



## PRO-ECO-LITE (tm) COMPOSITE HEADWALL STRUCTURES

Canadian Patent #'s: 92136 and 92137 - US Patent #'s 447,543 and 447,544

### **\*\* HEADWALL INSTALLATION INSTRUCTIONS \*\*\***

#### **PRE INSTALLATION**

- a. Soil, ground and drainage conditions vary by region. Installation and ground conditions and backfill materials must be confirmed by site engineer and or conform to the local municipal specifications.
- b. An apron is not required in most installations. In some areas a site engineer may require an apron or tie back to be installed to improve anchorage in poor ground conditions or steep slopes where high volume water may be common. Tie back locations are provided on the back side of the headwall.
- c. Prior to ordering refer to 'Installation Drawing'. Check the headwall offset and ditch depth to ensure bank slopes are within retention units of the headwall.
- d. Correct installation procedures are essential to maintain proven static loading limits and performance. Refer to 'Installation Drawing'.

#### **Installing XPORT<sup>tm</sup> INSERT to headwall**

- a. Prior to headwall installation fasten XPORT<sup>tm</sup> insert to headwall by the following method.
- b. Apply a generous amount of silicone sealant to mating flange of XPORT<sup>tm</sup> insert flange.
- c. Install XPORT<sup>tm</sup> insert into PRO-ECO-LITE<sup>tm</sup> headwall, ensure correct invert position. Install s/s fasteners and washers through front face and fasten nuts on the backside. Torque every second nut to ensure proper and even seating of spigot flange.
- d. Run a final bead of silicone around face of insert joint to complete seal.

#### **CORRECT INSTALLATION for ALL HEADWALLS INCLUDING BOTH ENVIRO-CONNECT<sup>tm</sup> and FRP male universal spigot.**

1. Some contractors prefer to make pipe connection prior to installing headwall into ditch. This is sometimes preferred where running water exists in the ditch, as the water flow will be uninterrupted during backfill. Note: Make sure weight of headwall is carried by lifting sling and not the pipe if this method is used.
2. If an apron is used it must be installed, backfilled and fully compacted prior to installation of the headwall. Install apron top flange at headwall base grade (approx).

### 3. ENVIRO-CONNECT™ CONNECTION - (Pipe specific stubs)

#### Using pipe manufacturers coupling

- a. Sometimes it is easier to line up the two pipe ends if the lower half of the coupling is placed under the ditch pipe (specific to CSP couplings). This allows the headwall to drop into the receiving coupling. Similar methods used with PE couplings.
- b. Lower headwall into ditch manually or sling through tie down ribs in the backside of headwall and lift into place mechanically.
- c. After lining up pipe ends place top part of coupling in place and fasten as per manufacturer recommendations.
- d. For full PVC couplings attach coupling to one pipe end first. Apply pressure to 2 x 6 positioned across front of headwall to complete connection if pipe is buried in place.
- e. For pipe ends that no coupling will fit, use shrink wrap PE film.

### 4. FRP SPIGOT CONNECTION (requires mechanical fastening)

- a. Lower headwall into ditch and position FRP spigot into receiving pipe.
- b. Pack foam-backing rod into cavity on the inside between pipe and spigot.
- c. Drill 4 holes to mechanically fasten headwall with 3/8" s/s fastener c/w washers.
- d. Drill one 3/8" hole in bottom of pipe and another hole in top of pipe in the joint cavity.
- e. Inject expandable mono foam into cavity at lower hole until foam appears out of upper hole. Connection is now complete. (Alternate - Fill cavity with epoxy or acrylic modified grout).

5. The ground must be well drained with a solid compacted base. Coarse, flowable sand is recommended for backfill in 12" lifts and foot compacted solid before continuing. Backfill must be fully compacted to top level of installation area.

6. Riprap may be placed on bank slopes to ensure slope retention in unstable ground conditions. A thin layer of topsoil and hydra seed or sod can be added if desired.

7. Riprap may be placed on front bottom plate of headwall to provide a more natural habitat for fish or other wildlife. The riprap will also provide additional stability to ditch base to prevent undermining of the headwall. If stream flow is excessive further precautions against undermining can be accomplished by adding an apron to the headwall base.

8. The performance of this product is directly related to the variety of applications, installation methods and conditions. The above installation procedures are generic and local ground and site conditions may dictate necessary changes - consult site engineer for necessary changes.

9. The product is designed for occasional traffic loads, and it is not recommended for use on roads, service roads or driveways where maximum loads are not known. We recommend placing of the headwall on the bank slope or widening of the driveway to avoid damage from unknown traffic loading. The headwall is designed and tested to withstand a 20,000 lb. static load when fully back filled.

10. Visual staking is recommended to prevent damage until site work is complete.

**Please call if you require any further instructions: 250-652-6313 or toll free: 1-800-293-1525**