Locating and Marking Application Guide for Telecommunications Utilities

1. Data Centers
   - Data centers host critical infrastructure for high value transactions globally.
   - Markers and Path Markers are used to locate high value assets in order to help avoid possible damage.

2. Cell Tower
   - Cell towers are used to provide cell service but requires high bandwidth fiber connections.
   - Use path marking to help eliminate high voltage lightning path like tape for trenches or in-conduit rope.
   - Use point markers to mark the first handhole.

3. Maintenance and Repair
   - Higher risk point for future failures, where to look first when there's an issue
   - Easily able to identify and map
   - Ease of identification using a marker and precise positive location

4. EMS ID Markers for Buried Cable
   - Provides information to installers and maintenance including: cable type, size and material
   - Allows pinpoint locating of fiber and copper

5. Handhole
   - Markers installed inside handholes are used to locate splices and terminations along cable runs.
   - Environmental effects may cover handholes overtime and become difficult to locate. Markers can be found under vegetation, dirt, snow, etc.

6. Ball and Near Surface Markers
   - Depth of cover confirmation, location of conduit, location accuracy for future road work
   - Deep dive markings on each side of road to confirm utility location after bore, find buried or sawed-off conduits
   - Identify facility in high congestion, high traffic area
   - Identify facility in area of future construction

7. Path Marking
   - 3M™ EMS Caution Tape and Rope
   - For use in open trench and HDD (Horizontal Directional Drilling) applications
   - A maintenance free solution for marking and locating the path of underground plastic pipes and casing.
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