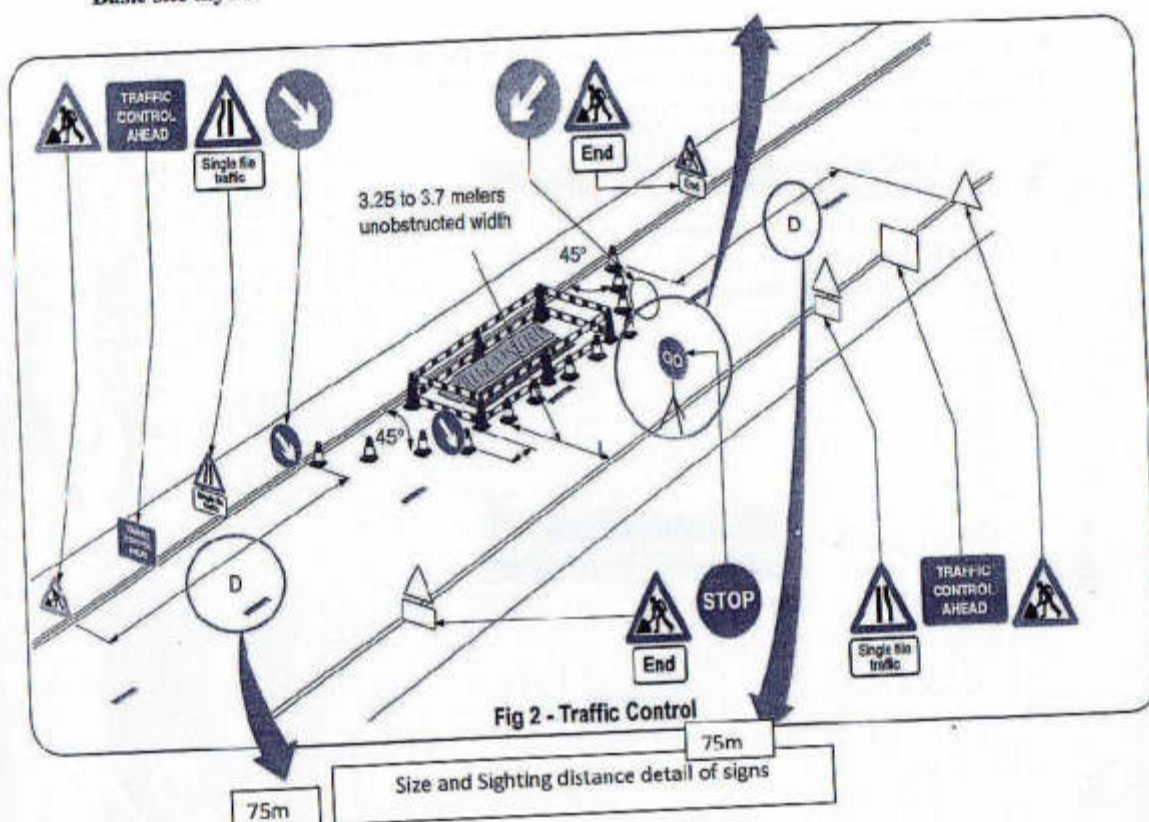
### Work on RDA Roads

#### Introduction

Our work will involve on the public highway. As stated earlier D.I. pipe laying of this project will not only go along the public Highways, but through highly commercialized areas as well, and hence there will be an important requirement to ensure that our work do not affect the daily routine of public.

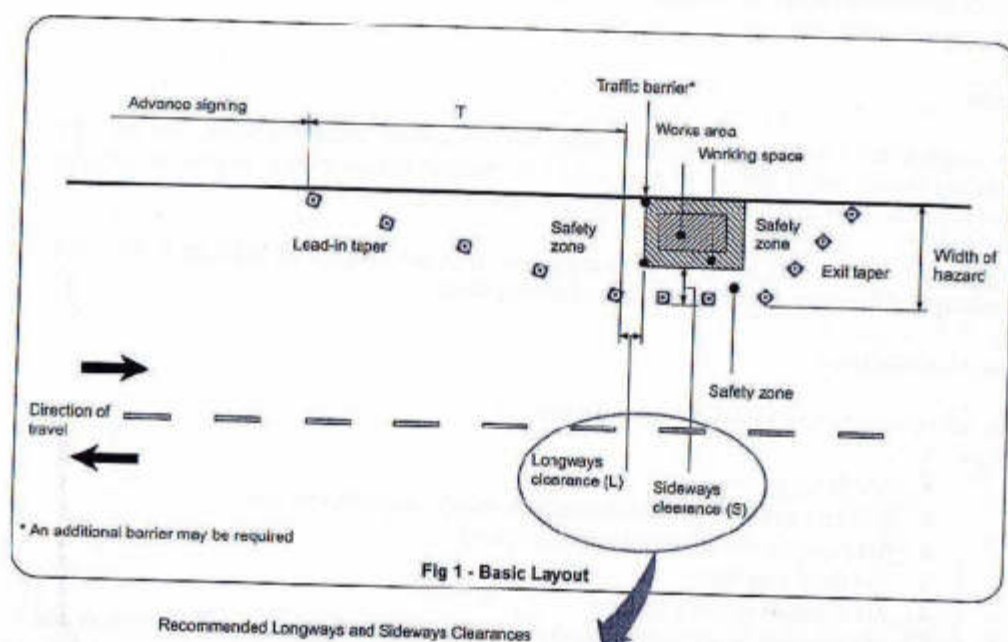
Basically, we will guidance the traffic as shown in the diagram below and introduce more specific requirements if necessary as required by the local highway authorities. We will consider the issue that the traffic will not pose a risk to persons working at the site.

#### Basic site layout



### Traffic control by Stop /Go boards

The following diagram depicts the traffic arrangements we will implement while construction work is carried out on a dual lane carriageway. The traffic control sign boards, traffic cones, barriers and signalmen will be positioned as shown below. The signalmen will take control when it is necessary to stop one lane of traffic to allow the opposite lane to flow smoothly without interruption.





## **19. DRIVING AND TRANSPORT SAFETY**

We will be extremely concerned about driving to or from projects sites. We will advise the project drivers and operators of heavy equipment to exert much caution and avoid accidents and injury to other road users..

### **Scope**

The requirements below apply to all vehicles that are owned, leased, or hired. The use of a privately owned car is subject to approval of the Project Manager. And applies to vehicles used by contractors to transport their workers to and from site.

We will advise our staff not to drive on their own as in the event of an accident it can cause significant difficulties whoever the cause of the accident.

### **The Vehicles Used**

We will ensure that all vehicles used in the project:

- Are fit for purpose.
- Vehicles and fittings meet appropriate safety standards and law.
- Are periodically inspected and maintained.
- Are fitted seat belt.
- Are comprehensively insured.
- Are common make in the country,, in order to get reliable support of services and spare parts

### **The Driver and Passengers**

We will ascertain that all drivers and passengers

- Comply with all national road laws, and speed limits.
- Seat belts are worn where available.
- Be suitably trained, licensed and medically fit to operate the class of vehicle;
- Report of any medical or physical condition that would impair the ability to drive safely.
- Definitely not permit to drive under the influence of alcohol, drugs medication causing drowsiness, or when suffering from fatigue.
- Discourage use of mobile phones, or radios when driving;
- Comply with procedures for safe operation and maintenance of their vehicle;
- Ensure the manufacturers limit for passengers, and load to be carried is not exceeded;
- Report all motor vehicle incidents, even cases of minor injury or damage.

**Motorcycles**

We will insist on all employees using motor-cycles travel wear safety helmets while on official work.

**Fatigue Kills**

We are aware that fatigue as a result of overworking is a hazard itself. It is important that the risks of fatigue are reduced as far as practical as possible. We will allow reasonable discretion and judgment to be exercised by the driver.

Adequate rest should be taken on long journeys or long operation of equipment. It is generally recommended that a short break of at least fifteen minutes be taken after about two hours driving or operation of machinery, and a longer break, of about sixty minutes, after 4 hours work.

## **20. EXPLOSIVES**

The loading, transportation, storage, preparing, fixing and firing of explosives shall be governed by the applicable Government regulations. Only workmen experienced and competent in the handling of explosives shall be permitted to handle explosives.

### **Transportation**

All drivers transporting explosives shall be trained and experienced in the transportation of explosives.

### **Rock Drilling**

1. An extreme hazard may exist in any area where blasting has taken place during previous construction or where grade blasting precedes ditch blasting. This hazard may be in the form of lost or abandoned explosives or un-detonated explosives located in rock rubble or lodged in bootlegs.
2. All drillers shall be experienced and familiar with the work to be performed prior to commencing activities.
3. All Government regulations regarding drilling shall be strictly adhered to.
4. Drillers shall ensure that the work surface is bare and clean of debris before engaging drill.
5. No attempt shall be made to remove or destroy any explosives or detonators that may be encountered. Work in the area shall cease immediately and supervision notified.
6. Dust control devices shall be kept in good working order.

### **Blast Signals**

Warning signs detailing the Blasting Procedure shall be erected on all accesses to the blast area.

All workers shall familiarize themselves with Blast Warning Signals and obey them.

### **Initiating the Explosives**

1. When loading holes, only wooden or plastic tamping poles shall be used.
2. Non-sparking tools are to be used when priming explosives.
3. Artificial lighting shall be in place and used when required.
4. Once holes are loaded, they must be guarded until initiated (fired).
5. No loose or boxed explosives or detonators shall be left unattended.
6. Loaded holes must not be driven over by mobile equipment.
7. An appropriate blasting machine shall be used for the number of circuits/detonators to be fired.
8. Precautions shall be taken to minimize fly rock.
- Securing the Blast Site:
  - a. Danger area clear of workers/equipment (minimum of 500 m)
  - b. Guards have been assigned and instructed as to duties.
  - c. Warning signals have been posted (Sec. 5.5).
9. Proper warning signals are sounded before firing the charge.
10. No blasting shall occur during electrical storms

**After the Blast has occurred**

1. If a misfire occurs, wait 30 minutes for safety fuse and 10 minutes for electrical.
2. Lead wires are to be shorted out immediately after firing.
3. No other person enters the blast site until blaster has examined for hazards (unstable slopes, loose rocks, trees, etc.)
4. Blaster must make thorough check for misfired charges.
5. No person to enter blast site until blaster has given permission.
6. All clear signal is sounded.
7. Any hazards are corrected before workers are employed in that area (loose rocks, trees, misfires etc).

**Misfire Procedures**

1. Only qualified workers in the blast area.
2. Metallic equipment used only under controlled conditions.
3. Misfires will be identified before other work done.
4. Any drilling to refire is carried out under the direction of the blaster.
5. No dynamite is to be removed from any misfired hole.
6. Only ammonium nitrate products can be washed out with water.
7. No person shall remove, relight, and disturb any fuse or any part of a misfired charge.



## **21. PILE DRIVING**

Piling should only be carried out under the supervision of an appropriately qualified and experienced person who can assess that the work is carried out safely.

### **Danger Area**

This is an area defined as being within a 15m radius of the hammer. Personnel are at risk when within this area from:-

- Falling piles - should the pile be handled incorrectly
- Liquids or compressed air under high pressure and associated components
- Mechanical failures of equipment components
- Noise - wear noise PPE when inside this area
- Unexpected overturning of the excavator or lifting gear.

### **Always**

Watch the hammer in operation. Some parts might unexpectedly fail, falling down and injuring personnel.

- Stop operation IMMEDIATELY before the situation gets from bad to worse.
- Stop the hammer for a check should you expect the above could happen shortly.
- Pay attention to irregular or unusual noises and analyse where they come from
- Let the hammer cool down before starting maintenance or repairs on the hammers
- Remove all tools and electrical cords before starting the hammer
- Warn colleagues when you feel uncomfortable with the way that the hammer is functioning.

### **Never**

- Adjust or repair the unit whilst in operation
- Run the hammer in a horizontal position
- Stand in close proximity to a working hammer
- Continue operations when service inspection is due, or when repairs are necessary
- Continue operation when it is known that one of the safety provisions is out of order or not working properly

### **Safe procedure for pile driving**

1. Where the boom, counterweight or other principal part of a crane has been modified to accept equipment related to pile driving (i.e. leads, hammers, etc.), the modification shall be the subject of an engineered drawing.
2. No person shall stand under the kicker (the strut between the crane and the pile leads).
3. When driving piles in a side batter configuration, ensure that the equipment is suitable for the intended batter.
4. A signal person shall be positioned in full view of the operator before any pile driving equipment is relocated at the work site. Standard crane and pile driving signals must be used by all workers. The operator shall accept signals only from the designated signalman except for an emergency stop signal, which may be given by any worker.
5. Piles or sheet piling stored on the ground shall be adequately supported by blocking. Pipe piles must be stacked in well supported and braced racks or frames, unless other provision is made to prevent their movement.



6. During hoisting, tag lines or similar devices shall be used where necessary to control rotation of the load. Safety lugs must be welded to steel piles to prevent the pile line from slipping. Piles or sheet piling shall be adequately supported during placing or removal. Only workers who are competent and familiar with the specific hazards of the operation shall be in the work area where these operations are being carried out.
7. Ensure that all foreign material such as frozen earth or tack-welded steel is removed from the piles before being spotted for driving.
8. If a worker is required to climb the driving lead, the operator of the equipment will apply all brakes and necessary safety switches to ensure no uncontrolled motion of the equipment.
9. All workers shall wear eye-protection and hearing protection.
10. Secure all shackles with steel wire or other means.
11. Workers required to take pile refusal measurements shall be made aware of potential hazards.

## **22. PIPELINE BRIDGE CROSSINGS**

There is a distinction between a pipe bridge and a pipe crossing. Pipe Crossings are generally where a simple supported span of pipe crosses over an area of land or water. There are risks associated with pipes and their associated structures. The following process can be used to identify the risks relating to different types of pipes, pipe crossings and pipe bridges.

### **Excavation**

When doing excavation near to existing bridges, care should be taken to avoid possible damages to existing structures. Even-though the pipe is passing the bridge at a higher level, it is under the ground until it reaches to the bridge. Therefore the bridge foundation shall not be exposed or touch due to the trenching. If it is exposed, need to inform immediately to relevant authorities for necessary actions.

### **Handling of pipes**

When handling pipes care should be taken not to keep people close to the moving pipe. Since pipes are big, need to have at least two people two help with information (signaling) to the crane operator.

### **Pipe Supports**

In these bridge crossings pile supports are proposed. Special attention shall be taken when driving piles, since heavy equipment are used for the operation. Personnel injuries, noise, traffic issues etc can be happened during construction. In addition the saddle construction shall be done with care, since it should touch the pipe uniformly to avoid concentrated pressures.

### **Installation of pipes**

Before installation the pipes and fittings shall be thoroughly cleaned. A proper support system shall be installed if necessary to keep pipes in position. Also need to have a good working platform to avoid unexpected accidents.

### **Common Safety Hazards**

- Congested work area
- Watercourse traffic
- Slips/trips/falls
- Noise
- Site conditions
- Water hazards/Floods
- Temperature extremes
- Existing cables
- Moving equipment

### **Personal Protective Equipment**

- Proper work clothing including gloves, safety glasses (when required), hard hats and safety boots (Approved), cut resistant gloves, high visibility life vests, buoyant lifeline across river (if required)

**Common Protective Devices**

- First aid kits, fire extinguishers, ditch shoring or sheet piling, back-up alarms, communication devices, signage in water course, river buoys and life lines

Attention shall be taken for following points

1. During an emergency requirement need to have pre defined escape routes.
2. Wear appropriate clothing and personal protective equipment
3. Stay alert to moving equipment
4. Watch for bank slippage
5. Always watch individual's footing
6. Inspect equipment before use
7. Inspect pull heads, cable connections and winch lines prior to pulling a section.
8. Get help before lifting or moving heavy objects
9. Practice good housekeeping
10. Shut off equipment when re-fuelling
11. Stay clear of winch lines
12. Don't stand between pipe and equipment
13. Don't walk under suspended loads
14. Don't grab moving winch lines
15. Don't park vehicles in work area
16. Don't stand near the edge of the water
17. Don't engage in horseplay
18. Don't use drugs or alcohol



## **23. WORKING AT NIGHT TIME**

The most difficult and challenging time for the contractor to work to meet his contractual obligations and therefore the most difficult time for the inspector to ensure the work meets the standards and levels of quality that Caltrans ascribes to while also ensuring that everything is done safely. All these factors make it imperative that the inspector take the extra time necessary to ensure his or her own personal safety, the safety of the traveling public and the safety of the contractor's personnel.

### **Lighting**

The key issue facing you at night will be ensuring that the contractor provides sufficient light for the work areas. The bottom line for lighting is simple, the contractor will provide lighting for all operations, no exceptions are to be made. Any contractor personnel working outside the lights will be directed to return to a lighted area or the operation shall be stopped.

### **Vehicles**

All the construction vehicles shall be having proper lighting system. Illumination stickers shall be slicked on each vehicle so that vehicle boundaries can be identified easily. In addition, helpers with illuminated cloths will be present to help to operators.

### **Traffic Control**

The following list of items should all be routinely checked as part of traffic control:

- Flagger stations – shall be illuminated and shall be visible from 1000 feet. If slow flaggers are to be used, remind them that they must stay in the lighted area, they cannot walk with the end of queue as they would during a daylight operation.
- Glare – you will need to drive through the work zone in both directions looking at the light plants and the potential for glare affecting driver vision.
- These are one of your most important tools for a night work and there are a series of items you need to check to ensure they are being used properly:
  - o Ensure you drive through the work zone at highway speeds and that you can read all the messages on the board.
  - o Ensure the board is angled for maximum visibility and is set at the appropriate height
  - o If the board is to be left in place after the shift is complete, ensure it is turned off and the message face is turned 90 degrees, such that it is aligned parallel to traffic flow.
  - o Check the board for legibility, the minimum distance that you should be able to read the message from is 750 feet.
- Lane shifts - Ensure that the lane shifts/drop tapers are set at the appropriate length. It is important that drivers have time to make the lane change.
- Signs - All signs, both permanent and temporary shall conform to the Standard Plans and Specifications and requirements.
- Road work ahead rag sign – must have a flashing beacon with 12 inch lens installed. Check this periodically during the shift to ensure it is still flashing at an appropriate rate.
- Cones – ensure they are in good condition and have appropriate retroreflective material installed.



## **24. DEWATERING**

Proper control of groundwater can greatly facilitate construction of subsurface structures founded in, or underlain by, pervious soil strata below the water table by:

- (1) Intercepting seepage that would otherwise emerge from the slopes or bottom of an excavation.
- (2) Increasing the stability of excavated slopes and preventing the loss of material from the slopes or bottom of the excavation.
- (3) Reducing lateral loads on cofferdams.
- (4) Eliminating the need for, or reducing, air pressure in tunneling.
- (5) Improving the excavation and backfill characteristics of sandy soils.

Dewater trench from outside the limits of trench. Dewater trench from below the excavated trench bottom. Do not dewater trench from sumps within trench.

Dewater trench to a minimum level of 24 inches below excavated trench bottom. Maintain water level a minimum of 24 inches below excavated trench bottom until backfill meets the following requirements:

Backfilling and compaction have progressed as to a depth that installed piping will not be displaced by hydrostatic pressure.

Backfilling and compaction have been completed above natural water table to a level that remaining backfill can be placed and compacted.

Dewatering measures shall provide the following:

- Prevent instability of trench due to groundwater.
- Prevent the disturbance of subgrade bearing materials due to groundwater.
- Keep trench free from standing water and running water.
- Prevent tanks, pipes, and other structures from being displaced by hydrostatic pressures.
- Do not install or operate dewatering systems that allow movement of soil through trench or trench subgrade.
- Do not install or operate dewatering systems that allow movement of soil from beneath existing or previously installed structures or pipes.

## **25. SAFETY AUDIT**

Audit of work sites will be conducted to determine health, safety, and fire hazards. During these surveys, assessment will be made for compliance between applicable safety and fire codes, and the detection of unsafe hazards.

Work site audit will also provide an evaluation of compliance of Occupational Safety and Health Administration (OSHA) standards relating to ergonomics, use of respirators, hearing, blood-borne pathogens and use of personal protective equipment. Ergonomics, the study of work and the relationship of various stress factors on an individual will be identified through the safety audit. The objective of ergonomics is to adapt the job and workplace to the worker by designing tasks, workstations, tools, and equipment to the abilities and the convenience of the worker so that stress is reduced.

Conducting a single annual comprehensive safety audit can actually hide facts and hazards that you may want to discover. The single annual audit approach may tend to create a safety "ramp up" effect by managers and supervisors as audit time approaches.

As a better approach it is scheduled to carry out specific safety audits throughout the year on a ten month schedule. The eleventh month should be reserved for a comprehensive annual audit. Consider using the same topic schedule for your annual refresher training program.

### **What safety audits are not**

Safety Audits are primarily to check the effectiveness of various safety programs. They do not take the place of regular facility inspections. Facility safety inspections for hazards and their control will be performed on a weekly basis by supervisors and on a monthly basis by management.

### **The Team**

Monthly safety Audit will be conducted by management appointed team consist of following personnel in the presence of Engineer's Representative.

1. Project Safety Officer
2. Site Engineer
3. Technical Assistant
4. Supervisor

### **Formats**

Format of monthly safety audit is prepared as a checklist, covering most of important issues of the project. If any critical issues is arise, the format will be changed to reach the requirement with approval of the Engineer.

### **The big four**

There will be four basic questions a safety audit should provide answers. Persons or a team designated to conduct the audit will take a "fact finding" approach to gather data. These auditors will be familiar with both the company program and various local, state requirements.

All safety audit comments, recommendations and corrective actions will focus on these four questions:

1. Does the program cover all regulatory and best industry practice requirements?
2. Are the program requirements being met?
3. Is there documented proof of compliance between safety plan and its implementation?
4. Is employee training effective? Can they apply specific safe habits?

### Phases of a Safety Audit

#### Phase One: Safety Audit Preparation

- Step One – We will inform all relevant Managers and Supervisors one week prior to the audit. They will have all records, documents and procedures available when the audits commences.
- Step Two – We will review all past audit records and corrective actions recommended.
- Step Three – We will review all company, local and state requirements for the specific programme. We will study and become familiar with documents, inspection and training requirements.
- Step Four – We also will determine the scope of the audit. This will be based on accident and inspection reports, and input from various Managers. A time frame will be set for the audit.

#### Phase Two: Fact Finding

A fact finding event will be used to gather all applicable information. Auditors will make an effort not to form an opinion or make evaluative comments during this phase.

- A Team Approach – If a safety audit team and not an individual are entrusted with this work, each team member will be assigned to a defined area of inspection. They will be ensured of proper program background information and documents.

- Safety Audit Areas – Most audits can be categorized into these areas:

Employee knowledge – OSHA standards require "effective training". An effective program ensures that employees have the knowledge required to operate in a safe manner on a daily basis. The level of knowledge required depends on the specific activities in which the employee is involved and their specific duties and responsibilities. Generally, Managers and Supervisors should have a higher level of knowledge than general employees. This includes practical knowledge of administration of safety programme, its management and training. They should be able to discuss all elements of each programme that affects their assigned employees. Many programs divide employees into two groups, authorized employees and affected employees. Authorized employees must have a high level of working knowledge involving hazard identification and hazard control procedures. Determining employee



level of knowledge can be achieved through a written questionnaire, formal interviews or informal questions in the workplace.

**Written Program Review** – A comprehensive review of the written program will be conducted during the safety audit. This review will compare the company program to requirements for hazard identification and control, required employee training and record keeping against the local and state requirements. Additionally, if applicable, the company insurance carrier will be asked to conduct an independent written program review.

**Program Administration** – This part of the safety audit review will check the implementation and management of specific program requirements. This section asks the following questions:

1. Is there a person assigned and trained to manage the program?
2. Are specific duties and responsibilities assigned?
3. Are sufficient facilities provided?
4. Is there an effective and on-going employee training program?

**Record & Document Review** - Missing or incomplete documents or records are a good indication that a programme that is not working as designed. Records are the company's only means of proving that specific regulatory requirements have been met. Record review also includes a look at the results, recommendations and corrective actions from the last audit.

**Equipment and Material** – This area of a safety audit inspects the material condition and applicability of the safety equipment for hazard control in a specific program. Examples of audit questions for this area are:

1. Is the equipment in a safe condition?
2. Is there adequate equipment to conduct tasks safely?
3. Is personal protective equipment used and stored properly?
4. Is equipment, such as exit lights, emergency lights, fire extinguishers, material storage and handling equipment designed and staged to control hazards effectively?

**General Area Walk-Through** - While safety audits are not designed to be comprehensive physical wall-to-wall facility inspections, a general walk-through of work areas can provide additional insight into the effectiveness of safety programs. Auditors will take written notes of unsafe conditions and unsafe acts observed during the walk-through.

### **Phase Three: Review of Findings of the safety audit**

After all documents, written programs, procedures, work practices and equipment have been inspected, gather your team and material together to formulate a concise report that details all areas of the program. Remember to focus on the four basic questions mentioned earlier. Each program requirement will be addressed with deficiencies noted. Include comments of a positive nature for each element that is being effectively managed.



**Phase Four: Recommendations from the safety audit**

Develop recommended actions for each deficient condition of the program. Careful forethought will be applied to ensure that this is not a process that simply makes more rules, additional record keeping requirement or makes production tasks more difficult. Examine the manner and means in which the current deficient elements are managed to determine if there is a simpler procedure that can be employed.

**Phase Five: Corrective Actions from the safety audit**

Development of corrective action should involve the Managers and Supervisor, who will be required to execute the corrections. They will be set priorities based on level of hazard. All corrective actions will be assigned a completion and review date. Records of completed corrective actions should be reviewed through the normal management chain and then be filed for use during the next audit.

**Phase Six: Publish the Safety Audit results**

It is essential to let all Supervisors and Manager know the basic findings and recommendations. Departments, managers and supervisors who are properly executing their responsibilities will be commended on the implementation of the safety plan successfully. Corrective measures adopted after the safety audit will make it easier for the Safety Officer to conduct his work.

## **26. ORDER OF ACTIONS SHOULD BE FOLLOWED IN AN EVENT OF ACCIDENT**

Most people are so shocked and distressed that they forget to take initial necessary action when they witness or are involved in an accident at a workplace. Taking prompt intelligent action will later help in claiming compensation. The following action should be taken immediately an accident is reported:

In the event of an accident, a nominated person of each working crew will be trained to practice the following generally approved steps with the help of the rest of the crew:

- Report the accident to the immediate senior or supervisor.
- Call the vehicle always reserved at site for use in such situation.
- If damage is critical, the injured workmen should be sent to nearest hospital, which has been previously identified, immediately with a responsible person.

If there are representatives or workers trained in first aid, they should be informed of the accident so that they may administer first aid to the victim until he receives medical treatment.

We will maintain an accident register at every work-site as mandated by the government. Any work related accident how minor it may be, will be recorded in this book. It will contain details such as the date, time and place of occurrence and any other possible information.

Medical attention will be given immediately to the injured person. All injuries, minor and major should be recorded so that the medical report has clear details of all injuries sustained. This report will be produced in court during litigation of the compensation claim.

The best way to preserve details is by writing down the incident as soon as the victim or witnesses can remember. An attorney might find it useful for gathering evidence and obtaining testimonials from potential witnesses.

There will be questionnaire for recording details of the accident which will be completed describing the victim's own experience. The supervisor must take responsibility of investigating the possible cause of the accident in order to avoid further such incidents. It will also reduce unnecessary expenditure and damages to the company.

The victim must request for absence of leave and his immediate superior will inform the Health and Safety Executive if the leave is availed for more than 3 days.

The injured worker should as an aftermath, keep a record of all the symptoms. Also he/she should keep record of all the expenses endured for the entire period right from the injury. All these bills will help in filing for the rightful amount during compensation claim.

We do have designed a detailed safety plan which covers workers from all possible disasters and hazards that can prevail at a worksite. We expect to implement it meticulously with the sincere belief and confidence that unpleasant situations can be averted during the entire project period until its successful completion.

**SUPPLYING AND LAYING OF WATER  
DISTRUBUTION IN JAFFNA CITY AREA**

**CONTRACT NO: PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01**

**JAFFNA KILINCHCHI WATER SUPPLY AND  
SANITATION PROJECT**

**HEALTH AND SAFETY PLAN  
IN VIEW OF  
COVID19**



**NCC Limited**

## **1. Staff / Labors for office work and site work**

Following categories of staff / labors shall not be allowed to report for work.

- Those having fever, with or without acute onset respiratory symptoms such as cough runny nose, sore throat and/or shortness of breath.
- Those who have had contact with suspected or confirmed case of COVID-19 for the last 14 days.
- Those who are quarantined for COVID-19.
- Sick individuals or those at particularly high risk of infection.
- Those who have temperature above 37° C

Attendance record shall be maintained for office and each site and movement of staff / labors shall be maintained.

A check list shall be maintained in office and each site.

## **2. Basic Infection Prevention Measures**

- It shall be made mandatory to clean their hands before entering the workplace by staff / labours.
- Hand washing facilities or sanitizing hand rub dispensers shall be made available to staff / labours to clean their hands at the main entrances of project office, site office and suitable other places.
- Hand rub dispensers shall be regularly refilled and soap and water are freely available at all time.
- The correct hand washing technique shall be demonstrated by posters and leaflets.
- All staff / labours shall be instructed to wear a suitable face mask and it shall be provided to them when necessary.

## **3. Cleanliness and hygiene of the workplace**

- Regular disinfection shall be carried out for surfaces and objects with a suitable disinfectant twice a day.
- Doors shall be kept open as much as possible to ensure adequate ventilation and to minimize the necessity to touch the door handles.
- Overcrowding of staff / labours shall be avoided inside the workplace.



- At least 3 m gap shall be kept between staff inside office.
- Closed dust bins shall be kept inside the office hygienic disposal.

#### **4. Following guidelines shall be strictly adopted in office / site**

- Public Health Inspectors shall be invited regularly to visit the office / sites.
- Body temperature of the workers shall be checked at the entrance of each construction site, by hand held equipment.
- If any construction worker has developed symptoms of CORONA (COVID-19) or high fever he shall be directed to nearest Government Hospital.
- Unnecessary visitors shall not be allowed in office / sites.
- Construction workers shall be educated to restrain from touching their face, eyes, nose or mouth.
- A register and the contact details of all staff/labours shall be maintained at the site.
- Lunch room shall be kept clean and disinfected and number of persons using the lunch room at one time shall be minimized.
- Accommodation facilities shall be temporally closed and local staff / labours shall be engaged to work.
- Meeting shall be arranged with minimum participants to educate about the present health guidelines.
- Guide lines given by **Ministry of Health & Indigenous Medical Services** and **Ministry of Urban Development, Water Supply & Housing Facilities** shall be strictly followed.

#### **5. Special arrangement for pipe laying sites for Basic Infection Prevention**

- A mini truck with water tank filled with clean water shall be sent to pipe laying sites frequently. The mini truck will also carry soap / hand wash/safe guard to facilitate the site staff, operators and labours.
- Safety officer will travel to sites with this truck and supervise the hand washing arrangements.
- Warm water (drinking water) shall be supplied to sites frequently.
- Face masks shall be provided to site staff, operators and labours. Safety officer will ensure that face masks are properly worn.

- All site people shall be provided with hand gloves.
- All labours shall be instructed not to interchange tool among them without proper cleaning / disinfecting.
- Other safety and health guidelines mentioned above also shall be applied to site level.

## 6. Daily Site mobilization

- Hand washing arrangement and other safety arrangement as described above shall be made available at site.
- Staff / labours will travel to site in site vehicle while keeping 1 m distance.
- Before get in to the vehicle everybody will wash their hands.
- At site minimum distance will be maintained between people.
- Health and safety demonstrations shall be given to site staff / labours by safety office.
- Attendance register and movement register shall be maintained at site.
- Check list shall be maintained at site.
- Body temperature check and shall be recorded before the entrance at office and sites daily (attached format)

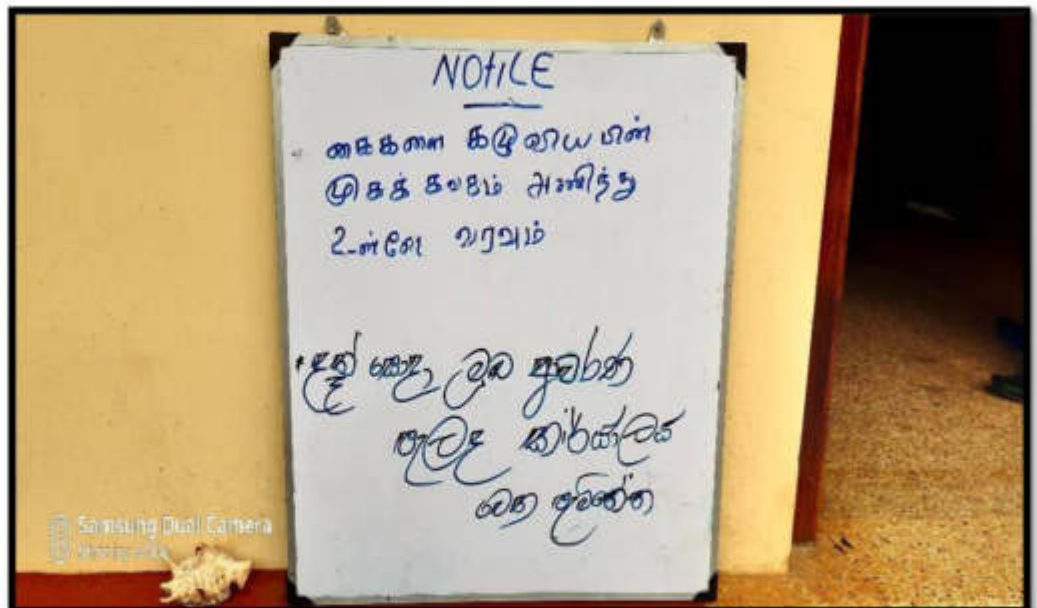
DAILY EXECUTIVE AND NON EXECUTIVE STAFF TEMPERATURE MEASUREMENT				
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## 7. COVID -19 Pandemic Preventive measures carrying out at office and sites

### Hand washing facility at Main office



### Public Notice at Main office



**Temperature checking before entrance the Site**



**Maintain the Social Distance at office**





# **SUPPLYING AND LAYING OF WATER DISTRUBUTION IN JAFFNA CITY AREA**

**CONTRACT NO: PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01**

**JAFFNA KILINCHCHI WATER SUPPLY AND  
SANITATION PROJECT**

## **ENVIRONMENTAL MANAGEMENT PLAN**



**Client: NATIOAL WATER SUPPLY AND DRAINAGE BOARD**

**Contractor: NCC Ltd**

## ENVIRONMENTAL MONITORING PLAN

### Introduction

#### ➤ Brief description of Project (Original)

Supply & Laying Water Distribution Networks (HDPE & DI) in Jaffna city area. Rather than above pipe laying work, chamber casting, Road crossing and Railway crossing work also including in this contract.

#### ➤ Project Objectives

The Goal of the Project Will be improved health and human development in Municipal, Urban and Pradeshiya Saba areas of Jaffna the Will contribute to rehabilitating, reconstructing, and developing areas affected by conflict.

#### ➤ Scope of Original Work

The Work including and supplying of water distribution networks in the above – mentioned places. Work components consist of supplying and lying of HDPE and DI pipes and fitting. DI Pipes on supports at special stretches, construction of valve chambers, pipe crossing at bridges and culverts and causeways. The actual laying descriptions mentioned below with the amounts.

- ✓ Old Park Distribution Network – 113.713km
- ✓ JMC Exciting Distribution Network – 21.565 km
- ✓ Nallur Outer JMC Distribution Network – 72.815km
- ✓ Pommaiveli Distribution Network – 63.565km

Rather than above works there are some other stuffs also included in this Project, Such as Pressure tests, Chamber casting, Washout Valve installation, Air valve installation, Temporary Reinstatement, Permanent Road Reinstatement (Asphalt), Junction Connection (New – New), Culvert Crossings, Quarry Dust Filling for pipe trenches etc.

Except the Pipe laying construction of Office/ stores, quarters at Nallur, Old Park and Navatkuli also including in this contract.

### **Overall Duties and Responsibilities**

All Staff Lead by Project Manager are responsible & shall maintain following key points in implementation & monitoring of environmental. Social aspects of the Project.

- Bear the Overall responsibility of the project in environmental & social issues.
- Discuss the environmental/ social matters with relevant officers concern for the Project.
- Allocate required resources to implement the Environmental & Social impact Monitoring Plan (ESMP) at the site.
- Be responsible for the budgetary control, design changes pertaining to the implementation of monitoring of ESMP
- Environmental and safety officer deploy in fulltime for close monitoring of the system.
- Conduct team briefings.

The Engineering Assistants and Supervisors shall be the Primary Point of the implementation & monitoring the environmental and social issues during the pre – construction and construction phase and be responsible for ensuring the implementation/ monitoring of the ESMP.

### **Scope of work**

- Be responsible for preparing/improving the environmental and social monitoring plan for each construction activities would contain measures taken to control the environmental and social issues.
- Be responsible for conducting compliance and impact monitoring and report to the project Manager for further action.
- Make arrangements to conduct training and awareness programs on environment, social, health and safety issues.
- Negotiate regularly with the workers in order to identify the environmental and social issues.
- Should handle complaints regarding environmental and social related matters.
- Maintaining up – to date records on actions taken implementation & monitoring of environmental and social action plan recommendations.
- Be responsible for obtaining the environmental approvals from the relevant authorities in order to adhere prevailing environmental laws and regulation.



- Be responsible for health, safety, social and environmental matter and inform to the Safety Officer/ Site Engineer/ Project Manager if there is any with regard to environmental and social aspects to take appropriate actions.
- Arrange men and material for the construction work.
- Report to the Safety Officer/ Site Engineer/ Project Manager about site issues.
- Conduct meeting with supervisory staff/ Workers.
- Seek advice from Safety Officer/ Site Engineers/ Project Manager and take Precautionary measures to avoid environmental, social, Health and Safety issues.
- Supervise and guide the subordinates to fulfil the ESAP requirements.
- Inform the environmental, social, health and safety issues including emergency immediately to the Safety Officer, Site engineer/ Project Manager.

## **ENVIRONMENT AND SOCIAL MANAGEMENT**

### **The Environmental and Social Monitoring Plan (ESMP)**

The Environmental and Social Monitoring Plan (ESMP) is the Summarized of all possible impacts that may occur the implementation of distribution network on this contract.

#### **Environmental and Social Impact**

Any influences to the existing environmental and social situation, whether adverse or beneficial, wholly or partially resulting from above activities and affiliated works.

#### **Environment Commitment**

Contactor shall comply all environmental and social legislation, regulations, Policies of employer, relevant TECA procedures & other requirements to minimize the harmful effects with the environment by,

- Means of systemic procedures and good environment and social practices fulfilling the requirement of applicable status, laws, regulations and standards conservation of raw material and thereby protect natural resources.
- Minimizing the public inconvenience.

## Project Environmental Objectives

The Overall objective is to abide environmental laws and regulation in Sri Lanka to mitigate the negative impacts.

No	Environmental issues	Mitigating Measures
01.	Disturbance to natural hydrology system & Obstacles to uses as a result of building up large volume of debris and excavated soil.	<ul style="list-style-type: none"> <li>➤ All debris and excavated soil are disposed to approve site. (with an approval from the client &amp; consultant)</li> <li>➤ Attempts taken made to use excavated soil as back filling material if such left earth comply with required standards for use as a back filling material. In this case excavated soils are stored in a way not to be washed away by runoff water.</li> </ul>
02.	Dust generation after clearing and excavation/ rock blasting	<ul style="list-style-type: none"> <li>➤ Exposed surfaces are sprinkled with water in order to suppress dust generation during dry weather.</li> </ul>
03	Dust generation due to transportation.	<ul style="list-style-type: none"> <li>➤ Transport routes are sprinkled with water as required.</li> <li>➤ Low speed limits are adopted for construction vehicles.</li> </ul>

### Action of the Project and Mitigation Measures

No	Activity	Environment Issue/s	Mitigation Measures
01	Excavation of Trial pits and trenches	Impact on pedestrians/road users safety from open trenches	Engineer approved public safety plan shall be implemented
			Barricades, safety tapes, luminous tapes, warning boards, traffic controllers, night signals shall be adequately provided and maintained
			Safe buffer margin along either side of the trenches shall be provided and protected.
			Conduct awareness programs to the public
			Keep excavated materials away from road carriageway and transport to the adjutant site
			Engineer shall regularly monitored public safety plan
		Material stacking at the edges of the excavations endangering workers safety	Stacking excavated material away from the edge of trench
		Unstable trenches endangering workers safety	Providing shoring arrangements as directed by the Engineer
		Public safety endangered by traffic congestion	Implementing timely updated Engineer approved traffic management plan
			Provide adequate traffic signal/warning boards are displayed where necessary
			Trained traffic controllers are deployed where and when necessary
02	Rock excavation	Community and occupational health hazards causing dust generation	Public awareness using rock breaker when perform rock excavation.
			Dust may be formed on the site during the dry weather



		Community and occupational nuisance caused by noise	Notice of particularly noisy activities are given to residents/businesses adjacent to the construction site
			Machinery and vehicles are kept in good working order for the duration of the project to minimize noise nuisance to neighbors
03	Hauling of material	Community/ Occupational health endangered by dust generation	Provide arrangements to cover dusty disposal material while transporting.
			Make truck operators aware about taking adequate care on dust control through tool box meeting
		Public safety endangered by particles, falling out during transportation	Make truck operators/material suppliers aware about avoiding material overloading
			Ensure the loaded capacity of transporting trucks
			Provide arrangements to cover fallible material heaps while transporting.
04	Pipe-laying	Public/Occupational safety endangered while carrying out pipe laying work.	Taking adequate public/occupational safety measures as per engineer approved safety plan
			Employees regularly reminded about taking safety measures at tool box meeting
			Conducting training program for employers
			Providing shoring arrangements as directed by the Engineer
			Providing buffer margin along either side of the trenches.
			Conducting training program for pipe fitters and other workers.
			Engineer regularly monitored at the site for safety

05	Pressure testing	Occupational safety endangered by attending work without wearing Personal Protective Equipment (PPE)	Implementing approved Safety Management Plan
			Conduct awareness program regularly for the workers
			Conduct promotional activities on occupational safety and health
		Impact on pedestrians/road users safety from open pits	Taking standard public safety measures as per Engineer approved safety plan
			Barricades, safety tapes, luminous tapes, warning boards, traffic controllers, night signals are adequately provided and maintained
			Stock piles of excavated materials shall be remove at pedestrian path
06	Pavement restoration	Public safety endangered by un-safe material stock	Provide adequate barricades
			Provide and maintain required access for pedestrian
			Minimize material stocking on the pavement
		Accident risk caused by lack warning signal arrangement during night time	Provide adequate warning signal and barricades
			Movement of people will be restricted to designated construction areas
		Community health endangered by dust generation during material dumping	The materials shall be covered by tarpaulin covers
			Keep and maintain the construction site clean and tidy

## Machineries and Vehicles

List of environmental issues by machineries and vehicles.

No	Environmental issues	Mitigating Measures
01.	Noise	<ul style="list-style-type: none"> <li>➤ Machineries which are equipped with noise control devices such as silencers or mufflers are allowed to work at site.</li> <li>➤ In case, if noise generation cannot be controlled to an acceptable level due to existing closer building and houses to the proposed pipe traces at respective sites, it was be carried out with the consent of adjacent dwellers as disturbances prevail very short.</li> </ul>
02.	Vibration	<ul style="list-style-type: none"> <li>➤ Propagation of considerable vibration was not expected since plate compactors to be used for compaction of backfilling and houses/building are existed 5 meters away from the proposed pipe routes.</li> <li>➤ Property survey was carried out prior to commencement of excavation, blasting and compacting for house and structures which are situated within the zone of influence for comparison of possible changes (Cracks) due to vibration and construction activities. If it proves that any changes taken place, it was repaired or reasonable compensation.</li> </ul>
03.	Air Pollution	<ul style="list-style-type: none"> <li>➤ The Vehicles with valid revenue licenses are allowed to use for the sites as it is required to comply with the emission standard when revenue license is obtained yearly for the Vehicles.</li> <li>➤ Proper maintenance of equipment, machineries and vehicles are done for reducing the exhaust fumes and other hazardous air pollutants.</li> <li>➤ Periodic emission tests for machineries are done a reputed third party in order to identify possible inefficiencies and attempt to improve the mater in case on malfunction.</li> <li>➤ When transporting dusty material to outside the site by vehicles, the materials are covered with tarpaulin cover to prevent accidental spillage.</li> <li>➤ Water sprinkling are done as required in exposed area of the site and transport routes as required to suppress the dust generation.</li> </ul>
04.	Water and soil pollution due to leakage of oil from the machineries.	<ul style="list-style-type: none"> <li>➤ All machineries use in the site area properly maintained to avoid contaminants, oil or other pollutants being released or leaks into the environment Machineries with oil leaked into the environment</li> <li>Machineries with oil leaks are not allowed to work at site.</li> <li>➤ Maintenance of the machinery are only carried out in the approved service station.</li> </ul>



## Project Office

Environmental issues generated at project office.

No	Environmental issues	Mitigating Measures
01.	Domestic waste	➤ General refusal arising from officers are segregated mainly as biodegradable waste and non – bio degradable waste, For this purpose, sufficient number of separate bins having well closing lids with clear instructions and figures should be provided order to segregate the bio degradable waste and non – bio degradable waste.
02.	Waste water arising from dining area & kitchen	➤ Domestic waste water generated from kitchen and dining was treated with trash trap/oil before discharge to common drain.
03.	Hygiene & sanitation	<ul style="list-style-type: none"> <li>➤ Sewage has been directed to properly constructed septic tank.</li> <li>➤ Person was appointed for cleaning of latrines and urinals daily</li> <li>➤ Vector, insects/ mosquito control spraying was carried out with the assistance of MOH at suitable time periods.</li> </ul>
04.	Safety	<ul style="list-style-type: none"> <li>➤ First aid facility with required medicines was made available for treat accidental injuries</li> <li>➤ Adequate firefighting equipment, fire extinguishers are installed for control of accidental fire.</li> </ul>

## Disposal Sites

Due to clearing grubbing & demolishing concrete/ masonry, or any structures with respect to laying of pipe to be disposed permanently. Also there was Construction debris such as left Concrete and mortar, part of formwork material produced during construction due to leftover of materials and other. Therefore suitable dumping sites should be selected with respect to the type of the waste.

## Labour Camps

Environmental issues generated at Labour camps

No	Environmental issues	Mitigating Measures
01.	Domestic waste	➤ General refusal arising from officers are segregated mainly as biodegradable waste and non – bio degradable waste, For this purpose, sufficient number of separate bins having well closing lids with clear instructions and figures should be provided order to segregate the bio degradable waste and non – bio degradable waste.
02.	Waste water arising from dining area & kitchen	➤ Domestic waste water generated from kitchen and dining was treated with trash trap/oil before discharge to common drain.
03.	Hygiene & sanitation	<ul style="list-style-type: none"> <li>➤ Sewage has been directed to properly constructed septic tank.</li> <li>➤ Person was appointed for cleaning of latrines and urinals daily</li> <li>➤ Vector, insects/ mosquito control spraying was carried out with the assistance of MOH at suitable time periods.</li> <li>➤ The place where the accidental water accumulation which causes breeding of vector was checked once in every three weeks &amp; non bio – accumulative pesticides shall be sprayed at required quantities.</li> </ul>
04.	Drinking Water	➤ Reverse osmosis (RO) filtered water or Bottled mineral water was provided for all labour camps and office.
05.	Safety	<ul style="list-style-type: none"> <li>➤ First aid facility with required medicines was made available for treat accidental injuries</li> <li>➤ Adequate firefighting equipment, fire extinguishers are installed for control of accidental fire.</li> </ul>

## Yards

Environmental issues generated at yards

No	Environmental issues	Mitigating Measures
01.	Generation of dust due to movement of machineries	➤ Access road was sprinkled with water to suppress dust emission due to vehicle movements.
02.	Emission from construction vehicles Equipment and machinery	<ul style="list-style-type: none"> <li>➤ Plant, machinery and equipment was serviced in accordance with a preventive maintenance schedule in order to maintain below corresponding to the permissible level.</li> <li>➤ All engines was tuned to ensure the complete combustion of fuel.</li> </ul>
03.	Contamination of soil by fuel and lubricants	<ul style="list-style-type: none"> <li>➤ It's expected to carry only oil changes and mechanical repairs in this yard. No any service are expected to be done in these areas. Vehicle and machinery service are done in authorized service station.</li> <li>➤ Services, repairs, refueling areas was designated at the beginning of the project &amp; the repairs are done in paved area in a way oil and lubricants not to be contaminated soil and take measures to collect waste (oil/grease) to separate container. It is expected to offer waste oil to and authorized collector as a means for disposal of waste oil in environmental friendly manner.</li> <li>➤ Solid waste such as barrels, cans which are not contaminated with any hazardous chemical etc., shall be collected to different containers and sold out.</li> </ul>
04.	Disposal of harmful construction Waste	<ul style="list-style-type: none"> <li>➤ A list of "Hazardous Material" comprising volatile substances, chemical, poisonous material and the places where these are and mode of storage. Disposal was provided to consultants/client for their approval.</li> <li>➤ Chemicals, oils which can be harmful to flora and fauna, was not be released freely to the ground water or surface water bodies.</li> </ul>
05.	Safety	<ul style="list-style-type: none"> <li>➤ First aid facility with required medicines was made available for treat accidental injuries</li> <li>➤ Adequate firefighting equipment, fire extinguishers are installed for control of accidental fire.</li> </ul>



## **Environmental and Social Pre – Construction Inspection Report and Monitoring Checklists**

Through these inspection report and checklists site works will be checked and monitored by joint inspection with consultant and client to check whether the site workers are performed according to the environmental plan.

### **Environmental and Social Pre – Construction Inspection Report**

This report will be prepared prior to construction work at every location where new construction work will be taken place.

#### **Monitoring checklist: Disposal site**

This will be checked on weekly basis.

#### **Monitoring checklist: Construction site**

In Pre – cast yards this will be checked on weekly basis and in other site locations especially when construction work happening next to roads this checklist will be checked on daily basis.

Note:- This is the proposed method by contractor to monitor the environmental plan. Necessary changes can be done according to Client requirements and other necessary environmental, social and safety requirements needed for site works in future which are not mentioned in inspection report and checklists.

**MONITORING CHECKLIST**  
**ENVIRONMENTAL AND SOCIAL PRE – CONSTRUCTION**  
**INSPECTION**

**NCC-Ltd**

**Supply & Laying of Water Distribution Networks in Jaffna City Area**

(Contract No – PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)

Location:

Work Schedule Month, Date & Time:

No	Item	Description
01	No of houses affected	
02	Whether families are made aware of disturbances	
03	No of commercial places to be affected	
04	Where owners of commercial places are made aware of disturbances	
05	Control measures for noise and vibration	
06	Whether relevant house, structures are subjected to property survey	
07	Control measures for any spillage of oil or any hazardous substances from machineries	
08	Fumes/Air emission control measures adopted for machineries	
09	Dust control measures for material stock pile (Water sprinkling, covering)	
10	Construction waste management measures	
11	General refuse management measures	
12	Control measures to avoid disturbance to public utility (Drainage/Telephone Line/Electrical Lines/ Closure of Commercial Actives etc.,)	
13	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE etc.	
14	Traffic Management procedures & displaying of traffic sign boards	
15	Displaying safety sign boards and notices	

Inspected by:

Checked by:

Supervisor/EA: .....

Safety Officer/SE/PM: .....

## MONITORING CHECKLIST

### DISPOSAL SITE

### NCC-Ltd

#### Supply & Laying of Water Distribution Networks in Jaffna City Area

(Contract No – PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)

Location:

Work Schedule Month, Date & Time:

No	Item	S	US	NR	Remarks
01	Control Measures for noise and vibration				
02	Control measures for any spillage of oil or any hazardous substances from machineries				
03	Fumes/ Air emission control measures adopted for machineries				
04	Dust Control measures for material stock pile (Water sprinkling, covering)				
05	Dust control measures at disposal site (Water sprinkling)				
06	Construction waste management measures				
07	General refuse management measures				
08	Control measures to avoid disturbance to public utility (Drainage/Telephone lines/ Water lines/ Electrical lines/ Closure of commercial activities etc.)				
09	Health Safety and Environmental indication/ Providing necessary education to works				
10	Supply of personal protective equipment (PPE)				
11	Supply of Drinking water and dining facilities				
12	Sanitary Facilities				
13	Availability of first aid treatment facilities				
14	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE etc.				
15	Traffic Management procedures & displaying of traffic sign boards				
16	Displaying safety sign boards and notices				

Abbreviation: S – Satisfactory, US – Unsatisfactory, NR – Not Relevant

Inspected by:

Checked by:

Supervisor/EA: .....

Safety Officer/SE/PM: .....

## MONITORING CHECKLIST

### CONSTRUCTION SITE

### NCC-Ltd

#### Supply & Laying of Water Distribution Networks in Jaffna City Area

(Contract No – PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)

Location:

Work Schedule Month, Date & Time:

No	Item	S	US	NR	Remarks
01	Control Measures for noise and vibration				
02	Control measures for any spillage of oil or any hazardous substances from machineries				
03	Fumes/ Air emission control measures adopted for machineries				
04	Dust Control measures for material stock pile (Water sprinkling, covering)				
05	Dust control measures at disposal site (Water sprinkling)				
06	Construction waste management measures				
07	General refuse management measures				
08	Control measures to avoid disturbance to public utility (Drainage/Telephone lines/ Water lines/ Electrical lines/ Closure of commercial activities etc.)				
09	Health Safety and Environmental indication/ Providing necessary education to works				
10	Supply of personal protective equipment (PPE)				
11	Supply of Drinking water and dining facilities				
12	Sanitary Facilities				
13	Availability of first aid treatment facilities				
14	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE etc.				
15	Traffic Management procedures & displaying of traffic sign boards				
16	Displaying safety sign boards and notices				

Abbreviation: S – Satisfactory, US – Unsatisfactory, NR – Not Relevant

Inspected by:

Checked by:

Supervisor/EA: .....

Safety Officer/SE/PM: .....



# MONITORING CHECKLIST

## CONSTRUCTION SITE

### NCC-Ltd

Supply & Laying of Water Distribution Networks in Jaffna City Area

(Contract No – PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)

Location:

Work Schedule Month: January (01.01.2021 to 31.01.2021).

No	Item	S	US	NR	Remarks
01	Control Measures for noise and vibration			✓	
02	Control measures for any spillage of oil or any hazardous substances from machineries			✓	
03	Fumes/ Air emission control measures adopted for machineries			✓	
04	Dust Control measures for material stock pile (Water sprinkling, covering)			✓	
05	Dust control measures at disposal site (Water sprinkling)			✓	
06	Construction waste management measures			✓	
07	General refuse management measures			✓	
08	Control measures to avoid disturbance to public utility (Drainage/Telephone lines/ Water lines/ Electrical lines/ Closure of commercial activities ect)			✓	
09	Health Safety and Environmental indication/ Providing necessary education to works			✓	
10	Supply of personal protective equipment (PPE)			✓	
11	Supply of Drinking water and dining facilities			✓	
12	Sanitary Facilities			✓	
13	Availability of first aid treatment facilities			✓	
14	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE ect)			✓	
15	Traffic Management procedures & displaying of traffic sign boards			✓	
16	Displaying safety sign boards and notices			✓	

Abbreviation: S – Satisfactory, US – Unsatisfactory, NR – Not Relevant

Inspected by:

Supervisor/EA: *S. Jeyaraj*

Checked by:

Safety Officer/SE/PM: *[Signature]*

**MONITORING CHECKLIST**  
**ENVIRONMENTAL AND SOCIAL PRE - CONSTRUCTION**  
**INSPECTION**

**NCC-Ltd**

Supply & Laying of Water Distribution Networks in Jaffna City Area

(Contract No - PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)

Location:

Work Schedule Month 01.01.2021 to 31.01.2021

No	Item	Description
01	No of houses affected	NR
02	Whether families are made aware of disturbances	NR
03	No of commercial places to be affected	NR
04	Where owners of commercial places are made aware of disturbances	NR
05	Control measures for noise and vibration	NR
06	Whether relevant house, structures are subjected to property survey	NR
07	Control measures for any spillage of oil or any hazardous substances from machineries	NR
08	Fumes/Air emission control measures adopted for machineries	NR
09	Dust control measures for material stock pile (Water sprinkling, covering)	NR
10	Construction waste management measures	NR
11	General refuse management measures	NR
12	Control measures to avoid disturbance to public utility (Drainage/Telephone Line/Electrical Lines/ Closure of Commercial Actives ect.)	NR
13	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE ect)	NR
14	Traffic Management procedures & displaying of traffic sign boards	NR
15	Displaying safety sign boards and notices	NR.

Abbreviation: NR - Not Relevant

Inspected by:

Supervisor/EA: S. Perera

Checked by:

Safety Officer/SE/PM: [Signature]



# MONITORING CHECKLIST

## CONSTRUCTION SITE

### NCC-Ltd

Supply & Laying of Water Distribution Networks in Jaffna City Area

(Contract No – PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)

Location: Rasavinthoddan- Jaffna.

Work Schedule Month: March (01.03.2021 to 31.03.2021)

No	Item	S	US	NR	Remarks
01	Control Measures for noise and vibration	✓			
02	Control measures for any spillage of oil or any hazardous substances from machineries	✓			
03	Fumes/ Air emission control measures adopted for machineries	✓			
04	Dust Control measures for material stock pile (Water sprinkling, covering)	✓			
05	Dust control measures at disposal site (Water sprinkling)		✓		
06	Construction waste management measures	✓			
07	General refuse management measures	✓			
08	Control measures to avoid disturbance to public utility (Drainage/Telephone lines/ Water lines/ Electrical lines/ Closure of commercial activities ect)	✓			
09	Health Safety and Environmental indication/ Providing necessary education to works		✓		
10	Supply of personal protective equipment (PPE)		✓		
11	Supply of Drinking water and dining facilities		✓		
12	Sanitary Facilities	✓			
13	Availability of first aid treatment facilities	✓			
14	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE ect)	✓			
15	Traffic Management procedures & displaying of traffic sign boards		✓		
16	Displaying safety sign boards and notices		✓		

Abbreviation: S – Satisfactory, US – Unsatisfactory, NR – Not Relevant

Inspected by:

Supervisor/EA: S. V. S.

Checked by:

Safety Officer/SE/PM: S. V. S.



**MONITORING CHECKLIST**  
**ENVIRONMENTAL AND SOCIAL PRE - CONSTRUCTION**  
**INSPECTION**

**NCC-Ltd**

Supply & Laying of Water Distribution Networks in Jaffna City Area

(Contract No – PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)

Location: Rasavithoddam - Jaffna.

Work Schedule Month 15.03.2021

No	Item	Description
01	No of houses affected	00
02	Whether families are made aware of disturbances	Yes
03	No of commercial places to be affected	00
04	Where owners of commercial places are made aware of disturbances	Yes
05	Control measures for noise and vibration	Shall be taken
06	Whether relevant house, structures are subjected to property survey	Yes
07	Control measures for any spillage of oil or any hazardous substances from machineries	Shall be taken
08	Fumes/Air emission control measures adopted for machineries	Yes
09	Dust control measures for material stock pile (Water sprinkling, covering)	Covering
10	Construction waste management measures	Shall be taken
11	General refuse management measures	
12	Control measures to avoid disturbance to public utility (Drainage/Telephone Line/Electrical Lines/ Closure of Commercial Actives ect.)	Yes
13	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE ect	Yes
14	Traffic Management procedures & displaying of traffic sign boards	Yes
15	Displaying safety sign boards and notices	Yes.

Abbreviation: NR – Not Relevant

Inspected by:

Supervisor/EA: S. Subula

Checked by:

Safety Officer/SE/PM: [Signature]

## MONITORING CHECKLIST

## DISPOSAL SITE

## NCC-Ltd

Supply &amp; Laying of Water Distribution Networks in Jaffna City Area

(Contract No - PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)


Location: Kalundai CNWS SDB's Land)

Work Schedule Month: February (01-02-2021 to 28-02-2021)


No	Item	S	US	NR	Remarks
01	Control Measures for noise and vibration			✓	
02	Control measures for any spillage of oil or any hazardous substances from machineries			✓	
03	Fumes/ Air emission control measures adopted for machineries			✓	
04	Dust Control measures for material stock pile (Water sprinkling, covering)			✓	
05	Dust control measures at disposal site (Water sprinkling)			✓	
06	Construction waste management measures			✓	
07	General refuse management measures			✓	
08	Control measures to avoid disturbance to public utility (Drainage/Telephone lines/ Water lines/ Electrical lines/ Closure of commercial activities ect)			✓	
09	Health Safety and Environmental indication/ Providing necessary education to workers			✓	
10	Supply of personal protective equipment (PPE)			✓	
11	Supply of Drinking water and dining facilities			✓	
12	Sanitary Facilities			✓	
13	Availability of first aid treatment facilities		✓		
14	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE ect)		✓		
15	Traffic Management procedures & displaying of traffic sign boards		✓		
16	Displaying safety sign boards and notices		✓		

Abbreviation: S - Satisfactory, US - Unsatisfactory, NR - Not Relevant

Inspected by:

Supervisor/EA: 

Checked by:

Safety Officer/SE/PM: 

**MONITORING CHECKLIST**  
**ENVIRONMENTAL AND SOCIAL PRE – CONSTRUCTION**  
**INSPECTION**

**NCC-Ltd**

Supply & Laying of Water Distribution Networks in Jaffna City Area

(Contract No – PEIC/JKWSSP/DISTRIBUTION NETWORK/2017/01)

Location:

Work Schedule Month February (01.02.2021 to 28.02.2021).

No	Item	Description
01	No of houses affected	NR
02	Whether families are made aware of disturbances	NR
03	No of commercial places to be affected	NR
04	Where owners of commercial places are made aware of disturbances	NR
05	Control measures for noise and vibration	NR
06	Whether relevant house, structures are subjected to property survey	NR
07	Control measures for any spillage of oil or any hazardous substances from machineries	NR
08	Fumes/Air emission control measures adopted for machineries	NR
09	Dust control measures for material stock pile (Water sprinkling, covering)	NR
10	Construction waste management measures	NR
11	General refuse management measures	NR
12	Control measures to avoid disturbance to public utility (Drainage/Telephone Line/Electrical Lines/ Closure of Commercial Actives ect,)	NR
13	Safety Arrangement (i.e. Barricading to avoid accidental falls, Availability of PPE ect	NR
14	Traffic Management procedures & displaying of traffic sign boards	NR
15	Displaying safety sign boards and notices	NR.

Abbreviation: NR – Not Relevant

Inspected by:

Supervisor/EA: S. K. S. K.

Checked by:

Safety Officer/SE/PM: [Signature]