



Alaska Railroad Corporation
327 W. Ship Creek Ave.
Anchorage, AK 99501

June 4, 2024

Addendum 1

ITB #24-40-212083

Fiber Optic Cable Installation: Portage

Addendum number 1 has been issued for Clarification and Questions.

The Closing Date for this ITB has changed.

Bids will be received until June 13, 2024 @ 3:00 PM Alaska time.

Clarification:

Please replace the attachment ARRC Provided Material in its entirety with the one attached herein.

The ITB closing date has changed to June 13, 2024 to align with the closing of other two fiber optic installation projects.

Please acknowledge receipt of this and all addendums in your firm's Construction Bid Form.

All other terms and conditions remain unchanged.

Please direct all responses and/or questions concerning this solicitation to Greg Goemer to:
Goemerg@akrr.com

Thank you,

Greg C Goemer

Sr. Contract Administrator
Alaska Railroad Corporation

5/28/2024

Portage - Major Construction Material Provided By Alaska Railroad			
Item #	Qty	Item ID	Description
			Fiber Optic Cable - OFS
		Fiber Configuration	
		Cable Description	
1	6200 FT	AT-3CE1CNT-144-1	AT-3CE1CNT-144-1_Fortex DT-100% Dry Single Jacket Single PE Jkt, Dielectric Central Member_ALLWAVE+-SM-.35/.31/.25 db/km@1310/1385/1550nm_ONE 12 AWG VIOLET COPPER CONDUCTOR
			Inner-Duct - Standard
		Main Line Duct	
2	4400 FT	POL HDPE1.25SDR11-3WAY	1.25" SDR11 HDPE Blue/ORG/GRN 7500 ft Reel @ 2500 FT EA color. 102"x45 Reel
			Inner-Duct - Tunnel Work
		Dura-Line FuturePath	
3	110 FT	Dura-Line FuturePath Jumbo 3 Way	3-Way 1 1/4' SDR 11 Blue/ORG/GRN 1000 FT Reel/ 96" x 46" Reel
			Duct Coupler 1/1/4"
		Duct Coupler Spec	

4	15	DUR 20005096	1.25" Clear-Lock Coupler
		(Click Below for Details)	Vault - Splice & Storage
		https://www.tvcinc.com/shared-downloads/0062621527-bulk-7.pdf	33,750 LB Load Rated = Composite Cover
5	9 EA	CHA BULK3048360081001	Channell 30x48x36, Bolt down Security
		(Click Below for Details)	Vault - Splice & Storage - Heavy Loading
		https://www.tvcinc.com/shared-downloads/0062621527-bulk-7.pdf	56,000 LB Load Rated = Iron Cover w/Steel Ring
6	1 EA	CHA BULK736N102	Channel 30x48x36, Bolt down Security, Ductile Iron Lid
			Above Ground Locate Post
		TruView Locate Test Post	
		Locate Test Post - Video	
7	1	ACP PDST-6	POLYDOME TEST STATION, 3 TERMINAL BOARD, ORANGE WITH BLACK TEXT, WHITE POST WITH ANCHOR GENERIC TEXT "WARNING BURIED FIBER OPTIC CABLE 811 KNOW WHAT'S BELOW CALL BEFORE YOU DIG"
			Locate Markers
		Locate Puck (Vault & Conduit Ends)	
8	12	3M 1250-XR/ID	3M Full-Range Marker 1250-XR/ID, 8 Ft Range, Telecomm, 25/case

			Caution Tape
9	5000'	15Y416	Orange Cable Line Underground Marking Tape - Caution, Buried Fiber Optic Cable
			Brady Stake
	10	Brady Stake- Cable Route Marker	Cable Route Marker - Caution Buried Fiber Optic Cable – Call 811 Before you Dig
			Ground Rod
10	12	Ground Rod	5/8" x 8' Ground Rod
			Dura Line Conduit - Track & Road Crossings
11	~1100	4" Rolled Conduit	
			Dura Line Conduit - Control Point Entry
12	~500	2" Rolled Conduit	

Fortex DT Toneable Single Jacket Loose Tube Cable w/ 12 AWG Copper Conductor AT-3CE1CNT-144-1


Fiber/Tube Color Code

- 1 12 AWG Copper Conductor
- 2 Blue
- 3 Orange
- 4 Green
- 5 Brown
- 6 Slate
- 7 White
- 8 Red
- 9 Black
- 10 Yellow
- 11 Violet
- 12 Pink
- 13 Aqua
- 14 Filler Rod
- 15 Filler Rod
- 16 Filler Rod
- 17 Filler Rod
- 18 Filler Rod

1.3 mm MDPE Outer Jacket
DryBlock Elements
Ripcord
3.5 mm Dielectric Central Member
2.5 mm Filler Rod
2.5 mm Dry Buffer tubes
Optical Fibers
12 AWG Copper Conductor

Cable OD: 18.8 mm (0.740 in)
Cable Weight: 205 kg/km (138 lb/1000ft)
Max Short Term Tension: 600 lbs (2700 N)
Max Long Term Tension: 200 lbs (890 lbs)
Crush resistance 220 N/cm
Minimum Bend Radius (Installation): 15 x OD
Minimum Bend Radius (operation): 10 x OD

Not to Scale

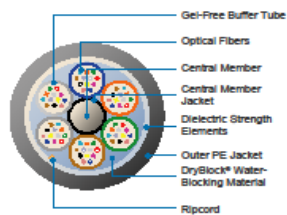
 <small>A Furukawa Company</small>	<small>Carrollton Georgia, USA</small>	Date: January 2024
		Fortex DT Toneable Single Jacket Loose Tube Cable

Fortex™ DT Single Jacket Loose Tube Fiber Optic Cable

Lose the Gel with Completely Gel-Free Fiber Optic Cable for Cleaner, Faster Installations



Fortex™ DT Single Jacket
Loose Tube Fiber Optic Cable



Features and Benefits

- Totally gel-free fiber optic cable design for cleaner, faster installations
- Highly durable and reliable for duct and lashed aerial installations (including duct-to-lashed aerial) as well as general OSP installations
- Smaller, more flexible buffer tubes for easier installation and routing
- Optical fiber counts to 288
- Available with OFS application-specific fibers including AllWave® Zero Water Peak (ZWP) and AllWave+ Single-Mode, TrueWave® RS LWP Single-Mode, and Multimode optical fibers

Product Description

OFS' Fortex™ DT Single Jacket Loose Tube Cable delivers the durability and reliability essential for outside plant (OSP) use in an innovative, completely gel-free cable design.

To construct this all-dielectric cable, the optical fibers are placed in space-efficient, 2.5 mm buffer tubes that contain a specially-engineered, super-absorbent yam that delivers water blocking "on demand." The color-coded buffer tubes are then stranded around a dielectric central member using the reverse oscillating lay (ROL) stranding technique for easy, mid-span fiber access.

Additional gel-free, super-absorbent material is applied to the cable core to offer exceptional water-blocking performance and faster cable preparation. Dielectric strength elements, a ripcord, and a durable polyethylene jacket complete the cable construction.

Why The Fortex DT Cable Single Jacket?

As the industry's first 100%¹ gel-free loose tube cable to meet the water-blocking requirements of ANSI/CEA and Telcordia OSP cable standards, Fortex DT Single Jacket Cable offers all the benefits of a standard loose tube cable plus it's completely gel-free – even inside of the buffer tubes!

Unlike traditional OSP fiber optic cables that use gels in direct contact with optical fibers, Fortex DT Single Jacket Cable replaces gels with a specially-designed, super-absorbent yam in each buffer tube that provides water blocking "on demand". By eliminating gels and filling compounds, this cable offers virtually effortless splice preparation, while keeping your tools, workspace, closures, and cabinets cleaner. Gel-free cables are also lighter in weight, making them easier to handle and less of a load on your work crew and plant infrastructure.

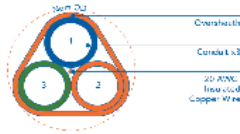
In addition to being completely gel-free, Fortex DT Single Jacket Cable offers the same high-performance features as OFS' traditional loose tube cables. Our 2.5 mm buffer tubes – among the smallest standard tubes in the industry – create far less bulk to be stored in closures and pedestals. Smaller, more flexible buffer tubes also coil more easily and into tighter diameters.

¹ "100% gel free" indicates that no oils, gels, or flooding compounds are used to block water penetration under the fiber optic cable sheath or through the core.



FUTUREPATH JUMBO

3-way 1 1/4" SDR 11



Configuration Size	(3) 1 1/4" SDR 11
Max OD	3.7 in
Width	3.46 in
Height	3.24 in
Oversheath	0.07 in
Weight	1.237 lb/ft
Bend Radius Sup	65 in
Bend Radius Unsup	92 in
Conduit SWPS	6756 lbs
Pathway One OD	42.2 mm / 1.66 in
Pathway One ID	33.5 mm / 1.318 in

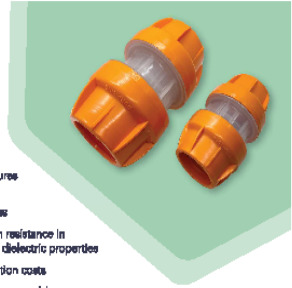
STANDARD DETAILS

DETAILS	FuturePath Jumbo is a unit of bundled conduits. Manufactured from flexible HDPE (High Density Polyethylene). All Smoothwall conduit dimensions meet or exceed one or more of the following: ASTM F-2160, ASTM D-3352, ASTM D-3465, NEMA TC-7, UL 651A, UL 1900, Bellcore GR-306.
INSTALLATION TYPES	Flow, Trench, MicroTrench, Directional Bore, Tray
FILL RATIO	Choose the correct MicroDuct size based on the Outer Diameter (OD) of desired MicroCable. Dura-Line recommends a fill ratio of 50% to 75% for optimal cable placement performance. Several factors impact jacking distance including the condition of route, bends, and equipment.
COLORS	Oversheath: Orange Conduits: (1) Blue, (2) Orange, (3) Green
CONDUIT MARKINGS	Permanent marking along FuturePath includes: material, relevant standards, production info, and sequential feet or meter markings. Custom options available.
CO-EXTRUDED LINING	SILICORE® ULF (Ultra-Low Friction) is co-extruded inside the HDPE wall creating a slick, permanent, interior lining. SILICORE® ULF exhibits no loss in performance over time or in extreme temperature conditions.
LOCATE WIRE	Includes a 20 AWG insulated copper wire
RP CORDS	For easy opening of the oversheath
OPTIONS	
INTERNAL RIBS	Internal ribs available upon request

† Safe working pull strength is calculated at 50% of tensile or breaking strength
 * Unsupported Bend Radius guidelines should be followed during the installation process. The Supported Bend Radius are post-installation measurements.

STANDARD ACCESSORIES

CLEAR-LOCK COUPLER



- ▶ Clear midsection gives added visibility during installation, removing all guesswork from the process
- ▶ Visual confirmation of the pipe within the coupler ensures that it has been properly seated at the center stop
- ▶ Ideal for pull boxes, vaults or other limited access areas
- ▶ Non-metallic construction provides excellent corrosion resistance in buried or enclosed applications and also has desirable dielectric properties
- ▶ Simple, one person 'push-on' assembly lowers installation costs
- ▶ Self-locking ring design assembles in seconds and is re-entenable
- ▶ High strength molded plastic body is ideal for buried duct applications
- ▶ Pre-lubricated O-ring is water-tight and air-tight
- ▶ Suitable for both cable pulling & jacking applications

ORDER REFERENCE

DESCRIPTION	NOSE OD	BUCKY OD W/SHRIMP BANNE	LENGTH (IN)	PULL OUT STRENGTH (LBS)	MAX PRESSURE (PSI)	CARTON QTY	PART #
0.60" Clear-Lock	0.890"	0.830" - 0.890"	2.3"	400	250	180	20005878
0.75" Clear-Lock	1.060"	1.040" - 1.060"	3"	500	250	144	20005661
1.00" Clear-Lock	1.215"	1.205" - 1.225"	3.6"	600	250	60	20005662
1.25" Clear-Lock	1.660"	1.660" - 1.670"	5"	700	250	60	20005096
1.60" Clear-Lock	1.920"	1.890" - 1.910"	6.5"	800	250	25	20005663
2.00" Clear-Lock	2.875"	2.865" - 2.885"	7"	2000	250	15	20005097



TriView Test Station™

Fact Sheet

Part# TVTI



The TriView Test Station™ provides 360-visibility with three warning messages that can be read from any direction. Industry standard 11-hole pattern provides room for multiple terminals and custom configurations. All holes are one inch on center.

Description:

- Standard Lengths: 54" | 60" | 66" | 72" | 78" | 84" | 90"
- Triangular post with colored cap
- Two sides = 3.125" | One side = 3.0232"
- 360-degree visibility
- 18" bury-depth decal included
- Made with UV-stable RhinoPoly® – our proprietary blend of thermoplastics
- Removable Cap protects terminal board from the elements
- Standard with two internal stainless-steel terminals on 11-hole terminal board
- Patented TriGrip Anchor™ for locking post into ground
- 10-Year Warranty

Standard Post Colors



Alternative Post Colors



Standard Cap Color



Alternative Cap Colors



Options & Add-Ons

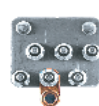
GENERIC & CUSTOM DECALS AVAILABLE
Decals Sold Separately



Extra Terminals
Part# TS-TERM



Shunt/Jump
Part# TS-SHUNT



Grounded LocatePlate™
Part# EM6300-EXT-KIT-RMS



ISO-Switch™
Part# ISO61-TPST-NH



Reflective Bands
• 1" RB15-TV
• 3" RB35-TV



Cap Lock-Helpe
prevent vandalism
Part# TS-LOCK



12 Gauge Tracer Wire
10' Length, installed
within the post.

RhinoMarkers.com | 1-800-522-4343

Effective: 11-16-2021

TriView® Patents: U.S. 7,025,018 B1, U.S. 6,099,203, U.S. 9,469,948 B2
ISO-Switch: U.S. Patent Pending

TriView_Test_Station_Fact_Sheet

3M™ Electronic Marker System (EMS) Full-Range Markers

The 3M™ Full-Range Marker provides an accurate, convenient, long-lasting method of marking underground facilities. Electronic marking saves time and money spent searching for buried facilities prior to excavation. The marker also acts as a digging shield over buried facilities, lessening the chances of damage. And, unlike surface markers such as stakes, flags or paint, the full-range marker cannot be inadvertently moved or worn away by weather.

The addition of the new 3M-ID markers provides additional functionality by enabling facility data to be stored in the marker. The pre-programmed unique serial number integrates with back office mapping and GIS systems when used for mapping new and legacy assets and points of special interest for construction and maintenance applications.

The full-range marker is buried over key facilities during construction or maintenance. Later, the marker is easily and accurately located using a 3M™ Dynatel™ Locator. The locator transmits a signal to the buried marker. The marker returns the signal to the locator, indicating the marker's exact position, while the locator provides both a visual reading and an audible tone.

Second Generation
iD Markers providing
4X Memory



3M™ Electronic Marker System(EMS)
XR/iD Full-Range Markers

Features	Benefits
Accurate even in congested areas	Helps eliminate mislocates
Underground marker	Protected from damage from above-ground environment
Doubles as a digging shield	Eliminates costly dig ins
Easy to Use	Minimal training
RFID capability	Positive identification using facility information
Physical Specifications	
Size	15" diameter x 0.65" thick (38.10 cm x 1.65 cm)
Weight	Net: 1 lb. (0.45 kg) each/ Shipping: 27 lbs. (12.24 kg)/carton
Packaging	25 markers per carton
3M iD Markers Read Range	With a 'U' model (U.S.) locator: 8 ft. (2.4 m) With a 'E' model (Export, CE) locator: 2 m
3M Passive Markers Detection Range	8 ft (2.4 m)
Environmental Specifications	
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	-40°F to 158°F (-40°C to 70°C)

3M



