Montana Department of Transportation
Research Program
November 1999

EXPERIMENTAL PROJECT PROPOSAL FOR THE EVALUATION OF A FIBER-REINFORCED PLASTIC (FRP) PULTRUDED DECKING MATERIAL AND A. B. CHANCE HELICAL ANCHORING SYSTEM FOR USE IN SNOW FENCE APPLICATIONS

Location:	Interstate 90, Livingston; South-side of interstate, approximate milepost 332 (Park County)
Project Number:	IM90-7(63)331
Federal Project No:	MT 00-01
Type of Project:	Snow Fence Construction using Fiber-Reinforced Plastic (FRP) ®E-Z Deck material and A. B. Chance ®Helical Anchor System
Principal Investigator:	Construction: David Adams, Engineering Project Manager Construction Report/Annual and Final Reports: Research Management Unit, Craig Abernathy

Objective

The purpose of this study is to evaluate the feasibility of using a fiber-reinforced pultruded (FRP) material in the construction of snow fences. The main purpose of testing the FPR product is to determine its structural integrity based on MDT's current snow fence specifications, especially with the harsh climate these structures are subjected to in the state of Montana. A secondary purpose of testing this material is to determine its design function as a possible alternative for MDT design specifications for the construction of snow fences. The final purpose was to test the ®Helical Anchoring System as a reliable ground attachment for snow fences.

Experimental Design

The FRP 'E-Z Deck' is a proprietary product produced by the Pultronic Corporation of Alberta, Canada. E-Z Deck has been primarily used in the installations of patio decks and docks. The Helical Anchor is a proprietary product of the A. B. Chance Co. in Centralia, Missouri. The Helical Anchor is a single coil helix attached to a central shaft, which then is screwed into the ground. The first test section will be a 4.9 x 3.6 meter panel based on MDT's current design specification (Section 607) using the Pultronic FRP product and the clip fastening system. The second test section will be the design submitted by Dave Morris; this will be similar to MDT's however it will eliminate the inside frame brace. The second test section will use a ®Helical Coil Anchor to secure the fence. See the attachments for more detailed explanation of design.

Estimated Quantities and Cost

The Contractor, Western Montana Sunrooms, is providing materials and installation for construction of the two test sections. The first section will use MDT specifications and the estimated cost is approximately $1,323.00 based on a $270.00 per meter cost. The cost of the second section is estimated at $1,225.00 based on a $250.00 per meter cost. It should be emphasized that the costs reported for this project might not be typical of costs that would be experienced elsewhere or by other contractors.

Evaluation Procedures

The contractor will perform a dye penetration test (DPT) to selected members of the FRP used in the construction of the snow fence. This test will be performed in the spring (2000) if there are signs of surface defects or deterioration. The DPT will show if cracking or fracturing, not apparent to visible inspection, of the material has occurred through the first winter season. All other evaluations are based on visual performance of the project.

Evaluation Schedule

The Research Management Unit (RMU) will monitor performance for a period of five years semi-annually. There will be an initial inspection in February of 2000. In May there will be an inspection that will include the contractor performing the DPT, and another inspection on October of 2000, hereafter inspections will take place in early spring and late fall. This is in accordance with the Department's "Experimental Project Procedures." Annual Reports (FHWA 1461) are required as well as a Final Project Report (responsibility of the RMU).

1999:	Construction	To be installed on November 10. Monitored and reported by the RMU.

Evaluation Schedule – Continued

2000:	Feb. Site Evaluation	Conduct visual inspection of structural members, clip attachments and post/helical anchor bases. Take digital images.
2000:	May Site evaluation	Perform Dye Penetration Test (DPT) and visual inspection of structures (same as the February evaluation).
2000:	October Site Evaluation	Same as February evaluation.
2000-2005	May & October	Same as February evaluation. Complete final report and Form 1461 prior to Nov. 30