

# ecoLine-b Oil Water Separation technology

## Standard Specification

### PART 1.00 - GENERAL

#### 1.01 SUMMARY:

- A. This Section includes the following utility materials and methods to complement other Division \_\_ Sections:
  - 1. Concrete tank requirements for the Oil/Water Separator only.
  - 2. Method and materials for the Separation of Oil and Water.
  - 3. Controls and alarm systems for the Oil/Water Separator only.
- B. Exterior Pipe and pipe fitting materials are specified in Division \_\_ piping Sections.
- C. Related Sections include the following:
  - 1. Division \_\_\_\_ Section "Earthwork" for excavating, trenching, and backfilling.
  - 2. Division \_\_\_\_ Section "Sewerage and Drainage" for pre-cast manhole construction.
  - 3. Division \_\_\_\_ Section "Utility Materials" for nameplate installation requirements.
  - 4. Division \_\_\_\_ sections for Electrical for establish of electrical controls to the oil/water separator.

#### 1.02 SUBMITTALS:

- A. Product Data: Catalog Cuts with dimensions, specifications and installation instructions. Include one copy of manufacture's, contractor installation, operations and maintenance manual for informational purposes.
- B. Performance: "EN858 and DIN 1999" (part 5) testing certificate for influent and effluent oil characteristics.
- C. Accessory sensors and alarms: Schematic wiring diagrams and bill materials for each component of each sensor/alarm system.
- D. Project Closeout Submittals: Provide two additional copies of manufacture's, contractor installation, operations, and maintenance manual with log.

#### 1.03 QUALITY ASSURANCE:

- A. The separator system shall be designed to perform as specified for variable and continuous flow rates up to \_\_ gallons per minute (\_\_liters per second) and also include peak, intermittent flow rates up to and including \_\_ gallons per minute (\_\_liters per second).

- B. (Manufacturer's recommendation) The unit shall have a fore bay or grit chamber preceding the oil separators inlet for containing and dissipating turbulence in influent water. This grit chamber shall pre-treat the influent by separating grits and floatable debris from the waste stream prior to influent entering the oil separator.
- C. The central portion of the unit shall enable the removal of fine and widely dispersed oil droplets by means of gravity displacement to a "dead" water layer in the unit itself and withstand subsequent detachment and re-entrainment into the flowing water by controlling the flow of influent into the vessel.
- D. Accepted Manufacturers:
  - 1. ecoLine Oil/Water Separator as designed by Royal Environmental Systems, Stacy, Minnesota 800-817-3240. Royal Environmental reserves the right to oversee and select a certified National Precast Concrete Association (<http://www.precast.org/certification/index.htm>) manufacturer.
  - 2. Pamrex ductile iron hinged frame and cover or Aluminum hatch covers manufactured by Syracuse Castings Company (or OWS manufacturer to approved equal). The size and or final design will determine which man-way will be used.
- E. Governing Standards for Concrete Tank:
  - 1. ASTM C478-07 for precast water and wastewater structures
  - 2. ACI 318-05 Building code requirements for reinforced structural concrete.
  - 3. Tank shall meet AASHTO HS-20-44 vehicle loading.
  - 4. Technology designed and tested to meet all "EN858 and DIN 1999" (part 4-6) requirements for oil/water separators.

#### **1.04 SEQUENCING AND SCHEDULING:**

- A. Coordinate equipment installation with other components.
- B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- C. Sequence, coordinate, and integrate installations of materials and equipment for efficient flow of the Work.
- D. Coordinate connection of piping systems with other exterior underground utilities and services. Comply with requirements of authorities having jurisdiction, franchised service companies, and controlling agencies.
- E. Coordinate installation of identifying devices after completing covering and painting, if devices are applied to surfaces.

## PART 2.00 - PRODUCTS

### 2.01 OIL SEPARATOR:

- A. HS-20 traffic loading underground precast concrete tank.
- B. Standards: The oil/water separator shall be tested in accordance with “DIN 1999” (part 5).
- C. Design standards:
  - 1. Mechanical coupled inlet and outlet connections.
  - 2. Sediment Chamber, as required
  - 3. Internal inlet velocity diffusion baffle on sediment chamber inlet.
  - 4. Floatable solid baffle on sediment chamber outlet.
  - 5. Oil separator shall have an outlet configured, non-electrical, mechanical automatic shutoff device to protect against a spill event or an oil buildup caused by a lack of routine maintenance.
  - 6. The oil water separator shall contain a removable “media pack” (polyether-polyurethane coalescer) designed to intercept oil globules greater than 20 microns for oils with a specific gravity of 0.95 or less. The oil water separator shall be tested and certified to achieve an oil removal efficiency of 5 ppm (5 mg/L) for effluent oil content of non-emulsified free oils, in fresh water, with a specific gravity of 0.86 or less at an influent concentration of 5000 ppm (5000 mg/L), dosed at peak intermittent flow for the specified flow outlined in 1.3.A. of this written specification.
  - 7. All internal parts shall be manufactured from pickled stainless steel and high-density polyethylene.

### 2.02 JOINING MATERIALS:

- A. Refer to individual Division 2 piping Sections for special joining materials not specified otherwise.

### 2.03 ACCESSORIES:

- A. Interface and level sensor: Intrinsically safe oil level controls to activate high-level alarm at a predetermined oil level as manufactured by Labko.
- B. Alarm/Control panel (per manufacturer's recommendation): To monitor level sensor and trip a remote mounted visual and audible alarm configured to the system as manufactured by Labko.
  - 1. Remote mounted audible alarm to have alarm silence switch but leave alarm light lit until problem has been corrected.
  - 2. Separate alarm light for high oil level (red) self-test button.
  - 3. Labeled identification for each light, switch, etc.
  - 4. Nameplate identification for the alarm panel as follows, “OIL SEPARATOR - OIL LEVEL.”

## **PART 3.00 - EXECUTION**

### **3.01 INSTALLATION:**

- A. Perform test as per manufacturer's recommendations.
- B. Excavate and install tank in accordance with manufacturer's recommendations and specifications found elsewhere within this document.
- C. Backfill per manufacturer's recommendations and specifications found elsewhere within this document.
- D. Connect tank sensors to the control panel. Field locate the control panel in the area where directed. Provide new electrical service to the new control panel as directed. Electrical work to conform to the requirements of the National Electrical Code (NEC) and specifications found elsewhere in this document. The contract owner's representative will be the sole judge of the interpretation of these rules and requirements.
- E. Install remote alarm panel where directed by the contract owner's representative. Provide one set of dry contacts connected to the "High Water Alarm" for connection to the Building Automation System (BAS).

END OF SECTION