

**you**

*deserve to use the latest technology and the*

## *Pre-cast Reinforced Concrete Shaft Manholes*



*Khartoum North, industrial Area*

*Phone: 0185-314810*

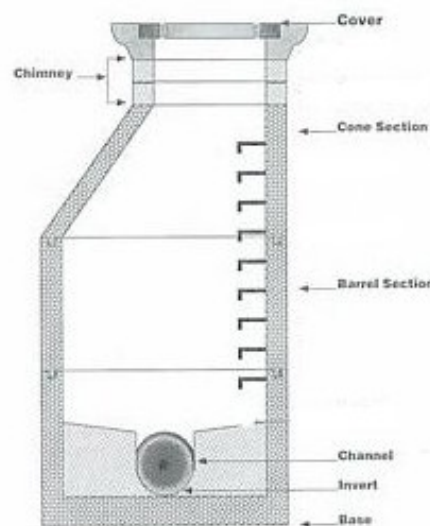
*Fax: 0185- 311234*

*E-mail: [pcp\\_company@yahoo.com](mailto:pcp_company@yahoo.com)*

## ***General:***

*Sanitary sewerage refers to wastewater derived from domestic, commercial, and industrial pretreated waste to which storm, surface, and ground water are not intentionally admitted.*

*A system of pipes and pump station connected by a series of sewer manhole that collects used water from kitchen sinks, bathtubs, toilets, washing machines, dishwashers, etc., in homes and businesses and transports it to a waste water treatment facility.*



**Typical Sewer Manhole Shaft**

*Manhole is the top opening to an underground utility vault used to house an access point for making connections or performing maintenance an underground and buried public utility and other services including sewer, telephone, electricity, storm water and gas.*

*The opening is protected by a manhole cover, plug design to prevent accidental or unauthorized access to manhole. Those plugs are usually made of metal or constructed from precast concrete.*

### ***Why precast ?***

*Because precast concrete products typically are produced in a controlled environment , they exhibit high quality and uniformity. Variables affecting quality typically found on a job site - temperature, curing conditions, material quality and craftsmanship - are nearly eliminated in precast plant.*

*The strength of precast concrete gradually increases with time. Other material can deteriorate, experience creep and stress relaxation, loss strength and/or deflect over time. The load -carrying capacity of precast concrete is derived from its own structural qualities and does not rely on the strength or quality of surrounding backfill material.*

*Precast concrete products are cast and cured in the plant and delivered to the site ready to set so they reduce the staging area required, which can reduce to over all site disturbance.*

*A sewer manholes is sewer access point with a removable cover which allows human and machine access to a (typically buried) Sewer.*

*A Manhole Shaft provides several functions, such as*

- *conduct inspections*
- *connect two sewers when there is a change of grade or alignment or size.*
- *provide a junction where two or more sewers meet.*

## *Construction Parts of Shaft manhole*



### ***Base section.***

*Dia 1000 mm*

*Height= 1200 & 1610 mm*

*Wall thickness 200*

*Base thickness 250 mm*

*Dia 1200 mm*

*Height= 1200 & 1450 mm*

*Wall thickness 200*

*Base thickness 250 mm*



### ***Grad or adjusting ring.***

*Dia 1000 & 1200 mm*

*Height= 500 & 1000 mm*

*Wall thickness 150 mm*

### ***flat slab***

*Dia 1000 & 1200 mm*

*Thickness= 200mm*

*With opening dia. 617 mm*

### ***Cover***

*Dia 617 mm*

*height= 150mm*

## *Advantages of Shaft manhole*

- *Manufactured in wide range of sizes and depth.*
- *They are simple to assemble requiring relatively unskilled labour on site.*
- *Unit are capable of being constructed as flexible watertight structures.*
- *The structure is durable with its own inherent strength.*

### **GRADE RINGS**

- *Precast concrete grade rings are used for final adjustment of manholes to grade and available in a range of heights and diameters.*
- *Grade rings are required to have a male/female joint.*
- *The minimum wall thickness is 1/12 of the internal diameter of the grade ring or 100 mm , whichever is greater.*

## *Construction Parts of Shaft manhole*

### *BASE SECTIONS*

*Precast reinforced concrete base is the foundation impermeable access chambers. Base come in varies configurations and are available without benched.*



### *GRADE RINGS*

- *Precast concrete grade rings are used for final adjustment of manholes to grade and available in a range of heights and diameters.*
- *Grade rings are required to have a male/female joint.*
- *The minimum wall thickness is 1/12 of the internal diameter of the grade ring or 100 mm , whichever is greater.*



To Order Call: 0185314810

### ***FLAT SLAB COVER***

- *Flat slab tops are often used to provide a transition from a larger diameter base to a smaller diameter riser section.*
- *Flat slab tops must be designed to withstand the anticipated loads from supported riser sections, soil and hydrostatic loads, surcharge loads, live loads and impact loads.*
- *Joints designed with a male or female end.*

### ***Eccentric Cone***

*In most precast manhole structures, the riser sections are topped with either an eccentric or concentric cone. With in the length of cone section*

*Eccentric cone are often referred to as cones and are available in both concentric and eccentric design to change diameter of the manhole.*



**To Order Call: 0185314810**

### ***Excavation & Installation :***

*The excavation all and ground support must be minimum 150 mm clear of outside of the component.*

*Precast concrete manholes desirable over cast-in-place concrete or brick manholes due to ease installation & leak free properties.*

*Precast concrete manholes can be easily installed on demand and immediately backfilled there is no need to wait for concrete or mortar to cure at the job site.*



### ***Water tightness Joints***

*Joints of the elements shall be made using mortar or sealant at the site.*

*Joint sealants used are :*

- 1. Rubber gasket.*
- 2. Mortar.*
- 3. Paste bitumen products.*





### Steps and ladder :

*Manhole assembly may be furnished with or without step insert into the wall.*

*Steps and ladder provide a means of ingress for precast manhole structure. They may be cast, mortared or attached by mechanical means to the manhole components.*

