

Michael Baker International

Subsurface Utility Engineering Report for Beacon Lite Road - FINAL Monument, CO

March 16, 2022

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ENGINEER'S CERTIFICATION

A pragmatic effort has been made to systematically designate and depict buried utilities within the corridor to the extent practical. Final utility plans are for design purposes only and reflect subsurface utility conditions at the time surveyed. Existing utility locations depicted on the plans do not supersede Colorado State One Call demarcations of buried utilities or relieve the contractor from the legal requirement to call One Call two working days prior to construction. Farnsworth Group, Kinetic Industry, and the project design engineer should be notified of any discrepancies between the utility designating / locating survey and One Call markings, and the contractor shall use caution until discrepancies are resolved. Existing utilities are located to a Quality Level B and A, except where noted, according to ASCE 38-02.

Contractor shall call the utility notification service before excavating as required by Law.

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

<u>QL B</u> James C. Cundall, PE

April 28, 2020



QL A – Along Palmer Divide Road (aka County Line Road)



December 17, 2020

QL A – Along Beacon Lite Road James Clyde Cundall, PE

March 16, 2022



INTRODUCTION:

Per the Farnsworth Group contract with Michael Baker International, we were contracted to provide Subsurface Utility Engineering (SUE) services for Beacon Lite Road. The Scope of services is described in our Proposal titled "Beacon Lite Road Improvement Project". Our deliverables include existing utilities located to a minimum Quality Level B per American Society of Civil Engineers (ASCE) 38 in accordance with C.R.S. Title 9, Article 1.5.

The following report summarizes the results of SUE, utility designating and locating services performed for the project. This work was performed by a combination of Kinetic Industry (Kinetic) and Farnsworth Group.

Kinetic is a detail-oriented Utility and Excavating Contractor. They provide underground utility locating, utility mapping (field sketches), and hydro-vacuum excavation/utility potholing services. Their utility locating, and test hole excavation services, in conjunction with Farnsworth Group engineers are performed to the standards set forth by ASCE 38-02, which is the standard guideline for the collection and depiction of existing subsurface utility data. All utility locates (electronic designation) are performed to ASCE Quality Level (QL) B standards and all utility potholing services meet ASCE QL A standards. They use state-of-the-art electromagnetic radio detection gear to designate all buried utilities and pothole them with one of the best hydro-vacuum excavators on the market.

Farnsworth Group performed the survey of the utility locates and potholes and incorporated them into the base drawing for the design. Farnsworth Group also provided the engineering review and certification of the findings.

Utilities are depicted on these plans in accordance with their "Quality Levels" as defined in the American Society of Civil Engineer's document ASCE 38, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data". Reliance upon these data for risk management purposes during bidding does not relieve the contractor or utility owner from following all applicable utility damage prevention statutes, policies, and/or procedures during excavation. It is important that the contractor investigates and understands the scope of work between the project owner and their engineer regarding the scope and limits of the utility investigation leading to these utility depictions.

This report documents the SUE field investigation and data interpretation. As required by the C.R.S. Title 9, Article 1.5: "Attempt to achieve ASCE 38 utility quality level B on all utilities within the proposed excavation area unless a reasonable rationale by a licensed professional engineer is given for not doing so". And "Document the reasons why any underground facilities depicted in the stamped plans do not meet or exceed ASCE 38 utility quality level A or its successor utility quality level for underground facilities at the point of a potential conflict with the installation of a gravity-fed system." Any exceptions to the Quality Level B and A requirements will be noted in this Report and on the stamped Plans.

DATA LIMITATIONS:

Although Phase 1 (QL B) utility designating of buried infrastructure has a goal of QL B, some facilities such as non-conductive waterlines are pragmatically designated to a mixture of QL C, B, and A (manhole inverts and/or exposed utility) during the Phase 1 field effort. Likewise, some non-conductive piping and/or ducts lacking tracer wire may be designated to QL D during the Phase 1 field effort. Data quality will be improved where required during Phase 2. Any utilities designated to QL C and/or QL D

quality levels will be explained and described in this SUE existing utility report as to why a quality level below QL B has been used.

PROJECT-SPECIFIC SCOPE OF WORK:

The SUE effort encompasses designating buried utilities and mapping above ground utility features within the project corridor identified by Michael Baker Engineers. The general description of the ORIGINAL area was Beacon Lite Road from Wakonda Way North to Palmer Divide Road (aka County Line Road), and East/West on Palmer Divide Road (aka County Line Road) as shown. See figure below for approximate area:



The general description of the REVISED area is Beacon Lite Road from approximately 950 feet south of Wakonda Way North to Palmer Divide Road (aka County Line Road), and East/West on Palmer Divide Road (aka County Line Road) as shown. See figure below for approximate area:



The project-specific scope of work included designating the utilities within specified project limits. The project scope included designating, as practical, to a target QL B, or QL A if the facility was exposed and accessible (manholes and/or exposed utilities attached to bridge), all identified underground utilities for Phase 1. Phase 2 (test holes) activities are a part of the current scope but not yet have been conducted and will be evaluated once design has progressed. Prior to performing the utility designation work, Kinetic submitted a SUE Request for Maps through the CO811 system and contacted all facility owners for utility maps (QL D). Definitions of the different Quality Levels is included in Appendix A for reference.

UTILITY OWNERSHIP:

Table 1 specifies utility ownership and representative contact information for utilities identified within the subject utility designating investigation project limits. Information is current as of the date of submittal.

UTILITY OWNER	UTILITY TYPE	CONTACT	PHONE/EMAIL		
Black Hills Energy	Gas	Vanngard	Phone: (608) 223-2014		
CDOT Region 2	Telco, Fiber, Street Lights	Dispatch Number	Phone: (719) 546-5600		
CDOT ITS	Fiber	USIC	Phone: (800) 778-9140		
Comcast	Cable & Fiber	USIC	Phone: (800) 778-9140		
IREA	Electric	USIC	Phone: (800) 778-9140		
Town of Monument	Water and Sewer	Dispatch Number	Phone: (719) 487-9291		
Mountain View Electric Assn	Electric	USIC	Phone: (800) 778-9140		
Century Link (Lumen)	Telecommunications and Fiber	USIC	Phone: (800) 778-9140		
Woodmoor Water & Sanitation District	Water and Sewer	Dispatch Number	Phone: (719) 488-2525		

TABLE 1: UTILITY OWNERSHIP AND CONTACTS (OBTAINED FROM CO 811):

Zayo Bandwidth – 360 Networks	Fiber Optics	Dispatch Number	Phone: (443) 403-2023
City of Colorado Springs Traffic Signals	Traffic	Dispatch Number	Phone: (719) 385-6721
Monument Sanitation District	Sewer	Dispatch Number	Phone: (719) 481-4886

CDOT Region 2, CDOT ITS, Woodmoor Water and Sanitation District, City of Colorado Springs Traffic Signals, and Monument Sanitation District are listed on the 811-member list and did not respond to mapping request.

PHASE I UTILITY DESIGNATING:

Utility designating work involves site meetings and investigations, collecting existing utility information from records obtained from the utility owners (See Table 1), verifying records with observable surface features, and geophysical surveys.

Utilities that could not be detected using standard electromagnetic inductive tools were mapped to QL C and D during this Phase 1 utility field investigation effort. As described earlier in this report (Data Limitations), in some situations, quality level objectives could not be met due to geophysical limitations such as excessive depth of facility, lack of tracer wire, non-conductive nature of pipe material, lack of surface features, lack of access, and/or insufficient records. The achieved quality levels for the Phase I utility designating effort are summarized in Table 2. Exceptions to Table 2 are noted on the CADD utility reference file and plan sheets.

All buried utility lines were located using electronic means (Electro-Magnetic Radio Frequency). Vivax-Metrotech radio detection equipment was utilized (V-Loc Pro2 and V-Loc Pro 3 receivers with 5-watt transmitters) and all utilities/lines were designated conductively using the following frequencies: 8.19 khz, 9.82 khz, 32.8 khz, 65.5 khz and 83.1 khz; lower frequencies (8.19 khz, 9.82 khz and 32.8 khz) were used primarily, the higher frequencies (65.5 khz and 83.1 khz) only as needed due to conductor integrity and extreme depth.

UTILITY OWNER – TYPE	PRIMARY LINES DESIGNATED	SERVICES/LATERALS MAPPED
Black Hills Energy - Gas	QL B	QL B
CDOT Region 2	N/A	N/A
CDOT ITS – Fiber Optic	N/A	N/A
Comcast – Fiber Optic	QL B	N/A
IREA - Electric	N/A	N/A
Town of Monument - Water	QL B / QL C	QL B / QL C
Mountain View Electric Assn	N/A	N/A
Century Link (Lumen)- Telephone	QL B	QL B
Woodmoor Water & Sanitation District	N/A	N/A
Zayo Bandwidth – 360 Networks	QL B	QL B

TABLE 1: UTILITY DESIGNATING RESULTS:

City of Colorado Springs Traffic Signals	N/A	N/A
Monument Sanitation District	N/A	N/A

Following the survey of the designated utilities, Farnsworth Group engineers communicated and coordinated with the following as necessary, Kinetic, the Design Engineer, Owner, Utility Companies, and Farnsworth Group surveyors, to exercise professional judgement, correlate the data from different sources, and to resolve issues resulting from conflicting and/or missing information. This information includes a field sketch (Schematic) by Kinetic, during their designating effort. Kinetic's "Locate Sketch" for this project is included below (Figure 2):



LOCATE SKETCHES





UTILITY DESCRIPTIONS:

The objective of Phase 1 is to depict and provide representative information for subsurface utilities present within the specified project limits. In all cases, please refer to the SUE existing utility reference CADD file for utility details, location specific quality level attributes, and identified discrepancies. The following utility specific sections are general descriptions of utilities encountered within the project limits. They also provide any special project issues or discrepancies between utility records and field findings, unusual utilities, and utilities found to have incomplete or conflicting information. These issues may warrant further investigation. The following provides a descriptive summary of the depicted utilities and discusses the quality level of that information. The Utility Company provided Mapping is included in Appendix C.

SUMMARY:

For this investigation, QL B is tied to project horizontal coordinates, but elevations are at the ground surface, except for culvert inverts and manhole inverts. These invert elevations were surveyed. QL C alignments are straight lined between visible surface features, consequently they will not reflect ground surface undulations. QL D alignments are approximate only and will not reflect ground surface undulations.

GAS:

BLACK HILLS ENERGY – All mapping sent over by Black Hills Energy did not indicate pipe size or pipe materials. Kinetic Industry designated a gas main line running north to south along Beacon Lite Rd starting at the south end of the project area and terminating approximately 530 feet south of County Line Rd. Gas main was located inside as well as alongside Beacon Lite Road; Kinetic Industry electronically designated service laterals of unknown size servicing properties within this stretch. Kinetic Industry also electronically designated two (2) gas main lines heading west from Beacon Lite Rd; one on Wakonda Way and one on Bricker Rd.

All Black Hills Energy owned gas lines electronically designated appear to be plastic (HDPE or PVC) due to the existence of tracer wires but it is possible that Black Hills Energy cad welded the tracer wires to the gas main lines; without mapping that illustrates size and material it is impossible to guarantee said lines are plastic. Kinetic Industry designated a steel gas main running east to west on the north side of County Line Rd.

TELECOMMUNICATIONS/FIBER OPTIC:

CDOT ITS – Neither CDOT ITS nor its representative released any mapping for their facilities. There was no visible evidence or above ground appurtenance indicating that CDOT ITS has any buried facilities within the survey area.

ZAYO BANDWIDTH – 360 NETWORKS – Zayo Bandwidth-360 Networks has a fiber optic line that runs west from I-25 to Beacon Lite Road on the south side of County Line Road and then south from the hand hole at the southeast corner of the intersection of Beacon Lite Road and County Line Road down to just south of Bricker Road.

CENTURY LINK – Kinetic Industry Designated a 200 pair copper phone cable running north to south along Beacon Lite Rd from Wakonda Way north to the telco pedestal on the southwest corner of Bricker Rd. Kinetic Industry electronically designate a 25 pair copper phone cable running north from the telco pedestal on the southwest corner of Bricker Rd and Beacon Lite Road running north to the southwest

corner of County Line Rd then heading west on the south side of County Line Road.

COMCAST – Kinetic Industry located a 24 strand fiber optic cable owned by Comcast that does not show on records provided running east to west on the south side of County Line Rd from the west survey limit going east to the southeast corner of Beacon Lite Road then south and running south to the Comcast Regeneration Facility on the east side of Beacon Lite Road just South of Bricker Rd. All other Comcast owned facilities were installed overhead on poles.

POWER:

INTERMOUNTAIN RURAL ELECTRIC ASSOCIATION (IREA) – Intermountain Rural Electric Association (IREA) owned electric facilities were installed overhead on poles; no buried IREA facilities were electronically designated.

MOUNTAIN VIEW ELECTRIC ASSOCIATION – Mountain View Electric Association (MVEA) owned electric facilities were installed overhead on poles; no buried MVEA facilities were electronically designated.

POTABLE WATER AND SANITARY SEWER:

TOWN OF MONUMENT – The following figures were supplied by the Town of Monument for their water lines. There are two lines, one 12-inch and one 8-inch connecting to and from the storage tank to the North. Portions of the water line was not locatable as they are plastic and were not installed with tracer wires. Some of the water line was traceable and locatable from the fire hydrants and was located to QL B as shown on the CAD drawing. The hydrants were located by Kinetic and surveyed by Farnsworth Group. The Town supplied a representative to locate the valves and point out where buried valves are so that they could be electronically located by the surveyor and are on the CAD file. The valves will be quality level B as they were not visible but were determined electronically and surveyed.

WOODMOOR WATER & SANITATION DISTRICT – Woodmoor Water & Sanitation District does not have any buried facilities within the survey area.

MONUMENT SANITATION DISTRICT – Monument Sanitation District never released any mapping for their facilities. There was no visible evidence or above ground appurtenance indicating that Monument Sanitation District has any buried facilities within the survey area.

TRANSPORTATION:

CITY OF COLORADO SPRINGS TRAFFIC SIGNALS – City of Colorado Springs Traffic Signals never released any mapping for their facilities. There was no visible evidence or above ground appurtenance indicating that City of Colorado Springs Traffic Signals has any buried facilities within the survey area.

CDOT REGION 2 – Neither CDOT Region 2 nor its representative released any mapping for their facilities. There was no visible evidence or above ground appurtenance indicating that CDOT Region 2 has any buried facilities within the survey area.

PHASE II UTILITY TEST HOLES (POTHOLES):

Requested utility potholing test holes along County Line Road were completed on November 17 and November 19, 2020, while the potholes along Beacon Lite Road were completed in February of 2022.

UTILITY DISCREPANCIES, ISSUES, AND NOTES:

See Plans.

FILE INFORMATION:

DIGITAL FILE SUBMITTALS:

The existing utility CADD reference file has the electronic data inserted and the appropriate levels based on the ASCE 38-02 design standards are labeled. The SUE plans identifying the existing utilities and potholes are in Appendix B.

APPENDIX A:

SUE Quality Levels from CDOT

Quality Level D ("QL D") information comes solely from existing utility records. It may provide an overall "feel" for the congestion of utilities, but it is often highly limited in terms of comprehensiveness and accuracy. Its usefulness may be limited to early design stage (project planning and route selection) activities or to projects with minimal planned excavations.

Quality Level C ("QL C") involves surveying visible above-ground utility facilities, such as manholes, valve boxes, posts, etc., and correlating this information with existing utility records (i.e., QL D data). When using this information, it is not unusual to find underground utilities that have been either omitted or erroneously plotted. QL C information may not, however, eliminate all inaccuracies; nor will it reveal an unrecorded line that has no surface features. Therefore, its usefulness may be limited to preliminary design reviews or to projects with minimal anticipated conflicts.

Quality Level B ("QL B") involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities. This activity is called "designating". It further correlates utility records and surface topographical information and may also help reveal unrecorded lines. Two-dimensional mapping information is obtained. This information may be sufficient to accomplish preliminary engineering goals, by helping the designer to determine where to place storm drainage systems, footers, foundations, and other design features in order to avoid conflicts with existing utilities. Slight adjustments in the design may produce substantial cost savings by eliminating utility relocations.

Quality Level A ("QL A ") involves the use of nondestructive digging equipment at discrete, critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material, and other characteristics. This activity is called "locating." It is the highest quality level presently available. This information, when combined with other surveyed and mapped information, allows the designer to infer plan and profile information, for use in making final design decisions. By knowing exactly where a utility is positioned in three dimensions, the designer can accurately determine the extent of a utility conflict or can often make small adjustments in elevations or horizontal locations and avoid the need to relocate utilities. Additional information such as utility material, condition, size, soil contamination, and paving thickness also assists the designer and utility owner in their decisions. QL A information (in the form of test hole logs), when included in the project bid documents, may yield more favorable bids due to reduced contractor uncertainty about subsurface conditions.

APPENDIX B:

SUE Drawings

	UTILITY GENERAL NOTES: 1. THIS SURVEY INCLUDES INFORMATION TO SUPPORT THE CREATION OF A DESIGN PLAN DEPICTING EXISTING UTILITIES AND PROPOSED EXCAVATIONS PREPARED UNDER THE RESPONSIBLE CHARGE OF A LICENSED PROFESSIONAL ENGINEER.	
J	2. UTILITY RESEARCH WAS PERFORMED PER ASCE 38-02 SUE QUALITY LEVEL D (QL-D) SPECIFICATIONS. THIS INCLUDED CONTACTING COLORADO 811 FOR A LIST OF KNOWN UTILITIES IN THE AREA, MAKING A SURFACE REVIEW OF THE SITE FOR EVIDENCE OF OTHER UTILITIES, AND CONTACTING ANY APPARENT UTILITY OWNERS. UTILITY SYSTEM MAPS, GIS DATA, AND ORAL EVIDENCE OF UTILITIES WERE OBTAINED FOR ALL FOUND EVIDENCE OF UTILITIES AND KNOWN SERVICES TO ADJACENT PROPERTIES.	er Divide Rd
-	3. UTILITIES ARE DEPICTED ON THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED QUALITY LEVELS AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEERS' DOCUMENT ASCE 38, STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY INFORMATION AND REPRESENT CONDITIONS AT THE TIME OF DATA COLLECTION. THESE PLANS DO NOT RELIEVE THE CONTRACTOR FROM FOLLOWING ALL APPLICABLE UTILITY DAMAGE PREVENTION STATUTES AND PROCEDURES DURING EXCAVATION. PRIOR TO CONSTRUCTION, CONTRACTOR VERIFICATION OF LOCATION AND DEPTHS OF UTILITIES FOR DAMAGE PREVENTION SHALL BE BORNE BY THE CONTRACTOR AND SHALL BE COMPLETED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.	
	 ALL UTILITIES DEPICTED WERE LOCATED AT A QUALITY LEVEL B, EXCEPT AS NOTED ON THE DRAWINGS, IN THE REPORT AND AS BELOW: ALL STORM AND SANITARY SEWERS ARE QUALITY LEVEL A (QL-A) AT MANHOLES/OUTFALLS THAT COULD BE MEASURED WITHOUT ENTRY AND HAVE NOTED INVERT ELEVATIONS. ALL STORM AND SANITARY SEWER LINES BETWEEN MANHOLES/OUTFALLS ARE QUALITY LEVEL C (QL-C). 	
н	5. UTILITY TRACING WAS PERFORMED BY KINETIC ENERGY SERVICES, LLC. FIELD SURVEYING PERFORMED BY FARNSWORTH GROUP. UTILITY DEPICTIONS AND QUALITY LEVEL DESIGNATIONS APPLY ONLY TO THE AREA WITHIN THE SUE BOUNDARY.	
	6. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITIES TO COORDINATE SCHEDULING, SHOULD ANY CONFLICTS, RECONSTRUCTION, OR INTERRUPTIONS IN SERVICE BE REQUIRED, THE CONTRACTOR SHALL COORDINATE UTILITY SCHEDULING.	
G	7. THE CONTRACTOR SHALL CORRECTLY SHOW ON SUBMITTED DRAWINGS THE LOCATIONS OF ALL UTILITIES IN THE VICINITY WHERE THE CONTRACTOR MAY BORE, TRENCH, EXCAVATE, AND INSTALL CONDUIT, FIBER, FIBER ENCLOSURES, VAULTS, AND HANDHOLDS. IN THE EVENT THAT THE CONDUIT RUN, FIBER ENCLOSURES, VAULTS, OR HANDHOLDS ARE LOCATED WITHIN THE VICINITY OF ANY UTILITY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION THAT WILL PREVENT DAMAGE TO THE INSTALLATION UNDER NORMAL UTILITY OPERATING CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN INFORMATION ON EACH OF THE UTILITIES AS APPLICABLE SUCH AS GAS PRESSURE, STEAM, AND WATER PRESSURES, TEMPERATURES, ETC.	
F	8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE FOR EVIDENCE OF FAILURES OF OR DEFICIENCIES IN UTILITY COMPANY FACILITIES (I.E. XCEL, CENTURYLINK, ETC) AND TO IMMEDIATELY CALL ANY SUCH EVIDENCE OF PRE-EXISTING DAMAGE TO THE ATTENTION OF THE UTILITY COMPANY ALONG WITH THE PROPER DOCUMENTATION. THE CONTRACTOR HEREBY AGREES THAT THE REPAIR OF ANY AND ALL DAMAGES (DIRECT AND INDIRECT), THAT MAY BE SUBSEQUENTLY DISCOVERED AND PROVEN TO HAVE BEEN CAUSED BY THE CONSTRUCTION ACTIVITIES, IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR WITHOUT SUCH EVIDENCE OF PRE-EXISTING DAMAGE. THE CONTRACTOR HEREBY AGREES THAT ANY AND ALL DAMAGES (DIRECT OR INDIRECT) TO UTILITY COMPANY FACILITIES, WHICH MAY BE SUBSEQUENTLY DISCOVERED WITHIN THOSE AREAS WHERE CONSTRUCTION OCCURRED WITHIN SIX-FEET (6') OF UTILITY COMPANY FACILITIES (DIRECT OR INDIRECT), AND WITHIN A PERIOD OF THREE YEARS FROM THE DATE OF CONSTRUCTION, WERE CAUSED BY THE CONSTRUCTION ACTIVITIES. FURTHERMORE, THE REPAIR IS AGREED TO BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL UTILITY COMPANY FACILITIES WITHIN THE AREA OF CONSTRUCTION. THIS INCLUDES ALL STEPS NECESSARY TO PREVENT SUBSIDENCE OF THE SOIL ADJACENT TO OR NEAR UTILITY COMPANY FACILITIES.	
	9. FARNSWORTH GROUP AND SURVEYOR OF RECORD ARE NOT RESPONSIBLE FOR LOCATING FEATURES WHICH WERE ADDED OR REMOVED AFTER THE SURVEY OF THE UTILITY LOCATES WAS COMPLETED.	
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		6				7		8	3		9	
Potho	le	Northing	Easting	Elev	Depth	Т.О.Р.	Utility Owner	Туре	Material	Size	Note	
PALMER DIV	IDE RO F P1	DAD POTHOLES	97868.859	7324.92	3.58	7321.34	IRFA	FLFC	PVC	3 X 2"		
POTHOLE	E P3	101918.626	97981.614	7321.61	3	7318.61	LUMEN	FO	PVC	2.5"		
POTHOLE	E P4 E P5	101917.171	97891.362 97870.777	7321.4	3	7318.4	COMCAST BH	FO HP GAS	PVC STEEL	2" 8"		
POTHOLE	E P6	101952.874	98374.113	7341.56	5	7336.56	BH	HP GAS	STEEL	8"		
POTHOLE	E P7 E P8	101923.617	99242.159 99799.784	7359.03 7313.01	19 4.58	7340.03 7308.43	ZAYO BH	FO HP GAS	NA CONCRETE	NA	CLEAR TO 19-FEET CONCRETE ENCASEMENT	
BEACON LIT	TE RO	AD POTHOLES							1 ·			
POTHOL POTHOLE	LE 1 F 1 4	101380.630	98982.027	7371.804		7371.804	LUMEN	FO	NA NA	NA NA	DUG TRENCH BETWEEN POINTS 1 AND 1A -	Harnsworth
POTHOL	LE 2	101366.070	98963.658	7366.891	2.97	7363.921	BH	GAS	PVC	2"		
POTHOL	LE 4	101065.482	98963.561	7354.252	2.95	7351.302	BH	GAS	PVC	2" 2v 1 5"		
POTHOL	LE 6	100914.245	98982.263	7350.700	0.74	7349.96	BH	GAS	PVC	2/ 1.5		223 WILLOW STREET FORT COLUNS, COLORADO, 80524
		100810.429	98948.516	7357.753	1	7356.753		FO	PVC	0.5"		(970) 484-7477 / info@f-w.com
POTHOL	LE 9	100369.910	99024.624	7359.770	6.3	7353.47	ZAYO	FO	PVC	2x 1.5"		
POTHOL	E 10	100166.823	99023.453	7348.712	6	7342.712	ZAYO	FO	PVC	2x 1.5" 2"		www.f-w.com
POTHOL	E 12	99745.105	99020.016	7365.078	6.15	7358.928	ZAYO	FO	PVC	2x 1.5"		Engineers Architects Surveyors Scientists
	E 14 F 15	99567.605	98994.366 98994.532	7375.074	<u>4.57</u> 9.14	7370.504	LUMEN MONUMENT WATER	FO W	PVC DIP	1" 12"		ISSUE:
POTHOL	E 16	99316.136	99006.523	7379.899	6.4	7373.499	MONUMENT WATER	W	PVC	8"		
	.E 17 F 19	96573.414	98949.063 98745.518	7198.859	3.47	7195.389	BH	GAS GAS	PVC PVC	2" 2"		
POTHOL	 E 24	96041.812	98955.418	7203.88	0	7203.88	LUMEN	FO			PHONE HUB	
POTHOLE	E 24A .E 25	96042.8912	98955.418 98971 755	7202.72	0 3.71	7202.72	LUMEN LUMFN	FO FO	PC	1"	PHONE CONDUIT	
POTHOLI	E 27	95891.672	99001.523	7191.334	5	7186.334	MONUMENT WATER	W	PVC	8		Michael Baker
POTHOLE	E 27A	95891.279	98988.308 98973 954	7192.133	5.91 3.68	7186.223	MONUMENT WATER	W GAS		12 2"		
POTHOL	E 31	100813.417	98982.697	7353.068	2.18	7350.888	COMCAST	FO	PVC	0.75"		INIERNATIONAL
						LEG	END					
Ē) E	ELECTRICAL	MANHC	DLE			<i>W</i>	— V	ATER LIN	NE, SIZE	E AS SHOWN, QL-B	
\searrow	.) E		BOX				[<i>W</i>]	— V	ATER LIN	NE, SIZE	E AS SHOWN, QL-D	
Δ	E						<i>E</i>	— E		LINE, Q	L-B	
Δ	∖ E		L TRANSI	FORMER	< compared with the second sec		[<i>E</i>]	— E		LINE, Q	L-C/QL-D	
X	ن ۲						0	— 0 — G			I RIC LINE, QL-A	
	(=		[6]	— G	AS LINE,	QL-D QL-C/Q	I-D	Project Status
FO	⊂ F			30X	_		F0	— F	IBER OPT		QL-B	NOT FOR CONSTRUCTION
[7]] (COMMUNICA	ATIONS E	BOX			[F0]		IBER OPT		, QL-C/QL-D	
\Box) (COMMUNICA	ATIONS N	MANHOL	E		<i>T</i>	— c	OMMUNIC	CATION	/TELEPHONE LINE, QL-B	PROJECT:
\otimes	١	WATER VAL	VE				[<i>T</i>]	— C	OMMUNIC	CATION	/TELEPHONE LINE, QL-D	
ď	F	FIRE HYDRA	NT				<i>TV</i>	— C	ATV LINE	, QL-B		
\bigcirc) 5	SANITARY S	EWER M	ANHOLE	Ē		OU	— O		D CATV	LINE, QL-A	
Г			A TION -				ST	— S	TORM SE	WER LI	NE, QL-C	BEACON LITE POAD
V	ι	JIILITY LOC	ATION P	OST (TE	LEPHONE	-) —	[<i>ST</i>]	— S	I ORM SE	WER LI	NE, QL-D	
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Pothole	Northing	Easting	Elev	Depth	Т.О.Р.	Utility Owner	Туре	Material	Size	Note	
OTHOLE P1	ROAD POTHOLES	97868 859	7324 92	3 58	7321 3/	IREA	FLEC	PV/C	3 8 7"		
OTHOLE P3	101918.626	97981.614	7321.61	3	7318.61	LUMEN	FO	PVC	2.5"		
OTHOLE P4 OTHOLE P5	101917.171	97891.362 97870.777	7321.4	3	7318.4	COMCAST BH	FO HP GAS	PVC STEEL	2" 8"		
OTHOLE P6	101952.874	98374.113	7341.56	5	7336.56	BH	HP GAS	STEEL	8"		
OTHOLE P7 OTHOLE P8	101923.617	99242.159 99799.784	7359.03	4.58	7340.03	BH	HP GAS	CONCRETE	NA	CONCRETE ENCASEMENT	
CON LITE RO	DAD POTHOLES	00000 007	7274 004		7271.004		50				
OTHOLE I OTHOLE 1A	101380.630	98982.027 98986.663	7371.804		7371.804	LUMEN	FU	NA NA	NA NA	DOG TRENCH BETWEEN POINTS 1 AND 1A - DOWN TO 10.7 FEET AND FOUND NOTHING	Farnsworth
POTHOLE 2	101267.266	98963.658	7366.891	2.97	7363.921	BH	GAS	PVC	2" 2"		GROUP
POTHOLE 5	101003.482	99025.045	7344.095	6.27	7337.825	ZAYO	FO	PVC	2 2x 1.5"		223 WILLOW STREET
OTHOLE 6	100924.125	98982.263 98948.516	7350.700	0.74	7349.96 7356.753	BH COMCAST	GAS FO	PVC PVC	2" 0.5"		FORT COLLINS, COLORADO 80524
OTHOLE 8	100636.414	98957.610	7358.685	1.05	7357.635	LUMEN	FO	PVC	0.5"		(970) 484-7477 / Inio@i-w.com
OTHOLE 9 OTHOLE 10	100369.910	99024.624 99023.453	7359.770	6.3	7353.47	ZAYO	FO FO	PVC PVC	2x 1.5" 2x 1.5"		·
OTHOLE 11	100168.889	98977.507	7354.243	4.8 6.15	7349.443	BH	GAS	PVC	2" 2v 1 5"		www.t-w.com Engineers Architects Surveyors Scientists
OTHOLE 12 OTHOLE 14	99567.605	98994.366	7375.074	4.57	7370.504	LUMEN	FO	PVC	1"		ISSUE:
OTHOLE 15 OTHOLE 16	99314.940	98994.532 99006.523	7376.176	9.14 6.4	7367.036	MONUMENT WATER	W W	DIP PVC	12" 8"		# DATE: DESCRIPTION:
OTHOLE 17	96573.414	98949.063	7198.859	3.47	7195.389	BH	GAS	PVC	2"		
OTHOLE 19 OTHOLE 24	96518.291 96041.812	98745.518 98955.418	7187.402	<u>3.46</u> 0	7183.942 7203.88	BH LUMEN	GAS FO	PVC	2"	PHONE HUB	
OTHOLE 24A	96042.8912	98955.418	7202.72	0	7202.72	LUMEN	FO		11	PHONE CONDUIT	
OTHOLE 25 OTHOLE 27	95900.283	98971.755	7194.883	<u> </u>	7191.173	MONUMENT WATER	FO W	PVC	1 8		Michael Baker
OTHOLE 27A	95891.279	98988.308	7192.133	5.91	7186.223		W	DIP	12 2"		
OTHOLE 30	100813.417	98982.697	7353.068	2.18	7350.888	COMCAST	FO	PVC	0.75"		INTERNATIONAL
OTHOLE 32	99590.898	99018.069	7369.203	7.25	7361.953	ZAYO	FO	PVC	2x 1.5"		
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CONTRAC EXCAVAT	CTOR SHALL CALL	L THE UTILII D BY LAW.	TY NOTIFICA	ATION SERVIC	E BEFORE						BEACON LITE ROAD SUE - GENERAL INFORMATION
A CONTRACTOR	41831 3/16/2022										SHEET NUMBER:
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SHEET TITLE:

BEACON LITE ROAD SUE - DETAILED SITE VIEWS

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PROJECT NO.:

PROJECT NO.:

APPENDIX C:

Existing Utility Company Provided Drawings:

GAS: Black Hills Energy:

TELECOMMUNICATIONS/FIBER OPTIC:

Zayo Bandwidth – 360 Networks

KMZ Added to plans 5/19/2020 - EMK

GROUP

COLORADO SPRINGS FIBER OPTIC NETWORK VERIZON CSP DFTT PROJECT SITE: CSP MONUMENT HILL

MATERIAL LIST

DESCRIPTION	UNIT	QUANTITY
(1) 4" HDPE	LF	14'
BORE (2) 1.25" HDPE	LF	2,252'
PLACE (2) 1.25" HDPE	LF	1,305'
(1) 2" HDPE	LF	9'
48 FIBER OPTIC CABLE	LF	3,926'
24x36x24 HANDHOLE	EA	4
30X48X36 HANDHOLE	EA	1

AS-BUILT FEBRUARY 18, 2019

3900 S WADSWORTH BLVD, STE 700 LAKEWOOD, CO 80235

LIST OF DRAWINGS

<u>Sheet Number</u>	DESCRIPTION
COVER	COVER SHEET AND MATERIAL LIST
Τ1	LIST OF DRAWINGS
T2-T2A	KEY MAP
ТЗ	CONTACT SHEET
Τ4	LINETYPES AND BLOCKS
T5-T5A	HANDHOLE DETAIL
Т6	CONSTRUCTION NOTES
001-007	DRAWINGS

DESCRIPTION	UNIT	QUANTITY	DESCRIPTION	UNIT	QUANTITY	
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FACILITY OWNER	SITE CONTACTS	UTILITY CO
ZAYO GROUP 1805 29TH ST, SUITE 100 BOULDER, CO 80301 BEAU DILLON CELL: (719) 433–4054 EMAIL: BEAU.DILLON@ZAYO.COM	ZAYO GROUP 1805 29TH ST, SUITE 100 BOULDER, CO 80301 BEAU DILLON CELL:(719) 433-4054 EMAIL: BEAU.DILLON@ZAYO.COM	UTILITY NOTIFICATION CENTER PHONE: 811
ENGINEERING	PERMIT CONTACTS	
POWER ENGINEERS, INC. 3900 S WADSWORTH BLVD. SUITE 700 LAKEWOOD, CO 80235 PHONE: (303) 716–8980 CONTACT: JARROD KELSEY DIRECT: (208) 288–6429 CELL: (303) 483–3388 CONSTRUCTION	COLORADO DEPARTMENT OF TRANSPORTATION REGION 2 905 ERIE AVE PUEBLO, CO 81002 PHONE: (719) 546–5452 EL PASO COUNTY 27 E VERMIJO COLORADO SPRINGS, CO CONTACT: NINA RUIZ PHONE: (719) 520–6313	
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	CENTER LINE OF ROAD	Ō	NEW MANHOLE	•	١
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CONSTRUCTION NOTES:

- 1. UNLESS SPECIFIED OTHERWISE, THE CONDUIT TO BE INSTALLED SHALL BE HIGH-DENSITY POLYETHYLENE (HDPE), SDR 11 DUCT. STEEL, HDPE, OR PVC DUCT SHALL HAVE A MINIMUM SCHEDULE 80-WALL THICKNESS.
- 2. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY. CALL 811 IN COLORADO.
- 3. ALL UNDERGROUND OBSTRUCTIONS, WHEN LOCATED, WILL REQUIRE THE PLACEMENT OF BURIED CABLE MARKER. HDPE OR STEEL PIPE WILL BE INSTALLED IN ALL BORINGS, INDICATED ON THE RUNNING LINED DRAWINGS.
- 4. SHORING MAY BE REQUIRED AND SHALL COMPLY TO O.S.H.A. STANDARDS. BORE PITS LEFT OPEN OVERNIGHT SHALL BE FENCED WITH ORANGE FENCE MATERIAL SECURED IN PLACE BY STEEL FENCE POSTS.
- 5. THE MINIMUM COVER IN DITCHES ADJACENT TO ROADS, HIGHWAYS, RAILROADS, AND INTERSTATES IS FORTY-EIGHT INCHES (48") BELOW THE CLEAN OUT LINE OR EXISTING GRADE, WHICHEVER IS GREATER. THE MINIMUM COVER ACROSS STREAMS, RIVER WASHES, AND OTHER WATERWAYS IS SIXTY INCHES (60") BELOW THE CLEAN OUT LINE OR EXISTING GRADE, WHICHEVER IS GREATER. AT LOCATIONS WHERE THE FIBER OPTIC CABLE CROSSES THE SUBSURFACE UTILITIES OR OTHER STRUCTURES, THE FIBER OPTIC CABLE/DUCT SHALL BE INSTALLED TO PROVIDE A MINIMUM OF TWELVE INCHES (12") OF VERTICAL CLEARANCE FROM THE UTILITY/OBSTACLE, PROVIDED THE MINIMUM CLEARANCE AND APPLICABLE MINIMUM DEPTH CAN BE MAINTAINED: OTHERWISE, THE FIBER OPTIC CABLE/DUCT WILL BE INSTALLED UNDER THE EXISTING UTILITY/OBSTACLE. JURISDICTION REQUIREMENTS SHOULD ALWAYS BE FOLLOWED.
- 6. MECHANICAL PROTECTION SHALL BE REQUIRED ANYTIME A 48" MINIMUM COVER IS UNOBTAINABLE UNLESS SPECIFIED OTHERWISE ON THE CONSTRUCTION DRAWINGS. THE INSPECTOR SHOULD PERIODICALLY INSPECT THE CONDUIT WHEN IT IS BEING PLACED IN THE GROUND; AND TO SEE THAT PROPER DEPTH IS MAINTAINED AT ALL TIMES. IF THE MINIMUM DEPTH IS UNOBTAINABLE, A LESSER DEPTH WILL BE ALLOWED WITH ADEQUATE PROTECTION SUCH AS A CONCRETE CAP OR PLACED IN BLACK STEEL PIPE (BSP).
- 7. ALL 90 DEGREE BENDS IN CONDUIT CONSTRUCTION WILL BE A MINIMUM 38.2* RADIUS UNLESS SPECIFIED OTHERWISE. ALL SPLIT CONDUIT BENDS AND SOLID PVC BENDS SHALL REQUIRE CONCRETE ENCASEMENT, UNLESS SPECIFIED OTHERWISE. THE DESIGN OF THE PLOWSHARE SHALL BE SUCH THAT THE BURIED CONDUIT PASSING THROUGH THE PLOW WILL NOT BIND AND SHALL NOT BE BENT IN A RADIUS LESS THAN TEN (10) TIMES THE OUTSIDE DIAMETER OF THE CONDUIT.
- 8. ALL CONSTRUCTION AND INSTALLATION WORK OCCURRING ON RAILROAD RIGHT-OF-WAY SHALL CONFORM TO THAT RAILROAD'S FIBER OPTIC STANDARDS.
- 9. RAILROAD COMMUNICATION AND SIGNAL CABLES TO BE LOCATED PRIOR TO CONSTRUCTION ACTIVITY. RAILROAD TO BE GIVEN 48 HOURS NOTICE PRIOR TO CONSTRUCTION.

- 10. DAMAGE TO BANKS, DITCHES, DRIVEWAYS AND ROADS CAUSED BY REPAIRED TO THE SATISFACTION OF THE ENGINEER AND PUBLIC A HIGHWAY AND ROAD RIGHT-OF-WAY WHERE INVOLVED.
- 11. INTERMEDIATE HANDHOLES SHALL BE PLACED AT INTERVALS OF AN DETERMINED BY CONSTRUCTION INSPECTOR, UNLESS OTHERWISE S
- 12. ALL WORK TO BE DONE WITH EXTREME CAUTION, FIBER OPTIC CA SERVICE WILL RESULT IN LOSS OF REVENUE.
- 13. ALL WORK TO BE PERFORMED IN STRICT ACCORDANCE WITH THE OF ANY REGULATING GOVERNMENTAL AGENCY, ZAYO GROUP OR TH
- 14. LOCATIONS OF SOME OF THE PHYSICAL FEATURES WERE OBTAINED AND MAY BE AS SHOWN OR DEPICTED ON THESE DRAWINGS.
- 15. UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RI ARE NOT NECESSARILY EXACT. THEREFORE, UTILITY LOCATIONS WI ADVANCE OF TRENCHING OR PLOWING, SO THAT CHANGES IN CAE EVENT OF CONFLICTS.
- 16. ALL KNOWN BURIED OBSTRUCTIONS ARE SHOWN ON THE CONSTRUCTIONS ARE SHOWN ON THE CONSTRUCTIONS ARE ALSO THE RESPONSIBILITY OF THE CONSTRUCTION OF
- 17. ANY AND ALL IMPROVEMENTS, SUCH AS, ASPHALT OR CONCRETE DRAINAGE DITCHES, EMBANKMENTS, SHRUBS, TREES, GRASS SOD, TO ORIGINAL OR BETTER CONDITION.
- 18. EQUIPMENT TYPES SPECIFIED HEREIN (i.e. "BACKHOE, "SWAMP PL AND ARE NOT INTENDED AS REQUIREMENTS. CONTRACTOR WILL B

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POWER:

Mountain View Electric Association

POTABLE WATER AND SANITARY SEWER:

Town of Monument

