CASE HISTORY

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ROCKFALL PROTECTION WORK AT JORABAT - SHILLONG SECTION OF NH-40 FROM KM. 0+000 TO KM. 61+800, ASSAM & MEGHALAYA

ASSAM & MEGHALAYA, INDIA

Rockfall Protection

Client:	Products used & Quantity supplied:
IL&FS	TECHFAB ROCKFALL NETTING, WITH SPECIAL 5.5 TWIST, ZN+PVC COATED WIRE MESH WITH MESH TYPE (8X10) - 45000 SQM.
Main Contractor:	
M/S. RAMKEY INFRASTRUCTURE LIMITED	
Manufacturer & Supplier:	Year of construction:
TECHFAB (INDIA) INDUSTRIES LTD.	2013

Project description:

The Jorabat Shillong Expressway Limited (JSEL), Guwahati has been entrusted four laning & development of Jorabat – Shillong section by NHAI. The challenge was to convert an existing 2-lane highway into a four-lane expressway in the terrain that is hilly and dense. The region also receives the highest rainfall and part of the highway is among the wettest regions in the country.

Before giving solution, consultant visited the site. It was observed that the particular section was in cutting and the cutting has exposed rock faces that were intact in some locations and fragmented in few locations. The exposed rock surface on the sloping face is always subjected to disintegration by various causes such as plant action, thermal expansion, wind, freeze and thawing action of the pore water, hydrostatic pressures etc. The disintegration of parent rock leads to formation of rock pieces, boulders and debris and they easily detach from the bed rock and will slide over the slope. Such fall of rock happens catastrophically at random locations without giving prior warning. During monsoon seasons, the situation gets worsen that rock falls may become vary frequent. This called for rockfall protection solutions.

Before implementation of Rockfall Netting

Solution:

To prevent the rockfall from the side hill slopes on to the road, TechFab india suggested Rockfall Netting with special 5.5 Twisted Zinc + PVC coated wire mesh with Mesh type (8x10) along the slope and it was anchored by using raised anchorage system at top and bottom.

Selection of rockfall mitigation was done in such a way that the small or medium size detached loose boulders are guided through the drapery/netting system and it shall be reach at toe of slope. And that boulder, debris shall be remove periodically as part of maintenance to accommodate further disintegrated rocks.

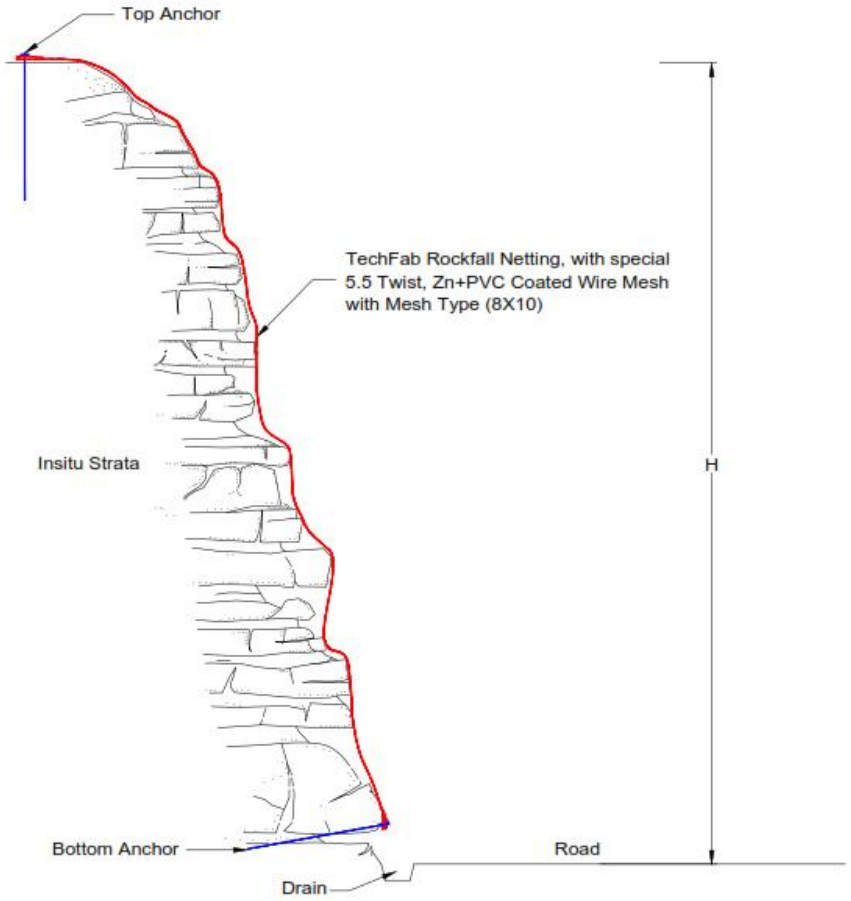
The height of cutting to be protected was 6m to 15m. The slope angle of cut section is varying from 55º to 70º. The rockfall protection system will prevent the fall of any rock pieces directly on road and it will guide the boulder to fall at toe of the hill slope and hold the disintegrated rocks, where the bottom anchors are placed.

The special 5.5 twisted wire mesh is made of Heavily Galvanized steel wires with PVC coating. The twisting is done mechanically and is non-raveling in nature.

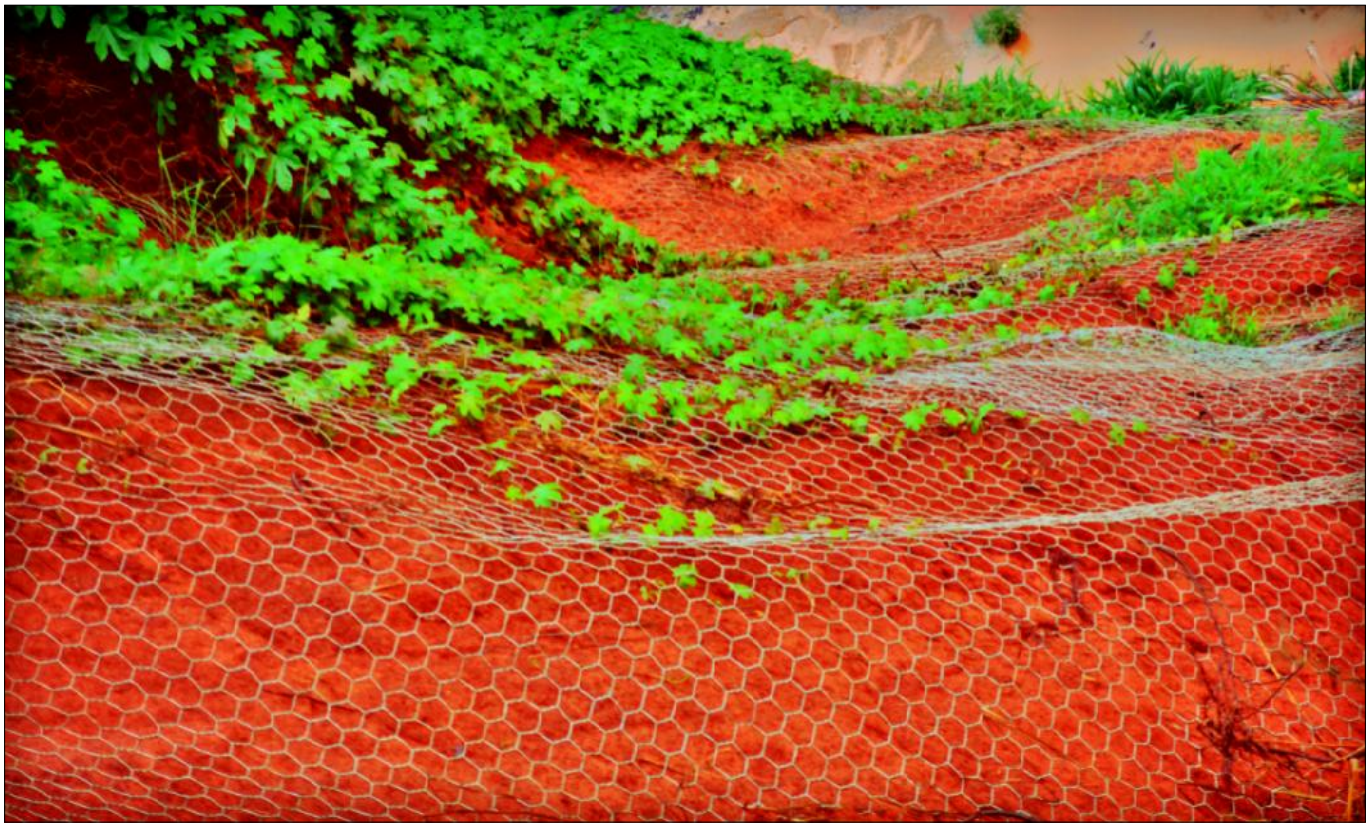
Slope after installation of Rockfall Netting

Advantages of using TechFab Rockfall Netting :

- High loading capacity.
- High flexibility.
- Uniform distribution of the tension.
- Excellent buffering performance.
- Corrosion and rust resistance.
- Durable and long service life.



Typical Cross Section drawing



Top of Slope after Vegetation has grown

Execution at Site :

- Before a drapery system was installed, the slope was thoroughly scaled and the anchors were installed.
- Unless the drapes were rolled out from the top of the slope, a staging area at the slope base was required to prepare the drapes for installation.

Equipment used for installing a drapery system includes the following:

- Drill for installation of mesh anchors. A hand-held drill with a man lift or a track drill was typically used for the anchor installation.
- Crane was used for placing the wire mesh.

The majority of maintenance on a drapery system consists of removing trapped material in order to prevent over-loading of the wire mesh. Limited vegetation growth within the mesh area did not reduce the effectiveness of the mesh, but large shrubs or trees may cause problems and be removed. The toppling of trees may cause both global and localized failure.

- All items were checked at the time of delivery. Items were moved to the site using cranes.
- Before the installation of any materials, the crest area and slope face were prepared.
- The crest was cleared of all significant or dense vegetation (see right) to promote easy and safe access and to enable simple manipulation and placement of mesh etc.
- Following the crest clearing the slope face was cleared by the process of “de-scaling”. This typically included removal of loose rocks, soil, and excessive vegetation growth from the slope face This work was overseen by

Top of Slope after Vegetation has grown

Top of Slope after Vegetation has grown

Slope after installation of Rockfall Netting

Structure after 7 years

Conclusion:

For this project, special five and half twisted metal wire mesh netting was produced. Client was happy with quality of material supplied and prompt support from our team. Project was completed within given timeline.

It has been 7 years since project is completed. Rock fall protection system faced many worst monsoons still and the system is working as per the project requirement and desired by the client.

For further details kindly contact :

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