PART 1 GENERAL

1.1 SECTION INCLUDES

A. Montana flumes.

1.2 RELATED SECTIONS

1.3 REFERENCES


1.4 SUBMITTALS

A. Submit under provisions of Section 01300.
B. Product Data: Test results of representative fiberglass reinforced plastic laminate.
C. Shop Drawings: Show:
   1. Critical dimensions, jointing and connections, fasteners and anchors.
   3. Sizes, spacing, and location of structural members, connections, attachments, openings, and fasteners.
D. Samples: 8-inch square sample of representative fiberglass reinforced plastic laminate.
E. Manufacturer's installation instructions.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products indoors or in weather protected area until installation. Protect from construction traffic and damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

B. Requests for substitution must be made in writing and received by the engineer’s office a minimum of ten (10) business days before bid opening. Substitutions shall be made in accordance with the provisions of Section 01600.
C. Substitutions: Manufacturers not pre-approved shall not be allowed.
D. Warranty: Flumes shall be warranted to be free of defects in workmanship and materials for a period of two years from shipment.

2.2 MONTANA FLUMES

A. Flume Type: Provide flumes of the following types:
   1. Size: _______ INCH.

B. Construction:
   1. One-piece construction.
   2. Nested flumes of size and type where indicated (backfill by others) (OPTIONAL – specify flume sizes).

C. Materials:
   1. Fiberglass reinforced plastic.
   2. Gloss inside surfaces, free of irregularities.
   4. Minimum 30% glass by weight.
   5. Isophthalic polyester resin.
   6. Removable pultruded fiberglass bracing at top of flume with T-304 stainless steel hardware.
   7. 2 inch (minimum) top and end stiffening flanges.
   8. Molded-in stiffening ribs, maximum 12 inch center to center spacing.
   9. 15 mil Isophthalic U.V. resistant gel coat on all surfaces, white interior, grey exterior.
   10. Anchor clips drilled for 3/4 inch, pultruded fiberglass construction.
   11. Tensile strength (ASTM D 638): 14,000 PSI.
   12. Flexural strength (ASTM D 790): 27,000 PSI.
   13. Flexural modulus (ASTM D 790): 1,000,000 PSI.

2.3 OPTIONS (select all that apply)

A. Stilling well:
   1. 2 inch coupling, for user-supplied stilling well.
   2. 8 inch diameter attached, with 2 inch opening.
   3. 8 inch diameter detached, with 2 inch coupling, interconnection tubing by others.
   4. 12 inch diameter attached, with 2 inch opening.
   5. 12 inch diameter detached, with 2 inch coupling, interconnection tubing by others.

B. Laminated, high visibility staff gauge:
   1. Graduated in 1/10 foot and 1/100 foot increments.
   2. Graduated in 1/10 foot, 1/100 foot, and MGD increments (3-72 inch sizes only).
   3. Graduated in 2mm increments.

C. Ultrasonic mounting bracket:
   1. Fixed position stainless steel.
   2. Horizontally and vertically adjustable stainless steel.

D. Removable T-316 stainless steel bubble tube, for 1/8 inch O.D. bubble line.
E. Removable T-316 stainless steel sample tube, for 3/8 inch O.D. sample line.
F. End Connection:
   1. Inlet end adapter with:
      i. _______ size inlet pipe stub with flexible PVC boot and stainless steel bands to connect to _______ size, _______ piping.
      ii. _______ size, _______ inlet and ANSI 150 lb. flat-faced flange.
   2. Inlet wingwalls (specify radius or flat 45 degree type).

H. Submerged probe / area velocity probe cavity (specify length and O.D. of probe).
I. Removable open cell fiberglass grating over the flume.
J. Removable flat fiberglass cover with T-304 stainless steel bolt hardware over the flume.
K. Sectioned into _____ pieces to fit through 22-1/2 inch manhole opening, with T-304 stainless steel connection hardware, for field assembly (by others) (3-12 inch sizes only).
L. Chemical or temperature resistant service (the standard flexible boots are PVC, ensure that either the chemical or temperature is compatible with PVC or that alternate end connects are provided):
   1. Gel coat only.
   2. Gel coat and resin (required for temperature service).
   3. Maximum temperature: _________ °F.
   4. Chemical(s) and concentration(s): ________________________________.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that the flume dimensions are correct and project conditions are suitable for installation. Do not proceed with installation until condition deficiencies have been corrected.

3.2 INSTALLATION

A. Install products in accordance with engineer’s instructions, plans, blueprints, etc.
B. Ensure that the product is installed plumb and that the upstream floor is level.
C. Set the flume at the elevation indicated on the engineer’s drawings.
D. Embed the flume in concrete; pour concrete in maximum 6 inch lifts; internally line and brace the flume as necessary to ensure bowing or distortion does not occur.
E. For additional installation instructions refer to latest revision of document M-I.

3.3 ADJUST AND CLEAN

A. Clean surfaces in accordance with the manufacturer’s instructions.
B. Remove trash and debris, and leave the site in a clean condition.

END OF SECTION