"LANDFORM GRADING AND REVEGETATION: A PIONEERING CONCEPT TO MITIGATE FOR HILLSIDE LAND DEVELOPMENT AND SURFACE MINING"

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Abstract: The disturbance of the natural topography and landscape for land development, road construction, mining reclamation and landfill purposes typically involves the large scale transformation from a " natural" appearance to a "man made," "manufactured" creation.

This presentation discusses the elements of this transformation and the final results. While initially focusing on the slope component, it will also address the issue of building new landforms/geomorphology. These are unfortunately, in the different industries, more typically referred to as cuts, fills, dumps, pits and ditches.

Historically, man-made slopes and graded areas have been designed and manufactured generally with no consideration to the original landform, the underlying remaining topography, the original hydrologic pattern or the natural vegetation types and distributions. Instead, adherence to established rigid engineering considerations and regulations have been the driving factors.

Conventional approaches typically using linear and planar surfaces are compared with the more recent contour method of undulating lines, and then contrasted with the *" Landform Grading and Revegetation"* technique.

This presentation analyzes the morphological nature of natural slopes and landforms, identifies natural analogues, then applies these analogues to the design of the man made topography. It will compare drainage patterns and the effects of erosion on various slope forms.

Various cut and fill slopes are shown both in the design and construction stage, as well as upon completion. A direct visual comparison is provided between conventional manufactured slopes and landform graded slopes in a variety of settings.

Furthermore, case studies will illustrate the creation of entire landforms replicating natural geomorphic settings.

Conventional approaches to slope drainage devices are illustrated and alternative design techniques, in terms of alignment and placement, as well as construction materials, are provided.

Finally, the conventional approach of providing uniform ground cover, " Landscaping," is compared to the Landform approach of " Revegetation" which takes advantage of the hydrologic patterns created with their diverse aspects and soil moisture conditions thereby improving bio-diversity and a more long term sustainable landscape.