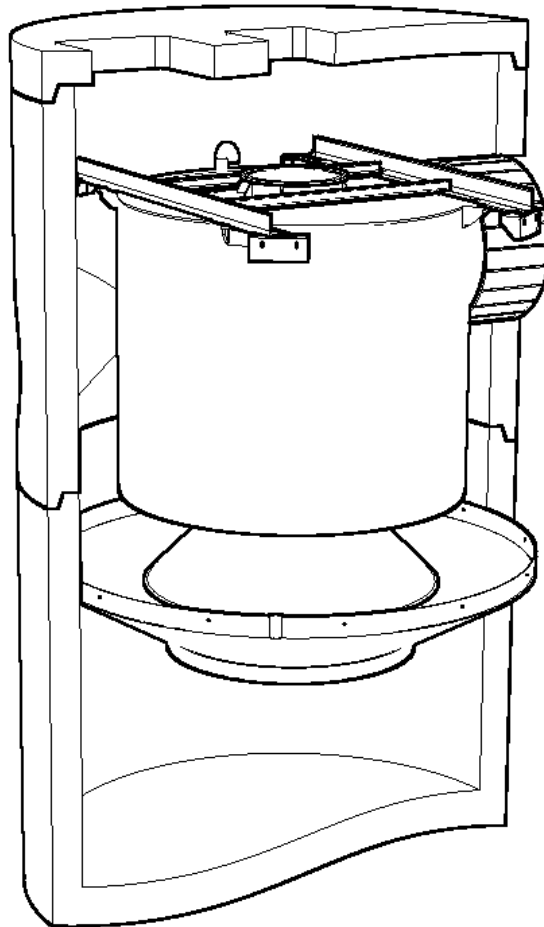
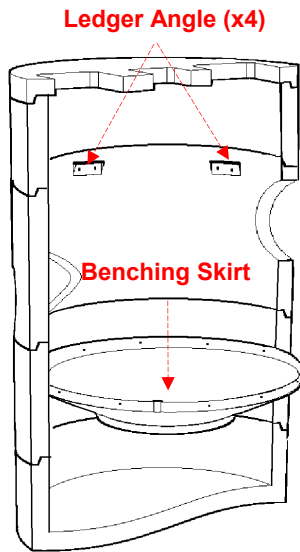


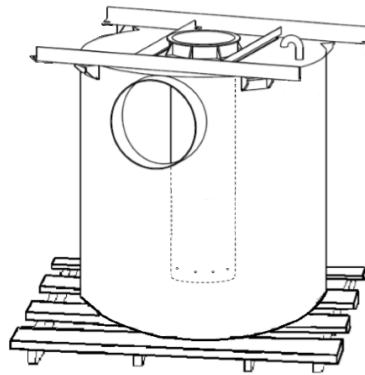
## 12 ft. Downstream Defender<sup>®</sup> Handling and Installation Instructions



## Materials Supplied By Hydro International



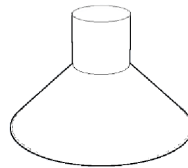
12 ft. Downstream Defender consisting of base/bottom slab, associated risers with benching skirt and ledger angles, and top slab



12 ft. Downstream Defender dip plate assembly



Joint Sealant

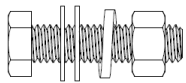


12 ft. Downstream Defender Center Cone

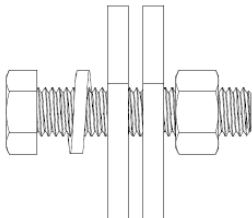


Frames with Grates or Covers (x3)

## Hardware Supplied By Hydro International

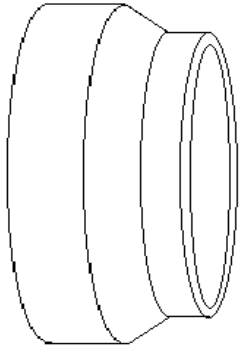


- A-304 SS 3/8 in.-16 UNC x 1 1/2 in. Fully Threaded Bolt
- A-304 SS 3/8 in. Flat Washer (x2)
- A-304 SS 3/8 in. Lock Washer
- A-304 SS 3/8 in.-16 UNC Hex Nut
- Pictured assembly x8 included for securing center cone to center shaft



- A-304 SS 5/8 in.-11 UNC x 2 3/4 in. Fully Threaded Bolt
- A-304 SS 5/8 in. x 2 in. Square Washer (x2)
- A-304 SS 5/8 in. Lock Washer
- A-304 SS 5/8 in.-11 UNC Hex Nut
- Pictured assembly x4 included for securing support frame to ledger angles

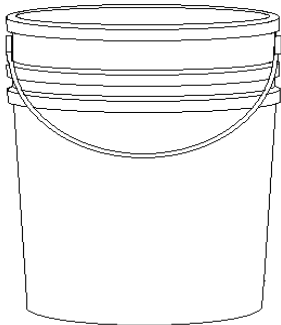
## Materials Supplied By Contractor



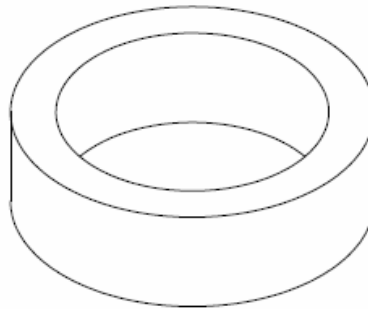
Pipe Coupling (Fernco, Marmac or similar)



Inlet/Outlet Pipes



Non-Shrinking Grout



Applicable Grade Rings/  
Brick and Mortar

## Handling and Storage

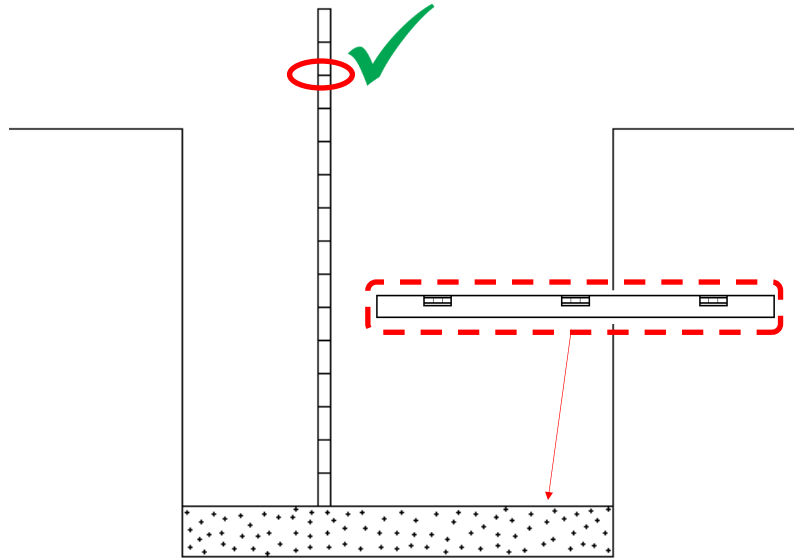
Hydro International's **DOWNSTREAM DEFENDER**<sup>®</sup> internal components are manufactured utilizing highly durable thermoplastics; however, improper handling may result in damage to components and accessories. Failure to comply with handling, and installation instructions voids all warranties.

1. Upon delivery of the **DOWNSTREAM DEFENDER**<sup>®</sup> components, inspect immediately for defects or shipping damage. If any discrepancies are found, notify Hydro International prior to unloading to initiate corrective action. Unloading of a damaged unit without notifying Hydro International voids all warranties and releases liability of costs to repair or replace from Hydro International and places onto the contractor.
2. At all times during unloading and installation, avoid unnecessary and extreme impacts to the internal components. All components shall be handled with firm and complete support. At no time shall anyone step, stand, or otherwise place an unnecessary load, on the components.
3. The **DOWNSTREAM DEFENDER**<sup>®</sup> shall be installed as soon after delivery as practical. Pending installation, all components shall be protected from ultraviolet light, vandalism, and impact.

## Installation

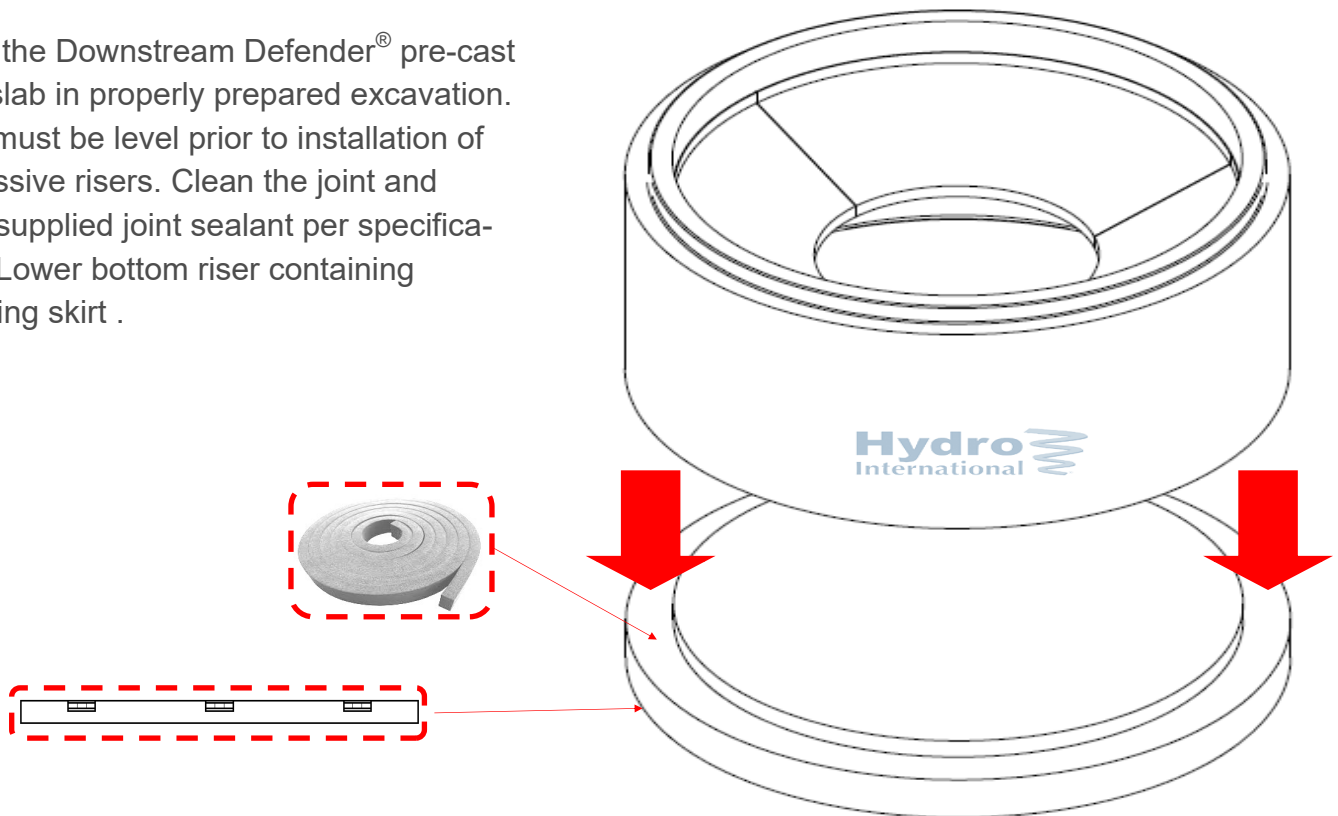
### Step 1

Excavation shall be prepared prior to installation and shall meet all applicable specifications for standards of construction. A sufficient sub-base of compacted stone, leveled and at correct elevation, is required at minimum.



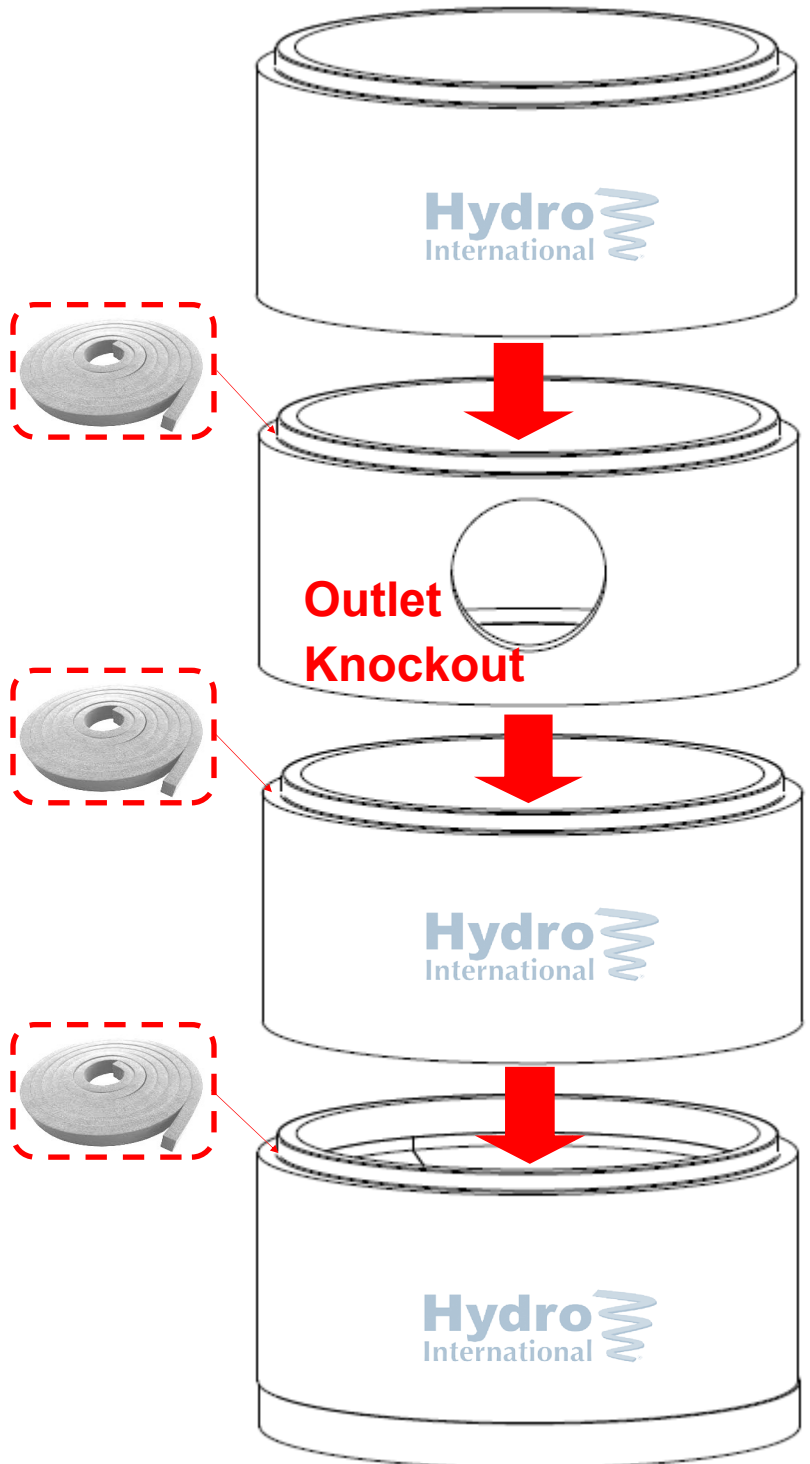
### Step 2

Install the Downstream Defender® pre-cast base slab in properly prepared excavation. Base must be level prior to installation of successive risers. Clean the joint and place supplied joint sealant per specifications. Lower bottom riser containing benching skirt .



### Step 3

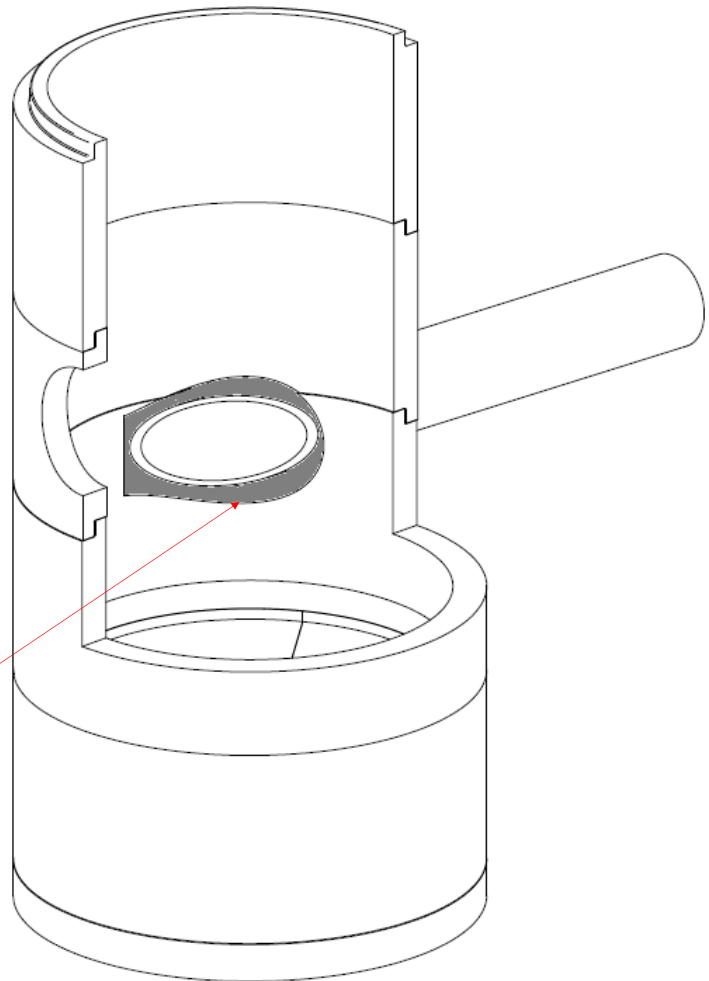
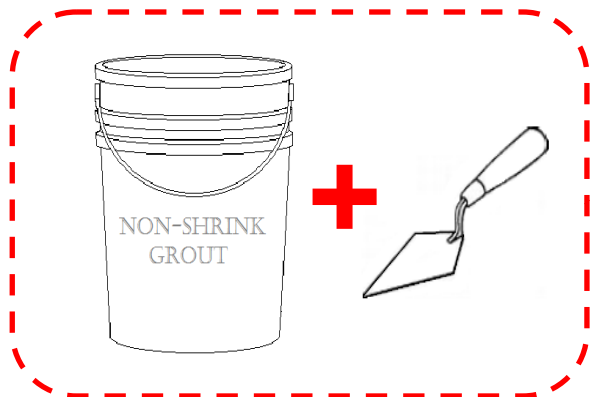
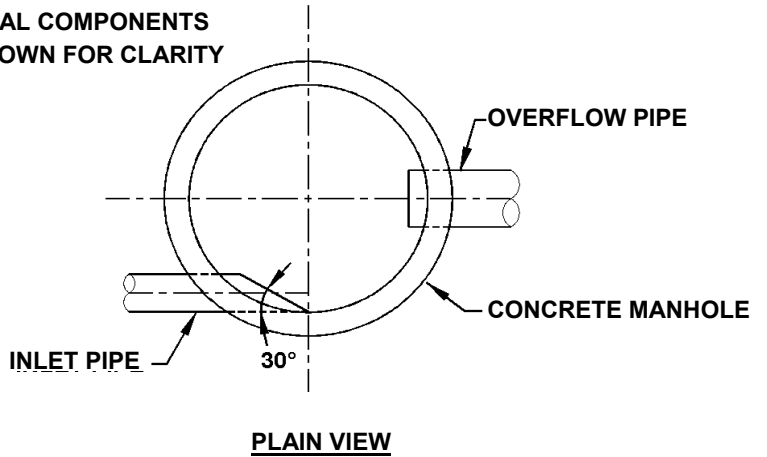
Install successive risers, cleaning joints and place supplied joint sealant per specifications. Ensure the riser(s) containing the inlet and overflow pipe knockouts is/ are orientated per alignment shown on the engineering drawings. Do not install pre-cast lid. Grout pick holes, if applicable, with watertight non-shrink grout.



### Step 4

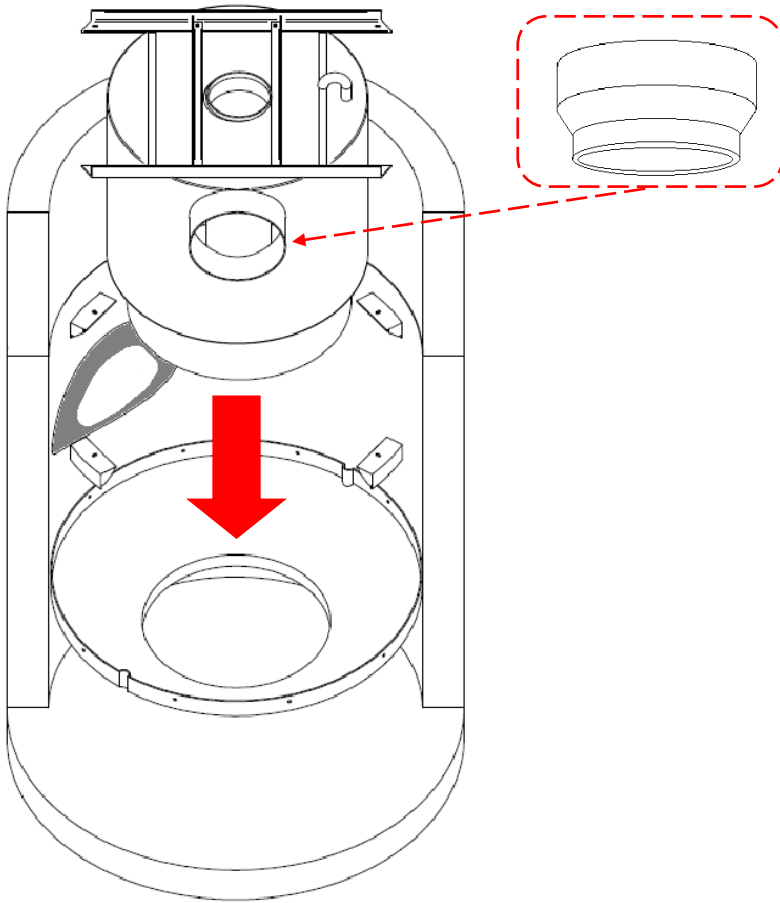
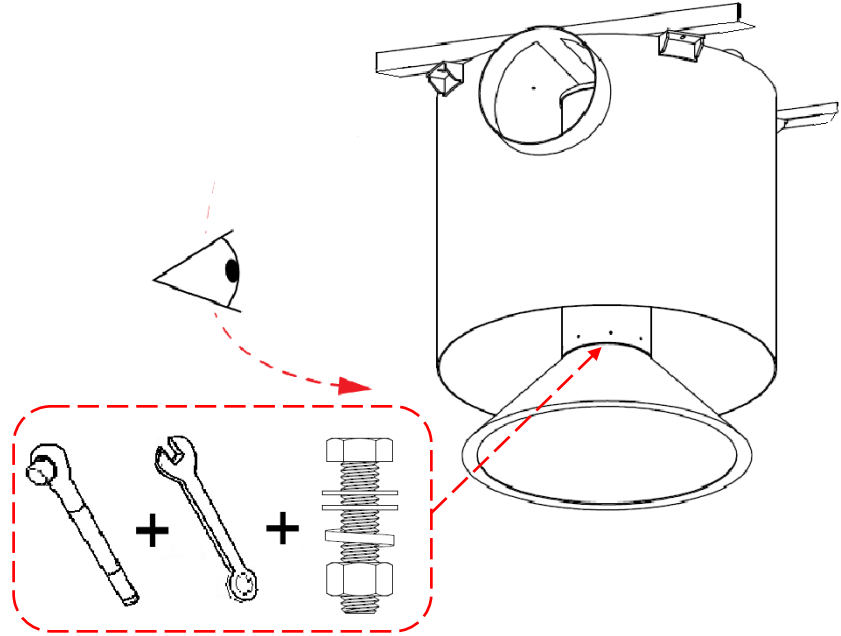
Cut the end of the inlet pipe at a 30° angle and connect so it is tangent to the pre-cast I.D. (or as shown in Hydro approved shop drawings). Grout inlet precast knockout around inlet pipe with watertight non-shrink grout. Inlet pipe shall not protrude further into the unit than indicated on the engineering drawings. On the interior, **grout must be finished to a uniform, smooth surface flush with the pre-cast wall. No grout shall spill inside the unit.** If required, plug inlet pipe and overflow pipe knockouts and test to ensure seal is water tight. The cause of any leaks must be determined and corrected prior to backfilling. **Failure to properly perform and pass test if required, releases Hydro from liability ensuing from such failure.**

**NOTE:  
INTERNAL COMPONENTS  
NOT SHOWN FOR CLARITY**



### Step 5

Raise Downstream Defender assembly by the lift points on the support frame. Secure the center cone to the center shaft by installing 3/8 in. hardware through concentric mounting holes.

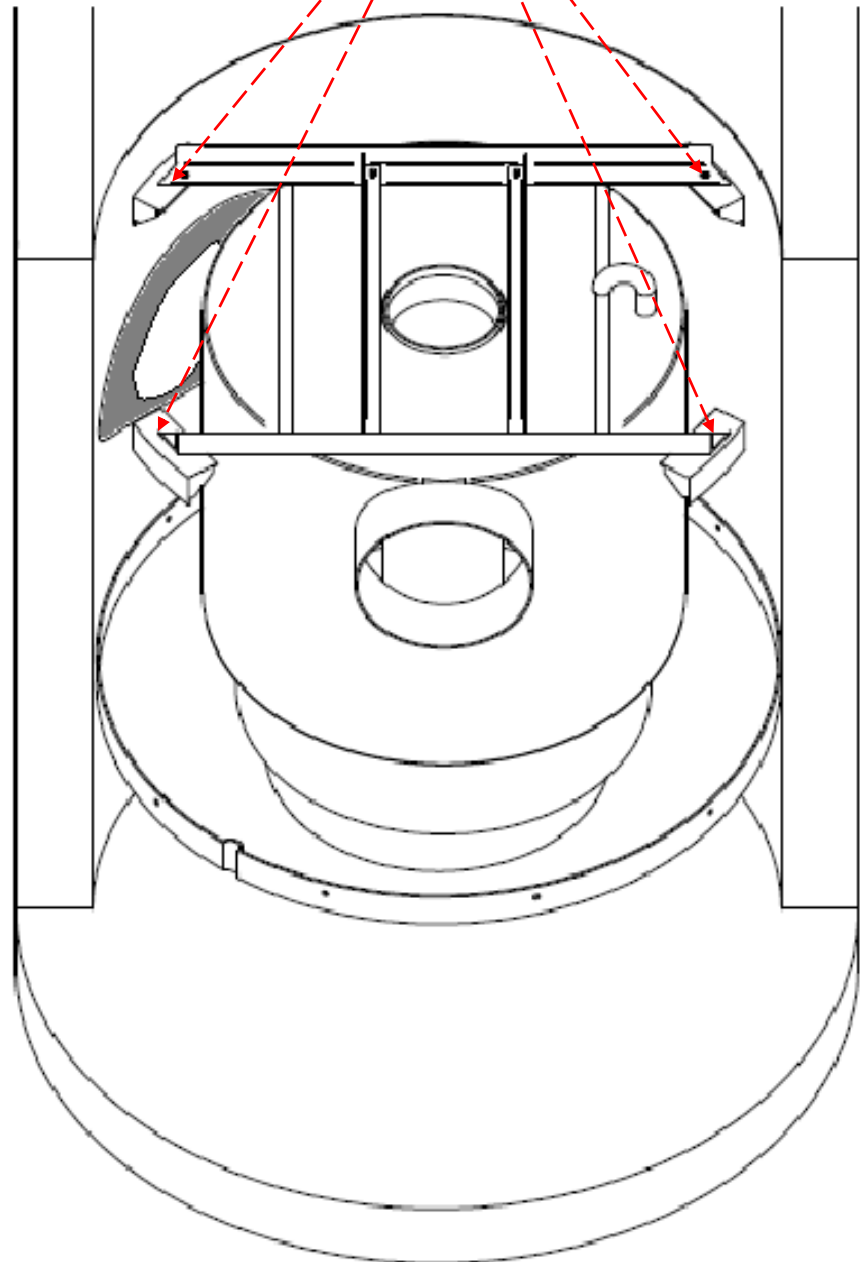
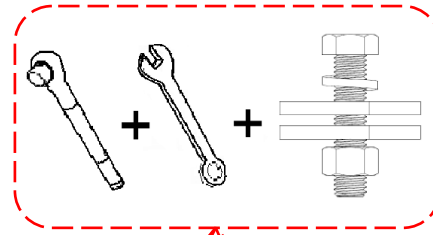


### Step 6

Place suitable pipe coupling (supplied by contractor) onto overflow stub. Carefully lower the dip plate assembly onto the stainless steel ledger angles attached to the interior wall of the pre-cast chamber. Orientate assembly so that overflow pipe stub aligns with overflow pipe knockout.

### Step 7

Attach the support frame to the ledger angles using supplied number (4) of stainless steel bolts, flat washers, lock washers and nuts.

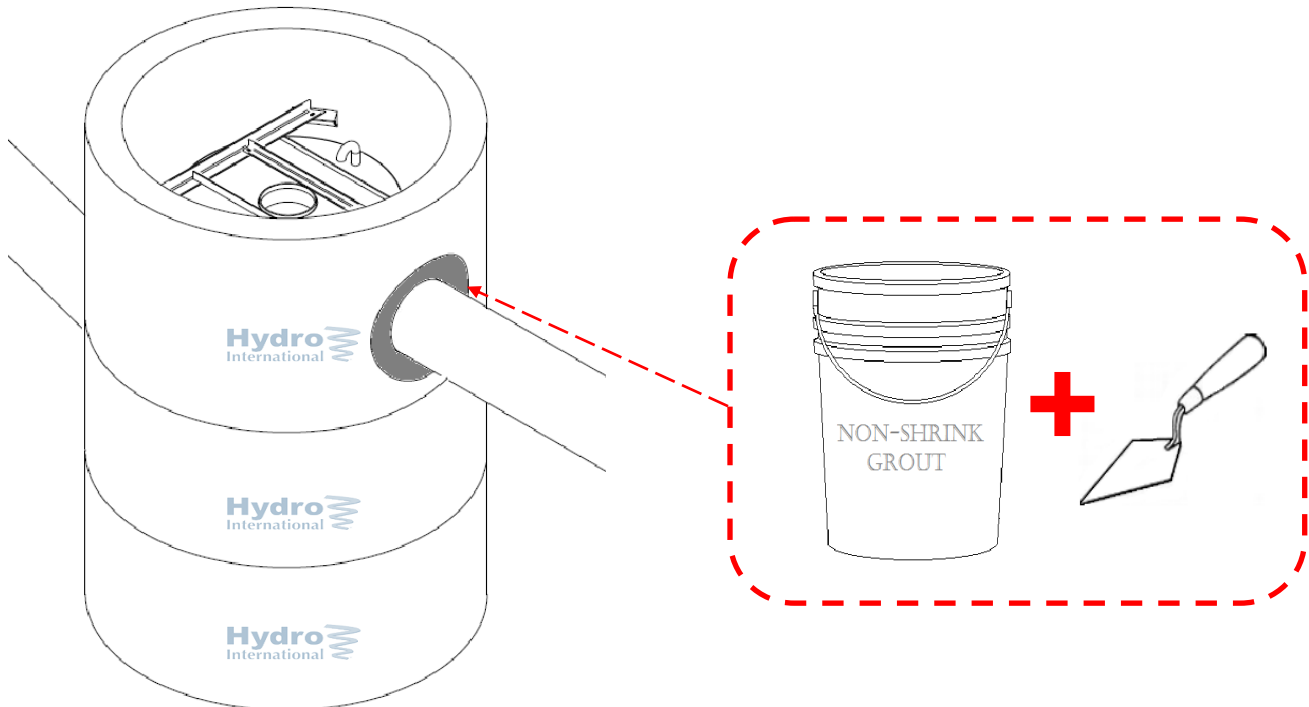
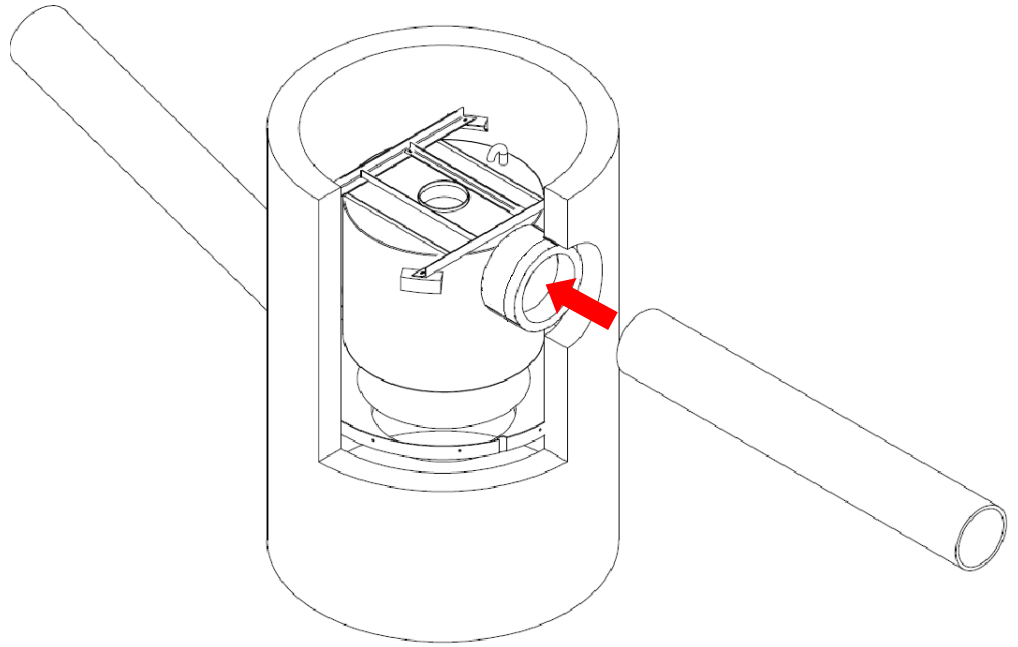




### Step 8

Connect the outlet pipe to the overflow stub using the previously installed pipe coupling. Grout manhole outlet knockout with watertight non-shrink grout.

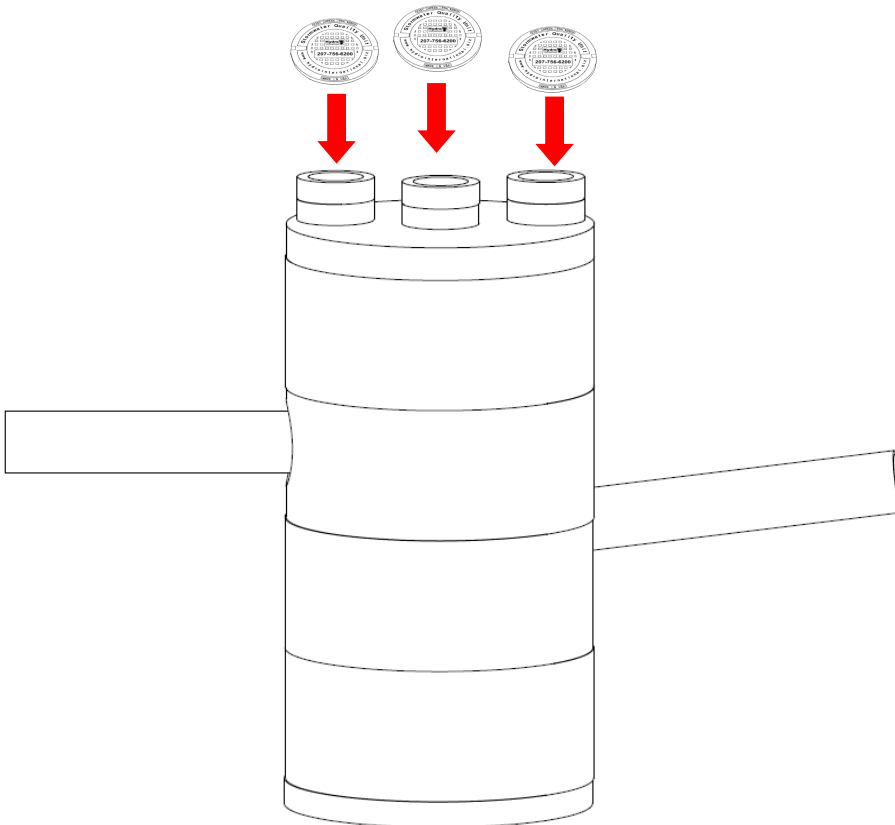
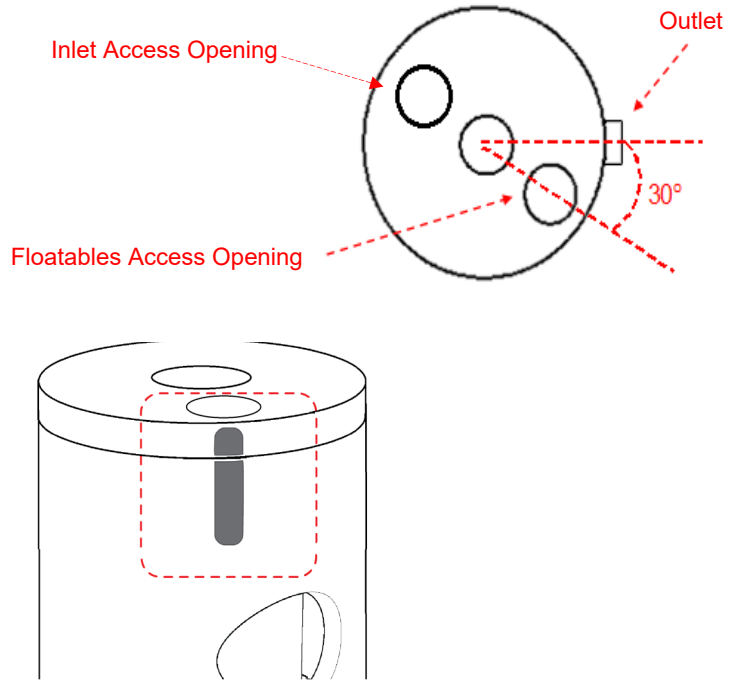
**On the interior, grout must be finished to a uniform, smooth surface flush with pre-cast wall. No grout shall spill inside the unit.**



### Step 9

Prepare the upper most riser joint with supplied joint sealant. Install pre-cast lid using match lines to correctly orientate outlet, sump and inlet access points.

**Note:** The outlet access hole should align approximately 30° upstream from the outlet, the sump access hole and inlet access hole should align centrally over the respective sump and inlet



### Step 10

Install cast frame(s) and cover(s) using accepted construction standards of adjusting to grade. Carefully backfill around unit.