



**DEVELOPMENTAL SPECIFICATIONS
FOR
ON-CALL CONTRACTING FOR HIGH TENSION CABLE GUARDRAIL REPAIR**

**Effective Date
February 21, 2023**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

In addition to the requirements of Section 2505 of the Standard Specifications, the following shall apply.

15101.01 DESCRIPTION.

A. General.

1. This specification covers repair of high tension cable guardrail installations.
2. Definitions:
 - Installation: a continuous length of cables located between two end anchors.
 - End anchor: a post, bracket, or combination thereof that attaches one or more cables to a foundation at ground level.
 - Special end anchor: a post, additional lengths of cable, attachment hardware, special steel beam guardrail sections or combination thereof that permanently attaches one or more cables to another barrier.
 - Line post: a post that holds one or more cables at an elevation above the ground.
3. The contract documents will list county, route, begin and end milepost, direction of travel, manufacturer, and system type of each installation for work covered by this contract.
4. The Engineer reserves the right to make repairs with Iowa DOT forces. However, repairs that have been submitted to the Contractor will not be made by DOT forces, unless such repairs are not completed within 28 calendar days following notification by the Engineer.

B. Requests for Repair.

1. The Engineer will furnish the Contractor a list of individuals approved to initiate repairs. Requests for repairs will be initiated by either a fax or e-mail to the Contractor. Requests for repair will include the following: route number, milepost location, direction of travel, and an estimate of the number of posts to be replaced for each repair. Provide the Engineer with an e-mail address and fax number which will be used to initiate requests for repairs.
2. For repairs not completed within 14 calendar days following notification by the Engineer, the

Contractor will be charged the liquidated damage amount shown on the proposal for each day. Damages will begin to accrue on day 15.

15101.02 MATERIALS.

- A. Apply Article 2505.02 of the Standard Specifications.
- B. Replace damaged materials with new materials of the same type and manufacturer as existing.

15101.03 CONSTRUCTION.

A. General.

1. Schedule repairs upon notification by the Engineer. Provide Engineer at least 24 hours' notice of when proposed work will begin.
2. Routine repairs within a particular installation include:
 - End anchor repairs and resetting,
 - Removal and replacement of damaged line post foundations,
 - Removal and replacement of damaged line posts,
 - Removal and replacement of damaged line post hardware,
 - Attaching or reattaching cable(s) to line posts,
 - Removal and replacement of turnbuckles for cable, and
 - Removal and replacement of damaged cables.
3. Notify Engineer if non-routine repairs are needed. Non-routine repairs shall have Engineer's approval before repair work may begin.
4. Tension checks are required at locations where ten or more line posts are replaced, and at locations where cable tension is lost due to damage or repair activity. Upon completion of repairs at such locations, check the tension of every cable within the affected installation according to manufacturer's recommendations. If tension of cable falls outside manufacturer's tolerance, re-tension cable to within recommended limits.
5. Remove and dispose of damaged materials. Leave work site in a safe and orderly condition at completion of work.
6. Maintain a log of repairs. Provide Engineer a copy of log at the end of the contract period, and at any time upon request. Log shall include:
 - Date and time of notification by Engineer to perform repairs,
 - Department personnel requesting repair,
 - Route number,
 - Milepost location of requested repair,
 - Direction of travel,
 - Date and time repairs were completed,
 - Number of line posts repaired,
 - Number of line posts replaced,
 - Number of end anchors repaired,
 - Number of end anchors reset,
 - Number of line post foundations replaced,
 - Number of turnbuckles replaced,
 - Number and length of each cable replaced,
 - Cable tension measurements taken after each repair,
 - Cable tension measurements taken as part of annual tension check, and
 - Cable tension measurements taken after each re-tensioning, as applicable.

7. Repairs may be performed either without a lane closure; or with a lane closure except for periods listed in the contract documents. Remove lane closures following completion of work. Traffic control for lane closures and shoulder closures shall be according to the Standard Road Plans included in the contract documents.

B. Annual Checking of Cable Tension.

Check tension of all cables within each installation once during the contract period between April 1 and May 31. Check tension according to manufacturer's recommendations. Re-tension any cable whose tension falls outside manufacturer's tolerance.

15101.04 METHOD OF MEASUREMENT.

A. Line Post, Repair.

By count for each line post where one or more cables are reattached to the post.

B. Line Post, Replace.

By count for each line post replaced.

C. Line Post Foundation, Replace.

By count for each line post foundations replaced.

D. End Anchor, Repair.

By count. For purposes of this specification, all three Cable Release Posts within a Trinity CASS Cable Terminal are considered a single end anchor.

E. End Anchor - Special, Repair.

By count for each special end anchor repaired.

F. End Anchor, Reset.

By count. For purposes of this specification, all three Cable Release Posts within a Trinity CASS Cable Terminal are considered a single end anchor. Includes end anchors and special end anchors.

G. Turnbuckle, Replace.

By count.

H. Cable, Replace.

1. Linear feet. For purposes of this specification, each cable replaced is considered separately.

2. Length will be calculated as the distance from one anchor point to another. Anchor points may be turnbuckles or end anchors.

I. Mobilization, On-Call.

By count.

15101.05 BASIS OF PAYMENT.

Article ~~1109.16~~ 1109.14, C, 4, b, of the Standard Specifications will not apply to items on this contract.

A. Line Post, Repair.

Per line post. Payment is full compensation for removing and replacing line post hardware, and attaching or reattaching cable(s) to line post. Disposal of damaged materials, vegetation removal, snow removal, and site cleanup are incidental to item.

B. Line Post, Replace.

Per line post. Payment is full compensation for removing and replacing damaged line post,

removing and replacing line post hardware, and attaching or reattaching cable(s) to line post. Disposal of damaged materials, vegetation removal, snow removal, and site cleanup are incidental to item.

C. Line Post Foundation, Replace.

Per line post foundation. Payment is full compensation for removing and replacing damaged line post foundation. Disposal of damaged materials, vegetation removal, snow removal, and site cleanup are incidental to item.

D. End Anchor, Repair.

Each. Payment is full compensation for repairing the end anchor. Repair may include replacing cable end fittings and hardware, reattaching cable(s) to the end anchor, and removing the damaged anchor and installing a new anchor. Disposal of damaged materials, vegetation removal, snow removal, and site cleanup are incidental to item.

E. End Anchor - Special, Repair.

Each. Payment is full compensation for repairing the special end anchor. Repair may include removal of damaged components, and providing the any or all of the following items: additional lengths of cable, attachment hardware, special steel beam guardrail sections, modifications to any existing steel beam guardrail sections, and other materials necessary to provide for a complete connection. Disposal of damaged materials, vegetation removal, snow removal, and site cleanup are incidental to item.

E. End Anchor, Reset.

Each. Payment is full compensation for resetting the end anchor when non-end anchor repairs disturb the existing end anchor. Resetting may include realigning posts, reinserting cables into fittings and hardware, and reattaching cable(s) to the end anchor. Misplaced hardware will be replaced at the Contractor's expense.

F. Turnbuckle, Replace.

Per turnbuckle. Payment is full compensation for removing and replacing damaged turnbuckle. Disposal of damaged materials, vegetation removal, snow removal, and site cleanup are incidental to item.

G. Cable, Replace.

Per linear foot. Payment is full compensation for removing and replacing damaged cable. Disposal of damaged materials, vegetation removal, snow removal, and site cleanup are incidental to item.

H. Mobilization, On-Call.

1. Each. One payment of \$3000 per notification regardless of number of repair locations included.
2. Tension checks and re-tensioning of cable will be incidental to mobilization.
3. Traffic control for repairs not requiring a lane or shoulder closure will be incidental to mobilization. For purposes of this specification, all traffic control devices will be furnished by the Contractor.
4. One mobilization payment per contract will be made for annual checking of cable tension, including re-tensioning as necessary.

I. Non-routine repairs will be paid for according to Article 1109.03, B of the Standard Specifications.

J. Traffic control for lane or shoulder closures will be paid for according to Article 1109.03, B of the

Standard Specifications.