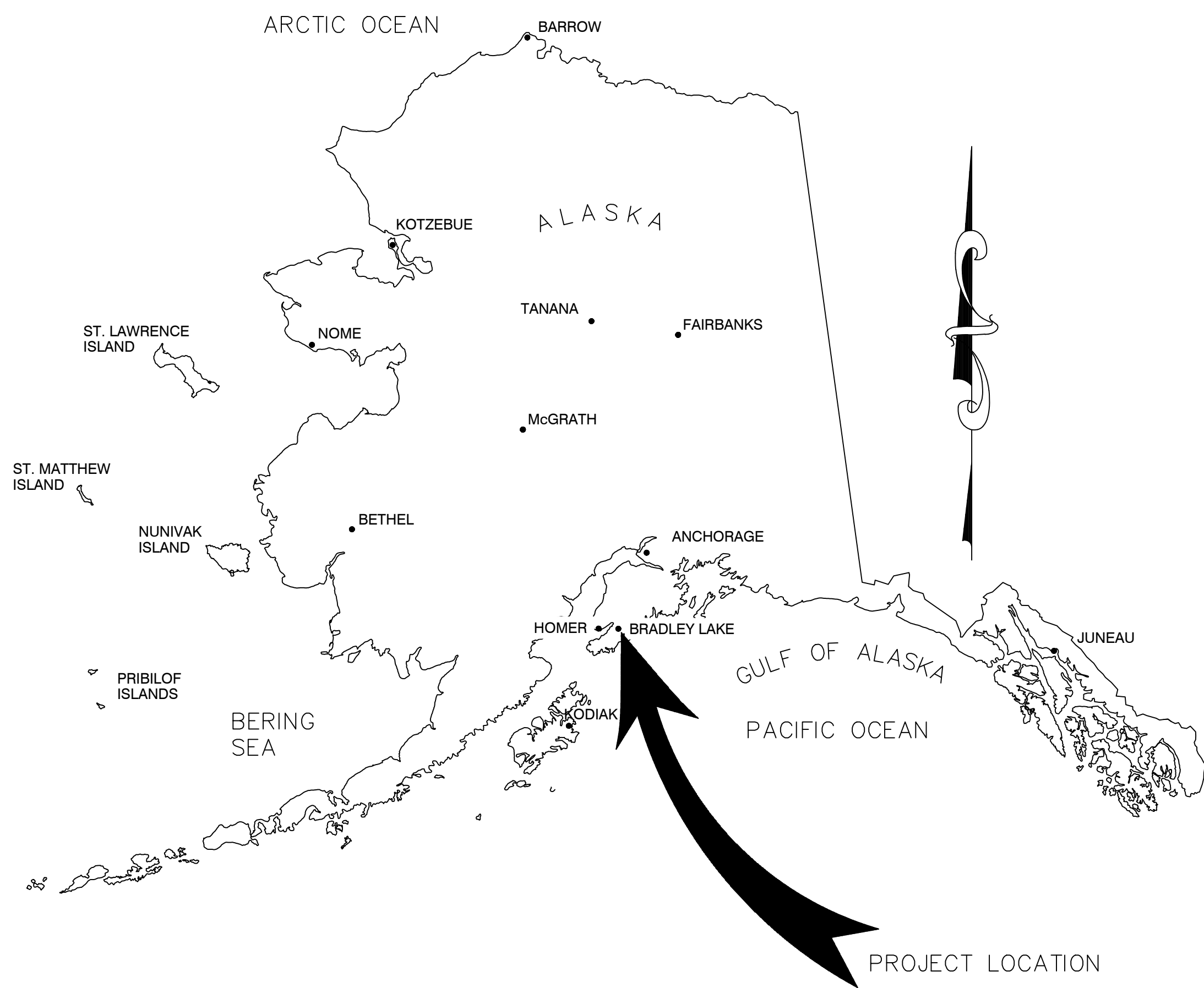


AEA BRADLEY LAKE HYDROELECTRIC PROJECT
BRADLEY LAKE 3-PHASE POWERLINE



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PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





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DRAWING NAME: **AEA BRADLEY LAKE HYDROELECTRIC PROJECT
BRADLEY LAKE 3-PHASE POWERLINE**

COVER SHEET

REF DWG(S):

DRAWING NO.: **BLP-G-01**

SHEET **1** OF **29**

DISTRIBUTION
SPECIFICATIONS

A. General

All construction work shall be done in a thorough and workman-like manner in accordance with the Staking Sheets, Plans and Specification, and Construction Drawings. All work areas shall be left clean of any excess materials and garbage.

The C2-2023 Edition of the National Electric Safety Code (NESC) shall be followed except where local regulations are more stringent, in which case local regulations shall govern. The design was performed per C2-2023 NESC, if construction is delayed and occurs under a later code, the design must be reviewed for the later code prior to construction.

Some of the drawings and specifications are from RUS bulletins 1728F-804 "Specifications and Drawings for 12.47/7.2 kV Construction" and 1728F-803 "Specifications and Drawings for 24.9/14/4kV Construction" and 1728F-806 "Specifications and Drawings for Underground Electric Distribution Construction".

B. Overhead Specifications

1. Distributing Poles:

In distributing the poles, large, choice, close-grained poles shall be used for transformers, deadend, angle, and corner poles.

2. Pole Setting:

The minimum depth for setting poles shall be as follows:

Length of Pole (feet)	Setting in Soil (feet)	Setting in all Solid Rock (feet)
50	7.0	4.5
55	7.5	5.0
60	8.0	5.0
65	8.5	5.0
70	9.0	5.0
75	9.5	5.0
80	10.0	5.0

"Setting in Soil" specifications shall apply:

a. Where poles are to be set in soil.

b. Where there is a layer of soil of more than two (2) feet in depth over solid rock.

c. Where the hole in solid rock is not substantially vertical or the diameter of the hole at the surface of the rock exceeds approximately twice the diameter of the pole at the same level.

"Setting in All Solid Rock" specifications shall apply where poles are to be set in solid rock and where the hole is substantially vertical, approximately uniform in diameter and large enough to permit the use of tamping bars the full depth of the hole.

Where there is a layer of soil two (2) feet or less in depth over solid rock, the depth of the hole shall be the depth of the soil in addition to the depth specified under "Setting in All Solid Rock"provided, however, that such depth shall not exceed the depth specified under "Setting in Soil."

On sloping ground, the depth of the hole always shall be measured from the low side of the hole.

Poles shall be set so that alternate crossarm gains face in opposite directions, except at terminals and deadends where the gains of the last two (2) poles shall be on the side facing the terminal or deadend. On unusually long spans, the poles shall be set so that the crossarm comes on the side of the pole away from the long span. Where pole top pins are used, they shall be on the opposite side of the pole from the gain, with the flat side against the pole.

Poles shall be set in alignment and plumb except at corners, terminals, angles, junctions, or other points of strain, where they shall be set and raked against the strains so that the conductors shall be in line.

Poles shall be raked against the conductor strain not less than one (1) inch for each ten (10) feet of pole length nor more than two (2) inches for each ten (10) feet of pole length after conductors are installed at the required tension.

Pole backfill shall be thoroughly tamped in full depth. Excess soil shall be banked around the pole to a nominal depth of 2' and sloped to provide drainage away from the pole.

Poles which have been in storage for more than 1 year from the date of treatment shall be ground line treated when installed.

3. Grading of Line and Bolts:

There shall be no upstrain on pin-type insulators in grading the line each way to lower poles when using high poles to clear obstacles such as buildings, foreign wire crossings, railroads, etc.

All bolts employed for the mounting of hardware items on poles shall be long enough to fully engage the nut (including locknut, where applicable) but shall not extend more than 2 in. beyond the nut after the nut is tightened. The ends of bolts shall not be cut.

4. Hardware:

All pole hardware shall be from RUS's current approved material list. All bolts, nuts, washers, and other mounting hardware shall be hot-dipped galvanized.

5. Guys and Anchors:

Guys shall be placed before the conductors are strung and shall be attached to the pole.

All anchors and rods shall be in line with the strain and shall be so installed that approximately six (6) inches of the rod remain out of the ground. In cultivated fields or other locations, as deemed necessary, the projection of the anchor rod above earth may be increased to a maximum of twelve (12) inches to prevent burial of the rod eye. The backfill of all anchor holes must be thoroughly tamped the full depth.

Power screw anchors shall be installed in accordance with manufacturer's instructions to provide the designated holding power listed on the assembly drawings. Utilize a torque measuring method (either shear pins or a torque indicator attachment) along with the manufacturer's installed torque vs. holding capacity relationship data and install anchors to required torque in order to achieve the designated holding capacity.

All guys shall be equipped with guy markers with reflective tape/material providing high visibility

6. Locknuts:

A locknut shall be installed with each nut, eyenut or other fastener on all bolts or threaded hardware such as insulator pins, upset bolts, double arming bolts, etc.

7. Conductors:

Conductors must be handled with care. Conductors shall not be tramped on or run over by vehicles. Each reel shall be examined and the wire shall be inspected for cuts, kinks, or other damaged. Damaged portions shall be cut out and the conductors spliced. The conductors shall be pulled over suitable rollers or stringing blocks properly mounted on pole or crossarm if necessary to prevent binding while stringing.

The neutral conductor shall be maintained on the road side of the pole whenever practicable.

With pin-type insulators the conductors shall be tied in the top groove of the insulator on tangent poles and on the side of the insulator away from the strain at angles. Pin-type insulators shall be tight on the pins and on tangent construction the top groove must be in line with the conductors after tying in.

All conductors shall be cleaned thoroughly by wire brushing before splicing or the installation of a connector or clamp. A suitable inhibitor shall be used before splicing or applying connectors over aluminum conductor.

8. Splices and Deadends:

There shall be not more than one (1) splice per conductor in any span and splicing sleeves shall be located at least ten (10) feet from the conductor support. No splices shall be located in Grade B crossing spans and preferably not in the adjacent spans. Splices shall be installed in accordance with the manufacturer's recommendations

9. Taps and Jumpers

Jumpers and other leads shall be bare or covered copper conductor. Jumpers and other leads connected to line conductors shall have sufficient slack to allow free movement of the conductors. Where slack is not shown on the Construction Drawings it will be provided by at least two (2) bends in a vertical plane, or one (1) in a horizontal plane, or the equivalent. In areas where aeolian vibration occurs, special measures to minimize the effects of jumper breaks shall be used as specified.

Leads on equipment such as transformers, reclosers, etc. shall be minimum #4 Cu. Utilize hot-line clamps with stirrups for connection of equipment leads to line as indicated on the assembly details.

All primary jumpers shall consist of conductors matching or exceeding ampacity of the main line conductor and be insulated for bird protection where required. AMPACT or equivalent connectors suitable for bi-metallic connections shall be used for jumper connections

10. Hot-Line Clamps and Connectors

Connectors and hot-line clamps suitable for the purpose shall be installed as shown on Guide Drawings. Stirrups shall be used with all hot-line clamp installations. On all hot-line clamp installations, the clamp and jumper shall be so installed so that they are permanently bonded to the load side of the line, allowing the jumper to be de-energized when the clamp is disconnected. This applies in all cases, even where the line layout is such that the tap line is in actuality the main back to the power source.

11. Conductor Ties:

Ties shall be in accordance with Construction Drawings. Hot-line ties shall not be used at Grade "B" crossings. Ties shall be a pre-formed type.

12. Sagging of Power Conductors:

Conductors shall be sagged in accordance with the provided stringing tables. However, under no circumstances will a decrease in the specified sag be allowed. All conductors shall be sagged evenly. Stringing of conductors shall be done using travelers of proper diameter for the conductor selected. The air temperature at the time and place of sagging shall be determined by a certified etched glass thermometer. After bringing conductor to proper sag, deadends are to be secure within 2 hours. Wire must be tied to insulators within 48 hours.

13. Grounds:

Ground plate shall be installed in accordance with the Construction Drawings. The staples on the ground wire shall be spaced two (2) feet apart except for a distance of eight (8) feet above the ground and eight (8) feet down from the top of the pole where they shall be six (6) inches apart.

All equipment shall have at least two (2) connections from the frame, case or tank to the multi-grounded neutral conductor.

The equipment ground, neutral wires, and lightning-protective equipment shall be interconnected and attached to a common ground wire.



C. Underground Specifications

1. Storage of Material and Equipment:

It is the responsibility of the contractor to ensure that all material and equipment to be used in construction must be stored so as to be protected from deteriorating effects of the elements. If outdoor storage cannot be avoided, the material and equipment must be stacked on supports well above the ground line and protected from the elements as appropriate, and with due regard to public safety.

2. Trenching

All excavations shall be in compliance with Federal and State OSHA requirements.

Trench depth shall be per the trench detail drawing. Minimum burial depth for primary shall be 42" for secondary minimum burial depth shall be 30" except beneath roadways, where 42" shall apply. These depths may be reduced if concrete encasement or other supplemental protection is provided. The bottom of trench shall be free of any sharp rocks or material that may cause damage to cables. At no point shall the cables suspend over a hole or gap in the trench, such voids shall be filled with appropriate material.

It is the responsibility of the contractor to ensure that all trenching depths specified is minimum as measured from the final grade to the top surface of the cable. The routing must be as shown on the staking sheets and plans and specifications unless conditions encountered are such that changes are necessary to accomplish the work. Trenching in rock may be encountered, if the trench alignment is to be altered from the proposed trench alignment the Owner shall be notified to make a decision on what course of action will be taken. The trench widths specified is minimum and should be increased as necessary to obtain the required depths in loose soils.

Care shall be exercised to minimize the likelihood of water flow since this may cause trench damage and reduction in trench depth. If this occurs, the trench must be cleared to the specified depth before installing the cable.

Construction shall be arranged so that trenches may be left open for the shortest practical time to avoid creating a hazard to the public and to minimize the likelihood of collapse of the trench due to other construction activity, rain, accumulation of water in the trench, etc.

3. Backfilling:

It is the responsibility of the contractor to ensure that the first 6 inches of trench backfill shall be free from rock, gravel or other material which might damage the cable jacket. In lieu of cleaning the trench, the Contractor may, at the Contractor's option, place a 2 inch bed of clean sand or soil under the cable and 4 inches of clean soil above the cable. Cleaned soil backfill when used shall contain no solid material larger than 1 inch and be non-frost susceptible. This soil layer must be carefully compacted so that the cable will not be damaged.

Backfilling must be completed in such a manner that voids will be eliminated. Excess soil must be piled on top and must be well tamped. All rock and debris must be removed from the site, and any damage to the premises repaired immediately.

Pieces of scrap cable or other material remaining after installation must not be buried in the trench as a means of disposal.

Backfilled material shall be compacted for all road crossings, landscaped areas, and where specified.

4. Conduit:

It is the responsibility of the contractor to ensure that all exposed ends of conduit must be plugged during construction to prevent the entrance of foreign matter and moisture into the conduit. Burrs or sharp projections which might injure the cable must be removed. The first 10' of the riser should be schedule 80 PVC. Riser shield or conduit must extend at least 18 inches below grade at all riser poles. If full round conduit is used as a riser shield, a bushing must be installed on the lower end to prevent damage to the cable.

5. Underground Cable:

a. Handling of Cable:

It is the responsibility of the contractor to ensure that the cable shall be handled carefully at all times to avoid damage, and shall not be dragged across the ground, fences or sharp projections. Care shall be exercised to avoid excessive bending of the cable. The contractor shall ensure that the ends of the cable be sealed at all times against moisture with suitable end caps. Where it is necessary to cut the cable, the ends will be terminated or sealed immediately after the cutting operation.

b. Minimum Bending Radius of Cable:

It is the responsibility of the contractor to ensure that the minimum bending radius of primary cable is 12 times the overall diameter of the cable or per manufacturer's recommendations, which ever is larger. The minimum bending radius of secondary and service cable is six times the overall diameter of the cable. In all cases the minimum radius specified is measured to the surface of the cable on the inside of the bend. Cable bends must not be made within 6 inches of a cable terminal base.

c. Installation in Conduit or Duct:

Where cable must be pulled through conduit or duct, the operation shall be performed in such a way that the cable will not be damaged from strain or dragging. The cable shall be lubricated with a suitable cable lubricant prior to pulling into conduit or duct.

In placing primary cables, the stress applied while pulling into ducts or during other pulling operations shall not exceed the least of the following:

i. Where a pulling eye is attached to

the conductor, the maximum pulling strain in pounds shall not exceed .006 times the circular mil area for aluminum or .008 times the circular mil area for copper.

ii. Where a basket grip is placed over the cable, the pulling strain shall not exceed the lesser of: (1) that calculated in above; or (2) 1000 pounds. The cable under the cable grip and 1.0 foot preceding it shall be severed and discarded after the pulling operation.

iii. Pulling tension shall be monitored at all times.

iv. In no case shall the maximum pulling tension exceed that recommended by the specific cable manufacturer.

v. At bends the maximum sidewall pressure recommended by the cable manufacturer shall not be exceeded.

d. Tagging of Cables at Termination Points:

Cables shall be tagged and identified at all accessible locations as the cables are laid. The identification must be of a permanent type, such as that done on plastic or corrosion resistant metal tags. The tag must be securely attached to the cable. Paper or cloth tags are not acceptable. The cable tags will be furnished by Elmhurst, installed by the contractor.

e. Splices:

It is the responsibility of the contractor to ensure that cable splices must be of the premolded rubber, heat-shrink, or cold-shrink type, of the correct voltage rating and must be installed in accordance with the splice manufacturer's instructions. Splices that depend solely on tape for a moisture barrier must not be used.

Not more than one splice may be permitted for each 2000 feet of cable installed unless authorized by the Owner. No bends may be permitted within 12 inches of the ends of a splice. The cable or circuit numbers and the exact location of all splices must be noted on the staking sheets (as built).

f. Primary Cable Termination and Stress Cones:

It is the responsibility of the contractor to ensure that prefabricated stress cones or terminations must be installed in accordance with the manufacturer's instructions at all primary cable terminals. They must be suitable for the size and type of cable that they are used with and for the environment in which they will operate. Any indication of misfit, such as a loose or exceptionally tight fit, must be called to the Owner's attention. The outer conductive surface of the termination must be bonded to the system neutral. A heat-shrink or cold-shrink sleeve must be installed to seal between the body of the termination and the cable jacket.

g. Special Precautions for Cable Splices and Terminations:

It is the responsibility of the contractor to ensure that a portable covering or shelter must be available for use when splices or terminations are being prepared and when prefabricated terminations are being switched. The shelter must be used as necessary to keep rain, snow and windblown dust off the insulating surfaces of these devices. Since cleanliness is essential in the preparation and installation of primary cable fittings, care shall be exercised to prevent the transfer of conducting particles from the hands to insulating surfaces. Mating surfaces must be wiped with a solvent such as denatured alcohol to remove any possible accumulation of dirt, moisture or other conducting materials. A silicone grease or similar lubricant should be applied afterwards in accordance with the manufacturer's recommendations. Whenever prefabricated cable devices are opened, the unenergized mating surfaces must be lubricated with silicone grease before the fittings are reconnected.

6. Secondary and Service Connections:

It is the responsibility of the contractor to ensure that a suitable inhibiting compound must be used with all secondary and service connections.

All secondary cable connections located below grade or in secondary pedestals must be made with pre-insulated secondary connector blocks. Diving bells with open terminals, insulating boots or moisture barriers that depend solely on tape are not acceptable.

All transformer secondary phase terminal connections must be completely insulated. If the secondary phase terminals are threaded studs, the connection must be made with a pre-insulated secondary transformer connection block. If the transformer secondary phase terminals are insulated cable leads, connection must be made with a pre-insulated secondary connector block or with a secondary prefabricated splice when the transformer leads continue directly to the service. The district's electrical contractor is to furnish pin type, two hole compressions lugs to be installed by Elmhurst. Elmhurst will terminate the secondary service at the service transformer.

If a transformer is so large that it must have secondary spades, the spades must be taped or otherwise insulated. Boots used for insulation must be taped so that they cannot be readily slipped off.

Secondary connections to terminals of pole-mounted transformers must be made so that moisture cannot get inside the cable insulation. This may be accomplished by covering the terminals and bare conductor ends with an appropriate moisture sealant or providing a drip loop.

The secondary connections and insulation must have accommodations for all future and existing services as shown on the plans and specifications.

7. Grounding:

It is the responsibility of the contractor to ensure that all neutral conductors, grounding electrodes, and groundable parts of equipment shall be interconnected. All interconnections shall be made as shown on the construction drawings. A copper-clad or galvanized steel ground rod with minimum length of 8 feet shall be installed at all equipment locations as shown in the construction drawings and at all cable splices and taps. Ground plate can be installed in lieu of ground rods on poles without transformers.

All pad-mounted equipment enclosures, including transformers, shall be grounded in such a manner that two separate grounding paths exist between the enclosure and the grounding rod(s).



D. Clearing of Right-Of-Way:

The right-of-way shall be prepared by removing trees, clearing underbrush, and trimming trees so that the right of way is cleared close to the ground at the width specified (30 feet). Low growing shrubs which will not interfere with the operation or maintenance of the line shall be left undisturbed if so directed by the owner. Slash may be chipped and blown in the right of way unless strictly prohibited by the owner, federal, state or local laws. If downed vegetation is left in the right of way to decay over time, at a minimum it shall be chopped and scattered to decrease fire hazard.

Vegetation Maintenance

Maintain a 5 foot minimum radial clearance from wires and remove trees on edge of right-of-way that may fall on wires (i.e. dead or leaning trees).

All vegetation greater than four (4) inches in diameter will be cut to sections no longer than four (4) feet. All limbs...etc. shall be no more than two (2) feet off the ground. Trees fronting each side of the right-of-way shall be trimmed symmetrically unless otherwise specified. Dead trees beyond the right of way which would strike the line in falling shall be removed. Leaning trees beyond the right of way, which would strike the line in falling and which would require topping if not removed, shall either be removed or topped.



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE

DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS

W.O. #: 25-0305

NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	
1	REVISE CLEARING & RESTORE SECONDARY	EDS/06-22-2026	CTD/07-03-2026	

ENG. STAMP



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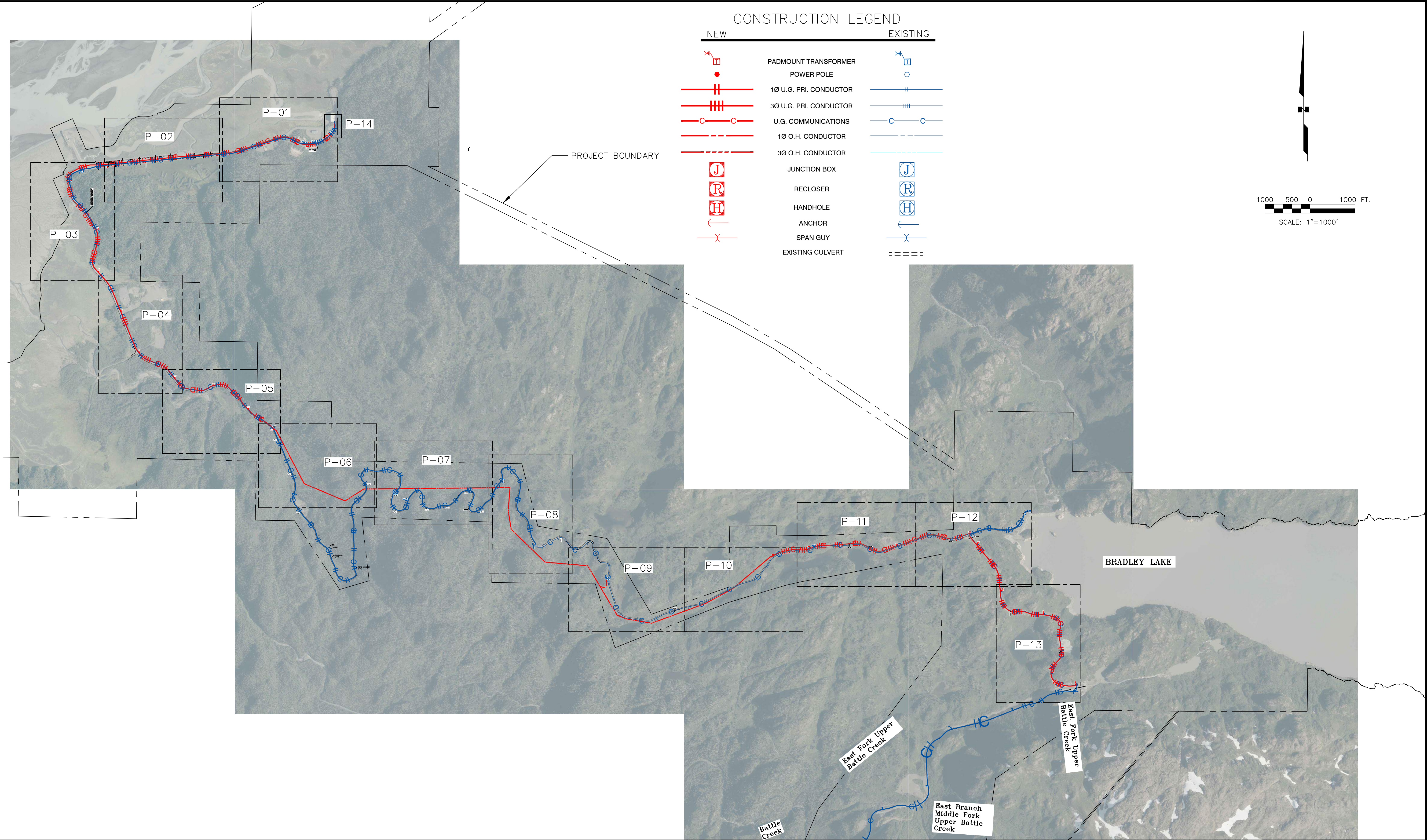
DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT
BRADLEY LAKE 3-PHASE POWERLINE

REF DWG(S):

DRAWING NO.:

BLP-G-02

SHEET 2 OF 29



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





ALASKA
ENERGY AUTHORITY



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DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN OVERVIEW	
REF DWG(S):	
DRAWING NO.: BLP-G-03	SHEET 3 OF 29

STATUS	STRUCTURE NUMBER	GRID NUMBER	SHEET NUMBER	BACK SPAN	LINE ANGLE	PRIMARY					GUY			ANCHOR		SECONDARY AND SERVICE			MISCELLANEOUS		METER	REMARKS
						CONDUCTOR NO.	CONDUCTOR TYPE	POLE or TRENCH	POLE TOP/ UG NO.	UG UNIT	TRANSFORMER UNIT	GROUND UNIT	NO.	UNIT	LEAD (ft)	NO.	UNIT	NO.	UNIT	WIRE SIZE		
R	0NPS-XA1			100		3	#2 CONC 15				UG17-3-750-A											BACKSPAN TO SWITCH GEAR
I	0NPS-XA1		P-01/14	100		3	350kcmil CU 15		1	UM1-1G	UG17-3-5000-C	H1.1										REPLACE WITH 5000kVA, 13800-12470Y7200V
I	OPFX-J01		P-01/14	100		3	350kcmil CU 15		1	UM1-1B									3	UM6-11		
I									1	UM33X-4-600									9	UM6-3-G		
R				100		3	#2 CONC 15															REPLACE OLD CONDUCTOR
I	OPFX-R01		P-01/14	100		3	350kcmil CU 15		1	UM1-1B		H1.1							6	UM6-3-G		RECLOSER FOR PROJECT FEED
I									1	R-PAD												RECONNECT 3/C #2 PROJECT FEEDER
E	REPEAT OPFX-J01		P-01/14																			
I	R02		P-01	100		3	350kcmil CU 15		1	UM1-1B		H1.1							6	UM6-3-G		
I									1	R-PAD												
I	JB01		P-01	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		
I	JB02		P-01	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		
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I	JB04		P-02	1250				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1250		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
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I	JB05		P-02/03	1225				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1225		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
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I	JB06		P-03	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		
I	JB07		P-03	1200				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1200		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1200		2	UM50-H-6												3	UM6-11		POWER
I				1230		3	350kcmil CU 15												6	UM6-3-G		
I	JB08		P-03	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		
I	JB09		P-04	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		
I	JB10		P-04	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		
I	JB11		P-04/05	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		
I	JB12		P-05	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		
I	JB13		P-05	1000				UR2	1	UM1-1B		H1.1				1	FO-HH		2	FBR245SS		
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645SS		COMMUNICATION FIBER
I				1000		2	UM50-H-6												3	UM6-11		POWER
I				1030		3	350kcmil CU 15												6	UM6-3-G		

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE			
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS			
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026





ALASKA
ENERGY AUTHORITY



Electric Power Systems
Consulting Engineers
AECC: 738

3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME:	AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
REF DWG(S):		
DRAWING NO.:	BLP-G-04	SHEET <u>4</u> OF <u>29</u>

STATUS	STRUCTURE NUMBER	GRID NUMBER	SHEET NUMBER	BACK SPAN	LINE ANGLE	PRIMARY					GUY			ANCHOR		SECONDARY AND SERVICE			MISCELLANEOUS		METER	REMARKS		
						CONDUCTOR		POLE or TRENCH	POLE TOP/ UG		TRANSFORMER UNIT	GROUND UNIT	NO.	UNIT	LEAD (ft)	NO.	UNIT	NO.	UNIT	WIRE SIZE			NO.	UNIT
						NO.	TYPE		NO.	UNIT														
I	JB14		P-05	1000				UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S	COMMUNICATION FIBER POWER	
I				1000		1	UM50-H-2		1	UM33X-3-600								4	FBR645S S					
I				1000		2	UM50-H-6											3	UM6-11					
I				1030		3	350kcmII CU 15											6	UM6-3-G					
I	1		P-05/06	145		3	350kcmII CU 15	65/H1	1	UC1X		H1.1	2	E2.2AX	58	2	TA-2H	1	204	COMM	3	UM6-24-G	SPLIT GUYS BACKING CROSSARM AND NEUTRAL, SHARED ANCHORS, 20' SPACING BETWEEN ANCHORS COMMS GUYED, LL=39' NW	
I				60		1	UM50-H-2					1	E2.1X	47	1	TA-2H				1	FBR290S S			
I				60		2	UM50-H-6												2	FBR690S S				
I				0		4	#4/0 ACSR	M1.30G	1	C5.71LPX														
I	2		P-06	265		4	#4/0 ACSR	65/H1	1	C2.21LPX							1	201-1	COMM					
I				265				M1.30G																
I	3		P-06	266		4	#4/0 ACSR	55/1	1	C1.12LPX							1	201-1	COMM					
I				266				M1.30G																
I	4		P-06	269		4	#4/0 ACSR	70/H1	1	C1.12LPX							1	201-1	COMM					
I				269				M1.30G																
I	5		P-06	266		4	#4/0 ACSR	65/H1	1	C2.21LPX														
I				266				M1.30G																
I	6		P-06	277	39.4° L	4	#4/0 ACSR	60/2	2	C5.1		H1.1	4	E2.1X	SEE NOTE	2	TA-2H	1	202-3	COMM		TOP/MID PHASES GUYED, LL=36' S, 57' W BOT/NEUTRAL PHASES GUYED, LL=28', 47' W COMMS GUYED, LL=22' S, 35' W		
I				277				M1.30G	3	A1.04N			4	E2.1X	SEE NOTE	2	TA-2H							
I									1	C4.2G			2	E2.1X	SEE NOTE	2	TA-2H							
I	7		P-06	292		4	#4/0 ACSR	55/H1	1	C2.21LPX							1	201-1	COMM					
I				292				M1.30G																
I	8		P-06	293		4	#4/0 ACSR	80/H1	1	C1.12LPX							1	201-1	COMM					
I				293				M1.30G																
I	9		P-06	214		4	#4/0 ACSR	65/H1	1	C1.12LPX							1	201-1	COMM					
I				214				M1.30G																
I	10		P-06	191	55.5° L	4	#4/0 ACSR	70/1	2	C5.1		H1.1	4	E2.1X	51	2	TA-2H	1	202-3	COMM		TOP/MID PHASES GUYED BOTTOM PHASE AND NEUTRAL GUYED COMMS GUYED		
I				191				M1.30G	3	A1.04N			4	E2.1X	40	2	TA-2H							
I									1	C4.2G			2	E2.1X	26	2	TA-2H							
I	11		P-06	244		4	#4/0 ACSR	65/H1	1	C2.21LPX							1	201-1	COMM					
I				244				M1.30G																
I	12		P-06	252	32° R	4	#4/0 ACSR	75/H1	2	C5.1		H1.1	2	E2.1X	SEE NOTE	2	TA-2H	1	202-3	COMM		TOP/MID PHASES GUYED, LL=47' E, 77' W BOT/NEUTRAL PHASES GUYED, LL = 40' E, 63' W COMMS GUYED, LL=33' E, 46' W		
I				252				M1.30G	3	A1.04N			2	E2.1X	SEE NOTE	2	TA-2H							
I									1	C4.2G			2	E2.1X	SEE NOTE	2	TA-2H							
I	13		P-06	162		4	#4/0 ACSR	55/1	1	C1.12LPX														
I				162				M1.30G																
I	14		P-07	242		4	#4/0 ACSR	65/1	1	C6.1LPX		H1.1	4	E2.2AX	44	4	TA-2H	1	201-1	COMM		SPLIT GUYS FOR PRIMARY/NEUTRAL WEST SIDE LL = 55' W/ 35' SPACING, EAST SIDE LL=35' W/ 25' SPACING (EAST ANCHORS IN HILL SIDE) GUYS FOR COMMS		
I				242				M1.30G					2	E2.1X	25	2	TA-2H							
I	15		P-07	184		4	#4/0 ACSR	65/H1	1	C2.21LPX							1	201-1	COMM					
I				184				M1.30G																
I	16		P-07	236		4	#4/0 ACSR	70/1	1	C1.12LPX							1	201-1	COMM					
I				236				M1.30G																
I	17		P-07	252		4	#4/0 ACSR	55/1	1	C1.12LPX							1	201-1	COMM					
I				252				M1.30G																
I	18		P-07	193		4	#4/0 ACSR	55/2	1	C1.12LPX							1	201-1	COMM					
I				193				M1.30G																
I	19		P-07	200		4	#4/0 ACSR	60/1	1	C1.12LPX							1	201-1	COMM					
I				200				M1.30G																
I	20		P-07	225		4	#4/0 ACSR	65/1	1	C1.12LPX							1	201-1	COMM					
I				225				M1.30G																
I	21		P-07	220		4	#4/0 ACSR	55/1	1	C1.12LPX							1	201-1	COMM					
I				220				M1.30G																
I	22		P-07	204		4	#4/0 ACSR	55/1	1	C1.12LPX							1	201-1	COMM					
I				204				M1.30G																
I	23		P-07	223		4	#4/0 ACSR	55/1	1	C1.12LPX							1	201-1	COMM					
I				223				M1.30G																

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS

W.O. #: 25-0305

NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	

ENG. STAMP
STATE OF ALASKA
49 TH
Christopher T. Davis
EE-10642
05-06-2026
REGISTERED PROFESSIONAL ENGINEER
AECC738

ALASKA ENERGY AUTHORITY

eps

Electric Power Systems Inc.
Consulting Engineers
AECC: 738

3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT
BRADLEY LAKE 3-PHASE POWERLINE

STAKING SHEET

REF DWG(S):

DRAWING NO.: BLP-G-05

SHEET_5_OF_29

STATUS	STRUCTURE NUMBER	GRID NUMBER	SHEET NUMBER	BACK SPAN	LINE ANGLE	PRIMARY					GUY		ANCHOR		SECONDARY AND SERVICE			MISCELLANEOUS		METER	REMARKS	
						CONDUCTOR NO.	TYPE	POLE or TRENCH	POLE TOP/ UG NO.	UNIT	TRANSFORMER UNIT	GROUND UNIT	NO.	UNIT	LEAD (ft)	NO.	UNIT	NO.	UNIT			WIRE SIZE
I	24		P-07	185		4	#4/0 ACSR	60/2	1	C1.12LPX						1	201-1	COMM				
I				185				M1.30G														
I	25		P-07	188		4	#4/0 ACSR	50/1	1	C6.1LPX		H1.1	4	E2.2AX	27	4	TA-2H	1	201-1	COMM		SPLIT GUYS FOR PRIMARY/NEUTRAL. WEST SIDE LL=42' W/ 30' SPACING. EAST SIDE LL=27' W/ 19' SPACING (EAST ANCHORS IN HILL SIDE)
I				188				M1.30G					1	E2.1X	29	1	TA-2H					GUY FOR AHEAD COMMS
I													1	E2.1X	19	1	TA-2H					GUY FOR BACK COMMS
I	26		P-08	193		4	#4/0 ACSR	65/H1	1	C2.21LPX							1	201-1	COMM			
I				193				M1.30G														
I	27		P-08	144		4	#4/0 ACSR	60/H1	1	C2.21LPX							1	201-1	COMM			
I				144				M1.30G														
I	28		P-08	199	94.7° R	4	#4/0 ACSR	65/2	2	C5.1		H1.1	4	E2.1X	SEE NOTE	2	TA-2H	2	204	COMM		TOP/MID PHASES GUYED. LL=43° E, 40° N
I				199				M1.30G					4	E2.1X	SEE NOTE	2	TA-2H					BOT/NEUTRAL PHASES GUYED. LL=35° E, 34° N
I													2	E2.1X	SEE NOTE	2	TA-2H					COMMS GUYED. LL=27° E, 25° N
I	29		P-08	162		4	#4/0 ACSR	60/1	1	C1.12LPX							1	201-1	COMM			
I				162				M1.30G														
I	30		P-08	172		4	#4/0 ACSR	70/1	1	C1.12LPX							1	201-1	COMM			
I				172				M1.30G														
I	31		P-08	182	13° L	4	#4/0 ACSR	75/2	1	C3.1LX		H1.1	2	E2.1X	48	1	TA-2H	1	201-1	COMM		TOP PHASE AND COMM GUYED
I				182				M1.30G														
I	32		P-08	183		4	#4/0 ACSR	55/1	1	C1.12LPX							1	201-1	COMM			
I				183				M1.30G														
I	33		P-08	234	37° L	4	#4/0 ACSR	80/1	2	C5.1		H1.1	4	E2.1X	SEE NOTE	2	TA-2H	1	202-3	COMM		TOP/MID PHASES GUYED. LL=86° S, 60° N
I				234				M1.30G	3	A1.04N			4	E2.1X	SEE NOTE	2	TA-2H					BOT/NEUTRAL PHASES GUYED. LL=72° S, 51° N
I									1	C4.2G			2	E2.1X	SEE NOTE	2	TA-2H					COMMS GUYED. LL=49° S, 35° N
I	34		P-08	305		4	#4/0 ACSR	85/H2	1	C2.21LPX							1	201-1	COMM			
I				305				M1.30G														
I	35		P-08	265		4	#4/0 ACSR	65/H1	1	C2.21LPX							1	201-1	COMM			
I				265				M1.30G														
I	36		P-08	277		4	#4/0 ACSR	65/1	1	C1.12LPX							1	201-1	COMM			
I				277				M1.30G														
I	37		P-08	204	39.2° L	4	#4/0 ACSR	75/1	2	C5.1		H1.1	4	E2.1X	SEE NOTE	2	TA-2H	1	202-3	COMM		TOP/MID PHASES GUYED. LL=91° E, 71° W
I				204				M1.30G	3	A1.04N			4	E2.1X	SEE NOTE	2	TA-2H					BOT/NEUTRAL PHASES GUYED. LL=77° E, 47° W
I									1	C4.2G			2	E2.1X	SEE NOTE	2	TA-2H					COMMS GUYED. LL=50° E, 35° W
I	38		P-08	202		4	#4/0 ACSR	65/1	1	C6.1LPX		H1.1	4	E2.2AX	SEE NOTE	4	TA-2H	1	201-1	COMM		SPLIT GUYS FOR PRIMARY/NEUTRAL. WEST SIDE LL=52° w/ 37' SPACING. EAST SIDE LL=37° w/ 21' SPACING (EAST ANCHORS IN HILL SIDE)
I				202				M1.30G					1	E2.1X	29	1	TA-2H					GUY FOR AHEAD COMMS
I													1	E2.1X	19	1	TA-2H					GUY FOR BACK COMMS
I	39		P-08	229		4	#4/0 ACSR	70/1	1	C1.12LPX							1	201-1	COMM			
I				229				M1.30G														
I	40		P-09	245		4	#4/0 ACSR	65/H1	1	C2.21LPX							1	201-1	COMM			
I				245				M1.30G														
I	41		P-09	279	54.3° R	4	#4/0 ACSR	70/2	2	C5.1		H1.1	4	E2.1X	SEE NOTE	2	TA-2H	1	202-3	COMM		TOP/MID PHASES GUYED. LL=45° E, 60° N
I				279				M1.30G	3	A1.04N			4	E2.1X	SEE NOTE	2	TA-2H					BOT/NEUTRAL PHASES GUYED. LL=39° E, 52° N
I									1	C4.2G			2	E2.1X	SEE NOTE	2	TA-2H					COMMS GUYED. LL=26° E, 38° N
I	42		P-09	189		4	#4/0 ACSR	55/2	1	C1.12LPX							1	201-1	COMM			
I				189				M1.30G														
I	43		P-09	191		4	#4/0 ACSR	65/1	1	C6.1LPX		H1.1	4	E2.2AX	SEE NOTE	4	TA-2H	1	201-1	COMM		SPLIT GUYS FOR PRIMARY/NEUTRAL. SOUTH SIDE LL=37° w/ 27' SPACING. NORTH SIDE LL=57° w/ 41' SPACING (SOUTH ANCHORS IN HILL SIDE)
I				191				M1.30G					1	E2.1X	40	1	TA-2H					GUY FOR AHEAD COMMS
I													1	E2.1X	29	1	TA-2H					GUY FOR BACK COMMS
I	44		P-09	157		4	#4/0 ACSR	50/1	1	C2.21LPX							1	201-1	COMM			
I				157				M1.30G	1	A5.1			1	E2.1X	20	1	TA-2H					
I	44A		P-09	196		2	#1/0 ACSR	45/3	1	A5.1	G1.4-25-A	H1.1	1	E2.1X	20	1	TA-2H	1	UM5			
I				196				M1.30G														
I				30		1	UM50-H-2												#1/0 TPX UD			
E	REPEAT 44																					
I	45		P-09	165		4	#4/0 ACSR	50/1	1	C1.12LPX							1	201-1	COMM			
I				165				M1.30G														

PROJECT: **BRADLEY LAKE 3-PHASE POWERLINE**

DESIGNER/PROJECT ENGINEER: **PETER M. BLAKE/CHRISTOPHER T. DAVIS**

W.O. #: **25-0305**

NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	
1	REVISED TR4/5 SERVICE	EDS/06-22-2026	CTD/07-03-2026	

ENG. STAMP



ALASKA
ENERGY AUTHORITY



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AECC: 738

3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: **AEA BRADLEY LAKE HYDROELECTRIC PROJECT
BRADLEY LAKE 3-PHASE POWERLINE**

STAKING SHEET

REF DWG(S):

DRAWING NO.: **BLP-G-06**

SHEET **6** OF **29**

STATUS	STRUCTURE NUMBER	GRID NUMBER	SHEET NUMBER	BACK SPAN	LINE ANGLE	PRIMARY						GUY			ANCHOR		SECONDARY AND SERVICE			MISCELLANEOUS		METER	REMARKS
						NO.	CONDUCTOR TYPE	POLE or TRENCH	POLE TOP/ UG NO. UNIT	TRANSFORMER UNIT	GROUND UNIT	NO.	UNIT	LEAD (ft)	NO.	UNIT	NO.	UNIT	WIRE SIZE	NO.	UNIT		
I	46		P-09	195		4	#4/0 ACSR	70/1	1	C1.12LPX							1	201-1	COMM				
I				195				M1.30G															
I	47		P-09	192		4	#4/0 ACSR	70/1	1	C1.12LPX							1	201-1	COMM				
I				192				M1.30G															
I	48		P-09	190	37.3° L	4	#4/0 ACSR	75/2	2	C5.1		H1.1	4	E2.1X	SEE NOTE	2	TA-2H	1	202-3	COMM			TOP/MID PHASES GUYED. LL=81' S, 48' W
I				190				M1.30G	3	A1.04N			4	E2.1X	SEE NOTE	2	TA-2H						BOT/NEUTRAL PHASES GUYED. LL=70' S, 42' W
I									1	C4.2G			1	E2.1X	51	1	TA-2H						COMMS GUYED BACKING BACKSPAN
I													1	E2.1X	33	1	TA-2H						COMMS GUYED BACKING AHEAD SPAN
I	49		P-09	224	12.4° L	4	#4/0 ACSR	70/2	1	C3.1LX		H1.1	2	E2.1X	103	1	TA-2H	1	201-1	COMM			TOP AND COMM GUYED
I				224				M1.30G															
I	50		P-09	189		4	#4/0 ACSR	60/H1	1	C1.12LPX								1	201-1	COMM			
I				189				M1.30G															
I	51		P-09	191		4	#4/0 ACSR	60/H1	1	C1.12LPX								1	201-1	COMM			
I				191				M1.30G															
I	52		P-09	191	29.7° L	4	#4/0 ACSR	75/2	1	C3LX		H1.1	2	E2.1X	37	1	TA-2H	1	201-1	COMM			TOP AND COMM GUYED
I				191				M1.30G															
I	53		P-09	186		4	#4/0 ACSR	60/1	1	C1.12LPX								1	201-1	COMM			
I				186				M1.30G															
I	54		P-09	180		4	#4/0 ACSR	60/1	1	C1.12LPX								1	201-1	COMM			
I				180				M1.30G															
I	55		P-09	164		4	#4/0 ACSR	55/1	1	C1.12LPX								1	201-1	COMM			
I				164				M1.30G															
I	56		P-09	181		4	#4/0 ACSR	60/1	1	C1.12LPX								1	201-1	COMM			
I				181				M1.30G															
I	57		P-10	193		4	#4/0 ACSR	50/1	1	C1.12LPX								1	201-1	COMM			
I				193				M1.30G															
I	58		P-10	185		4	#4/0 ACSR	55/1	1	C1.12LPX								1	201-1	COMM			
I				185				M1.30G															
I	59		P-10	182	8.5° L	4	#4/0 ACSR	55/H1	1	C2.21LPX		H1.1	2	E2.1X	75	1	TA-2H	1	201-1	COMM			GUY'S AT NEUTRAL AND COMM LOCATIONS
I				182				M1.30G															
I	60		P-10	183		4	#4/0 ACSR	60/1	1	C1.12LPX								1	201-1	COMM			
I				183				M1.30G															
I	61		P-10	182		4	#4/0 ACSR	55/1	1	C1.12LPX								1	201-1	COMM			
I				182				M1.30G															
I	62		P-10	172		4	#4/0 ACSR	55/1	1	C1.12LPX								1	201-1	COMM			
I				172				M1.30G															
I	63		P-10	172	11.7° I	4	#4/0 ACSR	65/2	1	C3.1LX		H1.1	2	E2.1X	68	1	TA-2H	1	201-1	COMM			TOP PHASE AND COMM GUYED
I				172				M1.30G															
I	64		P-10	172		4	#4/0 ACSR	65/1	1	C1.12LPX								1	201-1	COMM			
I				172				M1.30G															
I	65		P-10	188		4	#4/0 ACSR	60/1	1	C1.12LPX								1	201-1	COMM			
I				188				M1.30G															
I	66		P-10	191		4	#4/0 ACSR	55/1	1	C1.12LPX								1	201-1	COMM			
I				191				M1.30G															
I	67		P-10	167		4	#4/0 ACSR	55/1	1	C1.12LPX								1	201-1	COMM			
I				167				M1.30G															
I	68		P-10	165		4	#4/0 ACSR	55/1	1	C1.12LPX								1	201-1	COMM			
I				165				M1.30G															
I	69		P-10	183		4	#4/0 ACSR	60/1	1	C5.71LPX		H1.1	2	E2.2AX	54	2	TA-2H	1	204	COMM	1	FBR245SS	SPLIT GUYS BACKING CROSSARM AND NEUTRAL, SHARED ANCHORS, 20' SPACING BETWEEN ANCHORS
I				183				M1.30G	1	UC1X			1	E2.1X	47	1	TA-2H				2	FBR645SS	COMM GUY
I				0		3	350kcmII CU 15														3	UM6-24-G	
I	JB35		P-10	1000				UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245SS	
I				1000		1	UM50-H-2		1	UM33X-3-600											4	FBR645SS	COMMUNICATION FIBER
I				1000		2	UM50-H-6														3	UM6-11	POWER
I				1030		3	350kcmII CU 15														6	UM6-3-G	

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	



3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
STAKING SHEET	
REF DWG(S):	
DRAWING NO.:	BLP-G-07
SHEET 7 OF 29	

STATUS	STRUCTURE NUMBER	GRID NUMBER	SHEET NUMBER	BACK SPAN	LINE ANGLE	PRIMARY					GUY			ANCHOR		SECONDARY AND SERVICE			MISCELLANEOUS		METER	REMARKS		
						CONDUCTOR		POLE or TRENCH	POLE TOP/ UG		TRANSFORMER UNIT	GROUND UNIT	NO.	UNIT	LEAD (ft)	NO.	UNIT	NO.	UNIT	WIRE SIZE			NO.	UNIT
						NO.	TYPE		NO.	UNIT														
I	JB36		P-11	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												3	UM6-11		POWER		
I				1030		3	350kcmil CU 15												6	UM6-3-G				
I	JB37		P-11	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												3	UM6-11		POWER		
I				1030		3	350kcmil CU 15												6	UM6-3-G				
I	JB38		P-11	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												3	UM6-11		POWER		
I				1030		3	350kcmil CU 15												6	UM6-3-G				
I	JB39		P-12	650			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				650		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				650		2	UM50-H-6												3	UM6-11		POWER		
I				680		3	350kcmil CU 15												6	UM6-3-G				
I	JB40		P-12	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												3	UM6-11		POWER		
I				1030		3	350kcmil CU 15												6	UM6-3-G				
I	JB41		P-12	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												3	UM6-11		POWER		
I				1030		3	350kcmil CU 15												6	UM6-3-G				
I	JB42		P-13	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												3	UM6-11		POWER		
I				1030		3	350kcmil CU 15												6	UM6-3-G				
I	JB43		P-13	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												3	UM6-11		POWER		
I				1030		3	350kcmil CU 15												6	UM6-3-G				
I	JB44		P-13	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		2	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-3-600									4	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												3	UM6-11		POWER		
I				1030		3	350kcmil CU 15												6	UM6-3-G				
I	JB45		P-13	1000			UR2	1	UM1-1B		H1.1						1	FO-HH		1	FBR245S S			
I				1000		1	UM50-H-2		1	UM33X-4-600									2	FBR645S S		COMMUNICATION FIBER		
I				1000		2	UM50-H-6												9	UM6-11		POWER		
I				1030		3	350kcmil CU 15												3	UM6-3-G				

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE			
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS			
W.O. #:		25-0305	
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026

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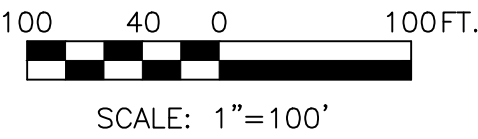
3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
STAKING SHEET	
REF DWG(S):	
DRAWING NO.:	BLP-G-08
SHEET 8 OF 29	



CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	

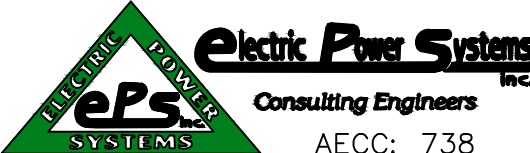


PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





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WEB: WWW.EPSINC.COM

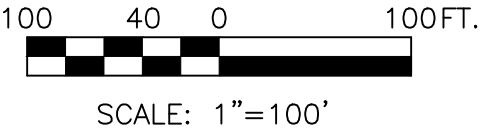
DRAWING NAME:	AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
REF DWG(S):		
DRAWING NO.:	BLP-P-01	SHEET <u>9</u> OF <u>29</u>

PLAN VIEW



CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	1Ø U.G. PRI. CONDUCTOR	
	3Ø U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	1Ø O.H. CONDUCTOR	
	3Ø O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





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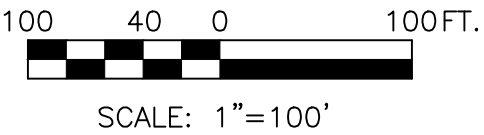
DRAWING NAME:	AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW		
REF DWG(S):		
DRAWING NO.:	BLP-P-02	SHEET 10 OF 29



CONSTRUCTION LEGEND

NEW EXISTING

	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





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TEL: (907) 522-1953
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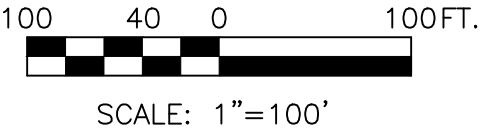
DRAWING NAME:	AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
REF DWG(S):		
DRAWING NO.:	BLP-P-03	SHEET <u>11</u> OF <u>29</u>

PLAN VIEW



CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





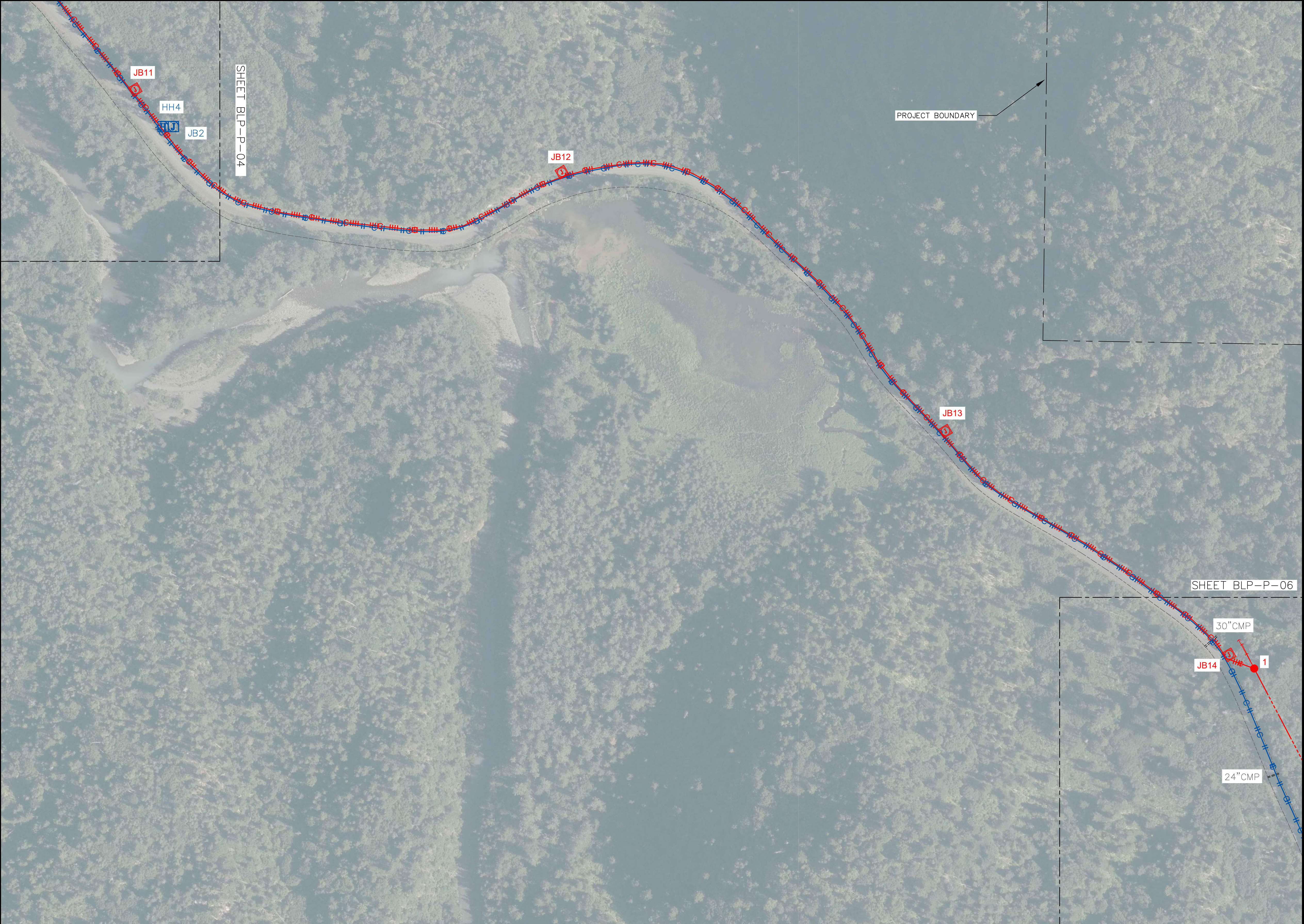
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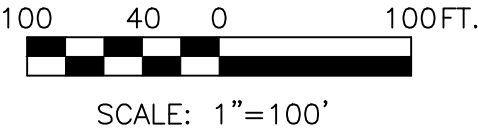
3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW	
REF DWG(S):	
DRAWING NO.:	BLP-P-04
SHEET 12 OF 29	



CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





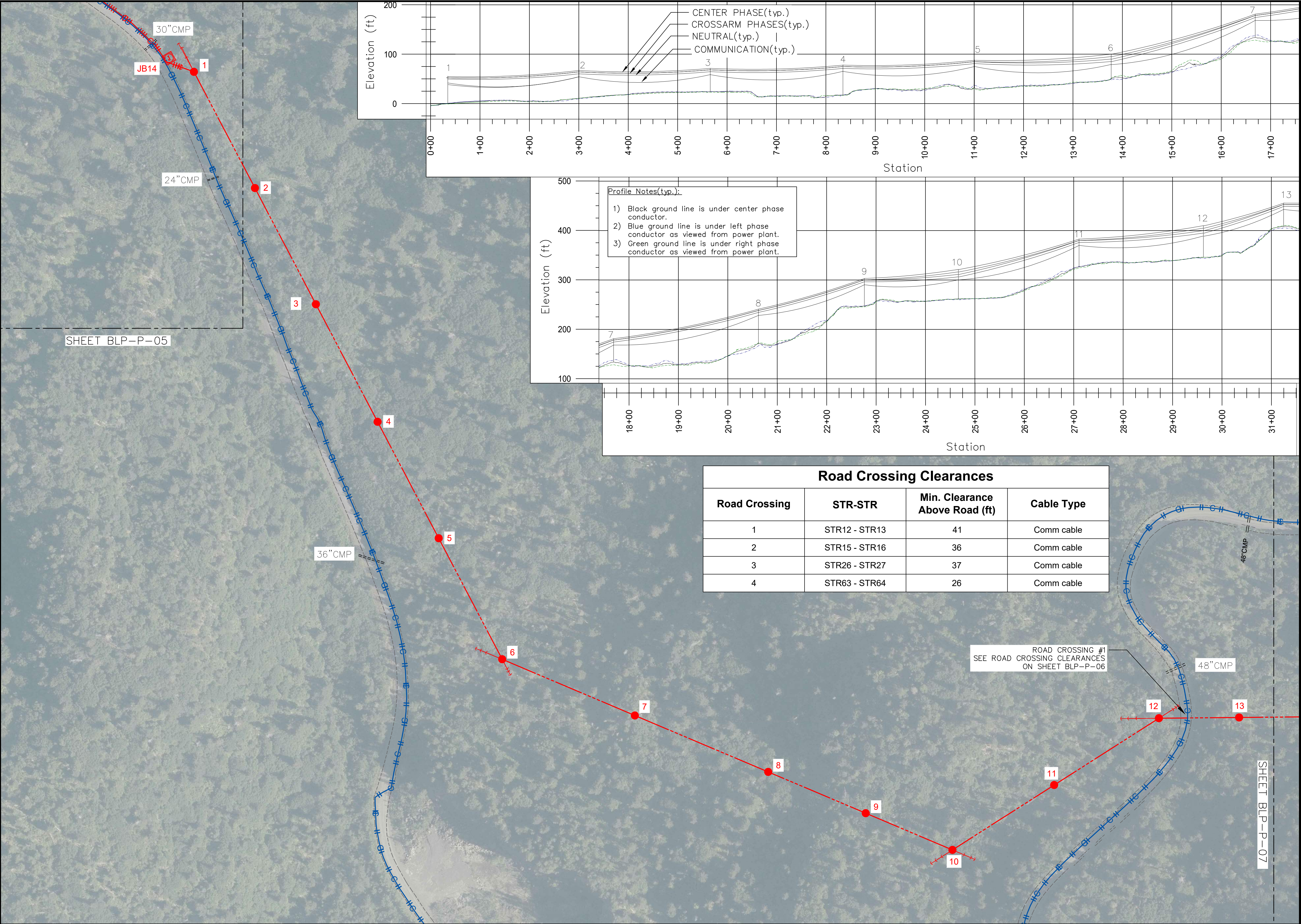
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ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW	
REF DWG(S):	
DRAWING NO.: BLP-P-05	SHEET 13 OF 29



Road Crossing Clearances			
Road Crossing	STR-STR	Min. Clearance Above Road (ft)	Cable Type
1	STR12 - STR13	41	Comm cable
2	STR15 - STR16	36	Comm cable
3	STR26 - STR27	37	Comm cable
4	STR63 - STR64	26	Comm cable

CONSTRUCTION LEGEND	
NEW	EXISTING

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





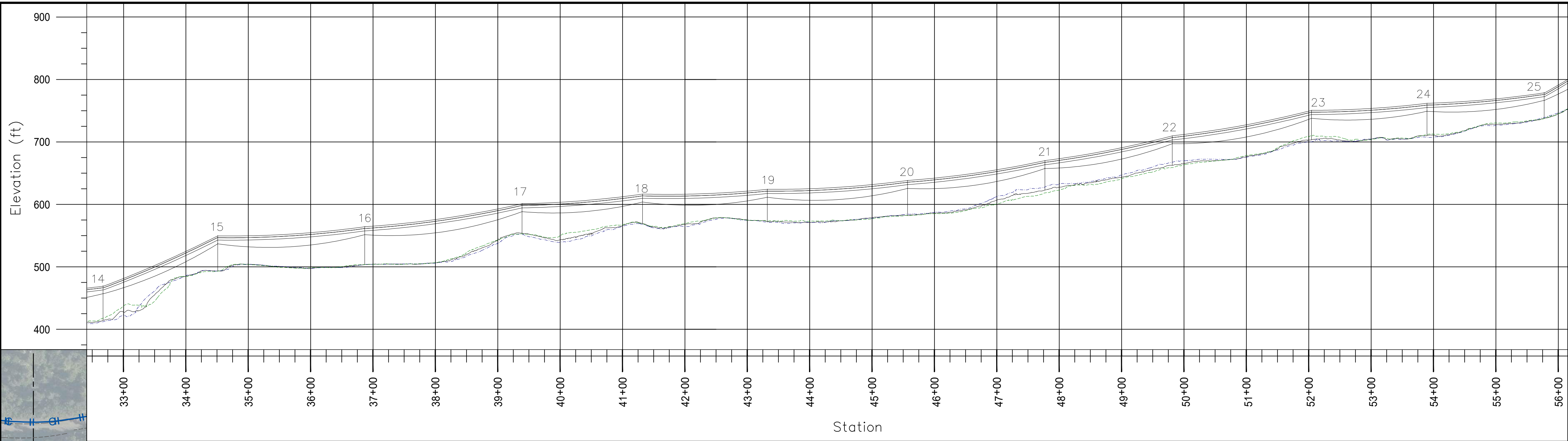
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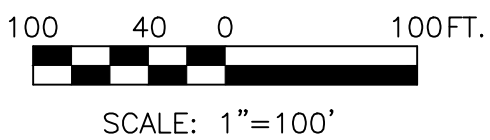
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3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW	
REF DWG(S):	
DRAWING NO.:	BLP-P-06
SHEET 14 OF 29	



CONSTRUCTION LEGEND	
NEW	EXISTING



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





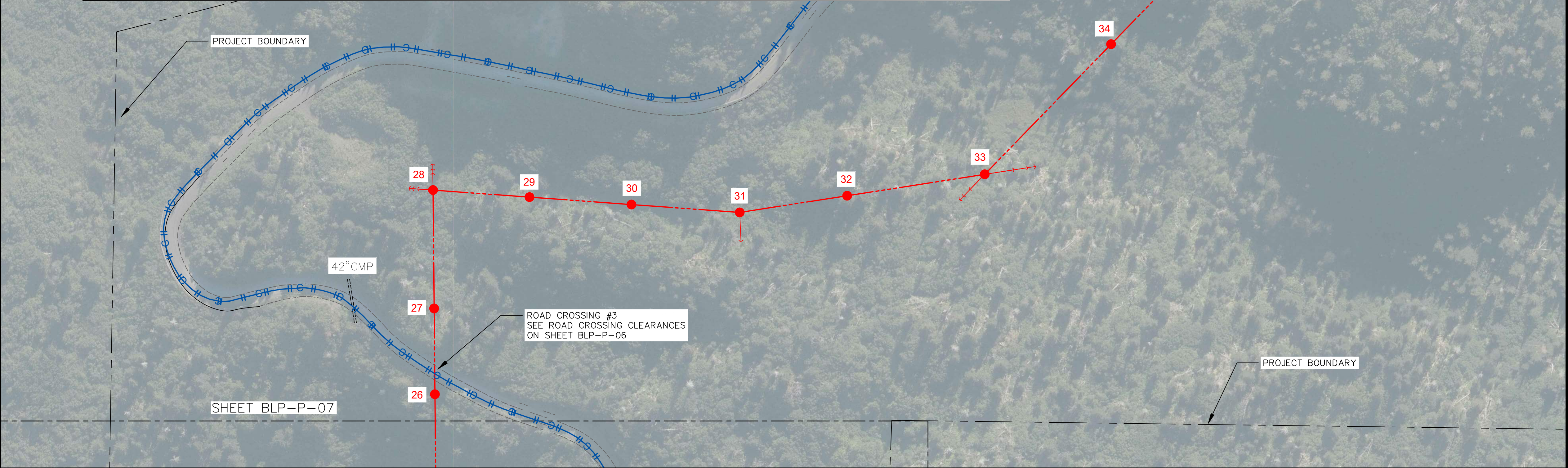
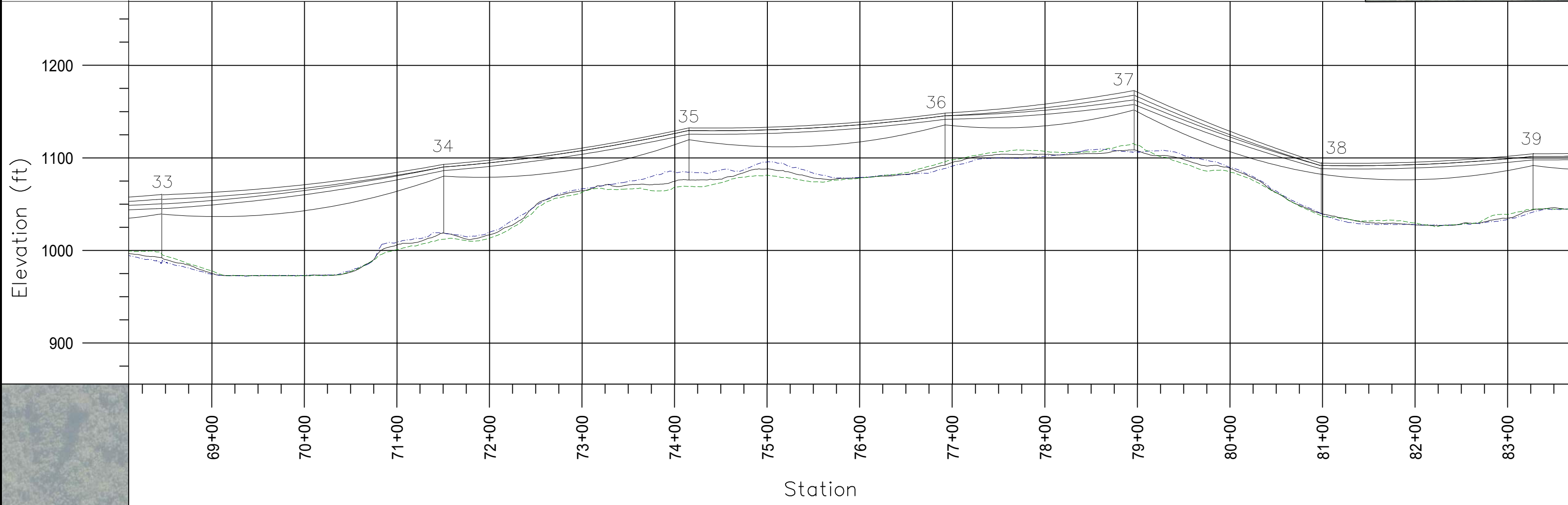
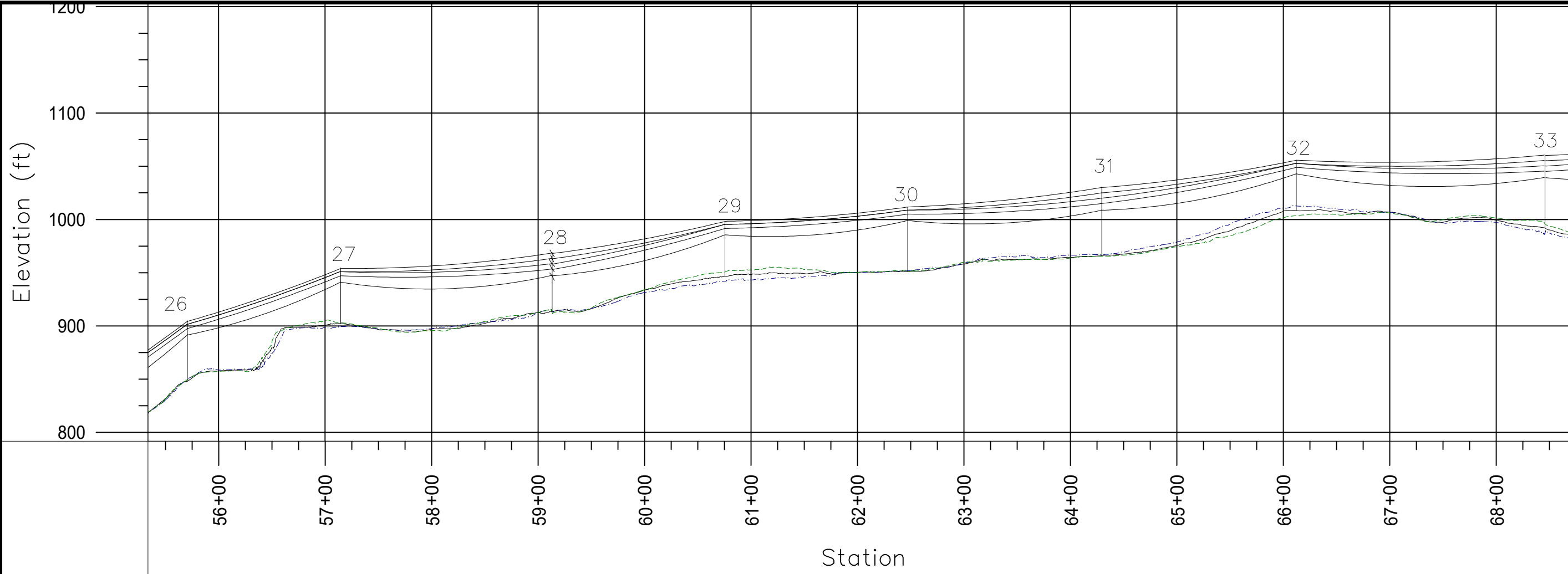
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3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW	
REF DWG(S):	
DRAWING NO.:	BLP-P-07
SHEET 15 OF 29	



CONSTRUCTION LEGEND	
NEW	EXISTING

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	

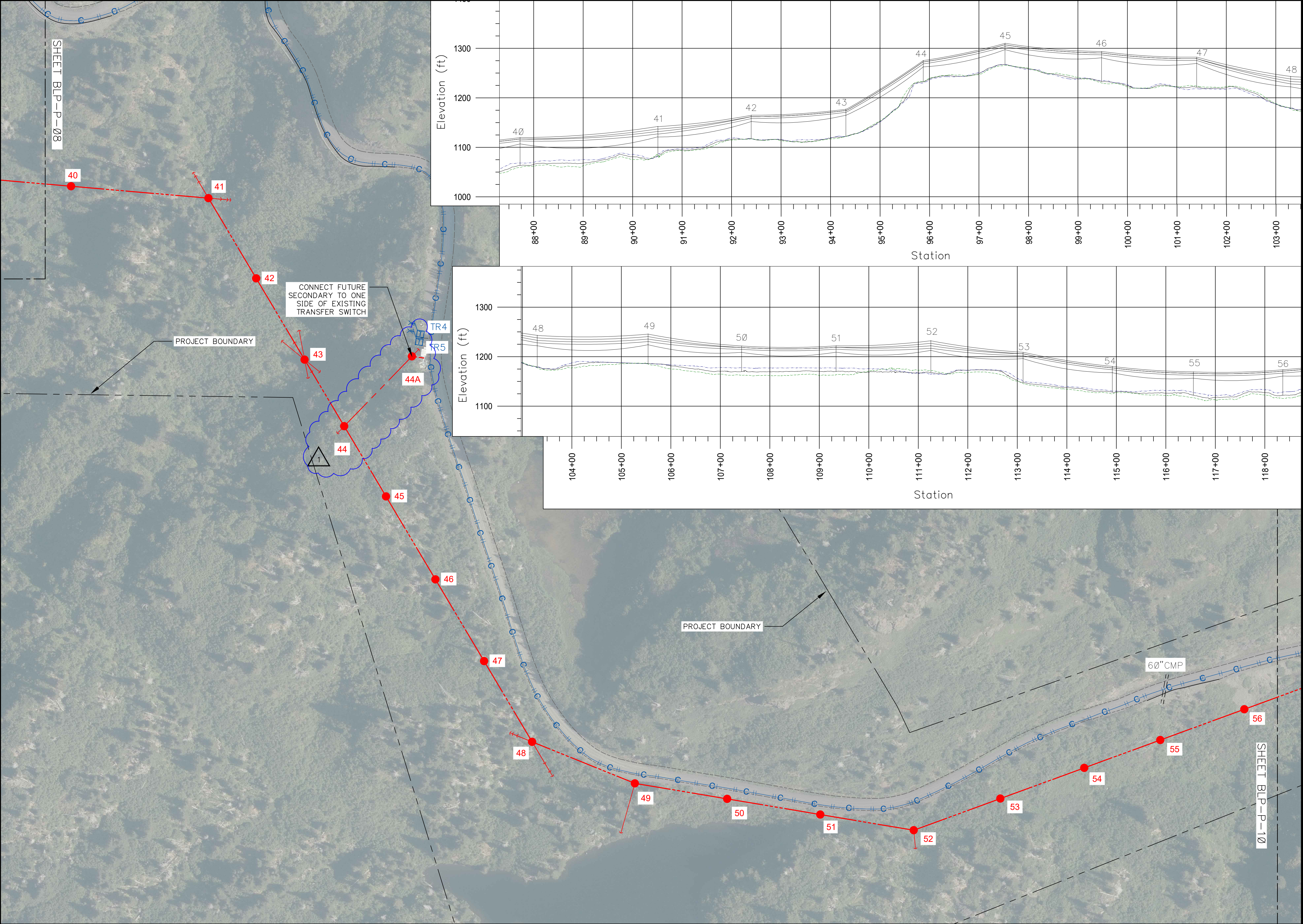


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AECC: 738

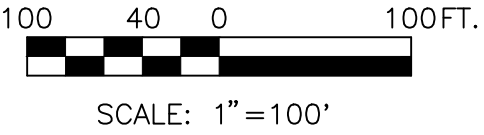
3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW	
REF DWG(S):	
DRAWING NO.:	BLP-P-08
SHEET 16 OF 29	



CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	U.G. TRIPLEX	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	
1	REVISED SERVICE TO TR4/5.	EDS/06-22-2026	CTD/07-03-2026	

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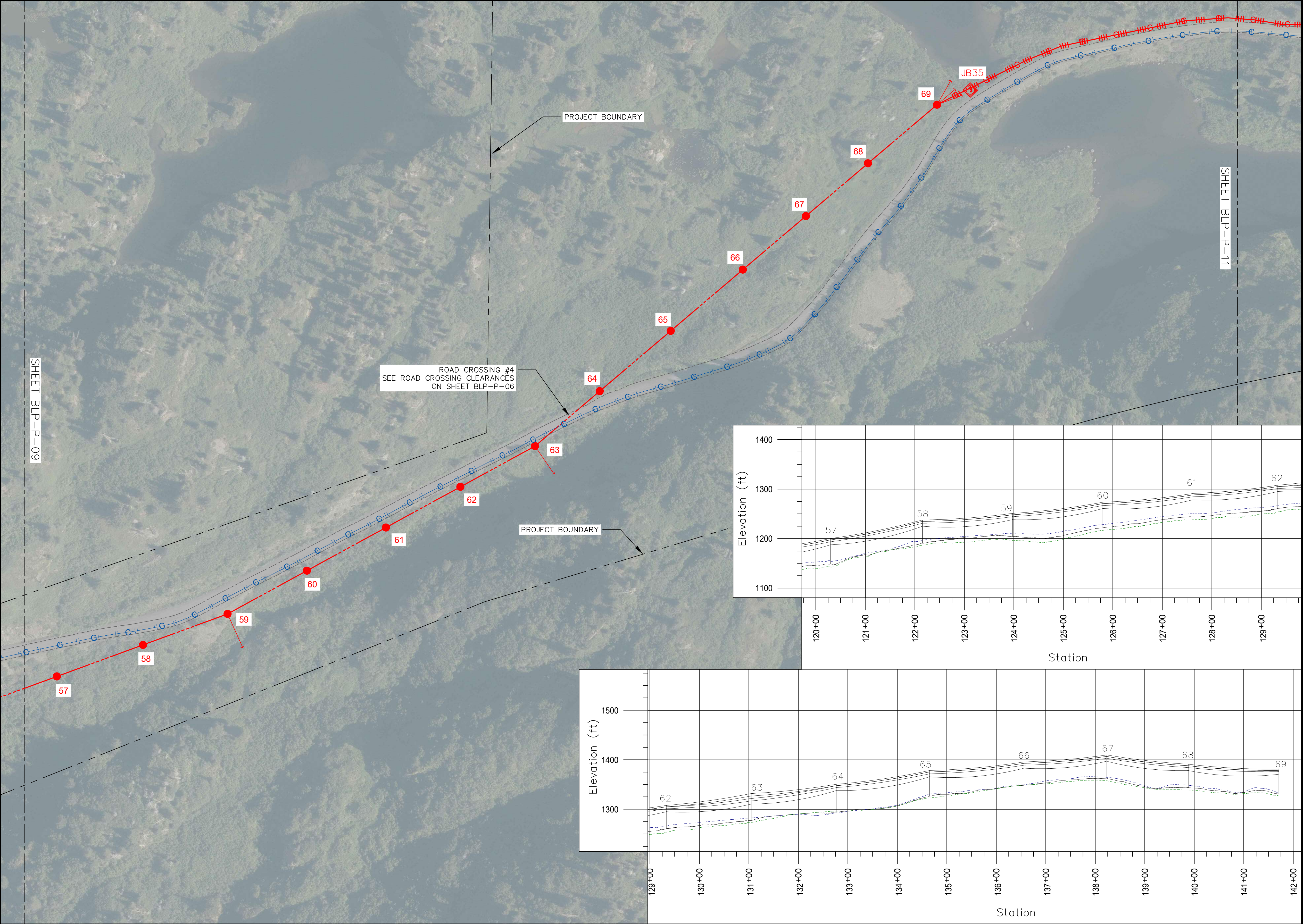


3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: **AEA BRADLEY LAKE HYDROELECTRIC PROJECT
BRADLEY LAKE 3-PHASE POWERLINE**

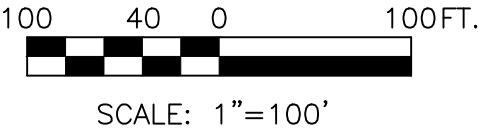
PLAN VIEW

REF DWG(S):	
DRAWING NO.:	BLP-P-09
	SHEET 17 OF 29



CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





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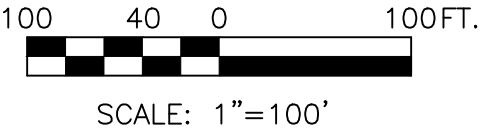
3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME:	AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
REF DWG(S):		
DRAWING NO.:	BLP-P-10	SHEET 18 OF 29

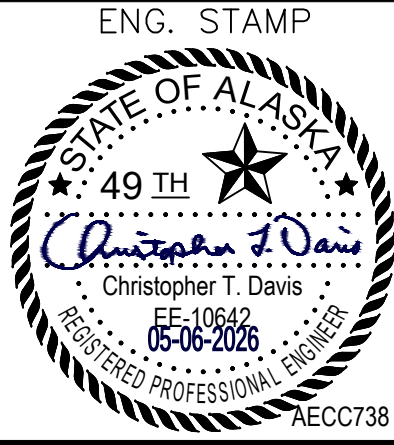


CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





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AECC: 738

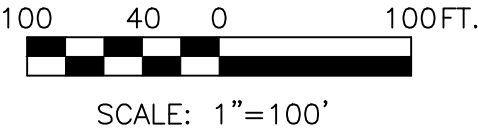
3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME:	AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW		
REF DWG(S):		
DRAWING NO.:	BLP-P-11	SHEET 19 OF 29



CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	



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DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW	
REF DWG(S):	
DRAWING NO.:	BLP-P-12
SHEET <u>20</u> OF <u>29</u>	

NOTES:

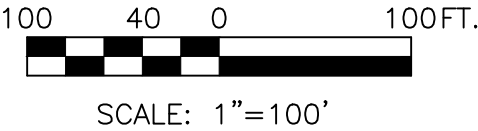
1) JB45 SHALL BE A 4-WAY JUNCTION BOX TO ALLOW FOR FUTURE 3-PHASE POWER AND COMMUNICATIONS EXTENSION TO THE POWER HOUSE. UNUSED WAYS SHALL BE CAPPED.



CONSTRUCTION LEGEND

NEW EXISTING

	PADMOUNT TRANSFORMER	
	POWER POLE	
	10 U.G. PRI. CONDUCTOR	
	30 U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	10 O.H. CONDUCTOR	
	30 O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





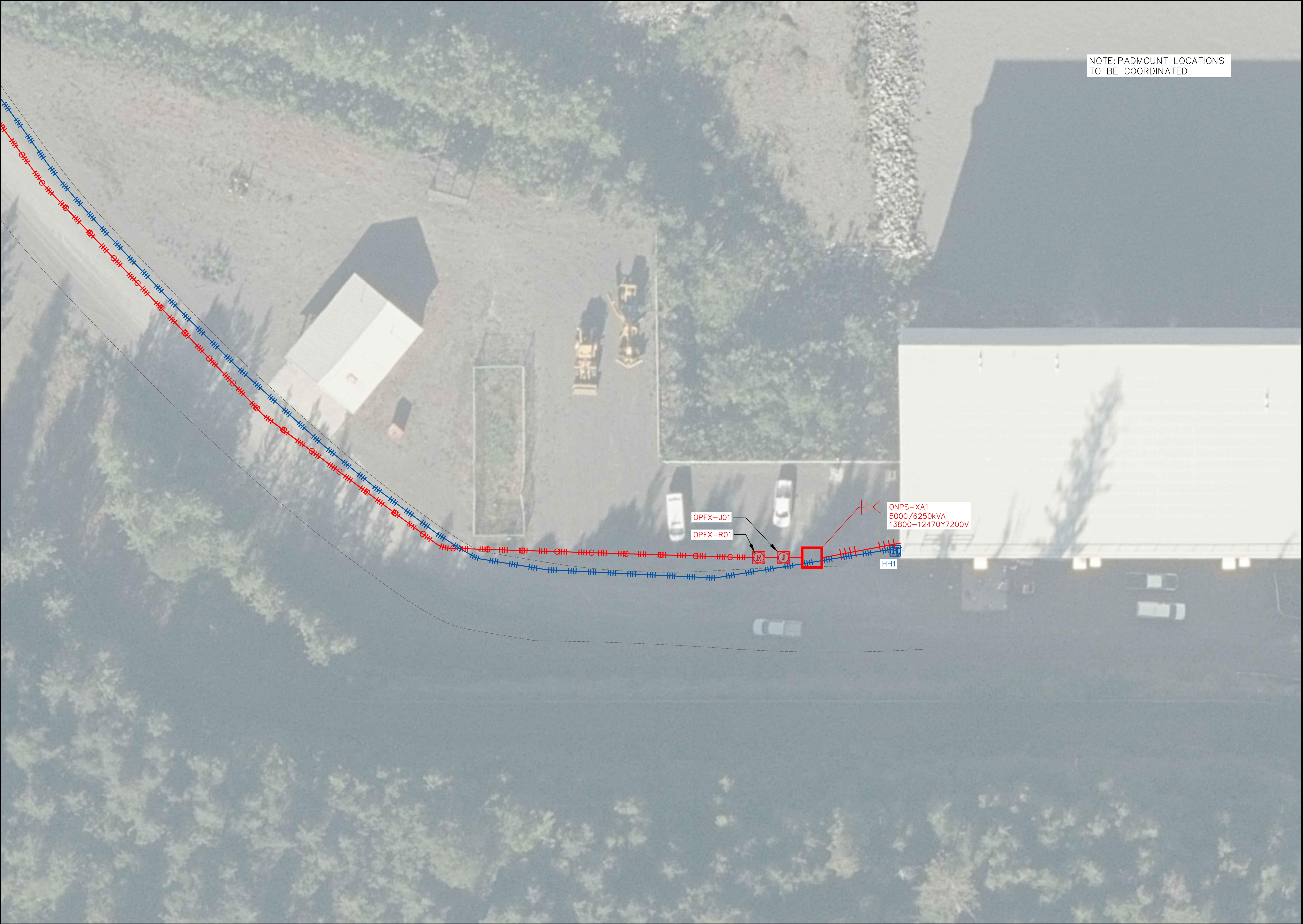
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ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW	
REF DWG(S):	
DRAWING NO.:	BLP-P-13
	SHEET 21 OF 29

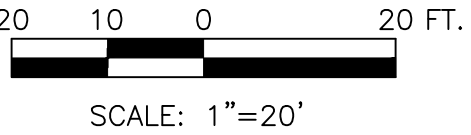


NOTE: PADMOUNT LOCATIONS
TO BE COORDINATED



CONSTRUCTION LEGEND

NEW		EXISTING
	PADMOUNT TRANSFORMER	
	POWER POLE	
	1Ø U.G. PRI. CONDUCTOR	
	3Ø U.G. PRI. CONDUCTOR	
	U.G. COMMUNICATIONS	
	1Ø O.H. CONDUCTOR	
	3Ø O.H. CONDUCTOR	
	JUNCTION BOX	
	RECLOSER	
	HANDHOLE	
	ANCHOR	
	SPAN GUY	
	EXISTING CULVERT	



PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR TRANSFORMER QUOTATION	EDS/11-07-2025	CTD/12-05-2025	
1	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





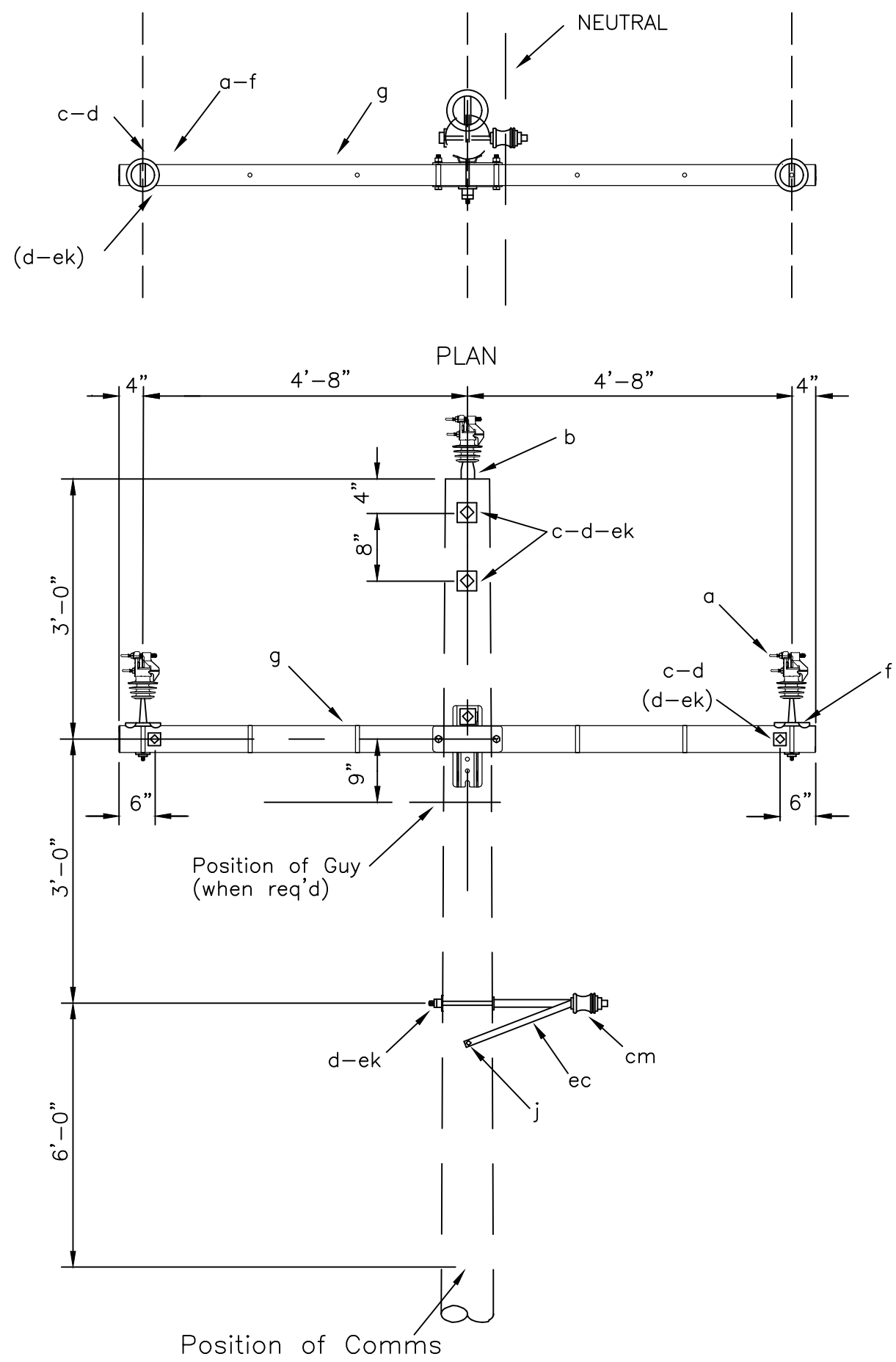
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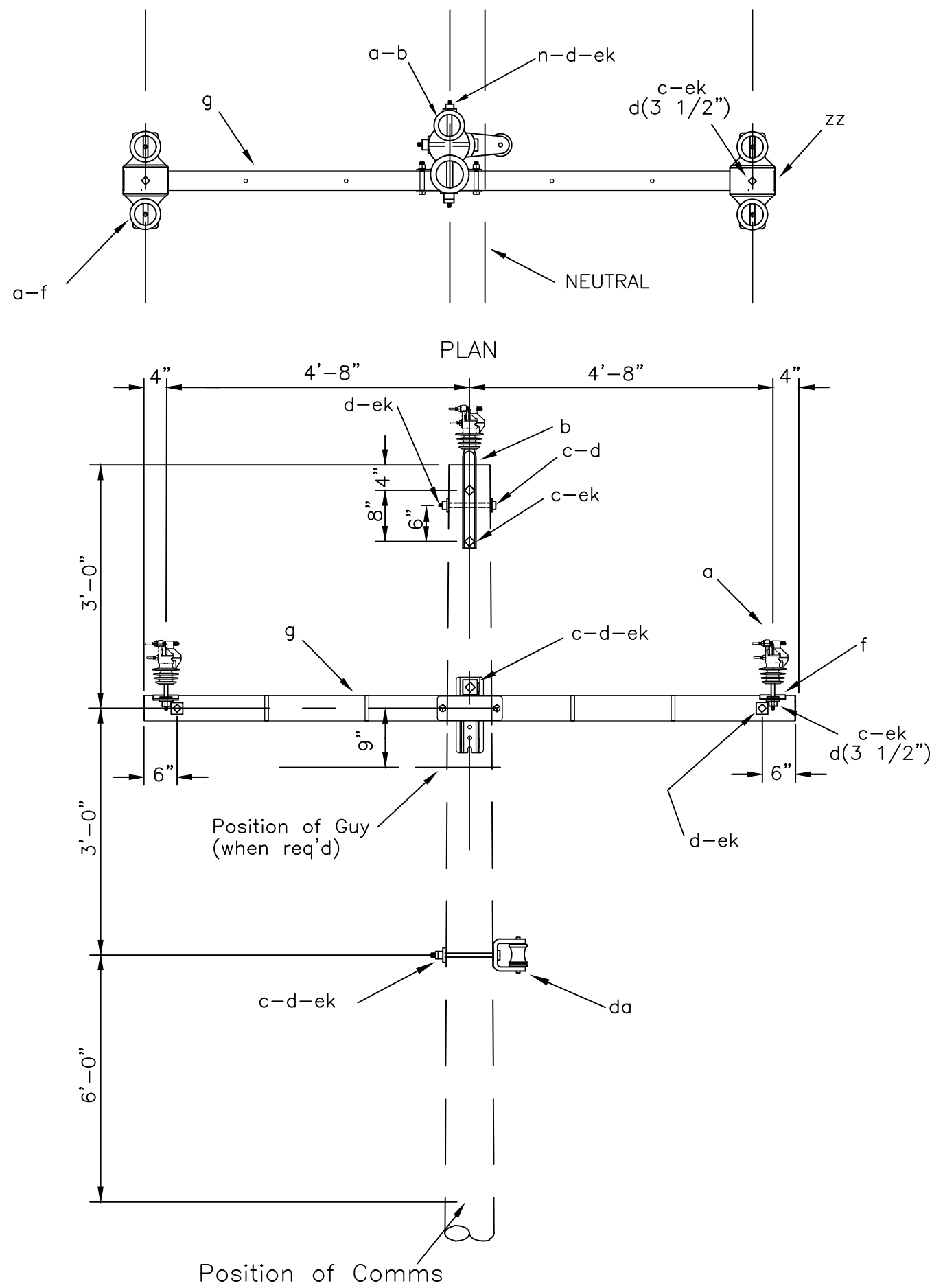
3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
PLAN VIEW	
REF DWG(S):	
DRAWING NO.: BLP-P-14	SHEET <u>22</u> OF <u>29</u>



ASSEMBLY: C1.		
ITEM	MATERIAL	QTY
a	Insulator, pin type, vise top, (15 kV)	3
b	Pin, pole top, 20"	1
c	Bolt, machine, 5/8" x req'd length	6
d	Washer, square, 2 1/4"	10
f	Pin, crossarm, clamp type	2
g	PUPI fiberglass crossarm, TB200012005X3	1
j	Screw, lag, 1/2" x 4"	2
cm	Insulator, spool, 3"	1
ec	Bracket, offset neutral	1
ek	Locknuts	8

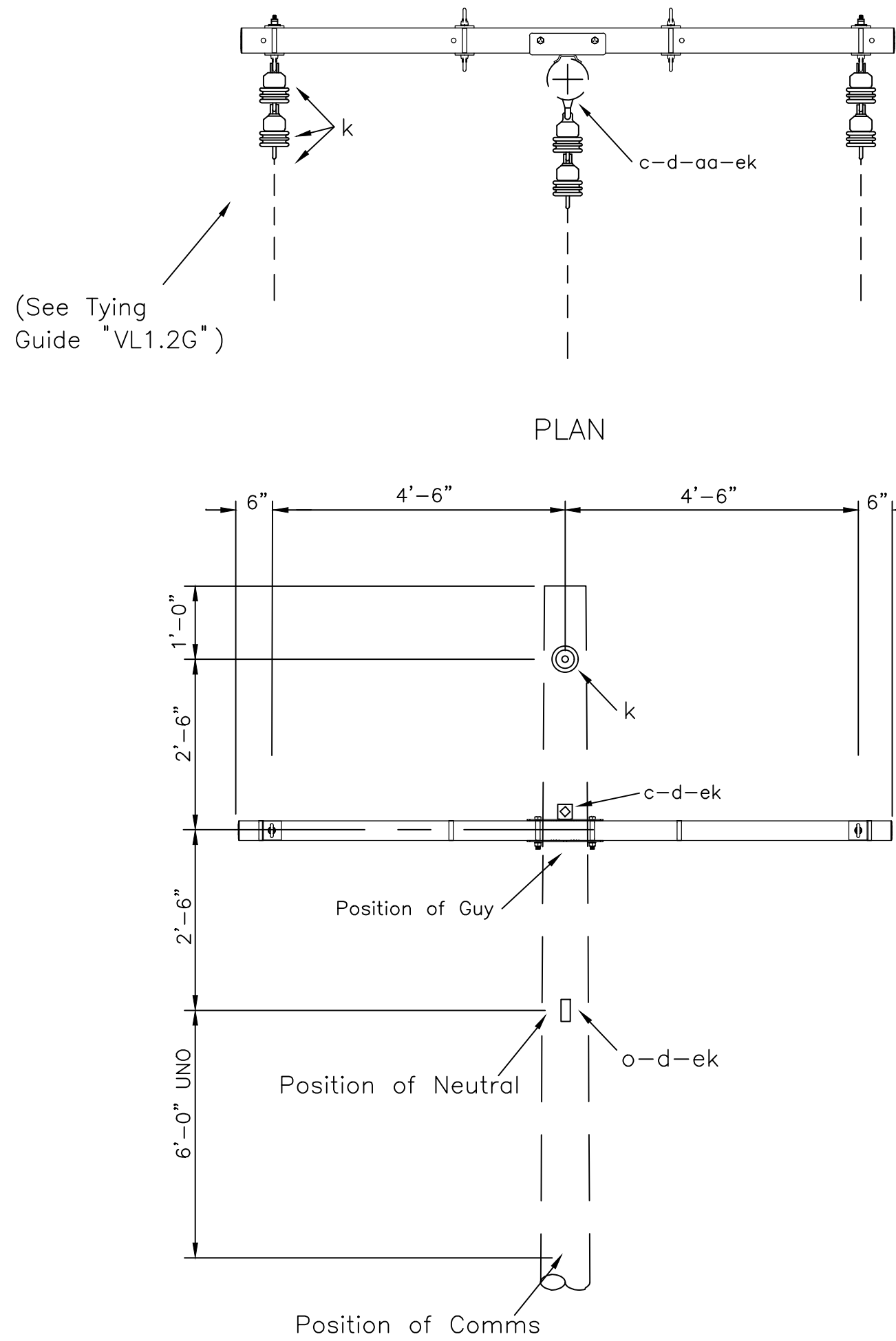
**C1.12LPX, SINGLE ARM, FIBERGLASS TANGENT
(RAPTOR PROTECTION)**



NOTE:
* - Straight, 20" pole top pins (item 'b'), pole top brackets ('ec'), and pipe spacers ('dl') may be used instead of offset pole top pin (item 'b').

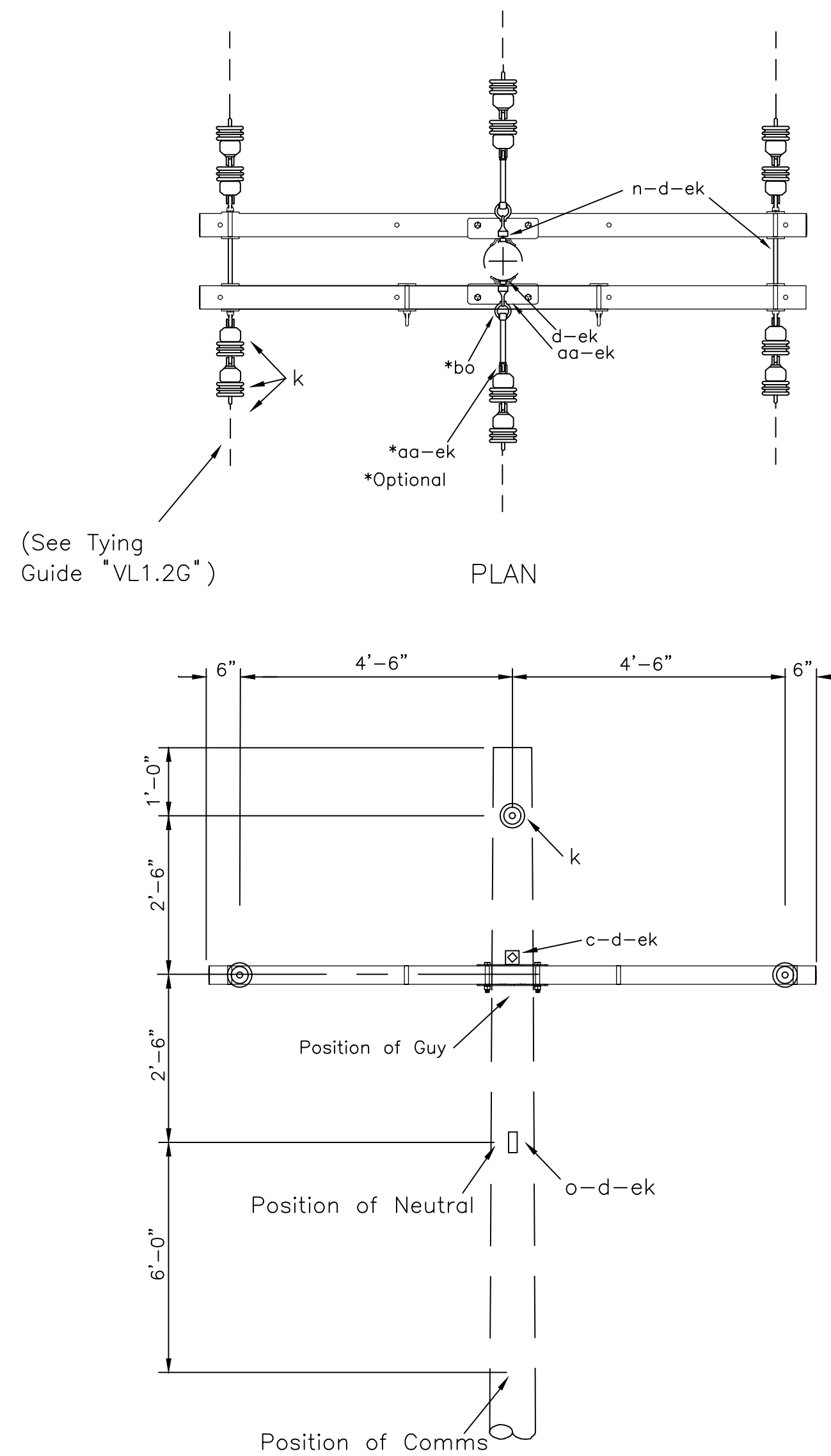
ITEM	QTY	MATERIAL
a	6	Insulator, pin type, vise top, (15 kV)
b	2	Pin, offset, pole top *
c	4	Bolt, machine, 1/2" x req'd length
e	5	Bolt, machine, 5/8" x req'd length
d	14	Washer, square, 2 1/4"
d	2	Washer, square, 3 1/2"
d	2	Washer, lock, 5/8"
n	1	Bolt, double arming, 5/8"xreq'd length
f	4	Pin, crossarm, steel
g	2	PUPI fiberglass crossarm, TB202012005X3
zz	2	Double pin bracket, 11/16"
da	1	Bracket, insulated
ek	17	Locknuts

**C2.21LPX, DOUBLE ARM, FIBERGLASS TANGENT
(RAPTOR PROTECTION)**



ITEM	QTY	MATERIAL
d	3	Washer, square, 3", curved
c	4	Bolt, machine, 5/8" x req'd length
d	2	Washer, square, 2 1/4"
k	6	Insulator, suspension, 4 1/4"
o	1	Bolt, eye, 5/8" x req'd length
ek	5	Locknuts
g	1	PUPI fiberglass crossarm, DA2000120E2B9X3
aa	1	Nut, eye, 5/8

**C5.71LPX, SINGLE ARM, FIBERGLASS DEADEND
(RAPTOR PROTECTION)**



ITEM	QTY	MATERIAL
d	1	Washer, square, 3", curved
c	1	Bolt, machine, 5/8" x req'd length
d	5	Washer, square, 2 1/4"
k	12	Insulator, suspension, 4 1/4"
o	1	Bolt, eye, 5/8" x req'd length
ek	9	Locknuts
g	2	PUPI fiberglass crossarm, DA2020120E2B9X3
n	3	Bolt, double arming, 5/8" x req'd length
aa	2	Nut, eye, 5/8
bo	2	Shackle, anchor

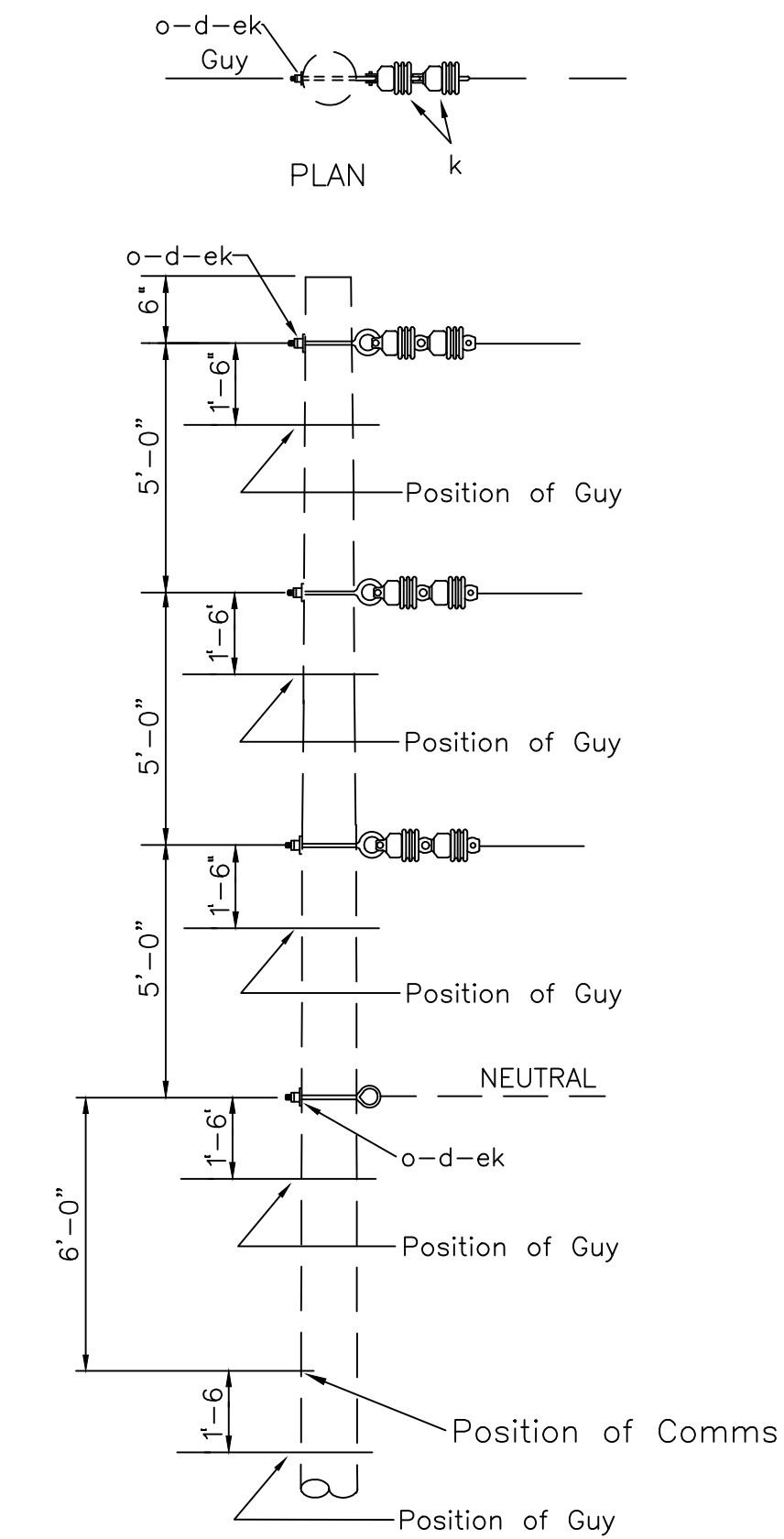
**C6.1LPX, DOUBLE ARM, FIBERGLASS DOUBLE DEADEND
(RAPTOR PROTECTION)**

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	



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TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

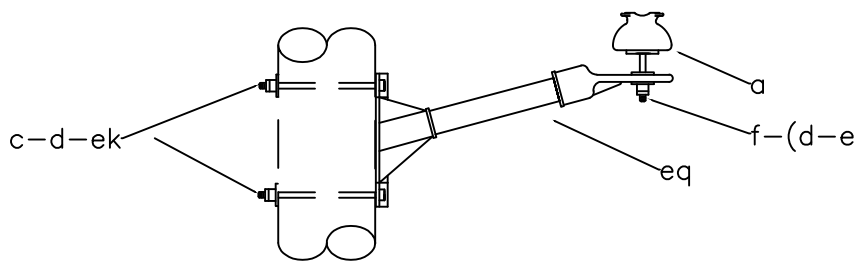
DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
OVERHEAD DETAILS	
REF DWG(S):	
DRAWING NO.:	BLP-S-01
SHEET 23 OF 29	



NOTE: Extension link (item "eu" or "du") or eyebolt (item "o"), eyenut (item "aa") and locknut (item "ek") may be installed in 2 lower primary positions on assembly C5.1. Adjust material as required.

ASSEMBLY: C5			
ITEM	MATERIAL	QTY	
d	Washer, square, 3", curved	4	
k	Insulator, suspension, 4 1/4"	6	
o	Bolt, eye, 5/8"x req'd length	4	
ek	Locknuts	4	

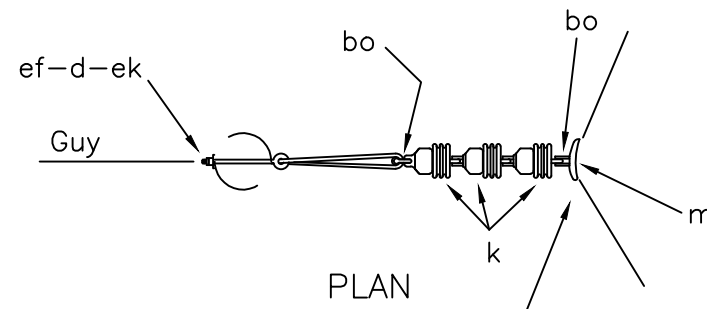
C5.1, VERTICAL SINGLE DEADEND



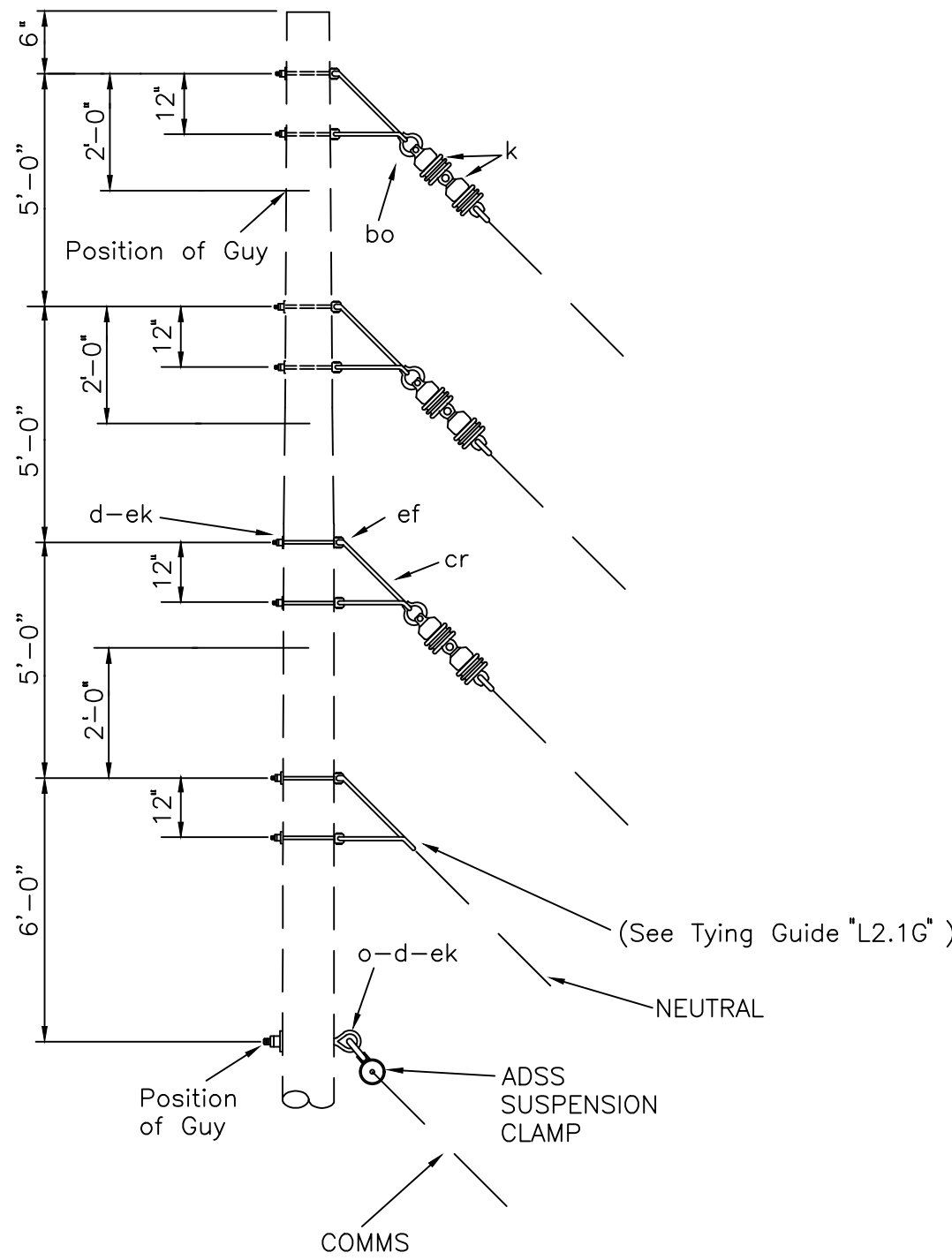
A1.04N

ASSEMBLY: A1.04N			
ITEM	MATERIAL	QTY	
a	Insulator, pin type (12.47/7.2 kV)	1	
c	Bolt, machine, 5/8" x req'd length	2	
d	Washer, square 2 1/4"	2	
(f)	(Pin, crossarm, 5/8" x 6 1/2")	(1)	
ea	Insulator, post type (12.47/7.2kV)	1	
ek	Locknuts	2	
eq	Bracket, insulator/equipment	1	

A1.04N, JUMPER SUPPORT

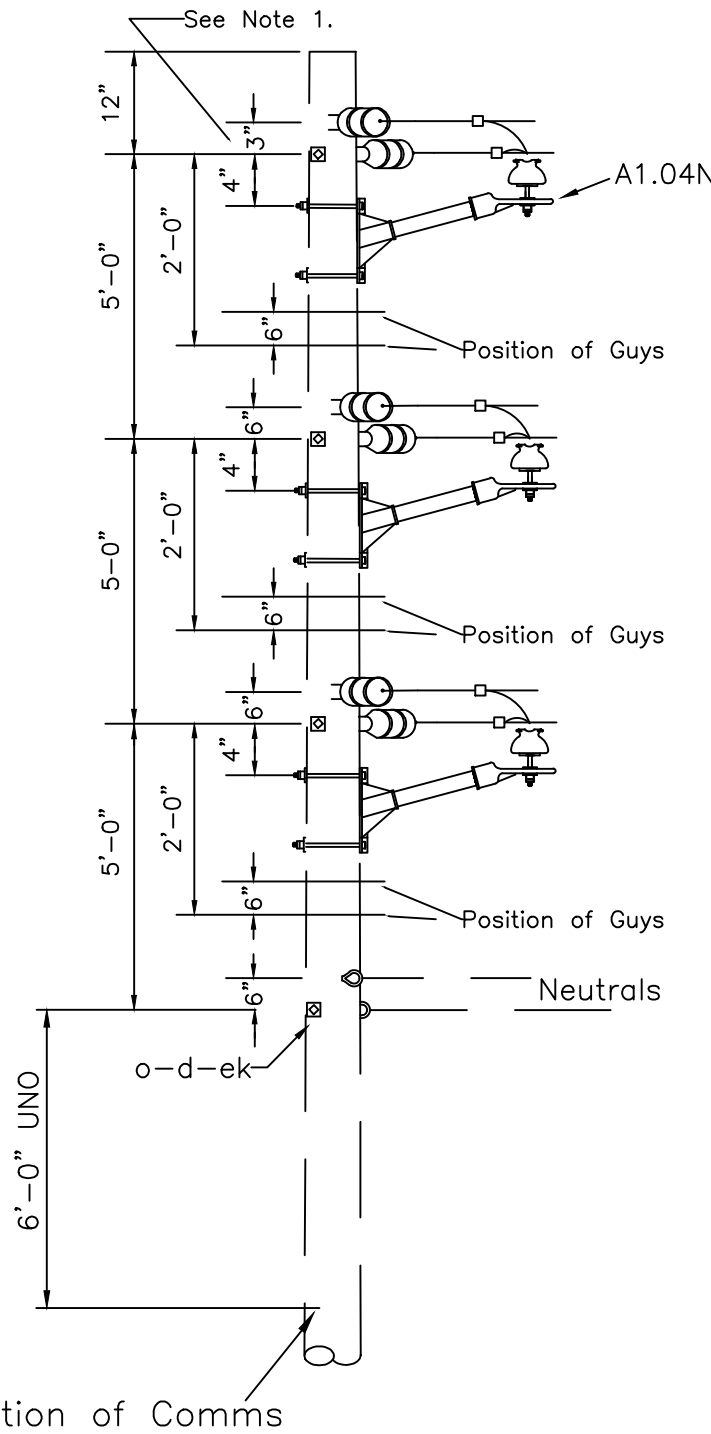
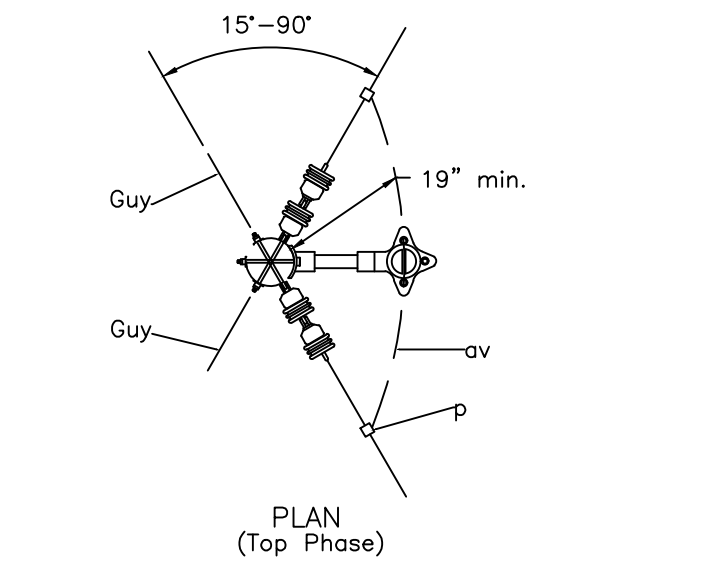


(See Tying Guide "VL1.1G")



ITEM	QTY	MATERIAL
d	9	Washer, square, 3", curved
k	9	Insulator, suspension, 4 1/4"
bo	6	Shackle, anchor
cr	4	Bracket, angle, 5/8"
ef	8	Bolt, clevis, 5/8" x req'd length
ek	9	Locknuts
o	1	Bolt, eye, 5/8 x req'd length
m	3	Clamp, 2 bolt, suspension (distribution)

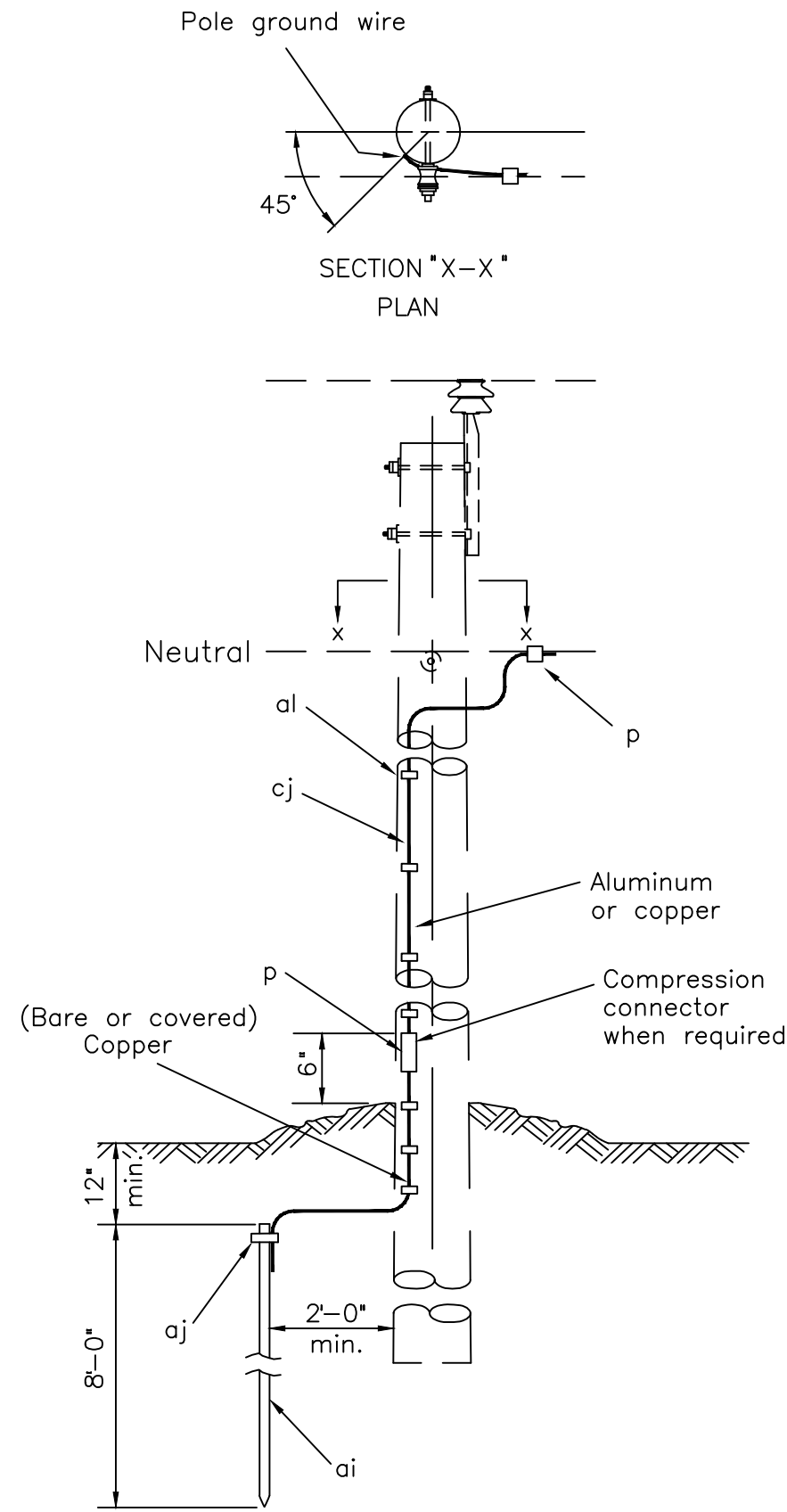
C3.1LX, SUSPENSION SMALL ANGLE



- NOTES:
- 1) Separate 6" (top position only) when angle equals 90°.
 - 2) This drawing shows three C5.1 and three A1.04N assemblies as an example. Any combination of three A1.04N plus C5.1 - C5.9, or A5.1 - A5.9 and A5.01 - A5.03 assemblies may be installed. Record assemblies separately on staking sheets. CAUTION: Use the appropriate permitted longitudinal loads.
 - 3) Jumper not required for angles greater than 70°.

ITEM	QTY	MATERIAL
2		C5.1 primary assemblies
3		A1.04N primary assemblies
p		Connectors, as req'd
av		Jumpers, as req'd

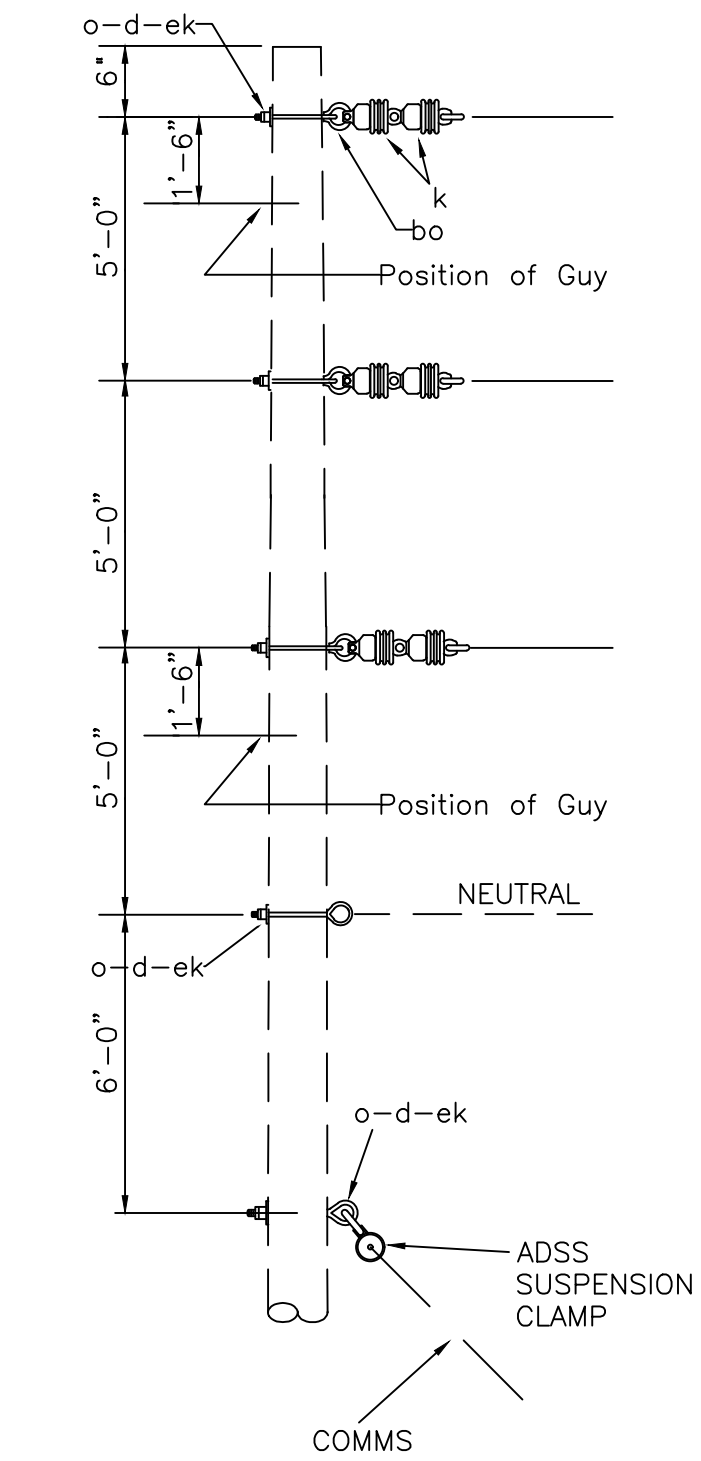
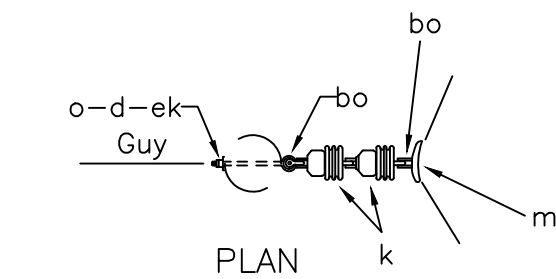
C4.2G, DEADEND ANGLE GUIDE (15°-90°)



- Notes:
- 1) Ground wire to be located on same side as neutral conductor and in quadrant opposite climbing space or pole top pin.
 - 2) Staples on ground wire shall be 2'-0" apart except for a distance of 8' above ground and 8' from top of pole where they shall be 6" apart.
 - 3) Ground wire ("cj") to have minimum conductivity of no. 6 copper or equivalent.
 - 4) Use copper plated ground rod, copper ground wire and staples, or, use galvanized steel ground rod, staples and aluminum ground wire.

RUS	ITEM	QTY	MATERIAL
p			Connector, compression, as req'd
ai			Rod, ground 5/8" min. diameter
aj			Clamp, ground rod
al			Staple, ground wire, as req'd
cj			Wire, pole ground, as req'd

H1.1, GROUND ROD ASSEMBLY



ITEM	QTY	MATERIAL
d	4	Washer, square, 3", curved
k	6	Insulator, suspension, 4 1/4"
o	4	Bolt, eye, 5/8"x req'd length
bo	7	Shackle, anchor
m	3	Clamp, 2 bolt, suspension (distribution)
ek	4	Locknuts

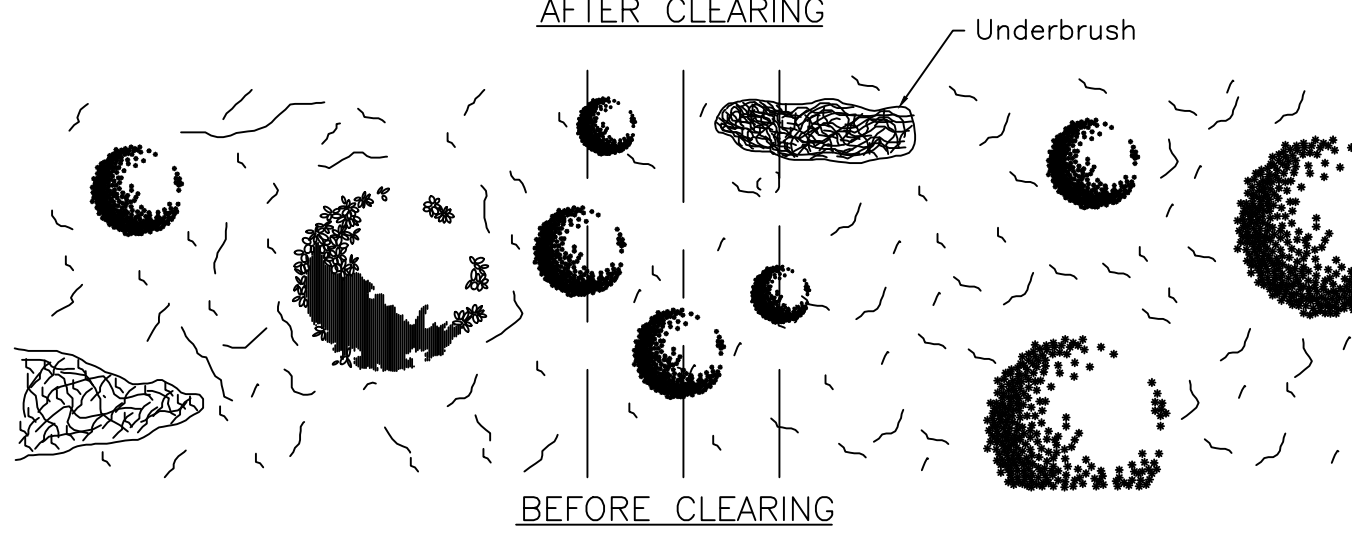
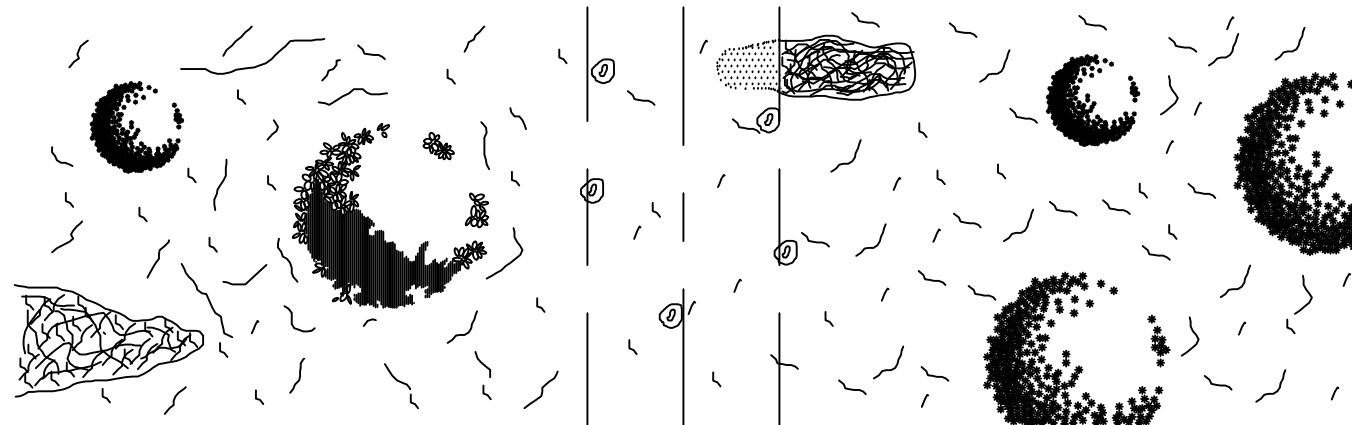
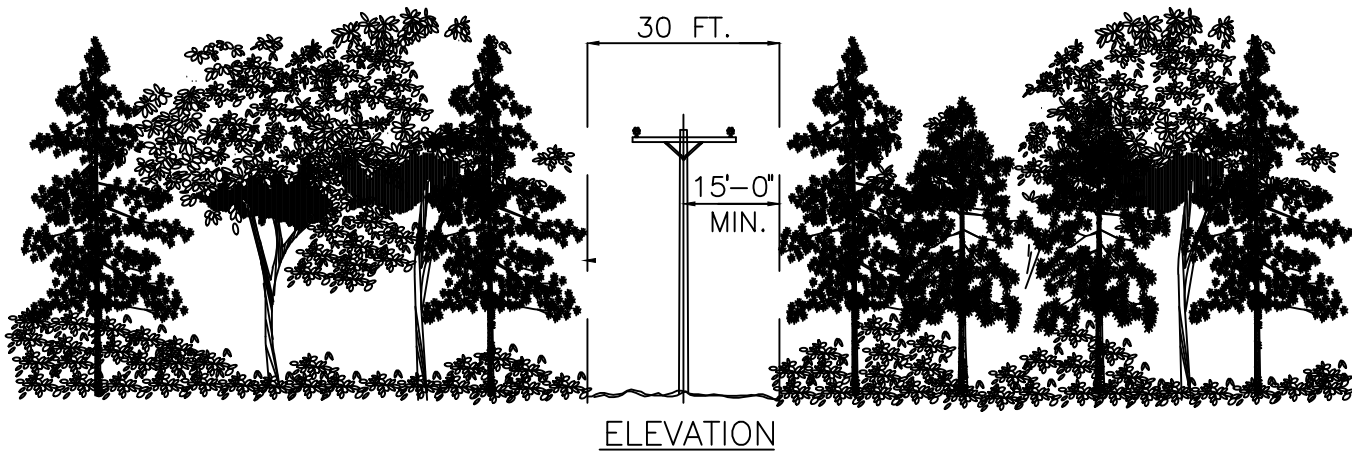
C3LX, SUSPENSION MEDIUM ANGLE

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	

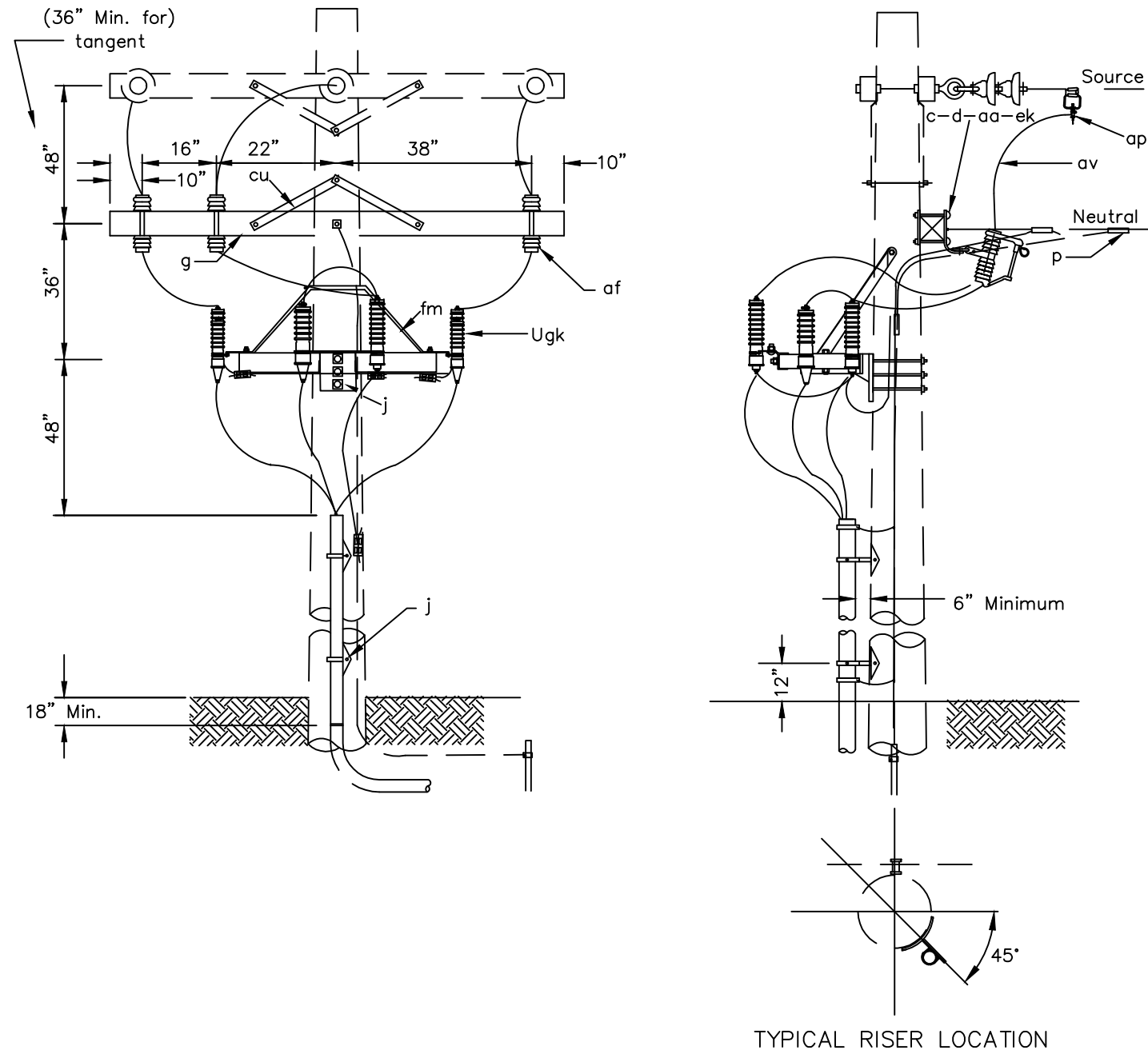


3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
OVERHEAD DETAILS	
REF DWG(S):	
DRAWING NO.: BLP-S-02	SHEET 24 OF 29



M1.30G, RIGHT-OF-WAY CLEARING GUIDE



Notes:

- 1) No bends permitted within 6" of cable termination base.

2) Where underground cable is in conduit provide appropriate coupling to connect RSC conduit to underground conduit.

3) Each length of conduit shall have a minimum of one stand-off bracket. The maximum unsupported length shall not exceed 10'.

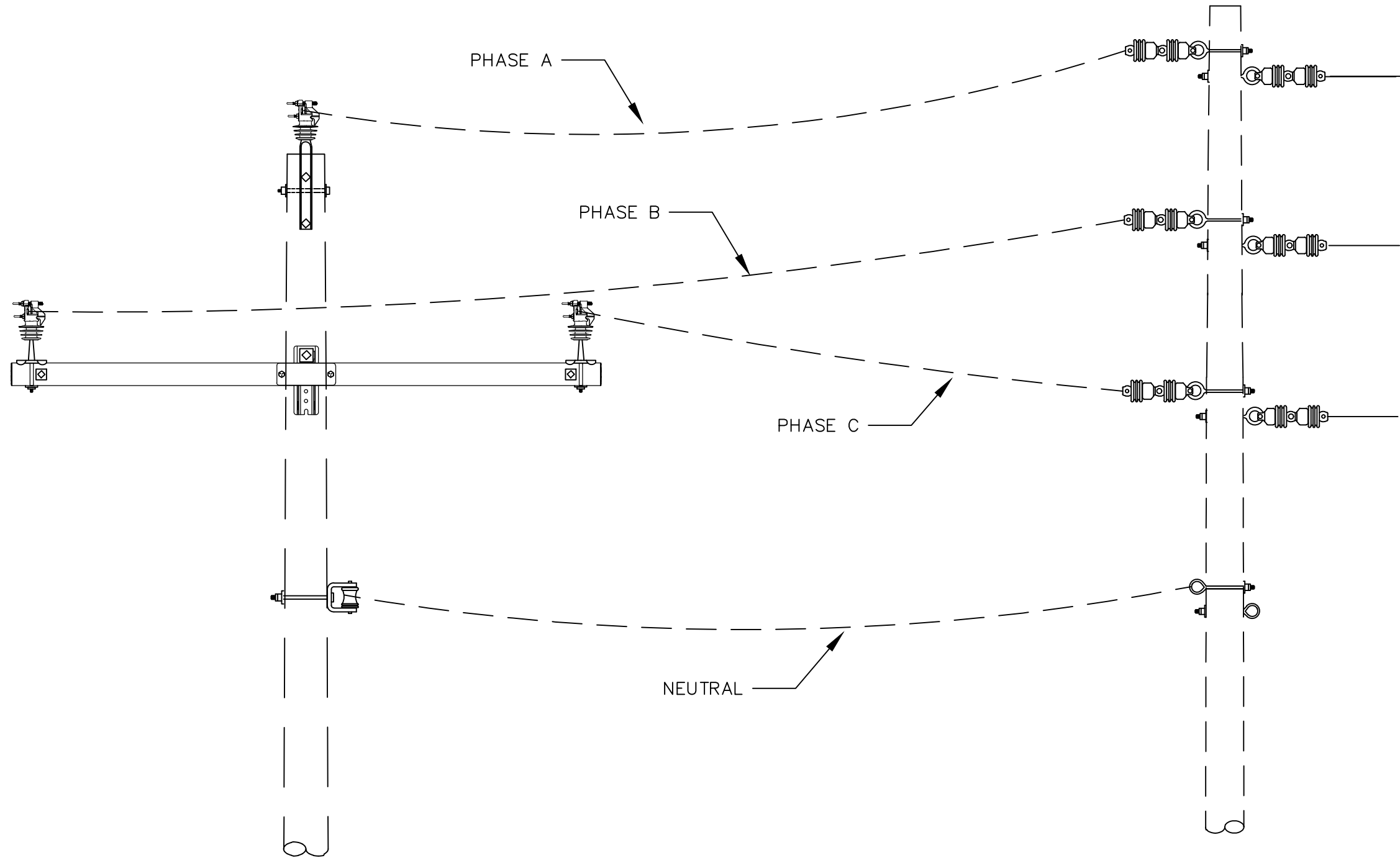
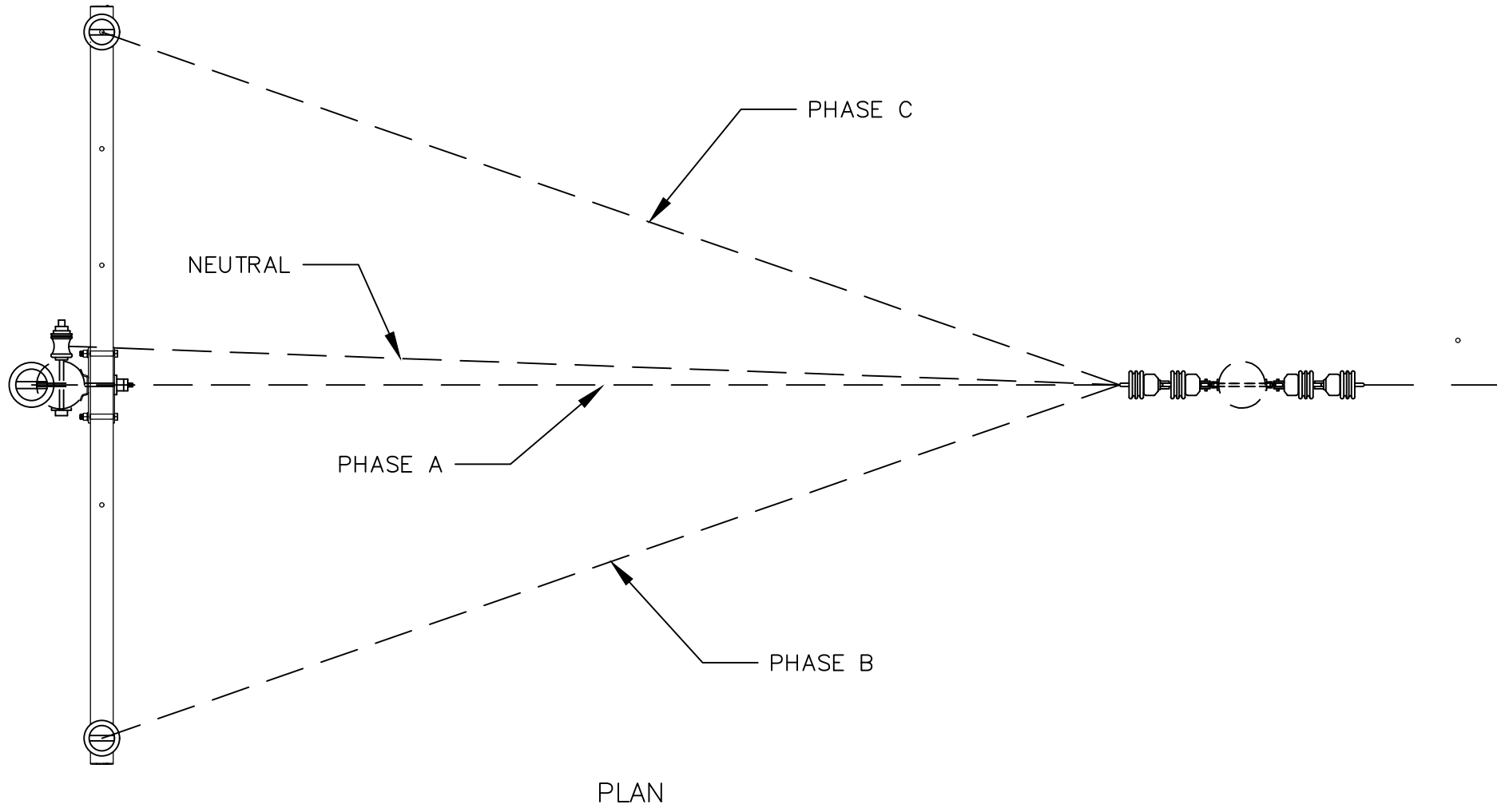
4) Use two stand-off brackets on the first section of RSC conduit at the base of the pole. The minimum separation between the bottom two stand-off brackets shall be 8'.
- 5) Install expansion plug at the top of riser to provide moisture seal (factory formed boots are acceptable).

6) Bond the top of riser with grounding bushing and bottom of RSC near first stand-off bracket with grounding clamp.

7) Tag cables to indicate phase and location of other end of cable per guide UM2.2GX.

RUS		
ITEM	QTY	MATERIAL
c	2	Bolt, machine, 5/8" x req'd length
d	4	Washer, square, 2-1/4"
g	1	Crossarm, 3-5/8" x 4-5/8" x 8'-0"
j	3	Screw, lag, 5/8" x req'd length
j		Screw, lag, 1/2" x 4", as req'd
p		Connectors, as req'd
af	3	Cutout, load break type, 7.8/15 kV
af	3	Fuse link, as designated
al		Staples, as req'd
ap	3	Clamp, hot line
av		Jumpers, stranded, as req'd
cu	2	Brace, 28'
ek		Locknuts, as req'd
fm	1	Bracket, surge arrestor and termination(ALUMA-FORM R3CA-48)
Uae	3	Arrester, surge, (9 kV)
Ugc		Conduit, galvanized rigid steel, size and length as req'd
Ugc		Conduit, PVC, size and length as req'd
Ugk	3	Cable termination, (15 kV)
	1	Conduit, rigid steel, grounding bushing
	2	Clamp, grounding, conduit, size as req'd
		Bracket, stand-off, 6S, 14" long (min.), as req'd
	1	Connector, for stand-offs, as-req'd
	1	Duct plug, expansion (Jackmoon, size as req'd)

UC1X, THREE PHASE TERMINAL RISER POLE



HORIZONTAL TO VERTICAL PHASING GUIDE

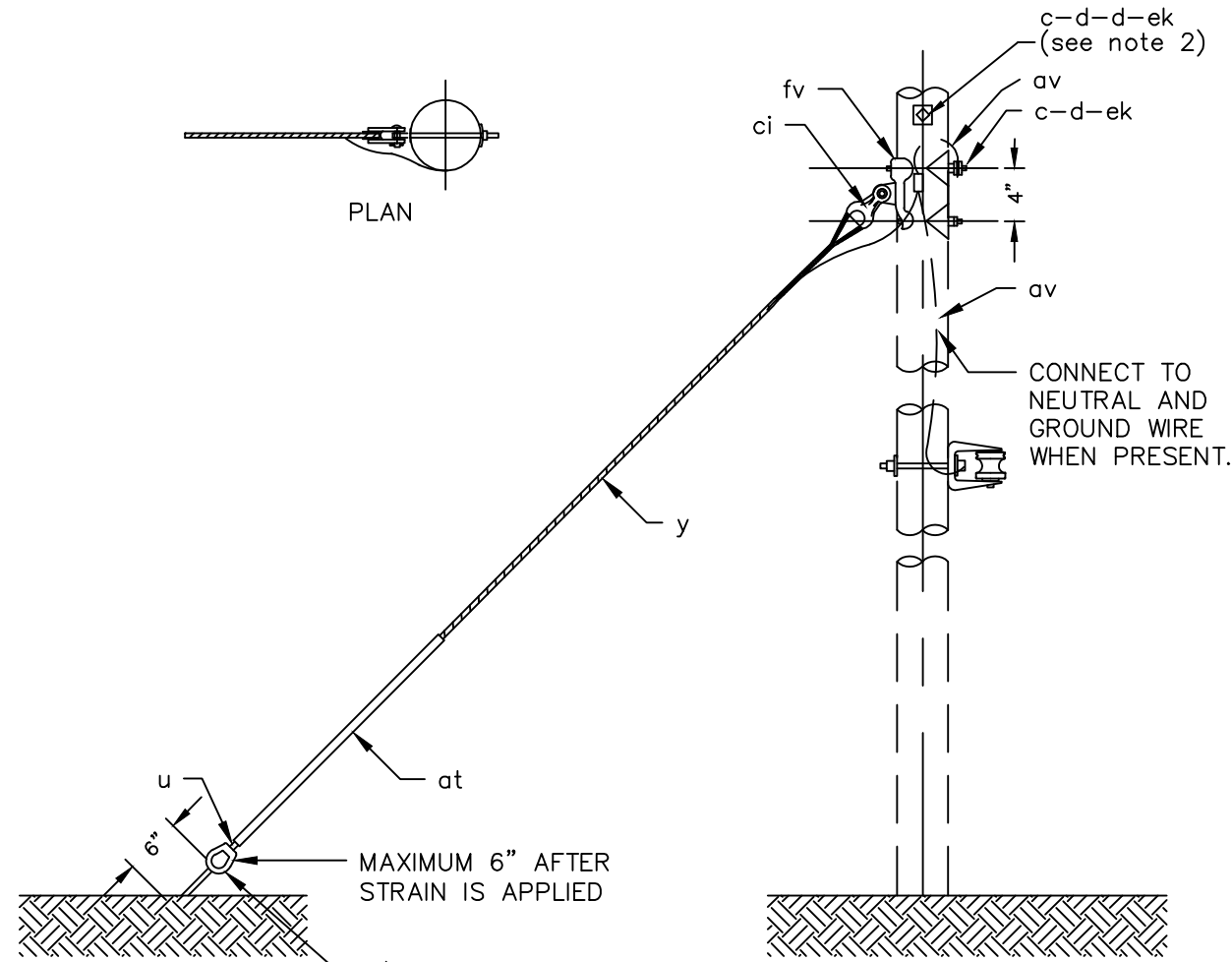
PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





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TEL: (907) 522-1953
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DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
OVERHEAD DETAILS	
REF DWG(S):	
DRAWING NO.:	BLP-S-03
	SHEET 25 OF 29

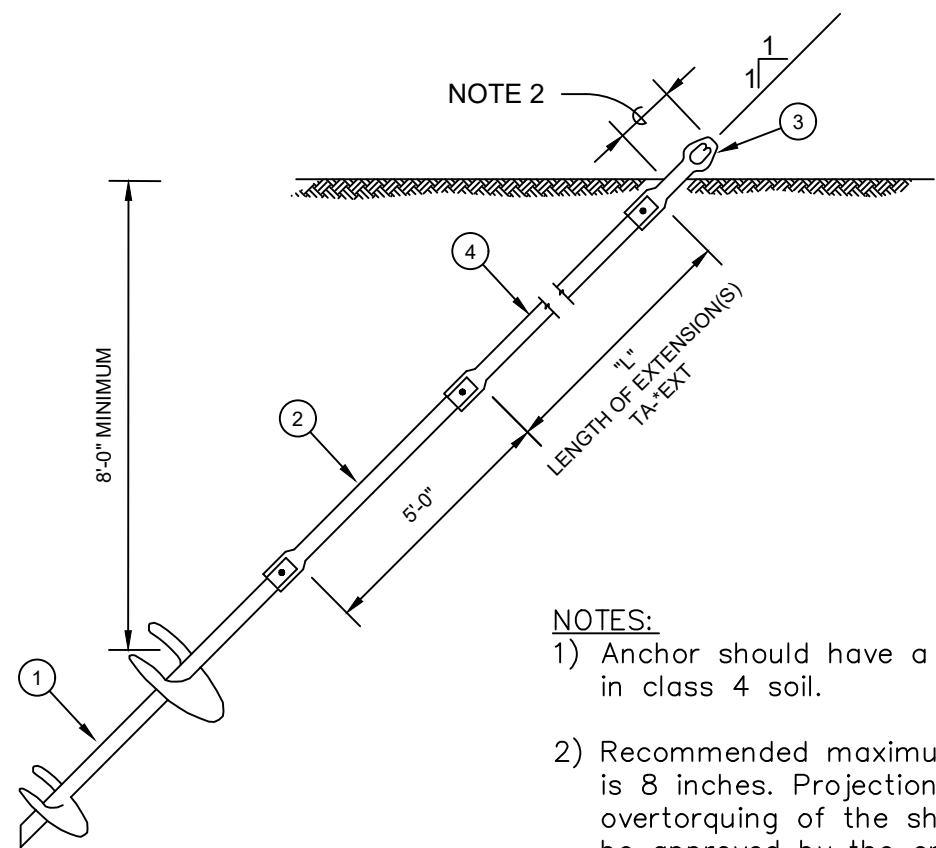


RUS ITEM	QTY.	MATERIAL
c	1	Bolt, machine, 5/8" x req'd length
c	2	Bolt, machine, 3/4" x req'd length
d	2	Washer, square, 2-1/4", curved
d	2	Washer, square, 4", curved
u	2	Connectors, guy bond and as req'd
y	2	Deadend, preformed, guy, heavy duty
al		Guy wire, as req'd (3/8" EHS)
at	1	Staples, ground wire, as req'd
av	1	Guy marker, with reflective material
ci	1	Jumpers, as req'd
ck	1	Clevis, thimble, 5/8", (15,000 lbs.)
dp	1	Clamp, anchor bonding
ek	1	Clamp, ground wire, 3/4", with nut
fv	3	Locknuts, 1 ea 5/8", 2 ea 3/4"
	1	Guy attachment (15,000 lbs.) 3/4" bolt, 4" spacing

NOTES:

- Utility accepted automatics may be substituted at the anchor rod attachment.
- Install anti-split bolts 3" above guy attachment bolt on guy stub installations.

E2.1X, HEAVY DUTY DOWN GUY

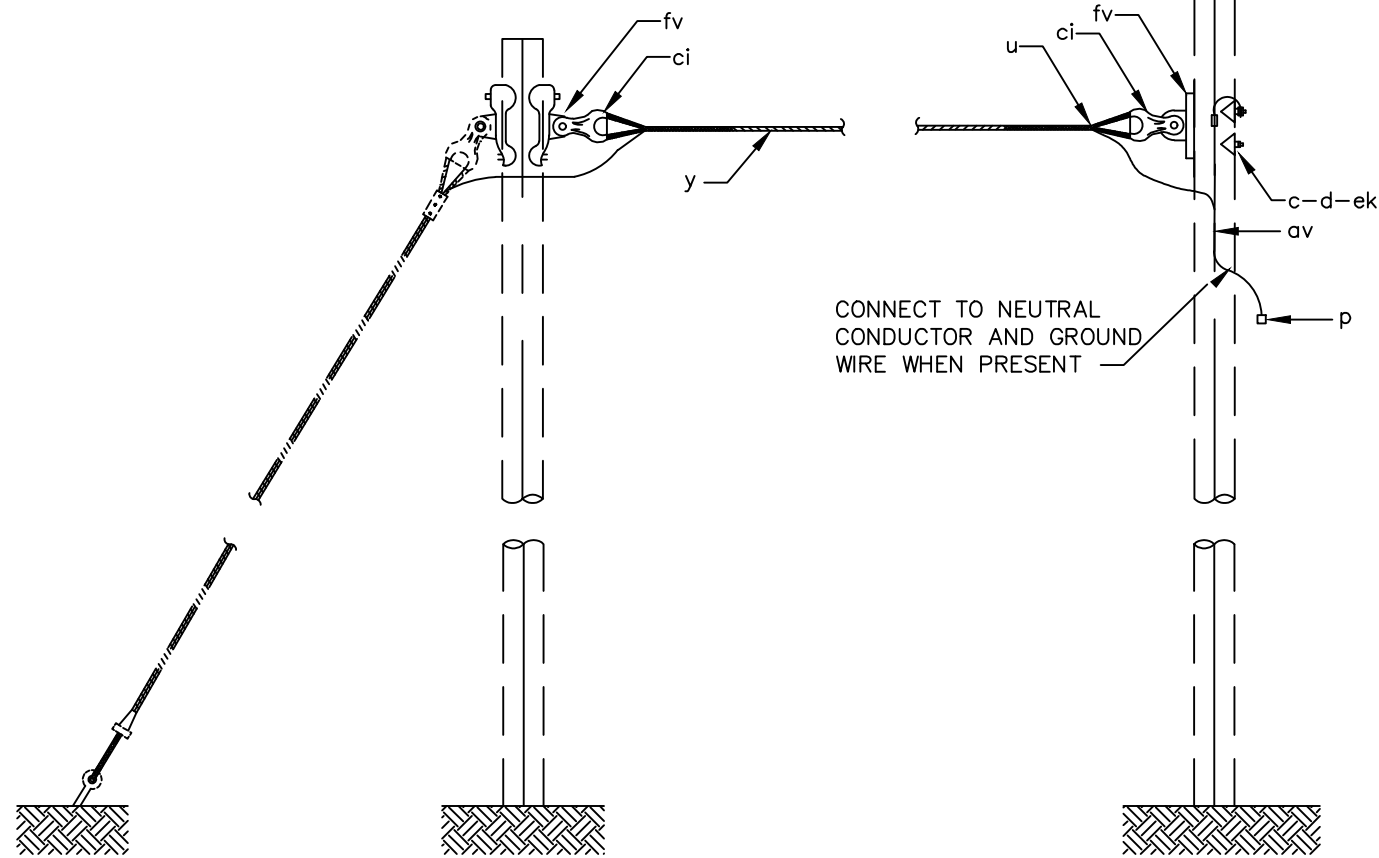


NOTES:

- Anchor should have a 15,000 lb. Holding capacity in class 4 soil.
- Recommended maximum projection after preloading is 8 inches. Projection may be increased to avoid overtorquing of the shaft. Final projection shall be approved by the engineer.
- The entire anchor assembly shall be hot dip galvanized in accordance with ASTM A153.
- Contractor shall install screw anchors in accordance with manufacturer's recommendations.
- Anchors shall be installed in line with the guys.

MATERIAL LIST			
REF.	QTY	DESCRIPTION	ITEM
1	1	Anchor, helix section	Z
2	1	Anchor, ext. Shaft, 5 ft, 1 1/2" sq.	Z
3	1	Adapter guy, twin eye	Z
4	AS REQ'D	Extension, length as required	

TA-2H, DOUBLE HELIX ANCHOR

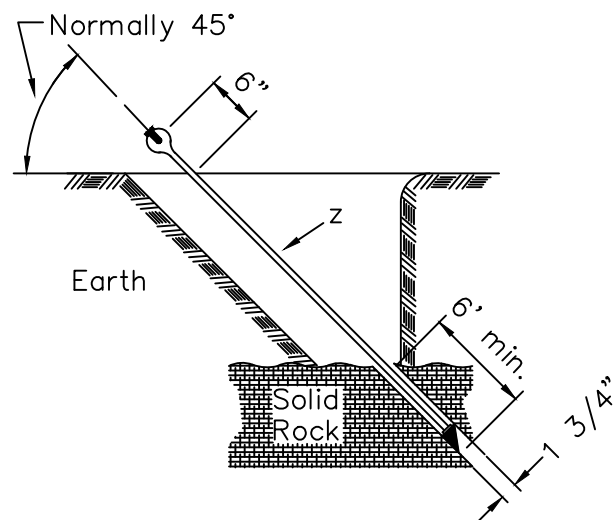


RUS ITEM	QTY.	MATERIAL
c	4	Bolt, machine, 3/4" x req'd length
d	4	Washer, square, 4", curved, w/ 13/16" Hole
p		Connectors, guy bond and as req'd
u	2	Deadend, preformed, guy, heavy duty
y		Guy wire, as req'd (3/8" EHS)
al		Staples, ground wire, as req'd
av		Jumpers, as req'd
ci	2	Clevis, thimble, 5/8", (20,000 lb.)
dp	1	Clamp, ground wire, 3/4", with nut
ek	4	Locknuts, 3/4"
fv	2	Guy attachment (3/4" bolt, 4" spacing) (15,000 lb min @ 45°)

NOTES:

- When conductor tensions require multiple 3/8" ehs span guys, use e2.02x on lower span guy; the minimum spacing between attachment bolts shall be 6".
- Share bolts on guy stub pole with down guy attachments where possible.

E2.02X, OVERHEAD SPAN GUY

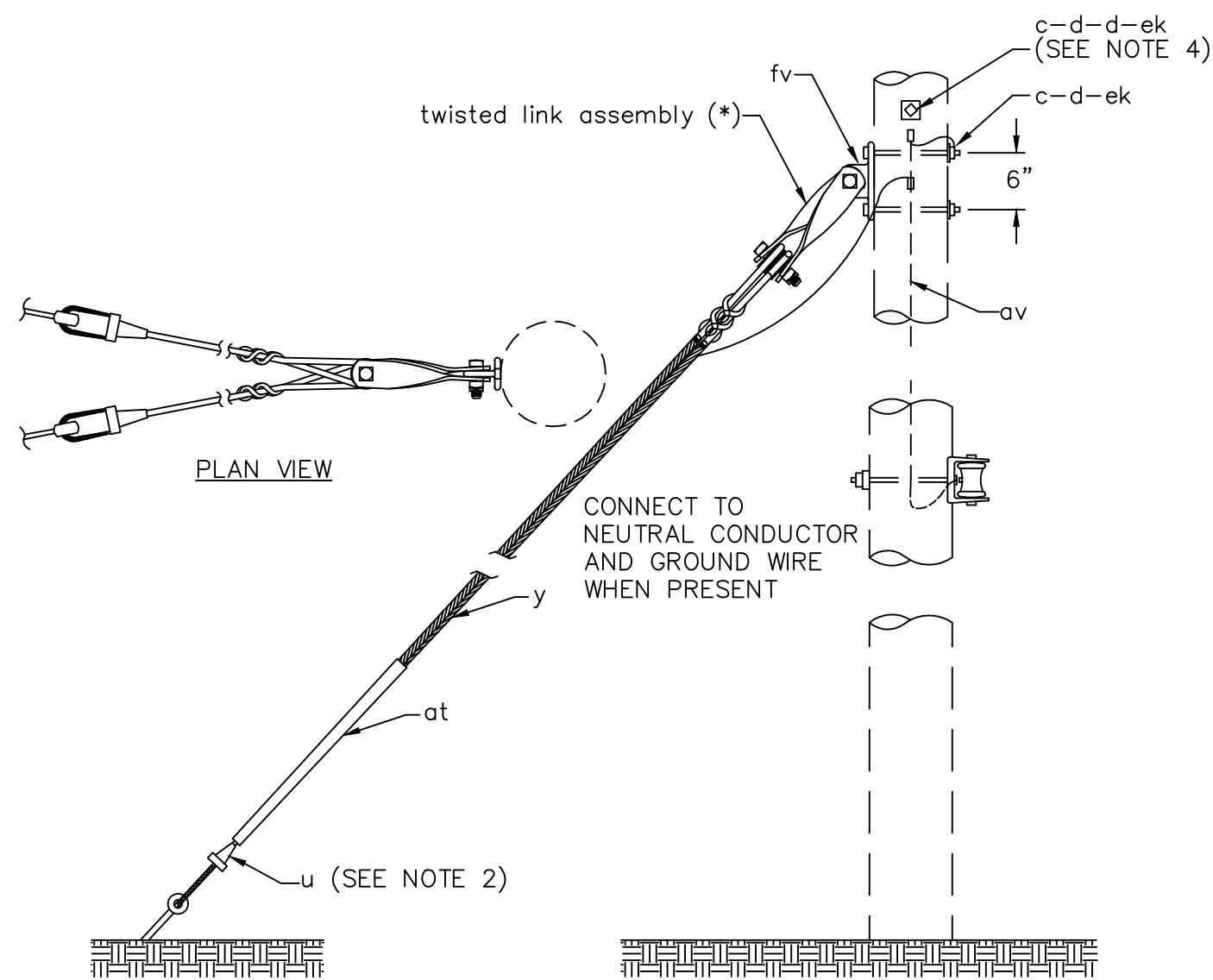


RUS ITEM	QTY	MATERIAL
Z	1	1" Anchor, expanding rock type

NOTES:

- Only one guy shall be attached to a rock anchor. Where more than one guy is required, space anchors 2-feet minimum apart and, where practical, install in direct line with pole.
- Do not anchor to any boulder measuring less than 4-feet in diameter.
- The anchor shall be embedded in no less than 6-feet of competent rock.
- Rock anchor hole shall be filled with epoxy resin, dsi rock anchor resin or equivalent.

F5.3X ROCK ANCHOR

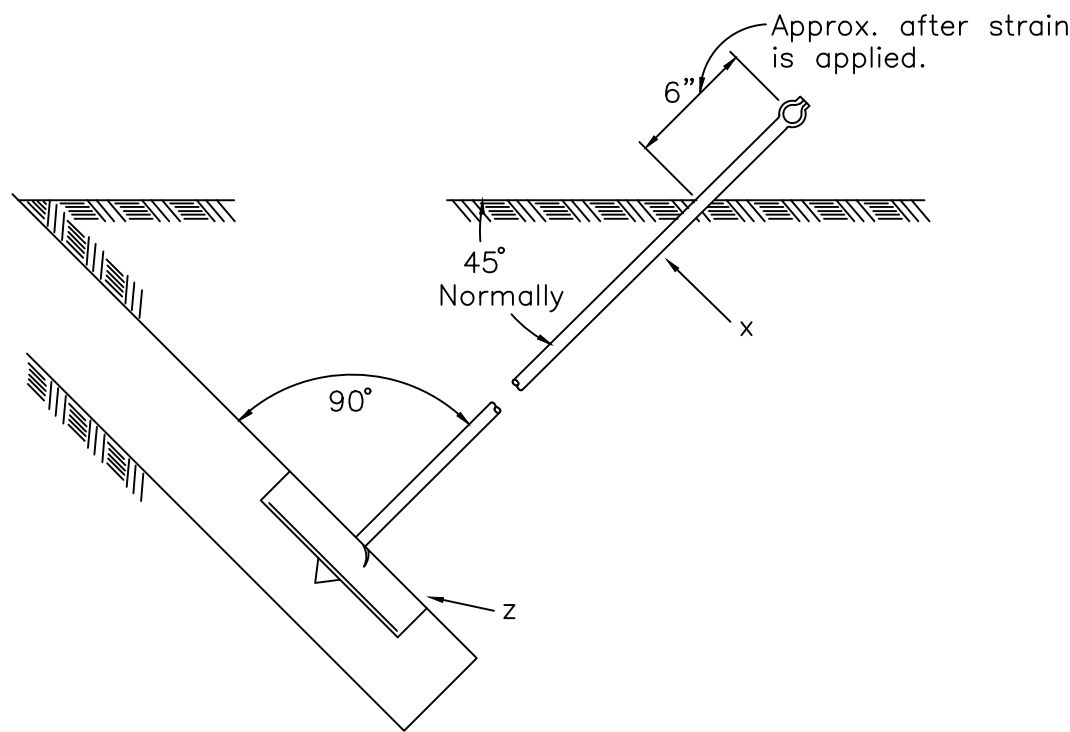


NOTES:

- Utility accepted automatics may be substituted at the anchor rod attachment.
- Spacing between anchors shall be a minimum of 5 feet.
- Install anti-split bolt 3" above guy attachment bolt on guy stub installations or 3" below bottom guy attachment bolt on installations where down guy is attached to dead end pole.

RUS ITEM	QTY.	MATERIAL
c	1	Bolt, machine, 5/8" x req'd length
c	2	Bolt, machine, 3/4" x req'd length
c	1	Bolt, machine, 1" x 3-1/2"
c	1	Bolt, machine, 1" x 5"
d	2	Washer, square, 2-1/4", curved
d	2	Washer, square, 4", curved, w/ 13/16" Hole
p		Connectors, guy bond and as req'd
u	4	Deadend, preformed, guy, heavy duty
y		Guy wire, as req'd (3/8" EHS)
al		Staples, ground wire, as req'd
at	2	Guy marker, with reflective material
av		Jumpers, as req'd
ck	2	Clamp, anchor bonding
dp	1	Clamp, ground wire, 3/4", with nut
ek	1	Locknuts, 5/8"
ek	2	Locknuts, 3/4"
ek	2	Locknuts, 1"
fv	1	Guy attachment (3/4" bolt, 6" spacing eye for 1" bolt), (30,000lbs @ 45°)
*	2	Twisted link 30,000 lbs.(Hughes 3159) or equal
*	2	Roller, 1-9/16" radius (Hughes 28083) or equal
*	2	Grid gain, curved, 4"x4" (Flagg PX122) or equal

E2.2AX, DOUBLE DOWN GUY - HEAVY DUTY



NOTE: Designated maximum holding power rating assumes proper installation in class 5 soil. Plate anchors are to be installed per manufacturer's instructions to provide designated holding capacity as listed.

DESIGN PARAMETERS:
DESIGNATED MAXIMUM
HOLDING POWER (lbs.)
F3.18X: 18,500

Minimum Area (sq. in.)		.18X
ITEM	MATERIAL	QTY
x	Rod, anchor, twin eye, 3/4" x 8'0"	1
z	Anchor, plate type (18,000 lbs min. holding capacity - class 5 soil)	1

F3.18, PLATE TYPE ANCHOR (18,000 LBS)

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE

DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS

W.O. #: 25-0305

NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	

ENG. STAMP



3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT
BRADLEY LAKE 3-PHASE POWERLINE

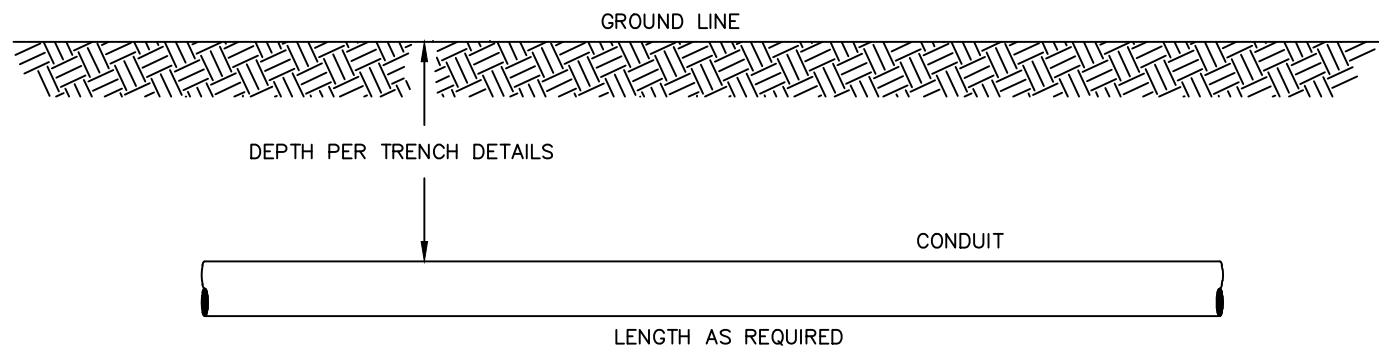
GUY AND ANCHOR DETAILS

REF DWG(S):

DRAWING NO.:

BLP-S-04

SHEET 26 OF 29



SPECIFICATION NUMBER CODES:
UM50-H-(DIAMETER)

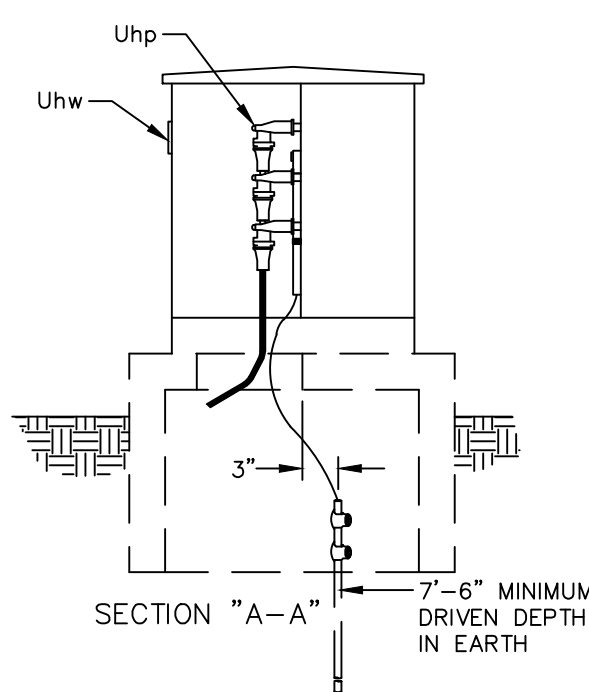
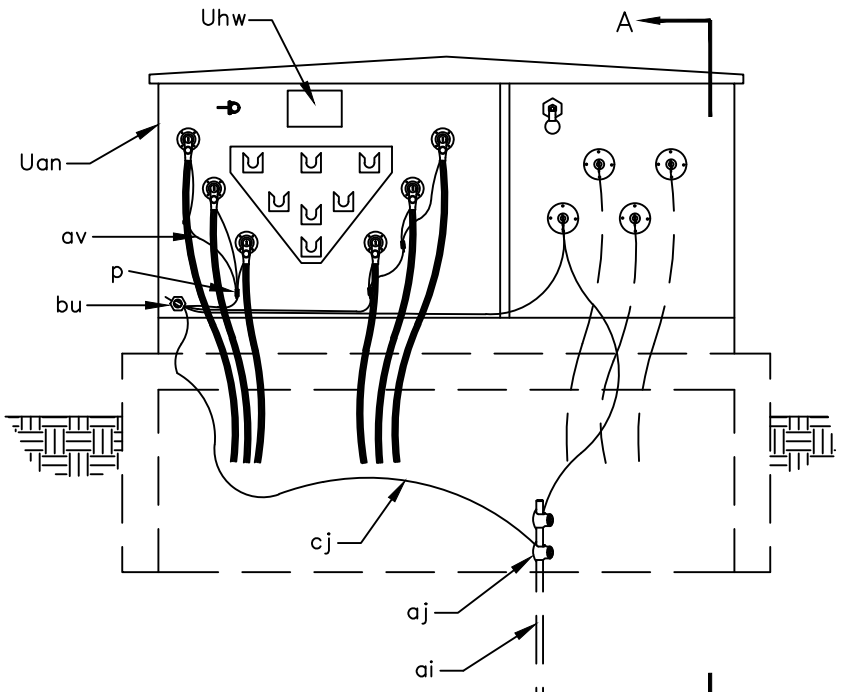
EXAMPLE: UM50-H-3
IS 3" HDPE CONDUIT

MATERIAL	-H-2	-H-3	-H-4	-H-6
1-2" HDPE Conduit	1			
1-3" HDPE Conduit		1		
1-4" HDPE Conduit			1	
1-6" HDPE Conduit				1

Notes:

- Specify trench unit separately.
- Each unit consists of one linear foot of conduit.
- HDPE is schedule 40 unless otherwise specified.

UM50-H-X, MISCELLANEOUS CONDUIT INSTALLATION

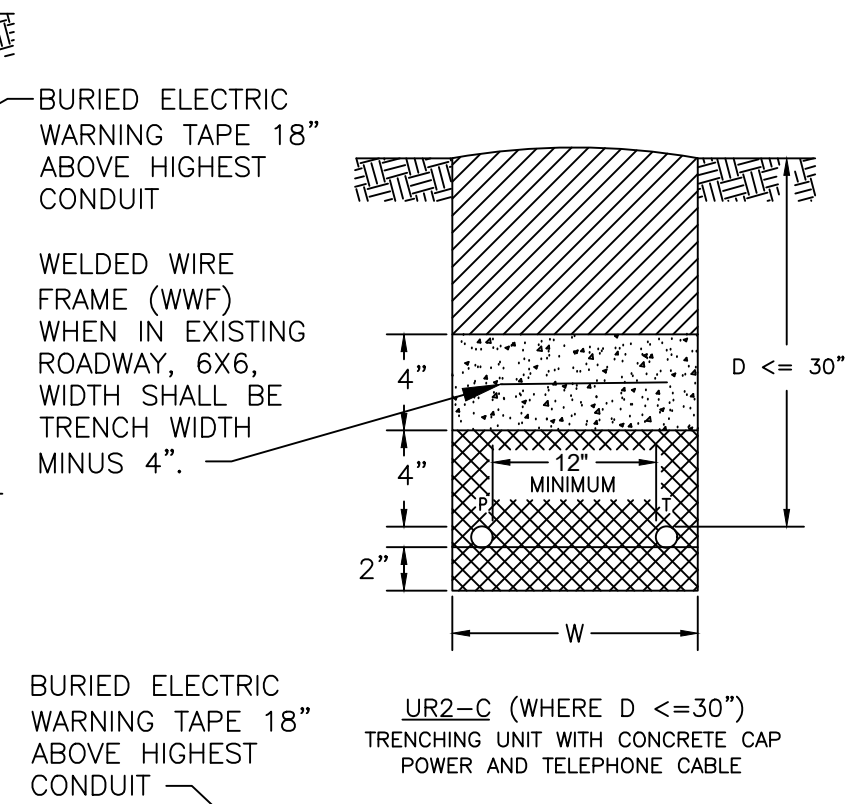
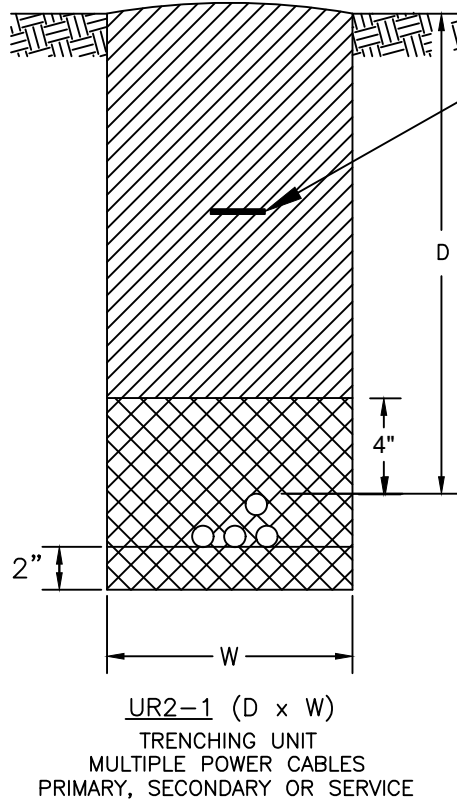
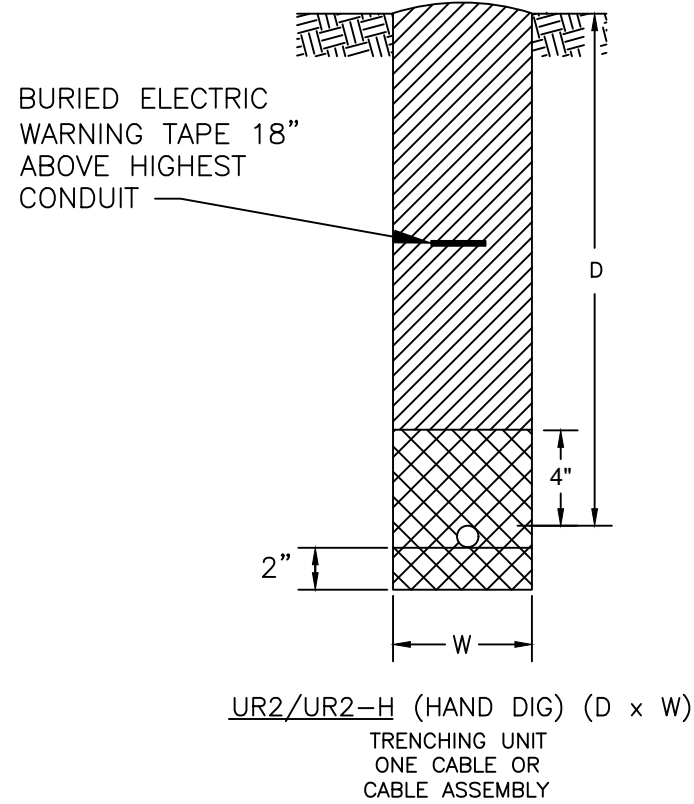


Notes:

- Only the wye-wye connection should be used to avoid ferro-resonance.
- Provide sufficient primary neutral pigtail and cable slack to permit ready disconnection of elbow and mounting on parking stand. Train cables as shown. Provide a full loop of cable inside pad.
- Provide a complete ground loop to ground rod. Loop around vault opening.
- Tag primary and secondary cables per guide UM2.2GX.
- Specify pad separately.
- Install "danger" sign inside transformer and "warning" sign on outside surface of enclosure. Label outside of transformer per guide UM2.1GX.
- Specify size then specify secondary voltage with last suffix as follows:
a -208Y/120
b -480Y/277
c - other (specify on design and staking sheets)
(i.e. UG17-2-75-B for 75 kVA at 480Y/277 volts secondary)

RUS	QUANTITY	MATERIAL
ITEM	UG17-2UG17-3	
c	4	Bolt, Machine, 1/2" x req'd length
p		Connector, Compression, as req'd
ai	1	Rod, ground, 3/4" x 8'-0", GS
aj	2	Clamp, ground rod
av		Jumpers, #4 AWG BaCuStr, as req'd
bu	2	Connector, equipment ground
cj		Ground wire, #2 AWG BaCuStr, as req'd
Uan	1	Transformer, pad mounted, three phase, loop feed
Ufz	3	Connector block, insulated, 6-position
Ugq	3	Sleeve, insulated (for 500 kVA 120/208 and larger transformers with spade terminals)
	1	Connector block, neutral, 6-position
Uhb	3	Insulating cap
Uhp	6	Termination, elbow, load break
Uhw	2	Decals, "Warning" and "Danger"
	4	Anchors, concrete, 1/2"
AR	AR	Cable tags, as req'd, See Note 8.
	2	Connector, compression, CAL, grounding (2-hole, NEMA required for spade terminals)
	1	Equipment lock, tamperproof

UG17-X-XX-X, THREE-PHASE PAD MOUNTED TRANSFORMER



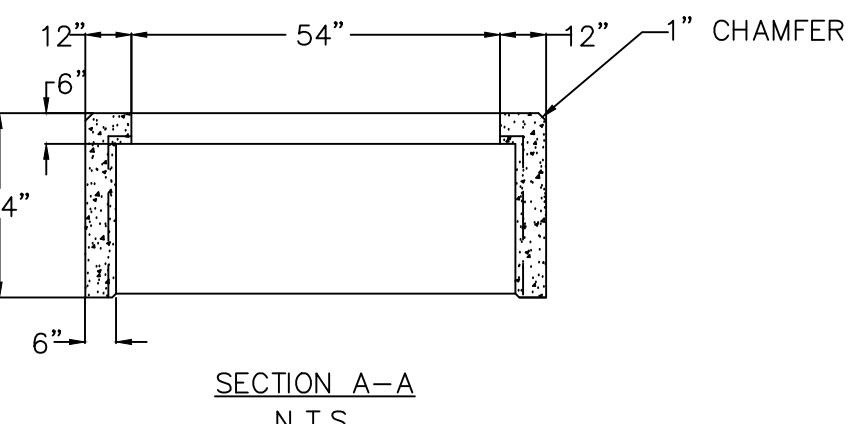
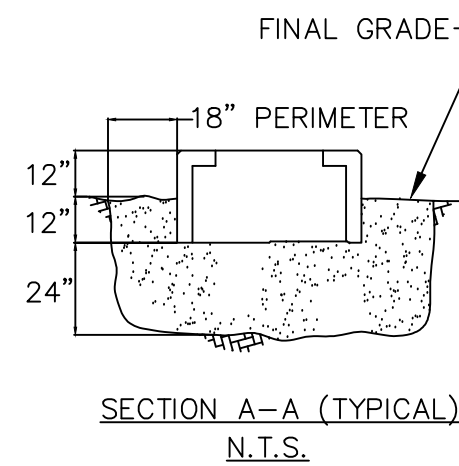
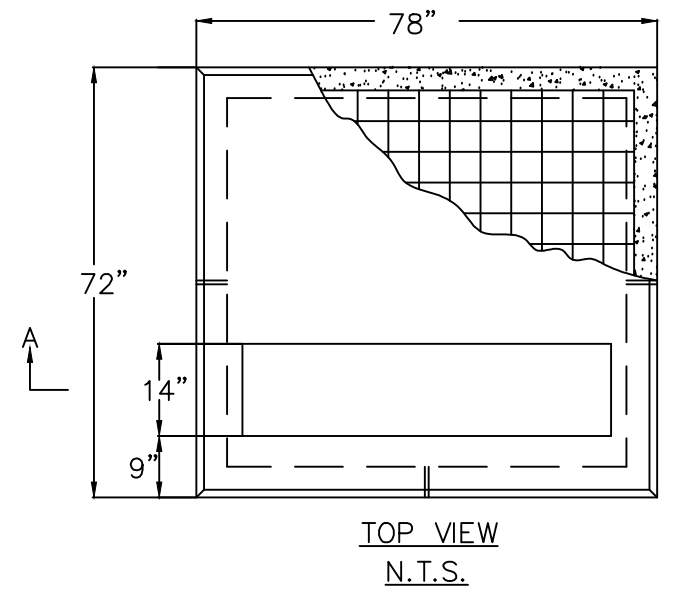
Notes:

- Depth (D) is 42" for primary / 30" min for secondary and width (W) is 24" unless otherwise specified in description of unit. 30" cover for primary may be approved by contract management where 42" cannot be achieved by normal trenching means. Where solid rock occurs less than 30", contract management may approve a 4" concrete cap instead of 30" of cover, see UR2-C.
- Depths specified are to finished grade.
- Over-excavate trenches as necessary to allow for (a) sand bedding or (b) loose sandy soils or (c) where more than one cable will be installed in trench and laying first cable may cause trench damage and reduction in depth.
- Sand bedding is not part of these units and will be specified as needed.
- Backfilling is part of all trenching units including joint-use trenches.
- Area disturbed by trenching shall be landscaped to pre-existing condition.
- All backfill must be compacted using mechanical compaction methods in 12" maximum lifts. Compaction of backfill must not disturb, move, or affect the conduit/cable.
- Warning tape is to be placed above the installed cable 12" below grade.

LEGEND

	SAND OR CLEAN SOIL
	COMPACTED BACKFILL UNLESS OTHERWISE SPECIFIED
	UNDISTURBED EARTH
	CONCRETE, 2500PSI

UR2, TRENCHES FOR CONDUIT

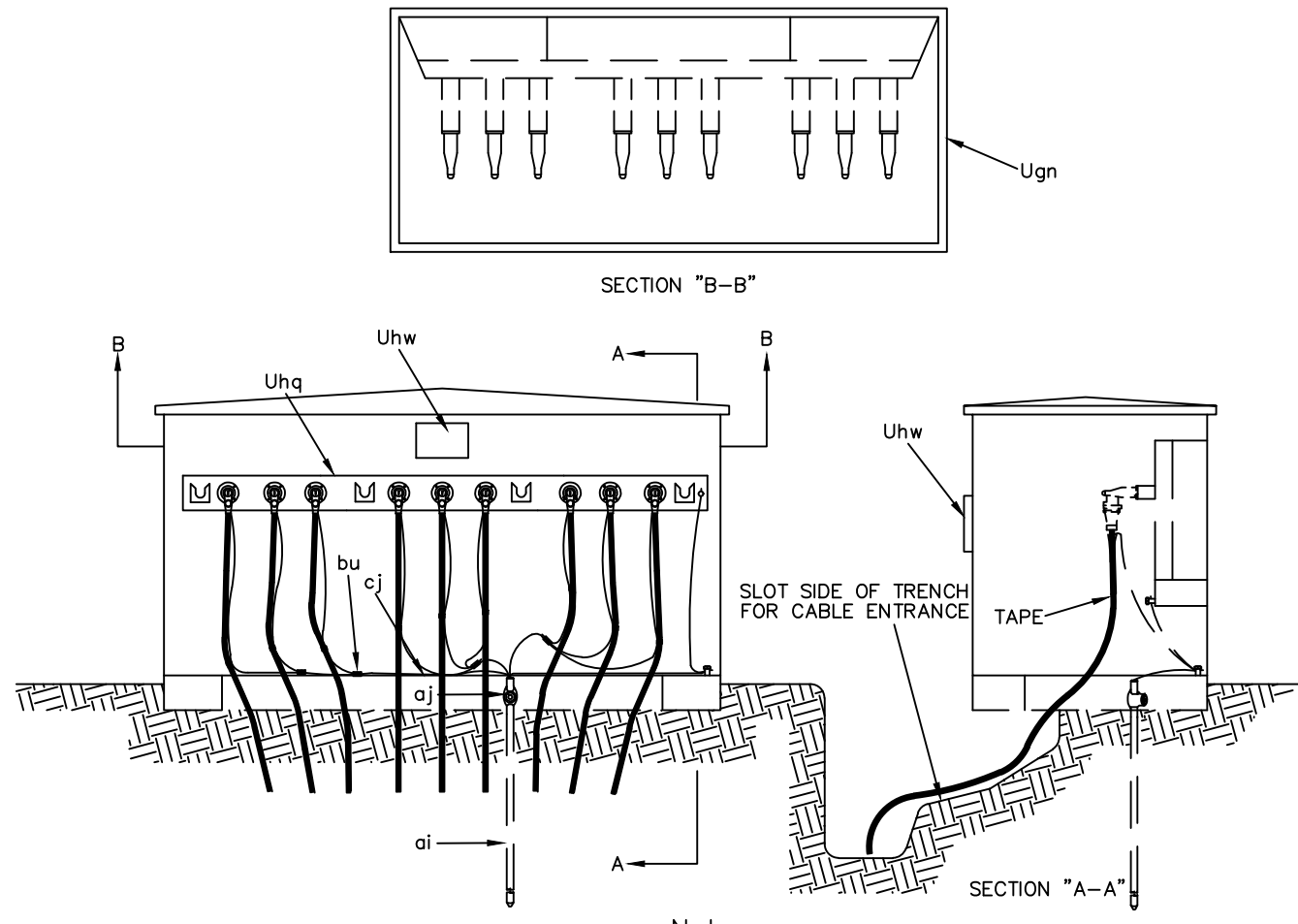


RUS	ITEM	QTY	MATERIAL
	Uja	1	Pad, Concrete, 78"x72"x24"(UM1-1B)
		8	Gravel, D1 or Recycled/Crushed Concrete, 1" Minus (Cu.Yd.)

UM1-1B, CONCRETE PAD ASSEMBLY, THREE-PHASE TRANSFORMER/SECTIONALIZER (75kVA - 750kVA)

Notes:

- This unit includes the pad, gravel, site preparation, excavation and backfill.
- Level top of pad and gravel. The gravel inside the pad shall be level with the base of the pad.
- Pad shall be square with adjacent buildings and roadways unless specified otherwise. Orient the pad away from potential conflicts to provide access to the front of the equipment.
- The pad shall conform to the utility material specifications.
- Verify transformer dimensions prior to ordering pad.
- For cooper 12.47 kV, 75 and 150 kVA transformer use pad UM1-1A.



Notes:

- Designate UM33X-3 for 3-way, and UM33X-4 for 4-way.
- Designate UM33X-3-600 for 600 amp deadbreak terminations.
- The following units/assemblies are not part of this unit. Specify separately: insulated bushing caps, parking bushings, loadbreak elbows, and pad.
- Provide sufficient primary neutral pigtail and cable slack to permit ready disconnection of elbow and mounting on parking stand. Train cables as shown.
- Tag all cables per guide UM2.2GX.
- All neutrals and metallic non-current carrying parts shall be interconnected and grounded. Provide a full loop of #2 awg bacustr to the ground rod.
- Install "warning" sign on outside surface of enclosure and "danger" sign inside enclosure. Label outside of enclosure per guide UM2.1GX.
- Provide a full loop of cable inside pad.

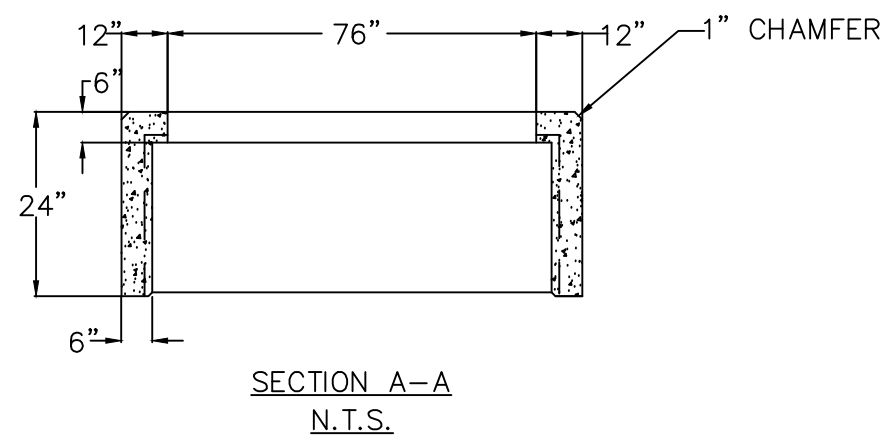
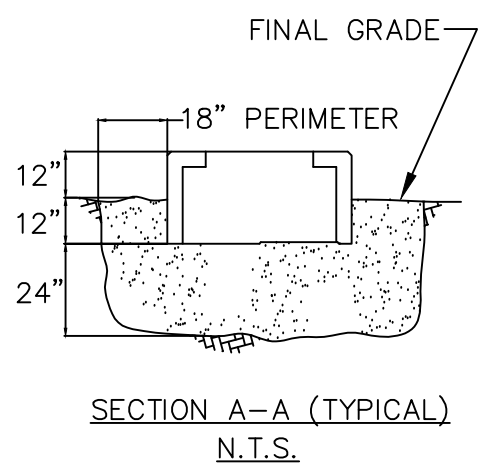
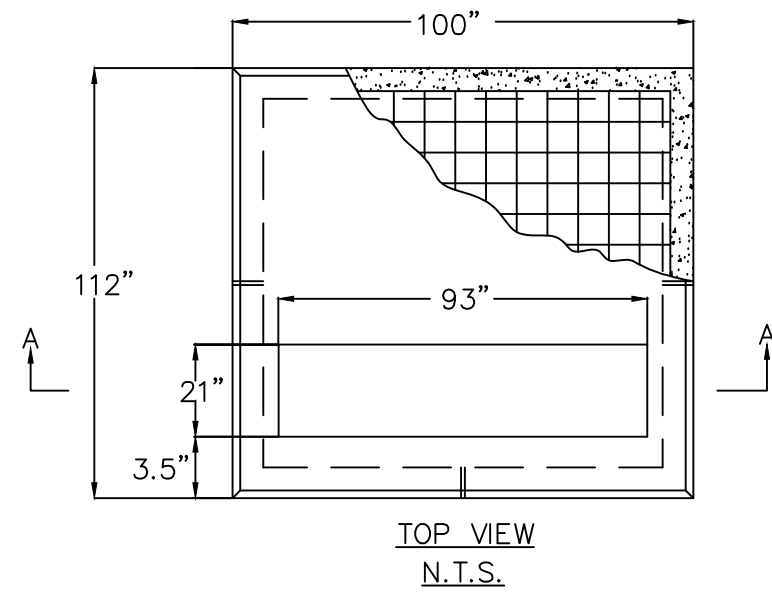
RUS	ITEM	QTY	QTY	MATERIAL
	c	6	6	Bolt, machine, 1/2" x req'd length
	d	6	6	Washers, rd, 9/16" hole
	p			Connectors, as required
	ai	1	1	Rod, ground, 3/4" x 8'-0", GS
	aj	2	2	Clamp, ground rod
	av			Jumpers, #4 BaCuStr as req'd
	bu	2	2	Connector, ground, as required
	cj			Ground wire, #2 BaCuStr, as req'd
	Ugn	1	1	Enclosure, pad mounted
	Uhw	2	2	Decal, "DANGER" and "WARNING"
	Uhq	3	3	Terminations, multipoint, 3-way
	Uhq		3	Terminations, multipoint, 4-way
		6	6	Anchors, concrete, 1/2"
		1	1	Equipment lock, tamperproof
				Tape, as required

UM33X-3, THREE-WAY SECTIONALIZNG ENCLOSURE

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS				
W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	



DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
UNDERGROUND DETAILS	
REF DWG(S):	
DRAWING NO.: BLP-S-05	SHEET 27 OF 29

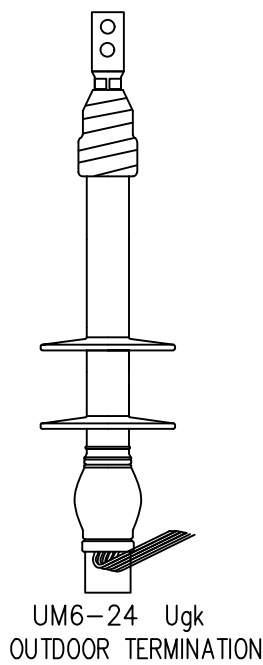
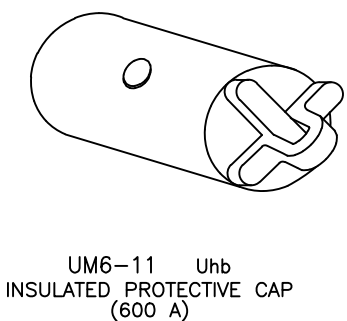
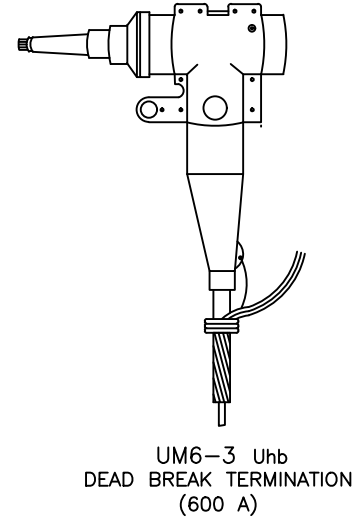
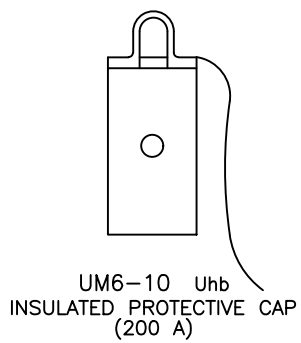
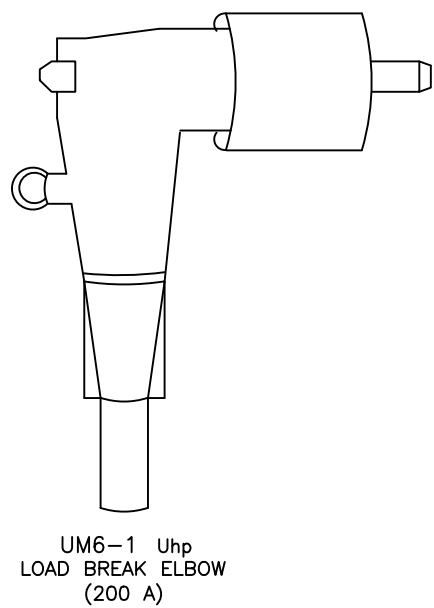


RUS	ITEM	QTY	MATERIAL
Uja	1	1	Pad, Concrete, 100"x112"x24"(UM1-1BX)
	8	8	Gravel, D1 or Recycled/Crushed
			Concrete, 1" Minus (Cu.Yd.)

UM1-1BX, CONCRETE PAD ASSEMBLY, THREE-PHASE
TRANSFORMER (5000kVA)

Notes:

- 1) This unit includes the pad, gravel, site preparation, excavation and backfill.
- 2) Level top of pad and gravel. The gravel inside the pad shall be level with the base of the pad.
- 3) Pad shall be square with adjacent buildings and roadways unless specified otherwise. Orient the pad away from potential conflicts to provide access to the front of the equipment.
- 4) The pad shall conform to the utility material specifications.
- 5) Verify transformer dimensions prior to ordering pad.

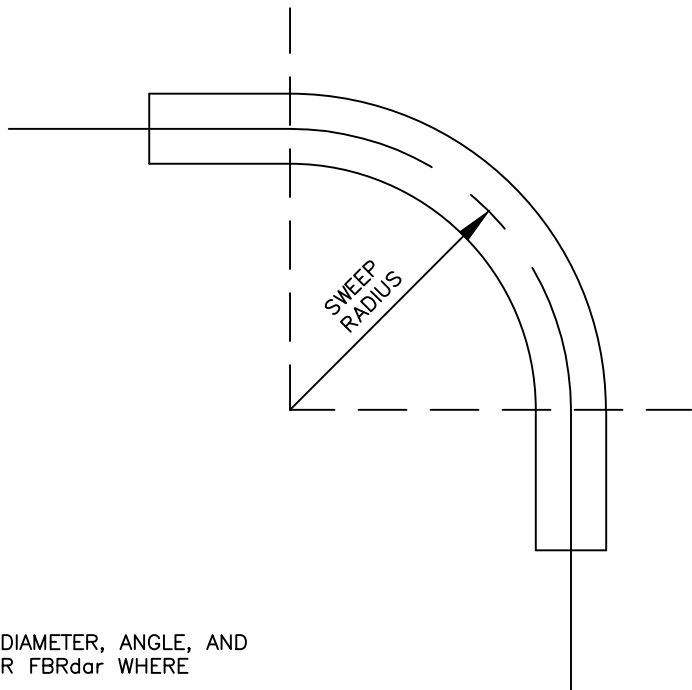


Notes:

- 1) For primary splices and terminations, the conductor size and type shall be designated by the following suffix (e.g., a 200 amp loadbreak elbow for #1/0 conc would be indicated as UM6-1-A):

A - #1/0 conc B - #4/0 tape shield CU C - 500 mcm tape shield CU
D - #2 conc E - #2 tape shield CU F - #4/0 conc
G - 350 kcmil conc CU

MISCELLANEOUS UNDERGROUND ACCESSORIES



NOTES:

1. SPECIFY ELBOW MATERIAL, DIAMETER, ANGLE, AND RADIUS: PVCdar, RSCdar, OR FBRdar WHERE

"d" IS THE NOMINAL PIPE DIAMETER
"a" IS THE CONDUIT ANGLE, AND
"r" IS THE BEND RADIUS.

2. BEND RADIUS TO BE DESIGNATED AS FOLLOWS:

LS - LONG SWEEP - 36" RADIUS FOR 2"
 48" RADIUS FOR 4"
 60" RADIUS FOR 6"

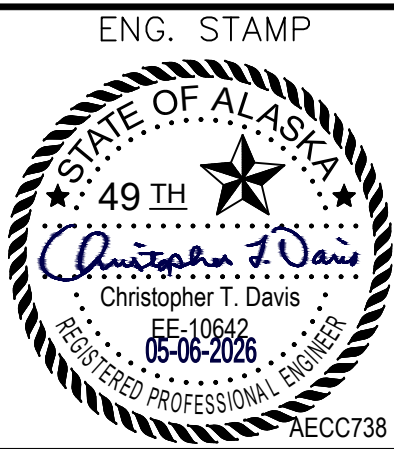
SS - SHORT SWEEP - 24" RADIUS FOR 2"
 36" RADIUS FOR 4"
 48" RADIUS FOR 6"

FOR EXAMPLE, RSC290SS IS RIGID STEEL 2 INCH 90 DEGREE ELBOW WITH A 24 INCH BEND RADIUS.

3. UNIT INCLUDES INSTALLATION OF ANY BUSHINGS NECESSARY TO ATTACH TO ADJACENT CONDUIT.

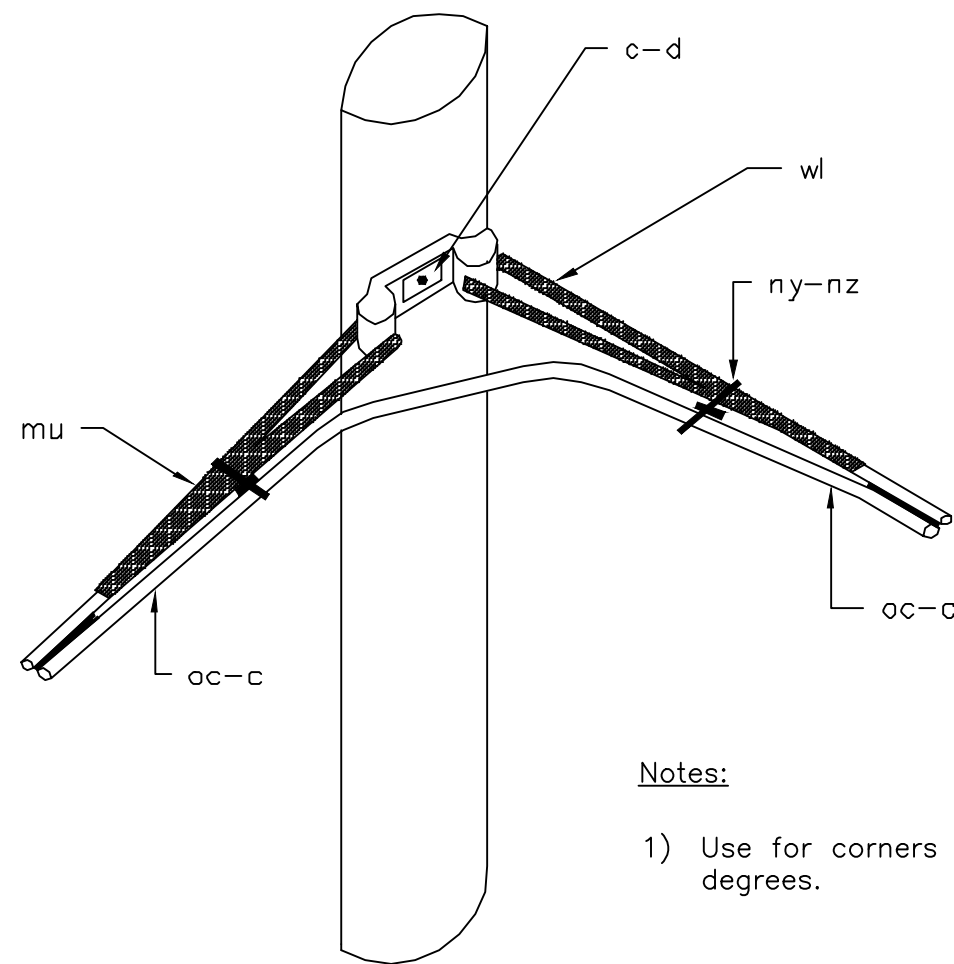
FIBERGLASS CONDUIT ELBOW GUIDE

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	



3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

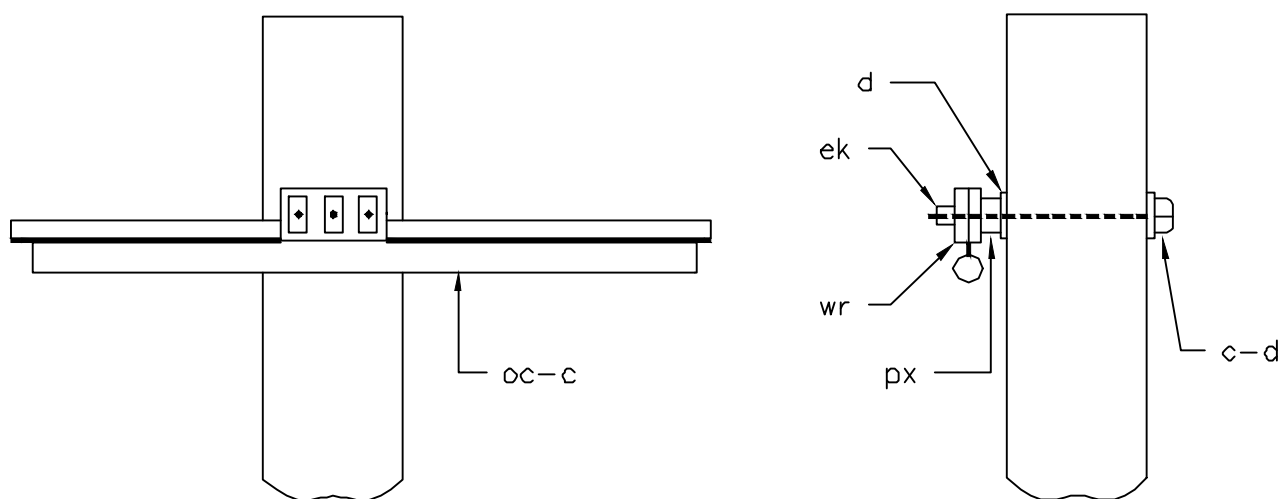
DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
UNDERGROUND DETAILS	
REF DWG(S):	
DRAWING NO.:	BLP-S-06
	SHEET 28 OF 29



- Notes:
- 1) Use for corners from 20 to 60 degrees.

ITEMS	MATERIALS	QUANTITY
oc-c	Cable, filled, fiber optic, self-supporting (figure 8 design)	as req'd
*wl	Support, double deadend	1
*mu	Sleeves, splicing (deadending, preformed or automatic type)	2
*ny	Spacers, cable	2
*nz	Supports, lashed cable	2
d	Washers, 2 1/4" x 2 1/4" x 3/16", 11/16" hole	1
c	Bolts, machine, 5/8" x required length	1

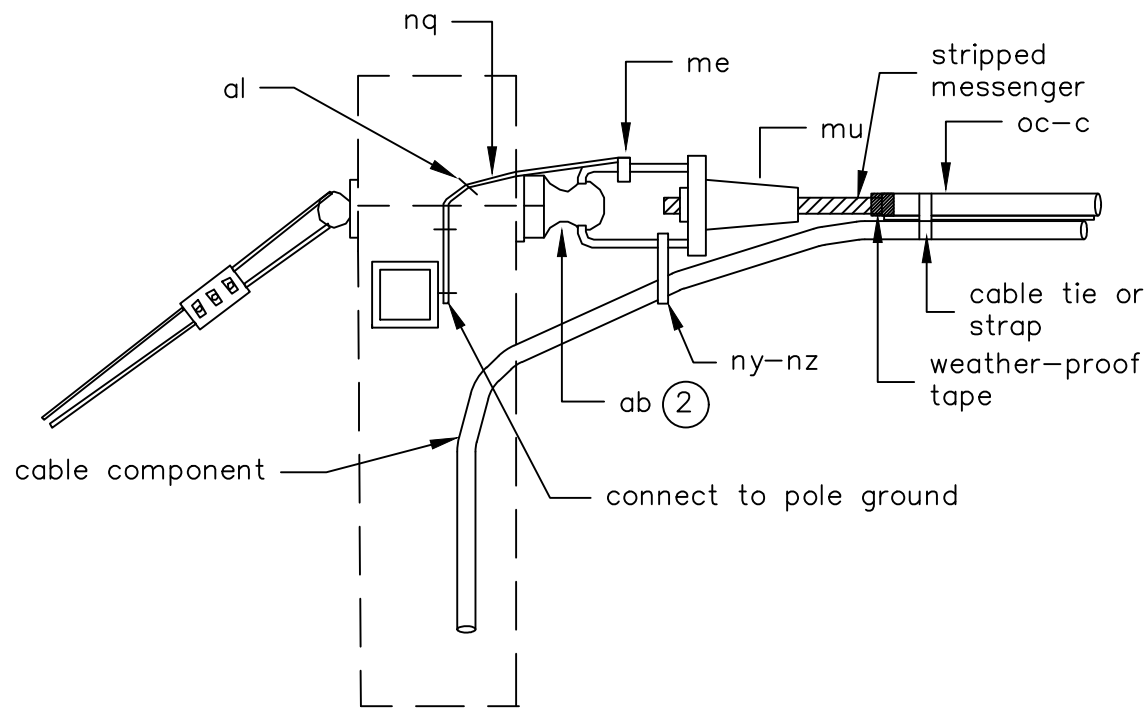
202-3, ANGLE FIBER OPTIC CABLE SUPPORT



- Notes:
- 1) Use for corners from 0 to 20 degrees.
 - 2) Place cable in clamp without removing support wire insulation of slitting web

ITEMS	MATERIALS	QUANTITY
oc-c	Cable, filled, fiber optic, self-supporting (figure 8 design)	as req'd
*wr	Clamp, support, self-supporting, cable	1
c	Bolt, machine, 5/8" x required length	1
d	Washers, 2 1/4" x 2 1/4" x 3/16", 11/16" hole	2
px	Nut, square	1
ek	Locknut, 5/8"	1

201-1, TANGENT FIBER OPTIC CABLE SUPPORT



- Notes:
- 1) Use for corners from 60 to 90 degrees.
 - 2) Size of thimbleye nut is governed by size of thimbleye bolt used for guy.

ITEMS	MATERIALS	QUANTITY
oc-c	Cable, filled, fiber optic, self-supporting (figure 8 design)	as req'd
*mu	Sleeves, splicing (deadending, preformed or automatic type)	1
*ny	Spacers, cable	1
*nz	Supports, lashed cable	2
*nq	Wire, ground, bare, #6 AWG copper	as req'd
me	Connectors, grounding	2
ab	Nuts, thimbleye	2
*al	Staples, ground wire	as req'd

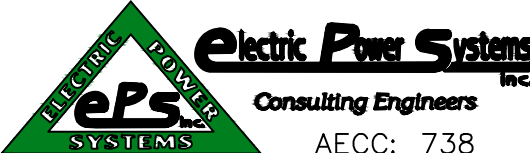
204, DEADEND FIBER OPTIC CABLE SUPPORT

PROJECT: BRADLEY LAKE 3-PHASE POWERLINE				
DESIGNER/PROJECT ENGINEER: PETER M. BLAKE/CHRISTOPHER T. DAVIS W.O. #: 25-0305				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
0	ISSUED FOR CONSTRUCTION	EDS/05-06-2026	CTD/05-06-2026	





ALASKA
ENERGY AUTHORITY



Electric Power Systems
Consulting Engineers
AECC: 738

3305 ARCTIC BLVD, SUITE 201
ANCHORAGE, AK 99503
TEL: (907) 522-1953
WEB: WWW.EPSINC.COM

DRAWING NAME: AEA BRADLEY LAKE HYDROELECTRIC PROJECT BRADLEY LAKE 3-PHASE POWERLINE	
TELECOMMUNICATIONS DETAILS	
REF DWG(S):	
DRAWING NO.:	BLP-S-07
SHEET 29 OF 29	