



SUGGESTED PROPRIETARY MASTER SPECIFICATION - Tuff N Nuff

SECTION 33 50 00 ROCKSHIELD PIPE PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES:

- A. Provision for rockshield pipe protection designed to provide protection from backfill rock damage and/or abrasion damage during pipe operation of the exterior coating on transport pipes.

1.02 REFERENCES

- A. American Society for Testing Materials (ASTM)
- B. National Association of Corrosion Engineers (NACE)

1.03 QUALITY ASSURANCE

- A. Rockshield manufacturer shall demonstrate five years minimum continuous, successful experience in production of pipe rockshield.

1.04 QUALITY ASSURANCE

- A. Manufacturer's installation instructions and product data which indicates compliance with specifications.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Store rockshield material under a tarp to protect from oil, dirt, and sunlight.

PART 2 PRODUCT

2.01 MANUFACTURER

- A. Provide 11mm minimum thickness, flexible PVC (polyvinyl chloride), strand extruded rockshield rolls/pads as manufactured by Tuff-N-Nuff.
- B. The rockshield shall be extruded from an elastomeric plastic material of which the basic resins prime virgin polyvinyl chloride. The PVC compound shall not contain any scrapped, reclaimed or recycled material.
- C. Minimum weight of 11mm rockshield: .75 lbs/square foot.
- D. Rockshield is to be constructed of randomly extruded strands of elastomeric PVC plastic.
- E. The rockshield must be bi-directional. This means that the rockshield should sufficiently protect the pipe regardless which side of the rockshield faces the pipe. This will reduce the risk of quality issues due to improper installation.
- F. The color of the rockshield shall be yellow to provide higher visibility to third party excavators.
- G. Performance Requirements as follows:

Property	Test Method	Required Limits
Impact Resistance	ASTM G-13 (Modified)	Protection integrity < 6" rock drop
Must be constructed from pvc plastic	ASTM D-2240	Durometer 78 (±3)
Cathodic Protection Shielding	Flange method on free film	Matrix must allow passage of CP current

Impact resistance:

The rockshield industry recognizes the ASTM G-13 rock impact test as a valid measurement of impact absorption and durability. ASTM G-13 testing consists of the following parameters:

- 35 lbs of stones which are ¾" in diameter.
- Stones are dropped from a height of 6 feet through a funneling chute onto the test surface.
- This test is repeated 10 times or until a holiday (defect / damage) is discovered.
- If no holiday is present after 10 repetitions, the product is said to have *passed*.

ASTM G-13 is designed to test the durability of pipeline *coatings*, not the rockshield.

The actual field conditions which the rockshield is subjected to are substantially more severe than the scenario in a standard ASTM G-13 environment. Therefore, to more accurately assess the impact absorption and durability of the rockshield, the ASTM G-13 test method should be modified as follows:

- The total weight of stones per repetition should be increased from 35 lbs to 55 lbs.
- The size of stones used should be larger and more representative of field conditions.
- The rockshield should protect the coating from impacts from rocks up to 6" in diameter.

These modifications will more accurately measure the capabilities and reveal the limitations of the rockshield in question under field conditions.

2.02 ACCESSORIES

- A. Provide non-metallic banding or durable filament tape to affix rockshield securely to the pipe.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Rockshield rolls/pads shall be affixed to pipe utilizing non-metallic banding or filament tape.
- B. Spacing of non-metallic banding or filament tape shall not exceed 32 inches (80 cm) on center.
- C. Rockshield shall completely encircle the pipe with an approximate overlap of 4 inches (10 cm). Overlap shall be located at the 6 o'clock position of the pipe.
- D. Backfill should be "shaded" into the trench during backfill procedure. Do not dump backfill directly onto protected pipe.
- E. Follow manufacturer's recommendations.



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