



PROJECT DESCRIPTION:
 ZAYO/CDOT FIBER BACKBONE, MILEPOST SECTION MP206 – MP226 (PHASE 4).
 PULL 144 MICROFIBER AND 288 MICROFIBER THRU EXISTING DUCT BANK. ROUTE SPANS 54,559 FT AND PLACED 20 EXISTING ZAYO HAND HOLES/8 EXISTING NEMA RATED CABINETS ADJACENT TO EXISTING CDOT PULL BOXES/MAN HOLES/HAND HOLES.

DESCRIPTION	UNIT	QTY
201 – EXISTING 30"x48"x36" ZAYO HH (TYPICAL 1)	EACH	4
202 – EXISTING 30"x48"x36" ZAYO HH (TYPICAL 2)	EACH	4
204 – PULL FIBER STRAIGHT THROUGH EXISTING PULL BOX (TYPICAL 4)	EACH	32
205 – EXISTING (4) 10MM ID/12MM OD MICRODUCTS IN EX VACANT CDOT CONDUIT (BL, OR, GR, BR)	FOOT	54559
206 – EXISTING CDOT 144 MICROFIBER IN BLUE MICRODUCT	FOOT	45461
207 – EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT	FOOT	54559
208 – EXISTING COYOTE DOME SPLICE CASE	EACH	2
209 – 50' OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER IN EXISTING CDOT VAULT	FOOT	650
210 – 60' OF ZAYO 288 MICROFIBER IN EXISTING ZAYO VAULT	FOOT	1620
211 – 50' OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER ON BOTH SIDES OF SPLICE	FOOT	50
212 – 30' OF ZAYO 288 MICROFIBER ON BOTH SIDES OF SPLICE	FOOT	60
213 – SPLICE CDOT 144 MICROFIBER STRAIGHT THROUGH	SPLICE	288
214 – SPLICE ZAYO 288 MICROFIBER STRAIGHT THROUGH	SPLICE	576
215 – EXISTING MICROFIBER MECHANICAL PROTECTION BOX IN EXISTING ZAYO HANDHOLE	EACH	20
216 – EXISTING 30"x48"x36" ZAYO HH (TYPICAL 4)	EACH	13
230 – EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET EISENHOWER TUNNEL (TYPICAL 8)	EACH	8
233 – 100' OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER IN EX CDOT MH	FOOT	600
236 – EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT	EACH	7848
238 – 100' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER IN EXISTING CDOT VAULT	FOOT	700

PERMIT(S) REQUIRED/MILE POSTS/SHEET #S

CDOT / MP 205.96–215.84 / SHTS 21–58
 NFS (WHITE RIVER) / MP 205.96–214 / SHTS 21–33
 NFS (ARAPAHOE) / MP 214–215.84 / SHTS 33–58
 EISENHOWER TUNNEL / MP 213.60–215.27 / SHTS 31–37

REV #	NOTE	INITIALS
1		
2		
3		

Colorado Department of Transportation

425C Corporate Circle
 Golden, CO 80401
 Phone: 303-512-5801 Fax: 303-512-5878

HQ - ITS BRANCH JKS

PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO

DRAWN BY: DREW PAPPAS **ISSUE DATE:** 2/18/2021

PHONE: 970-980-6574 **ISSUE #:** 1 **PHASE:** 4

E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM **SCALE:** 1" = 100'

SHEET #: 001 OF 063


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NOTES LEGEND

- | | |
|--|---|
| <p>201 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 1)</p> <p>202 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 2)</p> <p>203 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 3)</p> <p>204 FIBER PULLED STRAIGHT THROUGH EXISTING CDOT HH/MH/PB (DESIGN TYPICAL 6)</p> <p>205 EXISTING (4) 10 MM ID/12 MM OD MICRODUCTS IN CDOT CONDUIT (BLUE, ORANGE, GREEN, BROWN)</p> <p>206 EXISTING CDOT 144 MICROFIBER IN BLUE MICRODUCT</p> <p>207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT</p> <p>208 EXISTING COYOTE DOME SPLICE CASE</p> <p>209 50' COIL OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER IN EXISTING CDOT HH/MH/PB</p> <p>210 60' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH</p> <p>211 50' COIL OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER IN EXISTING CDOT HH/MH/PB</p> <p>212 30' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH</p> <p>213 EXISTING SPLICE – CDOT 144 MICROFIBER</p> <p>214 EXISTING SPLICE – ZAYO 288 MICROFIBER</p> <p>215 EXISTING MICROFIBER MECHANICAL PROTECTION BOX IN ZAYO HH</p> <p>216 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 4)</p> | <p>217 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 5)</p> <p>218 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 7)</p> <p>220 EXISTING 30"x48"x36" ZAYO HH</p> <p>221 EXISTING (4) ZAYO 2"–SDR11 CONDUITS</p> <p>222 EXISTING BORED (4) ZAYO 2"–SRD11 CONDUITS</p> <p>223 EXISTING (2) ZAYO 2"–SRD11 CONDUITS</p> <p>224 EXISTING BORE (2) ZAYO 2"–SDR11 CONDUITS</p> <p>225 EXISTING ZAYO 432 FIBER IN EXISTING CONDUIT</p> <p>226 EXISTING ZAYO 432 FIBER IN EXISTING CDOT CONDUIT</p> <p>227 60' COIL OF ZAYO 432 FIBER IN EXISTING ZAYO HH</p> <p>229 EXISTING (1) CDOT BLUE MICRODUCT IN CONDUIT</p> <p>230 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET – EISENHOWER TUNNEL (DESIGN TYPICAL 8)</p> <p>231 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET – HANGING LAKE TUNNEL (DESIGN TYPICAL 9)</p> <p>232 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET – TOMB ATTACHMENT (DESIGN TYPICAL 10)</p> <p>233 100' COIL OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER IN EXISTING CDOT MANHOLE</p> <p>236 EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT</p> <p>237 50' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER ON ONE SIDE OF THE SPLICE AND COIL 50' OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER ON THE OPPOSITE SIDE OF THE SPLICE IN EXISTING CDOT VAULT</p> <p>238 100' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER IN EXISTING CDOT VAULT</p> |
|--|---|























DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)		
DRAWN BY: DREW PAPPAS	DATE: 2/18/2021	
PHONE: 970-980-6574	ISSUE #: 1	
E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM	Colorado Department of Transportation	
SCALE: 1" = 100'	 425C Corporate Circle Golden, CO 80401 Phone: 303-512-5801 Fax: 303-512-5878	
BONFIRE PROJECT NOTES LEGEND		HQ - ITS BRANCH JKS SHEET #: 002 OF 063

ABBREVIATIONS



ATM	ACTIVE TRAFFIC MANAGEMENT
ATR	AUTOMATIC TRAFFIC RECORDER
AVE	AVENUE
CAT5E	CATEGORY 5 ENHANCED
CCTV	CLOSED CIRCUIT TELEVISION
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CFM	CONTINUOUS FLOW METERING
CDMM	COMMUNICATIONS
DMS	DYNAMIC MESSAGE SIGN
DTD	DEPARTMENT OF TRANSPORTATION DEVELOPMENT
E/W	EQUIPPED WITH
EA	EACH
EB	EASTBOUND
EOA	EDGE OF ASPHALT
EX	EXISTING
HH	HANDHOLE
I	INTERSTATE
I/C	INTERCHANGE
ITS	INTELLIGENT TRANSPORTATION SYSTEMS
IP	INTERNET PROTOCOL
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LMR	LAND MOBILE RADIO
LS	LUMP SUM
LT	LEFT
MBPS	MEGABITS PER SECOND
MH	MANHOLE
MP	MILEPOST
MVRD	MICROWAVE VEHICLE RADAR DETECTOR
NB	NORTHBOUND
NTS	NOT TO SCALE
OADM	OPTICAL AD/DROP MULTIPLEXOR
PB	PULL BOX
PPSL	PEAK PERIOD SHOULDER LANE
PR	PROPOSED
RD	ROAD
ROW	RIGHT OF WAY
RT	RIGHT
RX	RECEIVE
SB	SOUTHBOUND
SFP	SMALL FORM-FACTOR PLUGGABLE
STP	SHIELDED TWISTED PAIR
TTI	TRAVEL TIME INDICATOR
TX	TRANSMIT
VMS	VARIABLE MESSAGE SIGN
VSL	VARIABLE SPEED LIMIT
VTMS	VARIABLE TOLL MESSAGE SIGN
W/O	WEST OF
WB	WESTBOUND

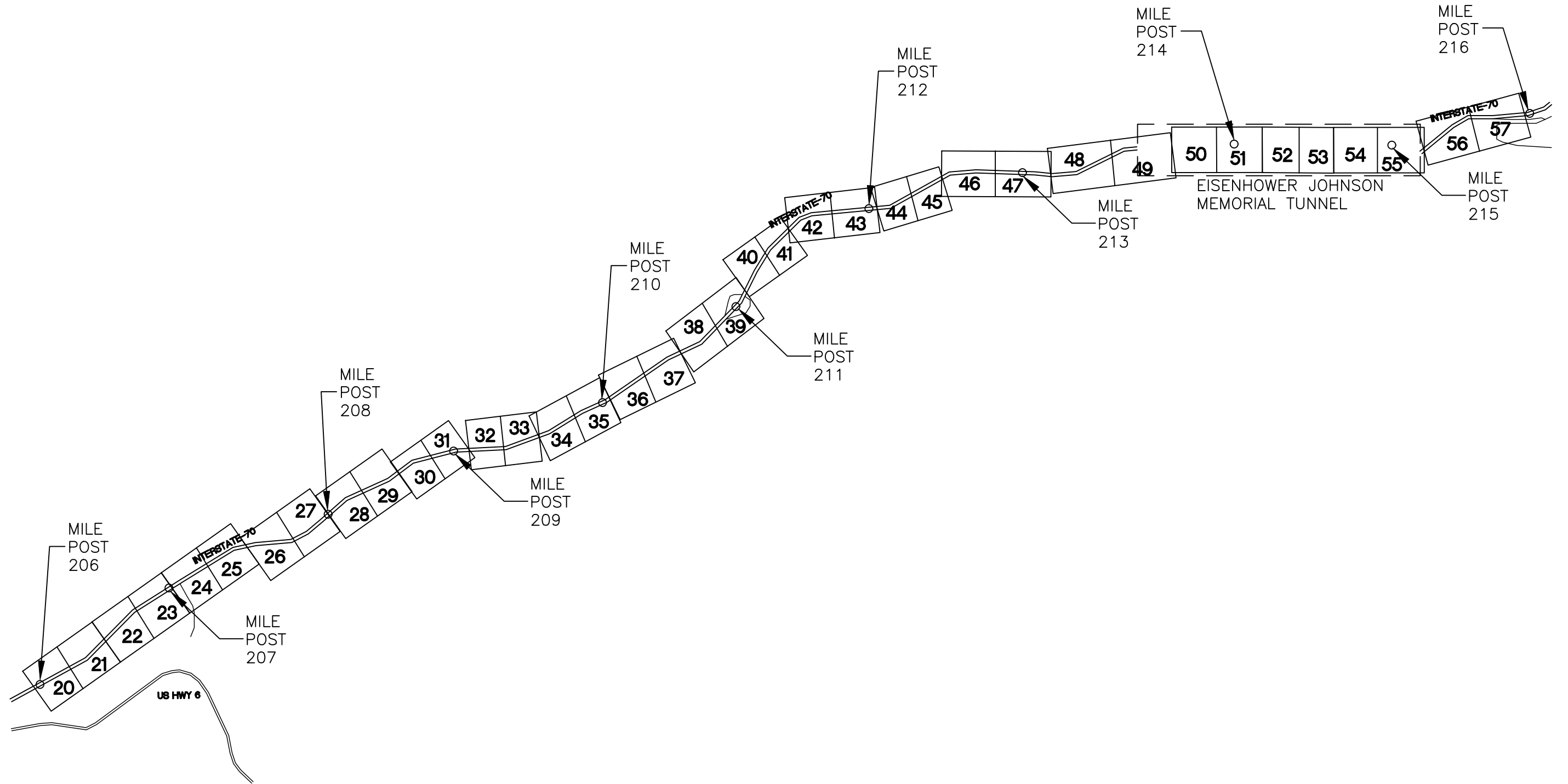
LEGEND

<u>EXISTING</u>	<u>PROPOSED</u>	
		CABINET
		CCTV
ITS — ITS — ITS —	— ITS — ITS — ITS —	ITS CONDUIT
		GROUND MOUNTED TRANSFORMER
		MANHOLE
		MVRD
		POLE MOUNTED TRANSFORMER
E - - - E - - - E - - -	— E — E — E —	POWER CONDUIT
		PULL BOX
- - - - -		PULL BOX (SURFACE MOUNTED)
- - - - -		ROW
		RWIS
		SERVICE METER CABINET
		TTI ANTENNA
		VSL SIGN
		EXISTING CDOT HANDHOLE 24"X36"X24"
		EXISTING ZAYO HANDHOLE 30"X48"X36"
		CDOT CONDUIT
		EXISTING CDOT HANDHOLE
		EXISTING CDOT MANHOLE



DESCRIPTION	UNIT	QTY

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DRAWN BY: DREW PAPPAS	DATE: 2/18/2021	
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E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM	 Colorado Department of Transportation 4250 Corporate Circle Golden, CO 80401 Phone: 303-512-5801 Fax: 303-512-5878	
SCALE: 1" = 100'	HQ - ITS BRANCH	
ABBREVIATIONS AND SYMBOLS		JKS SHEET #: 003 OF 063



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS

DATE: 2/18/2021

PHONE: 970-980-6574

ISSUE #: 1

E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM

Colorado Department of Transportation

SCALE: 1" = 100'



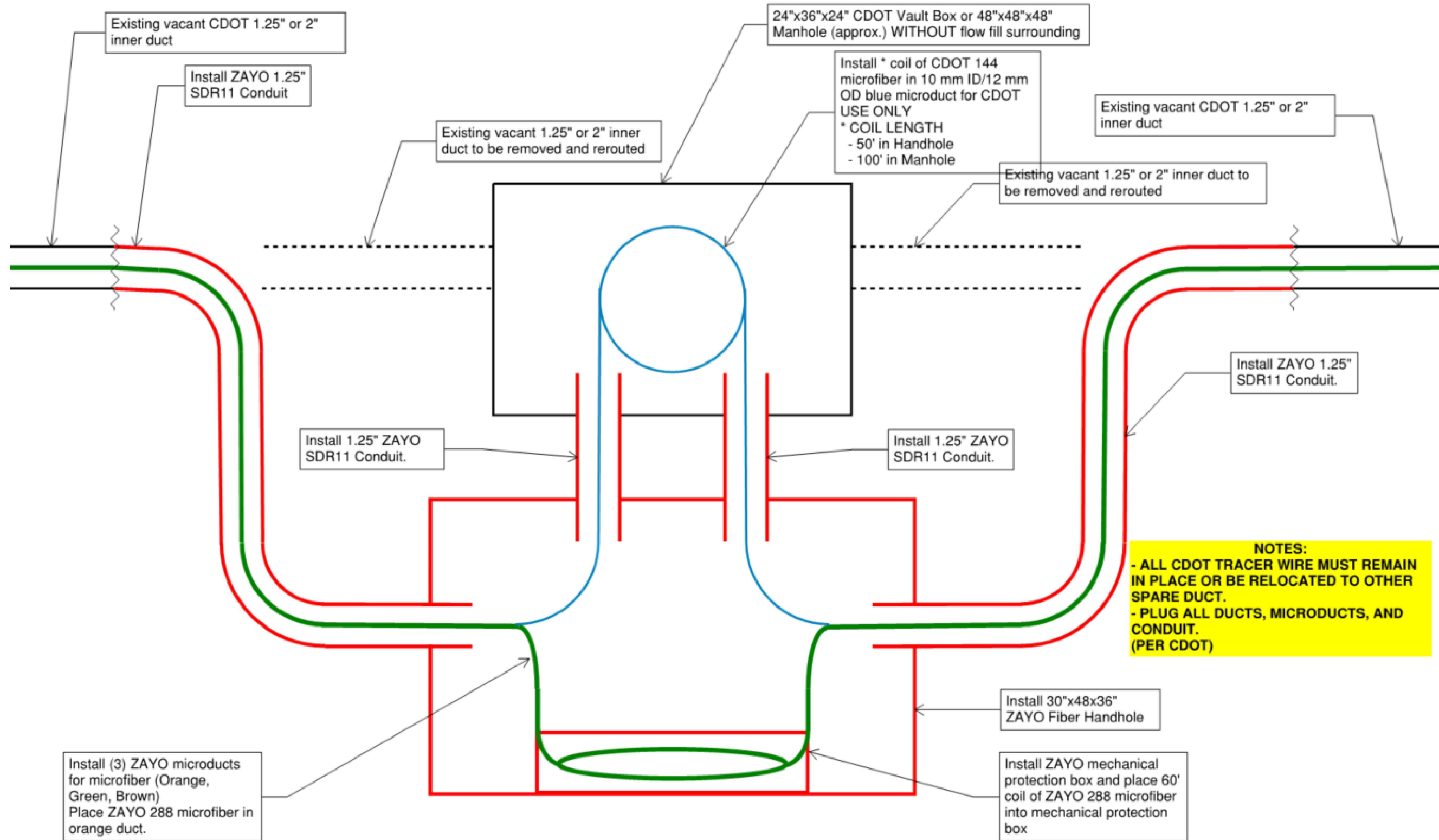
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HQ - ITS BRANCH

SHEET KEY 1



JKS SHEET #: 004 OF 063

DESIGN TYPICAL 1 - HANDHOLE PLACEMENT (NO FLOW FILL)



NOTES:
 - ALL CDOT TRACER WIRE MUST REMAIN IN PLACE OR BE RELOCATED TO OTHER SPARE DUCT.
 - PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT. (PER CDOT)



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD TO GOLDEN, COLORADO (PHASE 3)
 DRAWN BY: DREW PAPPAS
 PHONE: 970-980-6574
 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: NTS

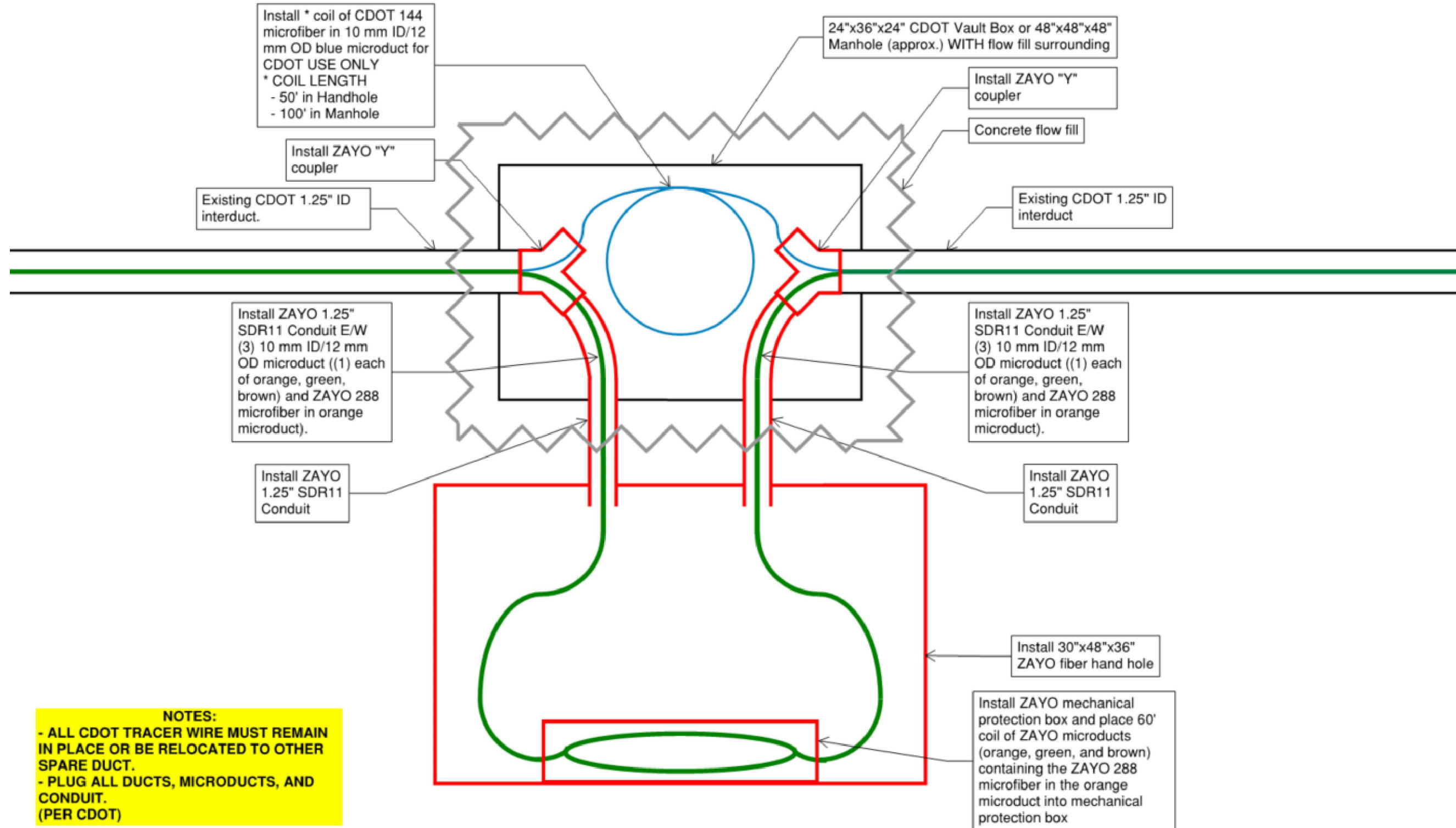
DESIGN TYPICAL # 1

DATE: 2/18/2021
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zayo[®]

SHEET #: 005 OF 063

DESIGN TYPICAL 2 - HANDHOLE PLACEMENT (TO BE USED FOR HANDHOLES ENCASED IN OR ADJACENT TO ASPHALT AND NO OTHER TYPICAL CAN BE USED)



NOTES:
 - ALL CDOT TRACER WIRE MUST REMAIN IN PLACE OR BE RELOCATED TO OTHER SPARE DUCT.
 - PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT.
 (PER CDOT)



DESCRIPTION	UNIT	QTY

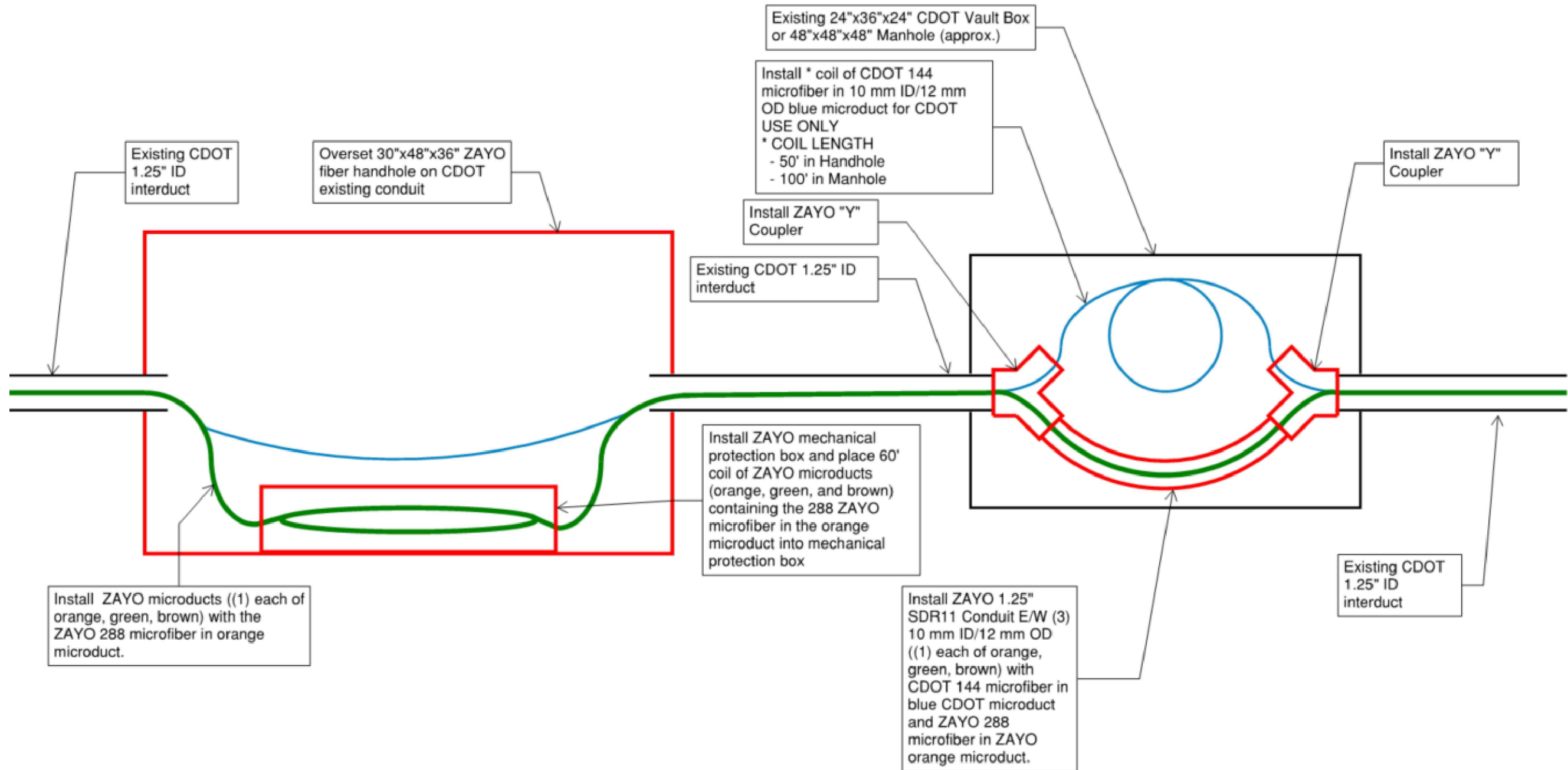
PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
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 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: NTS

DATE: 2/18/2021
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DESIGN TYPICAL 3 - HANDHOLE PLACEMENT (PLACE IN LINE)



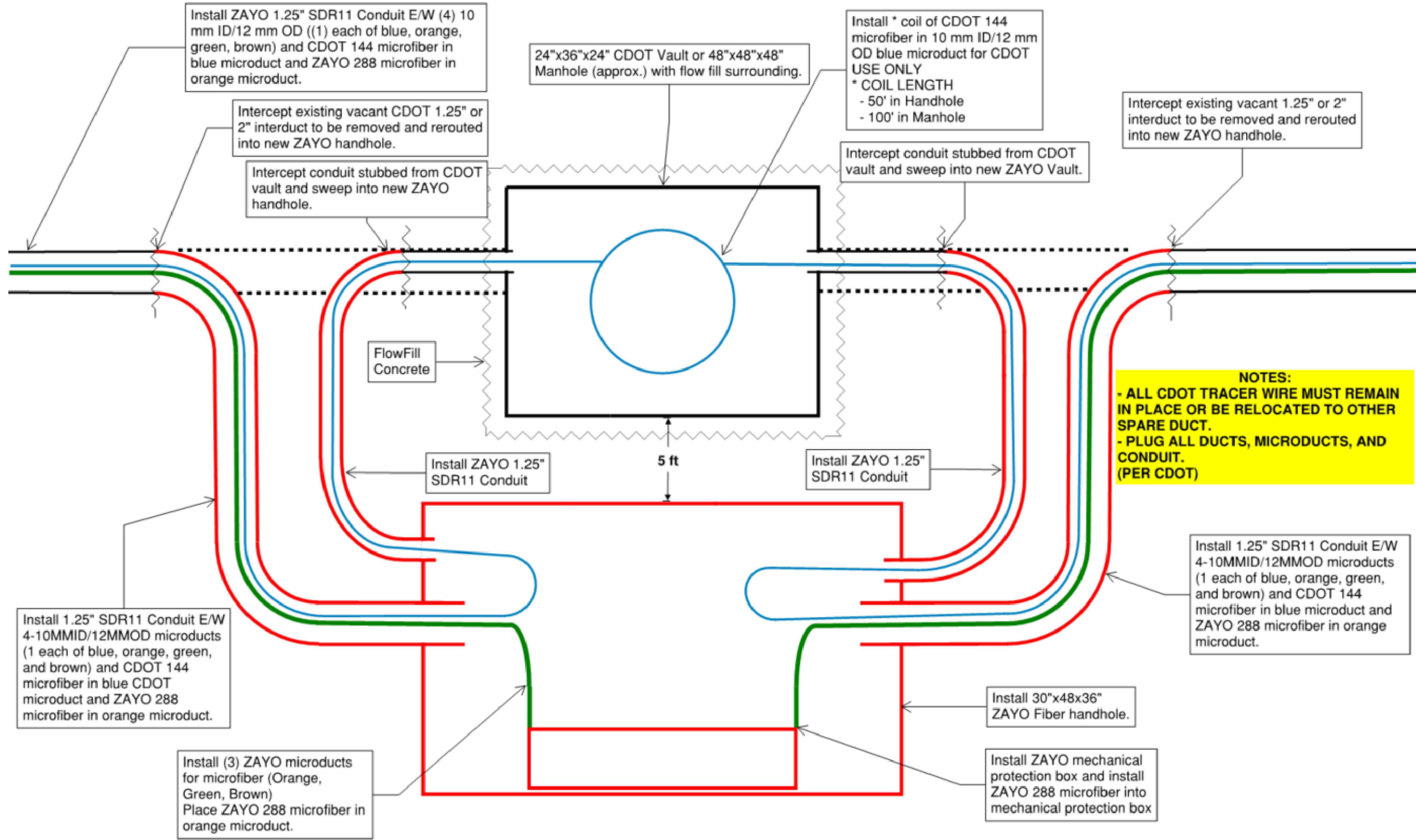
NOTES:
 - ALL CDOT TRACER WIRE MUST REMAIN IN PLACE OR BE RELOCATED TO OTHER SPARE DUCT.
 - PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT.
 (PER CDOT)



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)		
DRAWN BY: DREW PAPPAS	DATE: 2/18/2021	
PHONE: 970-980-6574	ISSUE #: 1	
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SCALE: NTS	 425C Corporate Circle Golden, CO 80401 Phone: 303-512-5801 Fax: 303-512-5878	
DESIGN TYPICAL # 3		HQ - ITS BRANCH JKS SHEET #: 007 OF 063

DESIGN TYPICAL # 4 (with FlowFill surrounding)



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS DATE: 2/18/2021

PHONE: 970-980-6574 ISSUE #: 1

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SCALE: NTS

DESIGN TYPICAL # 4

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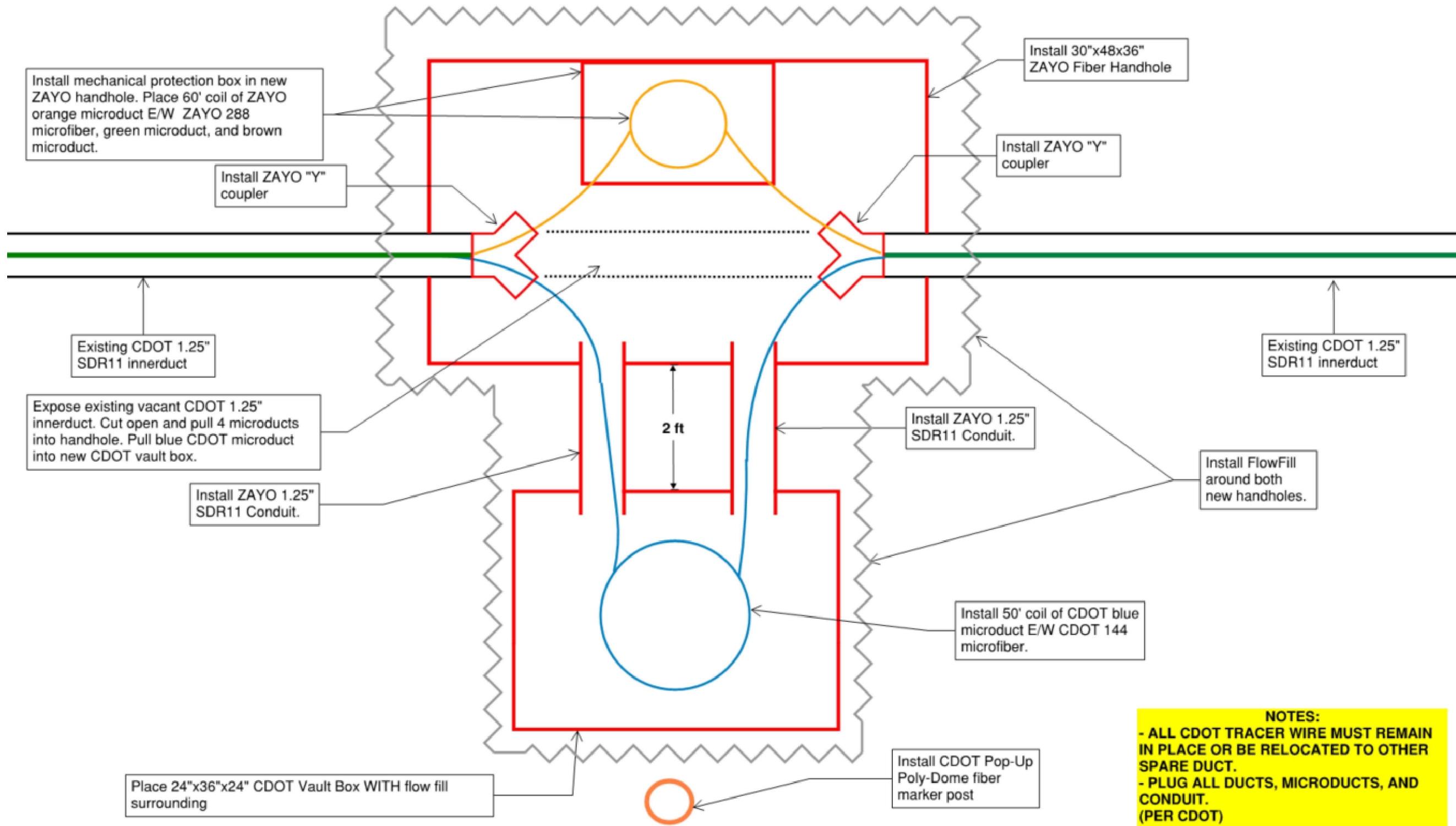


SHEET #: 008 OF 063



DESIGN TYPICAL 5 (OVERSET EXISTING DUCT)

CAUTION! Be sure conduit is vacant.



NOTES:
 - ALL CDOT TRACER WIRE MUST REMAIN IN PLACE OR BE RELOCATED TO OTHER SPARE DUCT.
 - PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT. (PER CDOT)



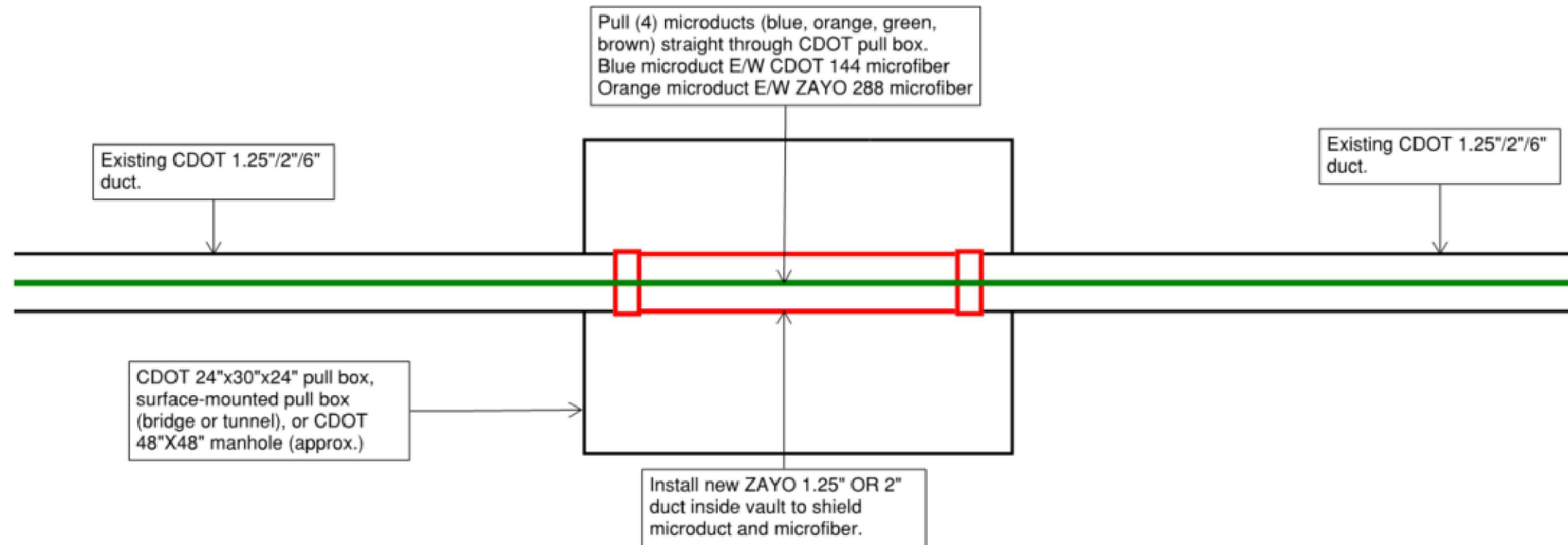
DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD TO GOLDEN, COLORADO (PHASE 4)
 DRAWN BY: DREW PAPPAS
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 SCALE: 1" = 100'
 DESIGN TYPICAL # 5

DATE: 2/18/2021
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DESIGN TYPICAL # 6 (PULL STRAIGHT THROUGH)



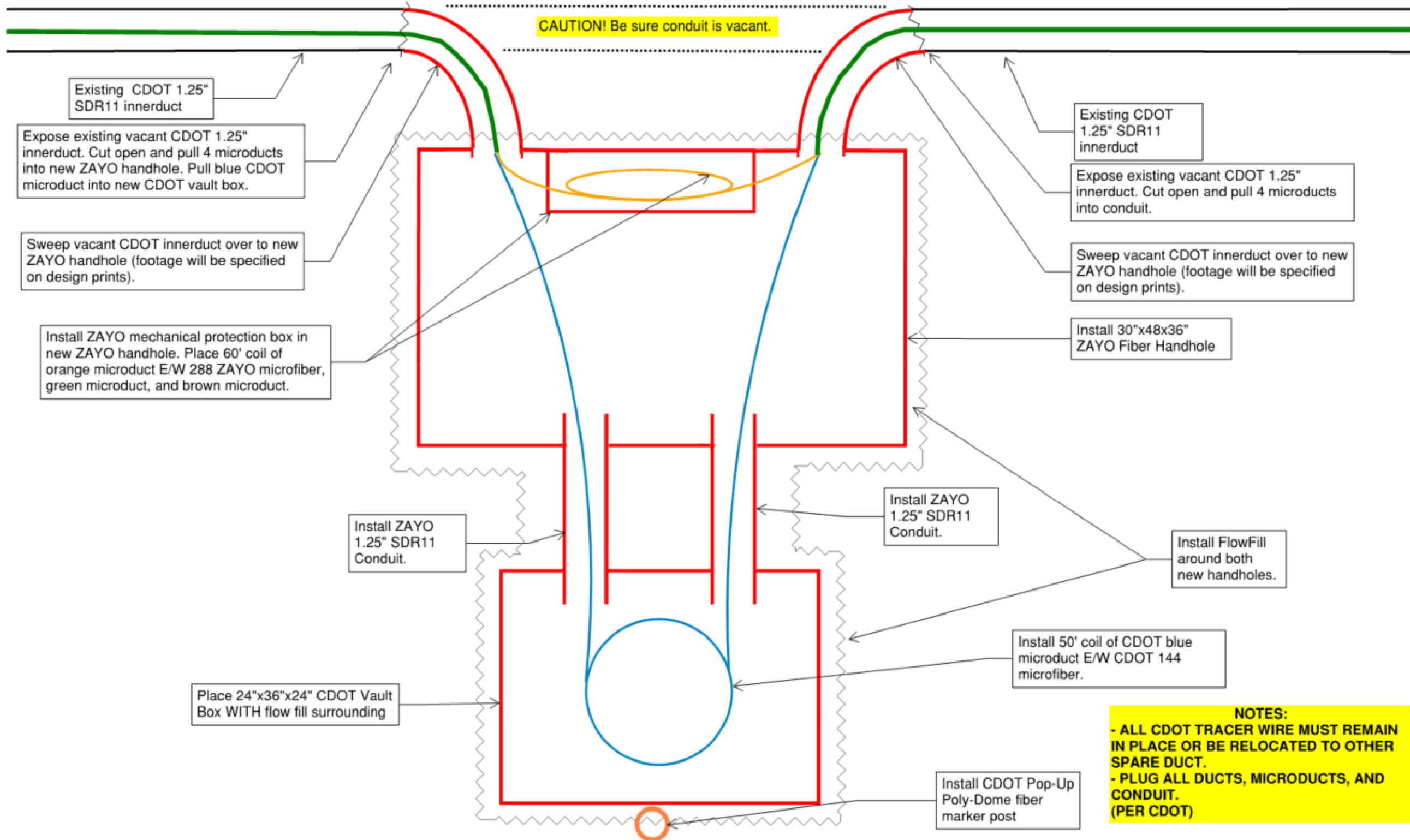
NOTES:
 - ALL CDOT TRACER WIRE MUST REMAIN IN PLACE OR BE RELOCATED TO OTHER SPARE DUCT.
 - PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT.
 (PER CDOT)



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD TO GOLDEN, COLORADO (PHASE 4)		
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PHONE: 970-980-6574	ISSUE #: 1	
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DESIGN TYPICAL # 6		HQ - ITS BRANCH JKS SHEET #: 010 OF 063

DESIGN TYPICAL #7 (PLACE NEW HANDHOLES OUTSIDE OF DRIVEABLE ASPHALT SURFACE)



NOTES:
 - ALL CDOT TRACER WIRE MUST REMAIN IN PLACE OR BE RELOCATED TO OTHER SPARE DUCT.
 - PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT. (PER CDOT)



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS DATE: 2/18/2021

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E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM Colorado Department of Transportation

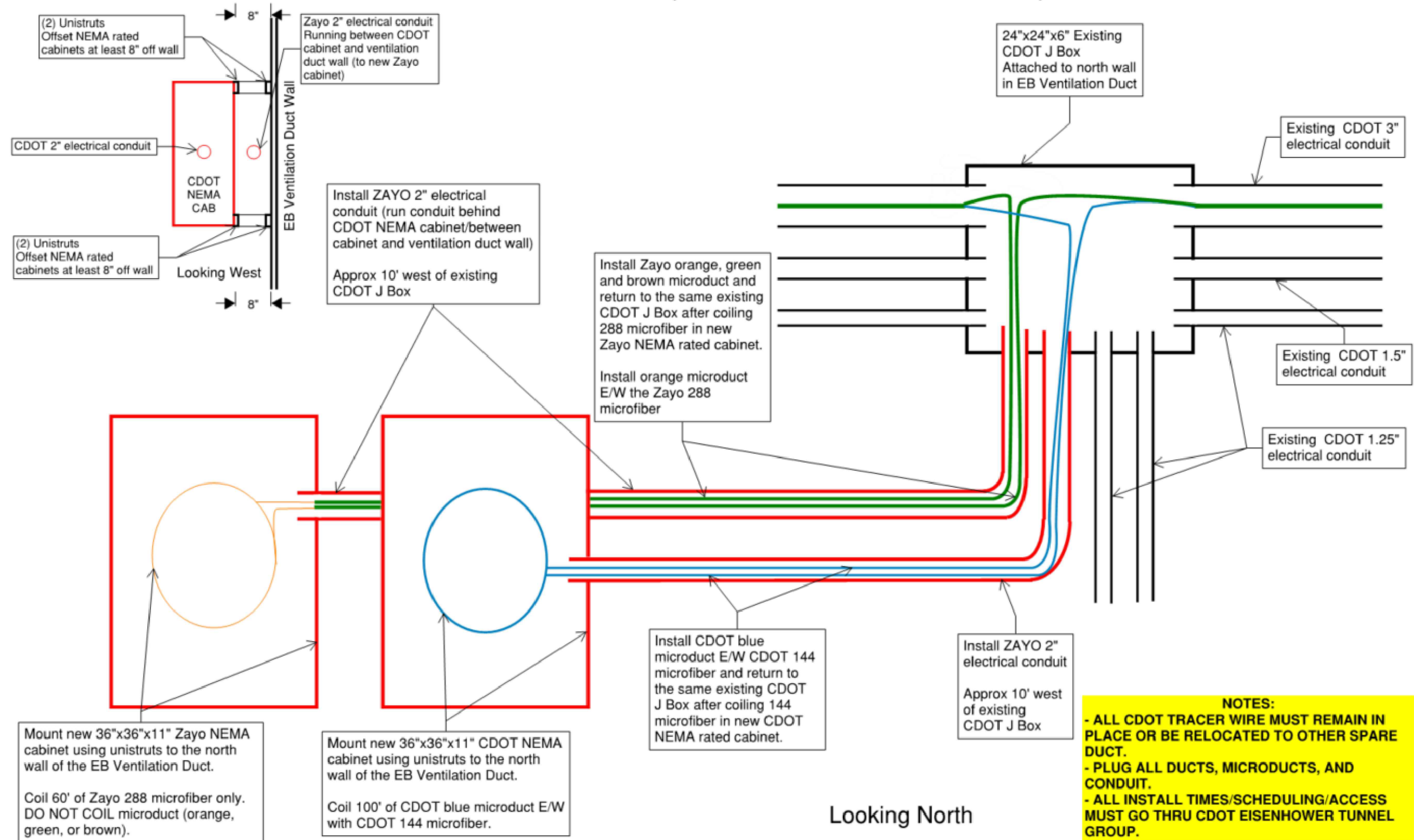
SCALE: NTS

DESIGN TYPICAL # 7

HQ - ITS BRANCH JKS SHEET #: 011 OF 063



DESIGN TYPICAL #8 (EISENHOWER TUNNEL)



NOTES:

- ALL CDOT TRACER WIRE MUST REMAIN IN PLACE OR BE RELOCATED TO OTHER SPARE DUCT.
- PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT.
- ALL INSTALL TIMES/SCHEDULING/ACCESS MUST GO THRU CDOT EISENHOWER TUNNEL GROUP.



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 BACKBONE FIBER--GLENWOOD TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS DATE: 2/18/2021

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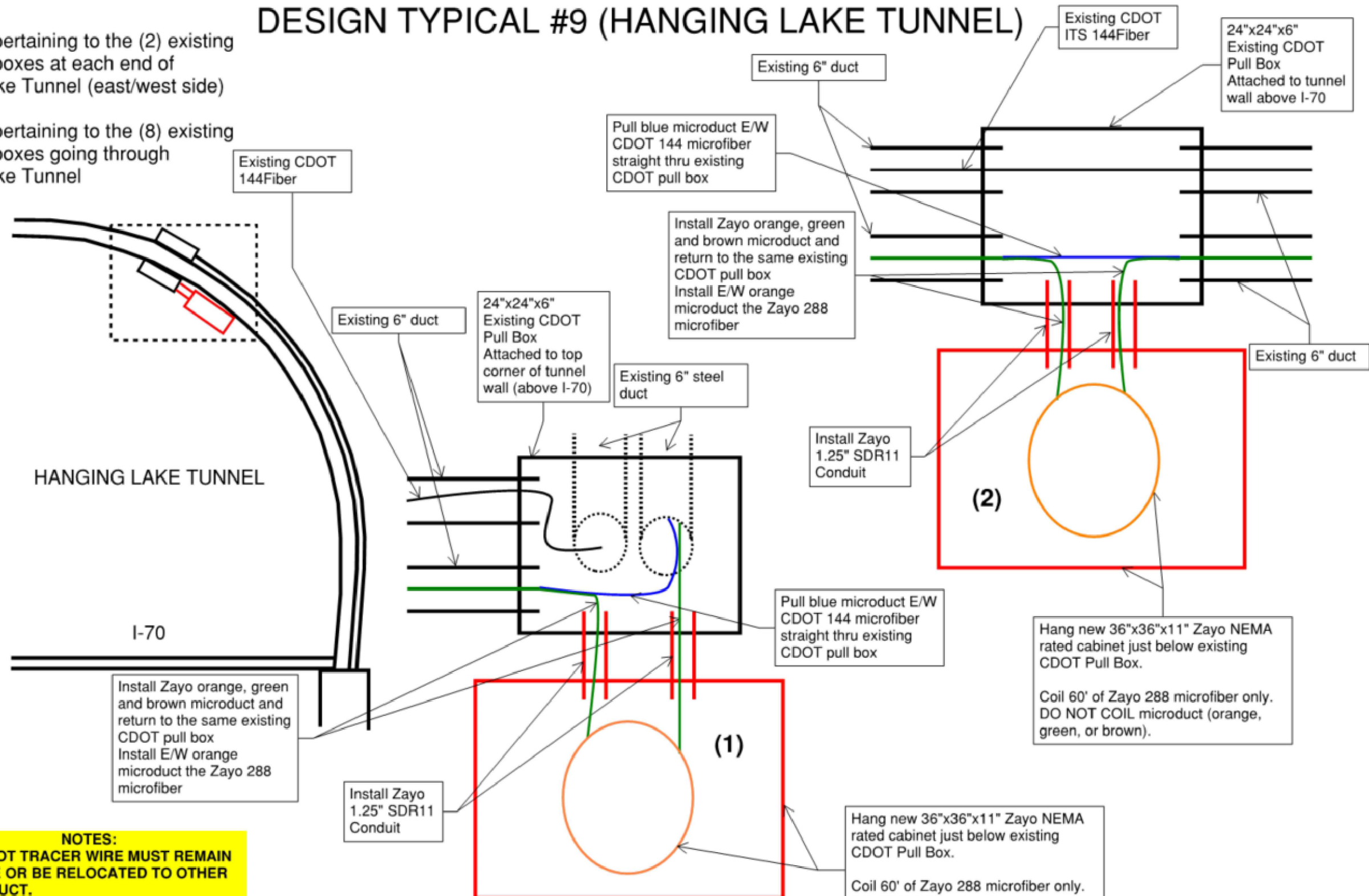
DESIGN TYPICAL # 8 HQ - ITS BRANCH JKS



DESIGN TYPICAL #9 (HANGING LAKE TUNNEL)

(1) - Detail pertaining to the (2) existing CDOT pull boxes at each end of Hanging Lake Tunnel (east/west side)

(2) - Detail pertaining to the (8) existing CDOT pull boxes going through Hanging Lake Tunnel



NOTES:
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 - PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT. (PER CDOT)



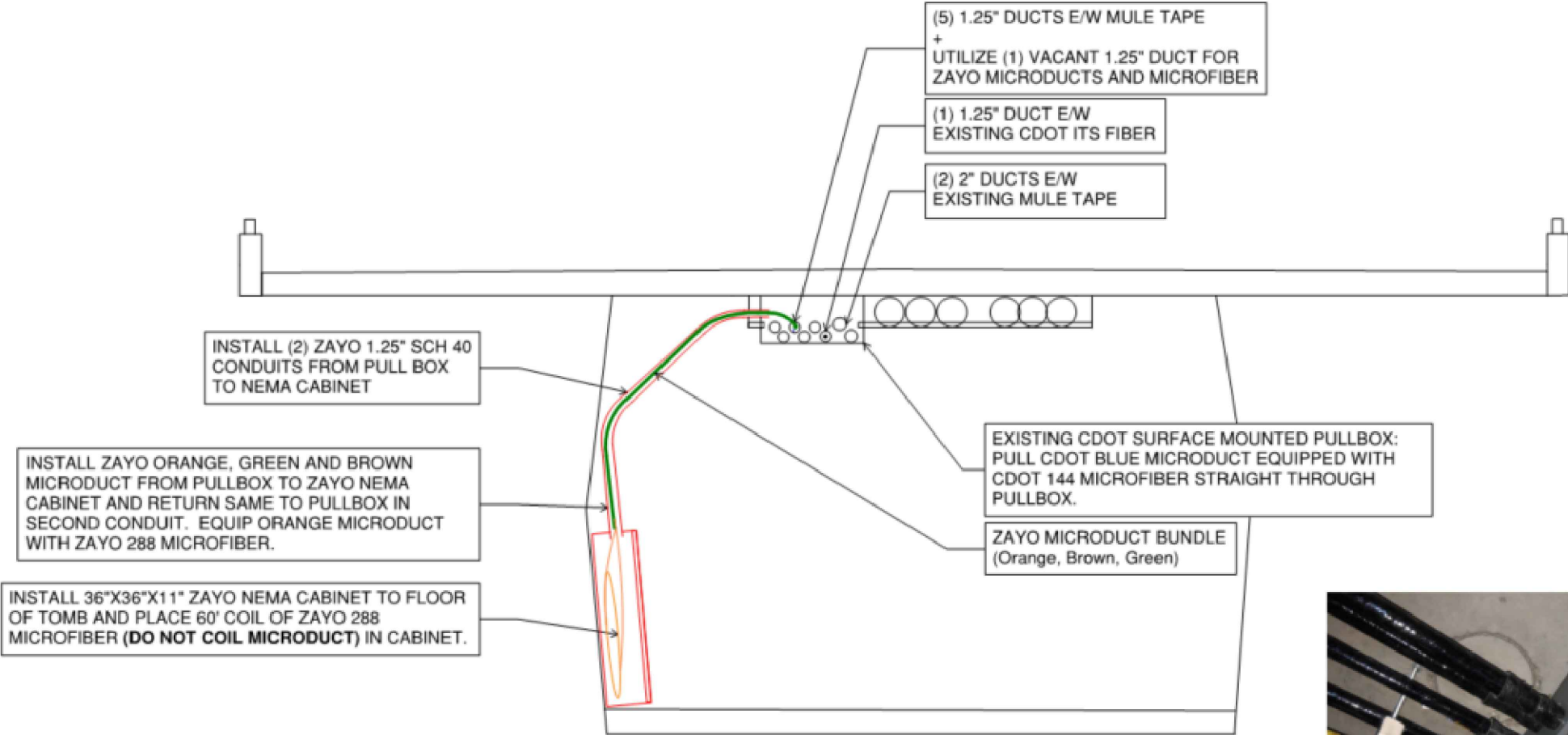
DESCRIPTION	UNIT	QTY

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 DRAWN BY: DREW PAPPAS
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 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: NTS
 DESIGN TYPICAL # 9

DATE: 2/18/2021
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 Colorado Department of Transportation
 425C Corporate Circle
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SHEET #: 013 OF 063

DESIGN TYPICAL #10 (TOMB ATTACHMENT)



PICTURE OF TOMB JUNCTION BOX

NOTES:
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 - PLUG ALL DUCTS, MICRODUCTS, AND CONDUIT. (PER CDOT)



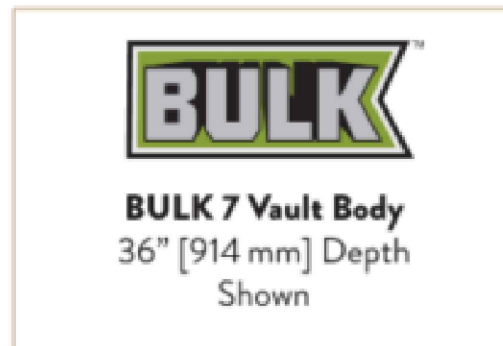
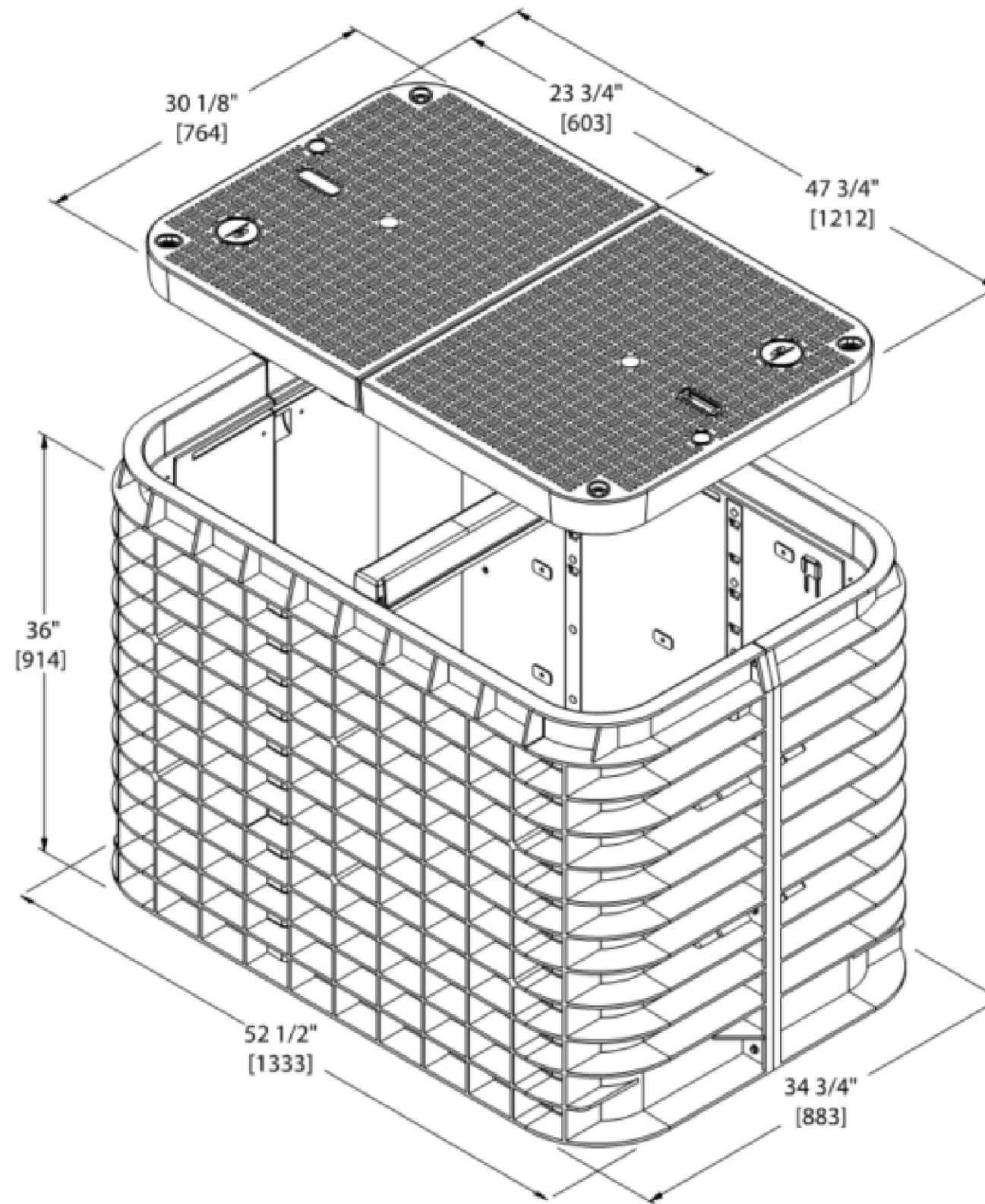
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SCALE: NTS	425C Corporate Circle Golden, CO 80401 Phone: 303-512-5801 Fax: 303-512-5878
DESIGN TYPICAL # 10	HQ - ITS BRANCH



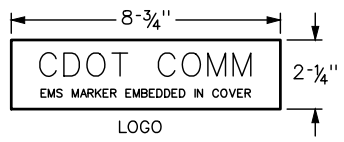
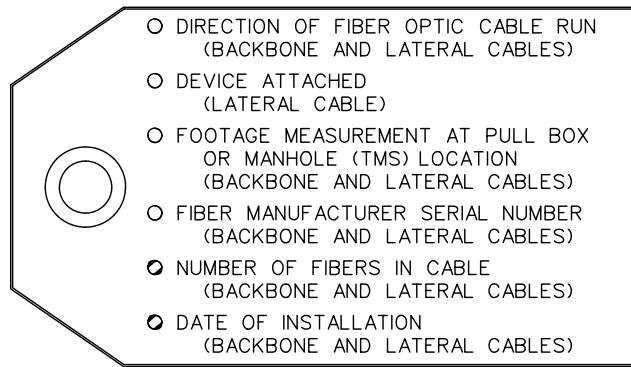
BODY SPECIFICATIONS

Cover Weight (Split 1/2 Cover) 50 lbs [23 kg]
Pit Weight 129 lbs [59 kg]
Assembled Weight 229 lbs [105 kg]
Tier 22 Rating CDOT Requirement



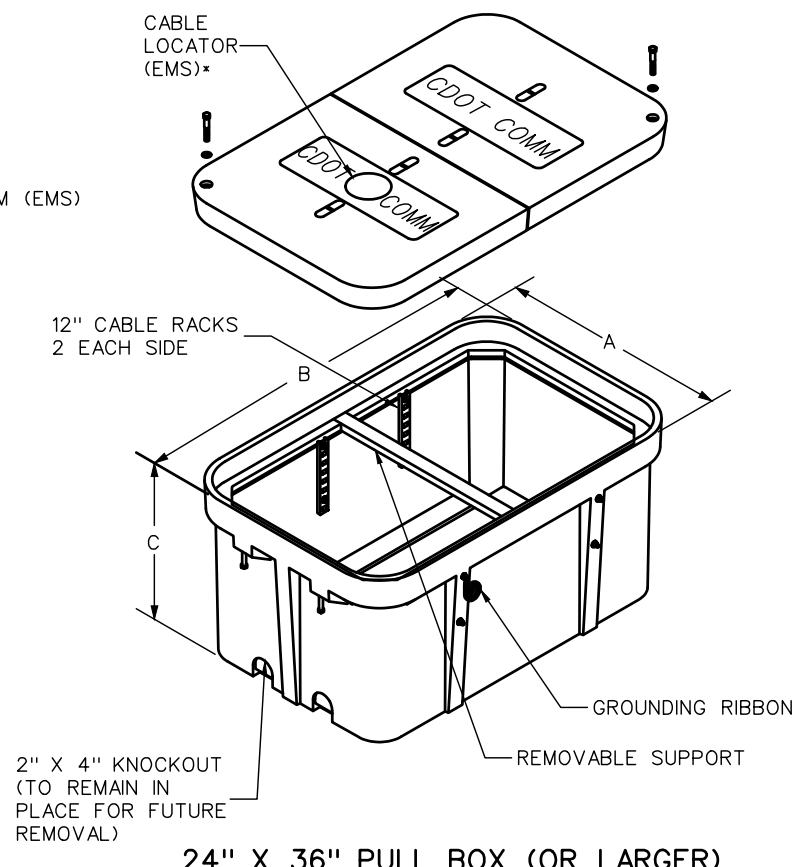
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ZAYO HANDHOLE DETAIL		HQ - ITS BRANCH JKS SHEET #: 015 OF 063



FIBER CABLE LABEL

TO BE ATTACHED TO EACH FIBER OPTIC CABLE LOCATED IN ALL PULL BOXES AND MANHOLES (TMS)



*ELECTRONIC MARKER SYSTEM (EMS)

24" X 36" PULL BOX (OR LARGER)

ITS PULL BOX TYPE	DIMENSIONS (INCHES)			KNOCKOUT MOUSE HOLE TYPE	COILED FIBER (FEET)	COILED TRACER WIRE (FEET)
	A	B	C			
PULL BOX - (24" x 36" x 24")	24	36	24	4	60	

PULL BOX NOTES:

1. CONDUITS DEPICTED ON THIS TYPICAL DETAIL ARE REPRESENTATIVE ONLY. NUMBER OF CONDUITS INSTALLED AND CONDUIT SIZE SHALL BE AS REQUIRED.
2. DESIGNATION FOR THE INSTALLATION OF ELECTRICAL WIRING AND FIBER OPTIC CABLE IN THE BACKBONE CONDUIT SYSTEM IS DESCRIBED IN THE PROJECT SPECIFICATIONS.
3. CONDUIT CENTERLINE SHALL BE ALIGNED WITHIN THE PULL BOX TO FACILITATE FIBER OPTIC CABLE PULLING.
4. CONDUIT PLUGS SHALL BE INSTALLED IN ALL CONDUITS, BOTH WITH AND WITHOUT WIRE OR CABLE AND SHALL BE INCLUDED IN THE COST OF ELECTRICAL CONDUIT ITEM.
5. WEATHERPROOF TAGS SHALL BE INSTALLED ON ALL FIBER CABLES AND SHALL BE INCLUDED IN THE COST OF ELECTRICAL CONDUIT ITEM.
6. SEE DESIGN TYPICAL #5 AND DESIGN TYPICAL #7 FOR MORE INFORMATION
7. ALL PULL BOX TYPES SHALL BE PAID FOR UNDER THE CORRESPONDING PULL BOX ITEM, AND SHALL BE SIZED AS TABULATED AND SHOWN IN THE PLANS.
8. PULL BOXES SHALL HAVE A CONCRETE APRON SLOPED AWAY FROM PULL BOX OPENING. THE COST OF THE CONCRETE APRON SHALL BE PAID FOR AS PART OF PULL BOX ITEM.
9. SEE TABLE FOR THE QUANTITY OF EACH FIBER OPTIC BACKBONE AND LATERAL CABLE TO BE COILED IN ALL PULL BOXES.
10. FIBER OPTIC CABLE COILS WITHIN PULL BOXES SHALL BE TIED TO EACH CABLE RACK. PLASTIC WIRE TIES SHALL NOT BE ALLOWED. CAUTION SHALL BE TAKEN TO COIL THE FIBER CABLE PER MANUFACTURER'S RECOMMENDATIONS.
11. WORK TO INSTALL PULL BOX SHALL INCLUDE BUT NOT BE LIMITED TO SAW CUTTING OF PAVEMENT, REMOVAL OF PAVEMENT, CONCRETE, EARTHWORK, ALL LANDSCAPE RESTORATION AND SHALL BE PAID FOR AS PART OF PULL BOX. ALL MATERIAL SHALL BE CONTAINED BY AN APPROVED BMP AND NOT ALLOWED TO RUN OFF SITE.
12. PULL BOX TYPES AS DEPICTED ON THIS PROJECT DETAIL SHALL NOT BE INSTALLED IN THE ASPHALT OR CONCRETE SHOULDER OF THE ROADWAY.
13. A COMMUNICATIONS ELECTRONIC MARKER SYSTEM (EMS) SHALL BE EMBEDDED IN TO THE COVER AS SHOWN IN DETAILS ON THIS SHEET.
14. ALL NON-DELIBERATE TRAFFIC PULL BOXES AND COVERS MUST COMPLY WITH ALL TEST PROVISIONS OF LATEST EDITION OF THE ANSI/SCTE 77 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY" AND MUST MEET THE TIER 22 APPLICATION. MARKING SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILED ON THE INSIDE AND OUTSIDE OF THE BOX AND ON THE UNDERSIDE OF THE COVER.
15. COVER MUST BE SECURED TO PULL BOX USING 3/8-7 LAG THREAD HEX HEAD BOLTS.
16. A COMPLIANCE LETTER FROM THE MANUFACTURER OF THE PULL BOXES SHALL BE SUBMITTED ALONG WITH MATERIAL SUBMITTALS. THE COMPLIANCE LETTER SHALL INDICATE THAT THE PULL BOX MANUFACTURER HAS MET OR EXCEEDED ALL TEST PROVISIONS OF THE LATEST EDITION OF THE ANSI/SCTE 77 & ALL OF CDOT REQUIREMENTS LISTED IN PLAN DETAILS.
17. ALL PULL BOX COVERS SHALL BE FURNISHED WITH 3/8 (35) X 1/16 (2), DEEP TEST POINT AREAS, WITH 2 - 3/8-7 LAG LONG STAINLESS STEEL HEX HEAD BOLTS, 2 - 3/8 (10) STAINLESS STEEL FLAT WASHERS, DIRECTIONAL LABELS AND 1 - GROUND LABEL. THE MINIMUM NUMBER OF TEST POINT AREAS AND DIRECTIONAL LABELS SHALL EQUAL THE NUMBER OF CONDUIT BANKS ENTERING THE PULL BOX, UP TO A MAXIMUM OF 5 TEST POINTS. PULL BOXES WITH SPLIT LIDS SHALL HAVE TEST POINTS ON ONE SPLIT LID SECTION ONLY.
18. TEST POINT LABEL SHALL BE 1 1/2" DIAMETER ORANGE CIRCLE WITH BLACK ARROW GRAPHIC. ONE ARROW GRAPHIC SHALL BE INSTALLED FOR EACH TEST POINT USED INDICATING THE DIRECTION THE CONDUIT EXITS THE PULL BOX.
19. THE DEEP RECESS OF THE POLYMER CONCRETE PULL BOX SHALL BE CLEANED WITH AN ALCOHOL-BASED CLEANER PRIOR TO APPLYING LABELS.



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS DATE: 2/18/2021

PHONE: 970-980-6574 ISSUE #: 1

E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM Colorado Department of Transportation

SCALE: NTS

CDOT HANDHOLE DETAIL

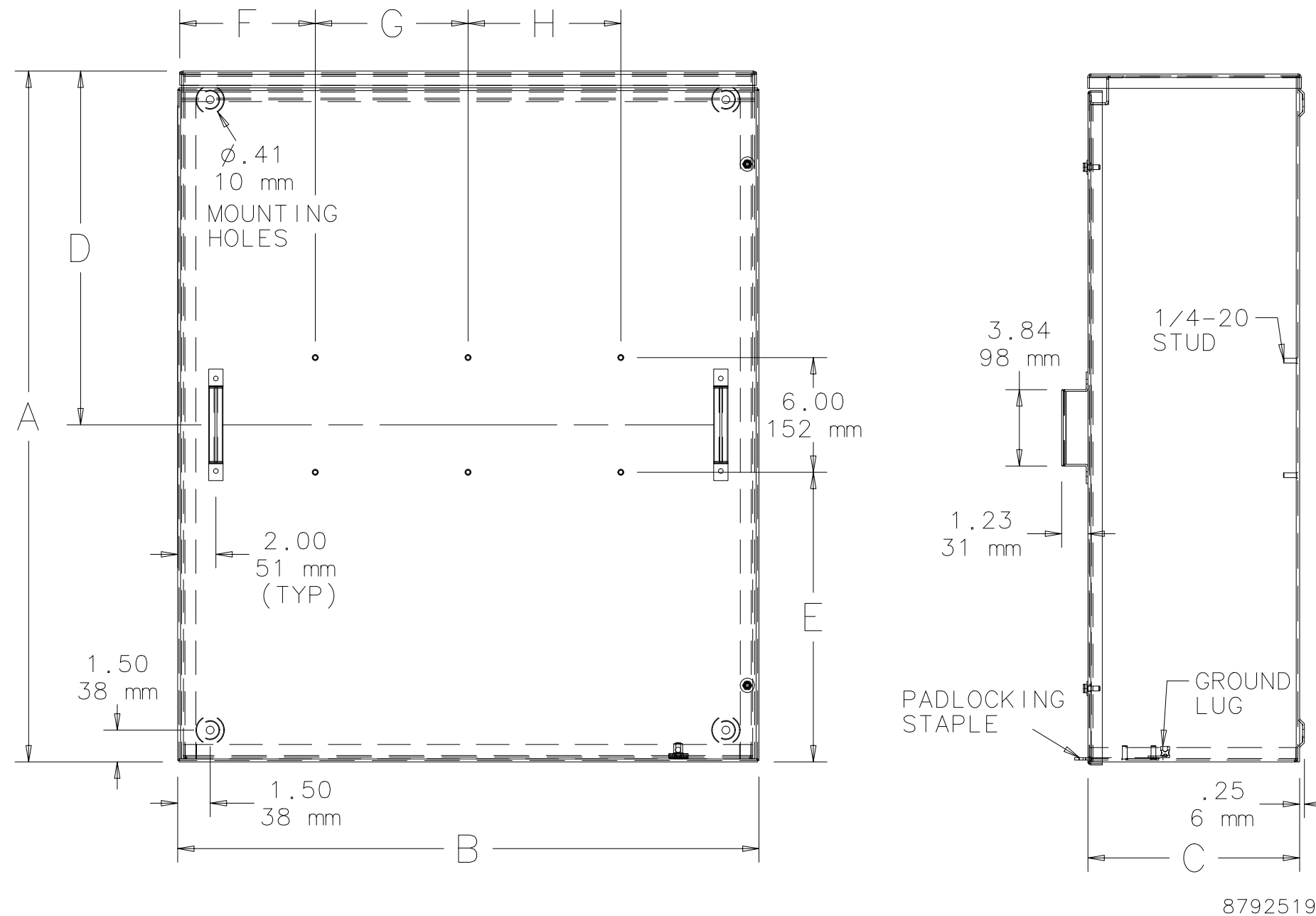
425C Corporate Circle
Golden, CO 80401
Phone: 303-512-5801 Fax: 303-512-5878

HQ - ITS BRANCH JKS

SHEET #: 016 OF 063



HOFFMAN NEMA CABINET (36" x 36" x 11")



A in.	36.00
B in.	36.00
C in.	11.00
D in.	18.19
E in.	15.00
F in.	10.00
G in.	8.00
H in.	8.00

PART #: A363611CT
CURRENT TRANSFORMER,
SCREW COVER,
TYPE 3R



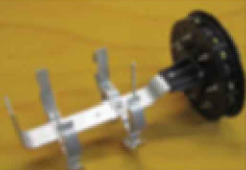
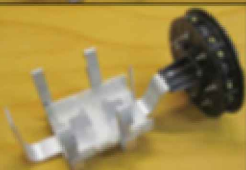
DESCRIPTION	UNIT	QTY

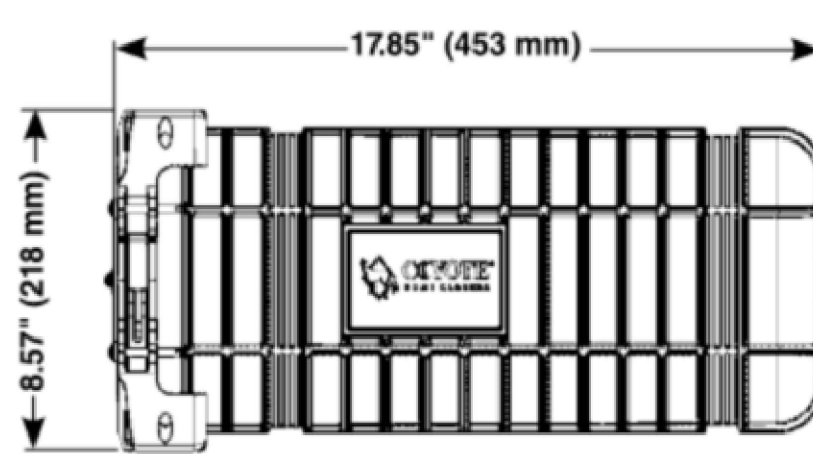
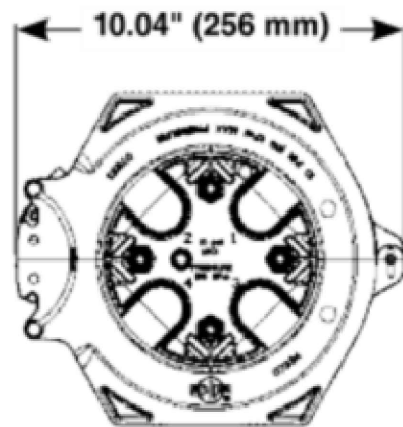
PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)	
DRAWN BY: DREW PAPPAS	DATE: 2/18/2021
PHONE: 970-980-6574	ISSUE #: 1
E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM	Colorado Department of Transportation
SCALE: NTS	425C Corporate Circle Golden, CO 80401 Phone: 303-512-5801 Fax: 303-512-5878
NEMA RATED CABINET DETAIL	HQ - ITS BRANCH






SHEET #: 017 OF 063

COYOTE® Dome Closures

9.5" x 19" COYOTE Dome Closure Kits		
Organizer	Catalog No.	Description
	COYD919B-000	Dome Closure with Buffer Tube Organizer
	COYD919R-000	Dome Closure with Unitube/Ribbon Organizer



COYOTE® Closures		Short - Low Profile 24 Splice Count (Single Fusion)	
			
Catalog No.		80809958	
9.5" x 19" Dome		Buffer	12 Trays 288 Ct.
		Unitube	11 Trays 264 Ct.

	Kit Part No.:	8003691	8003692	8003693	8003694	8003663	8003990	8003664	8003665	8003676	8003677	8004065
		Cable Range (in)		.40"-.60"	.60"-.85"	.85"-1.0"	1.0"-1.25"	.42"-.60"	.50"-.60" .125"-.25"	.30"-.43"	.125"-.25"	.42"-.60" .125"-.25"
Cable Range (mm)		10.16-15.2	15.2-21.6	21.6-25.4	25.4-31.6	10.67-15.2	12.7-15.2 3.2-6.4	7.6-10.9	3.2-6.4	10.67-15.2 3.2-6.4	3.2-6.4	6.4 -7.9
Flat Drop		NO	NO	NO	NO	NO	YES	NO	YES	YES	YES	NO
COYOTE Dome 9.5" x 19"		YES	YES (2) w/STD KIT	YES (2) w/STD KIT	YES	YES	YES	YES	YES	YES	YES	YES



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)


DRAWN BY: DREW PAPPAS DATE: 2/18/2021

PHONE: 970-980-6574 ISSUE #: 1

E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM Colorado Department of Transportation

SCALE: NTS

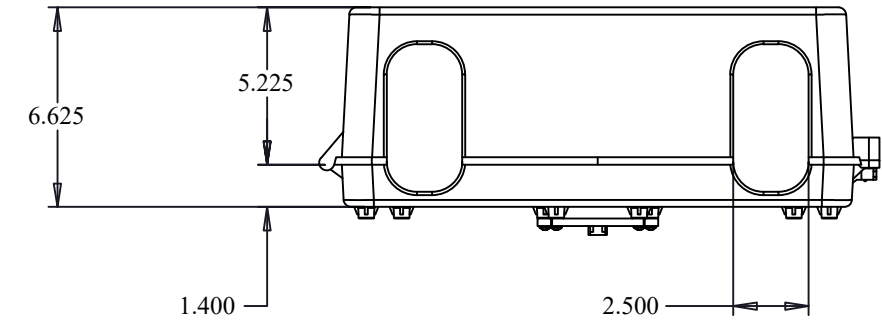
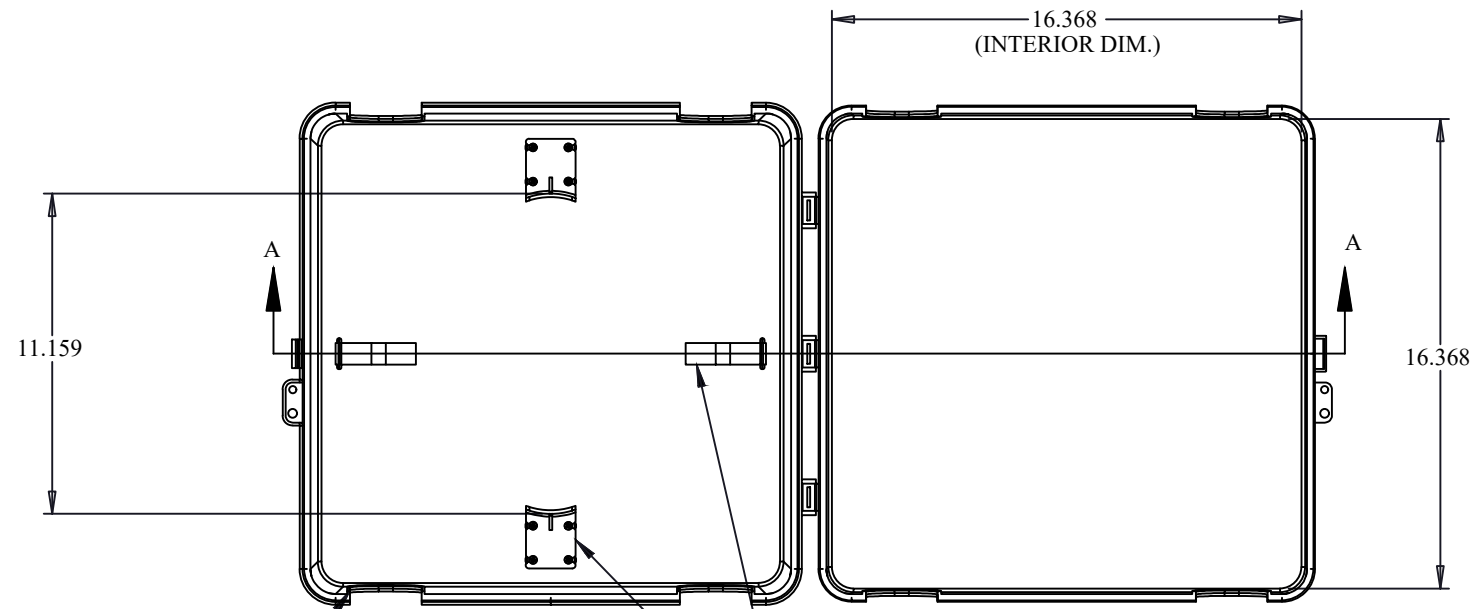
COYOTE DOME SPLICE DETAIL


 425C Corporate Circle
Golden, CO 80401
Phone: 303-512-5801 Fax: 303-512-5878
HQ - ITS BRANCH

zayo®

SHEET #: 018 OF 063

PPC MECHANICAL PROTECTION BOX



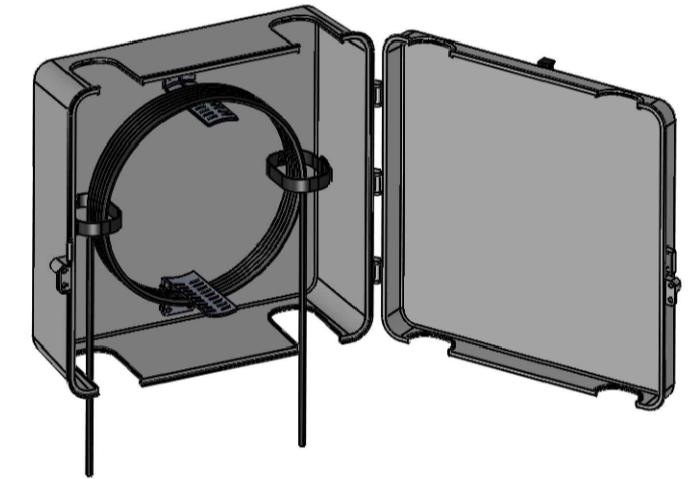
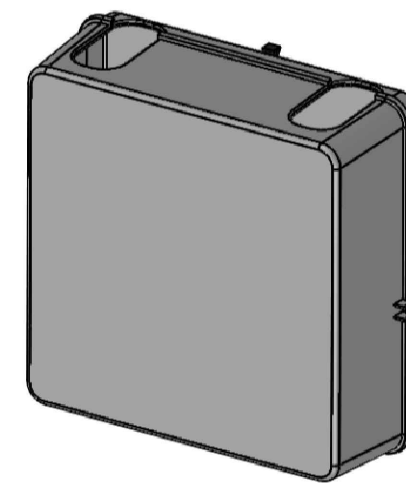
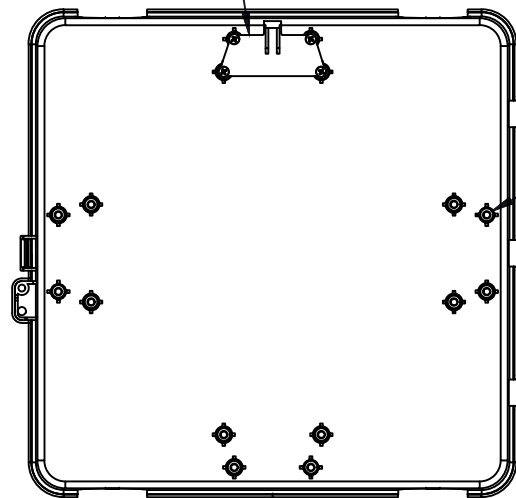
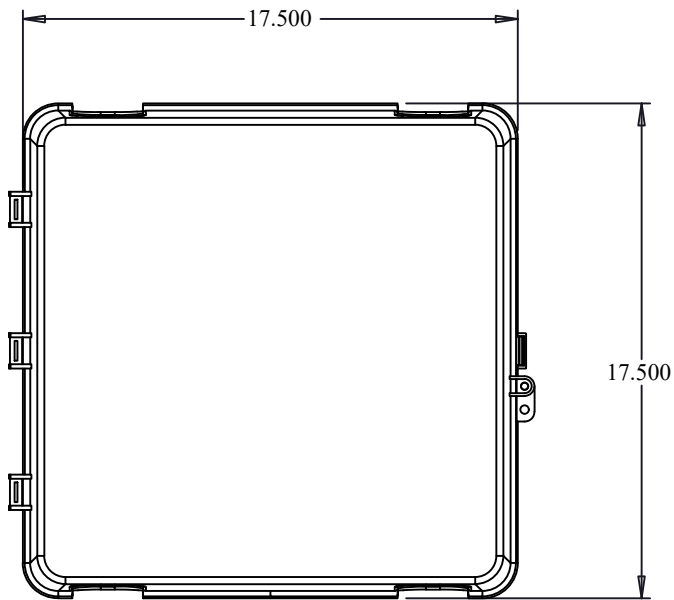
FILLETED EDGES FOR CABLE PROTECTION

REMOVEABLE POSTS AND STRAPS

INTERIOR POST HEIGHT 5.380

MOUNTING BRACKET SUBJECT TO CHANGE

MOUNTING BRACKET CAPABLE OF FOUR DIFFERENT POSITIONS



DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS

DATE: 2/18/2021

PHONE: 970-980-6574

ISSUE #: 1

E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM

Colorado Department of Transportation

SCALE: NTS

425C Corporate Circle
Golden, CO 80401
Phone: 303-512-5801 Fax: 303-512-5878

MECHANICAL PROTECTION BOX DETAIL



JKS

SHEET #: 019 OF 063



Underground Pipe and Cable Marking



Magical Impact Sleeve



Pop-Up Poly-Dome™ Markers

Maintain functionality and integrity of Poly-Dome Markers by reducing damage caused by vehicles or livestock. The Pop-Up Poly-Dome Marker resumes to its original position after repeated impact by vehicles or contact with cattle.

- Kit includes Poly-Dome, Impact Sleeve, 2" x 2" square post, and all hardware

Part No.	Description
PUPD4	Pop-up Poly-Dome, 4 ft. length
PUPD6	Pop-up Poly-Dome, 6 ft. length

Ask about our customizing options

Underground Pipe and Cable Marking

Poly-Dome™ Quick Mount

Mount your Poly-Dome quickly and securely with the Poly-Dome Quick Mount Kit and a drive rivet.

- Kit includes: Poly-Dome, sleeve, and drive rivet
- Mounts to standard U-Channel or delineator posts
- Optional: Ask us for a quote on our large inventory of U-Channel posts!

Part No.	Description
PDQM	Poly-Dome™ Quick Mount



Wrap Around Signs and Decals

Identify pipelines, fiber optic cables, and other underground utilities with aluminum Wrap Around Signs that provide 360° visibility.

- Covers up old text due to change in ownership or contact information
- Choose reflective, multi-color Wrap Around Decals for added visibility.
- Optional: Ask us about 3.5" and 4.5" post caps to neatly finish your Wrap Around Signs!

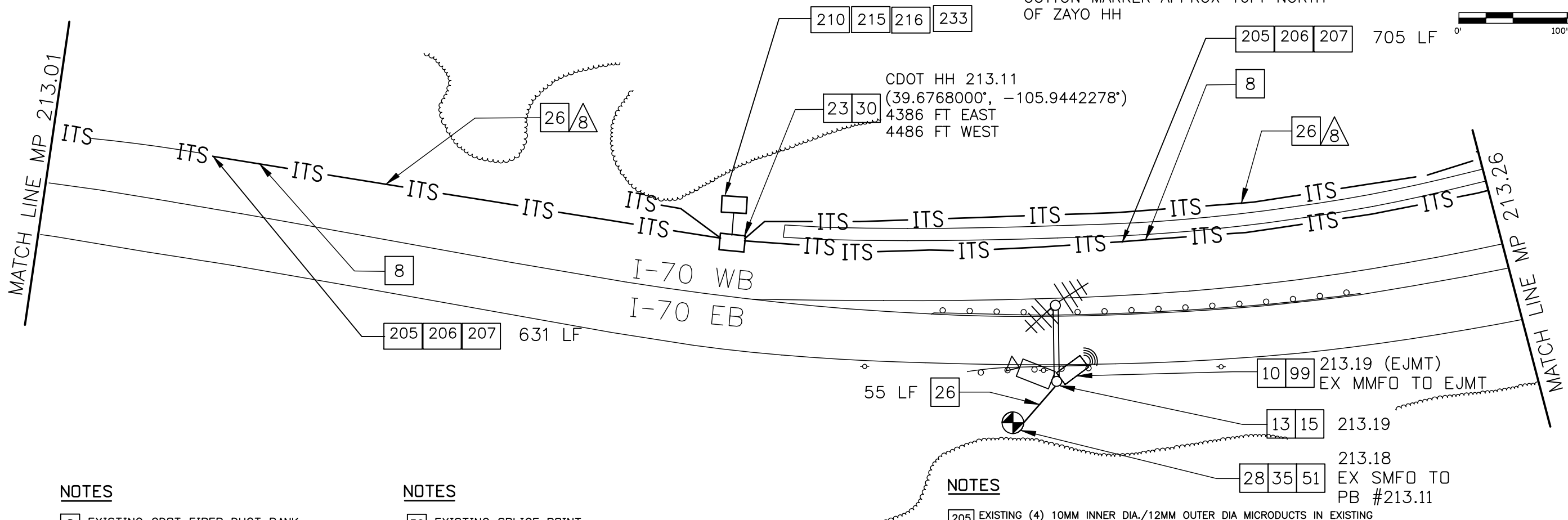
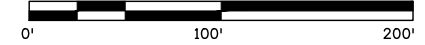
Part No.	Description
WAS6	Wrap around sign, 6' length
WAS7	Wrap around sign, 7' length
WAS8	Wrap around sign, 8' length

Ask about our customizing options

DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)		
DRAWN BY: DREW PAPPAS	DATE: 2/18/2021	
PHONE: 970-980-6574	ISSUE #: 1	
E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM	Colorado Department of Transportation	
SCALE: NTS	425C Corporate Circle Golden, CO 80401 Phone: 303-512-5801 Fax: 303-512-5878	
FIBER MARKER POST DETAIL		HQ - ITS BRANCH
		JKS SHEET #: 020 OF 063

ZAYO HH 213.11
 (39.6768167°, -105.9442278°)
 TYPICAL 4 DESIGN
 8' OFFSET EOA
 6518 FT EAST
 6698 FT WEST
 COTTON MARKER APPROX 10FT NORTH
 OF ZAYO HH



NOTES

- 8 EXISTING CDOT FIBER DUCT BANK
- 10 EXISTING VARIABLE MESSAGE SIGN
- 13 EXISTING MICROWAVE VEHICLE RADAR DETECTOR
- 15 EXISTING TTI
- 23 EXISTING MANHOLE SPECIAL
- 26 EXISTING 2 INCH ELECTRICAL CONDUIT (PLASTIC)
- 28 EXISTING ETHERNET SWITCH (3931)

NOTES

- 30 EXISTING SPLICE POINT
- 35 EXISTING SERIAL TO IP CONVERTER
- 51 EXISTING RWIS
- 99 EXISTING SERIAL CCTV CAMERA
- 8 FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

NOTES

- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 206 EXISTING CDOT 144 MICROFIBER IN BLUE MICRODUCT
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
- 210 60' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH
- 215 EXISTING MICROFIBER MECHANICAL PROTECTION BOX IN ZAYO HH
- 216 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 4)
- 233 100' COIL OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER IN EXISTING CDOT MANHOLE



**Know what's below.
 Call before you dig.**

WHITE RIVER NATIONAL FOREST
 PERMIT REQUIRED

MILEPOST REFERENCE - 213



DESCRIPTION	UNIT	QTY
205	FOOT	1336
206	FOOT	1336
207	FOOT	1336
210	FOOT	60
215	EACH	1
216	EACH	1
233	FOOT	100

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
 PHONE: 970-980-6574
 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: 1" = 100'

DATE: 2/18/2021
 ISSUE #: 1
 Colorado Department of Transportation
 425C Corporate Circle
 Golden, CO 80401
 Phone: 303-512-5801 Fax: 303-512-5878



HQ - ITS BRANCH JKS

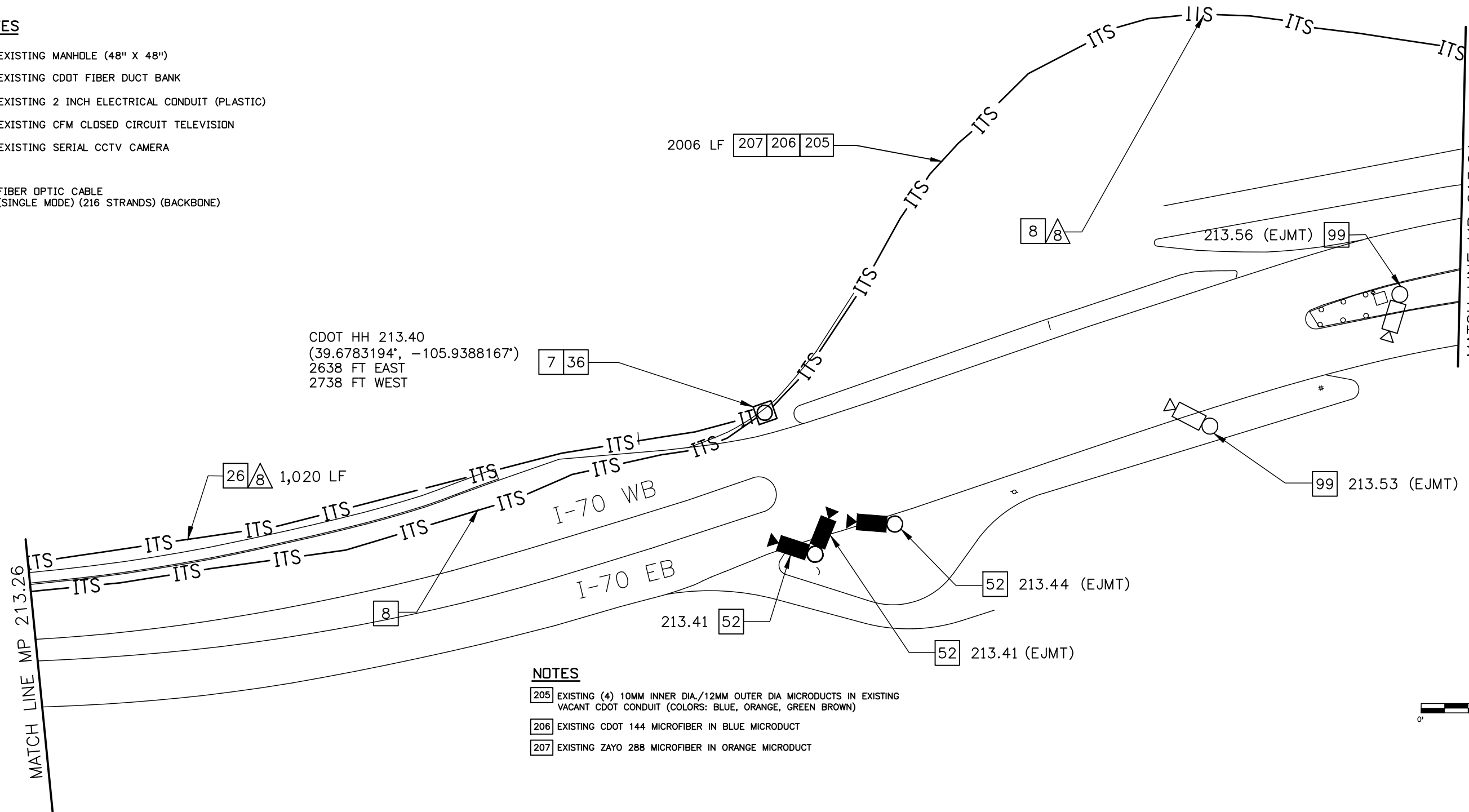
SHEET #: 048 OF 063

FIBER BACKBONE

NOTES

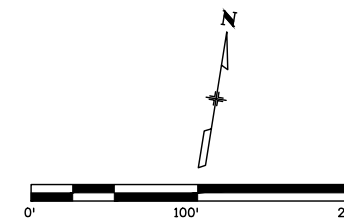
- 7 EXISTING MANHOLE (48" X 48")
- 8 EXISTING CDOT FIBER DUCT BANK
- 26 EXISTING 2 INCH ELECTRICAL CONDUIT (PLASTIC)
- 52 EXISTING CFM CLOSED CIRCUIT TELEVISION
- 99 EXISTING SERIAL CCTV CAMERA

△ FIBER OPTIC CABLE
(SINGLE MODE) (216 STRANDS) (BACKBONE)



NOTES

- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 206 EXISTING CDOT 144 MICROFIBER IN BLUE MICRODUCT
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT



**Know what's below.
Call before you dig.**

WHITE RIVER NATIONAL FOREST
PERMIT REQUIRED

MILEPOST REFERENCE - 213



DESCRIPTION	UNIT	QTY
205	FOOT	2006
206	FOOT	2006
207	FOOT	2006

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
 PHONE: 970-980-6574
 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: 1" = 100'

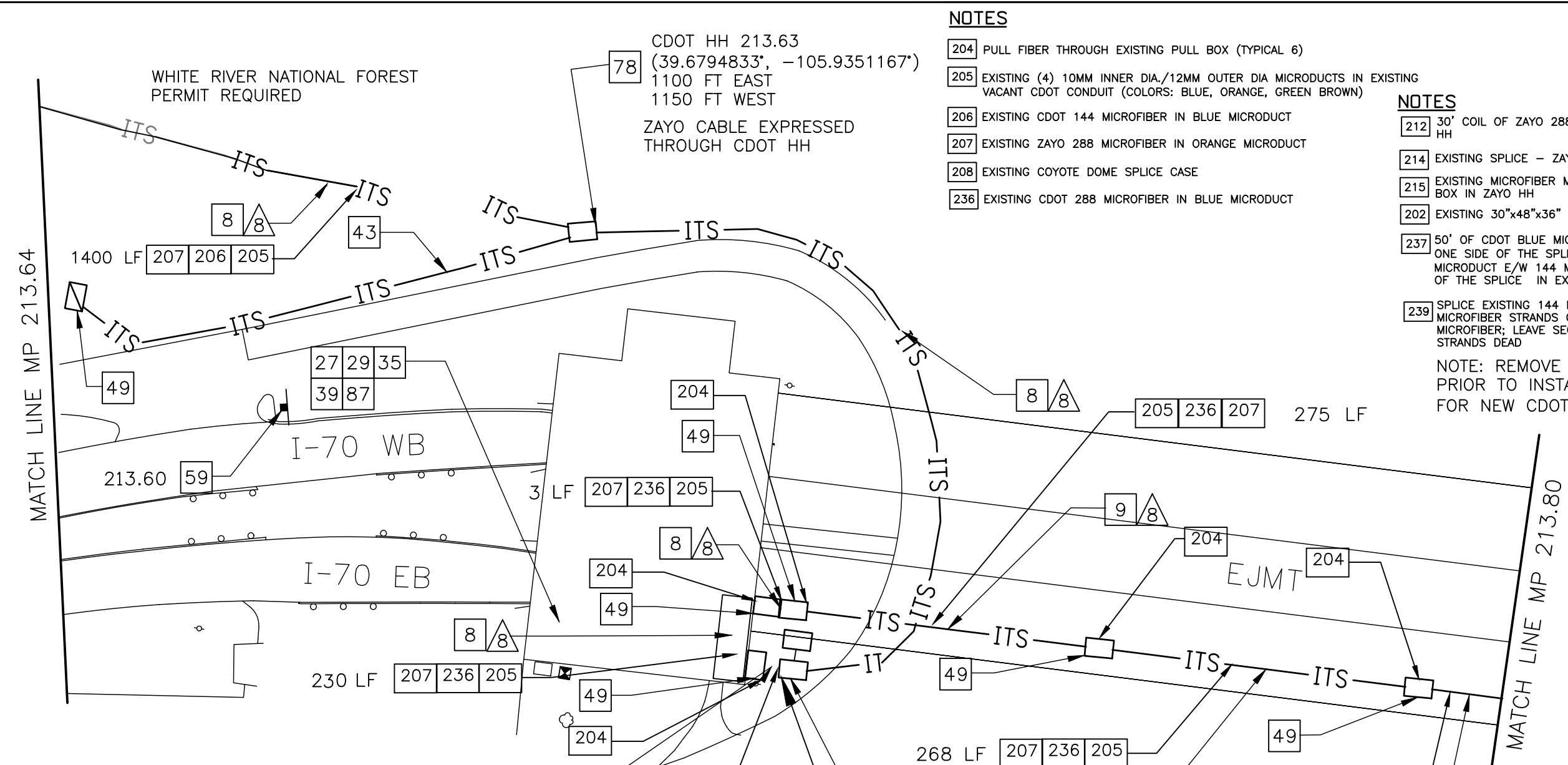
DATE: 2/18/2021
 ISSUE #: 1
 Colorado Department of Transportation
 425C Corporate Circle
 Golden, CO 80401
 Phone: 303-512-5801 Fax: 303-512-5878



FIBER BACKBONE

HQ - ITS BRANCH JKS

SHEET #: 049 OF 063



- NOTES**
- 204 PULL FIBER THROUGH EXISTING PULL BOX (TYPICAL 6)
 - 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
 - 206 EXISTING CDOT 144 MICROFIBER IN BLUE MICRODUCT
 - 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
 - 208 EXISTING COYOTE DOME SPLICE CASE
 - 236 EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT
- NOTES**
- 212 30' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH
 - 214 EXISTING SPLICE - ZAYO 288 MICROFIBER
 - 215 EXISTING MICROFIBER MECHANICAL PROTECTION BOX IN ZAYO HH
 - 202 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 2)
 - 237 50' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER ON ONE SIDE OF THE SPLICE AND COIL 50' OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER ON THE OPPOSITE SIDE OF THE SPLICE IN EXISTING CDOT VAULT
 - 239 SPLICE EXISTING 144 MICROFIBER TO FIRST 144 MICROFIBER STRANDS OF EXISTING 288 CDOT MICROFIBER; LEAVE SECOND 144 MICROFIBER STRANDS DEAD

NOTE: REMOVE EXISTING 144 FIBER PRIOR TO INSTALLED MICRODUCTS FOR NEW CDOT/ZAYO MICROFIBER

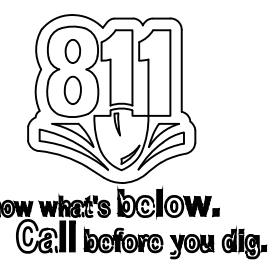
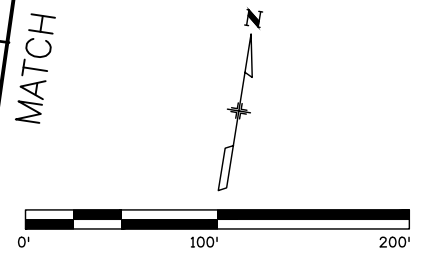
- NOTES**
- 8 EXISTING CDOT FIBER DUCT BANK
 - 9 EXISTING CDOT FIBER DUCT BANK IN EJMT
 - 24 EXISTING PULL BOX (SPECIAL)
 - 27 EXISTING ETHERNET SWITCH (3930)
 - 29 EXISTING FIBER OPTIC TERMINATION PANEL - 6 FIBER
 - 35 EXISTING SERIAL TO IP CONVERTER
 - 39 EXISTING DTD ATR

- NOTES**
- 43 EXISTING CONDUIT
 - 49 EXISTING PULL BOX
 - 59 EXISTING BLANK OUT SIGN
 - 78 EXISTING PULL BOX (24" X 36" X 24")
 - △ FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

CDOT HOFFMAN 213.70
 SPLICE POINT
 680 FT EAST
 508 FT TAIL
 229-234 - (EXISTING 288CT)
 TO 1-6 - (FROM BUILDING)

24 CDOT HH 213.75
 (39.6784806°, -105.9343639°)
 432 FT EAST
 532 FT WEST

ZAYO HH 213.75
 (39.6785028°, -105.9343722°)
 TYPICAL 2 DESIGN
 BEHIND TUNNEL ENT
 2588 FT EAST
 2788 FT WEST



MILEPOST REFERENCE - 213



DESCRIPTION	UNIT	QTY
204	EACH	5
205	FOOT	2283
206	FOOT	2283
207	FOOT	2283
208	EACH	1
237	FOOT	50
212	FOOT	30
213	EACH	144
214	EACH	288
215	EACH	1
202	EACH	1
239	FOOT	880
236	FOOT	880

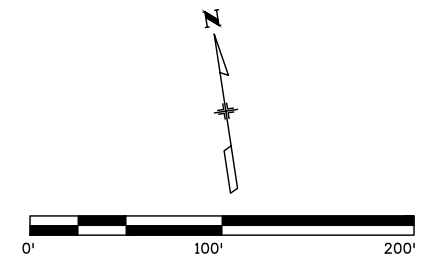
PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
 PHONE: 970-980-6574
 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: 1" = 100'

DATE: 2/18/2021
 ISSUE #: 1
 Colorado Department of Transportation
 425C Corporate Circle
 Golden, CO 80401
 Phone: 303-512-5801 Fax: 303-512-5878
 HQ - ITS BRANCH JKS

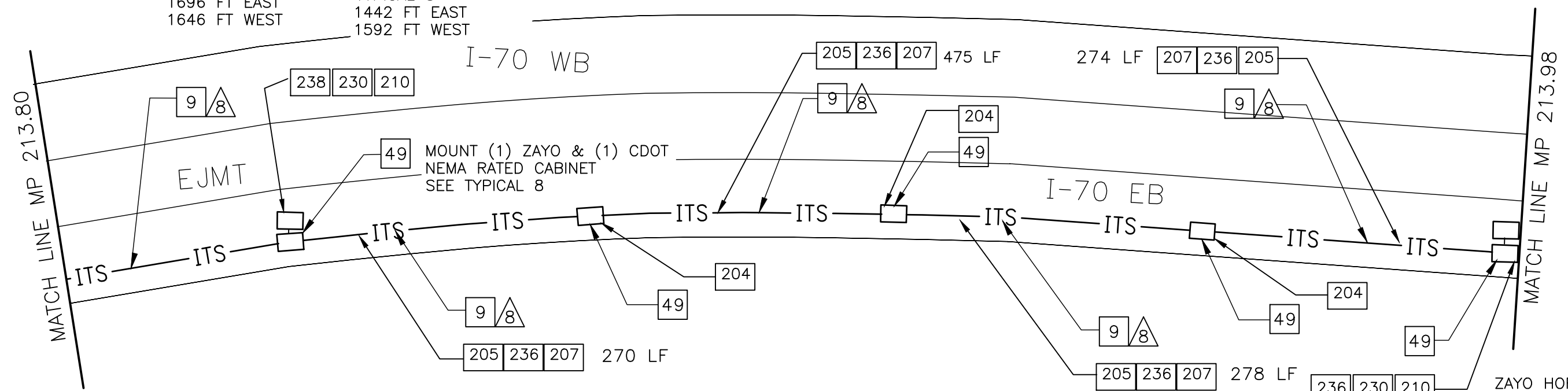
SHEET #: 050 OF 063

FIBER BACKBONE



CDOT HOFFMAN #8
MM 213.82
TYPICAL 8
1696 FT EAST
1646 FT WEST

ZAYO HOFFMAN #8
MM 213.82
NEMA RATED CABINET
TYPICAL 8
1442 FT EAST
1592 FT WEST



NOTES

- 9 EXISTING CDOT FIBER DUCT BANK IN EJMT
- 49 EXISTING PULL BOX
- 8 FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

NOTES

- 204 PULL FIBER THROUGH EXISTING PULL BOX (TYPICAL 6)
- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
- 210 60' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH
- 230 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET - EISENHOWER TUNNEL (DESIGN TYPICAL 8)
- 236 EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT
- 238 100' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER IN EXISTING CDOT VAULT

ZAYO HOFFMAN #7
MM 213.99
NEMA RATED CABINET
TYPICAL 8
SPLICE POINT
13976 FT EAST
13896 FT TAIL
106 FT TAIL
306 FT WEST

CDOT HOFFMAN #7
MM 213.99
TYPICAL 8
2800 FT EAST
2750 FT WEST

CDOT FIBER DUCT BANK IS LOCATED IN THE EB I-70 VENTILATION DUCT (ABOVE INTERSTATE INSIDE TUNNEL)

MUST COORDINATE WITH CDOT TO GET ACCESS TO VENTILATION DUCT FOR PLACEMENT



**Know what's below.
Call before you dig.**

MILEPOST REFERENCE - 213



DESCRIPTION	UNIT	QTY
204	EACH	3
205	FOOT	1297
236	FOOT	1297
207	FOOT	1297
210	FOOT	120
230	EACH	2
238	FOOT	100

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
PHONE: 970-980-6574
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SCALE: 1" = 100'

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Phone: 303-512-5801 Fax: 303-512-5878



FIBER BACKBONE

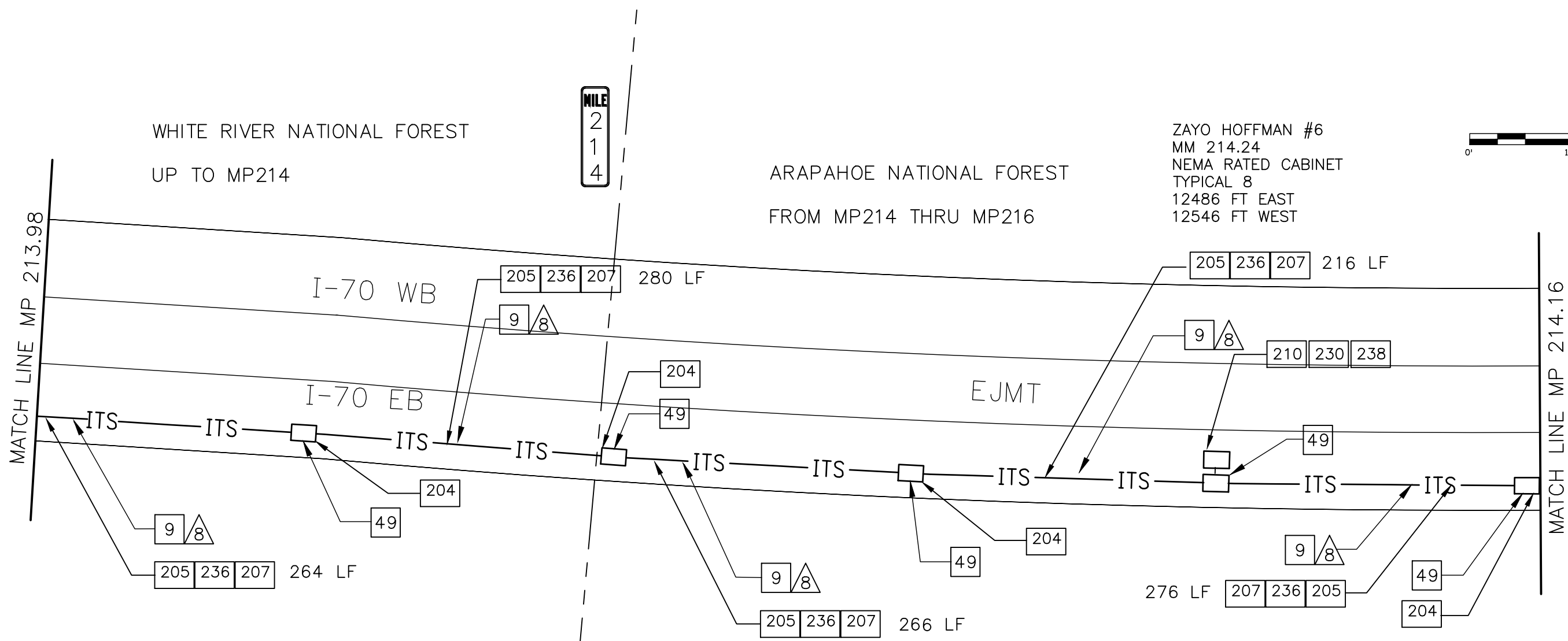
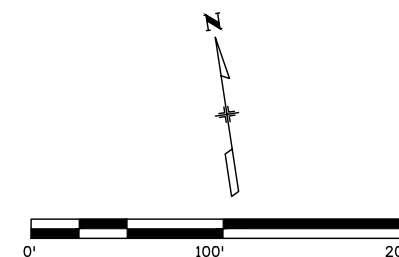
HQ - ITS BRANCH JKS

SHEET #: 051 OF 063

WHITE RIVER NATIONAL FOREST
UP TO MP214

ARAPAHOE NATIONAL FOREST
FROM MP214 THRU MP216

ZAYO HOFFMAN #6
MM 214.24
NEMA RATED CABINET
TYPICAL 8
12486 FT EAST
12546 FT WEST



NOTES

- 9 EXISTING CDOT FIBER DUCT BANK IN EJMT
- 49 EXISTING PULL BOX
- 8 FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

CDOT FIBER DUCT BANK IS LOCATED IN THE EB I-70 VENTILATION DUCT (ABOVE INTERSTATE INSIDE TUNNEL)

MUST COORDINATE WITH CDOT TO GET ACCESS TO VENTILATION DUCT FOR PLACEMENT

NOTES

- 204 PULL FIBER THROUGH EXISTING PULL BOX (TYPICAL 6)
- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
- 210 60' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH
- 230 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET - EISENHOWER TUNNEL (DESIGN TYPICAL 8)
- 236 EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT
- 238 COIL 100' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER IN EXISTING CDOT VAULT

NOTE: REMOVE EXISTING 144 FIBER PRIOR TO INSTALLED MICRODUCTS FOR NEW CDOT/ZAYO MICROFIBER

CDOT HOFFMAN #6
MM 214.24
TYPICAL 8
3910 FT EAST
3860 FT WEST



Know what's below.
Call before you dig.

MILEPOST REFERENCE - 213 & 214



DESCRIPTION	UNIT	QTY
204	EACH	4
205	FOOT	1302
236	FOOT	1302
207	FOOT	1302
210	FOOT	60
230	EACH	1
238	FOOT	100

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
PHONE: 970-980-6574
E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM

DATE: 2/18/2021
ISSUE #: 1
Colorado Department of Transportation

SCALE: 1" = 100'

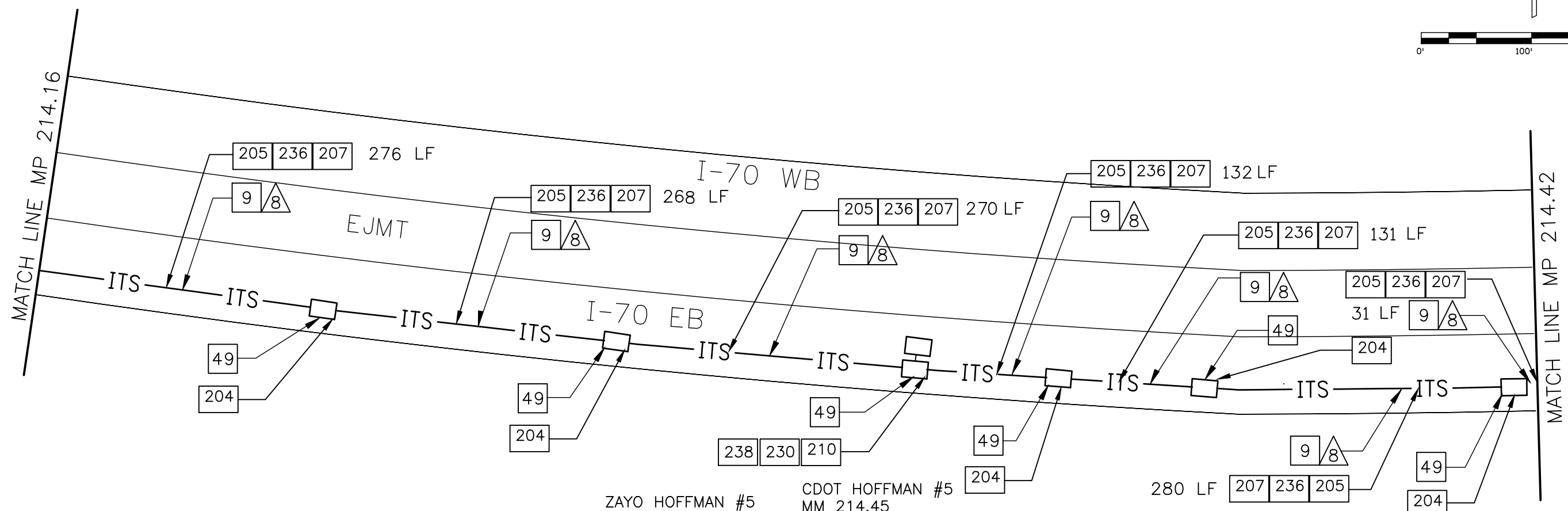
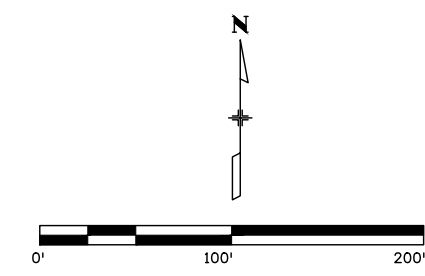
425C Corporate Circle
Golden, CO 80401
Phone: 303-512-5801 Fax: 303-512-5878
HQ - ITS BRANCH



SHEET #: 052 OF 063

FIBER BACKBONE

JKS



NOTES

- 9 EXISTING CDOT FIBER DUCT BANK IN EJMT
- 49 EXISTING PULL BOX
- 8 FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

CDOT FIBER DUCT BANK IS LOCATED IN THE EB I-70 VENTILATION DUCT (ABOVE INTERSTATE INSIDE TUNNEL)
 MUST COORDINATE WITH CDOT TO GET ACCESS TO VENTILATION DUCT FOR PLACEMENT

ZAYO HOFFMAN #5
 MM 214.45
 NEMA RATED CABINET
 TYPICAL 8
 11394 FT EAST
 11334 FT WEST

CDOT HOFFMAN #5
 MM 214.45
 TYPICAL 8
 4970 FT EAST
 4920 FT WEST

NOTES

- 204 PULL FIBER THROUGH EXISTING PULL BOX (TYPICAL 6)
 - 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
 - 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
 - 210 60' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH
 - 230 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET - EISENHOWER TUNNEL (DESIGN TYPICAL 8)
 - 236 EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT
 - 238 100' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER IN EXISTING CDOT VAULT
- NOTE: REMOVE EXISTING 144 FIBER PRIOR TO INSTALLED MICRODUCTS FOR NEW CDOT/ZAYO MICROFIBER



Know what's below. Call before you dig.

MILEPOST REFERENCE - 214



DESCRIPTION	UNIT	QTY
204	EACH	5
205	FOOT	1388
236	FOOT	1388
207	FOOT	1388
210	FOOT	60
230	EACH	1
238	FOOT	100

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
 PHONE: 970-980-6574
 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: 1" = 100'

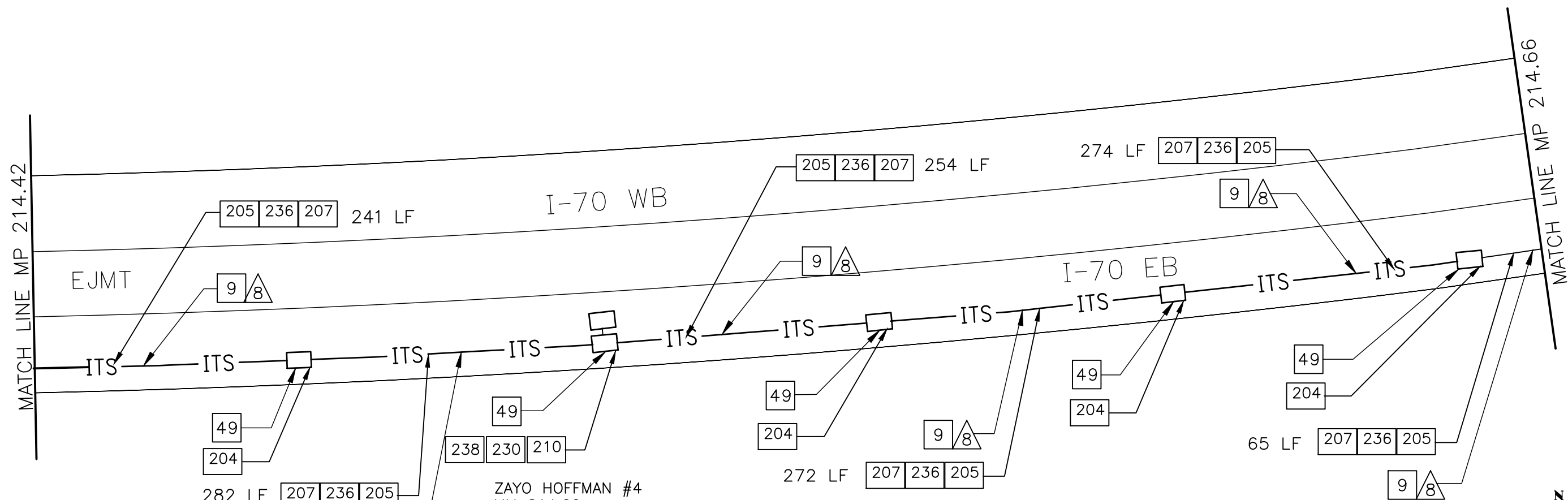
DATE: 2/18/2021
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 Colorado Department of Transportation
 425C Corporate Circle
 Golden, CO 80401
 Phone: 303-512-5801 Fax: 303-512-5878



FIBER BACKBONE

HQ - ITS BRANCH JKS

SHEET #: 053 OF 063



ZAYO HOFFMAN #4
 MM 214.66
 NEMA RATED CABINET
 TYPICAL 8
 10274 FT EAST
 10214 FT WEST

CDOT HOFFMAN #4
 MM 214.66
 TYPICAL 8
 6166 FT EAST
 6116 FT WEST

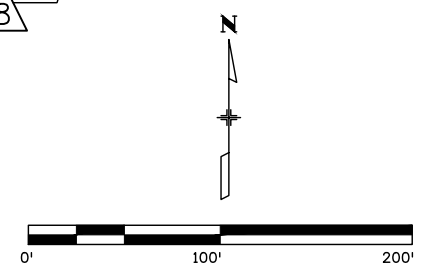
NOTES

- 9 EXISTING CDOT FIBER DUCT BANK IN EJMT
- 49 EXISTING PULL BOX
- 8 FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

NOTES

- 204 PULL FIBER THROUGH EXISTING PULL BOX (TYPICAL 6)
- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
- 210 60' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH
- 230 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET - EISENHOWER TUNNEL (DESIGN TYPICAL)
- 236 EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT
- 238 100' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER IN EXISTING CDOT VAULT

NOTE: REMOVE EXISTING 144 FIBER PRIOR TO INSTALLED MICRODUCTS FOR NEW CDOT/ZAYO MICROFIBER



Know what's below. Call before you dig.

MILEPOST REFERENCE - 214



DESCRIPTION	UNIT	QTY
204	EACH	4
205	FOOT	1388
236	FOOT	1388
207	FOOT	1388
210	FOOT	60
230	EACH	1
238	FOOT	100
	FOOT	100

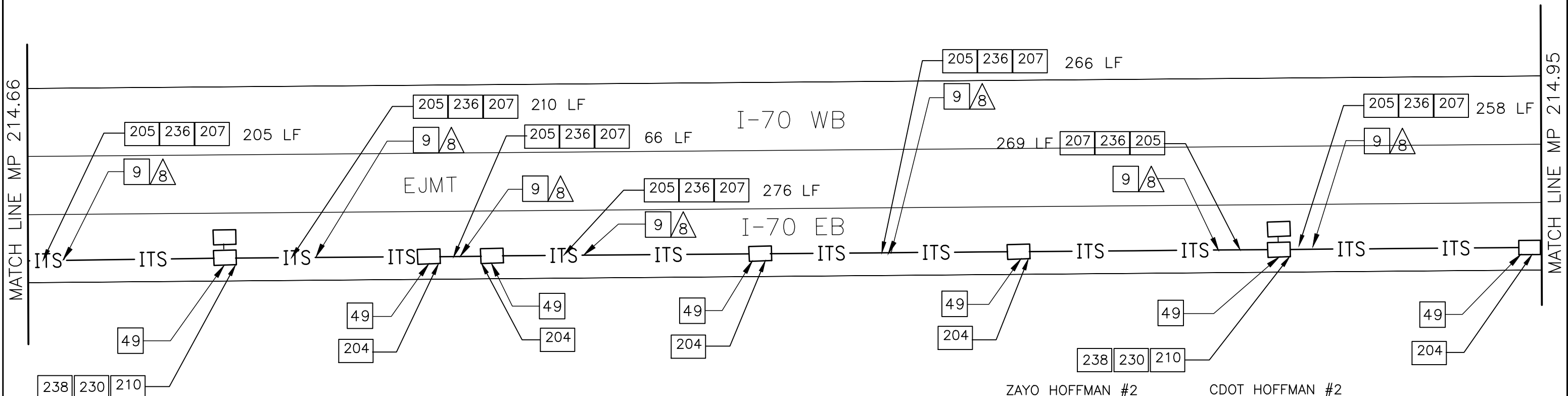
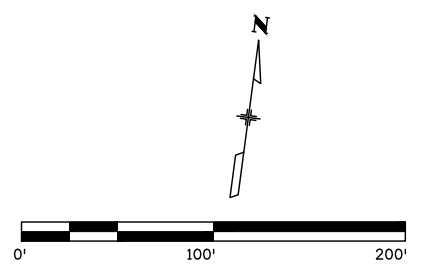
PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
 PHONE: 970-980-6574
 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: 1" = 100'

DATE: 2/18/2021
 ISSUE #: 1
Colorado Department of Transportation
 425C Corporate Circle
 Golden, CO 80401
 Phone: 303-512-5801 Fax: 303-512-5878
 HQ - ITS BRANCH JKS

SHEET #: 054 OF 063

NOTE: REMOVE EXISTING 144 FIBER PRIOR TO INSTALLED MICRODUCTS FOR NEW CDOT/ZAYO MICROFIBER



ZAYO HOFFMAN #3
NEMA RATED CABINET
TYPICAL 8
MM 214.86
9152 FT EAST
9094 FT WEST

CDOT HOFFMAN #3
TYPICAL 8
MM 214.86
7308 FT EAST
7258 FT WEST

NOTES

- 9 EXISTING CDOT FIBER DUCT BANK IN EJMT
- 49 EXISTING PULL BOX
- 8 FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

CDOT FIBER DUCT BANK IS LOCATED IN THE EB I-70 VENTILATION DUCT (ABOVE INTERSTATE INSIDE TUNNEL)
MUST COORDINATE WITH CDOT TO GET ACCESS TO VENTILATION DUCT FOR PLACEMENT

ZAYO HOFFMAN #2
NEMA RATED CABINET
TYPICAL 8
MM 215.07
8000 FT EAST
7940 FT WEST

CDOT HOFFMAN #2
TYPICAL 8
MM 215.07
8408 FT EAST
8368 FT WEST

NOTES

- 204 PULL FIBER THROUGH EXISTING PULL BOX (TYPICAL 6)
- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
- 210 60' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH
- 230 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET - EISENHOWER TUNNEL (DESIGN TYPICAL 8)
- 236 EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT
- 238 COIL 100' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER IN EXISTING CDOT VAULT



Know what's below.
Call before you dig.

MILEPOST REFERENCE - 214



DESCRIPTION	UNIT	QTY
204	EACH	5
205	FOOT	1550
236	FOOT	1550
207	FOOT	1550
210	FOOT	120
230	EACH	2
238	FOOT	200

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
PHONE: 970-980-6574
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SCALE: 1" = 100'

DATE: 2/18/2021
ISSUE #: 1
Colorado Department of Transportation
425C Corporate Circle
Golden, CO 80401
Phone: 303-512-5801 Fax: 303-512-5878
HQ - ITS BRANCH



SHEET #: 055 OF 063

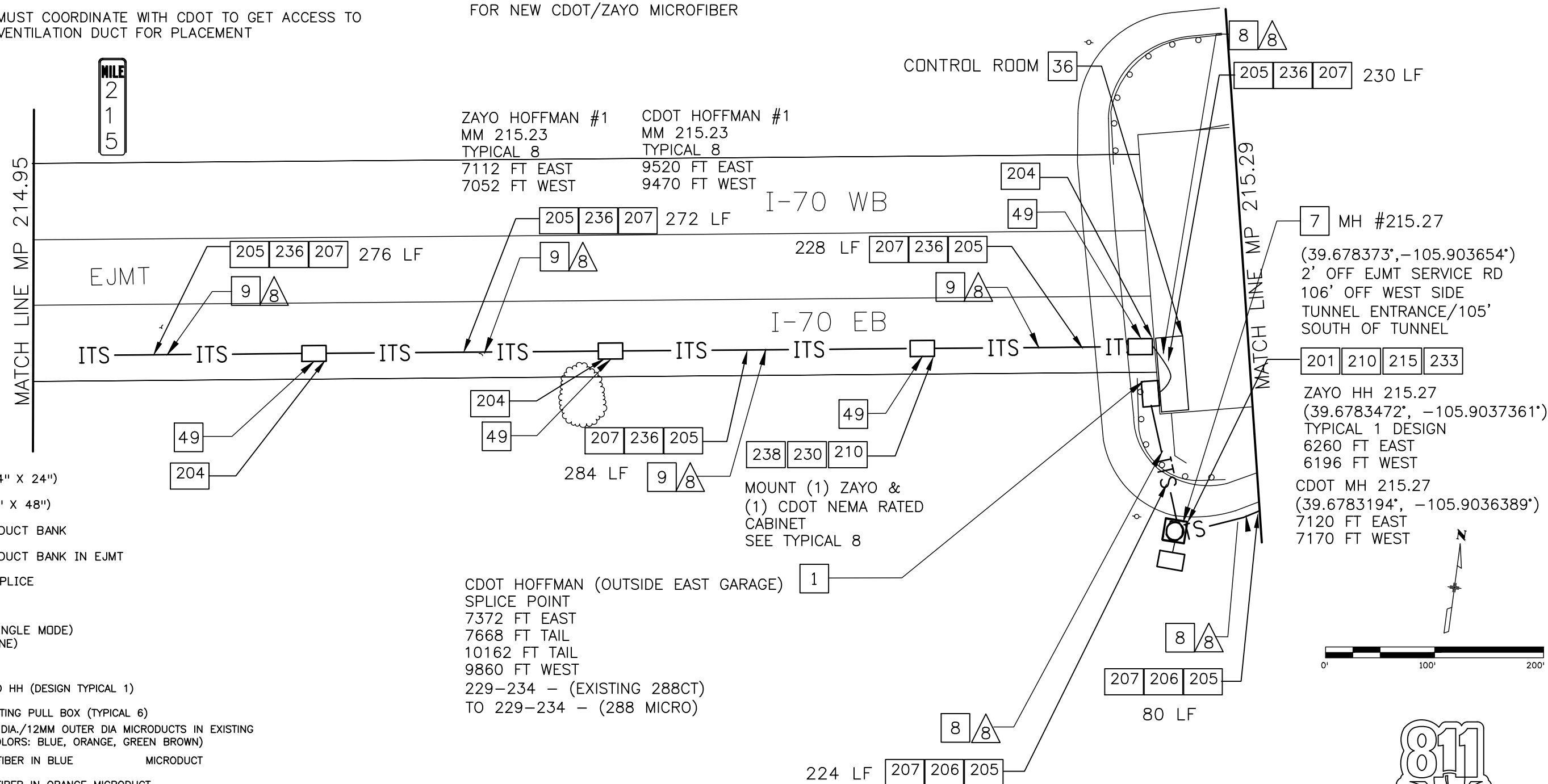
FIBER BACKBONE

JKS

CDOT FIBER DUCT BANK IS LOCATED IN THE EB I-70 VENTILATION DUCT (ABOVE INTERSTATE INSIDE TUNNEL)

MUST COORDINATE WITH CDOT TO GET ACCESS TO VENTILATION DUCT FOR PLACEMENT

NOTE: REMOVE EXISTING 144 FIBER PRIOR TO INSTALLED MICRODUCTS FOR NEW CDOT/ZAYO MICROFIBER



NOTES

- 1 EXISTING PULL BOX (24" X 24")
- 7 EXISTING MANHOLE (48" X 48")
- 8 EXISTING CDOT FIBER DUCT BANK
- 9 EXISTING CDOT FIBER DUCT BANK IN EJMT
- 36 EXISTING CABLE END SPLICE
- 49 EXISTING PULL BOX
- △ FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

NOTES

- 201 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 1)
- 204 PULL FIBER THROUGH EXISTING PULL BOX (TYPICAL 6)
- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 206 EXISTING CDOT 144 MICROFIBER IN BLUE MICRODUCT
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
- 215 EXISTING MICROFIBER MECHANICAL PROTECTION BOX IN ZAYO HH
- 230 EXISTING 36"x36"x11" ZAYO NEMA RATED CABINET - EISENHOWER TUNNEL (DESIGN TYPICAL 8)
- 233 100' COIL OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER IN EXISTING CDOT MANHOLE
- 238 100' OF CDOT BLUE MICRODUCT E/W 288 MICROFIBER IN EXISTING CDOT VAULT
- 236 EXISTING CDOT 288 MICROFIBER IN BLUE MICRODUCT

ARAPAHOE NATIONAL FOREST PERMIT REQUIRED

Know what's below. Call before you dig.

MILEPOST REFERENCE - 214 & 215



DESCRIPTION	UNIT	QTY
201	EACH	1
204	EACH	3
205	FOOT	1594
206	FOOT	304
207	FOOT	1594
233	FOOT	100
215	EACH	1
230	EACH	1
236	FOOT	1290
210	FOOT	120
238	FOOT	100

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS DATE: 2/18/2021

PHONE: 970-980-6574 ISSUE #: 1

E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM Colorado Department of Transportation

SCALE: 1" = 100' 425C Corporate Circle
Golden, CO 80401
Phone: 303-512-5801 Fax: 303-512-5878

FIBER BACKBONE HQ - ITS BRANCH JKS

zayo SHEET #: 056 OF 063

NOTES

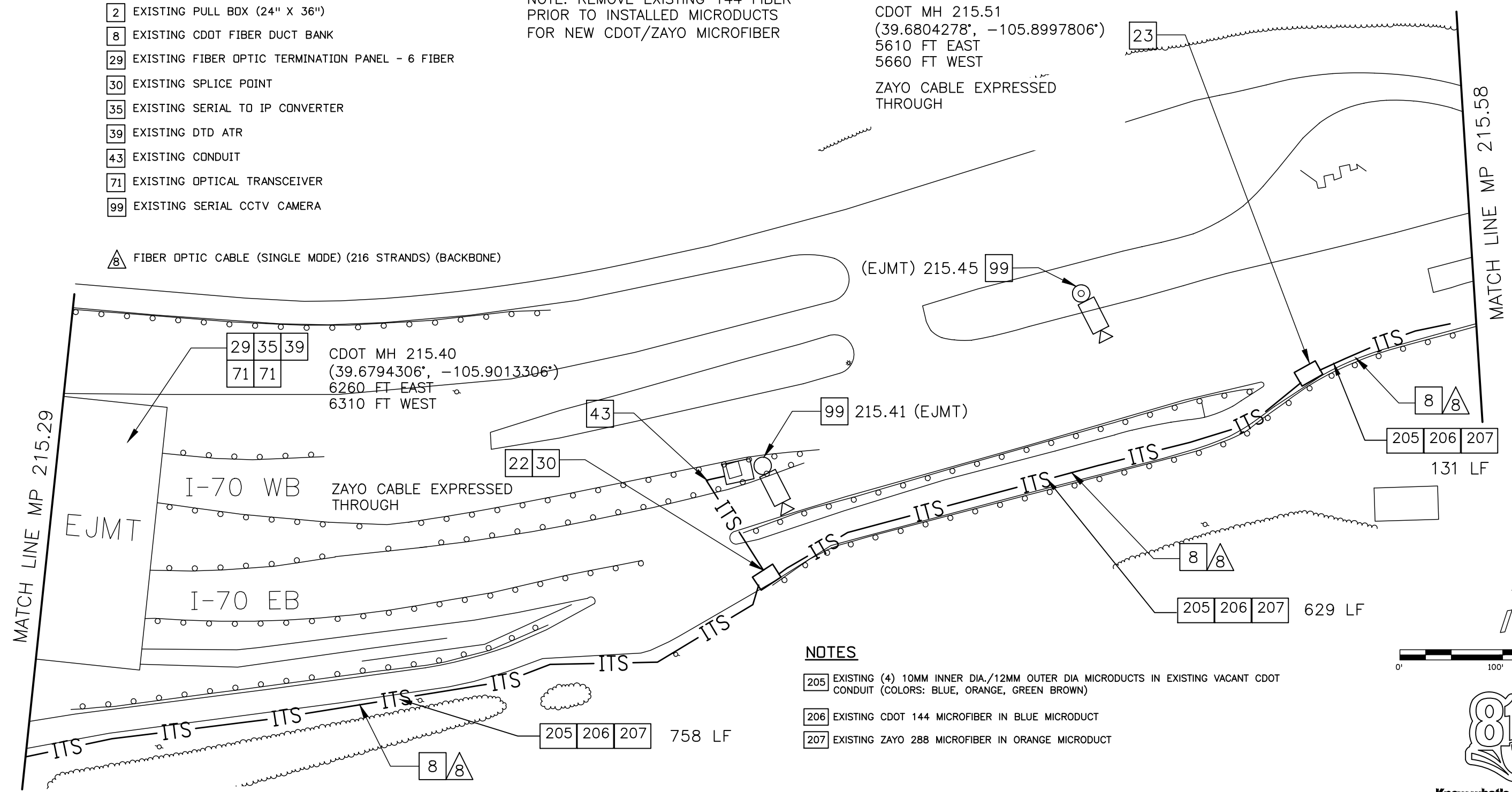
- 2 EXISTING PULL BOX (24" X 36")
- 8 EXISTING CDOT FIBER DUCT BANK
- 29 EXISTING FIBER OPTIC TERMINATION PANEL - 6 FIBER
- 30 EXISTING SPLICE POINT
- 35 EXISTING SERIAL TO IP CONVERTER
- 39 EXISTING DTD ATR
- 43 EXISTING CONDUIT
- 71 EXISTING OPTICAL TRANSCEIVER
- 99 EXISTING SERIAL CCTV CAMERA

NOTE: REMOVE EXISTING 144 FIBER PRIOR TO INSTALLED MICRODUCTS FOR NEW CDOT/ZAYO MICROFIBER

CDOT MH 215.51
(39.6804278°, -105.8997806°)
5610 FT EAST
5660 FT WEST

ZAYO CABLE EXPRESSED THROUGH

8 FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)



NOTES

- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 206 EXISTING CDOT 144 MICROFIBER IN BLUE MICRODUCT
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT

ARAPAHOE NATIONAL FOREST
PERMIT REQUIRED

MILEPOST REFERENCE - 215



DESCRIPTION	UNIT	QTY
205	FOOT	1518
206	FOOT	1518
207	FOOT	1518

PROJECT NAME: I-70 FIBER BACKBONE PROJECT - GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

DRAWN BY: DREW PAPPAS
PHONE: 970-980-6574
E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
SCALE: 1" = 100'

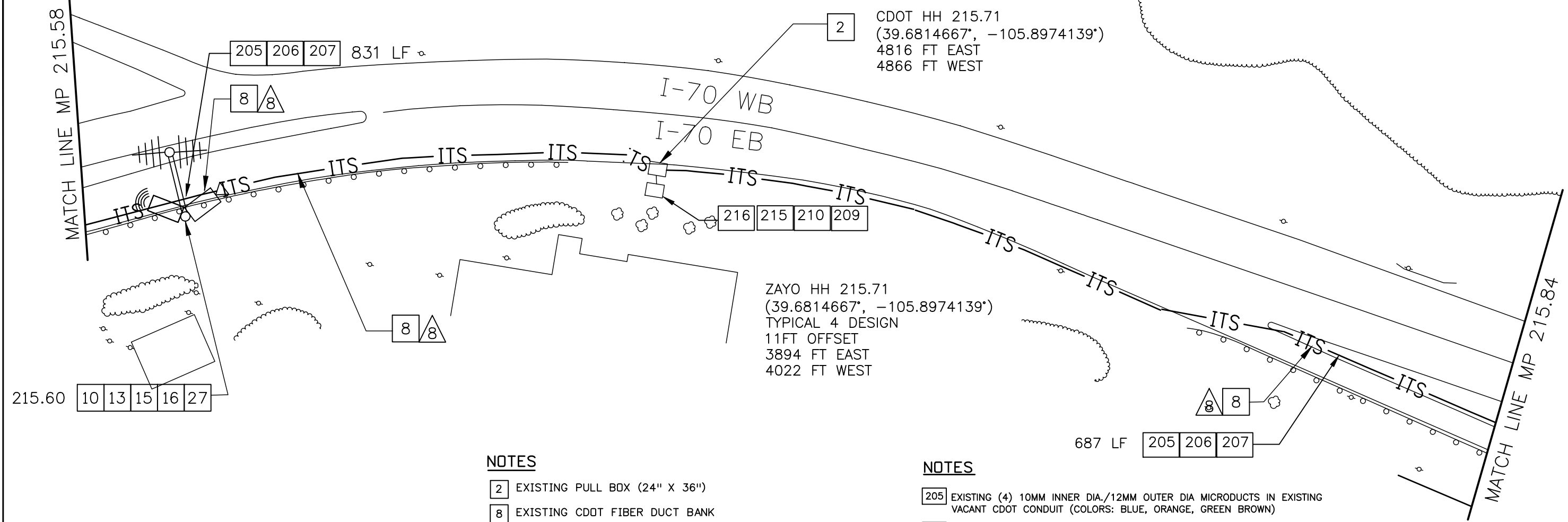
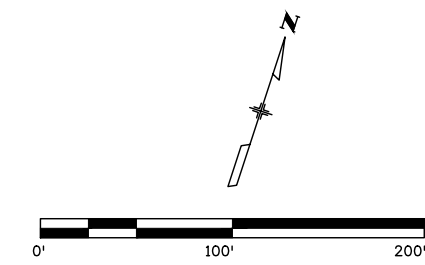
DATE: 2/18/2021
ISSUE #: 1
Colorado Department of Transportation
425C Corporate Circle
Golden, CO 80401
Phone: 303-512-5801 Fax: 303-512-5878



FIBER BACKBONE

HQ - ITS BRANCH JKS

SHEET #: 057 OF 063



ARAPAHOE NATIONAL FOREST
PERMIT REQUIRED

NOTES

- 2 EXISTING PULL BOX (24" X 36")
 - 8 EXISTING CDOT FIBER DUCT BANK
 - 10 EXISTING VARIABLE MESSAGE SIGN
 - 13 EXISTING MICROWAVE VEHICLE RADAR DETECTOR
 - 15 EXISTING TTI
 - 16 EXISTING IP CCTV CAMERA
 - 27 EXISTING ETHERNET SWITCH (3930)
- △ FIBER OPTIC CABLE (SINGLE MODE) (216 STRANDS) (BACKBONE)

NOTES

- 205 EXISTING (4) 10MM INNER DIA./12MM OUTER DIA MICRODUCTS IN EXISTING VACANT CDOT CONDUIT (COLORS: BLUE, ORANGE, GREEN BROWN)
- 206 EXISTING CDOT 144 MICROFIBER IN BLUE MICRODUCT
- 207 EXISTING ZAYO 288 MICROFIBER IN ORANGE MICRODUCT
- 209 50' COIL OF CDOT BLUE MICRODUCT E/W 144 MICROFIBER IN EXISTING CDOT HH/MH/PB
- 210 60' COIL OF ZAYO 288 MICROFIBER IN EXISTING ZAYO HH
- 215 EXISTING MICROFIBER MECHANICAL PROTECTION BOX IN ZAYO HH
- 216 EXISTING 30"x48"x36" ZAYO HH (DESIGN TYPICAL 4)

NOTE: REMOVE EXISTING 144 FIBER PRIOR TO INSTALLED MICRODUCTS FOR NEW CDOT/ZAYO MICROFIBER



**Know what's below.
Call before you dig.**

MILEPOST REFERENCE – 215



DESCRIPTION	UNIT	QTY
205	FOOT	1518
206	FOOT	1518
207	FOOT	1518
209	FOOT	50
210	FOOT	60
215	EACH	1
216	EACH	1

PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 4)

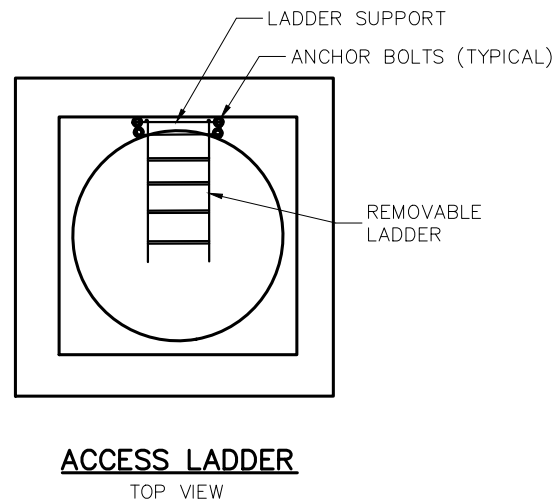
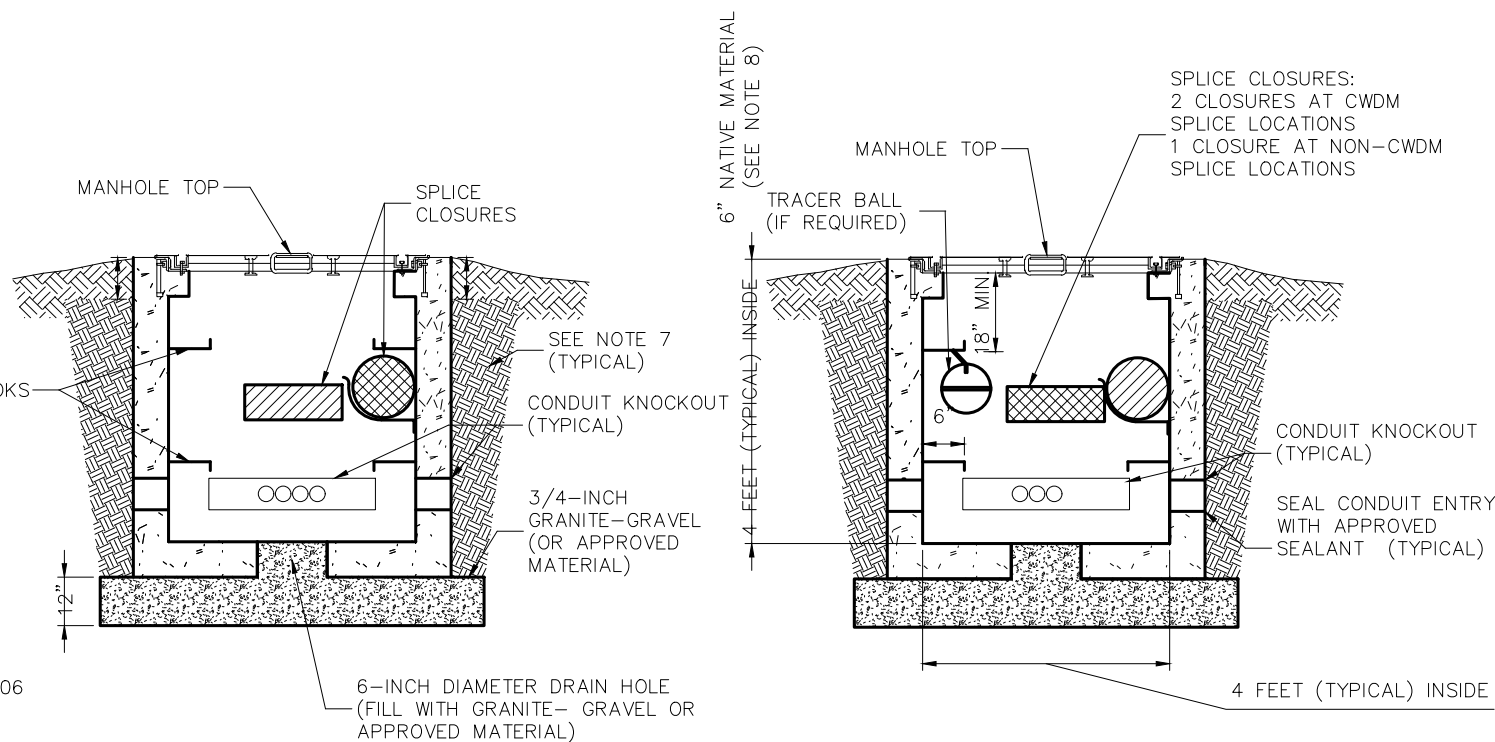
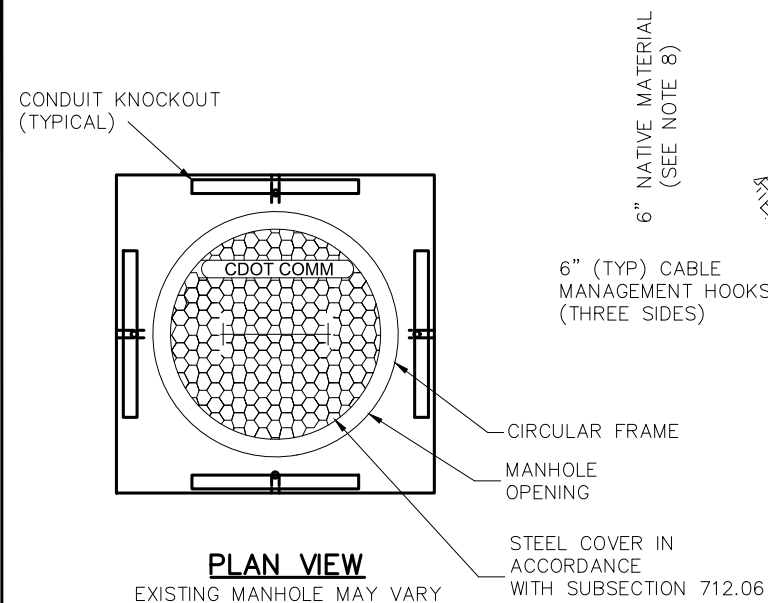
DRAWN BY: DREW PAPPAS
 PHONE: 970-980-6574
 E-MAIL: DREW.PAPPAS@BONFIRE-EC.COM
 SCALE: 1" = 100'

DATE: 2/18/2021
 ISSUE #: 1
Colorado Department of Transportation
 425C Corporate Circle
 Golden, CO 80401
 Phone: 303-512-5801 Fax: 303-512-5878
 HQ - ITS BRANCH

zayo[®]
 SHEET #: 058 OF 063

FIBER BACKBONE

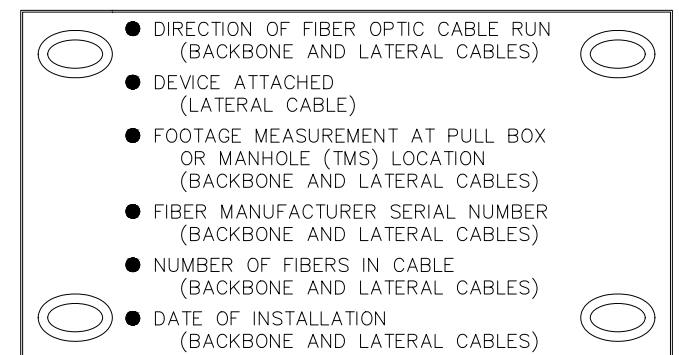
JKS



**MANHOLE (TRAFFIC MANAGEMENT SYSTEM)
INTERIOR DETAIL (SIDE VIEW)**

NOTES:

- CONDUIT ENTERING MANHOLE SHALL NOT DEFLECT BY MORE THAN THE MANUFACTURER'S RECOMMENDATIONS FROM THE ALIGNMENT PRECEDING OR FOLLOWING MANHOLES.
- SEE PROJECT PLAN SHEETS AND SPECIFICATIONS FOR THE QUANTITY OF BOTH FIBER OPTIC BACKBONE CABLE AND FIBER OPTIC LATERAL CABLE TO BE COILED IN EACH MANHOLE.
- ALL FIBER SHALL BE LABELED PER PROJECT DETAIL SHEETS.
- THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL CABLE MANAGEMENT INCLUDING HOOKS, RACKS, FASTENERS, ANCHORS, AND STRAPS FOR USE INSIDE MANHOLES FOR APPROVAL BY THE PROJECT ENGINEER PRIOR TO INSTALLATION.
- FOR ALL EXISTING MANHOLES, FIBER MANAGEMENT HARDWARE WILL BE PAID FOR WITH FIBER OPTIC CABLE PAY ITEM, NO ADDITIONAL PAYMENT WILL BE MADE.
- ACCESS LADDER SHALL BE REMOVABLE AND SHALL BE ENGINEERED TO SUPPORT 300 POUNDS. BOLTS FOR LADDER SUPPORT SHALL BE EITHER EPOXIED INTO CONCRETE OR SECURED BY USE OF EXPANSION ANCHORS.
- MANHOLE (TMS) SHALL BE BACKFILLED WITH STRUCTURE BACKFILL (ALL SIDES) WHICH WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- SURFACE RESTORATION WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- IF ROCK EXCAVATION IS REQUIRED, IT WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- CONDUIT SHALL NOT EXTEND FURTHER THAN 2 INCHES INTO THE MANHOLE.



COMMUNICATIONS CABLE LABEL

TO BE ATTACHED BY PLASTIC TIES TO EACH COMMUNICATIONS CABLE LOCATED IN ALL PULL BOXES AND MANHOLES (TMS)









DESCRIPTION	UNT	QTY

PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO (PHASE 5)	
DRAWN BY: PHILIP TRACY	DATE: 2/18/2021
PHONE: 720-507-9005	ISSUE #: 1
E-MAIL: PHILIP.TRACY@BONFIRE-EC.COM	Colorado Department of Transportation
SCALE: NTS	425C Corporate Circle Golden, CO 80401 Phone: 303-512-5801 Fax: 303-512-5878
CDOT Manhole (TMS)	HQ - ITS BRANCH



LEGEND

	LOCATION MARKER (FIBER OPTIC) (DOME)
	PULL BOX
	MANHOLE (TMS)
	CDOT ITS CONDUIT - (NUMBER AND SIZE AS SHOWN IN PLANS)
	ELECTRIC LOCATION MARKER (UTILITY) (FLAT SLAT) AND ELECTRIC CONDUIT
	ELECTRIC LOCATION MARKER (UTILITY) (FLAT SLAT) AND CDOT TELEPHONE CONDUIT

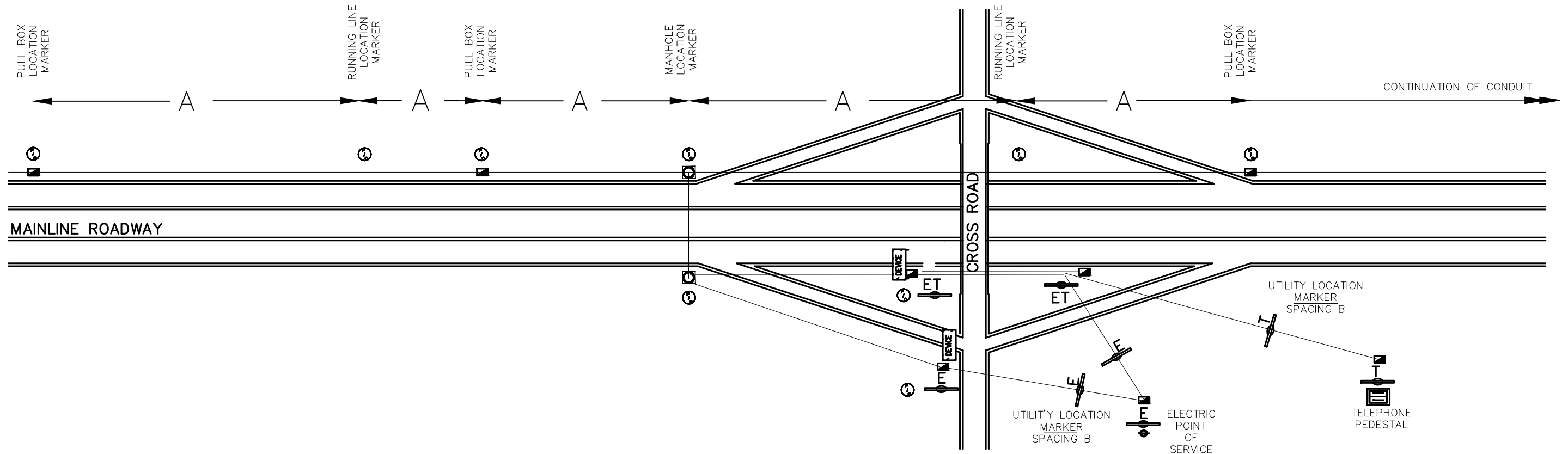
LOCATION MARKER SPACING

MEASUREMENT	DESCRIPTION	DISTANCE (FEET)
A	LOCATION MARKER (FIBER OPTIC) (DOME) SPACING	1000
B	LOCATION MARKER (UTILITY) (FLAT SLAT) SPACING	* ■

- * LOCATION MARKER (UTILITY) (FLAT SLAT) SHALL BE INSTALLED AT EACH PULL BOX IN ELECTRIC UTILITY CONDUIT RUN, AND AT A SPACING OF LESS THAN 500 FEET BETWEEN MARKERS.
- LOCATION MARKER (UTILITY) (FLAT SLAT) SHALL BE INSTALLED AT EACH PULL BOX IN TELEPHONE SERVICE CONDUIT RUN, AND AT A SPACING OF LESS THAN 1000 FEET BETWEEN MARKERS.

LOCATION MARKER INSTALLATION NOTES:

1. AREA AROUND LOCATION MARKER INSTALLATION SHALL BE RETURNED TO EXISTING GRADE AND CONDITION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF LOCATION MARKER ITEM.
2. LOCATION MARKER (FIBER OPTIC) (DOME) SHALL BE INSTALLED AT EACH PULL BOX AND MANHOLE ALONG BOTH THE BACKBONE AND LATERAL FIBER OPTIC CABLE RUNS THROUGHOUT THE PROJECT. ADDITIONAL MARKERS SHALL BE INSTALLED ALONG THE RUNNING LINE SO THAT SPACING IS LESS THAN OR EQUAL TO 1000 FEET.
3. LOCATION MARKER (UTILITY) (FLAT SLAT) SHALL BE INSTALLED AT BOTH THE UTILITY POINT OF SERVICE PULL BOX AND THE PULL BOX OR MANHOLE AT PROJECT DEVICE. ADDITIONAL MARKERS, IF REQUIRED, SHALL BE INSTALLED AT POINTS ALONG THE UTILITY LINE AS SHOWN ON THIS DETAIL.
4. CONCRETE FOOTING SUPPORT LOCATION MARKER (FIBER OPTIC) (DOME) AT PULL BOX LOCATIONS SHALL BE INCLUDED IN THE COST OF EACH PULL BOX SHOWN IN THE PROJECT.
5. CONCRETE FOOTING SUPPORT FOR LOCATION MARKER (FIBER OPTIC) (DOME) ALONG THE RUNNING LINE AND AT MANHOLES SHALL BE INCLUDED IN LOCATION MARKER (FIBER OPTIC) (DOME) ITEM.
6. LOCATION MARKER (UTILITY) (FLAT SLAT) SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. CONCRETE SUPPORT FOUNDATIONS WILL NOT BE REQUIRED FOR LOCATION MARKER (UTILITY) (FLAT SLAT).
7. LANDSCAPE LOCATION MARKERS SHALL BE INSTALLED IN LANDSCAPE AREAS AND AREAS SUCH AS PARKING LOTS WHICH COULD HAVE VEHICULAR OR PEDESTRIAN TRAFFIC.
8. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AN AS-BUILT DRAWING SHOWING THE INSTALLED LOCATIONS OF ALL MARKER TYPES.
9. LOCATION MARKERS SHALL HAVE INFORMATION LABELS ATTACHED WITH ADHESIVE TO WITHSTAND HEAT AND COLD. INFORMATION ON LABELS SHALL INCLUDE UTILITY NOTIFICATION CENTER AT COLORADO (UNCC) CONTACT INFORMATION. NUMBERS INDICATING THE HIGHWAY MILE POINT OF THE PULL BOX OR MANHOLE, TO THE HUNDREDTH OF A MILE, SHALL BE INSTALLED BENEATH THE INFORMATION LABELS AS SHOWN ON SHEET TWO OF THIS PROJECT DETAIL.
10. WHERE REQUIRED ON NATIONAL FOREST SERVICE LAND, MARKERS SHALL BE BROWN (FED #20059) IN COLOR WITH AN ORANGE CAP. INFORMATION LABELS SHALL HAVE WHITE LETTERING ON THE BROWN BACKGROUND.




DESCRIPTION	UNIT	QTY

PROJECT NAME: I-70 FIBER BACKBONE PROJECT – GLENWOOD SPRINGS TO GOLDEN, COLORADO


DRAWN BY: PHILIP TRACY DATE: 2/18/2021

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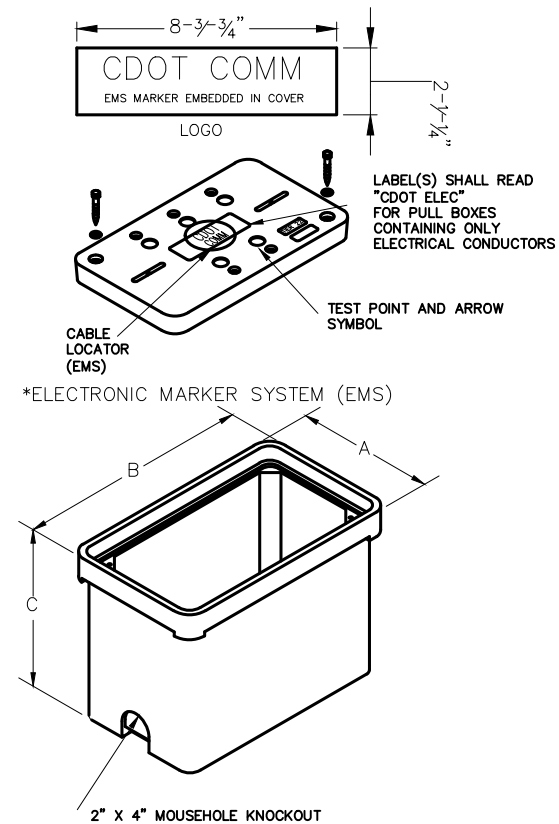
CDOT FIBER MARKER DETAIL 1 HQ - ITS BRANCH JKS SHEET #: 060 OF 063



- DIRECTION OF FIBER OPTIC CABLE RUN (BACKBONE AND LATERAL CABLES)
- DEVICE ATTACHED (LATERAL CABLE)
- FOOTAGE MEASUREMENT AT PULL BOX OR MANHOLE (TMS) LOCATION (BACKBONE AND LATERAL CABLES)
- FIBER MANUFACTURER SERIAL NUMBER (BACKBONE AND LATERAL CABLES)
- NUMBER OF FIBERS IN CABLE (BACKBONE AND LATERAL CABLES)

COMMUNICATIONS CABLE LABEL

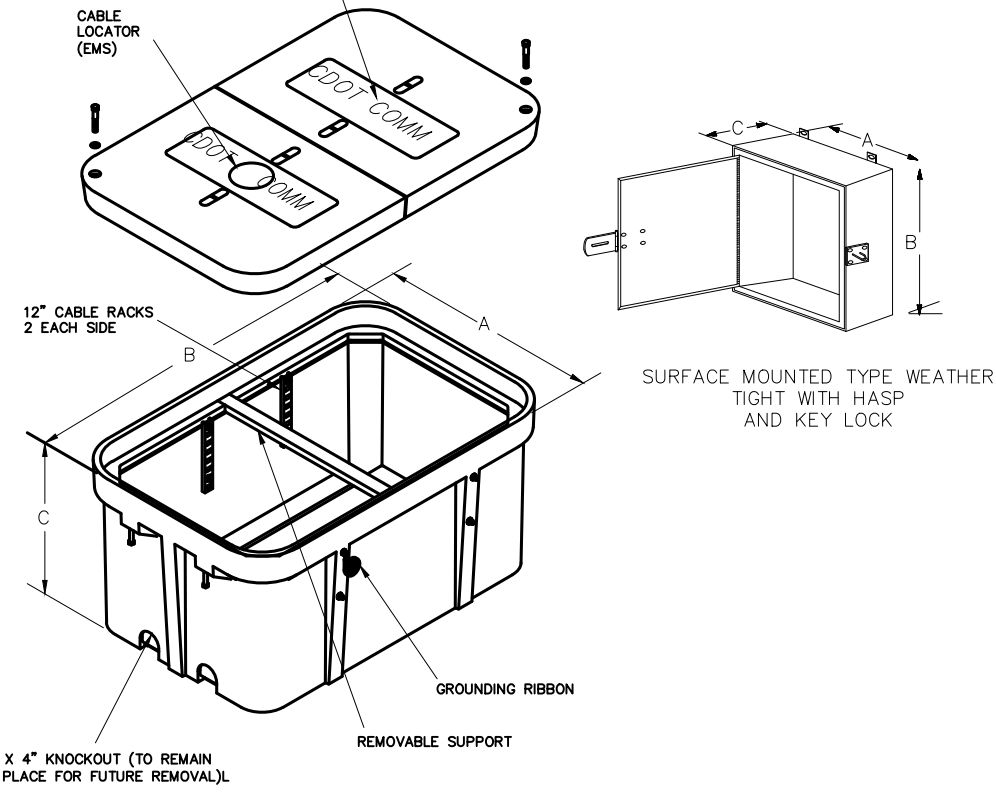
TO BE ATTACHED BY PLASTIC TIE TO EACH COMMUNICATIONS CABLE LOCATED IN ALL PULL BOXES AND MANHOLES (TMS)



- DATE OF INSTALLATION (BACKBONE AND LATERAL CABLES)
- FED FROM: DESCRIPTION OF SERVICE LOCATION / __LF __ (DIRECTION) / THROUGH __PULL BOXES
- FEEDS: DESCRIPTION OF ITS CABINET / __LF __ (DIRECTION) / THROUGH __PULL BOXES
- NUMBER OF CONDUCTORS AND SIZE (e.g. 3C#6)

ELECTRIC CABLE LABEL

TO BE ATTACHED BY PLASTIC TIE TO EACH ELECTRIC CABLE LOCATED IN ALL PULL BOXES



PULL BOX NOTES:

1. CONDUITS DEPICTED ON THIS TYPICAL DETAIL ARE REPRESENTATIVE ONLY. NUMBER OF CONDUITS INSTALLED AND CONDUIT SIZE SHALL BE AS TABULATED AND SHOWN ON THE PLANS.
2. DESIGNATION FOR THE INSTALLATION OF ELECTRICAL WIRING AND FIBER OPTIC CABLE IN THE BACKBONE CONDUIT SYSTEM IS DESCRIBED IN THE PROJECT SPECIFICATIONS.
3. CONDUIT CENTERLINE SHALL BE ALIGNED WITHIN THE PULL BOX TO FACILITATE FIBER OPTIC CABLE PULLING.
4. CONDUIT PLUGS SHALL BE INSTALLED IN ALL CONDUITS, BOTH WITH AND WITHOUT WIRE OR CABLE AND SHALL BE INCLUDED IN THE COST OF ELECTRICAL CONDUIT ITEM.
5. WEATHERPROOF TAGS SHALL BE INSTALLED ON ALL COMMUNICATIONS AND ELECTRIC CABLES AND SHALL BE INCLUDED IN THE COST OF ELECTRICAL CONDUIT ITEM.
6. TRACER WIRE AND PULL TAPE SHALL BE INCLUDED IN THE COST OF ELECTRICAL CONDUIT ITEM FOR BOTH BACKBONE AND LATERAL CONDUIT RUNS.
 - IF INSTALLATION INCLUDES MULTIPLE RUNS OF CONDUIT, PULL TAPE SHALL BE INSTALLED IN EACH INDIVIDUAL CONDUIT, TRACER WIRE SHALL BE INSTALLED IN THE CONDUIT CONTAINING FIBER OPTIC CABLE.
 - IF INSTALLATION INCLUDES ONLY ONE RUN OF CONDUIT, PULL TAPE AND TRACER WIRE SHALL BE INSTALLED IN SAME CONDUIT AS FIBER CABLE.
7. ALL PULL BOX TYPES SHALL BE PAID FOR UNDER THE CORRESPONDING PULL BOX ITEM, AND SHALL BE SIZED AS TABULATED AND SHOWN IN THE PLANS.
8. PULL BOXES SHALL HAVE A CONCRETE APRON SLOPED AWAY FROM PULL BOX OPENING. THE COST OF THE CONCRETE APRON SHALL BE PAID FOR AS PART OF PULL BOX ITEM.
9. SEE TABLE FOR THE QUANTITY OF EACH FIBER OPTIC BACKBONE AND LATERAL CABLE TO BE COILED IN ALL PULL BOXES.
10. FIBER OPTIC CABLE COILS WITHIN PULL BOXES SHALL BE TIED TO EACH CABLE RACK. PLASTIC WIRE TIES SHALL NOT BE ALLOWED. CAUTION SHALL BE TAKEN TO COIL THE FIBER CABLE PER MANUFACTURER'S RECOMMENDATIONS.
11. WORK TO INSTALL PULL BOX SHALL INCLUDE BUT NOT BE LIMITED TO SAW CUTTING OF CONCRETE SIDEWALKS, REMOVAL OF PAVEMENT, CONCRETE, EARTHWORK, ALL LANDSCAPE RESTORATION AND SHALL BE PAID FOR AS PART OF PULL BOX. ALL MATERIAL SHALL BE CONTAINED BY AN APPROVED BMP AND NOT ALLOWED TO RUN OFF SITE.
12. PULL BOX TYPES AS DEPICTED ON THIS PROJECT DETAIL SHALL NOT BE INSTALLED IN THE ASPHALT OR CONCRETE SHOULDER OF THE ROADWAY.
13. A COMMUNICATIONS ELECTRONIC MARKER SYSTEM (EMS) SHALL BE EMBEDDED IN TO THE COVER AS SHOWN IN DETAILS ON THIS SHEET.
14. ALL PULL BOXES AND COVERS LOCATED IN AREAS WITH NON-DELIBERATE VEHICULAR TRAFFIC MUST COMPLY WITH ALL TEST PROVISIONS OF LATEST EDITION OF THE ANSI/SCTE 77 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY" AND MUST MEET THE TIER 22 APPLICATION. MARKING SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILED ON THE INSIDE AND OUTSIDE OF THE BOX AND ON THE UNDERSIDE OF THE COVER.
15. COVER MUST BE SECURED TO PULL BOX USING 3/8-7 LAG THREAD HEX HEAD BOLTS.
16. A COMPLIANCE LETTER FROM THE MANUFACTURER OF THE PULL BOXES SHALL BE SUBMITTED ALONG WITH MATERIAL SUBMITTALS. THE COMPLIANCE LETTER SHALL INDICATE THAT THE PULL BOX MANUFACTURER HAS MET OR EXCEEDED ALL TEST PROVISIONS OF THE LATEST EDITION OF THE ANSI/SCTE 77 & ALL OF CDOT REQUIREMENTS LISTED IN PLAN DETAILS.
17. ALL PULL BOX COVERS SHALL BE FURNISHED WITH 3/8 (35) X 1/16 (2), DEEP TEST POINT AREAS, WITH 2 - 3/8-7 LAG LONG STAINLESS STEEL HEX HEAD BOLTS, 2 - 3/8 (10) STAINLESS STEEL FLAT WASHERS, DIRECTIONAL LABELS AND 1 - GROUND LABEL. THE MINIMUM NUMBER OF TEST POINT AREAS AND DIRECTIONAL LABELS SHALL EQUAL THE NUMBER OF CONDUIT BANKS ENTERING THE PULL BOX, UP TO A MAXIMUM OF 5 TEST POINTS. PULL BOXES WITH SPLIT LIDS SHALL HAVE TEST POINTS ON ONE SPLIT LID SECTION ONLY.
18. TEST POINT LABEL SHALL BE 1 1/2" DIAMETER ORANGE CIRCLE WITH BLACK ARROW GRAPHIC. ONE ARROW GRAPHIC SHALL BE INSTALLED FOR EACH TEST POINT USED INDICATING THE DIRECTION THE CONDUIT EXITS THE PULL BOX.
19. THE DEEP RECESS OF THE POLYMER CONCRETE PULL BOX SHALL BE CLEANED WITH AN ALCOHOL-BASED CLEANER PRIOR TO APPLYING LABELS.

TYPE TWO PULL BOX

TYPE FOUR PULL BOX (OR LARGER)

ITS PULL BOX TYPE	DIMENSIONS (INCHES)			KNOCKOUT MOUSE HOLE TYPE	COILED FIBER (FEET)	COILED TRACER WIRE (FEET)
	A	B	C			
TYPE ONE PULL BOX	11	18	12	2	N/A	6
TYPE TWO PULL BOX	13	24	12	2	50	6
TYPE THREE PULL BOX	17	30	12	2	50	6
TYPE FOUR PULL BOX	24	36	24	4	50	6
TYPE FIVE PULL BOX	30	48	24	4	50	6
PULL BOX - (SURFACE MOUNTED)	24	24	8	NA	5	5



DESCRIPTION	UNIT	QTY

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DRAWN BY: PHILIP TRACY DATE: 2/18/2021

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CDOT PULL BOXES DETAIL 1

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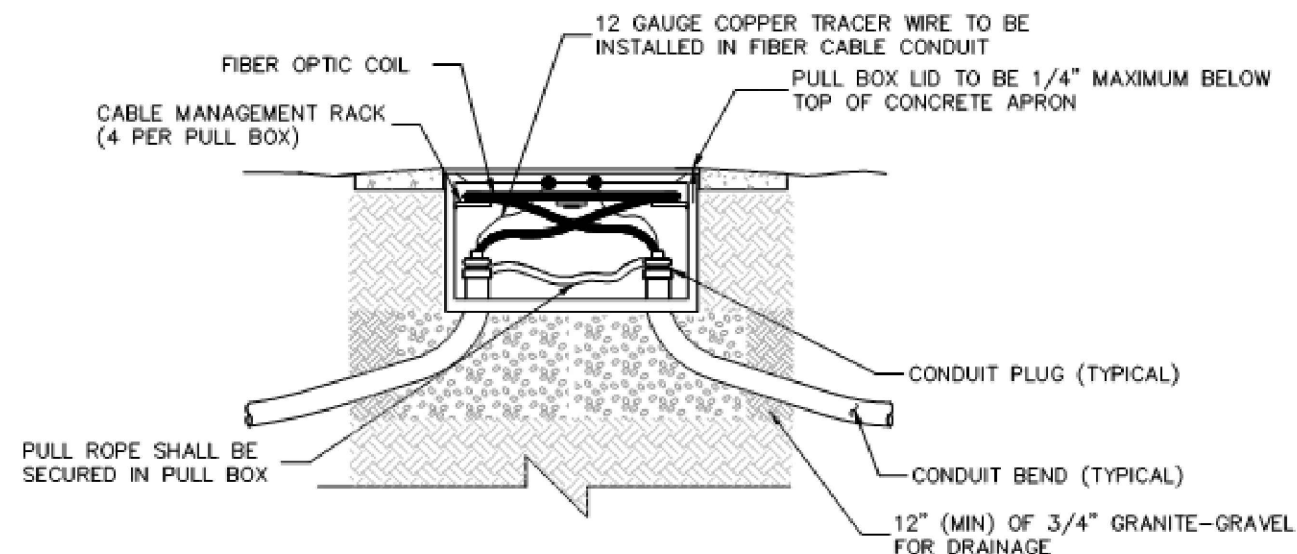
HQ - ITS BRANCH JKS SHEET #: 062 OF 063



ITS PULL BOX TYPE	CONCRETE APRON DIMENSIONS (INCHES) (SEE APRON NOTE 1)	
	W	L
TYPE ONE PULL BOX	42	41
TYPE TWO PULL BOX	48	43
TYPE THREE PULL BOX	54	47
TYPE FOUR PULL BOX	60	54
TYPE FIVE PULL BOX	72	60

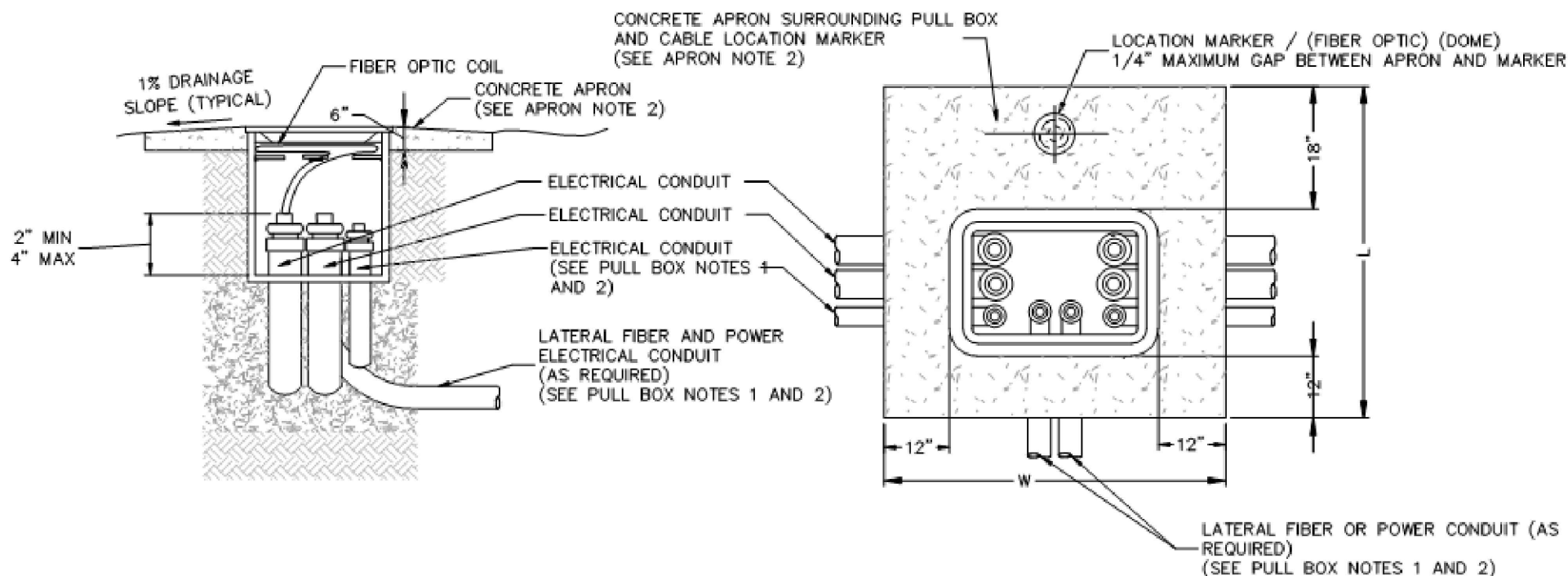
APRON NOTES:

1. APRON DIMENSIONS MAY VARY BASED ON PULL BOX WALL THICKNESS.
2. WITH APPROVAL FROM ENGINEER, A SKID-RESISTANT PRECAST CONCRETE OR POLYMER CONCRETE APRON OF SIMILAR DIMENSIONS MAY BE USED. GROUND SHALL BE COMPACTED PER MANUFACTURER RECOMMENDATIONS.



CONDUIT BEND NOTES:

1. RADIUS MUST NOT BE LESS THAN 48" FOR CONDUIT CONTAINING FIBER
2. SWEEP MUST NOT BE GREATER THAN 45 DEGREES
3. DURING CABLE INSTALLATION, CONTRACTOR SHALL ENSURE NO DAMAGE TO CABLE OCCURS DUE TO FRICTION BETWEEN CONDUIT AND CABLE JACKET. THIS MAY REQUIRE INSTALLING TEMPORARY PVC SWEEPS ON HDPE CONDUIT ENDS.



ITS PULL BOX INSTALLATION



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