Overview for Contract

Prior to utilizing a contract, the user should read the contract in it's entirety.

CONTRACT DESCRIPTION

The Cabling contract provides uniform wiring for Voice, Video (broadband & conferencing), Public Address Systems, DATA, Wireless Networking, Radio (terrestrial & satellite), and associated infrastructures.

CONTRACT INFO

Material or Service	Service	
Title & Contract # (s)	9985-40 Telecommunications Cabling Services	
Number of Suppliers	24	Pcard enabled: Y/N
Validity Period	06/2005 - 06/2008	
DGS BOP Point of Contact	Sheryl Kimport	
Contact Phone #	717-346-2670	
Email	skimport@state.pa.us	

PRICING HIGHLIGHTS

Including Minimum Order Amount (in dollars and/or quantity, if applicable):

The ITQ does not contain pricing. The purchasing agency must solicit the qualified suppliers for procurement over $25,000.

PROCESS TO ORDER

CONTRACT TYPE- *SRM: (NORMAL(has material masters), MSCC, PUNCHOUT,PRODUCT CATEGORY) , R3: (MRP & Market Priced contracts) or describe other processes to order.*

IF PRODUCT CATEGORY:

Order Process: Agencies shall process all orders based on the following estimated dollar thresholds.

1. Projects that do not exceed $25,000 - Agencies may utilize any of

2. Projects between $25,000 and $100,000 - Agencies shall solicit at

3. Projects exceeding $100,000 - Agencies will utilize the sealed

All orders will be processed as Purchase Orders via the SRM system.

SPECIAL CONTRACT TERMS AND CONDITIONS

CONTRACT SCOPE/OVERVIEW: This Contract No. 9985-40 (identified here and in the other documents as the "Contract") will cover the requirements of Commonwealth agencies for Telecommunications Cabling Services.

TERM OF CONTRACT: The Contract shall commence on the June 15, 2005 and expires on June 30, 2008.

OPTION TO RENEW: The Contract or any part of the Contract may be renewed for two (2) additional one (1) year terms by mutual agreement between the Department of General Services (DGS) and the Contractor(s). If the Contract is renewed, the same terms and conditions shall apply, pricing changes on renewals excepted.

OPTION TO EXTEND: DGS reserves the right, upon notice to the Contractor, to extend the Contract or any part of the Contract for up to three (3) months upon the same terms and conditions. This will be utilized to prevent a lapse in Contract coverage and only for the time necessary, up to three (3) months, to enter into a new Contract.

SERVICE AGREEMENT: Upon request from a Commonwealth agency, all suppliers are expected to quote and provide the services in the counties they indicated in the geographic coverage section. Suppliers who refuse to provide a quote for the requested services after 3 requests will be removed from the contract.

NEGOTIATE DESIGN: The Issuing Office reserves the right to negotiate any design changes. If such changes are required by the using agency, the Contractor will be given the right to alter costs upon agreement of the using agency and the Issuing Office.

ORDER PROCESS: Agencies shall process all orders based on the following estimated dollar thresholds.

1. Projects that do not exceed $25,000 – Agencies may utilize any of the awarded suppliers.
2. Projects between $25,000 and $100,000 – Agencies shall solicit at least 3 suppliers, via an RFQ.
3. Projects exceeding $100,000 – Agencies will utilize the sealed competitive bidding process via an RFQ.

All orders will be processed as Purchase Orders via the SAP system.

INSURANCE: Contractors shall, at their expense, procure and maintain during the term of the Contract, the following types of insurance, issued by companies acceptable to DGS and authorized to conduct such business under the laws of the Commonwealth of Pennsylvania:

a. Worker's Compensation Insurance for all of the Contractor's employees and those of any subcontractor, engaged in work at the site of the project as required by law.

b. Public liability and property damage insurance to protect the Commonwealth, the Contractor, and any and all subcontractors from claims for damages for person injury (including bodily injury and wrongful death), sickness or disease, accidental death and damage to property, including loss of use resulting from any property damage, which may arise from the activities performed under the Contract or the failure to perform under the Contract, whether such performance or nonperformance be by the Contractor, by any subcontractor, or by anyone directly or indirectly employed by either. The limits of such insurance shall be in an amount not less than $500,000 each person and

$2,000,000 each occurrence, personal injury and property damage combined. Such policies shall be occurrence rather than claims-made policies and shall name the Commonwealth of Pennsylvania as an additional insured. The insurance shall not contain any endorsements or any other form designated to limit and restrict any action by the Commonwealth, as an additional insured, against the insurance coverage in regard to work performed for the Commonwealth.

Prior to commencement of the work under the Contract and during the term of the Contract, the Contractor shall provide DGS with current certificates of insurance. These certificates shall contain a provision that the coverage afforded under the policies will not be cancelled or changed until at least thirty (30) days' written notice has been given to DGS.

ORDER OF PRECEDENCE: These Special Contract Terms and Conditions supplement the Standard Contract Terms and Conditions For Statewide Contracts for Services. To the extent that these Special Contract Terms and Conditions conflict with the Standard Contract Terms and Conditions For Statewide Contracts for Services, these Special Contract Terms and Conditions shall prevail.

OPTION FOR SEPARATE COMPETITIVE BIDDING PROCEDURE: DGS reserves the right to purchase supplies covered under this Contract through a separate competitive bidding procedure, whenever DGS deems it to be in the best interest of the Commonwealth. The right will generally be exercised only when a specific need for a large quantity of the supply exists or the price offered is significantly lower than the Contract price.

PROVISIONS FOR PIGGYBACKING OFF OF THIS CONTRACT: In addition to Commonwealth agencies, Act 57 of May 15, 1998, as amended by Act 142 of 2002, permits local public procurement units to participate in those contracts for supplies, services, or construction entered into by the Department of General Services that are made available to public procurement units. A "local public procurement unit" is defined as:

1) any political subdivision;
2) any public authority;
3) any tax exempt, nonprofit educational or public health institution or organization;
4) any nonprofit fire company, nonprofit rescue company or nonprofit ambulance company;
5) and to the extent provided by law, any other entity, including a council of governments or an area government that expends public funds for the procurement of supplies, services and construction.

Those local public procurement units listed above, and any other Commonwealth purchasing agencies, which issue orders under the Contract are intended beneficiaries under the Contract and are real parties in interest with the right to sue and be sued without joining the Commonwealth of Pennsylvania Department of General Services as a party.

Local public procurement units, and any other Commonwealth purchasing agencies, that elect to participate in the Contract will order items directly from the Contractor and will be responsible for payment directly to the Contractor.

RETAINAGE: In computing the amount payable in accordance with this Article on any current Application for Payment:

(1) Six percent (6%) of the then total Applications for Payment shall be deducted and retained by the Department until fifty percent (50%) of the work called for by the Contract Documents has been satisfactorily completed and all Contract obligations have been met as determined by the Department.

(2) Upon completion of fifty percent (50%) of the work called for by the Contract Documents, the work having been satisfactorily completed and all Contract obligations having been met as determined by the Department, the retainage withheld by the Department shall be reduced to three percent (3%) of the original Contract sum.

MONEY WITHHELD DUE TO CLAIMS OF ONE PRIME BASED ON DELAY OF ANOTHER: In the event a dispute arises between the Department and any Prime Contractor, which dispute is based upon increased costs claimed by one Prime Contractor occasioned by delays or other actions of another Prime Contractor, additional retainage in the sum of one and one-half (1-1/2) times the amount of any possible liability may be withheld from the Prime Contractor causing the additional claim until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the Prime Contractor causing the additional claim furnishes a Bond satisfactory to the Department to indemnify the Department against the claim.

PREVAILING MINIMUM WAGE PREDETERMINATION: The Contractor is hereby notified that this Contract is subject to the provisions, duties, obligations, remedies and penalties of the Pennsylvania Prevailing Wage Act, 43 P.S. Sections 165-1 et seq., which is incorporated herein by reference as if fully set forth herein. In compliance with said Pennsylvania Prevailing Wage Act, the Prevailing Minimum Wage Predetermination is hereto attached and made part hereof as approved by the Secretary of Labor and Industry.

If a job classification is not covered by the Prevailing Wage Predetermination, the Contractor may not pay individuals in that classification less than the lowest rate for laborers, as set out in the predetermination.

PERCENTAGE OF COMPLETION: The Department may, on request, furnish to any subcontractor, if practicable, information regarding percentages of completion certified to the Contractor on account of work done by such subcontractor.

REMEDY DEFECTS: In addition to any other guarantees or warrantees, the Contractor covenants and agrees, after acceptance of the Work performed under this Contract, to remedy without cost to the Department, any such defect provided said defects in the judgment of the Department, or its successors having jurisdiction in the premises, are caused by defective or inferior materials, equipment or workmanship. If the corrective work is not completed within thirty (30) days after notification by the Department to the Contractor, the Department may do the work and submit those costs to the Surety Company for reimbursement.

BONDS: The Contract Bonds given by the Contractor conditioned upon the faithful performance of the Contract and for the payment of labor, material, equipment rental and public utility service claims are attached to this contract and are made a part of it. No third party shall acquire any rights against the Department under the Contract Documents.

EMPLOYMENT LAWS: The Contractor agrees to abide by and be bound by the Laws of Pennsylvania relating to and regulating the hours and conditions of employment.

RIGHT OF ACTION TO RECOVER: Any person, co-partnership, association or corporation furnishing labor, material, equipment or renting equipment or rendering public utility services in connection with performance of this Contract has a right of action to recover the cost thereof from the Contractor and the surety on the Bond given to secure the payment of such labor, material, equipment or equipment rental and services rendered by public utility as though such person or corporation had been named as obligee in such Bond. For those who do not have a contract directly with the contractor, this right of action may not be exercised unless the contractor is notified of the claim within ninety days from the last performance of labor or provision of materials. The contractor shall include in all of its subcontracts or supply contracts a provision requiring that its subcontractors and suppliers notify, in writing, their subcontractors and suppliers

of this requirement. It is hereby agreed that no third party rights arise against the Department for any reason under this Section, and Contractor hereby agrees to so inform all subcontractors in writing.

SUBCONTRACTOR/SUPPLIER AGREEMENT: All work performed for the Contractor by a Subcontractor or supplier of materials shall be pursuant to an appropriate agreement between the Prime Contractor and the subcontractor or supplier (and where appropriate between subcontractors and sub-subcontractors). The agreement must be a fully executed agreement and include the amount the Subcontractor, Sub-Subcontractor or supplier is to be paid for the work to be performed or for the materials to be supplied. All agreements between Contractors and subcontractors or suppliers and between subcontractors and sub-subcontractors for work performed on the project shall be forwarded to the Department by the Prime Contractor prior to the commencement of any work by a subcontractor or a sub-subcontractor or supply of material by a supplier and shall contain provisions that (for purposes of this remainder of this Article, the word subcontractor is to be read to include a supplier of material.):

(1) Preserve and protect the rights of the Department and the Professional under the Contract with respect to the work to be performed under the subcontract, so that the subcontracting thereof will not prejudice such rights;

(2) Require that such work be performed in accordance with the requirements of the Contract Documents;

(3) Require submission to the Contractor of applications for payment under each subcontract to which the Contractor is a party, in reasonable time to enable the Contractor to apply for payment in accordance with Article 11;

(4) Require that all claims for additional costs, extensions of time or otherwise with respect to subcontracted portions of the work shall be submitted to the Contractor (via any subcontractor or sub-subcontractor where appropriate) in the manner provided in the Contract Documents for like claims by the Contractor upon the Department;

(5) Require that each subcontractor and/or supplier fully warrants and guarantees for the benefit of the Department as purchaser the effectiveness, fitness for the purpose intended, quality and merchantability of any item provided and/or installed by such subcontractor;

(6) Require that the subcontractor is without privity of Contract to the Department and that it agrees by signing the subcontract that it neither acquires nor intends to acquire any rights against the Department on a third party beneficiary theory or any others.

(7) Require each subcontractor to notify its subcontractors and suppliers, in writing, that their right of recovery against the bond of the Prime Contractor for failure of payment may not be exercised unless the Prime Contractor is notified of the claim within ninety (90) days from the last performance of labor or provision of materials; and,

(8) Obligate each subcontractor to specifically consent to all provisions of Article 6.

NO CONTRACTUAL RELATIONSHIP BETWEEN DEPARTMENT AND SUBCONTRACTOR: Nothing contained in the Contract Documents creates any contractual relation between the Department or the Professional and any subcontractor, sub-subcontractor or supplier.

PAYMENT TO SUBCONTRACTORS: Performance by a Subcontractor in accordance with the provisions of the contract entitles the Subcontractor to payment from the party with which the Subcontractor has contracted. For purposes of this section, the contract between the Contractor and Subcontractor is presumed to incorporate the terms of the contract between the Contractor and the Department.

6.5: CONTRACTOR DISCLOSURE OF DUE DATE FOR PROGRESS PAYMENTS FROM DEPARTMENT: The Contractor shall disclose to a Subcontractor, before a subcontract is executed, the due date for receipt of progress payments from the Department. If the Contractor fails to accurately disclose the due date to a Subcontractor, the Contractor must pay the Subcontractor as though the Department has paid the Contractor within 45 days of receipt of its application for payment. This section does not apply to a change in due dates because of conditions beyond the Contractor's control, including, but not limited to, design changes, change orders or delays in construction due to weather conditions.

TIME FOR SUBCONTRACTOR PAYMENT: When a Subcontractor has performed in accordance with the provisions of the contract, the Contractor shall pay to the Subcontractor, the full or proportional amount received for each Subcontractor's work and material, based on work completed or services provided under the contract, within 14 days of receipt of a progress payment.

INTEREST ON SUBCONTRACTOR PAYMENTS: If any progress payment is not made to a Subcontractor by the due date the Contractor shall pay to the Subcontractor, in addition to the amount due, interest as computed at the rate determined by the Secretary of Revenue for interest payments on overdue taxes or the refund of taxes as provided in Sections 806 and 806.1 of the Act of April 9, 1929 (P.L. 343, No. 176), known as "The Fiscal Code," and any subsequent amendments to those sections.

DEFICIENCY ITEMS: The Contractor may withhold payment from any Subcontractor responsible for a deficiency item. The Contractor shall pay any Subcontractor according to the provisions of this section for any item which appears on the application for payment and which has been satisfactorily completed.

NOTIFICATION OF DEFICIENCY ITEM: If a Contractor withholds payment from a Subcontractor for a deficiency item, it must notify the Subcontractor or Supplier and the contracting body of the reasons within 15 calendar days of the date after receipt of the notice of the deficiency item from the owner.

FAILURE OF DEPARTMENT TO MAKE PROGRESS PAYMENT: If the Department fails to issue an approved Application for Payment for any cause which is the fault of the Contractor and not the fault of a particular subcontractor, the Contractor shall pay that subcontractor, upon demand made by the subcontractor at any time after the approved Application for Payment should otherwise have been issued, for its work to the extent completed, less the retained percentage.

INSURANCE RECEIPTS: The Contractor shall pay each subcontractor a just share of any insurance moneys received by the Contractor under Article 9, and shall require each subcontractor to make similar payments to its sub-subcontractors.

NO OBLIGATION ON PART OF DEPARTMENT TO PAY SUBCONTRACTOR: Neither the Department nor the Professional shall have any obligation to pay, or to see to the payment of, any moneys to any subcontractor except as may otherwise be required by law.

SUBCONTRACTOR RESPONSIBILITY: If the Contractor enters into any agreements under this Contract with Subcontractors or suppliers, which are currently suspended or debarred by the Commonwealth, or who become suspended or debarred by the Commonwealth during the term

of this Contract or any extensions or renewals of it, the Department may require the Contractor to terminate such Contract.

CONTRACTOR WARRANTS THAT TITLE TO ALL WORK PASSES FREE OF LIENS: The Contractor warrants and guarantees that title to all work, materials and equipment covered by an Application for Payment, whether incorporated in the project or not, will pass to the Department upon the receipt of such payment by the Contractor, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in these Sections as "liens"; and that no work, materials or equipment covered by an Application for Payment was acquired by the Contractor, or by any other person performing the work at the site of furnishing materials and equipment for the project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

NEITHER PAYMENT NOR OCCUPANCY ACCEPTS WORK NOT IN CONFORMANCE WITH CONTRACT DOCUMENTS: No application for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the project by the requesting agency constitutes an acceptance of any work not in accordance with the Contract Documents.

FINAL PAYMENT NOT DUE UNTIL CONDITIONS MET: Neither the final payment nor the remaining retained percentage becomes due until the Contractor submits to the Department:

(1) An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the Department or its property might in any way be responsible, have been paid or otherwise satisfied;

(2) Statements of surety and the Contractor's certificate on forms satisfactory to the Department as to Contractor's payment of all claims for labor, materials, equipment rentals and public utility services; and

(3) If required by the Department, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as is designated by the Department.

If any subcontractor refuses to furnish a release or waiver, as required by the Department, the Contractor may furnish a Bond satisfactory to the Department to indemnify the Department against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Department all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

RELEASE OF FUNDS DUE TO DELAY IN FINAL NOT DUE TO THE FAULT OF THE CONTRACTOR: If, after Final Inspection of the work, final completion is materially delayed through no fault of the Contractor, the Department shall, upon certification by the Professional, make payment of the balance due for that portion of the work fully completed and accepted. Such payment will not terminate the contract. If the remaining balance of work not fully completed or corrected is less than the retainage stipulated in Section 11.8, and, if Bonds have been furnished as required, the Contractor must submit to the Department, prior to certification of the payment, the written consent of the surety to the payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it does not constitute a waiver of any of the Department's claims against the Contractor.

INQUIRIES: Direct all questions concerning this Contract to:

Mike Richart, Buyer
414 North Office Building
Harrisburg, PA 17125

Telephone: (717) 783-8578
Fax: (717) 783-6241
E-Mail: mrichart@state.pa.us

CONTRACT BOND

KNOW ALL PERSONS BY THESE PRESENTS, That we the undersigned
_____
_____
as Principal and _____
(Surety Company)
_____
(Address)
a Corporation organized and existing under the Laws of the State of _____ and authorized to transact business in Pennsylvania, as surety, are held and firmly bound unto the Department of General Services as hereinafter set forth, in the full and just several sums of
(A)_____Dollars($_____) for faithful performance of the Contract as designated in Paragraph "A"; and

(B)_____Dollars($_____)for payment for labor, material equipment rental and public utility services as designated in Paragraph "B".

Sealed with our respective seals and dates this _____ day of _____.

WHEREAS, the above Principal has entered into a Contract with the Department of General Services dated the _____day of _____, _____ for _____ upon certain terms and conditions in said Contract more particularly mentioned; and

WHEREAS, It is one of the Conditions of the Award of the Department of General Services pursuant to which said Contract is about to be entered into, that these presents be executed;

NOW, THEREFORE, the joint and several conditions of this obligation are such:

A. That, if the above Principal as Contractor shall well and faithfully do and perform the things agreed by it to be done and performed according to the terms of said Contract and General Conditions, including the plans and specifications therein referred to and made part thereof, and such alterations as may be made in said plans and specifications as therein provided and which are hereby made part of this Bond the same as though they were fully set forth herein, and shall indemnify and save harmless the Department of General Services and all of its officers, agents and employees from any expense incurred through the failure of said Contractor to complete the Work as specified and for any damages growing out of the manner of performance of said Contract by said Contractor or its Subcontractors, or its or their agents or servants, including, but not limited to, patent trademark and copyright infringements, then this part of this obligation shall be void; otherwise, it shall be and remain in full force and effect.

B. That, if the above Principal shall and will promptly pay or cause to be paid all sums of money which may be due by the Principal or any of its Subcontractors to any person, co-partnership, association or corporation for all material furnished and labor supplied or performed in the prosecution of the Work, whether or not the said material or labor entered into and become component parts of the Work or improvements contemplated, and for rental of equipment used, and services rendered by public utilities in, or in connection with, the prosecution of such Work, then this part of this obligation shall be void; otherwise, it shall be and remain in full force and effect.

C. It is further agreed that any alterations which may be made in the terms of the Contract or in the Work to be done or materials to be furnished or labor to be supplied or performed, or equipment to be rented, or public utility services to be rendered, or the giving by the

Department of General Services of any extension of time for the performance of the Contract, or the reduction of the retained percentage as permitted by the Contract, or any other forbearance on the part of either the Department of General Services or the Principal to the other, shall not in any way release the Principal and the surety or sureties or either or any of them, their heirs, executors, administrators, successors or assigns, from their liability hereunder; notice to the surety or sureties of any such alterations, extension or forbearance being hereby waived.

D. The Principal and Surety hereby jointly and severally agree with the Obligee herein that every person, co-partnership, association or corporation which, whether as subcontractor or as a person otherwise entitled to the benefits of this Bond, has furnished material or supplied or performed labor or rented equipment used in the prosecution of the Work as above provided and any public utility, which has rendered services, in, or in connection with, the prosecution of such Work, and, which has not been paid in full therefor, may sue in assumpsit on this Bond in his, their, or its name and prosecute the same to final judgment for such sum or sums as may be justly due him, them, or its, and have execution thereon; provided, however, that the Department of General Services shall not be liable for the payment of any costs or expenses of such suit to a third party under any theory of law of equity.

E. Recovery by any persons, co-partnership, association or corporation hereunder is subject to the provisions of the Act of May 15, 1998, P.L. 358, No. 57, 62 Pa.C.S §§101-4509, as amended, which Act is incorporated herein and made a part hereof, as fully and completely as though its provisions were fully and at length herein recited, except that, where said Act refers to the Commonwealth of Pennsylvania or a Department thereof, it is deemed to refer to the Department of General Services.

IN WITNESS WHEREOF, The said Principal and Surety have duly executed this Bond under seal the day and year above written.

Witness:

_____ (Date)

_____
Principal- Individual (Date)

(Corporate Seal)

_____
Surety

_____
PA Resident Agent (Date)

By:_____
Attorney-in-Fact (Date)

Witness:

_____

_____
Principal-Partnership (Date)

_____
Surety

(Corporate Seal)

_____
PA Resident Agent (Date)

By:_____
Attorney-in-Fact (Date)

Attest:

_____ By:_____
Secretary or Treasurer (Date) President or Vice President (Date)

(Corporate Seal)

_____
Surety

_____ By:_____
PA Resident Agent (Date) Attorney-in-Fact (Date)

Approved as to Legality and Form

_____ _____
Office of Chief Counsel (Date) Office of Attorney General

SAP #	Act 57	CONTRACTOR NAME/ADDRESS	TELEPHONE NO.	FAX NO.	CONTACT PERSON
116472	X	Avaya Inc. 219 South 10th Street Lemoyne, PA 17043	(412) 875-4002	NA	Tom Fidler fiddler@Avaya.com
191803	X	Black Consulting Services Inc PO Box 89 York Springs, PA 17372	(717) 991-9269	(800) 884-5825	Rich Nye rnye@blackcsi.com
203733	X	ComNet Communications, LLC 39 Old Ridgebury Road, Suite 3 Danbury, CT 06810	(201) 977-4612	(908) 292-1073	Alfred Williams awilliams@comnetcomm.com
193815	X	Corl Communications Inc PO Box 4057 3209 Duke Street Harrisburg, PA 17111	(717) 350-0184	564-2077	Zachery E. Keller Zach.keller@corlcommunications.com
116695	X	Dauphin Associates Inc / Dauphin Data Com PO Box 2552 Harrisburg, PA 17105	(717) 986-9376 1-800-622-2909	(717) 986-9316	Rob Svec rsvec@dauphindata.com
119888	X	Eastern Telephone & Telecommunications Inc / ET&T 2360 Avenue A Bethlehem, PA 18017	(610) 867-7800 Ext. 1115	(610) 867-7800	Karl Durante kdurante@et-t.com
126364	X	Gettle Incorporated 2745 Blackbridge Road York, PA 17402	(717) 843-1231	(717) 843-2733	Frank Snyder fsnyder@gettle.com
302889	X	GR Sponaugle 4251 Chambers Hill Road PO 4129 Harrisburg, PA 17111	(717) 703-3808 (Dave) (717) 346-2828 (Jeffrey) (717) 703-3819 (John)	(717) 564-3675	Dave Harman Dave.harman@grscommunication.com Jeffrey A. Lupinacci John B. Grove, President
118344	X	Henkels & McCoy 985 Jolly Road Blue Bell, PA 19422	(215) 367-1921 (484) 344-2161 x 3814	(215) 367-1875	Dan Moriarty dmoriarty@henkels.com

189078	X	Jno. Z. Barton, Inc. 413 Norway Street York, PA 17403	(717) 843-9921	(717) 854-0475	Penny Seaks pseaks@jzbarton.com
306964	X	KIT Network Cabling 336 South Sixth Street Lebanon, PA 17402	(717) 228-0220	(717) 427-1712	Robert Eisenhauer reisenhauer@kit-communications.com
189865	X	Lacey Electric, Inc 2670 Leiscz's Bridge Road, Suite 100 Leesport, PA 19533	(610) 926-7100	(610) 926-7103	Jeffrey L. Boyer jboyer@laceyelectric.com
136934	X	LinkTech, Inc 546 Penn Avenue Reading, PA 19611	(610) 927-2126	(610) 927-2150	Sean Sheehan rmelecio@linktechinc.com
129526	X	NetVersant-Philadelphia, Inc. 4009 Market Street Aston, PA 19014	(610) 364-3200	(610) 364-3250	Mark Kane mkane@netversant.com
208600	X	Nu-Vision Technologies LLC DBA Black Box Network Services Main Office 6000 New Horizons Blvd Amityville, NY 11701	(412) 220-7530 (412) 677-3004	(412) 220-7539	Michael R. Regan mregan@bbns-va.com
154433	X	Pierson Consulting Company, Inc. PO Box 206 New Kingstown, PA 17072	(717) 796-0493	(717) 796-0692	Debra A. Pierson dpierson@piersoncci.com
153922	X	R W Communications, Inc. 45 Bonnywick Drive Harrisburg, PA 17111	(717) 566-8862	(717) 566-8658	John W. Ward jward@rwcommunications.com
176322	X	Sage Technology Solutions, Inc 1040 W. Main Street Mount Joy, PA 17552	(717) 653-6641	(717) 653-6651	Charlie Mowrer cmowrer@sagetechs.com

124403	X	Secco, Inc 111 Primrose Avenue Camp Hill, PA 17011	(717) 737-2142 ext 148	(717) 737-5235	Rick Cecco rceccorcecco@seccoinc.com Barry Kindt bkindt@seccoinc.com
181543	X	Tricomm Services Corporation 1247 N. Church Street Suite 8 Moorestown, NJ 08057	(856) 914-9001 x 15	(856) 914-9065	Gene Conway RCDD gene.conway@tricommcorp.com
	X	Telecommunication Systems Management, Inc. (TSM, Inc.) Name Changed to Black Box Network Services Also Nu-Vision Tech 700 Old Pond Road, Suite 601 Bridgeville, PA 15017	(412) 220-7530	(412) 220-7539	Michael R. Regan mregan@bbns-va.com
187298	X	Tricomm Services Corporation 1247 N. Church Street Moorestown, NJ 08057	(856) 914-9001	(856) 914 9065	Gene Conway Gene.conway@tricommcorp.com
197752	X	Tri State Telecommunications, Inc. 100 Wood Street Bristol, PA 19007	(215) 785-2565	(215) 785-2312	Terry Roberts troberts@tristatetele.com Edward Long Jr. Elong100@tristatetele.com
204016 133429*	X	Ward Communications, Inc. 6951 Allentown Blvd, Suite D Harrisburg, PA 17112	(717) 657-5754	(717) 657-5734	Joseph Mealey jmealey@go-ward.com
104820	x	Verizon	(717) 777-3960 (412) 633-3810		Cheryl Caplan cheryl.caplan@verizonbusinness.com

Commonwealth of Pennsylvania Telecommunications Wiring Standards

The Telecommunications wiring standards apply to all Departments, Boards, Commissions and Councils under the Governor's jurisdiction. Agencies not under the Governor's jurisdiction are strongly encouraged to follow these standards.

1. Intent

To have a uniform wiring plan for Voice, Video (broadband & conferencing), Public Address Systems, DATA, Wireless Networking, Radio (terrestrial & satellite), and associated infrastructures. To provide for flexibility in completing personnel changes, office renovations and equipment migration and updates. This cabling system is based on a structured cabling system that is not vendor proprietary and conforms to the TIA / EIA-568-B Commercial Building Wiring Standards. This document is meant to be dynamic and will change as official standards change.

Scope

These standards are to be used, unless the requesting Agency submits a waiver to the Office of Administration, Bureau of Infrastructure and Operations, containing a strong business case.

Specifically these standards will be used for:

- Newly constructed buildings
- Buildings undergoing major renovations
- New long-term leased occupancy
- New multi-building networks with state owned fiber or wire cable
- Residential

The standards are based on TIA / EIA-568-B Commercial Building Telecommunications Wiring Standard and the latest published version of Building Industry Consulting Service International's (BICSI) Telecommunications Distribution Methods Manual. The BICSI manual is a good source for detailed planning of telecommunications distribution systems. These guidelines do not recommend a particular method of horizontal distribution (under floor, ceiling, under carpet, etc.) because of the wide disparity of buildings in this state.

The National Electrical Code (NEC), the National Electrical Safety Code (NESC) and other national, state and local building codes are recognized as having jurisdiction over related parts of these guidelines

2. Purpose

To establish minimum standards, for voice, Video (broadband & conferencing), Public Address Systems DATA, Wireless Networking, Radio (terrestrial & satellite), and associated infrastructures in general and administrative office space.

To provide guidance and direction for participates who use this contract.

To enable the planning of facilities with little knowledge of the specific products that will be installed.

To define a cabling system that will support multi-vendor and multi-product environments.

To address the physical pathways, media, and cable administration practices

3. Approach

Establish the use of the general cabling industry practice of using a "Structured Cabling System" (SCS). A SCS attempts to wire a building for information needs without knowing specifically what equipment will be utilized. A SCS is geared for long term stability and flexibility and is based on the idea of wiring the building once. The structured cabling system approach allows the wire and outlets to remain unchanged while the connections and services vary.

The main components of a structured cabling system are:

Common Media - Unshielded twisted pair (UTP) and fiber optic cables are capable of supporting voice, video and data communications. Services can change without affecting the media used to connect the services.

Cross connects - Cross connects and patch panels provide the system with the flexibility to make changes to the service quickly and easily using jumper wires or modular jacks. Agency personnel with little training can make changes to the service in the work area, thereby reducing the amount of time, effort, and cost in making changes.

Universal outlet - Common universal outlets provide a standard interface that permits connectivity of devices to any service by changing the connection to the outlet and not the outlet itself. Connection to the outlet can be done directly or by using adapters when necessary.

Administration - An administrative system, determined by the Commonwealth, is used to record installations and maintain cable management records on a continuing basis.

4. Contractor Qualifications

Project Manager

The Contractor will provide an on-site, Project Manager who will act as a single point of contact. The Project Manager will be required to make on-site decisions regarding the scope of the work and any changes required by the work. The Project Manager will be totally responsible for all aspects of the work performed by their employees or any subcontractors that they employee.

Experience

The selected Contractor shall be fully capable and experienced in telecommunications distribution systems. Only Contractors having a successful history of sales, installation, service, and support with a minimum of five (5) years of experience should apply.

The Contractor must have an RCDD® (Registered Communications Distribution Designer) on staff that will be ultimately responsible for projects over $25,000.00. The RCDD must have sufficient experience in these type projects as to be able to lend adequate technical support to the field forces during installations, during the warranty periods, and during any extended warranty periods or maintenance contracts. A resume of the responsible

RCDD must be attached to the contractor's response for evaluation. Should the RCDD change during the contract term, the new RCDD assigned must also submit a resume for review by the Department of General Services.

The Contractor must also have BICSI Registered Installers and Technicians on staff to support Commonwealth projects of any size and scope. The project shall be staffed at all times by Installers and Technicians who, in the role of lead craftspersons, will be able to provide leadership and technical resources for the remaining craftspersons on the projects. A copy of their registration must be made available, if requested, by the Department of General Services or the Agency making inquires during a bid process.

References

The Contractor must provide a minimum of three (3) reference accounts at which similar work, both in scope and design, have been completed by the Contractor within the last two (2) years.

5. Pre-Installation Site Survey

Prior to start of systems installation, a site visit will be conducted at the project site with the Agency representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the General Contractor will be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets.

6. Handling and Protection of Equipment And Materials

The contractor is responsible for safekeeping of its own and its subcontractors' property, such as equipment and materials, on the job site. The Commonwealth assumes no responsibility for protection of above named property against fire, theft, and environmental conditions.

7. Protection of Commonwealth Property and/or Leased Space

The Contractor must effectively protect the facilities, equipment, and materials from dust, dirt, and damage during construction, and remove protection at completion of the work.

8. Wiring System Elements (Definitions)

Horizontal Cabling / Wiring

Horizontal cable and connecting hardware provide the means of transporting voice/data signals between the outlet / connector in the work area and the horizontal cross-connect/patch panel in the telecommunications room. These components are the "contents" of the horizontal pathways. It is the Commonwealth of Pennsylvania minimum standard that the cabling shall be UTP Category 5 with pathway planning for fiber and or copper growth.

Backbone Wiring

Backbone wiring is the riser wiring and / or telecommunications room/s interconnecting wiring in multi-story buildings or the main distribution system in a campus environment. Fiber optic cable shall be installed for data and fiber or UTP Category 5 Enhanced for multi-pair UTP shall be installed for voice

Entrance Facility

This is the pathway where a service enters a property or building including the entrance point at the building wall and continuing to the entrance room or space. The demarcation point between the service provider and the user is typically located in the entrance room.

Campus Distribution

This is the inter-building connectivity and campus backbone in a complex or multi-building environment.

9. Horizontal Wiring

Structure

The horizontal wiring structure extends from the telecommunications room to the telecommunications outlet. It includes the outlet/connector, the horizontal distribution system cables, and the cross-connect in the room and Horizontal Pathways and Spaces. Pathways and spaces are used to distribute and support horizontal cable and connecting hardware between the work area outlet and the telecommunications room. These pathways are the "container" for the horizontal cabling.

Note: Horizontal cables do not include work area (patch) cables or equipment. However, the length and type of cable required for connecting telecommunications equipment to the horizontal cabling will significantly affect end-to-end system performance and should be taken into account when planning any system.

Major Items

Horizontal Distribution Systems consist of structures that conceal, protect, and support horizontal cables between the telecommunications outlet/connector used to connect work area equipment (voice, data, and video) at the work area and horizontal cross-connect in the serving telecommunications room. Select and design the type and layout of the horizontal distribution systems carefully. After a building is constructed, it may be more difficult to gain access to horizontal cabling. Therefore the skill, effort, and time required to make horizontal cabling changes can be very high. When selecting and designing horizontal distribution systems, it is important to consider the design's ability to accommodate cabling changes and minimize occupant disruption when horizontal pathways and spaces are accessed. In addition to providing for current occupant needs, the horizontal distribution system design must facilitate ongoing maintenance of horizontal cabling and accommodate future additions to and changes in cabling, equipment and services. The pathway design should allow for a minimum of three cable runs per individual work area. Although minimally, only two cables are required, the additional pathway capacity is needed to facilitate future additions and changes as the user's needs evolve. NOTE: New requirements have been added to the 2002 National Electrical Code for removal of abandoned cables:

Avoiding potential sources of electromagnetic interference (e.g., motors and transformers that share distribution space & copiers used in work areas) must be a primary consideration when designing horizontal pathways. All horizontal pathways that penetrate fire-rated barriers must be fire stopped in accordance with applicable codes. When telecommunications horizontal pathways or cabling are placed in a hazardous location, such as an explosive or combustible atmosphere, observe all requirements of the applicable electrical code.

The main types of horizontal pathways are:

- Conduit
- Under floor ducts
- Access (raised) floors
- J-Hooks Cellular floors
- Ceiling distribution
- Surface mounted raceway

Many buildings require a combination of two or more of these systems to meet all distribution needs. For example, an office area in a building may require an under floor or overhead system, while an isolated voice/data outlet location may best be served by an individual conduit. Overhead cabling above ceiling tiles must be attached to an appropriate support system connected to the building structure rather than the ceiling tile grid or hangers. Special consideration must be given to length of cable span between supports and maximum number of cables in a support for Category 5 Enhanced compliance. [The maximum unsupported cable span when using Category 5 Enhanced compliant hangers (often referred to as J-hooks) for open wire cable systems shall be no more than 5 ft. and the typical number of .25 in. diameter cables supported by either shall not exceed the hanger manufacturer's specifications for Category 5 Enhanced compliance. A dual run shall be counted as 2 cables but one drop.] For large quantities of cables (50 to) that convene at the telecommunications room and other areas, provide sufficient support that is specifically designed to support the required cable weight and volume while maintaining Category 5 Enhanced compliance (no more than 12 inches of cable sag between supports). There shall be a minimum of three inches of clearance between the cable support system and the ceiling tile support grid. Plenum rated cable shall be used if the space above the ceiling tile system is an environmental air space.

Horizontal cabling must be designed to accommodate diverse user applications including:

- Voice Communications
- Data Communications
- Public Address Systems
- Video Communications
- Local area networks (LANs)
- Private Residences

The contractor shall consider incorporating other building information systems (e.g., CATV, alarms, security, audio, video, paging, automated building systems and other telecommunications systems) when selecting and designing horizontal cabling. In addition to accommodating existing telecommunications needs, consider accommodating a diversity of applications in order to reduce or even eliminate the need for horizontal cabling changes as user requirements evolve.

Splices are not permitted for twisted-pair horizontal cabling. Bridged taps (multiple appearances of the same cable pairs at several distribution points) are not permitted in horizontal cabling except for residential locations

Advanced planning considers the use of fiber optic/CAT5 cabling to all training rooms, conference rooms and computer rooms. On a business case basis, pathways of innerduct, raceways and conduit are to be provided to support the use of fiber optic cabling. Cable length maximums are specific to the media itself - e.g. 90 meters (295 feet) for UTP Category 5 Enhanced cabling from the horizontal cross-connect to the outlet / connector and 6 meters (20 feet) for patch cords and cross-connect jumpers in the horizontal cross-connect .In establishing limits on horizontal cable lengths, a 10m (33 ft.). Allowance was made for combined length of patch cables and cables used to connect equipment in the work area and telecommunications room. All equipment cables should meet or exceed the same performance requirements as the patch cords.

10. Jacks

Jack Specifications

The following suggested configuration will serve most needs: Category 5 Enhanced UTP cables as a minimum standard, 4 pairs (8 wires) of unshielded twisted pair (UTP) for voice or data applications.

All voice and data pairs shall be terminated in RJ45 wiring configuration. The outlet looks like a regular telephone jack to the casual observer. This jack must be Category 5 Enhanced compliant or higher as defined by TIA / EIA-568-B. These jacks must be wired with the T568B pin-out configuration. A faceplate shall be provided.

Location and Spacing

Jacks should be located to provide connectivity to every workspace location. If workspace locations have not been determined, then jacks should be provided for every 100 square feet of usable workspace. Each conference room should be provided with at least two jacks. A power failure telephone jack shall be placed at the location of the main answering position. Consideration should be given to spaces that may be eventually used as work spaces and outlets provided accordingly. Outlets shall be mounted 18" above the finished floor unless otherwise specified

11. Recommended Connector Specifications

The 568SC connector is recommended thru out the optical fiber network. If the optoelectronics require other connectors, jumpers can act as a transition between connectors in a system and connectors in the electronics.

Because of the large number of users with an installed base of ST-compatible connectors, the ANSI / TIA / EIA-568-A specification previously recognized a number of viable options for these users.

The options are:

- Remain with ST-compatible simplex connectors for both future and existing networks.
- Allow the user to re-use existing connectors and adapters.
- Retrofit existing networks by using a hybrid adapter of 568SC to ST compatible
- Switch to the 568SC interface for both future and / or exist.

12. Video/CATV/Audio Standard Specs:

RG-6 broadband (75 ohm) Coaxial Cable, for both RF and Video ONLY
Direct: Recommend Preference Belden (1695A) or equivalent. Drop cable distances for RG-6 cable is up to 150 feet , use RJ-11 for lengths over 150 feet .
Audio: Belden 82761 or equivalent

Coaxial Cables (RG-11 Belden 7732A Min.) and Single Mode Fiber Optic Cables remain the media of choice for long distance Video Transmission and for Backbone Video Feeder Systems.

Single Mode Fiber : Standards on Video and RF systems are now being set
by the industry as SC/Angle Polish Connectors. (Not to be confused with APC–Angle Point Connectors)

13. Telecommunication Room

The Telecommunication room shall be located as close as practicable to the center of the area served and preferably in the core area. The telecommunications room space shall be dedicated for all telecommunication equipment and related support facilities.

NOTE: All telecommunication backboards shall be void free, fire-retardant or treated on all six sides with at least two coats of fire retardant paint. If fire retardant paint is used, plywood shall be repainted on all 6 sides at manufacturer specified intervals.

14. Intermediate Distribution Frame (IDF) Rooms

In multi-story buildings, rooms shall be centrally located and stacked, when practicable. Rooms are placed directly above each other with riser pathways between them.

Room Size

Agencies will ensure that Telecommunication rooms are large enough to house equipment, controllers, equipment racks, fiber optic equipment, and service provider lines. The room shall include adequate space to support equipment changes with minimal disruption. The room must include space for any environmental control equipment, power conditioners, and uninterruptible power supply (UPS) systems.

15. Backbone Cabling

The Backbone Cabling is to provide interconnection between Telecommunication rooms, Equipment rooms, Campus wiring, main terminal space and entrance facilities in the telecommunications cabling system structure.

Backbone Cabling Design

Fiber optic cable shall be installed for data and fiber or UTP Category 5 Enhanced for multipair UTP shall be installed for voice

Risers consist of a minimum of 6-strand multimode fiber optic cable in high rise buildings and in any other buildings where the distance is greater than 295 feet. For locations that do not anticipate the use of Optical Fiber, multipair unshielded twisted Pair (UTP) backbone cable should be sized to accommodate 50 percent growth over the number of initially installed dual 4 pair workstations.

Video, Audio and CATV applications require a 6 strand single mode Fiber Optic cable terminated as SC/APC (Angle Polish connectors). For locations where the distances are greater than 500 feet and do not anticipate the use of Optical Fiber, the backbone cable needs to meet these specifications: Video – Belden 7732A or equivalent (terminated as BNC), Audio – Belden 82761 or equivalent (meets standard for balanced/un-balanced applications), CATV Belden 7732A or equivalent (terminated RF). CATV expansion and Video applications require RG-11 single mode fiber optic cable with sc/apc (angle polish connectors) as termination.

Pathways of conduit and duct shall allow room for the later installation of fiber.

16. Acceptable Cables

Voice & Data:

Unshielded Twisted Pair - 100 ohm Category 5 Enhanced Data Grade, Multipair verified to a minimum of 100 MHz, CMR or CMP NEC Rating. All Category 5 Enhanced cabling shall meet the TIA / EIA 568-B standard

62.5/125 µm Graded Index Multimode Optical Fiber, OFNR, OFNP or Indoor/Outdoor (I/O) NEC Rating.

50/125 µm Graded Index Multimode Optical Fiber

8.3/125 µm Class IVa Dispersion-Unshifted Single mode Optical Fiber, OFNR, OFNP or Indoor / Outdoor (I/O) NEC Rating

Video / CATV / Audio / Public Address Systems

Video - Belden (7732A) or equivalent and RG-6 broadband (75 ohm) Belden (1695A) or equivalent Coaxial Cable, CL2 or CL2P NEC Rating

CATV – Belden 7732A or equivalent (Terminated RF)

Audio – Belden 82761 or equivalent (3 wire red/black and drain)

Public Address Systems – 18 gauge, 2 conductor twisted and shielded cable

UTP has proven to be capable of transmitting high quality video signals for certain applications by use of a commercially available video adapter. Products supporting true broadband (multiple channels) color signals on UTP are available. Coaxial Cables and Single mode Fiber Optic Cables remain the media of choice for long distance video transmission and for backbone video feeder systems.

17. Recommended Cable Specifications

This guideline recognizes the following type cables:

- Fiber optic Multimode - Riser, Inter-building applications, and horizontal pathways
- Fiber optic single mode - Inter-building applications, video applications
- c. Unshielded Twisted Pair (UTP) - Category 5 Enhanced or above (TIA / EIA 568-B)- Horizontal Distribution

18. Copper Data Cable Specification

The standards recognizing the data handling characteristics of all twisted pair cable and connectors are the ANSI / TIA / EIA-568-B. Although other levels are specified in these standards, these guidelines standardize on Category 5 Enhanced for all voice and data telecommunications UTP wiring. Category 5 Enhanced cable is intended for high speed LANs at 100 Megabits per second and higher.

19. Multimode Fiber Specification

Fiber type: 62.5/125 micron Graded Index Multimode

Coating Diameter: 250 Microns

Core Eccentricity: 7.5% maximum (1.5%typ)

Numerical aperture: .275 plus or minus .015

Attenuation: 3.75 db/KM @ 850 NM 1.50 db/KM @ 1300 NM

Bandwidth: 160 MHz at 850 NM 500 MHz @ 1300 NM

Fiber connectors: SC type .4 db plus or minus .2 db loss maximum

Cable bend radius: 10 times diameter during installation

Fiber type: 50/125µm Multimode

Numerical aperture: .200

Cladding diameter: 125 Micron

Attenuation: 3.75 db/KM @ 850 NM 1.50 db/KM @1300 NM

Bandwidth: 500 MHz @ 850 NM 500 MHz @ 1300 NM

Cable bend radius: 10 times diameter during installation

Single Mode Fiber Specifications (Video/CATV Backbone)

Data – Terminated (ST/SC-FC)

Video & CATV – Terminated (SC/APC – Angle Polish Connectors)

Fiber type: 8.3 Micron

Cladding diameter: 125 Micron

Attenuation Outside Cable: .5 db/KM @ 1310 NM .5 db/KM @ 1550 NM

Attenuation Inside Cable: 1.0 db/KM @ 1310 NM 1.0 db/KM @ 1550 NM

Zero dispersion wavelength 1300 - 1320 NM

UL Ratings: OFNR for riser usage OFNP for Plenum usage

Cable bend radius: 10 times diameter during installation

20. ENTRANCE FACILITY

Telecommunication service facilities must enter and terminate in the most suitable location needed to serve the occupants of a building, this service entrance includes:

- Path that these facilities follow on private property
- Entrance point to the building
- Building termination location

21. National Electrical Code Adherence

All telephone communications circuits are to be installed in accordance with the latest published version of Article 800 of the National Electrical Code.
Exception: The "Protective Devices" requirements of paragraph 800-2 are to apply to all outside circuits of any length whether aerial or underground. All arrestors must be solid state type, tested and listed per ANSI/UL 497 1995 or later. They shall be installed on each telephone circuit entering a building as close as practicable to the point of entry.

22. Protectors

Protectors will be used to arrest surges or over voltages that come from exposed circuit pairs (diverting them to ground). Based on UL standards there are three types:
Primary Protectors – as qualified by UL 497
Secondary Protectors – as qualified by UL 497a
Data and Fire Alarm Protectors – as qualified by UL 497b

All protectors shall be grounded using AWG 12 (minimum) copper wire for single line or double line, AWG 10 for three through six lines, and AWG 6 for seven or more lines. This conductor shall be connected to the building's Grounding Electrode System described by NEC 250 in accordance with NEC 800-31(b) The primary protector shall be 189B1 with AT&T 3C1SC protector units (solid state type) or equivalent.

23. Grounding

J-STD-607-A (Joint standard in TIA/EIA Telecommunications Building Wiring Standards) covers requirements for telecommunications grounding and bonding as a system. The major guidelines are as follows:

A permanent infrastructure for telecommunications grounding and bonding is specified to be independent of telecommunications cabling.

Telecommunications bonding connections are always implemented in accessible locations with approved components.

Minimum #6 AWG insulated copper bonding conductors (Telecommunications Bonding Backbone [TBB]) are installed through every major telecommunications pathway (backbone pathway) and directly bonded to a Telecommunications Grounding Busbar (TGB) in each telecommunications equipment location.

A Telecommunications Main Grounding Busbar (TMGB) is directly bonded to the electrical service ground. All TBBs end on this busbar.

Generally, each TBB should be a continuous conductor from the TMGB to the farthest TGB. Intermediate TGBs should be bond connected to the TBB with a short bonding conductor.

The protection of telecommunications facilities is an essential part of any distribution system. The National Electrical Code defines grounding and bonding parameters for telecommunications from the aspect of human safety. NEC Articles 250 and 800 cover the general requirements for grounding, bonding, and protecting electrical and telecommunications circuits. NEC requirements are considered the minimum for safeguarding personnel and equipment. It is the state standard that telecommunications systems be isolated to the building ground. Neutral ground current problems are so severe in some modern buildings that telecommunications systems fail to work. Equipment manufacturers' grounding and bonding instructions must be closely adhered to.

24. Surge Protectors

The AC power circuit feeding telecommunications equipment (cabinets, key switches, PCs, any and all peripheral equipment including digital announcers and music on hold devices) shall be provided with a surge protector. No equipment other than related peripherals shall be connected to this circuit.
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25. Innerduct

A sleeved physical channel shall be provided for fiber optic cable. This is to be within the conduit system, unless the "innerduct" is plenum rated. Above ceiling innerduct not encased in a conduit must be UL Approved and bear designations stating so. The innerduct shall contain a pull string if no fiber is pulled at the time of the installation of the innerduct.

26. Code Compliance

All wiring will comply with Article 800 of the National Electrical Code (NEC), the American National Standards Institute (ANSI), and National Electric Safety Code (NESC) subject to acceptance tests as described in FCC Rules and Regulations, Title 47, Section 28.215, Chapter 1, Part 68. The primary application of these guidelines for communications is directed to (a) protective devices and methods for "exposed" cable and wiring, (b) separation of power circuits, and (c) fire stopping and special fire resistant and low-smoke producing cable in specified environments. All new cable and wire installed in air plenums and ducts shall be flame resistant and have low smoke properties in accordance with Article 800-3 (d) of the *latest published version of the National Electrical Code and shall be so classified by Underwriters Laboratories, Inc. All cable installed in steam tunnels must be able to withstand temperatures of 125 degrees centigrade. * The NEC is revised every three years.

27. ADMINISTRATION

TIA / EIA 606-A Administration Standard for the Telecommunication/Data Infrastructure of Commercial Buildings is incorporated by reference. Compliance shall be maintained.

Each pathway (conduit, tray, raceway, etc.) that conveys telecommunication/data media from space to space must be given a unique identifier and labeled at each end-point.

Each telecommunication/data space (equipment room, telecommunication room, work area, entrance facility, and manhole) must be uniquely identified and labeled.

Each cable must be uniquely identified and labeled at each end.

Each piece of termination hardware such as a patch panel or wiring block must be uniquely named and labeled.

Termination position on cross-connect must be identified by type, the pair/conductor terminated and a user code.

28. Labeling

Each work area is labeled with a unique identifying number. A consistent labeling and numbering scheme shall be used. The labeling shall be clearly legible on the outlet face and the termination end. The numbering plan should identify the source and destination of the cable for horizontal runs. Horizontal cable shall be labeled at the workstation end and the cross-connect end. Backbone cables (whether riser or horizontal) shall have an identifying number that is labeled at each end. Labels shall be the same color on each end. Performance documentation must use the same labeling scheme. It is helpful to color code the cables by function (LAN/Voice/Fire Alarm/Environmental Control) with a high quality colored vinyl tape at each termination or the use of different color jacketed cable.

29. Guidelines:

Labeling Telecommunications Pathways: Provide labeling at each end of a pathway.
Label pathways at regular interval when accessible.

Labeling Telecommunications cables: Identify cables at each end with a permanent tag or label. Use the same alphanumeric identifiers at each end of the cable.

Basic systems - the labeling can be a simple number sequence.

Complex systems – the labeling may indicate the type, function and terminating position.

Labeling of connecting hardware requires a unique, alphanumeric identification scheme:

Telecommunication/Equipment room and the floor the telecommunication outlet is being served from. (Floor and Room Number)

The termination field. (Voice/Data)

The cable number. (Starting with 1)

Example - 1A – V – 45 (1A is first floor and Telecommunications Room number A , V is for voice termination could be D for data termination , 45 is the individual cable number.

30. Cable Tracking

The Agency shall request the Contractor to conduct a physical inventory on a periodic basis.

To support future expansion, reconfiguration and maintenance, complete records of all system characteristics should be developed and maintained. On each element in the route, identification labels shall be completed and attached. Labels shall meet the requirements of UL 969 Standard for Marking and Labeling Systems.

All buildings shall have records modified as moves, adds and changes (MACs) are done in the building. Work orders for wiring changes shall be retained with other records for backup and research reasons

The Contractor shall prepare a report to include system configuration, unique identifier, fiber labels, pathways and "as built" details. In addition, the Cable Management Form will be completed by the Contractor and provided to the Agency Telecommunications Office for all changes.

31. TESTING:

All test data shall be documented and submitted electronically with associated viewing software to the purchasing Agency at the time of acceptance.

Multi-pair UTP Feeder Testing:

All cable pairs must be tested for the following conditions:

- Polarity
- Reversal of pairs
- Wire transpositions
- Continuity
- Opens
- Shorts

UTP Category 5 and Category 5 Enhanced Testing Parameters

The current field acceptance test parameters for twisted-pair cabling are:

- Wire Map (continuity).
- Length.
- Attenuation.
- NEXT.
- ELFEXT for Category 5 and higher.
- Delay and delay skew for Category 5 and higher.
- Return loss for Category 5 and higher.
- Power sum crosstalk (PSNEXT and PSELFEXT) for Category 5e and higher.

NOTE: The above parameters will also apply to Class D and higher as specified in ISO / IEC 11801.

Fiber Optic Testing:

Upon completion of the passive optical cable system, the system must be tested to ensure compliance with the design and link loss specifications. The single most important test is end-to-end attenuation test that measures the optical power loss between cable termination points. The attenuation of a system at one wavelength is not necessarily related to the attenuation at the other, except for short links such as horizontal cabling. The best way to verify the cabling meets the loss limit is to measure each segment between patch panels. Because of the stress and bending that cables undergo during installation, measurement of the attenuation of each link with connectors in place is required after installation.

The tests include:

- Power meter tests - For building risers, power meter tests are required.
- Disregard OTDR testing for runs less than 2 km.

- Testing of End-to-End Attenuation on each fiber span at both operational wavelengths: 850 / 1310 nm for multimode fiber 1310 and 1550 nm for single mode fiber

- Testing in one direction is required. Test results should be retained for inclusion into the documentation package.

32. Warranty

Materials and workmanship hereinafter specified and furnished shall be fully guaranteed by the Vendor for fifteen years from transfer of title against any defects. Defects which may occur as the result of faulty materials or workmanship within fifteen years after installation and acceptance by the Agency shall be corrected by the contractor at no additional cost to the Agency. The Contractor shall promptly, at no cost to the Agency, correct or re-perform (including modifications or additions as necessary) any nonconforming or defective work within fifteen years after completion of the project of which the work is a part. The period of the Contractor's warranty shall commence with acceptance of/or payment for the work in full.

The Contractor shall pass along any additional warranties offered by the manufacturers, at no additional costs to the Commonwealth.

33. Service Level Agreements (SLAs)

The Commonwealth shall administer the SLAs as part of the contract to ensure a high level of service delivery.

Objectives
The Commonwealth will provide service level agreements (SLA's) that establish minimum operating and availability metrics for services provided. All service levels will have established liquidated damages, and/or offsets for failure to meet the minimum metrics.

Nature and Scope
It is very important and critical to the Commonwealth to acquire services in an efficient and timely fashion. To ensure services are provided in the time and manner requested, service level agreements have been developed for the crucial areas of service. These services are wide spread across the various components of telecommunications.

Service Level Agreements (SLAs)

Service Intervals scheduled date/complete date	The dates will be determined by the Agency. Deviation from the dates will cause liquidated damages for the contractor of $100.00 per day.
Workmanship	Payment will be withheld from the Contractor if the job site is not left in a clean and orderly manner.

Testing and reporting to Agency	An electronic copy and associated viewing software will be provided to the requesting Agency within 2 weeks of job completion. The Contractor will not be paid until the accurate information is received by the Agency.
Cable Management Form	The contractor must complete and forward the form to the requesting Agency TMO within 2 weeks of job completion. The Contractor will not be paid until the form accurately completed and received by the Agency.
Trouble Calls Minor – Less than 5 cables or connections down Urgent – More than 5 cables down or connections down.	The Contractor will respond to the call within 30 minutes by phone and onsite within 8 hours to a minor trouble call and within 2 hours to an urgent call. Liquidated damages will be determined by the lack of response to the call and the number of hours/days of the service disruption or outage. Urgent calls will result in liquated damages of $100.00 per day or a fraction of the day until the trouble is resolved. Minor calls will result in liquated damages of $25.00 per day or fraction of the day until the trouble is resolved.

The Contractor, by submitting its quote agrees to the service level agreements along with their associated liquidated damages.

All SLAs will be effective at contract signing and will apply to all services installed under the contract. All SLAs and liquidated damages shall be applied as Agencies begin using the Contractor's services.

The Contractor shall provide a report each time an SLA is violated. The SLA report will be sent to the appropriate Agency, Department of General Services, Contract Administrator, and Office of Administration, Contract Administrator.

34. Delivery, Storage, and Handling

Protect equipment during transit, storage, and handling to prevent damage, theft, soiling, and misalignment. Coordinate with the Agency to secure storage for equipment and materials. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions. Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.

35. Use of the Site

Access to building wherein the work is performed shall be as directed by the Agency Representative.

The Agency may occupy the premises during the entire period of construction for conducting its normal business operations. Cooperate to minimize conflict and to facilitate operations.

Schedule all shutdowns of services with the Agency Representative. Refer to #36 - Continuity of Services.

Proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations.

36. Continuity of Services

Take no action that will interfere with, or interrupt, existing building services unless previous arrangements have been made with the Agency representative. Arrange the work to minimize shutdown time.

Agencies personnel will perform shutdown of operating systems. The contractor shall give three (3) days' advance notice for systems shutdown.

Should services be inadvertently interrupted, immediately furnish labor, including overtime, material, and equipment necessary for prompt restoration of interrupted service.

37. Safety

The Contractor shall take the necessary precautions and bear the sole responsibility for the safety of the methods employed in performing the work. The Contractor shall at all times comply with the regulations set forth by federal, state, and local laws, rules, and regulations concerning "OSHA" and all applicable state labor laws, regulations, and standards. The Contractor shall indemnify and hold harmless The Customer from and against all liabilities, suits, damages, costs, and expenses (including attorney's fees and court costs) which may be imposed on The Customer because of The Vendor, subcontractor, or supplier's failure to comply with the regulations stated herein.

Glossary

ADMINISTRATION - The process of documenting the initial wiring and management of the wiring system after the initial installation. It includes two major components: a standard labeling system and a records system.

AMERICAN WIRE GAGE (AWG) - An American industrial standard for measuring the diameter of copper, aluminum and other conductors; e.g. AWG #22 is a 0.64 millimeter (0.0253 inches) diameter solid conductor and AWG #24 is a 0.5 millimeter (0.0201 inches) diameter solid conductor.

ANSI - American National Standards Institute.

BUILDING MAIN DISTRIBUTION FRAME (MDF) - The interface between the public network and/or the interbuilding backbone, and the interframe backbone. The MDF is usually in the Main Telecommunications Room (MTR).

Category 6/ Class E Cabling - Category 6 / class E standards describe a new performance range for unshielded and screened twisted-pair cabling. Category 6/class E is intended to specify the best performance that UTP and STP cabling solutions can be designed to deliver. Category 6/class E is specified in the frequency range of at least 1-250 MHz. For category 6 /class E, the 8-position modular jack interface will be mandatory at the work area. Category 6 /class E will be backward compatible which means that applications running on lower categories / classes will also be supported. If different category/class components are to b mixed with category 6/class E components, the combination shall meet the transmission requirements of the lowest performing category/class component.

EIA – Electronics Industries Alliance.

ENHANCED CATEGORY 5 CABLING - Enhanced Cat 5e - Addendum 5 to ANSI/TIA/EIA- 568-A specifies enhanced category 5 (category 5e) performance requirements. These requirements are recommended for new category 5 cabling installations and are now the defacto minimum standard for category 5 cabling. This addendum addresses the minimum equal level far-end crosstalk (ELFEXT) and return loss requirements necessary to support developments in applications technology and defines the minimum performance needed for a worst case four-connector channel to support applications that utilize full-duplex transmission schemes, such as Gigabit Ethernet. To ensure additional cross talk headroom for robust applications support, this addendum also specifies power sum performance requirements for category 5e cables, links, and channels.

ENTRANCE FACILITY (EF) - Facility where outside circuits/wiring enter a building through weatherproof sleeves and are terminated on blocks providing electronic protection to guard against damage from electrical disturbances such as lightning. In a single building, this is the point of demarcation between the serving telephone utility and the user.

EQUIPMENT ROOM - An area within a building where major components of large telecommunications systems (PBX's, data switches and communications processors) are housed. Equipment rooms are often distinct from telecommunication rooms due to the size and quantity of the equipment they contain. They usually contain a main or intermediate cross-connect and patch panels.

HORIZONTAL DISTRIBUTION SYSTEM (HDS) - The wiring that connects the intermediate distribution frame in the telecommunications closet to the telecommunications outlet. Horizontal

distribution cabling is commonly run through the space provided by drop-tile ceilings or routed through ducts in floors and walls.

IEEE -The Institute of Electrical and Electronics Engineers, Inc.

INTERBUILDING BACKBONE - The transmission facilities that connect the campus/complex main distribution frame to the building main distribution frames of each building in the complex. Includes multi-agency metropolitan areas with state right of way.

INTRABUILDING BACKBONE - The transmission facilities that originate from the building main distribution frame and are vertically or horizontally distributed to each intermediate distribution frame in the building.

INTERMEDIATE CROSS CONNECT - Typically the equipment used to link the backbone and horizontal wiring systems. The intermediate cross connect is usually located in a telecommunications room.

LINKAGE - A connection between a record and an identifier or between records.

INTERMEDIATE DISTRIBUTION FRAME (IDF) - The cross connect between the interframe backbone (IFB) and the horizontal distribution system (HDS). The IDF may also serve as a connection point for per-floor Local Area Networking equipment. The IDF is normally in the Auxiliary Telecommunication Closet (ATC).

MAIN CROSS CONNECT - Typically the equipment used to link the interbuilding and intrabuilding wiring systems. The main cross connect is usually located in the building entrance facility
.
NETWORK INTERFACE (NI) - Contains the demarcation point between outside networks and the campus/complex or building main distribution frame.

MEGAHERTZ (MHz) - Unit of frequency equal to one million cycles per second.

NEC - National Electrical Code.

NEXT - Near End Cross Talk - Signal distortion caused by the coupling of an outgoing signal at the originating end of a circuit with the incoming signal being received from the other end of the circuit

NFPA - National Fire Protection Association.

OSHA - Occupational Safety and Health Administration.

PATCH CORD - A length of wire, or fiber cable, with connectors on each end used to join telecommunications circuits
.
PATHWAY - A raceway, sleeve, or exposed location for the placing of telecommunications cable.

TELECOMMUNICATION ROOM (TR) - The space in a building designed to provide a secure, suitable environment for the installation of cable, telecommunications equipment, and termination and administration systems. Telecommunications rooms are the points where the backbone and horizontal distribution facilities intersect. They are floor-serving rooms whose function is to terminate and connect the backbone cable system to the horizontal cable system and to house electronics that assist in the distribution of information to that floor.

TELECOMMUNICATIONS INFRASTRUCTURE - The components (telecommunications spaces, cable pathways, grounding, wiring and termination hardware) that together provide the basic support for the distribution of all telecommunications information.

TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) – A busbar placed conveniently and accessible location and bonded by means of the bonding conductor to the building service equipment (power) ground. Primary grounding for the entire telecommunications in a building or structure.

TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) - Auxiliary grounding for the telecommunications in a satellite telecommunications closet and tying into the telecommunications bonding backbone.

TELECOMMUNICATIONS BONDING BACKBONE (TBB) - a #6 AWG or larger insulated bonding conductor that provides direct bonding between different locations in a building.

TIA - Telecommunications Industries Association.

UNSHIELDED TWISTED PAIR - (UTP) wiring consisting of two insulated wires twisted around each other to reduce induction, thus interference, from one wire to the other. Twisted pair wire comes in bundles with varying numbers of pairs of wires, from two pair (four wires) to many thousands of pairs. UTP wiring is used to wire voice and data networks within buildings because it is inexpensive and
relatively easy to install.

TELECOMMUNICATIONS OUTLET (TO) - The interface between the building network (horizontal distribution system) and the work area connection to the user's equipment (phone and/or terminal device).

WORK AREA CONNECTION - The interface between the outlet and the user/terminal equipment. Includes media adapters, such as baluns and / or patch cords.

38. CABLE MANAGEMENT FORM

Section 1			
Agency		Building Number	
Building Address		Commonwealth Service Order (ISS or CTAR)	
Maintenance Vendor/Technician		Maintenance Date	
Technician Comments		Service Provider	
Circuit Carrier			
Section 2			
Billing Telephone No.		WTN /Circuit No.	
Type of Service		Cable System Type	
2 or 4 Wire Circuit		LEC Office Equipment	
LEC Primary Cable		LEC Primary Patch Panel/Block	
LEC Primary Port/Pair		LEC Secondary Cable	
LEC Secondary Patch Panel/Block		LEC Secondary Port/ Pair	
Ext. Demark Primary Cable		Ext. Demark Primary Patch Panel/Block	
Ext. Demark Primary Port/Pair		Ext. Demark Secondary Cable	
Ext. Demark Secondary Patch Panel/Block		Ext. Demark Secondary Port/Pair	
SECTION 3			
MDF Cable		MDF Patch Panel/Block	
MDF Port/Pair		IDF Floor	
IDF ID		IDF Cable	

IDF Patch Panel/Block		IDF Port/Pair	
Station Cable		Station Patch Panel/Block	
Station Port/Pair		Station Jack Number	
Station Cable Category			

Revised 3/11/05

Field Definitions

Agency – Name of Agency that "owns" the service.

Building Number – The number assigned the building in the ISS or CTAR system.

Building Address – Physical address of building.

Commonwealth Service Order – ISS or SR Number assigned by the Commonwealth when requesting service.

Maintenance Vendor/Technician – Name of Vendor and technician performing any work that resulted in a record change.

Maintenance Date – Date any work was performed.

Technician Comments – Enter information on anything about this circuit that may be warranted due to non-standard requirement or installation of this circuit.

Service Provider – The Telecommunication Company that bills the Agency for service which would include: TelCove, Sprint, AT&T and Verizon.

Circuit Carrier – The Telecommunication Company that owns physical infrastructure delivering actual circuit. Such as TelCove, AT&T, Commonwealth Telephone, Buffalo Valley, Sprint and Verizon.

Billing Telephone Number – The main telephone number either the working telephone number or circuit is billed under.

WTN/Circuit Number – Indicates either the 10 digit telephone number (including area code) or data circuit number being installed, moved or disconnected.

Type of Service – Reflects the type of service such as: Centrex, POTS, analog, digital, fax, TTY, video, radio, ISDN (including SPIDS), Modem, ATM, DSL, BDT, frame relay, ring down and security alarm circuits.

Cable System Type – Indicate if patch panel or block wiring system.

2 or 4 Wire Circuit – Indicate if "2" or "4" wire.

LEC Office Equipment – LEC switch assignment to the circuit.

LEC Primary Cable – The cable identification as it appears entering the MDF room for the primary pair (transmit) of a 4 wire circuit or only pair for a 2 wire circuit.

LEC Primary PP/Block – The primary patch panel or block system located in the MDF.

LEC Primary Port/Pair – The primary port or pair number on the patch panel or block.

LEC Secondary Cable – The cable identification as it appears entering the MDF room for the secondary pair (receive) of a 4 wire circuit.

LEC Secondary PP/Block – The secondary patch panel or block system located in the MDF.

LEC Secondary Port/Pair – Secondary port or pair number on the patch panel or block.

Extended Demark Primary Cable – The cable identification for the primary pair (transmit) of a 4 wire circuit for an extended demarcation.

Extended Demark Primary PP/Block – The primary patch panel or block system located at the Extended Demarcation.

Extended Demark Primary Port/Pair – The Extended Demark primary port or pair number on the patch panel or block.

Extended Demark Secondary Cable – The cable identification for the primary pair (transmit) of a 4 wire circuit for an extended demarcation.

Extended Demark Secondary PP/Block – The secondary patch panel or block system located at the Extended Demarcation.

Extended Demark Secondary Port/Pair – The Extended Demark secondary port or pair number on the patch panel or block.

MDF Cable – House cable identification (if any).

MDF PP/Block – The designation of the house patch panel or house block as it appears in the MDF room.

MDF Port/Pair – The designation of the port on the house patch panel or pair on the house block as it appears in the MDF room.

IDF Floor – The floor number the IDF exists on.

IDF ID – The IDF label (if any).

IDF Cable – The cable designation as it enters the IDF closet.

IDF PP/Block – The designation of the IDF patch panel or block as it appears in the IDF.

IDF Port/Pair – The designation of the port on the IDF patch panel or pair on the block as it appears in the IDF.

Station Cable – The cable designation as it leaves the IDF.

Station PP/Block – The designation of the station patch panel or block as it appears in the IDF.

Station Port/Pair – The designation of the port on the station patch panel or pair on the block as it appears in the IDF.

Station Jack Number – The designation of the jack. The designation should appear on the jack and in the case of a new jack, label the jack according to the convention used in the building.

Station Cable Category – Type of cable used, valid types include: Cat3, Cat4, Cat5, Cat5E and Cat6.

Vendor Name:	Contact / Phone / E-Mail if provided	Coverage Areas	Projects Smallest / Largest Square Footage	General Comments:
Outline Agreement #4600008413 Avaya Lemoyne, PA	Gregory Antonik 717-303-4058 antonik@avaya.com	Statewide	1000 - 100,000	**Years of Experience:** 100 years (formerly Lucent Technologies and AT&T **Qualifications**: Project Managers, RCDD
Outline Agreement # 4600008421 Black Box Corporation, formerly TSM Bridgeville, PA	Mike Regen 412-220-7530	Statewide	100 - multi-acre	**Years of Experience**: 1992 - present. April 1,2005 TSM was acquired by stock transfer & became The Black Box Corp. **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for security systems.
Outline Agreement #4600008422 Black Consulting Svcs, Inc. York Springs, PA	Ruthann Black 717-919-1322	Statewide	1,000 - 600,000	**Years of Experience**: 1998 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer Does not provide service for private residences
Outline Agreement #4600008411 Comnet Communications, Danburg, Connecticut	Glen Wagner 201-977-4612	Statewide	Nothing is too small - nothing is too large.	**Years of Experience:** 1984 - present **Qualifications:** Project Managers, RCDD, RCDD LAN , BICSI Registered Installers Does not provide service for private residences, alarms or security systems.
Outline Agreement #4600008419 Dauphin DataCom and Celerity Integrated Services, Inc. Pennsburg, PA	Ronald E. Leight 215-541-4088	Statewide	1,000 - 275,000	**Years of Experience:** 1986 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer. Does not provide service for private residences, alarms, security systems, public address/paging systems, or entrance facilitiy installations.
Outline Agreement #4600008425 Eastern Telephone & Telecommunications (ET&T) Bethlehem, PA	Mike Bubernack 610-867-7800	Statewide	1 - 80,000	**Years of Experience**: 1968 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer
Outline Agreement #4600008430 Gettle Inc. York, PA	Zachery E. Keller 800-758-0780	Statewide	less then 500 - 900,000	**Years of Experience**: 1998 - present **Qualifications:** Project Manager, RCDD
Outline Agreement #4600008423 GR Sponagle Communication Harrisburg, PA	John B. Grove 717-703-3819	Statewide	500 - 2,000,000	**Years of Experience**: 2000 - present **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for private residences
Outline Agreement #4600008415 Jno. Z. Barton, Inc. York, PA	Gary Miller 717-843-9921	Statewide	100 - 250,000	**Years of Experience:** 1950 - present **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for private residences.

Vendor Name:	Contact / Phone / E-Mail if provided	Coverage Areas	Projects Smallest / Largest Square Footage	General Comments:
Outline Agreement #4600008414 NetVersant Philadelphia, PA	Mark Kane 610-364-3200	Statewide	500 - 2,000,000	**Years of Experience:** 1983 - present **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for private residences or alarms.
Outline Agreement #4600008427 Pierson Consulting Company, Inc. (PCCi) New Kingstown, PA	Debra Pierson 717-796-0493	Statewide	1,000 - 20,000	**Years of Experience**: 1994 - present **Qualifications:** Project Manager, RCDD, BICSI Installer
Outline Agreement #4600008417 R.W. Communications, Inc. Harrisburg,PA	John Ward 717-566-8862	Statewide	200 - 550,000	**Years of Experience**: 1986 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer
Outline Agreement #4600008418 TeleData Systems Corp. Colmar, PA	John Sweeney 215-822-6550	Statewide	1,000 - 200,000	**Years of Experience**: 1988 - present . **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for private residences, alarms or security systems
Outline Agreement #4600008420 Tri-State Telecommunications, Inc. Bristol, PA	Terry Roberts 215-785-2565	Statewide	1,500 - 1,000,000	**Years of Experience**: 1982 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer
Outline Agreement #4600008424 Verizon Select Services, Inc. Harrisburg, PA	Cheryl Caplan 717-777-3960	Statewide	100 - 500,000	**Years of Experience**: decades **Qualifications:** Project Manager, RCDD, BICSI Installers
Outline Agreement #4600008543 Ward Communications Harrisburg, PA	Joseph Mealey 717-657-5754	Statewide	600 - 800,000	**Years of Experience:** 1992 - present **Qualifications:** Project Managers, RCDD, BICSI Registered Installers
Vendors who provide limited coverage.				
Outline Agreement #4600008416 KIT Network Cabling Lebanon, PA	Robert Eisenhaver 717-228-0220	Lancaster, Lebanon, Dauphin, Perry, Cumberland, Berks, York, Schuykill, Lehigh	100 - 250,000	**Years of Experience**: 1988 - present . **Qualifications:** Project Manager, RCDD, BICSI Installers
Outline Agreement #4600008428 Lacey Electric Inc. Leesport, PA	Jeffrey L. Boyer 610-926-7100	Adams, Berks, Bucks, Carbon, Centre, Chester, clinton, Columbia, Cumberland, dauphin, Delaware, Franklin, Huntingdon, Juniata, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Mifflin, Monroe, Montgomery, Montour, Northampton, Northumberland, Perry, Schuylkill, Snyder, Sullivan, Union, Wyoming, York	800 - 500,000	**Years of Experience**: 1968 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer

Vendor Name:	Contact / Phone / E-Mail if provided	Coverage Areas	Projects Smallest / Largest Square Footage	General Comments:
Outline Agreement #4600008429 Sage Technology Solutions (Sage) 1040 West Main Street Mount Joy, Pa 17552	Allen McCormack 717-653-6641	Adams, Berks, Bedford, Blair, Bucks, Cambria, Carbon, Centre, Chester, Clinton, Columbia, Cumberland, Dauphin, Delaware, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Mifflin, Montgomery, Montour, Northumberland, Perry, Potter, Schuylkill, Snyder, Union, York	2,500 - 250,000	**Years of Experience**: 1969 - present **Qualifications:** Project Manager, RCDD, BICSI Installers
Outline Agreement #4600008426 Tel-Dat Communications Inc. Lansdale, PA	Lynn Hess 215-855-6364	Berks, Bucks, Carbon, Chester, Columbia, Dauphin, Delaware, Lancaster, Lebanon, Lehigh, Luzerne, Montgomery, Monroe, Philadelphia, Northampton, Northumberland,	2,000 - 70,000+	**Years of Experience**: 1992 - present **Qualifications:** Project Manager, RCDD, BICSI Installer

PART 1
GENERAL INFORMATION

I-1 ISSUING OFFICE

This RFQ is issued for the Commonwealth by the [insert name, address, telephone number, fax number and e-mail address of the Issuing Office]. The Issuing Office is the sole point of contact in the Commonwealth for this RFQ.

I-2 OVERVIEW

<Briefly describe the requested services and/or pertinent background information.>

(Example)
The Department of General Services (DGS) is seeking a qualified contractor to design and install a complete telecommunications distribution system for a facility located at Street Address, City, State, and Zip Code. DGS requests proposals for the design, installation, testing, and acceptance of the telecommunications distribution system described in the attached specifications. Prices quoted shall be all-inclusive and represent complete installation. The Contractor shall be responsible for all parts, labor and all other associated apparatus necessary to completely install, test, and provide the distribution system for acceptance.

I-3 PROJECT MANAGEMENT

The Agency contact designated for this effort is:

Mr. John Jones
Office for Information Technology
North Office Building, Room B-18
Commonwealth Avenue
Harrisburg, PA 17125

Phone: (717) 705-1630
Email: jjones@state.pa.us

All questions pertaining to this project must be directed to Mr. Jones. The selected Contractor will be paid in monthly increments for actual hours worked, provided work is completed satisfactorily to the Work Plan and approved, in writing, by Mr. Jones. The selected Contractor will not be eligible for final payment until Mr. Jones certifies, in writing, all project work has been successfully completed.

I-4 REJECTION OF QUOTES

The Department reserves the right to reject any and all quotes received from the Contractor as a result of this request.

I-5 INCURRING COSTS

The Department is not liable for any cost or expenses incurred by the Contractor in the preparation of their quotes.

I-6 SUBCONTRACTING

Any use of subcontractors by a Contractor must be identified in the quote. During the project period, use of any subcontractors by the selected Contractor not previously identified in the quote, must be approved in writing by the requesting Agency prior to any work being done.

I-7 MINIMUM CONTRACTOR/CONTRACTOR BACKGROUND CHECKS

The Contractor must, at its expense, arrange for a background check for each of its employees, as well as the employees of any of its subcontractors, who will have access to Commonwealth IT facilities, either through on-site access or through remote access. Background checks are to be conducted via the Request for Criminal Record Check form and procedure found at http://www.psp.state.pa.us/psp/lib/psp/sp4-164.pdf. The background check must be conducted prior to initial access and on an annual basis thereafter.

Before the Commonwealth will permit access to the contractor, the contractor must provide written confirmation that the background checks have been conducted. If, at any time, it is discovered that a contractor employee has a criminal record that includes a felony or misdemeanor involving terroristic behavior, violence, use of a lethal weapon, or breach of trust/fiduciary responsibility or which raises concerns about building, system or personal security or is otherwise job-related, the contractor shall not assign that employee to any Commonwealth facilities, shall remove any access privileges already given to the employee and shall not permit that employee remote access unless the agency consents to the access, in writing, prior to the access. The agency may withhold its consent in its complete discretion. Failure of the contractor to comply with the terms of this paragraph may result in default of the contractor under its contract.

I-8 DISADVANTAGED BUSINESS PARTICIPATION

“The Commonwealth encourages participation by small disadvantaged businesses as prime contractors and subcontractors/suppliers and by socially disadvantaged businesses as prime contractors.

Small Disadvantaged Businesses are small businesses that are owned or controlled by a majority of persons, not limited to members of minority groups, who have been deprived of the opportunity to develop and maintain a competitive position in the economy because of social disadvantages. The term includes: 1) Department of General Services Bureau of Minority and Women Business Opportunities (BMWBO)-certified minority businesses enterprises (MBEs) and women business enterprises (WBEs) that qualify as small businesses and 2) United States Small Business Administration-certified small disadvantaged businesses or 8(a) small disadvantaged business concerns.

Small businesses are businesses in the United States that are independently owned, are not dominant in their field of operation, employ no more than 100 persons and earn less than $20 million in gross annual revenues ($25 million in gross annual revenues for those businesses in the information technology sales or service business).

Socially disadvantaged businesses are businesses in the United States that BMWBO determines are owned or controlled by a majority of persons, not limited to members of minority groups, who are subject to racial or ethnic prejudice or cultural bias, but which do not qualify as small businesses. In order for a business to qualify as "socially disadvantaged", the contractor must include in its proposal clear and convincing evidence to establish that the business has personally suffered racial or ethnic prejudice or cultural bias stemming from the business person's color, ethnic origin or gender.

Questions regarding this Program can be directed to:

Department of General Services
Bureau of Minority and Women Business Opportunities
Room 502, North Office Building
Harrisburg, PA 17125
gs-cabdinternet@state.pa.us
Phone: (717) 787-6708
FAX: (717) 772-0021

Program information and a database of BMWBO-certified minority- and women-owned businesses can be accessed at www.dgs.state.pa.us, DGS Keyword: BMWBO. The federal contractors can be accessed at www.ccr.gov and click on Dynamic Small Business Search **(certified companies are so indicated).**

To receive credit for being a Small Disadvantaged Business or a Socially Disadvantaged Business, or subcontracting with a Small Disadvantaged Business (including purchasing services through a purchase agreement), a company must include proof of Disadvantaged Business qualification in the Disadvantaged Business Submittal of the proposal:

a. Small Disadvantaged Businesses qualifying as a result of MBE/WBE certification from BMWBO must provide a photocopy of their BMWBO certificate.
b. Small Disadvantaged Businesses qualifying as a result of certification from the U.S. Small Business Administration as an 8(a) or small disadvantaged business must submit proof of Small Business Administration certification. The owners of such businesses must also submit proof of United States citizenship.
c. All companies claiming Small Disadvantaged Business status, whether as a result of BMWBO certification or Small Business Administration certification as an 8(a) or small disadvantaged business, and must attest to the fact that the business has 100 or fewer employees.

d. All companies claiming Small Disadvantaged Business status, whether as a result of BMWBO certification or Small Business Administration certification as an 8(a) or small disadvantaged business, must submit proof that their gross annual revenues are less than $20,000,000 ($25,000,000 for those businesses in the information technology sales or service business). This can be accomplished by including a recent tax or audited financial statement.

All companies claiming status as a Socially Disadvantaged Business must include in the Disadvantaged Business Submittal of the proposal clear and convincing evidence to establish that the business has personally suffered racial or ethnic prejudice or cultural bias stemming from the business person's color, ethnic origin or gender. The submitted evidence of prejudice or bias must:

a. Be rooted in treatment which the business person has experienced in American society, not in other countries.

b. Show prejudice or bias that is chronic and substantial, not fleeting or insignificant.

c. Indicate that the business person's experience with the racial or ethnic prejudice or cultural bias has negatively impacted his or her entry into and/or advancement in the business world.

BMWBO shall determine whether the contractor has established that a business is socially disadvantaged by clear and convincing evidence.

In addition to these verifications, this submittal of the proposal should include the following information:

a. The name and telephone number of the project (contact) person for the Small Disadvantaged Business(s) or Socially Disadvantaged Business(s).

b. The company name, address, telephone number of the prime contact person for each specific Small Disadvantaged Business or Socially Disadvantaged Business included in the proposal. The contractors must specify the Small Disadvantaged Business(s) or Socially Disadvantaged Business(s) to which it is making commitments. The contractors will not receive credit by stating that it will find a Small Disadvantaged Business or Socially Disadvantaged Business after the contract is awarded or by listing several companies and stating it will select one later.

c. The specific work, goods, or services the Small Disadvantaged Business(s) or Socially Disadvantaged Business(s) will perform or provide.

d. The location where the Small Disadvantaged Business(s) or Socially Disadvantaged Business(s) will perform these services.

e. The timeframe for the Small Disadvantaged Business(s) or Socially Disadvantaged Business(s) to provide or deliver the goods or services.

f. The amount of capital, if any, the Small Disadvantaged Business(s) or Socially Disadvantaged Business(s) will be expected to provide.

g. The form and amount of compensation each Small Disadvantaged Business or Socially Disadvantaged Business will receive. In the Disadvantaged Business Submittal of the proposal, provide the estimated dollar value of the contract to each Small Disadvantaged Business or Socially Disadvantaged Business.

h. The percent of the total value of services or products purchased/subcontracted under the proposal that will be provided by the Disadvantaged Business(s) or Socially Disadvantaged Business(s).

i. If subcontracting, a signed subcontract or letter of intent must be included in the Disadvantaged Business Submittal of the proposal.

j. The Disadvantaged Business Submittal of the proposal must be clearly identified as Disadvantaged Business information and sealed in an envelope separately from the remainder of the proposal. Only one copy of the Disadvantaged Business Submittal is needed.

k. The dollar value of the commitment to each Small Disadvantaged Business or Socially Disadvantaged Business must be sealed in the same envelope with the Disadvantaged Business Submittal of the proposal. The selected contractor's Disadvantaged Business commitment amount, name of Disadvantaged Business, services to be provided including timeframe for performing services will be included as a contractual obligation when the contract is executed.

Contractors may submit, within the same proposal envelope, alternate proposals for differing utilization of Small Disadvantaged Businesses or Socially Disadvantaged Businesses. For example, a proposal may be submitted by prime contractor with a Small Disadvantaged Business as a subcontractor while an alternate proposal may be submitted by the Small Disadvantaged Business as the prime contractor. If an alternate proposal is offered, it must include separately-sealed Technical, Price, and Disadvantaged Business Submittals for the alternate. The alternate proposal will be scored separately. Only the higher-scored proposal (prime proposal or alternate proposal) will be eligible for participation for Best and Final Offers, if applicable."

I-9 INFORMATION CONCERNING SMALL BUSINESSES IN ENTERPRISE ZONES

"The Commonwealth encourages participation by small businesses, whose primary or headquarters facility is physically located in areas designated by CWOPA as Designated Enterprise Zones, as prime contractors and subcontractors.

Small businesses are businesses in the United States that are independently owned, are not dominant in their field of operation, employ no more than 100 persons and earn less than $20 million in gross annual revenues ($25 million in gross annual revenues for those businesses in the information technology sales or service business).

There is no database or directory of small businesses located in Designated Enterprise Zones. Information on the location of Designated Enterprise Zones can be obtained by contacting:

Aldona M. Kartoire
Center for Community Building
PA Department of Community and Economic Development
4th Floor Keystone Building
400 North Street
Harrisburg, PA 17120-0225
Phone (717) 720-7409 Fax (717) 787-4088
Email akartoire@state.pa.us

To receive credit for being an enterprise zone small business with an enterprise zone small business or subcontracting with an enterprise zone small business, a company must include the following information in the Disadvantaged Business Submittal of the proposal:

a. Proof of the location of the business' headquarters (such as a lease or deed or Department of State corporate registration).

b. Confirmation of the enterprise zone in which it is located (obtained from the local enterprise zone office).

c. Proof of United States citizenship of the owners of the business.

d. Certification that the business employs 100 or fewer employees.

e. Proof that the business' gross annual revenues are less than $20,000,000 ($25,000,000) for those businesses in the information technology sales or service business). This can be accomplished by including a recent tax or audited financial statement.

f. In addition to these verifications, this portion of the Submittal should include the following information:

g. The company name, address, name and telephone number of the primary contact person for each Enterprise Zone Small Business included in the proposal. The contractor must specify the Enterprise Zone Small Business to which it is making commitments. The contractor will not receive credit by stating that it will find a Enterprise Zone Small Business after the contract is awarded or by listing several companies and stating it will select one later.

h. The specific work, goods, or services the Enterprise Zone Small Business will perform or provide.

i. The location where the Enterprise Zone Small Business will perform these services.

j. The timeframe for the Enterprise Zone Small Business to provide or deliver the goods or services.

k. The amount of capital, if any, the Enterprise Zone Small Business will be expected to provide.

l. The form and amount of compensation each Enterprise Zone Small Business will receive. In the Disadvantaged Business portion of the proposal, provide the estimated dollar value of the contract to each Enterprise Zone Small Business.

m. The percent of the total value of services or products purchased/subcontracted under the proposal that will be provided by the Enterprise Zone Small Business.

If subcontracting, a signed subcontract or letter of intent must be included in the Disadvantaged Business Submittal of the proposal.

The dollar value of the commitment to each Enterprise Zone Small Business must be sealed in the same envelope with the Disadvantaged Business Submittal of the proposal. The selected contractor's Enterprise Zone Small Business commitment amount, name of Enterprise Zone Small Business, and services to be provided including timeframe for performing services will be included as a contractual obligation when the contract is executed."

I-10 NON-COLLUSION AFFIDAVIT

<This section should notify the Contractors that they must complete the Non-Collusion Affidavit form included in the RFQ package. The form and its instructions are available for download at: Non-Collusion Affidavit.>

I-11 RESOURCES

<This section specifically identifies resources that will or will not be provided by the agency and be made available to the contractor during the course of the project or development of services. Resources can be in terms of property, services or information. Minimally, this section should define:

- *Office or physical working space such as classrooms, storage space, computer room access, etc.*
- *IT hardware/software/telecommunications such as mainframe access, desktop equipment, etc.*
- *Supplies and operating support such as materials, copying, mail room services, projector, etc.*

This section should be specific to the requirements of the project or deliverables. This section should be properly defined to avoid assumed added costs in the proposal submittals or a detrimental effect on the quality of deliverables during the project. If no resources are to be provided, so state. >

PART II
STATEMENT OF WORK

II-1 WORK LOCATIONS (Each Agency will coordinate their own projects, there will be multiples at each Agency.

The location for project coordination will be:

North Office Building, Room B-18
Commonwealth Avenue
Harrisburg, PA 17125

Primary Contact will be:

Mr. John Jones
(717) 705-1630

Alternate Contact will be:

Mr. Frank Smith
(717) 705-1631

II-2 JOB REQUIREMENTS

<This section of the work statement should state the type, classification, skill level, years of experience, certifications, and/or specific qualifications as desired or specifically required for the project. >

Project Manager

The Contractor will provide an on-site, Project Manager who will act as a single point of contact. The Project Manager will be required to make on-site decisions regarding the scope of the work and any changes required by the work. The Project Manager will be totally responsible for all aspects of the work performed by Contractor's employees or any subcontractors that it employs.

Experience

The selected Contractor shall be fully capable and experienced in telecommunications distribution systems. Only Contractors having a successful history of sales, installation, service, and support with a minimum of five (5) years of experience should apply.

The Contractor must have an RCDD® (Registered Communications Distribution Designer) on staff that will be ultimately responsible for projects over $25,000.00. The RCDD must have sufficient experience in these type projects as to be able to lend adequate technical support to the field forces during installations, during the warranty periods, and during any extended warranty periods or maintenance contracts. A resume of

the responsible RCDD must be attached to the contractor's response for evaluation. Should the RCDD change during the contract term, the new RCDD assigned must also submit a resume for review by the Department of General Services.

The Contractor must also have BICSI Registered Installers and Technicians on staff to support Commonwealth projects of any size and scope. The project shall be staffed at all times by Installers and Technicians who, in the role of lead craftspersons, will be able to provide leadership and technical resources for the remaining craftspersons on the projects. A copy of their registration must be made available, if requested, by the Department of General or the Agency making inquires during a bid process.

References

The Contractor must provide a minimum of three (3) reference accounts at which similar work, both in scope and design, have been completed by the Contractor within the last two (2) years.

II-3 INFORMATION HANDLING

Handling and Protection of Equipment and Materials

The Contractor is responsible for safekeeping of its own and its subcontractors' property, such as equipment and materials, on the job site. The Commonwealth assumes no responsibility for protection of above named property against fire, theft, and environmental conditions.

Protection of Owner's Facilities

The Contractor is to effectively protect the owner's facilities, equipment, and materials from dust, dirt, and damage during construction and remove protection at completion of the work.

II-4 TASKS

<This section is critical to obtaining the right kind of services. Dissatisfaction with Contractor performance can come from the agency's lack of identifying needs or addressing those needs with performance requirements. Be specific as to the actual work to be performed and performance measurements to be obtained. >

(EXAMPLE) Pre-Installation Site Survey

Prior to start of systems installation, a site visit will be conducted at the project site with the Agency's representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the Prime Contractor will be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets.

II-5 INFORMATION TECHNOLOGY BULLETIN (ITB) COMPLIANCE REQUIREMENT

<Agencies should notify contractors of the existence of ITBs, there location on the OIT web site and the requirement to comply with them. The following statement may be used in the agency RFQ.>

II-6 REPORTING

The Agency shall request the Contractor to conduct a physical inventory on a periodic basis.

To support future expansion, reconfiguration and maintenance, complete records of all system characteristics should be developed and maintained. On each element in the route, identification labels shall be completed and attached. Labels shall meet the requirements of UL 969 Standard for Marking and Labeling Systems.

All buildings shall have records modified as moves, adds and changes (MACs) are done in the building. Work orders for wiring changes shall be retained with other records for backup and research reasons

The Contractor shall prepare a report to include system configuration, unique identifier, fiber labels, pathways and "as built" details. In addition, the Cable Management Form will be completed by the Contractor and provided to the Agency Telecommunications Office for all changes.

All test data shall be documented and submitted electronically with associated viewing software to the purchasing Agency at the time of acceptance.
The Contractor shall provide a report each time an SLA is violated. The SLA report will be sent to the appropriate Agency, Department of General Services, Contract Administrator, and Office of Administration, Contract Administrator.

II-7 PROPOSED IMPLEMENTATION SCHEDULE

<This section should specifically establish a start and end date for the project. All critical deadlines, time constraints and events that are impacted should be identified to the contractor. >

PART III
QUOTE FORMAT

Contractors who want to be considered for this project must submit the following information in the format indicated.

III-1 DETAILED WORK PLAN

- A detailed work plan that shows all tasks necessary to complete the works as described in Part II - Statement of Work.

III-2 TECHNICAL SOLUTION

- Provide a detailed proposal describing the infrastructure. Include floor plans identifying all components of the job, such as conduit, facilities, jack placement, MDF, IDF, etc.

III 3 WORK SKILLS

- Number of years of relevant experience for each of the staff assigned to this project, specifically as required in Part II – Job Requirements.

III-4 COSTS

- Itemized all costs for time, materials, labor, travel etc.

- Any costs not provided in the cost proposal will be assumed as no charge to the Commonwealth.

III-5 PROPOSAL SUBMITAL

All proposals must be mailed to the address listed below no later than 2:00 p.m., _____. Late proposals will not be accepted for any reason.

Mail proposals to: OA/Office for Information Technology
North Office Building, Room B-18
Commonwealth Avenue
Harrisburg, PA 17125
Attn: John Jones

III-6 PRE-QUOTATION CONFERENCE

A pre-quotation conference will be held on **XXXXXX.** A walk-through will be available, on request. The purpose of this conference is to clarify any points in the RFQ which may not have been clearly understood and also to review the site where the work will be completed. Questions must be forwarded to the Issuing Office prior to the conference to ensure that sufficient analysis can be made before an answer is supplied. Questions must be received by this office **no later than XXXXXX.** In view of the limited facilities available for the conference, it is requested that

representation be limited to two individuals per contractor. Answers furnished during the conference will not be official until verified, in writing, by the Issuing Office. Information presented at the pre-quotation conference will be distributed to all contractors who received the original RFQ.

III-7 DISADVANTAGED BUSINESS PARTICIPATION

The following options will be considered as part of the final criteria for selection:

Priority Rank 1. Proposals submitted by Small Disadvantaged Businesses.

Priority Rank 2. Proposals submitted from a joint venture with a Small Disadvantaged Business as a joint venture partner.

Priority Rank 3. Proposals submitted with subcontracting commitments to Small Disadvantaged Businesses.

Priority Rank 4. Proposals submitted by Socially Disadvantaged Businesses.

Each proposal will be rated for its approach to enhancing the utilization of Small Disadvantaged Businesses and/or Socially Disadvantaged Businesses. Each approach will be evaluated with Priority Rank 1 receiving the highest score and the succeeding options receiving scores in accordance with the above-listed priority ranking.

To the extent that a proposal is submitted by a Small Disadvantaged Business or a Socially Disadvantaged Business, the Small Disadvantaged Business or Socially Disadvantaged Business cannot enter into subcontract arrangements for more than 40% of the total estimated dollar amount of the contract. If a Small Disadvantaged Business or a Socially Disadvantaged Business subcontracts more than 40% of the total estimated dollar amount of the contract to other contractors, the Disadvantaged Business Participation scoring shall be proportionally lower for that proposal.

The following options will be considered as part of the final criteria for selection:

Priority Rank 1. Proposals submitted by an Enterprise Zone Small Business will receive the highest score.

Priority Rank 2. Proposals submitted by a joint venture with an Enterprise Zone Small Business as a joint venture partner will receive the next highest score for this criterion.

Priority Rank 3. Proposals submitted with a subcontracting commitment to an Enterprise Zone Small Business will receive the lowest score for this criterion.

Priority Rank 4. Proposals with no Enterprise Zone Small Business Utilization shall receive no points under this criterion.

To the extent that a proposal is submitted as a prime contractor by an Enterprise Zone Small Business, the Enterprise Zone Small Business cannot enter into contract or subcontract arrangements for more than 40% of the total estimated dollar amount of the contract.

III-8 CONTRACT REQUIREMENTS - DISADVANTAGED BUSINESS PARTICIPATION AND ENTERPRISE ZONE SMALL BUSINESS PARTICIPATION

All contracts containing Disadvantaged Business participation must also include a provision requiring the contractor to meet and maintain those commitments made to Disadvantaged Businesses and/or Enterprise Zone Small Businesses at the time of proposal submittal or contract negotiation, unless a change in the commitment is approved by the BMWBO. All contracts containing Disadvantaged Business participation and/or Enterprise Zone Small Business participation must include a provision requiring Small Disadvantaged Business subcontractors, Enterprise Zone Small Business subcontractors, and Small Disadvantaged Businesses or Enterprise Zone Small Businesses in a joint venture to perform at least 50 percent of the subcontract or Small Disadvantaged Business/Enterprise Zone Small Business portion of the joint venture.

Commitments to Disadvantaged Businesses and/or Enterprise Zone Small Businesses made at the time of proposal submittal or contract negotiation must be maintained throughout the term of the contract. Any proposed change must be submitted to BMWBO which will make a recommendation as to a course of action to the contracting officer.

If a contract is assigned to another contractor, the new contractor must maintain the Disadvantaged Businesses participation and/or Enterprise Zone Small Business participation of the original contract.

The contractor shall complete the Prime Contractor's Quarterly Utilization Report (or similar type document containing the same information) and submit it to the contracting officer of the agency that awarded the contract and BMWBO within 10 workdays at the end of each quarter the contract is in force. If there was no activity, the form must also be completed, stating “No activity in this quarter.” This information will be used to determine the actual dollar amount paid to Small Disadvantaged Business and/or Enterprise Zone Small Business subcontractors and suppliers, and Small Disadvantaged Businesses and/or Enterprise Zone Small Businesses involved in Joint Ventures. Also, it is a record of fulfillment of the commitment your firm made and for which it received Disadvantaged Business and Enterprise Zone Small Business points.

NOTE: EQUAL EMPLOYMENT OPPORTUNITY AND CONTRACT COMPLIANCE STATEMENTS REFERRING TO COMPANY EQUAL EMPLOYMENT OPPORTUNITY POLICIES OR PAST CONTRACT COMPLIANCE PRACTICES DO NOT CONSTITUTE PROOF OF DISADVANTAGED BUSINESS STATUS OR ENTITLE A PROPOSER TO RECEIVE CREDIT FOR DISADVANTAGED BUSINESS UTILIZATION.

PART IV EVALUATION CRITERIA

Evaluation criteria will be based on the following information.

IV-1 DETAILED WORK PLAN

- Points will be assessed based on the thoroughness of the work plan and how it relates to the work described in Part II - Statement of Work.

IV-2 WORK SKILLS

- Points will be assessed based on relevant experience of the staff assigned to this effort specifically to the work skills required as defined in Part II – Job Requirements .

IV-3 COSTS

- Points will be assessed based on total cost broken out per instructions in Part III - Costs.

IV-4 DISADVANTAGED BUSINESS PARTICIPATION

- Point for Disadvantaged Business participation will be assessed in accordance with Part I – Disadvantaged Business Participation.

COMMONWEALTH OF PENNSYLVANIA

Provide, Install, Maintain Network Communications Cable and Cable Associated Hardware

COST QUOTE AND REQUISITION

SECTION 1: To be completed by the requesting Agency. Note: Three bids are required for projects over $25,000.00.

Project Date: _____

Agency Name	
Contact	
Telephone #	
Fax #	
E-Mail	
Billing Address:	
Street	
City/State/Zip	
On site contact	
Telephone #	
Fax #	
E-Mail	
Site Address	
Street	
City/State/Zip	

Specific Services requested (check all that apply)

Consulting	Voice	Data	CATV	Video	Other

Section 2: To be completed by the contractor and returned to the Agency Contact listed in Section 1.

CONTRACTOR	
Contractor ID #	
Contact Name	
Telephone #	
Fax #	
E-Mail	
Address	
Street	
City/State/Zip	
Consulting Cost	**$**
Labor Cost	**$**
Materials Cost	**$**
Identify Total Costs	**$**
Date of Quote	**Good for days.**
Site Visit Conducted	**(circle) Yes or No**

TYPE AND QUANTITY OF EQUIPMENT:

Quantity	Description	Quantity	Communications Cable
	New Construction		PVC/Plenum
	Bldg Renovation		Total Cable Length
	Leased Facility		Ariel/Burial Length
	Residential		# Category 5/5e Runs
			# Category 6 Runs
	Number of Buildings		# of Pairs/Cable
	Number of Floors		# Coax Runs
	Square footage		Fiber Single Mode
			# of Strands/Cable
	Inter-floor Cables		Fiber Multi-Mode
	Inter-building Cables		# of Strands/Cable
	Total Inter-duct Length		
	Entrance Facilities		Cable Removal
	Horizontal		
	Backbone		Testing
			Certification
	Number of Closets		Results/Records
	Main Distribution Frame		Maintenance
	Intermediate D. Frame		Project Management
	Number of Racks		Lightening Protection
	Number of Patch Panels		
			Warranty
	Cable Management		
	Number of Patch Cords		
	Length 6 ft		Miscellaneous
	Length 8 ft		
	Length 10 ft		Job Schedule
	Conduit		Work Hours
	Power poles		Project duration
	Number of Jacks		Number of workforce
	Number of Faceplates		

Provide an itemized listing as an attachment for cost items not included in above table.

Commonwealth of Pennsylvania
Contract Performance Report

Provide, Install, Maintain Network Communications Cable and Cable Associated Hardware

Please take a moment to let us know how this contract award has measured up to your expectations. If reporting on more than one contractor, please make copies as needed. This office will use the information to improve our contract award, where appropriate.

Contractor ID No.:	**Contractor:**			
Description	**Excellent**	**Good**	**Acceptable**	**Unacceptable**
Timeliness of delivery				
Meets specifications				
Completeness of work				
Clean up				
Pricing				
Cable Records				

Comments:

Agency:	
Prepared by:	
Title:	
Address:	
Phone:	
E-mail:	

Differences between Contract 9985-40 Telecommunications Cabling Services and Contract 5805-55 Section 2 Moves, Adds and Changes (MAC), Cabling and Maintenance on Installed Systems.

Contract 9985-40 Telecommunications Cabling Services is designed for *large cabling* work, such as floors of buildings, outside plant and aerial cable projects. Contract 5805-55 Section 2 Moves, Adds and Changes (MAC), Cabling and Maintenance on Installed Systems is designed for *small cabling work or when MACs are being performed in conjunction with changes in telecommunications systems and services.*.

Additional differences in the contracts:

Issuing Service Orders:

- 9985-40, all orders will be processed as Purchase Orders via the SAP system.
- 5805-55 Section 2, orders may be processed as Purchase Orders via the SAP system or CTAR (Commonwealth Telecommunications Asset Repository).

Commonwealth of Pennsylvania Telecommunications Wiring Standards Supplement #1

The Telecommunications wiring standards apply to all Departments, Boards, Commissions and Councils under the Governor's jurisdiction. Agencies not under the Governor's jurisdiction are strongly encouraged to follow these standards.

1. Intent

To have a uniform wiring plan for Voice, Video (broadband & conferencing), Public Address Systems, DATA, Wireless Networking, Radio (terrestrial & satellite), and associated infrastructures. To provide for flexibility in completing personnel changes, office renovations and equipment migration and updates. This cabling system is based on a structured cabling system that is not vendor proprietary and conforms to the TIA / EIA-568-B Commercial Building Wiring Standards. This document is meant to be dynamic and will change as official standards change.

Scope

These standards are to be used, unless the requesting Agency submits a waiver to the Office of Administration, Bureau of Infrastructure and Operations, containing a strong business case.

Specifically these standards will be used for:

- Newly constructed buildings
- Buildings undergoing major renovations
- New long-term leased occupancy
- New multi-building networks with state owned fiber or wire cable
- Residential

The standards are based on TIA / EIA-568-B Commercial Building Telecommunications Wiring Standard and the latest published version of Building Industry Consulting Service International's (BICSI) Telecommunications Distribution Methods Manual. The BICSI manual is a good source for detailed planning of telecommunications distribution systems. These guidelines do not recommend a particular method of horizontal distribution (under floor, ceiling, under carpet, etc.) because of the wide disparity of buildings in this state.

The National Electrical Code (NEC), the National Electrical Safety Code (NESC) and other national, state and local building codes are recognized as having jurisdiction over related parts of these guidelines

2. Purpose

To establish minimum standards, for voice, Video (broadband & conferencing), Public Address Systems DATA, Wireless Networking, Radio (terrestrial & satellite), and associated infrastructures in general and administrative office space.

To provide guidance and direction for participates who use this contract.

To enable the planning of facilities with little knowledge of the specific products that will be installed.

To define a cabling system that will support multi-vendor and multi-product environments.

To address the physical pathways, media, and cable administration practices

3. Approach

Establish the use of the general cabling industry practice of using a "Structured Cabling System" (SCS). A SCS attempts to wire a building for information needs without knowing specifically what equipment will be utilized. A SCS is geared for long term stability and flexibility and is based on the idea of wiring the building once. The structured cabling system approach allows the wire and outlets to remain unchanged while the connections and services vary.

The main components of a structured cabling system are:

Common Media - Unshielded twisted pair (UTP) and fiber optic cables are capable of supporting voice, video and data communications. Services can change without affecting the media used to connect the services.

Cross connects - Cross connects and patch panels provide the system with the flexibility to make changes to the service quickly and easily using jumper wires or modular jacks. Agency personnel with little training can make changes to the service in the work area, thereby reducing the amount of time, effort, and cost in making changes.

Universal outlet - Common universal outlets provide a standard interface that permits connectivity of devices to any service by changing the connection to the outlet and not the outlet itself. Connection to the outlet can be done directly or by using adapters when necessary.

Administration - An administrative system, determined by the Commonwealth, is used to record installations and maintain cable management records on a continuing basis.

4. Contractor Qualifications

Project Manager

The Contractor will provide an on-site, Project Manager who will act as a single point of contact. The Project Manager will be required to make on-site decisions regarding the scope of the work and any changes required by the work. The Project Manager will be totally responsible for all aspects of the work performed by their employees or any subcontractors that they employee.

Experience

The selected Contractor shall be fully capable and experienced in telecommunications distribution systems. Only Contractors having a successful history of sales, installation, service, and support with a minimum of five (5) years of experience should apply.

The Contractor must have an RCDD® (Registered Communications Distribution Designer) on staff that will be ultimately responsible for projects over $25,000.00. The RCDD must have sufficient experience in these type projects as to be able to lend adequate technical

support to the field forces during installations, during the warranty periods, and during any extended warranty periods or maintenance contracts. A resume of the responsible RCDD must be attached to the contractor's response for evaluation. Should the RCDD change during the contract term, the new RCDD assigned must also submit a resume for review by the Department of General Services.

The Contractor must also have BICSI Registered Installers and Technicians on staff to support Commonwealth projects of any size and scope. The project shall be staffed at all times by Installers and Technicians who, in the role of lead craftspersons, will be able to provide leadership and technical resources for the remaining craftspersons on the projects. A copy of their registration must be made available, if requested, by the Department of General Services or the Agency making inquires during a bid process.

References

The Contractor must provide a minimum of three (3) reference accounts at which similar work, both in scope and design, have been completed by the Contractor within the last two (2) years.

5. Pre-Installation Site Survey

Prior to start of systems installation, a site visit will be conducted at the project site with the Agency representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the General Contractor will be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets.

6. Handling and Protection of Equipment And Materials

The contractor is responsible for safekeeping of its own and its subcontractors' property, such as equipment and materials, on the job site. The Commonwealth assumes no responsibility for protection of above named property against fire, theft, and environmental conditions.

7. Protection of Commonwealth Property and/or Leased Space

The Contractor must effectively protect the facilities, equipment, and materials from dust, dirt, and damage during construction, and remove protection at completion of the work.

8. Wiring System Elements (Definitions)

Horizontal Cabling / Wiring

Horizontal cable and connecting hardware provide the means of transporting voice/data signals between the outlet / connector in the work area and the horizontal cross-connect/patch panel in the telecommunications room. These components are the "contents" of the horizontal pathways. It is the Commonwealth of Pennsylvania minimum standard that the cabling shall be UTP Category 5 with pathway planning for fiber and or copper growth.

Backbone Wiring

Backbone wiring is the riser wiring and / or telecommunications room/s interconnecting wiring in multi-story buildings or the main distribution system in a campus environment. Fiber optic cable shall be installed for data and fiber or UTP Category 5 Enhanced for multi-pair UTP shall be installed for voice

Entrance Facility

This is the pathway where a service enters a property or building including the entrance point at the building wall and continuing to the entrance room or space. The demarcation point between the service provider and the user is typically located in the entrance room.

Campus Distribution

This is the inter-building connectivity and campus backbone in a complex or multi-building environment.

9. Horizontal Wiring

Structure

The horizontal wiring structure extends from the telecommunications room to the telecommunications outlet. It includes the outlet/connector, the horizontal distribution system cables, and the cross-connect in the room and Horizontal Pathways and Spaces. Pathways and spaces are used to distribute and support horizontal cable and connecting hardware between the work area outlet and the telecommunications room. These pathways are the "container" for the horizontal cabling.

Note: Horizontal cables do not include work area (patch) cables or equipment. However, the length and type of cable required for connecting telecommunications equipment to the horizontal cabling will significantly affect end-to-end system performance and should be taken into account when planning any system.

Major Items

Horizontal Distribution Systems consist of structures that conceal, protect, and support horizontal cables between the telecommunications outlet/connector used to connect work area equipment (voice, data, and video) at the work area and horizontal cross-connect in the serving telecommunications room. Select and design the type and layout of the horizontal distribution systems carefully. After a building is constructed, it may be more difficult to gain access to horizontal cabling. Therefore the skill, effort, and time required to make horizontal cabling changes can be very high. When selecting and designing horizontal distribution systems, it is important to consider the design's ability to accommodate cabling changes and minimize occupant disruption when horizontal pathways and spaces are accessed. In addition to providing for current occupant needs, the horizontal distribution system design must facilitate ongoing maintenance of horizontal cabling and accommodate future additions to and changes in cabling, equipment and services. The pathway design should allow for a minimum of three cable runs per individual work area. Although minimally, only two cables are required, the additional pathway capacity is needed to facilitate future additions and changes as the

user's needs evolve. NOTE: New requirements have been added to the 2002 National Electrical Code for removal of abandoned cables:

Avoiding potential sources of electromagnetic interference (e.g., motors and transformers that share distribution space & copiers used in work areas) must be a primary consideration when designing horizontal pathways. All horizontal pathways that penetrate fire-rated barriers must be fire stopped in accordance with applicable codes. When telecommunications horizontal pathways or cabling are placed in a hazardous location, such as an explosive or combustible atmosphere, observe all requirements of the applicable electrical code.

The main types of horizontal pathways are:

- Conduit
- Under floor ducts
- Access (raised) floors
- J-Hooks Cellular floors
- Ceiling distribution
- Surface mounted raceway

Many buildings require a combination of two or more of these systems to meet all distribution needs. For example, an office area in a building may require an under floor or overhead system, while an isolated voice/data outlet location may best be served by an individual conduit. Overhead cabling above ceiling tiles must be attached to an appropriate support system connected to the building structure rather than the ceiling tile grid or hangers. Special consideration must be given to length of cable span between supports and maximum number of cables in a support for Category 5 Enhanced compliance. [The maximum unsupported cable span when using Category 5 Enhanced compliant hangers (often referred to as J-hooks) for open wire cable systems shall be no more than 5 ft. and the typical number of .25 in. diameter cables supported by either shall not exceed the hanger manufacturer's specifications for Category 5 Enhanced compliance. A dual run shall be counted as 2 cables but one drop.] For large quantities of cables (50 to) that convene at the telecommunications room and other areas, provide sufficient support that is specifically designed to support the required cable weight and volume while maintaining Category 5 Enhanced compliance (no more than 12 inches of cable sag between supports). There shall be a minimum of three inches of clearance between the cable support system and the ceiling tile support grid. Plenum rated cable shall be used if the space above the ceiling tile system is an environmental air space.

Horizontal cabling must be designed to accommodate diverse user applications including:

- Voice Communications
- Data Communications
- Public Address Systems
- Video Communications
- Local area networks (LANs)
- Private Residences

The contractor shall consider incorporating other building information systems (e.g., CATV, alarms, security, audio, video, paging, automated building systems and other telecommunications systems) when selecting and designing horizontal cabling. In addition to accommodating existing telecommunications needs, consider accommodating a diversity of applications in order to reduce or even eliminate the need for horizontal cabling changes as user requirements evolve.

Splices are not permitted for twisted-pair horizontal cabling. Bridged taps (multiple appearances of the same cable pairs at several distribution points) are not permitted in horizontal cabling except for residential locations

Advanced planning considers the use of fiber optic/CAT5 cabling to all training rooms, conference rooms and computer rooms. On a business case basis, pathways of innerduct, raceways and conduit are to be provided to support the use of fiber optic cabling. Cable length maximums are specific to the media itself - e.g. 90 meters (295 feet) for UTP Category 5 Enhanced cabling from the horizontal cross-connect to the outlet / connector and 6 meters (20 feet) for patch cords and cross-connect jumpers in the horizontal cross-connect .In establishing limits on horizontal cable lengths, a 10m (33 ft.). Allowance was made for combined length of patch cables and cables used to connect equipment in the work area and telecommunications room. All equipment cables should meet or exceed the same performance requirements as the patch cords.

10. Jacks

Jack Specifications

The following suggested configuration will serve most needs: Category 5 Enhanced UTP cables as a minimum standard, 4 pairs (8 wires) of unshielded twisted pair (UTP) for voice or data applications.

All voice and data pairs shall be terminated in RJ45 wiring configuration. The outlet looks like a regular telephone jack to the casual observer. This jack must be Category 5 Enhanced compliant or higher as defined by TIA / EIA-568-B. These jacks must be wired with the T568B pin-out configuration. A faceplate shall be provided.

Location and Spacing

Jacks should be located to provide connectivity to every workspace location. If workspace locations have not been determined, then jacks should be provided for every 100 square feet of usable workspace. Each conference room should be provided with at least two jacks. A power failure telephone jack shall be placed at the location of the main answering position. Consideration should be given to spaces that may be eventually used as work spaces and outlets provided accordingly. Outlets shall be mounted 18" above the finished floor unless otherwise specified

11. Recommended Connector Specifications

The 568SC connector is recommended thru out the optical fiber network. If the optoelectronics require other connectors, jumpers can act as a transition between connectors in a system and connectors in the electronics.

Because of the large number of users with an installed base of ST-compatible connectors, the ANSI / TIA / EIA-568-A specification previously recognized a number of viable options for these users.

The options are:

- Remain with ST-compatible simplex connectors for both future and existing networks.
- Allow the user to re-use existing connectors and adapters.
- Retrofit existing networks by using a hybrid adapter of 568SC to ST compatible
- Switch to the 568SC interface for both future and / or exist.

12. Video/CATV/Audio Standard Specs:

RG-6 broadband (75 ohm) Coaxial Cable, for both RF and Video ONLY
Direct: Recommend Preference Belden (1695A) or equivalent. Drop cable distances for RG-6 cable is up to 150 feet , use RJ-11 for lengths over 150 feet .
Audio: Belden 82761 or equivalent

Coaxial Cables (RG-11 Belden 7732A Min.) and Single Mode Fiber Optic Cables remain the media of choice for long distance Video Transmission and for Backbone Video Feeder Systems.

Single Mode Fiber : Standards on Video and RF systems are now being set
by the industry as SC/Angle Polish Connectors. (Not to be confused with APC–Angle Point Connectors)

13. Telecommunication Room

The Telecommunication room shall be located as close as practicable to the center of the area served and preferably in the core area. The telecommunications room space shall be dedicated for all telecommunication equipment and related support facilities.

NOTE: All telecommunication backboards shall be void free, fire-retardant or treated on all six sides with at least two coats of fire retardant paint. If fire retardant paint is used, plywood shall be repainted on all 6 sides at manufacturer specified intervals.

14. Intermediate Distribution Frame (IDF) Rooms

In multi-story buildings, rooms shall be centrally located and stacked, when practicable. Rooms are placed directly above each other with riser pathways between them.

Room Size

Agencies will ensure that Telecommunication rooms are large enough to house equipment, controllers, equipment racks, fiber optic equipment, and service provider lines. The room shall include adequate space to support equipment changes with minimal disruption. The room must include space for any environmental control equipment, power conditioners, and uninterruptible power supply (UPS) systems.

15. Backbone Cabling

The Backbone Cabling is to provide interconnection between Telecommunication rooms, Equipment rooms, Campus wiring, main terminal space and entrance facilities in the telecommunications cabling system structure.

Backbone Cabling Design

Fiber optic cable shall be installed for data and fiber or UTP Category 5 Enhanced for multipair UTP shall be installed for voice

Risers consist of a minimum of 6-strand multimode fiber optic cable in high rise buildings and in any other buildings where the distance is greater than 295 feet. For locations that do not anticipate the use of Optical Fiber, multipair unshielded twisted Pair (UTP) backbone cable should be sized to accommodate 50 percent growth over the number of initially installed dual 4 pair workstations.

Video, Audio and CATV applications require a 6 strand single mode Fiber Optic cable terminated as SC/APC (Angle Polish connectors). For locations where the distances are greater than 500 feet and do not anticipate the use of Optical Fiber, the backbone cable needs to meet these specifications: Video – Belden 7732A or equivalent (terminated as BNC), Audio – Belden 82761 or equivalent (meets standard for balanced/un-balanced applications), CATV Belden 7732A or equivalent (terminated RF). CATV expansion and Video applications require RG-11 single mode fiber optic cable with sc/apc (angle polish connectors) as termination.

Pathways of conduit and duct shall allow room for the later installation of fiber.

16. Acceptable Cables

Voice & Data:

Unshielded Twisted Pair - 100 ohm Category 5 Enhanced Data Grade, Multipair verified to a minimum of 100 MHz, CMR or CMP NEC Rating. All Category 5 Enhanced cabling shall meet the TIA / EIA 568-B standard

62.5/125 µm Graded Index Multimode Optical Fiber, OFNR, OFNP or Indoor/Outdoor (I/O) NEC Rating.

50/125 µm Graded Index Multimode Optical Fiber

8.3/125 µm Class IVa Dispersion-Unshifted Single mode Optical Fiber, OFNR, OFNP or Indoor / Outdoor (I/O) NEC Rating

Video / CATV / Audio / Public Address Systems

Video - Belden (7732A) or equivalent and RG-6 broadband (75 ohm) Belden (1695A) or equivalent Coaxial Cable, CL2 or CL2P NEC Rating

CATV – Belden 7732A or equivalent (Terminated RF)

Audio – Belden 82761 or equivalent (3 wire red/black and drain)

Public Address Systems – 18 gauge, 2 conductor twisted and shielded cable

UTP has proven to be capable of transmitting high quality video signals for certain applications by use of a commercially available video adapter. Products supporting true broadband (multiple channels) color signals on UTP are available. Coaxial Cables and Single mode Fiber Optic Cables remain the media of choice for long distance video transmission and for backbone video feeder systems.

17. Recommended Cable Specifications

This guideline recognizes the following type cables:

- Fiber optic Multimode - Riser, Inter-building applications, and horizontal pathways
- Fiber optic single mode - Inter-building applications, video applications
- c. Unshielded Twisted Pair (UTP) - Category 5 Enhanced or above (TIA / EIA 568-B)- Horizontal Distribution

18. Copper Data Cable Specification

The standards recognizing the data handling characteristics of all twisted pair cable and connectors are the ANSI / TIA / EIA-568-B. Although other levels are specified in these standards, these guidelines standardize on Category 5 Enhanced for all voice and data telecommunications UTP wiring. Category 5 Enhanced cable is intended for high speed LANs at 100 Megabits per second and higher.

19. Multimode Fiber Specification

Fiber type: 62.5/125 micron Graded Index Multimode

Coating Diameter: 250 Microns

Core Eccentricity: 7.5% maximum (1.5%typ)

Numerical aperture: .275 plus or minus .015

Attenuation: 3.75 db/KM @ 850 NM 1.50 db/KM @ 1300 NM

Bandwidth: 160 MHz at 850 NM 500 MHz @ 1300 NM

Fiber connectors: SC type .4 db plus or minus .2 db loss maximum

Cable bend radius: 10 times diameter during installation

Fiber type: 50/125µm Multimode

Numerical aperture: .200

Cladding diameter: 125 Micron

Attenuation: 3.75 db/KM @ 850 NM 1.50 db/KM @1300 NM

Bandwidth: 500 MHz @ 850 NM 500 MHz @ 1300 NM

Cable bend radius: 10 times diameter during installation

Single Mode Fiber Specifications (Video/CATV Backbone)

Data – Terminated (ST/SC-FC)

Video & CATV – Terminated (SC/APC – Angle Polish Connectors)

Fiber type: 8.3 Micron

Cladding diameter: 125 Micron

Attenuation Outside Cable: .5 db/KM @ 1310 NM .5 db/KM @ 1550 NM

Attenuation Inside Cable: 1.0 db/KM @ 1310 NM 1.0 db/KM @ 1550 NM

Zero dispersion wavelength 1300 - 1320 NM

UL Ratings: OFNR for riser usage OFNP for Plenum usage

Cable bend radius: 10 times diameter during installation

20. ENTRANCE FACILITY

Telecommunication service facilities must enter and terminate in the most suitable location needed to serve the occupants of a building, this service entrance includes:

- Path that these facilities follow on private property
- Entrance point to the building
- Building termination location

21. National Electrical Code Adherence

All telephone communications circuits are to be installed in accordance with the latest published version of Article 800 of the National Electrical Code.
Exception: The "Protective Devices" requirements of paragraph 800-2 are to apply to all outside circuits of any length whether aerial or underground. All arrestors must be solid state type, tested and listed per ANSI/UL 497 1995 or later. They shall be installed on each telephone circuit entering a building as close as practicable to the point of entry.

22. Protectors

Protectors will be used to arrest surges or over voltages that come from exposed circuit pairs (diverting them to ground). Based on UL standards there are three types:
Primary Protectors – as qualified by UL 497
Secondary Protectors – as qualified by UL 497a
Data and Fire Alarm Protectors – as qualified by UL 497b

All protectors shall be grounded using AWG 12 (minimum) copper wire for single line or double line, AWG 10 for three through six lines, and AWG 6 for seven or more lines. This conductor shall be connected to the building's Grounding Electrode System described by NEC 250 in accordance with NEC 800-31(b) The primary protector shall be 189B1 with AT&T 3C1SC protector units (solid state type) or equivalent.

23. Grounding

J-STD-607-A (Joint standard in TIA/EIA Telecommunications Building Wiring Standards) covers requirements for telecommunications grounding and bonding as a system. The major guidelines are as follows:

A permanent infrastructure for telecommunications grounding and bonding is specified to be independent of telecommunications cabling.

Telecommunications bonding connections are always implemented in accessible locations with approved components.

Minimum #6 AWG insulated copper bonding conductors (Telecommunications Bonding Backbone [TBB]) are installed through every major telecommunications pathway (backbone pathway) and directly bonded to a Telecommunications Grounding Busbar (TGB) in each telecommunications equipment location.

A Telecommunications Main Grounding Busbar (TMGB) is directly bonded to the electrical service ground. All TBBs end on this busbar.

Generally, each TBB should be a continuous conductor from the TMGB to the farthest TGB. Intermediate TGBs should be bond connected to the TBB with a short bonding conductor.

The protection of telecommunications facilities is an essential part of any distribution system. The National Electrical Code defines grounding and bonding parameters for telecommunications from the aspect of human safety. NEC Articles 250 and 800 cover the general requirements for grounding, bonding, and protecting electrical and telecommunications circuits. NEC requirements are considered the minimum for safeguarding personnel and equipment. It is the state standard that telecommunications systems be isolated to the building ground. Neutral ground current problems are so severe in some modern buildings that telecommunications systems fail to work. Equipment manufacturers' grounding and bonding instructions must be closely adhered to.

24. Surge Protectors

The AC power circuit feeding telecommunications equipment (cabinets, key switches, PCs, any and all peripheral equipment including digital announcers and music on hold devices) shall be provided with a surge protector. No equipment other than related peripherals shall be connected to this circuit.
.

25. Innerduct

A sleeved physical channel shall be provided for fiber optic cable. This is to be within the conduit system, unless the "innerduct" is plenum rated. Above ceiling innerduct not encased in a conduit must be UL Approved and bear designations stating so. The innerduct shall contain a pull string if no fiber is pulled at the time of the installation of the innerduct.

26. Code Compliance

All wiring will comply with Article 800 of the National Electrical Code (NEC), the American National Standards Institute (ANSI), and National Electric Safety Code (NESC) subject to acceptance tests as described in FCC Rules and Regulations, Title 47, Section 28.215, Chapter 1, Part 68. The primary application of these guidelines for communications is directed to (a) protective devices and methods for "exposed" cable and wiring, (b) separation of power circuits, and (c) fire stopping and special fire resistant and low-smoke producing cable in specified environments. All new cable and wire installed in air plenums and ducts shall be flame resistant and have low smoke properties in accordance with Article 800-3 (d) of the *latest published version of the National Electrical Code and shall be so classified by Underwriters Laboratories, Inc. All cable installed in steam tunnels must be able to withstand temperatures of 125 degrees centigrade. * The NEC is revised every three years.

27. ADMINISTRATION

TIA / EIA 606-A Administration Standard for the Telecommunication/Data Infrastructure of Commercial Buildings is incorporated by reference. Compliance shall be maintained.

Each pathway (conduit, tray, raceway, etc.) that conveys telecommunication/data media from space to space must be given a unique identifier and labeled at each end-point.

Each telecommunication/data space (equipment room, telecommunication room, work area, entrance facility, and manhole) must be uniquely identified and labeled.

Each cable must be uniquely identified and labeled at each end.

Each piece of termination hardware such as a patch panel or wiring block must be uniquely named and labeled.

Termination position on cross-connect must be identified by type, the pair/conductor terminated and a user code.

28. Labeling

Each work area is labeled with a unique identifying number. A consistent labeling and numbering scheme shall be used. The labeling shall be clearly legible on the outlet face and the termination end. The numbering plan should identify the source and destination of the cable for horizontal runs. Horizontal cable shall be labeled at the workstation end and the cross-connect end. Backbone cables (whether riser or horizontal) shall have an identifying number that is labeled at each end. Labels shall be the same color on each end. Performance documentation must use the same labeling scheme. It is helpful to color code the cables by function (LAN/Voice/Fire Alarm/Environmental Control) with a high quality colored vinyl tape at each termination or the use of different color jacketed cable.

29. Guidelines:

Labeling Telecommunications Pathways: Provide labeling at each end of a pathway.
Label pathways at regular interval when accessible.

Labeling Telecommunications cables: Identify cables at each end with a permanent tag or label. Use the same alphanumeric identifiers at each end of the cable.

Basic systems - the labeling can be a simple number sequence.

Complex systems – the labeling may indicate the type, function and terminating position.

Labeling of connecting hardware requires a unique, alphanumeric identification scheme:

Telecommunication/Equipment room and the floor the telecommunication outlet is being served from. (Floor and Room Number)

The termination field. (Voice/Data)

The cable number. (Starting with 1)

Example - 1A – V – 45 (1A is first floor and Telecommunications Room number A , V is for voice termination could be D for data termination , 45 is the individual cable number.

30. Cable Tracking

The Agency shall request the Contractor to conduct a physical inventory on a periodic basis.

To support future expansion, reconfiguration and maintenance, complete records of all system characteristics should be developed and maintained. On each element in the route, identification labels shall be completed and attached. Labels shall meet the requirements of UL 969 Standard for Marking and Labeling Systems.

All buildings shall have records modified as moves, adds and changes (MACs) are done in the building. Work orders for wiring changes shall be retained with other records for backup and research reasons

The Contractor shall prepare a report to include system configuration, unique identifier, fiber labels, pathways and "as built" details. In addition, the Cable Management Form will be completed by the Contractor and provided to the Agency Telecommunications Office for all changes.

31. TESTING:

All test data shall be documented and submitted electronically with associated viewing software to the purchasing Agency at the time of acceptance.

Multi-pair UTP Feeder Testing:

All cable pairs must be tested for the following conditions:

- Polarity
- Reversal of pairs
- Wire transpositions
- Continuity
- Opens
- Shorts

UTP Category 5 and Category 5 Enhanced Testing Parameters

The current field acceptance test parameters for twisted-pair cabling are:

- Wire Map (continuity).
- Length.
- Attenuation.
- NEXT.
- ELFEXT for Category 5 and higher.
- Delay and delay skew for Category 5 and higher.
- Return loss for Category 5 and higher.
- Power sum crosstalk (PSNEXT and PSELFEXT) for Category 5e and higher.

NOTE: The above parameters will also apply to Class D and higher as specified in ISO / IEC 11801.

Fiber Optic Testing:

Upon completion of the passive optical cable system, the system must be tested to ensure compliance with the design and link loss specifications. The single most important test is end-to-end attenuation test that measures the optical power loss between cable termination points. The attenuation of a system at one wavelength is not necessarily related to the attenuation at the other, except for short links such as horizontal cabling. The best way to verify the cabling meets the loss limit is to measure each segment between patch panels. Because of the stress and bending that cables undergo during installation, measurement of the attenuation of each link with connectors in place is required after installation.

The tests include:

- Power meter tests - For building risers, power meter tests are required.
- Disregard OTDR testing for runs less than 2 km.

- Testing of End-to-End Attenuation on each fiber span at both operational wavelengths: 850 / 1310 nm for multimode fiber 1310 and 1550 nm for single mode fiber

- Testing in one direction is required. Test results should be retained for inclusion into the documentation package.

32. Warranty

Materials and workmanship hereinafter specified and furnished shall be fully guaranteed by the Vendor for fifteen years from transfer of title against any defects. Defects which may occur as the result of faulty materials or workmanship within fifteen years after installation and acceptance by the Agency shall be corrected by the contractor at no additional cost to the Agency. The Contractor shall promptly, at no cost to the Agency, correct or re-perform (including modifications or additions as necessary) any nonconforming or defective work within fifteen years after completion of the project of which the work is a part. The period of the Contractor's warranty shall commence with acceptance of/or payment for the work in full.

The Contractor shall pass along any additional warranties offered by the manufacturers, at no additional costs to the Commonwealth.

33. Service Level Agreements (SLAs)

The Commonwealth shall administer the SLAs as part of the contract to ensure a high level of service delivery.

Objectives
The Commonwealth will provide service level agreements (SLA's) that establish minimum operating and availability metrics for services provided. All service levels will have established liquidated damages, and/or offsets for failure to meet the minimum metrics.

Nature and Scope
It is very important and critical to the Commonwealth to acquire services in an efficient and timely fashion. To ensure services are provided in the time and manner requested, service level agreements have been developed for the crucial areas of service. These services are wide spread across the various components of telecommunications.

Service Level Agreements (SLAs)

Service Intervals scheduled date/complete date	The dates will be determined by the Agency. Deviation from the dates will cause liquidated damages for the contractor of $100.00 per day.
Workmanship	Payment will be withheld from the Contractor if the job site is not left in a clean and orderly manner.

Testing and reporting to Agency	An electronic copy and associated viewing software will be provided to the requesting Agency within 2 weeks of job completion. The Contractor will not be paid until the accurate information is received by the Agency.
Cable Management Form	The contractor must complete and forward the form to the requesting Agency TMO within 2 weeks of job completion. The Contractor will not be paid until the form accurately completed and received by the Agency.
Trouble Calls Minor – Less than 5 cables or connections down Urgent – More than 5 cables down or connections down.	The Contractor will respond to the call within 30 minutes by phone and onsite within 8 hours to a minor trouble call and within 2 hours to an urgent call. Liquidated damages will be determined by the lack of response to the call and the number of hours/days of the service disruption or outage. Urgent calls will result in liquated damages of $100.00 per day or a fraction of the day until the trouble is resolved. Minor calls will result in liquated damages of $25.00 per day or fraction of the day until the trouble is resolved.

The Contractor, by submitting its quote agrees to the service level agreements along with their associated liquidated damages.

All SLAs will be effective at contract signing and will apply to all services installed under the contract. All SLAs and liquidated damages shall be applied as Agencies begin using the Contractor's services.

The Contractor shall provide a report each time an SLA is violated. The SLA report will be sent to the appropriate Agency, Department of General Services, Contract Administrator, and Office of Administration, Contract Administrator.

34. Delivery, Storage, and Handling

Protect equipment during transit, storage, and handling to prevent damage, theft, soiling, and misalignment. Coordinate with the Agency to secure storage for equipment and materials. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions. Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.

35. Use of the Site

Access to building wherein the work is performed shall be as directed by the Agency Representative.

The Agency may occupy the premises during the entire period of construction for conducting its normal business operations. Cooperate to minimize conflict and to facilitate operations.

Schedule all shutdowns of services with the Agency Representative. Refer to #36 - Continuity of Services.

Proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations.

36. Continuity of Services

Take no action that will interfere with, or interrupt, existing building services unless previous arrangements have been made with the Agency representative. Arrange the work to minimize shutdown time.

Agencies personnel will perform shutdown of operating systems. The contractor shall give three (3) days' advance notice for systems shutdown.

Should services be inadvertently interrupted, immediately furnish labor, including overtime, material, and equipment necessary for prompt restoration of interrupted service.

37. Safety

The Contractor shall take the necessary precautions and bear the sole responsibility for the safety of the methods employed in performing the work. The Contractor shall at all times comply with the regulations set forth by federal, state, and local laws, rules, and regulations concerning "OSHA" and all applicable state labor laws, regulations, and standards. The Contractor shall indemnify and hold harmless The Customer from and against all liabilities, suits, damages, costs, and expenses (including attorney's fees and court costs) which may be imposed on The Customer because of The Vendor, subcontractor, or supplier's failure to comply with the regulations stated herein.

Glossary

ADMINISTRATION - The process of documenting the initial wiring and management of the wiring system after the initial installation. It includes two major components: a standard labeling system and a records system.

AMERICAN WIRE GAGE (AWG) - An American industrial standard for measuring the diameter of copper, aluminum and other conductors; e.g. AWG #22 is a 0.64 millimeter (0.0253 inches) diameter solid conductor and AWG #24 is a 0.5 millimeter (0.0201 inches) diameter solid conductor.

ANSI - American National Standards Institute.

BUILDING MAIN DISTRIBUTION FRAME (MDF) - The interface between the public network and/or the interbuilding backbone, and the interframe backbone. The MDF is usually in the Main Telecommunications Room (MTR).

Category 6/ Class E Cabling - Category 6 / class E standards describe a new performance range for unshielded and screened twisted-pair cabling. Category 6/class E is intended to specify the best performance that UTP and STP cabling solutions can be designed to deliver. Category 6/class E is specified in the frequency range of at least 1-250 MHz. For category 6 /class E, the 8-position modular jack interface will be mandatory at the work area. Category 6 /class E will be backward compatible which means that applications running on lower categories / classes will also be supported. If different category/class components are to b mixed with category 6/class E components, the combination shall meet the transmission requirements of the lowest performing category/class component.

EIA – Electronics Industries Alliance.

ENHANCED CATEGORY 5 CABLING - Enhanced Cat 5e - Addendum 5 to ANSI/TIA/EIA- 568-A specifies enhanced category 5 (category 5e) performance requirements. These requirements are recommended for new category 5 cabling installations and are now the defacto minimum standard for category 5 cabling. This addendum addresses the minimum equal level far-end crosstalk (ELFEXT) and return loss requirements necessary to support developments in applications technology and defines the minimum performance needed for a worst case four-connector channel to support applications that utilize full-duplex transmission schemes, such as Gigabit Ethernet. To ensure additional cross talk headroom for robust applications support, this addendum also specifies power sum performance requirements for category 5e cables, links, and channels.

ENTRANCE FACILITY (EF) - Facility where outside circuits/wiring enter a building through weatherproof sleeves and are terminated on blocks providing electronic protection to guard against damage from electrical disturbances such as lightning. In a single building, this is the point of demarcation between the serving telephone utility and the user.

EQUIPMENT ROOM - An area within a building where major components of large telecommunications systems (PBX's, data switches and communications processors) are housed. Equipment rooms are often distinct from telecommunication rooms due to the size and quantity of the equipment they contain. They usually contain a main or intermediate cross-connect and patch panels.

HORIZONTAL DISTRIBUTION SYSTEM (HDS) - The wiring that connects the intermediate distribution frame in the telecommunications closet to the telecommunications outlet. Horizontal

distribution cabling is commonly run through the space provided by drop-tile ceilings or routed through ducts in floors and walls.

IEEE -The Institute of Electrical and Electronics Engineers, Inc.

INTERBUILDING BACKBONE - The transmission facilities that connect the campus/complex main distribution frame to the building main distribution frames of each building in the complex. Includes multi-agency metropolitan areas with state right of way.

INTRABUILDING BACKBONE - The transmission facilities that originate from the building main distribution frame and are vertically or horizontally distributed to each intermediate distribution frame in the building.

INTERMEDIATE CROSS CONNECT - Typically the equipment used to link the backbone and horizontal wiring systems. The intermediate cross connect is usually located in a telecommunications room.

LINKAGE - A connection between a record and an identifier or between records.

INTERMEDIATE DISTRIBUTION FRAME (IDF) - The cross connect between the interframe backbone (IFB) and the horizontal distribution system (HDS). The IDF may also serve as a connection point for per-floor Local Area Networking equipment. The IDF is normally in the Auxiliary Telecommunication Closet (ATC).

MAIN CROSS CONNECT - Typically the equipment used to link the interbuilding and intrabuilding wiring systems. The main cross connect is usually located in the building entrance facility
.
NETWORK INTERFACE (NI) - Contains the demarcation point between outside networks and the campus/complex or building main distribution frame.

MEGAHERTZ (MHz) - Unit of frequency equal to one million cycles per second.

NEC - National Electrical Code.

NEXT - Near End Cross Talk - Signal distortion caused by the coupling of an outgoing signal at the originating end of a circuit with the incoming signal being received from the other end of the circuit

NFPA - National Fire Protection Association.

OSHA - Occupational Safety and Health Administration.

PATCH CORD - A length of wire, or fiber cable, with connectors on each end used to join telecommunications circuits
.
PATHWAY - A raceway, sleeve, or exposed location for the placing of telecommunications cable.

TELECOMMUNICATION ROOM (TR) - The space in a building designed to provide a secure, suitable environment for the installation of cable, telecommunications equipment, and termination and administration systems. Telecommunications rooms are the points where the backbone and horizontal distribution facilities intersect. They are floor-serving rooms whose function is to terminate and connect the backbone cable system to the horizontal cable system and to house electronics that assist in the distribution of information to that floor.

TELECOMMUNICATIONS INFRASTRUCTURE - The components (telecommunications spaces, cable pathways, grounding, wiring and termination hardware) that together provide the basic support for the distribution of all telecommunications information.

TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) – A busbar placed conveniently and accessible location and bonded by means of the bonding conductor to the building service equipment (power) ground. Primary grounding for the entire telecommunications in a building or structure.

TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) - Auxiliary grounding for the telecommunications in a satellite telecommunications closet and tying into the telecommunications bonding backbone.

TELECOMMUNICATIONS BONDING BACKBONE (TBB) - a #6 AWG or larger insulated bonding conductor that provides direct bonding between different locations in a building.

TIA - Telecommunications Industries Association.

UNSHIELDED TWISTED PAIR - (UTP) wiring consisting of two insulated wires twisted around each other to reduce induction, thus interference, from one wire to the other. Twisted pair wire comes in bundles with varying numbers of pairs of wires, from two pair (four wires) to many thousands of pairs. UTP wiring is used to wire voice and data networks within buildings because it is inexpensive and
relatively easy to install.

TELECOMMUNICATIONS OUTLET (TO) - The interface between the building network (horizontal distribution system) and the work area connection to the user's equipment (phone and/or terminal device).

WORK AREA CONNECTION - The interface between the outlet and the user/terminal equipment. Includes media adapters, such as baluns and / or patch cords.

38. CABLE MANAGEMENT FORM

Section 1			
Agency		Building Number	
Building Address		Commonwealth Service Order (ISS or CTAR)	
Maintenance Vendor/Technician		Maintenance Date	
Technician Comments		Service Provider	
Circuit Carrier			
Section 2			
Billing Telephone No.		WTN /Circuit No.	
Type of Service		Cable System Type	
2 or 4 Wire Circuit		LEC Office Equipment	
LEC Primary Cable		LEC Primary Patch Panel/Block	
LEC Primary Port/Pair		LEC Secondary Cable	
LEC Secondary Patch Panel/Block		LEC Secondary Port/ Pair	
Ext. Demark Primary Cable		Ext. Demark Primary Patch Panel/Block	
Ext. Demark Primary Port/Pair		Ext. Demark Secondary Cable	
Ext. Demark Secondary Patch Panel/Block		Ext. Demark Secondary Port/Pair	
SECTION 3			
MDF Cable		MDF Patch Panel/Block	
MDF Port/Pair		IDF Floor	
IDF ID		IDF Cable	

IDF Patch Panel/Block		IDF Port/Pair	
Station Cable		Station Patch Panel/Block	
Station Port/Pair		Station Jack Number	
Station Cable Category			

Revised 3/11/05

Field Definitions

Agency – Name of Agency that "owns" the service.

Building Number – The number assigned the building in the ISS or CTAR system.

Building Address – Physical address of building.

Commonwealth Service Order – ISS or SR Number assigned by the Commonwealth when requesting service.

Maintenance Vendor/Technician – Name of Vendor and technician performing any work that resulted in a record change.

Maintenance Date – Date any work was performed.

Technician Comments – Enter information on anything about this circuit that may be warranted due to non-standard requirement or installation of this circuit.

Service Provider – The Telecommunication Company that bills the Agency for service which would include: TelCove, Sprint, AT&T and Verizon.

Circuit Carrier – The Telecommunication Company that owns physical infrastructure delivering actual circuit. Such as TelCove, AT&T, Commonwealth Telephone, Buffalo Valley, Sprint and Verizon.

Billing Telephone Number – The main telephone number either the working telephone number or circuit is billed under.

WTN/Circuit Number – Indicates either the 10 digit telephone number (including area code) or data circuit number being installed, moved or disconnected.

Type of Service – Reflects the type of service such as: Centrex, POTS, analog, digital, fax, TTY, video, radio, ISDN (including SPIDS), Modem, ATM, DSL, BDT, frame relay, ring down and security alarm circuits.

Cable System Type – Indicate if patch panel or block wiring system.

2 or 4 Wire Circuit – Indicate if "2" or "4" wire.

LEC Office Equipment – LEC switch assignment to the circuit.

LEC Primary Cable – The cable identification as it appears entering the MDF room for the primary pair (transmit) of a 4 wire circuit or only pair for a 2 wire circuit.

LEC Primary PP/Block – The primary patch panel or block system located in the MDF.

LEC Primary Port/Pair – The primary port or pair number on the patch panel or block.

LEC Secondary Cable – The cable identification as it appears entering the MDF room for the secondary pair (receive) of a 4 wire circuit.

LEC Secondary PP/Block – The secondary patch panel or block system located in the MDF.

LEC Secondary Port/Pair – Secondary port or pair number on the patch panel or block.

Extended Demark Primary Cable – The cable identification for the primary pair (transmit) of a 4 wire circuit for an extended demarcation.

Extended Demark Primary PP/Block – The primary patch panel or block system located at the Extended Demarcation.

Extended Demark Primary Port/Pair – The Extended Demark primary port or pair number on the patch panel or block.

Extended Demark Secondary Cable – The cable identification for the primary pair (transmit) of a 4 wire circuit for an extended demarcation.

Extended Demark Secondary PP/Block – The secondary patch panel or block system located at the Extended Demarcation.

Extended Demark Secondary Port/Pair – The Extended Demark secondary port or pair number on the patch panel or block.

MDF Cable – House cable identification (if any).

MDF PP/Block – The designation of the house patch panel or house block as it appears in the MDF room.

MDF Port/Pair – The designation of the port on the house patch panel or pair on the house block as it appears in the MDF room.

IDF Floor – The floor number the IDF exists on.

IDF ID – The IDF label (if any).

IDF Cable – The cable designation as it enters the IDF closet.

IDF PP/Block – The designation of the IDF patch panel or block as it appears in the IDF.

IDF Port/Pair – The designation of the port on the IDF patch panel or pair on the block as it appears in the IDF.

Station Cable – The cable designation as it leaves the IDF.

Station PP/Block – The designation of the station patch panel or block as it appears in the IDF.

Station Port/Pair – The designation of the port on the station patch panel or pair on the block as it appears in the IDF.

Station Jack Number – The designation of the jack. The designation should appear on the jack and in the case of a new jack, label the jack according to the convention used in the building.

Station Cable Category – Type of cable used, valid types include: Cat3, Cat4, Cat5, Cat5E and Cat6.

SPECIAL CONTRACT TERMS AND CONDITIONS
SUPPLEMENT #1

CONTRACT SCOPE/OVERVIEW: This Contract No. 9985-40 (identified here and in the other documents as the "Contract") will cover the requirements of Commonwealth agencies for Telecommunications Cabling Services.

TERM OF CONTRACT: The Contract shall commence on the Effective Date as defined in the Standard Contract Terms and Conditions for Statewide Services Contracts and expire on June 30, 2008.

OPTION TO RENEW: The Contract or any part of the Contract may be renewed for two (2) additional one (1) year terms by mutual agreement between the Department of General Services (DGS) and the Contractor(s). If the Contract is renewed, the same terms and conditions shall apply, pricing changes on renewals excepted.

OPTION TO EXTEND: DGS reserves the right, upon notice to the Contractor, to extend the Contract or any part of the Contract for up to three (3) months upon the same terms and conditions. This will be utilized to prevent a lapse in Contract coverage and only for the time necessary, up to three (3) months, to enter into a new Contract.

ADDRESS OF PURCHASE ORDER: Commonwealth agencies may issue purchase orders against this Contract for services required by the agencies (using agencies). Please state below where the Purchase Orders should be sent (name, address, city, state, zip code).

_____

_____

_____

_____

GEOGRAPHIC COVERAGE: Bidders shall indicate, on a separate sheet, the counties in which they can provide cabling services. If a bidder does not indicate otherwise, DGS shall assume the bidder will provide their services statewide.

ELIGIBILITY/METHOD OF AWARD: Awards will be made to all responsive and responsible bidders who meet all requirements of this ITQ in accordance with the criteria contained in the attached document "Telecommunications Cabling Bid Contractor Qualifications."

SERVICE AGREEMENT: Upon request from a Commonwealth agency, all bidders are expected to quote and provide the services in the counties they indicated in the geographic coverage section. Bidders who refuse to provide a quote for the requested services after 3 requests will be removed from the contract.

NEGOTIATE DESIGN: The Issuing Office reserves the right to negotiate any design changes. If such changes are required by the using agency, the Contractor will be given the right to alter costs upon agreement of the using agency and the Issuing Office.

ORDER PROCESS: Agencies shall process all orders based on the following estimated dollar thresholds.

1. Projects that do not exceed $25,000 – Agencies may utilize any of the awarded bidders.
2. Projects between $25,000 and $100,000 – Agencies shall solicit at least 3 suppliers, via an RFQ.
3. Projects exceeding $100,000 – Agencies will utilize the sealed competitive bidding process, RFQ.

All orders will be processed as Purchase Orders via the SAP system.

INSURANCE: Contractors shall, at their expense, procure and maintain during the term of the Contract, the following types of insurance, issued by companies acceptable to DGS and authorized to conduct such business under the laws of the Commonwealth of Pennsylvania:

a. Worker's Compensation Insurance for all of the Contractor's employees and those of any subcontractor, engaged in work at the site of the project as required by law.

b. Public liability and property damage insurance to protect the Commonwealth, the Contractor, and any and all subcontractors from claims for damages for person injury (including bodily injury and wrongful death), sickness or disease, accidental death and damage to property, including loss of use resulting from any property damage, which may arise from the activities performed under the Contract or the failure to perform under the Contract, whether such performance or nonperformance be by the Contractor, by any subcontractor, or by anyone directly or indirectly employed by either. The limits of such insurance shall be in an amount not less than $500,000 each person and $2,000,000 each occurrence, personal injury and property damage combined. Such policies shall be occurrence rather than claims-made policies and shall name the Commonwealth of Pennsylvania as an additional insured. The insurance shall not contain any endorsements or any other form designated to limit and restrict any action by the Commonwealth, as an additional insured, against the insurance coverage in regard to work performed for the Commonwealth.

Prior to commencement of the work under the Contract and during the term of the Contract, the Contractor shall provide DGS with current certificates of insurance. These certificates shall contain a provision that the coverage afforded under the policies will not be cancelled or changed until at least thirty (30) days' written notice has been given to DGS.

ORDER OF PRECEDENCE: These Special Contract Terms and Conditions supplement the Standard Contract Terms and Conditions For Statewide Contracts for Services. To the extent that these Special Contract Terms and Conditions conflict with the Standard Contract Terms and Conditions For Statewide Contracts for Services, these Special Contract Terms and Conditions shall prevail.

OPTION FOR SEPARATE COMPETITIVE BIDDING PROCEDURE: DGS reserves the right to purchase supplies covered under this Contract through a separate competitive bidding procedure, whenever DGS deems it to be in the best interest of the Commonwealth. The right will generally be exercised only when a specific need for a large quantity of the supply exists or the price offered is significantly lower than the Contract price.

PROVISIONS FOR PIGGYBACKING OFF OF THIS CONTRACT: In addition to Commonwealth agencies, Act 57 of May 15, 1998, as amended by Act 142 of 2002, permits local public procurement units to participate in those contracts for supplies, services, or construction entered into by the Department of General Services that are made available to public procurement units. A "local public procurement unit" is defined as:

1) any political subdivision;
2) any public authority;
3) any tax exempt, nonprofit educational or public health institution or organization;
4) any nonprofit fire company, nonprofit rescue company or nonprofit ambulance company;
5) and to the extent provided by law, any other entity, including a council of governments or an area government that expends public funds for the procurement of supplies, services and construction.

Those local public procurement units listed above, and any other Commonwealth purchasing agencies, which issue orders under the Contract are intended beneficiaries under the Contract and are real parties in interest with the right to sue and be sued without joining the Commonwealth of Pennsylvania Department of General Services as a party.

Local public procurement units, and any other Commonwealth purchasing agencies, that elect to participate in the Contract will order items directly from the Contractor and will be responsible for payment directly to the Contractor.

RETAINAGE: In computing the amount payable in accordance with this Article on any current Application for Payment:

(1) Six percent (6%) of the then total Applications for Payment shall be deducted and retained by the Department until fifty percent (50%) of the work called for by the Contract Documents has been satisfactorily completed and all Contract obligations have been met as determined by the Department.

(2) Upon completion of fifty percent (50%) of the work called for by the Contract Documents, the work having been satisfactorily completed and all Contract obligations having been met as determined by the Department, the retainage withheld by the Department shall be reduced to three percent (3%) of the original Contract sum.

MONEY WITHHELD DUE TO CLAIMS OF ONE PRIME BASED ON DELAY OF ANOTHER: In the event a dispute arises between the Department and any Prime Contractor, which dispute is based upon increased costs claimed by one Prime Contractor occasioned by delays or other actions of another Prime Contractor, additional retainage in the sum of one and one-half (1-1/2) times the amount of any possible liability may be withheld from the Prime Contractor causing the additional claim until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the Prime Contractor causing the additional claim furnishes a Bond satisfactory to the Department to indemnify the Department against the claim.

PREVAILING MINIMUM WAGE PREDETERMINATION: The Contractor is hereby notified that this Contract is subject to the provisions, duties, obligations, remedies and penalties of the Pennsylvania Prevailing Wage Act, 43 P.S. Sections 165-1 et seq., which is incorporated herein by reference as if fully set forth herein. In compliance with said Pennsylvania Prevailing Wage Act, the Prevailing Minimum Wage Predetermination is hereto attached and made part hereof as approved by the Secretary of Labor and Industry.

If a job classification is not covered by the Prevailing Wage Predetermination, the Contractor may not pay individuals in that classification less than the lowest rate for laborers, as set out in the predetermination.

PERCENTAGE OF COMPLETION: The Department may, on request, furnish to any subcontractor, if practicable, information regarding percentages of completion certified to the Contractor on account of work done by such subcontractor.

REMEDY DEFECTS: In addition to any other guarantees or warrantees, the Contractor covenants and agrees, after acceptance of the Work performed under this Contract, to remedy without cost to the Department, any such defect provided said defects in the judgment of the Department, or its successors having jurisdiction in the premises, are caused by defective or inferior materials, equipment or workmanship. If the corrective work is not completed within thirty (30) days after notification by the Department to the Contractor, the Department may do the work and submit those costs to the Surety Company for reimbursement.

BONDS: The Contract Bonds given by the Contractor conditioned upon the faithful performance of the Contract and for the payment of labor, material, equipment rental and public utility service claims are attached to this contract and are made a part of it. No third party shall acquire any rights against the Department under the Contract Documents.

EMPLOYMENT LAWS: The Contractor agrees to abide by and be bound by the Laws of Pennsylvania relating to and regulating the hours and conditions of employment.

RIGHT OF ACTION TO RECOVER: Any person, co-partnership, association or corporation furnishing labor, material, equipment or renting equipment or rendering public utility services in connection with performance of this Contract has a right of action to recover the cost thereof from the Contractor and the surety on the Bond given to secure the payment of such labor, material, equipment or equipment rental and services rendered by public utility as though such person or corporation had been named as obligee in such Bond. For those who do not have a contract directly with the contractor, this right of action may not be exercised unless the contractor is notified of the claim within ninety days from the last performance of labor or provision of materials. The contractor shall include in all of its subcontracts or supply contracts a provision requiring that its subcontractors and suppliers notify, in writing, their subcontractors and suppliers of this requirement. It is hereby agreed that no third party rights arise against the Department for any reason under this Section, and Contractor hereby agrees to so inform all subcontractors in writing.

SUBCONTRACTOR/SUPPLIER AGREEMENT: All work performed for the Contractor by a Subcontractor or supplier of materials shall be pursuant to an appropriate agreement between the Prime Contractor and the subcontractor or supplier (and where appropriate between subcontractors and sub-subcontractors). The agreement must be a fully executed agreement and include the amount the Subcontractor, Sub-Subcontractor or supplier is to be paid for the work to be performed or for the materials to be supplied. All agreements between Contractors and subcontractors or suppliers and between subcontractors and sub-subcontractors for work performed on the project shall be forwarded to the Department by the Prime Contractor prior to the commencement of any work by a subcontractor or a sub-subcontractor or supply of material by a supplier and shall contain provisions that (for purposes of this remainder of this Article, the word subcontractor is to be read to include a supplier of material.):

(1) Preserve and protect the rights of the Department and the Professional under the Contract with respect to the work to be performed under the subcontract, so that the subcontracting thereof will not prejudice such rights;

(2) Require that such work be performed in accordance with the requirements of the Contract Documents;

(3) Require submission to the Contractor of applications for payment under each subcontract to which the Contractor is a party, in reasonable time to enable the Contractor to apply for payment in accordance with Article 11;

(4) Require that all claims for additional costs, extensions of time or otherwise with respect to subcontracted portions of the work shall be submitted to the Contractor (via any subcontractor or sub-subcontractor where appropriate) in the manner

provided in the Contract Documents for like claims by the Contractor upon the Department;

(5) Require that each subcontractor and/or supplier fully warrants and guarantees for the benefit of the Department as purchaser the effectiveness, fitness for the purpose intended, quality and merchantability of any item provided and/or installed by such subcontractor;

(6) Require that the subcontractor is without privity of Contract to the Department and that it agrees by signing the subcontract that it neither acquires nor intends to acquire any rights against the Department on a third party beneficiary theory or any others.

(7) Require each subcontractor to notify its subcontractors and suppliers, in writing, that their right of recovery against the bond of the Prime Contractor for failure of payment may not be exercised unless the Prime Contractor is notified of the claim within ninety (90) days from the last performance of labor or provision of materials; and,

(8) Obligate each subcontractor to specifically consent to all provisions of Article 6.

NO CONTRACTUAL RELATIONSHIP BETWEEN DEPARTMENT AND SUBCONTRACTOR: Nothing contained in the Contract Documents creates any contractual relation between the Department or the Professional and any subcontractor, sub-subcontractor or supplier.

PAYMENT TO SUBCONTRACTORS: Performance by a Subcontractor in accordance with the provisions of the contract entitles the Subcontractor to payment from the party with which the Subcontractor has contracted. For purposes of this section, the contract between the Contractor and Subcontractor is presumed to incorporate the terms of the contract between the Contractor and the Department.

6.5: CONTRACTOR DISCLOSURE OF DUE DATE FOR PROGRESS PAYMENTS FROM DEPARTMENT: The Contractor shall disclose to a Subcontractor, before a subcontract is executed, the due date for receipt of progress payments from the Department. If the Contractor fails to accurately disclose the due date to a Subcontractor, the Contractor must pay the Subcontractor as though the Department has paid the Contractor within 45 days of receipt of its application for payment. This section does not apply to a change in due dates because of conditions beyond the Contractor's control, including, but not limited to, design changes, change orders or delays in construction due to weather conditions.

TIME FOR SUBCONTRACTOR PAYMENT: When a Subcontractor has performed in accordance with the provisions of the contract, the Contractor shall pay to the Subcontractor, the full or proportional amount received for each Subcontractor's work and material, based on work completed or services provided under the contract, within 14 days of receipt of a progress payment.

INTEREST ON SUBCONTRACTOR PAYMENTS: If any progress payment is not made to a Subcontractor by the due date the Contractor shall pay to the Subcontractor, in addition to the amount due, interest as computed at the rate determined by the Secretary of Revenue for interest payments on overdue taxes or the refund of taxes as provided in Sections 806 and 806.1 of the Act of April 9, 1929 (P.L. 343, No. 176), known as "The Fiscal Code," and any subsequent amendments to those sections.

DEFICIENCY ITEMS: The Contractor may withhold payment from any Subcontractor responsible for a deficiency item. The Contractor shall pay any Subcontractor according to the

provisions of this section for any item which appears on the application for payment and which has been satisfactorily completed.

NOTIFICATION OF DEFICIENCY ITEM: If a Contractor withholds payment from a Subcontractor for a deficiency item, it must notify the Subcontractor or Supplier and the contracting body of the reasons within 15 calendar days of the date after receipt of the notice of the deficiency item from the owner.

FAILURE OF DEPARTMENT TO MAKE PROGRESS PAYMENT: If the Department fails to issue an approved Application for Payment for any cause which is the fault of the Contractor and not the fault of a particular subcontractor, the Contractor shall pay that subcontractor, upon demand made by the subcontractor at any time after the approved Application for Payment should otherwise have been issued, for its work to the extent completed, less the retained percentage.

INSURANCE RECEIPTS: The Contractor shall pay each subcontractor a just share of any insurance moneys received by the Contractor under Article 9, and shall require each subcontractor to make similar payments to its sub-subcontractors.

NO OBLIGATION ON PART OF DEPARTMENT TO PAY SUBCONTRACTOR: Neither the Department nor the Professional shall have any obligation to pay, or to see to the payment of, any moneys to any subcontractor except as may otherwise be required by law.

SUBCONTRACTOR RESPONSIBILITY: If the Contractor enters into any agreements under this Contract with Subcontractors or suppliers, which are currently suspended or debarred by the Commonwealth, or who become suspended or debarred by the Commonwealth during the term of this Contract or any extensions or renewals of it, the Department may require the Contractor to terminate such Contract.

CONTRACTOR WARRANTS THAT TITLE TO ALL WORK PASSES FREE OF LIENS: The Contractor warrants and guarantees that title to all work, materials and equipment covered by an Application for Payment, whether incorporated in the project or not, will pass to the Department upon the receipt of such payment by the Contractor, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in these Sections as "liens"; and that no work, materials or equipment covered by an Application for Payment was acquired by the Contractor, or by any other person performing the work at the site of furnishing materials and equipment for the project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

NEITHER PAYMENT NOR OCCUPANCY ACCEPTS WORK NOT IN CONFORMANCE WITH CONTRACT DOCUMENTS: No application for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the project by the requesting agency constitutes an acceptance of any work not in accordance with the Contract Documents.

FINAL PAYMENT NOT DUE UNTIL CONDITIONS MET: Neither the final payment nor the remaining retained percentage becomes due until the Contractor submits to the Department:

(1) An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the Department or its property might in any way be responsible, have been paid or otherwise satisfied;

(2) Statements of surety and the Contractor's certificate on forms satisfactory to the Department as to Contractor's payment of all claims for labor, materials, equipment rentals and public utility services; and

(3) If required by the Department, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as is designated by the Department.

If any subcontractor refuses to furnish a release or waiver, as required by the Department, the Contractor may furnish a Bond satisfactory to the Department to indemnify the Department against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Department all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

RELEASE OF FUNDS DUE TO DELAY IN FINAL NOT DUE TO THE FAULT OF THE CONTRACTOR: If, after Final Inspection of the work, final completion is materially delayed through no fault of the Contractor, the Department shall, upon certification by the Professional, make payment of the balance due for that portion of the work fully completed and accepted. Such payment will not terminate the contract. If the remaining balance of work not fully completed or corrected is less than the retainage stipulated in Section 11.8, and, if Bonds have been furnished as required, the Contractor must submit to the Department, prior to certification of the payment, the written consent of the surety to the payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it does not constitute a waiver of any of the Department's claims against the Contractor.

INQUIRIES: Direct all questions concerning this Contract to:

Mike Richart, Buyer
414 North Office Building
Harrisburg, PA 17125
Telephone: (717) 783-8578
Fax: (717) 783-6241
E-Mail: mrichart@state.pa.us

CONTRACT BOND

KNOW ALL PERSONS BY THESE PRESENTS, That we the undersigned
_____
_____
as Principal and _____
(Surety Company)
_____
(Address)
a Corporation organized and existing under the Laws of the State of _____ and authorized to transact business in Pennsylvania, as surety, are held and firmly bound unto the Department of General Services as hereinafter set forth, in the full and just several sums of

(A)_____Dollars($_____) for faithful performance of the Contract as designated in Paragraph "A"; and

(B)_____Dollars($_____)for payment for labor, material equipment rental and public utility services as designated in Paragraph "B".

Sealed with our respective seals and dates this _____ day of _____.

WHEREAS, the above Principal has entered into a Contract with the Department of General Services dated the _____day of _____, _____ for _____ upon certain terms and conditions in said Contract more particularly mentioned; and

WHEREAS, It is one of the Conditions of the Award of the Department of General Services pursuant to which said Contract is about to be entered into, that these presents be executed;

NOW, THEREFORE, the joint and several conditions of this obligation are such:

A. That, if the above Principal as Contractor shall well and faithfully do and perform the things agreed by it to be done and performed according to the terms of said Contract and General Conditions, including the plans and specifications therein referred to and made part thereof, and such alterations as may be made in said plans and specifications as therein provided and which are hereby made part of this Bond the same as though they were fully set forth herein, and shall indemnify and save harmless the Department of General Services and all of its officers, agents and employees from any expense incurred through the failure of said Contractor to complete the Work as specified and for any damages growing out of the manner of performance of said Contract by said Contractor or its Subcontractors, or its or their agents or servants, including, but not limited to, patent trademark and copyright infringements, then this part of this obligation shall be void; otherwise, it shall be and remain in full force and effect.

B. That, if the above Principal shall and will promptly pay or cause to be paid all sums of money which may be due by the Principal or any of its Subcontractors to any person, co-partnership, association or corporation for all material furnished and labor supplied or performed in the prosecution of the Work, whether or not the said material or labor entered into and become component parts of the Work or improvements contemplated, and for rental of equipment used, and services rendered by public utilities in, or in connection with, the prosecution of such Work, then this part of this obligation shall be void; otherwise, it shall be and remain in full force and effect.

C. It is further agreed that any alterations which may be made in the terms of the Contract or in the Work to be done or materials to be furnished or labor to be supplied or performed, or equipment to be rented, or public utility services to be rendered, or the giving by the

Department of General Services of any extension of time for the performance of the Contract, or the reduction of the retained percentage as permitted by the Contract, or any other forbearance on the part of either the Department of General Services or the Principal to the other, shall not in any way release the Principal and the surety or sureties or either or any of them, their heirs, executors, administrators, successors or assigns, from their liability hereunder; notice to the surety or sureties of any such alterations, extension or forbearance being hereby waived.

D. The Principal and Surety hereby jointly and severally agree with the Obligee herein that every person, co-partnership, association or corporation which, whether as subcontractor or as a person otherwise entitled to the benefits of this Bond, has furnished material or supplied or performed labor or rented equipment used in the prosecution of the Work as above provided and any public utility, which has rendered services, in, or in connection with, the prosecution of such Work, and, which has not been paid in full therefor, may sue in assumpsit on this Bond in his, their, or its name and prosecute the same to final judgment for such sum or sums as may be justly due him, them, or its, and have execution thereon; provided, however, that the Department of General Services shall not be liable for the payment of any costs or expenses of such suit to a third party under any theory of law of equity.

E. Recovery by any persons, co-partnership, association or corporation hereunder is subject to the provisions of the Act of May 15, 1998, P.L. 358, No. 57, 62 Pa.C.S §§101-4509, as amended, which Act is incorporated herein and made a part hereof, as fully and completely as though its provisions were fully and at length herein recited, except that, where said Act refers to the Commonwealth of Pennsylvania or a Department thereof, it is deemed to refer to the Department of General Services.

IN WITNESS WHEREOF, The said Principal and Surety have duly executed this Bond under seal the day and year above written.

Witness:

_____ (Date)

_____
Principal- Individual (Date)

(Corporate Seal)

_____
Surety

_____
PA Resident Agent (Date)

By:_____
Attorney-in-Fact (Date)

Witness:

_____

_____
Principal-Partnership (Date)

_____
Surety

(Corporate Seal)

_____
PA Resident Agent (Date)

By:_____
Attorney-in-Fact (Date)

Attest:

_____ By:_____
Secretary or Treasurer (Date) President or Vice President (Date)

(Corporate Seal)

_____
Surety

_____ By:_____
PA Resident Agent (Date) Attorney-in-Fact (Date)

Approved as to Legality and Form

_____ _____
Office of Chief Counsel (Date) Office of Attorney General

Vendor Name:	**Contact / Phone / E-Mail if provided**	**Coverage Areas**	**Projects Smallest / Largest Square Footage**	**General Comments:**
Outline Agreement #4600008413 **Avaya** Lemoyne, PA	Gregory Antonik 717-303-4058 antonik@avaya.com	Statewide	1000 - 100,000	**Years of Experience:** 100 years (formerly Lucent Technologies and AT&T **Qualifications**: Project Managers, RCDD
Outline Agreement # 4600008421 **Black Box Corporation, formerly TSM** Bridgeville, PA	Mike Regen 412-220-7530	Statewide	100 - multi-acre	**Years of Experience**: 1992 - present. April 1,2005 TSM was acquired by stock transfer & became The Black Box Corp. **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for security systems.
Outline Agreement #4600008422 **Black Consulting Svcs, Inc**. York Springs, PA	Ruthann Black 717-919-1322	Statewide	1,000 - 600,000	**Years of Experience**: 1998 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer Does not provide service for private residences
Outline Agreement #4600008411 **Comnet Communications**, Danburg, Connecticut	Glen Wagner 201-977-4612	Statewide	Nothing is too small - nothing is too large.	**Years of Experience:** 1984 - present **Qualifications:** Project Managers, RCDD, RCDD LAN , BICSI Registered Installers Does not provide service for private residences, alarms or security systems.
Outline Agreement # 4600008785 **Corl Communications** corlcommunications.com Harrisburg, Pa	Zachery E. Keller 717-350-0184 zach.keller@corlcommunications.com, Andrew.armstrong@corlcommunications.com	Statewide	10 - 500,000	**Years of Experience:** 40yrs **Qualifications:** Corl Communications, Inc. employees 3 on staff RCDD's and 4 BICSI trained and certified Technicians. We install structured cabling systems for low voltage cabling to include but not limited to: voice, data, security, CATV, Sound, premise wiring and outside plant cabling. Cabling installations include Fiber optic and Copper cabling for all recognized TIA/EIA categories.
Outline Agreement #4600008419 **Dauphin DataCom and Celerity Integrated Services, Inc**. Pennsburg, PA	Rob Svec 717-986-9376	Statewide	1,000 - 275,000	**Years of Experience:** 1986 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer. Does not provide service for private residences, alarms, security systems, public address/paging systems, or entrance facilitiy installations.
Outline Agreement #4600008425 **Eastern Telephone & Telecommunications (ET&T)** Bethlehem, PA	Mike Bubernack 610-867-7800	Statewide	1 - 80,000	**Years of Experience**: 1968 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer
Outline Agreement #4600008430 **Gettle Inc.** York, PA	Frank Snyder 717-843-1231	Statewide	less then 500 - 900,000	**Years of Experience**: 1998 - present **Qualifications:** Project Manager, RCDD

Vendor Name:	**Contact / Phone / E-Mail if provided**	**Coverage Areas**	**Projects Smallest / Largest Square Footage**	**General Comments:**
Outline Agreement #4600008423 **GR Sponagle Communication** Harrisburg, PA	John B. Grove 717-703-3819	Statewide	500 - 2,000,000	**Years of Experience**: 2000 - present **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for private residences
Outline Agreement #4600008415 **Jno. Z. Barton, Inc.** York, PA	Gary Miller 717-843-9921	Statewide	100 - 250,000	**Years of Experience:** 1950 - present **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for private residences.
Outline Agreement #4600008414 **NetVersant** Philadelphia, PA	Mark Kane 610-364-3200	Statewide	500 - 2,000,000	**Years of Experience:** 1983 - present **Qualifications:** Project Manager, RCDD, BICSI Installers Does not provide service for private residences or alarms.
Outline Agreement #4600008427 **Pierson Consulting Company, Inc. (PCCi)** New Kingstown, PA	Debra Pierson 717-796-0493	Statewide	1,000 - 20,000	**Years of Experience**: 1994 - present **Qualifications:** Project Manager, RCDD, BICSI Installer
Outline Agreement #4600008417 **R.W. Communications, Inc**. Harrisburg,PA	John Ward 717-566-8862	Statewide	200 - 550,000	**Years of Experience**: 1986 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer
Outline Agreement#46000010873 **Tricomm Services Corporation** Colmar, PA	Gene Conway RCDD 856-914-9001	Statewide	1,000 - 1,000,000	**Years of Experience**: 1981 - present . **Qualifications:** Project Manager, RCDD, BICSI Installers
Outline Agreement #4600008420 **Tri-State Telecommunications, Inc**. Bristol, PA	Terry Roberts 215-785-2565	Statewide	1,500 - 1,000,000	**Years of Experience**: 1982 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer
Outline Agreement #4600008424 **Verizon Select Services, Inc.** Harrisburg, PA	Cheryl Caplan 717-777-3960	Statewide	100 - 500,000	**Years of Experience**: decades **Qualifications:** Project Manager, RCDD, BICSI Installers
Outline Agreement #4600008543 **Ward Communications** Harrisburg, PA	Joseph Mealey 717-657-5754	Statewide	600 - 800,000	**Years of Experience:** 1992 - present **Qualifications:** Project Managers, RCDD, BICSI Registered Installers

Vendor Name:	**Contact / Phone / E-Mail if provided**	**Coverage Areas**	**Projects Smallest / Largest Square Footage**	**General Comments:**
Outline Agreement # 4600009505 **LinkTech** West Ready, PA	Sean Sheehan 610-650-8670	Statewide	500-75,000	**Years of Experience**: 1997 - present. **Qualifications:** Project Manager, RCDD, BICSI Installer Does not provide service for security systems, alarms, or paging.
Outline Agreement # 4600009513 **SECCO Inc.** Camp Hill, PA	Barry Kindt 717-737-2224	Statewide	100 - 400,000	**Years of Experience**: 1998 - present . **Qualifications:** Project Manager, RCDD
Outline Agreement # 4600009514 **Henkels & McCoy** Montgomeryville, PA	Nick Ficca 215-367-1861	Statewide	1,000- 2 million	**Years of Experience**: 1923 - present. **Qualifications:** Project Manager, RCDD, BICSI Installers
Vendors who provide limited coverage.				
Outline Agreement #4600008416 **KIT Network Cabling** Lebanon, PA	Robert Eisenhaver 717-228-0220	Lancaster, Lebanon, Dauphin, Perry, Cumberland, Berks, York, Schuykill, Lehigh	100 - 250,000	**Years of Experience**: 1988 - present . **Qualifications:** Project Manager, RCDD, BICSI Installers
Outline Agreement #4600008428 **Lacey Electric Inc.** Leesport, PA	Jeffrey L. Boyer 610-926-7100	Adams, Berks, Bucks, Carbon, Centre, Chester, clinton, Columbia, Cumberland, dauphin, Delaware, Franklin, Huntingdon, Juniata, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Mifflin, Monroe, Montgomery, Montour, Northampton, Northumberland, Perry, Schuylkill, Snyder, Sullivan, Union, Wyoming, York	800 - 500,000	**Years of Experience**: 1968 - present . **Qualifications:** Project Manager, RCDD, BICSI Installer

Vendor Name:	**Contact / Phone / E-Mail if provided**	**Coverage Areas**	**Projects Smallest / Largest Square Footage**	**General Comments:**
Outline Agreement #4600008429 **Sage Technology Solutions (Sage)** 1040 West Main Street Mount Joy, Pa 17552	Allen McCormack 717-653-6641	Adams, Berks, Bedford, Blair, Bucks, Cambria, Carbon, Centre, Chester, Clinton, Columbia, Cumberland, Dauphin, Delaware, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Mifflin, Montgomery, Montour, Northumberland, Perry, Potter, Schuylkill, Snyder, Union, York	2,500 - 250,000	**Years of Experience**: 1969 - present **Qualifications:** Project Manager, RCDD, BICSI Installers
Outline Agreement #4600008426 **Tel-Dat Communications Inc.** Lansdale, PA	Lynn Hess 215-855-6364	Berks, Bucks, Carbon, Chester, Columbia, Dauphin, Delaware, Lancaster, Lebanon, Lehigh, Luzerne, Montgomery, Monroe, Philadelphia, Northampton, Northumberland, Schuylkill, Sulliuvan,	2,000 - 70,000+	**Years of Experience**: 1992 - present **Qualifications:** Project Manager, RCDD, BICSI Installer

C O M M O N W E A L T H O F P E N N S Y L V A N I A
DEPARTMENT OF GENERAL SERVICES
H A R R I S B U R G
April 5, 2005

Supplement #1

Subject:	Telecommunications Cabling ITQ
Bid Number:	CN00013895
Opening Date/Time:	April 12, 2005
Flyer:	#1

To All Bidders:

Please note the following requirements found in the "Telecommunications Cabling Bid Contractor Qualifications Questionnaire" are in error and will **NOT** be a consideration for qualification. Please do not respond to these questions.

Page 1 – Last Question - Contractor shall have one or several of the following licenses to qualify for various projects. Copies of the license must be included with the bid.

Base General Premises Cabling License (continued)
Restricted Cabling License
General Premises Cabling License
Domestic Premises Cabling License

Page 2 – Trapezoidal Technique – estimate methods for normal project duration. workforce level and rate of manpower

Attach this flyer to the original copy of your invitation bid proposal. Failure to do so may result in bid disqualification. If you have already returned the original bid, return this flyer with your instructions, annotated or a cover memo attached, to:

Bureau of Purchases, Bid Opening Room, 414 North Office Building, PO Box 1365, Harrisburg, PA 17105.

IF YOU ARE CHANGING PRICE(S), DO NOT FAX this flyer and/or cover memo; you must furnish these instructions in a sealed envelope. Please indicate the bid number and opening date/time on the outside of the envelope.

Except as clarified and amended by this flyer, the terms, conditions, specifications, and instructions of the invitation to bid and any previous flyers, remain as originally written.

Any questions concerning this bid direct to:
Mike Richart, Buyer at 717-783-8578

Very truly yours,

_Stan Richart_____
for John M. Troxel, Chief Procurement Officer
Bureau of Procurement

Contract Reference Number: 9985-40
Collective Number: CN000013895
SAP Contract Number:
Change Number: 1
Change Effective Date: July 14, 2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Beginning June 15, 2005 and Ending June 30, 2008
Buyer Name:	Mike Richart

CHANGE SUMMARY:

The contract incorrectly states that Eastern Telephone & Telecommunications, Inc. can provide services statewide. The supplier can provide services to the central and eastern parts of the state to include the following counties:

Central Pennsylvania: Potter, Cameron, Clinton, Center, Blair, Bedford, Fulton, Huntington, Tioga, Lycoming, Union, Snyder, Mifflin, Juniata, Perry, Cumberland, Franklin, Adams, York, Lancaster, Lebanon, Dauphin, Northumberland, Montour, Columbia, Schuylkill, Luzerne, Wyoming, Sullivan, Lackawanna, Bradford, Susquehanna

Eastern Pennsylvania: Wayne, Pike, Monroe, Carbon, Northampton, Lehigh, Berks, Bucks, Montgomery, Chester, Delaware, Philadelphia

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number: CN000013895
SAP Contract Number:
Change Number: 2
Change Effective Date: August 11, 2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Beginning June 15, 2005 and Ending June 30, 2008
Buyer Name:	Mike Richart

CHANGE SUMMARY:

Corl Communications, Inc. is also added to the contract. The Outline Agreement number is 4600008785.

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number: CN000013895
SAP Contract Number:
Change Number: 3
Change Effective Date: September 19, 2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Beginning June 15, 2005 and Ending June 30, 2008
Buyer Name:	Mike Richart

CHANGE SUMMARY:

Telecommunication Systems Management, Inc. (TSM, Inc.) notified the Commonwealth that it merged with Black Box Network Services – Government Solutions. TSM's contract is hereby cancelled and transferred to Black Box Network Services under Outline Agreement 4600008756.

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 4
Change Effective Date : 12/19/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All Using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name:	Patrick Francisco 717-346-9653

CHANGE SUMMARY:

Change Buyer name to Patrick Francisco 717-346-9653, pfrancisco@state.pa.us

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 5
Change Effective Date : 03/01/2006

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For: All Using Agencies of the Commonwealth
Subject: Telecommunications Cabling Services
Contract Period: Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name: Patrick Francisco 717-346-9653

CHANGE SUMMARY:

Change Vendor contact information for the following vendors:

Gettle Incorporated:
Frank Snyder, RCDD
2745 Blackridge Rd.
York, PA 17402
PH: 717-843-1231
FAX: 717-843-2733
Email: fsnyder@gettle.com

Corl Communications:
Zachery E. Keller, RCDD
P.O. Box 4057
3209 Duke Street
Harrisburg, PA 17111
PH: 717-350-0184
FAX: 717-561-9042
Email: zach.keller@corlcommunications.com

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 6
Change Effective Date : 01/01/2007

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All Using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name:	Patrick Francisco 717-346-9653

CHANGE SUMMARY:

Teledata Communications Corporation, vendor # 129033, contract # 4600008418 is now Tricomm Services Corporation, vendor # **187298**, contract # **46000010873.**

Tricomm Services Corporation hereby assumes and agrees to perform all remaining and executory obligations of Teledata Communications Corporation under the contract and agrees to indemnify and hold Teledata harmless from any claim or demand resulting from non-performance by Tricomm Services Corporation.

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 7
Change Effective Date : 01/18/2007

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For: All Using Agencies of the Commonwealth
Subject: Telecommunications Cabling Services
Contract Period: Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name: Patrick Francisco 717-346-9653

CHANGE SUMMARY:

Tel-Dat is now able to provide statewide coverage:

Outline Agreement #4600008426 **Tel-Dat Communications Inc.** Lansdale, PA	Lynn Hess 215-855-6364	Statewide	2,000 - 70,000+	**Years of Experience**: 1992 - present **Qualifications:** Project Manager, RCDD, BICSI Installer

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 8
Change Effective Date : 02/13/2007

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All Using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name:	Patrick Francisco 717-346-9653

CHANGE SUMMARY: Cable Management Form Policy

Effective immediately, a change is being issued with the delivery of all Cable Management Forms. All vendor and all agencies must follow this procedure and are not allowed to make any changes to this process.

The vendor's will complete the Cable Management Forms in it's entirely, so the Office of Administration Voice & Video Network Services know where they must be sent. Vendor's will also continue to fill out the Cable Management Forms when "NO CABLE RECORDS REQUIRED" when these situations arise.

Vendor will send all Cable Management Forms to the following address:

Commonwealth Technology Center
Voice & Video Network Services
1 Technology Park
Harrisburg, PA 17110-2913
Attention: Greg Steckel

Upon receipt of vendor's completed Cable Management Forms the Office of Administration Voice & Video Network Services unit will forward them to the respective Telecommunications Management Officer (TMO) with a standard cover letter instructing them on the proper procedures for entering this information into the cable records system.

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 9
Change Effective Date : 02/12/2007

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All Using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name:	Patrick Francisco 717-346-9653

CHANGE SUMMARY: Cable Management Form Policy

Black Box Network Services, Contract #4600008756, Vendor #204832, FID #62-1202425 has been deleted and replaced with Contract #4600011208, Vendor #208600, FID #20-0532706, Nu-Vision Technologies LLC, dba Black Box Network Services as a result of an Assignment Agreement. A copy of the Assignment Agreement and the Certificate of Officer is attached to this change notice. All Agencies who created PO's against #4600008756 will need to create a new PO to the new contract #4600011208 and attach a copy of these two documents to the PO and include in the Header Text that due to an Assignment, Contract #4600008756 was replaced with Contract #4600011208.

Mike Regan from Black Box Network Services contacted the CVMU and informed them of a Vendor Address and FID # Change. CVMU has blocked Vendor #204832 for all future orders against Contract #4600008756 and will close Vendor #204832 on 2/2/07. Therefore, a new contract had to be created. All open Purchase Orders or other open items for Black Box Vendor #204832 must be closed. Any new PO's that were created against SAP Contract #4600008756 that can not be closed prior to 2/2/07 must have a new PO created against the new SAP Contract #4600011208, Vendor #208600.

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 10
Change Effective Date : 08/15/2007

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All Using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name:	Sheryl Kimport 717.346.2670

CHANGE SUMMARY:

Change Buyer name to Sheryl Kimport 717.346.2670, skimport@state.pa.us

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 11
Change Effective Date : 10/02/2007

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All Using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name:	Sheryl Kimport 717-346-2670

CHANGE SUMMARY: Cable Management Form Policy

GR Sponaugle Communication Company, Contract #4600008423, Vendor #194620 has been replaced with Contract #4400001271, Vendor #302889, GR Sponaugle Holding Company, LLC result of an Assignment Agreement. All Agencies who created PO's against #4600008423 will need to create a new PO to the new contract #4400001271. Include in the Header Text that due to an Assignment, Contract #4600008423 was replaced with SRM Contract #4400001271.

Barbara Klase from GR Sponaugle contacted CVMU and was informed that CVMU has blocked Vendor #194620 for all future orders and payments against Contract #4600008423 and will close Vendor #194620. Therefore, a new contract had to be created. All open Purchase Orders or other open items for GR Sponaugle Communication Company, Vendor #194620 must be closed. Any new PO's that were created against SAP Contract #4600008423 cannot be processed and must have a new PO created against the new SRM Contract #4400001271, Vendor #302889.

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 12
Change Effective Date : 10/19/2007

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All Using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name:	Sheryl Kimport 717-346-2670

CHANGE SUMMARY: Cable Management Form Policy

Verizon Select Services, Contract #4600008424, Vendor #176514 has been replaced with Contract #4400001305, Vendor #104820, as a result of SRM registration changes. All Agencies who created PO's against #4600008424 will need to create a new PO to the new contract #4400001305.

CVMU has blocked Vendor #176514 for all future orders and payments against Contract #4600008424.

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.

Contract Reference Number: 9985-40
Collective Number:
Change Number: 13
Change Effective Date : 12/12/2007

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG

For:	All Using Agencies of the Commonwealth
Subject:	Telecommunications Cabling Services
Contract Period:	Effective date of June 15, 2005 and Expiration date of June 30, 2008
Buyer Name:	Sheryl Kimport 717-346-2670

CHANGE SUMMARY: Cable Management Form Policy

In accordance with the Prevailing Wage Act, please be advised that all using agencies must obtain prevailing wage information prior to issuing any RFQ against the Telecommunications Cabling Services contract (9985-40). This information must be attached to the RFQ as part of the solicitation process.

Prevailing Wage information is available from the PA Department of Labor and Industries web site:

http://www.dli.state.pa.us/landi/cwp/view.asp?a=185&q=56262&landiNav=|

ALL OTHER TERMS AND CONDITIONS OF THIS AGREEMENT NOT CHANGED BY THIS CHANGE NOTICE REMAIN AS ORGINALLY WRITTEN.