

LEDGE REMOVAL

****From Berlin-Montpelier IM 089-1(53)**

- xx. DESCRIPTION. This work shall consist of excavating loose and dilated rock on slopes and reconstructing rock slopes, or segments of rock slopes, at shallower, more stable slope angles as shown in the Plans and as directed by the Engineer and Agency Geologist (Geologist).

The work includes high-angle construction to be completed using industrial rope access methods for hand scaling.

The work is classified as follows:

- (a) Hand Scaling. Hand Scaling shall consist of removal of loose or potentially dangerous blocks of rock on the slope by scaling of loose or dilated rock materials, hand scaling, pneumatic jacking, or hydraulic splitting.

Alternate methods for ledge removal shall be submitted for approval by the Engineer and Geologist prior to use.

- xx. GENERAL REQUIREMENTS. Prior to the beginning of ledge removal, all necessary clearing and grubbing in the project area shall be completed in accordance with Section 201.

Any loose material resulting from breakage and slides shall be removed and disposed of as directed by the Engineer and Geologist.

The Contractor shall not excavate or remove any material outside the limits of excavation slope and grade lines shown on the Plans unless authorized in writing by the Engineer and Geologist.

- xx. SUBMITTALS.

- (a) Qualifications. Not less than two weeks prior to beginning any rock slope scaling, the Contractor shall provide qualifications of Contractor's personnel to the Engineer and Geologist. The Contractor shall provide written evidence that the rock slope scaling foreman and rock slope scalers have performed satisfactory work in similar capacities elsewhere for a sufficient length of time to be fully qualified to perform their duties. The foreman shall not have less than five years of demonstrated experience as a rock slope scaling foreman. The rock slope scalers shall have at least two years of demonstrated experience on similar projects.

- (b) Work Plan. Not less than two weeks prior to beginning the work, the Contractor shall submit a detailed work plan for each rock slope segment to be scaled. The plan shall include:

- (1) The proposed rope access methods and safety plan.

- (2) The proposed construction sequence and schedule.
- (3) The types of equipment and tools to be used in the work.
- (4) The number of rock slope scaling crews, and the number of qualified working supervisors and qualified scalers in each crew.
- (5) Rock removal plan for rock debris generated from the rock slope scaling work, including provisions to protect adjacent facilities.
- (6) Traffic interruptions and controls requested.

Work shall not begin until the submittals have been approved in writing by the Engineer and Geologist.

- (c) Field Reports. The Contractor shall submit a field report on a daily basis to the Engineer and Geologist for approval. The field report shall include weather information, work area, a brief description of work performed, description and cause of delays, and number of man-hours, equipment hours, and quantities for each pay item for that day.

xx. CONSTRUCTION REQUIREMENTS.

- (a) General.

Work shall proceed according to the approved Work Plan and schedule submitted by the Contractor prior to the beginning of work.

Rock slope scaling shall be conducted on rock slopes identified on the Plans or as directed by the Engineer and Geologist in accordance with the Contractor's Work Plan.

The use of power equipment, such as backhoes, excavators, cranes or lifts, etc., shall be approved by the Engineer and Geologist prior to use.

If the scaling activities have the potential of endangering adjacent facilities, the Contractor shall provide appropriate protective devices, in accordance with the Contractor's Work Plan, prior to beginning the scaling work.

- (b) Scaling Requirements. Slopes identified on the Plans shall be scaled at such frequency as required to remove all hazardous loose rock or over-hangs.

Slopes shall be hand scaled using a suitable standard steel mine scaling bar and hand-placed jacks as approved by the Engineer and Geologist. Upon approval of the Engineer and Geologist, other methods such as machine scaling, hydraulic

splitters, or trim blasting may be used in lieu of, or to supplement, hand scaling.

Rock slope scaling shall start at the top of the slope and work shall proceed downward toward the highway, removing all loose rock blocks as the work progresses.

The new rock faces will be inspected by the Engineer and Geologist to determine whether or not the rock slope scaling has been completed. If other rock blocks are identified that require removal, the Contractor shall continue to scale the slope until the scaling has been completed to the satisfaction of the Engineer and Geologist.

- (c) Removal of Waste Material. When all scaling work is complete, all material from inside the excavation line, as shown on the Plans, and all loose material from the rock slopes outside the excavation line shall be removed from the work area.

Material can be excavated and transported with reasonable types of equipment.

- xx. METHOD OF MEASUREMENT. The quantity of Special Provision (Removal of Ledge Salvage Material) to be measured for payment will be the number of cubic meters (cubic yards) delivered to the salvage site in the complete and accepted work. Measurement will be on a weight in pounds to a volume in cubic yards basis. The basis for the conversion from weight to volume shall be 170 lbs/ft³.

Existing ledge material in the ditch line that is salvaged will be included for measurement.

A printed load ticket, which indicates truck identification and date and time of delivery, shall be furnished to the Engineer for each load delivered to the site.

Portable scales sufficient to weigh trucks with up to ten (10) wheels shall be provided by the Contractor. Trucks having more than ten (10) wheels will not be permitted. The scales shall be certified for correct weight and sealed. Calibration shall be performed according to the manufacturer's recommendations. Storage, placement, and handling of the truck scales shall be the responsibility of the Contractor. Any damage done to the truck scales by the Contractor's operations shall be the Contractor's responsibility. Damaged scales shall be replaced or repaired to the satisfaction of the Engineer at no cost to the Agency.

When the scales are no longer needed, as determined by the Engineer, they shall remain the property of the Contractor.

In lieu of providing portable scale(s) for the project, the Contractor may utilize a local permanent truck scale(s) for weighing trucks. Use of local scale(s) shall be approved by the Engineer prior to beginning work.

2/2/2012

The quantity of Special Provision (Hand Scaling) to be measured for payment will be the number of hours of qualified hand scaler personnel used in the complete and accepted work, as required by the Contract Documents and as authorized by the Engineer. Hours measured will be per scaling operation used in the performance of the work, with a scaling operation consisting of 3 scalers and 1 foreman. No additional allowance will be made for premium time (overtime), and no allowance or payment will be allowed for any training, clothing, or equipment required.

- xx. BASIS OF PAYMENT. The accepted quantity of Special Provision (Removal of Ledge Salvage Material) will be paid for at the Contract unit price per cubic meter (cubic yard). Payment will be full compensation for performing the work specified, including refining, handling, loading, transporting, and placing the specified materials; for breaking down large blocks of rock prior to removal from the site; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

The accepted quantity of Special Provision (Hand Scaling) will be paid for at the Contract unit price per hour. Payment will be full compensation for labor hours accrued on the project in the performance of the specified work, as required by the Contract Documents and as authorized by the Engineer.

Payment for preparing and making required submittals and for furnishing truck scales will not be made separately, but will be considered incidental to the work under this Section.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.608 Special Provision (Removal of Ledge Salvage Material)	Cubic Meter (Cubic Yard)
900.630 Special Provision (Hand Scaling)	Hour