PART 2

TECHNICAL SPECIFICATIONS

FOR

SOUTH CAMPUS POLE RELOCATION – PHASE 2

W.O. E2420080

March 20, 2025

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I. GENERAL

A. TECHNICAL SPECIFICATIONS

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B. STANDARD OF WORK AND SCHEDULES

1. All work shall be done in a thorough and workman-like manner in accordance with the Specifications and Drawings.

2. The requirements of the National Electrical Safety Code (NESC), Accredited Standards Committee C2-2023, shall be followed wherever applicable to the work, except where local regulations or specification requirements are more stringent, in which case the more stringent requirements shall govern.

C. STAKING SHEETS, DRAWINGS AND MAPS

1. All Staking Sheets, Drawings and Maps accompanying this Technical Specification or listed herein shall be considered a part of this Technical Specification. The specific Drawings included as part of this Technical Specification are listed, indexed and included in Appendix A. The structure schedule included in the Drawings shall be used in lieu of staking sheets.

2. If the Drawings specify a requirement different from the Technical Specification, the Drawings govern.

D. LOCATIONS OF STRUCTURES AND APPURTENANCES

1. Structures and other major items to be constructed shall be placed in locations shown on the Drawings. The Contractor shall be responsible for determining the proper location of the structures and appurtenances to be installed.

E. SPECIAL REQUIREMENTS

1. The Contractor shall be responsible for anchor, foundation and structure location and orientation for proper alignment.

END OF SECTION

II. STEEL STRUCTURES

A. HANDLING OF STEEL STRUCTURE MEMBERS

1. Steel poles likely will be furnished in multiple sections requiring jacking together of slip joints. Contractor shall exercise care in unloading, delivery, handling, and erecting steel structures so as not to damage the finish. Contractor and Chugach together shall inspect and reject any member which has been damaged when received from the manufacturer and thereafter. Contractor shall be held responsible for damage to the structure members and shall replace damaged members at his expense.

2. No member shall be erected which, in the opinion of Chugach, is not acceptable. If any member is rejected after erection, it shall be removed and replaced by Contractor without expense to Chugach.

3. Steel structure members stored pending erection shall be supported with suitable blocking furnished by Contractor so that no part of any member shall be in contact with another member or the ground.

B. STEEL STRUCTURE ERECTION

1. Steel structure shall be erected so that they are complete with all required members. Contractor shall provide any special equipment or tools necessary to assemble and erect the steel structures.

2. Contractor shall assemble the structure using the bolts, washers, locknuts, palnuts, etc., which will be provided by the steel structure manufacturer. Structures shall be assembled in accordance with the manufacturer's drawings. All bolts shall be tightened in accordance with the manufacturer's instructions.

3. Contractor shall provide wrenches with jaws that will not damage the nuts during their installation. At no additional expense to Chugach, Contractor shall replace nuts that are damaged through the use of improper tools or improper installation procedures.

4. If any manufacturing errors on the steel structures are discovered, the Contractor shall notify the Engineer who will determine the course of action.

5. Dead-end and guying attachments, where specified, shall be oriented as shown on the Construction Documents.

6. Crossarms will be separate pieces and are to be installed level and bolted to the steel poles in accordance with the assembly drawings.

7. Prior to the installation of conductors, all structure members shall be in place with all bolts in place and torqued.

8. Members shall not be bent to force them into place.

9. The placing of slings, the type of material used for slings, and all other erection methods shall be subject to the approval by Chugach. Location for the placement of lifting slings shall be per manufacturer's drawings and instructions.

10. Bolts will not be driven in a manner that will distort the bolts or damage the threads.

11. Flange connections shall be tightened in accordance with the manufacturer's guidelines.

12. After the conductors have been installed, the steel structures shall be re-inspected to ensure that they remained plumb. Structures not plumb shall be re-leveled.

C. SIGNS

1. Contractor shall install the specified structure number and danger signs. The structure number for each structure shall show the structure number as indicated on the Plan and Profile drawings.

D. SPECIAL REQUIREMENTS

1. Structures to be retired shall be completely removed and disposed of as required by law.

END OF SECTION

III. DRIVEN PIPE PILE FOUNDATIONS

A. SECTION INCLUDES

1. Receiving and delivering to the project site Chugach furnished steel pipe piles and supplying all labor, materials, tools, and equipment required to install the piles to the indicated depths.

2. Any obstruction removal necessary to install the piles to the specified depth.

3. Installing welded top plates on piles.

B. QUALITY ASSURANCE

1. Coordinate pile installation operations with Chugach's Representative. If an unanticipated condition is encountered that could affect the design of the foundation, do not proceed with Work until resolution is provided in writing. This is not intended to direct the means or methods of installation, but to notify Chugach's Representative of conditions that may require a change in design.

2. A Contractor with a proven history of similar pile installation efforts shall install the pipe pile. The OELCC Contractor shall submit a past projects list from the past two years for the pile installer.

C. SUBMITTALS

3. Submit in accordance with Section 4 of the Special Provisions

4. Preliminary Submittals: At least seven working days prior to starting construction, submit a written description of all equipment, techniques, and access proposed for use in the installation of the pipe piles. Include manufacturer's specifications for the pile hammer including type, energy capacity, wave analysis, and operating instructions, procedures for driving piles, procedures for penetration or removal of obstructions, and procedures to relieve soil friction in the event soil consolidation prevents piles from being driven to the specified depth.

5. Welding Procedures: Submit written welding procedures, including sketches, for Chugach's review. The welding procedures shall meet AWS D1.1 and describe the means and methods by which the Contractor shall perform the welding. A qualified third-party testing laboratory approved by Chugach shall develop for, and at the expense of, the Contractor detailed welding procedures. Welding procedures shall cover such items as welding methods,

backing plate metal, filler materials, joint design, preheating base metals, and required procedures to field-test the quality of the welds.

6. Welder Qualifications: provide AWS Welder Qualifications for all welders to be used on this project. Welders shall be qualified in accordance to AWS for the type and position of welds. Provide documentation to Chugach at least three (3) days prior to performing permanent field welding.

7. Submittals Required after Pile Installation: Accurately record the following data for each pile and submit to Chugach no later than two (2) days after driving:

    a. Project name, contract name and number, and contractor name.

    b. Location of pile (structure number, station, and offset distance and direction)

    c. Pile diameter and wall thickness

    d. Bottom of pile elevation

    e. Top of pile elevation, before and after cut off

    f. Bearing strata description and elevations (for pre-drilling and excavations)

    g. Nature and locations of obstructions

    h. Type, size and rate of operation of equipment used for driving piles

    i. Continuous record of number of blows for each foot of penetration for impact hammers and the number of seconds to advance each foot for vibratory hammers

    j. Measurement data for plumbness and horizontal location of pile centerline

    k. Description of pre-drilling methods and result of pre-drilling

    l. Record of all deviations in methods and results

    m. Description of pile tip, if used

D. QUALIFICATIONS AND INSPECTIONS

1. Contractor shall qualify his welding procedures in accordance with AWS D1.1. All welders shall be qualified in accordance with AWS D1.1 Welding Code, specifically for the materials used on this project. An approved independent testing laboratory shall certify qualifications of the welding procedures and welders. All costs associated with the welding procedure qualifications and welder qualifications shall be the responsibility of the Contractor.

2. The Contractor shall, at his expense, secure the services of an inspector/supervisor from a qualified third-party testing laboratory approved by Chugach. The inspector/supervisor shall supervise all welding performed on the pipe piles by the contractor. Additionally, the inspector/supervisor shall inspect, test, and certify that all welds are in conformance with the welding procedures approved for the work. Contractor shall assist the inspector/supervisor as necessary with any testing procedures.

E. MATERIALS

1. Owner furnished pipe piles are the sizes shown on the list of Owner Furnished Materials. Contractor shall exercise care in unloading, delivery, handling, and installing pipe piles so as not to damage the pipe.

F. EQUIPMENT

1. Driving Equipment: It shall be the Contractor's responsibility to furnish equipment of sufficient size to install the piles as specified without damaging piles or adjacent structures. The equipment shall be maintained in good operating condition at all times during installation and shall be able to operate at its full-rated capacity. Pre-drilling equipment shall be available as necessary

2. Driving Caps: Impact hammers shall be equipped with cast steel or structural steel driving caps, with grooved bases conforming to the pile shape.

3. Driver Leads: Fixed or rigid pile driver leads that shall hold the pile firm in position and alignment, and in axial alignment with the hammer, shall be used. The leads shall be extended to within 2 feet of the elevation at which the pile enters the ground.

G. EXECUTION

1. Examinations: Verify that all field conditions are acceptable and are ready to receive the work. Beginning installation means Contractor accepts existing conditions.

2. Preparation

a. Pile Length Markings: Each pile's length shall be marked with horizontal lines at 1-foot intervals and the number of feet from the tip at 5-foot intervals with white or orange indelible marker.

3. Installation

a. Driving Piles

1) Piles shall be installed at locations indicated on Drawings.

2) Each pile shall be driven without interruption until full depth is obtained.

3) Protect the pile head during driving. Provide full bearing on the piles for distribution of the hammer blow. Do not damage piles during driving operations. Any hammer that causes damage to the piles during driving operations shall be substituted with an acceptable alternate hammer at no additional cost to Chugach.

4) Impact hammers shall be supplied with new capblock cushions, which shall be changed at the manufacturer's recommended cycle. The Contractor's driving plan shall include manufacturer's recommendations and information on hammer cushions.

5) The Contractor at no additional cost to Chugach may perform pre-drilling. The diameter of the pre-drill shall not exceed 80% of the pipe pile outside diameter below the top five feet of soil. Contractor at no additional cost to Chugach may excavate a hole larger than the pile diameter in the top five feet of soil provided the material is backfilled and compacted around the pile after pile driving is completed.

6) Neatly distribute any spoils from pre-drilling around the structure site. Do not distribute material in roadways, streams, ditches, drains or culverts.

7) Carefully maintain pile centerline location. Carefully plumb leads and pile before driving.

8) When handling and driving piles, take special precautions to ensure against overstress or leading away from true position when driving.

9) Should any obstructions be encountered which threaten to damage the pile so as to make it unsuitable or cause a pile to drift from its required location, and cannot be removed through predrilling, cease driving and immediately notify Chugach. Chugach will determine what actions will be taken within eight working hours of notification from the Contractor.

10) Subsurface materials or conditions encountered that cannot be reasonably anticipated using information provided in the geotechnical report will be considered unanticipated conditions.

11) Piles shall be driven to minimum required embedment shown on the Drawings.

b. Damaged or Misdriven Piles

1) Damaged piles and piles driven outside the required driving tolerances will not be accepted and shall be removed, at no additional cost to Chugach. Damaged piles are defined as piles that exhibit variations beyond mill tolerance limits.

2) Piles rejected after driving may be withdrawn and reinstalled at the correct location provided they are not damaged.

3) Solidly fill spaces left by withdrawn piles that will not be filled by new piles, using backfill as specified by Chugach. The backfill material shall be compactable and suitable for providing a dense, supportive soil mass, free of voids, not frozen, and shall be approved by Chugach. Backfill shall be placed in the void left by withdrawn pile in layers not exceeding six inches in depth, with each layer mechanically tamped before the next layer is added. The backfill shall be compacted to a density equal to or greater than that of the surrounding undisturbed soil.

4) Contractor may be required to reimburse Chugach for any additional material or engineering work required for replacement or redesign due to damaged or misdriven piles.

H. MISCELLANEOUS

1. Tolerances: Install piles within the following maximum tolerances:

a. Location of structure with foundation pile(s): six (6) inches in any

direction.

b. Pile spacing for multi-pile foundations: ± two (2) inches

a. Pile variation from vertical: two (2) percent in any direction.

b. Top elevation of piles: ± three (3) inches

2. Cutting Off

a. Piles shall be installed to depths that require no more than (6) inches of pile top to be cut off unless approved by Chugach.

b. Cuts shall be neat and square to the axis of the pile. Pile ends shall be beveled if required by the approved welding procedure. Dispose of excess materials as required by local and state law.

3. Welding

a. All welding shall conform to the requirements of AWS D1.1 Welding Code by welders qualified in accordance with AWS for the type and position of welds.

b. Preheat and shelter requirements shall conform to AWS D1.1 and the approved welding procedure.

c. Flux coated welding electrodes shall be purchased in hermetically sealed containers. Immediately after opening of the sealed container, electrodes shall be stored in ovens at temperatures specified in the approved welding procedure and AWS D1.1. Electrode exposure to the atmosphere shall not exceed the time specified in the approved welding procedure and AWS D1.1. Electrodes that have been wet shall not be used.

d. Base metal shall be preheated as specified in the approved welding procedure.

e. Splices shall be welded to produce a straight pile alignment through the splice and developing full strength of the pile in both tension and bending.

f. Foundation top plates shall be welded in accordance with the detail shown on the drawings.

END OF SECTION

IV. INSULATORS AND HARDWARE

A. REFERENCE TO DRAWINGS

1. Insulators and insulator hardware assemblies shall be fully assembled and installed as shown on the structure assembly drawings. Items of hardware and insulators shall be inspected for missing parts, defects and proper fit before installation. Defective or missing pieces shall be replaced.

B. HANDLING AND STORAGE

1. Insulators and hardware shall be stored in their appropriate shipping containers until installation. They shall be properly supported and stacked so as not to damage the individual items. They shall be blocked up off the ground so that they cannot come in contact with the ground or standing water.

2. Insulators shall be carefully handled to prevent damage to any portion of the insulator.

3. Insulators that are damaged in any way shall be replaced with units that are not defective. The cost for replacement of previously accepted units shall be borne by the Contractor.

4. All insulators shall be wiped clean with a clean, soft, non-abrasive cloth prior to installation.

5. Non-ceramic insulators shall be handled per the manufacturer’s recommendation.

C. INSTALLATION

1. All connections shall be made in accordance with the drawings. Bolts shall be torqued to the manufacturer's specifications. Cotter keys, where required, shall be fully inserted.

2. Cotter key eyes on insulators and hardware items shall be oriented toward the structure, or in such a way as to facilitate easy removal during hot line maintenance.

3. Pins and bolts to insulator string assemblies shall be oriented with the head upright wherever possible.

END OF SECTION

V. CONDUCTORS

A. GENERAL

1. All conductor installation shall be done in accordance with the manufacturer's recommendations. The "Guide to the Installation of Overhead Transmission Line Conductors", IEEE 524, shall be used as reference. If there is a discrepancy between the guide and the manufacturer's recommendation, the Contractor shall follow the manufacturer's recommendation. The following provisions are for tension stringing of conductors.

2. It is very important to avoid damaging the wire or the associated fittings in any way. It shall be the Contractor's responsibility to protect the wire and fittings against damage. If the wire and associated materials are damaged due to Contractor's mishandling or faulty equipment, the Contractor shall replace the damaged sections, including furnishing of necessary materials, in a manner satisfactory to Chugach and at no additional cost to Chugach.

B. PRELIMINARY SUBMITTALS

1. Prior to starting construction, submit a written description of all equipment and techniques proposed for use in the installation of the conductors, including a description of access, wire setups, and manufacturer’s specifications for the installation equipment.

C. HANDLING AND STORAGE

1. Prior to installation, reels of wire shall be stored off the ground and adequately supported so as to avoid damage to reels, lagging, and wire. Wire and reels shall be kept free of standing water, dust, and mud and must be covered and stored no closer than 50 feet from an energized portion of a substation or transmission line. The conductor must be covered.

2. Lagging or other protective coverings shall be removed at the job site and the outside layer of each reel shall be examined by the Contractor and Chugach to be sure that the wire is in good condition and that no nails, staples, or other sharp objects, which would damage the wire during unreeling, protrude on the inside of the reel heads.

3. Identification tags and markers shall be retained on the reels. For future reference, the Contractor shall record the reel number, length of wire, net weight, and the structure numbers where the wire was installed.

4. Conductor reels should not be rolled. They shall be lifted or transported by a reel dolly. If they do need to be rolled to a location where they can be easily handled, they shall be rolled in the direction that would tend to tighten rather than loosen the conductor on the reel.

D. TOOLS AND EQUIPMENT

1. Tools and equipment for wire work shall be of the proper size and type for the job and shall be in good working condition. Sheaves, tensioners, pullers, wire grips, compressors, and dies shall be properly sized for the specific wires to be installed. All tools and equipment shall receive the written approval of Chugach prior to their use.

2. Stringing blocks shall be neoprene lined, free running, and of the proper diameter and groove size for the wire being pulled.

3. Tensioner bull-wheels shall be neoprene lined and of the proper size and design for the wire being pulled.

E. GUARD STRUCTURES

1. Guard structures shall be furnished and installed by the Contractor, where required, to prevent the conductor being pulled from coming into contact with or interrupting the use of existing overhead electric supply lines, communication lines, roads, highways, trails, and parking lots crossed by the transmission line. All Labor and material required shall be furnished by the Contractor and included in the unit cost for conductor units.

2. If not part of the right-of-way agreement previously executed and noted by Chugach on the drawings, written permission to install guard structures on private property or public highway right-of-way shall be obtained by the Contractor.

3. After completion of all wire work, the Contractor shall remove the guard structures, fill and tamp all structure holes, and restore the right-of-way and access to its original condition.

F. STRINGING

1. The method of installing the conductor shall be controlled tension stringing. It shall be performed in accordance with "Guide to the Installation of Overhead Transmission Line Conductors", IEEE 524 and subject to the manufacturer's concurrence.

2. The precise stringing procedure, which the Contractor intends to use, shall be submitted to Chugach for review and approval a minimum of 10 days prior to any wire work. This procedure shall include a description of all major pieces of equipment to be used, number of crews, composition and responsibilities of each crew, proposed equipment set-up locations, wire reel locations, locations of all splices, and locations and descriptions of temporary snubs and anchors.

3. Extreme care shall be exercised during the wire stringing operation to avoid damage to conductor strands. If damage is found, the stringing shall be stopped. Damage is defined as any deformity on the wire that can be detected by sight or touch. Kinked, twisted, abraded, "bird-caged", or flattened wire will not be allowed to remain on the line. Any wire so damaged as a result of the Contractor's negligence shall be repaired or replaced by the Contractor at his own expense and to the satisfaction of Chugach.

4. The Contractor shall continuously inspect the wire as it leaves the reels. If the wire has an accumulation of dirt, oil, grease or any other foreign substance, such substances shall be removed as the wire leaves the reels during the stringing operation by a method approved by Chugach.

5. Wire tension during stringing shall be high enough to ensure that the wire does not drag across the ground, underbrush, trees, towers, fences, guard structures, or any other surface other than the stringing sheaves. A stringing tension of not less than 50 percent or more than 80 percent of the initial sagging tension should be used.

6. If the pulling tension does exceed 80 percent of the sagging tension, Chugach shall be informed of the magnitude and duration of the excess tension prior to sagging the conductor. Under no circumstances shall the pulling tension reach or exceed the sagging tension. During stringing operations, if the conductor is unattended, it shall be freely suspended between stringing sheaves so as to provide a safe clear distance over ground or obstructions.

7. Full tension compression splices shall not be pulled through the stringing blocks.

8. Wire shall not be pulled during adverse weather conditions or when such conditions are imminent as determined by Chugach. The contractor should plan for potential delays due to adverse weather.

G. SAGGING

1. Wires shall be sagged to the proper tensions in accordance with the initial stringing sag and tension tables provided by Chugach. Sags shall be checked by sighting with target and transit as indicated in the IEEE Standard 524, or other method approved by Chugach (use of dynamometers only is not acceptable). Sags shall be within a tolerance of +3 and -0 inches of the

specified values. When approved by Chugach, sags may be checked by the return wave method.

2. The air temperature and the conductor temperature at the time and place of clipping in shall be determined by the Contractor using a certified thermometer. Conductor temperature shall be determined using either approved commercially available sagging thermometers or certified thermometers inserted in 18-inch lengths of the conductor being sagged that have had the steel core wire removed. Thermometers shall be placed to have exposure to the wind and sun similar to that of the conductor being sagged. The temperature at which the conductor is sagged in and the spans in which sags are measured shall be recorded by the Contractor and the information given to Chugach.

3. The Contractor shall select the length of each sag and the sag-checking spans subject to the review and approval of Chugach. The Contractor's sagging method must result in uniform tensions throughout the sag and the allowable sag tolerances must not be exceeded.

4. The Contractor shall budget his time so that a reel of wire is sagged within 72 hours, or as noted, after the start of the stringing operation.

5. The Contractor shall make any necessary adjustments in the wires or clamps at any time during the construction period to ensure that the wire is at the proper tension, sags are within tolerance, suspension insulator hang plumb, at no additional cost to Chugach.

6. The Initial Sag and Tension Records in Appendix D shall be submitted to Chugach within three (3) days of sagging showing results of the above procedure.

7. The Contractor shall contact the Engineer 30 days prior to sagging with the sagging plan to determine the need for offset clipping.

H. CLIPPING, DEADENDING, AND SPLICING

1. The Contractor shall be cognizant of and take into consideration the strength limitations of all structures in so far as the application of temporary wire stringing loads. All temporary back snubs and pull downs on structures other than strain structures shall be carefully planned and all such proposed methods shall meet the approval of Chugach.

2. Use of wire reels shall be carefully planned to minimize the number of full tension splices. There shall not be more than one (1) compression fitting per phase in any span and no splice shall be located within 25 feet of a conductor

support. Splices shall not be located in spans over a major highway, railroad crossings, and utility crossing, or where the conductor is to be dead-ended.

3. Compression dead-ends and splices shall be installed in accordance with the manufacturer's recommendations. Conductor strands within the splice area shall be carefully cleaned with a steel brush, cotton rags, and solvents. Filler compound shall be furnished, and pressure installed by the Contractor. Special care shall be exercised in making compressions fittings to ensure use of proper die size, accurate cutting of wire, complete insertion of the cable strands, and pressing to produce a straight, uniform fitting. The Contractor shall make up one (1) splice and dead-end to use as a sample to determine how much wire needs to be cut back.

4. After completion of the pressing operations, the Contractor shall clean the wire and fittings of excess grease and compound. All burrs and die flash marks shall be removed with emery cloth.

5. U-bolts on suspension clamps and strain dead-end clamps shall be evenly torqued to the manufacturer's recommended values. Keeper plates shall be in place and properly seated. Conductor strands within the area of the fitting shall be clean. The cleaning method is to use a steel brush, cotton rags and solvents.

6. Wires shall be clipped into insulator clamps within not less than 12 hours and not more than 72 hours after the start of each individual wire pulling operation. Conductors remaining in the blocks at stringing tension for more than three (3) days shall be subject to inspection and possible replacement at the Contractor's expense. Cables shall be lifted from the sheaves using standard suspension clamps or hooks to provide adequate support for the cables without damaging individual strands or kinking the wire.

I. JUMPERS

1. Jumpers shall be installed as shown on the drawings. Compression jumper terminals shall be used. All jumpers shall be installed in accordance with the manufacturer's recommendations.

2. Jumper wire loops shall be of sufficient length to present a smooth, uniformly curving appearance, and which do not put the jumper insulators in compression. Excess length of conductor from the wire stringing operation may be used to make up the jumper loops.

J. TEMPORARY GROUNDS

1. During the wire work, the Contractor shall take all necessary steps to ensure proper temporary grounding of the structures, cables, and equipment. All

applicable federal, state, Chugach Electric Association, and local safety regulations shall be strictly adhered to.

2. A record of all temporary conductor grounds shall be kept with a copy supplied to Chugach to ensure that they are all removed, and the line can be safely energized at the end of the construction period.

K. REELS AND EXCESS CONDUCTOR

1. When wire is furnished by Chugach, the Contractor shall be responsible for salvaging the wire reels and all excess conductor. All such wire shall be inventoried, placed on reels and returned to Chugach or disposed of as directed by Chugach.

2. Returnable reels shall be returned to Chugach's warehouse. Non-returnable wooden reels shall be disposed of in a manner meeting the approval of Chugach.

L. SPECIAL REQUIREMENTS

1. All wire tools and equipment shall have Chugach's written approval prior to use.

2. Conductors to be retired, including all wire, armor rods, connectors, jumpers and other accessories are to be removed and disposed of by the Contractor as required by law.

END OF SECTION

VI. SIGNS AND MISCELLANEOUS UNITS

A. GENERAL

1. This section includes specifications for steel structure signs and other miscellaneous units

B. REFERENCES

1. American National Standards Institute (ANSI)

    a. Z535.1 - Safety Color Code

    b. Z535.2 - Environmental and Facility Safety Signs

    c. Z535.3 - Criteria for Safety Symbols

2. American Society for Testing and Materials (ASTM)

    a. B209 - Aluminum and Aluminum-Alloy Sheet and Plate

    b. B449 - Chromates on Aluminum

C. QUALITY ASSURANCE

1. Signs

    a. Standard manufacturer's warranties of 10 years for reflective sheeting and seven (7) years for fluorescent sheeting shall apply.

D. SUBMITTALS

1. Submit a full-size scaled drawing of each type of sign and manufacturers catalog cuts and specifications for all materials to be used.

2. After full size drawings have been approved, submit samples of each type of sign.

E. SIGN DELIVERY, STORAGE, AND HANDLING

1. Signs shall be packaged in protective cartons suitable for rough transport and outdoor storage. Cartons shall be clearly labeled with the supplier's name, construction contract identification and type and quantity of sign.

F. SIGN MATERIALS, LAYOUT, AND FABRICATION

1. Signs shall be made of 3M Scotchlite high intensity reflective sheeting on aluminum panels unless otherwise indicated on the drawings. Materials and adhesives shall be suitable for outside use in temperatures from -70°F to 100°F.

2. Sign panels shall be formed of 6061-T6 aluminum plate conforming to ASTM B209. Unless otherwise noted on the drawings, sign panels shall be 0.064 inches thick.

3. The layout of the Danger signs shall be in accordance with the Drawings and conform to ANSI 535.2, colors shall conform to ANSI 535.1 and symbols shall conform to ANSI 535.3.

4. Metal panels shall be cut to size and shape and shall be free of buckles, warp, dents, cockles, burrs and any other defects resulting from fabrication. All possible fabrication, including shearing, cutting and punching or drilling of holes shall be completed prior to the base metal preparation.

5. Aluminum panels shall be cleaned and treated in accordance with the manufacturer's instructions and ASTM B449. The cleaned and coated base metal shall be handled only by a mechanical device or by operators wearing clean cotton or rubber gloves. After cleaning and coating operations, the panels shall be protected at all times from contact or exposure to greases, oils, dust or other contaminants.

6. Reflective sheeting shall be applied in accordance with the manufacturer's instructions. If screen printing is used, inks shall be compatible with the reflective sheeting and shall be furnished by the same manufacturer.

7. Signs shall be furnished complete with mounting hardware. Bolts, nuts and flat washers and lock washers shall be either galvanized steel or stainless steel sized for a 1/16-inch to ¼-inch thick tower bracket. Bolts shall be furnished with a flat washer, a nylon flat washer to be installed next to the reflective sheeting, a lockwasher and locknut.

END OF SECTION

VII. MISCELLANEOUS DEMOLITION

A. GENERAL

1. Items of demolition work associated with this section are associated on the Drawings.

B. DEMOLITION

1. Demolish and remove existing construction only to the extent required by new construction and as indicated.

2. Provide, erect, and maintain temporary barriers, security devices, and temporary support structures as necessary to protect and support existing items which are not indicated to be removed.

3. Structures and anchors to be retired may be completely removed, or cut off 18 inches below ground line, disposed of as required by law, and the void backfilled with Contractor-furnished fill and tamped.

C. DISPOSAL OF WASTE MATERIAL

1. Remove waste materials and excess excavated material to a contractor-furnished disposal site in compliance with all applicable local, state, and federal requirements.

D. SALVAGED MATERIAL

1. All material and equipment designated for removal and not designated to be reused, relocated, or returned to the Owner in other Sections or on the Drawings, will become the property of the Contractor at the time of removal.

END OF SECTION