2010-329

BOARD OF COMMISSIONERS
SARPY COUNTY, NEBRASKA
RESOLUTION AWARDING BID FOR FIBER CONNECTIVITY FOR THE LAW ENFORCEMENT CENTER

WHEREAS, pursuant to Neb. Rev. Stat. §23-104(6)(Reissue 1997), the County has the power to do all acts in relation to the concerns of the County necessary to the exercise of its corporate powers; and,

WHEREAS, pursuant to Neb. Rev. Stat.§23-103 (Reissue 1997), the powers of the County as a body are exercised by the County Board; and,

WHEREAS, bids for this matter have been solicited, made, opened and reviewed pursuant to applicable Nebraska State Statutes; and,

WHEREAS, based on those proceedings, and after a public hearing, this Board has duly deliberated and considered the bids received; and,

WHEREAS, this Board desires to proceed forthwith in order to expedite and facilitate service to the citizens of Sarpy County.

NOW, THEREFORE, BE IT RESOLVED BY THIS BOARD OF COUNTY COMMISSIONERS THAT:

(1) Based upon the recommendation of the Purchasing Department, and upon a comparison of the bids to the bid specifications, the bid is hereby awarded to the low bidder *Sadler Electric Inc.* for *Fiber Connectivity* in the amount of *Two Hundred and Three Thousand Five Hundred Eighty Dollars and No Cents ($203,580.00)* accepted, ratified, and confirmed.

(2) This Board's Chairman, Clerk, and Attorney are hereby authorized and directed to execute such ancillary documents as may be required to evidence the contract and take any and all steps necessary or required in order to carry out the terms of such contract after said documents have been reviewed by the Attorney, Fiscal Administrator, and County Administrator.

Dated this 28th day of September, 2010.

Moved by Rusty Hike, and seconded by Rich Jansen that the above Resolution be adopted. Carried.

YEAS:	NAYS:	ABSENT:
Rusty Hike	none	none
Rich Jansen		
Tom Gilbert		ABSTAIN:
Tom Richard		none

SEAL

DEBRA J. HOUGHTALING, COUNTY CLERK
SARPY COUNTY, NEBRASKA

Attest:

Debra Houghtaling

Sarpy County Clerk

SEAL

Approved as to form:

Deputy County Attorney

AGREEMENT

This Agreement is entered into by and between the County of Sarpy, in the State of Nebraska, a body politic and corporate, and hereinafter "County", and Sadler Electric, Inc., hereinafter "Vendor".

WHEREAS, County is desirous of contracting for Fiber Connectivity for the Sarpy County Law Enforcement Center; and,

WHEREAS, the Vendor has been awarded this Agreement as a result of the bid made by Vendor in response to the Specifications and Request for Proposals prepared by County;

NOW, THEREFORE, for and in consideration of the declarations and mutual promises and covenants contained herein, the County and Vendor agree as follows:

I. DUTIES OF VENDOR:

A. Services to be rendered by Vendor under this Agreement shall be all those services necessary and proper for the installation and materials for Fiber Connectivity in conformity with each and every term, condition, specification, and requirement of the Bid Specifications and the Bid submitted by the Vendor.

B. All provisions of each document and item referred to in Paragraph A above shall be strictly complied with the same as if rewritten herein, and in the event of conflict among the provisions of said documents, the provisions most favorable to the County shall govern.

C. Prior to the commencement of any work, Vendor will place on file with the Sarpy County Clerk, the required certificates of insurance, if applicable.

D. The Vendor agrees to comply with the residency verification requirements of Neb. Rev. Stat. §4-108 through §4-114. The Vendor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

If the Vendor is an individual or sole proprietorship, the following applies:

1. The Vendor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at

www.das.state.ne.us.

2. If the Vendor indicates on such attestation form that he or she is a qualified alien, the Vendor agrees to provide the U.S. Citizenship and Immigration Services documentation required to verify the Vendor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.

3. The Vendor understands and agrees that lawful presence in the United States is required and the Vendor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. Sect. 4-108.

E. Vendor will submit an invoice to County for work completed based on the amounts specified in Vendor's bid. Such invoices shall be submitted to:

Beth Cunard
Sarpy County Purchasing
1210 Golden Gate Drive
Papillion, NE 68046

F. The County and Vendor hereto specifically acknowledge, stipulate and agree that each and every term of the Bid Specifications and the Vendor's bid constitutes an essential term of this Agreement, and that, therefore, any violation of any term, condition, provision, or requirement constitutes a material breach hereunder, for which County shall have every right under the law to terminate this Agreement, and obtain any and all relief necessary.

II. DUTIES OF COUNTY:

In return for full, faithful and diligent rendering of services set forth above, County agrees to pay to Vendor the amount specified in Vendor's bid upon submission of the required invoice and satisfactory completion of all required work.

III. BREACH:

Should Vendor breach, violate, or abrogate any term, condition, clause or provision of this agreement, the County shall notify Vendor in writing that such an action has occurred. If satisfactory provision does not occur within ten (10) days from such written notice, the County may, at its option, terminate this agreement and obtain an alternate provider to provide all required materials. This provision shall not preclude the pursuit of other remedies for breach of contract as allowed by law.

IV. SAVINGS CLAUSE:

This Agreement shall be interpreted, construed and enforced under the laws of the State of Nebraska. It is understood and agreed by the County and Vendor hereto that if any part, term, condition, or provision of this Agreement is held to be illegal or in conflict with any law of the State of Nebraska or of the United States, the validity of the remaining parts, terms, conditions, or provisions shall not be affected, and the rights and obligations of the County and Vendor shall be construed and enforced as if the Agreement did not contain the particular part, term, condition, or provision held to be invalid.

V. SCOPE OF AGREEMENT

This Agreement, along with the Bid Specifications, and Bid by Vendor contains the entire Agreement between the County and Vendor, and there are no other written or oral promises, contracts or warrants which may affect it. This Agreement cannot be amended except by written agreement of both the County and Vendor. Notice to the County and Vendor shall be given in writing to the agents for each party named below:

County: Ms. Debra Houghtaling
Clerk of Sarpy County
1210 Golden Gate Drive
Papillion, NE 68046

Vendor: Mr. Brian Sadler
Sadler Electric Inc.
5855 South 77th Street
Omaha, NE 68127

IN WITNESS WHEREOF, we the contracting parties, by our respective and duly authorized agents, hereto affix our signatures and seals in duplicate this 13 day of October, 2010.

(Seal)

ATTEST:

Sarpy County Clerk

COUNTY OF SARPY, NEBRASKA,
A body Politic and Corporate

9/28/2010

Chairperson
Sarpy County Board of Commissioners

Approved as to form and content:

Deputy County Attorney

Vendor: SADLER ELECTRIC INC

By: ROBERT SADLER

Title: PRES.

Attest:

Witness

GENERAL NOTARY - State of Nebraska
FRANK G. FRANCO
My Comm. Exp. April 5, 2012

Fiber Connectivity
for the
New Law Enforcement Center

Bid Opening:
2:30 p.m. Thursday
September 23, 2010

	Computer Cable Connections	**Heimes Corp.**	**Kure Assc.**	**General Excavating**	**Sadler Electric**
Lump Sum Base Bid	$224,169.00	$251,941.00	$265,425.00	$234,570.00	$209,800.00
Alternate Bid	N/A	N/A	N/A	No Bid	$12,200.00
Total with Alternate	**$224,169.00**	**$251,941.00**	**$265,425.00**	**$234,570.00**	**$222,000.00**
Start Date	October 1, 2010	November, 2010	November 1, 2010	30 Days	October 18, 2010
Completion Date	February 1, 2011	February, 2011	February 1, 2011	February 1, 2011	February 1, 2011

Sarpy County Purchasing Department

SARPY COUNTY COURTHOUSE
1210 GOLDEN GATE DRIVE
SUITE 1129
PAPILLION, NE 68046-2845
FAX (402) 593-4304

Brian E. Hanson, Purchasing Agent
(402) 593-2349
Debby Peoples, Assistant Purchasing Agent
(402) 593-4164
Beth Cunard, Purchaser/Contract Specialist
(402) 593-4476
Lois Spethman, Supply Clerk/Purchaser
(402) 593-2102

MEMO

To: Sarpy County Board of Commissioners

From: Beth Cunard

Re: Award of bid for Fiber

On September 23, 2010, the Purchasing Department received and opened five (5) responsive bids for Fiber Connectivity for the Sarpy County Law Enforcement Center. A bid tab is attached for your consideration. The bids have been reviewed by Information Systems along with the project engineer. It is recommended that the bid be awarded to the low bidder Sadler Electric, Inc. for $203,580. This includes the base bid of $209,800 along with an alternate deduct for $6,220.

I have placed this on the agenda for the September 28, 2010 Board meeting for recommended approval. If you have any questions, please feel free to contact me at 593-4476.

September 24, 2010

Beth Cunard

cc: Deb Houghtaling
Mark Wayne
Scott Bovick
Brian Hanson
Mark Walters
Mike Graham
Dan Williamson

Beth Cunard

From: Steve Farrington [SFarrington@morrisseyengineering.com]
Sent: Friday, September 24, 2010 11:27 AM
To: Beth Cunard
Cc: Mark Walters; Mike Graham; Ryan Hall
Subject: RE: Sadler Bid

Beth,

We have reviewed Sadler Electric's bid and the bid options. We recommend accepting bid option #1 (deduct of $6,220.00) for the alternate fiber manufacturer. We recommend rejecting bid option #2 (adder of $12,200.00) for the tracer wire, included in the construction documents is a warning tape with a detectable metal strip.

Please feel free to contact us with any questions or comments.

Thank you.

Steve Farrington, PE, LEED AP bd+c
o: 402-491-4144
c: 402-650-5985
f: 402-491-4146

morrissey engineering inc
mechanical | electrical | technology | commissioning

From: Beth Cunard [mailto:bcunard@sarpy.com]
Sent: Thursday, September 23, 2010 3:02 PM
To: Steve Farrington
Cc: Mark Walters; Mike Graham
Subject: Sadler Bid

Steve,

Sadler bid two alternates; the first alternate is for the supply and installation of Prysmian fiber optic cable with Corning SMF-28e+ optical fibers in lieu of the specified manufactures. This would be a deduct from the base bid ($6,220.00). The second alternate is for the installation of tracer/ground wire throughout installation for means of locating fiber/spare 2" conduit and grounding of fiber in each pull box per industry standards. This would be an add to the base bid ($12,200.00).

My question to you: what are your thoughts about accepting both Alternate 1 and 2?

Thanks,

Beth Cunard
Purchaser/Contracts Specialist
Sarpy County Purchasing Department
1210 Golden Gate Drive
Papillion, NE 68046

(402) 593-4476 Phone
(402) 593-4304 Fax

We now have a RSS feed. Click here to subscribe.

COMPANY NAME: SADLER ELECTRIC, INC.

Sarpy County, Nebraska
Fiber Connectivity
Bid Form

Lump Sum Base Bid, as specified: $ 209,800.00

Alternate Bid, as specified: $ See Exclusions Page

***Prices are to be F.O.B. - Sarpy County, Nebraska**

START DATE: 10/18/2010

COMPLETION DATE: 02/01/2011

Company Information:

Years in business: 30 years

# of employees 22

Total sales last 3 years
2009: $2,793,052.00
2008: $3,186,694.00
2007: $2,004,597.00

References:

Company Name: Sarpy County - Courthouse
Address: 1210 Golden Gate Dr. Papillion, NE 68046
Contact Name: Ross Richards Phone Number: 402-593-2332
Fax Number: 402-593-5793 Date of Purchase: Currently Ongoing
Project Title: Sarpy County Courthouse - Addition and Renovation

Company Name: City of Omaha - Traffic Dept.
Address: 1819 Farnam St Omaha, NE 68183
Contact Name: Joe Sobczyk Phone Number: 402-444-5163
Fax Number: 402-444-5086 Date of Purchase: 06/01/2010
Project Title: OPW 51383/51406 Sewer/Paving Project - Traffic signals

Company Name: Mutual Of Omaha / ECI (Midtown Crossing)
Address: 3333 Farnam St, STE 20 Omaha, NE 68131
Contact Name: Bill Wardell Phone Number: 402-351-5935
Fax Number: Cell: 303-588-2020 Date of Purchase: 10/01/2009
Project Title: MTC - Streetscape Lighting and Power

I certify that this bid is submitted in accordance with the specifications issued by Sarpy County.

I acknowledge receipt of the following addenda (if applicable):

Addendum #1	09/21/2010
Addendum #2	N/A

Attachments: **Literature/Cut-sheets**
Warranty Information

Sadler Electric, INC.	Brian Sadler - VP/Project Manager
Company Name	Company Representative (Please print)
Authorized Signature	402-331-3217
	Telephone Number
5855 South 77th St	402-331-7428
Address	Fax Number
Omaha, NE 68127	briansadler@sadlerelectricinc.com
City, State & Zip	E-Mail Address

NOTE: Sarpy County is tax exempt and will provide the proper form upon request.

EXCEPTIONS/CLARIFICATIONS/COMMENTS

1. Installation of additional 1 1/4" HDPE conduit for placement of 96 strand fiber optic cable included in base bid

2. Bond for project to cover project installation with standard 2 year maintenance period. Sadler Electric will supply 20 year warranty per specifications on Company Letter of Garantee

3. Pull boxes to be solid bottom with 50' service loops on fiber optic cable

4. **VOLUNTARY ALTERNATE #1 - Alternate Fiber Manufacturer**
   - Supply and installation of Prysmian fiber optic cable (with Corning SMF-28e+ optical fibers) in liue of specified manufacturers

5. - DEDUCT AMOUNT FROM BASE BID: $6220.00

6. **VOLUNTARY ALTERNATE #2 - Grounding/Locating**
   - Installation of tracer/ground wire throughout installation for means of locating fiber/spare 2" conduit

7. - Grounding of fiber in each pull box per industry standards
   - ADD AMOUNT TO BASE BID: $12,200.00

8.

9.

10.

SADLER ELECTRIC, INC.
INDUSTRIAL & COMMERCIAL

September 23, 2010

Sarpy County – Purchasing
1210 Golden Gate Drive
Papillion, NE 68046

RE: Sarpy County - Fiber Project

Deb Houghtaling:

Please find the material specifications for the products intended to be installed for the Sarpy County Fiber Connectivity Project for the Law Enforcement Building:

SPECIFIED PRODUCTS:

- Section 1: Corning Altos Lite Fiber Optic Cable
  - Catalog number: 096EUC-T4101D20
  - Total number of pages: 4
- Section 2: Corning SMF-28e+ Optical Fibers
  - Total number of pages: 4
- Section 3: New Basis Hand holes
  - Catalog number: FCA304836-00006
  - Total number of pages: 2
- Section 4: A/D Technologies / Carlong
  - HDPE specification for conduit type
  - Total number of pages: 5
- Section 5: Ideal Detectable Underground warning tape
  - Catalog number: 42-252
  - Total number of pages: 1

VOLUNTARY ALTERNATE PRODUCTS:

- Section 1: Prysmian Fiber Optic Cable
  - Catalog number: 0096ZBT1LAJEAJA
  - Total number of pages: 2
- Section 2: Corning SMF-28e+ Optical Fibers
  - Total number of pages: 4

Respectfully submitted,

SADLER ELECTRIC, INC.

Brian Sadler
Project Manager

5855 South 77th • Omaha, NE 68127 • (402) 331-3217 • Fax # (402) 331-7428

Section 1 – Corning Altos Lite Fiber Optic Cable

ALTOS® Lite™ Gel-Free, Single-Jacket, Single-Armored Cables

A LANscape® Solutions Product

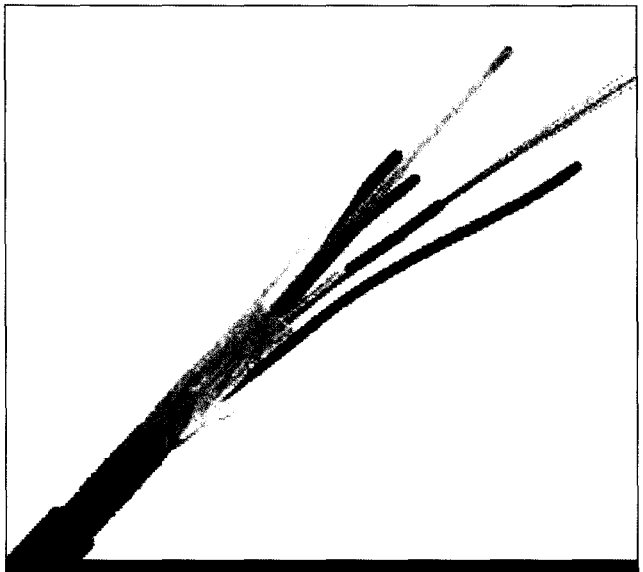
features and benefits |

Fully waterblocked loose tube, gel-free design	Simple access and no clean up
Single-armored construction	Provides additional crush and rodent protection
High-strength ripcord	Ease of stripping
Medium-density polyethylene jacket	Rugged, durable and easy to strip
Available in 62.5 µm, 50 µm, single-mode and hybrid versions	Ready for any application including Gigabit Ethernet and 10 Gigabit Ethernet

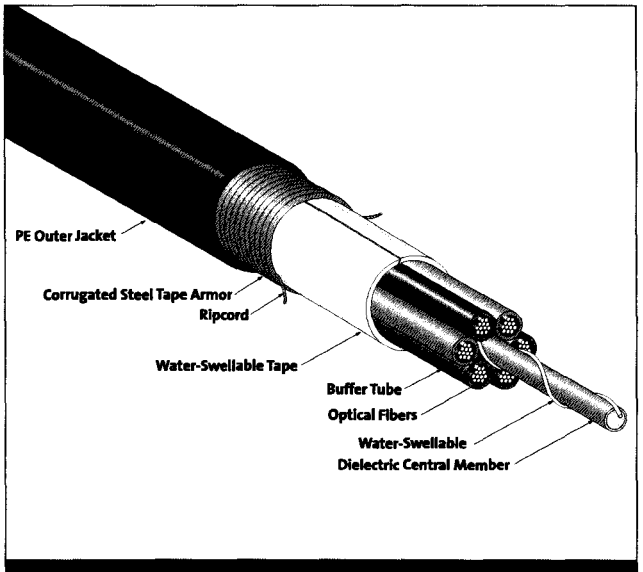
Corning Cable Systems ALTOS® Lite™ Gel-Free, Single-Jacket, Single-Armored Cables are designed for campus backbones in direct-buried installations. The loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications. These cables also provide high-fiber density within a given cable diameter while allowing flexibility to suit many system configurations. The single-armored construction provides additional crush and rodent protection with a high-strength ripcord under the armor for easy stripping. Gel-free means the cables are fully waterblocked using craft-friendly, water-swellable materials which make cable access simple and require no clean up. The flexible craft-friendly buffer tubes are easy to route in closures, and the SZ-stranded, loose tube design isolates fibers from installation and environmental rigors while allowing easy midspan access.

(continued)

RoHS COMPLIANT



ALTOS Lite Gel-Free Cable | Photo LAN1277



ALTOS Lite Gel-Free Cable | Drawing ZA-1610

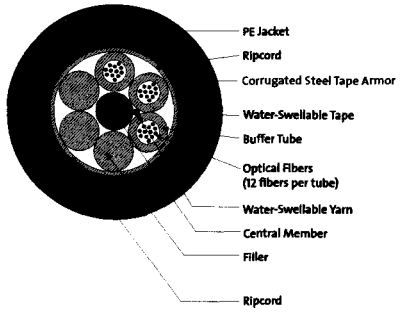
CORNING | LANscape® Solutions

ALTOS® Lite™ Gel-Free, Single-Jacket, Single-Armored Cables

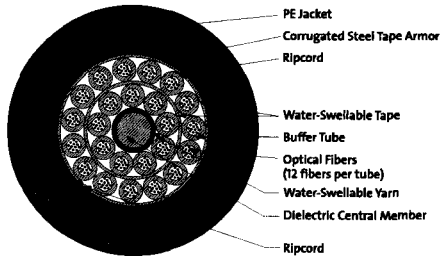
A LANscape® Solutions Product

These cables have a medium-density polyethylene jacket that is rugged, durable and easy to strip.

A variety of fiber types are available including 62.5 µm, 50 µm, single-mode and hybrid versions as well as fibers with Gigabit Ethernet and 10 Gigabit Ethernet performance. These cables are also available with optional extended operating temperature to -50°C (-58°F) in a variety of fiber counts.



ALTOS® Lite Gel-Free, Single-Jacket, Single-Armored Cable, 24-Fiber | Drawing ZA-2647



ALTOS Lite Gel-Free, Single-Jacket, Single-Armored Cable, 288-Fiber | Drawing ZA-1613

specifications |

Maximum Tensile Loads	Short-Term:	2700 N (600 lbf)
	Long-Term:	890 N (200 lbf)
Temperatures	Storage:	-40° to +70°C (-40° to +158°F)
	Installation:	-30° to +70°C (-22° to +158°F)
	Operation:	-40° to +70°C (-40° to +158°F)
Common Installations	Outdoor lashed aerial and duct and direct-buried; indoor when installed according to National Electrical Code® (NEC®) Article 770	
Design and Test Criteria	ANSI/ICEA S-87-640	

Corning Cable Systems recommends storing cable in a proper temperature environment prior to installation to allow the cable temperature to meet installation temperature range specifications for best installation results.

Fiber Count	Maximum Fibers per Tube	Number of Tube Positions	Number of Active Tubes	Central Member	Nominal Cable Weight kg/km (lb/1000 ft)	Nominal Outside Diameter mm (in)	Minimum Bend Radius Loaded cm (in)	Minimum Bend Radius Installed cm (in)
2-72	12	6	1-6	Dielectric	129 (87)	12.1 (0.48)	18.2 (7.2)	12.1 (4.8)
73-96	12	8	7-8	Dielectric	162 (109)	13.8 (0.54)	20.7 (8.1)	13.8 (5.4)
97-144	12	12	9-12	Dielectric	245 (164)	17.5 (0.69)	26.3 (10.4)	17.5 (6.9)
145-216	12	18	13-18	Dielectric	233 (156)	17.7 (0.70)	26.6 (10.5)	17.7 (7.0)
217-288	12	24	19-24	Dielectric	293 (196)	20.0 (0.79)	30.0 (11.8)	20.0 (7.9)

CORNING | LANscape® Solutions

ALTOS® Lite™ Gel-Free, Single-Jacket, Single-Armored Cables

A LANscape® Solutions Product

transmission performance |

	LANscape® 62.5 Solutions	LANscape Pretium® 150 Solutions	LANscape Pretium 300 Solutions	LANscape Pretium 550 Solutions	LANscape Pretium 600 Solutions	Single-Mode
Fiber Code	K	T	T	T	T	E
Performance Option Code	30	31	80	90	91	01
Optical Fiber Type (µm)	62.5 Multimode	50 Multimode	50 Multimode	50 Multimode	50 Multimode	Single-mode****
ISO/IEC 11801 Nomenclature	OM1	OM2	OM3***	OM4***	OM4***	OS2
Wavelength (nm)	850/1300	850/1300	850/1300	850/1300	850/1300	1310/1383/1550
Maximum Attenuation (dB/km)	3.4/1.0	3.0/1.0	3.0/1.0	3.0/1.0	3.0/1.0	0.4/0.4/0.3
Minimum Over Filled Launch (OFL) Bandwidth (MHz•km)	200/500	700/500	1500/500	3500/500	3500/500	– / – / –
Minimum Effective Modal Bandwidth (EMB) (MHz•km)	220/ –	950/ –	2000/ –	4700/ –	5350/ –	– / – / –
Serial 1 Gigabit Ethernet Distance (m)	300/550	750/600	1000/600	1100/600	1100/600	5000 / – / –
Serial 10 Gigabit Ethernet Distance (m)	33/ –	150/ –	300/ –	550*/ –	600**/ –	10000/ – /40000

** Assumes 1.0 dB maximum total connector/splice loss.*
*** Assumes 0.7 dB maximum total connector/splice loss.*
**** Meets 0.75 ns optical skew when used in all Corning Cable Systems Plug & Play™ Systems solutions.*
***** ITU 652.D compliant.*

Notes:
1) Improved attenuation and bandwidth options available.
2) Bend-insensitive single-mode fibers available on request.
3) Contact a Corning Cable Systems Customer Service Representative for additional information.
4) 50 µm multimode fiber macrobend loss ≤ 0.2 dB at 850 nm for two turns around 7.5 mm radius mandrel.

ALTOS® Lite™ Gel-Free, Single-Jacket, Single-Armored Cables

A LANscape® Solutions Product

ordering information | Contact Customer Service at 800-743-2671 for other options.

0	9	6	E	U	C	-	T	4	1	0	1	D	2	0
|1	|2	|3	|4	|5	|6		|7	|8	|9	|10	|11	|12	|13	|14

|1-3

Select fiber count.

Standard offerings:

012	048	096	216
024	060	144	288
036	072	192	

|4

Select fiber code (see Transmission Performance table).

|5 / 12

Defines cable type.

U / D = ALTOS® Gel-Free Cable

|6

Defines outer jacket.

C = Lite™ Armored Cable jacket

|7

Defines fiber placement.

T = 12 fibers/buffer tube (standard)

|8

Defines length in markings.

4 = Markings in feet (standard)

|9

Defines tensile strength (see Specifications).

|10-11

Select performance option code (see Transmission Performance table).

|13-14

Defines special requirements.

20 = No special requirements

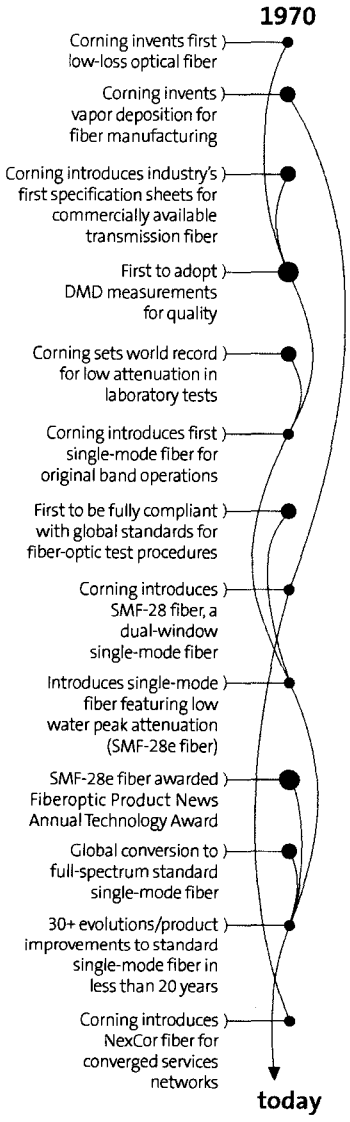
Corning Cable Systems LLC • PO Box 489 • Hickory, NC 28603-0489 USA
800-743-2675 • FAX: 828-901-5973 • International: +1-828-901-5000 • www.corning.com/cablesystems

CORNING | LANscape® Solutions

Section 2 –

Corning Optic Fibers

Corning® SMF-28e+™ Optical Fiber with NexCor® Technology Product Information



Trusted Performance Today and in the Future

Corning Optical Fiber continues to push single-mode fiber to new levels and evolve its standard single-mode optical fiber offering by adding the performance advantage of NexCor® technology to the trusted SMF-28e® optical fiber. The result is Corning® SMF-28e+™ optical fiber, a full spectrum single-mode fiber that is fully backward compatible with legacy single-mode fibers and is the latest in a long line of fiber optic innovations from Corning.

Corning® SMF-28e+™ optical fiber, an ITU-T G.652.D-compliant optical fiber, is expanding the capability and performance of the world's metropolitan and access networks that support all broadband applications, including CATV and fiber to the home (FTTH). Significant performance advantages compared to the industry's legacy single-mode fibers include:

* NexCor's MaxPower™ technology's Stimulated Brillouin Scattering threshold improvement for better system reach and coverage
* Improved macrobend specifications, from 0.05 dB to 0.03 dB, for improved handling and ease of installation, critical considerations in today's access network designs
* Tighter zero dispersion wavelength (λ_0) specification, specifically the λ_0 tolerance has been improved from a range of ± 10 nm to ± 7 nm, to enable lower cost transmitters and simplified network planning.

As with all Corning fiber products, SMF-28e+ fiber complies with the industry's most stringent requirements, including:

- ITU-T Recommendation G.652 (Tables A, B, C and D)
- IEC Specifications 60793-2-50 Type B1.3
- TIA/EIA 492-CAAB
- Telcordia Generic Requirements GR-20-CORE
- ISO 11801 OS2

PI1463 | Issued: August 2009
Supersedes: October 2008 | TL9000/ISO 9001 Registered

Innovation Built on a Solid Foundation of Quality and Proven Performance

Corning® SMF-28e+™ is the latest evolution of Corning single-mode fiber, boasting superior full-spectrum performance and world-class specifications to empower metro and access networks and maximize the performance of FTTH and CATV networks. Corning is the only fiber manufacturer with the leadership and commitment to provide this capability for single-mode fiber.

Based on the solid foundation of reliability and consistency of Corning® SMF-28e® fiber, the industry benchmark for single-mode fiber performance, Corning SMF-28e+ has the same quality transmission, splicing, handling and coating performance that customers have trusted for years. It offers significant performance advantages, while maintaining full compatibility and interoperability with legacy single-mode networks. As a result, Corning expects this product to be preferred by customers for an increasing number of network projects.

Corning has demonstrated unparalleled leadership in single-mode fiber innovation and a commitment to quality for more than 30 years. We believe that fiber is a long-term investment and should be chosen wisely. Only Corning SMF-28e+ fiber can offer increased performance capabilities with transparent innovation that is backed by the unsurpassed expertise and proven performance of Corning. To maximize the performance of your optical network, rely on the company that invented optical fiber for communications.

Corning® Optical Fiber – The Measure of Trust

Corning's Service Advantage

Corning Optical Fiber delivers the world's most comprehensive portfolio of fiber products and services, including:

* Worldwide sales support and service from customer centers
* Full range of fibers and special order capabilities
* Specialized support from technical experts
* Innovative fiber delivery capabilities with proven success rates
* Performance and brand customer satisfaction
* Dedicated account support for cut-to-size supply customers
* Fiber support services and technical information, tools and resources

At Corning Optical Fiber, we strive to provide the best possible customer service and technical support – before, during and after the sale. As a trusted partner, we'll benefit from our established and extensive support infrastructure that's ready to meet your specific needs.

Corning's Product Advantage

Our enhanced, dual acrylate CPC7 coatings provide excellent protection. Designed to be mechanically stripped, they are optimized for many single- and multi-fiber cable designs, including loose tube, ribbon, aerial cable and tight buffer cables.

Corning is committed to product excellence and meeting the evolving needs of our customers. As evidence of this, our fibers are performance specifications [illegible] on the Corning Optical Fiber website at www.corning.com/opticalfiber.

Optical Specifications

Fiber Attenuation

Maximum Attenuation

Wavelength (nm)	Maximum Value* (dB/km)
1310	0.33 – 0.35
1383 ± 3**	0.31 – 0.35
1490	0.21 – 0.24
1550	0.19 – 0.20
1625	0.20 – 0.23

*Maximum specified attenuation value available within the stated ranges.
**Attenuation post-hydrogen aging according to IEC 60793-2-50 Section C.5 for B.1.3 fibers.
Alternate attenuation offerings available upon request.

Attenuation vs. Wavelength

Range (nm)	Ref. λ (nm)	Max. α Difference (dB/km)
1285 – 1330	1310	0.03
1525 – 1575	1550	0.02

The attenuation in a given wavelength range does not exceed the attenuation of the reference wavelength (λ) by more than the value α.

Macrobend Loss

Mandrel Diameter (mm)	Number of Turns	Wavelength (nm)	Induced Attenuation* (dB)
32	1	1550	≤0.03
50	100	1310	≤0.03
50	100	1550	≤0.03
60	100	1625	≤0.03

*The induced attenuation due to fiber wrapped around a mandrel of a specified diameter.

Point Discontinuity

Wavelength (nm)	Point Discontinuity (dB)
1310	≤0.05
1550	≤0.05

Cable Cutoff Wavelength (λ_{ccf})

$\lambda_{ccf} \leq 1260$ nm

Mode-Field Diameter

Wavelength (nm)	MFD (μm)
1310	9.2 ± 0.4
1550	10.4 ± 0.5

Dispersion

Wavelength (nm)	Dispersion Value [ps/(nm•km)]
1550	≤ 18.0
1625	≤ 22.0

Zero Dispersion Wavelength (λ_0): 1310 nm≤ λ_0 ≤1324 nm
Zero Dispersion Slope (S_0): ≤ 0.092 ps/(nm²·km)

Polarization Mode Dispersion (PMD)

	Value (ps/√km)
PMD Link Design Value	≤0.06*
Maximum Individual Fiber	≤0.1

*Complies with IEC 60794-3: 2001, Section 5.5, Method 1, September 2001.

The PMD link design value is a term used to describe the PMD of concatenated lengths of fiber (also known as PMD_Q). This value represents a statistical upper limit for total link PMD. Individual PMD values may change when cabled.

Dimensional Specifications

Glass Geometry

Fiber Curl	≥ 4.0 m radius of curvature
Cladding Diameter	125.0 ± 0.7 μm
Core-Clad Concentricity	≤ 0.5 μm
Cladding Non-Circularity	≤ 0.7%

Coating Geometry

Coating Diameter	242 ± 5 μm
Coating-Cladding Concentricity	<12 μm

Environmental Specifications

Environmental Test	Test Condition	Induced Attenuation 1310 nm, 1550 nm & 1625 nm (dB/km)
Temperature Dependence	-60°C to +85°C*	≤0.05
Temperature Humidity Cycling	-10°C to +85°C* up to 98% RH	≤0.05
Water Immersion	23°± 2°C	≤0.05
Heat Aging	85°± 2°C*	≤0.05

*Reference temperature = +23°C

Operating Temperature Range: -60°C to +85°C

How to Order

Contact your sales representative, or call the Optical Fiber Customer Service Department:
Ph: 607-248-2000 (U.S. and Canada)
+44-1244-525-325 (Europe)
Email: opticalfibcs@corning.com
Please specify the fiber type, attenuation and quantity when ordering.

Mechanical Specifications

Proof Test

The entire fiber length is subjected to a tensile stress ≥100 kpsi (0.7 GPa)*.

*Higher proof test levels available.

Length

Fiber lengths available up to 63.0 km/spool.

Performance Characterizations

Characterized parameters are typical values.

Core Diameter	8.2 µm
Numerical Aperture	0.14 *NA is measured at the one percent power level of a one-dimensional far-field scan at 1310 nm.*
Zero Dispersion Wavelength (λ_0)	1317 nm
Zero Dispersion Slope (S_0)	0.088 ps/(nm²•km)
Effective Group Index of Refraction (N_{eff})	1310 nm: 1.4676 1550 nm: 1.4682
Fatigue Resistance Parameter (N_d)	20
Coating Strip Force	Dry: 0.6 lbs. (3N) Wet, 14-day room temperature: 0.6 lbs. (3N)
Rayleigh Backscatter Coefficient (for 1 ns Pulse Width)	1310 nm: -77 dB 1550 nm: -82 dB

Formulas

Dispersion

$$\text{Dispersion} = D(\lambda): \approx \frac{S_0}{4}\left[\lambda - \frac{\lambda_0^4}{\lambda^3}\right] \text{ps/(nm•km)},$$

for 1200 nm ≤ λ ≤ 1625 nm

λ = Operating Wavelength

Cladding Non-Circularity

$$\text{Cladding Non-Circularity} = \left[1 - \frac{\text{Min. Cladding Diameter}}{\text{Max. Cladding Diameter}}\right] \times 100$$

Section 3 –

New Basis Hand Holes

FCA304836-00006

FIBERGLASS / POLYMER CONCRETE ASSEMBLY

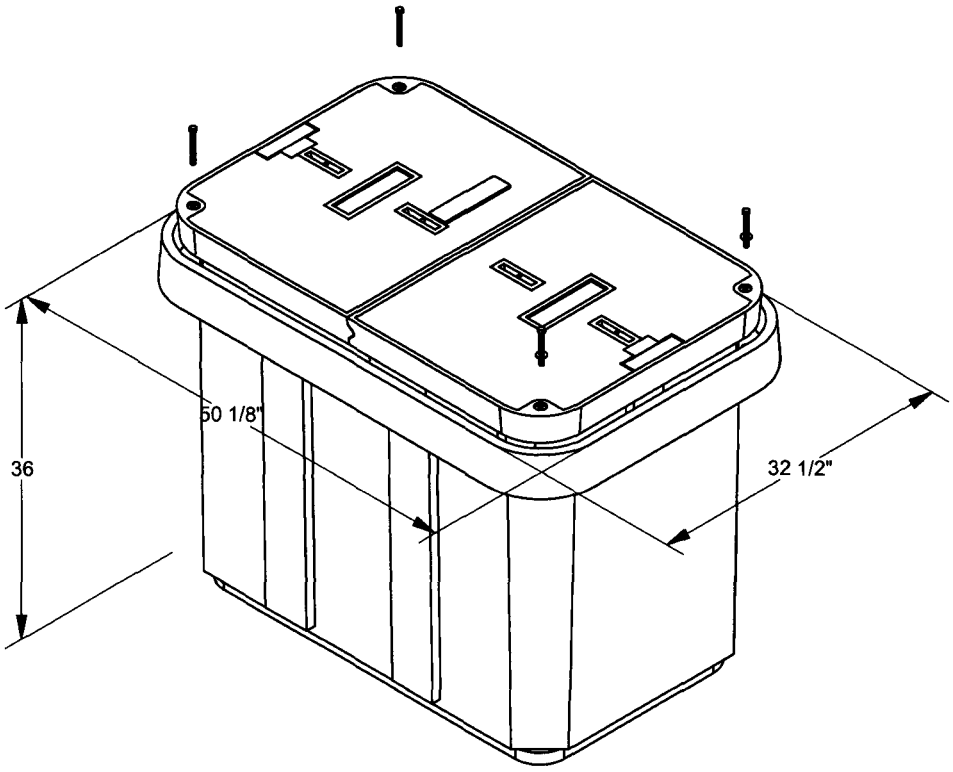
30" x 48" x 36"
(For actual dimensions see drawing)

Fiberglass / Polymer Concrete Assembly, Straight Sides, No Floor, WUC 3.6-"20K," 3/8" Hex Bolts, Standard Nameplate (Specify at time of order) Installed

LOAD RATINGS
Incidental Traffic - Parking Lot, Sidewalk
Conforms to:
- WUC 3.6
- ASTM C 857
- ANSI/SCTE 77

FEATURES:
- USDA/RUS Approved
- Drop-In nameplate
- Shipped assembled
- Skid resistant cover
- Stainless steel bolts
- Cast-in floating nut box
  - Integral drain holes

Additional product information continued on the reverse



newbasis
Composites for Infrastructure

2626 Kansas Avenue
Riverside, California 92507

951.787.0600

951.787.0632 (fax)

info@newbasis.com

newbasis.com

Inside Dimensions		
Length	Width	Depth
45 1/2"	27 7/8"	33"
41 1/4"	23 3/4"	

REV: A

FCA304836-00000

FIBERGLASS / POLYMER CONCRETE ASSEMBLY

newbasis

Fiberglass / Polymer Concrete Assembly, Straight Sides, Floor, WUC 3.6-"20K," 3/8" Hex Bolts, Standard Nameplate (Specify at time of order) Shipped Separately

30" x 48" x 36" **For actual dimensions, see drawing on front side.**

AVAILABLE OPTIONS

- ☐ Tapered Sides
- ☐ Penta Bolts
- ☐ Telephone EMS
- ☐ Power EMS
- ☐ Racks (2)
- ☐ Knockouts
- ☑ Floor
- ☐ 2 Piece Cover
- ☐ Custom Nameplate Installed
- ☐ Custom Nameplate Shipped Separately
- ☐ Standard Nameplate Installed
- ☑ Standard Nameplate Shipped Separately

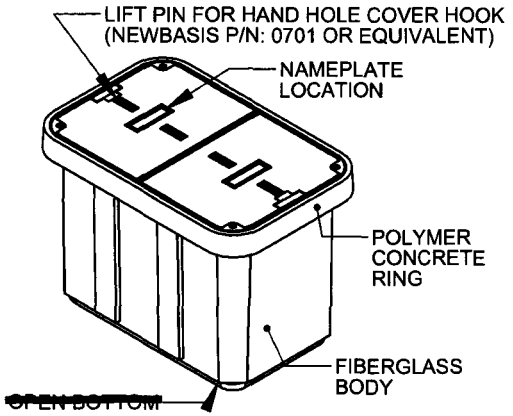
☑ - Indicates a selected option

NAMEPLATES

One standard nameplate included with each assembly, installed at the factory or easily installed in the field. Custom nameplates are available. Contact customer service.

Standard Nameplates

- Electric
- Telephone
- Fiber Optic
- Water
- Irrigation Control Valve
- Broadband
- Traffic
- CATV
- Traffic Signal
- Communications



Rev: A

MATERIAL PROPERTIES AND ATTRIBUTES

Compressive Strength
Polymer Concrete - **87 MPa**
FRP - **134 MPa**
Per ASTM D695/D3410

Flexural Strength
Polymer Concrete - **20 MPa**
FRP - **116 MPa**
Per ASTM D790

Coefficient of Friction (Dry)
1.085
Per ASTM C1028

Polymer Concrete
- Advanced composite: Very high strength to weight ratio
- Non-metallic
- Non-conductive
- UV Resistant
- High impact resistant
- Impervious to chemicals and moisture

Materials tested in accordance with ASTM D-543 and ASTM D-570

WEIGHTS AND SHIPPING

COVER WEIGHT: 203 lbs.

BOX WEIGHT: 227 lbs.

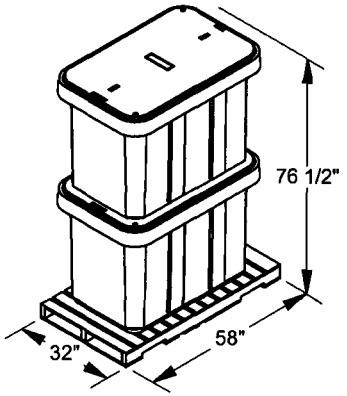
ASSEMBLY WEIGHT: 430 lbs.

LOADED PALLET WEIGHT: 925 lbs.

Standard shipping includes van delivery of pallet quantities to the lower 48 states. Partial pallet quantities and flat bed shipping available at an additional cost.

PACKAGING (Steel Banding, Edge Protection)

PALLET QUANTITY: 2



Section 4 –

HDPE Conduit Specs

General

This specification covers the minimum requirements for Perma-Guard coilable HDPE conduit and is based on ASTM F 2160. Perma-Guard is for use primarily in underground applications as conduit as innerduct, direct buried or concrete encased installations. This specification addresses solid wall types commonly selected for applications in the communications, power utility, transportation, mining, commercial and industrial markets. Sizes ranging from 5mm through 24" diameter in a variety of wall thickness designs are available that can be matched to the specific application.

The properties and dimensions shall be in accordance with ASTM F 2160 standard specification for "Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD)". Suggested standards for various options like pull tape installation, color coding and pre-lubrication of the conduit are also addressed.

1.0 Materials

1.1 Perma-Guard conduit shall be made from high-density polyethylene (HDPE). The HDPE shall meet or exceed the properties listed in ASTM D-3350 for minimum cell classification of 335480 C (minimum 2% carbon black) or E (color with UV stabilizer). Properties are listed below in Table 1.1

TABLE 1-1
Material Requirements

Cell	Properties	Requirements	Test Method
3	Density	>0.940 – 0.947	ASTM D 792 or 1505
3	Melt Flow Index (190/2.160)	<0.4 –0.15 g/10 minutes max	ASTM D 1238
5	Flexural Modulus	110,000 to 160,000 psi	ASTM D 790
4	Tensile Strength at Yield	3000 – <3500 psi	ASTM D 638
8	Environmental Stress Crack Resistance	Condition B, F_{10} Max, 10% Igepal, 96 hrs, minimum	ASTM D 1693
0	Hydrostatic Design Basis	Not Pressure Rated	ASTM D 2837
--	Brittleness Temperature	-75 degrees C	ASTM D 746
--	Elongation	400% minimum	ASTM D 638
C	Class C	Minimum 2% Carbon Black	ASTM D 3350
E	Class E	Colored with UV Stabilizer	ASTM D 3350

Note: ESCR is conducted on incoming certified conduit resin to confirm compliance with minimum standards as set forth by ARNCO's conduit resin specification. An accelerated test is conducted using 10% Igepal solution for 96 hours with a 10% maximum allowable failure rate in accordance with 4.1.3.3 of ASTM F 2160.

1.2 If certified test reports are required by the purchaser they shall be requested and agreed to at the time of purchase. Certification shall be provided in accordance with this specification unless changes are agreed and authorized in writing by the seller.

1.3 A run code will be printed on each production lot that is traceable to the resin used in the manufacture of the conduit.

1.4 Clean rework material from the manufacturers own production may be used, either alone or blended with virgin compound. The finished conduit made by using a portion of rework material shall meet all of the material and physical requirements of this specification.

2.0 Dimensions and lengths

2.1 Perma-Guard conduit shall meet the dimensional specifications set forth in Appendix-A.

2.2 Standard length tolerances shall be +/-5% for empty conduit and +/-10% of the cable in conduit (CIC) ordered lengths unless otherwise agreed to in writing.

2.3 Average outside diameter (OD) shall be as shown in Appendix-A for standard types.

2.4 Minimum and Maximum wall thickness shall be as shown in Appendix-A for standard types.

2.5 The Ovality shall be measured as defined in ASTM D 2122 and calculated as follows:

$$\% \text{ Ovality} = \frac{\text{Maximum OD} - \text{Minimum OD}}{\text{Average OD}} \times 100$$

Note:
Maximum allowable ovality of 3" and smaller conduit shall be less than 10% when conditioned in accordance and measured in accordance with the above formula. Due to shipping limitations and associated coil requirements ovality for 4" and larger conduit may exceed 15%, it is recommended that rerounding/straightening equipment be used to install coiled conduit in 4" and larger diameters Contact your local ARNCO sales representative for more information.

3.0 FRICTION REDUCTION

3.1 Friction-reducing ribs and lubricants shall be available for use in empty conduit for reducing the coefficient of friction between the cable and the inner wall of the conduit.

3.2 Internal spiral ribs for reducing friction shall oscillate to assure that no unidirectional twist force is introduced during the cable installation and to maximize friction reduction.

3.3 Internal ribs shall be rounded not sharp and no greater than 0.035" in height and spaced apart no more than 0.20 inch.

3.4 Interior lubrication:

3.4.1 Interior lubrication shall be compatible with all cable jacket materials.

3.4.2 The lubricant shall be compatible with the conduit materials.

3.4.3 Where conduit is to be factory lubricated the lubrication shall be a permanent silicone emulsion that will not loose its lubricity over time.

4.0 Surface Appearance and Workmanship

4.1 There shall be no foreign particles embedded in the plastic surface as a result of the extrusion process.

4.2 There shall not be any surface distortions that penetrate either internally or externally into the conduit wall greater than 10% of the minimum wall thickness.

4.3 There shall not be any holes, visible cracks or defects that could cause damage or compromise the physical strength of the conduit.

5.0 Requirements for cables factory installed in conduit (CIC)

5.1 See Product Specification PS-101 located at the beginning of CIC tab section.

6.0 PULL MEDIA

6.1 Factory installed pull media shall be available.

6.2 The pull media shall be installed with sufficient slack to assure free payout of the conduit and adequate tape slack when cutting the conduit.

7.0 Required and Optional Conduit Markings

7.1 The required markings on the conduit shall be legible, spaced at intervals not to exceed 5 ft. and include:

- ASTM (letter-Number designation) or applicable standard and material designation HDPE
- Trade size
- Type, wall thickness, schedule or dimensional ratio
- Manufacturer's name or trademark & Plant location
- Manufacturing run or lot code from which date can be determined
- Month & year of manufacture
- The word "Aerial" or "UV" for above ground applications
- Sequential meter or foot markings with an accuracy of +/-2% shall be made available upon request. Note accuracy should not be confused with cut length tolerances. Start and finish footage markings shall be noted on the product identification tags.

7.2 Optional surface printing

7.2.1 Industry specific markings such as telephone symbol for communication or lightning bolt symbol can be used to indicate conduit is a carrier of electrical conductor(s), etc.

7.2.2 The print line may include special markings as agreed to between the buyer and manufacturer.

8.0 Conduit Color Identification

8.1 Color designations for the conduit shall be accomplished by using one of three methods; complete wall coloring, longitudinally extruded color stripes or a co-extruded color shell.

8.2 Most colors are available, typically orange is used by communication companies, red by power utilities and yellow is no longer available for conduit applications as it is used exclusively for gas pipe.

8.3 The extrusion resins used for color striping or jacketing conduit shall be a co-extruded part of the major wall and shall be materials that will not degrade the conduit wall's performance.

8.4 There shall be a minimum of 3 longitudinal co-extruded stripes spaced at approximately equal distance circumferentially apart. The stripes shall have a depth of .025" ± .005" and be of sufficient width and color intensity to be seen from a distance of 20 feet.

8.5 The co-extruded shell shall be uniform in color and thickness, as commercially practical, for the entire circumference of the conduit. The thickness of the shell shall be .025" ± .005".

9.0 Packaging

9.1 Coilable conduit shall be available on plastic, steel our wooden reels or as individual coils. Reel diameters are available from 30" through 120" diameter. ***Note: see A-D Technologies printed reel tables for a listing of available reels and conduit lengths.***

9.1.1 The minimum drum diameter shall be consistent with the following recommendation: Drum Diameter = (Duct Diameter/.0555).

9.1.2 A smaller drum diameter may be used if agreed to between buyer and seller and may be necessary for sizes larger than 3" to accommodate shipping height and width restrictions. If conduit is placed on a smaller drum diameter then use of an approved re-rounding and straightening device during installation of the conduit is recommended.

9.1.3 Coils of conduit are available in most conduit sizes from ½" diameter through 6" diameter. See A-D Technologies printed coil tables for a listing of available coil sizes and packaging options.

9.1.3.1 Coils shall be shipped on specially designed cradle pallets to protect the outer wraps from damage.

9.1.3.2 The eye of the coil shall be facing to the side to facilitate field loading onto coil handling equipment.

9.1.4 Reels and Coils are available with multiple lengths paralleled together in 2, 3 or 4 way configurations on single or divided reel configurations.

9.2 Both the inside and outside ends of the conduit shall be capped to protect against water and debris entering the conduit during shipment and storage.

10.0 Tagging and Shipping

10.1 The following tagging information is to be included with any shipped from any ARNCO Corporation manufacturing facility. Shipping and product Identification tags shall be printed using indelible ink. Documentation includes the following items:

- Shipping Label – Each reel shall have a label with complete shipping information that shows both a return address and ship to address.
- Product Identification Tag – Each reel shall have a tag that has complete product identification information.
- Packing List – That includes return and destination addresses along with a detailed summary of the reels that are shipping.
- Bill of Lading – A standard commercially acceptable bill of lading shall be prepared for each shipment.

10.2 Other Optional identification markings as agreed to at the time of order.

10.3 Tag shall be affixed to the reels using the following procedure

10.3.1 For wooden reels a shipping and product identification tag shall be attached to each reel below the stenciled "A " in the Arnco logo on the reel.

10.3.2 For Steel reels a shipping and product identification tag shall be attached to the plastic placards attached to each side of the reel.

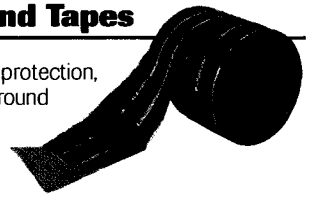
10.3.3 Additional tags such as those identifying the cable in CIC shall be placed immediately to the right of the Arnco product identification tag.

11.0 End of main body of specification

Section 5 –

Ideal Warning Tape

Detectable Underground Tapes

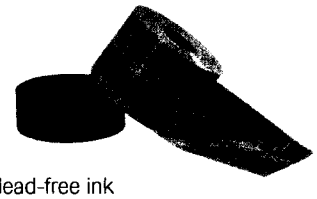


- Solid aluminum foil core tapes for protection, location and identification of underground utility installations
- Meets or exceeds industry standards including the American Public Works Association (APWA) color code
- Formulated to resist degradation from acid and alkali found in soils
- Lead-free pigments and organic lead-free ink

Property	Method	Value
Thickness	ASTMD2103	5.0 Mils
Elongation	ASTMD882-75B	80%
Composition	IDEAL Specs.	Bottom layer PE Top layer PET Foil industry standard
Tensile Strength	ASTMD882	35 lbs./in. (15,000 PSI)

Legend	Color	Size	Cat. No.
Caution Buried Electric Line Below	Red	3 in. x 1,000 ft.	**42-201**
		6 in. x 1,000 ft.	**42-251**
Caution Buried Fiber Optic Line Below	Orange	6 in. x 1,000 ft.	**42-252**

Non-Detectable Underground Tapes

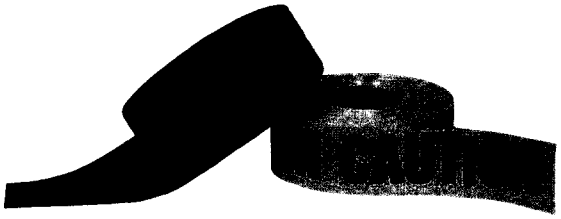


- For protection, location and identification of underground utility installations
- Formulated to resist degradation from acid and alkali found in soils
- Lead-free pigments and organic lead-free ink

Property	Method	Value
Thickness	ASTMD2103	4.0 Mils
Elongation	ASTMD882-75B	500%
Composition	IDEAL Specs.	LDPE
Tensile Strength	ASTMD882	2,750 PSI
Recommended Burial Depth		
3 in. Tape – 4 in. to 6 in.		
6 in. Tape – less than 12 in.		

Legend	Color	Size	Cat. No.
Caution Buried Electric Line Below	Red	3 in. x 1,000 ft.	**42-101**
		3 in. x 250 ft.	**42-131**
	Yellow	3 in. x 1,000 ft.	**42-102**
Caution Buried Telephone Line Below	Orange	3 in. x 1,000 ft.	**42-103**
Caution Buried Fiber Optic Line Below	Orange	3 in. x 1,000 ft.	**42-104**
Caution Buried Electric Line Below	Red	6 in. x 1,000 ft.	**42-151**
	Yellow	6 in. x 1,000 ft.	**42-152**

Barricade Tapes



- High-visibility safety yellow or red polyethylene construction with bold black letters
- Meets OSHA specifications Section 1010.144 for marking physical hazards

Property	Method	Value
Elongation	ASTM D88-75B	≥ 400%
Composition	IDEAL Specs.	LDPE
Tensile Strength	ASTM D882	2,350 PSI TD 1,893 PSI MD

Legend	Color	Size	Thickness	Cat. No.
Caution	Yellow	3 in. x 1,000 ft.	4.0 Mils	**42-001**
Caution Do Not Enter	Yellow		4.0 Mils	**42-002**
Caution High Voltage	Yellow		4.0 Mils	**42-003**
Danger	Red		4.0 Mils	**42-051**
Danger High Voltage Keep Out	Red		4.0 Mils	**42-052**

Legend	Color	Size	Thickness	Cat. No.
Caution	Yellow	3 in. x 250 ft.	2.0 Mils	**42-031**
Caution	Yellow	3 in. x 1,000 ft.	2.0 Mils	**42-011**
Caution Do Not Enter	Yellow		2.0 Mils	**42-012**
Danger	Red		2.0 Mils	**42-015**

VOLUNTARY ALTERNATE

Section 1 – Prysmian Fiber Optic Cable

Dry FlexLink™ Armored

PRYSMIAN CABLES & SYSTEMS

Stranded Loose Tube Cable for Aerial, Duct and Direct-Buried Applications

Features and Benefits

Dry Water-Blocking Technology
- Buffer Tube and Core are completely dry--no gel
- Permits rapid cable preparation and termination
- Water-Blocking materials are easily removed

Corrugated Steel Armor
- Provides additional mechanical protection

Medium Density Polyethylene Jacket
- Low friction installation
- Excellent protection from environmental hazards

Sheath Markings
- Provide positive identification and length verification
- Custom print available
- Optional embedded stripe available for additional cable identification

Reverse Oscillated Lay Stranding Method
- Facilitates mid-span access of fibers

Additional Options
- Twisted copper pairs provide remote power or communications
- Factory-Installed pulling eye saves time when setting up for cable pulls

Performance
- Meets or exceeds the performance requirements of Telcordia GR-20, Issue 2 and ICEA 640, and is tested in accordance with relevant EIA-455 series FOTPs for fiber optic cables
- RDUP listed (tested in accordance with PE-90)

Registered Supplier
- ISO 9001, ISO 14001, and TL 9000

Catalog # for ALTERNATE cable:0096ZBT1LAJEAJA

Dry FlexLink™ Armored

Performance Specifications

Bend Radius	
Dynamic	20 x Cable OD
Static	10 x Cable OD

Tensile Rating	N	lbf
Installation	2700	600
Residual	800	180

Crush Resistance	N/cm	lbf/in
Short Term/Long Term	220/110	125/63

Temperature Ratings	°C	°F
Operation	-40 to +70	-40 to +158
Installation	-30 to +60	-22 to +140
Storage/Shipping	-40 to +75	-40 to +167

Prysmian Cables and Systems

700 Industrial Drive
Lexington, SC 29072

www.prysmianusa.com

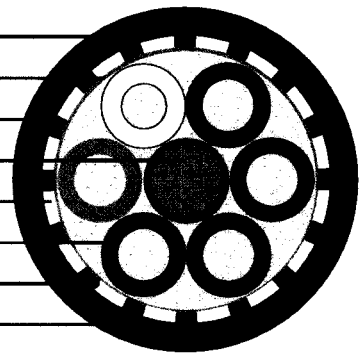
Tel (803) 951-4800
Fax (803) 996-1812

Nominal Design Parameters

Fiber Count			2-60	62-72	74-96	98-120	122-144	146-216
Buffer Tube Count			5	6	8	10	12	18
Buffer Tube OD		(mm)	2.8	2.8	2.8	2.8	2.8	2.8
Single Jacket	**Cable OD**	(mm)	13.2	14.0	15.8	17.7	19.6	19.7
		(inches)	0.52	0.55	0.62	0.70	0.77	0.78
	Cable Weight	(kg/km)	140	161	193	237	285	262
		(lb/kft)	94	108	130	159	192	176
	Max. Length	(m)	12,800	12,800	11,929	9,675	7,643	7,604
		(ft)	41,984	41,984	39,127	31,734	25,067	24,940
Double Jacket	**Cable OD**	(mm)	15.3	16.3	18.1	19.8	22.3	22.5
		(inches)	0.60	0.64	0.71	0.78	0.88	0.88
	Cable Weight	(kg/km)	190	210	250	294	377	360
		(lb/kft)	128	141	168	198	253	241
	Max. Length	(m)	12,800	10,627	8,578	7,842	6,424	6,366
		(ft)	41,984	34,858	28,138	25,722	21,072	20,880

Cable Construction

Outer Jacket
Water Blocking Tape
Inner Jacket (Double Jacket Designs Only)
Central Strength Member
Outer Strength Members (where applicable)
Dry-Blocked Buffer Tube Containing up to 12 Fibers
Ripcord
Corrugated Steel Armor



Ordering Information

Select a part number according to the fiber count you want:

Fiber Count	1	2		3 3	
0002-0006	☐	☐	S1LAJE	☐☐	A
0008-0036	☐	☐	T1LAJE	☐☐	A
0038-0312	☐	☐	S1LAJE	☐☐	A

Catalog # for ALTERNATE cable:0096ZBT1LAJEAJA

Note: Standard lay-up for fiber counts of 12 or more is 12 fibers per tube. Please call for custom lay-ups.

Then, use the following options to complete the part number:

1 Fiber Type
H = G.652(d) Single-Mode Low Water Peak
Z = FTTP-Optimized Single-Mode Fiber

3 Jacket Design
AJ = Single Armor-Single Jacket
SA = Single Armor-Double Jacket

2 Attenuation
B = 0.35/0.25 dB/km @ 1310/1550 nm
C = 0.40/0.30 dB/km @ 1310/1550 nm

Note: Please call if you have special requirements for fiber type or attenuation.
Double Armor designs are also available.

Example:

If you need a 36 count Dry FlexLink™ single armor/single jacket cable with Low Water Peak Single-Mode fiber and 0.40/0.30 attenuation, order Part Number 0036HCT1LAJEAJA.

To place an order please contact us in one of the following ways:

Telephone (800) 669-0808 (Inside Sales) **Fax (800) 951-5040** **comm.cables@prysmian.com**

Prysmian Cables and Systems

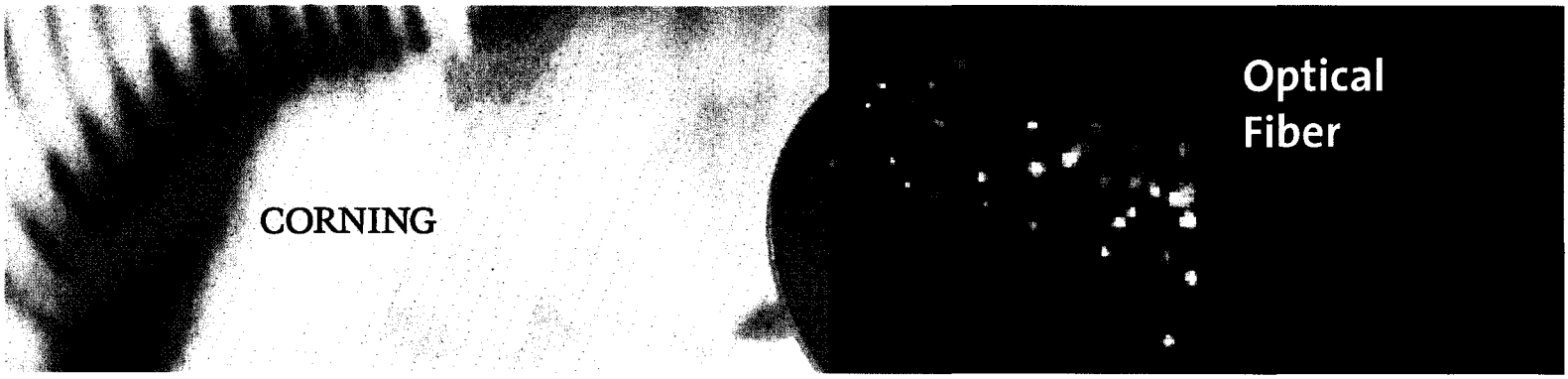
PRYSMIAN CABLES & SYSTEMS

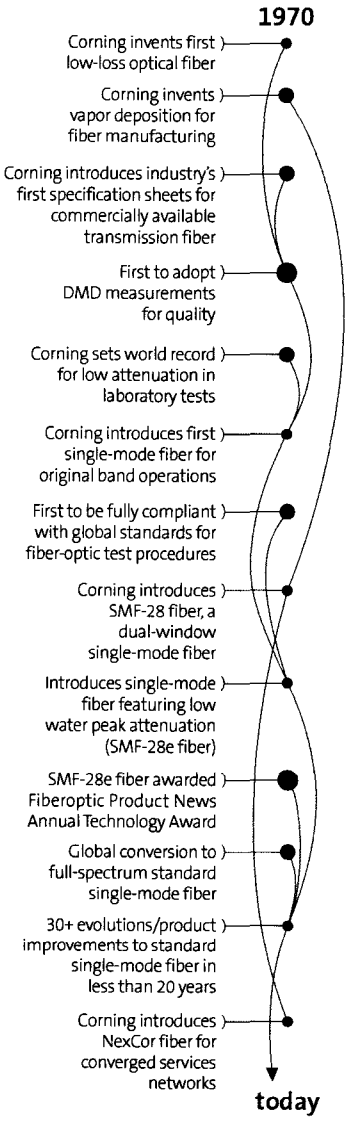
Features and specifications subject to change without notice.

VOLUNTARY ALTERNATE

Section 2 – Corning Optic Fibers

Corning® SMF-28e+™ Optical Fiber with NexCor® Technology Product Information





Trusted Performance Today and in the Future

Corning Optical Fiber continues to push single-mode fiber to new levels and evolve its standard single-mode optical fiber offering by adding the performance advantage of NexCor® technology to the trusted SMF-28e® optical fiber. The result is Corning® SMF-28e+™ optical fiber, a full spectrum single-mode fiber that is fully backward compatible with legacy single-mode fibers and is the latest in a long line of fiber optic innovations from Corning.

Corning® SMF-28e+™ optical fiber, an ITU-T G.652.D-compliant optical fiber, is expanding the capability and performance of the world's metropolitan and access networks that support all broadband applications, including CATV and fiber to the home (FTTH). Significant performance advantages compared to the industry's legacy single-mode fibers include:

* NexCor's MaxPower™ technology's Stimulated Brillouin Scattering threshold improvement for better system reach and coverage
* Improved macrobend specifications, from 0.05 dB to 0.03 dB, for improved handling and ease of installation, critical considerations in today's access network designs
* Tighter zero dispersion wavelength (λ_0) specification, specifically the λ_0 tolerance has been improved from a range of ± 10 nm to ± 7 nm, to enable lower cost transmitters and simplified network planning.

As with all Corning fiber products, SMF-28e+ fiber complies with the industry's most stringent requirements, including:

- ITU-T Recommendation G.652 (Tables A, B, C and D)
- IEC Specifications 60793-2-50 Type B1.3
- TIA/EIA 492-CAAB
- Telcordia Generic Requirements GR-20-CORE
- ISO 11801 OS2

PI1463 | Issued: August 2009
Supersedes: October 2008 | TL9000/ISO 9001 Registered

Innovation Built on a Solid Foundation of Quality and Proven Performance

Corning® SMF-28e+™ is the latest evolution of Corning single-mode fiber, boasting superior full-spectrum performance and world-class specifications to empower metro and access networks and maximize the performance of FTTH and CATV networks. Corning is the only fiber manufacturer with the leadership and commitment to provide this capability for single-mode fiber.

Based on the solid foundation of reliability and consistency of Corning® SMF-28e® fiber, the industry benchmark for single-mode fiber performance, Corning SMF-28e+ has the same quality transmission, splicing, handling and coating performance that customers have trusted for years. It offers significant performance advantages, while maintaining full compatibility and interoperability with legacy single-mode networks. As a result, Corning expects this product to be preferred by customers for an increasing number of network projects.

Corning has demonstrated unparalleled leadership in single-mode fiber innovation and a commitment to quality for more than 30 years. We believe that fiber is a long-term investment and should be chosen wisely. Only Corning SMF-28e+ fiber can offer increased performance capabilities with transparent innovation that is backed by the unsurpassed expertise and proven performance of Corning. To maximize the performance of your optical network, rely on the company that invented optical fiber for communications.

Corning® Optical Fiber – The Measure of Trust

Corning's Service Advantage

Corning Optical Fiber is dedicated to the success of our customers by providing exceptional product quality and service. Our commitment includes:

* [illegible]
* [illegible]
* [illegible]
* [illegible]
* [illegible]
* [illegible]
* [illegible]
* [illegible]

At Corning Optical Fiber, we strive to provide the best possible customer service and technical support — before, during, and after the sale. As a customer, you'll benefit from our product and customer support infrastructure that's ready to meet your needs anytime.

Corning's Product Advantage

Our optical cable systems [illegible] exceptional customer performance. [illegible] are optimized for loose tube and multi-fiber cable designs, including [illegible] ribbon, armored cable and [illegible] buffer cables.

Corning is committed to product excellence and meeting the evolving needs of [illegible] applications. Key performance or performance specifications [illegible] are [illegible] from manufacturing [illegible] and [illegible].

Optical Specifications

Fiber Attenuation

Maximum Attenuation

Wavelength (nm)	Maximum Value* (dB/km)
1310	0.33 – 0.35
1383 ± 3**	0.31 – 0.35
1490	0.21 – 0.24
1550	0.19 – 0.20
1625	0.20 – 0.23

*Maximum specified attenuation value available within the stated ranges.
**Attenuation post-hydrogen aging according to IEC 60793-2-50 Section C.5 for B.1.3 fibers.
Alternate attenuation offerings available upon request.

Attenuation vs. Wavelength

Range (nm)	Ref. λ (nm)	Max. α Difference (dB/km)
1285 – 1330	1310	0.03
1525 – 1575	1550	0.02

The attenuation in a given wavelength range does not exceed the attenuation of the reference wavelength (λ) by more than the value α.

Macrobend Loss

Mandrel Diameter (mm)	Number of Turns	Wavelength (nm)	Induced Attenuation* (dB)
32	1	1550	≤0.03
50	100	1310	≤0.03
50	100	1550	≤0.03
60	100	1625	≤0.03

*The induced attenuation due to fiber wrapped around a mandrel of a specified diameter.

Point Discontinuity

Wavelength (nm)	Point Discontinuity (dB)
1310	≤0.05
1550	≤0.05

Cable Cutoff Wavelength (λ_{ccf})

λ_{ccf} ≤ 1260 nm

Mode-Field Diameter

Wavelength (nm)	MFD (μm)
1310	9.2 ± 0.4
1550	10.4 ± 0.5

Dispersion

Wavelength (nm)	Dispersion Value [ps/(nm•km)]
1550	≤ 18.0
1625	≤ 22.0

Zero Dispersion Wavelength (λ_0): 1310 nm≤ λ_0 ≤1324 nm
Zero Dispersion Slope (S_0): ≤ 0.092 ps/(nm²·km)

Polarization Mode Dispersion (PMD)

	Value (ps/√km)
PMD Link Design Value	≤0.06*
Maximum Individual Fiber	≤0.1

*Complies with IEC 60794-3: 2001, Section 5.5, Method 1, September 2001.

The PMD link design value is a term used to describe the PMD of concatenated lengths of fiber (also known as PMD_Q). This value represents a statistical upper limit for total link PMD. Individual PMD values may change when cabled.

Dimensional Specifications

Glass Geometry

Fiber Curl	≥ 4.0 m radius of curvature
Cladding Diameter	125.0 ± 0.7 μm
Core-Clad Concentricity	≤ 0.5 μm
Cladding Non-Circularity	≤ 0.7%

Coating Geometry

Coating Diameter	242 ± 5 μm
Coating-Cladding Concentricity	<12 μm

Environmental Specifications

Environmental Test	Test Condition	Induced Attenuation 1310 nm, 1550 nm & 1625 nm (dB/km)
Temperature Dependence	-60°C to +85°C*	≤0.05
Temperature Humidity Cycling	-10°C to +85°C* up to 98% RH	≤0.05
Water Immersion	23°± 2°C	≤0.05
Heat Aging	85°± 2°C*	≤0.05

*Reference temperature = +23°C

Operating Temperature Range: -60°C to +85°C

How to Order

Contact your sales representative, or call the Optical Fiber Customer Service Department:
Ph: 607-248-2000 (U.S. and Canada)
+44-1244-525-325 (Europe)
Email: opticalfibcs@corning.com
Please specify the fiber type, attenuation and quantity when ordering.

Mechanical Specifications

Proof Test

The entire fiber length is subjected to a tensile stress ≥100 kpsi (0.7 GPa)*.

*Higher proof test levels available.

Length

Fiber lengths available up to 63.0 km/spool.

Performance Characterizations

Characterized parameters are typical values.

Core Diameter	8.2 µm
Numerical Aperture	0.14 *NA is measured at the one percent power level of a one-dimensional far-field scan at 1310 nm.*
Zero Dispersion Wavelength (λ_0)	1317 nm
Zero Dispersion Slope (S_0)	0.088 ps/(nm²•km)
Effective Group Index of Refraction (N_{eff})	1310 nm: 1.4676 1550 nm: 1.4682
Fatigue Resistance Parameter (N_d)	20
Coating Strip Force	Dry: 0.6 lbs. (3N) Wet, 14-day room temperature: 0.6 lbs. (3N)
Rayleigh Backscatter Coefficient (for 1 ns Pulse Width)	1310 nm: -77 dB 1550 nm: -82 dB

Formulas

Dispersion

$$\text{Dispersion} = D(\lambda): \approx \frac{S_0}{4}\left[\lambda - \frac{\lambda_0^4}{\lambda^3}\right] \text{ps/(nm•km)},$$

$$\text{for } 1200 \text{ nm} \le \lambda \le 1625 \text{ nm}$$

λ = Operating Wavelength

Cladding Non-Circularity

$$\text{Cladding Non-Circularity} = \left[1 - \frac{\text{Min. Cladding Diameter}}{\text{Max. Cladding Diameter}}\right] \times 100$$

SPECIFICATIONS

Fiber Connectivity
For
Sarpy County Law Enforcement Center

SARPY COUNTY, NEBRASKA

PROPOSALS DUE: 2:30 p.m., Thursday, September 23, 210

General Information

Notice to Vendors

Sarpy County is seeking proposals for Fiber Connectivity for the Sarpy County Law Enforcement Center. The successful Vendor will enter into a Contract (see attached Exhibit "A") with the selected vendor.

Sealed bids will be received Monday through Friday 8:00 a.m. to 4:45 p.m. except holidays, until 2:30 p.m., Thursday, September 23, 210. Bids shall be in a sealed envelope, clearly marked "Sealed Bid - Fiber Connectivity" and shall have the name of the Vendor, and the time and date of the bid opening. **Do not fax bids, only sealed bids will be accepted.**

Submit one (1) original and three (3) copies of the entire Bid Form including attachments.

Requests for information and clarification questions must be received by September 17, 2010 at 12:00 P.M. in order for Sarpy County to have time to issue an addendum.

Bidding criteria must be received from Beth Cunard, Purchaser, 1210 Golden Gate Drive, Papillion, NE 68046, (402) 593-4476, bcunard@sarpy.com or via the internet at www.sarpy.com.

Vendors that obtain specifications from the internet sites are responsible for obtaining any addenda that may be added at a later time.

Bids must be sent to:

Deb Houghtaling
Sarpy County Board Business Office
1210 Golden Gate Drive
Papillion, NE 68046

Bids not addressed and delivered to the above person will not be considered. Bids received after the above stated time and date will not be considered.

Bid opening will be a public opening to be held in the Sarpy County Administrative Conference Room at 1210 Golden Gate Drive, Papillion, NE. The bid opening will be at 2:30 p.m., Thursday, September 23, 210.

All bids submitted shall be valid for a period of sixty (60) days following the final date for submission of bids.

Sarpy County will not be liable for costs incurred by Vendors for proposal preparation, printing, demonstration, or any other costs associated with or incurred in reliance on proposal creation. All such costs shall be the responsibility of the Vendor.

The bids shall include all charges and applicable taxes, F.O.B., Sarpy County, Nebraska. The Vendor need not include sales tax in the bid. Sarpy County will, upon request, furnish the successful Vendor with a completed State of Nebraska Tax Exempt Form 13 upon acceptance of the successful Vendor's proposal.

The Sarpy County Board of Commissioners reserves the right to reject any or all bids and to waive minor informalities.

In the event of conflict between unit price and extended price, unit price shall prevail.

Procedures for Evaluation and Awarding of Bid

1. Evaluation will be done by Beth Cunard, Sarpy County Purchaser along with personnel from Information Systems. After evaluation the Purchaser will make a recommendation to the County Board of Commissioners for award. This recommendation and pending award will be made at a public meeting of the Board of Commissioners. Agendas are available each Friday afternoon on our internet site www.sarpy.com. The Commissioners award the bid by majority vote.

2. The following factors will be used to consider the award of the bid, where applicable:

    a. Compliance with all requirements.
    b. Price.
    c. The ability, capability, and skills of the Vendor to perform.
    d. The character, integrity, reputation, judgment, experience, and efficiency of the Vendor.
    e. The quality of previous performance.
    f. Whether the Vendor can perform within the time specified.
    g. The previous and existing compliance of the supplier with laws.
    h. The life-cost of the personal property or services in relation to the purchase price and specified use.
    i. The performance of the personal property or service taking into consideration any commonly accepted tests and standards of product, service, usability and user requirements.
    j. The energy efficiency ratio as stated by the supplier.
    k. The life-cycle costs between alternatives for all classes of equipment, the evidence of expected life, the repair and maintenance costs, and the energy consumption on a per year basis.
    l. Such other information as may be secured having a bearing on the decision.

Terms and Conditions:

1. <u>Bid Bond:</u>

    Each bid must be accompanied in a SEPARATE SEALED ENVELOPE by a cashier's check on a bank whose deposits are insured by the Federal Deposit Insurance Corporation or a bid bond in the amount of five percent (5%) of the bid price and must be payable without condition to the Sarpy County Treasurer, to protect Sarpy County against failure to deliver materials as bid. The selected Vendor's security will be retained until satisfactory delivery of performance bond and all contract documents are signed and received. All other Vendor's security will be retained for 30 days after bid award. **If cashier's check or bid bond as herein set forth is not received with the proposal, the**

proposal may not be considered.

2. Performance Bond:

The successful Vendor shall be required to furnish a performance bond, and said bond shall be in the amount of 100% of the total amount of the bid, written by a surety licensed to do business in the State of Nebraska. Said performance bond shall be provided to the Sarpy County Clerk within ten (10) days after execution of the contract documents and bid award. Bond may be secured through the Vendor's usual sources.

3. Information, Discussion, and Disclosures:

a. Any information provided by Sarpy County to any Vendor prior to the release of this Request for Proposal ("RFP"), verbally or in writing, is considered preliminary and is not binding on Sarpy County.

b. The Vendor must not make available nor discuss any cost information contained in the sealed copy of the proposal to or with any employee of Sarpy County from the date of issuance of this RFP until the contract award has been announced, unless allowed by the Sarpy County Purchasing Department in writing for the purpose of clarification or evaluation.

c. No interpretation of the meaning of the specifications, or other bidding documents, nor correction of any ambiguity, inconsistency, or error therein will be made orally to any Vendor.

d. Every request for such interpretation or correction should be in writing, addressed to the Sarpy County Purchaser, Beth Cunard, 1210 Golden Gate Drive, Papillion, NE 68046 or bcunard@sarpy.com. **Requests must be received by September 17, 2010 in order for Sarpy County to have time to issue an addendum. Requests received after deadline may not be considered.** In case Sarpy County finds it expedient to supplement, modify, or interpret any portion of the bidding documents prior to the proposed bid date, such procedure will be accomplished by the issuance of written addenda to the RFP which will be mailed or delivered to all prospective Vendors at the respective addresses furnished for such purpose.

4. Addenda:

a. All addenda will become part of this RFP and must be responded to by each Vendor.

b. All addenda must be acknowledged in writing in the bid submitted by the Vendor.

c. This RFP, any subsequent addenda, and any written responses to questions take precedence over any information previously provided.

5. Confidentiality of Documents:

Sarpy County considers all information, documentation and other materials requested to be submitted in response to this proposal to be of a non-confidential and/or non-proprietary nature and therefore shall be subject to public disclosure under Neb. Rev. Stat. § 84-712.05(3).

Vendors are hereby notified that Sarpy County strictly adheres to all statutes, court decisions, and opinions of the Nebraska Attorney General with respect to disclosure of RFP information.

Any "proprietary, trade secret, or confidential commercial or financial" information must be clearly identified, in a separate sealed envelope, at the time of bid/proposal submission. The Vendor will be required to fully defend, in all forums, Sarpy County's refusal to produce such information; otherwise, Sarpy County will make such information public.

6. Non-Discrimination Clause:

Pursuant to Neb. Rev. Stat. §73-102 (Reissue 1996), Vendor declares, promises, and warrants it has and will continue to comply fully with Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C.A. §1985, et seq.), and the Nebraska Fair Employment Practice Act, Neb. Rev. Stat. §48-1101, et seq. (Reissue 2004), in that there shall be no discrimination against any employee who is employed in the performance of this Contract, or against any applicant for such employment, because of age, color, national origin, race, religion, creed, disability or sex.

7. Conflict of Interest Clause:

Pursuant to Neb Rev. Stat. §23-3113 (Reissue 1997), the parties hereto declare and affirm that no officer, member, or employee of the County, and no member of its governing body, and no other public official of the County who exercises any functions or responsibilities in the review or approval of the undertaking described in this Contract, or the performing of services pursuant to this Contract, shall participate in any decision relating to this Contract which affects his or her personal interest, or any corporation, partnership, or association in which he or she is directly or indirectly interested; nor shall any employee of the County, nor any member of its governing body, have any interest, direct or indirect, in this Contract or the proceeds thereof.

8. Payment Terms:

The successful Vendor shall submit an itemized invoice for payment. Sarpy County will make payment to the successful Vendor within thirty (30) days after receipt of invoice after satisfactory delivery, installation and testing.

9. Supplemental Terms and Conditions/Modifications:

Any supplemental terms, conditions, modifications, or waiver of these terms and

conditions must be in writing and signed by the Sarpy County Board Chairman and the Vendor.

10. Termination:

Either party may terminate the Contract with ninety (90) days' written notice to the other.

11. Residency Verification:

The Vendor agrees to comply with the residency verification requirements of Neb. Rev. Stat. §4-108 through §4-114. The Vendor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

If the Vendor is an individual or sole proprietorship, the following applies:

1. The Vendor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at www.das.state.ne.us.

2. If the Vendor indicates on such attestation form that he or she is a qualified alien, the Vendor agrees to provide the U.S. Citizenship and Immigration Services documentation required to verify the Vendor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.

3. The Vendor understands and agrees that lawful presence in the United States is required and the Vendor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. Sect. 4-108.

12. Breach:

Should Vendor breach, violate, or abrogate any term, condition, clause or provision of this agreement, the County shall notify Vendor in writing that such an action has occurred. If satisfactory provision does not occur within ten (10) days from such written notice the County may, at its option, terminate this agreement and obtain an alternate provider to provide all required materials. This provision shall not preclude the pursuit of other remedies for breach of contract as allowed by law.

13. Insurance Requirements:

The Vendor shall not begin work under this Agreement until all insurance certificates have been filed with the Sarpy County Clerk.

Vendor shall not commence work on this Contract until he/she has obtained all insurance required under this Section and such insurance has been approved by Sarpy County, nor shall Vendor allow any subcontractors to commence work on his/her subcontract until similar insurance required of the subcontractor has been so obtained and approved.

The following insurance coverages shall be kept in force during the life of the Contract and shall be primary with respect to any insurance or self-insurance programs covering the County, its commissioners/supervisors, officials, agents, representatives and employees.

Workers' Compensation and Employers Liability Insurance

The minimal acceptable limits shall be the statutory limits as required by the State of Nebraska for Coverage A, Workers' Compensation and $500,000 each accident for Coverage B, Employers Liability.

Commercial General Liability Insurance

Coverage should include broad form coverage written on a commercial general liability form and written on an occurrence basis. The coverage must protect against claims for damages resulting from bodily injury, including death, personal injury and property damage.

The minimum acceptable limits of liability shall be $1,000,000 each occurrence. If the coverage contains a general aggregate, such limit shall not be less than $2,000,000. The products/completed operations limit shall not be less than $2,000,000.

Automobile Liability Insurance

Coverage shall be against claims for damages resulting from bodily injury, including death and property damage, which may arise from the operations of any owned, hired or non-owned automobile. The minimum acceptable limit of liability shall be $1,000,000 Combined Single Limit for each accident.

Certificate of Insurance

The Vendor shall furnish the County with a certificate(s) of insurance evidencing the coverages required in this section. Such certificate(s) shall specifically state that the insurance company or companies underwriting these insurance coverages shall give the County at least thirty (30) days' written notice in the event of cancellation of, or material change in, any of the coverages. If the certificate(s) is shown to expire prior to completion of all the terms of this Contract, the Vendor shall furnish a certificate(s) of insurance evidencing renewal of its coverage to the County.

The Vendor shall require each and every Subcontractor performing work under this Contract to maintain the same coverages required of the Vendor in this Section, and upon the request of the County, shall furnish the County with a certificate(s) of insurance evidencing the Subcontractor's insurance coverages required in this section.

Insurance Company

All insurance coverages herein required of the Vendor shall be written by an insurance company or companies transacting business as an admitted insurer in the State of Nebraska or under the Nebraska Surplus Lines Insurance Act. All insurance companies must possess a minimum A.M. Best Insurance Company rating of A-. Upon request by the County, the Vendor shall furnish evidence that the insurance company or companies being used by the Vendor meet the minimum requirements listed in this section.

Upon request by the County, the Vendor shall furnish the County with complete and accurate copies of the insurance policies required within this section. If at any time during the life of this Contract, the Vendor's insurance coverages and limits do not meet or exceed the minimum insurance requirements presented in this section, the Vendor is required to notify the County within thirty (30) days of any deviations from the minimum requirements presented in this section.

14. Assignment:

The Vendor may not assign this Contract without the prior written consent of the County.

15. Subcontracting:

Vendor may not subcontract the work to be performed, without prior written consent of the County. If such consent is granted, Vendor will retain responsibility for all work associated with the Contract. The Vendor must identify any subcontractors it intends to use in the execution of this Contract. The Vendor must identify subcontractors in writing within the proposal.

16. Independent Contractor:

The Vendor shall in the performance of the Contract at all times be an independent contractor and not an employee or agent of the County. The Vendor, its officers, employees and agents shall at no time represent the Vendor to be other than an independent contractor or represent themselves to be other than employees of the Vendor.

17. Indemnity:

The Vendor shall indemnify and save harmless Sarpy County, its officers, employees and agents from all loss, claims, suits or actions of every kind and character made upon or brought against Sarpy County, its officers, employees, or agents, for or sustained by any party or parties as a result of any act, error, omission or negligence of said Vendor or its servants, agents, and subcontractors; and also from all claims of damage in fulfilling this Contract.

Specifications

Sarpy County is seeking proposals from qualified fiber optic cable installation companies for the

material, installation, labor, termination and testing of fiber optic cable from the Sarpy County Courthouse located at 1210 Golden Gate Drive to the new Law Enforcement Center located at 8335 Platteview Road.

Project must be completed, as specified, by February 1, 2011.

Work shall include trenching and/or directional boring, direct bury cable along with installation of required vaults, fiber optic enclosures, splice boxes, termination and testing of fiber and provide detail test results and construction drawings to the County.

Vendor shall provide all traffic control and barriers as required for the project.

Any damage to existing utilities are the responsibility of the Vendor.

Company Information:

Vendor will provide the following company information on the bid form:

1. Years in business;
2. Number of employees; and,
3. Total sales for last three (3) years.

References:

Each Vendor must include with its proposal a list of no less than three (3) references that have purchased the specified product or service within the last two (2) years. The list must include the name of the company, and the name and phone number of a contact person for each company.

Literature:

Vendor shall attach three (3) sets of detailed specifications or advertising literature of systems to the bid form. Any information necessary to show compliance with these requirements not given on the attached advertised data sheets shall be supplied in writing and attached to the bid proposal. Lack of sufficient information supplied with a proposal is cause for automatic rejection of such bid.

Deviations:

Once the bid has been accepted by Sarpy County, no deviations from the specifications will be accepted without prior written approval of Sarpy County.

Exceptions:

These specifications are minimum acceptable specifications. You may bid other than what is specified if it is of higher specification than what is requested. Vendor must list any exceptions to the bid specifications on the bid form.

EXCEPTIONS/CLARIFICATIONS/COMMENTS

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

COMPANY NAME: _____

Sarpy County, Nebraska
Fiber Connectivity
Bid Form

Lump Sum Base Bid, as specified: $_____

Alternate Bid, as specified: $_____
***Prices are to be F.O.B. - Sarpy County, Nebraska**

START DATE: _____

COMPLETION DATE: _____

Company Information:

Years in business: _____

# of employees _____

Total sales last 3 years _____
_____
_____

References:

Company Name: _____
Address: _____
Contact Name: _____ Phone Number: _____
Fax Number: _____ Date of Purchase: _____

Company Name: _____
Address: _____
Contact Name: _____ Phone Number: _____
Fax Number: _____ Date of Purchase: _____

Company Name: _____
Address: _____
Contact Name: _____ Phone Number: _____
Fax Number: _____ Date of Purchase: _____

I certify that this bid is submitted in accordance with the specifications issued by Sarpy County.

I acknowledge receipt of the following addenda (if applicable):

Addendum #1 _____
Addendum #2 _____

Attachments: **Literature/Cut-sheets**
Warranty Information

Company Name	Company Representative (Please print)
Authorized Signature	Telephone Number
Address	Fax Number
City, State & Zip	E-Mail Address

NOTE: Sarpy County is tax exempt and will provide the proper form upon request.

Exhibit "A"
AGREEMENT

This Agreement is entered into by and between the County of Sarpy, in the State of Nebraska, a body politic and corporate, and hereinafter "County", and _____, hereinafter "Vendor".

WHEREAS, County is desirous of contracting for Fiber Connectivity for the Sarpy County Law Enforcement Center; and,

WHEREAS, the Vendor has been awarded this Agreement as a result of the bid made by Vendor in response to the Specifications and Request for Proposals prepared by County;

NOW, THEREFORE, for and in consideration of the declarations and mutual promises and covenants contained herein, the County and Vendor agree as follows:

I. DUTIES OF VENDOR:

A. Services to be rendered by Vendor under this Agreement shall be all those services necessary and proper for the installation and materials for Fiber Connectivity in conformity with each and every term, condition, specification, and requirement of the Bid Specifications and the Bid submitted by the Vendor.

B. All provisions of each document and item referred to in Paragraph A above shall be strictly complied with the same as if rewritten herein, and in the event of conflict among the provisions of said documents, the provisions most favorable to the County shall govern.

C. Prior to the commencement of any work, Vendor will place on file with the Sarpy County Clerk, the required certificates of insurance, if applicable.

D. The Vendor agrees to comply with the residency verification requirements of Neb. Rev. Stat. §4-108 through §4-114. The Vendor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

If the Vendor is an individual or sole proprietorship, the following applies:

1. The Vendor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at www.das.state.ne.us.

2. If the Vendor indicates on such attestation form that he or she is a qualified alien, the Vendor agrees to provide the U.S. Citizenship and Immigration Services documentation required to verify the Vendor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.

3. The Vendor understands and agrees that lawful presence in the United States is required and the Vendor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. Sect. 4-108.

E. Vendor will submit an invoice to County for work completed based on the amounts specified in Vendor's bid. Such invoices shall be submitted to:

Deb Houghtaling, County Clerk
Sarpy County Courthouse
1210 Golden Gate Drive
Papillion, NE 68046

F. The County and Vendor hereto specifically acknowledge, stipulate and agree that each and every term of the Bid Specifications and the Vendor's bid constitutes an essential term of this Agreement, and that, therefore, any violation of any term, condition, provision, or requirement constitutes a material breach hereunder, for which County shall have every right under the law to terminate this Agreement, and obtain any and all relief necessary.

II. DUTIES OF COUNTY:

In return for full, faithful and diligent rendering of services set forth above, County agrees to pay to Vendor the amount specified in Vendor's bid upon submission of the required invoice and satisfactory completion of all required work.

III. BREACH:

Should Vendor breach, violate, or abrogate any term, condition, clause or provision of this agreement, the County shall notify Vendor in writing that such an action has occurred. If satisfactory provision does not occur within ten (10) days from such written notice, the County may, at its option, terminate this agreement and obtain an alternate provider to provide all required materials. This provision shall not preclude the pursuit of other remedies for breach of contract as allowed by law.

SAVINGS CLAUSE:

This Agreement shall be interpreted, construed and enforced under the laws of the State of Nebraska. It is understood and agreed by the County and Vendor hereto that if any part, term, condition, or provision of this Agreement is held to be illegal or in conflict with any law of the State of Nebraska or of the United States, the validity of the remaining parts, terms, conditions, or provisions shall not be affected, and the rights and obligations of the

County and Vendor shall be construed and enforced as if the Agreement did not contain the particular part, term, condition, or provision held to be invalid.

SCOPE OF AGREEMENT

This Agreement, along with the Bid Specifications, and Bid by Vendor contains the entire Agreement between the County and Vendor, and there are no other written or oral promises, contracts or warrants which may affect it. This Agreement cannot be amended except by written agreement of both the County and Vendor. Notice to the County and Vendor shall be given in writing to the agents for each party named below:

County: Ms. Debra Houghtaling
Clerk of Sarpy County
1210 Golden Gate Drive
Papillion, NE 68046

Vendor: _____
_____
_____
_____
_____

IN WITNESS WHEREOF, we the contracting parties, by our respective and duly authorized agents, hereto affix our signatures and seals in duplicate this _____ day of _____, 2010.

(Seal)

COUNTY OF SARPY, NEBRASKA,
A body Politic and Corporate

ATTEST:

_____
Sarpy County Clerk

_____
Chairperson
Sarpy County Board of Commissioners

Approved as to form and content:

_____
Deputy County Attorney

Vendor: _____

By: _____

Title: _____

Attest:

_____
Witness

_____

SECTION 16010 – GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

A. This Section includes general electrical requirements and shall apply to all phases of the work specified, indicated on the drawings or required to provide for complete installation of electrical systems.

1.3 WARRANTIES

A. All materials, workmanship and equipment shall be warranted against defects or against injury from proper and usual wear for a period of one year after the date of substantial completion. Certain equipment shall be warranted beginning at the time of final acceptance or for longer periods of time as specified in those sections of the Project Manual. Any item which becomes defective within the warranty period shall be repaired or replaced, at no additional cost to the Owner.

B. All manufactures warranties shall run to the benefit of the owner. No manufacturer's warranties shall be voided or impaired.

C. Warranty shall include repair of faulty workmanship.

1.4 ALTERNATES

A. Alternates, if required, shall be as described in the "Alternates" section of this specification, as described on the proposal form or as indicated on the drawings.

1.5 INTERPRETATION OF DOCUMENTS

A. Any questions regarding the meaning of any portion of the contract documents shall be submitted to the Architect/Engineer and Owner for interpretation. Addenda or supplemental information will publish definitive interpretations or clarification. Verbal interpretation not issued by addendum or supplemental information shall not be considered part of the contract documents.

B. The Architect/Engineer and Owner shall be the sole judge of interpretations of discrepancies within the contract documents.

C. If ambiguities should appear in the contract documents, the Contractor shall request clarification from the Architect/Engineer and Owner before proceeding with the work. If the Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out the work in a manner satisfactory to the Architect/Engineer and Owner. Should a conflict occur within the contract documents, the Contractor is deemed to have estimated the more expensive way of doing the work unless a written

clarification from the Architect/Engineer and Owner was requested and obtained before submission of proposed methods or materials.

1.6 DEFINITIONS ABREVIATIONS

A. The following shall apply throughout the contract documents

1.	Code	All applicable national state and local codes
2.	Furnish	Supply and deliver to site ready for installation
3.	Indicated	Noted, scheduled or specified
4.	Provide	Furnish, install and connect complete and ready for final use by owner
5.	ADA	Americans with Disabilities Act
6.	ANSI	American National Standards Institute
7.	ASTM	American Society for Testing and Materials
8.	FM	Factory Mutual System
9.	IRI	HSB Industrial Risk Insurers
10.	NEC	National Electric Code (NFPA 70)
11.	NEMA	National Electrical Manufacturers Association
12.	NFPA	National Fire Protection Association
13.	UL	Underwriters Laboratories Inc.

1.7 CODES AND STANDARDS

A. All work shall be performed by competent craftsmen skilled in the trade involved and shall be done in a manner consistent with normal industry standards.

B. All work shall conform to the currently adopted edition of the National Electric Code (NEC), Local Building Code, and all other applicable state and local codes or standards.

C. Where there is a conflict between the code and the contract documents, the code shall have precedence only when it is more stringent than the contract documents. Items that are allowed by the code but are less stringent than those specified shall not be substituted.

1.8 PERMITS

A. Contractor shall become familiar and comply with all requirements regarding permits, fees, licenses, etc. All permits, licenses, inspections and arrangements required for the work shall be obtained by Contractor's effort and expense. All utilities shall be installed in accordance with the local rules and regulations and all charges shall be paid by the Contractor.

1.9 SUBMITTALS

A. Division 1 section "Submittals" shall be adhered to if more stringent than this section.

B. Shop drawings shall be submitted to Architect/Engineer and Owner for review when required by other sections of this specification and **for all equipment scheduled or specified on drawings.**

1. A letter of transmittal shall accompany each submittal. Submittals shall be numbered consecutively and list products covered.

2. Unless otherwise noted, submit a minimum of six (6) copies of shop drawing and product data for review.

C. Shop Drawings

1. Shop drawings include fabrication and installation drawings, diagrams, schedules of other data specifically prepared for the project. Include dimensions and notations showing compliance with specified standards.

2. Drawing sheet size shall be at least 8 ½" x 11" and no longer than 30" x 42". For sheets larger than 11" x 17", submit one sheet of reproducible media and one blue-line or photocopy print. Architect/Engineer action will be returned on reproducible media.

D. Product Data

1. Product data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, rough-in diagrams, wiring diagrams and performance curves.

2. Each copy shall clearly indicate conformance with specified capacities, characteristics, dimensions and details. Mark all equipment with same item number as used on drawings. Mark each copy to clearly indicate applicable choices and options.

E. Architect/Engineer and Owner will review or take appropriate action for submittals. Review is only to determine general conformance with design shown in contract documents.

F. Architect/Engineer and Owner review of submittals shall not relieve contractor of responsibility for deviation from requirements of the contract documents or from errors or omissions within submittals.

G. No portion of the work requiring submittals shall be commenced until the Architect/Engineer and Owner has reviewed the submittal.

H. Electronic Floor Plan Drawings in AutoCAD 2002 format may be requested for use in preparation of shop drawings. Morrissey Engineering reserves the right to reject requests for electronic drawings. Submit written request to Morrissey Engineering or email request to info@morrisseyengineering.com. Indicate the project name, and floor plan sheets requested. The use of these drawings is intended solely for preparation of drawings required by this specification. Copyright law prohibits any other use. The user of the electronic files assumes full responsibility for the accuracy and scale of the drawings.

I. See "Submittal Schedule" at the end of Section 16010 – General Electrical Requirements.

1.10 OPERATION AND MAINTENANCE MANUALS

A. Assemble three (3) complete sets of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data:

   a. Emergency instructions and procedures.
   b. System, subsystem, and equipment descriptions, including operating standards.
   c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
   d. Description of controls and sequence of operations.
   e. Piping and wiring diagrams.

2. Maintenance Data:

   a. Manufacturer's information, including list of spare parts.
   b. Name, address, and telephone number of installer or supplier.
   c. Maintenance procedures.
   d. Maintenance and service schedules for preventive and routine maintenance.
   e. Maintenance record forms.
   f. Sources of spare parts and maintenance materials.
   g. Copies of maintenance service agreements.
   h. Copies of warranties and bonds.

B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.11 PROJECT RECORD DOCUMENTS

A. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally.
2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Mark important additional information that was either shown schematically or omitted from original Drawings.
4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

C. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All materials and equipment used in the construction of the project shall be new unused and undamaged unless otherwise specified. Materials and equipment shall be of latest design standards of manufacturer specified.

B. Materials and equipment are limited by the requirements of the contract documents. Material and equipment shall be provided in accordance with the following:

1. Basis of Design Products: Basis of Design Products are those products around which the project was designed in terms of capacity, performance, physical size and quality. Basis of Design Products shall be provided unless substitutions are made in accordance with this specification.

2. Substitutions: Substitutions are product of manufacturers other than listed as Basis of Design. Substitutions shall meet each of the following requirements. Products not meeting these requirements shall be subject to prior approval.

a. The product shall be manufactured by one of the acceptable manufacturers listed in the contract documents.

b. The product shall meet or exceed the requirements of the contract documents in terms of quality, performance, suitability, appearance and characteristics.

c. The contractor providing the substitution shall bear the total cost of all changes due to substitutions. These may include but are not limited to redesign costs and increased work by other contractors or the owner.

d. The Architect/Engineer shall be the sole judge of the suitability of the substitution items.

C. Verify installation details and requirements for materials and equipment furnished by others and installed under this contract.

PART 3 - EXECUTION

3.1 COMPLETION

A. Provide three (3) copies of all test report to the Engineer for review prior to date of substantial completion.

B. All equipment and systems discrepancies shall be corrected prior to final acceptance.

ELECTRICAL SUBMITTAL SCHEDULE

Section #	Section Name	Shop Drwgs	Product Data	Samples	Warranty	Other
16740	Communication and Data Processing Equipment	√	√		√	

END OF SECTION 16010

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following basic electrical materials and methods and shall apply to all phases of the work specified, indicated on the drawings or required to provide for complete installation of electrical systems.

1. Conduits.
2. Electrical identification.
3. Cutting and patching for electrical construction.

1.3 MATERIAL QUALITY ASSURANCE

A. Electrical components, devices, and accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

1.4 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.

1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

B. Sequence, coordinate, and integrate installing of electrical materials and equipment with other trades.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Each contractor shall make provisions for delivery and safe storage of materials. Materials shall be delivered in a timely manner to expedite the work.

B. Protect stored piping, supplies and equipment from cold, moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor, if stored inside.

PART 2 - PRODUCTS

2.1 CONDUITS

A. Electrical metallic tubing (EMT): ANSI C80.3 and UL 797, zinc-coated steel with steel or die cast, set-screw or compression type fittings.

1. Color coded exterior for system identification:

a. Communications – Blue.

B. Intermediate metal conduit (IMC): ANSI C80.6 and UL 1242, zinc-coated steel, with threaded fittings.

C. Rigid nonmetallic conduit (RNC): NEMA TC 2 and UL 651, EPC-40 (schedule 40) PVC, with NEMA TC3 fittings.

D. Installation location shall determine conduit type permitted.

1. For indoor installations:

a. Exposed: EMT.
b. Concealed: EMT.
c. Boxes and enclosures: NEMA 250, Type 1, unless otherwise indicated.

2. Use the following conduits for outdoor installations:

a. Exposed: IMC. 45 degree and greater bends in PVC conduit runs shall be made with IMC or RSC and transition from underground to above ground shall be made with IMC or RSC.
b. Underground: RNC.
c. Boxes and enclosures: NEMA 250, Type 3R or Type 4.

E. Conduit fittings: Specifically designed for the conduit type with which used. Comply with NEMA FB 1 and UL 514B.

2.2 SUPPORTING DEVICES

A. Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.

B. Metal items for use outdoors or in damp locations: Hot-dip galvanized steel.

C. Slotted-steel channel supports: Flange edges turned toward web, and 9/16-inch- diameter slotted holes at a maximum of 2 inches o.c., in webs.

D. Conduit and cable supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

1. In general, use the following support methods for outdoor conduit installations:

a. Individual exposed conduit: 1" and smaller; 2 hole straps.
b. Individual exposed conduit: 1-1/4" and larger; Minerallac.
c. Paired individual exposed conduit: Minerallac.
d. Rack exposed conduit: Unistrut with strut straps.
e. Concealed in concrete pour: Approved iron tie wire.

2. In general, use the following support methods for indoor conduit installations:

a. Individual exposed conduit: 1" and smaller; 2 hole straps.
b. Individual exposed conduit: 1-1/4" and larger; Minerallac.
c. Individual lighting and power above lay-in ceilings: Dedicated ceiling wire with Caddy clips.
d. Racked exposed or concealed conduit: Unistrut with strut straps.

E. Pipe sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

F. Expansion anchors: Carbon-steel wedge or sleeve type.

G. Toggle bolts: All-steel springhead type.

H. Powder-driven threaded studs: Heat-treated steel.

2.3 ELECTRICAL IDENTIFICATION

A. Underground warning tape: Permanent, bright-colored, continuous-printed, vinyl tape with the following features:

1. Not less than 6 inches wide by 4 mils thick.
2. Compounded for permanent direct-burial service.
3. Embedded continuous metallic strip or core.
4. Printed legend that indicates type of underground line.

B. Tape markers for wire: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

C. Engraved-plastic labels, signs, and instruction plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch minimum thickness for signs up to 20 sq. in. and 1/8-inch minimum thickness for larger sizes. Engraved legend in black letters on white background.

PART 3 - EXECUTION

3.1 UTILITY COORDINATION

A. Utility locations indicated on drawings are approximate and the most accurate information available at the time of design. Prior to equipment and conduit installation, the contractor shall coordinate exact installation details and modify work plan accordingly to meet utility requirements. Correspond with utility company prior to any site development that may impact the installation such as irrigation installation, concrete or asphalt installation, landscaping, etc.

B. The selected Vendor shall be responsible for contacting each utility and coordinating any required access permits and/or fees associated with crossing each utility. The selected Vendor is responsible for any damage occurred as part of the installation.

C. Contact utility locating services prior to digging.

3.2 WORK IN EXISTING BUILDINGS

A. Full Owner Occupancy: The Owner will occupy the site and existing building during the construction period. Cooperate with the Owner to minimize conflicts with the Owner's operations.

B. Schedule all work in advance with the owner. Do not proceed with work without the Owner's written approval. Provide a minimum 48 hours notice for all work within the existing buildings.

C. Notify Owner of noisy operations and schedule in advance.

D. The Owner shall have the right to direct work to secure safe and proper progress and quality of work.

E. Do not interrupt utilities without Owner's written approval of time and duration. Interruptions shall be the minimum required for completion of work and performed during the hours of 10:00 PM-6:00 AM Monday through Friday or 6:00 PM Saturday through 6:00 AM Monday.

F. The existing fire alarm system shall remain functional throughout the project. The Owner and the Fire Marshall shall approve required outages.

G. The Owner shall be notified before starting welding or cutting. Fire extinguishers shall be immediately accessible when welding or cutting with an open flame or arc. Welding or cutting with an open flame or arc shall be stopped not less than one hour before leaving the premises.

H. Existing electrical items that interfere with the proper installation new work shall be removed or relocated as required or as directed by the Architect/Engineer.

I. Maintain downstream circuit continuity to equipment to remain active.

J. Where breakers are indicated to be installed in existing panelboards, remove panel covers and verify all connection details prior to ordering of breakers. Provide all required hardware for installation of breakers in existing panels.

3.3 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for electrical installations. Perform cutting by skilled mechanics of trades involved.

B. Repair cut surfaces to match adjacent surfaces.

3.4 DATA AND MEASUREMENTS

A. The data given herein and on the drawings is as accurate as could be secured. The existence and location of construction as indicated is not guaranteed. Before beginning work investigate and verify the existence and location of items affecting work. Obtain exact locations, measurements, levels, etc., at the site and adapt work to actual conditions.

B. Only site measurements may be utilized in calculations. Electrical drawings are diagrammatic or schematic.

3.5 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touch up paint.

1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.

3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.6 CLEANING AND PROTECTION

A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.

B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION 16050

SECTION 16740 – OPTICAL FIBER COMMUNICATIONS CABLE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes fiber optic cable, fiber spices, and fiber terminations, installation, and testing for fiber systems to be used as signal pathways for voice and high-speed data transmission.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference

B. IDC: Insulation displacement connector

C. LAN: Local area network

D. UTP: Unshielded twisted pair

E. TR: Telecommunications Room

F. ER: Equipment Room

G. EF: Entrance Facility

H. TGB: Telecommunications Grounding Bar

I. TMGB: Telecommunications Main Grounding Bar

J. TBB: Telecommunications Bonding Backbone

1.4 WARRANTY

A. Unless otherwise specified, unconditionally guarantee in writing the materials, equipment, and workmanship for a period of not less than twenty (20) years from date of acceptance by the owner. The owner shall deem acceptance as beneficial use.

B. Transfer manufacturer's warranties to the owner in addition to the General System Guarantee. Submit these warranties on each item in list form with shop drawings. Detail specific parts within equipment that are subject to separate conditional warranty. Warranty proprietary equipment and systems involved in this contract during the guarantee period. Final payment shall not relieve you of these obligations.

C. Effect replacement or substitutions of equipment within 24 hours of first notification. Complete repairs to equipment within 72 hours. If repairs cannot be completed during this time period, or if ordering of

parts is required, forward to the owner every 72 hours, documentation of progress of repairs. This repair capability is mandatory. Include costs anticipated to comply with this requirement in the bid.

1.5 SUBMITTALS

A. Product Data: Include data on features, ratings, and performance for each component specified.

1. Fiber optic cables
2. Fiber connectors
3. Fiber splices
4. Fiber termination panels
5. Labeling components

B. Warranty documents for equipment.

C. Qualification Data: For installer/ technician, installation supervisor, and field inspector.

D. Operation and Maintenance Data:

1. Provide three (3) copies of operations and maintenance manuals. As a minimum, manuals should include:

a. Complete schematics of each system component
b. Troubleshooting procedures
c. Factory-authorized support information
d. Test results
e. As-builts

1.6 QUALITY ASSURANCE

A. Installers Qualifications: Project on-site foreman shall hold BICSI Technician, or NJATC Telecommunications Technician, designation. All installers shall hold at least BICSI Installer Level 1 designation or be currently enrolled in the NJATC program. Proof of alternate training program or designation may be considered as adequate, upon engineer approval.

1. Proof of credentials shall be provided as part of the submittal process.
2. Alternate training and designations must be approved by the engineer prior to the bid submittal process.

B. Project Management Qualifications: Project manager/leader shall hold a BICSI RCDD designation. RCDD must attend all project meetings and perform all aspects of project management and planning for this project. Proof of extensive experience or alternate designation may be considered as adequate, upon engineer approval.

1. Proof of credentials shall be provided as part of the submittal process.
2. Alternate training and designations must be approved by the engineer prior to the bid submittal process.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Telecommunications Pathways and Spaces: Comply with TIA/EIA-569-A/B.

E. Grounding: Comply with ANSI-J-STD-607-A.

1.7 COORDINATION

A. Coordinate Work of this Section with Owner's LAN and telephone switch active equipment suppliers. Coordinate service entrance arrangement with local exchange carrier.

1. Meet jointly with representatives of above organizations and Owner's representatives to exchange information and agree on details of equipment arrangements and installation interfaces.
2. Record agreements reached in meetings and distribute record to other participants.
3. Adjust arrangements and locations of patch panels to accommodate and optimize arrangement and space requirements of Owner's equipment.

PART 2 - PRODUCTS

2.1 SYSTEM REQUIREMENTS

A. General: Coordinate the features of materials and equipment so they form an integrated system. Match components and interconnections for optimum future performance.

2.2 MANUFACTURERS

A. Corning
B. Panduit
C. Systimax Solutions
D. Or equal manufacturer approved by Engineer and Owner

2.3 FIBER OPTIC CABLE

A. Optical fiber cable:

1. Corning Cable part # 096EUC-T4101D20 or equal cable by other manufacturers listed as approved for this project.
2. Ensure optical fiber is fully backward compatible with legacy optical fiber.
3. Comply with the following standards:
   a. ITU-T Recommendation G.652 (Tables A, B, C and D)
   b. IEC Specifications 60793 – 2 – 50 Type B1.3
   c. TIA/EIA 492 – CAAB
   d. Telcordia Generic Requirements GR – 20 – Core
   e. ISO 11802 OS2

2.4 CONNECTORS

A. Single mode

1. Use only LC Type Single – Mode duplex connectors, all connectors shall be fusion spliced pigtails.

2.5 SPLICES

A. Single mode cables

1. Fusion splice along with waterproof case shall be the only acceptable splicing method.

2.6 FIBER CABLE TERMINATIONS

A. All fiber optic cable shall terminate using LC connectors in fiber optic patch panels.

B. LEC Building

1. Use existing Systimax optical fiber LIU, located in Comm. Room 1161 – Rack C1
2. Provide Systimax single mode adapter coupling regardless of manufacturer of cable or terminations.
3. The LEC building is currently under construction. The selected Vendor shall coordinate and schedule all work associated with the LEC Building with the LEC General Contractor.

C. County Courthouse:

1. Provide rack mount LIU capable of terminating 192 SM, LC, optical fibers.
2. Coordinate with County IT personnel to select rack location.

2.7 IDENTIFICATION PRODUCTS

A. Comply with EIA/TIA Standards.

1. Cable Labels: Self-adhesive vinyl or vinyl-cloth wraparound tape markers, machine printed with alphanumeric cable designations.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine pathway elements intended for cable. Check raceways, cable ladders, cable trays, and other elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install interior telephone and signal system raceways in maximum lengths of 150 feet and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements, in addition to requirements above.

B. Utilize sweep elbows for all telephone and signal system raceways.

C. Install fiber cable using techniques, practices, and methods that ensure certified performance.

D. Install cable without damaging conductors, shield, or jacket.

E. Do not bend cable in handling or in installing to smaller radii than minimums recommended by manufacturer.

F. Pull cables without exceeding cable manufacturer's recommended pulling tensions.

1. Pull cables simultaneously if more than one is being installed in the same raceway.
2. Use pulling compound or lubricant if necessary. Use compounds that will not damage conductor or insulation.
3. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage media or raceway.

G. Install conduit parallel and perpendicular to surfaces or exposed structural members, and follow surface contours where possible. Install as high as possible so as not to interfere with use of the space.

H. Use splice and tap connectors compatible with media types.

3.3 FIBER INSTALLATION

A. Fiber cable shall be home run. Lay out the work to minimize splices.

B. Contractor shall provide a service loop in all pull boxes.

C. Test fiber cables and connections in accordance with manufacturer's recommendations and provide documentation of such.

3.4 IDENTIFICATION

A. Identify system components complying with applicable requirements of EIA/TIA.

B. Cables, General: Label each cable within 4 inches of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.

C. Cable Schedule: Post in prominent location in each wiring closet and equipment room. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Provide electronic copy of final comprehensive schedules for Project on CD to Owner.

D. All labeling nomenclature shall comply with EIA/TIA. Submit proposed labeling scheme for approval prior to installation.

3.5 FIELD QUALITY CONTROL

A. Testing: On installation of cable and connectors, demonstrate product capability and compliance with requirements. Test each signal path for end-to-end performance from each end of all pairs installed. Remove temporary connections when tests have been satisfactorily completed.

1. Certify all data cable performance in accordance with industry standards. Provide a report that indicates cable length, attenuation, and near end cross talk.

B. Correct malfunctioning units at Project site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.

C. Provide 20 year warranty certificate, by manufacturer.

D. Provide electronic copy of all test information and as built drawings.

3.6 CLEANING

A. After completing system installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

3.7 RECORD DRAWINGS

A. Maintain current documents at the construction site. Submit with Operation and Maintenance manuals.

B. Record drawings shall include all information required for shop drawings and in addition, shall indicate the following:

1. Routing of cables from communications closets to jacks.
2. Revisions to construction documents (addenda and field changes).

END OF SECTION 16740

SARPY COUNTY

OPTICAL FIBER LINK
84TH STREET

CONSTRUCTION DRAWINGS

09-03-10
PROJECT NO.: 10156

Drawing Index

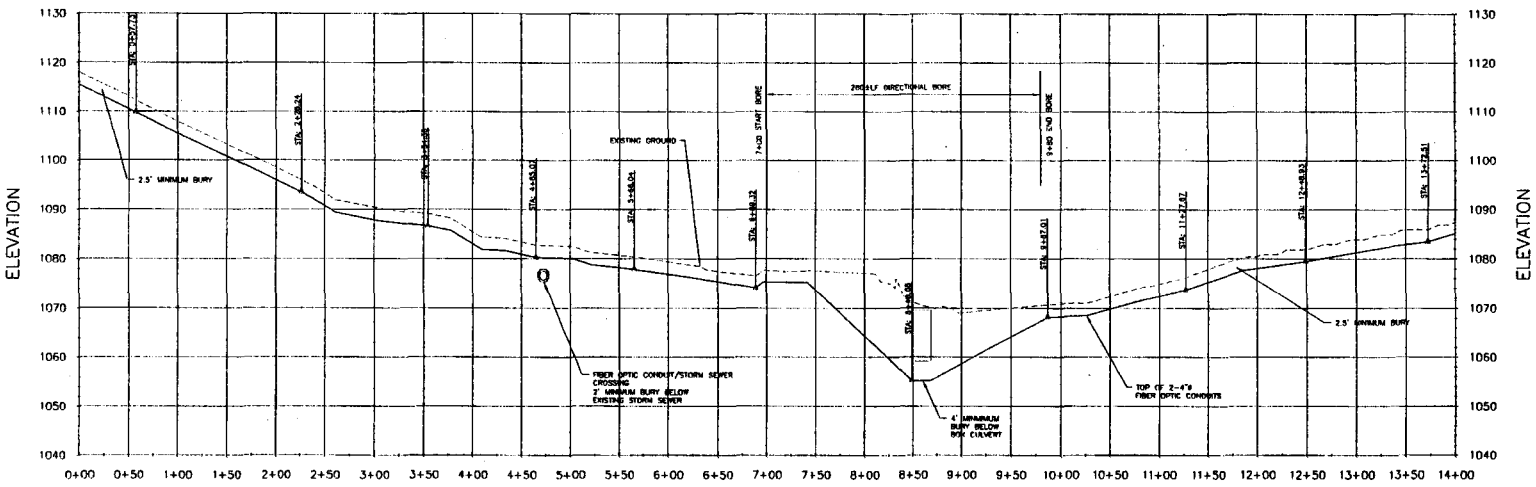
mortessey
mechanical · electrical engineers

Cover Sheet

Optical Fiber Link
84th Street
Sarpy County, Nebraska

date: 09-03-10
project number: 10156
designed by: sml
drawn by: sml
sheet number:
CS

NOTE: PROPOSED DISTANCE FROM 84TH STREET CENTERLINE TO FIBER OPTIC CABLE BASED ON BEST AVAILABLE INFORMATION AT TIME OF PLAN PREPARATION AND HAS NOT BEEN FIELD VERIFIED. ADJUSTMENTS WILL BE MADE AS NECESSARY DURING CONSTRUCTION TO AVOID EXISTING UTILITIES TO THE MAXIMUM EXTENT POSSIBLE. THE CONTRACTOR IS TO PROVIDE AS-BUILT MEASUREMENTS FROM EDGE OF PAVEMENT UPON COMPLETION.



FIBER OPTIC LINE STA: 0+00 TO STA: 14+00

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Survey Type

PROPOSED FIBER OPTIC CONDUIT

Client Name

SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description

84TH STREET FIBER OPTIC CONDUIT

Revision Dates

No.	Description	MM-DD-YY
-	-	-
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Drawn By: MRS
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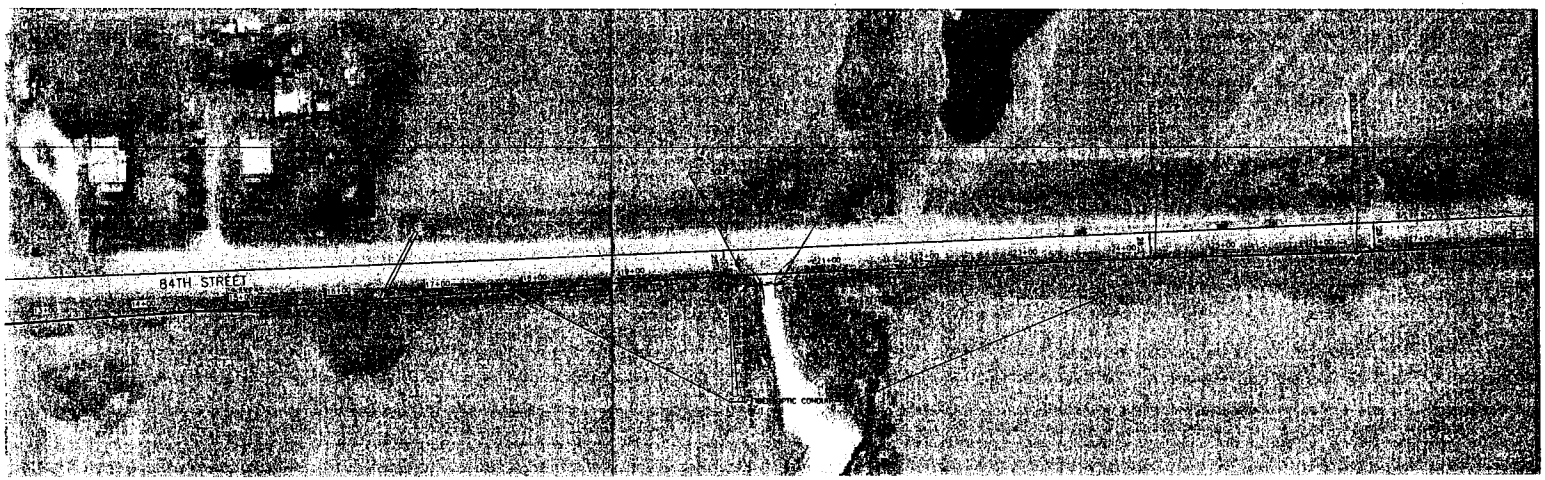

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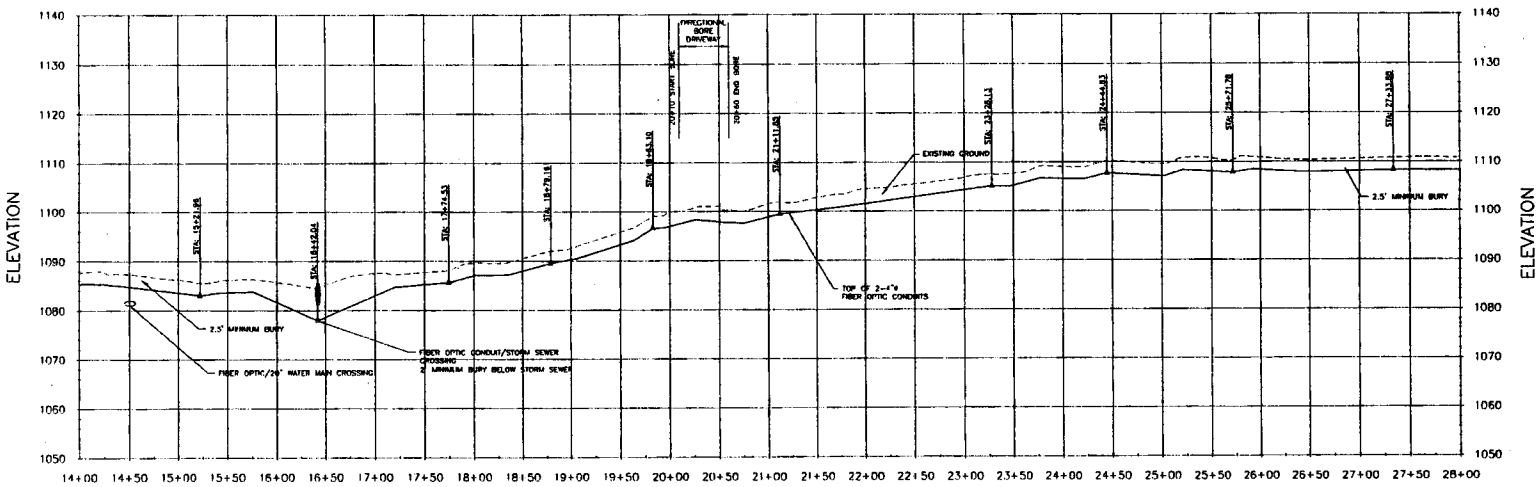

FIBER OPTIC LINE STA: 14+00 TO STA: 28+00

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Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

Description
84TH STREET FIBER OPTIC CONDUIT

Revision Dates

No.	Description	MM-DD-YY
1	-	-
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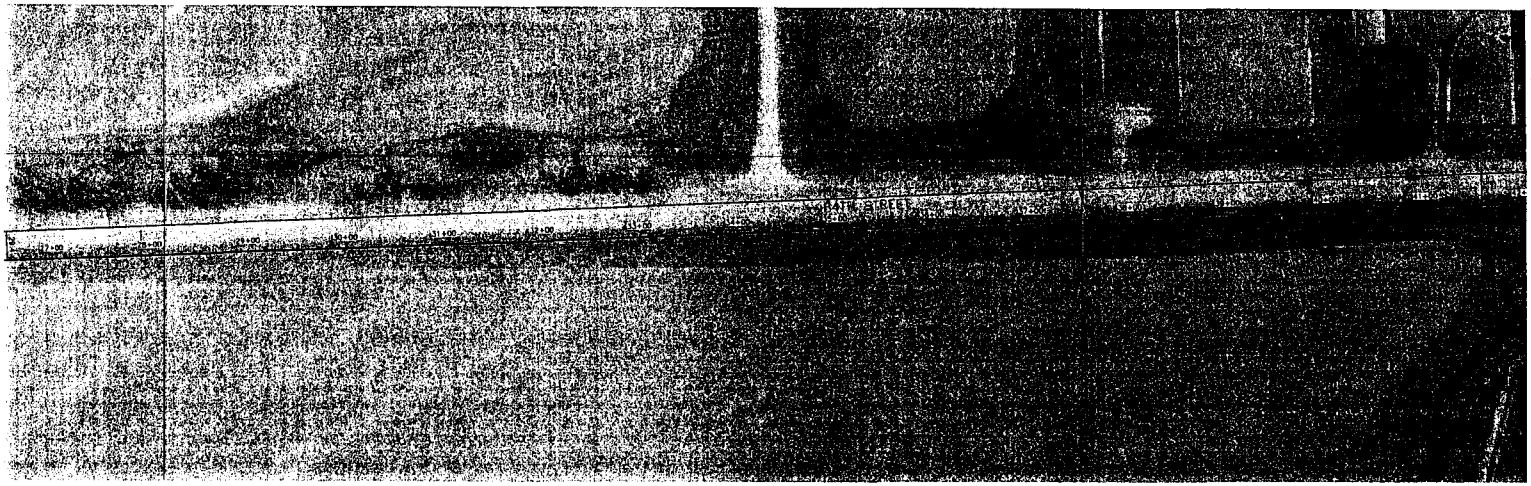

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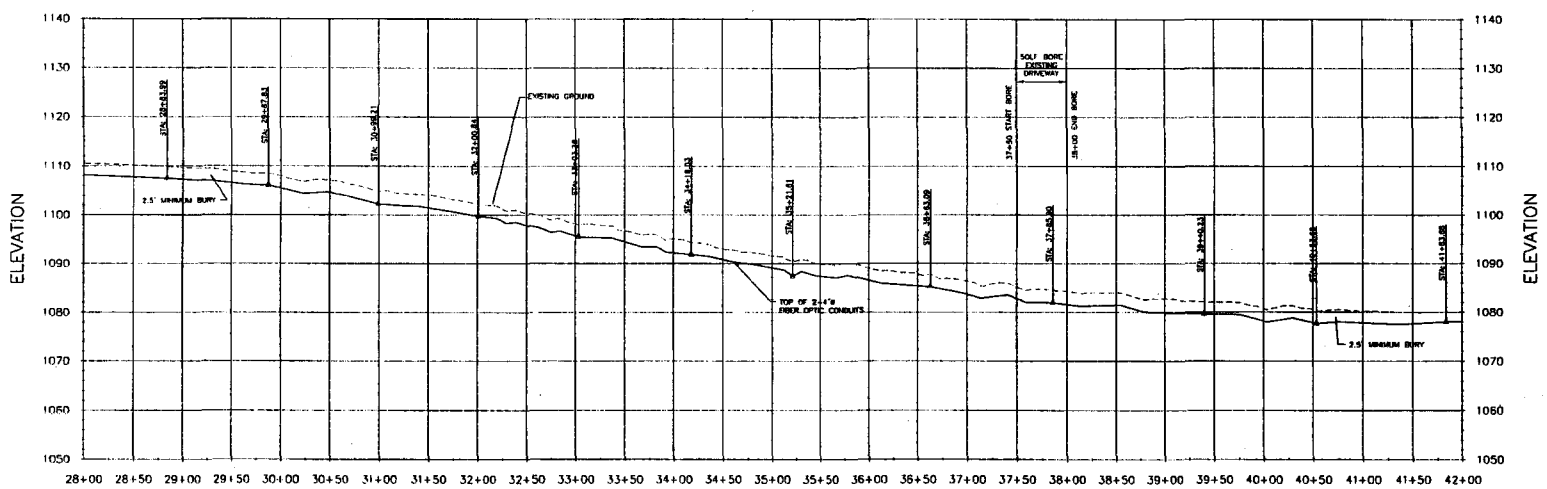

FIBER OPTIC LINE STA: 28+00 TO STA: 42+00

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Survey Type

PROPOSED FIBER OPTIC CONDUIT

Client Name

SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description

84TH STREET FIBER OPTIC CONDUIT

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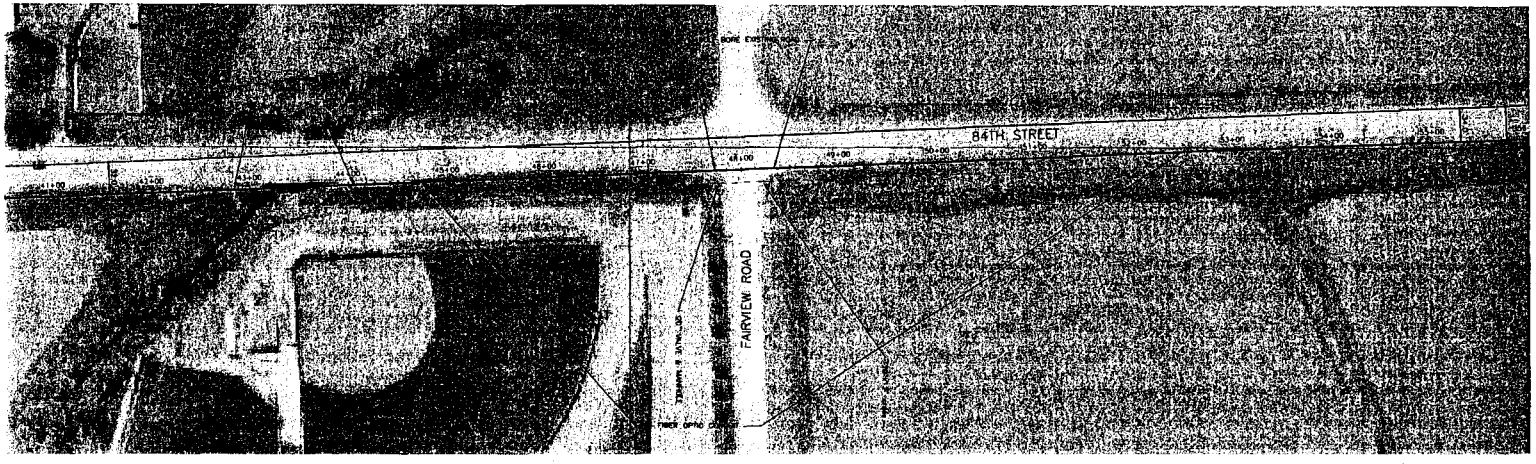

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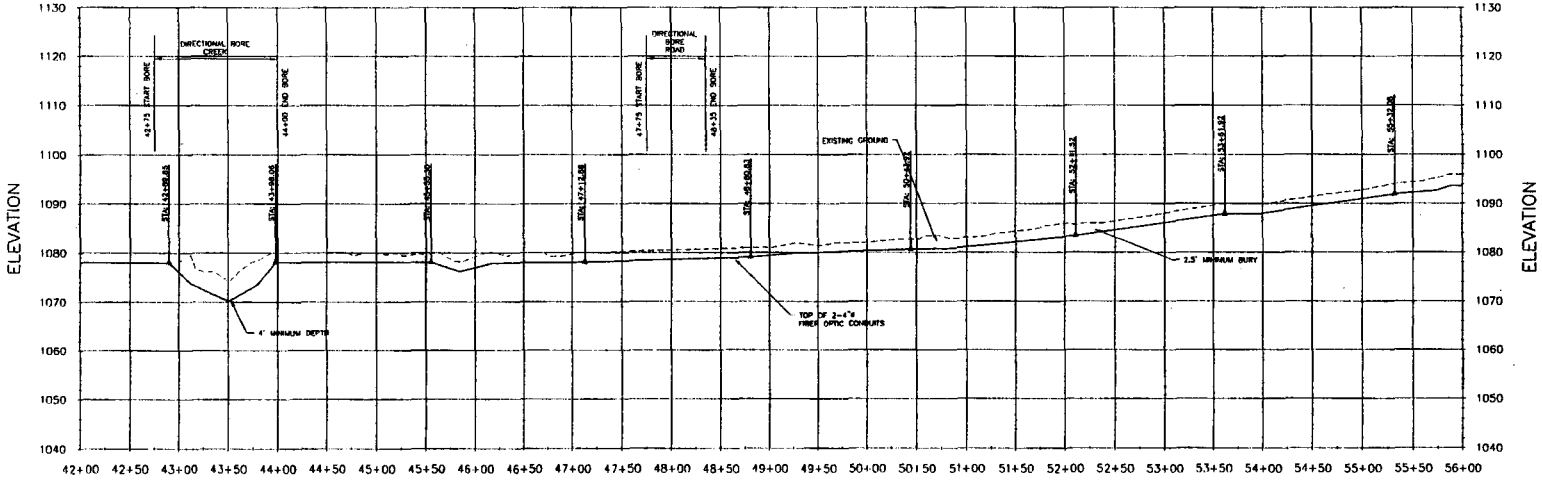

FIBER OPTIC LINE STA: 42+00 TO STA: 56+00

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Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description
84TH STREET FIBER OPTIC CONDUIT

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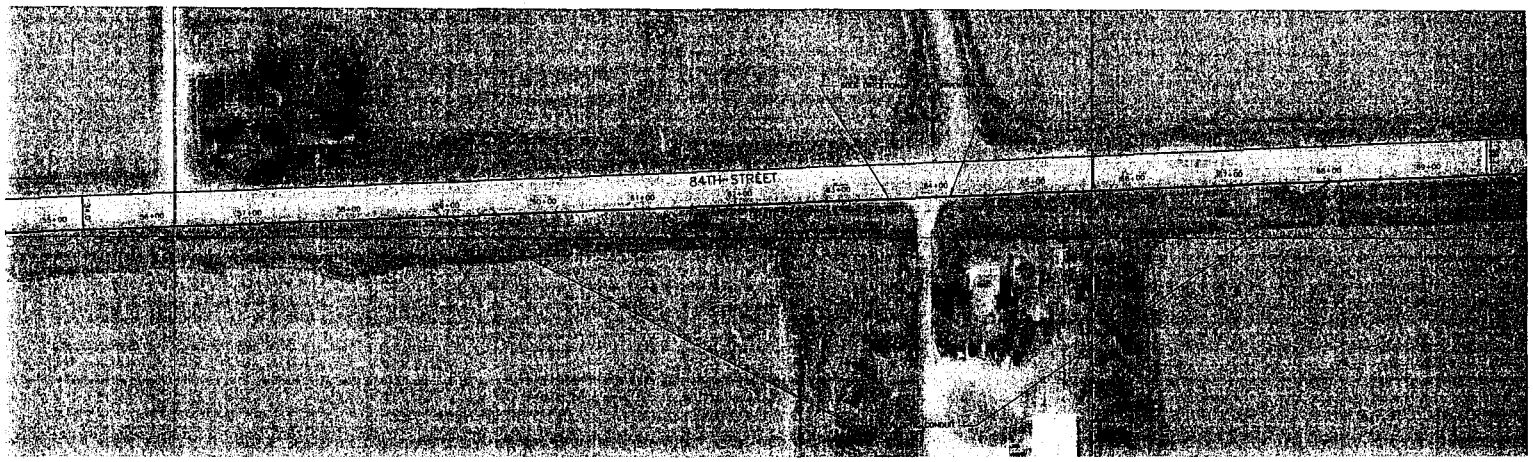

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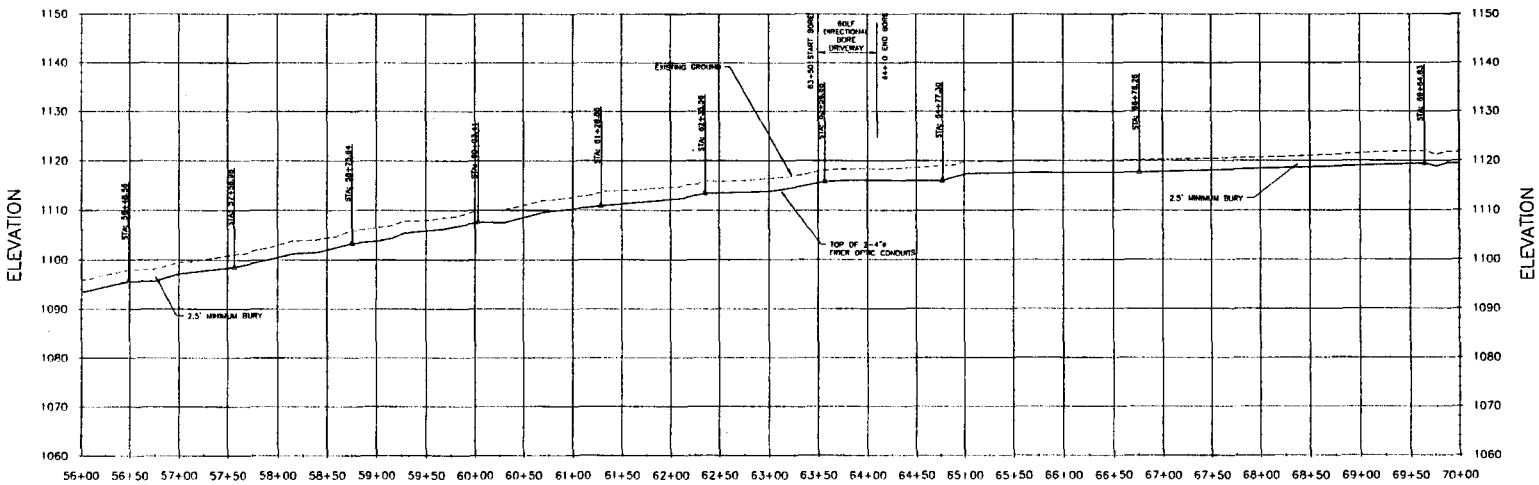

FIBER OPTIC LINE STA: 56+00 TO STA: 70+00

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Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description
84TH STREET FIBER OPTIC CONDUIT

Revision Dates

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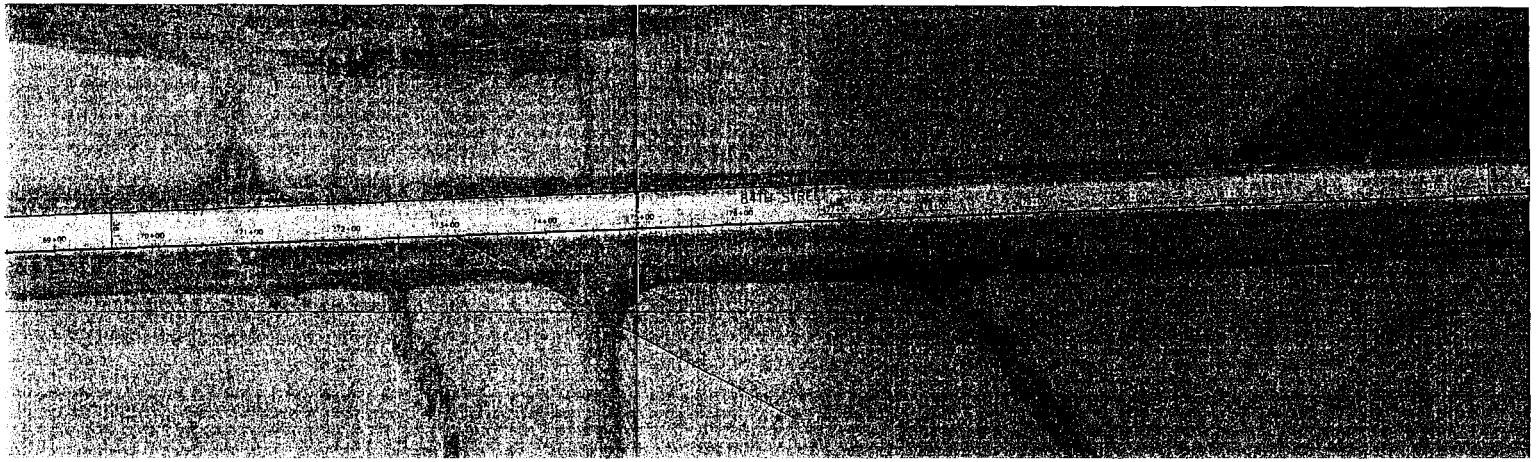

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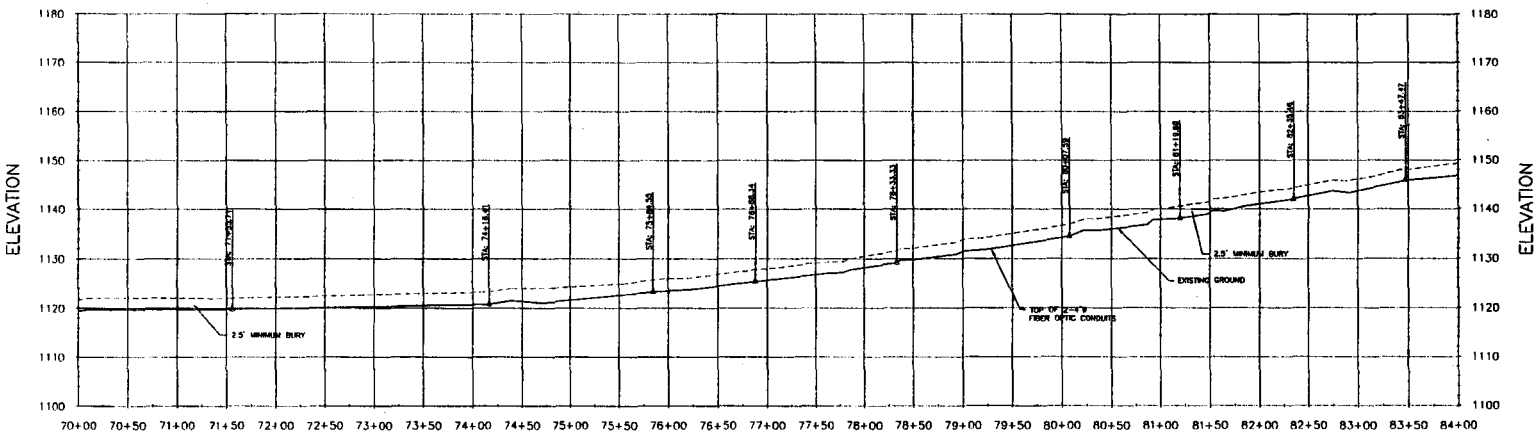

FIBER OPTIC LINE STA: 70+00 TO STA: 84+00

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Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description
84TH STREET FIBER OPTIC CONDUIT

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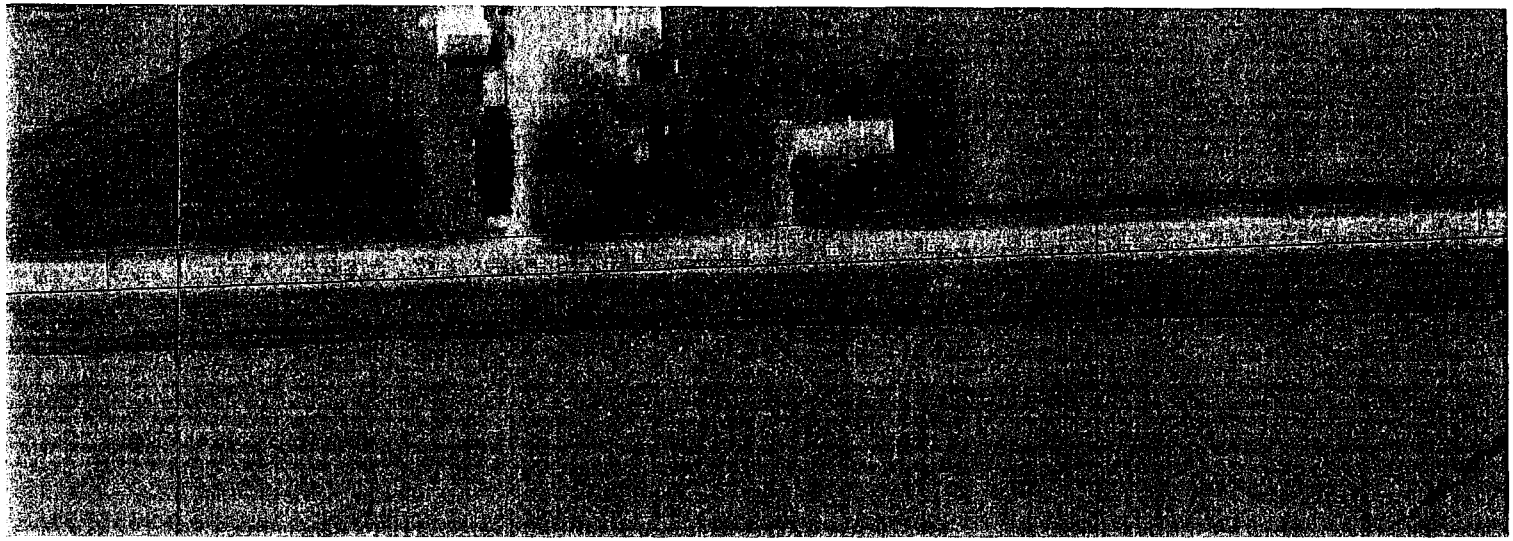

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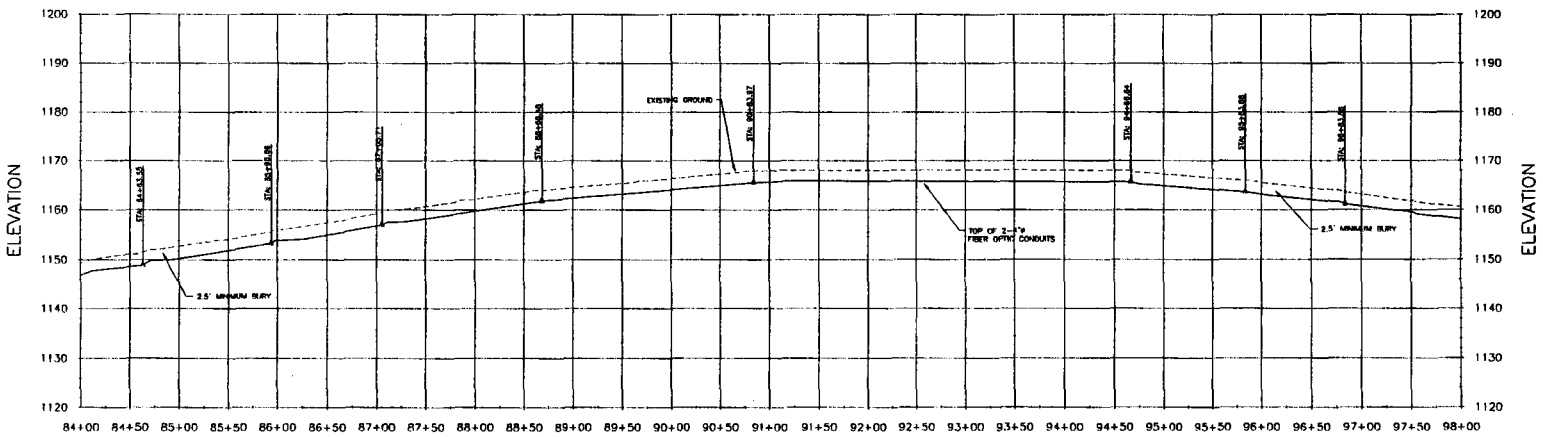

FIBER OPTIC LINE STA: 84+00 TO STA: 98+00

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Survey Type

PROPOSED FIBER OPTIC CONDUIT

Client Name

SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description

84TH STREET FIBER OPTIC CONDUIT

Revision Dates

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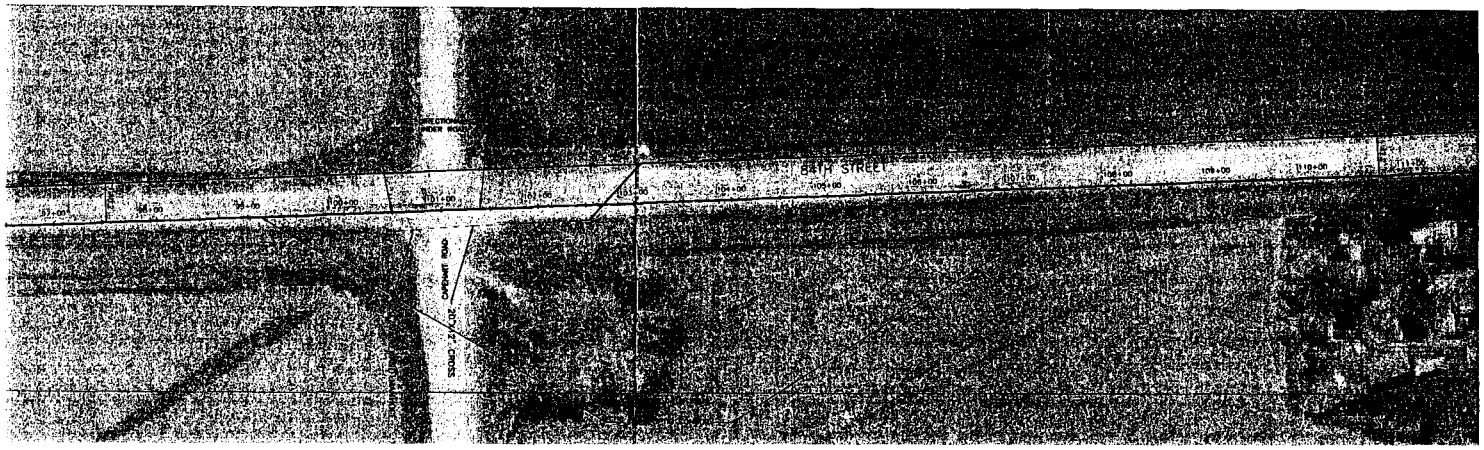

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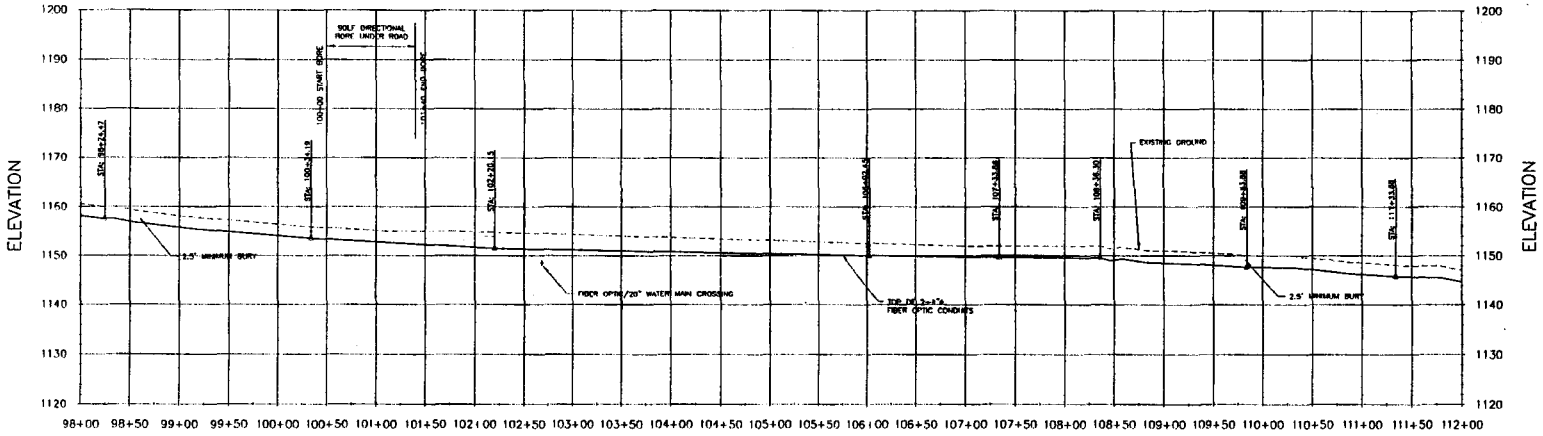

FIBER OPTIC LINE STA: 98+00 TO STA: 112+00

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Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

1541-07 84th STREET FIBER OPTIC CONDUIT

Description
84TH STREET FIBER OPTIC CONDUIT

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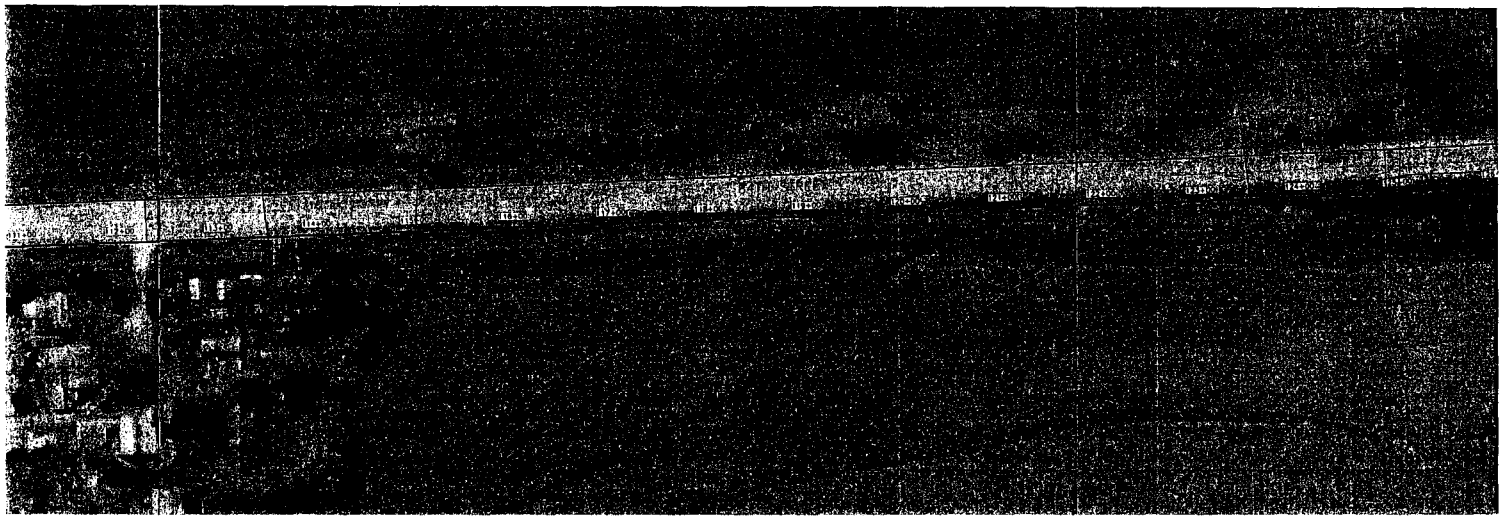

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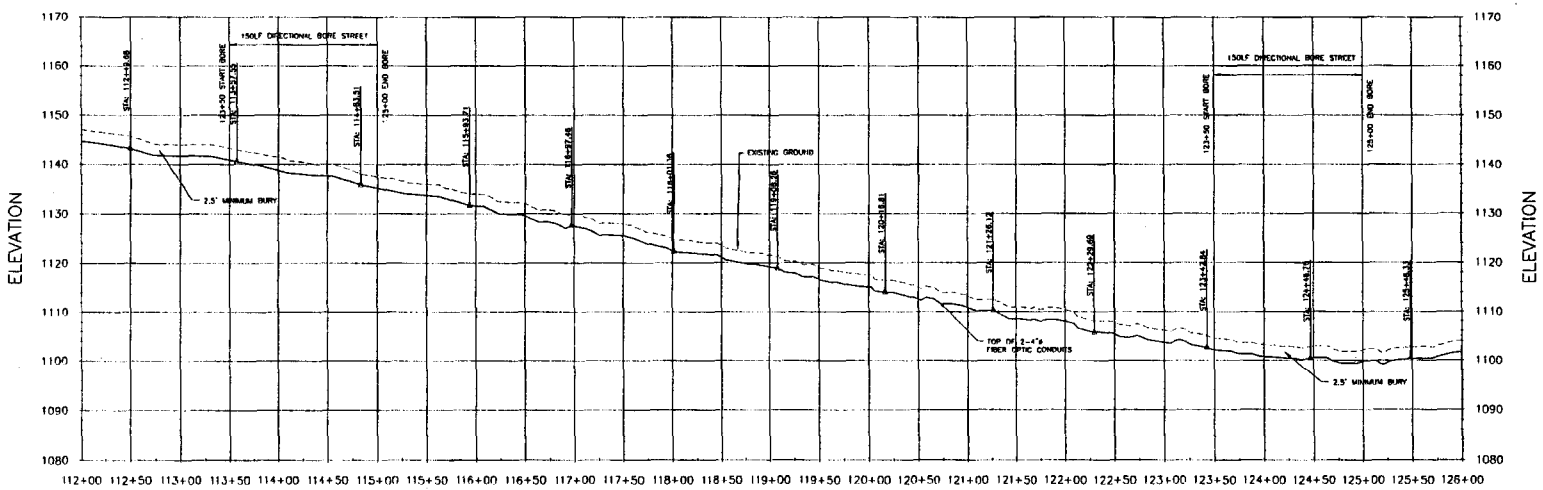

FIBER OPTIC LINE STA: 112+00 TO STA: 126+00

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Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description
84TH STREET FIBER OPTIC CONDUIT

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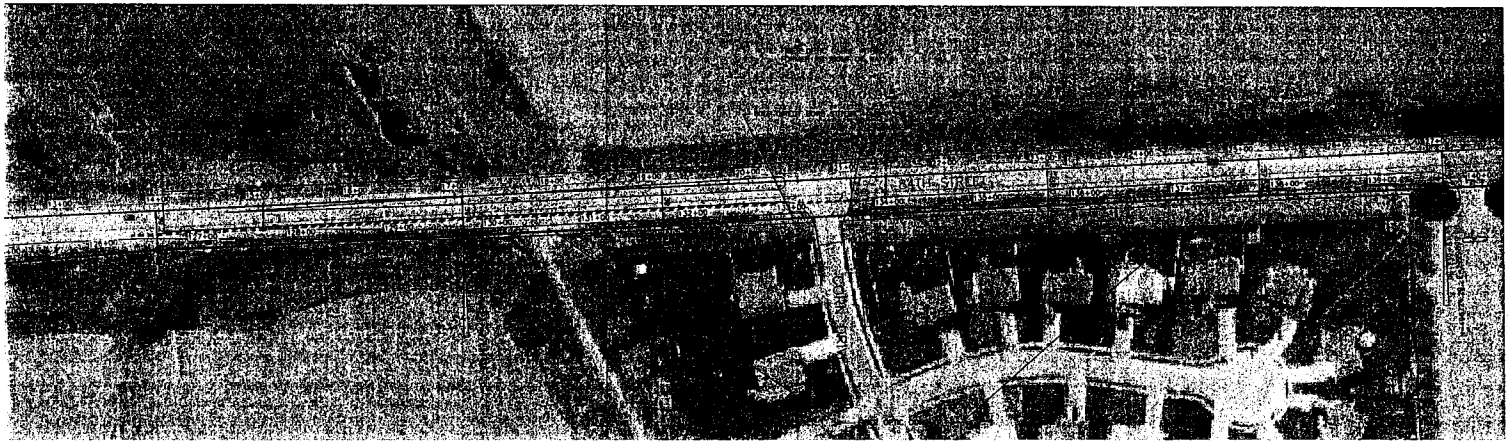

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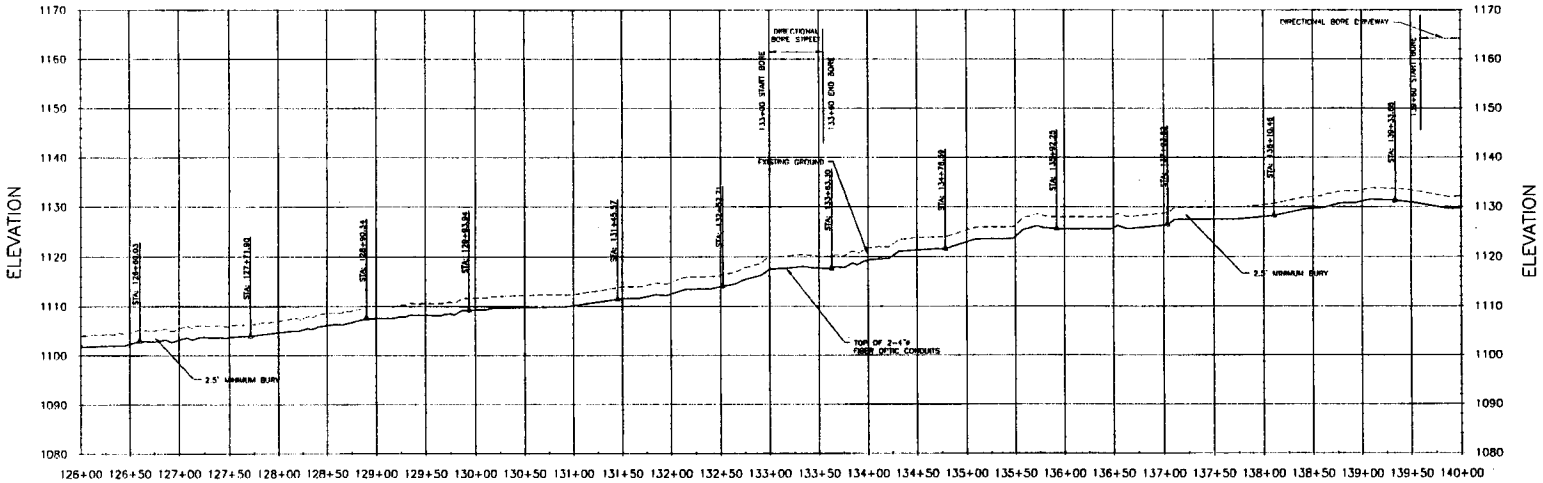

FIBER OPTIC LINE STA: 126+00 TO STA: 140+00

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PROPOSED FIBER OPTIC CONDUIT

Client Name

SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

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84TH STREET FIBER OPTIC CONDUIT

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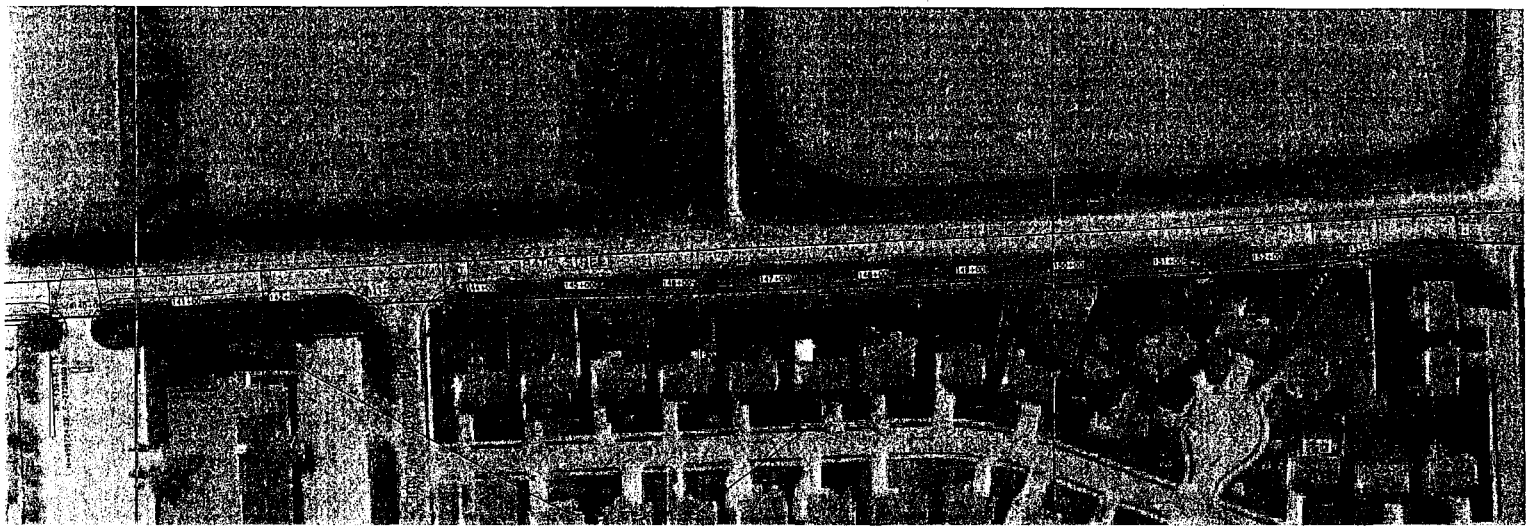

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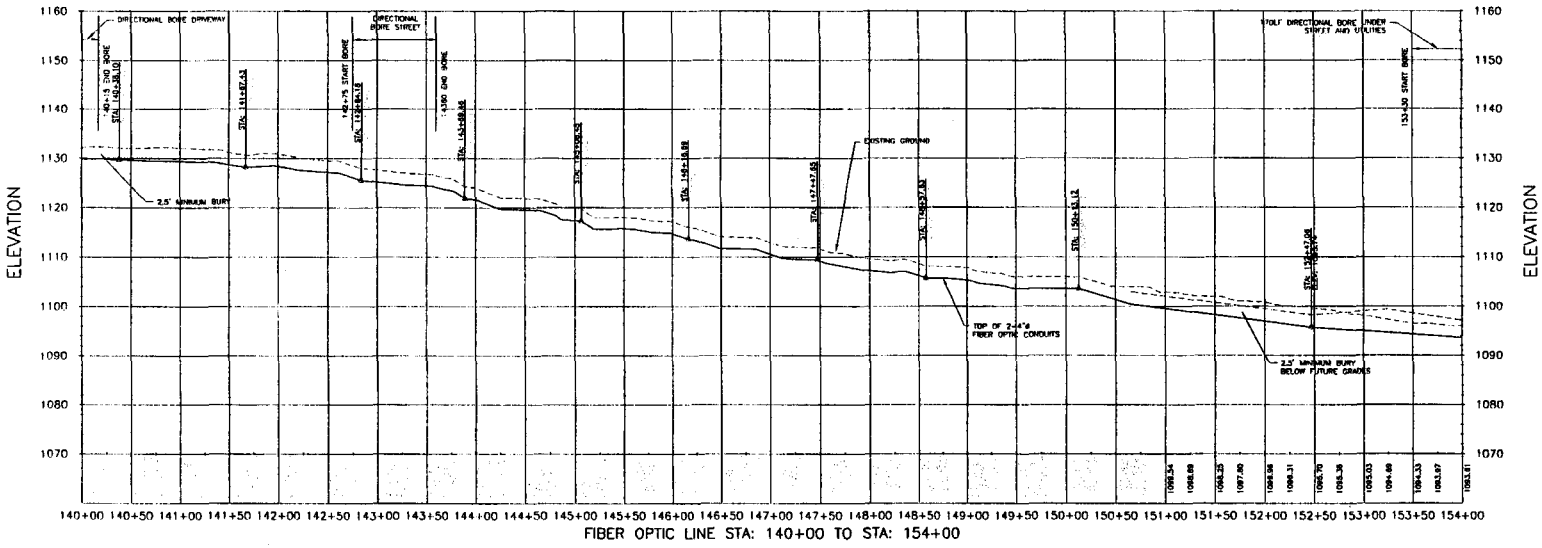

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Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

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84TH STREET FIBER OPTIC CONDUIT

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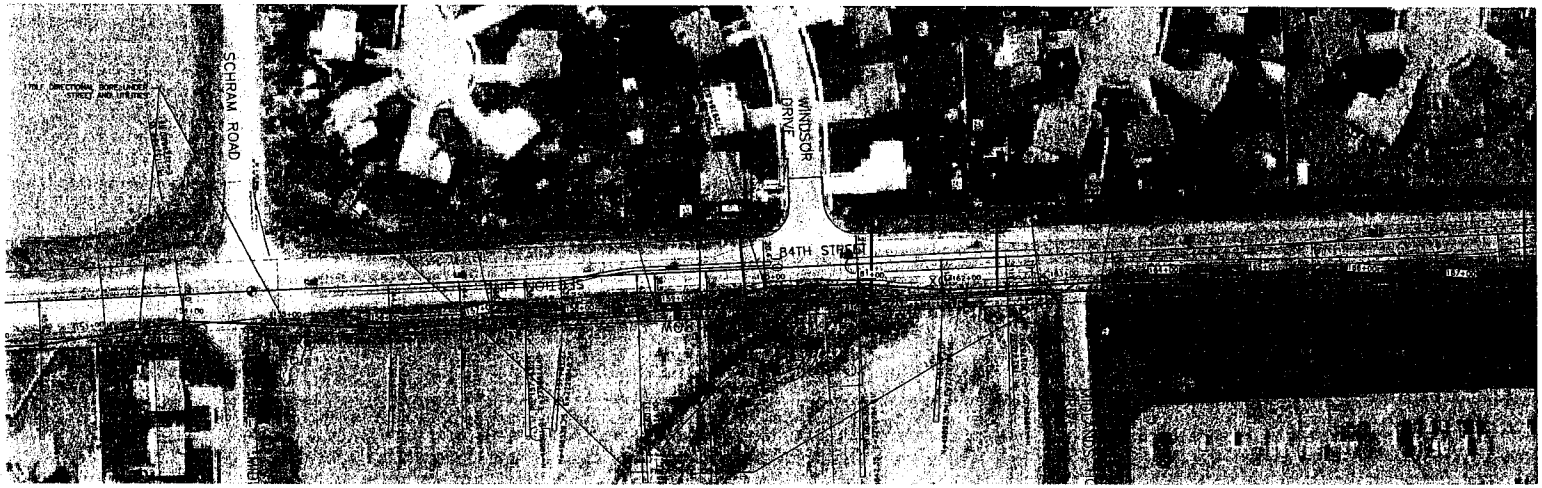

NOTE: STA. 154+30 TO 181+75 MULTIPLE UTILITIES AT UNKNOWN DEPTHS. NOT ALL MAY BE SHOWN ON THIS PLAN.

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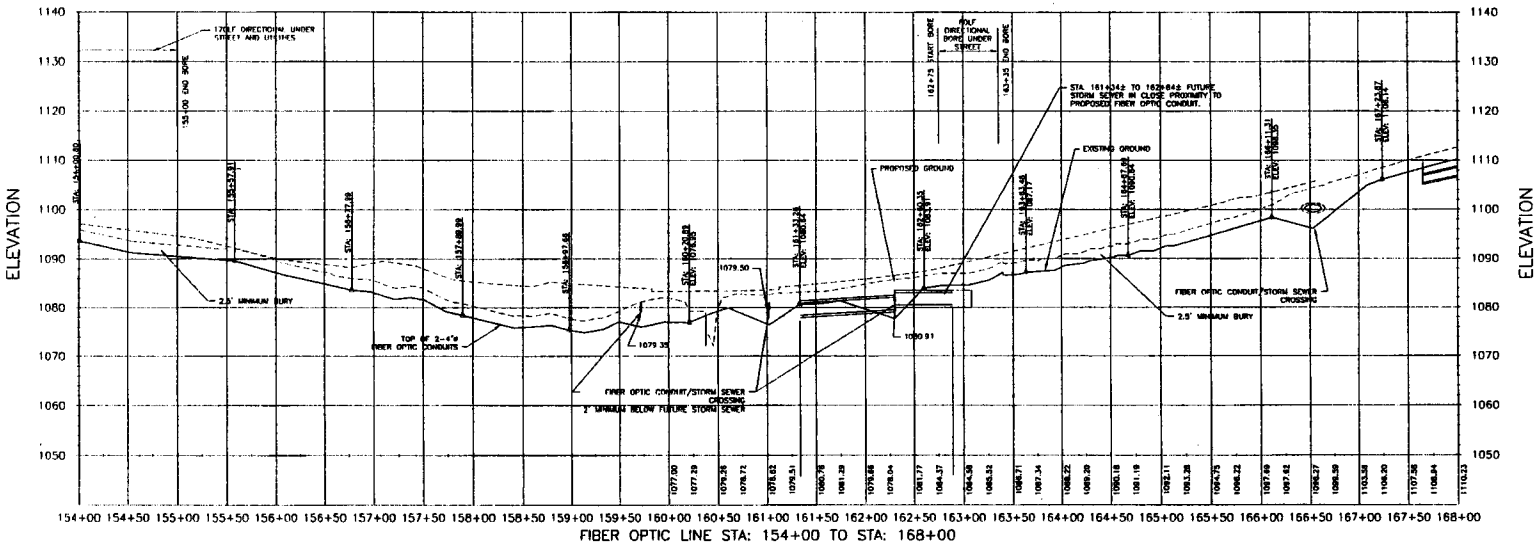

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Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description
84TH STREET FIBER OPTIC CONDUIT

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

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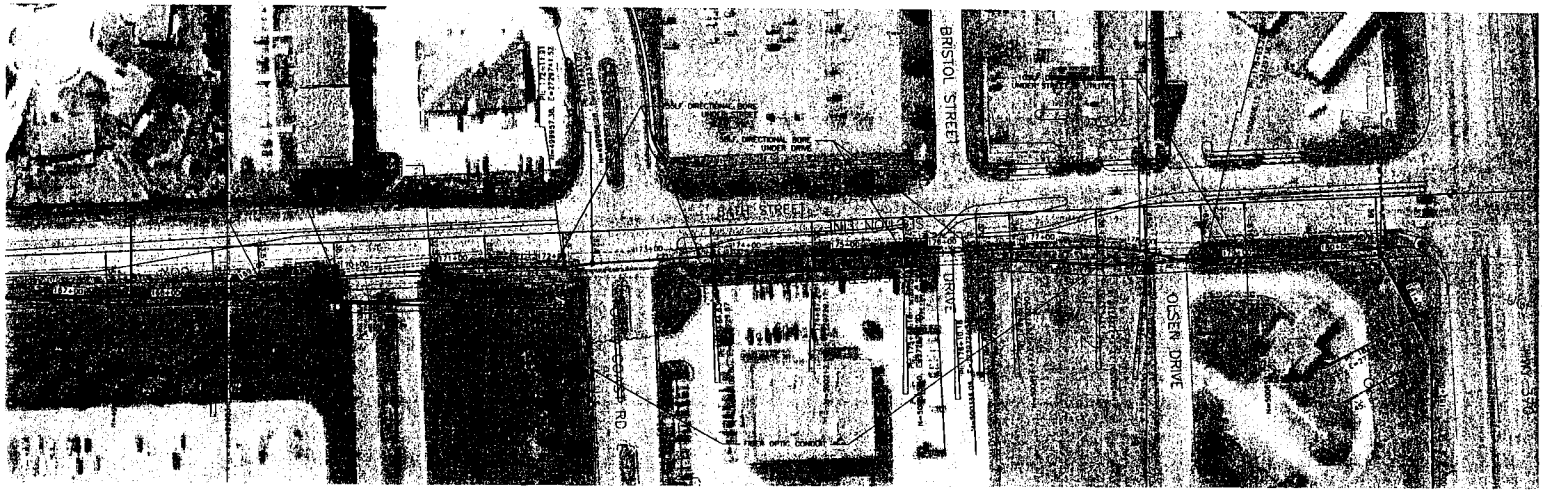
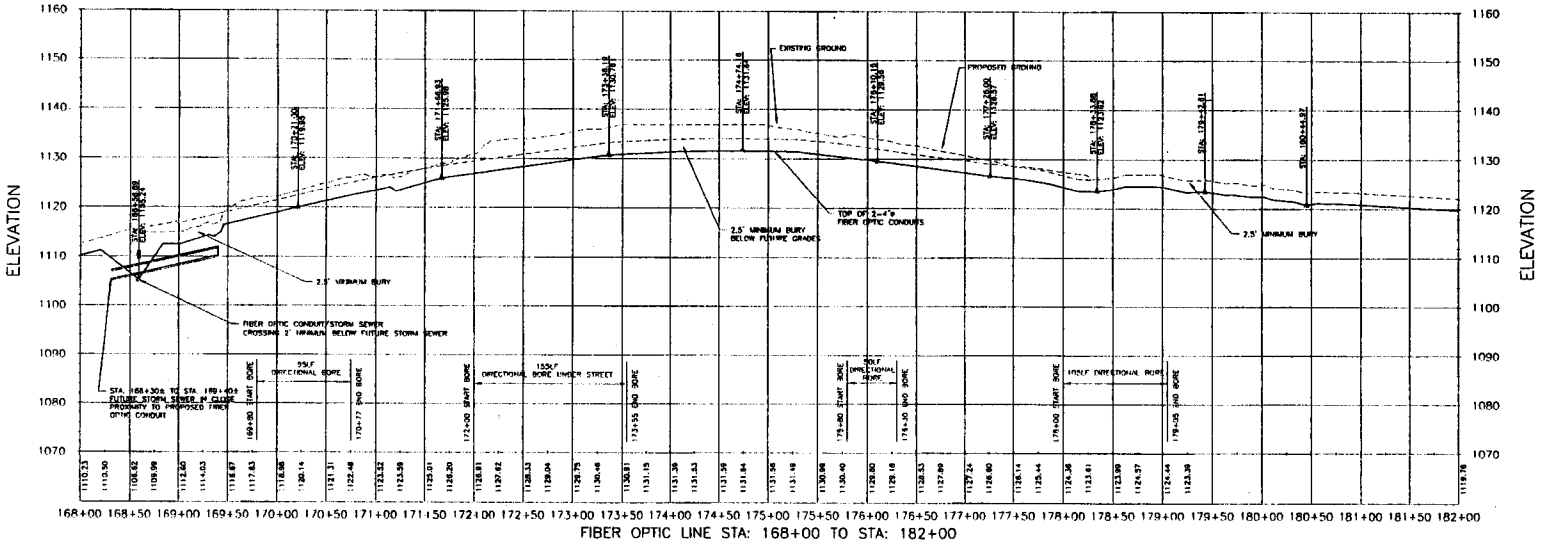


NOTE: STA. 154+30 TO 181+75 MULTIPLE UTILITIES AT UNKNOWN DEPTHS. NOT ALL MAY BE SHOWN ON THIS PLAN.

NOTE: PROPOSED DISTANCE FROM 84TH STREET CENTERLINE TO FIBER OPTIC CABLE BASED ON BEST AVAILABLE INFORMATION AT TIME OF PLAN PREPARATION AND HAS NOT BEEN FIELD VERIFIED. ADJUSTMENTS WILL BE MADE AS NECESSARY DURING CONSTRUCTION TO AVOID EXISTING UTILITIES TO THE MAXIMUM EXTENT POSSIBLE. THE CONTRACTOR IS TO PROVIDE AS-BUILT MEASUREMENTS FROM EDGE OF PAVEMENT UPON COMPLETION.



TD2 engineering & surveying

thompson, dreessen & dorner, inc.
10836 Old Mill Rd
Omaha, NE 68154
p.402.330.8860 f.402.330.5866
td2co.com

Survey Type

PROPOSED FIBER OPTIC CONDUIT

Client Name

SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description

84TH STREET FIBER OPTIC CONDUIT

Revision Dates

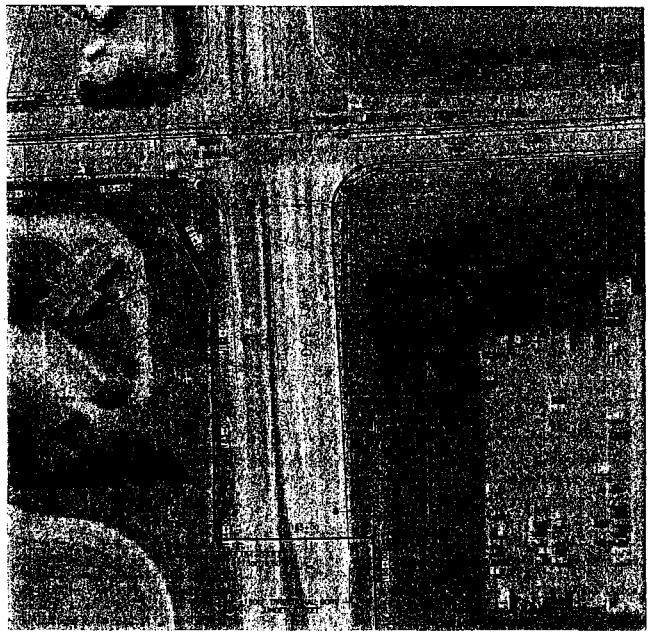
No.	Description	MM-DD-YY

Job No.: 1541-107
Drawn By: MRS
Reviewed By: ADB
Date: 8/27/2010
Book:
Page:

Sheet Title

Sheet Number

SHEET 13 OF 14



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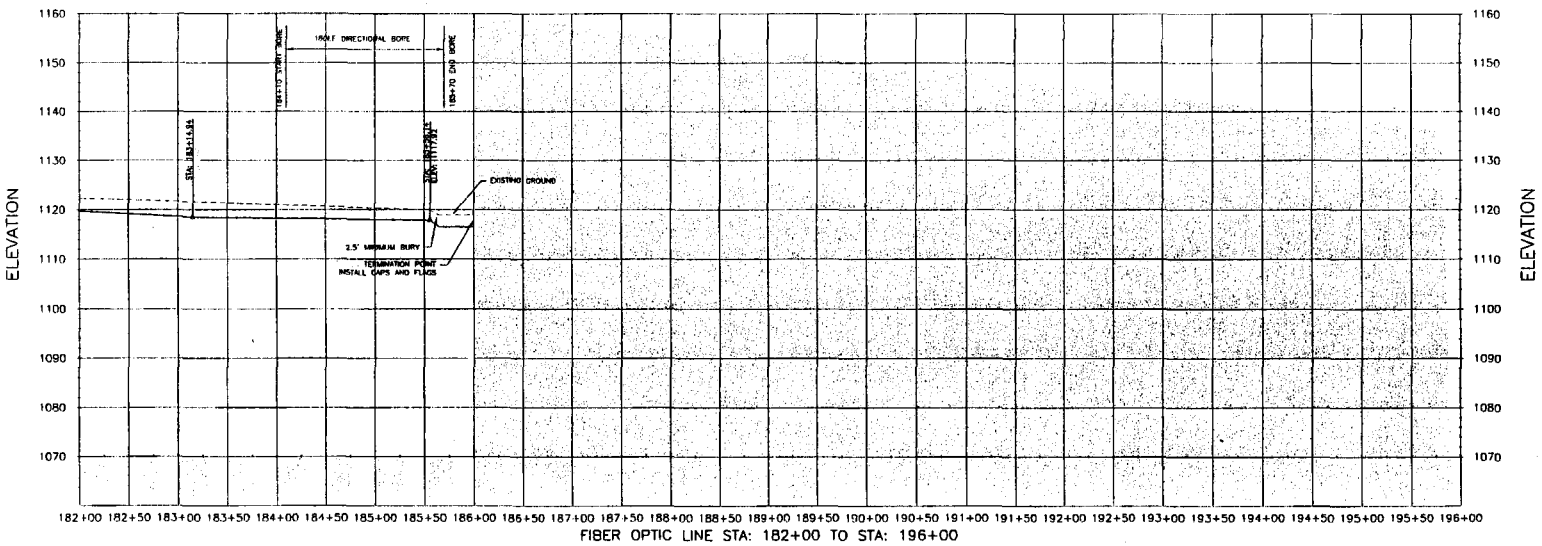
NOTE: "SEE ELECTRICAL SPECIFICATIONS FOR TERMINATION POINT"



TD2 engineering & surveying
thompson, dreessen & dorner, inc.
10836 Old Mill Rd
Omaha, NE 68154
p.402.330.8860 f.402.330.5866
td2co.com

Survey Type
PROPOSED FIBER OPTIC CONDUIT

Client Name
SARPY COUNTY

1541-107 84th STREET FIBER OPTIC CONDUIT

Description
84TH STREET FIBER OPTIC CONDUIT

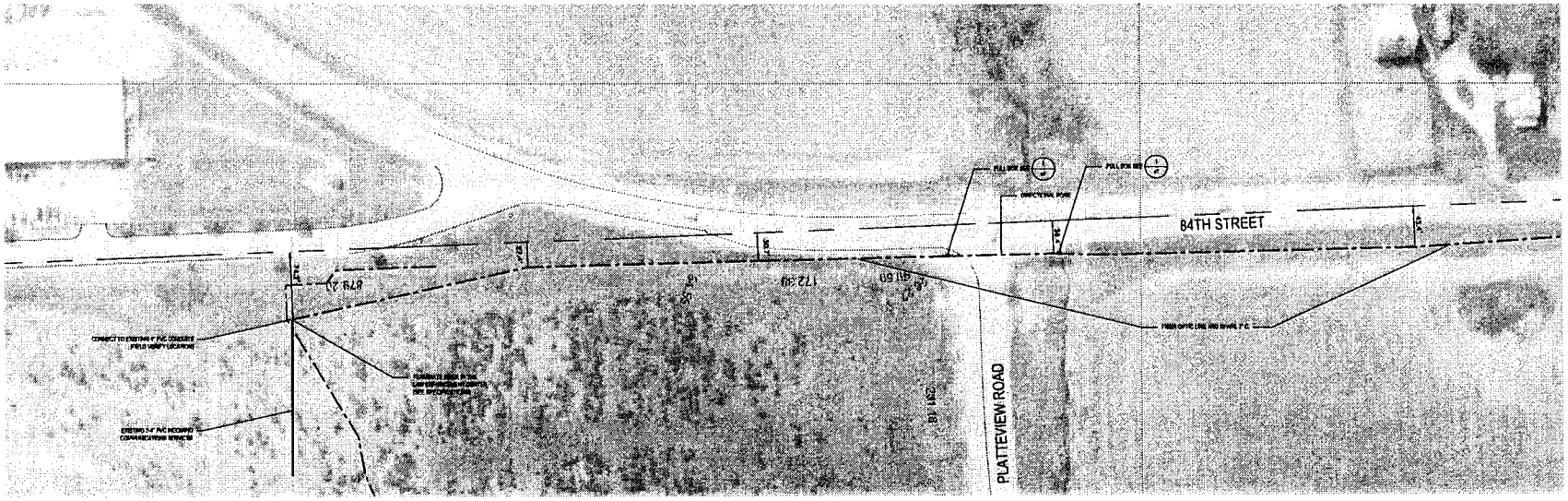
Revision Dates

No.	Description	MM-DD-YY

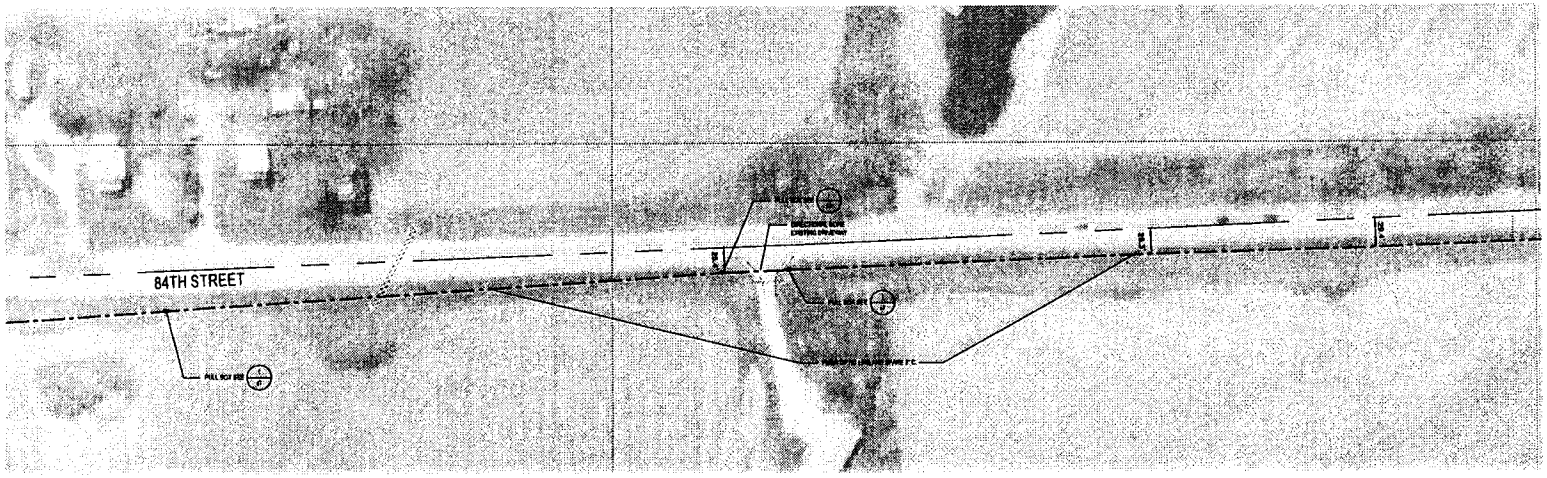
Job No.: 1541-107
Drawn By: MRS
Reviewed By: ADB
Date: 8/27/2010
Book:
Page:

Sheet Title

Sheet Number
SHEET 14 OF 14



SOUTH 84TH STREET AT LEC

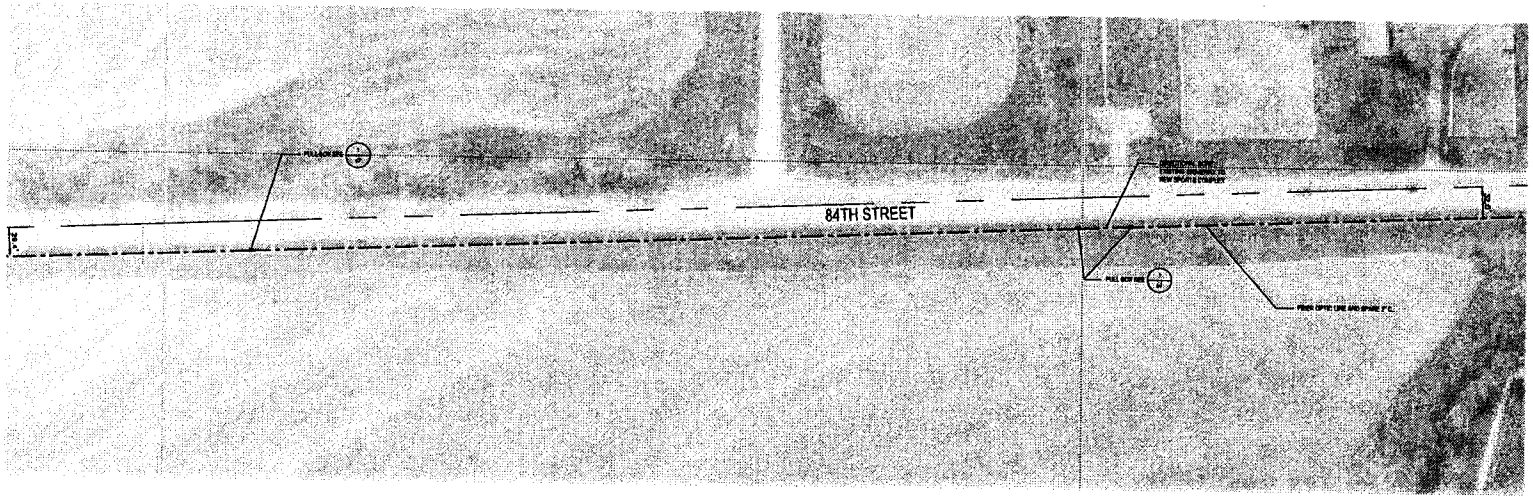


SOUTH 84TH STREET

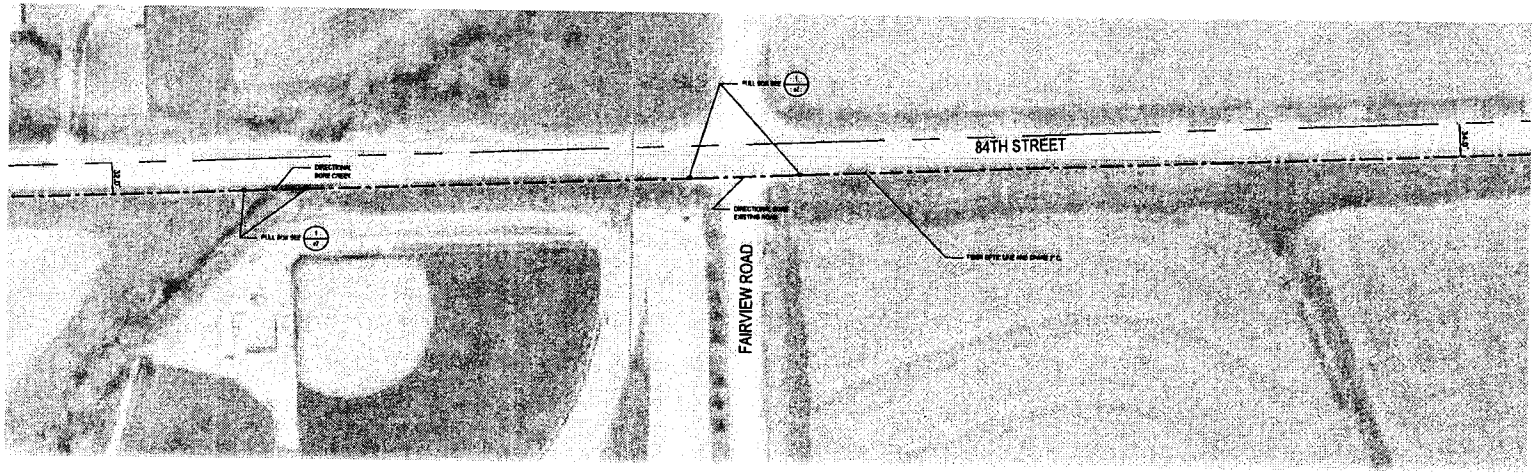
Fiber Optic Site Plan

Optical Fiber Link
84th Street
Sarpy County, Nebraska

e1



SOUTH 84TH STREET
1" = 50'-0"



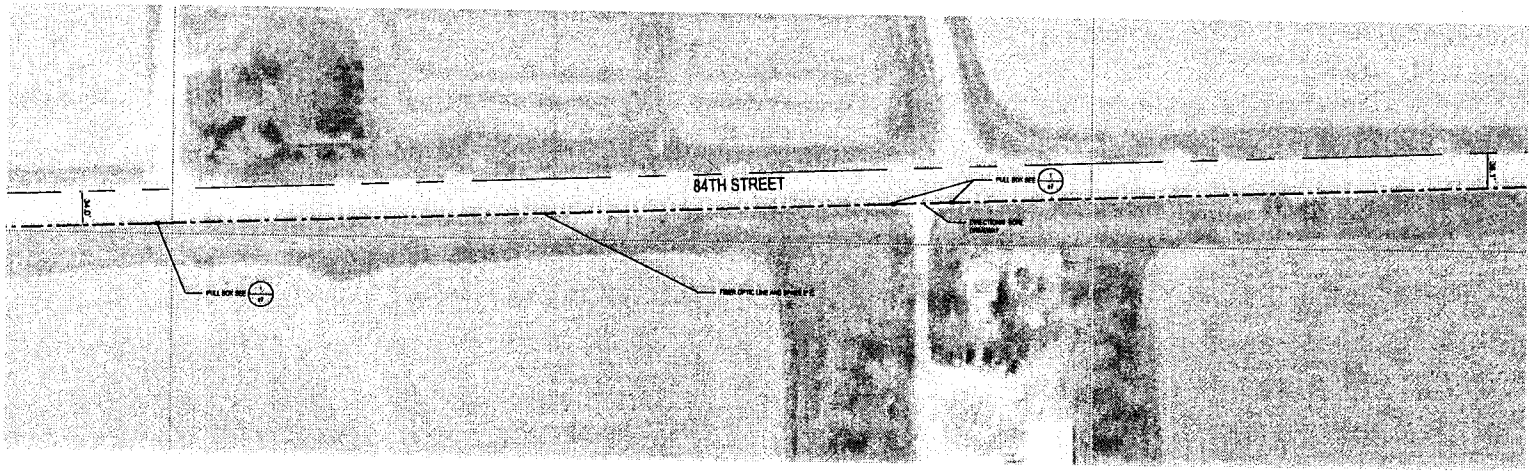
SOUTH 84TH STREET AT FAIRVIEW ROAD
1" = 50'-0"

morrissey engineering inc.
consulting : electrical engineers
telecommunications : commissioning
4848 cuming street, omaha, ne 68132
t 402.341.1116 f 402.341.1119

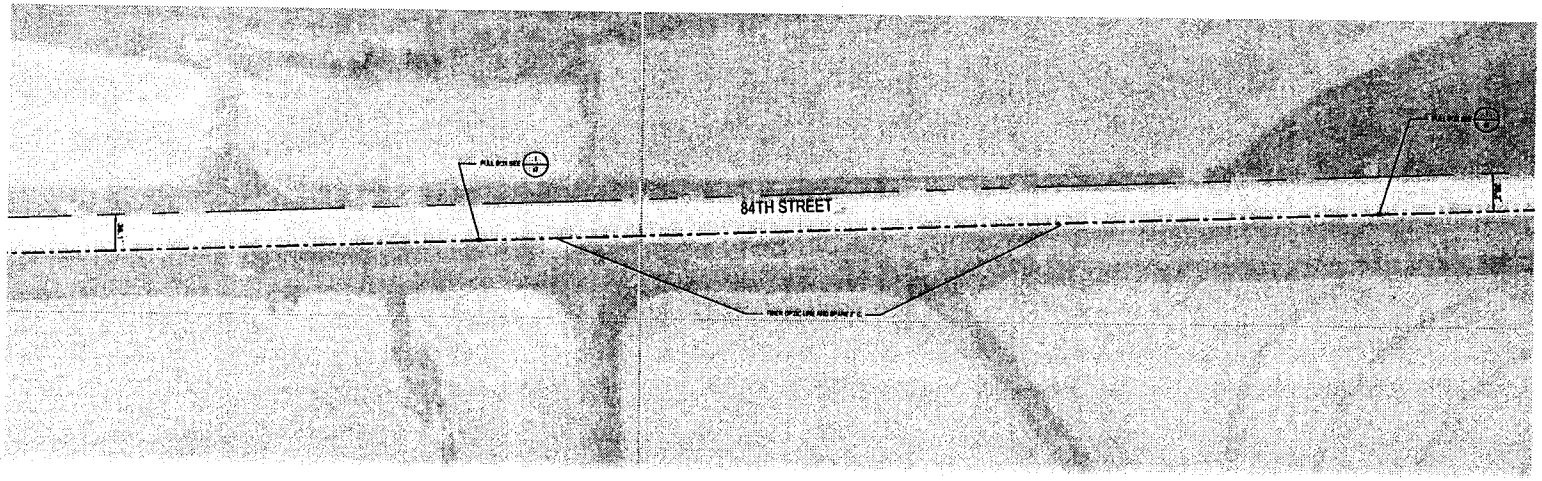
Fiber Optic Site Plan

Optical Fiber Link
84th Street
Sarpy County, Nebraska

date: 06-03-19
project number: 10156
designed by: wwf
drawn by: wwf
sheet number: e2



SOUTH 84TH STREET
1" = 50'-0"



SOUTH 84TH STREET
1" = 50'-0"

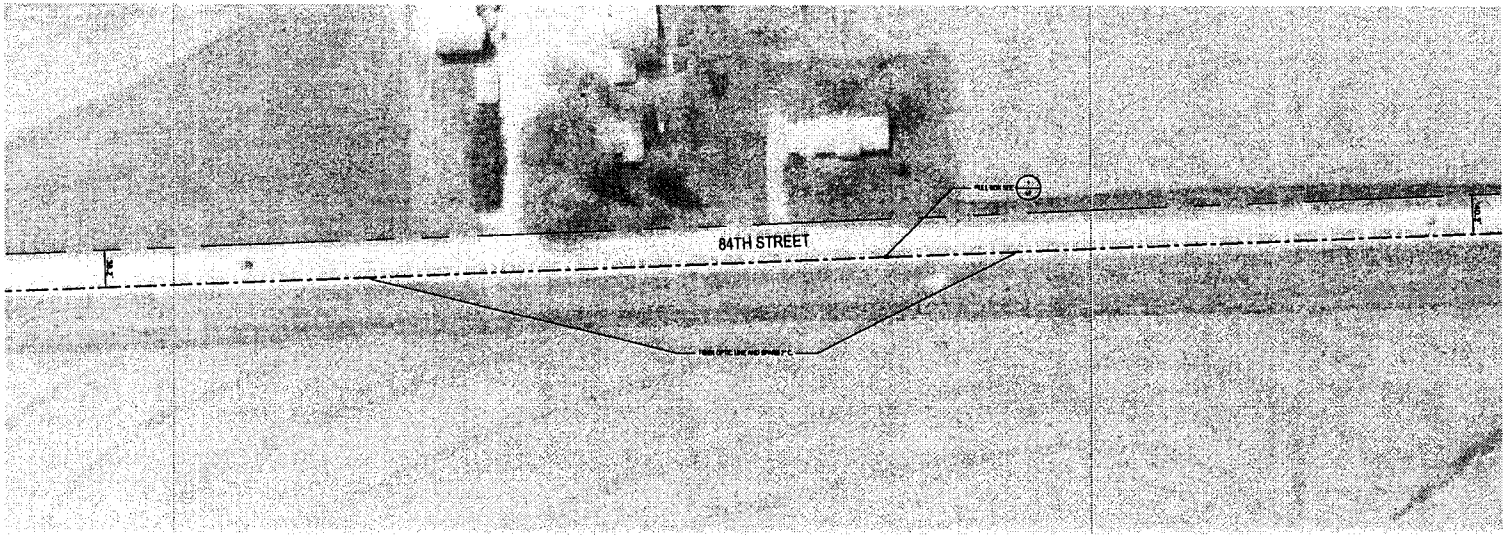
morrissey engineering inc.
mechanical · electrical engineers
telecommunications · commissioning
4840 south 118th street, omaha, ne 68137
t: 402.691.9144 f: 402.691.9145

no.	revision	date

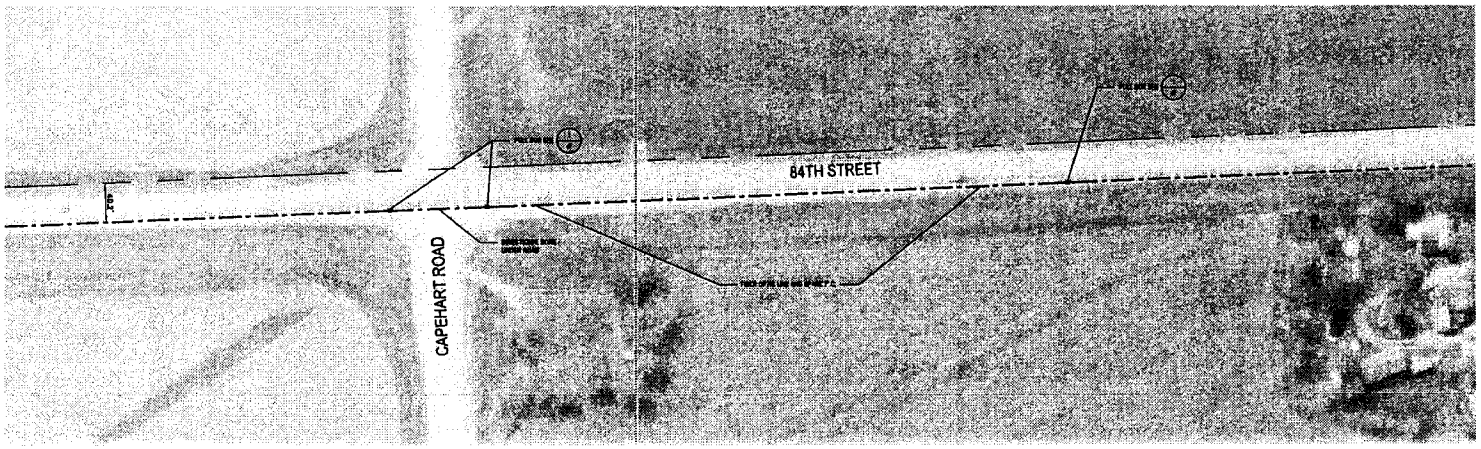
Fiber Optic Site Plan

Optical Fiber Link
84th Street
Sarpy County, Nebraska

date: 06-03-10
project number: 1111A
designed by: aaf
drawn by: aaf
sheet number: e3



SOUTH 84TH STREET
1" = 50'-0"

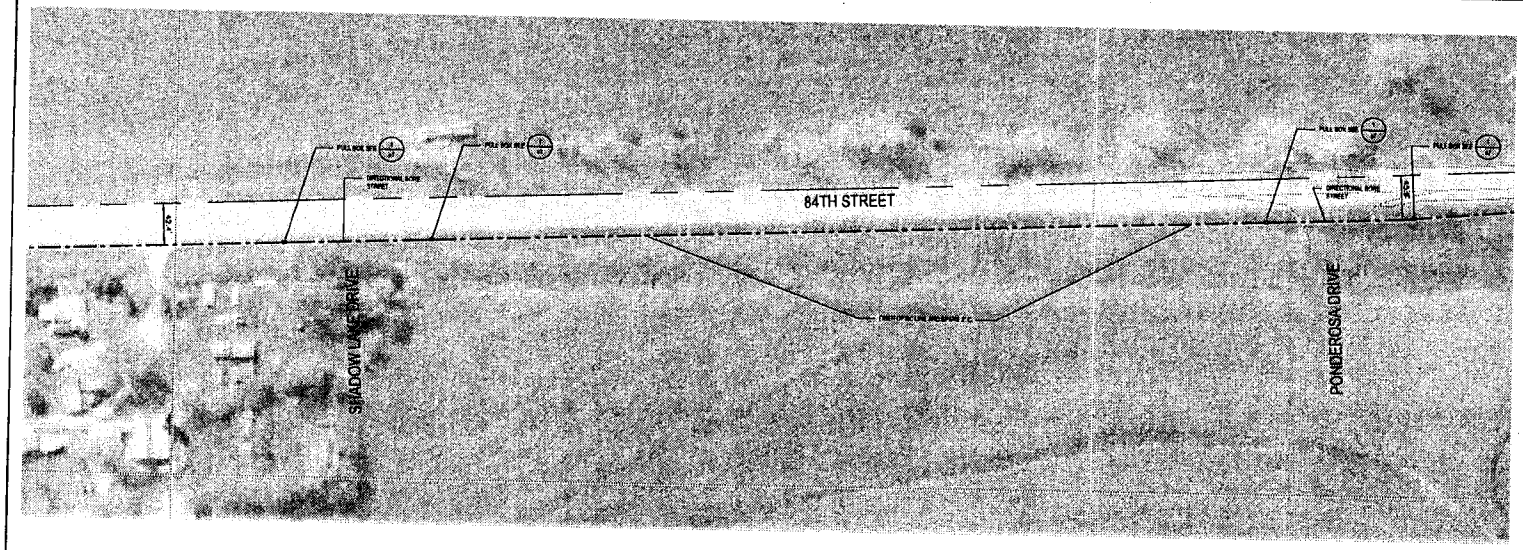


SOUTH 84TH STREET AT CAPEHART ROAD
1" = 50'-0"

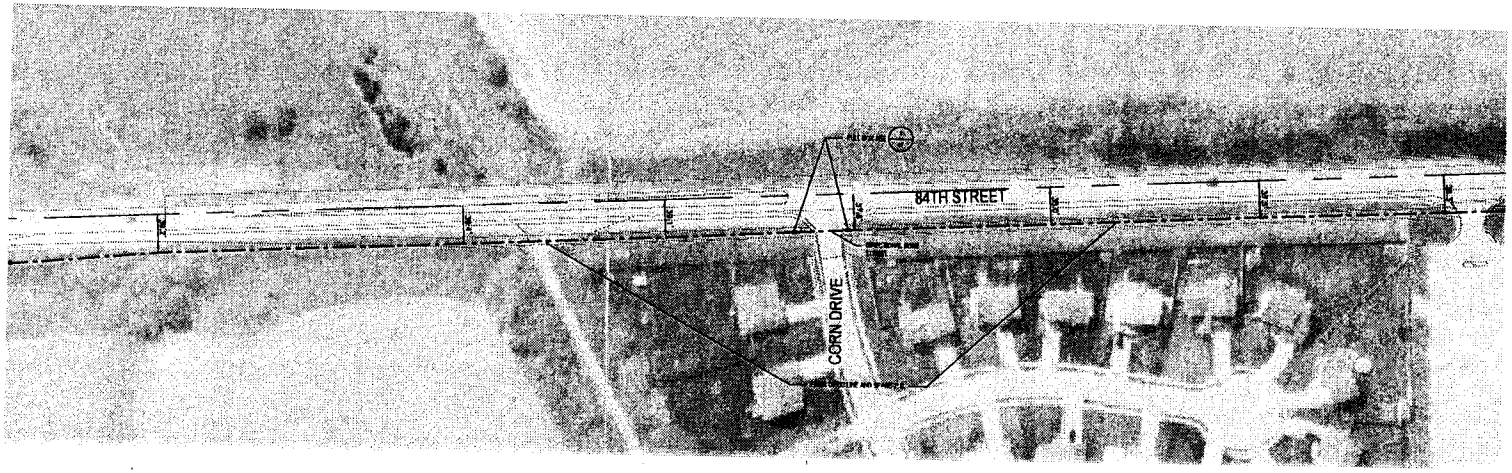
Fiber Optic Site Plan

Optical Fiber Link
84th Street
Sarpy County, Nebraska

date: 09-03-10
project number: 10156
designed by: mwf
drawn by: mwf
sheet number: e4



SOUTH 84TH STREET AT SHADOW LAKE DRIVE
1" = 50'-0"

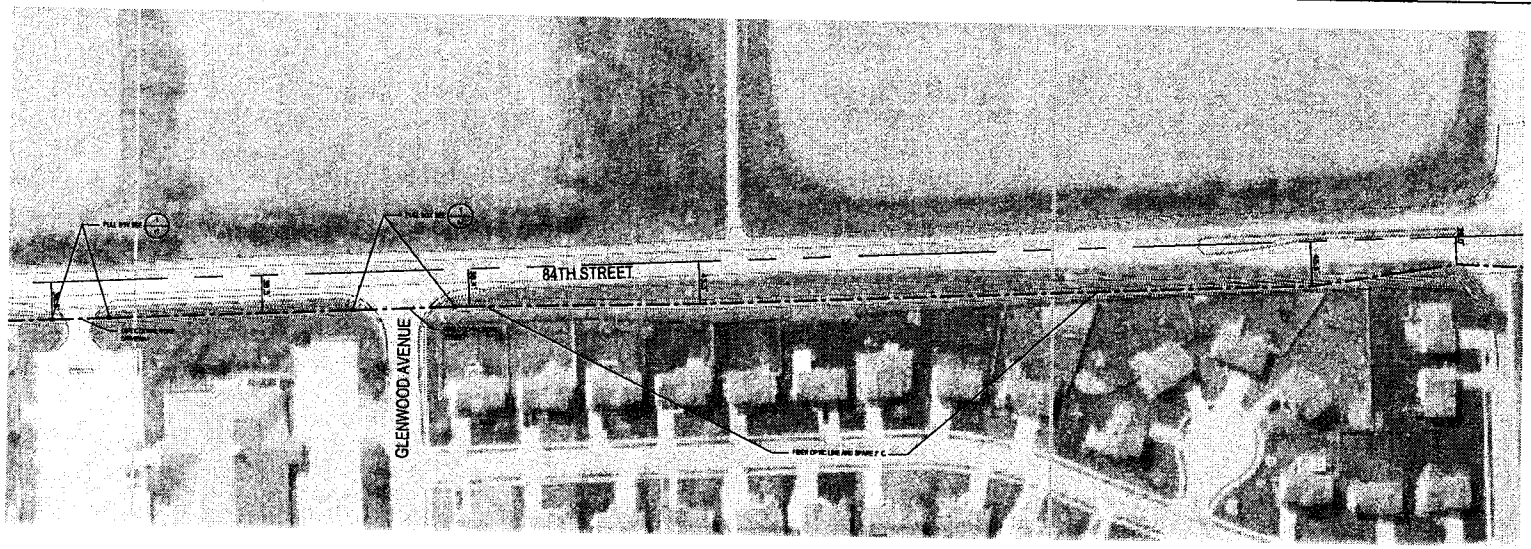


SOUTH 84TH STREET AT CORN DRIVE
1" = 50'-0"

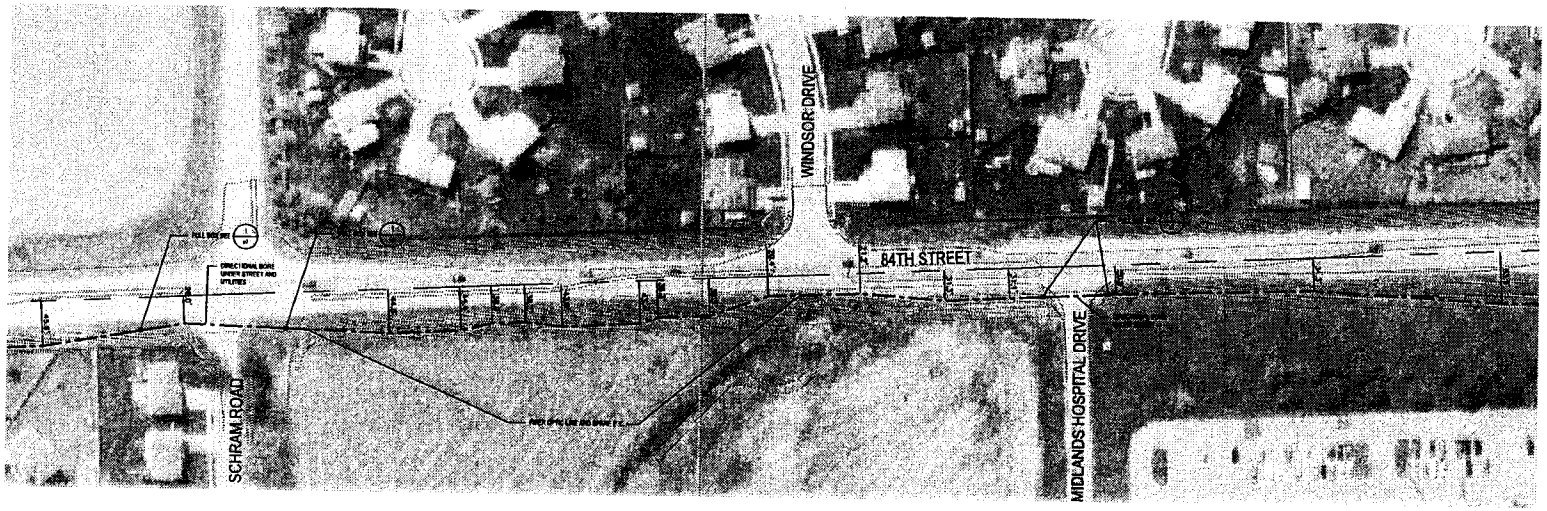
Fiber Optic Site Plan

Optical Fiber Link
84th Street
Sarpy County, Nebraska

e5



SOUTH 84TH STREET AT GLENWOOD AVENUE
1" = 50'-0"

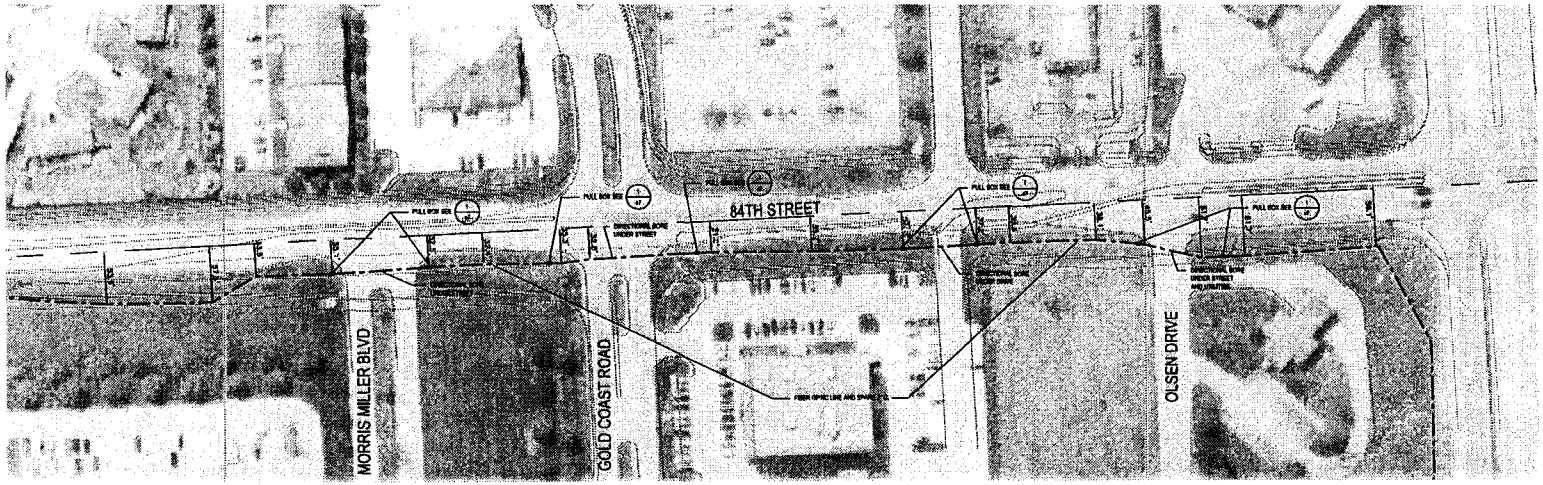


SOUTH 84TH STREET AT SCHRAM ROAD
1" = 50'-0"

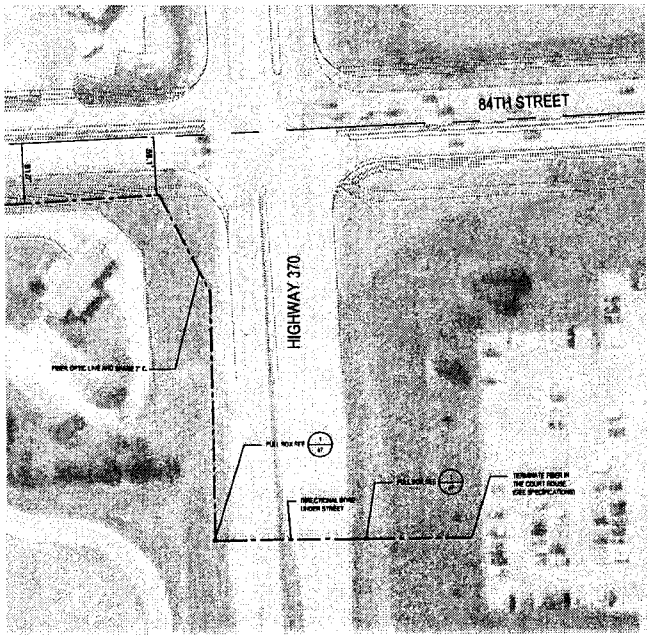
Fiber Optic Site Plan

Optical Fiber Link
84th Street
Sarpy County, Nebraska

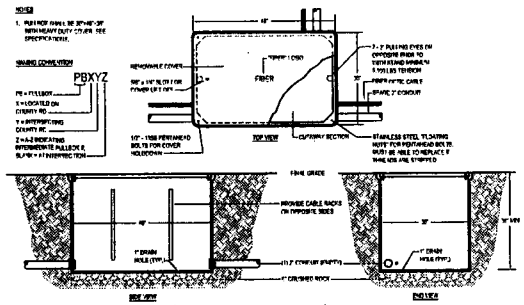
e6



SOUTH 84TH STREET AT GOLD COAST ROAD
1" = 50'-0"



SOUTH 84TH STREET AT HIGHWAY 370
1" = 50'-0"



IN-GRADE PULLBOX DETAIL
NO SCALE

morrissey engineering, inc.
mechanical • electrical engineers
telecommunications • data processing
1650 south 119th street, omaha, ne 68144
t: 402.491.4144 f: 402.491.4145

Fiber Optic Site Plan and Details
Optical Fiber Link
84th Street
Sarpy County, Nebraska

STATE OF NEBRASKA

date: 09-03-10
project number: 95158
drawn by: srf
checked by: srf
sheet number: e7

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we
Sadler Electric, Inc., 5855 S. 77th St., Omaha, NE 68127
as Principal, hereinafter called the Principal and
Granite Re, Inc., 14001 Quailbrook Dr., Oklahoma City, OK 73134

a corporation duly organized under the laws of the State of **Oklahoma**
as Surety, hereinafter called the Surety, are held and firmly bound unto
Treasurer of Sarpy County, NE

as Obligee, hereinafter called the Obligee, in the sum of **five percent of the amount bid**

Dollars **($ -5%-)**

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents

WHEREAS, the Principal has submitted a bid for **Fiber Connectivity for Sarpy County Law Enforcement Center**

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good. faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this **23rd** day of **September** **2010**

(Witness)

(Witness)

SADLER ELECTRIC, INC.
(Principal)

(Title) (Seal)

GRANITE RE, INC.
(Surety)

(Title) **(Seal)**

Jacob J. Buss, Attorney-in-Fact

GRANITE RE, INC.
GENERAL POWER OF ATTORNEY

Know all Men by these Presents:

That GRANITE RE, INC., a corporation organized and existing under the laws of the State of OKLAHOMA and having its principal office at the City of OKLAHOMA CITY in the State of OKLAHOMA does hereby constitute and appoint:

ROBERT T. CIRONE; JAMES M. KING; JACOB J. BUSS; SUZANNE P. WESTERHOLT its true and lawful Attorney-in-Fact(s) for the following purposes, to wit:

To sign its name as surety to, and to execute, seal and acknowledge any and all bonds, and to respectively do and perform any and all acts and things set forth in the resolution of the Board of Directors of the said GRANITE RE, INC. a certified copy of which is hereto annexed and made a part of this Power of Attorney; and the said GRANITE RE, INC. through us, its Board of Directors, hereby ratifies and confirms all and whatsoever the said:

ROBERT T. CIRONE; JAMES M. KING; JACOB J. BUSS; SUZANNE P. WESTERHOLT may lawfully do in the premises by virtue of these presents.

In Witness Whereof, the said GRANITE RE, INC. has caused this instrument to be sealed with its corporate seal, duly attested by the signatures of its President and Secretary/Treasurer, this 29th day of August, 2007.

Kenneth D. Whittington, President

Rodman A. Frates, Secretary/Treasurer

STATE OF OKLAHOMA)
) SS:
COUNTY OF OKLAHOMA)

On this 29th day of August, 2007, before me personally came Kenneth D. Whittington, President of the GRANITE RE, INC. Company and Rodman A. Frates, Secretary/Treasurer of said Company, with both of whom I am personally acquainted, who being by me severally duly sworn, said, that they, the said Kenneth D. Whittington and Rodman A. Frates were respectively the President and the Secretary/Treasurer of the GRANITE RE, INC., the corporation described in and which executed the foregoing Power of Attorney; that they each knew the seal of said corporation; that the seal affixed to said Power of Attorney was such corporate seal, that it was so fixed by order of the Board of Directors of said corporation, and that they signed their name thereto by like order as President and Secretary/Treasurer, respectively, of the Company.

My Commission Expires:
May 9, 2012
Commission #: 00005708

Notary Public

GRANITE RE, INC.
Certificate

THE UNDERSIGNED, being the duly elected and acting Secretary/Treasurer of Granite Re, Inc., an Oklahoma Corporation, HEREBY CERTIFIES that the following resolution is a true and correct excerpt from the July 15, 1987, minutes of the meeting of the Board of Directors of Granite Re, Inc. and that said Power of Attorney has not been revoked and is now in full force and effect.

"RESOLVED, that the President, any Vice President, the Secretary, and any Assistant Vice President shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the Company in the course of its business. On any instrument making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or undertaking of the Company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced; provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

IN WITNESS WHEREOF, the undersigned has subscribed this Certificate and affixed the corporate seal of the Corporation this 23rd day of Sept., 20 10

Rodman A. Frates, Secretary/Treasurer

GR0800-1

SADLER ELECTRIC, INC.
5855 SO. 77TH ST • OMAHA, NE 68127-4203

To SEALED BID - FIBER CONNECTIVITY

SADLER ELECTRIC, INC.
5855 SO. 77TH ST • OMAHA, NE 68127-4203

To BID BOND - FIBER CONNECTIVITY

Deb Houghtaling
Sarpy County Board Business Office
1210 Golden Gate Drive
Papillion, NE 68046

402-331-3217

Deb Houghtaling

Fred Uhe
Chief Deputy

Sarpy County Clerk

Renee Lansman
Assistant Chief Deputy

1210 Golden Gate Drive • Papillion, Nebraska 68046-2895
Phone: 402-593-2105 • Fax: 402-593-4471 • Website www.Sarpy.com • Email: Clerk@sarpy.com

October 5, 2010

Sadler Electric Inc.
Mr. Brian Sadler
5855 South 77th Street
Omaha NE 68127

RE: Sarpy County Fiber Connectivity for the new Law Enforcement Center

Dear Mr. Sadler:

Enclosed are **two originals** of the contract agreement. Please have them **signed and attested** by a representative of your company and **return ONE** to this office.

PLEASE NOTE: Please provide the required Performance Bond, and Insurance certificate(s) in the stated amount(s) along with the fully executed agreement prior to beginning work under this agreement.

Mail or return to:

Sarpy County Clerk
Attn: Chris Vance
1210 Golden Gate Drive
Papillion, NE 68046-2895

Sincerely,

Deb Houghtaling

Deb Houghtaling
Sarpy County Clerk

Enclosures (2)
DH/kk

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A311

Labor and Material Payment Bond

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PERFORMANCE BOND IN FAVOR OF THE OWNER CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT

KNOW ALL PERSONS BY THESE PRESENTS: that

(Here insert full name and address or legal title of Contractor)

Sadler Electric, Inc., 5855 S. 77th St., Omaha, NE 68127

as Principal, hereinafter called Principal, and,

(Here insert full name and address or legal title of Surety)

Granite Re, Inc., 14001 Quailbrook Dr., Oklahoma City, OK 73134

as Surety, hereinafter called Surety, are held and firmly bound unto

(Here insert full name and address or legal title of Owner)

County of Sarpy, 1210 Golden Gate Dr., Papillion, NE 68046

as Obligee, hereinafter called Owner, for the use and benefit of claimants as hereinbelow defined, in the amount of

Two Hundred Three Thousand Five Hundred Eighty And 00/100----------

(Here insert a sum equal to at least one-half of the contract price)

Dollars (**$203,580.00**),

for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated , entered into a contract with Owner for

Fiber Connectivity for the Sarpy County Law Enforcement Center

in accordance with Drawings and Specifications prepared by

(Here insert full name and address or legal title of Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above-named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one (1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the Project, or any part thereof, is situated, or in the United States District Court for the district in which the Project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

Signed and sealed this **14th** day of **October, 2010.**

SADLER ELECTRIC, INC.
(Principal) *(Seal)*

(Witness)

PRES.
(Title)

GRANITE RE, INC.
(Surety) *(Seal)*

(Witness)

By
Robert T. Cirone Attorney-in-Fact

GRANITE RE, INC.
GENERAL POWER OF ATTORNEY

Know all Men by these Presents:

That GRANITE RE, INC., a corporation organized and existing under the laws of the State of OKLAHOMA and having its principal office at the City of OKLAHOMA CITY in the State of OKLAHOMA does hereby constitute and appoint:

ROBERT T. CIRONE; JAMES M. KING; JACOB J. BUSS; SUZANNE P. WESTERHOLT its true and lawful Attorney-in-Fact(s) for the following purposes, to wit:

To sign its name as surety to, and to execute, seal and acknowledge any and all bonds, and to respectively do and perform any and all acts and things set forth in the resolution of the Board of Directors of the said GRANITE RE, INC. a certified copy of which is hereto annexed and made a part of this Power of Attorney; and the said GRANITE RE, INC. through us, its Board of Directors, hereby ratifies and confirms all and whatsoever the said:

ROBERT T. CIRONE; JAMES M. KING; JACOB J. BUSS; SUZANNE P. WESTERHOLT may lawfully do in the premises by virtue of these presents.

In Witness Whereof, the said GRANITE RE, INC. has caused this instrument to be sealed with its corporate seal, duly attested by the signatures of its President and Secretary/Treasurer, this 29th day of August, 2007.

Kenneth D. Whittington, President

Rodman A. Frates, Secretary/Treasurer

STATE OF OKLAHOMA)
) SS:
COUNTY OF OKLAHOMA)

On this 29th day of August, 2007, before me personally came Kenneth D. Whittington, President of the GRANITE RE, INC. Company and Rodman A. Frates, Secretary/Treasurer of said Company, with both of whom I am personally acquainted, who being by me severally duly sworn, said, that they, the said Kenneth D. Whittington and Rodman A. Frates were respectively the President and the Secretary/Treasurer of the GRANITE RE, INC., the corporation described in and which executed the foregoing Power of Attorney; that they each knew the seal of said corporation; that the seal affixed to said Power of Attorney was such corporate seal, that it was so fixed by order of the Board of Directors of said corporation, and that they signed their name thereto by like order as President and Secretary/Treasurer, respectively, of the Company.

My Commission Expires:
May 9, 2012
Commission #: 00005708

Notary Public

GRANITE RE, INC.
Certificate

THE UNDERSIGNED, being the duly elected and acting Secretary/Treasurer of Granite Re, Inc., an Oklahoma Corporation, HEREBY CERTIFIES that the following resolution is a true and correct excerpt from the July 15, 1987, minutes of the meeting of the Board of Directors of Granite Re, Inc. and that said Power of Attorney has not been revoked and is now in full force and effect.

"RESOLVED, that the President, any Vice President, the Secretary, and any Assistant Vice President shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the Company in the course of its business. On any instrument making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or undertaking of the Company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced; provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

IN WITNESS WHEREOF, the undersigned has subscribed this Certificate and affixed the corporate seal of the Corporation this 14th day of October, 20 10.

Rodman A. Frates, Secretary/Treasurer

ORIGINAL BOND # 2 OF 2

Bond # GRNE16823

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A311

Performance Bond

KNOW ALL PERSONS BY THESE PRESENTS: that

(Here insert full name and address or legal title of Contractor)

Sadler Electric, Inc., 5855 S. 77th St., Omaha, NE 68127

as Principal, hereinafter called Contractor, and,

(Here insert full name and address or legal title of Surety)

Granite Re, Inc., 14001 Quailbrook Dr., Oklahoma City, OK 73134

as Surety, hereinafter called Surety, are held and firmly bound unto

(Here insert full name and address or legal title of Owner)

County of Sarpy, 1210 Golden Gate Dr., Papillion, NE 68046

as Obligee, hereinafter called Owner, in the amount of **Two Hundred Three Thousand Five Hundred Eighty And 00/100**---
----------Dollars (**$203,580.00**),

for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated , entered into a contract with Owner for

Fiber Connectivity for the Sarpy County Law Enforcement Center

in accordance with Drawings and Specifications prepared by

(Here insert full name and address or legal title of Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1) Complete the Contract in accordance with its terms and conditions; or

2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the Owner and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Owner, and make available as Work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price," as used in this paragraph shall mean the total amount payable by Owner to Contractor under the Contract and any amendments thereto, less the amount paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of the Owner.

Signed and sealed this **14th** day of **October, 2010.**

SADLER ELECTRIC, INC.

(Principal) *(Seal)*

(Witness)

PRES

(Title)

GRANITE RE, INC.

(Surety) *(Seal)*

(Witness)

By

Robert T. Cirone Attorney-in-Fact

CERTIFICATE OF LIABILITY INSURANCE

OP ID BW

DATE (MM/DD/YYYY) 10/15/10

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER

Marcotte Insurance Agency, Inc
11422 Miracle Hills Drive #100
Omaha NE 68154-4420
Phone:402-398-9009 Fax:402-398-0917

CONTACT NAME:
PHONE (A/C, No, Ext): FAX (A/C, No):
E-MAIL ADDRESS:
PRODUCER CUSTOMER ID #: SADLE-1

INSURED

Sadler Electric, Inc.
Attn: Robert Sadler
5855 S 77th St
Omaha NE 68127-4203

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Columbia National Insurance Co	19640
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT LOC			CMPNE11947	07/27/10	07/27/11	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1000000 $ 100000 $ 5000 $ 1000000 $ 2000000 $ 2000000 $
A	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			CAPNE11947	07/27/10	07/27/11	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1000000 $ $ $ $ $
A	UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DEDUCTIBLE X RETENTION $ 10,000			CUPNE11947	07/27/10	07/27/11	EACH OCCURRENCE AGGREGATE	$ 5000000 $ 5000000 $ $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WCPNE11947	07/27/10	07/27/11	X WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 500000 $ 500000 $ 500000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Project: Fiber Connectivity for the Sarpy County Law Enforcement Center

CERTIFICATE HOLDER

SARP001

Sarpy County
Attn: Deb Houghtaling
1210 Golden Gate Drive
Papillion NE 68046

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Daniel O Hartman