NOTICE OF AWARD OF CONTRACT

TO: VARIOUS VENDORS (SEE ATTACHED) DATE ISSUED: DECEMBER 12, 2012

CURRENT CONTRACT NO: 702-12-5

CONTRACT TITLE: DTS - FIBER OPTIC NETWORK MAINTENANCE

THIS IS A NOTICE OF AWARD OF CONTRACT AND NOT AN ORDER. NO WORK IS AUTHORIZED UNTIL THE VENDOR RECEIVES A VALID COUNTY PURCHASE ORDER ENCUMBERING CONTRACT FUNDS.

Your firm is awarded the above referenced contract. The contract term covered by this Notice of Award is effective MARCH 1, 2013 and expires on FEBRUARY 28, 2018.

The contract documents consist of the terms, conditions, and specifications of Invitation to Bid No. 702-12 and the bid of the Contractor.

CONTRACT PRICING:

1) REFER TO CONTRACTORS’ BID FORMS
2) PRICING FIRM FOR THE FIRST THIRTY SIX (36) MONTHS, PRICE INCREASES THEREAFTER BASED ON CPI-U FOR THE MONTH OF JULY

ATTACHMENTS:

1) CONTRACTORS’ BID FORMS
2) SPECIFICATION EXCERPT

EMPLOYEES NOT TO BENEFIT:

NO COUNTY EMPLOYEE SHALL RECEIVE ANY SHARE OR BENEFIT OF THIS CONTRACT NOT AVAILABLE TO THE GENERAL PUBLIC.

VENDOR CONTACT: SEE ATTACHED TELEPHONE NO.: SEE ATTACHED

VENDOR PAYMENT TERMS: NET 30 DAYS

COUNTY CONTACT: JOHN BAYLISS TELEPHONE NO.: 703-228-8790

EMAIL ADDRESS: jbayliss@arlingtonva.us

CONTRACT AUTHORIZATION DISTRIBUTION

Elizabeth Dooley, CFO, CPPB Date 12/13/12
Assistant Purchasing Agent BID FOLDER: 1
VENDOR LIST

PRIMARY SERVICES PROVIDER
Contract Number 702-12-5

KCI CONVERGENT TECHNOLOGIES, INC.
Kenneth J. Harmel
921 Mercantile Drive, Suite KJH
Hanover, MD 21076
Tel. 410-309-7902

SECONDARY SERVICES PROVIDER
Contract Number 702-12-6

N TO N FIBER, INC.
Kevin Nordquist
8664 Virginia Meadows Drive
Manassas, VA 20109
Tel. 703-331-3884
ARLINGTON COUNTY, VIRGINIA
OFFICE OF THE PURCHASING AGENT
SUITE 500, 2100 CLARENDON BOULEVARD
ARLINGTON, VA 22201

AGREEMENT NO. 702-12-5

THIS AGREEMENT is made, on the date of execution by the County, between KCI Convergent Technologies, Inc., 921 Mercantile Drive, suites KJH, Hanover, MD 21076 ("Contractor") a Maryland Corporation authorized to do business in the Commonwealth of Virginia, and the County Board of Arlington County, Virginia (County). The County and the Contractor, for the consideration hereinafter specified, agree as follows:

1. CONTRACT DOCUMENTS
   The Contract Documents consist of:

   • Agreement No. 702-12-5, and all modifications properly incorporated into the Agreement
   • Exhibit A - Arlington County Invitation to Bid No. 702-12, including General Conditions, Special Conditions, and Supplementary Specifications
   • Exhibit B (The Arlington County Department of Environmental Services’ Standards and Specifications, Current Edition)
   • Exhibit C - Unit price bid of the Contractor

   Where the terms and provisions of this Agreement vary from the terms and provisions of the other Contract Documents, the terms and provision of this Agreement shall prevail over the other Contract Documents.

   Exhibits A and B are considered complementary documents, what is in one shall be considered as in all; where the terms of these Contract Documents vary the most stringent shall apply; and Exhibits A and B shall prevail over Exhibit C.

   The Contract Documents set forth the entire Agreement between the County and the Contractor. The County and the Contractor agree that no representative or agent of either of them has made any representation or promise with respect to the parties’ Agreement which is not contained in the Contract Documents. The Contract Documents may be referred to herein as the “Contract” or “Agreement.”

2. PROJECT OFFICER
   The performance of the Contractor is subject to the general control, review and approval of the County Project Officer, who shall be appointed by the Director of the Arlington County Department of Technology Services or designee. The Contractor shall not comply with requests and/or orders issued by other than the Project Officer of designee. However, it shall be the responsibility of the Contractor to manage the details of the execution and performance of its Work under this Agreement. Where the term "Engineer" is used in the Contract Documents, it shall be interpreted to mean “Project Officer”.

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3. **SCOPE OF WORK**
The Contractor will furnish all labor, materials, and equipment for the maintenance/installation and emergency restoration services of Arlington County's fiber optic network (as the primary Contractor) (the "Project") and all other work shown, described and required in the Contract Documents (hereinafter "the Work"). The Work shall be performed according to the standards established by the Contract Documents read together as a single specification. It shall be the obligation of the Contractor to obtain clarification from the Project Officer concerning any questions about or conflicts in the specifications, drawings and construction notes in a timely way so as not to delay the progress of the Work. The Contract Documents set forth the minimum Work estimated by the County and the Contractor to be necessary to complete the Work. It shall be the Contractor's responsibility, at solely the Contractor's cost, to provide sufficient services to fulfill the purposes of the Work. Nothing in the Contract Documents shall be construed to limit the Contractor's responsibility to manage the details and execution of its Work.

4. **CONTRACT TERM**
The term of this Agreement will commence on **March 1, 2013**, and shall be completed no later than **February 28, 2018**, subject to any written modifications as provided for in the Contract Documents.

5. **CONTRACT AMOUNT**
The County will pay the Contractor according to the unit prices shown in Exhibit C, subject to the terms and conditions of the Agreement and provided the Work is performed to the satisfaction of and is accepted by the Project Officer. The Contractor agrees that it shall complete the Work for the total Contract Amount specified in this section unless such amount is modified as provided in this Agreement. The Contract Amount includes all of the Contractor's costs and fees (profit) and is inclusive of all anticipated or known site conditions, anticipated or known materials, labor, and equipment costs, or any other costs which should reasonably have been expected by the Contract Documents.

6. **PRICE ADJUSTMENTS NEGOTIATED UP TO CPI-U**
The Contract Amount shall remain firm for the first thirty six (36) months of the Contract Term. Any proposed modifications to the Contract Amount for ensuing years shall be submitted by the Contractor to the Project Officer ninety (90) days prior to the anniversary date of the Agreement. Any price modifications shall be negotiated and approved by Arlington County in writing prior to new prices going into effect.

Increases in the Contract Amount for ensuing years shall not exceed the percentage of change in the U.S. Department of Labor, Consumer Price Index, All Items, Unadjusted, Urban Areas (CPI-U) for the twelve (12) month period ending in **JULY** of each Contract Year.

If the Contractor and the County do not agree on a price using the procedure set forth above by the thirtieth (30th) calendar day prior to the contract anniversary date, the County may terminate the Contract. The Contract price(s) changed as a result of this procedure shall become effective on the anniversary date of the Contract and shall be binding on the Contractor for the remaining Contract Term.
7. PROGRESS PAYMENTS AND RETAINAGE
The County will make monthly progress payments to the Contractor upon written
application by the Contractor, on the basis of a written estimate, provided
by the Contractor and approved by the Project Officer, of all of the work
performed during the preceding calendar month as approved by the Project
Officer. However, in making any progress payment, five percent (5%) of the
amount of the estimate upon which the progress payment is based will be
retained by the County until final completion and acceptance of all work
covered by the Agreement.

All material and work covered by partial payments made by the County will
become the property solely of the County at the time the partial payment is
made, but this provision will not be construed as relieving the Contractor
from the sole responsibility, care and custody for all materials and work
upon which payments have been made, or the restoration of any damaged work,
nor shall this provision be construed as a waiver of the County's right to
require the fulfillment of all of the terms of the Agreement.

When calculating payment for materials on-site, the County shall not pay for
materials which are not scheduled for incorporation into the Work within
sixty (60) days from the date of application for payment.

8. PAYMENT TERMS
Payment terms will be recorded by the County as net thirty (30) days. The
County will pay the Contractor within thirty (30) days after the date of
receipt of a correct (as determined by the Project Officer) invoice approved
by the Project Officer describing completed work which is reasonable and
allocable to the Contract, or the date of receipt of the entire order, or the
date of acceptance of the work which meets the Contract requirements,
whichever is later. Payments will be made by the County for goods or
services furnished, delivered, inspected, and accepted upon receipt of
invoices submitted on the date of shipment or delivery of service, subject to
applicable payment terms. The number of the Purchase Order pursuant to which
authority shipments have been made or services performed shall appear on all
invoices. Invoices shall be submitted in duplicate. Unless otherwise
specified by the Contract Documents, payment shall not be made prior to
delivery and acceptance of the entire order by the County.

9. PAYMENT OF SUBCONTRACTORS
The Contractor is obligated to take one of the two following actions within
seven (7) calendar days after receipt of amounts paid to the Contractor by
the County for work performed by any subcontractor under this Contract:

a. Pay the subcontractor for the proportionate share of the total payment
received from the County attributable to the work performed by the
subcontractor under this Contract; or

b. Notify the County and the subcontractor, in writing, of the
Contractor's intention to withhold all or a part of the subcontractor's
payment with the reason for nonpayment.

The Contractor is obligated to pay interest to the subcontractor on all
amounts owed by the Contractor to the subcontractor that remain unpaid after
seven (7) calendar days following receipt by the Contractor of payment from
the County for work performed by the subcontractor under this Contract,
except for amounts withheld as allowed in subsection b., above. Unless

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otherwise provided under the terms of this Contract, interest shall accrue at the rate of one percent (1%) per month.

The Contractor shall include in each of its subcontracts, if any are permitted, a provision requiring each subcontract to include or otherwise be subject to the same payment and interest requirements as those contained herein with respect to each lower-tier subcontractor.

The Contractor's obligation to pay an interest charge to a subcontractor pursuant to this section may not be construed to be an obligation of the County. A Contract modification may not be made for the purpose of providing reimbursement for such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.

10. RELEASE AND REQUEST FOR FINAL PAYMENT
Upon completion of the Project and before Final Acceptance, the Contractor will submit to the Project Officer a signed copy of the Arlington County Release and Request for Final Payment form per the General Conditions.

11. NON-APPROPRIATION
All funds for payments by the County to the Contractor pursuant to this Contract are subject to the availability of an annual appropriation for this purpose by the County Board of Arlington County, Virginia. In the event of non-appropriation of funds by the County Board of Arlington County, Virginia for the services provided under this Contract or substitutes for such services which are as advanced or more advanced in their technology, the County will terminate the Contract, without termination charge or other liability to the County, on the last day of the then-current fiscal year or when the appropriation made for the then-current year for the services covered by this Contract is spent, whichever event occurs first. If funds are not appropriated at any time for the continuation of this Contract, cancellation will be accepted by the Contractor on thirty (30) days prior written notice, but failure to give such notice shall be of no effect and the County shall not be obligated under this Contract beyond the date of termination specified in the County’s written notice.

12. COUNTY PURCHASE ORDER REQUIREMENT
County purchases are authorized only if a County Purchase Order is issued in advance of the transaction, indicating that the ordering agency has sufficient funds available to pay for the purchase. Such a Purchase Order is to be provided to the Contractor by the ordering agency. The County will not be liable for payment for any purchases made by its employees without appropriate purchase authorization issued by the County Purchasing Agent. If the Contractor provides services without a signed County Purchase Order, it does so at its own risk and expense.

13. LIEN
It is expressly agreed that after any payment has been made by the County either to the Contractor or to any subcontractor, laborer, or any other person for work done, or labor or material supplied under the Contract, the County will have a lien upon all material delivered to the site either by the Contractor or any subcontractor, or for the Contractor, which is to be used in the performance of the Contract.

14. EMPLOYMENT DISCRIMINATION BY CONTRACTOR PROHIBITED
During the performance of this Contract, the Contractor agrees as follows:
a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by federal or Virginia law related to discrimination in employment except where there is a bona fide occupational qualification reasonably necessary or related to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that the Contractor is an Equal Opportunity Employer.

c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

d. The Contractor will comply with the provisions of the Americans with Disabilities Act of 1990 which prohibits discrimination against individuals with disabilities in employment, and mandates their full participation in both publicly and privately-provided services and activities.

e. The Contractor will include the provisions of the foregoing paragraphs in every subcontract or purchase order of over $10,000.00, so that these provisions will apply to each subcontractor or vendor.

15. EMPLOYMENT OF UNAUTHORIZED ALIENS PROHIBITED
In accordance with § 2.2-4311.1 of the Code of Virginia, 1950, as amended, the Contractor acknowledges that it does not, and shall not during the performance of this Contract, knowingly employ an unauthorized alien as that term is defined in the federal Immigration Reform and Control Act of 1986.

16. DRUG-FREE WORKPLACE TO BE MAINTAINED BY CONTRACTOR
During the performance of this Contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor’s employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of marijuana or any other controlled substance is prohibited in the Contractor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000.00 relating to this Contract, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor by Arlington County, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.
17. **PROJECT STAFF**
The County will, throughout the Contract Term, have the right of reasonable rejection and approval of staff or subcontractors assigned to the project by the Contractor. If the County reasonably rejects staff or subcontractors, the Contractor must provide replacement staff or subcontractors satisfactory to the County in a timely manner and at no additional cost to the County. The day-to-day supervision and control of the Contractor's employees shall be solely the responsibility of the Contractor.

18. **FAILURE TO DELIVER**
In case of failure to deliver goods or services in accordance with the Contract terms and conditions, the County, after due oral or written notice, may procure the goods or services from other sources and hold the Contractor responsible for any resulting additional purchase and administrative costs; provided, that if public necessity requires the use of materials or supplies not conforming to the specifications, they may be accepted and payment thereof shall be made at a reduction in price to be determined solely by the County. This remedy shall be in addition to any other remedies, which the County may have. The County shall be entitled to offset such costs against any sums owed by the County to the Contractor.

19. **UNSATISFACTORY WORK**
If any of the work done, or material, goods, or equipment provided, by the Contractor is unsatisfactory to the County, the Contractor shall, on being notified by the County, immediately remove at the Contractor's expense such unsatisfactory work, material, goods, or equipment and replace the same with work, material, goods, or equipment satisfactory to the County. In the event the Contractor fails within fifteen (15) calendar days after receipt of written notice to remove improper or unsuitable work, material, goods, or equipment and replace it with suitable and satisfactory work, material, goods, or equipment, the County shall have the right, but not the obligation, to remove or replace the rejected work, material, goods, or equipment at the expense of the Contractor. This paragraph applies during the Contract term and during any warranty or guarantee period. At its discretion, the County shall be entitled to offset such expense against any sums owed by the County to the Contractor under this Contract. If the Project Officer and the County deem it expedient not to require correction or replacement of the work which has not been done in accordance with the Contract, an appropriate adjustment to the Contract Amount may be made therefore.

20. **TERMINATION FOR CAUSE, INCLUDING BREACH AND DEFAULT; CURE**
The County shall have the right to terminate this Contract prior to the end of the Contract Term if the Contractor is in breach or default or has failed to perform satisfactorily the Work required, as determined by the County in its discretion.

If the County determines that the Contractor has failed to perform satisfactorily, then the County will give the Contractor written notice of such failure(s) and the opportunity to cure such failure(s) at least fifteen (15) calendar days before termination of the Contract takes effect ("Cure Period"). If the Contractor fails to cure within the Cure Period or as otherwise specified in the notice, the Contract may be terminated for the Contractor's failure to provide satisfactory Contract performance. Upon such termination, the Contractor may apply for compensation for Contract services satisfactorily performed by the Contractor and allocable to the Contract and accepted by the County prior to such termination unless otherwise barred by the Contract ("Termination Costs"). In order to be considered, such request
for Termination Costs, with all supporting documentation, must be submitted to the County Project Officer within fifteen (15) calendar days after the expiration of the Cure Period. The County may accept or reject, in whole or in part, the application for Termination Costs and notify the Contractor of same within a reasonable time thereafter.

If the County terminates the Contract for default or breach of any Contract provision or condition, then the termination shall be immediate after notice from the County to the Contractor (unless the County in its discretion provides for an opportunity to cure) and the Contractor shall not be permitted to seek Termination Costs.

Upon any termination pursuant to this section, the Contractor shall be liable to the County for all costs incurred by the County after the effective date of termination, including costs required to be expended by the County to complete the Work covered by the Contract, including costs of delay in completing the Work or the cost of repairing or correcting any unsatisfactory or non-compliant work performed or provided by the Contractor or its subcontractors. Such costs shall be either deducted from any amount due the Contractor or shall be promptly paid by the Contractor to the County upon demand by the County. Additionally, and notwithstanding any provision in this Contract to the contrary, the Contractor is liable to the County, and the County shall be entitled to recover, all damages to which the County is entitled by this Contract or by law, including and without limitation, direct damages, indirect damages, consequential damages, delay damages, replacement costs, refund of all sums paid by the County to the Contractor under the Contract and all attorney fees and costs incurred by the County to enforce any provision of this Contract.

Except as otherwise directed by the County in the notice, the Contractor shall stop work on the date of receipt of notice of the termination or other date specified in the notice, place no further orders or subcontracts for materials, services, or facilities except as are necessary for the completion of such portion of the Work not terminated, and terminate all vendors and subcontractors and settle all outstanding liabilities and claims. Any purchases after the date of termination contained in the notice shall be the sole responsibility of the contractor.

In the event any termination for cause, default, or breach shall be found to be improper or invalid by any court of competent jurisdiction then such termination shall be deemed to have been a termination for convenience.

21. **TERMINATION FOR THE CONVENIENCE OF THE COUNTY**

The performance of Work under this Contract may be terminated by the County Purchasing Agent in whole or in part whenever the Purchasing Agent shall determine that such termination is in the County's best interest. Any such termination shall be effected by the delivery to the Contractor of a written notice of termination at least fifteen (15) calendar days before the date of termination, specifying the extent to which performance of the Work under this Contract is terminated and the date upon which such termination becomes effective. The Contractor will be entitled to receive compensation for all Contract services satisfactorily performed by the Contractor and allocable to the Contract and accepted by the County prior to such termination and any other reasonable termination costs as negotiated by the parties, but no amount shall be allowed for anticipatory profits.
After receipt of a notice of termination and except as otherwise directed, the Contractor shall stop all designated work on the date of receipt of the notice of termination or other date specified in the notice; place no further orders or subcontracts for materials, services or facilities except as are necessary for the completion of such portion of the work not terminated; immediately transfer all documentation and paperwork for terminated work to the County; and terminate all vendors and subcontracts and settle all outstanding liabilities and claims.

22. INDEMNIFICATION
The Contractor covenants for itself, its employees, and subcontractors to save, defend, hold harmless and indemnify the County, and all of its elected and appointed officials, officers, current and former employees, agents, departments, agencies, boards, and commissions (collectively the “County” for purposes of this section) from and against any and all claims made by third parties or by the County for any and all losses, damages, injuries, fines, penalties, costs (including court costs and attorney’s fees), charges, liability, demands or exposure, however caused, resulting from, arising out of, or in any way connected with the Contractor’s acts or omissions, including the acts or omissions of its employees and/or subcontractors, in performance or nonperformance of the work called for by the Contract Documents. This duty to save, defend, hold harmless and indemnify shall survive the termination of this Contract. If, after notice by the County, the Contractor fails or refuses to fulfill its obligations contained in this section, the Contractor shall be liable for and reimburse the County for any and all expenses, including but not limited to, reasonable attorneys fees incurred and any settlements or payments made. The Contractor shall pay such expenses upon demand by the county and failure to do so may result in such amounts being withheld from any amounts due to Contractor under this Contract.

23. INTELLECTUAL PROPERTY INDEMNIFICATION
The Contractor warrants and guarantees that no intellectual property rights (including, but not limited to, copyright, patent, mask work and trademark) of third parties are infringed or in any manner involved in or related to the services provided hereunder.

The Contractor further covenants for itself, its employees, and subcontractors to save, defend, hold harmless, and indemnify the County, and all of its officers, officials, departments, agencies, agents, and employees from and against any and all claims, losses, damages, injuries, fines, penalties, costs (including court costs and attorney's fees), charges, liability, or exposure, however caused, for or on account of any trademark, copyright, patented or unpatented invention, process, or article manufactured or used in the performance of this Contract, including its use by the County. If the Contractor, or any of its employees or subcontractors, uses any design, device, or materials covered by letters patent or copyright, it is mutually agreed and understood, without exception, that the Contract Amount includes all royalties, licensing fees, and any other costs arising from the use of such design, device, work, or materials in any way involved with the work hereunder. This duty to save, defend, hold harmless and indemnify shall survive the termination of this Contract. If, after Notice by the County, the Contractor fails or refuses to fulfill its obligations contained in this section, the Contractor shall be liable for and reimburse the County for any and all expenses, including but not limited to, reasonable attorneys fees incurred and any settlements or payments made. The Contractor shall pay such expenses upon demand by the county and failure to do so may result in such

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amounts being withheld from any amounts due to Contractor under this Contract.

24. COPYRIGHT
The Contractor hereby irrevocably transfers, assigns, sets over and conveys to the County all right, title and interest, including the sole exclusive and complete copyright interest, in any and all copyrightable works created pursuant to this Contract. The Contractor further agrees to execute such documents as the County may request to effect such transfer or assignment.

Further, the Contractor agrees that the rights granted to the County by this paragraph are irrevocable. Notwithstanding anything else in this Contract, the Contractor's remedy in the event of termination of or dispute over the terms of this Contract shall not include any right to rescind, terminate or otherwise revoke or invalidate in any way the rights conferred pursuant to the provisions of this paragraph. Similarly, no termination of this Contract shall have the effect of rescinding, terminating or otherwise invalidating the rights acquired pursuant to the provisions of this "Copyright" paragraph.

The use of subcontractors or third parties in developing or creating input into any copyrightable materials produced as a part of this Contract is prohibited unless the County approves the use of such subcontractors or third parties in advance and such subcontractors or third parties agree to include the provisions of this paragraph as part of any contract they enter into with the Contractor for work related to work pursuant to this Contract.

25. OWNERSHIP AND RETURN OF RECORDS
This Contract confers no ownership rights to the Contractor nor any rights or interests to use or to disclose the County’s data or inputs.

The Contractor agrees that all drawings, specifications, blueprints, data, information, findings, memoranda, correspondence, documents or records of any type, whether written or oral or electronic, and all documents generated by the Contractor or its subcontractors as a result of the County’s request for services under this Contract, are the exclusive property of the County ("Record" or "Records"), and all such Records shall be provided to and/or returned to County upon completion, termination, or cancellation of this Contract. The Contractor shall not use, willingly allow, or cause such materials to be used for any other purpose other than performance of all obligations under the Contract without the written consent of the County. Additionally, the Contractor agrees that the Records are confidential records and neither the Records nor their contents shall be released by the Contractor, its subcontractors, or other third parties; nor shall their contents be disclosed to any person other than the Project Officer or his or her designee. The Contractor agrees that all oral or written inquiries from any person or entity regarding the status of any Record generated as a result of the existence of this Contract shall be referred to the Project Officer or his or her designee for response. At the County's request, the Contractor shall deliver all Records to the Project Officer, including "hard copies" of computer records, and at the County's request, shall destroy all computer records created as a result of the County's request for services pursuant to this Contract.

The Contractor agrees to include the provisions of this section as part of any contract or agreement the Contractor enters into with subcontractors or other third parties for work related to work pursuant to this Contract.
No termination of this Contract shall have the effect of rescinding, terminating or otherwise invalidating this section.

26. CONFIDENTIAL INFORMATION
The Contractor, and its employees, agents, and subcontractors, hereby agree to hold as confidential all County information obtained as a result of its Work under this Contract. Confidential information includes, but is not limited to, nonpublic personal information, personally identifiable health information, social security numbers, addresses, dates of birth, other contact information or medical information about a person, information pertaining to products, operations, systems, customers, prospective customers, techniques, intentions, processes, plans, expertise and any information entrusted to any affiliate of the parties. The Contractor shall take reasonable measures to ensure that all of its employees, agents, and subcontractors are informed of, and abide by, this requirement.

27. ETHICS IN PUBLIC CONTRACTING
This Contract incorporates by reference Article 9 of the Arlington County Purchasing Resolution, as well as any Virginia or federal law related to ethics, conflicts of interest, or bribery, including, by way of illustration and not limitation, the Virginia State and Local Government Conflict of Interests Act (Code of Virginia § 2.2-3100 et seq.), the Virginia Governmental Frauds Act (Code of Virginia § 18.2-498.1 et seq.), and Articles 2 and 3 of Chapter 10 of Title 18.2 of the Code of Virginia, as amended (§ 18.2-438 et seq.). The Contractor certifies that its offer was made without collusion or fraud and that it has not offered or received any kickbacks or inducements from any other offeror, supplier, manufacturer, or subcontractor and that it has not conferred on any public employee having official responsibility for this procurement any payment, loan, subscription, advance, deposit of money, services, or anything of more than nominal value, present or promised unless consideration of substantially equal or greater value was exchanged.

28. COUNTY EMPLOYEES
No employee of the County shall be admitted to any share in any part of this Contract or to any benefit that may arise therefrom which is not available to the general public.

29. FORCE MAJEURE
The Contractor shall not be held responsible for failure to perform the duties and responsibilities imposed by this Contract if such failure is due to fires, riots, rebellions, natural disasters, wars, or an act of God beyond the control of the Contractor and outside the scope of the Contractor’s then-current, by industry standards, disaster plan that make performance impossible or illegal, unless otherwise specified in the Contract.

The County shall not be held responsible for failure to perform its duties and responsibilities imposed by the Contract if such failure is due to fires, riots, rebellions, natural disasters, wars, or an act of God beyond the control of the County that make performance impossible or illegal, unless otherwise specified in the Contract.

30. AUTHORITY TO TRANSACT BUSINESS
The Contractor shall, pursuant to Code of Virginia §§ 2.2-4311.2, be and remain authorized to transact business in the Commonwealth of Virginia during the Initial Term and any Subsequent Contract Term(s) of this Contract. A
contract entered into by a Contractor in violation of this requirement is voidable, without cost or expense, at the sole option of the County.

31. **RELATION TO THE COUNTY**
The Contractor is an independent contractor, and neither the Contractor nor its employees or subcontractors will, under any circumstances, be considered employees, servants or agents of the County. The County will not be legally responsible for any negligence or other wrongdoing by the Contractor, its employees, servants or agents. The County will not withhold from payments to the Contractor any federal or state unemployment taxes, federal or state income taxes, Social Security tax, or any other amounts for benefits to the Contractor or its employees, servants or agents. Furthermore, the County will not provide to the Contractor any insurance coverage or other benefits, including workers' compensation, normally provided by the County for its employees.

32. **ANTITRUST**
By entering into this Contract, the Contractor conveys, sells, assigns and transfers to the County all rights, title, and interest in and to all causes of action the Contractor may now have or hereafter acquire under the antitrust laws of the United States or the Commonwealth of Virginia, relating to the services purchased or acquired by the County under this Contract.

33. **REPORT STANDARDS**
Reports or written material prepared by the Contractor in response to the requirements of this Contract or a request of the Project Officer shall, unless otherwise provided for in the Contract, meet standards of professional writing established for the type of report or written material provided, shall be thoroughly researched for accuracy of content, shall be grammatically correct and not contain spelling errors, shall be submitted in a format approved in advance by the Project Officer, and shall be submitted for advance review and comment by the Project Officer. The cost of correcting grammatical errors, correcting report data, or other revisions required to bring the report or written material into compliance with these requirements shall be borne by the Contractor.

When submitting documents to the County, the Contractor shall comply with the following guidelines:

- All submittals and copies shall be printed on at least thirty percent (30%) recycled-content and/or tree-free paper;
- All copies shall be double-sided;
- Report covers or binders shall be recyclable, made from recycled materials, and/or easily removable to allow for recycling of report pages (reports with glued bindings that meet all other requirements are acceptable);
- The use of plastic covers or dividers should be avoided; and
- Unnecessary attachments or documents not specifically asked for should not be submitted, and superfluous use of paper (e.g. separate title sheets or chapter dividers) should be avoided.

34. **AUDIT**
The Contractor agrees to retain all books, records and other documents related to this Contract for at least five (5) years after final payment. The County or its authorized agents shall have full access to and the right to examine any of the above documents during this period and during the
Initial Contract Term or any Subsequent Contract Term. If the Contractor wishes to destroy or dispose of records (including confidential records to which the County does not have ready access) within five (5) years after final payment, the Contractor shall notify the County at least thirty (30) days prior to such disposal, and if the County objects, shall not dispose of the records.

35. ASSIGNMENT
The Contractor shall not assign, transfer, convey, sublet, or otherwise dispose of any award, or any or all of its rights, obligations, or interests under this Contract, without the prior written consent of the County.

36. AMENDMENTS
Unless otherwise specified herein, this Contract shall not be amended except by written amendment executed by persons duly authorized to bind the Contractor and the County.

37. ARLINGTON COUNTY PURCHASING RESOLUTION AND COUNTY POLICIES
Notwithstanding any provision to the contrary herein, no provision of the Arlington County Purchasing Resolution or any applicable County policy is waived in whole or in part.

38. DISPUTE RESOLUTION
All disputes arising under this Agreement, or its interpretation, whether involving law or fact, extra work or extra compensation or time, and all claims for alleged breach of Contract shall be submitted in writing to the Project Officer for decision at the time of the occurrence or beginning of the work upon which the claim is based, whichever occurs first. Any such claims shall state the facts surrounding it in sufficient detail to identify it together with its character and scope. In accordance with the Arlington County Purchasing Resolution, claims denied by the Project Officer may be submitted to the County Manager in writing no later than sixty (60) days after final payment. The time limit for final written decision by the County Manager in the event of a contractual dispute, as that term is defined in the Arlington County Purchasing Resolution, is thirty (30) days. Procedures for considering contractual claims, disputes, administrative appeals, and protests are contained in the Purchasing Resolution, which is incorporated herein by reference, and available upon request from the Office of the Purchasing Agent. The Contractor shall not cause a delay in the Work pending any decision of the Project Officer, County Manager, County Board, or a court of law.

39. APPLICABLE LAW, FORUM, VENUE, AND JURISDICTION
This Contract and the work performed hereunder shall be governed in all respects by the laws of the Commonwealth of Virginia, and the jurisdiction, forum, and venue for any litigation with respect hereto shall be in the Circuit Court for Arlington County, Virginia, and in no other court. In performing its work under this Contract, the Contractor shall comply with applicable federal, state, and local laws, ordinances and regulations.

40. ARBITRATION
It is expressly agreed that nothing under the Contract shall be subject to arbitration, and that any references to arbitration are expressly deleted from the Contract.

Agreement No. 702-12-5
41. **NONEXCLUSIVITY OF REMEDIES**
All remedies available to the County under this Contract are cumulative, and no such remedy shall be exclusive of any other remedy available to the County at law or in equity.

42. **NO WAIVER**
The failure of either party to exercise in any respect a right provided for in this Contract shall not be deemed to be a subsequent waiver of the same right or any other right.

43. **SEVERABILITY**
The sections, paragraphs, sentences, clauses and phrases of this Contract are severable, and if any phrase, clause, sentence, paragraph or section of this Contract shall be declared invalid by a court of competent jurisdiction, such invalidity shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this Contract.

44. **NO WAIVER OF SOVEREIGN IMMUNITY**
Notwithstanding any other provision of this Contract, nothing in this Contract or any action taken by the County pursuant to this Contract shall constitute or be construed as a waiver of either the sovereign or governmental immunity of the County. The parties intend for this provision to be read as broadly as possible.

45. **SURVIVAL OF TERMS**
In addition to any numbered section in this Agreement which specifically state that the term or paragraph survives the expiration of termination of this Contract, the following sections if included in this Contract also survive: INDEMNIFICATION; RELATION TO COUNTY; CONFIDENTIALITY AND RETURN OF RECORDS; AUDIT; COPYRIGHT; INTELLECTUAL PROPERTY INDEMNIFICATION; WARRANTY; CONFIDENTIAL INFORMATION; AND DATA SECURITY.

46. **HEADINGS**
The section headings in this Contract are inserted only for convenience and are not to be construed as part of this Contract or a limitation on the scope of the particular section to which the heading precedes.

47. **AMBIGUITIES**
Each party and its counsel have participated fully in the review and revision of this Agreement. Any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply in interpreting this Agreement. The language in this Agreement shall be interpreted as to its fair meaning and not strictly for or against any party.

48. **NOTICES**
Unless otherwise provided herein, all notices and other communications required by this Contract shall be deemed to have been given when made in writing and either (a) delivered in person, (b) delivered by an agent, such as an overnight or similar delivery service, or (c) deposited in the United States mail, postage prepaid, certified or registered, addressed as follows:

**TO THE CONTRACTOR:**
Kenneth J. Harmel  
Vice President  
KCI Convergent Technologies, Inc.  
921 Mercantile Drive, suites KJH  
Hanover, MD 21076

Agreement No. 702-12-5
TO THE COUNTY:
The County Project Officer
John Bayliss
Arlington County - Department of Technology Services
2100 Clarendon Boulevard, suite 610
Arlington, VA 22201

AND

Richard D. Warren, Jr., Purchasing Agent
Arlington County, Virginia
2100 Clarendon Boulevard, Suite 500
Arlington, Virginia 22201

49. NON-DISCRIMINATION NOTICE
Arlington County does not discriminate against faith-based organizations.

50. INSURANCE, PAYMENT AND PERFORMANCE BONDS
The Contractor shall maintain the required insurance coverage and payment and performance bonds through completion of the Contract, including all warranty and guarantee periods.

WITNESS these signatures:

THE COUNTY BOARD OF ARLINGTON COUNTY, VIRGINIA

AUTHORIZED SIGNATURE: [Signature]
NAME AND TITLE: RICHARD D. WARREN, JR. PURCHASING AGENT
DATE: 12/10/12

KCI CONVERGENT TECHNOLOGIES, INC.

AUTHORIZED SIGNATURE: [Signature]
NAME AND TITLE: KENNETH KARMEL VICE PRESIDENT
DATE: 11/14/12

Agreement No. 702-12-5
ARLINGTON COUNTY, VIRGINIA
OFFICE OF THE PURCHASING AGENT
SUITE 500, 2100 CLARENDON BOULEVARD
ARLINGTON, VA 22201

AGREEMENT NO. 702-12-6

THIS AGREEMENT is made, on the date of execution by the County, between N to N Fiber, Inc., 8664 Virginia Meadows Drive, Manassas, VA 20109 ("Contractor") a Virginia Corporation authorized to do business in the Commonwealth of Virginia, and the County Board of Arlington County, Virginia (County). The County and the Contractor, for the consideration hereinafter specified, agree as follows:

1. **CONTRACT DOCUMENTS**

   The Contract Documents consist of:

   - Agreement No. 702-12-6, and all modifications properly incorporated into the Agreement
   - Exhibit A – Arlington County Invitation to Bid No. 702-12, including General Conditions, Special Conditions, and Supplementary Specifications
   - Exhibit B (The Arlington County Department of Environmental Services’ Standards and Specifications, Current Edition)
   - Exhibit C – Unit price bid of the Contractor

   Where the terms and provisions of this Agreement vary from the terms and provisions of the other Contract Documents, the terms and provision of this Agreement shall prevail over the other Contract Documents.

   Exhibits A and B are considered complementary documents, what is in one shall be considered as in all; where the terms of these Contract Documents vary the most stringent shall apply; and Exhibits A and B shall prevail over Exhibit C.

   The Contract Documents set forth the entire Agreement between the County and the Contractor. The County and the Contractor agree that no representative or agent of either of them has made any representation or promise with respect to the parties’ Agreement which is not contained in the Contract Documents. The Contract Documents may be referred to herein as the "Contract" or "Agreement."

2. **PROJECT OFFICER**

   The performance of the Contractor is subject to the general control, review and approval of the County Project Officer, who shall be appointed by the Director of the Arlington County Department of Technology Services or designee. The Contractor shall not comply with requests and/or orders issued by other than the Project Officer of designee. However, it shall be the responsibility of the Contractor to manage the details of the execution and performance of its Work under this Agreement. Where the term "Engineer" is used in the Contract Documents, it shall be interpreted to mean "Project Officer."
3. **SCOPE OF WORK**
The Contractor will furnish all labor, materials, and equipment for the maintenance/installation and emergency restoration services of Arlington County's fiber optic network (as the secondary Contractor) (the "Project") and all other work shown, described and required in the Contract Documents (hereinafter "the Work"). The Work shall be performed according to the standards established by the Contract Documents read together as a single specification. It shall be the obligation of the Contractor to obtain clarification from the Project Officer concerning any questions about or conflicts in the specifications, drawings and construction notes in a timely way so as not to delay the progress of the Work. The Contract Documents set forth the minimum Work estimated by the County and the Contractor to be necessary to complete the Work. It shall be the Contractor's responsibility, at solely the Contractor's cost, to provide sufficient services to fulfill the purposes of the Work. Nothing in the Contract Documents shall be construed to limit the Contractor's responsibility to manage the details and execution of its Work.

4. **CONTRACT TERM**
The term of this Agreement will commence on March 1, 2013, and shall be completed no later than February 28, 2018, subject to any written modifications as provided for in the Contract Documents.

5. **CONTRACT AMOUNT**
The County will pay the Contractor according to the unit prices shown in Exhibit C, subject to the terms and conditions of the Agreement and provided the Work is performed to the satisfaction of and is accepted by the Project Officer. The Contractor agrees that it shall complete the Work for the total Contract Amount specified in this section unless such amount is modified as provided in this Agreement. The Contract Amount includes all of the Contractor's costs and fees (profit) and is inclusive of all anticipated or known site conditions, anticipated or known materials, labor, and equipment costs, or any other costs which should reasonably have been expected by the Contract Documents.

6. **PRICE ADJUSTMENTS NEGOTIATED UP TO CPI-U**
The Contract Amount shall remain firm for the first thirty six (36) months of the Contract Term. Any proposed modifications to the Contract Amount for ensuing years shall be submitted by the Contractor to the Project Officer ninety (90) days prior to the anniversary date of the Agreement. Any price modifications shall be negotiated and approved by Arlington County in writing prior to new prices going into effect.

Increases in the Contract Amount for ensuing years shall not exceed the percentage of change in the U.S. Department of Labor, Consumer Price Index, All Items, Unadjusted, Urban Areas (CPI-U) for the twelve (12) month period ending in **July** of each Contract Year.

If the Contractor and the County do not agree on a price using the procedure set forth above by the thirtieth (30th) calendar day prior to the contract anniversary date, the County may terminate the Contract. The Contract price(s) changed as a result of this procedure shall become effective on the anniversary date of the Contract and shall be binding on the Contractor for the remaining Contract Term.
7. **PROGRESS PAYMENTS AND RETAINAGE**

The County will make monthly progress payments to the Contractor upon written application by the Contractor, on the basis of a written estimate, provided by the Contractor and approved by the Project Officer, of all of the work performed during the preceding calendar month as approved by the Project Officer. However, in making any progress payment, five percent (5%) of the amount of the estimate upon which the progress payment is based will be retained by the County until final completion and acceptance of all work covered by the Agreement.

All material and work covered by partial payments made by the County will become the property solely of the County at the time the partial payment is made, but this provision will not be construed as relieving the Contractor from the sole responsibility, care and custody for all materials and work upon which payments have been made, or the restoration of any damaged work, nor shall this provision be construed as a waiver of the County's right to require the fulfillment of all of the terms of the Agreement.

When calculating payment for materials on-site, the County shall not pay for materials which are not scheduled for incorporation into the Work within sixty (60) days from the date of application for payment.

8. **PAYMENT TERMS**

Payment terms will be recorded by the County as net thirty (30) days. The County will pay the Contractor within thirty (30) days after the date of receipt of a correct (as determined by the Project Officer) invoice approved by the Project Officer describing completed work which is reasonable and allocable to the Contract, or the date of receipt of the entire order, or the date of acceptance of the work which meets the Contract requirements, whichever is later. Payments will be made by the County for goods or services furnished, delivered, inspected, and accepted upon receipt of invoices submitted on the date of shipment or delivery of service, subject to applicable payment terms. The number of the Purchase Order pursuant to which authority shipments have been made or services performed shall appear on all invoices. Invoices shall be submitted in duplicate. Unless otherwise specified by the Contract Documents, payment shall not be made prior to delivery and acceptance of the entire order by the County.

9. **PAYMENT OF SUBCONTRACTORS**

The Contractor is obligated to take one of the two following actions within seven (7) calendar days after receipt of amounts paid to the Contractor by the County for work performed by any subcontractor under this Contract:

a. Pay the subcontractor for the proportionate share of the total payment received from the County attributable to the work performed by the subcontractor under this Contract; or

b. Notify the County and the subcontractor, in writing, of the Contractor's intention to withhold all or a part of the subcontractor's payment with the reason for nonpayment.

The Contractor is obligated to pay interest to the subcontractor on all amounts owed by the Contractor to the subcontractor that remain unpaid after seven (7) calendar days following receipt by the Contractor of payment from the County for work performed by the subcontractor under this Contract, except for amounts withheld as allowed in subsection b., above. Unless
otherwise provided under the terms of this Contract, interest shall accrue at the rate of one percent (1%) per month.

The Contractor shall include in each of its subcontracts, if any are permitted, a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements as those contained herein with respect to each lower-tier subcontractor.

The Contractor's obligation to pay an interest charge to a subcontractor pursuant to this section may not be construed to be an obligation of the County. A Contract modification may not be made for the purpose of providing reimbursement for such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.

10. RELEASE AND REQUEST FOR FINAL PAYMENT
Upon completion of the Project and before Final Acceptance, the Contractor will submit to the Project Officer a signed copy of the Arlington County Release and Request for Final Payment form per the General Conditions.

11. NON-APPROPRIATION
All funds for payments by the County to the Contractor pursuant to this Contract are subject to the availability of an annual appropriation for this purpose by the County Board of Arlington County, Virginia. In the event of non-appropriation of funds by the County Board of Arlington County, Virginia for the services provided under this Contract or substitutes for such services which are as advanced or more advanced in their technology, the County will terminate the Contract, without termination charge or other liability to the County, on the last day of the then-current fiscal year or when the appropriation made for the then-current year for the services covered by this Contract is spent, whichever event occurs first. If funds are not appropriated at any time for the continuation of this Contract, cancellation will be accepted by the Contractor on thirty (30) days prior written notice, but failure to give such notice shall be of no effect and the County shall not be obligated under this Contract beyond the date of termination specified in the County's written notice.

12. COUNTY PURCHASE ORDER REQUIREMENT
County purchases are authorized only if a County Purchase Order is issued in advance of the transaction, indicating that the ordering agency has sufficient funds available to pay for the purchase. Such a Purchase Order is to be provided to the Contractor by the ordering agency. The County will not be liable for payment for any purchases made by its employees without appropriate purchase authorization issued by the County Purchasing Agent. If the Contractor provides services without a signed County Purchase Order, it does so at its own risk and expense.

13. LIEN
It is expressly agreed that after any payment has been made by the County either to the Contractor or to any subcontractor, laborer, or any other person for work done, or labor or material supplied under the Contract, the County will have a lien upon all material delivered to the site either by the Contractor or any subcontractor, or for the Contractor, which is to be used in the performance of the Contract.

14. EMPLOYMENT DISCRIMINATION BY CONTRACTOR PROHIBITED
During the performance of this Contract, the Contractor agrees as follows:
a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by federal or Virginia law related to discrimination in employment except where there is a bona fide occupational qualification reasonably necessary or related to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that the Contractor is an Equal Opportunity Employer.

c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

d. The Contractor will comply with the provisions of the Americans with Disabilities Act of 1990 which prohibits discrimination against individuals with disabilities in employment, and mandates their full participation in both publicly and privately-provided services and activities.

e. The Contractor will include the provisions of the foregoing paragraphs in every subcontract or purchase order of over $10,000.00, so that these provisions will apply to each subcontractor or vendor.

15. EMPLOYMENT OF UNAUTHORIZED ALIENS PROHIBITED
In accordance with § 2.2-4311.1 of the Code of Virginia, 1950, as amended, the Contractor acknowledges that it does not, and shall not during the performance of this Contract, knowingly employ an unauthorized alien as that term is defined in the federal Immigration Reform and Control Act of 1986.

16. DRUG-FREE WORKPLACE TO BE MAINTAINED BY CONTRACTOR
During the performance of this Contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of marijuana or any other controlled substance is prohibited in the Contractor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000.00 relating to this Contract, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor by Arlington County, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.
17. **PROJECT STAFF**

The County will, throughout the Contract Term, have the right of reasonable rejection and approval of staff or subcontractors assigned to the project by the Contractor. If the County reasonably rejects staff or subcontractors, the Contractor must provide replacement staff or subcontractors satisfactory to the County in a timely manner and at no additional cost to the County. The day-to-day supervision and control of the Contractor's employees shall be solely the responsibility of the Contractor.

18. **FAILURE TO DELIVER**

In case of failure to deliver goods or services in accordance with the Contract terms and conditions, the County, after due oral or written notice, may procure the goods or services from other sources and hold the Contractor responsible for any resulting additional purchase and administrative costs; provided, that if public necessity requires the use of materials or supplies not conforming to the specifications, they may be accepted and payment therefore shall be made at a reduction in price to be determined solely by the County. This remedy shall be in addition to any other remedies, which the County may have. The County shall be entitled to offset such costs against any sums owed by the County to the Contractor.

19. **UNSATISFACTORY WORK**

If any of the work done, or material, goods, or equipment provided, by the Contractor is unsatisfactory to the County, the Contractor shall, on being notified by the County, immediately remove at the Contractor's expense such unsatisfactory work, material, goods, or equipment and replace the same with work, material, goods, or equipment satisfactory to the County. In the event the Contractor fails within fifteen (15) calendar days after receipt of written notice to remove improper or unsuitable work, material, goods, or equipment and replace it with suitable and satisfactory work, material, goods, or equipment, the County shall have the right, but not the obligation, to remove or replace the rejected work, material, goods, or equipment at the expense of the Contractor. This paragraph applies during the Contract term and during any warranty or guarantee period. At its discretion, the County shall be entitled to offset such expense against any sums owed by the County to the Contractor under this Contract. If the Project Officer and the County deem it expedient not to require correction or replacement of the work which has not been done in accordance with the Contract, an appropriate adjustment to the Contract Amount may be made therefore.

20. **TERMINATION FOR CAUSE, INCLUDING BREACH AND DEFAULT: CURE**

The County shall have the right to terminate this Contract prior to the end of the Contract Term if the Contractor is in breach or default or has failed to perform satisfactorily the Work required, as determined by the County in its discretion.

If the County determines that the Contractor has failed to perform satisfactorily, then the County will give the Contractor written notice of such failure(s) and the opportunity to cure such failure(s) at least fifteen (15) calendar days before termination of the Contract takes effect ("Cure Period"). If the Contractor fails to cure within the Cure Period or as otherwise specified in the notice, the Contract may be terminated for the Contractor's failure to provide satisfactory Contract performance. Upon such termination, the Contractor may apply for compensation for Contract services satisfactorily performed by the Contractor and allocable to the Contract and accepted by the County prior to such termination unless otherwise barred by the Contract ("Termination Costs"). In order to be considered, such request
for Termination Costs, with all supporting documentation, must be submitted to the County Project Officer within fifteen (15) calendar days after the expiration of the Cure Period. The County may accept or reject, in whole or in part, the application for Termination Costs and notify the Contractor of same within a reasonable time thereafter.

If the County terminates the Contract for default or breach of any Contract provision or condition, then the termination shall be immediate after notice from the County to the Contractor (unless the County in its discretion provides for an opportunity to cure) and the Contractor shall not be permitted to seek Termination Costs.

Upon any termination pursuant to this section, the Contractor shall be liable to the County for all costs incurred by the County after the effective date of termination, including costs required to be expended by the County to complete the Work covered by the Contract, including costs of delay in completing the Work or the cost of repairing or correcting any unsatisfactory or non-compliant work performed or provided by the Contractor or its subcontractors. Such costs shall be either deducted from any amount due the Contractor or shall be promptly paid by the Contractor to the County upon demand by the County. Additionally, and notwithstanding any provision in this Contract to the contrary, the Contractor is liable to the County, and the County shall be entitled to recover, all damages to which the County is entitled by this Contract or by law, including and without limitation, direct damages, indirect damages, consequential damages, delay damages, replacement costs, refund of all sums paid by the County to the Contractor under the Contract and all attorney fees and costs incurred by the County to enforce any provision of this Contract.

Except as otherwise directed by the County in the notice, the Contractor shall stop work on the date of receipt of notice of the termination or other date specified in the notice, place no further orders or subcontracts for materials, services, or facilities except as are necessary for the completion of such portion of the Work not terminated, and terminate all vendors and subcontractors and settle all outstanding liabilities and claims. Any purchases after the date of termination contained in the notice shall be the sole responsibility of the contractor.

In the event any termination for cause, default, or breach shall be found to be improper or invalid by any court of competent jurisdiction then such termination shall be deemed to have been a termination for convenience.

21. TERMINATION FOR THE CONVENIENCE OF THE COUNTY
The performance of Work under this Contract may be terminated by the County Purchasing Agent in whole or in part whenever the Purchasing Agent shall determine that such termination is in the County's best interest. Any such termination shall be effected by the delivery to the Contractor of a written notice of termination at least fifteen (15) calendar days before the date of termination, specifying the extent to which performance of the work under this Contract is terminated and the date upon which such termination becomes effective. The Contractor will be entitled to receive compensation for all Contract services satisfactorily performed by the Contractor and allocable to the Contract and accepted by the County prior to such termination and any other reasonable termination costs as negotiated by the parties, but no amount shall be allowed for anticipatory profits.
After receipt of a notice of termination and except as otherwise directed, the Contractor shall stop all designated work on the date of receipt of the notice of termination or other date specified in the notice; place no further orders or subcontracts for materials, services or facilities except as are necessary for the completion of such portion of the work not terminated; immediately transfer all documentation and paperwork for terminated work to the County; and terminate all vendors and subcontracts and settle all outstanding liabilities and claims.

22. **Indemnification**
The Contractor covenants for itself, its employees, and subcontractors to save, defend, hold harmless and indemnify the County, and all of its elected and appointed officials, officers, current and former employees, agents, departments, agencies, boards, and commissions (collectively the “County” for purposes of this section) from and against any and all claims made by third parties or by the County for any and all losses, damages, injuries, fines, penalties, costs (including court costs and attorney’s fees), charges, liability, demands or exposure, however caused, resulting from, arising out of, or in any way connected with the Contractor’s acts or omissions, including the acts or omissions of its employees and/or subcontractors, in performance or nonperformance of the work called for by the Contract Documents. This duty to save, defend, hold harmless and indemnify shall survive the termination of this Contract. If, after notice by the County, the Contractor fails or refuses to fulfill its obligations contained in this section, the Contractor shall be liable for and reimburse the County for any and all expenses, including but not limited to, reasonable attorneys fees incurred and any settlements or payments made. The Contractor shall pay such expenses upon demand by the county and failure to do so may result in such amounts being withheld from any amounts due to Contractor under this Contract.

23. **Intellectual Property Indemnification**
The Contractor warrants and guarantees that no intellectual property rights (including, but not limited to, copyright, patent, mask work and trademark) of third parties are infringed or in any manner involved in or related to the services provided hereunder.

The Contractor further covenants for itself, its employees, and subcontractors to save, defend, hold harmless, and indemnify the County, and all of its officers, officials, departments, agencies, agents, and employees from and against any and all claims, losses, damages, injuries, fines, penalties, costs (including court costs and attorney's fees), charges, liability, or exposure, however caused, for or on account of any trademark, copyright, patented or unpatented invention, process, or article manufactured or used in the performance of this Contract, including its use by the County. If the Contractor, or any of its employees or subcontractors, uses any design, device, or materials covered by letters patent or copyright, it is mutually agreed and understood, without exception, that the Contract Amount includes all royalties, licensing fees, and any other costs arising from the use of such design, device, work, or materials in any way involved with the work hereunder. This duty to save, defend, hold harmless and indemnify shall survive the termination of this Contract. If, after Notice by the County, the Contractor fails or refuses to fulfill its obligations contained in this section, the Contractor shall be liable for and reimburse the County for any and all expenses, including but not limited to, reasonable attorneys fees incurred and any settlements or payments made. The Contractor shall pay such expenses upon demand by the county and failure to do so may result in such
amounts being withheld from any amounts due to Contractor under this Contract.

24. COPYRIGHT
The Contractor hereby irrevocably transfers, assigns, sets over and conveys to the County all right, title and interest, including the sole exclusive and complete copyright interest, in any and all copyrightable works created pursuant to this Contract. The Contractor further agrees to execute such documents as the County may request to effect such transfer or assignment.

Further, the Contractor agrees that the rights granted to the County by this paragraph are irrevocable. Notwithstanding anything else in this Contract, the Contractor's remedy in the event of termination of or dispute over the terms of this Contract shall not include any right to rescind, terminate or otherwise revoke or invalidate in any way the rights conferred pursuant to the provisions of this paragraph. Similarly, no termination of this Contract shall have the effect of rescinding, terminating or otherwise invalidating the rights acquired pursuant to the provisions of this "Copyright" paragraph.

The use of subcontractors or third parties in developing or creating input into any copyrightable materials produced as a part of this Contract is prohibited unless the County approves the use of such subcontractors or third parties in advance and such subcontractors or third parties agree to include the provisions of this paragraph as part of any contract they enter into with the Contractor for work related to work pursuant to this Contract.

25. OWNERSHIP AND RETURN OF RECORDS
This Contract confers no ownership rights to the Contractor nor any rights or interests to use or to disclose the County’s data or inputs.

The Contractor agrees that all drawings, specifications, blueprints, data, information, findings, memoranda, correspondence, documents or records of any type, whether written or oral or electronic, and all documents generated by the Contractor or its subcontractors as a result of the County's request for services under this Contract, are the exclusive property of the County ("Record" or "Records"), and all such Records shall be provided to and/or returned to County upon completion, termination, or cancellation of this Contract. The Contractor shall not use, willingly allow, or cause such materials to be used for any other purpose other than performance of all obligations under the Contract without the written consent of the County. Additionally, the Contractor agrees that the Records are confidential records and neither the Records nor their contents shall be released by the Contractor, its subcontractors, or other third parties; nor shall their contents be disclosed to any person other than the Project Officer or his or her designee. The Contractor agrees that all oral or written inquiries from any person or entity regarding the status of any Record generated as a result of the existence of this Contract shall be referred to the Project Officer or his or her designee for response. At the County's request, the Contractor shall deliver all Records to the Project Officer, including "hard copies" of computer records, and at the County's request, shall destroy all computer records created as a result of the County's request for services pursuant to this Contract.

The Contractor agrees to include the provisions of this section as part of any contract or agreement the Contractor enters into with subcontractors or other third parties for work related to work pursuant to this Contract.
No termination of this Contract shall have the effect of rescinding, terminating or otherwise invalidating this section.

26. CONFIDENTIAL INFORMATION
The Contractor, and its employees, agents, and subcontractors, hereby agree to hold as confidential all County information obtained as a result of its Work under this Contract. Confidential information includes, but is not limited to, nonpublic personal information, personally identifiable health information, social security numbers, addresses, dates of birth, other contact information or medical information about a person, information pertaining to products, operations, systems, customers, prospective customers, techniques, intentions, processes, plans, expertise and any information entrusted to any affiliate of the parties. The Contractor shall take reasonable measures to ensure that all of its employees, agents, and subcontractors are informed of, and abide by, this requirement.

27. ETHICS IN PUBLIC CONTRACTING
This Contract incorporates by reference Article 9 of the Arlington County Purchasing Resolution, as well as any Virginia or federal law related to ethics, conflicts of interest, or bribery, including, by way of illustration and not limitation, the Virginia State and Local Government Conflict of Interests Act (Code of Virginia § 2.2-3100 et seq.), the Virginia Governmental Frauds Act (Code of Virginia § 18.2-498.1 et seq.), and Articles 2 and 3 of Chapter 10 of Title 18.2 of the Code of Virginia, as amended (§ 18.2-438 et seq.). The Contractor certifies that its offer was made without collusion or fraud and that it has not offered or received any kickbacks or inducements from any other offeror, supplier, manufacturer, or subcontractor and that it has not conferred on any public employee having official responsibility for this procurement any payment, loan, subscription, advance, deposit of money, services, or anything of more than nominal value, present or promised unless consideration of substantially equal or greater value was exchanged.

28. COUNTY EMPLOYEES
No employee of the County shall be admitted to any share in any part of this Contract or to any benefit that may arise therefrom which is not available to the general public.

29. FORCE MAJEURE
The Contractor shall not be held responsible for failure to perform the duties and responsibilities imposed by this Contract if such failure is due to fires, riots, rebellions, natural disasters, wars, or an act of God beyond the control of the Contractor and outside the scope of the Contractor’s then-current, by industry standards, disaster plan that make performance impossible or illegal, unless otherwise specified in the Contract.

The County shall not be held responsible for failure to perform its duties and responsibilities imposed by the Contract if such failure is due to fires, riots, rebellions, natural disasters, wars, or an act of God beyond the control of the County that make performance impossible or illegal, unless otherwise specified in the Contract.

30. AUTHORITY TO TRANSACT BUSINESS
The Contractor shall, pursuant to Code of Virginia §§ 2.2-4311.2, be and remain authorized to transact business in the Commonwealth of Virginia during the Initial Term and any Subsequent Contract Term(s) of this Contract. A

Agreement No. 702-12-6
contract entered into by a Contractor in violation of this requirement is voidable, without cost or expense, at the sole option of the County.

31. **RELATION TO THE COUNTY**

The Contractor is an independent contractor, and neither the Contractor nor its employees or subcontractors will, under any circumstances, be considered employees, servants or agents of the County. The County will not be legally responsible for any negligence or other wrongdoing by the Contractor, its employees, servants or agents. The County will not withhold from payments to the Contractor any federal or state unemployment taxes, federal or state income taxes, Social Security tax, or any other amounts for benefits to the Contractor or its employees, servants or agents. Furthermore, the County will not provide to the Contractor any insurance coverage or other benefits, including workers' compensation, normally provided by the County for its employees.

32. **ANTI-TRUST**

By entering into this Contract, the Contractor conveys, sells, assigns and transfers to the County all rights, title, and interest in and to all causes of action the Contractor may now have or hereafter acquire under the antitrust laws of the United States or the Commonwealth of Virginia, relating to the services purchased or acquired by the County under this Contract.

33. **REPORT STANDARDS**

Reports or written material prepared by the Contractor in response to the requirements of this Contract or a request of the Project Officer shall, unless otherwise provided for in the Contract, meet standards of professional writing established for the type of report or written material provided, shall be thoroughly researched for accuracy of content, shall be grammatically correct and not contain spelling errors, shall be submitted in a format approved in advance by the Project Officer, and shall be submitted for advance review and comment by the Project Officer. The cost of correcting grammatical errors, correcting report data, or other revisions required to bring the report or written material into compliance with these requirements shall be borne by the Contractor.

When submitting documents to the County, the Contractor shall comply with the following guidelines:

- All submittals and copies shall be printed on **at least thirty percent (30%) recycled-content** and/or tree-free paper;
- All copies shall be double-sided;
- Report covers or binders shall be recyclable, made from recycled materials, and/or easily removable to allow for recycling of report pages (reports with glued bindings that meet all other requirements are acceptable);
- The use of plastic covers or dividers should be avoided; and
- Unnecessary attachments or documents not specifically asked for should not be submitted, and superfluous use of paper (e.g. separate title sheets or chapter dividers) should be avoided.

34. **AUDIT**

The Contractor agrees to retain all books, records and other documents related to this Contract for at least five (5) years after final payment. The County or its authorized agents shall have full access to and the right to examine any of the above documents during this period and during the
Initial Contract Term or any Subsequent Contract Term. If the Contractor wishes to destroy or dispose of records (including confidential records to which the County does not have ready access) within five (5) years after final payment, the Contractor shall notify the County at least thirty (30) days prior to such disposal, and if the County objects, shall not dispose of the records.

35. **ASSIGNMENT**
The Contractor shall not assign, transfer, convey, sublet, or otherwise dispose of any award, or any or all of its rights, obligations, or interests under this Contract, without the prior written consent of the County.

36. **AMENDMENTS**
Unless otherwise specified herein, this Contract shall not be amended except by written amendment executed by persons duly authorized to bind the Contractor and the County.

37. **ARLINGTON COUNTY PURCHASING RESOLUTION AND COUNTY POLICIES**
Notwithstanding any provision to the contrary herein, no provision of the Arlington County Purchasing Resolution or any applicable County policy is waived in whole or in part.

38. **DISPUTE RESOLUTION**
All disputes arising under this Agreement, or its interpretation, whether involving law or fact, extra work or extra compensation or time, and all claims for alleged breach of Contract shall be submitted in writing to the Project Officer for decision at the time of the occurrence or beginning of the work upon which the claim is based, whichever occurs first. Any such claims shall state the facts surrounding it in sufficient detail to identify it together with its character and scope. In accordance with the Arlington County Purchasing Resolution, claims denied by the Project Officer may be submitted to the County Manager in writing no later than sixty (60) days after final payment. The time limit for final written decision by the County Manager in the event of a contractual dispute, as that term is defined in the Arlington County Purchasing Resolution, is thirty (30) days. Procedures for considering contractual claims, disputes, administrative appeals, and protests are contained in the Purchasing Resolution, which is incorporated herein by reference, and available upon request from the Office of the Purchasing Agent. The Contractor shall not cause a delay in the Work pending any decision of the Project Officer, County Manager, County Board, or a court of law.

39. **APPLICABLE LAW, FORUM, VENUE, AND JURISDICTION**
This Contract and the work performed hereunder shall be governed in all respects by the laws of the Commonwealth of Virginia, and the jurisdiction, forum, and venue for any litigation with respect hereto shall be in the Circuit Court for Arlington County, Virginia, and in no other court. In performing its work under this Contract, the Contractor shall comply with applicable federal, state, and local laws, ordinances and regulations.

40. **ARBITRATION**
It is expressly agreed that nothing under the Contract shall be subject to arbitration, and that any references to arbitration are expressly deleted from the Contract.
41. NONEXCLUSIVITY OF REMEDIES
All remedies available to the County under this Contract are cumulative, and no such remedy shall be exclusive of any other remedy available to the County at law or in equity.

42. NO WAIVER
The failure of either party to exercise in any respect a right provided for in this Contract shall not be deemed to be a subsequent waiver of the same right or any other right.

43. SEVERABILITY
The sections, paragraphs, sentences, clauses and phrases of this Contract are severable, and if any phrase, clause, sentence, paragraph or section of this Contract shall be declared invalid by a court of competent jurisdiction, such invalidity shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this Contract.

44. NO WAIVER OF SOVEREIGN IMMUNITY
Notwithstanding any other provision of this Contract, nothing in this Contract or any action taken by the County pursuant to this Contract shall constitute or be construed as a waiver of either the sovereign or governmental immunity of the County. The parties intend for this provision to be read as broadly as possible.

45. SURVIVAL OF TERMS
In addition to any numbered section in this Agreement which specifically state that the term or paragraph survives the expiration of termination of this Contract, the following sections if included in this Contract also survive: INDEMNIFICATION; RELATION TO COUNTY; CONFIDENTIALITY AND RETURN OF RECORDS; AUDIT; COPYRIGHT; INTELLECTUAL PROPERTY INDEMNIFICATION; WARRANTY; CONFIDENTIAL INFORMATION; AND DATA SECURITY.

46. HEADINGS
The section headings in this Contract are inserted only for convenience and are not to be construed as part of this Contract or a limitation on the scope of the particular section to which the heading precedes.

47. AMBIGUITIES
Each party and its counsel have participated fully in the review and revision of this Agreement. Any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply in interpreting this Agreement. The language in this Agreement shall be interpreted as to its fair meaning and not strictly for or against any party.

48. NOTICES
Unless otherwise provided herein, all notices and other communications required by this Contract shall be deemed to have been given when made in writing and either (a) delivered in person, (b) delivered by an agent, such as an overnight or similar delivery service, or (c) deposited in the United States mail, postage prepaid, certified or registered, addressed as follows:

TO THE CONTRACTOR:
Mark Sheller/Kevin Nordquist
N to N Fiber, Inc.
8664 Virginia Meadows Drive
Manassas, VA 20109

Agreement No. 702-12-6
TO THE COUNTY:
The County Project Officer  
John Bayliss  
Arlington County – Department of Technology Services  
2100 Clarendon Boulevard, suite 610  
Arlington, VA 22201

AND

Richard D. Warren, Jr., Purchasing Agent  
Arlington County, Virginia  
2100 Clarendon Boulevard, Suite 500  
Arlington, Virginia 22201

49. NON-DISCRIMINATION NOTICE
Arlington County does not discriminate against faith-based organizations.

50. INSURANCE, PAYMENT AND PERFORMANCE BONDS
The Contractor shall maintain the required insurance coverage and payment and performance bonds through completion of the Contract, including all warranty and guarantee periods.

WITNESS these signatures:

THE COUNTY BOARD OF ARLINGTON COUNTY, VIRGINIA

AUTHORIZED SIGNATURE: 

NAME AND TITLE: RICHARD D. WARREN, JR. PURCHASING AGENT

DATE: 12/10/12

N TO N FIBER, INC.

AUTHORIZED SIGNATURE: 

NAME AND TITLE: LYLE NORDQUIST, VICE PRESIDENT

DATE: 11/19/2012

Agreement No. 702-12-6
1. **SPECIAL CONDITIONS**

Maintenance/installation, and emergency restoration services will include underground construction in new conduit, pulling fiber in existing and new conduit, aerial construction in the communication space on existing utility poles, make-ready work, fiber splicing and testing, and placement of fiber cable to new and existing demarcation locations in Arlington County and APS institutions, as well as any other work necessary to maintain the fiber optic network in good working condition.

Maintenance/installation and emergency restoration services for purposes of this Contract will incorporate any services requested by the County for fiber optic related work on any existing or new installation(s).

Within thirty (30) calendar days after the Contract award, the primary Contractor providing maintenance/installation and emergency restoration services under this contract shall establish one or more offices within twenty (20) miles of the County borders with adequate personnel and equipment to ensure that the Contractor is capable of serving emergency requests. Multiple Contractor crews may be required to be deployed to perform work at multiple sites throughout the County simultaneously.

**MAINTENANCE/INSTALLATION**

Maintenance/installation services for purposes of this Contract are defined as any services required to maintain the fiber optic network in good working condition, modify an existing configuration to better suit the needs of the County or APS, and/or repair any non-emergency failures.

The Contractor shall provide contact number(s) and names of employees responsible for responding to service requests by the County. In the event of a service request made by the County, the Contractor shall respond with a cost estimate of the work to be performed within a maximum of five (5) business days, and be ready to begin work no later than twenty (20) business days after a Purchase Order is approved and a Notice to Proceed is issued by the County, depending on the availability of the required fiber optic cable.

The Contractor shall obtain good quality digital pictures of the fiber failure, and the names and addresses of the party(s) that caused the fiber failure (if applicable). If the failure has been caused by underground construction, the Contractor shall document with pictures the utility markings. For each assignment, the Contractor shall provide the County Project Officer with updated as-built drawings and an incident report.

The Contractor shall track the hours and materials required to repair the fiber and provide the County with this information at the time of submitting an invoice for work performed.

**EMERGENCY RESTORATION SERVICES**

Emergency Restoration Services for purposes of this Contract are defined as services required to restore service interrupted as a result of any type of failure due to human or natural causes.
The Contractor shall provide 24x7x365 emergency contact number(s) and names of employees responsible for responding to an emergency declared by the County Project Officer. The Contractor shall respond to the declared Emergency within a maximum of one (1) hour, and be on site no later than three (3) hours after declaration of emergency with fiber splicing equipment, Optical Time Domain Reflectometer, power meter and any other required equipment and qualified personnel to repair the fiber failure. The County will attempt to locate the failure prior to contacting the Contractor, however, the Contractor shall be ultimately responsible for locating and/or confirming the failure location.

The Contractor shall attempt to determine cause of fiber failure, obtain pictures of the fiber failure, and the names and addresses of the party(s) that caused the fiber failure, if applicable. If the failure has been caused by underground construction, the Contractor shall document with pictures the utility markings. The Contractor shall track the hours and materials required to repair the fiber and provide the County with this information at the time of submitting an invoice for work performed.
2. GENERAL PROVISIONS

INVOICING
All work under this solicitation will be paid upon County approval of a monthly detailed invoice submitted by the Contractor, including hours, materials and tasks performed during each billing period.

For maintenance/installation and emergency restoration services, the Contractor can submit one monthly invoice for all work performed during each billing period.

WORK HOURS

Maintenance/installation services
Except for work occurring on Arlington County Public Schools property that would require workers to disrupt the instructional program, regular working hours are Monday - Friday from 7:00am to 6:00pm.

Work on APS property during the school day when students are present may be restricted to non-class hours, from 4:00pm until 9:00pm, or to Saturdays, subject to decision of the school Principal.

All work will be paid at the hourly rates provided in the pricing sheet. No overtime pay will be approved for work performed under these sections of the contract.

Emergency restoration services
Except for work occurring on Arlington County Public Schools property that would require workers to disrupt the instructional program, regular working hours are Monday - Friday from 7:00am to 6:00pm.

Work on APS property during the school day when students are present may be restricted to non-class hours, from 4:00pm until 9:00pm, or to Saturdays, subject to decision of the school Principal.

All work will be paid at the hourly rates provided in the pricing sheet, plus a flat fee of $1,500.00 paid per assignment regardless of the number of hours or the equipment used during that assignment. No overtime pay will be approved for work performed under these sections of the contract.

PERMITS
The County will provide the permit drawings for the Contractor to submit to the County, VDOT, and WMATA (Metro), as appropriate. The Contractor shall be responsible for completing and submitting all required permit documents and paying all applicable permit fees. The County will waive any Right-of-Way (ROW) and Maintenance of Traffic (MOT) permit fees due to the County, but will NOT waive any low voltage permits needed to penetrate any fire rated structures or install in any plenum space. The low voltage permit fees, and other permit fees other than County ROW and County MOT permit fees shall be paid by the Contractor.

Pole permit applications from Dominion Virginia Power and Verizon will be completed and permits obtained by the County.
CONTRACTOR PARKING/STAGING AREAS
The Contractors are responsible for providing lay-down yards, staging areas, and vehicle parking for each project. Unless specifically designated in the individual project design plans, no additional space for these purposes will be provided by the County.

EQUIPMENT AND MATERIALS
The Contractor shall be responsible for acquiring all communication equipment and related installation materials described in the technical specifications to be installed as part of this project, with the exception of the fiber optic cable. The description of equipment required to complete each project will be included in the project design plans that will be provided to the Contractor at the time of assignment of projects.

Contractors shall review the design and verify quantities of materials and verify that all necessary materials are included in the design plans. The Contractor is to store and issue all material.

The Contractor shall be responsible for replacing any equipment damaged or determined non-operational prior to the County’s final acceptance of each project at no cost to the County.

The Contractor shall adequately mark the equipment installed according to the following guidelines:

- Each port on each patch panel: Indicate the termination point of the opposite end of the fiber
- Cable at each utility pole attachment point: Install cable marker to indicate cable owner, “Arlington County DTS” “(703)228-3220”

The fiber optic cable will be preordered and paid for by the County at a selected vendor. The Contractor shall be responsible for picking up the preordered cable for projects assigned. Arlington County, however, may require the Contractor to supply the fiber optic cable for some portion of the work. In such cases, the fiber optic cable will be paid for using the unit price items included in the bid form.

The detailed information regarding materials is included in the technical specifications for this solicitation.

MAINTENANCE OF TRAFFIC
The County will provide the Maintenance of Traffic (MOT) plans in accordance with the current editions of Virginia Work Area Protection Manual and FHWA Manual of Uniform Traffic Control Devices (MUTCD). The Contractor shall be responsible for obtaining the required MOT permits, as described in the “Permits” section below. During construction, the Contractor shall comply with the MOT permit requirements.

The Contractor shall conduct its operations in a manner that will ensure that all modes of traffic will be uninterrupted, except as approved by the County in advance of the work. At the close of each work day, the area of work shall be confined to the smallest area possible, but in no event larger than the area designated in the Construction Documents, and secured appropriately so that the maximum use of the street and sidewalk will be restored and the hazard to traffic reduced to the minimum. No excavation shall remain open to
traffic without a prior approval of the County except when the excavation can be safely bridged with the use of steel plates or other materials acceptable to the County. When areas of excavation outside of the roadway do remain open, the area shall be barricaded and warning signs shall be posted. Approved safety barriers may be required.

The Contractor shall use the personnel and traffic control signs and devices necessary to comply with Part VI of the “National Manual on Uniform Traffic Control Devices” at all times. During the progress of the work when the street may be obstructed to any extent by construction equipment or construction operations, in addition to the signs and barricades, workers, equipped with VDOT required “STOP\SLOW” double sided traffic control paddles, shall be designated by the Contractor to direct traffic. These workers shall not be assigned to any other duties while engaged in directing traffic. The Contractor has sole responsibility for ensuring that its operations are conducted in a safe manner and notwithstanding any other provision to the contrary, shall fully indemnify Arlington County, its officers, agents and employees for any damage or injury related to traffic operations which is caused by negligent or otherwise improper or deficient performance under the Contract or nonperformance of the terms of the Contract. All personnel, signs, barricades and any other items necessary for the maintenance of traffic and safety shall be provided by the Contractor. No separate payment shall be made by the County for Maintenance of Traffic.

WEATHER CONDITIONS

ARLINGTON COUNTY BOARD & VERIZON LLC LICENSE AGREEMENT REQUIREMENTS
Arlington County and Verizon LLC (“Verizon”) entered into an agreement granting the County a nonexclusive license authorizing the attachment of County-owned fiber to Verizon-owned poles and the placement of County-owned fiber in Verizon-owned conduits and rights of way. The terms and conditions of the license agreement govern many aspects of the work herein. Further, the Contractor is required to cooperate with and, to the extent requested, coordinate its work with Verizon.

The Contractor must schedule all aerial construction work with Verizon. Schedule conflicts that have not been independently confirmed by the County as well as any work stoppages required or ordered by Verizon will not be grounds for a claim to extend project completion date or waive the liquidated damages.

The Contractor shall be responsible for correcting all safety violations per terms and conditions of the (pole attachment) license agreement immediately upon Verizon’s notice. The Contractor shall correct all other non-standard conditions within fifteen (15) calendar days from receipt of written notice from Verizon. If the Contractor does not correct any violations or non-standard conditions as determined by Verizon within those time limits, Verizon may, at its option, perform the work. All costs incurred by Verizon for performing the work shall be borne by the Contractor. Further any costs incurred as a result of Verizon directives are at the sole expense of the Contractor.
The Contractor shall ensure that Verizon has unrestricted access to their poles, ducts, conduits and right of way that are located within County facilities (all facilities including, but not limited to cables, wires, equipment and associated hardware, owned and utilized by the County, which are attached to a pole, or occupy a conduit or right of way), and are able to conduct work on those facilities throughout the duration of the project work.

The Contractor shall ensure that the work herein is complete and all maintenance work is performed in accordance with the requirements and specifications of the current editions of the Manual of Construction Procedures (Blue Book), the National Electrical Code (NEC), and the National Electrical Safety Code (NESC), as well as the rules and regulations of the Occupational Safety and Health Act (OSHA). Where a difference in requirements or specifications exists, the more stringent shall apply.

Through the license agreement, Verizon reserves the right to make periodic inspections of the County facilities that are attached to Verizon’s poles, or occupying Verizon’s conduits or right of way. If more frequent inspections are necessary due to material non-conformances as determined by Verizon in its sole discretion, the Contractor shall be responsible for any cost incurred for such inspections by Verizon. If the County and Verizon determine that remediation is necessary, the Contractor shall have fifteen (15) calendar days to correct the non-conformance at its own expense.

You may download a copy of this agreement from the following link:

https://egov.arlingtonva.us/ProcureDocs/702-12/VZAgreement.pdf

CRIMINAL BACKGROUND CHECK AND APS CRIMINAL CONVICTION DOCUMENTATION
The Contractor shall submit the completed APS criminal conviction documentation, the criminal background check forms with a copy of a valid photo identification, and the ID badge request form for all personnel and subcontractors that are anticipated to perform work covered by this solicitation in order to be granted access to County facilities. The applications must be submitted within ten (10) business days of the contract award notice. The County will conduct a background investigation and issue temporary badges to all Contractor’s personnel and subcontractors who have successfully completed the background investigation. The Contractor shall ensure that its personnel and subcontractors display the identification badge issued by the County at all times while on the project site.

The Contractor must submit completed APS criminal conviction documentation and criminal background check forms for any new or additional employees or subcontractors that are scheduled to perform any work onsite under this Contract by the time a Notice to Proceed for a particular project is issued, or, in case of maintenance/installation and emergency services, at least ten (10) business days before the employee is scheduled to begin the work onsite.

In the event that the Contractor uses an employee or subcontractor without prior criminal background check and APS criminal conviction verification, such employee or subcontractor shall be immediately removed from the worksite. The Contractor shall not be allowed to request payments from the County for any work completed or time worked by that employee/subcontractor prior to their background and APS checks are complete, or request that project completion date is extended and liquidated damages are waived if
scheduling such employee/subcontractor results in delays in project completion.

The required forms can be downloaded from the following links:

https://egov.arlingtonva.us/ProcureDocs/702-12/APSCriminal.pdf

https://egov.arlingtonva.us/ProcureDocs/702-12/BackgroundCheck.pdf

https://egov.arlingtonva.us/ProcureDocs/702-12/IDBadge.doc

ARLINGTON COUNTY BOARD AND DOMINION VIRGINIA POWER LICENSE AGREEMENT REQUIREMENTS
Arlington County and Dominion Virginia Power ("Dominion") entered into an agreement granting the County a nonexclusive license authorizing the attachment of County-owned fiber to Dominion-owned poles. The terms and conditions of the license agreement govern many aspects of the work herein. The Contractor is required to cooperate with and, comply with the technical requirements set forth in the Agreement and Contractor shall adhere to all conditions related to those technical requirements imposed by Dominion upon the County in said Agreement.

You may download a copy of this agreement from the following link:

https://egov.arlingtonva.us/ProcureDocs/702-12/DVPAgreement.pdf
3. **CONTRACT PRICING**

The Contract prices shall remain firm for the first thirty six (36) months of the Contract Term. Any proposed modifications to the Contract Amount for ensuing years shall be submitted by the Contractor to the Project Officer ninety (90) days prior to the anniversary date of the Agreement. Any price modifications shall be negotiated and approved by Arlington County in writing prior to new prices going into effect.

Increases in the Contract Amount for ensuing years shall not exceed the percentage of change in the U.S. Department of Labor, Consumer Price Index, All Items, Unadjusted, Urban Areas (CPI-U) for the twelve (12) month period ending in July of each Contract Year. Arlington County reserves the right to use Employment Cost Index or Producer Price Index for cost adjustments, to be determined at the time of contract award.

All work performed under this contract shall be on time and materials basis, paid for using the labor, materials or combined labor and materials rates included in the pricing sheet.

All labor hourly rates shall constitute full compensation for wages, transportation to and from the work site, Contractor's overhead, and any necessary incidentals.

All unit prices for material shall include all shipping, handling and storage costs.

All work performed under this contract shall comply with all applicable National Electrical Code, National Electrical Safety Code, and Telcordia (Bellcore) standards. Construction methods and techniques used by the contractor shall be in accordance with the recommended practices and procedures published by leading industry manufacturers and trade associations.

Site restoration work shall not constitute a separate pay item, shall be incidental to the work performed, and shall be completed to the satisfaction of the Project Officer or their designee.

Below are descriptions clarifying certain categories listed in the pricing sheet:

**MAKE-READY LABOR AND MATERIALS**

**Raise or Lower Telecommunication Cable**

This item consists of moving an existing span of telecommunications cable. The item includes moving the stranded steel messenger wire (also known as suspension strand) and cable. The cable shall be supported in a manner as not to damage the cable. Existing holes should be reused wherever possible. Where new holes are needed, properly size hole shall be drilled through the pole at the height specified by the make-ready engineering. A machine bolt of appropriate length shall be passed through the center bolt hole of the clamp, through the guy hook, through the pole, through the 3" x 3" x 1/4" washer and properly tightened with the nut. A second nut shall be installed to act as a lock nut. No more than 1/2 inch of bolt shall remain exposed after tightening the second nut. Materials may include galvanized cable suspension clamp or a galvanized guy clamp (depending on the size of the messenger wire) and a
galvanized machine bolt with a rod diameter of 5/8" and a length to suit the use intended with a galvanized nut.

Transfer of Existing Messenger Attachment
This item shall include the relocation of messenger wire and attached cable(s) from one pole to another. The cable shall be supported in a manner as not to damage the cable. The new pole shall be drilled at the location pre-determined by the make-ready survey, the cable and attachment moved to the new pole and installed using the same hardware from the original pole. If additional hardware is required to attach to the new pole, it shall be supplied as part of this work at no additional cost.

Removal of Messenger Wire, Cable and Hardware
This item consists of the removal of a messenger wire with cable(s) attached or of a cable with a built-in messenger wire in place between poles. This item is not applicable to the removal of cable from a messenger wire that remains in place or the removal of a messenger wire which has no cable attached or built-in. A tensioning device shall be used to remove the tension from the clamps before their release. Under no circumstances shall the messenger wire be cut while under tension. The messenger wire shall be lowered to the ground by hand or hand line after removing the clamps and backing off all the tension. The cable attached to the messenger wire by lashing or tape (not built-in) shall be detached from the messenger wire. Any fiber optic cable owned or supplied by the County shall be rolled up separately and returned to the County or disposed of as directed by the Project Officer.

Relocation of Down Guy
This item shall consist of moving the location of a down guy or sidewalk guy. The guy shall remain associated with the same pole, but the location of the anchor shall change. The contractor shall salvage as much of the existing guy as possible. Any additional materials shall be supplied as required to install a new anchor.

Removal of Down Guy and Anchor
This item consists of removing anchors, down guys or sidewalk guys, and guy wire protectors. The method of removal of the down guy is left to the discretion of the contractor. All salvaged material shall be coiled up and/or taped as appropriate and returned to the County. Materials required as necessary to properly remove screw or expanding anchors and guys.

Removal of Overhead Guy
This item consists of removing overhead guys. The method of removal of the overhead guy is left to the discretion of the contractor. All salvaged material shall be coiled up and/or taped as appropriate and returned to the County.

Relocation of Overhead Guy
This item shall consist of moving the location of an overhead guy. The guy shall remain associated with the same pole, but the location of the attachment shall change. The work shall be performed in accordance with applicable standards. The contractor shall salvage as much of the existing guy as possible.

Removal of Conduit from Wood Pole
This item consists of removing trade sized rigid galvanized or PVC conduit and fittings from a wood pole. The existing conduit may be galvanized, aluminum, or the PVC type in a wide range of sizes. The conduit and all
straps, nails, and/or lag screws shall be removed in a manner so as not to damage or disturb the pole, or surrounding conduits.

SITE PREPARATION AND MATERIALS

Tree Trimming
This item shall consist of the trimming of all trees and natural growth along a span between poles. The trimming shall clear the entire communications space of the pole span of all tree branches and natural growth. It shall be performed only at the direction or authorization of the County Project Officer. The contractor shall comply with all safety codes and standards when performing this work. A pole span shall be defined as the area between two adjacent poles. The contractor shall ensure that all other cables in the communications space are protected and preserved from damage. Additionally, all removed branches and foliage shall be removed from the area and properly disposed of.

Installation of Guy and Anchor
This item consists of the installation of an anchor and a down guy or sidewalk guy between the screw anchor and a pole. This item shall include a down guy protector. The installation of the anchor will consist of driving the anchor into firm and undisturbed ground to a point whereby no more than six inches of the rod including the eye is exposed above ground level. The down guy wire shall be attached to the pole at the appropriate location on the pole to provide guying for the cable installed for the County's use. The guy shall be installed according to all applicable electrical and safety codes. A guy wire protector will be installed with the bottom at ground level and properly anchored to the guy wire. The location of the anchor shall be in accordance with the appropriate cable installation practices and make-ready requirements. Materials may include screw anchors, swamp anchors or expanding anchors with forged-eye anchor rods. Rod diameter and length shall be selected based on strand weight to be guyed. Contractor shall install appropriate anchor for each installation. Additional materials include guy clamps suitable for 1/4" or 7/16" stranded guy wire, three six-inch long 5/8" bolts, sidewalk guy fittings, and pipe for sidewalk guys.

Installation of Overhead Guy
This item shall provide for the installation of a pole-to-pole overhead guy. The guy wire shall be attached to the pole at the appropriate location on the pole to provide guying for the cable installed for the County's use. The guy shall be installed according to all applicable electrical and safety codes. Materials include thimble eye bolts or machine bolts, thimble eye nuts, square washers, and square nuts.

Supply and Installation of Ground Rod
This item shall provide for installation of a grounding rod as well as a length of copper wire to bond to the item to be grounded. A minimum of 8 feet of the ground rods must be driven into undisturbed soil. The contractor shall supply up to 30 feet of copper grounding wire and shall cut the wire to the length as necessary. The grounding wire shall be properly bonded to the grounding rod. Materials include ground rod, 5/8" x 1-1/2" Galvanized Hex Bolts, 5/8" acorn type ground clamp, and 30 feet of copper grounding wire.
UNDERGROUND CONDUIT INSTALLATION

Installation of Conduit
This item consists of installing rolled duct (conduit) with all necessary fittings, under existing pavement, in unpaved trench, or on a wood pole (or removing same from a wood pole).

On or inside a building, conduit shall be installed by drilling anchors into concrete, brick, stone, steel, or wood and mounting the conduit with the proper clamps or hangers. The contractor shall be responsible for correcting any existing conduit disturbed during installation.

Conduit installed on wood poles shall be installed in a straight vertical line. Conduit installed in the ground shall be installed in a straight line between terminal points.

The County has the right to reject any installation method proposed for a given work site.

If bends are required during installation, they must be sweeping bends. The Project Officer shall be consulted before any bends are installed to ensure that the proper arc is provided.

Conduit placed by directional drilling shall have a minimum cover of 36 inches as measured from the finished grade. When trenching is used, the minimum cover may be 30 inches and the trench opening shall be filled half way with the cover material, and tamped down firmly before filling in the remainder of the opening to 12 inches below grade. A fiber optic warning tape shall be installed at 12 inches below grade and the remainder of the fill shall be added, tamping down the top layer.

Conduit not terminated to a base or in a vault shall be terminated two feet beyond the edge of the pavement unless otherwise directed by the County Project Officer. Conduit shall not extend more than three inches inside a vault or junction well. All conduit joints shall be sealed with the appropriate cement to ensure that the two conduit pieces bond to one another to form a solid waterproof link.

If not already pre-installed by the manufacturer, a polyester or polypropylene pulling rope or tape with a minimum rated strength of 1250 pounds shall be installed in each conduit for future use. The contractor shall be responsible for correcting any existing conduit disturbed during installation. All fiber shall be marked in the ground with a bright orange (preferably "ULCC" orange) or yellow warning tape at least 3 inches wide. The tape shall have integrated metallic mesh or cable to allow for easy detection. The marking tape shall be buried directly above the conduit run at a depth of approximately 12 inches below existing grade. The tape shall read "WARNING - OPTICAL CABLE" or other wording approved by the Project Officer that conveys the same message.

Directional Bore
Directional boring is the required underground placement technique unless approved otherwise by the County Project Officer. Conduit must be at least 36" below pavement surface. The size of a bore shall not exceed the two-inch outside diameter of the conduit by more than one (1) inch. If it does, cement grout shall be pumped into the void. In straight runs, vault spacing shall be
as shown on the system design (typically 500 feet) or as directed by the Project Officer.

**Installation under Existing Pavement - Open Cut**
All open cutting of roadways must first be approved by the County. The conduit shall be installed by cutting a slot in the pavement with a masonry saw. The contractor shall be responsible for the removal of all cut pavement and the replacement and correction of any damaged pavement once the conduit(s) are installed.

**Installation in Trench**
The conduit may be installed by trenching if approved. In straight runs, vault spacing shall be as shown on the system design (typically 500 feet) or as directed by the County Project Officer.

**Installation on Wood Pole (Riser)**
The conduit shall be attached to the wood pole with two hole straps spaced not more than 48" apart, with the top strap being six (6) inches from the higher location, and the lower being six (6) inches from the ground.

**Installation of Additional Conduit in Trench or Open Cut Pavement**
In the case of slotted or trenched installations, the contractor shall install additional conduits at the same time as the initial installation if requested by the County Project Officer. The County shall indicate the quantity of conduits to be installed during a build. Additional conduits may be stacked one on top of the other, side by side, or in a matrix. The orientation shall be at the contractor’s discretion, but conduits shall not twist around one another or be allowed to deviate from straight-line paths, except in the case of bend installations. Conduits installed at the same time in the same trench or slot shall remain oriented the same in relation to one another throughout the conduit run.

**Installation of Inner Duct**
If requested by the County Project Officer, inner duct shall be installed in the conduit. This item consists of installing various sizes of inner duct in new or existing conduits. If a pull line is not already pre-installed in the conduit, Contractor shall jet in a pull line in new conduit prior to pulling inner duct. Contractor shall rod existing conduit to ensure that it is free of any obstructions before installing a pull line and pulling inner duct. If a pull line is not already pre-installed in the inner duct, Contractor shall jet in a pull line in each inner duct after installing the inner duct. Materials include inner duct as necessary.

**Installation of Vaults**
This item consists of constructing and installing conduit vaults or junction wells. The conduit junction vault shall conform to the dimensions shown in the system design. Several conduits may extend into the vault. The vaults will have a minimum 36" depth below surface that may be obtained by stacking vaults. All vaults and vault lids must be appropriate for the required loading. Iron vault lids are required for any locations in roadways. The base of the vault shall be set upon a gravel base with a depth of eight to ten inches or as specified by the Project Officer to promote drainage of water. The gravel base shall extend 3-4 inches in all directions around the base of the vault. All conduit ends shall be sealed to minimize water ingress. Materials include vaults, lids, and gravel.
Relocation of Existing Vault
This item consists of relocating an existing vault or junction well to provide clearance from existing utilities or other construction work. This item may consist of moving a vault or junction well from a few inches to several feet in sodded or dirt areas only. The maximum relocation shall be six feet in any direction from the existing vault or junction well location. The vault or junction well shall be relocated in a manner so as not to damage the junction well, lid, or frame. If the conduit that is connected needs to be moved with the vault or junction well, the conduit is to be exposed to the distance necessary to move the facility. Caution is to be used so as not to place excessive stress on the conduit or its couplings. The entire work area where the junction well and conduits are relocated shall be backfilled and tamped as directed by the County Project Officer. Any extra fill needed to complete the backfill shall be considered part of this item. The equipment needed to safely relocate a junction well within the specified area to be determined by the Project Officer.

UNDERGROUND CABLE INSTALLATION

MEASUREMENT AND PAYMENT
General Use Communications Cable shall be measured and paid for at the contract price for actual linear feet of fiber optic cable of each fiber count supplied and installed by the Contractor and accepted by the Project Officer. Measurement shall be made by calculating the difference in length markings located on the outer jacket of the fiber optic cable from the start of the fiber run to the end of the fiber run for each fiber run. Fibers shall be terminated before determining the length of the cable run.
Plenum Rated Communications Cable shall be measured and paid for at the contract price for actual linear feet of fiber optic cable of each fiber count supplied and installed by the Contractor and accepted by the Project Officer. Measurement shall be made by calculating the difference in length markings located on the outer jacket of the fiber optic cable from the start of the fiber run to the end of the fiber run for each fiber run. Fibers shall be terminated before determining the length of the cable run.
Upon acceptance by the Project Officer of the cable installation, 75% of the payment for the cables as described above shall be made. The remaining 25% of the payment for the cables as described above shall be made upon acceptance by the Project Officer of the completed system to include splicing and termination of cable runs and acceptance of the final testing results.

Cable Installation in Conduit
This item consists of installing fiber optic cable in existing conduits that may or may not contain an existing communications cable or electrical wire or cable(s). Hand pulling methods are required. Prior written approval by the Project Officer is required for the use of any power assisted method of pulling fiber optic cable(s) into conduit. A short piece of material that will part if the strain exceeds 300 lb for 12-count fiber and 600 lb for more than 12-count shall be used for outdoor fiber optic cable between the pulling grip and the pulling medium.

Any and all cable(s) pulled into any conduit without the use of an acceptable pulling grip, kellem or equal, or without the use of a strain release element, or by using methods which may have or did result in pulling forces in excess of strain release material, or using methods which may have or did result in pulling forces in excess of those set forth herein or prescribed by industry standards are unacceptable.
Any and all unacceptable cable(s) shall be removed and replaced with new cable(s) using correct methods at no cost to the County. The number of communications cables to be pulled through each conduit are shown on the plans or may be changed if directed by the Project Officer. Materials will include fiber optic cable and inner duct.

Prior written approval by the Project Officer is required for the use of any power assisted method of pulling fiber optic cable(s) into conduit. A short piece of material that will part if the strain exceeds 300 lb for 12-count fiber and 600 lb for more than 12-count shall be used for outdoor fiber optic cable between the pulling grip and the pulling medium.

Any and all cable(s) pulled into any conduit without the use of an acceptable pulling grip, kellem's or equal, or without the use of a strain release element, or by using methods which may have or did result in pulling forces in excess of strain release material, or using methods which may have or did result in pulling forces in excess of those set forth herein or prescribed by industry standards are unacceptable.

Any and all unacceptable cable(s) shall be removed and replaced with new cable(s) using correct methods at no cost to the County. The number of communications cables to be pulled through each conduit are shown on the plans or may be changed if directed by the Project Officer. Materials will include fiber optic cable and inner duct.

Removal of Fiber Optic Cable from Conduit
This item consists of removing one or more fiber optic cable(s) from existing conduits. All may be removed, or one or more cable(s) may remain. Hand pulling methods are required. Prior written approval by the Project Officer is required for the use of any power assisted method of pulling wire or cable(s) from conduit. A short piece of material that will part if the strain exceeds 600 lbs shall be used between the pulling grip and the pulling medium.

Fiber optic cable shall be coiled, OTDR tested, and returned to the County.

AERIAL CABLE INSTALLATION

MEASUREMENT AND PAYMENT
General Use Communications Cable shall be measured and paid for at the contract price for actual linear feet of fiber optic cable of each fiber count supplied and installed by the Contractor and accepted by the Project Officer. Measurement shall be made by calculating the difference in length markings located on the outer jacket of the fiber optic cable from the start of the fiber run to the end of the fiber run for each fiber run. Fibers shall be terminated before determining the length of the cable run.

Plenum Rated Communications Cable shall be measured and paid for at the contract price for actual linear feet of fiber optic cable of each fiber count supplied and installed by the Contractor and accepted by the Project Officer. Measurement shall be made by calculating the difference in length markings located on the outer jacket of the fiber optic cable from the start of the fiber run to the end of the fiber run for each fiber run. Fibers shall be terminated before determining the length of the cable run.

Upon acceptance by the Project Officer of the cable installation, 75% of the payment for the cables as described above shall be made. The remaining 25% of
the payment for the cables as described above shall be made upon acceptance by the Project Officer of the completed system to include splicing and termination of cable runs and acceptance of the final testing results.

ADSS Fiber Optic Cable Installation
SEE GENERAL PROVISIONS ON THE HANDLING OF CABLE DESCRIBED IN PREVIOUS SECTIONS ("Cable Installation in Conduit").

This item consists of installing fiber optic cable to aerial poles. The cable shall be attached to the poles in accordance with cable manufacturer and industry standards. The end points shall be installed so that the fiber remains tensioned. At fiber splice locations and slack storage locations, the fiber shall be attached with dead-end attachments. Materials include approved mounting hardware and County-supplied fiber optic cable.

Each pole requires a mount for the fiber to attach to the pole. ADSS attachments shall consist of tangent mounts and false dead end mounts for the selected ADSS fiber optic cable. For poles with a line offset of 0° to 20° (horizontal or vertical), a fiber optic tangent assembly is used. For poles where the line offset is greater than 20°, false dead end shall be installed. False dead ends are also required at each splice location and snowshoe excess fiber locations. A wrap-around fiber marker must be installed at each pole.

Non-ADSS Cable Installation
SEE GENERAL PROVISIONS ON THE HANDLING OF CABLE DESCRIBED IN PREVIOUS SECTIONS ("Cable Installation in Conduit").

This item consists of installing fiber optic cable on span wire or messenger wire (also referred to as strand). The cable shall be lashed to the strand in accordance with industry standards. At each pole a wrap-around fiber marker that identifies the County as the owner must be installed. The lashing wire shall start and terminate on each span between poles. The end points shall be installed so that the lashing wire remains tensioned. Materials include galvanized lashing wire, a wrap-around fiber marker, and fiber optic cable.

Removal of Fiber Optic Cable from Strand
This item consists of removing fiber optic or copper cable from strand wire. The location of the fiber optic cable to be removed will be designated by the Project Officer. All tape holding cable to strand must be removed and disposed of properly. All lashing wire holding cable to strand must be removed and disposed of properly. The fiber optic cable must be completely removed from the strand and shall not be cut in shorter lengths as it is being removed. The removed fiber cable shall be coiled, OTDR-tested, and returned to the County.

FIBER SPLICE AND TERMINATION WORK

Installation of Fiber Optic Cable Storage Loop
This item consists of installation of a double cable loop for storage of an extra length of fiber cable on poles for ADSS fiber with or without a splice. If the fiber cable is strand-mounted, it will be installed on the support strand of aerial plant. Installation shall be in accordance with manufacturer recommendations. Materials include hardware and fiber optic strand storage loop (snowshoes). Storage loops shall be placed as shown on plans or as approved by the County Project Officer.
Installation of New Splice Enclosure
This item consists of preparing the cable ends for splicing, performing splicing, and installing the splice enclosure on aerial strand or for ADSS on poles or in an underground pull box or vault. Splice enclosures shall be installed in accordance with applicable standards. Materials include splice case, splice trays, and all hardware.

Reentry of Non-Encapsulated, Gasketed Splice Enclosure
This item consists of reentering an existing non-encapsulated, gasketed type splice enclosure to make additional splices, installing a new gasket, and rescaling the enclosure after the splice work has been completed. Installation shall be in accordance with applicable standards. Materials include gaskets for splice case, splice trays and all hardware.

Installation of Mid Sheath Splice (Ring Cut)
This item allows access to one or more fibers for splicing without cutting the entire cable. It consists of cutting away a section of cable jacketing to expose the buffer tubes, cutting or splitting open a buffer tube (depending on whether or not there are active fibers in that tube), preparing the designated fibers for splicing, splicing, and installing a splice enclosure to house the exposed section of cable. It typically will be performed on the County's backbone fiber constructed as part of another project. Care shall be taken not to cut any fibers that are in active use. The work includes installing a splice enclosure on poles, or, if strand-mounted, on aerial strand. If underground, the splice will be in an underground pull box or vault. Material includes splice case, splice trays and all hardware.

Splicing of Fiber
This item consists of splicing single-mode fibers, placing them in the splice trays, and placing the trays in the cases, wall mount housings or rack units. All fiber shall be fusion-spliced. Splices shall have a bidirectionally averaged loss of 0.1 dB or less. The County Project Officer has the option to approve splices with higher loss.

EQUIPMENT HOURLY RATES

Supply of Air Compressor
This item shall consist of providing an Air Compressor with a minimum CFM rating of 150. The use and payment of this item at any location shall be subject to the approval of the County Project Officer.

Supply of Generator
This item shall consist of providing a Generator with a minimum capacity of 6,500 watts. The use and payment of this item at any location shall be subject to approval of the County Project Officer.

Supply of Bucket Truck - Short (Reach Up To 40 Feet)
This item shall consist of providing a short Bucket Truck. The truck must be capable of lifting two men with tools and equipment to a height of up to 40 feet. The use and payment of this item at any location shall be subject to approval of the County Project Officer.

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4. CONTRACT AWARD METHOD AND PROJECT ASSIGNMENT PROCEDURE

CONTRACT AWARD METHOD
All submitted bids will be evaluated to determine whether the bidders fulfill the minimum requirements necessary to perform work specified in this solicitation, outlined as questions 1-4 of the Bid Form (Step 1). Only pricing sheet envelopes of the bidders who meet the mandatory requirements will be opened (Step 2).

The contract will be awarded based on the price bids of the qualified bidders. The determination of the lowest bidder will be made based upon a pre-determined, sealed formula. This formula will be unsealed at the bid opening, and become a public record at that time.

The award for the maintenance/installation and emergency restoration portion of the Contract will be made to the lowest qualified bidder, with the second lowest qualified bidder being designated as a secondary services provider.

If a bidder believes he is not capable to provide the maintenance/installation and emergency restoration services as described in this solicitation, he will have an option to opt out of competing for this portion of the award. If the lowest qualified bidder exercised this option, the maintenance/installation, and emergency restoration portion of the contract will be awarded to the next lowest qualified bidder.

The bidder shall indicate his decision to provide the maintenance/installation and emergency restoration services on the bid form. The decision not to perform these services will not disqualify the bidder from competing for the award of the construction contract.

All bidders MUST submit their bids for the construction portion of the contract, otherwise their bids will be considered nonresponsive.

PROJECT ASSIGNMENT PROCEDURE

The primary Contractor awarded the maintenance/installation and emergency restoration services contract will be contacted for all work requested in relation to the maintenance/installation and emergency restoration services.

The secondary Contractor will be assigned work only in the following situations, at the discretion of Arlington County Project Officer:
- When the County is unable to reach the primary Contractor at the contact phone number within a timeframe that ensures that work will be started within the time limits specified above;
- When the primary Contractor is unable to respond to work request and begin work within the time limits specified above; and
- During emergency events where multiple sites require restoration work that the primary Contractor does not have enough capacity to complete in a timely manner.

When a need arises for maintenance/installation services, the County Project Officer will contact the Contractor at the contact phone number(s) provided. The Contractor shall respond with a cost estimate of the work to be performed within a maximum of five (5) business days, and be ready to begin work no later than twenty (20) business days after a Purchase Order is approved and a
Notice to Proceed is issued by the County, depending on the availability of the required fiber optic cable.

When the County project officer determines a need for emergency restoration services, the Contractor will be contacted at the contact phone number(s) provided. The Contractor shall respond to the declared Emergency within a maximum of one (1) hour, and be on site no later than three (3) hours after declaration of emergency with all equipment and personnel required to repair the fiber failure.
IV. MATERIALS AND TESTING SPECIFICATIONS

1. CONTRACTOR-SUPPLIED MATERIALS

Unless specified otherwise, all materials listed in this section allow submission of equivalent products for County approval, as specified in Section I. Instruction to Bidders, paragraph 16. Use of Brand Names.

The materials shall be supplied by the contractor and used as needed to complete work under this solicitation. All materials supplied shall be new and unused and, where applicable, all materials and equipment supplied shall be UL-approved. The materials supplied by the contractor for use under this contract shall conform to the indicated sections of the standard specifications unless otherwise noted.

FIBER OPTIC CABLE

All Dielectric Self Support (ADSS) single mode loose-tube fiber optic cable, in 12-, 24-, 48-, and 60-count sheaths.

Conforms to international standards ITU-T G.652.C & D and Telcordia G-20 (unless otherwise noted).

Comprised of All Dielectric (AD) materials.

Made of a dry, gel-free cable design.

Incorporates dry, water-blocking elements.

Loose tube fiber, 12 fibers per tube.

Marked, in permanent white characters, with:
- Cable Identifier: Arlington County DTS (703) 558-2222
- Manufacturer name
- Month and year of manufacture
- Number of optical fibers and type (SMF)
- Sequential length markings, minimum of every two feet, in feet

Prysmian Group (Draka) ezDROPTM | Flat:
- 12-count PN: F-DFT-NATJ-12-BB-012-E3 (NO SUBSTITUTES)

Prysmian Group (Draka) ezSPAN® ADSS | Short Span:
- 144-count PN: F-ADED-1031-12-ES-144-E3 (NO SUBSTITUTES)
- 60-count PN: F-ADED-1031-12-ES-060-E3 (NO SUBSTITUTES)
- 48-count PN: F-ADED-1031-12-ES-048-E3 (NO SUBSTITUTES)
- 24-count PN: F-ADED-1031-12-ES-024-E3 (NO SUBSTITUTES)

Prysmian Group (Draka) ezFREPTm | Gel-Free Loose Tube:
- 144-count PN: F-EDH-1JKT-12-ES-144-E3 (NO SUBSTITUTES)
- 60-count PN: F-EDH-1JKT-12-ES-060-E3 (NO SUBSTITUTES)
- 48-count PN: F-EDH-1JKT-12-ES-048-E3 (NO SUBSTITUTES)
- 24-count PN: F-EDH-1JKT-12-ES-024-E3 (NO SUBSTITUTES)

FIBER MOUNTS

This item consists of supplying fiber mounts suitable for the fiber cable.
Mount for 12-count fiber is Belden 23-96651 stainless steel drop wire clamp or equivalent (Prysmian Group recommended for ezDROP™ | Flat cable).

Dead-End Mount for 24-, 48-, and 60-count fiber is PLP 28720051E1 or equivalent.

Tangent mount for 24-, 48-, and 60-count fiber is PLP 440200S or equivalent.

Dead-end mount for 144-count fiber is PLP 2872012C1E1 or equivalent.

Tangent mount for 144-count fiber is PLP 4470205S or equivalent.

**CONDUIT**

HDPE Roll Duct, meeting ASTM D-3350 specifications, smooth inner wall, smooth outer wall, **pre-lubricated** duct, pre-installed 1100 lbs. polyester pull tape:

Two-inch (2"), SDR 11 (2.375" NomOD, 1.943" NomID, 0.216" Min.Wall), Carlon #Al3C6DIJNNB or approved equivalent.

PVC Conduit, Rigid, Schedule 40, 10 foot section, listed to U.L. Std 651 specifications

2-inch nominal diameter, Carlon P/N 49011-010 or approved equivalent

PVC Conduit, Rigid, Schedule 80, 10 foot section, listed to U.L. Std 651 specifications

2-inch nominal diameter, Carlon P/N 49411-010 or approved equivalent

**INNERDUCT**

The innerduct shall be supplied in the color(s) specified by Arlington County.

HDPE Innerduct, Orange, with pre-installed 1100 lb (minimum) pull tape, in 72 inch reel:

1-inch corrugated duct — I.D. greater than 1.0 inch, O.D. less than 1.35 inch. Carlon A5D2S1JNJB7000 (7000 ft reel length), or approved equivalent.

1-inch smooth outer walled, ribbed interior wall duct, **pre-lubricated** — I.D. greater than 1.00 inch, O.D. less than 1.27 inch. A-D Technologies (Laumson Pipe P/N) A5S9D1JNJB7000 (7000 ft reel length), or approved equivalent.

MaxCell Fabric Innerduct, with pull tape in each cell, standard product. (non-plenum, non-riser, non-detectable)

1.25" duct, 2 cell, 1000', MCMXIII23XX1000 (Micro MaxCell), 0.40" dia.

**HANDHOLES AND VAULTS**

All handholes and vaults shall have ANSI 77 2010 tier designation/load rating embedded in a surface that will be visible after installation, and logo "Arlington" permanently placed onto the lid.
Handhole, Tier 15 Rated (15,000 lb design load, 22,500 lb test load),
composite construction, UL listed to ANSI 77 2010, (WxLxD), RUS listed,
straight-walled, open bottom.
  Type 1 - 17"(18") X 30" X 30"
  Type 2 - 24" X 36" X 36"
  Type 3 - 30" X 48" X 36"

Handhole, Tier 22 Rated (22,500 lb design load, 33,750 lb test load),
Composite Construction, UL listed to ANSI 77 2010, (WxLxD), RUS listed,
straight-walled, open bottom.
  Type 1 - 17"(18") X 30" X 30"
  Type 2 - 24" X 36" X 36"
  Type 3 - 30" X 48" X 36"

Manhole, Precast Concrete, steel re-enforced, ASSHTO H-20 Rated, RUS
listed, for placement in roadways
  Type 4 - 72" X 48" X 78" (approximate) Precast Concrete.

FIBER OPTIC CABLE STORAGE LOOP (SNOW SHOE)
Fiber optic cable storage loop support frames (snowshoe), polypropylene
frame, stainless steel mounting hardware, UV stabilized, stackable for
multi-wrap installation. (L x O.D. x vertical depth)
  17.6" X 13.1" X 0.75", OptiLoop FOSP-12-TMK, or approved equivalent.
  25" X 19" X 0.95", OptiLoop FOSP-17-TMK, or approved equivalent.

SPICE ENCLOSURES AND MOUNTING HARDWARE
This item consists of supplying fiber optic splice cases, aerial hanger kits,
spare gaskets to replace damaged or weathered gaskets after a case has been
re-entered, and cable addition kits to provide additional cable ports.

  Fiber Optic Splice Enclosure, 144 count fiber with all required hardware,
  accessories, and splice trays for underground vault or aerial ADSS fiber
  locations for 12-count loose tube fusion splices.

  Preformed Line Products (PLP) 8006877 Coyote Dome Closure 6.5" X 22"
  splice case and associated hardware (NO SUBSTITUTES) and

  Preformed Line Products (PLP) LGSTS72 Lite-Grip® Long Tray, Deep
  Profile 80 splice count (Single Fusion Double Stack) splice tray
  (NO SUBSTITUTES).

If any contractor observes the materials provided herein are not compliant
with applicable codes or are incompatible with other provided materials, the
contractor shall immediately inform the Project Officer representative of the
discrepancy along with proposed solutions, if any.

HARDWARE
Hardware shall be compatible with the materials specified below by the County
and procured by the Contractor. If any contractor observes the materials
provided herein are not compliant with applicable codes or are incompatible
with other provided materials, the contractor shall immediately inform the
Project Officer or designee of the discrepancy along with proposed solutions,
if any.
This item consists of supplying commonly used ground rods and wire, and rod attachment clamps, fiber optic cable marking, identification and labeling hardware.

Underground plant conduit and marking tape shall be bid on a per foot basis. Handholes, vaults, and grounding materials shall be bid on a per unit basis.

**Grounding Hardware, UL Listed, RUS Listed (13 mil cladding)**

- Rod, 10 mil copper-clad steel, 5/8" diameter, 8' length, Southern Grounding C58813, or Erica 615880 or approved equivalent.

- Driving Stud, 5/8", high strength carbon steel. Withstands hammer impact while driving sectional rods. (same manufacturer as rod) or approved equivalent.

- Ground Rod Clamp, 5/8", high strength bronze alloy, corrosion resistant, accommodates #12-1/0 AWG, suitable for direct burial. Electric Motion EM 2DB-01 or approved equivalent.

- #6 copper ground wire, green insulation.

**Fiber Optic Cable Location/ Markers**

- Wrap-Around Cable Marker Labels, Day-Glow Green (option Orange), 4" X 4", William Frick P/N WFS-ES-0004, or approved equivalent. Custom Label: "ARLINGTON COUNTY FIBER OPTIC CABLE" (two lines)

- Warning Tape (for trenching applications), Bright (Day-Glow) Orange, 3-inch (or 75 mm) wide, to allow for easy visual detection with wording "WARNING - OPTICAL CABLE" or similar message approved in advance, repeated on tape at least every 3 feet or 1 meter.

- Markers, Soil Disk (for frequently cut grass areas), Orange Disk, 6-8 inch diameter, with 13 inch Stainless Steel Stake, Disk labeled with "WARNING - BURIED FIBER OPTIC CABLE" "Call 811 Before Digging" "ARLINGTON COUNTY" in UV stabilized black lettering.

- Markers, Domed Post Marker (Roadside/Highway use). Orange Domed Cap Labeled with "WARNING - BURIED FIBER OPTIC CABLE" "Call 811 Before Digging" "ARLINGTON COUNTY" in UV Stabilized Black Lettering. With 6 foot 3.5 inch diameter white post and anchor bar for ground attachment.

**INSIDE PLANT TERMINATION MATERIALS**

**Cabinets and Racks; Standard**

- Fiber Entrance Cabinet, Tyco Electronics (ADC) FEC-144, Wall Mountable, or approved equivalent, with six (6) integrated splicing trays.

- Rack, Wall Mounted, Low-Profile, Vertical, 19-inch rails, 6 rack units deep. Middle Atlantic Products (middleatlantic.com) P/N WRS-6 or approved equivalent.

- Rack, Equipment, 19 inch, 38 rack units (minimum), 78 inches high (maximum), open sided, with floor plate enabling bolt mounting to the floor. 10x32 tapped rails equipped with screws.
Rack, Equipment Enclosure, 19 inch, 43 rack units, 84 in. tall (max), NEMA 1 rated enclosure with locking doors, removable sides and doors, vented top, floor mounted. 10x32 tapped rails equipped with screws.

Fiber Termination (Patch) Panels
Fiber Termination (Patch) Panels each equipped with the appropriate number of bulkhead connector panels, fusion splicing trays, strain relief accessories, rack-mounting hardware, with space and accessories for managing splicing to inside of outside plant cable in the space behind the patch panel. Panels with greater than 48 fibers may have the splicing storage and handling space provided in a separate cabinet. Contractor proposing patch panel with separate cabinet shall call out and price that cabinet in a separate line item making note to refer to it in the quoted panel.

Corning PCH-01U - Pretium Connector Housing Patch Panel, Rack-mounted, one (1) rack unit high (1.75 inch) or approved equivalent. Accepts up to 24 fiber connectors using 2 CCH connector panels or modules. See CCH Module options below. Order with PC1-SPLC-04R - Splice Tray Bracket for PCH-01U and splice trays.

Corning PC1-SPLC-04R or approved equivalent - Splice Tray Bracket for PCH-01U; accepts up to (4) 0.2 inch Type 2R or (2) 0.4 inch Type 4R reduced-length splice trays; includes slack storage spools.

Corning PCH-02U - Pretium Connector Housing Patch Panel, Rack-mounted, two (2) rack units high or approved equivalent. Accepts up to 4 CCH connector panels or modules (48 fiber connectors); (See CCH Module options below.)

Order with PC2-SPLC-6SR - Splice Tray Bracket for PCH-02U and splice trays.

Corning PC2-SPLC-6SR - Splice Tray Bracket for PCH-02U; accepts up to (6) 0.2 inch Type 2S, Type 2S Long or Type 2R splice trays; or accepts up to (3) 0.4 inch Type 4S or Type 4R splice trays.

FWH-04P - Corning Pretium Wall-Mountable Connector Housing that will accept up to 4 CCH panels or modules (14.4 x 21.0 x 5.3” closed) plus add Lock Kit HDWR-LOCK-KIT. Order with FWH-SPLC-04-12P.

FWH-SPLC-04-12P Splice Tray Bracket for FWH-04P holds (6) Type 2R or (4) Type 4R splice trays.

CCH-CP12-6C (Corning) 12-port, simplex, single-mode, SC-APC connectors.

CCH-CP24-A9 (Corning) 24-port, duplex, single-mode, LC-UPC connectors.

M67-112 Type 2S-Long splice tray (for use with PCH-02U)

M67-110 Type 4R splice tray (for 12 mass ribbon or 12 heat shrink fusion splices)
2. FIBER OPTIC TESTING SPECIFICATIONS

INTRODUCTION
The Contractors will be responsible for end-to-end testing of each fiber from the site to the respective hub site. This section of the ITB provides the test plan to determine acceptable optical performance of the fiber links.

TESTING PHILOSOPHY
This test procedure is designed to ensure that the fiber optic plant meets general industry standards, and is suitable to support connectivity to a range of potential fiber interface equipment. Testing shall be performed after construction is completed for each site. Each link shall be tested for continuity and to ensure that there are no unacceptable anomalies in the fiber optic cable. An optical time-domain reflectometer (OTDR) shall be used to measure and document splice and connector locations, and an optical power meter test set shall be used to determine end-to-end optical losses and fiber continuity. The OTDR equipment used must record the results of the testing for one day to be downloaded at day’s end.

TESTING CRITERIA
The test shall be successfully completed and shall be conducted in the presence of Arlington County’s designated observer. The test shall be deemed successfully completed if:

1. maximum end-to-end fiber losses do not exceed 0.385 dB/km at 1310 nm, and 0.285 dB/km at 1550 nm.

2. individual splice losses do not exceed 0.10 dB at 1310 nm; and 0.05 dB at 1550 nm.

3. maximum mated connector losses do not exceed 0.50 dB at either wavelength. The average connector loss for one cable segment (144 fibers from one patch panel if backbone installation or 12 fibers from one edge site patch panel installation) shall not exceed 0.30 dB at 1550 nm.

Testing will be performed by Contractor personnel. Arlington County personnel may request and perform additional testing. The County Project Officer has the authority to approve higher losses on a case-by-case basis.

OTDR TESTING PROCEDURE
An OTDR shall be used to measure and document splice losses and connector losses. To correctly identify abnormalities at a short range, a 500-meter or 1.0 km launch cable shall be used between the OTDR and the fiber under test. Bi-directional traces shall be acquired for each fiber. If the connection of the launch cable to the patch panel requires optimization by the operator, sampling acquisition will commence upon completion of the optimization.

Each fiber will be identified, and the results of the test for each fiber will be recorded as indicated below in the section “Test Data File Names.” The test will be repeated for each of the fibers linking a particular site. All tests will be made at 1310 nm and 1550 nm.

Settings on the OTDR shall be:
- The Refractive Index shall be set for the actual fiber type under test (commonly-used Corning SMF-28 single mode fiber has a refractive index of 1.4677 at 1310 nm);
- Pulse width no greater than 100 ns (10μm) for all fiber lengths;
- Event threshold: 0.010 dB.
- Scattering coefficient specified by the fiber manufacturer for each wavelength tested;
- A minimum of 10,000 sampling acquisitions (Averages);
- Maximum range setting shall be no more than 10 km for all fiber length less than 10 km;
- Maximum range setting shall be no more than 25% higher than the fiber lengths under test for the fibers in the segment from the remote site to the hub patch panel; and

Test Data File Names
A uniform file-naming scheme for recorded data shall be used, complying with the following conventions or alternative approved by the County Project Officer:

<table>
<thead>
<tr>
<th>Fiber Source and Destination</th>
<th>Naming Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hub Site to Edge Site</td>
<td>xAy</td>
</tr>
<tr>
<td>Edge Site to Hub Site</td>
<td>xBy</td>
</tr>
</tbody>
</table>

Where:

x = 3-character Site Number
(A-B) = Source/Destination
y = 3-digit Fiber Number

For example, FS2A001 would be the file name for the test for site #FS2 from the hub site on fiber 1. Alternately, FS2B001 would be the file name for the test from site #FS2 to the hub site on fiber 1. An alternative nomenclature may be used if the County Project Officer agrees that the system makes the identification of the fiber more clear and it suits the needs of the project.

Test Documentation
Installed optical fiber OTDR test documentation shall include:

- Total fiber length;
- Individual fiber traces for complete fiber length;
- Paper and/or computer disk records of all traces;
- Losses of individual splices and connectors;
- Losses of other anomalies;
- Wavelength tested and measurement directions;
- Manufacturer, model and serial number of the test equipment; and
- Name, signature, and company of the engineer performing the tests.

All data collected at each location during the tests shall be recorded at the time of the tests using electronic means.

**OPTICAL POWER METER TEST PROCEDURE**

Optical power meter measurements shall be made at the same time as the OTDR tests to determine overall fiber loss and to ensure that fibers have appropriate end-to-end continuity (fibers not crossed). Calibration readings shall be taken at the beginning and end of a testing day:

1. Power on both fiber optic power meter and laser light source;
2. Allow each instrument a minimum 10-minute warm-up period;

3. Clean all connectors, in-line adapters, and the source and meter connections with alcohol, lint-free wipes, and compressed air;

4. Connect a jumper to the light source, and a second jumper to the meter. Connect the jumpers using a bulkhead;

5. Ensure that the wavelength setting on the light source and the power meter is 1310nm;

6. Set the power meter to record absolute (ABS) readings;

7. To ensure that the jumpers are functional and that a proper connection has been established, observe the power reference reading on the meter’s main display;

8. Record the measurement on the display, ensuring that the meter is set to display absolute measurements (ABS);

9. Power down the light source and the power meter. Disconnect the light source jumper at the bulkhead ONLY. Cap the free connectors on both jumpers; If inconsistent/erroneous readings are observed, re-clean the jumpers and fiber termination points and test again before recording final dB value;

10. Change the light source and power meter to 1550 nm and repeat tests;

11. Disconnect the jumpers from the fiber under test. To test additional fibers, be sure to clean each connector and termination point with both alcohol and compressed air. This should be done before testing all fibers;

12. Connect the jumpers to the ends of the next fiber to be tested and observe the measurement on the main display;

13. The meter and light source should only be powered off when traveling to a new test site. At each new site, the meter and source must both be allowed a ten-minute warm up period. Follow steps 1-11 at each new site; and

14. Recalibrate the light source and meter after each day’s testing is completed, following the calibration procedure.