

Product Evaluation

**RE: Review of PRO-ECO-LITE™
(Culvert Headwall or Weir Units, Composite Headwall Structures)**

PRODUCT

The PRO-ECO-LITE™ Composite Headwall Structures are manufactured from glass reinforced composites incorporating proprietary polymer concrete core. This product is manufactured by Custom Industrial Fibreglass Ltd., in Saanichton, British Columbia.

VENDOR CLAIMS AND INFORMATION

CLAIMS

PRO-ECO-LITE™ Composite Headwall Structures provide efficient and economical systems for flood, stream, erosion, debris, safety and animal control in an environmentally friendly culvert or pipe end system. Product web link: <http://www.cifcomposites.com/>

Other features of this product are:

- Non-standard molds available to suite retrofitting of existing installations
- Light weight
- Environmentally friendly (meets Federal Fish and Wildlife requirements)
- Can accommodate anchors or tiebacks
- Various colours

DESCRIPTION

The PRO-ECO-LITE™ Composite Headwall Structures are manufactured using Composite Reinforced Polymer Concrete. The PRO-ECO-LITE™ structures contain the following properties:

- chemically resistant
- fire retardants
- UV stabilizers
- non-leaching and non-corrosive properties

POTENTIAL USAGE

The headwall structure can be supplied with a pipe stub to connect to various existing types of culverts and sizes. This product has been used in environmentally sensitive fish habitats by the British Columbia Ministry of Transportation and Highways and is listed on their "Recognized Products List".

STANDARDS

The PRO-ECO-LITE™ Composite Headwall Structures conforms to the following specifications:

- | | |
|------------|-------------------------------------------------------------------------------------------------------------------------|
| ASTM E84 | Test Method for Surface Burning Characteristics of Building Materials |
| ASTM E162 | Test Method for Surface Flammability of Materials using a Radiant Heat Energy Source |
| ASTM D635 | Test Method for Rate of Burning and for Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position |
| ASTM D1929 | Test Method for Ignition Properties of Plastics |

ALBERTA TRANSPORTATION COMMENTS

EXPERIENCE

Alberta Transportation has no experience with this product. Alberta Transportation typically uses corrugated steel standard sloped end sections (bevelled ends at 3 to 4:1) for the majority of the non-bridge size culverts. The corrugated steel pipe industry has a standard steel section for culvert end treatment; this type of end treatment has not been used often due to economics. For plastic culverts the ends are bevelled (3 to 4:1) to form the end treatment. Concrete culverts use a flared end section for their end treatment.

Bridge size culverts typically have concrete headwall and wings for their end treatment and most likely require guardrail protection on the roadway shoulder due to safety requirements for the travelling public.

APPLICABLE STANDARDS

The Alberta Transportation Specification for culvert materials is as follows:

Standard Specification for Highway Construction 2.4 Culverts and Specification for Bridge Construction Section 18, Supply and Construction of CSP and SPCSP Structures

CONCLUSION

The PRO-ECO-LITE™ Composite Headwall Structure is suitable for use on non-bridge size culverts in conjunction with a road barrier system (Guardrail) or in deep fills where the culvert end is beyond the clear zone. This product may be particularly useful as an end treatment when plastic culvert materials are required.

RECOMMENDATIONS

Post product information on the Alberta Transportation Products List under Proven Products, Culverts: End Treatments – Proprietary, PRO-ECO-LITE™ Composite Headwall Structures “for non bridge size culverts” based on the information provided.

TRIAL PROJECTS

Main Canal Reach 4 (East of Arrowwood, Hwy. 547)
Hwy 2, N. of Dunvegan Bridge

Joe Filice

cc New Product Evaluation Standing Committee – Terry Willis
Bill Kenny/Sal Hasham

JF/nv