Canyon Fuel Company, LLC
A Subsidiary of Wolverine Fuels, LLC

Skyline Mine
Gregg A. Galecki, Sr. Environmental Engineer
HC35, Box 380
Helper, Utah 84526
(435) 448-2636
Fax (435) 448-2632

October 3, 2020

C/007/0005
Received 10/5/20
Task #6197

Steve Christensen
Coal Program Supervisor
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

RE: Swens Canyon Power Line Disturbance, Canyon Fuel Company, LLC, Skyline Mine, C/007/005,

Dear Mr. Christensen:

Attached is information to address disturbance associated with the installation of the overhead power line from the main Skyline Mine site to the Swens Canyon Ventilation Facility (SWVF). Skyline acknowledges and appreciates the DOGM staff's flexiblity in reviewing this amendment as quickly as possible.

Per our discussions on October 1 and the associated email outlining information to be submitted, modifications have been made to the respective sections of the permit to address the increased disturbance associated with the installation of the power line. Please note a majority of the narrative descriptions are within Chapter 3, section 3.2.10 as that section addresses the installation of the power line. Detailed figures are included within that section.

To help clarify the disturbances of the power line corridor and logging activity, a total of eight (8) drone photos are attached to this letter (four images, with duplicates outlining the power line corridor in red). The images are from Trough Springs road looking generally west where the most logging has occurred. Photo DJI_0110 serves to illustrate the total amount of logging activity (and associated roads) that exist in the area.

Attached to this cover letter are completed C1 and C2 forms, and .pdf files of the information to be incorporated into the M&RP. Skyline greatly appreciates the help you and your staff continue to provide to get this project completed on such a short timeframe. The information is being submitted electronically. Two (2) hard copies will be sent upon Division approval.

If you have any questions, please call me at (435) 448-2636.

Sincerely,

Gregg A. Galecki

Gregg A. Galecki
Sr. Environmental Engineer, Skyline Mine
Canyon Fuel Company, LLC

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☒ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Canyon Fuel Company, LLC
Mine: Skyline Mine **Permit Number:** C/007/005
Title: Swens Power Line Disturbance
Description, Include reason for application and timing required to implement:
Modification to the overhead power line to Swens Canyon accommodating surface disturbance.

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ ☐ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes ☒ No 6. Does the application require or include public notice publication?
☐ Yes ☒ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes ☒ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes ☒ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☒ Yes ☐ No 15. Does the application require or include soil removal, storage or placement?
☒ Yes ☐ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☒ Yes ☐ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☒ Yes ☐ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☐ Yes ☒ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☒ Yes ☐ No 21. Have reclamation costs for bonding been provided?
☒ Yes ☐ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

DEWEY TANNER
Print Name

GM 10/7/20
Sign Name, Position, Date

Subscribed and sworn to before me this 7 day of Oct, 2020

Melissa S Willden
Notary Public

My commission Expires: 03-19, 2023

Attest: State of Utah } ss:
County of Carbon

MELISSA S. WILLDEN
NOTARY PUBLIC • STATE OF UTAH
COMMISSION# 705119
COMM. EXP. 03-19-2023

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining

Form DOGM- C1 (Revised March 12, 2002)

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Canyon Fuel Company, LLC
Mine: Skyline Mine **Permit Number:** C/007/005
Title: Swens Power Line Disturbance

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐ Add	☒ Replace	☐ Remove	Chapter 2, Section 2.5, page 2-51i
☐ Add	☒ Replace	☐ Remove	Chapter 2, Section 2.9, page 2-104(l)
☐ Add	☒ Replace	☐ Remove	Chapter 2, Section 2.11, page 2-120(l)
☐ Add	☒ Replace	☐ Remove	Chapter 3, Section 3.2 pages 3-58, 3-72c
☐ Add	☒ Replace	☐ Remove	Chapter 3, Section 3.2 Figures 3.2.10-3, and 3.2.10-4 (immediately following page 3-58)
☒ Add	☐ Replace	☐ Remove	Chapter 3, Section 3.2 Figures 3.2.10-5, and 3.2.10-6A, -6B, and -6C (immediately following page 3-58)
☐ Add	☒ Replace	☐ Remove	Chapter 3, Section 3.2, page 3.58(a)
☒ Add	☐ Replace	☐ Remove	Chapter 3, Plate 3.2.1-1_Rev17_10-2-20
☒ Add	☐ Replace	☐ Remove	Chapter 3, Section 3.2, Appendix B (place at end of Section 3.2 BODEC _Power Line Details
☐ Add	☒ Replace	☐ Remove	Chapter 4, Section 4.2, Bond: Total page, Earthwork summary page, Swens Earthwork17, Reveg Cost page (4 pages total)
☐ Add	☒ Replace	☐ Remove	Chapter 4, Section 4.4 page 4-28
☐ Add	☒ Replace	☐ Remove	Chapter 4, Section 4.6 page 4-41e
☐ Add	☒ Replace	☐ Remove	Chapter 4, Section 4.7, Page 4-50(a)
☐ Add	☐ Replace	☐ Remove	Chapter 1. pages 1-34(a), 1-37
☐ Add	☐ Replace	☐ Remove	Chapter 1, Plate 1.6-3_rev15_10-7-20
☐ Add	☐ Replace	☐ Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	**Received by Oil, Gas & Mining**
Submitted electronically. Hard copies will be shipped for incorporation following approval.	

Ch. 1

distance of 313.62 feet; thence S78° 31' 42" E a distance of 394.22 feet; thence S67° 59' 19" a distance of 162.86 feet; thence S67° 11' 48" E a distance of 184.95 feet; thence s66° 35' 22" E a distance of 7.51 feet; thence S68° 17' 21" E a distance of 16.44 feet; thence N14° 02' 53" E a distance of 13.25 feet; thence N 17° 36' 35" W a distance of 64.21 feet; thence n19° 35' 52" W a distance of 101.75 feet; thence N04° 54' 23" W a distance 110.10 feet; N15° 34' 28" E a distance of 118.18 feet; thence N43° 46' 10" E a distance of 1,079.17 feet; thence N51° 35' 31" E a distance of 860.51 feet; thence N21° 49' 54" W a distance of 0.62 feet; S51° 35' 33" W a distance of 860.56 feet; thence S43° 45' 55" W a distance of 1,079.56 feet; thence S15° 34' 30" W a distance of 118.17 feet; S04° 54' 20" E a distance of 110.32 feet; thence s19° 32' 19" E a distance of 102.69 feet; thence S17° 39' 42" E a distance of 63.38 feet; thence S15° 04' 51" W a distance of 12.36 feet; thence N67° 17' 42" W a distance of 205.91 feet; thence N67° 52' 22" W a distance of 49.97 feet; thence N67° 58' 39" W a distance of 114.38 feet; thence N68° 31' 43" W a distance of 394.17 feet; thence S89° 10' 54" W a distance of 313.96; thence S84° 21' 11" W a distance of 44.32 feet; thence S05° 39' 41" E a distance of 4.00 feet; which is the point of beginning and containing .3 acres, more or less.

Swens Canyon Ventilation Facility Power Line

The followings is a tract of land identified for use of an approximately 50-foot wide power line corridor located in Sections 13, 23, 24, 26, and 27, Township 13 South, Range 6 East, Salt Lake Base and Meridian, Carbon County, Utah, being further described as follows:
Commencing at a point North 539 feet and East 171 feet from the SW Corner of the SE Quarter of Section 13, Township 13S, Range 6E, SL B&M;
thence South AZ194°05'06" 1353.94 feet; thence Southwest AZ246°45'44" 806.76 feet;
thence Southwest AZ228°18'40" 1538.71 feet; thence South AZ203°38'57" 840.30 feet;
thence South AZ194°56'30" 304.65 feet; thence South AZ200°43'30" 318.25 feet;
thence South AZ204°57'15" 299.05 feet; thence South AZ217°21'11" 296.38 feet; thence Southwest AZ238°52'04" 344.64 feet; thence Southwest AZ235°18'51" 295.98 feet;
thence Southwest AZ221°22'06" 165.64 feet; thence Southwest AZ224°28'34" 136.90 feet; thence Southwest AZ243°34'57" 2641.97 feet; thence Southwest AZ236°35'49" 774.17 feet; thence Southwest AZ248°37'17" 713.48 feet; thence Southwest AZ248°00'31" 628.18 feet; thence West AZ267°52'29" 678.96 feet; thence West AZ263°46'14" 882.25 feet; thence Southwest AZ249°41'06" 879.10 feet terminating at the Swens Canyon Ventilation Facility, containing approximately 18.46 acres. ~~Approximately 0.46 acres of the said 18.46 acres is currently not permitted. The public is currently being given the opportunity to comment on the construction of the power line as it is within 100 feet of two public roads; SR-264 and USFS road 0018, respectively.~~

Swens Canyon Ventilation Facility

The following is a tract of land identified for use of Swen's Canyon Ventilation facility located in Section 27, Township 13 South, Range 6 East, Salt Lake Base and Meridian, Emery Country, Utah, being further described as follows:
Commencing at a point North 371 feet and East 1165 feet from the SW Corner of the NW Quarter of Section 27, Township 13S, Range 6E SL B&M; thence S 77°42'22" W a distance of 308.61 feet;
thence S 86°57'04" W a distance of 88.39 feet; thence N 45°45'53" W a distance of 65.80 feet; thence S 85°43'18"W a distance of 27.33 feet; thence S 32°22'53" W a distance of 95.38 feet; thence N 87°14'47" W a distance of 119.14 feet; thence N 45°39'40" W a distance of 39.16 feet; thence N 10°57'32" W a distance of 82.42 feet; thence N 17°08'15" E a distance of 37.69 feet; thence N 08°39'36" W a distance of 61.01 feet; thence N 20°03'53" E a distance of 64.25 feet; thence N 43°52'26" E a distance of 42.86 feet; thence N 56°32'37" W a distance of 99.99 feet; thence N 11°01'26" W a distance of 81.19 feet; thence N 42°42'26" E a distance of 59.67 feet; thence N 20°25'41" E a distance of 108.40 feet; thence N 22°10'07" W a distance of 311.68 feet; thence N 04°38'06" E a distance of 48.63 feet; thence N 50°44'06" E a distance of 79.10 feet; thence N 66°36'00" E a distance of 175.79 feet; thence S 85.34'34" E a distance of 85.93 feet; thence S 42°30'17" E a distance of 127.19 feet; thence S 16°29'23" E a distance of 179.80 feet; thence S 25°20'01" E a distance of 97.04 feet; thence S 00°20'34" E a distance of 260.29 feet; thence S 31°04'06" E a distance of 96.88 feet; thence S 11°21'34" E a distance of 73.97 feet; thence S 23°13'59" W a distance of 74.28 feet; thence S 50°41'30" W a distance of 44.46 feet; thence S 23°21'51" E a distance of 42.73 feet; thence N 78°36'10" a distance of 234.28 feet; thence S 19°03'57" E a distance of 69.93 feet to the true point of beginning and containing approximately ~~9.636~~.33 acres.

of Mine Workings Workings (Life of Mine)	Surface to 1,500' max	Surface to 2,300' max	Surface to 1,500' max

The anticipated number of total surface land acres to be affected (life of mines) is less than the combined total of the affected acreages for each of the three mines due to the overlapping of mining operations which is inherent to this multi-seam mining operation. The total surface acreage to be disturbed by surface facilities associated with underground mining is 136.45 acres.

The following information was based on projection for the next five years (2012-2016).

	Mine No. 1	Mine No. 2	Mine No. 3
Extent of Horizontal Workings	240 acres	375 acres	1,400 acres
Extent of Vertical Workings	Surface to 1,250'	Surface to 2,250'	Surface to 2,125'

Permit Area

The construction/installation of surface facilities at the mine site, loading area, conveyor belt route, well houses, water tank pad, waste rock disposal site, and South Fork Breakout, and Winter Quarters Ventilation Facility comprise the Permit Area. The permit area acreage listed adequately accommodate areas of disturbance.

PERMIT AREAS TO BE RECLAIMED

AREA	ACREAGE
Loadout	13.86
Portal Yard	42.55
Water tanks, water lines, and Well pads (water lines not reclaimed	0.60
Conveyor Bench	14.18
Waste Rock Disposal Site and Road	32.48
South Fork Breakout	0.60
James Canyon Buried Power Line	0.30
James Canyon Buried Pipeline	1.60
James Canyon Water Wells and Road	2.95
Winter Quarters Ventilation Facility	7.93
Winter Quarters Road (not reclaimed)	4.90
Swens Power line reclaimed	18.46~~(including 0.46 acres currently under public review)~~
Swens Canyon Pad	~~4.20~~6.33 ~~(cutting pond never built)~~
TOTAL	~~144.61~~146.74

Ch. 2, Sec. 2.5

modern water from sources that do not normally flow into the mine, and the inflow rate of ground water to 10 Left is approximately 3,000 gpm (as estimated in March 2004), the inflow rate of modern water to 10 Left might be between 234 gpm and 816 gpm. Combining the calculated inflow rates of modern water from JC-1 and the 10 Left area results in a range of 538 gpm to 1,877gpm of a total of 6,900 gpm of water removed from the ground from JC-1 and the mine.

JC-3 pumps water from the flooded portions of the mine that include the 6 Left through 12 Left A and B panel areas. Water from the 11 Left and 12 Left A and B areas do not appear to contain modern waters. Without the JC-3 well, the from these flooded portion of the mine would be pumped to Eccles Creek and not Electric Lake. The pumping of the JC-3 well could be considered to further mitigate for the maximum possible inflow of modern water to the mine. The JC-3 well is expected to be operated for at least several years or until the persistent drought conditions end.

If a determination were made that Skyline Mine impacted Electric Lake and upper Huntington Creek waters, the JC-1 and JC-3 wells would continue to be operated by the mine to discharge water into the Huntington Creek drainage. Thus, through the mine's effort to dewater the Star point Sandstone to allow for the continuation of mining in the southwest portions of Mine 2, specifically to maintain the West Mains, any potential mitigation for the loss of water has been and continues to be accomplished.

In 2020 an overhead power line was extended from the main mine facility to Swens Canyon. Details of the power line construction are outlined in Section 3.2.10. No impacts to the hydrology of either Huntington Creek or the small ephemeral drainage paralleling the power line corridor to the south are anticipated. No crossing of either drainage with equipment is anticipated. Power cables will be extended over Huntington Creek using temporary structures on either the east or west side of the creek. Installation of the power line will be constructed with a combination of cross-country travel by tracked equipment, minor ancillary road building and helicopter use. Details of the construction are detailed in Section 3.2.10. ~~will utilize a D6 dozer with no blading anticipated. No work will be conducted within the Stream Buffer Zone of Huntington Creek,~~Installation of pole #2 (See Figure 3.2.10-4) is located between SR-264 and 40-feet west of Huntington Creek. Minimal disturbance is required at pole #2 as the hole will be dug by hand and set by helicopter. T~~and t~~he line is no closer than approximately 200 feet to the ephemeral drainage. Exhibit 2.5.1 characterizes the ephemeral stream channel. Sediment control will be treated with existing vegetation where no ancillary roads are required. Any location where blading of the surface takes place, as with an ancillary road or temporary pad used for pole placement, sediment control will utilize silt fence during construction with contemporaneous reclamation taking place following construction. Any possible contribution of sediment to the two drainages will overwhelmingly come from the north-facing side of the ephemeral drainage that was clear cut earlier in 2020.

Chapt. 2 Sec. 2.9

The area is considered critical summer habitat for deer and elk. During development of the facility, daily activity will include vehicle traffic and construction activities. After construction, the use of the area will return to historic uses, with only an exhaust fan operation remaining. Construction of the pad will occur in Fall of 2015, so the critical summer fawning/walving period will not be impacted. Construction of the fan facility will occur in spring/summer of 2016, since the ventilation facility is needed by Fall of 2016. If construction begins after June 1st, when the peak fawning/calving period begins, the area will be surveyed to detect the presence of any potentially fawning/calving individuals. This will consist of walking the area 1000 feet below the construction area. If any individuals are encountered, they will be monitored, and construction will not begin until the individual is no longer in the area (See Alpine memo dated July 2015). After construction, the impacts will be minimal since the fan system that is being installed will be equipped with an Exhaust Silencer with an overall pressure level of 76dBA at 36" from the fan. Access will be limited by a locked gate.

No sage grouse habitat exists in the area. Figure 2.9-8 has been added which shows Utah DWR's Sage Grouse Management Area threat analysis, including habitat areas. Skyline Mine lease area is shown relative to the Sage Grouse Management Areas. A wildlife survey report conducted in 2014 which addressed goshawk, raptors, American three-toed woodpecker, and Threatened and Endangered species determined no species of concern would be impacted by the construction of the shaft (See Appendix A-2, Volume 2 for Alpine Ecological report and Alpine memo dated July 2015).

2.9.8 Swens Canyon Ventilation Facility (SCVF)

The SCVF is permitted to encompasse approximately 6.33 acres. The project also includes an approximately 3.05 mile power line, with a permitted 50-foot wide corridor which totals approximately 18.46 acres. ~~Minimal~~ Moderate disturbance is anticipated with the power line as the 3-phase, 46 kV, single pole power line, with compact construction has been adapted for raptors and no road building will be involved with the installation. Access to the power corridor ~~will be limited to minimal cross-country travel with either a rubber-tired or tracked vehicle~~will utilze a combination of cross-county travel by tracked equipment, minor ancillary road building, temporary 10x20-foot pads for pole placement, and helicopter use (see Figures 3.2.10-4 and 3.2.10-5). Ancillary roads and temporary pads will be reclaimed immediately following construction.

General wildlife and raptor surveys conducted in both 2013 and 2014 were consistent with previous studies with no threatened or endangered species being observed in either the power line corridor or the SCVF site. A specific Western Boreal Toad survey was also conducted in 2014 indicating the absence of the species. (See Apppendix A-3, Volume 2 for studies conducted by Alpine Ecological). Noise will not be an issue after construction as

Ch. 2 Sec. 2.11

Swens Canyon Ventilation Facility (SCVF)

A detailed description of the soils associated with the Swens Canyon Ventilation Facility (SCVF) and associated power line is available in Appendix A-2, Volume 2, titled, "Order 2 Soil Survey of the Powerline Corridor Swens Pad Ventilation and Escape Shafts Coal Pile Expansion at the Skyline Mine" (December 2014). The survey conducted by Long Resources Consultants, Inc. provides a comprehensive assessment of the various soils that are within the power line corridor and the pad site. ~~No soils are anticipated to be disturbed along the power line with the exception of soils moved for the placement of the single, wooden poles, and the area where the buried section of cable daylights, which are both exempt due to the limited disturbance.~~ Construction of the power line and pole installation will utilize a combination of cross-country travel by tracked equipment, minor ancillary road building, temporary 10x20-foot pads for pole placement, and helicopter use. Figure 3.2.10-4 in Section 3.2 illustrates sections where ancillary roads and pads will be temporarily constructed. ~~In the event minor sections of the power line corridor~~In these locations ~~needs~~ requiring blading for construction, ~~to be bladed/disturbed,~~ the topsoil will be stripped, salvaged, protected by silt fencing(Figure 3.2.10-5)and replaced immediately following power line installation. The combination of ancillary roads and temporary pads will require approximately 6,000-6,900 feet of silt fencing to be installed (poles 3-17,22, 28-35, and 38-44). ~~Salvaged topsoil will be contained with silt fencing or other sediment control measure until replaced. The contractor anticipates any areas not accessible using a D6 Cat dozer, poles will be placed using a helicopter.~~ A steep ancillary road with switchbacks was constructed from poles 41-43. Per DOGM request soil stabilizer will be incorporated into the reclamation on this and any other switchback roads. Figure 3.2.10-6 illustrates the gradient of full length of the power line corridor. Installation of poles 18-21, and 23-27 will be accessed through cross-country travel with tracked equipment while poles 44-52 will be accessed by foot travel and installed with a helicopter. These areas may need reseeding, but no silt fencing will be installed. The power line corridor is approximately 3.05 miles in length and will be approximately 50-feet wide ~~with no disturbance of the topsoil anticipated~~. Installation will be conducted using rubber-tired vehicles ~~or~~, tracked vehicles or helicopter, keeping the number of access trips necessary for construction to a minimum.

Ch. 3, Sec. 3.2

Utah Power and Light Company policy dictated that the separation of responsibility would be at the connection to the electrical sub-station which means that the power line corridor was established by Utah Power and Light and the line construction and maintenance remains their responsibility. Consequently, the Permittee was not in position to require a particular power line construction technique. The Permittee did, however, relay the Division request to provide raptor protection to Utah Power and Light. (See Division correspondence dated June 19, 1981, James W. Smith Jr. to Vernal J. Mortensen; Re: Guidelines on Perimeter Markers and Raptor Protection on Power Lines - Exhibit 1.) Utah Power and Light responded that it is their standard procedure to adhere to raptor protection practices. A copy of the Utah Power and Light correspondence is attached. (See Exhibit 2.)

Swens Power Line

To meet the increased power demands of mining in the Southwest Reserves district, an overhead power line was extended from Eccles Canyon to Swens Canyon. The 3-phase, 46 kV, single pole power line, with compact construction is necessary to supply the power needs as mining moves southwest. Between permitting in 2016 and installation in 2020 the power line voltage was increased from 12.6 kV to 46 which required the easement to be increased from 15- to 50-feet. Figures 3.2.10-1 and 3.2.10-2 illustrate the pole configuration and use of the easement, respectively. Attempts to supply the power through the mine is not practical due to the voltage-drop associated with running an insulated cable for a significant distance. Running the power overland eliminates the voltage-drop problem. Installation of the power line will not affect the Stream Buffer Zone of Huntington Creek as installation of power poles will be greater than 100-feet from the stream. One exception will be with pole #2 that is located approximately 40-feet from the stream, however the pole will be hand-dug and set with a helicopter. Figure 3.2.10-3 illustrates the approximate pole locations and wire configuration through the Huntington drainage. Figure 3.2.10-4 illustrates the power line corridor, ~~and~~ approximate pole locations, and construction method. ~~Access from the east will be from Trough Springs Road utilizing the designated easement. Pole locations prohibiting D6 CAT access will likely use a helicopter for installation.~~ Pole installation will be constructed with a combination of cross-country travel by tracked equipment, minor ancillary road building, and helicopter use. In addition to ancillary roads, temporary 10x20-foot level pads will be necessary at numerous pole locations for pole installation. Table 3.2.10-1delineates the construction activity for each pole location. Figure 3.2.10-5 illustrate both the pad and road design installations. Assuming the 12-foot road, road outslope, and topsoil storage is an approximately20-foot wide disturbance, the approximately 6900-feet of ancillary roads and pad will disturb approximately 3.2 acres which is already included in the disturbed area of the permit. With only a few exceptions (poles 22, 28-31), any level pole-pads will be incorporated into the temporary ancillary road. Both the ancillary roads and pole-pads will be contemporaneously reclaimed following the power line installation. Figure 3.2.10-4 illustrates poles 3-7, 8-13, 14-17, 32-35, and 38-43 require ancillary roads; poles 22, and 28-31 anticipate needing only a pole-pad, and poles 44-52 will be installed using helicopter with the holes dug by hand. All other installation will be accessed without blading disturbance using tracked equipment. Attachment 3.2-B (located at the end of Section 2.3) provides electrical contractor pole installation drawings which may be used to establish line gradients. Throughout 2020 extensive logging and associated skid-trails exist throughout the area of the power line corridor. Figures 3.2.10-6A through -6C illustrate logging activity from approximately poles 11 through 24 located west of Trough Springs road that Skyline is not responsible to reclaim. Logging skid-trails east of Trough Springs road, parallel the power line corridor without intersecting each other. Sediment control is illustrated on Figure 3.2.10-5, and addressed in Section 3.2.12 as ASCA area 43. Topsoil salvage and protection measures are addressed in Chapter 2 Section 2.11 and Chapter 4, Section 4.4. Revegetation is addressed in Chapter 4, Section 4.7.

Table 3.2.10-1	
Construction Type	Pole Number
Auxillary Road	3-7, 8-13, 14-17, 33-35, 38-43
10X20 Pad/Cross Country travel	22, 28-31
Cross Country Travel Only	13-14, 17-21, 23-27, 32-33, 35-38
Helicopter	2, 43-52

3.2.11 South Fork Breakout Area

The Upper O'Connor seam required a breakout to improve ventilation. The breakout is on a south facing slope in a side canyon of the South Fork of Eccles Creek (see map 3.2.11-1).

Access to the breakout area is via an existing road up the South Fork of Eccles Creek to the Manti-LaSal National Forest boundary. From the Forest boundary on, the road had been water barred and was reopened. Where the road leaves the main South Fork tributary, it crosses two side drainages. Temporary 18" culverts were installed in these drainages during the construction period. The Forest Service road then continues up the side drainage. Approximately 600 feet up the side drainage a new ancillary life of project road was constructed for a distance of 75' across the drainage to the breakout area (see map 3.2.11-1). During installation of the culverts silt fence and/or straw bales, dikes were placed downstream to control sediment in the stream.

Area 39. This 1.01 acre area addresses both the undisturbed area between the upper undisturbed ditch (UDW-4 from Earth Fax report) and the primary portion of the WQVF access road (DW-5 from Earth Fax report). Sediment from the area is controlled by a catch basin that incorporates a wattle to trap sediment prior entering a culvert taking water under the road (Plate 3.2.4-3A). The ditch has been widened in the vicinity of catch basin to accommodate the installation of the wattles. The outfall of the culvert, although not having a erosive velocity, is armored with riprap to further reduce any sediment loading.

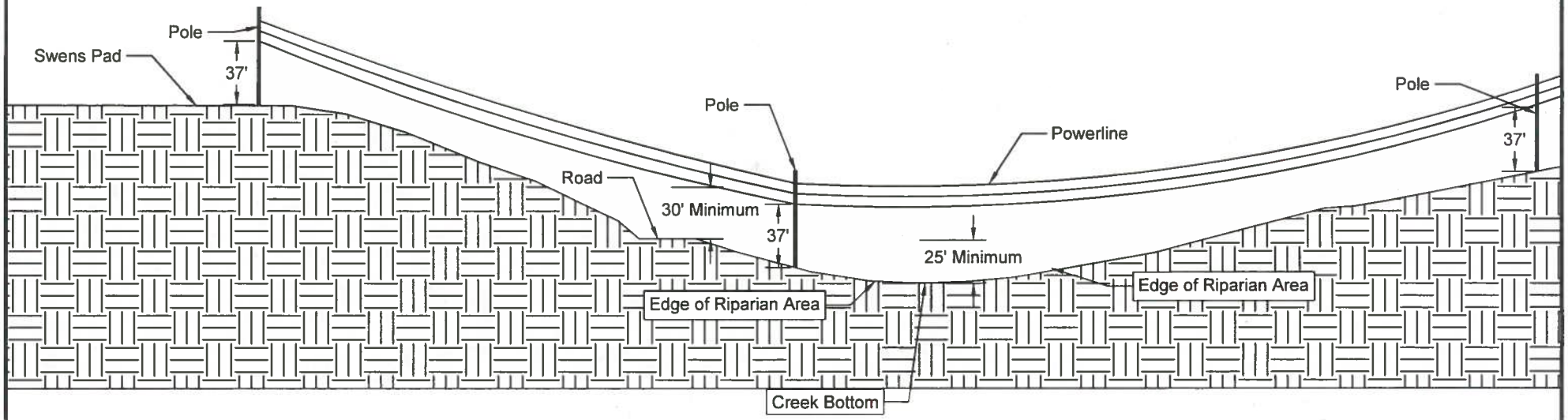
Area 40: The Swens Canyon Ventilation Facility pad is an area that addresses both a small undisturbed area (UW3) and the pad (DW3) totaling 1.5 acres (Plate 3.2.4-4D). Storm water runoff and sediment from the area flows to the east-southeast area of the pad. Water and sediment reaching the east side of the pad will either be treated by a silt fence or directed to the south portion of the pad using a berm. Water and sediment reaching the south end of the pad is controlled by a swale and small catch basin located at the southern portion of the pad. At that location, the small amount of water will collect to a maximum depth of 1.28-inches and eventually evaporate. The maximum design velocity is 1.02 ft/sec which is not considered erosive. See Attachement A of Earthfax Swens Canyon Design Report in Appendix Volume 5, Engineering Calculations, Section 24 for details.

Area 41: The Swens Canyon Ventilation Facility Topsoil Pile is designed to safely retain runoff from a 100-year, 24-hour storm event (176 cu-yds.) and one year of predicted sediment yield (195 cu-yds.) Topsoil will be collected/contained in the sediment basin and will either be retained in-place or re-deposited on the pile. Once vegetation is established on the Topsoil Pile, the sediment yield will be significantly reduced. Plate 3.2.4-4D illustrates the area.

Area 42: Attachment 4.17-1 of Section 4.17 Subsidence Control Plan, Chapter 4 of this M&RP contains the Boulger Dam Subsidence Monitoring Plan. The plan includes six (6) Seismic sites (A-F) shown of Figure 1-1 of Attachment 4.17-1. The sites are approximately 0.01-acres in size. Sediment is controlled by existing vegetation as the sites were located on level ground with minimal disturbance during installation.

Area 43: The Swens power line corridor is approximately 3.05 miles long by 50-feet wide extending from the Mine site to the Swens Canyon Vent Facility. ~~Construction was conducted using primarily D6 CAT tracked dozer and rubber-tired vehicles.~~ Installation of the power line was constructed with a combination of cross-country travel by tracked equipment, minor ancillary road building, and helicopter use. Ancillary roads and pads used for pole installation disturbed approximately3.2 acres extending approximately 6,900 feet. The areas were contemporaneously reclaimed following construction using extreme roughening or pocking of the surface. Figure 3.2.10-4 and -5 illustrate the type and location of disturbance. No other blading of trails ~~is anticipated~~was outlined but soil protection is outlined in Section 4.4.2. ~~Based on USFS personnel request, trees removed during clearing of the power line corridor will be placed back on the corridor perpendicular to the slope for both sediment protection and to minimize ATV travel.~~ The combination of extreme roughening and returning to the approximate original contour (AOC) will prohibit ATV travel. Figure 3.2.10-4 illustrates the entire power line corridor as ASCA Area 43.

On all areas not reporting to a sediment pond, and classified as Alternate Sediment Control Areas, the alternate sediment control measure such as straw bales, silt fences, catch basins, excelsior mats, etc. will be maintained until there is adequate vegetative cover to properly filter any surface runoff (see Sec. 20, Vol. 5 for design). When this can be demonstrated, the alternate control measures will be removed and the area reclassified as an "Exempt area". (See Sec. 21, Vol. 5 for Demonstrations) On all areas classified as Exempt Areas, if they should become redisturbed they will be reclassified as ASCA areas and will have the runoff treated with a designed treatment.



DATE	#	REVISIONS	DR. / CHKD.
10/2/2020	1	Changed Pole locations	TE / GG

Swens Canyon Powerline
Road and Creek Crossing
Approximate Representation

Canyon Fuel Company, LLC
Skyline Mines

HCR 35 BOX 380, HELPER, UT, 84526 435-448-2832	DATE: 7/6/20	CK.BY: GGalecki	REVISION: 1
CAD FILE:	SCALE: NTS	DR.BY: TEarl	10/20/20
DWG. NO.: 3.2.10-3			

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Bonding Calculations

Direct Costs

Subtotal Demolition and Removal	$1,938,577	
Subtotal Backfilling and Grading	$1,502,725	
Subtotal Revegetation	$478,114	
Direct Costs Subtotal	$3,919,417	

Indirect Costs

Mob/Demob	$391,942	10.0%
Contingency	$195,971	5.0%
Engineering Redesign	$97,985	2.5%
Main Office Expense	$266,520	6.8%
Project Management Fee	$97,985	2.5%
Subtotal Indirect Costs	$1,050,403	26.8%

Total Cost 2019	**$4,969,820**	
Escalation factor		*5*
Number of years		*0.0232*
Escalation	*$576,499*	
Reclamation Cost Escalated	$5,546,319	
Reclamation Bond Amount (rounded to nearest $1,000) 2019 Dollars	**$5,546,000**	
Posted Bond March 18, 2015	$5,799,000	
Difference Between Cost Estimate and Bond	$253,000	
Percent Difference	4.36%	

Errors in permittee's total sheet: indirect should be updated, escalation should be held constant at $479,715, TOTAL rec bond amount in 2019 $5,455,000

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Portal 01															70928
Water Tank 02															12835
Lower Terrace 03															487.3
Middle Bench 04															258768
Upper Bench West Fork 05															137340
Southwest Fork 06															7750
Loadout Faclities 07															187522
South Fork Portal Area 08															71822
Waste Rock Disposal 09															399159
Pond Enlargement Interim 10															17
Pond Diversion DU2 Interim 11															449
Interim Sediment Control 12															5192
Overland Conveyor 13															1812
James Canyon 14															0
Winter Quarters 15															159928
North of Groben Bleeder Shaft 16	REMOVED FROM PERMIT														
Swens Canyon Ventilation Facility 17															188716
Total															1502725

Notes: Revised operator wages 6/21/16

Swens Canyon Ventilation Facility 17	Reference Page	Reference Year	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Sealing Shaft 16ft D																	
(+) 6 inch rock			$ 7.50				$ 15.81	1	$ 23.31	CY	226	CY			226	CY	5269
2 inch - 4inch Rock			$ 13.50				$ 15.81	1	$ 29.31	CY	76	CY			76	CY	2228
Gravel			$ 13.50				$ 15.81	1	$ 29.31	CY	38	CY			38	CY	1114
Sand			$ 22.50				$ 15.81	1	$ 38.31	CY	38	CY			38	CY	1456
Bentonite			$ 22.00				$ 15.81	1	$ 37.81	CY	74	CY			74	CY	2798
Concrete			$ 117.00				$ 5.00	1	$ 122.00	CY	37	CY			37	CY	4514
Pit Run or Reject fill							$ 15.81		$ 15.81		7100	CY			7100		112269
General fill by dozer	31 23 23.17 0320								1.87	CY	7589	CY			7589	HR	14191
Subtotal																	143839
Subtotal																	
Power Line Ancillary Road and Pads																	
CAT 345BL II	(10-23)	(1st14	17095	113.1	0.1	55.4	292.97	1	292.97	HR					18	HR	5273
Pickup Truck Crew 4x4 1 ton	(20-17)	(1st14	1105	15.55	0.1	41.95	83.28	1	83.28	HR					22	HR	1832
CLAB							62.1	1.5	54.98	HR					22	HR	1210
Foreman Average, Outside							84.25	1	76.35	HR					22	HR	1680
Subtotal																	9995
Backfilling and grading																	
CAT 345BL II	(10-23)	(1st14	17095	113.1	0.1	55.4	292.97	1	292.97	HR					12	HR	3516
D8R Series II	(9-54)	(1st14	19000	352.27	0.1	55.4	642.97	1	642.97	HR					16	HR	10288
Pickup Truck Crew 4x4 1 ton	(20-17)	(1st14	1105	15.55	0.1	41.95	83.28	1	83.28	HR					20	HR	1666
CLAB							62.1	1.5	54.98	HR					20	HR	1100
Foreman Average, Outside							84.25	1	76.35	HR					20	HR	1527
Subtotal																	18097
Topsoil																	
D8R Series II	(9-54)	(1st14	19000	352.27	0.1	55.4	642.97	1	642.97	HR					20	HR	12859
Pickup Truck Crew 4x4 1 ton	(20-17)	(1st14	1105	15.55	0.1	41.95	83.28	1	83.28	HR					20	HR	1666
CLAB							62.1	1	36.65	HR					20	HR	733
Foreman Average, Outside							84.25	1	76.35	HR					20	HR	1527
Subtotal																	16785
TOTAL																	188716

Ref.	Description	Materials	Means Reference Number	Unit Cost	O&P	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Hours	Unit	Quantity Factor	Unit	Cost
1	**South Facing Slopes 1H:3H or Greater**																			
	Seeding	South Facing Slope Seed 1H : 3H or gentler	Table 4.7-1	300.15		/AC					39.81						AC	39.81	AC	11,949
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					39.81						AC	1734	MSF	71,966
		Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					39.81						AC	39.81	AC	11,505
	Subtotal																			95,420
2	**North Facing Slopes**																			
	Seeding	North Facing Slopes Seed	Table 4.7-2	267.02		/AC					20.33						AC	20.33	AC	5,429
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					20.33						AC	886	MSF	36,751
		Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					20.33						AC	20.33	AC	5,875
	Subtotal																			48,055
3	**Riparian Habitat**																			
	Seeding	Riparian Habitat Seed	Table 4.7-3	68.26		/AC					0.04						AC	0.04	AC	3
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					0.04						AC	2	MSF	72
		Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					0.04						AC	0.04	AC	12
	Subtotal																			87
4	**Soth to West Facing Slopes**																			
	Seeding	South to West Facing Riparian Habitat Seed	Table 4.7-4	450.73		/AC					39.81						AC	39.81	AC	17,943
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					39.81						AC	1734	MSF	71,966
		Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					39.81						AC	39.81	AC	11,505
	Subtotal																			101,415
5	**North to East Facing Slopes**																			
	Seeding	North to East Facing Riparian Habitat Seed	Table 4.7-5	343.31		/AC					20.33						AC	20.33	AC	6,980
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					20.33						AC	886	MSF	36,751
		Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					20.33						AC	20.33	AC	5,875
	Subtotal																			49,606
6	**Waste Rock**																			
	Seeding	Waste Rock Slopes Seed	Table 4.7-6A	136.52		/AC					12.81						AC	12.81	AC	1,749
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					12.81						AC	558	MSF	23,157
		Fertilizer Hydro Spread		289.00		/AC					12.81							12.81	AC	3,702
	Subtotal																			28,608
7	**James Canyon**																			
	Seeding	Waste Rock Slopes Seed	Table 4.7-6A	136.52		/AC					4.85						AC	4.85	AC	662
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					4.85						AC	211	MSF	8,768
		Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					4.85						AC	4.85	AC	1,402
	Subtotal																			10,831
8	**Riparian Stem Supplement**																			
	Stems	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		Ea										9800	Ea	18718	EA	35,751
	Subtotal																			35,751
9	**Silt Fence Interim Vegetation**																			
	Stems	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		Ea	20000										ea	20000	EA	38,200
	Subtotal																			38,200
10	**Reveg Loadout Sediment Pond**																			
	Seeding	Riparian Habitat Seed	Table 4.7-3	68.26		/AC					0.3						AC	0.3	/AC	20
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					0.3						AC	13	MSF	542
		Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					0.3						AC	0.3	/AC	87
	Subtotal																			650
11	**Winter Quarters Ventilation Facility Bond**																			
	South facing slopes																			
	Seeding	Final Reveg Seed Mix Rip Commun Win Qu Ven Fac	Table 4.7-9B	1007.86		/AC					2.36						AC	2.36	/AC	2,379
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					2.36						AC	103	/MSF	4,266
		Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					2.36						AC	2.36	/AC	682
	Quaking Aspen	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		ea					2.36			400			ea	400	ea	764
	Blue Elderberry	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		ea					2.36			400			ea	400	ea	764
	Subtotal																			8,855
12	**North of Graben Bleeder Shaft**	THIS SITE WAS NEVER BUILT																		
	REVEGETATION																			
	NOG																			
	South facing slopes																			
	Seeding	South facing slope seed mix	Table 4.7-10B	209.80		/AC					1.7						AC	1.7	/AC	
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					1.7						AC	74	/MSF	
	Tublings	Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					1.7						AC	1.7	/AC	
	Quaking Aspen	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		ea					1.7			200			ea	200	ea	
	red Elderberry	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		ea					1.7			20			ea	20	ea	
	Mountain Snowberry	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		EA					1.7			100			ea	100	ea	
	Subtotal																			
13	**Swens Canyon Ventilation Facility**																			
	South facing slopes																			
	Seeding	Final Reveg Sage/Grass Swens Can Ven Fac south facing slope seed m	Table 4.7-11B	287.10		/AC					6.33						AC	6.33	/AC	1,817
	Seeding	Power line contemporaneous reseeding following construction	Table 4.7-1	300.15		/AC											AC	1	AC	300
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					6.33						AC	276	/MSF	11,443
	Tublings	Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					6.33						AC	6.33	/AC	1,829
	Sagebrush	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		ea					6.33			400			ea	400	ea	764
	rabbitbrush	Bare root seedlings, 11" to 16" med. soil	32 93 43.10 0562	1.91		ea					6.33			400			ea	400	ea	764
	Subtotal																			16,918
14	Swens Canyon Power Line																			
		Power line contemporaneous reseeding following construction																		
	Seeding	South Facing Slope Seed 1H : 3H or gentler	Table 4.7-1	300.15		/AC					1.64						AC	1.64	AC	492
	Seeding	North Facing Slopes Seed *	Table 4.7-2	267.02		/AC					1.52						AC	1.52	AC	406
	Seeding	Final Reveg Sage/Grass Swens Can Ven Fac south facing slope seed m	Table 4.7-4	287.10		/AC					6.83						AC	6.83	/AC	1,961
	Seeding	North to East Facing Habitat Seed	Table 4.7-5	343.31		/AC					6.15						AC	6.15	AC	2,111
	Equipment	Hydro Spreader (equip. & labor) B-81/mulch & fertilizer	32 92 19.14 5800	41.50		/MSF					3.2						AC	139	/MSF	5,785
	Tublings	Fertilizer Hydro Spread	32 92 19.14 7025	289.00		/AC					3.2						AC	3.2	/AC	925
	Subtotal																			11,680
	25% of Initial Seeding																			32,038
	Subtotal																			32,038
	Total										147									475,114

* Hay material only: assume 2 tons/ac (1 to 2 tons recommended in The Practical Guide to Reclamation in Utah pp 112-113)
*2014 R.S. Means and 2014 Nevada SRCE use $0.15/lb ($300/ton)

Note: MRP Hay costs vary from line item. Varies other errors in cell calcs

Tree Plan 10 4

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4.4.2 Grading and Final Contour

All highwalls and cutslopes will be reclaimed using geotechnically stable fill slopes with surfaces that have been sufficiently roughened with deep gouging. The operational bench slopes will be graded back to the approximate original contour at a two horizontal to one vertical slope (2h:1v) or shallower upon abandonment, utilizing a bulldozer working along the slopes. A geotechnical analysis will be made of this slope at the time of reclamation and design adjustment made as necessary to insure slope stability. The sediment pond at the portal area will be removed during the initial reclamation phase.

The reclamation plan is shown on in maps 4.4.2-1A, 4.4.2-1AA. 4.4.2-1B. 4.4.2-1BA, 4.4.2-1B1 and 4.4.2-1AC. Costs and mass balance data associated with reclamation may be found in the Engineering Calculations, Volume 5.

Grading operations will be possible at the railroad load-out site which will be returned to the approximate original contour and shown on Maps 4.4.2-1C and 4.4.2-1D. Water Tank final reclamation contours are shown on Maps 4.4.2-1E and 4.4.2-1F. The waste rock disposal site final reclamation contours are shown on Map 4.16.1-1B.

The Winter Quarters Ventilation Facility grading and final contour plan will be similar to the sites listed above. Once excess material has been used in sealing the slope and shaft as outlined in Sections 4.1.2 and 4.9, any retaining walls, highwalls or cutslopes will be reclaimed using geotechnically stable fill slopes with the final surface being roughened with deep gouging. The pad will be graded back to the approximate original contour, unless the post-mining land use changes. The sedimentation pond will be removed once sufficient re-contouring of the pad has taken place. See Plates 4.4.2-3A and 4.4.2-3B for the reclaimed site configuration. Riprap from the outfall apron will be placed in the bottom of the pond prior to pond slopes being regraded.

The Swens Canyon Ventilation Facility will continue with the grading and contour plans listed above, using geotechnically stable fill slopes. Material generated during construction of the shafts and stored in the cuttings pond area, will be used as backfill for the shafts following the backfill designs located in Section 4.9 and Figure 4.9-B. The pad will be graded back to the approximate original contour. The small section of the USFS road that was rerouted for access to the pad will be re-established in its former location. Plates 4.4.2-4A and 4.4.2-4B illustrate the proposed final reclamation designs.

The power line was constructed with a combination of cross-country travel by tracked equipment, minor ancillary road building and helicopter. During installation, ancillary roads and 10x20-foot pads were needed. Where the soil was disturbed ~~of the power line, in the event small sections of blading or trail cuts take place,~~ topsoil will be salvaged, replaced, and roughened following construction. Salvaged topsoil will be contained with silt-fencing or other sediment control measure until replaced. Figures 3.2.10-4 and -5 illustrate the location, type of construction, protection of topsoil with silt fencing, and reclamation. ~~Pole locations prohibiting D6 CAT access will likely utilize a helicopter for installation~~. At final reclamation, poles will be exposed approximately 1-foot below ground-level, the pole felled, with the remaining pole buried. Portions of poles lying on the ground will not be recovered. Poles easily accessible from Trough Springs road will be salvaged for USFS personnel reuse.

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4.6.6 Winter Quarters Ventilation Facility Topsoil Redistribution

Topsoil redistribution will commence once removal of all facilities and modification of the pad site to achieve the approximate original contours (AOC) is completed. Distribution of the topsoil will take place immediately prior to re-vegetation activities to minimize erosion. Topsoil will be placed with a bulldozer or comparable machinery to approximate grade. Following topsoil placement to approximate grade, a trackhoe or comparable machinery will deep-gouge or roughen the surface prior to commencement of re-vegetation activities.

4.6.8 Swens Canyon Ventilation Facility Topsoil and subsoil Redistribution

As with previous sites, both subsoil and topsoil redistribution will commence once the shafts have been adequately backfilled, and the area of the pad site has been roughly re-graded, subsoil will be re-distributed to achieve approximate original contours (AOC). Prior to topsoil placement, any highly-compacted areas such as roads will be ripped prior to topsoil placement. Topsoil will then be placed with a bulldozer or comparable machinery to achieve approximate grade. Once topsoil is placed, a trackhoe or comparable machinery will deep-gouge or roughen the surface. Prior to commencement of re-vegetation activities, the topsoil will be analyzed for available nutrients nitrogen, phosphorus, and potassium per DOGM 2008 guidelines to evaluate whether any soil treatment is necessary. Following seed distribution, and any remedial soil treatments, topsoil and seed will be retained using a hydro-mulch, certified weed-free straw, erosion control blankets, a combination or other best technology currently available at the time. These procedures apply to both areas associated with the vent facility. ~~and any disturbance associated with the power line installation.~~

Installation of the power line was constructed with a combination of cross-country travel by tracked equipment, minor ancillary roads, and helicopter use. Details of the construction are detailed in Chapter 3, Section 3.2.10. Construction of ancillary roads and 10x20 foot pole-pads will have topsoil salvaged and stored, likely with a trackhoe, prior to leveling subsoil. Areas requiring topsoil salvage and redistribution total approximately 3.2 acres; for ancillary roads which are approximately 6,900 feet in length and 20-feet wide. The topsoil salvage and redistribution will be done contemporaneously following power line installation. Disturbed areas with steep slopes requiring switchbacks (i.e. pole location 41-43) will have a soil stabilizer incorporated into the reclamation. Once approximate original contours (AOC) are re-established and topsoil is in place, the area will have extremely roughened (pocked) and revegetated per seed mixes outlined in Section 4.7.

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4.7.9 Winter Quarters Ventilation Facility (WQVF)

Refer to both Section 2.7 and the Mt. Nebo Vegetation report located in Appendix A-2, Volume 2 for a discussion of the vegetation for the WQVF. The interim and final revegetation seed mixes for the WQVF area are listed in Tables 4.7-8A through 4.7-8C. Reclamation success standards are based on the reference area(s) identified in the Mt. Nebo report. Noxious plants invading the WQVF permit area will be controlled by hand-grubbing, and/or approved herbicides. Surveillance will be monitored annually during the liability period.

4.7.11 Swens Canyon Ventilation Facility (SCVF)

Refer to both Section 2.7 and the Mt. Nebo Vegetation report located in Appendix A-2, Volume 2 for a discussion of the vegetation for the SCVF. The interim and final revegetation seed mixes for the SCVF area are listed in Tables 4.7-11A, and 4.7-11B, respectively. Following topsoil and subsoil handling outlined in Section 4.6, seed distribution, and any remedial soil treatments, seed will be retained using a hydro-mulch, certified weed-free straw, erosion control blankets, a combination or other best technology currently available at the time. Reclamation standards are based on a combination of the reference area identified in the Mt. Nebo report, and the recommendations within the report. ~~Any reseeding necessary along the power line corridor will be done contemporaneously during construction and use seed mixes outlined in Tables 4.7-1, -4, or -5 depending on the directional aspect of the slope.~~ The area has been mapped as crucial summer range for deer and elk by the Utah Division of Wildlife Resources (DWR). Consequently, a pre-set woody species value of 2,500 plants per acre is currently proposed for a revegetation success standard at the proposed disturbed Sagebrush/Grass area. However, that may be re-evaluated at bond release if an increased percentage of forbs and grasses is determined more desirable for the post-mining land uses. A modification in the woody-species will be based on consultation with USFS, DWR, DOGM, and mine personnel. Noxious plants invading the SCVF permit area will be controlled by hand-grubbing, and/or approved herbicides. Surveillance will be monitored annually during the liability period.

Reseeding of areas along the power line corridor will be done immediately following installation using seed mixes outlined in Tables 4.7-1, -2, -4, or -5 depending on the directional aspect. The proposed seed mixes are as follows: pole locations 3 - 25 will use Table 4.7-4; poles 26-42 Table 4.7-5; poles 43-47 Table 4.7-2; and poles 48-52 Table 4.7-1. See Figure 3.2.10-4 for pole locations.

LOCATION MAP

CANYON FUEL COMPANY

46kV OVERHEAD TRANSMISSION LINE
SKYLINE MINE - SWENS CANYON

PRELIMINARY PLANNING

DWG No.	DRAWING TITLE
GENERAL	
E0.0	TITLE PAGE
E0.1	GENERAL NOTES AND ABBREVIATIONS
E0.2	ELECTRICAL SYMBOLS LEGEND
E0.3	46kV OVERHEAD TRANSMISSION LINE MATERIAL LIST
TRANSMISSION LINE PLANS	
E2.0	OVERHEAD TRANSMISSION LINE KEY MAP
E2.1	TRANSMISSION LINE POLE SCHEDULE
E2.2	OVERHEAD TRANSMISSION LINE PLAN & PROFILE
E2.3	OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)
E2.4	OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)
E2.5	OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)
E2.6	OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)
E2.7	OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)
E2.8	OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)
E2.9	OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)
E2.10	OVERHEAD TRANSMISSION LINE ROAD CROSSING DETAILS
46kV TRANSMISSION STRUCTURE DETAILS	
E3.0	TRANSMISSION LINE NOTES AND DETAILS
E3.1	46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P1 (SIDE POST - TANGENT)
E3.2	46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P2 (SIDE POST - TURNS UP TO 5°)
E3.3	46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P3 (SIDE POST - TURNS UP TO 5° - 15°)
E3.4	46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P4 (SIDE POST - TURNS UP TO 15° - 25°)
E3.5	46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P5 (SUSPENSION - TURNS UP TO 30° - 45°)
E3.6	46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P6 (DEAD-END)
E3.7	46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P7 (DOUBLE DEAD-END)
E3.10	TRANSMISSION LINE STRUCTURE MISC. DETAILS

⚠ - ATTENTION!

SCOPE OF WORK:

THIS PROJECT SCOPE COVERS THE DESIGN AND DRAWINGS NECESSARY TO FABRICATE AND CONSTRUCT THE 46kV OVERHEAD TRANSMISSION LINE

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PROJECT NO.: 21208		

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CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
TITLE PAGE

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GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (2017 NEC), ALL OTHER LOCAL AND STATE ELECTRICAL CODES AND NATIONAL FIRE PROTECTION ASSOCIATION RULES AND REGULATIONS, AND MSHA CFR TITLE 30.
2. EXISTING UTILITIES HAVE NOT BEEN VERIFIED BY BRUNO ENGINEERING. THE CONTRACTOR SHALL EXERCISE DUE CAUTION WHEN EXCAVATING. THE CONTRACTOR IS RESPONSIBLE TO REPAIR/REPLACE ANY UTILITY DAMAGED DURING CONSTRUCTION/EXCAVATING. COORDINATE WITH THE OWNER PRIOR TO EXCAVATION IN ANY AREA.
3. ALL BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
4. DISTANCES AND QUANTITIES SHOWN ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND MAKING THEIR OWN MATERIAL TAKE-OFFS. DISTANCES DO NOT ACCOUNT FOR MULTIPLE CIRCUITS BETWEEN THE SAME LOCATION, OR REQUIRED MAKE-UP DISTANCES.
5. PRIOR TO COVERING ANY BURIED CONDUITS OR PIPING THE CONTRACTOR SHALL SURVEY SUCH INSTALLATION AND PROVIDE SURVEYING DATA TO THE OWNER.

ABBREVIATIONS

A	AMMETER
AC	ALTERNATING CURRENT
A.C.	ABOVE COUNTER - VERIFY HEIGHT
ACB	AIR CIRCUIT BREAKER
AF	AMPERES FRAME SIZE
AFCI	ARC-FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISH FLOOR
AG	ABOVE COUNTER/GROUND FAULT INTERRUPTING
ALM	ALARM
AMP	AMPERE
ASA	AMERICAN STANDARDS ASSOCIATION
AT	AMPERES TRIP (CONTINUOUS)
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
AUTO	AUTOMATIC
AUX	AUXILIARY
BATT	BATTERY
BKR	BREAKER
BLDG	BUILDING
BOM	BILL OF MATERIALS
BTM	BOTTOM
BSHG	BUSHING
ZSM	BELT MISALIGNMENT SWITCH
C OR CAP	CAPACITOR
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CL	CENTER LINE
C OR COND	CONDUIT
CONT	CONTROL
CP	CONTROL PANEL
CR	CONTROL RELAY
IE	CURRENT TRANSFORMER
kcmil	CIRCULAR MILLS, THOUSANDS
DB	DUCT BANK
DC	DIRECT CURRENT
DIM	DIMENSION
DS	DISCONNECT SWITCH
DTL	DETAIL
DWN	DOWN
DWG	DRAWING
E	EXISTING TO REMAIN
EA	EACH
EF	EXHAUST FAN
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELL	ELBOW
EL	ELEVATION (HEIGHT)
ELEV	ELEVATION (VIEW)
EMERG	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
ER	EXISTING TO BE RELOCATED
EST	ESTIMATE
EX	EXISTING TO BE REMOVED
EXIST	EXISTING
EWC	ELECTRICAL WATER COOLER
F	FAHRENHEIT
FDR	FEEDER
FIG	FIGURE
FF OR FIN FLR	FINISH FLOOR
FG OR FIN GR	FINISH GRADE
FIX	FIXTURE
FLEX	FLEXIBLE
FREQ	FREQUENCY
FS	FLOW SWITCH
FT OR (')	FEET
FU	FUSE
FV	SOLENOID VALVE
FWD	FORWARD
GA	GAUGE
GALV	GALVANIZED
GS	GALVANIZED STEEL
GEN	GENERAL OR GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GM	GROUND MONITOR
GND	GROUND
GP	GENERAL PURPOSE
H-O-A	HAND-OFF-AUTO
HP	HORSE POWER
HS	PUSHBUTTON OR SELECTOR SWITCH
HT	HEAT TRACE
HTR	HEATER
HZ OR Hz	HERTZ
IE	CURRENT TRANSFORMER
IH	INSTA HOT
IN OR (")	INCH
INST	INSTANTANEOUS
IT	INSTANTANEOUS TRIP
J	JOG
JB	JUNCTION BOX
JS	JOG STOP
JY	MAIN CONTACTOR
kcmil	CIRCULAR MILLS, THOUSANDS
KV OR kV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVAR
KW	KILOWATT
KWH	KILOWATT HOUR
LA	LIGHTNING ARRESTER
LP	LIGHTING PANEL
LTG	LIGHTING
ZS( )	LIMIT SWITCH
M	SPRING CHARGING MOTOR
MAIN	MAIN CIRCUIT BREAKER
MAN	MANUAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MCR	MASTER CONTROL RELAY
MCS	MULTILIN CURRENT SENSOR
MG	MOTOR GENERATOR
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
MVA	MEGA VOLT-AMPERE
MW	MEGAWATTS
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEG	NEGATIVE
NEMA	NATIONAL ELEC. MFR'S. ASSOCIATION
NEUT	NEUTRAL
NO	NORMALLY OPEN
NO. OR #	NUMBER
NTS	NOT TO SCALE
OC	OVERCURRENT
OCB	OIL CIRCUIT BREAKER
OL	OVERLOAD
OS	OIL SWITCH
OV	OVERVOLTAGE
(P) OR (PART)	PARTIAL CIRCUIT USED IN MULTIPLE LOCATIONS
P	POLE
PF	POWER FACTOR
PH OR ϕ	PHASE
PMP	PROGRAMMABLE MOTOR PROTECTOR
POS	POSITIVE
PP	POWER PANEL OR POWER POLE
PR	PROTECTIVE RELAY
PS( )	PRESSURE SWITCH
HS	PUSHBOTTON
JB	PULL BOX (USE JUNCTION BOX)
QTY	QUANTITY
RVS	REDUCED VOLTAGE STARTER
SCH	SCHEDULE
SCHEM	SCHEMATIC
SPEC	SPECIFICATION
SR	SPRING RELEASE COIL (CLOSE CALL)
SS( )	SPEED SWITCH
ST1	SHUNT TRIP
STA	STATION
STD	STANDARD
SW	SWITCH
SUB	SUBSTATION
SWGR	SWITCHGEAR
FV	SOLENOID VALVE
HS	SELECTOR SWITCH
SWITCHES:	
SPSW	SINGLE POLE SWITCH
SPST	SINGLE POLE SINGLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPDT	DOUBLE POLE DOUBLE THROW
3PSW	TRIPLE POLE SWITCH
3PST	TRIPLE POLE SINGLE THROW
3PDT	TRIPLE POLE DOUBLE THROW
4PSW	FOUR POLE SWITCH
4PST	FOUR POLE SINGLE THROW
4PDT	FOUR POLE DOUBLE THROW
T OR XFMR	TRANSFORMER
TACH	TACHOMETER GENERATOR
TC	TRIP COIL
TD	TIME DELAY
TEFC	TOTALLY ENCLOSED FAN COOLED
TEL	TELEPHONE
TEMP	TEMPERATURE
TERM	TERMINAL
TOF	TIME DELAY OFF
TON	TIME DELAY ON
TTB	TELEPHONE TERMINAL BOARD
TYP	TYPICAL
UG OR U/G	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UV	UNDERVOLTAGE
V	VOLTMETER
VA	VOLTAMPERE
VFD	VARIABLE FREQUENCY DRIVE
VR	VOLTAGE RELAY
VSD	VARIABLE SPEED DRIVE
W	WATT METER
WG	WEATHER PROOF/GROUND FAULT INTERRUPTING
WH	WATTHOUR
WHM	WATTHOUR METER
WP	WEATHER PROOF
XFMR OR T	TRANSFORMER
Y	ANTI PUMP RELAY
ZS( )	LIMIT SWITCH
ZSM	BELT MISALIGNMENT SWITCH

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CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
GENERAL NOTES AND ABBREVIATIONS

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ADB	MVW	ADB	E0.1	A

FILENAME: 21208_E0.1_GEN_NOTES-ABBREV

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ELECTRICAL PLAN SYMBOLS

COMB. STARTER /DISCON. SWITCH	1 / E2.0	INDICATES DETAIL NUMBER; INDICATES DRAWING ON WHICH DETAIL APPEARS
NON-FUSED DISCON. SWITCH	A / E2.0	INDICATES SECTION NUMBER; INDICATES DRAWING ON WHICH SECTION APPEARS
EQUIPMENT FUSED DISCON. SWITCH	1	WORK PLAN I.D. NO. / EQUIP TAG
MAGNETIC CTLR (STARTER)	1	INDICATES ITEM NUMBER ON MATERIALS LIST
ELECT. PNLBOARD	10	INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST
TELEPHONE TERMINAL BOARD	1	INDICATES WIRE TAG
PB PULL BOX	2	INDICATES RACEWAY TAG
M METER	1	INDICATES ITEM NUMBER IN INSTALLATION NOTES & STRUCTURAL CALLOUTS
PC (F, L, S, N) PHOTOCELL	A	DELTA REVISION NOTE
CONDUIT CAP	1	INDICATES SHEET NOTE
CONDUIT CONTINUATION		DIRECT BURIED CONDUIT DUCTBANK
GUY WIRE AND ANCHOR		CONCRETE-ENCASED CONDUIT DUCT BANK

SINGLE-LINE DIAGRAM SYMBOLS

12.47kV, 3ϕ, 60Hz. AC POWER SUPPLY

A CIRCUIT BREAKER

FUSE

FUSED DISCONNECT

DISCONNECT SWITCH

STABS

CONDUCTORS RISE/FALL DOWN OVERHEAD POLE

CONDUCTORS ENTER/EXIT DUCTBANK OR RACEWAY

STRESS CONE

480V X FLA / 120/240V X FLA — LT — LIGHTING TRANSFORMER kVA, 3ϕ, 60Hz 480VΔ - 120 VAC POLE/PAD MOUNTED

12.47kV X FLA / 480V X FLA — DT — DISTRIBUTION TRANSFORMER 300kVA, 3ϕ, 60Hz 12.47kVΔ - 480 VAC POLE/PAD MOUNTED

LLF LONG LEAD FILTER

VFD VARIABLE FREQUENCY DRIVE

SS SOFT START (REDUCED VOLTAGE STARTER)

DNX:XX DEVICENET NETWORK:NODE

M SIZE X MOTOR STARTER CONTACTOR

MOTOR OVERLOAD HEATER

X VISUAL CIRCUIT BREAKER

FD POWER FUSED CUTOUT HOOK STICK OPERATED

N.C. FD FUSED DISCONNECT

CAPACITOR

NGR

MINE GROUND GRID — NGR — R

LA — L.A. (3) — X kV RATED XkV MCOV — LIGHTNING ARRESTOR

VR VOLTAGE REGULATOR

ATS AUTOMATIC TRANSFER SWITCH

X FLA — FLEX CONDUIT

X HP MTR — MOTOR

PP / LP POWER OR LIGHTING PANELBOARD

FEEDER ONLY

C.T. CURRENT TRANSFORMER

FS FUSED SWITCH

AIR-BREAK INTERRUPTER SWITCH GANG OPERATED

LINE ISOLATION SWITCH

M AIR-BREAK INTERRUPTER SWITCH MOTORIZED

CURRENT TRANSFORMER, SINGLE RATIO (WINDOW TYPE)

CURRENT TRANSFORMER w/ POLARITY MARKS (BUSHING TYPE)

TYPE 52 — RATING AT / SIZE AF — HIGH VOLTAGE AC CIRCUIT BREAKER
TYPE:
OCB = OIL CIRCUIT BREAKER
VCB = VACUUM CIRCUIT BREAKER
SF6 = SULFUR HEXAFLORIDE

TYPE 52 — RATING AT / SIZE AF — MEDIUM VOLTAGE AC CIRCUIT BREAKER
TYPE:
OCB = OIL CIRCUIT BREAKER
VCB = VACUUM CIRCUIT BREAKER
SF6 = SULFUR HEXAFLORIDE

TYPE — RESISTANCE GROUND
TYPE:
R = RESISTANCE
HR = HIGH RESISTANCE
X = REACTANCE
N = GROUND FAULT NEUTRALIZER

RATE AT / SIZE AF — CIRCUIT BREAKER DRAW-OUT TYPE

TRANSFER SWITCH GANG OPERATED
TYPE:
ATS - AUTOMATIC TRANSFER SWITCH
MTS - MANUAL TRANSFER SWITCH

GROUND

WHM WATT HOUR METER

WH DM WATTHOUR METER WITH 15 MINUTE DEMAND

A AMMETER

V VOLTMETER

AS AMMETER SWITCH

VS VOLTMETER SWITCH

DIGITAL LCD DISPLAY

BUS DUCT

VOLTAGE REGULATORS w/ BYPASS SWITCHES

LINE TYPES

EQUIPMENT ENCLOSURE / AREA DESIGNATION
EQUIPMENT / VENDOR WIRING
FIELD WIRING
SHIELD
TERMINAL JUMPER / BRIDGE
EXISTING 600V SECONDARY POWER FEEDER
NEW 600V SECONDARY POWER FEEDER
EXISTING
FUTURE
EXISTING HIGH VOLTAGE POWER FEEDER
NEW HIGH VOLTAGE POWER FEEDER
BUILDING MANUFACTURER WIRING
X — EXISTING SUBSTATION FENCE
X — X — NEW SUBSTATION FENCE
OHE — EXISTING OVERHEAD ELECTRIC LINE
OHE — NEW OVERHEAD ELECTRIC LINE
UGE — EXISTING UNDERGOUND ELECTRIC LINE
UGE — NEW UNDERGROUND ELECTRIC LINE
F/O — EXISTING FIBER OPTIC LINE
F/O — NEW FIBER OPTIC LINE
ETH — EXISTING ETHERNET CABLE
ETH — NEW ETHERNET CABLE
NEW / IN SCOPE OF WORK / FUTURE

PRELIMINARY PLANNING

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APPROVED FOR CONSTRUCTION		
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PROJECT NO.: 21208

Canyon Fuel Company, LLC
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CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
ELECTRICAL SYMBOLS LEGEND

ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: E0.2 | REV.: A
FILENAME: 21208_E0.2_ELEC_SYMB_LEGEND

Date & Time plotted: 8/6/2020 12:47:02 PM

LEGEND

INDICATES DETAIL NUMBER → 1
INDICATES DRAWING ON WHICH DETAIL APPEARS → E2.0

INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST → 1

SHEET NOTES:

1. CONSTRACTOR SHALL SUPPLY ALL PARTS AND MATERIAL TO INSTALL THE OVERHEAD TRANSMISSION LINES AS SPECIFIED.
2. FOR CONDUCTOR & CABLE SCHEDULE SEE DWG E3.0

46kV TRANSMISSION LINE MAJOR MATERIAL LIST

ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NO.	NOTES
1	39	INSULATOR, SUSPENSION, POLYMER, 138kV CLASS	NGK-LOCKE	251-SS410-YJ	OR EQUAL
3	0	SURGE ARRESTER, GE TRANQUELL, STATION CLASS, 48kV RATING, 39kV MCOV.	GENERAL ELECTRIC	9L11ZGA048S	NO SUBSTITUTE
8	12	DEAD-END ALUMINUM STRAIN CLAMP, BOLTED	ANDERSON	SD86C	NO SUBSTITUTE
13	AS REQ	MISCELLANEOUS POLE MOUNTING HARDWARE	AFL	-	OR EQUAL
14	AS REQ	MISCELLANEOUS POLE GUY AND ANCHOR HARDWARE	-	-	OR EQUAL
23	0	UNISTRUT SUPPORT	-	-	-
24	0	4" RGS CONDUIT	-	-	-
25	0	4" WEATHERHEAD	-	-	-
26	0	2" RGS CONDUIT	-	-	-
27	0	2" WEATHERHEAD	-	-	-
40	147	LINE POST INSULATOR, POLYMER, w/ HORIZONTAL TOP CLAMP, 138kV CLASS	NGK-LOCKE	L3-SN341-23	OR EQUAL
41	147	MOUNTING STUDS FOR LINE POST INSULATORS	HUBBELL	DF19M16	OR EQUAL
42	46	SHIELD WIRE SUPPORT BRACKET w/ BOLTED SUSPENSION CLAMP HARDWARE (w/ TROUGH BOLT)	HUBBELL	PSC2060822	OR EQUAL
44	AS REQ	GROUND BONDING CLIP	-	-	OR EQUAL
43	9	65', CLASS 2 WOOD POLE	-	-	OR EQUAL
45	23	70', CLASS 2 WOOD POLE	-	-	OR EQUAL
46	16	75', CLASS 2 WOOD POLE	-	-	OR EQUAL
47	4	80, CLASS 2 WOOD POLE	-	-	OR EQUAL

PRELIMINARY

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ISSUED FOR APPROVAL		
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APPROVED FOR CONSTRUCTION		
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PROJECT NO.: 21208		

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CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
46kV OVERHEAD TRANSMISSION LINE MATERIAL LIST

ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: **E0.3** | REV.: A
FILENAME: 21208_E0.3_TRANSM_LINE_MATLS_LIST_46kV

Date & Time plotted: 8/6/2020 12:47:11 PM

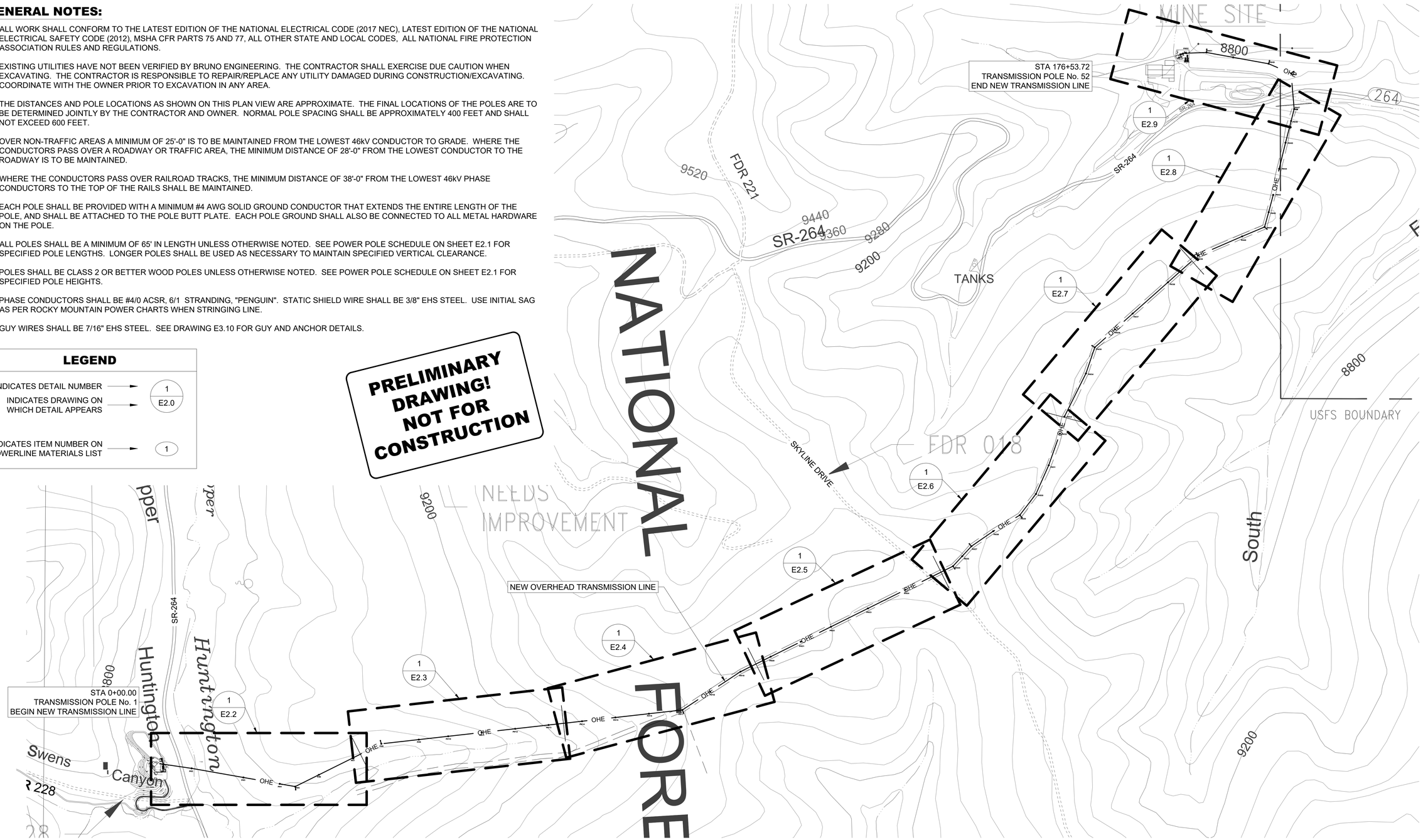
GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (2017 NEC), LATEST EDITION OF THE NATIONAL ELECTRICAL SAFETY CODE (2012), MSHA CFR PARTS 75 AND 77, ALL OTHER STATE AND LOCAL CODES, ALL NATIONAL FIRE PROTECTION ASSOCIATION RULES AND REGULATIONS.
2. EXISTING UTILITIES HAVE NOT BEEN VERIFIED BY BRUNO ENGINEERING. THE CONTRACTOR SHALL EXERCISE DUE CAUTION WHEN EXCAVATING. THE CONTRACTOR IS RESPONSIBLE TO REPAIR/REPLACE ANY UTILITY DAMAGED DURING CONSTRUCTION/EXCAVATING. COORDINATE WITH THE OWNER PRIOR TO EXCAVATION IN ANY AREA.
3. THE DISTANCES AND POLE LOCATIONS AS SHOWN ON THIS PLAN VIEW ARE APPROXIMATE. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED JOINTLY BY THE CONTRACTOR AND OWNER. NORMAL POLE SPACING SHALL BE APPROXIMATELY 400 FEET AND SHALL NOT EXCEED 600 FEET.
4. OVER NON-TRAFFIC AREAS A MINIMUM OF 25'-0" IS TO BE MAINTAINED FROM THE LOWEST 46kV CONDUCTOR TO GRADE. WHERE THE CONDUCTORS PASS OVER A ROADWAY OR TRAFFIC AREA, THE MINIMUM DISTANCE OF 28'-0" FROM THE LOWEST CONDUCTOR TO THE ROADWAY IS TO BE MAINTAINED.
5. WHERE THE CONDUCTORS PASS OVER RAILROAD TRACKS, THE MINIMUM DISTANCE OF 38'-0" FROM THE LOWEST 46kV PHASE CONDUCTORS TO THE TOP OF THE RAILS SHALL BE MAINTAINED.
6. EACH POLE SHALL BE PROVIDED WITH A MINIMUM #4 AWG SOLID GROUND CONDUCTOR THAT EXTENDS THE ENTIRE LENGTH OF THE POLE, AND SHALL BE ATTACHED TO THE POLE BUTT PLATE. EACH POLE GROUND SHALL ALSO BE CONNECTED TO ALL METAL HARDWARE ON THE POLE.
7. ALL POLES SHALL BE A MINIMUM OF 65' IN LENGTH UNLESS OTHERWISE NOTED. SEE POWER POLE SCHEDULE ON SHEET E2.1 FOR SPECIFIED POLE LENGTHS. LONGER POLES SHALL BE USED AS NECESSARY TO MAINTAIN SPECIFIED VERTICAL CLEARANCE.
8. POLES SHALL BE CLASS 2 OR BETTER WOOD POLES UNLESS OTHERWISE NOTED. SEE POWER POLE SCHEDULE ON SHEET E2.1 FOR SPECIFIED POLE HEIGHTS.
9. PHASE CONDUCTORS SHALL BE #4/0 ACSR, 6/1 STRANDING, "PENGUIN". STATIC SHIELD WIRE SHALL BE 3/8" EHS STEEL. USE INITIAL SAG AS PER ROCKY MOUNTAIN POWER CHARTS WHEN STRINGING LINE.
10. GUY WIRES SHALL BE 7/16" EHS STEEL. SEE DRAWING E3.10 FOR GUY AND ANCHOR DETAILS.

LEGEND

INDICATES DETAIL NUMBER / INDICATES DRAWING ON WHICH DETAIL APPEARS	1 / E2.0
INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST	1

PRELIMINARY DRAWING! NOT FOR CONSTRUCTION



1 / E2.0 OVERHEAD TRANSMISSION LINE KEY MAP
SCALE: 1" = 500'

NORTH

SCALE BAR
0 250' 500' 1000' 1500' 2000'
1" = 500'

PRELIMINARY

PLANNING

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REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK'D	APRV'D
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C					
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E					
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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

Canyon Fuel Company, LLC
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CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE KEY MAP

ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: E2.0 | REV.: A
FILENAME: 21208_E2.0_TRANSM_LINE_KEY_MAP

Date & Time plotted: 8/6/2020 12:47:26 PM

TRANSMISSION LINE POLE SCHEDULE

POLE NO.	POLE LENGTH (FT)	SETTING DEPTH (FT)	POLE DESIGN	REF. SHEET	POLE CLASS	POLE GROUND	NORTHING	EASTING	GROUND ELEV.
1	65'	8.5'	P6	E3.6	2	#4 AWG SOLID COPPER	484765.9264	2072105.3981	8682.86
2	75'	9.5'	P1	E3.1	2	#4 AWG SOLID COPPER	484719.7680	2072420.9630	8646.74
3	75'	9.5'	P1	E3.1	2	#4 AWG SOLID COPPER	484618.3199	2072997.4772	8737.78
4	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	484547.2002	2073401.6396	8801.03
5	70'	9.0'	P5	E3.5	2	#4 AWG SOLID COPPER	484516.8717	2073573.9915	8783.39
6	75'	9.5'	P1	E3.1	2	#4 AWG SOLID COPPER	484647.5692	2073837.0091	8830.78
7	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	484834.4702	2074213.1315	8865.39
8	70'	9.0'	P4	E3.4	2	#4 AWG SOLID COPPER	484993.2695	2074532.7018	8897.54
9	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	485040.2193	2074950.0694	8930.97
10	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	485077.0436	2075277.4247	8989.26
11	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	485118.9307	2075649.7811	9033.33
12	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	485160.8388	2076022.3352	9122.01
13	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	485202.7407	2076394.5091	9211.36
14	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	485244.5918	2076766.8705	9288.39
15	65'	8.5'	P1	E3.1	2	#4 AWG SOLID COPPER	485286.4788	2077139.2320	9357.70
16	65'	8.5'	P1	E3.1	2	#4 AWG SOLID COPPER	485328.3659	2077511.5935	9407.89
17	70'	9.0'	P5	E3.5	2	#4 AWG SOLID COPPER	485370.2500	2077883.9290	9509.00
18	75'	9.5'	P1	E3.1	2	#4 AWG SOLID COPPER	485573.8540	2078192.3380	9556.31
19	75'	9.5'	P3	E3.3	2	#4 AWG SOLID COPPER	485796.4480	2078530.2170	9600.00
20	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	485963.2894	2078866.0777	9600.00
21	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	486130.1308	2079201.8983	9600.00
22	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	486296.9721	2079537.7390	9600.00
23	65'	8.5'	P1	E3.1	2	#4 AWG SOLID COPPER	486501.6309	2079949.7036	9505.58
24	75'	9.5'	P1	E3.1	2	#4 AWG SOLID COPPER	486710.7388	2080370.6239	9547.35
25	70'	9.0'	P4	E3.4	2	#4 AWG SOLID COPPER	486971.8890	2080896.3020	9523.30
26	65'	8.5'	P1	E3.1	2	#4 AWG SOLID COPPER	487082.8845	2080998.9935	9520.54
27	75'	9.5'	P3	E3.3	2	#4 AWG SOLID COPPER	487193.8800	2081101.6850	9482.88
28	65'	8.5'	P2	E3.2	2	#4 AWG SOLID COPPER	487362.3170	2081345.0670	9418.19
29	80'	10.0'	P4	E3.4	2	#4 AWG SOLID COPPER	487540.5000	2081640.0690	9361.25
30	75'	9.5'	P3	E3.3	2	#4 AWG SOLID COPPER	487776.0990	2081819.8920	9353.08
31	70'	9.0'	P2	E3.2	2	#4 AWG SOLID COPPER	488096.0320	2081961.8177	9334.80
32	75'	9.5'	P2	E3.2	2	#4 AWG SOLID COPPER	488449.6485	2082086.6389	9290.89
33	75'	9.5'	P3	E3.3	2	#4 AWG SOLID COPPER	488639.2420	2082137.2330	9241.88
34	75'	9.5'	P3	E3.3	2	#4 AWG SOLID COPPER	489119.3020	2082376.2760	9171.15
35	80'	10.0'	P5	E3.5	2	#4 AWG SOLID COPPER	489408.9690	2082474.3040	9200.50

TRANSMISSION LINE POLE SCHEDULE

POLE NO.	POLE LENGTH (FT)	SETTING DEPTH (FT)	POLE DESIGN	REF. SHEET	POLE CLASS	POLE GROUND	NORTHING	EASTING	GROUND ELEV.
36	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	489608.8860	2082698.6960	9201.37
37	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	489786.0950	2082896.3490	9201.96
38	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	490134.5076	2083289.0750	9200.01
39	70'	9.0'	P4	E3.4	2	#4 AWG SOLID COPPER	490432.3400	2083623.3640	9120.01
40	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	490645.9710	2084114.9690	9106.76
41	75'	9.5'	P7	E3.7	2	#4 AWG SOLID COPPER	490750.6460	2084364.6820	9107.11
42	80'	10.0'	P7	E3.7	2	#4 AWG SOLID COPPER	490916.1130	2084410.8370	9120.30
43	65'	8.5'	P1	E3.1	2	#4 AWG SOLID COPPER	491108.7750	2084461.2430	9036.78
44	65'	8.5'	P1	E3.1	2	#4 AWG SOLID COPPER	491398.1440	2084527.1990	8934.35
45	65'	8.5'	P1	E3.1	2	#4 AWG SOLID COPPER	491689.8300	2084598.2120	8821.71
46	70'	9.0'	P1	E3.1	2	#4 AWG SOLID COPPER	491931.9874	2084660.3394	8727.62
47	70'	9.0'	P7	E3.7	2	#4 AWG SOLID COPPER	492063.8780	2084694.1770	8620.22
48	75'	9.5'	P7	E3.7	2	#4 AWG SOLID COPPER	492686.9012	20283491.0860	8663.23
49	75'	9.5'	P4	E3.4	2	#4 AWG SOLID COPPER	492694.8550	2083718.3870	8703.33
50	75'	9.5'	P1	E3.1	2	#4 AWG SOLID COPPER	492640.8485	2084015.6475	8731.47
51	80'	10.0'	P4	E3.4	2	#4 AWG SOLID COPPER	492569.3466	2084409.2050	8728.62
52	75'	9.5'	P6	E3.6	2	#4 AWG SOLID COPPER	492462.4594	2084660.5193	8686.61

PRELIMINARY DRAWING! NOT FOR CONSTRUCTION

PRELIMINARY

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NO.	DESCRIPTION	DATE	BY	CH'KD	APRV'D
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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/24/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.: 21208		

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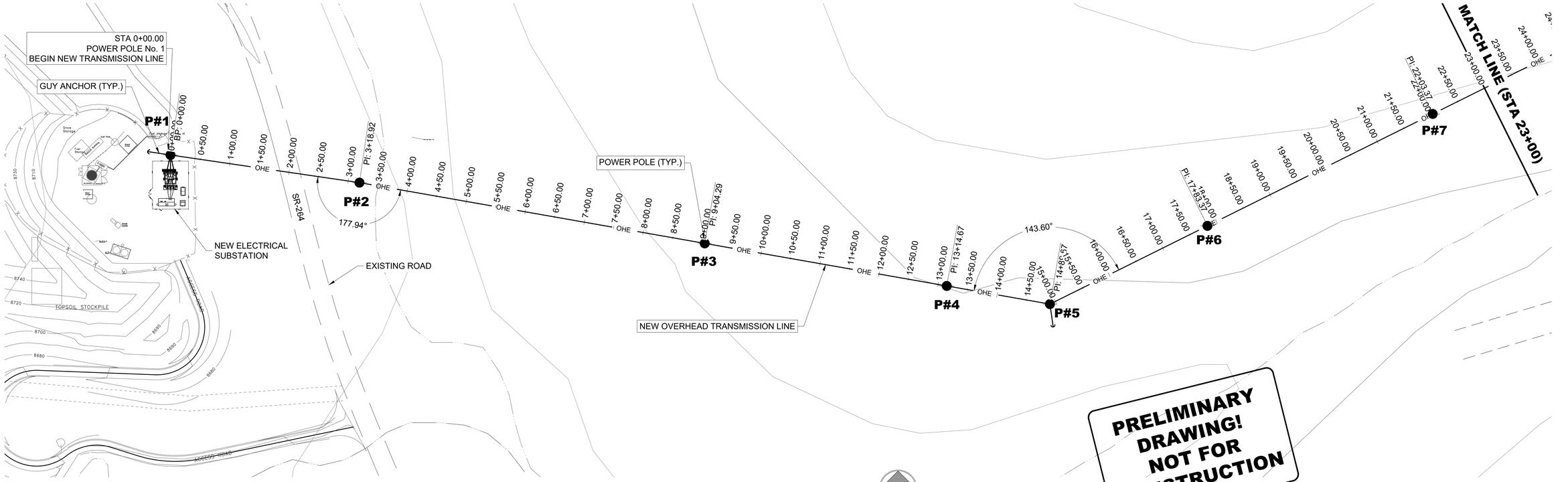
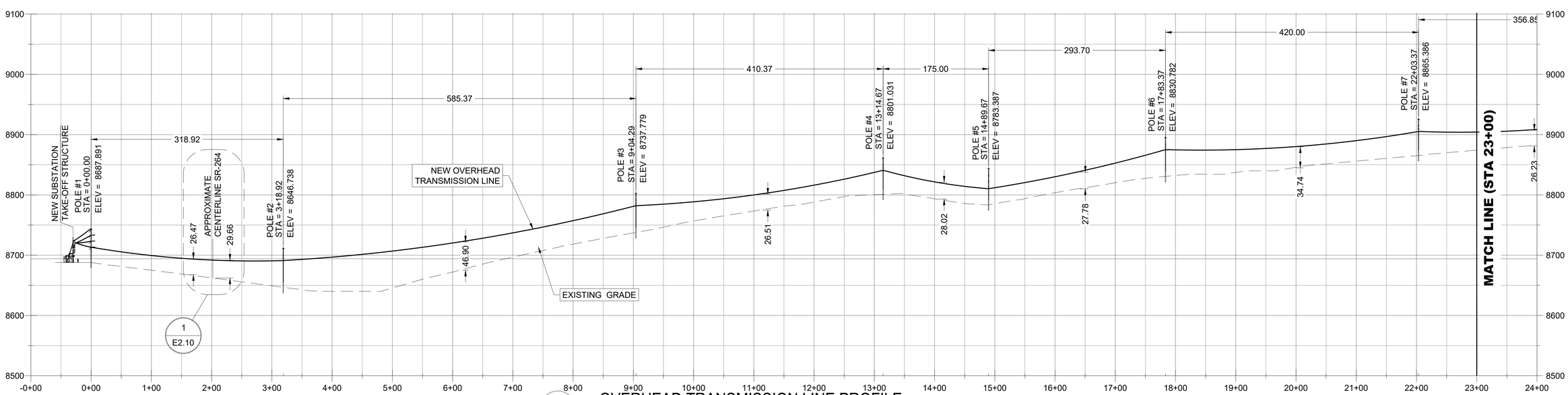
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
TRANSMISSION LINE POLE SCHEDULE

ENGR'D BY: ADB | DRAW'N BY: MVW | APRV'D BY: ADB | SHEET NO.: E2.1 | REV.: A
FILENAME: 21208_E2.1_TRANSM_LINE_SCHED

Date & Time plotted: 8/6/2020 12:47:32 PM



1 / E2.2 OVERHEAD TRANSMISSION LINE PLAN
SCALE: 1" = 80'



2 / E2.2 OVERHEAD TRANSMISSION LINE PROFILE
SCALE: 1" = 80' (HORIZONTAL & VERTICAL)

PRELIMINARY

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NO.	DESCRIPTION	DATE	BY	CHK'D	APRV'D
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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.: 21208		

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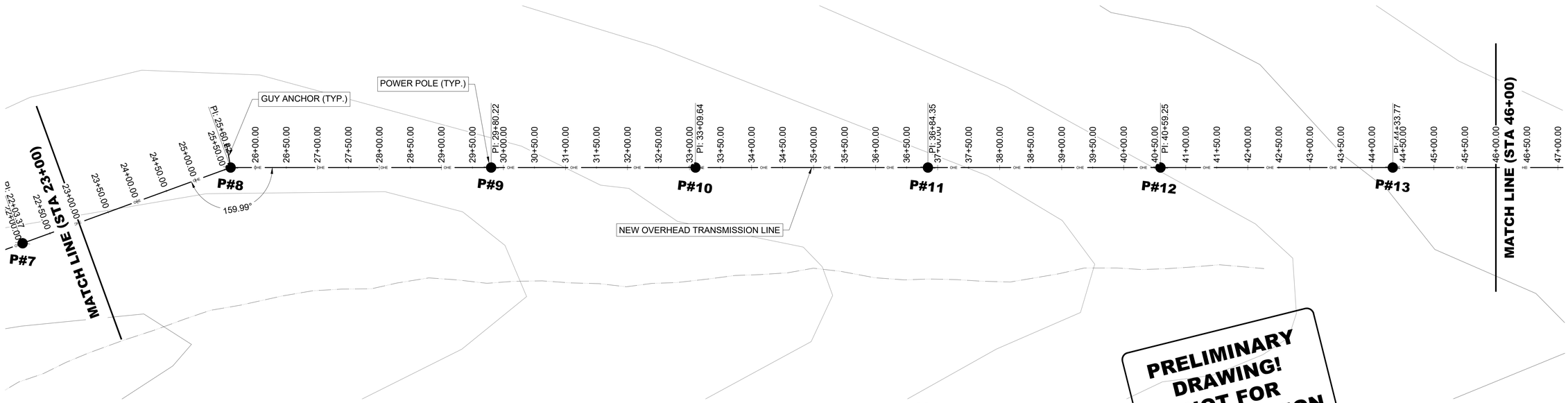
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE PLAN & PROFILE

ENGR'D BY: ADB	DRAWN BY: MVW	APRV'D BY: ADB	SHEET NO.: E2.2	REV.: A
FILENAME: 21208_E2.2_TRANSM_LINE_P&P				

Date & Time plotted: 8/6/2020 12:47:45 PM

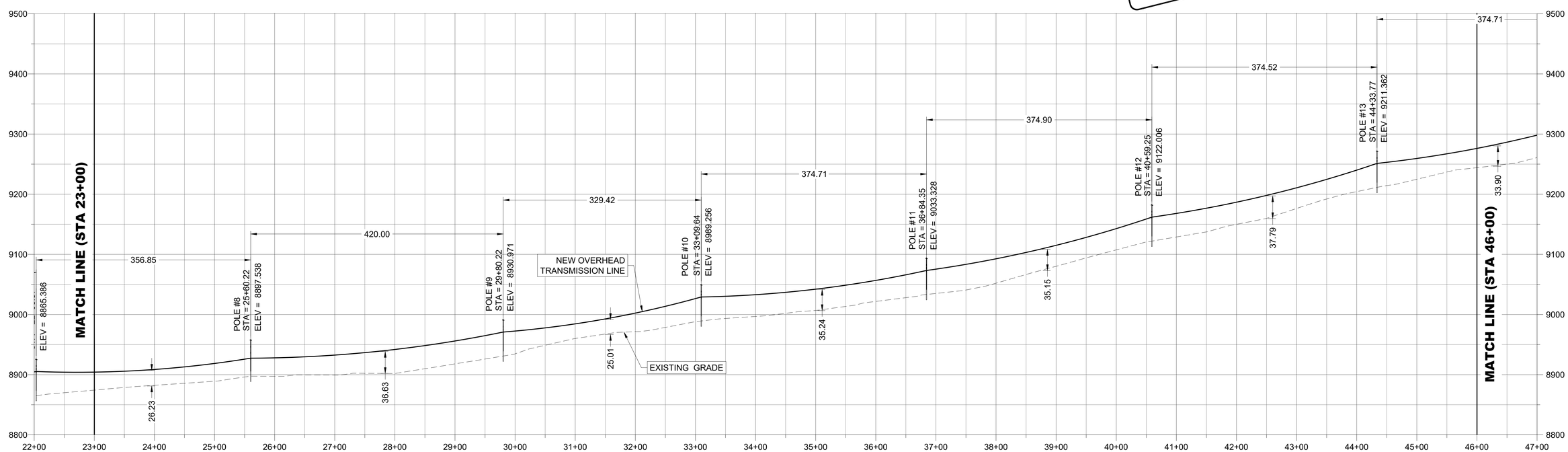


PRELIMINARY DRAWING! NOT FOR CONSTRUCTION

1 / E2.3 OVERHEAD TRANSMISSION LINE PLAN

SCALE: 1" = 80'

NORTH



2 / E2.3 OVERHEAD TRANSMISSION LINE PROFILE

SCALE: 1" = 80' (HORIZONTAL & VERTICAL)

PRELIMINARY

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
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APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

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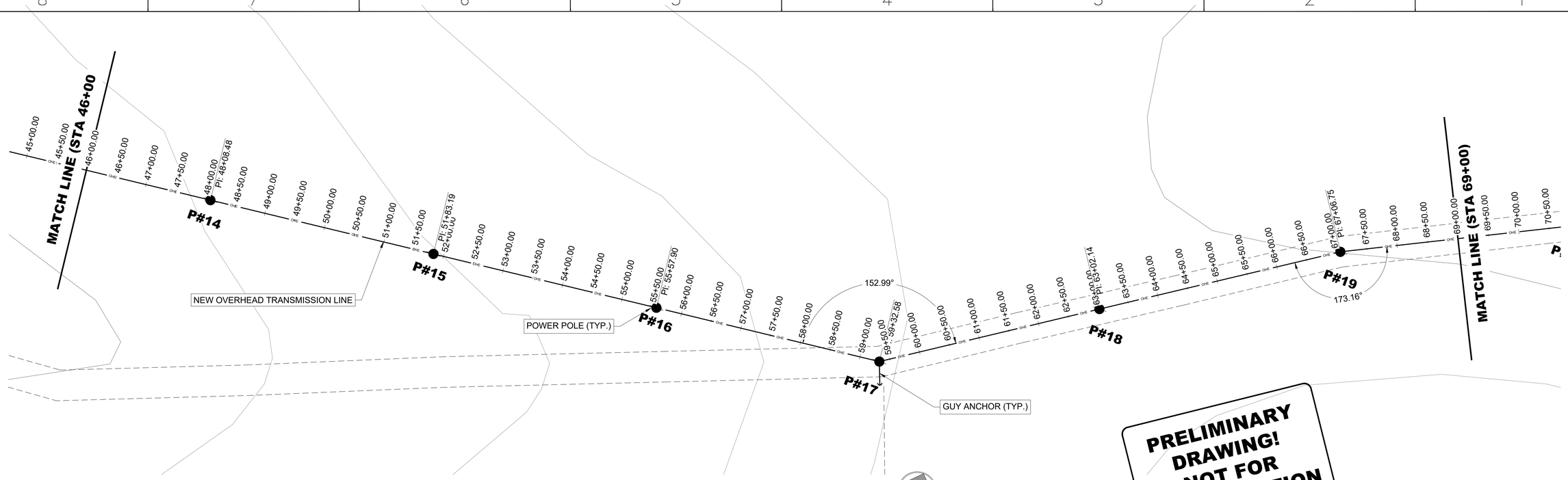
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)

ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: E2.3 | REV.: A

FILENAME: 21208_E2.3_TRANSM_LINE_P&P-CONT

Date & Time plotted: 8/6/2020 12:47:57 PM

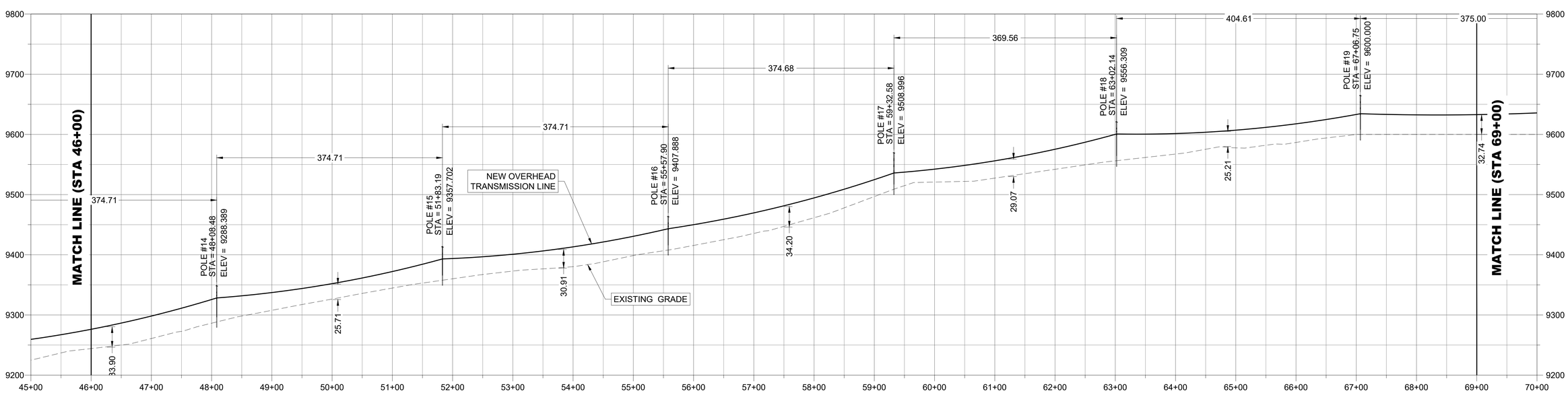


1
E2.4

OVERHEAD TRANSMISSION LINE PLAN

SCALE: 1" = 80'

PRELIMINARY DRAWING! NOT FOR CONSTRUCTION



2
E2.4

OVERHEAD TRANSMISSION LINE PROFILE

SCALE: 1" = 80' (HORIZONTAL & VERTICAL)

PRELIMINARY

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B					
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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.: 21208		

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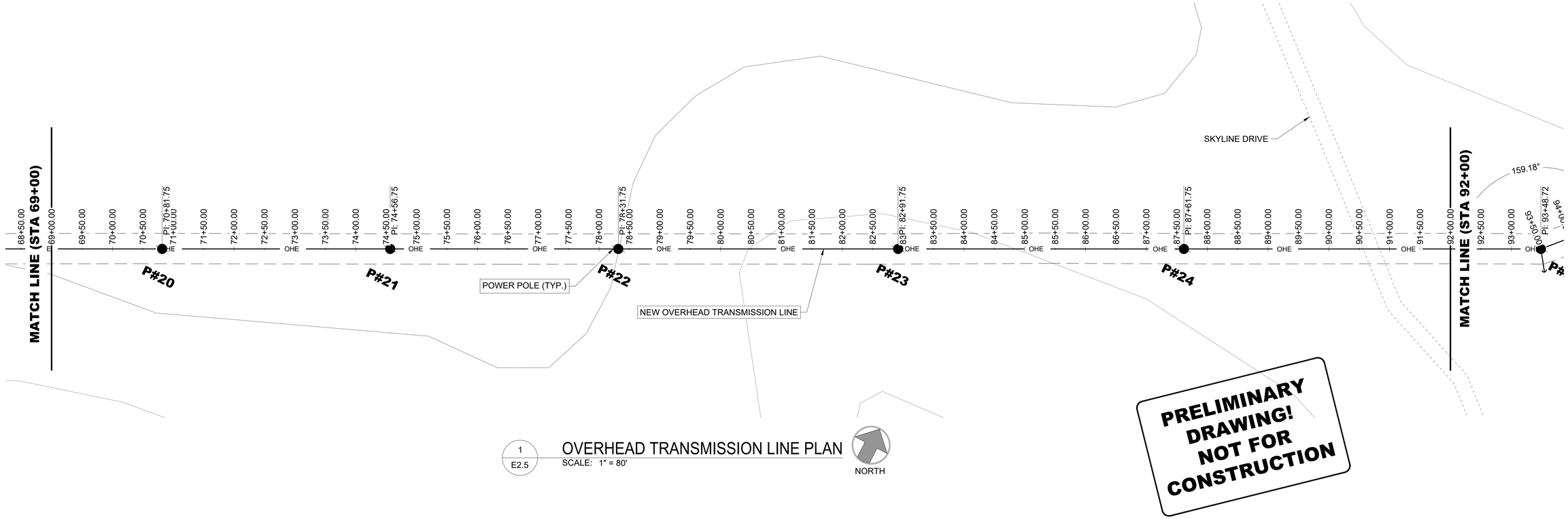
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)

ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV.:
ADB	MVW	ADB	E2.4	A

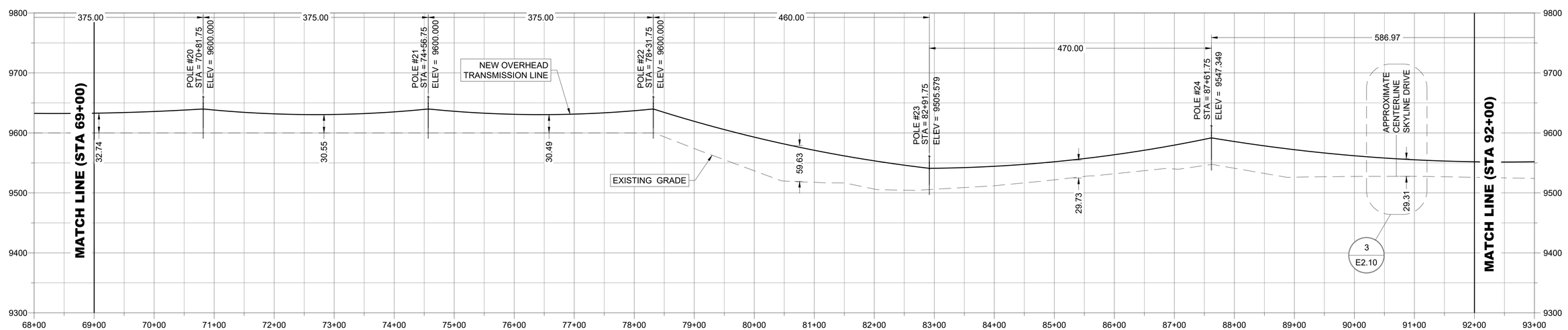
FILENAME: 21208_E2.4_TRANSM_LINE_P&P-CONT

Date & Time plotted: 8/6/2020 12:48:09 PM



1 / E2.5 OVERHEAD TRANSMISSION LINE PLAN
SCALE: 1" = 80'

PRELIMINARY DRAWING! NOT FOR CONSTRUCTION



2 / E2.5 OVERHEAD TRANSMISSION LINE PROFILE
SCALE: 1" = 80' (HORIZONTAL & VERTICAL)

PRELIMINARY

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REVISIONS

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

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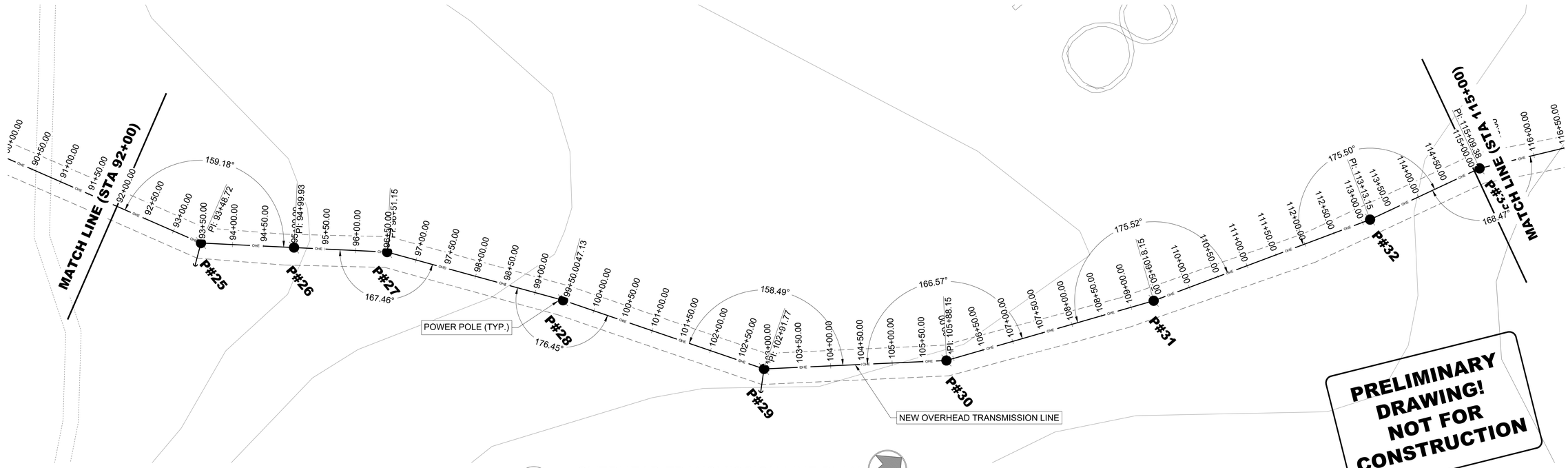
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)

ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV:
ADB	MVW	ADB	E2.5	A

FILENAME: 21208_E2.5_TRANSM_LINE_P&P-CONT

Date & Time plotted: 8/6/2020 12:48:22 PM

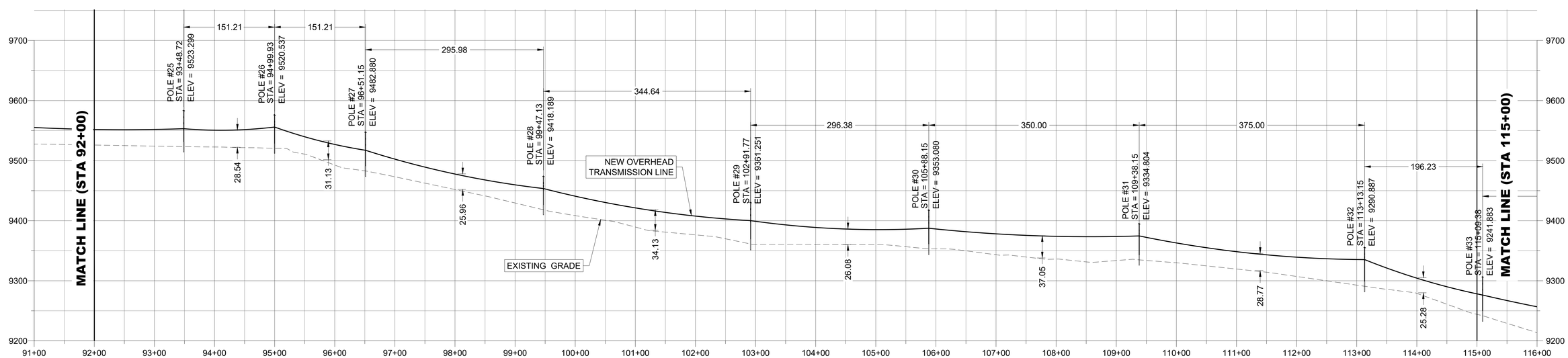


1
E2.6

OVERHEAD TRANSMISSION LINE PLAN

SCALE: 1" = 80'

NORTH



2
E2.6

OVERHEAD TRANSMISSION LINE PROFILE

SCALE: 1" = 80' (HORIZONTAL & VERTICAL)

PRELIMINARY

PLANNING

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.: 21208		

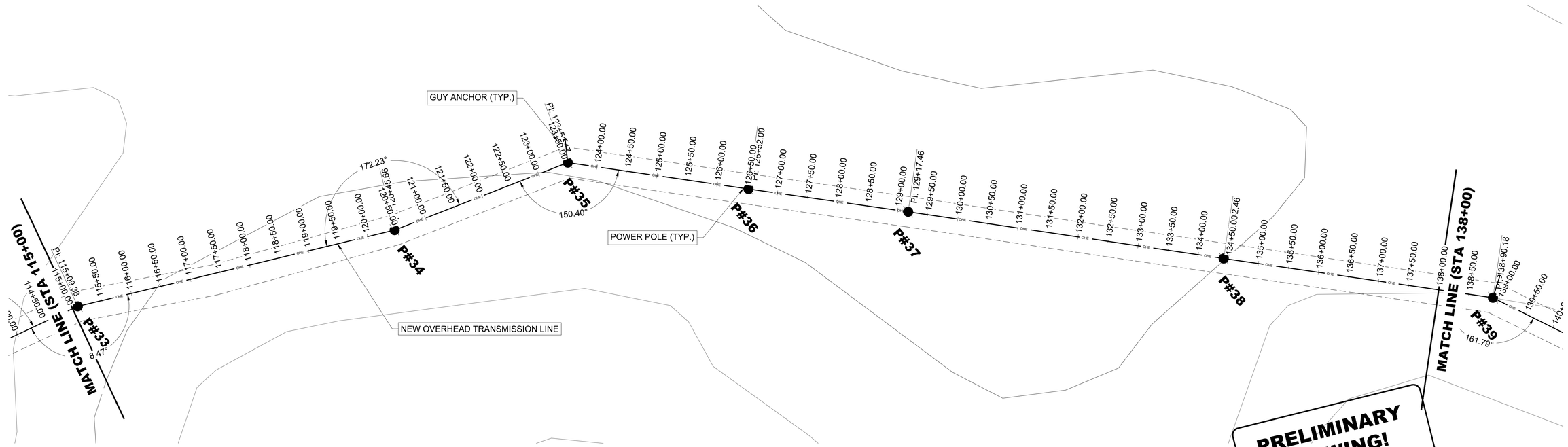
Canyon Fuel Company, LLC
Scofield, Utah

BRUNO ENGINEERING
90 EAST 1300 SOUTH
PRICE, UTAH 84501
PHONE: (435) 613-0700
EMAIL: info@brunoengineering.com

CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)

ENGR'D BY: ADB	DRAWN BY: MVW	APRV'D BY: ADB	SHEET NO.: E2.6	REV.: A
FILENAME: 21208_E2.6_TRANSM_LINE_P&P-CONT				

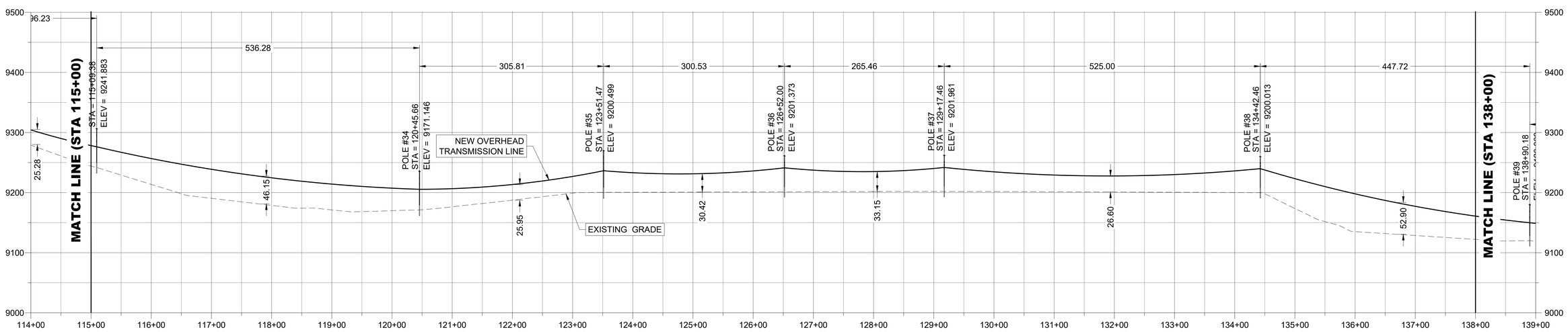
Date & Time plotted: 8/6/2020 12:48:37 PM



1 / E2.7 OVERHEAD TRANSMISSION LINE PLAN

SCALE: 1" = 80'

NORTH



2 / E2.7 OVERHEAD TRANSMISSION LINE PROFILE

SCALE: 1" = 80' (HORIZONTAL & VERTICAL)

PRELIMINARY

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PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
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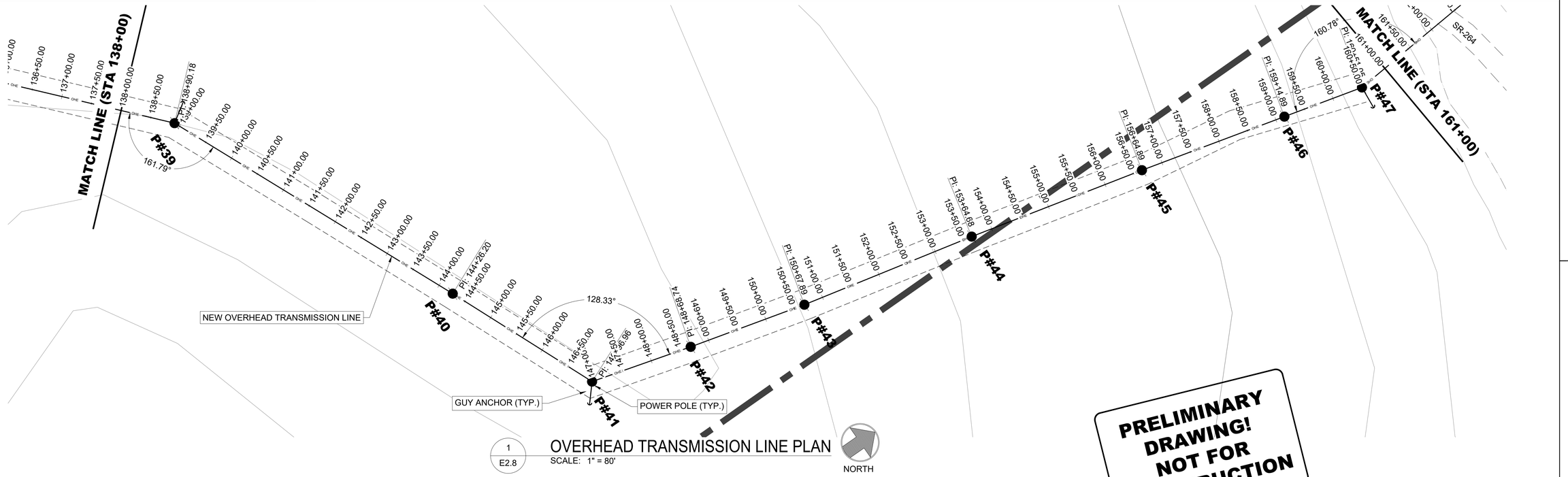
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)

ENG'RD BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB
FILENAME: 21208_E2.7_TRANSM_LINE_P&P-CONT
SHEET NO.: **E2.7**
REV: A

Date & Time plotted: 8/6/2020 12:48:50 PM

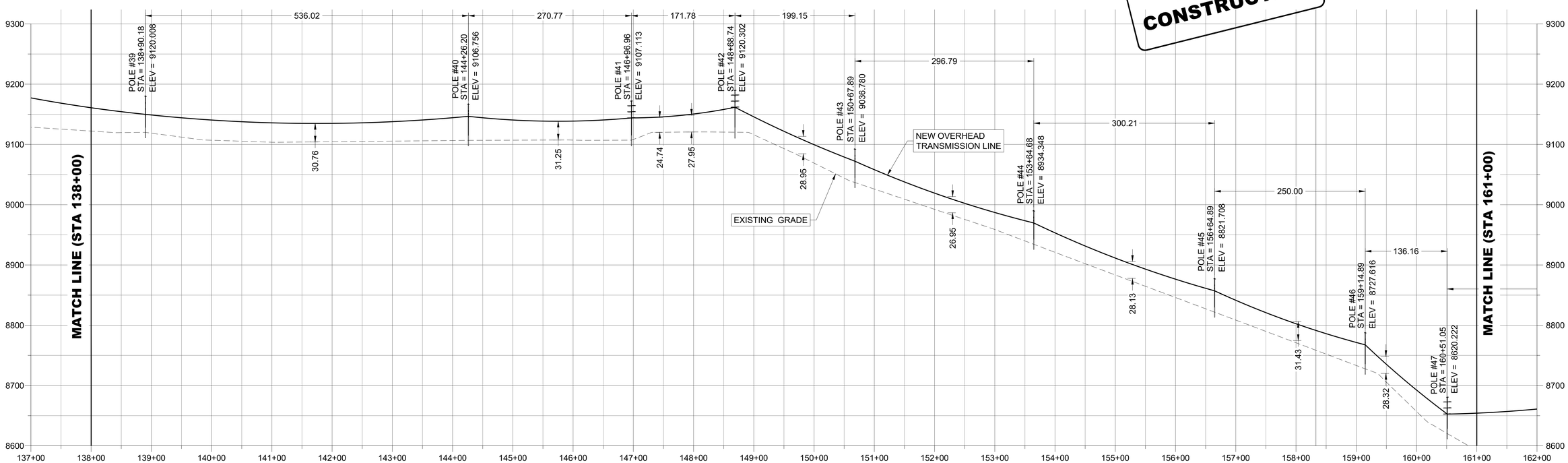


1
E2.8

OVERHEAD TRANSMISSION LINE PLAN

SCALE: 1" = 80'

PRELIMINARY DRAWING! NOT FOR CONSTRUCTION



2
E2.8

OVERHEAD TRANSMISSION LINE PROFILE

SCALE: 1" = 80' (HORIZONTAL & VERTICAL)

PRELIMINARY

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
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ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

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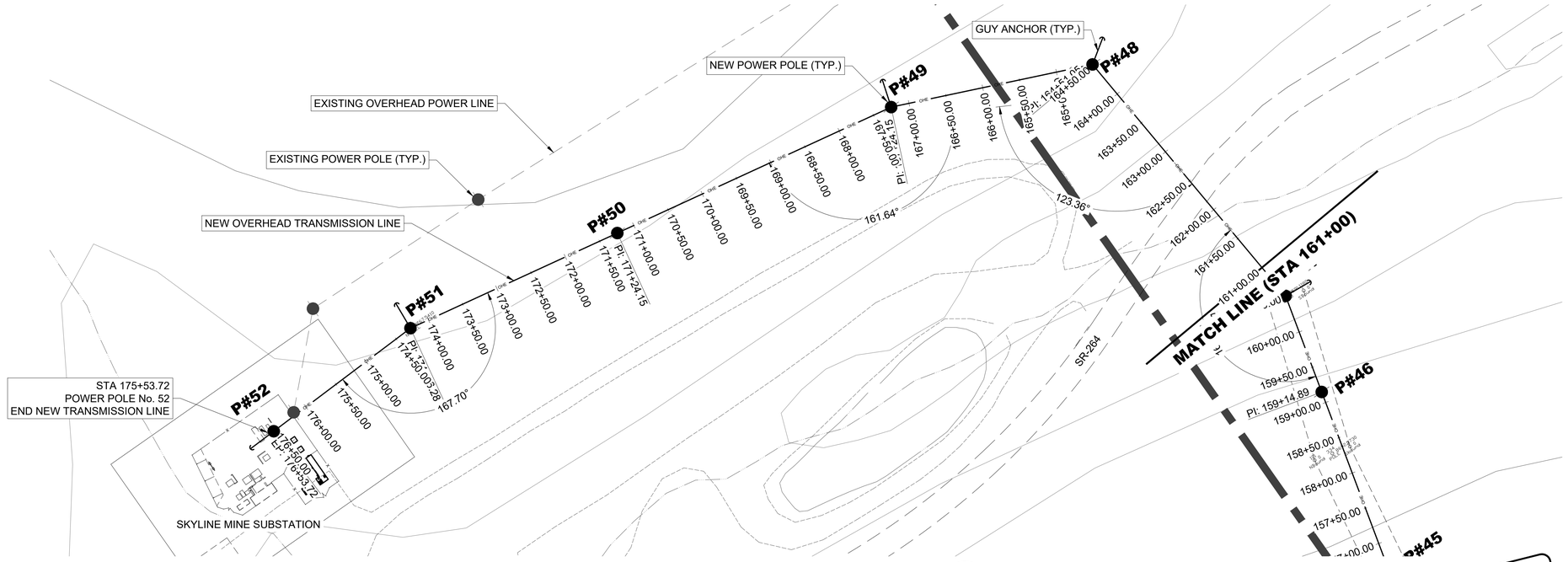
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)

ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: **E2.8** | REV.: A

FILENAME: 21208_E2.8_TRANSM_LINE_P&P-CONT

Date & Time plotted: 8/6/2020 12:49:02 PM



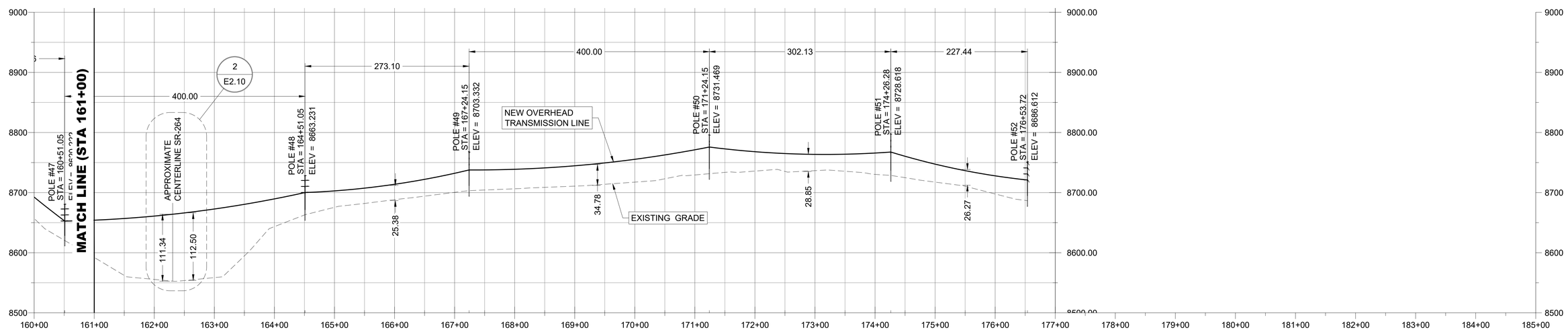
1
E2.9

OVERHEAD TRANSMISSION LINE PLAN

SCALE: 1" = 80'

NORTH

PRELIMINARY DRAWING! NOT FOR CONSTRUCTION



2
E2.9

OVERHEAD TRANSMISSION LINE PROFILE

SCALE: 1" = 80' (HORIZONTAL & VERTICAL)

PRELIMINARY

PLANNING

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APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
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PROJECT NO.: 21208		

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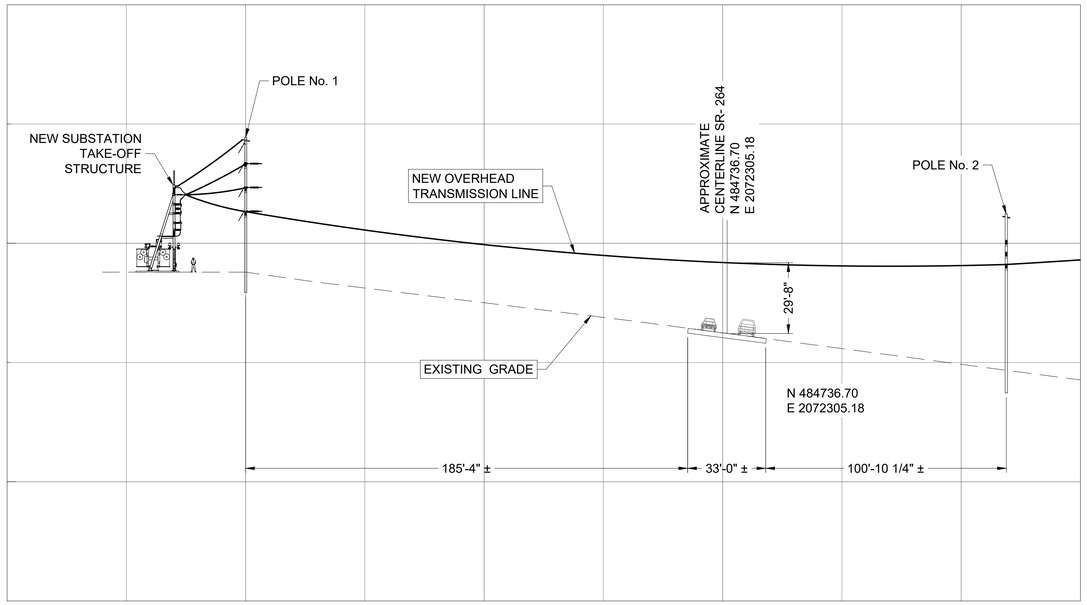
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE PLAN & PROFILE (CONT.)

ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV.:
ADB	MVW	ADB	E2.9	A

FILENAME: 21208_E2.9_TRANSM_LINE_P&P-CONT

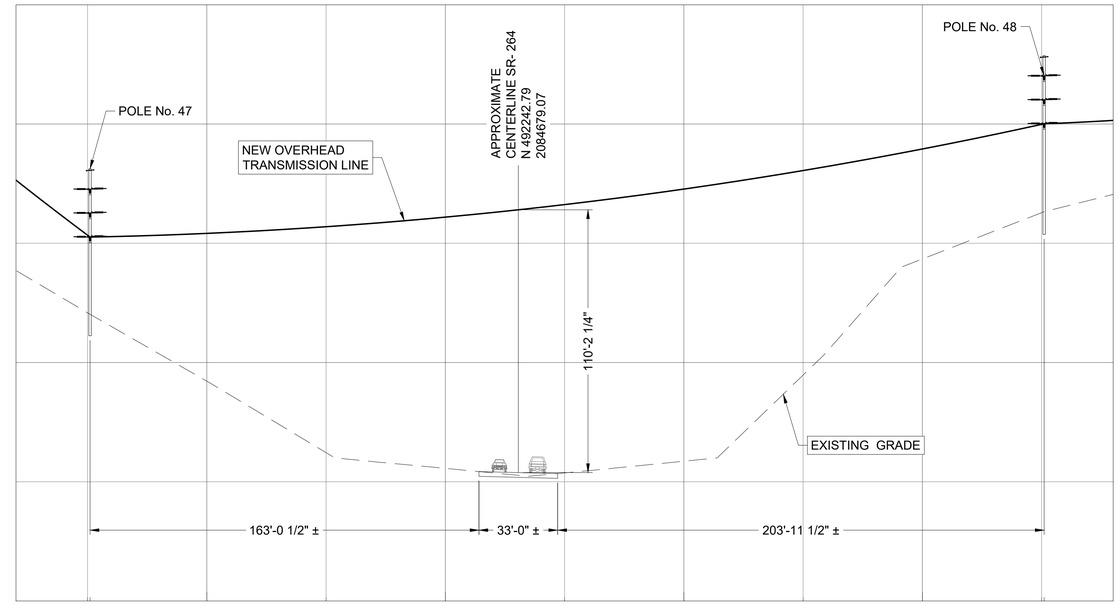
Date & Time plotted: 8/6/2020 12:49:14 PM



1
E2.10

HIGHWAY (SR-264) CROSSING DETAIL AT SWENS CANYON SUBSTATION

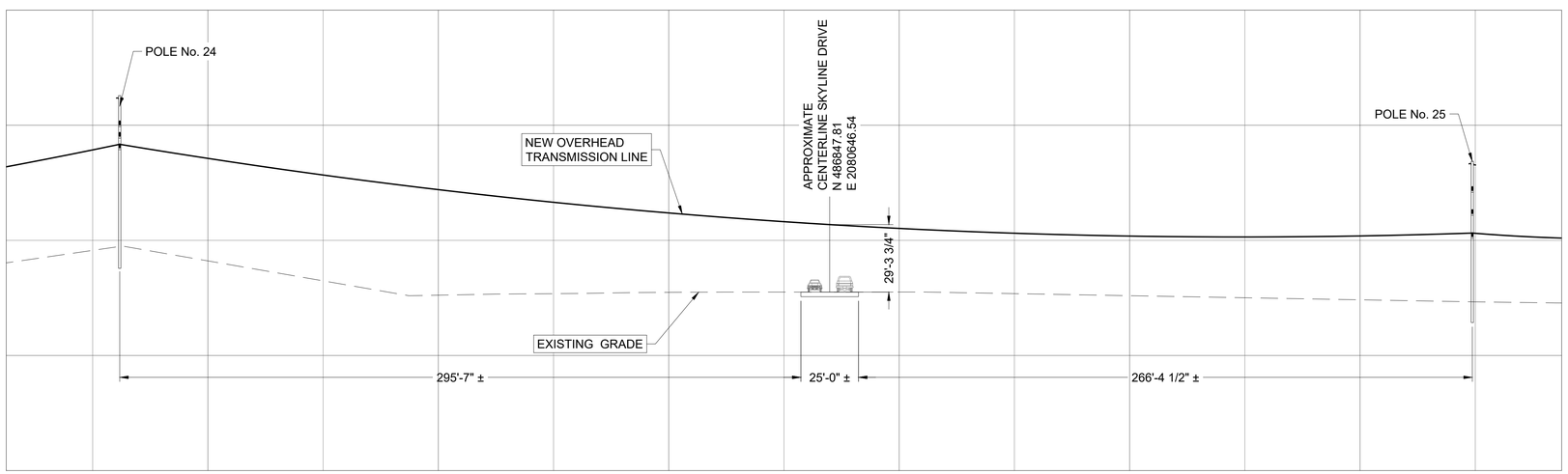
SCALE: 1" = 30'



2
E2.10

HIGHWAY (SR-264) CROSSING DETAIL AT SKYLINE MINE

SCALE: 1" = 30'



3
E2.10

ROADWAY (SKYLINE DRIVE) CROSSING DETAIL

SCALE: 1" = 30'

NOTE:

COORDINATE SYSTEM: NAD27

PRELIMINARY DRAWING! NOT FOR CONSTRUCTION

PRELIMINARY

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/31/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.: 21208		

Canyon Fuel Company, LLC
Scofield, Utah

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CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
OVERHEAD TRANSMISSION LINE ROAD CROSSING DETAILS

ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: **E2.10** | REV.: A

FILENAME: 21208_E2.10_ROAD XING DETAILS

Date & Time plotted: 8/6/2020 12:49:27 PM

INSTALLATION NOTES:

1. SEE POWER POLE SCHEDULE (E2.1) AND PLAN & PROFILE DRAWINGS (E2.2 - E2.8) FOR APPROXIMATE POLE LOCATIONS. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED BY THE CONTRACTOR AS FIELD CONDITIONS REQUIRE.
2. THE NORMAL SPACING BETWEEN POLES SHALL BE APPROXIMATELY 400 FEET AND SHALL NOT EXCEED 600 FEET.
3. OVER NON-TRAFFIC AREAS A MINIMUM OF 25'-0" IS TO BE MAINTAINED FROM THE LOWEST CONDUCTOR TO GRADE.
4. WHERE THE CONDUCTORS PASS OVER A ROADWAY OR TRAFFIC AREA, THE MINIMUM DISTANCE OF 28'-0" FROM THE LOWEST CONDUCTOR TO THE ROADWAY IS TO BE MAINTAINED.
5. EACH POLE SHALL BE PROVIDED WITH A MINIMUM #4 AWG SOLID GROUND CONDUCTOR THAT EXTENDS THE ENTIRE LENGTH OF THE POLE, AND SHALL BE ATTACHED TO THE POLE BUTT PLATE. EACH POLE GROUND SHALL ALSO BE CONNECTED TO THE TOP GROUND/STATIC CONDUCTOR, AND METAL HARDWARE ON THE POLE.
6. LIGHTNING ARRESTERS SHALL NOT BE GROUNDED TO THE ISOLATED MINE GROUND CONDUCTOR.
7. ALL POLES SHALL BE A MINIMUM OF 65' IN LENGTH. LONGER POLES SHALL BE USED AS NECESSARY TO MAINTAIN SPECIFIED VERTICAL CLEARANCE. SEE POWER POLE SCHEDULE ON SHEET E2.1 FOR SPECIFIED POLE HEIGHTS.
8. POLES SHALL BE CLASS 2 OR BETTER WOOD POLES.
9. MINIMUM SETTING DEPTHS FOR POLES SHALL BE AS FOLLOWS:

POLE LENGTH (FEET)	SETTING DEPTH (FEET)
65'	8.5'
70'	9'
75'	9.5'
80'	10'
85'	10.5'
90'	11'

3 PHASE 46kV TRANSMISSION LINE CONDUCTOR AND CABLE SCHEDULE

CONDUCTOR AND CABLE REFERENCE LETTER	CONDUCTOR	POWER LINE CIRCUIT DESCRIPTION
A	#4/0 AWG ACSR 6/1 STRANDING "PENGUIN"	46kV PHASE CONDUCTOR
B	#4/0 AWG ACSR 6/1 STRANDING "PENGUIN"	46kV PHASE CONDUCTOR
C	#4/0 AWG ACSR 6/1 STRANDING "PENGUIN"	46kV PHASE CONDUCTOR
D	3/8" EHS STATIC SHIELD WIRE	46kV TRANSMISSION LINE STATIC SHIELD WIRE

TRANSMISSION LINE WOOD STRUCTURE GROUNDING

ALL WOOD TRANSMISSION STRUCTURES ARE TO BE GROUNDED. ALL WOOD POLES ARE TO BE INSTALLED WITH A BUTT PLATE AND A BUTT WRAP EXTENDING TWO FEET FROM THE BUTT.

THE FOOTING RESISTANCE IS TO BE MEASURED AT EACH STRUCTURE SITE. ON MULTIPLE POLE STRUCTURES, THE POLE GROUND WIRES MUST BE CUT ON ALL THE POLES OF THE STRUCTURE, AND ALL THE GROUND WIRES ON THE BUTT END OF THE POLES MUST BE BONDED TOGETHER PRIOR TO MEASURING THE STRUCTURE FOOTING RESISTANCE. THE POLE GROUND WIRE(S) MUST BE REPAIRED AFTER THE FOOTING RESISTANCE HAS BEEN MEASURED AND ANY ADDITIONAL GROUNDING ADDED.

STRUCTURE FOOTING RESISTANCE'S SHOULD BE 15 OHMS OR LESS.

THE FOLLOWING SEQUENCE SHOULD BE USED WHEN MEASURING STRUCTURE FOOTING RESISTANCE AND INSTALLING ADDITIONAL STRUCTURE GROUNDING.

1. MEASURE THE STRUCTURE FOOTING RESISTANCE. (FOLLOW INSTRUMENT MANUFACTURERS INSTRUCTIONS)
   A. IF THE STRUCTURE FOOTING RESISTANCE IS 15 OHMS OR LESS, RECORD THE STRUCTURE NUMBER AND STRUCTURE FOOTING RESISTANCE AND PROCEED TO THE NEXT STRUCTURE.
   B. IF THE STRUCTURE FOOTING RESISTANCE IS GREATER THAN 15 OHMS, GO TO STEP 2.
2. INSTALL A 5/8" x 10 FOOT SECTIONAL GROUND ROD AS SHOWN. ATTACH THE GROUND LEAD(S) FROM THE POLE GROUND WIRE TO THE GROUND ROD. [SPLIT BOLT CONNECTOR SHOULD BE USED FOR THE TEMPORARY GROUND ROD LEAD-POLE GROUND WIRE CONNECTION.]
3. MEASURE THE STRUCTURE FOOTING RESISTANCE.
   A. IF THE STRUCTURE FOOTING RESISTANCE IS 15 OHMS OR LESS, RECORD THE STRUCTURE NUMBER, STRUCTURE FOOTING RESISTANCE AND NUMBER OF GROUND RODS DRIVEN.
   B. (1) IF THE STRUCTURE FOOTING RESISTANCE IS LESS THAN ONE HALF OF THE PREVIOUS MEASUREMENT, BUT STILL EXCEEDS 15 OHMS GO TO STEP 2 AND INSTALL DEEP DRIVEN GROUND ROD. IF DEEP DRIVEN GROUND ROD CANNOT BE INSTALLED, INSTALL ANOTHER GROUND ROD IN A NEW LOCATION MAINTAINING 5 FEET MINIMUM DISTANCE FROM ONE POLE OR OTHER GROUND RODS. (MAXIMUM OF 3 GROUND RODS PER STRUCTURE).
   (2) IF THE STRUCTURE FOOTING RESISTANCE IS NOT REDUCED TO ONE HALF OR LESS OF THE PREVIOUS MEASUREMENT, RECORD THE STRUCTURE NUMBER, STRUCTURE FOOTING RESISTANCE AND NUMBER OF GROUND RODS DRIVEN.
4. THE GROUND WIRE FASTENED BY STAPLES ON A POLE SHALL BE SPACED TWO (2) FEET APART EXCEPT FOR A DISTANCE OF EIGHT (8) FEET ABOVE THE GROUND AND EIGHT (8) FEET FROM THE TOP OF THE POLE WHERE THEY SHALL BE SIX (6) INCHES APART.
5. THE POLE GROUND WIRE SHALL BE TIED TO THE POLE BUTT PLATE.
6. ALL METAL HARDWARE SHALL BE BONDED TO THE POLE GROUND WIRE.

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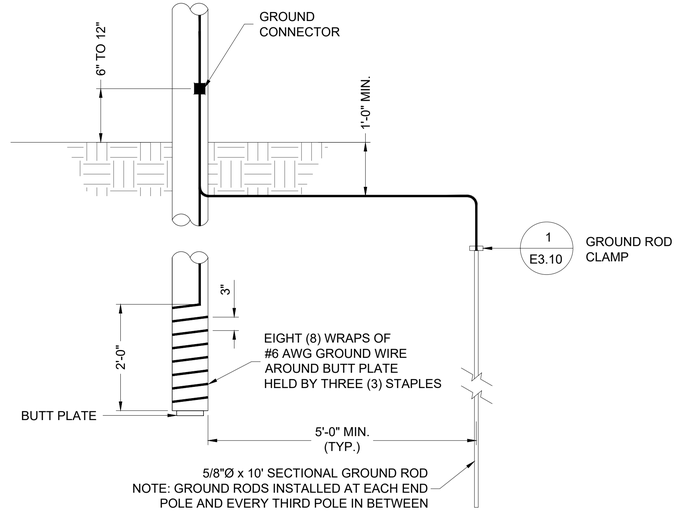

1 / E3.0 TYPICAL POLE GROUNDING CONNECTION

SCALE: 3/4" = 1'-0"

PRELIMINARY PLANNING

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.: 21208		

Canyon Fuel Company, LLC
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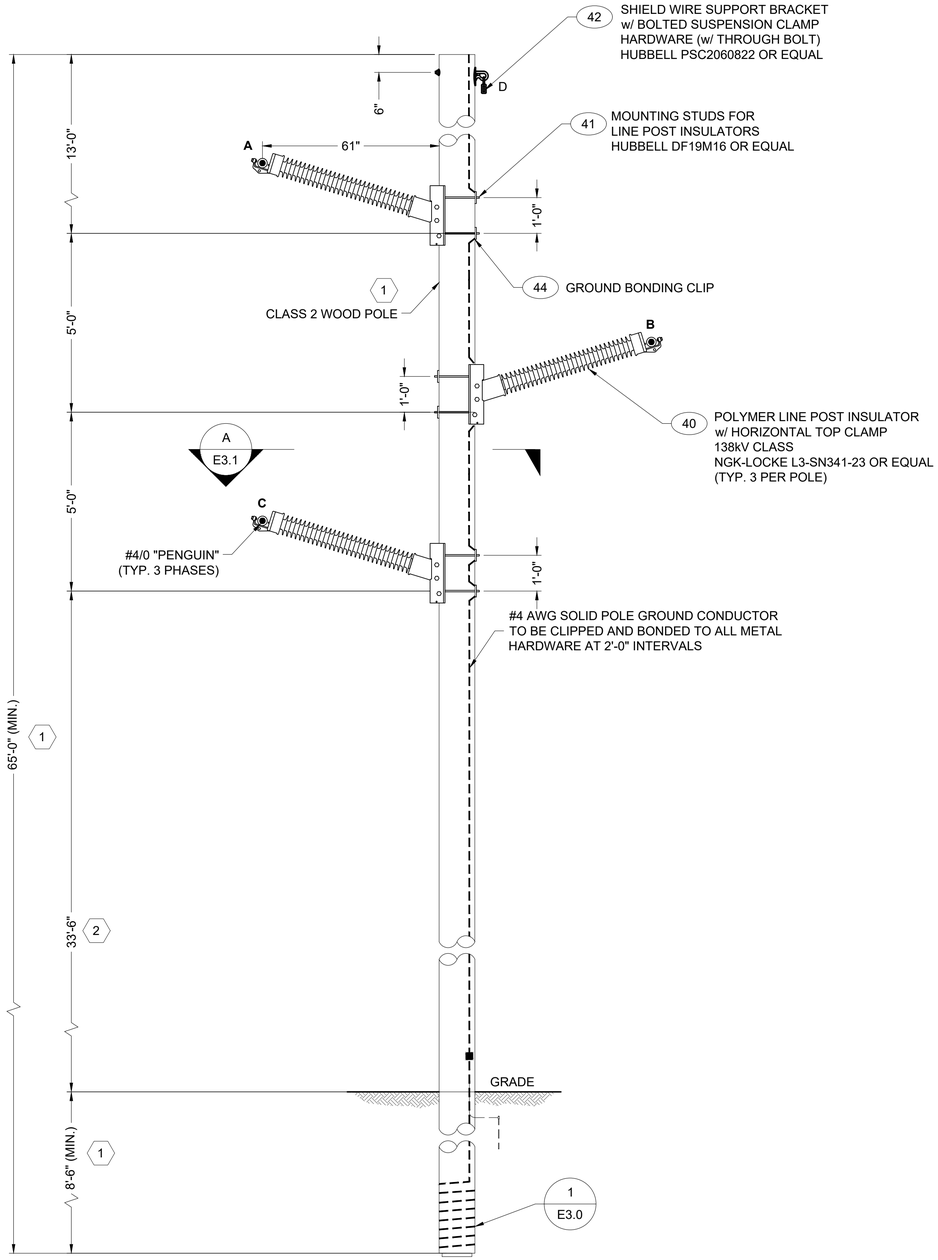
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
TRANSMISSION LINE NOTES AND DETAILS

ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV.:
ADB	MVW	ADB	E3.0	A

FILENAME: 21208_E3.0_TRANSM_LINE_STRUCT_NOTES & DTLS_46kV

Date & Time plotted: 8/6/2020 12:49:34 PM



FRONT VIEW

1 / E3.1 — 46kV TRANSMISSION LINE STRUCTURE - POLE DESIGN P1 (SIDE POST - TANGENT) (INSULATED UP TO 138kV)

SCALE: 1/2" = 1'-0"

LEGEND

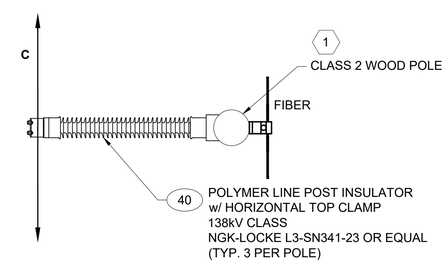
INDICATES DETAIL NUMBER	1
INDICATES DRAWING ON WHICH DETAIL APPEARS	E3.0
INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST	1

GENERAL NOTES:

1. SEE DRAWING E2.1 FOR APPROXIMATE POLE LOCATIONS. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED BY THE CONTRACTOR AS FIELD CONDITIONS REQUIRE.
2. SEE SHEET E3.0 FOR POLE INSTALLATION NOTES AND POLE LINE CONDUCTOR AND CABLE SCHEDULE AND WOOD POLE GROUNDING NOTES AND GROUNDING CONNECTION DETAIL.
3. SEE SHEET E0.3 FOR OVERHEAD TRANSMISSION LINE MATERIALS LIST

SHEET NOTES:

1. SEE TRANSMISSION LINE POLE SCHEDULE (E2.1) FOR POWER POLE LENGTHS AND BURY DEPTH.
2. DIMENSION SHOWN IS FOR A 65' POLE. ADJUST ACCORDINGLY IF LONGER POLE IS USED.



A / E3.1 — TOP VIEW (SECTION "A")

SCALE: 1/2" = 1'-0"

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DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

Canyon Fuel Company, LLC
Scofield, Utah

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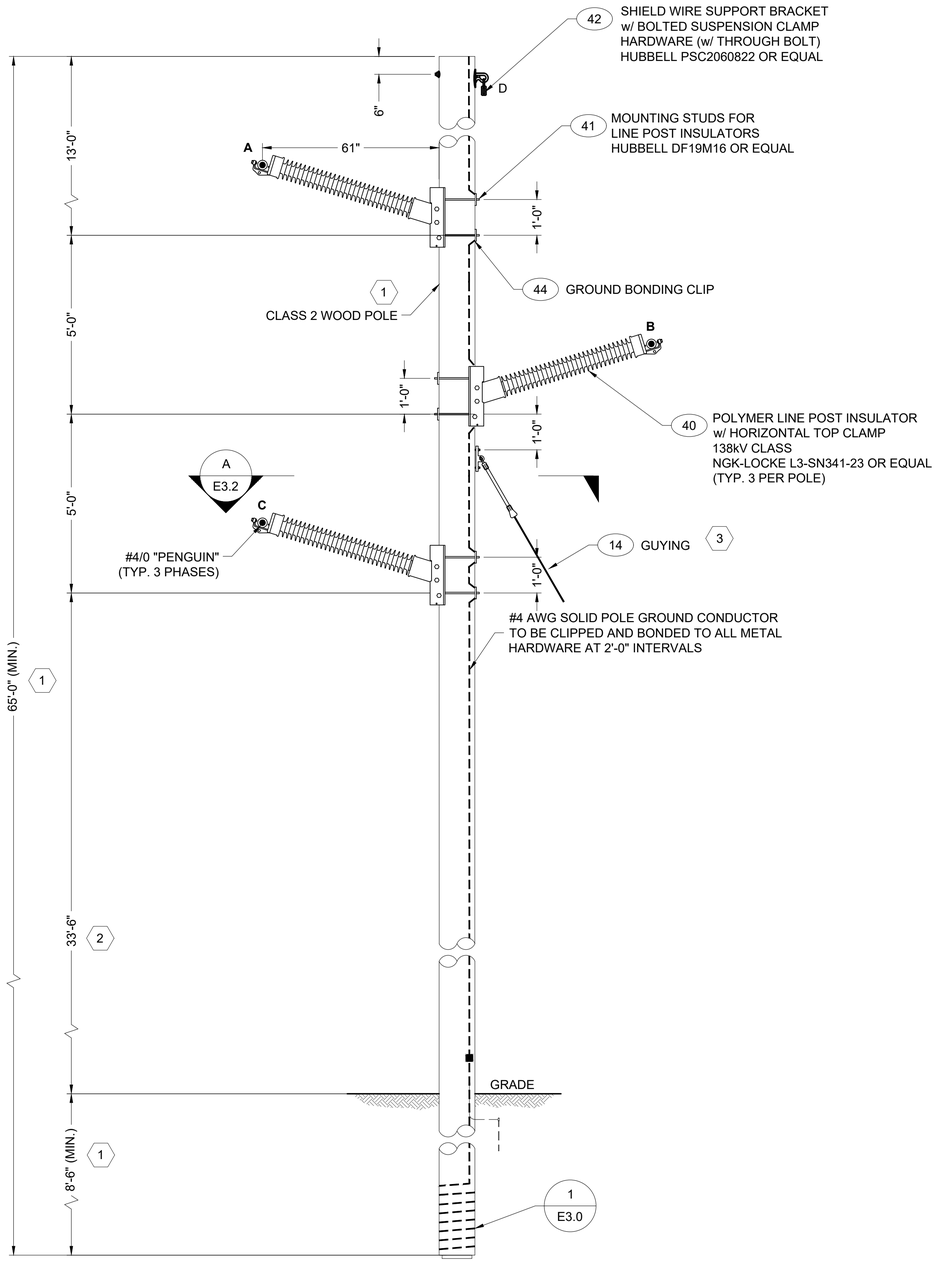
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P1 (SIDE POST - TANGENT)

ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV.:
ADB	MVW	ADB	E3.1	A

FILENAME: 21208_E3.1_TRANSM_LINE_STRUCT_P1_TANGENT_46kV

Date & Time plotted: 8/6/2020 12:49:42 PM



FRONT VIEW

1 / E3.2 — 46kV TRANSMISSION LINE STRUCTURE - POLE DESIGN P2 (SIDE POST - TURNS UP TO 5°) (INSULATED UP TO 138kV)

SCALE: 1/2" = 1'-0"

LEGEND

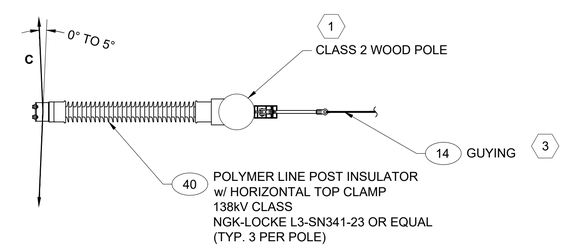
INDICATES DETAIL NUMBER	1
INDICATES DRAWING ON WHICH DETAIL APPEARS	E3.0
INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST	1

GENERAL NOTES:

1. SEE DRAWING E2.1 FOR APPROXIMATE POLE LOCATIONS. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED BY THE CONTRACTOR AS FIELD CONDITIONS REQUIRE.
2. SEE SHEET E3.0 FOR POLE INSTALLATION NOTES AND POLE LINE CONDUCTOR AND CABLE SCHEDULE AND WOOD POLE GROUNDING NOTES AND GROUNDING CONNECTION DETAIL.
3. SEE SHEET E0.3 FOR OVERHEAD TRANSMISSION LINE MATERIALS LIST

SHEET NOTES:

1. SEE TRANSMISSION LINE POLE SCHEDULE (E2.1) FOR POWER POLE LENGTHS AND BURY DEPTH.
2. DIMENSION SHOWN IS FOR A 65' POLE. ADJUST ACCORDINGLY IF LONGER POLE IS USED.
3. THE GUY ANCHORS SHALL BE PLACED SUCH THAT THE HORIZONTAL DISTANCE FROM THE POLE BASE IS EQUAL TO THE HEIGHT ABOVE THE GROUND AT WHICH THE GUY IS ATTACHED TO THE POLE.



A / E3.2 — TOP VIEW OF TURN (SECTION "A")

SCALE: 1/2" = 1'-0"

PRELIMINARY PLANNING

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REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK'D	APRV'D
B					
C					
D					
E					
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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.: 21208		

Canyon Fuel Company, LLC
Scofield, Utah

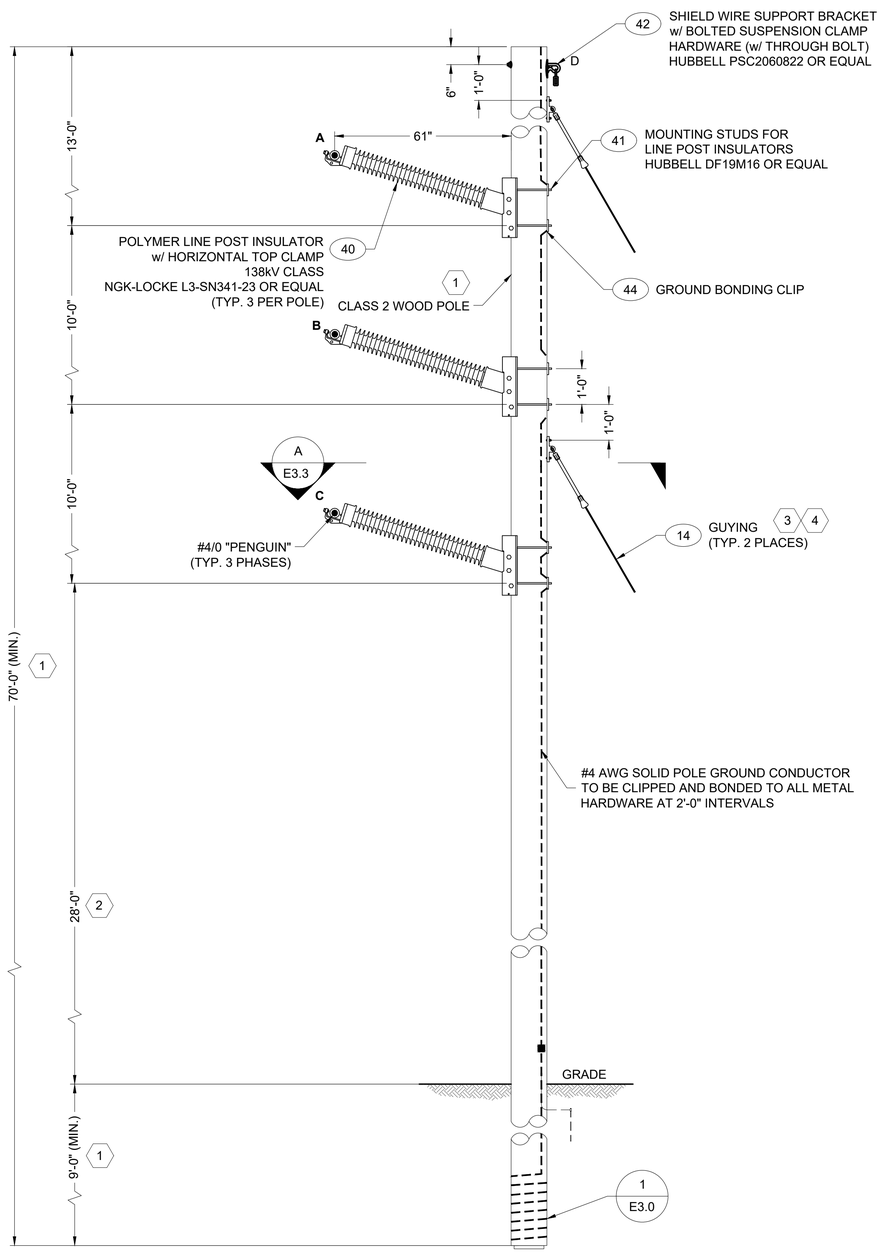
BRUNO ENGINEERING
90 EAST 1300 SOUTH
PRICE, UTAH 84501
PHONE: (435) 613-0700
EMAIL: info@brunoengineering.com

CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P2 (SIDE POST - TURNS UP TO 5°)

ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: **E3.2** | REV.: A

FILENAME: 21208_E3.2_TRANSM_LINE_STRUCT_P2_ANGLE_0-5_46kV

Date & Time plotted: 8/6/2020 12:49:49 PM



FRONT VIEW

1 / E3.3 — 46kV TRANSMISSION LINE STRUCTURE - POLE DESIGN P3 (SIDE POST - TURNS UP TO 5° - 15°) (INSULATED UP TO 138kV)

SCALE: 1/2" = 1'-0"

LEGEND

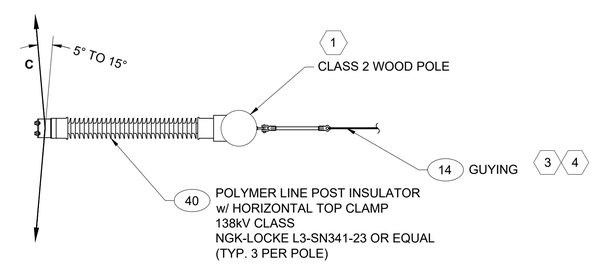
INDICATES DETAIL NUMBER	1
INDICATES DRAWING ON WHICH DETAIL APPEARS	E3.0
INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST	1

GENERAL NOTES:

1. SEE DRAWING E2.1 FOR APPROXIMATE POLE LOCATIONS. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED BY THE CONTRACTOR AS FIELD CONDITIONS REQUIRE.
2. SEE SHEET E3.0 FOR POLE INSTALLATION NOTES AND POLE LINE CONDUCTOR AND CABLE SCHEDULE AND WOOD POLE GROUNDING NOTES AND GROUNDING CONNECTION DETAIL.
3. SEE SHEET E0.3 FOR OVERHEAD TRANSMISSION LINE MATERIALS LIST

SHEET NOTES:

1. SEE TRANSMISSION LINE POLE SCHEDULE (E2.1) FOR POWER POLE LENGTHS AND BURY DEPTH.
2. DIMENSION SHOWN IS FOR A 70' POLE. ADJUST ACCORDINGLY IF LONGER POLE IS USED.
3. THE GUY ANCHORS SHALL BE PLACED SUCH THAT THE HORIZONTAL DISTANCE FROM THE POLE BASE IS EQUAL TO THE HEIGHT ABOVE THE GROUND AT WHICH THE GUY IS ATTACHED TO THE POLE.
4. BOTH GUYS SHALL TIE TO A COMMON ANCHOR.



A / E3.3 — TOP VIEW OF TURN (SECTION "A")

SCALE: 1/2" = 1'-0"

PRELIMINARY PLANNING

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REVISIONS

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

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Scofield, Utah

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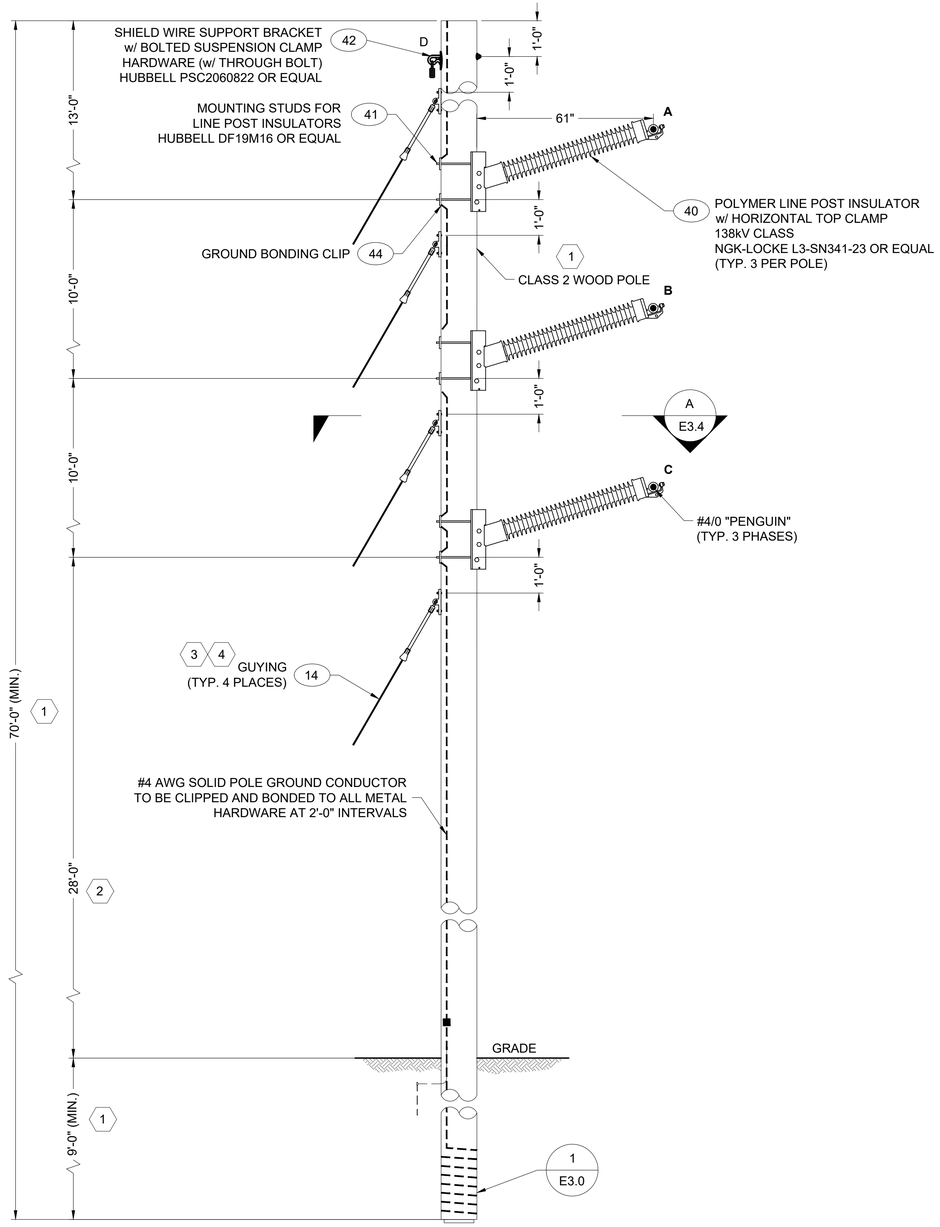
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P2 (SIDE POST - TURNS UP TO 5° - 15°)

ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: **E3.3** | REV.: A

FILENAME: 21208_E3.3_TRANSM_LINE_STRUCT_P3_ANGLE_5-15_46kV

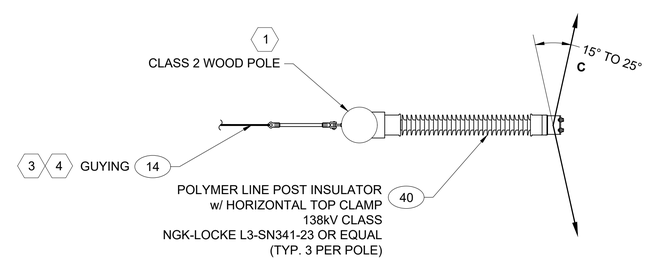
Date & Time plotted: 8/6/2020 12:49:57 PM



FRONT VIEW

1 / E3.4 — 46kV TRANSMISSION LINE STRUCTURE - POLE DESIGN P4
(SIDE POST - TURNS UP TO 15° - 25°) (INSULATED UP TO 138kV)

SCALE: 1/2" = 1'-0"



A / E3.4 — TOP VIEW OF TURN (SECTION "A")

SCALE: 1/2" = 1'-0"

LEGEND

INDICATES DETAIL NUMBER	1
INDICATES DRAWING ON WHICH DETAIL APPEARS	E3.0
INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST	1

GENERAL NOTES:

1. SEE DRAWING E2.1 FOR APPROXIMATE POLE LOCATIONS. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED BY THE CONTRACTOR AS FIELD CONDITIONS REQUIRE.
2. SEE SHEET E3.0 FOR POLE INSTALLATION NOTES AND POLE LINE CONDUCTOR AND CABLE SCHEDULE AND WOOD POLE GROUNDING NOTES AND GROUNDING CONNECTION DETAIL.
3. SEE SHEET E0.3 FOR OVERHEAD TRANSMISSION LINE MATERIALS LIST

SHEET NOTES:

1. SEE TRANSMISSION LINE POLE SCHEDULE (E2.1) FOR POWER POLE LENGTHS AND BURY DEPTH.
2. DIMENSION SHOWN IS FOR A 70' POLE. ADJUST ACCORDINGLY IF LONGER POLE IS USED.
3. THE GUY ANCHORS SHALL BE PLACED SUCH THAT THE HORIZONTAL DISTANCE FROM THE POLE BASE IS EQUAL TO THE HEIGHT ABOVE THE GROUND AT WHICH THE GUY IS ATTACHED TO THE POLE.
4. UPPER TWO GUYS SHALL TIE TO A COMMON ANCHOR AND LOWER TWO GUYS SHALL TIE TO A DIFFERENT ANCHOR. ANCHORS SHALL BE AT LEAST 8' APART.

PRELIMINARY

PLANNING

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

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Scofield, Utah

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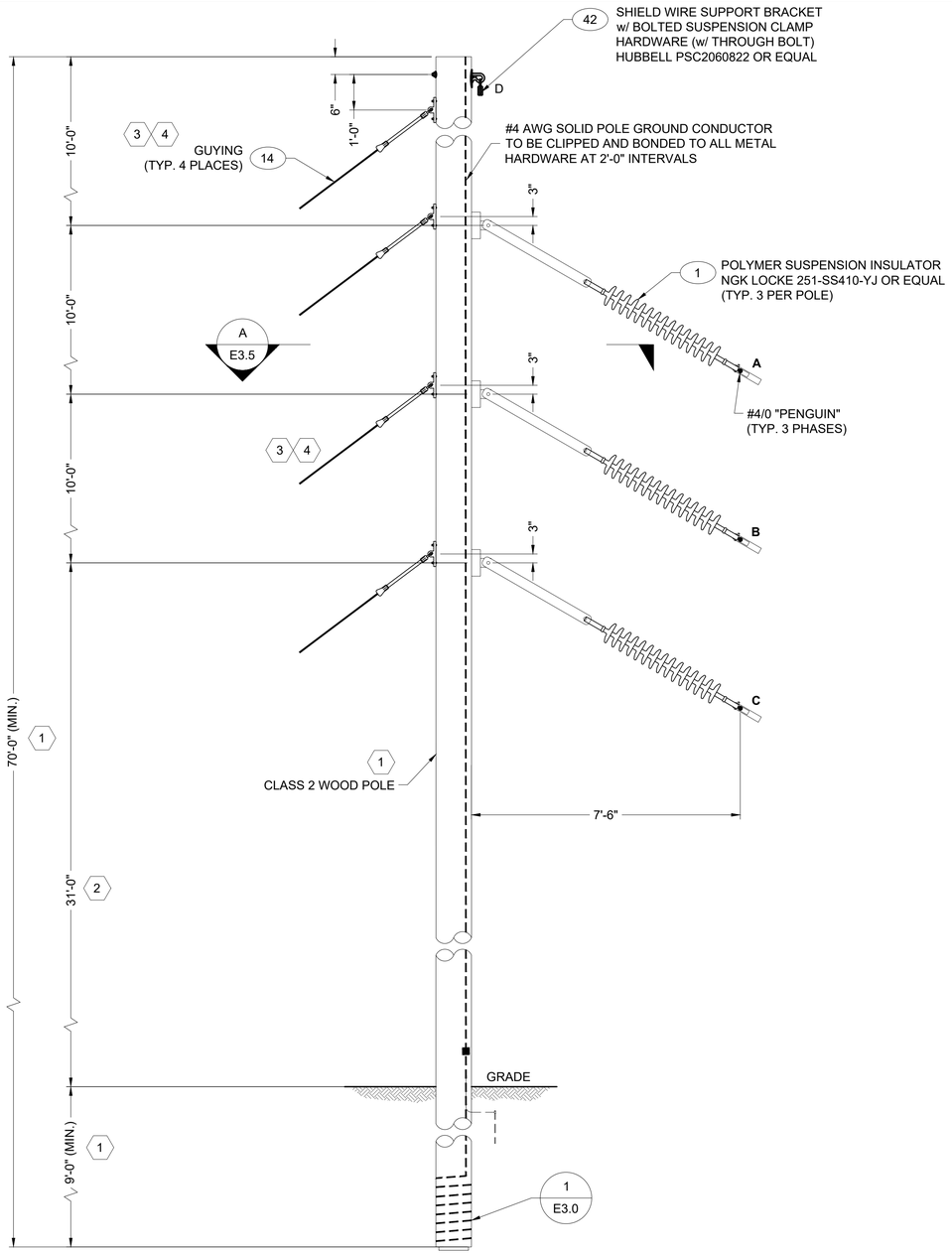
PHONE: (435) 613-0700
EMAIL: info@brunoengineering.com

CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P4 (SIDE POST - TURNS UP TO 15° - 25°)

ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV.:
ADB	MVW	ADB	E3.4	A

FILENAME: 21208_E3.4_TRANSM_LINE_STRUCT_P4_ANGLE_15-25_46kV

Date & Time plotted: 8/6/2020 12:50:05 PM



FRONT VIEW

1 / E3.5 — 46kV TRANSMISSION LINE STRUCTURE - POLE DESIGN P5
(SUSPENSION - TURNS UP TO 30° - 45°) (INSULATED UP TO 138kV)
SCALE: 1/2" = 1'-0"

LEGEND

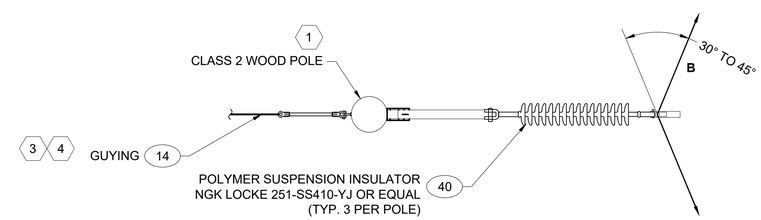
INDICATES DETAIL NUMBER	1
INDICATES DRAWING ON WHICH DETAIL APPEARS	E3.0
INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST	1

GENERAL NOTES:

1. SEE DRAWING E2.1 FOR APPROXIMATE POLE LOCATIONS. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED BY THE CONTRACTOR AS FIELD CONDITIONS REQUIRE.
2. SEE SHEET E3.0 FOR POLE INSTALLATION NOTES AND POLE LINE CONDUCTOR AND CABLE SCHEDULE AND WOOD POLE GROUNDING NOTES AND GROUNDING CONNECTION DETAIL.
3. SEE SHEET E0.3 FOR OVERHEAD TRANSMISSION LINE MATERIALS LIST

SHEET NOTES:

1. SEE TRANSMISSION LINE POLE SCHEDULE (E2.1) FOR POWER POLE LENGTHS AND BURY DEPTH.
2. DIMENSION SHOWN IS FOR A 70' POLE. ADJUST ACCORDINGLY IF LONGER POLE IS USED.
3. THE GUY ANCHORS SHALL BE PLACED SUCH THAT THE HORIZONTAL DISTANCE FROM THE POLE BASE IS EQUAL TO THE HEIGHT ABOVE THE GROUND AT WHICH THE GUY IS ATTACHED TO THE POLE.
4. UPPER TWO GUYS SHALL TIE TO A COMMON ANCHOR AND LOWER TWO GUYS SHALL TIE TO A DIFFERENT ANCHOR. ANCHORS SHALL BE AT LEAST 8' APART.



A / E3.5 — TOP VIEW OF TURN (SECTION "A")
SCALE: 1/2" = 1'-0"

PRELIMINARY

PLANNING

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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.: 21208		

Canyon Fuel Company, LLC
Scofield, Utah

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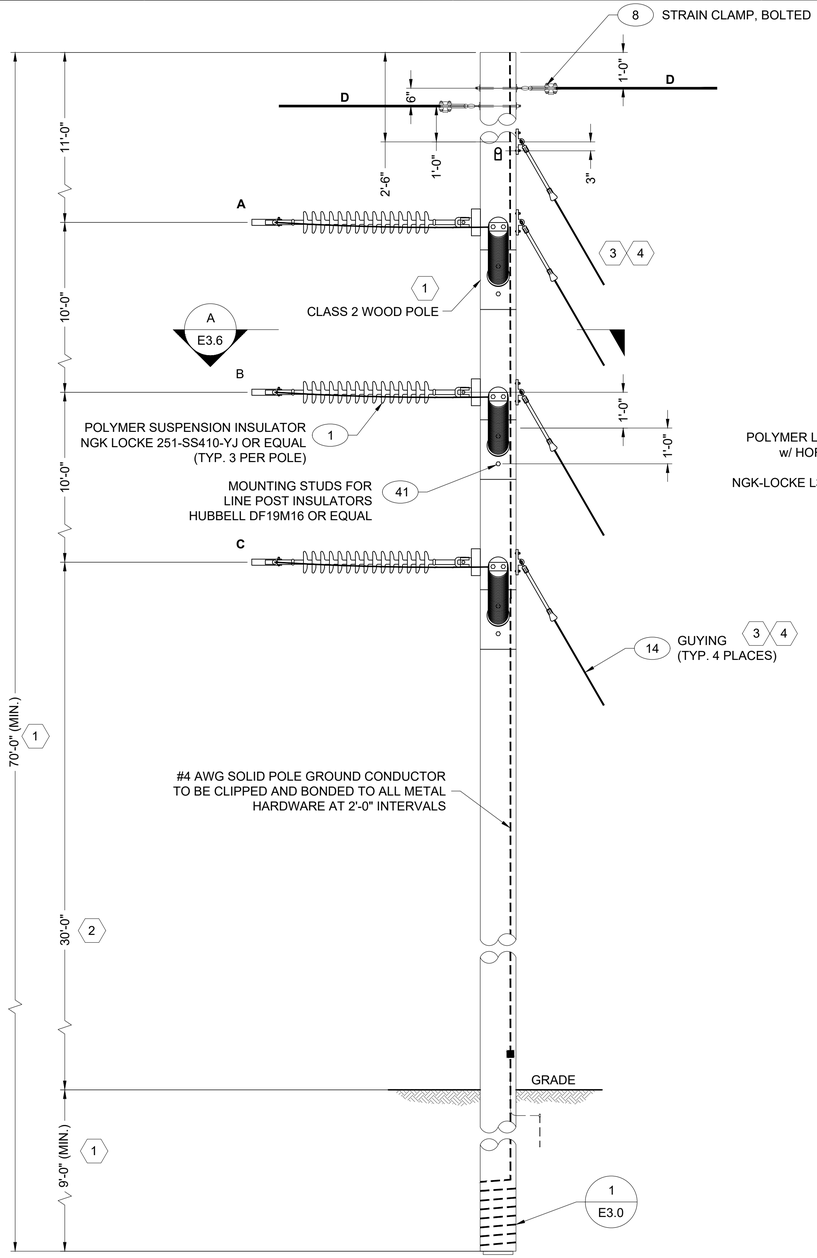
PHONE: (435) 613-0700
EMAIL: info@brunoengineering.com

CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P5 (SUSPENSION - TURNS UP TO 30° - 45°)

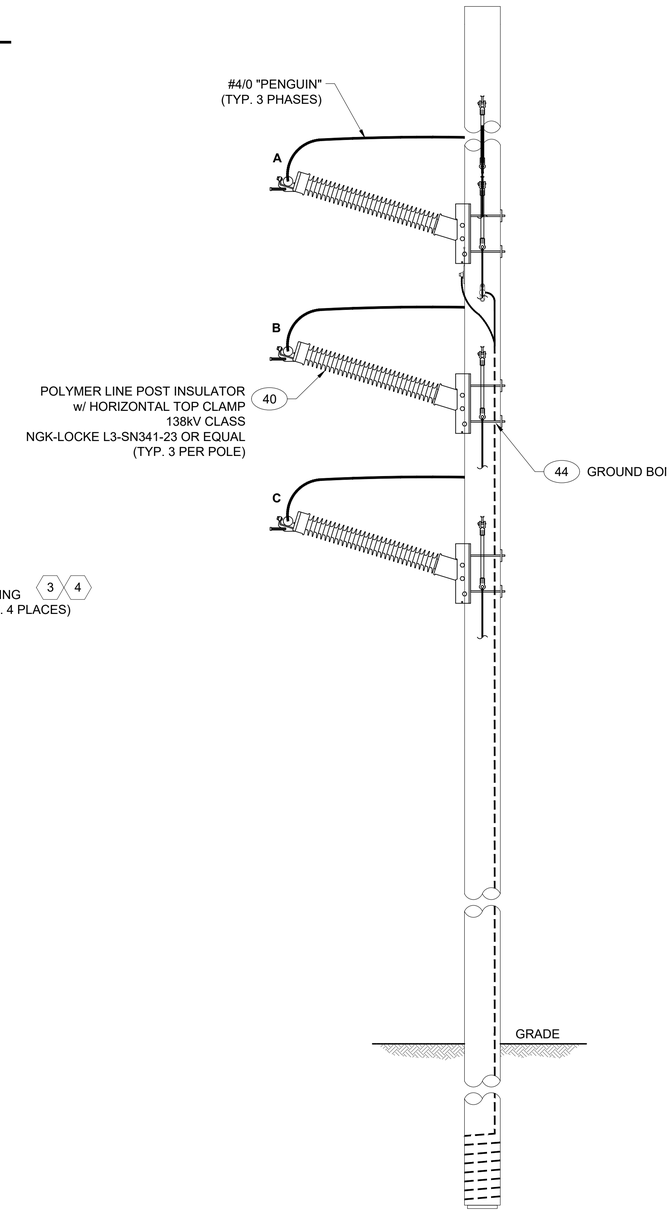
ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV.:
ADB	MVW	ADB	E3.5	A

FILENAME: 21208_E3.5_TRANSM_LINE_STRUCT_P5_ANGLE_30-45_46kV

Date & Time plotted: 8/6/2020 12:50:12 PM



FRONT VIEW



SIDE VIEW

LEGEND

INDICATES DETAIL NUMBER → 1
INDICATES DRAWING ON WHICH DETAIL APPEARS → E3.0

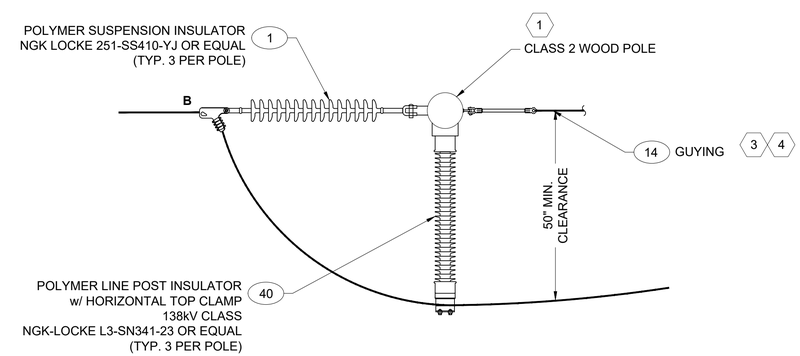
INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST → 1

GENERAL NOTES:

1. SEE DRAWING E2.1 FOR APPROXIMATE POLE LOCATIONS. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED BY THE CONTRACTOR AS FIELD CONDITIONS REQUIRE.
2. SEE SHEET E3.0 FOR POLE INSTALLATION NOTES AND POLE LINE CONDUCTOR AND CABLE SCHEDULE AND WOOD POLE GROUNDING NOTES AND GROUNDING CONNECTION DETAIL.
3. SEE SHEET E0.3 FOR OVERHEAD TRANSMISSION LINE MATERIALS LIST

SHEET NOTES:

1. SEE TRANSMISSION LINE POLE SCHEDULE (E2.1) FOR POWER POLE LENGTHS AND BURY DEPTH.
2. DIMENSION SHOWN IS FOR A 70' POLE. ADJUST ACCORDINGLY IF LONGER POLE IS USED.
3. THE GUY ANCHORS SHALL BE PLACED SUCH THAT THE HORIZONTAL DISTANCE FROM THE POLE BASE IS EQUAL TO THE HEIGHT ABOVE THE GROUND AT WHICH THE GUY IS ATTACHED TO THE POLE.
4. UPPER TWO GUYS SHALL TIE TO A COMMON ANCHOR AND LOWER TWO GUYS SHALL TIE TO A DIFFERENT ANCHOR. ANCHORS SHALL BE AT LEAST 8' APART.



A / E3.6 TOP VIEW (SECTION "A")
SCALE: 1/2" = 1'-0"

1 / E3.6 46kV TRANSMISSION LINE STRUCTURE - POLE DESIGN P6
(TERMINAL POLE - DEAD-END) (INSULATED UP TO 138kV)
SCALE: 1/2" = 1'-0"

PRELIMINARY

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REVISIONS

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C					
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CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

Canyon Fuel Company, LLC
Scofield, Utah

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PRICE, UTAH 84501
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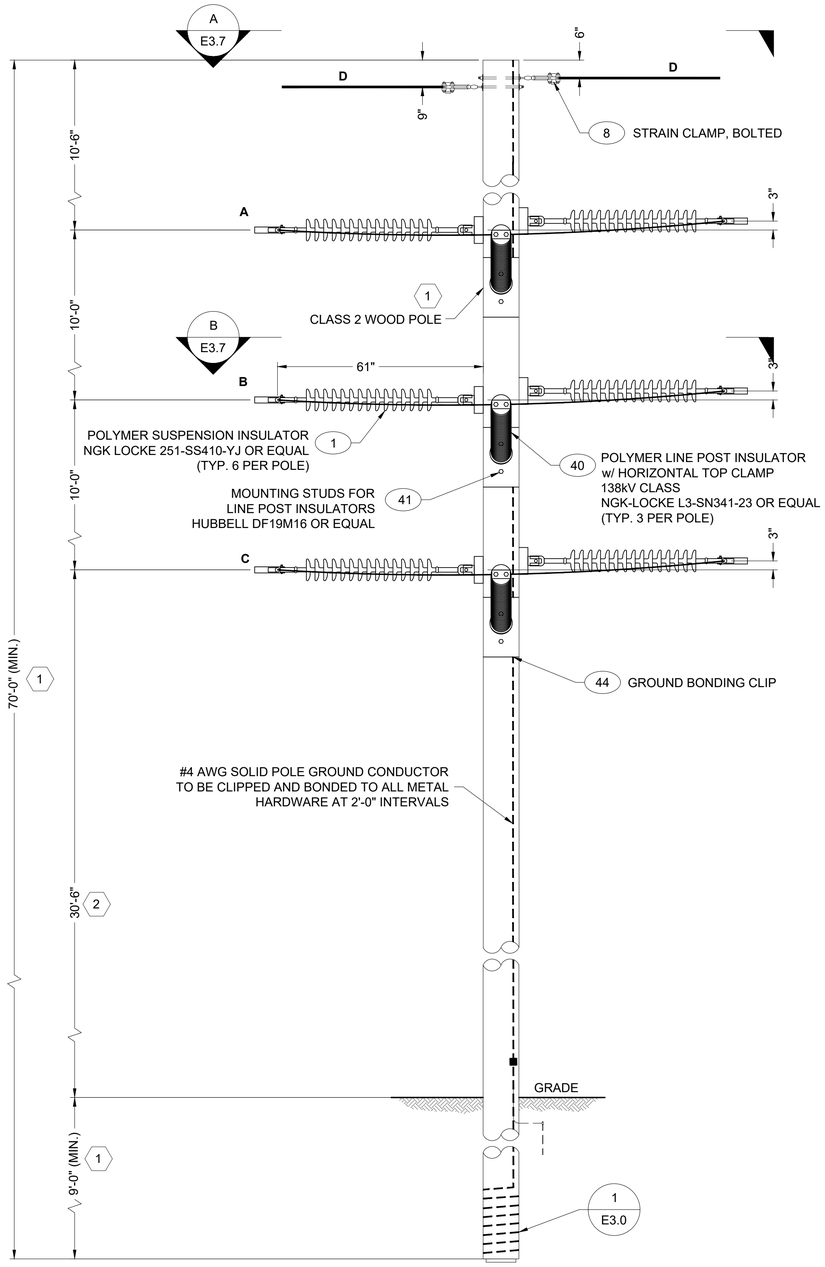
EMAIL: info@brunoengineering.com

CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P6 (DEAD-END)

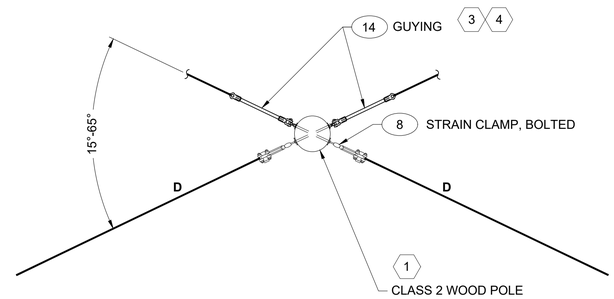
ENGR'D BY: ADB | DRAWN BY: MVW | APRV'D BY: ADB | SHEET NO.: **E3.6** | REV.: A
FILENAME: 21208_E3.6_TRANSM_LINE_STRUCT_P6_DEAD-END_3PH_46kV

Date & Time plotted: 8/6/2020 12:50:20 PM



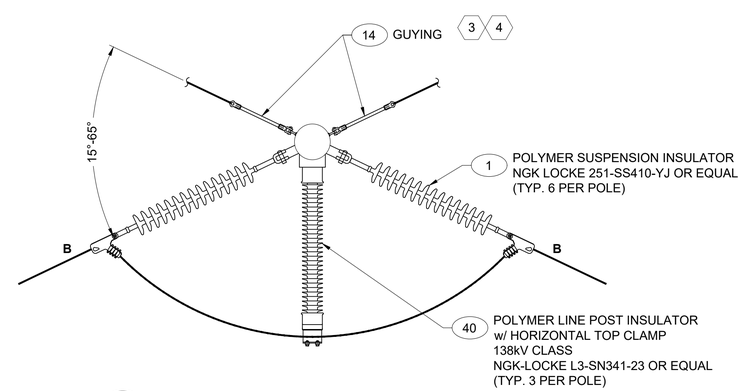
1 / E3.7 — 46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P7 (DOUBLE DEAD-END) (INSULATED UP TO 138kV)

SCALE: 1/2" = 1'-0"



A / E3.7 — STATIC SHIELD WIRE (SECTION "A")

SCALE: 1/2" = 1'-0"



B / E3.7 — TYPICAL PHASE (SECTION "B")

SCALE: 1/2" = 1'-0"

LEGEND

INDICATES DETAIL NUMBER	1
INDICATES DRAWING ON WHICH DETAIL APPEARS	E3.0
INDICATES ITEM NUMBER ON POWERLINE MATERIALS LIST	1

GENERAL NOTES:

1. SEE DRAWING E2.1 FOR APPROXIMATE POLE LOCATIONS. THE FINAL LOCATIONS OF THE POLES ARE TO BE DETERMINED BY THE CONTRACTOR AS FIELD CONDITIONS REQUIRE.
2. SEE SHEET E3.0 FOR POLE INSTALLATION NOTES AND POLE LINE CONDUCTOR AND CABLE SCHEDULE AND WOOD POLE GROUNDING NOTES AND GROUNDING CONNECTION DETAIL.
3. SEE SHEET E0.3 FOR OVERHEAD TRANSMISSION LINE MATERIALS LIST

SHEET NOTES:

1. SEE TRANSMISSION LINE POLE SCHEDULE (E2.1) FOR POWER POLE LENGTHS AND BURY DEPTH.
2. DIMENSION SHOWN IS FOR A 70' POLE. ADJUST ACCORDINGLY IF LONGER POLE IS USED.
3. THE GUY ANCHORS SHALL BE PLACED SUCH THAT THE HORIZONTAL DISTANCE FROM THE POLE BASE IS EQUAL TO THE HEIGHT ABOVE THE GROUND AT WHICH THE GUY IS ATTACHED TO THE POLE.
4. UPPER TWO GUYS SHALL TIE TO A COMMON ANCHOR AND LOWER TWO GUYS SHALL TIE TO A DIFFERENT ANCHOR. ANCHORS SHALL BE AT LEAST 8' APART.

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CURRENT DRAWING

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PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

Canyon Fuel Company, LLC
Scofield, Utah

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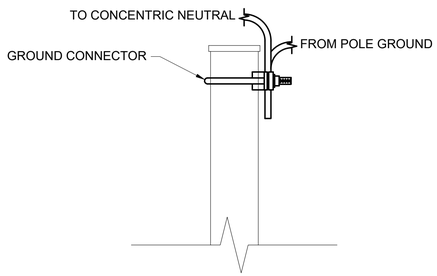
CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
46kV TRANSMISSION LINE STRUCTURES - POLE DESIGN P7 (DOUBLE DEAD-END)

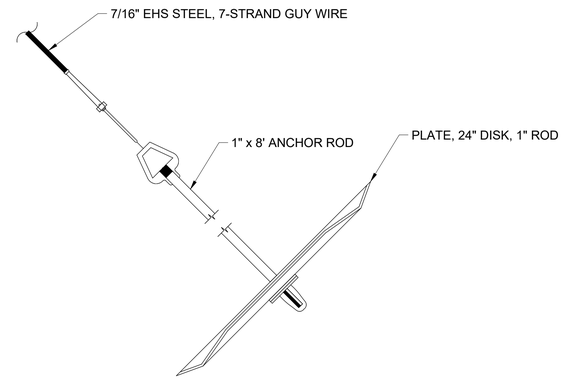
ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV.:
ADB	MVW	ADB	E3.7	A

FILENAME: 21208_E3.7_TRANSM_LINE_STRUCT_P7_DBL_DEAD-END_46kV

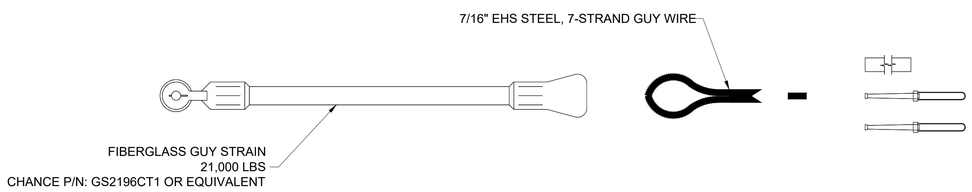
Date & Time plotted: 8/6/2020 12:50:28 PM



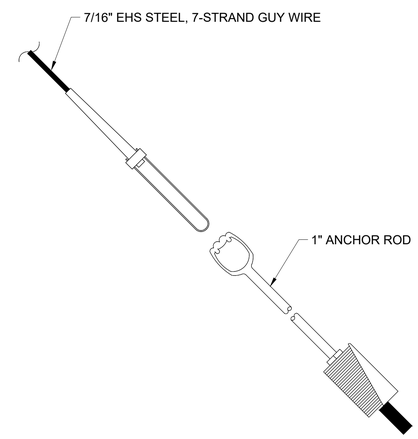
1 / E3.10 GROUNDING CLAMP DETAILS
SCALE: 2" = 1'-0"



3 / E3.10 GUY ANCHOR ASSEMBLY DETAILS
SCALE: N.T.S.



2 / E3.10 GUY ASSEMBLY, DEADEND, TEE POLE ATTACHMENT DETAILS
SCALE: N.T.S.



4 / E3.10 ROCK ANCHOR ASSEMBLY DETAILS
SCALE: N.T.S.

PRELIMINARY PLANNING

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REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK'D	APRV'D
B					
C					
D					
E					
F					
G					
H					

CURRENT DRAWING

STATUS	ACTION	DATE
PRELIMINARY /PLANNING	X	07/21/20
DESIGN DEVELOPMENT		
ISSUED FOR APPROVAL		
APPROVED FOR BIDDING		
APPROVED FOR CONSTRUCTION		
AS-BUILT DRAWING		
PROJECT NO.:	21208	

Canyon Fuel Company, LLC
Scofield, Utah

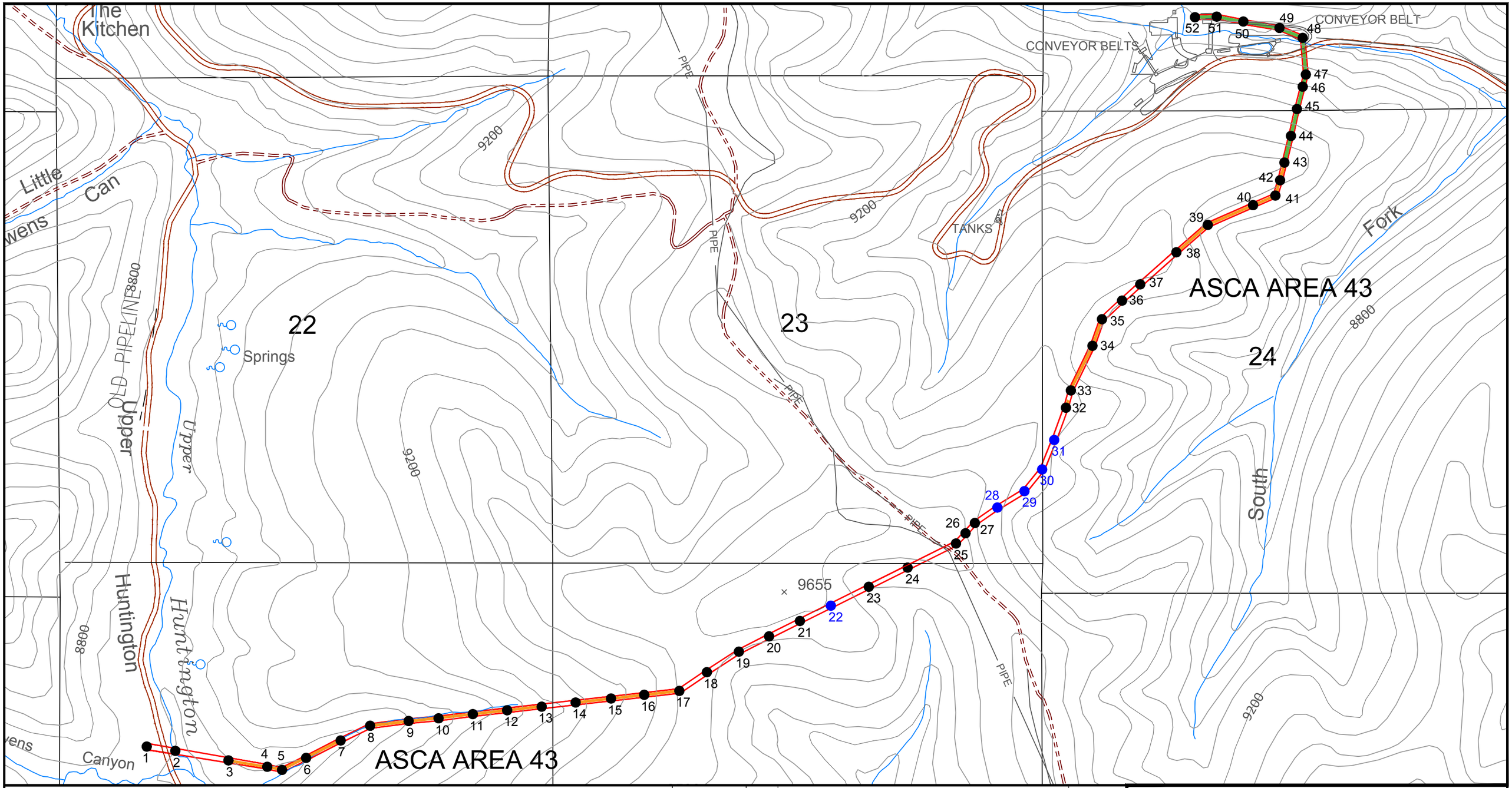
BRUNO ENGINEERING
90 EAST 1300 SOUTH
PRICE, UTAH 84501
PHONE: (435) 613-0700
EMAIL: info@brunoengineering.com

CANYON FUEL COMPANY
SKYLINE MINE - SWENS CANYON
46kV OVERHEAD TRANSMISSION LINE
TRANSMISSION LINE STRUCTURE MISC. DETAILS

ENGR'D BY:	DRAWN BY:	APRV'D BY:	SHEET NO.:	REV.:
ADB	MVW	ADB	E3.10	A

FILENAME: 21208_E3.10_TRANSM_LINE_STRUCT_MISC_DTLS_46kV

Date & Time plotted: 8/6/2020 12:50:37 PM



Legend

- Power Pole
- Cross Country Travel
- Auxiliary Road Construction
- Helicopter Installation
- 28 Pole Site with Pad but no Auxiliary Road

DATE	#	REVISIONS	DR. / CHKD.
10/2/2020	1	Added pole numbers and disturbance zones	TE / GG

Swens Canyon
Approximate Power Line
Construction

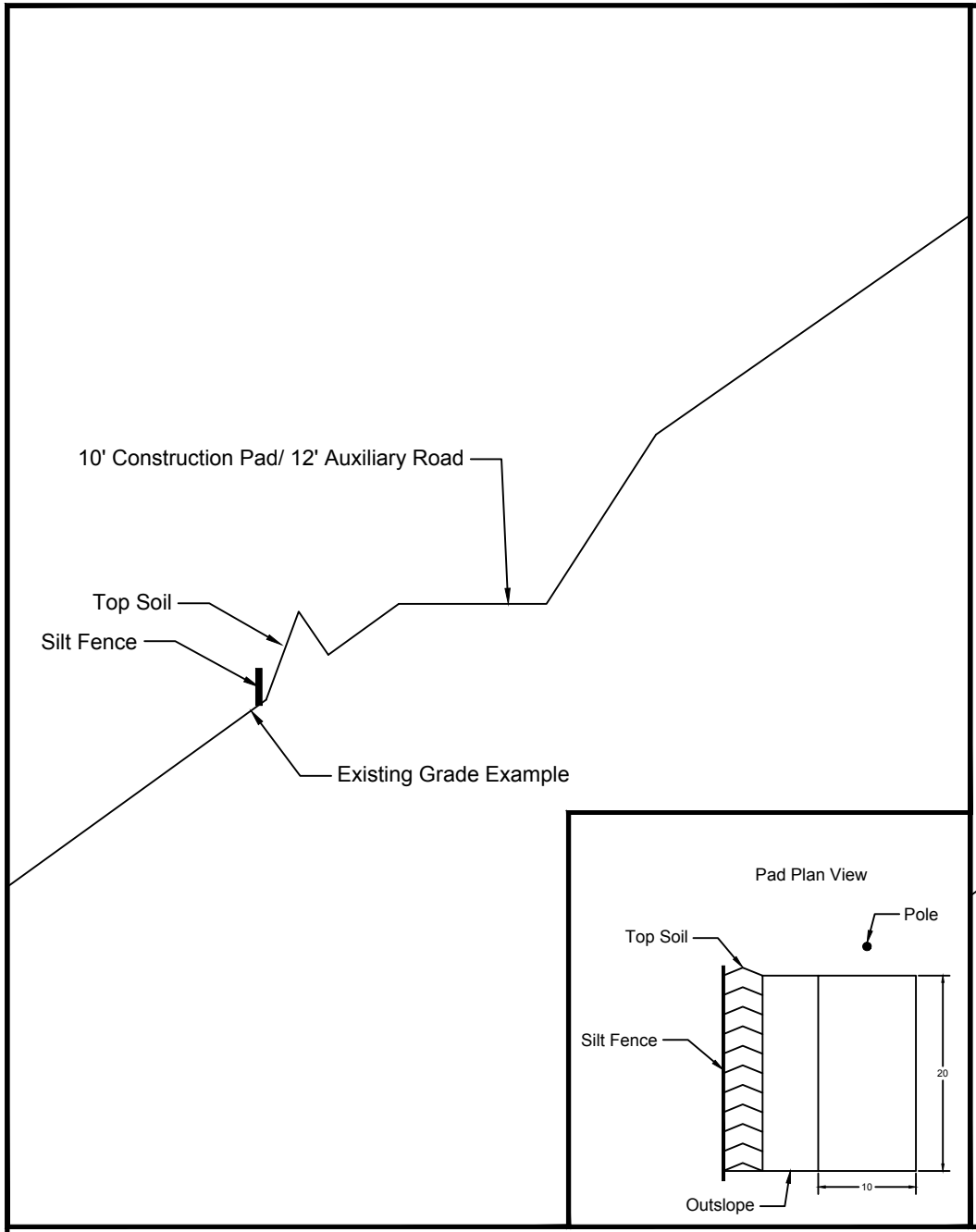
Canyon Fuel Company, LLC
Skyline Mines

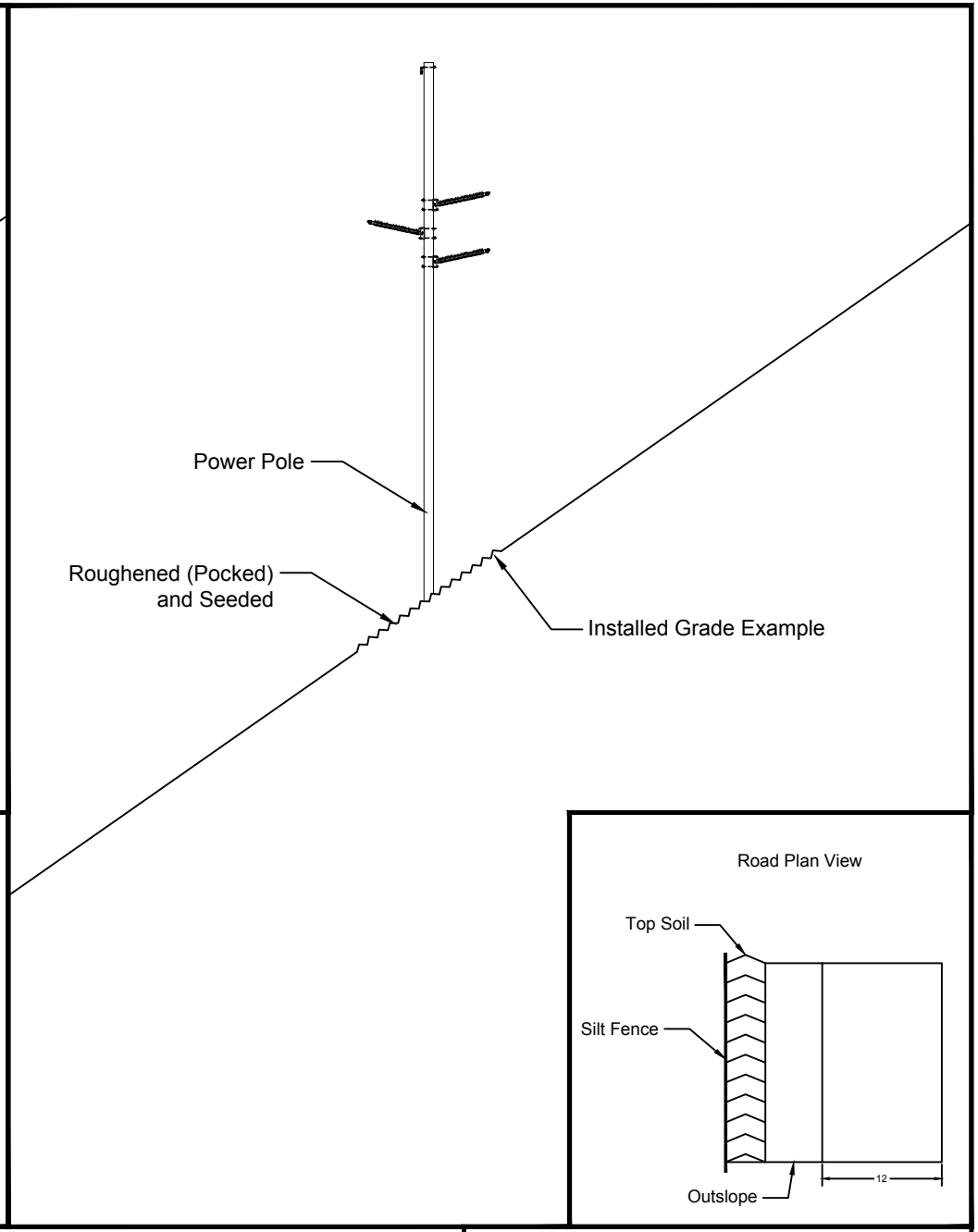
HCR 35 BOX380, HELPER, UT, 84526
435-448-2632

CAD FILE:

DATE: 4/20/20
SCALE: 1"=1000'
CK.BY: GGalecki
DR.BY: TEarl
REVISION: 1

DWG. NO.: 3.2-10-4

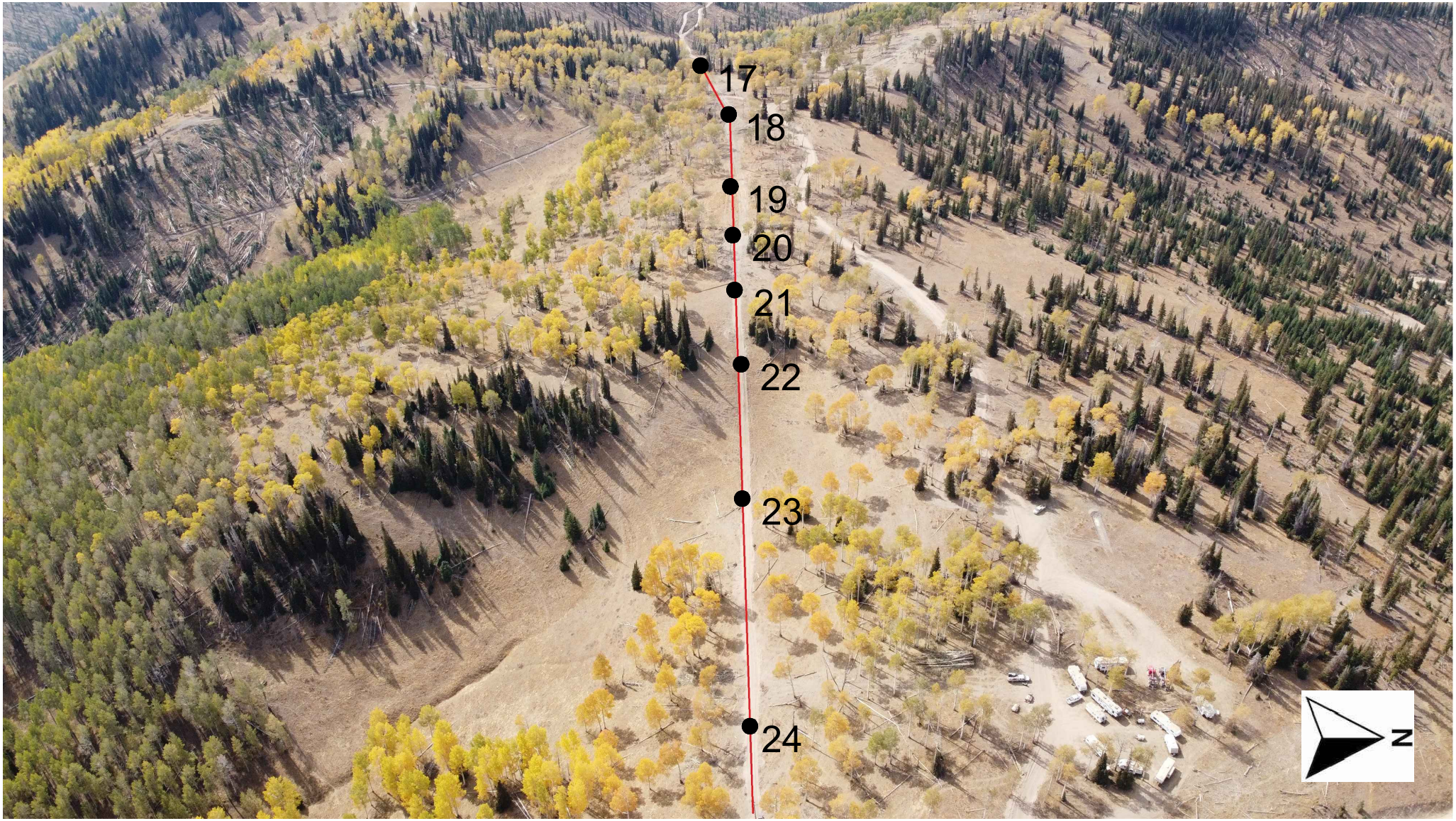




Skyline Mine
Swens Power Line Installation
Auxiliary Road and Pad Examples

Canyon Fuel Company, LLC
Skyline Mines

HCR 35 BOX380, HELPER, UT, 84526 435-448-2632	DATE: 9/30/20	CK.BY: GGalecki	REVISION: 0
CAD FILE:	SCALE: NTS	DR.BY: TEarl	
DWG. NO.: 3.2.10-5			



Legend

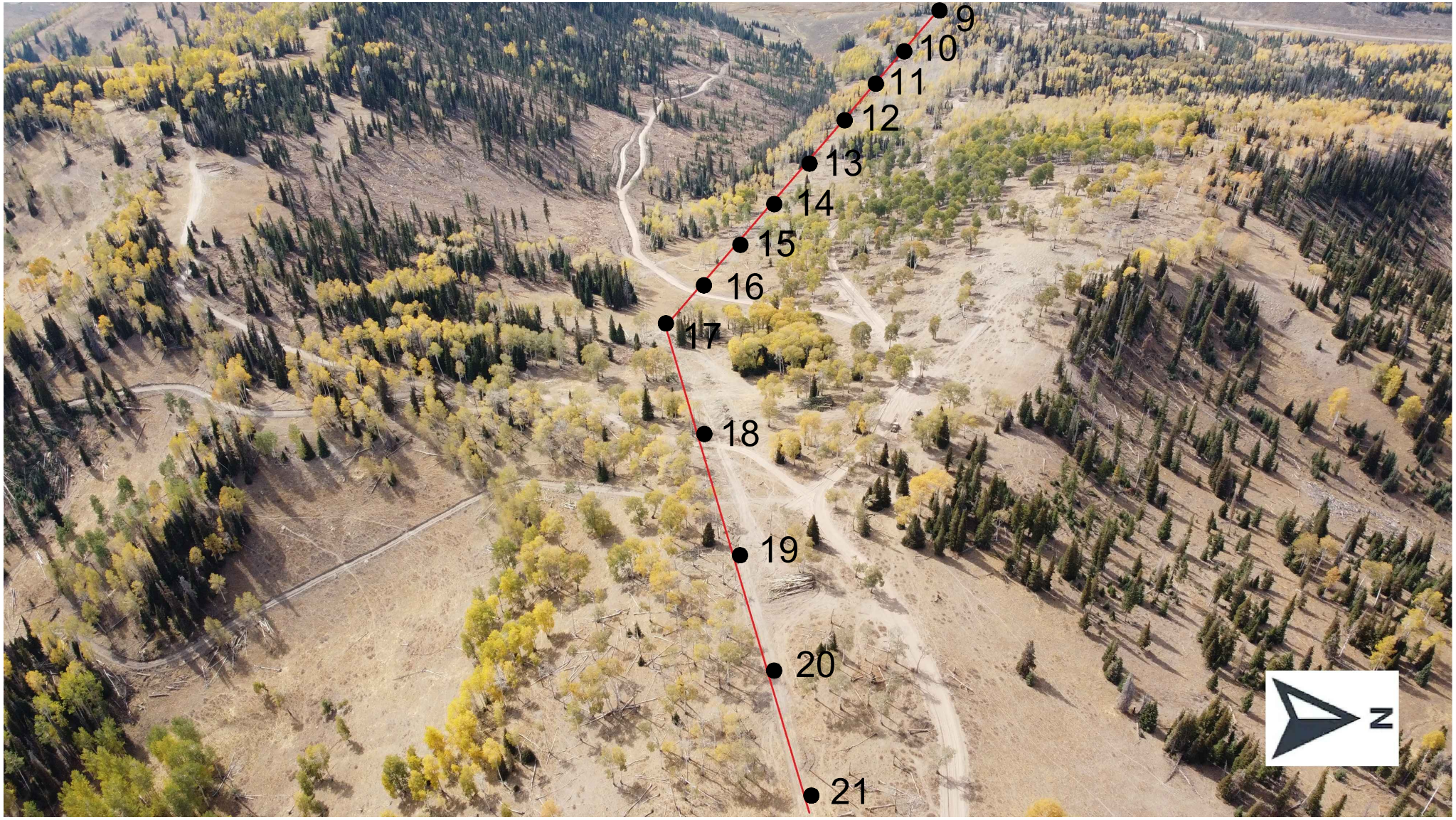
Approximate Power Line Routing

Approximate Power Line Poles

Skyline Mine – Swens Canyon Power Line
Overhead Photo – West 1
With Approximate Power Line and Pole Locations

Canyon Fuel Company, LLC
Skyline Mines

HCR 35 BOX380, HELPER, UT, 84526 435-448-2632	DATE: 10/7/20	CK.BY: GGalecki	REVISION:
CAD FILE:	SCALE: NTS	DR.BY: TEarl	
DWG. NO.: 3.2.10-6A			



Legend

Approximate Power Line Routing

Approximate Power Line Poles

Skyline Mine – Swens Canyon Power Line
Overhead Photo – West 2
With Approximate Power Line and Pole Locations

Canyon Fuel Company, LLC
Skyline Mines

HCR 35 BOX380, HELPER, UT, 84526 435-448-2632	DATE: 10/7/20	CK.BY:GGalecki	REVISION:
CAD FILE:	SCALE: NTS	DR.BY:TEarl	
DWG. NO.: 3.2.10-6B			

Legend

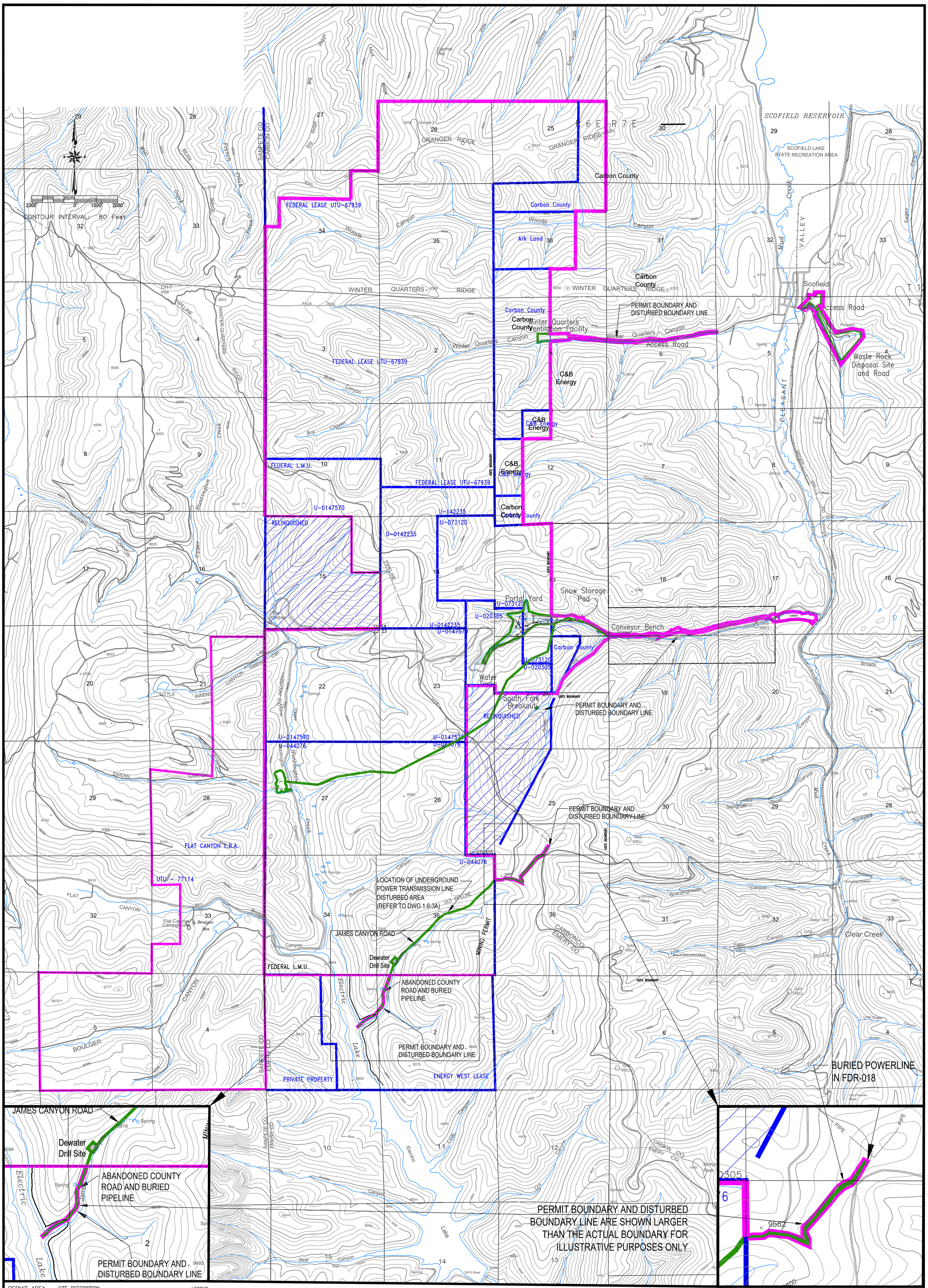
Approximate Power Line Routing

Approximate Power Line Poles

Skyline Mine – Swens Power line
Overhead Photo – East
With Approximate Power Line and Pole Locations

Canyon Fuel Company, LLC
Skyline Mines

HCR 35 BOX380, HELPER, UT, 84526 435-448-2632	DATE: 10/7/20	CK.BY: GGalecki	REVISION:
CAD FILE:	SCALE: NTS	DR.BY: TEarl	
DWG. NO.: 3.2.10-6C			



PERMIT AREA	SITE DESCRIPTION
13.86	RAIL LOADOUT
42.55	PORTAL YARD
0.60	WATER TANKS & WELL PADS
0.60	SOUTH FORK PORTALS
14.18	CONVEYOR BENCH
32.48	WASTE ROCK DISPOSAL SITE
7.93	WINTER QUARTERS VENTILATION FACILITY
4.90	WINTER QUARTERS ROAD (not reclaimed)
1.60	JAMES CANYON BURIED PIPELINE
0.30	JAMES CANYON BURIED POWER LINE
2.95	JAMES CANYON WATER WELLS AND ROAD
24.79	Swens Shaft and Power Line
146.74	

LEGEND

ADJACENT AREA: Areas Authorized for Coal Mining and Reclamation Activities (SEE CHIA FOR HYDROLOGIC ADJACENT AREA)

PERMIT BOUNDARY

LEASE BOUNDARY

NOTES:
1. COORDINATE BASE ON MINE GRID DATA.
2. MAP DIGITIZED FROM 1:24000 USGS QUADRANGLE MAPS, SCOFIELD, UTAH AND FAIRVIEW LAKES, UTAH.
3. MINE FACILITY, CONVEYOR, AND NEW ECCLES CANYON ROAD LOCATIONS FROM EXISTING RECORD DATA AND INCORPORATED TO MAP IN BEST FIT LOCATIONS.
4. UTM GRID TICK VALUES SHOWN ARE IN METERS.

LEASE ACREAGE WITHIN ADJACENT AREA

FEDERAL COAL	ACREAGE
U-0147570	1532.70
U-0142235	520.0
U-073120	557.22
U-044076	2489.32
U-020305	279.40
UTU-67939	4061.52
UTU-771114	2692.16
TOTAL	12,132.32

NON-FEDERAL COAL	ACREAGE
C&B COAL	120.00
CARBON COUNTY	811.25
ARK LAND COMPANY	240.00
Cunningham / Tracy	346.68
TOTAL	1,517.93

NOT ALL ACREAGE FOR EACH LEASE IS WITHIN THE PERMIT BOUNDARY, REFER TO PART 1, TABLE 1.114.

ADJACENT AREA SITE DESCRIPTION:
Active Lease Areas, Permit Boundary, and 1/2 Mile beyond Waste Rock Disposal Site

13,525 ACRES SITE PERMIT BOUNDARY

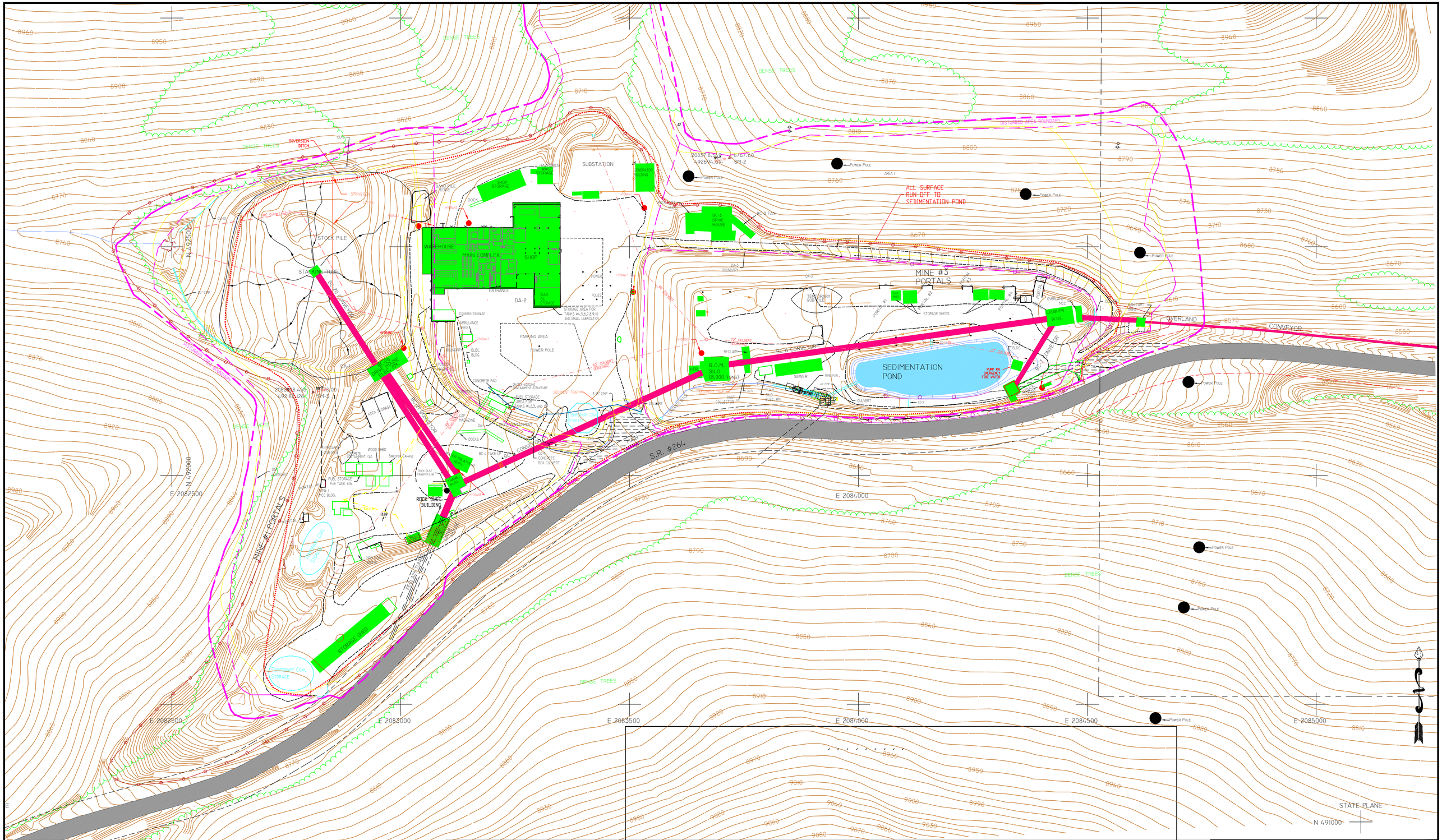
BASE PREPARED BY INTERMOUNTAIN AERIAL SURVEYS, SALT LAKE CITY, UTAH – M96147

DATE	No.	REVISIONS	DR. / CHKD.
AUG 02	1		/VSM
NOV 02	2		/VSM
JUNE 07	3	MODIFIED PERMIT BOUNDARY (IBC & WASTE ROCK) SKYLINE MINES PERMIT AREA, LEASE AREAS.	BR /GG
MAR 2010	4	ADDED ADJACENT AREA, MODIFIED PERMIT AND LEASE BOUNDARIES	AB /GG
JUL 2010	5	ADDED WINTER QUARTERS ACCESS ROAD	AB /GG
AUG 2010	6	MODIFIED ADJACENT AREA	AB /GG
OCT 2012	7	Modified Adjacent Area with Lease Mod. and Relinquishments	GG/ GG
July 2014	8	Corrected permit boundary to include water line from Tanks	GG /GG
April 2015	9	Added the NOG shaft pad	TE /GG
May 2016	10	Added Swens shaft pad and power line	JA /GG
Dec. 2016	11	Added Flat Canyon Lease – UTU-77114	JA /GG
Oct 17	12	Removed South Fork Road	TE /GG
1/2/20	13	Removed NOG shaft from drawing and legend	TE /GG
7/14/20	14	Removed Swens powerline road crossings	TE /GG
10/7/20	15	Added Swens powerline road crossings	TE /GG

SKYLINE MINE PERMIT AREA

Canyon Fuel Company, LLC
Skyline Mines
HC35 BOX 380, HELPER, UTAH 84526
435-448-6463

SCALE: 1" = 2000'	DATE: 9/24/01	CK.BY: G. Galecki	REVISION: 15
DWG. NO.: 1.6-3		DR.BY: JCA	
CAD FILE: 1.6-3REV15			10-7-20



LEGEND

DISTURBED AREA BOUNDARY: (AREA WITHIN WHICH RECLAMATION MUST TAKE PLACE)

AREA TRIBUTARY TO SEDIMENTATION POND:

SMALL AREA EXEMPTION:

ALTERNATIVE SEDIMENT CONTROL AREAS: (SEDIMENT CONTROLLED WITH STRAWBALES OR OTHER TECHNIQUES)

BEGINNING OR END OF DITCH:

DITCH SLOPE CHANGE:

NOTES

1. THE ALTERNATIVE SEDIMENT CONTROL AREAS WILL BE DISTURBED DURING PHASE 2 RECLAMATION.
2. THE DISTURBED AREAS ARE DESCRIPTIVE. AN ON THE GROUND SURVEY MADE IN 1985 DEFINES THE DISTURBED AREA AS 31.1 ACRES
3. SEE DRAWING 4.4.2-1A AND 4.4.2-1B FOR THE RECLAMATION PLAN AND CROSS SECTIONS.
4. NUMEROUS DEVICES SUCH AS PAVEMENT, TEMPORARY DRAINAGE AND GRADING CONTROLS, WHICH ARE NOT SHOWN ON THIS DRAWING ARE USED AS NECESSARY TO DIRECT RUNOFF TO THE PERMANENT DIVERSION FACILITIES SHOWN ABOVE.

I CERTIFY THAT THE INFORMATION CONTAINED HEREON IS CORRECT TO THE BEST OF MY KNOWLEDGE.

SEAL:

DATE	No.	REVISIONS	MINE BOARD	U.S.F. OR
6/9/99	1	ADDED SEDIMENT TRAPS, SPRING BOX AND PIPE	GT CWB	
4/27/01	2	ADDED FAN, DELETED FAN AND BUILDINGS	GT CWB	ALP
7/19/01	3	ADDED SEDIMENT TRAP TO UPPER YARD AT ENTRANCE TO MINE	GT CWB	ALP
1/30/06	4	ADDED MISSING TITLES TO BUILDINGS		GAG
7/13/06	5	ADDED TEMPORARY COAL STORAGE	GAG CWB	CTD
9/12/08	6	ADDED BC-3 FAN	ARB CWB	
3/18/09	7	ADDED OFF-LOADING CONTAINMENT STRUCTURES, REMOVED FUEL ISLAND	ARB CWB	
6/30/09	8	ADDED ROCK DUST TRANSFER LINE	ARB CWB	
3/9/10	9	ADDED AMBULANCE SHED	ARB CWB	
10/16/1410		ADDED ASPHALT AT TRUCK LOADOUT	GAG CWB	

DATE	No.	REVISIONS	MINE BOARD	U.S.F. OR
10/27/14	11	ADDED CU-2a 48"CULVERT	GAG CWB	
04/22/15	12	ADDED 2 NEW SURFACE SHEDS	GAG CWB	
09/16/15	13	ADDED SWEEPER GARAGE		GAG BLE
8-1-16	14	ADDED Fuel Bay Catwalk;BC-4Take-up slab. REMOVED 30Kgal. propane tank	GAG GAG	
10/18/16	15	ADDED Warehouse covered yard storage	GAG GAG	GAG
5-17-17	16	ADDED Generator Building		
10-2-20	17	ADDED Power Poles From Swens Canyon	GAG THE	

MINE SURFACE FACILITIES

PLOT PLAN

Canyon Fuel Company, LLC
Skyline Mines

P.O. BOX 380 HELPER, UTAH 84526
435-448-6463

CAD FILE: P:\PERMITS\SKY\...\3.2.1-1_...
DWG. NO.: 3.2.1-1_REV16

DATE: 6-30-06 | CK.BY: CWB/GAG
SCALE: 1" = 100' | DR.BY: GAG

REVISION: 17
10-2-20