



MEMORANDUM

EXECUTIVE OFFICE, COUNTY OF RIVERSIDE

Bill Luna

County Executive Officer

Jay E. Orr

Assistant County Executive Officer

TO: Kecia Harper-Ihem, COB

FROM: Jay E. Orr, Assistant CEO

DATE: June 19, 2009

RE: DELETION

RCIT is requesting that the following item be **deleted** from the June 23 agenda:

3.42 – Approval of the Agreement w/Verizon Business Network Services, Inc. on behalf of Verizon Select Services, Inc. to Provide Cabling Equipment and Installation Services for the Downtown Law Building.

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**SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**

210



FROM: Riverside County Information Technology

SUBMITTAL DATE:
May 18, 2009

SUBJECT: APPROVAL OF THE AGREEMENT WITH VERIZON BUSINESS NETWORK SERVICES INC., ON BEHALF OF VERIZON SELECT SERVICES INC., TO PROVIDE CABLING EQUIPMENT AND INSTALLATION SERVICES FOR THE DOWNTOWN LAW BUILDING

RECOMMENDED MOTION: That the Board of Supervisors:

1. Approve and execute the one-year professional service agreement with Verizon Business Network Services Inc., DBA Verizon Select Services Inc., for \$1,623,547, and;
2. Authorize the Purchasing Agent, in accordance with Ordinance No. 459.4, to sign amendments that do not change the substantive terms of the agreement, and;
3. Approve the use of cash from the securitization of tobacco settlement funds to be reimbursed by future CORAL bond proceeds, and;
4. Direct the Clerk of the Board to return (2) original signed copies to Purchasing and Fleet Services.

BACKGROUND: In 2007, the Purchasing and Riverside County Information Technology (RCIT) departments released an RFP to establish an award with multiple vendors to provide data and voice

(Continued on Page 2)

FORM APPROVED BY COUNTY COUNSEL
DATE: 5/18/09
BY: NEAL R. KIPNIS
Departmental Concurrence

Purchasing: Mark Seiler
Mark Seiler, Assistant Director

for Matthew W. Frymire Greg R. Stoddard
Chief Information Officer Chief Technology Officer

FINANCIAL DATA	Current F.Y. Total Cost:	\$ 1,623,547	In Current Year Budget:	Yes
	Current F.Y. Net County Cost:	\$ 0	Budget Adjustment:	No
	Annual Net County Cost:	\$ 1,623,547	For Fiscal Year:	FY 09/10
SOURCE OF FUNDS: Tobacco settlement funds to be reimbursed by future CORAL bond proceeds.				Positions To Be Deleted Per A-30 <input type="checkbox"/>
				Requires 4/5 Vote <input type="checkbox"/>

C.E.O. RECOMMENDATION: APPROVE

BY: Elizabeth J. Olson
Elizabeth J. Olson

County Executive Office Signature

Dep't Recomm.: Policy
 Per Exec. Ofc.: Policy
 Consent
 Consent

Prev. Agn. Ref.: 3.30 1/27/09 | District: | Agenda Number:

ATTACHMENTS FILED
WITH THE CLERK OF THE BOARD

3.42

BOARD OF SUPERVISORS

FORM 11: APPROVAL OF THE AGREEMENT WITH VERIZON BUSINESS NETWORK SERVICES INC., ON BEHALF OF VERIZON SELECT SERVICES INC., TO PROVIDE CABLING EQUIPMENT AND INSTALLATION SERVICES FOR THE DOWNTOWN LAW BUILDING

PAGE 2

BACKGROUND (Continued)

cabling infrastructure in County owned and leased facilities. The award was made to three vendors, PCC, Compel, and Verizon. When new cabling requirements arise, RCIT's Engineering Section develops specifications and the three awarded vendors bid on the project in order for the County to obtain the best pricing. This cabling infrastructure agreement will provide for the data communications (intranet/internet), as well as voice communications for the various departments in the new downtown law building.

PRICE REASONABLENESS

On behalf of RCIT, the Purchasing Department solicited proposals from the three awarded vendors to provide voice and data cabling installation for the downtown law building. Two of the three vendors submitted quotes ranging from \$1,623,547 to \$1,650,773. The proposals were evaluated by a team consisting of personnel from Purchasing and RCIT based on the bidders responsiveness to the County's requirements, ability and experiences to perform the work, overall cost to the County, references, and other criteria as specified in the RFP. Verizon Business, with the lowest cost proposal, was selected as the most responsive and responsible vendor.

REVIEW/APPROVAL: Purchasing and County Counsel concur with this request.

PERSONAL SERVICE AGREEMENT

FOR

CABLING EQUIPMENT AND INSTALLATION SERVICES

BETWEEN

COUNTY OF RIVERSIDE INFORMATION TECHNOLOGY

AND

VERIZON Business Network Services Inc. on behalf of Verizon Select Services Inc.



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This Agreement, made and entered into this 26th day of May, 2009, by and between Verizon Business Network Services Inc. on behalf of Verizon Select Services Inc. (herein referred to as "CONTRACTOR" or "Verizon"), and the COUNTY OF RIVERSIDE, a political subdivision of the State of California, (herein referred to as "COUNTY"). The Verizon entity providing services under this Agreement, Verizon Select Services Inc., is responsible for the performance of its services as set forth in the Service Attachment and/or Scope of Services (including incorporated Exhibits) and is not responsible for the performance of any other entity's obligations hereunder. This Agreement shall consist of the general terms and conditions set out below (Section 1-23, inclusive consisting of XX pages) and Exhibits A-E. The parties agree as follows:

1. Description of Services

1.1 CONTRACTOR shall provide all services as outlined and specified in Exhibit A, Scope of Services, consisting of thirty (30) page(s), at the prices stated in Exhibit C, Pricing Cost Sheet, consisting of twenty one (21) pages, and Exhibit C, Cable Certification Testing, consisting of eight (8) pages, and Exhibit D, Faceplate Configuration, consisting of two (2) pages, and Exhibit E, Telecomm Room, consisting of one (1) page, and Exhibit F, NetClear Warranty, consisting of two (2) pages.

1.2 CONTRACTOR represents that it has the skills, experience and knowledge necessary to fully and adequately perform under this Agreement, and the COUNTY relies upon this representation. CONTRACTOR shall perform to the satisfaction of the COUNTY and in conformance to and consistent with the requirements of Exhibits A-E and the standards of firms/professionals in the same discipline in the State of California.

1.3 CONTRACTOR affirms this it is fully apprised of all of the work to be performed under this Agreement; and the CONTRACTOR agrees it can properly perform this work at the prices stated in Exhibit B. CONTRACTOR is not to perform services or provide products outside of the Agreement.

1.4 Acceptance by the COUNTY of the CONTRACTOR's performance under this Agreement does not operate as a release of CONTRACTOR's responsibility for full compliance with the terms of this Agreement.

2. Period of Performance

2.1 This Agreement shall be effective upon signature of this Agreement by both parties and continue in effect through January, 2010, with the option to renew for two additional years until January 2012, renewable in one year increments by written amendment, signed and dated by COUNTY and CONTRACTOR, unless terminated earlier. CONTRACTOR shall commence performance upon signature of this Agreement by both parties and shall diligently and continuously perform thereafter.

3. Compensation

3.1 The COUNTY shall pay the CONTRACTOR for services performed, products provided and expenses incurred in accordance with the terms of Exhibit A, Exhibit C, Exhibit D, and Exhibit E attached hereto. Maximum payments by COUNTY to CONTRACTOR shall not exceed \$2,000,000 annually including all expenses. The COUNTY is not responsible for any fees or costs incurred above or beyond the contracted amount and shall have no obligation to purchase any specified amount of services or products. Unless otherwise specifically stated in Exhibit B, COUNTY shall not be responsible for payment of any of CONTRACTOR's expenses related to this Agreement.

3.2 No price increases will be permitted during the first year of this Agreement. The Services and Prices reflected in Exhibits A-E are specific to COUNTY's requirements. If CONTRACTOR offers lower prices to another governmental entity in California purchasing similar services under similar requirements, terms and conditions, CONTRACTOR will work cooperatively COUNTY to review the Services and Prices in Exhibits A-E herein, and implement mutually agreed upon changes by written amendment (signed and dated by both parties)

to this Agreement. The COUNTY requires written proof satisfactory to COUNTY of cost increases prior to any approved price adjustment. After the first year of the award, a minimum of 30-days advance notice in writing is required to be considered and approved by COUNTY. No retroactive price adjustments will be considered. Any price increases must be stated in a written amendment to this Agreement. The net dollar amount of profit will remain firm during the period of the Agreement. Annual increases shall not exceed the Consumer Price Index- All Consumers, All Items - Greater Los Angeles, Riverside and Orange County areas for cabling and installation services and be subject to satisfactory performance review by the COUNTY and approved (if needed) for budget funding by the Board of Supervisors.

3.3 CONTRACTOR shall be paid only in accordance with an invoice submitted to COUNTY by CONTRACTOR within fifteen (15) days from the last day of each calendar month, and COUNTY shall pay the invoice within thirty (30) working days from the date of receipt of the invoice. Payment shall be made to CONTRACTOR only after services have been rendered or delivery of materials or products, and acceptance has been made by COUNTY. Prepare invoices in duplicate. For this Agreement, send the original and duplicate copies of invoices to:

Riverside County Information Technology
Attn: Accounts Payable
6147 Rivercrest Drive, Suite A
Riverside, CA 92507

- a) Each invoice shall contain a minimum of the following information: invoice number and date; remittance address; bill-to and ship-to addresses of ordering department/division; Agreement number (ITARC-28070-002-008-01/12); quantities; item descriptions, unit prices, extensions, sales/use tax if applicable, and an invoice total. (COUNTY has advised that COUNTY pays California sales tax but is exempt from payment of Federal excise taxes.)
- b) Invoices shall be rendered monthly in arrears.
- c) A late payment charge of the lesser of 1% per month or the maximum amount allowable by law shall apply to undisputed invoices. COUNTY shall give CONTRACTOR written notice of disputed invoice charges, including written explanation and documentation. COUNTY and CONTRACTOR agree that claims concerning invoices shall be subject to the applicable statute of limitations period under California law.

3.4 The COUNTY obligation for payment of this Agreement beyond the current fiscal year end is contingent upon and limited by the availability of COUNTY funding from which payment can be made. No legal liability on the part of the COUNTY shall arise for payment beyond June 30 of each calendar year unless funds are made available for such payment. In the event that such funds are not forthcoming for any reason, COUNTY shall immediately notify CONTRACTOR in writing; and this Agreement shall be deemed terminated and have no further force and effect except that COUNTY shall pay for Services provided up to the date of termination at the rates set forth in Exhibit B.

4. Alteration or Changes to the Agreement

4.1 The Board of Supervisors and the COUNTY Purchasing Agent and/or his designee are the only authorized COUNTY representatives who may at any time, by written order, make alterations to this Agreement. If any such alteration causes an increase or decrease in the cost of, or the time required for the performance under this Agreement, an equitable adjustment shall be made in the Agreement price or delivery schedule, or both, and the Agreement shall be modified by written amendment accordingly.

4.2 Any claim by the CONTRACTOR for additional payment related to this Agreement shall be made in writing by the CONTRACTOR within 30 days of when the CONTRACTOR has or should have

notice of any actual or claimed change in the work which results in additional and unanticipated cost to the CONTRACTOR. If the COUNTY Purchasing Agent decides that the facts provide sufficient justification, he may authorize additional payment to the CONTRACTOR pursuant to the claim. Nothing in this section shall excuse the CONTRACTOR from proceeding with performance of the Agreement even if there has been a change.

5. Termination

5.1 COUNTY may terminate this Agreement without cause upon 30 days written notice served upon the CONTRACTOR stating the extent and effective date of termination.

5.2 COUNTY may, upon fifteen (15) days written notice, terminate this Agreement for CONTRACTOR's default, if CONTRACTOR refuses or fails to comply with the terms of this Agreement or fails to make progress so as to endanger performance and does not immediately cure such failure. In the event of such termination, the COUNTY may proceed with the work in any manner deemed proper by COUNTY.

5.3 After receipt of the notice of termination, CONTRACTOR shall:

- (a) Stop all work under this Agreement on the date specified in the notice of termination; and
- (b) Transfer to COUNTY and deliver in the manner as directed by COUNTY any materials, reports or other products which, if the Agreement had been completed or continued, would have been required to be furnished to COUNTY.

5.4 After termination, COUNTY shall make payment only for CONTRACTOR's performance up to the date of termination in accordance with this Agreement and at the rates set forth in Exhibit B.

5.5 CONTRACTOR's rights under this Agreement shall terminate (except for fees accrued prior to the date of termination) upon dishonesty or a willful or material breach of this Agreement by CONTRACTOR; or in the event of CONTRACTOR's unwillingness or inability for any reason whatsoever to perform the terms of this Agreement. In such event, CONTRACTOR shall not be entitled to any further compensation under this Agreement.

5.6 The rights and remedies of COUNTY provided in this section shall not be exclusive and are in addition to any other rights and remedies provided by law or this Agreement.

5.7 CONTRACTOR may, upon thirty (30) days prior written notice, terminate the Services and the Agreement for COUNTY's material default if COUNTY refuses or fails to comply with the terms of this Agreement including timely payment of undisputed invoices, and does not timely cure such failure. In addition to amounts owing for Services provided, COUNTY shall, upon thirty (30) days prior written notice, be liable to CONTRACTOR for fees and expenses reasonably incurred by CONTRACTOR due to COUNTY's uncured material breach of the Agreement. The rights and remedies of CONTRACTOR provided in this section shall not be exclusive and are in addition to any other rights and remedies provided by law or this Agreement.

6. Ownership/Use of Contract Materials and Products

The CONTRACTOR agrees COUNTY shall own all rights, title and interest in and to the underlying factual data of COUNTY gathered or used in CONTRACTOR's provision of Service under this Agreement. COUNTY grants to CONTRACTOR a non-exclusive, royalty-free license to use such COUNTY information solely to provide the Services in this Agreement. CONTRACTOR shall own all rights, title and interest in and to CONTRACTOR's Service, including trade secrets, Confidential Information, intellectual property or other proprietary rights, ideas, information or other material used or developed by CONTRACTOR or presented to COUNTY (collectively, "Service and Information"). CONTRACTOR grants to COUNTY a non-exclusive, non-transferable royalty-free license to use such CONTRACTOR

Service and Information solely for COUNTY's internal business purposes. COUNTY and CONTRACTOR agree that except for use described in this Agreement, neither party shall acquire any right, title or interest in or to the other party's services, information, data, materials or ideas.

7. Conduct of Contractor

7.1 The CONTRACTOR covenants that it presently has no interest, including, but not limited to, other projects or contracts, and shall not acquire any such interest, direct or indirect, which would conflict in any manner or degree with CONTRACTOR's performance under this Agreement. The CONTRACTOR further covenants that no person or subcontractor having any such interest shall be employed or retained by CONTRACTOR under this Agreement. The CONTRACTOR agrees to inform the COUNTY of all the CONTRACTOR's interests, if any, which are or which CONTRACTOR believes to be incompatible with the COUNTY's interests under this Agreement.

7.2 The CONTRACTOR shall not, under circumstances which could be interpreted as an attempt to influence the recipient in the conduct of his/her duties, accept any gratuity or special favor from individuals or firms with whom the CONTRACTOR is doing business or proposing to do business, in accomplishing the work under this Agreement.

7.3 The CONTRACTOR or its employees shall not offer gifts, gratuity, favors, and entertainment directly or indirectly to COUNTY employees.

8. Inspection of Service; Quality Control/Assurance

8.1 All performance (which includes services, workmanship, materials, supplies and equipment furnished or utilized in the performance of this Agreement) shall be subject to inspection and test by the COUNTY or other regulatory agencies at all times. The CONTRACTOR shall provide adequate cooperation to any inspector or other COUNTY representative to permit him/her to determine the CONTRACTOR's conformity with the terms of this Agreement. If any services performed or products provided by CONTRACTOR are not in conformance with the terms of this Agreement, the COUNTY shall have the right to require the CONTRACTOR to perform the services or provide the products in conformance with the terms of the Agreement at no additional cost to the COUNTY. When the services to be performed or the products to be provided are of such nature that the difference cannot be corrected, the COUNTY shall have the right to: (1) require the CONTRACTOR immediately to take all necessary steps to ensure future performance in conformity with the terms of the Agreement; and/or (2) reduce the Agreement price to reflect the reduced value of the services performed or products provided. The COUNTY may also terminate this Agreement for default and charge to CONTRACTOR any costs incurred by the COUNTY because of the CONTRACTOR's failure to perform.

8.2 CONTRACTOR shall establish adequate procedures for self-monitoring and quality control and assurance to ensure proper performance under this Agreement; and shall permit a COUNTY representative or other regulatory official to monitor, assess or evaluate CONTRACTOR's performance under this Agreement at any time upon reasonable notice to CONTRACTOR.

9. Independent Contractor

The CONTRACTOR is, for purposes relating to this Agreement, an independent contractor and shall not be deemed an employee of the COUNTY. It is expressly understood and agreed that the CONTRACTOR (including its employees, agents and subcontractors) shall in no event be entitled to any benefits to which COUNTY employees are entitled, including but not limited to overtime, any retirement benefits, worker's compensation benefits, and injury leave or other leave benefits. There shall be no employer-employee relationship between the parties; and CONTRACTOR shall hold COUNTY harmless from any and all claims that may be made against COUNTY based upon any contention by a third party that

an employer-employee relationship exists by reason of this Agreement. It is further understood and agreed by the parties that CONTRACTOR in the performance of this Agreement is subject to the control or direction of COUNTY merely as to the results to be accomplished and not as to the means and methods for accomplishing the results.

10. Subcontract for Work or Services

No contract shall be made by the CONTRACTOR with any other party for furnishing any of the work or services under this Agreement without the prior written approval of the COUNTY; but this provision shall not require the approval of contracts between the CONTRACTOR and personnel assigned under this Agreement, or for parties including subcontractors named in the proposal and agreed to under this Agreement.

11. Disputes

11.1 The parties shall attempt to resolve any disputes amicably at the working level. If that is not successful, the dispute shall be referred to the senior management of the parties. Any dispute relating to this Agreement which is not resolved by the parties shall be decided by the COUNTY's Compliance Contract Officer who shall furnish the decision in writing. The CONTRACTOR shall proceed diligently with the performance of this Agreement pending the resolution of a dispute unless the nature of the dispute is such that it prevents CONTRACTOR from continuing performance.

11.2 Prior to the filing of any legal action related to this Agreement, the parties shall be obligated to attend a mediation session in Riverside County before a neutral third party mediator. A second mediation session shall be required if the first session is not successful. The parties shall share the cost of the mediations.

12. Licensing and Permits

CONTRACTOR shall comply with all State or other licensing requirements, including but not limited to the provisions of Chapter 9 of Division 3 of the Business and Professions Code. All licensing requirements shall be met at the time proposals are submitted to the COUNTY. CONTRACTOR warrants that it has all necessary permits, approvals, certificates, waivers and exemptions necessary for performance of this Agreement as required by the laws and regulations of the United States, the State of California, the County of Riverside and all other governmental agencies with jurisdiction, and shall maintain these throughout the term of this Agreement.

13. Use By Other Political Entities

If CONTRACTOR is able to obtain comparable pricing from its vendors (including subcontractors), CONTRACTOR agrees to extend the same pricing, terms and conditions as stated in this Agreement to each and every political entity, special district, and related non-profit entity in Riverside County requesting similar Services as set out in this Agreement (including Exhibits A-E). It is understood that other entities shall make purchases in their own name, make direct payment, and be liable directly to the CONTRACTOR; and COUNTY shall in no way be responsible to CONTRACTOR for other entities' purchases.

14. Non-Discrimination

CONTRACTOR shall comply with applicable law and shall not discriminate in the provision of services, allocation of benefits, accommodation in facilities, or employment of personnel on the basis of ethnic group identification, race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status or sex in the performance of this Agreement; and, to the extent they shall be found to be applicable hereto, shall comply with the provisions of the California Fair Employment and Housing

Act (Gov. Code 12900 et. seq), the Federal Civil Rights Act of 1964 (P.L. 88-352), the Americans with Disabilities Act of 1990 (42 U.S.C. S1210 et seq.) and all other applicable laws or regulations.

15. Records and Documents

CONTRACTOR shall make available, upon written request by any duly authorized Federal, State or COUNTY agency, a copy of this Agreement and such books, documents and records as are necessary to certify the nature and extent of the CONTRACTOR's costs related to this Agreement. All such books, documents and records shall be maintained by CONTRACTOR for five years following termination of this Agreement and be available for audit by the COUNTY. CONTRACTOR shall provide to the COUNTY reports and information related to this Agreement as requested by COUNTY.

16. Confidentiality

16.1 To the extent permitted by law, neither CONTRACTOR shall use for personal gain or make other improper use of privileged or Confidential Information which is acquired in connection with this Agreement. The term "privileged or Confidential Information" includes but is not limited to: unpublished or sensitive technological or scientific information; medical, personnel, or security records; anticipated material requirements or pricing/purchasing actions; COUNTY information or data which is not subject to public disclosure; COUNTY operational procedures; and knowledge of selection of contractors, subcontractors or suppliers in advance of official announcement.

16.2 In addition to Section 16.1 above, to the extent allowable under applicable law, CONTRACTOR and COUNTY, each party, acknowledges that it and its employees or agents may, in the course of the Agreement, be exposed to or acquire information that is proprietary or confidential to the other party, and each party agrees that during the term period of the Agreement and for three years after, it will use the other party's Confidential Information only for purposes of this Agreement and applicable Scope(s) of Service (including Statement(s) of Work). "Confidential Information" shall include information (in whatever form) designated as confidential by the disclosing party by conspicuous markings (if tangible Confidential Information) or by announcement at the time of initial disclosure (if oral Confidential Information) or if not so marked or announced should reasonably have been understood as confidential to the disclosing party, either because of legends, or other markings, the circumstances of disclosure or the information itself that (a) relates to this Agreement and applicable Scope(s) of Service (including Statement(s) of Work); (b) relates to the disclosing party's customers or personnel; (c) any information relating to a party's products, services, research, development, trade secrets, processes, procedures, formulas, business practices, business plans, strategies, budgets, customer and vendor relationships, financial information and other similar business information of a confidential nature; (d) other proprietary information, results of remote assessments, technical guides, technical data or know-how, including, but not limited to, that which relates to the COUNTY hardware, software, screens, specifications, designs, plans, drawings, data, prototypes, discoveries, security policies, passwords, access codes and the like, router, firewall and other such equipment's configuration information, filtering configurations, or any other information directly relating to the integrity or security of the COUNTY network or computer systems; (e) the methods, systems, data and materials used or provided by the disclosing party in the performance of Services pursuant to this Agreement and applicable Scope(s) of Service (including Statement(s) of Work). The term "Confidential Information" shall not include information that is (a) known to the receiving party prior to disclosure by the disclosing party or its personnel; (b) publicly available through no act or omission of the receiving party; (c) lawfully received by the receiving party from a third party (other than the disclosing party's former or current personnel) that is not under any confidentiality obligation to the disclosing party; or (d) comprised of statistical information, or other aggregated information regarding security vulnerabilities, security configurations and the like insofar as such information does not identify the COUNTY or the COUNTY computer network or computer systems. Each party agrees to use reasonable

measures, no less stringent than those measures used by the party to protect its own confidential and proprietary information, to protect the Confidential Information of the other party from disclosure to any third party (but in no event less than a reasonable degree of care). Unless authorized to do so in writing by the other party, neither party, nor any third party acting on either's behalf, will for any reason use or disclose to any person any of the other party's Confidential Information. The term "person" as used herein shall be interpreted to include, without limitation, any individual, partnership, corporation or other entity. Nothing herein shall be construed as granting any rights to the receiving party, by license or otherwise, to any of the disclosing party's Confidential Information, except as expressly stated herein. In the event that a party is required to disclose Confidential Information to a court or governmental agency or pursuant to any other applicable law, such party shall, to the extent practicable prior to such disclosure, and as soon as practicable and by the best available means, notify the other party to allow it an adequate opportunity to object to the disclosure order or to take other actions to preserve the confidentiality of the information. Prior to any disclosure pursuant to this section, a party required to disclose Confidential Information shall cooperate with the party claiming confidentiality of the information in such party's reasonable efforts to limit the disclosure by means of a protective order or a request for confidential treatment.

17. Administration/Contract Liaison

The COUNTY Purchasing Agent, or designee, shall administer this Agreement on behalf of the COUNTY. The Purchasing Department is to serve as the liaison with CONTRACTOR in connection with this Agreement.

18. Notices

Unless otherwise specified in the Agreement including Exhibit A, Scope of Work, all correspondence and notices required or contemplated by this Agreement shall be delivered to the respective parties at the addresses set forth below and are deemed submitted three (3) days after their deposit in the United States mail, postage prepaid. For CONTRACTOR, notice shall also be sent by electronic mail at the address shown:

COUNTY OF RIVERSIDE
Purchasing and Fleet Services
2980 Washington St.
Riverside, CA 92508

CONTRACTOR:

Verizon Business Services
6415-6455 Business Center Drive
Highlands Ranch, CO 80130
Attn: Customer Service
Email: notice@verizonbusiness.com

And

Verizon Business Services
22001 Loudoun County Parkway
Ashburn, VA 20147
Attn: Vice President, Legal

19. Force Majeure

If either party is unable to comply with any provision of this Agreement due to causes beyond its reasonable control, and which could not have been reasonably anticipated, such as acts of God, acts of war, civil disorders, or other similar acts, such party shall not be held liable for such failure to comply.

20. EDD Reporting Requirements

In order to comply with child support enforcement requirements of the State of California, the COUNTY may be required to submit a Report of Independent Contractor(s) form DE 542 to the Employment Development Department. The CONTRACTOR agrees to furnish the required data and certifications to the COUNTY within 10 days of notification of award of Agreement when required by the EDD. This data will be transmitted to governmental agencies charged with the establishment and enforcement of child support orders. Failure of the CONTRACTOR to timely submit the data and/or certificates required may result in the contract being awarded to another contractor. In the event a contract has been issued, failure of the CONTRACTOR to comply with all federal and state reporting requirements for child support enforcement or to comply with all lawfully served Wage and Earnings Assignments Orders and Notices of Assignment shall constitute a material breach of Agreement. If CONTRACTOR has any questions concerning this reporting requirement, please call (916) 657-0529. CONTRACTOR should also contact its local Employment Tax Customer Service Office listed in the telephone directory in the State Government section under "Employment Development Department" or access their Internet site at www.edd.ca.gov.

21. Hold Harmless/Indemnification

21.1 CONTRACTOR shall indemnify and hold harmless the County of Riverside, its Agencies, Districts, Special Districts and Departments, their respective directors, officers, Board of Supervisors, elected and appointed officials, employees, agents and representatives from any liability, claim, damage or action whatsoever, proximately caused by the negligent act or omission of CONTRACTOR, its officers, employees, subcontractors, agents or representatives arising out of or in any way relating to this Agreement, including but not limited to real or tangible personal property damage, bodily injury, or death. CONTRACTOR shall defend, at its sole cost and expense, including but not limited to attorney fees, cost of investigation, defense and settlements or awards, the County of Riverside, its Agencies, Districts, Special Districts and Departments, their respective directors, officers, Board of Supervisors, elected and appointed officials, employees, agents and representatives in any such action or claim. With respect to any action or claim subject to indemnification herein by CONTRACTOR, CONTRACTOR shall, at its sole cost, have the right to use counsel of its own choice and shall have the right to adjust, settle, or compromise any such action or claim without the prior consent of COUNTY; provided, however, that any such adjustment,

settlement or compromise in no manner whatsoever limits or circumscribes CONTRACTOR's indemnification of COUNTY. CONTRACTOR's obligations hereunder shall be satisfied when CONTRACTOR has provided to COUNTY the appropriate form of dismissal (or similar document) relieving the COUNTY from any liability for the action or claim involved. The specified insurance limits required in this Agreement shall in no way limit or circumscribe CONTRACTOR's obligations to indemnify and hold harmless the COUNTY.

21.2 Intellectual Property Indemnification. Except as provided below, CONTRACTOR will defend COUNTY against any claim, suit, action or proceeding alleging that Service (including equipment) supplied by CONTRACTOR infringes a valid U.S. patent or copyright ("Claim"), and CONTRACTOR will indemnify and hold harmless COUNTY against any and all finally awarded costs and expenses, including attorneys' fees, in connection with any such Claim. If the use of any CONTRACTOR supplied Service is enjoined or subject to a Claim as described above, CONTRACTOR may, at its option and expense, either procure for COUNTY the right to continue to use the CONTRACTOR supplied Service, replace the CONTRACTOR supplied Service or relevant component, with substantially equivalent, non-infringing equipment or service, or relevant component, or modify the CONTRACTOR supplied Service so that it becomes non-infringing. In the event that none of the foregoing options is commercially reasonable to CONTRACTOR, CONTRACTOR will remove the infringing CONTRACTOR supplied Service and refund to COUNTY the purchase price for Service less depreciation for its use or terminate the Service, as applicable. Depreciation will be calculated on a straight-line basis, assuming a useful life of 5 years. CONTRACTOR will have no obligation for (a) any costs, fees or expenses incurred by COUNTY without CONTRACTOR's prior written consent; (b) any allegation, assertion, or claims of intellectual property infringement, including contributory infringement or inducement to infringe arising out of or related to any Claim involving: (i) automated call processing, automated voice service, automated customer service or combined live operator/automated systems processing used in processing or completing calls, (ii) automated bridging of more than two callers utilizing some form of "listen only" (unilateral) communication combined with some form of interactive communication, (iii) prepaid calling products or services, (iv) wireless telecommunications services or support therefore, or (v) "music on hold," service; or (c) any indirect, special, consequential or incidental damages arising out of any Claim.

Any indemnification provided in this Section will not apply to any Claim or portion thereof that arises from (i) any negligent or willful act or omission by or attributable to COUNTY; (ii) use or operation of the CONTRACTOR supplied Service in combination with equipment or services not supplied by CONTRACTOR under this Agreement, or other than as specified in this Agreement; (iii) any addition to or modification of the CONTRACTOR supplied Service by COUNTY, any third party or CONTRACTOR at COUNTY's request; (iv) use of other than the then current unaltered release of any software used in the CONTRACTOR supplied Service; or (v) any equipment, system, product, process, method or service of COUNTY which otherwise infringed the U.S. patent or copyright asserted against COUNTY prior to the supply of the CONTRACTOR supplied Service to COUNTY by CONTRACTOR under this Agreement. The foregoing states the entire obligation of CONTRACTOR to COUNTY and is COUNTY's sole and exclusive remedy with respect to any Claim of infringement of any intellectual property right of any kind, and CONTRACTOR disclaims all other warranties and obligations with respect to any such Claims.

The defense and indemnification obligations set forth in Sections 21.1 and 21.2 are contingent upon (1) the indemnitee providing the indemnitor prompt, written, and reasonable notice of the claims, demands, and/or causes of action subject to indemnification, (2) the indemnitee granting the indemnitor the right to control the defense of the same, and (3) the indemnitee's full cooperation with the indemnitor in defense of the claim, including providing information and assistance in defending the claim. Nothing herein, however, will restrict the indemnitee from participating, on a non-interfering basis, in the defense of the claim, demand,

and/or cause of action at its own cost and expense with counsel of its own choosing. No settlement may be entered into by the indemnitor on behalf of the indemnitee that includes obligations to be performed by the indemnitee (other than payment of money that will be fully paid by the indemnitor under Sections 21.2) without indemnitee's prior written approval.

22. Insurance

Without limiting or diminishing the CONTRACTOR's obligation to indemnify or hold the COUNTY harmless, CONTRACTOR shall procure and maintain or cause to be maintained, at its sole cost and expense, the following insurance coverages during the term of this Agreement:

22.1 Workers' Compensation

If the CONTRACTOR has employees as defined by the State of California, the CONTRACTOR shall maintain statutory Workers' Compensation Insurance (Coverage A) as prescribed by the laws of the State of California and Employers' Liability (Coverage B) with limits not less than \$1,000,000 per accident/disease/policy limit. Waiver subrogation in favor of the County of Riverside, shall apply.

22.2 Commercial General Liability

Commercial General Liability insurance coverage, including but not limited to, premises, operations, contractual liability, products/completed operations liability, personal & advertising injury covering claims which may arise from or out of CONTRACTOR'S performance of its obligations hereunder. All Agencies, Districts, Special Districts, and Departments of the COUNTY of Riverside, their respective directors, officers, Board of Supervisors, employees, elected or appointed officials, agents or representatives are included as Additional Insureds as their interests may appear excluding Workers' Compensation, Employer's Liability and Errors and Omissions Liability. Policy's limit of liability shall not be less than \$2,000,000 each occurrence combined single limit. .

22.3 Vehicle Liability

If vehicles are used in the performance of the obligations under this Agreement, then CONTRACTOR shall maintain liability insurance for all owned, non-owned or hired vehicles so used in an amount not less than \$2,000,000 each accident combined single limit.

22.4 General Insurance Provisions - All lines

a) Any insurance carrier providing insurance coverage hereunder shall be authorized, permitted or admitted to do business in the State of California and have an A M BEST rating of not less than A: VII (A:7) unless such requirements are waived, in writing, by the COUNTY Risk Manager. If the COUNTY's Risk Manager waives a requirement for a particular insurer such waiver is only valid for that specific insurer and only for one policy term.

b) CONTRACTOR shall cause CONTRACTOR'S insurance carrier(s) to furnish the COUNTY of Riverside with a properly executed original Certificate(s) of Insurance. Further, said Certificate(s) and policies of insurance shall contain a provision stating that the insurer or its authorized representative(s) shall endeavor to provide thirty (30) days prior written notice of intent to non-renew, cancellation or material adverse change to the COUNTY of Riverside, except ten (10) days notice for nonpayment of premium shall apply. *CONTRACTOR shall not commence operations until the COUNTY has been furnished original Certificate (s) of Insurance as addressed in this Section. An individual authorized by the insurance carrier to do so on its behalf shall sign the Certificate of Insurance.*

d) It is understood and agreed to by the parties hereto and the insurance company(s), that the Certificate(s) of Insurance shall so covenant and shall be construed as primary insurance, and the COUNTY'S insurance and/or deductibles and/or self-insured retention's or self-insured programs shall not be construed as contributory.

e) The COUNTY'S Reserved Rights--Insurance. If, during the term of this Agreement or any extension thereof, there is a material change in the scope of services; or, there is a material change in the

equipment to be used in the performance of the scope of work (such as the use of aircraft or watercraft) the COUNTY reserves the right to adjust the types of insurance required under this Agreement and the monetary limits of liability for the insurance coverage's currently required herein, if; in the COUNTY Risk Manager's reasonable judgment, the amount or type of insurance carried by the CONTRACTOR has become inadequate.

f) CONTRACTOR's subcontractors must obtain and maintain substantially the same insurance with substantially the same limits as that required of the CONTRACTOR in this Section 22.

g) The insurance requirements contained in this Agreement may be met with a program(s) of self-insurance reasonably acceptable to the COUNTY.

23. General

23.1 CONTRACTOR shall not delegate or assign any interest in this Agreement, whether by operation of law or otherwise, without the prior written consent of COUNTY, which will not be unreasonably withheld.

23.2 Any waiver by COUNTY of any breach of any one or more of the terms of this Agreement shall not be construed to be a waiver of any subsequent or other breach of the same or of any other term of this Agreement. Failure on the part of COUNTY to require exact, full and complete compliance with any terms of this Agreement shall not be construed as in any manner changing the terms or preventing COUNTY from enforcement of the terms of this Agreement.

23.3 In the event the CONTRACTOR receives payment under this Agreement which is later disallowed by COUNTY for nonconformance with the terms of the Agreement, the CONTRACTOR shall promptly refund the disallowed amount to the COUNTY on request; or at its option the COUNTY may offset the amount disallowed from any payment due to the CONTRACTOR.

23.4 CONTRACTOR shall not provide partial delivery or shipment of services or products unless specifically stated in the Agreement.

23.5 CONTRACTOR shall not provide any services or products subject to any chattel mortgage or under a conditional sales contract or other agreement by which an interest is retained by a third party. The CONTRACTOR warrants that it has good title to all materials or products used by CONTRACTOR or provided to COUNTY pursuant to this Agreement, free from all liens, claims or encumbrances.

23.6 Nothing in this Agreement shall prohibit the COUNTY from acquiring the same type or equivalent equipment, products, materials or services from other sources, when deemed by the COUNTY to be in its best interest. The COUNTY reserves the right to purchase more or less than the quantities specified in this Agreement.

23.7 The COUNTY agrees to cooperate with the CONTRACTOR in the CONTRACTOR's performance under this Agreement, including, if stated in the Agreement, providing the CONTRACTOR with reasonable facilities and timely access to COUNTY data, information and personnel.

23.8 CONTRACTOR shall comply with all applicable Federal, State and local laws and regulations. CONTRACTOR will also comply with all applicable COUNTY policies and procedures, provided in advance and in writing to CONTRACTOR, to the extent that such COUNTY policies and procedures do not conflict with applicable laws and regulations.

23.9 CONTRACTOR shall comply with all air pollution control, water pollution, safety and health ordinances, statutes or regulations which apply to performance under this Agreement.

23.10 CONTRACTOR shall comply with all requirements of the Occupational Safety and Health Administration (OSHA) standards and codes as set forth by the U.S. Department of Labor and the State of California (Cal/OSHA).

23.11 This Agreement shall be governed by the laws of the State of California. Any legal action related to the performance or interpretation of this Agreement shall be filed only in the Superior Court of the State of California located in Riverside, California, and the parties waive any provision of law providing for a change of venue to another location. In the event any provision in this Agreement is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions will nevertheless continue in full force without being impaired or invalidated in any way.

23.12 This Agreement, including any attachments or exhibits, constitutes the entire Agreement of the parties with respect to its subject matter and supersedes all prior and contemporaneous representations, proposals, discussions and communications, whether oral or in writing. This Agreement may be changed or modified only by a written amendment signed by authorized representatives of both parties.

23.13 This Agreement may not be modified by COUNTY purchase order; this Agreement may be changed or modified only by a written amendment signed by authorized representatives of both parties.

24. Limitation of Liability

EXCEPT FOR PAYMENTS OWED UNDER THIS AGREEMENT, IN NO EVENT WILL EITHER COUNTY OR CONTRACTOR BE LIABLE TO THE OTHER PARTY FOR SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY, PUNATIVE OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION LOSS OF USE OR LOST BUSINESS, REVENUE, PROFITS OR GOODWILL, ARISING IN CONNECTION WITH THIS AGREEMENT, UNDER ANY THEORY OF TORT, CONTRACT, INDEMNITY, WARRANTY, STRICT LIABILITY OR NEGLIGENCE, EVEN IF THE PARTY KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES. CONTRACTOR'S ENTIRE LIABILITY FOR ANY OTHER DAMAGE WHICH MAY ARISE UNDER THIS AGREEMENT, FOR ANY CAUSE WHATSOEVER AND REGARDLESS OF THE FORM OF ACTION, WHETHER IN WARRANTY, CONTRACT OR TORT, INCLUDING CONTRACTOR'S NEGLIGENCE OR OTHERWISE, SHALL BE LIMITED TO DIRECT DAMAGES PROVEN BY COUNTY NOT TO EXCEED THE PURCHASE PRICE OF THE STATEMENT(S) OF WORK GIVING RISE TO THE CLAIM. FOR THIS PARAGRAPH, STATEMENT(S) OF WORK GIVING RISE TO THE CLAIM SHALL INCLUDE WORK THAT, AT THE TIME THE CLAIM ARISES, IS NOT YET COMPLETED OR NOT YET ACCEPTED (ACCEPTANCE AS DEFINED IN EXHIBIT A, SCOPE OF SERVICE, SECTION 1.2.1) IN RELATED STATEMENT(S) OF WORK AT THE SAME PHYSICAL LOCATION OR SITE. THIS SECTION DOES NOT LIMIT CONTRACTOR'S LIABILITY IN TORT FOR CONTRACTOR WILLFUL MISCONDUCT. EXCEPT AS EXPRESSLY STATED OTHERWISE IN THIS AGREEMENT, INCLUDING SCOPE OF SERVICES, CONTRACTOR SHALL HAVE NO LIABILITY OR RESPONSIBILITY FOR INTEROPERABILITY OR COMPATIBILITY OF THE SERVICE WITH THIRD-PARTY PRODUCTS OR SERVICES THAT COUNTY MAY UTILIZE IN CONJUNCTION WITH CONTRACTOR'S SERVICE OR TO WHICH COUNTY MAY CONNECT CONTRACTOR'S SERVICE.

COUNTY OF RIVERSIDE:

CONTRACTOR:

Verizon Business
Network Services Inc.
On Behalf of
Verizon Select Services Inc.
22001 Loudoun County Parkway
Ashburn, VA 20147

Signature: _____

Signature:  _____

Print Name: Jeff Stone

Print Name: Suleiman Hessami

Title: Chairman, Board of Supervisors

Title: Vice President

Dated: _____

Dated: 26 May 2009

ATTEST:
Nancy Romero, Clerk

By: _____
Deputy

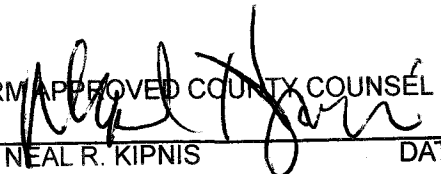
FORM APPROVED COUNTY COUNSEL
BY:  _____
NEAL R. KIPNIS DATE

EXHIBIT A
SCOPE OF SERVICE

1.0 TERMS AND CONDITIONS

CONTRACTOR to provide installation of voice and data cabling (the "Service" or "work") under a fixed price schedule. This Agreement is ONLY with the Information Technology Department and it is understood that the CONTRACTOR is not allowed to use this Agreement to provide similar service to any other County Department. Comparable service to other County Departments would be addressed as set out in Section 13 of the Agreement. Violation of this shall result in termination of the Agreement. All Terms, Conditions and Specifications of RFP/Q# ITARC038 are hereby included with full force and like effect as if set forth herein. CONTRACTOR's Service Publication and Price Guide (the "Guide"), at www.verizonbusiness.com/guide, shall apply to CONTRACTOR's Services, except to the extent otherwise addressed in the Agreement.

1.1 CONTRACTOR shall be responsible for all parts, labor and all other associated apparatus necessary to completely install, test, and turnover Service for acceptance to COUNTY.

1.2 PAYMENT CONDITIONS

In conjunction with Section 3 (Compensation) of the Agreement, payment shall be made as follows:

- a.) At the beginning of on-site project execution, a project commencement letter will be generated by the COUNTY project manager. Once received by CONTRACTOR, an invoice for 100% of the originally quoted materials may be submitted to the COUNTY project manager. The COUNTY project manager will then process the invoice for payment.
- b.) Monthly payments will be made based upon the progress of the project as agreed upon by both the CONTRACTOR and COUNTY project manager. The amount of quarterly payments shall not exceed 80% of the original quotation amount.
- c.) The final 20% of the total costs as well as all unpaid change orders will be held for payment until the Project CLOSEOUT Notification letter is sent to CONTRACTOR, reconciling is performed, and deliverables are completed.
- d.) Until the Project CLOSEOUT Notification letter is received by CONTRACTOR, COUNTY grants a purchase money security interest in the Services performed and agrees that CONTRACTOR may file all documents necessary to perfect that interest. Upon receipt of the Project CLOSEOUT Notification letter, CONTRACTOR shall notify COUNTY in writing of a release of all liens for all materials and services associated with this project.

1.2.1 The project shall be deemed "COMPLETED" when CONTRACTOR delivers to COUNTY:

- a.) Cable test results as defined in Testing Sections 3.18, 4.17, 5.15, and 7.2.
- b.) All drawings and documentation as defined by Project Record Drawings Sections 3.6.b, 4.5, 5.4.2, and 6.5.2.
- c.) All Warranty documentation as defined by Warranty Sections 3.8, 4.7, 5.6, and 6.7.
- d.) Acceptance shall be deemed "IN FULL" upon receipt by CONTRACTOR of the Project Closeout Notification letter issued by COUNTY upon beneficial use and full implementation of the Terms and Conditions and Technical Specifications of the Agreement.

1.3 WARRANTY:

1. All Service including materials and workmanship specified and furnished shall be fully guaranteed by CONTRACTOR for one (1) year CONTRACTOR'S receipt of the Project Closeout Notification letter issued by COUNTY against any defects unless otherwise specified.
2. Service defects which may occur as the result of faulty materials or workmanship within one (1) year after CONTRACTOR'S receipt of the Project Closeout Notification letter issued by COUNTY shall be corrected by CONTRACTOR at no additional cost to COUNTY.
3. Repair problems associated with any cabling installation reported by COUNTY shall be corrected in accordance with the following schedule:
 - a. Any installation within an eighty (80) mile radius of COUNTY Administrative Center located at 4080 Lemon Street, Riverside, CA, shall be corrected within one (1) working day from notification.
 - b. Installations outside an eighty (80) mile radius of same County Administrative Center shall be corrected within two (2) working days from notification.
 - c. If CONTRACTOR responds to a problem and determines that the problem was not caused due to the installation, CONTRACTOR has the right to bill COUNTY.
 - d. CONTRACTOR warrants that it will perform the Services in a good and workmanlike manner. EXCEPT AS SPECIFICALLY SET FORTH IN THIS AGREEMENT INCLUDING THIS EXHIBIT A AND SPECIFICALLY, SECTIONS 1.3.1, 1.3.2, 1.3.3, 3.8, 4.7, 5.6 AND 6.7 OF EXHIBIT A, CONTRACTOR MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO ANY CONTRACTOR SERVICE, SOFTWARE OR DOCUMENTATION. CONTRACTOR SPECIFICALLY DISCLAIMS ANY AND ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NONINFRINGEMENT OF THIRD-PARTY RIGHTS OR ANY WARRANTIES ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE. CONTRACTOR SHALL NOT BE LIABLE FOR UNAUTHORIZED ACCESS TO CONTRACTOR'S OR COUNTY'S TRANSMISSION FACILITIES OR PREMISES EQUIPMENT OR FOR UNAUTHORIZED ACCESS TO OR ALTERATION, THEFT OR DESTRUCTION OF COUNTY'S DATA FILES, PROGRAMS, PROCEDURES OR INFORMATION THROUGH ACCIDENT, FRAUDULENT MEANS OR DEVICES, OR ANY OTHER METHOD. CONTRACTOR MAKES NO WARRANTY, AND DISCLAIMS ALL LIABILITY, FOR USE OF THE SERVICE AS A COMPONENT IN LIFE SUPPORT SYSTEMS OR DEVICES, PUBLIC SAFETY SYSTEMS OR WITH RESPECT TO THE PERFORMANCE OF ANY SOFTWARE OR FIRMWARE. CONTRACTOR'S warranties shall commence with acceptance of/or payment for the Service in full.
 - e. CONTRACTOR shall pass along to COUNTY any additional warranties offered by the manufacturers at no additional costs to COUNTY should said warranties extend beyond the one-year period specified herein,
 - f. This warranty shall in no manner cover Service, including equipment or materials, that have been damaged or rendered unserviceable due to negligence, misuse, acts of vandalism, or tampering by COUNTY or anyone other than employees or agents of CONTRACTOR. CONTRACTOR'S obligation under its warranty is limited to the cost of repair of the warranted Service or item or replacement thereof, at CONTRACTOR'S option.

- g. Insurance covering said Service including equipment and materials from damage or loss is to be borne by CONTRACTOR until full acceptance of equipment , materials and Services.
- h. Warranty obligations as set out in this Exhibit A, Scope of Service, survive final payment by COUNTY.

1.4 INSPECTION, ACCEPTANCE, AND TITLE

1. Inspection and Acceptance shall be at destination and upon successful installation unless otherwise provided. Risk of loss or damage to all items shall be the responsibility of the successful Contractor until delivery of all items of Service (including materials and equipment) to COUNTY's site, unless loss or damage results from negligence by COUNTY.
2. If the materials or Services supplied to COUNTY are found to be defective or do not conform to the specifications, subject to Section 5 (Termination) of the Agreement, COUNTY reserves the right to cancel the Agreement upon written notice to CONTRACTOR and return products at CONTRACTOR's expense, based upon the terms of the Agreement. .
3. CONTRACTOR shall not close up any ceiling tiles until COUNTY has been contacted and given the opportunity to inspect the Service installation. Should CONTRACTOR close up the work prior to giving COUNTY the option to inspect the work, CONTRACTOR shall uncover the work for inspection by COUNTY at no cost to COUNTY, and then recover the work according to the specification contained herein.
4. CONTRACTOR shall notify COUNTY in writing when the Service (work) is ready for inspection. COUNTY shall inspect the Service (work) within twenty four (24) hours after receipt of notification from CONTRACTOR.

1.5 PRICE QUOTATIONS

1. COUNTY Project Manager will request quotes from the CONTRACTOR by fax or EMAIL.
2. Upon receipt of a request for quote, CONTRACTOR shall, within 24 hours supply to the requesting COUNTY Project Manager a notification of receipt. A price quotation shall be submitted to the COUNTY Project Manager no later than three (3) working days from notification of receipt of the request. Unless the pricing quote by the COUNTY Project Manager provides an alternative date.
3. Price quotations are to include the furnishing of all materials, equipment, tools, and the provision of all labor and services necessary for proper completion of the requested Service , except as may be otherwise expressly provided in this Scope of Services . COUNTY shall not be liable for any costs beyond those set forth in the Service price quotation, and related Exhibits B-E, unless COUNTY and CONTRACTOR mutually agree, in writing, to such additional charges. .
4. Price quotations are to be provided in a format mutually agreed upon by CONTRACTOR and COUNTY that includes company name, company address, project name, COUNTY Service Request #, and detailed quote of services.
5. CONTRACTOR shall include as a separate line item all applicable sales, consumer, use, and other similar taxes in the price quotations.

6. Where CONTRACTOR's price quotation is based on prices in Exhibit B (and not custom per-project proposal pricing), then in the case of a discrepancy in the computed proposal price quotation, the lowest combined value of individual unit's costs as reflected in Exhibit B shall prevail.
7. On request from COUNTY, CONTRACTOR may be required to provide consulting services with various county departments to assist in the planning and design of new Service installations. A not to exceed price shall be established for each Service installation where consulting is required prior to the start of work. See Exhibit B for pricing. If Exhibit B does not include pricing for the type of consulting services requested, COUNTY and CONTRACTOR shall mutually agree, in advance and in writing, to the applicable rates and charges for such consulting services before such services are provided.
8. **Note:** The charge in Section 1.5.6 above shall only be applicable in cases where the CONTRACTOR is asked to plan and engineer a job and not for routine bidding.

1.6 PRICING

- a.) Pricing shall be divided into two parts, material and labor.
- d.) If no substitutions are allowed on a part, it shall be clearly identified as "No Substitution". These include but are not limited to such items as patch panels, jacks, data racks, wire management and fiber optic cable and components.
- e.) If any part, which is included in this Scope of Services and has been agreed upon in a bid becomes unavailable during the life of the Agreement, COUNTY shall select a replacement item and negotiate the price. This part shall then become the standard during the remaining life of Agreement. .
- f.) During the installation of any project pursuant to this Scope of Service and related Exhibits B-E, substitutions shall only be allowed for the reason of unavailability of the agreed upon part. COUNTY shall be notified and provided the following information.
 - Part in question
 - Delay expected
 - Substitution suggested
 - Cost differences, if any
 - It shall be the sole responsibility of COUNTY to assess or reject the substitution
- g.) In the event that COUNTY desires to purchase equipment or services not contained in the Agreement, including Exhibits A-E, such purchases shall be addressed by mutually agreed upon written changes to this Agreement including but not limited to changes to Exhibits A-E.
- h.) CONTRACTOR shall pay prevailing wage on all jobs. At CONTRACTOR request, COUNTY shall provide to CONTRACTOR the schedule of applicable general prevailing wage rates for the type Services and work to be performed by CONTRACTOR under this Agreement and Scope of Service
- k.) CONTRACTOR's price quotations shall include applicable per-project discounts.

1.7 PROJECT MANAGER

1. CONTRACTOR shall provide a Project Manager (PM) who shall act as a single point of contact for all activities regarding Service installations. The PM shall be required to make decisions regarding the scope of the Service, work and any changes required by the Services and work. The PM shall be responsible for all aspects of the Services and work and shall have the authority to make immediate

decisions regarding implementation or changes to the Services and work. The PM must be a management employee.

2. CONTRACTOR shall provide an on-site Lead person responsible for on-site job management. On-site Lead may be required to attend site construction meetings throughout the duration of the Service installation.

1.8 COUNTY SINGLE POINT OF CONTACT

The COUNTY Project Manager or someone designated by him shall be the single point of contact for all activities regarding this Agreement for cabling Service and responsible for all decisions and coordination with County departments during installation activities. The COUNTY Project Manager shall also be responsible to coordinate all inspections of Service work.

1.9 FEDERAL COMMUNICATIONS COMMISSION

Equipment requiring FCC registration or approval shall have received such approval and shall be appropriately identified.

1.10 CODES, STANDARDS, AND ORDINANCES

The following codes, standards and ordinances shall be used during all Service installations:

- a). All work shall conform to the latest edition of the National Electrical Code®, the Building Code, and all local codes and ordinances, as applicable.
- b). ANSI/TIA/EIA-568-B, Commercial Building Telecommunications Cabling Standard shall be adhered to during all installation activities.
- c). ANSI/TIA/EIA-569-A, Commercial Building Standard for Telecommunication Pathways and Spaces shall be adhered to during all installation activities.
- d). ANSI/TIA/EIA-606-A, Administration Standard for Commercial Telecommunications Infrastructure shall be adhered to during all installation activities.
- e). ANSI/J-STD-607-A, Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications shall be adhered to during all installation activities.
- f). ANSI/TIA/EIA-758, Customer-Owned Outside Plant Telecommunications Cabling Standard shall be adhered to during all installation activities.
- g). Methodologies outlined in the latest edition of the BICSI Telecommunications Distribution Methods Manual shall also be used during all installation activities. Should conflicts exist with the foregoing, the authority having jurisdiction for enforcement shall have responsibility for making interpretation.
- h). All documents listed in this Section 1.10 are believed to be the most current releases of the documents. CONTRACTOR has the responsibility to determine and adhere to the most recent release when developing the proposal for installation. In the event of conflict among the requirements addressed by this Section 1.10, CONTRACTOR shall adhere to the more stringent requirement.
- i). This document does not replace any code, either partially or wholly. CONTRACTOR must be aware of local codes that may impact any project.

1.11 SAFETY

1. CONTRACTOR shall take the necessary precautions and bear the sole responsibility for the safety of the methods employed in performing the Services. 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.

2. The National Fire Protection Code, National Electrical Safety Codes shall be adhered to during all installation activities.
3. CONTRACTOR shall indemnify and hold harmless COUNTY from and against all liabilities, suits, damages, costs, and expenses (including attorney's fees and court costs) which may be imposed on COUNTY because of CONTRACTOR's failure to comply with the regulations stated herein.

1.13 BONDING

Performance and/or Payment Bonding not required.

1.14 SERVICE INSTALLATION GUIDELINES

- a). All Service (work) performed for the duration of this Agreement shall be installed in accordance with the current edition of the National Electrical Code®, the current edition of the National Electrical Safety Code®, the current edition of the BICSI Telecommunications Distribution Methods Manual, the current edition of the BICSI Information Transport Systems Installation Manual, the latest issue of the ANSI/TIA/EIA Standards as published by Global Engineering Documents as TIA/EIA Telecommunications Building Cabling Standards, and all local codes and ordinances.
- b). Installations shall vary in size with the cost and response time adjusted by size and location of the project.
- c). Installations sites shall vary in distances from 1 to 220 miles and all distances shall be governed from the Riverside County Administrative Center located at 4080 Lemon Street, Riverside.
- d). **Examples of Cities, including but not limited to:**
0 to 15 miles Riverside, Moreno Valley, Corona
16 to 30 miles Banning, Perris, Lake Elsinore, Temecula
31 to 80 miles Palm Springs, Indio
81 to 220 Blythe
- e). Installations shall vary in size with each size carrying its own requirements. Installations that require both voice and data horizontal cables which originate at the same jack location and terminate at the same telecommunication room location or adjacent room location shall count as one station.
- f). COUNTY shall provide prints, as required, in either paper format or electronic format (VISIO or AutoCAD). CONTRACTOR shall provide "As built" documentation in the same format as received within five (5) working days after completing the job and having received the COUNTY Project Closeout Notification letter.
- g). Installations may encounter unique problems such as walls where no penetrations are available; conduit is filled to capacity, multiple buildings with no pathways between buildings, or any condition that would require physical changes to the buildings. Any problems beyond the control of CONTRACTOR shall be negotiated on an individual basis. COUNTY has the option of correcting the problem or CONTRACTOR may be asked to make the corrections under a negotiated price. These changes shall be addressed in writing as mutually agreed upon by COUNTY and CONTRACTOR. .

- h). COUNTY shall advise CONTRACTOR in advance of the installation if it is known a unique problem exists and solutions shall be agreed upon prior to starting the installation. CONTRACTOR shall pre-field all installations. If CONTRACTOR believes that there are any issues which have not been addressed, the COUNTY Project Manager should be advised immediately before starting the installation. COUNTY shall not be responsible for additional payments or claims if structural problems are corrected without notification to COUNTY's.
- i) Hazardous Substances. Except as disclosed to and acknowledged in writing by CONTRACTOR, COUNTY certifies that it is not aware of the presence of any asbestos or other hazardous substance (as defined by any applicable state, federal or local hazardous waste or environmental law or regulation) at any location where CONTRACTOR is to perform Services under this Agreement. If during such performance CONTRACTOR employees or agents encounter any such substance, COUNTY agrees to take all necessary steps, at its own expense, to remove or contain the asbestos or other hazardous substance and to test the premises to ensure that exposure does not exceed the lowest exposure limit for the protection of workers. CONTRACTOR may suspend performance under this Agreement until the removal or containment has been completed and approved by the appropriate governmental agency and CONTRACTOR. Performance obligations will be extended for the period of delay caused by said cleanup or removal. COUNTY's failure to remove or contain hazardous substances will entitle CONTRACTOR to terminate this Agreement without further liability, in which event COUNTY will permit CONTRACTOR to remove any Service that has not been accepted, will reimburse CONTRACTOR for expenses incurred in performing the Service until termination (including but not limited to expenses associated with such termination, such as removing the Service, demobilization, etc.), and will complete payment for any portion of Service that has been accepted.

2.0 FIRESTOPPING SYSTEMS CONSTRUCTION MATERIAL

1. CONTRACTOR shall provide equipment, materials, labor, and services not specifically mentioned or shown in this Scope of Service which may be necessary to complete or perfect all parts of this Service installation and in compliance with requirements stated in this Scope of Service. CONTRACTOR shall provide and install all of the required material to form a complete Service system whether specifically addressed in the technical specifications or not. COUNTY shall be responsible for payment of rates and charge associated with such equipment, materials, labor and services. CONTRACTOR and COUNTY shall work cooperatively to implement written change documents to reflect such additional equipment, materials, labor, services and corresponding rates and charges.
2. CONTRACTOR shall provide appropriate firestopping materials where required. Installed firestopping systems shall comply with applicable code, as well as product and installation standards.

2.1 REFERENCES

- ASTM E814, Standard Method of Fire Tests of Through-Penetration Fire Stops.
- UL 1479, Fire Tests of Through-Penetration Firestops.
- UL Fire Resistance Directory: Through Penetration Firestop Devices (XHCR) and Through Penetration Firestop Systems (XNEZ).
- ASTM E 119, Fire Tests of Building Construction and Materials (for fire-rated architectural barriers).

- 2002 NFPA National Electrical Code, Section 800-52, Paragraph 2(b), Spread of Fire and Products of Combustion.
- Factory Mutual Approval Guide.
- ULC List of Equipment and Materials, VOL. II.

2.2 FIRESTOPPING -FIRESTOPPING MATERIALS

General Requirements

Products may be in the form of caulk, putty, strip, sheet, or devices that shall be specifically designed to fill holes, spaces, and voids (hereinafter referenced as cavities) at communications penetrations. Firestopping materials shall also provide adhesion to substrates and maintain fire and smoke seal under normal expected movements of substrates, conduits, and cables.

2.3 FIRESTOPPING

General Requirements

Raceways, cable trays, and cabling that penetrate building construction shall be firestopped to the extent necessary to fill cavities that may exist between building construction and communications penetration, sleeve or conduit. Firestopping shall be accomplished by using a combination of materials and devices, including penetrating raceway, cable tray, or cables, required to make up complete firestop. CONTRACTOR and COUNTY shall verify that cabling and other penetrating elements and supporting devices have been completely installed.

2.4 INSTALLATION

General Requirements

1. CONTRACTOR shall select appropriate type or types of through penetration firestop devices or systems appropriate for each type of communications penetration and base each selection on criteria specified herein.
2. Selected systems shall not be less than the hourly time delay ratings for each respective fire-rated floor, wall, or other partition of building construction. Firestop for each type of communications penetration shall conform to requirements of an independent testing laboratory design drawing or manufacturer's approved modification when used in conjunction with details shown on the Drawings.
3. CONTRACTOR, with COUNTY assistance, shall perform all necessary coordination with trades constructing floors, walls, or other partitions of building construction with respect to size and shape of each opening to be constructed and device or system approved for use in each instance.
4. CONTRACTOR shall coordinate each firestop selection with adjacent Services for dimensional or other interference and for feasibility. In areas accessible to public and other "finished" areas, firestop systems work shall be selected, installed, and finished to the quality of adjacent surfaces of building construction being penetrated.
5. All firestops shall be installed in accordance with the manufacturer's instructions in order to maintain the specific rating assigned by the independent testing laboratory.
6. As part of the Project Closeout Notification documentation, the firestopping system documentation, labeling, and a dated picture of the install will be required.

2.5 EXECUTION -CUTTING AND PATCHING

- a). CONTRACTOR shall provide openings, cutting, coring, and patching of openings in existing building construction as required. Patching includes openings, cavities and voids left in existing construction as a result of installation.
- b). The work shall include necessary assemblies and materials to maintain required fire ratings.
- c). CONTRACTOR shall perform cutting so as to not impair structural stability of building construction and systems. CONTRACTOR shall not drill holes or weld attachments to beams and other structural members without prior written approval from COUNTY's Representative.
- d). The work shall be done by craft persons skilled in the particular trades affected.

2.6 CLEANING

- a). Cleaning shall be performed to the satisfaction of COUNTY's Representative.
- b). CONTRACTOR is responsible for daily clearing of all related trash, i.e.: cable clippings, boxes, plastic bags etc. from their work areas. If COUNTY or one of his agents is required to clean up after CONTRACTOR, a charge back (amount TBD) to CONTRACTOR shall result.
- c). CONTRACTOR will be required to take preventative measures to keep the area clean and free of debris.

2.7 SLEEVES

CONTRACTOR shall:

- a). Provide sleeves for cable penetrations of building construction. Locations of openings to accept sleeves in new building construction shall be approved by CONTRACTOR for General Construction work.
- b). Use galvanized rigid conduit sleeves for penetrations through exterior masonry/concrete walls and foundations, concrete floor slabs on grade and above grade, and concrete-filled decks.
- c). Sleeves installed in the building interior shall be installed with protective bushings.
- d). Use only fire-rated listed assemblies for the type of sleeve being installed through interior CMU walls or gypsum walls for communications penetrations. Sleeve type shall be metallic rigid conduit.
- e). Secure sleeves firmly in place using appropriate hardware.
- f). In floor penetrations, extend sleeve 1-3" above finished floor unless noted otherwise. In wall penetrations above ceiling, extend sleeve 12" on both sides.
- g). Seal voids between sleeves and building construction with firestopping as stated above.
- h). CONTRACTOR shall be fully responsible for final and correct location of sleeves.

3.0 HORIZONTAL CABLES

Section includes: Equipment, materials, labor, termination, cable labeling and testing, and services to provide all cabling for both voice and data. With respect to Horizontal Cables, CONTRACTOR's Service shall be based on the following standards:

- a). All voice and data cable installations shall use an average cable length of 175 feet when calculating labor installation charges. Up to four (4) cables may be pulled to each jack location.

- b). Pricing for combination voice and data cable installations shall assume that both cables originate at the same jack location and terminate at the same telecommunications room location or an adjacent secondary TR.
- c). In the pricing section under "Conduit" it shall assume pull-strings are in place. If no pull strings are available, enter the cost of installing pull strings in the space provided.
- d). Open above ceiling installations shall assume drop ceiling with T-bar with ceiling tiles in place. CONTRACTOR shall be responsible for replacing broken ceiling tiles.
- e). Installations not using drop ceilings shall be negotiated.
- f). Installations of horizontal cabling in floor ducts shall use conduit installation pricing. This shall include pre installed ducting systems or computer type floor.
- g). Cable wreck outs or removal shall be performed on a time and material basis.

3.1 DOCUMENTATION / REFERENCES

CONTRACTOR shall:

- a). Design, test, and install telecommunications cabling networks per manufacturer's requirements and in accordance with NFPA-70 (National Electrical Code®), state codes, local codes, requirements of Authorities Having Jurisdiction, and the standards referenced in section 2.13.
- b). Install cabling in accordance with the most recent edition of BICSI® publications:
- c). BICSI—Telecommunications Distribution Methods Manual.
- d). BICSI— Information Transport Systems Installation Manual.
- e). Federal, state, and local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. CONTRACTOR should note items in the drawings or the specifications, construction of which would be code violations, and promptly call them to the attention of COUNTY's representative in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

3.2 PERMITS, FEES, AND CERTIFICATES OF APPROVAL

1. It is the responsibility of CONTRACTOR to make application and pay for any and all required construction permits associated with the project.
2. As a prerequisite to final acceptance, CONTRACTOR shall furnish to COUNTY certificates of inspection from the local municipality and/or utility company serving the project.

3.2 DESCRIPTION - VOICE CABLE

CONTRACTOR's Service shall be based on the following:

- a). Voice pulls shall not exceed 90 meters from termination block to jack. It shall be the responsibility of CONTRACTOR to notify COUNTY in advance if, in CONTRACTOR's opinion, this limit shall be exceeded, prior to the installation.
- b). Voice cabling is to be installed with Berk-Tek HyperPlus and/or LANmark 350, four (4) pair, 24 gauge cable and terminate at the station end on Ortronics Tracjack USOC RJ25C jack as identified in Exhibit D. Pairs 1 & 2 shall be terminated on a white colored jack and pairs 3 & 4 shall be terminated on a black colored jack.
- c). At the frame end, all voice cable shall terminate on a Category 5 66M1-50 or 110 type block as identified within each project scope of work.

3.3 DESCRIPTION - DATA CABLE

CONTRACTOR's Service shall be based on the following:

- a). Data pulls shall not exceed 90 meters from patch panel to jack. It shall be the responsibility of CONTRACTOR to notify COUNTY in advance if, in CONTRACTOR's opinion, this limit shall be exceeded, prior to the installation.
- b). All data cable installations shall use Berk-Tek LANmark 350 and/or LANmark 2000 cable and shall terminate at the station end on an Ortronics Tracjack, 568B 110 jack as identified in RFP ITARC038 document and as identified within each project scope of work.
- c). The first cable shall terminate on an Orange colored jack, the second cable shall terminate on a green colored jack and, if required as per the scope of work, the third cable shall terminate on a yellow colored jack. A blank insert shall be installed when extra ports are not used. See Exhibit D for layout.
- d). In the telecommunications room, all data cables shall terminate on an Ortronics 568B 110 patch panel as identified in Exhibit E of this document.

3.5 SUBMITTALS PROVIDED TO CONTRACTOR PER PROJECT

COUNTY shall provide the CONTRACTOR with the following project information:

- Scope of Work
- Prints as required in either paper format or electronic format (VISIO, AutoCAD).
- Work location and hours of operation
- Installation schedule
- It shall be understood that the electrical details and drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid CONTRACTOR in bidding the job. CONTRACTOR shall make allowance in the bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.

3.6 SUBMITTALS PROVIDED TO COUNTY BY CONTRACTOR PER PROJECT

- a). CONTRACTOR shall submit copies of the certification of CONTRACTOR and names of staff that shall be performing the installation to provide proof of compliance of this specification.
- b). CONTRACTOR shall provide "As Built" drawing documentation in the same format as received within five (5) working days starting with the receipt of the Project Closeout letter.

These drawings shall include WAO locations, label numbers, pathways, firestop system locations, backbone cables, pair counts, TR locations, etc.

- c). CONTRACTOR shall verify all dimensions at the site and be responsible for their accuracy.
- d). CONTRACTOR shall provide within five (5) working days at the conclusion of the project:
 - Warranty documents for equipment.
 - Data cabling certification test result printouts and electronic media.
 - Cable records and cross-connect sheets

3.7 QUALITY ASSURANCE

COUNTY shall inspect the completed installation prior to acceptance to ensure the installation was completed in compliance with all guidelines and directives as outlined in this document.

3.8 WARRANTY

NetClear® Warranty:

- a). The System components must be new, unused, first quality, and in original packing material (if applicable)
- b). The patch cords must be manufactured by Ortronics
- c). The System must have been installed by a Certified Integrator/ Installer authorized by the Manufacturer (Berk-Tek/Ortronics) in accordance with the Manufacturer's installation specifications, the requirements of the above mentioned technical standards, and the terms and conditions specified in the Berk-Tek and Ortronics Certified Integrator/Installer Program agreement
- d). Unless otherwise specified, the applicable Service (including materials, equipment, and workmanship) shall be warranted for a period of twenty five (25) years from date of CONTRACTOR's receipt of the Project Closeout Notification letter issued by the COUNTY Project Manager. This warranty, extending beyond the one (1) year warranty addressed in Section 1.3 (e) above in this Scope of Service, is additional warranty provided by the manufacturer and passed through to COUNTY by CONTRACTOR as set out in Section 1.3.g above. This warranty is the NetClear® 25-year system Warranty.
 - (e) The NetClear® 25-year system Warranty is printed out and attached as Exhibit F. The NetClear® 25-year system Warranty can also be found by accessing the manufacturer's website at <http://www.ortronics.com/us/training/certification-program/warranty-statements/>.

3.9 DELIVERY, STORAGE, AND HANDLING

- a). CONTRACTOR shall protect equipment during transit, storage, and handling to prevent damage or theft.
- b). CONTRACTOR is responsible to make sufficient coordination and preparation for secure storage of equipment and materials.
- c). CONTRACTOR shall not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions.
- d). Damaged equipment shall be removed by CONTRACTOR from site and replaced with new equipment.

3.10 SEQUENCE AND SCHEDULING

CONTRACTOR shall:

- a). Submit schedule for installation of equipment and cabling.

- b). Indicate delivery, installation, and testing for conformance to specific job completion dates.
- c). As a minimum, dates are to be provided for: installation start date, completion of cable installation, completion of testing and labeling, completion of the final punch list, completion of final documentation and County acceptance.

3.11 USE OF THE SITE

- a). Use of the site shall be at COUNTY's direction in matters in which COUNTY deems it necessary to place restriction.
- b). Access to building wherein the Service is performed shall be during regular business hours unless otherwise specified or arranged.
- c). CONTRACTOR shall proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations of COUNTY.
- d). CONTRACTOR shall coordinate with COUNTY Project Manager for the approved access and egress locations for material handling and delivery.

3.12 PRE-INSTALLATION SITE SURVEY

Prior to start of systems installation, CONTRACTOR shall meet at the project site with COUNTY's representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the Service. CONTRACTOR shall coordinate with COUNTY Project Manager and notify COUNTY Project Manager of unresolved conflicts and the potential for missed due dates or deadlines. COUNTY and CONTRACTOR coordination with the General Contractor shall be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets. CONTRACTOR shall examine areas and conditions under which the Service is to be performed. CONTRACTOR shall not proceed with the Service until satisfactory conditions have been achieved.

3.13 HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS

CONTRACTOR shall be responsible for safekeeping of CONTRACTOR's and CONTRACTOR's subcontractors' property, such as equipment and materials, on the job site. COUNTY assumes no responsibility for protection of above named property against fire, theft, and environmental conditions. CONTRACTOR's and CONTRACTOR's subcontractor's may pursue all rights and remedies available under applicable law in the event CONTRACTOR's and CONTRACTOR's subcontractor's above-named property is damaged or stolen due to acts or omissions of COUNTY or third-parties.

3.14 PROTECTION OF COUNTY'S FACILITIES

- 1. CONTRACTOR shall protect COUNTY's facilities, equipment, and materials from dust, dirt, and damage while performing the Service.
- 2. While accessing secure areas within the COUNTY facilities, CONTRACTOR shall not leave any doorways or access ways 'propped' open in any fashion that may normally be closed, locked, or purposely secured.

3.15 HORIZONTAL DISTRIBUTION CABLE INSTALLATION

In providing the Service, CONTRACTOR shall:

- 1. Receive, check, unload, handle, store, and adequately protect equipment and materials to be installed as part of the Agreement and store in areas as directed by COUNTY's representative. Include delivery, unloading, setting in place, fastening to walls, floors, ceilings, or other structures where required and other related work whether or not expressly defined herein.

2. Install materials and equipment in accordance with applicable standards, codes, requirements, and recommendations of national, state, and local authorities having jurisdiction, and National Electrical Code® (NEC) and with manufacturer's printed instructions.
3. Adhere to manufacturer's published specifications for pulling tension, minimum bend radius, and sidewall pressure when installing cables.
4. Where manufacturer does not provide bending radius information, minimum bending radius shall be 4 times cable diameter. Arrange and mount equipment and materials in the manner set out herein or in the specific purchase order or statement of work.
5. Penetrations through floor and fire-rated walls shall utilize rigid metallic conduit sleeves and shall be firestopped after installation and testing, utilizing a firestopping system approved for that application.
6. Install voice and data cabling to the telecommunications room, unless otherwise noted.
7. Installation shall conform to the following basic guidelines:
 - a. Use of approved cable and cabling devices.
 - b. Cable shall be installed in accordance with manufacturer's recommendations and best industry practices.
 - c. The cable's minimum bend radius and maximum pulling tension shall not be exceeded. Pulling tension on 4-pair UTP cables shall not exceed 25-lbf.
 - d. Cables shall not be attached to ceiling grid or lighting fixture wires. Where support for horizontal cable is required, CONTRACTOR shall install appropriate carriers to support the cabling.
 - e. If a J-hook system is used to support cable bundles, all horizontal cables shall be supported at a maximum of 48 to 60 inch intervals. At no point shall the cable(s) rest on anything other than the support system designed for the cables.
 - f. Horizontal distribution cables shall be bundled in groups of no more than 48 cables in the ceiling space. Within the TR, cables shall be bundled in groups of 24 cables. Additional cable runway capacity may be required depending on the number of cables to be installed.
 - g. Install cables in one continuous length. Splices shall not be allowed under any circumstances.
 - h. Unshielded twisted pair cable shall be installed so that there are no bends smaller than 4 times the cable outside diameter at any point in the run.
 - i. CONTRACTOR shall provide the Service so that the installed support system conforms to all of the design criteria of communications pathways as they relate to the NEC, industry standards, and the Authority Having Jurisdiction.

3.16 HORIZONTAL CROSS CONNECT INSTALLATION

In providing the Service, CONTRACTOR shall:

- a). Copper termination and management hardware shall be installed in the following manner.
- b). Pair untwist at the termination shall not exceed one-half inch (12mm).
- c). Bend radius of the cable in the termination area shall not exceed 4 times the outside diameter of the cable.
- d). Cables shall be neatly bundled and dressed to their respective panels or blocks. Each panel or block shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.
- e). The cable jacket shall be maintained as close as possible to the termination point, maximum 1 inch strip back (25 mm).

3.17 GROUNDING

Refer to section 1.10.e.

3.18 TESTING

All data cable shall be tested and documented as per test criteria in Exhibit C. CONTRACTOR shall not be reimbursed for any data cable installation that does not meet the testing specifications outlined in this document. All voice cable links shall be tested for continuity, pair reversals, short, opens and grounds on all four (4) pairs.

3.19 FIELD QUALITY CONTROL

CONTRACTOR shall provide a Project Manager (PM) during the course of the installation to facilitate the coordination of Service in this specification with other trades, and to provide technical information when requested by other trades. This person shall be responsible for quality control during installation and testing. Installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program.

3.20 PRICING

1. Pricing of horizontal cabling shall be based on a "per cable pull" cost and submitted on quote spreadsheet as noted in Exhibit B to enter the labor cost for installation of horizontal cabling. This single cost will include pulling, terminating, testing, and labeling both ends of a single horizontal cable.
2. Final pricing for each installation shall combine the labor prices identified in Exhibit B with the appropriate part prices identified in the parts list, Exhibit B.
3. Pricing for cable support (J-hooks, stringers and P-rod) shall be provided in Exhibit B or in CONTRACTOR'S bid or Service quote response.

4.0 INSIDE RISER OR BACKBONE CABLE

Section includes: Equipment, materials, labor, termination, cable labeling and testing and services to provide inside riser or backbone cabling, including but not limited to:

Material and parts as identified on Exhibit B

- Cable terminating equipment
- System testing and labeling
- In the pricing section under "Conduit" it shall assume pull-strings are in place. If no pull strings are available, enter the cost of installing pull strings in the space provided
- Cable wreck outs or removal shall be performed on a time and material basis

4.1 DOCUMENTATION / REFERENCES

1. CONTRACTOR shall design, test, and install telecommunications cabling networks per manufacturer's requirements and in accordance with NFPA-70 (National Electrical Code®), state codes, local codes, requirements of Authorities Having Jurisdiction, and the standards referenced in section 1.10.
2. CONTRACTOR shall install cabling in accordance with the most recent edition of BICSI® publications:
 - a. BICSI—Telecommunications Distribution Methods Manual.
 - b. BICSI—Information Transport Systems Installation Manual.

- c. Federal, state, and local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. CONTRACTOR should note items in the drawings or the specifications, construction of which would be code violations and promptly call them to the attention of COUNTY's representative in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

4.2 PERMITS, FEES, AND CERTIFICATES OF APPROVAL

It is the responsibility of CONTRACTOR to make application and pay for any and all required construction permits associated with the project. As a prerequisite to final acceptance, CONTRACTOR shall furnish to COUNTY certificates of inspection from the local municipality and/or utility company serving the project.

4.3 DESCRIPTION

CONTRACTOR's Service shall be based on the following:

1. Inside riser cable shall terminate on 66M1-50 or 110 type blocks. CONTRACTOR's Service quote shall include the cost of pulling, terminating, labeling and testing cable. The same conditions for installing horizontal cables (refer to Paragraph 4.1) in conduit or an open ceiling type installation shall apply to riser cable. Installation of pull-ropes shall follow the same guidelines described in section 3.15.
2. CONTRACTOR's Service quote shall be the total labor only for the installation and termination of one multi-pair cable. Material cost shall be taken from the parts price list, Exhibit B. Installations using cable sizes in excess of 900 pair shall be negotiated prior to installation.

4.4 SUBMITTALS PROVIDED TO CONTRACTOR PER PROJECT

COUNTY shall provide the CONTRACTOR with the following project information:

- Scope of Work
- Prints as required in either paper format or electronic format (VISIO, AutoCAD).
- Work location and hours of operation
- Installation schedule

It shall be understood that the electrical details and drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid CONTRACTOR in bidding the job. CONTRACTOR shall make allowance in the bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.

4.5 SUBMITTALS PROVIDED TO COUNTY BY CONTRACTOR PER PROJECT

CONTRACTOR shall submit copies of the certification of CONTRACTOR and names of staff that shall be performing the installation to provide proof of compliance of this specification. CONTRACTOR shall provide "As Built" drawing documentation in the same format as received within five (5) working days starting with the receipt of the Project Closeout letter. These drawings shall include WAO locations, label numbers, pathways, firestop system locations, backbone cables, pair counts, TR locations, etc. CONTRACTOR shall verify all dimensions at the site and be responsible for their accuracy. CONTRACTOR shall provide within five (5) working days at the conclusion of the project:

- Warranty documents for equipment.
- Any required cabling certification test result printouts and electronic media.
- Cable records and cross-connect sheets

4.6 QUALITY ASSURANCE

County shall inspect the completed installation prior to acceptance to ensure the installation was completed in compliance with all guidelines and directives as outlined in this document.

4.7 WARRANTY

1. Unless otherwise specified, CONTRACTOR warrants the applicable Service (including materials, equipment, and workmanship) for a period one (1) year from date of CONTRACTOR's receipt of the Project Closeout Notification letter issued by the COUNTY Project Manager.

2. CONTRACTOR shall pass through to COUNTY applicable manufacturer's warranties which may extend beyond the one (1) year warranty period above and such additional warranties shall be provided in the manner set out in Section 1.3(e) above.

a. If the materials used in this Section 4 are manufactured by Berk-Tek/Ortronics, then this warranty is the NetClear® 25-year system Warranty and this NetClear® 25-year system Warranty is printed out and attached as Exhibit F.

b. If the materials used in this Section 4 are manufactured by an entity other than Berk-Tek/Ortronics, then the applicable manufacturer's warranty shall be passed through to COUNTY.

4.8 DELIVERY, STORAGE, AND HANDLING

CONTRACTOR shall protect equipment during transit, storage, and handling to prevent damage or theft.

a). CONTRACTOR is responsible to make sufficient coordination and preparation for secure storage of equipment and materials.

b). CONTRACTOR shall not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions.

c). Damaged equipment shall be removed from site by CONTRACTOR and replaced with new equipment.

4.9 SEQUENCE AND SCHEDULING

CONTRACTOR's Service shall be based on the following:

a). Submit schedule for installation of equipment and cabling.

b). Indicate delivery, installation, and testing for conformance to specific job completion dates.

c). As a minimum, dates are to be provided for: installation start date, completion of cable installation, completion of testing and labeling, completion of the final punch list, completion of final documentation and COUNTY acceptance.

4.10 USE OF THE SITE

a). Use of the site shall be at COUNTY's direction in matters in which COUNTY deems it necessary to place restriction.

b). Access to building wherein the work is performed shall be during regular business hours unless otherwise specified or arranged.

c). CONTRACTOR shall proceed with provision of Service without interfering with ordinary use of streets, aisles, passages, exits, and operations of COUNTY.

d). CONTRACTOR shall coordinate with COUNTY Project Manager for the approved access and egress locations for material handling and delivery.

4.11 PRE-INSTALLATION SITE SURVEY

1. Prior to start of systems installation, CONTRACTOR shall meet at the project site with COUNTY's representative and representatives of trades performing related work to coordinate efforts. The parties shall review areas of potential interference and resolve conflicts before proceeding with the work. CONTRACTOR shall coordinate with COUNTY Project Manager and notify COUNTY Project Manager of unresolved conflicts and the potential for missed due dates or deadlines. COUNTY and CONTRACTOR Coordination with the General Contractor shall be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets.
2. CONTRACTOR shall examine areas and conditions under which the Service is to be provided. CONTRACTOR shall not proceed with the Service until satisfactory conditions have been achieved.

4.12 HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS

CONTRACTOR shall be responsible for safekeeping of CONTRACTOR's and subcontractors' property, such as equipment and materials, on the job site. COUNTY assumes no responsibility for protection of above named property against fire, theft, and environmental conditions. CONTRACTOR's and CONTRACTOR's subcontractor's may pursue all rights and remedies available under applicable law in the event CONTRACTOR's and CONTRACTOR's subcontractor's above-named property is damaged or stolen due to acts or omissions of COUNTY or third-parties.

4.13 PROTECTION OF COUNTY'S FACILITIES

CONTRACTOR shall protect COUNTY facilities, equipment, and materials from dust, dirt, and damage while performing Services. While accessing secure areas within the COUNTY facilities, CONTRACTOR shall not leave any doorways or access ways 'propped' open in any fashion that may normally be closed, locked, or purposely secured.

4.14 INSTALLATION

CONTRACTOR shall:

- a). Receive, check, unload, handle, store, and adequately protect equipment and materials to be installed as part of the contract. Store in areas as directed by COUNTY's representative. Include delivery, unloading, setting in place, fastening to walls, floors, ceilings, or other structures where required and other related work whether or not expressly defined herein.
- b). Install materials and equipment in accordance with applicable standards, codes, requirements, and recommendations of national, state, and local authorities having jurisdiction, and National Electrical Code® (NEC) and with manufacturer's printed instructions.
- c). Adhere to manufacturer's published specifications for pulling tension, minimum bend radius, and sidewall pressure when installing cables.
- d). Where manufacturer does not provide bending radius information, minimum bending radius shall be 8 times cable diameter. Arrange and mount equipment and materials in the manner set out herein or in the specific purchase order or statement of work.
- e). Penetrations through floor and fire-rated walls shall utilize rigid metallic conduit sleeves and shall be firestopped after installation and testing, utilizing a firestopping system approved for that application.

4.15 BACKBONE CABLE INSTALLATION

All backbone cables shall be installed by CONTRACTOR in the following manner:

- a). Backbone cables shall be installed separately from horizontal distribution cables.
- b). Where backbone cables and horizontal distribution cables are installed in a cable tray or wire way, backbone cables shall be installed first and bundled separately from the horizontal distribution cables.
- c). All backbone cables shall be securely fastened to the side wall of the telecommunications room on each floor.
- d). Backbone cables spanning more than three floors shall be securely attached at the top of the cable run with a wire mesh grip and on alternating floors or as required by local codes.
- e). Vertical runs of cable shall be supported to messenger strand, cable ladder, or other method to provide proper support for the weight of the cable

4.16 GROUNDING

Refer to section 1.10.e.

4.17 TESTING

1. Inside riser and backbone cable shall be guaranteed to provide continuity, free from shorts, grounds or crosses on all pairs.
2. All riser and backbone cable shall be tested and documented as per test criteria in Exhibit C. CONTRACTOR shall not be reimbursed for any cable installation that does not meet the testing specifications outlined in Exhibit C.
3. All twisted-pair copper cable links shall be tested for continuity, pair reversals, short, opens and grounds on all pairs.

4.18 FIELD QUALITY CONTROL

1. CONTRACTOR shall provide a Project Manager (PM) during the course of providing Service to facilitate the coordination of Service with other trades, and to provide technical information when requested by other trades. This person shall be responsible for quality control during installation and testing.
2. CONTRACTOR's installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program

5.0 OUTSIDE PLANT:

Section includes: Equipment, materials, labor, termination, cable labeling and testing, and services to provide Outside Plant, and associated material, including but not limited to:

- Material and parts as identified on Exhibit B.
 - Cable terminating equipment as identified in Exhibit B.
 - System Testing and labeling
 - Documentation and submissions
 - In the pricing section under "Conduit" it shall assume pull-strings are in place. If no pull strings are available, enter the cost of installing pull strings in the space provided.
 - Cable wreck outs or removal shall be performed on a time and material basis.
- a). COUNTY, may upon occasion, require the installation of aerial plant. Prices for such work shall be negotiated on a job by job basis.

5.1 DOCUMENTATION / REFERENCES

CONTRACTOR Service shall be based on the following:

1. Design, test, and install telecommunications cabling networks per manufacturer's requirements and in accordance with NFPA-70 (National Electrical Code®), state codes, local codes, requirements of Authorities Having Jurisdiction, and the standards referenced in section 1.10.
2. Install cabling in accordance with the most recent edition of BICSI® publications:
 - BICSI—Telecommunications Distribution Methods Manual.
 - BICSI— Information Transport Systems Installation Manual.
3. Federal, state, and local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. CONTRACTOR should note items in the drawings or the specifications, construction of which would be code violations, and promptly call them to the attention of COUNTY's representative in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

5.2 PERMITS, FEES, AND CERTIFICATES OF APPROVAL

1. It is the responsibility of CONTRACTOR to make application and pay for any and all required construction permits associated with the project.
2. As a prerequisite to final acceptance, CONTRACTOR shall furnish to COUNTY certificates of inspection from the local municipality and/or utility company serving the project.

5.3 DESCRIPTION

1. All outside cable plant installations shall assume conduit, maintenance holes and pull boxes of an appropriate size are installed and conduit has an existing pull rope. If the installation is not so equipped COUNTY and CONTRACTOR shall negotiate adjustments to the price schedule in Exhibit B. COUNTY maintains the right to have the above work completed by another source if an agreement cannot be reached.
2. Installations of outside cable shall be installed with protection on both ends of the cable as specified by the COUNTY Project Manager.
3. The labor charges shall be based on a cost per linear foot for the pulling of the cable and sealing of the ducts. Pricing for termination is per pair and per end. Pricing for splicing is per pair. The cost of the splice case and installation shall be negotiated at the time of installation. Since numerous variations exist for the installation of outside cable plant, the material required shall be taken from Exhibit B.

5.4 SUBMITTALS PROVIDED TO CONTRACTOR PER PROJECT

COUNTY shall provide the CONTRACTOR with the following project information:

- a. Scope of Work

- b. Prints as required in either paper format or electronic format (VISIO, AutoCAD).
- c. Work location and hours of operation
- d. Installation schedule

It shall be understood that the electrical details and drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid CONTRACTOR in bidding the job. CONTRACTOR shall make allowance in the bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.

5.4 SUBMITTALS PROVIDED TO COUNTY BY CONTRACTOR PER PROJECT

1. CONTRACTOR shall submit copies of the certification of CONTRACTOR and names of staff that shall be performing the installation to provide proof of compliance of this specification.
2. CONTRACTOR shall provide "As Built" drawing documentation in the same format as received within five (5) working days starting with the receipt of the Project Closeout letter. These drawings shall include WAO locations, label numbers, pathways, firestop system locations, backbone cables, pair counts, TR locations, etc.
3. CONTRACTOR shall verify all dimensions at the site and be responsible for their accuracy.
4. CONTRACTOR shall provide within five (5) working days at the conclusion of the project:
 - a. Warranty documents for equipment.
 - b. Any required cabling certification test result printouts and electronic media.
 - c. Cable records and cross-connect sheets

5.5 QUALITY ASSURANCE

COUNTY shall inspect the completed installation prior to acceptance to ensure the installation was completed in compliance with all guidelines and directives as outlined in this document.

5.6 WARRANTY

Unless otherwise specified, CONTRACTOR warrants the applicable Service (including materials, equipment, and workmanship) for a period of one (1) year from date of CONTRACTOR's receipt of the Project Closeout Notification letter issued by the COUNTY Project Manager.

CONTRACTOR shall pass through to COUNTY applicable manufacturer's warranties which may extend beyond the one (1) year warranty period above and such additional warranties shall be provided in the manner set out in Section 1.3 (e) above.

- a. If the materials used in this Section 5 are manufactured by Berk-Tek/Ortronics, then this warranty is the NetClear® 25-year system Warranty and this NetClear® 25-year system Warranty is printed out and attached as Exhibit F.
- b. If the materials used in this Section 5 are manufactured by an entity other than Berk-Tek/Ortronics, then the applicable manufacturer's warranty shall be passed through to COUNTY.

5.7 DELIVERY, STORAGE, AND HANDLING

1. Protect equipment during transit, storage, and handling to prevent damage or theft.
2. CONTRACTOR is responsible to make sufficient coordination and preparation for secure storage of equipment and materials.
3. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions.
4. Damaged equipment shall be removed from site and replaced with new equipment.

5.8 SEQUENCE AND SCHEDULING

1. Submit schedule for installation of equipment and cabling.
2. Indicate delivery, installation, and testing for conformance to specific job completion dates.
3. As a minimum, dates are to be provided for: installation start date, completion of cable installation, completion of testing and labeling, completion of the final punch list, completion of final documentation and County acceptance.

5.9 USE OF THE SITE

1. Use of the site shall be at COUNTY's direction in matters in which COUNTY deems it necessary to place restriction.
2. Access to building wherein the work is performed shall be during regular business hours unless otherwise specified or arranged.
3. Proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations of COUNTY.
4. CONTRACTOR shall coordinate with COUNTY project manager for the approved access and egress locations for material handling and delivery.

5.10 PRE-INSTALLATION SITE SURVEY

1. Prior to start of systems installation, CONTRACTOR shall meet at the project site with COUNTY's representative and representatives of trades performing related work to coordinate efforts. The parties will review areas of potential interference and resolve conflicts before proceeding with the work. CONTRACTOR shall coordinate with COUNTY Project Manager and notify COUNTY project Manager of unresolved conflicts and the potential for missed due dates or deadlines. COUNTY and CONTRACTOR coordination with the General Contractor shall be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets.
2. CONTRACTOR shall examine areas and conditions under which the Service is to be provided. CONTRACTOR shall not proceed with the work until satisfactory conditions have been achieved.

5.11 HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS

CONTRACTOR shall be responsible for safekeeping of CONTRACTOR's and subcontractors' property, such as equipment and materials, on the job site. COUNTY assumes no responsibility for protection of above named property against fire, theft, and environmental conditions. CONTRACTOR's and CONTRACTOR's subcontractor's may pursue all rights and remedies available under applicable law in the event CONTRACTOR's and CONTRACTOR's subcontractor's above-named property is damaged or stolen due to acts or omissions of COUNTY or third-parties.

5.12 PROTECTION OF COUNTY'S FACILITIES

1. Effectively protect COUNTY and the County's facilities, equipment, and materials from dust, dirt, and damage while performing under the scope of work.
2. While accessing secure areas within the County facilities, CONTRACTOR shall not leave any doorways or access ways 'propped' open in any fashion that may normally be closed, locked, or purposely secured.

5.13 INSTALLATION

1. Receive, check, unload, handle, store, and adequately protect equipment and materials to be installed as part of the contract. Store in areas as directed by COUNTY's representative. Include delivery, unloading, setting in place, fastening to walls, floors, ceilings, or other structures where required and other related work whether or not expressly defined herein.
2. Install materials and equipment in accordance with applicable standards, codes, requirements, and recommendations of national, state, and local authorities having jurisdiction, and National Electrical Code® (NEC) and with manufacturer's printed instructions.
3. Adhere to manufacturer's published specifications for pulling tension, minimum bend radius, and sidewall pressure when installing cables.
4. Where manufacturer does not provide bending radius information, minimum bend radius shall be 8 times cable diameter. Arrange and mount equipment and materials in the manner set out herein or in the applicable purchase order or scope of work.
5. Penetrations through floor and exterior walls shall utilize galvanized rigid conduit (GRC) sleeves and shall be firestopped after installation and testing, utilizing a firestopping system approved for that application.
6. Installation shall conform to the following basic guidelines:
7. Use of approved cable and cabling devices.
8. Neat and uncluttered wire termination.

5.14 GROUNDING

Refer to section 1.10.c.

5.15 TESTING

1. Outside cable plant twisted-pair copper cable links shall be tested and shall be guaranteed to provide continuity, free from shorts, grounds or crosses on all pairs.
2. All outside cable plant shall be tested and documented as per test criteria in Exhibit C. CONTRACTOR shall not be reimbursed for any cable installation that does not meet the testing specifications outlined in this document.
3. All twisted-pair copper cable links shall be tested for continuity, pair reversals, short, opens and grounds on all pairs.

5.16 FIELD QUALITY CONTROL

1. CONTRACTOR shall provide a Project Manager (PM) during the course of the installation to facilitate the coordination of work in this specification with other trades, and to provide technical information when requested by other trades. This person shall be responsible for quality control during installation and testing.
2. CONTRACTOR's installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program.

6.0 FIBER OPTIC CABLE

Section includes: Equipment, materials, labor, termination, cable labeling and testing and services to provide fiber optic cabling services but not limited to:

- a) Material, parts as identified in Exhibit B
- b) Labor costs to install fiber optic cable
- c) System testing
- d) Documentation and submissions
- e) In the pricing section under "Conduit" it shall assume pull-strings are in place. If no pull strings are available, enter the cost of installing pull strings in the space provided.
- f) Cable wreck outs or removal shall be performed on a time and material basis.

6.1 DOCUMENTATION / REFERENCES

CONTRACTOR's Service shall be based on the following:

- a). Design, test, and install telecommunications cabling networks per manufacturer's requirements and in accordance with NFPA-70 (National Electrical Code®), state codes, local codes, requirements of Authorities Having Jurisdiction, and the standards referenced in section 1.10.
- b). Install cabling in accordance with the most recent edition of BICSI® publications:
 - BICSI—Telecommunications Distribution Methods Manual.
 - BICSI— Information Transport Systems Installation Manual.
- c). Federal, state, and local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. CONTRACTOR

should note items in the drawings or the specifications, construction of which would be code violations, and promptly call them to the attention of COUNTY's representative in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply

6.2 PERMITS, FEES, AND CERTIFICATES OF APPROVAL

1. It is the responsibility of CONTRACTOR to make application and pay for any and all required construction permits associated with his/her work.
2. As a prerequisite to final acceptance, furnish to COUNTY certificates of inspection from the local municipality and/or utility company serving the project.

6.3 DESCRIPTION

1. Fiber optic cable shall be installed using COUNTY specified manufacturers.
2. The same conditions as installing horizontal cables (refer to Paragraph 3.15) in conduit or an open ceiling type installation shall apply to fiber optic cable. Installation of pull-ropes shall follow the same guidelines described in Paragraph 3.15.
3. **Installation:** Bid price shall be the total **labor only** for the installation of 1 to 144 strands of single mode or multi-mode fiber optic cable on a cost per foot basis. Material cost shall be taken from the price list on Exhibit B.
4. **Termination & Testing:** Bid price shall be the total **labor only** for the termination and testing per strand of single mode or multi-mode fiber optic cable using either ST or SC connectors as specified per project, anaerobic termination method. Material cost shall be taken from the parts list, Exhibit B.
5. **For outside plant or extensive riser installations, labor prices** may be negotiated prior to start of job.

6.4 SUBMITTALS PROVIDED TO CONTRACTOR PER PROJECT

COUNTY shall provide the CONTRACTOR with the following project information:

- Scope of Work
- Prints as required in either paper format or electronic format (VISIO, AutoCAD).
- Work location and hours of operation
- Installation schedule

It shall be understood that the electrical details and drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid CONTRACTOR in bidding the job. CONTRACTOR shall make allowance in the bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.

6.5 SUBMITTALS PROVIDED TO COUNTY BY CONTRACTOR PER PROJECT

1. Submit copies of the certification of CONTRACTOR and names of staff that shall be performing the installation to provide proof of compliance of this specification.

2. CONTRACTOR shall provide "As Built" drawing documentation in the same format as received within five (5) working days starting with the receipt of the Project Closeout letter. These drawings shall include WAO locations, label numbers, pathways, firestop system locations, backbone cables, pair counts, TR locations, etc.
3. CONTRACTOR shall verify all dimensions at the site and be responsible for their accuracy.
4. CONTRACTOR shall provide within five (5) working days at the conclusion of the project:
 - Warranty documents for equipment:
 - Any required cabling certification test result printouts and electronic media.
 - Cable records and cross-connect sheets

6.6 QUALITY ASSURANCE

County shall inspect the completed installation prior to acceptance to ensure the installation was completed in compliance with all guidelines and directives as outlined in this document.

6.7 WARRANTY

1. Unless otherwise specified, CONTRACTOR warrants the applicable Service (including materials, equipment, and workmanship) for a period of one (1) year from date of CONTRACTOR's receipt of the Project Closeout Notification letter issued by COUNTY's Project Manager.
2. CONTRACTOR shall pass through to COUNTY applicable manufacturer's warranties which may extend beyond the one(1) year warranty period above and

such additional warranties shall be provided in the manner set out in Section 1.3(e) above.

a. If the materials used in this Section 6 are manufactured by Berk-Tek/Ortronics, then this warranty is the NetClear® 25-year system Warranty and this NetClear® 25-year system Warranty is printed out and attached as Exhibit F.

b. If the materials used in this Section 6 are manufactured by an entity other than Berk-Tek/Ortronics, then the applicable manufacturer's warranty shall be passed through to COUNTY.

6.8 DELIVERY, STORAGE, AND HANDLING

- a) Protect equipment during transit, storage, and handling to prevent damage or theft.
- b) Coordinate with COUNTY for secure storage of equipment and materials.
- c) Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions.
- d) Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.

6.9 SEQUENCE AND SCHEDULING

- a). Submit schedule for installation of equipment and cabling.
- b). Indicate delivery, installation, and testing for conformance to specific job completion dates.
- c). As a minimum, dates are to be provided for: installation start date, completion of fiber installation, completion of testing and labeling, completion of the final punch list, completion of final documentation and County acceptance.

6.10 USE OF THE SITE

- a). Use of the site shall be at COUNTY's direction in matters in which COUNTY deems it necessary to place restriction.
- b). Access to building wherein the work is performed shall be during regular business hours.
- c). Proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations of COUNTY.

6.11 PRE-INSTALLATION SITE SURVEY

- a) Prior to start of systems installation, CONTRACTOR shall meet at the project site with COUNTY's representative and representatives of trades performing related work to coordinate efforts. The parties shall review areas of potential interference and resolve conflicts before proceeding with the work. CONTRACTOR AND COUNTY shall coordinate with the General Contractor as necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets.
- b) Examine areas and conditions under which the system is to be installed. CONTRACTOR shall not proceed with the work until satisfactory conditions have been achieved.

6.12 HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS

- a) Be responsible for safekeeping of your own and your subcontractors' property, such as equipment and materials, on the job site. COUNTY assumes no responsibility for protection of above named property against fire, theft, and environmental conditions. CONTRACTOR's and CONTRACTOR's subcontractor's may pursue all rights and remedies available under applicable law in the event CONTRACTOR's and CONTRACTOR's subcontractor's above-named property is damaged or stolen due to acts or omissions of COUNTY or third-parties.

6.13 PROTECTION OF COUNTY'S FACILITIES

- a) Effectively protect COUNTY's facilities, equipment, and materials from dust, dirt, and damage during construction.

6.14 INSTALLATION

- a) Receive, check, unload, handle, store, and adequately protect equipment and materials to be installed as part of the contract. Store in areas as directed by COUNTY's representative. Include delivery, unloading, setting in place, fastening to walls, floors, ceilings, or other structures where required and other related work whether or not expressly defined herein.
- b) Visually inspect all cables, cable reels and shipping cartons to detect possible cable damage incurred during shipping and transport. Visibly damaged goods are to be returned to the supplier and replaced at no additional cost to COUNTY.
- c) If post-manufacture performance data has been supplied by the manufacturer of cables or connecting hardware, copies of such data are to be kept for inclusion in the documentation and made available to COUNTY upon request.
- d) Install materials and equipment in accordance with applicable standards, codes, requirements, and recommendations of national, state, and local authorities having jurisdiction, and National Electrical Code® (NEC) and with manufacturer's printed instructions.
- e) Install cables in one continuous piece. Splices shall not be allowed unless agreed upon in advance by COUNTY.

- f) Adhere to manufacturer's published specifications for pulling tension, minimum bend radii, and sidewall pressure when installing cables.
- g) Where manufacturer does not provide bending radii information, minimum bending radius shall be 10 times cable diameter. Arrange and mount equipment and materials in the manner specified herein or in the applicable scope of work or purchase order
- h) Penetrations through floor and fire-rated walls shall utilize galvanized rigid conduit (GRC) sleeves and shall be firestopped after installation and testing, utilizing a firestopping assembly approved for that application.
- i) Install fiber backbone cable to the TR as specified per project scope of work.
- j) A service loop of nine (9) meters shall be placed in the computer or telecommunications room, unless otherwise specified.

7.0 OPTICAL FIBER TERMINATION

- a). Optical fiber termination hardware shall be installed in the following manner:
 - 1) Each fiber bundle shall be stripped upon entering the splice tray and the individual fibers routed in the splice tray.
 - 2) Each cable shall be individually attached to the respective splice enclosure by mechanical means. The cables strength member shall be securely attached to the cable strain relief bracket in the enclosure.
 - 3) Fiber slack shall be neatly coiled within the fiber splice tray or enclosure. No slack loops shall be allowed external to the fiber panel.
 - 4) Each cable shall be clearly labeled at the entrance to the splice enclosure. Cables labeled within the bundle shall not be acceptable.

7.1 GROUNDING

Refer to section 1.10.e.

7.2 TESTING

- a) Prior to installation, COUNTY may require CONTRACTOR to 'reel test' the fiber. Refer to Exhibit B to enter the labor cost to test individual strands of fiber. See following for testing criteria:
 - 1) Test optical cable with a light source and power meter utilizing procedures as stated in ANSI/TIA/EIA-526-14A: OFSTP-14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant and ANSI/TIA/EIA-526-7 (currently Standard Proposal Number 2974-B): OFSTP-7. Measurement of Optical Power Loss of Installed Singlemode Fiber Cable Plant.
 - 2) Measured results shall be plus/minus 1 dB of submitted loss budget calculations. If loss figures are outside this range, test cable with optical time domain reflectometer to determine cause of variation.
 - 3) Replace all damaged cables prior to installation at no charge to COUNTY.
- b) Post Installation Certification Testing:
 - 1) CONTRACTOR shall provide manufacturer certified labor to complete testing within the agreed upon test period.
 - 2) CONTRACTOR shall have a minimum of three years experience installing and testing fiber optic cabling systems. All installers assigned by CONTRACTOR to the installation

shall have a minimum of two years experience in the installation of fiber optic cabling systems.

- 3) Contractor is responsible for supplying all of the required test equipment used to conduct acceptance tests.
- 4) All fiber cable shall be tested and documented as per test criteria in Exhibit C. CONTRACTOR shall not be reimbursed for any cable installation that does not meet the testing specifications outlined in this document.

7.3 FIELD QUALITY CONTROL

- a) CONTRACTOR Project Manager (PM) shall, during the course of the installation, provide coordination of work of this specification and of other trades, and provide technical information when requested by other trades. CONTRACTOR's Project Manager shall be responsible for quality control during installation and testing.
- b) Installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program

7.4 ACCEPTANCE

- a) Acceptance:
 - 1) Once all work has been completed, test documentation has been submitted, and COUNTY is satisfied that all work is in accordance with contract documents, within 10 (ten) business days, COUNTY shall notify Contractor in writing of formal acceptance of the system by COUNTY's issuance to CONTRACTOR the applicable Project Notification Closeout letter.
- b) Acceptance Requirements:
 - 1) Contractor confirms in writing that 100 percent of CONTRACTOR's installation of Service herein meets the requirements specified under Exhibit C.
 - 2) COUNTY reserves the right to conduct, at COUNTY's expense, using CONTRACTOR equipment and labor, a random re-test of up to 5 percent of the cable plant to confirm documented results. Any failing cabling shall be re-tested and restored to a passing condition. In the event more than 2 percent of the cable plant fails during re-test, the entire cable plant shall be retested and restored to a passing condition at no additional cost to COUNTY.
 - 3) Acceptance shall be subject to completion of all work, successful post-installation testing, which yields 100 percent PASS rating, and receipt of full documentation as described in Exhibit C.

8.0 TELCOMMUNICATION ROOM SPECIFICATIONS

Section Includes: Equipment, materials, labor and services to provide a telecommunications room to facilitate the installation of a system, including but not limited to material and parts as identified in Exhibit E.

8.1 CONTRACTOR Services related to COUNTY Telecommunication Room(s) shall be based on the following:

Equipment

1. All racks, freestanding and wall mounted, as well as wire management shall be identified by COUNTY. The equipment rack shall provide vertical cable management and support for the patch cords at the front of the rack and wire management, support and protection for the horizontal cables on sides of the rack.

Radius bends shall be provided at the top of the rack for wire protection and to maintain proper bend radius and cable support. All ANSI/EIA/TIA industry standards shall be complied with.

2. Racks shall be securely attached to the floor.
3. Racks shall be placed with a minimum of 48 inch clearance from the center of the rack to the walls on each sides of the rack. (See example of telecommunications room on Exhibit E) If installing racks in a row, maintain a distance of 44 inches from the wall to the end rack to provide American Disabilities Act (ADA) minimum clearance.
4. CONTRACTOR shall coordinate with COUNTY Project Manager concerning any surplus hardware or materials that remain after project completion.
5. Cable tray may be installed at the request of COUNTY. Reference Exhibit B for labor and material pricing.
6. Additional requirements will be set forth in each scope of work for each project.

Description

7. Telecommunication room equipment is to be installed per the directions and specifications of COUNTY.
8. Labor to build out the telecommunications room is to be entered on individual bids as they apply.

9.0 COUNTY RESPONSIBILITIES

With respect to Services provided by CONTRACTOR to COUNTY under this Agreement, COUNTY shall:

- 9.1 Allow CONTRACTOR access for Service installation, testing, repair and performance of any required activity. COUNTY will notify CONTRACTOR of any site-specific requirements that might impact CONTRACTOR's ability to access such site. COUNTY will provide necessary badges, escorts, etc. required for site access per COUNTY's security and safety policies.
- 9.2 Provide suitable building facilities for the Service in accordance with local codes, including but not limited to ducting, conduit, structural borings, etc. for cable and conductors in floors, ceilings and walls; electrical service with suitable terminals and power surge protection devices; and metallic grounds with sufficient slack in the equipment room, installed in conformity with the National Electrical Code and local codes.
- 9.3 Provide necessary power conditioning, heating, cooling, humidity and dust control, and accessibility for the Service as required by manufacturer specifications.
- 9.4 Identify and disclose to CONTRACTOR concealed COUNTY equipment, wiring or conditions that might be affected by or might affect the Service. To the extent permitted by law, COUNTY will defend and hold CONTRACTOR harmless from any claim, damage or liability resulting from a failure to disclose this information.
- 9.5 Cooperate with CONTRACTOR's requests for assistance in testing Services.

- 9.6 Be responsible for the accuracy and completeness of all information it provides. If information is incomplete or incorrect, or if information is discovered during the course of the performance of Services that could not be reasonably anticipated by CONTRACTOR, any additional work required will be treated as a change to the scope of the Services. Such changes will be reflected in mutually agreed upon written change documentation, addressing costs attributable to labor, Service, materials, and tools necessary to carry out the change.
- 9.7 Timely making available appropriate COUNTY personnel to work with CONTRACTOR as CONTRACTOR may reasonably request.
- 9.8 Immediately notify CONTRACTOR of any anticipated delay in building availability.

**EXHIBIT B
PAYMENT PROVISIONS**

Attachment A – Material List
 (Note: This is not intended to be a complete list of all parts required for the project, only a clarification on specific material specified in general terms within the SOW. All cable distances are approximate for bid purposes and the contractor is responsible for determining actual lengths prior to material procurement and installation.)

Material/Labor Description Part Number Vendor Unit

Horizontal Station Cabling

Material/Labor Description Part Number Vendor Unit

Material/Labor Description	Part Number	Vendor	Unit	LABOR 5AM to 5PM	LABOR OUTSIDE 5AM to 5PM	LABOR OVERTIME
Labor 1st pull, terminate & test	Category 5e		Ea	109.86	153.80	196.86
Labor 2nd pull, terminate & test	Category 5e		Ea	95.39	128.61	164.63
Labor 3rd pull, terminate & test	Category 5e		Ea	80.94	109.13	139.68
Labor 4th pull, terminate & test	Category 5e		Ea	66.49	89.64	114.74
Labor 1st pull, terminate & test	Category 6		Ea	115.84	155.90	199.55
Labor 2nd pull, terminate & test	Category 6		Ea	101.19	136.41	174.60
Labor 3rd pull, terminate & test	Category 6		Ea	86.72	116.92	149.66
Labor 4th pull, terminate & test	Category 6		Ea	72.27	97.44	124.72
Labor and material, horizontal pull string	pull string		Ea	8.67	11.69	14.97
Labor to tone & ID	per outlet		Ea	28.91	38.97	49.89
Labor to wreckout	per hour		Hr	69.73	97.62	124.96
Labor to cutover and patch data outlets	per outlet		Ea	14.46	19.49	24.94
Cable: 7/1000 Feet Berk-Tek						
NO SUBSTITUTIONS						
LANmark -350, UTP, 4 Pair, CAT 5E, PVC (Gray)	10032447	Berk-Tek	M	109.96		

LANmark -350, UTP, 4 Pair, CAT 5E, Plenum (Gray)	10032079	Berk-Tek	M	210.87			
LANmark -350, UTP, 4 Pair, CAT 5E, PVC (White)	10032434	Berk-Tek	M	109.96			
LANmark -350, UTP, 4 Pair, CAT 5E, Plenum (White)	10032072	Berk-Tek	M	210.87			
LANmark -350, UTP, 4 Pair, CAT 5E, PVC (Yellow)	10032419	Berk-Tek	M	109.96			
LANmark -350, UTP, 4 Pair, CAT 5E, Plenum (Yellow)	10032060	Berk-Tek	M	210.87			
LANmark-1000, UTP, 4 Pair, CAT 6 - PVC (White)	10032459	Berk-Tek	M	160.42			
LANmark-1000, UTP, 4 Pair, CAT 6 - Plenum (White)	10032092	Berk-Tek	M	323.42			
LANmark-1000, UTP, 4 Pair, CAT 6 - PVC (Yellow)	10032461	Berk-Tek	M	160.42			
LANmark-1000, UTP, 4 Pair, CAT 6 - Plenum (Yellow)	10032090	Berk-Tek	M	323.42			
CATV RG6 Coaxial Quad Shield PVC	10065778	Berk-Tek	M	161.32			
CATV RG6 Coaxial Quad Shield Plenum	10057997	Berk-Tek	M	669.04			
CATV RG11 Coaxial Quad Shield PVC	10065782	Berk-Tek	M	271.37			
CATV RG11 Coaxial Quad Shield Plenum	10061910	Berk-Tek	M	1999.63			
DATA JACKS - ORTRONICS NO. SUBSTITUTIONS				WATER	TALE		
LT ORANGE TRACK JACK - CAT 5E	ORTJ5E00-23	Ortronics	EA	3.67			
LT GREEN TRACK JACK - CAT 5E	ORTJ5E00-25	Ortronics	EA	3.67			
LT YELLOW TRACK JACK - CAT 5E	ORTJ5E00-24	Ortronics	EA	3.67			
LT BLUE TRACK JACK - CAT 5E	ORTJ5E00-26	Ortronics	EA	3.67			
LT ORANGE TRACK JACK - CAT 6	ORTJ600-23	Ortronics	EA	5.82			
LT GREEN TRACK JACK - CAT 6	ORTJ600-25	Ortronics	EA	5.82			
LT YELLOW TRACK JACK - CAT 6	ORTJ600-24	Ortronics	EA	5.82			
LT VIOLET TRACK JACK - CAT 6	ORTJ600-27	Ortronics	EA	5.82			
LT BLUE TRACK JACK - CAT 6	ORTJ600-26	Ortronics	EA	5.82			
BLUE TRACK JACK - CAT 6	ORTJ600-36	Ortronics	EA	5.82			
POSSIBLE CHOICES FOR VOICE ORTRONICS NO. SUBSTITUTIONS				WATER	TALE		
CAT 5E , RJ45, T568A/B -	OR-TJ5E00-88	Ortronics	EA	3.67			

WHITE								
CAT 5E , RJ45, T568A/B - BLACK	OR-TJ5E00-00	Ortronics	EA	3.67				
CAT 3, RJ25C, USOC - CLOUD WHITE	OR-63700005-88	Ortronics	EA	2.96				
CAT 3, RJ25C, USOC - BLACK	OR-63700005 -00	Ortronics	EA	2.96				
Data Jack/Wireless - Amp - NO SUBSTITUTIONS					MATERIAL			
8-Position Modular Plug 25 Pk (Solid Conductor)	5-1375204-4	Amp	EA	0.74				
Plug Boot for CAT6 (White)	1-737893-1	Amp	EA	0.18				
Other Track Jack Options - Ortronics - NO SUBSTITUTIONS					MATERIAL			
TRACK JACK - F- Connector	OR-63700006	Ortronics	EA	2.50				
FACEPLATES & BOXES - Ortronics - NO SUBSTITUTIONS					MATERIAL			
CLOUD WHITE 4 PORT TRACK JACK FACEPLATE	OR-40300546-88	Ortronics	EA	1.42				
BLACK 4 PORT TRACK JACK FACEPLATE	OR-40300546-00	Ortronics	EA	1.42				
CLOUD WHITE 6 PORT TRACK JACK FACEPLATE	OR-40300545-88	Ortronics	EA	1.42				
BLACK 6 PORT TRACK JACK FACEPLATE	OR-40300545-00	Ortronics	EA	1.42				
CLOUD WHITE BLANK INSERT FOR FACEPLATE	OR-42100002-88	Ortronics	EA	2.35				
BLACK BLANK INSERT FOR FACEPLATE	OR-42100002-00	Ortronics	EA	2.35				
BLACK 4 PORT TRACK JACK FURNITURE SURFACE PLATE	OR-40300633-00	Ortronics	EA	2.35				
CLOUD WHITE 4 PORT SURFACE BOX	OR-40400055-88	Ortronics	EA	2.95				
BLACK 4 PORT SURFACE BOX	OR-40400055-00	Ortronics	EA	2.95				
CLOUD WHITE 6 PORT SURF BOX W/FIBER RING	OR-40400056-88	Ortronics	EA	2.95				
BLACK 6 PORT SURF BOX W/FIBER RING	OR-40400056-00	Ortronics	EA	6.10				
106 FRAME- CLOUD WHITE	OR-40800019-88	Ortronics	EA	1.53				
107 FRAME- IVORY	OR-40800019-99	Ortronics	EA	1.63				
PATCH PANELS - Ortronics - NO SUBSTITUTIONS					MATERIAL	LABOR	LABOR OUTSIDE	LABOR HOLIDAY

							SAM No. SPM	
24 PORT PNL 568B - CAT 5E	OR-PHD5E6U24	Ortronics	EA	108.13	5.79	8.11	17.79	
48 PORT PNL 568B - CAT 5E	OR-PHD5E6U48	Ortronics	EA	225.01	5.79	8.11	17.79	
24 PORT PNL 568B - CAT 6	OR-PHD66U24	Ortronics	EA	140.66	5.79	8.11	17.79	
48 PORT PNL 568B - CAT 6	OR-PHD66U48	Ortronics	EA	277.74	5.79	8.11	17.79	
12 PORT HINGE WALL MT PNL - CAT 5E	OR-PMP5E12H	Ortronics	EA	83.86	28.91	40.48	88.82	
12 PORT HINGE WALL MT PNL - CAT 6	OR-PMP612H	Ortronics	EA	101.43	28.91	40.48	88.82	
16 Port TracJack Panel Kit	OR-401045289	Ortronics	EA	33.29	5.79	8.11	17.79	
32 Port TracJack Panel Kit	OR-401045291	Ortronics	EA	42.04	5.79	8.11	17.79	
8 Port TracJack Mini Patch Panel Kit	OR-401045392	Ortronics	EA	23.05	5.79	8.11	17.79	
16 Port PoE Powered Panel, T568A/B, 250 watt	OR-PP5ECMS16	Ortronics	EA	964.65	11.81	16.54	36.29	
PATCH CORDS - Ortronics NO SUBSTITUTIONS					MATERIAL	LABOR		
3' WHITE PATCH CORD - CAT 5E	OR-MC5E03-09	Ortronics	EA	4.37				
5' WHITE PATCH CORD - CAT 5E	OR-MC5E05-09	Ortronics	EA	5.01				
7' WHITE PATCH CORD - CAT 5E	OR-MC5E07-09	Ortronics	EA	5.66				
9' WHITE PATCH CORD - CAT 5E	OR-MC5E09-09	Ortronics	EA	6.30				
15' WHITE PATCH CORD - CAT 5E	OR-MC5E15-09	Ortronics	EA	8.36				
25' WHITE PATCH CORD - CAT 5E	OR-MC5E25-09	Ortronics	EA	11.01				
3' GREEN PATCH CORD - CAT 6	OR-MC603-05	Ortronics	EA	4.96				
5' GREEN PATCH CORD - CAT 6	OR-MC605-05	Ortronics	EA	5.76				
7' GREEN PATCH CORD - CAT 6	OR-MC607-05	Ortronics	EA	6.62				
9' GREEN PATCH CORD - CAT 6	OR-MC609-05	Ortronics	EA	7.39				
15' GREEN PATCH CORD - CAT 6	OR-MC615-05	Ortronics	EA	9.41				
25' GREEN PATCH CORD - CAT 6	OR-MC625-05	Ortronics	EA	13.37				
WALL JACKS - ALLEN-TEL NO SUBSTITUTIONS					MATERIAL	LABOR		
WALL PHONE 6 PIN W/MOUNTING STUD	AT630B-6	ALLEN- TEL	EA	4.11				

Copper Backbone								
Material/Labor Description	Part Number	Vendor	Unit					
Quoted Labor Rates:						LABOR 8AM to 5PM	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
Labor								
In Conduit								
Labor pull 25 pair copper riser	Copper riser <300 ft		Ft			1.45	2.03	2.60
Labor pull 50 pair copper riser	Copper riser <300 ft		Ft			1.45	2.03	2.60
Labor pull 100 pair copper riser	Copper riser <300 ft		Ft			2.31	3.24	4.15
Labor pull 200 pair copper riser	Copper riser <300 ft		Ft			2.31	3.24	4.15
Open Ceiling								
Labor pull 25 pair copper riser	Copper riser <300 ft		Ft			2.31	3.24	4.15
Labor pull 50 pair copper riser	Copper riser <300 ft		Ft			2.31	3.24	4.15
Labor pull 100 pair copper riser	Copper riser <300 ft		Ft			2.89	4.05	5.18
Labor pull 200 pair copper riser	Copper riser <300 ft		Ft			2.89	4.05	5.18
Labor copper riser multi pair termination *per end*	per pair		Pr			0.64	0.90	1.16
Labor copper riser pull rope	Riser 0-300 ft pull rope		Ft			1.16	1.63	2.08
Distance 0-500 Feet								
Labor pull 25 pair copper OSP	OSPcopper backbone		Ft			2.89	4.05	5.18
Labor pull 50 pair copper OSP	OSPcopper backbone		Ft			2.89	4.05	5.18
Labor pull 100 pair copper OSP	OSPcopper backbone		Ft			3.48	4.87	6.23
Labor pull 200 pair copper OSP	OSPcopper backbone		Ft			3.48	4.87	6.23
Distance greater than 500 Feet								
Labor pull 25 pair copper OSP	OSPcopper backbone		Ft			3.48	4.87	6.23
Labor pull 50 pair copper OSP	OSPcopper backbone		Ft			3.48	4.87	6.23
Labor pull 100 pair copper OSP	OSPcopper backbone		Ft			4.63	6.48	8.29
Labor pull 200 pair copper OSP	OSPcopper backbone		Ft			4.63	6.48	8.29
Labor copper OSP multi pair termination *per end*	per pair/ per end		Pr			1.45	2.03	2.60
Labor copper OSP multi pair splice	per splice		Ea			1.73	2.42	3.09
Labor copper OSP pull rope	Pull rope for OSP runs		Ft			2.89	4.05	5.18
Outside Plant Cable - Essex								
NO SUBSTITUTIONS								

Essex - Filled Outside Plant Cable - 6 pr	SEALPIC-F-04-092-21	Essex	FT	0.23			
Essex - Filled Outside Plant Cable - 12 pr	SEALPIC-F-04-094-21	Essex	FT	0.40			
Essex - Filled Outside Plant Cable - 25 pr	SEALPIC-F-04-097-21	Essex	FT	0.58			
Essex - Filled Outside Plant Cable - 50 pr	SEALPIC-F-04-100-21	Essex	FT	1.00			
Essex - Filled Outside Plant Cable - 100 pr	SEALPIC-F-04-104-21	Essex	FT	2.15			
Essex - Filled Outside Plant Cable - 200 pr	SEALPIC-F-04-108-21	Essex	FT	3.56			
Essex - Filled Outside Plant Cable, T-Screen - 28 pr	SEALPIC-F-T1-05-618-50	Essex	FT	1.65			
Essex - Filled Outside Plant Cable, T-Screen - 54 pr	SEALPIC-F-T1-05-642-50	Essex	FT	2.76			
Essex - Filled Outside Plant Cable, T-Screen - 106 pr	SEALPIC-F-T1-05-657-50	Essex	FT	4.74			
Essex - Filled Outside Plant Cable, T-Screen - 210 pr	SEALPIC-F-T1-05-692-50	Essex	FT	8.93			
Essex - Air Core, Outside Plant Cable - 6 pr	AD-6P24-AL-22-5K-ESS	Essex	FT	0.21			
Essex - Air Core, Outside Plant Cable - 12 pr	AD-12P24-AL-22-5K-ESS	Essex	FT	0.36			
Essex - Air Core, Outside Plant Cable - 25 pr	AD-25P24-AL-22-5K-ESS	Essex	FT	0.53			
Essex - Air Core, Outside Plant Cable - 50 pr	AD-50P24-AL-22-5K-ESS	Essex	FT	0.88			
Essex - Air Core, Outside Plant Cable - 100 pr	AD-100P24-AL-22-5K-ESS	Essex	FT	1.61			
Essex - Air Core, Outside Plant Cable - 200 pr	AD-200P24-AL-22-5K-ESS	Essex	FT	3.09			
Outside Plant Cable - 1000 Feet Berk-Tek NO SUBSTITUTIONS							
Hyper Plus 5e OSP, UTP, 4 Pair, CAT 5e	10071496	Berk-Tek	FT	0.17			
Landmark 6 OSP, UTP, 4 Pair, CAT 6	10139885	Berk-Tek	M	318.24			
Inside Backbone Cable - Essex NO SUBSTITUTIONS							
Essex - Riser Cable - 25 pr	ARMM-02-097-03	Essex	FT	0.92			
Essex - Riser Cable - 50 pr	ARMM-02-100-03	Essex	FT	1.57			
Essex - Riser Cable - 100 pr	ARMM-02-104-03	Essex	FT	2.97			
Essex - Riser Cable - 200 pr	ARMM-02-108-03	Essex	FT	5.77			

Building Entrance Protection CIRCA					MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
6 PAIR - 66 Block / 66 Block 4.5" x 4.0" x 2.7"	2606QC/QC	CIRCA	EA	68.49	8.67	12.14	15.54	
12 PAIR - 66 Block / 66 Block 9.84" x 4.5" x 2.7"	2612QC/QC	CIRCA	EA	94.71	8.67	12.14	15.54	
25 PAIR - 66 Block / 66 Block 10.1" x 3.5" x 3.05"	2625QC/QC	CIRCA	EA	115.30	8.67	12.14	15.54	
25 PAIR - 66 Block / 66 Block 7.5" x 11.5" x 5.25"	1890ECT1-25	CIRCA	EA	227.97	8.67	12.14	15.54	
50 PAIR - 66 Block / 66 Block 9.2" x 15.25" x 4.75"	1890ECT1-50	CIRCA	EA	271.76	8.67	12.14	15.54	
100 PAIR - 66 Block / 66 Block 11.75" x 19.0" x 4.7"	1890ECT1-100	CIRCA	EA	425.49	11.56	16.18	20.72	
25 PAIR - 110 Block / 110 Block 9.2" x 15.25" x 4.75"	1880ECA1-25G	CIRCA	EA	243.87	8.67	12.14	15.54	
50 PAIR - 110 Block / 110 Block 9.2" x 15.25" x 4.75"	1880ECA1-50G	CIRCA	EA	276.74	8.67	12.14	15.54	
100 PAIR - 110 Block / 110 Block 10.75" x 14.5" x 6.26"	1880ECA1-100G	CIRCA	EA	425.49	11.56	16.18	20.72	
Building Entrance Protection Modules - CIRCA					MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
Black 5 Pin Module - Balanced Self Resetting - 240VDC	C3B1FS-BAL	CIRCA	EA	3.37	1.44	2.01	2.58	
Termination Plates & Equipment - Siemon - NO SUBSTITUTIONS					MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
66 M-1 Block, 50 Pair - CAT 5	S66M1-50	Siemon	EA	6.49	14.46	20.25	25.92	
89B Bracket for 66 Block	S89-B	Siemon	EA	1.35	5.78	8.09	10.36	
300 Pair 110 Block Kit w/C5 Blocks	S110AA2-300FT	Siemon	EA	82.93	28.91	40.48	51.81	
300 Pair 110 Block Kit w/C4 Blocks	S110AB2-300FT	Siemon	EA	79.58	28.91	40.48	51.81	
Bag of (10) 4-Pair Connecting Blocks	S110C-4	Siemon	Bag	6.19	5.78	8.09	10.36	
Bag of (10) 5-Pair Connecting Blocks	S110C-5	Siemon	Bag	7.09	5.78	8.09	10.36	
S110 Tower System 300 PR termination kit w/ C4	S110MB2-300FT	Siemon	EA	152.86	28.91	40.48	51.81	
S110 Tower System 300 PR termination kit w/ C5	S110MA2-300FT	Siemon	EA	161.24	28.91	40.48	51.81	
S110 Tower System 400 PR	S110MB2-400FT	Siemon	EA	189.95	28.91	40.48	51.81	

termination kit w/ C4			EA	204.14	28.91	40.48	51.81
S110 Tower System 400 PR termination kit w/ C5	S110MA2-400FT	Siemon	EA	74.24	14.46	20.25	25.92
300 pair large wire manager	S188-300	Siemon	EA	88.18	14.46	20.25	25.92
400 pair large wire manager	S188-400	Siemon	EA	38.22	14.46	20.25	25.92
300 pair small wire manager	S100M-WM-300	Siemon	EA	48.14	14.46	20.25	25.92
400 pair small wire manager	S100M-WM-400	Siemon	EA	41.23	14.46	20.25	25.92
Base wire management	S188-WD	Siemon		28.88	14.46	20.25	25.92
3-position ground bar	S188-Gnd	Siemon					
Terminating Frames & Equipment - CommScope NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
110 Jumper Trough	110B3	CommScope	EA	4.76	43.36	60.71	77.70
Terminating Frames & Equipment - Cransworth Products Inc. - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
900 Pr. 110 Support Trough	SK7359-701	CPI	EA	90.12	43.36	60.71	77.70
600 Pr. 110 Support Trough	SK7360-701	CPI	EA	78.48	43.36	60.71	77.70
Terminating Equipment - Systimax - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
110 Rivet Package (38)	110RA-38	Systimax	EA	6.30	5.78	8.09	10.36
Fiber Backbone							
Material/Labor Description	Part Number	Vendor	Unit				
Quoted Labor Rates					LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
Labor							
In Innerduct							
Labor pull 1-144 fiber strands in innerduct	1 - 499 ft		Ft		1.16	1.63	2.08
Labor pull 1-144 fiber strands in innerduct	500 - 999 ft		Ft		1.39	1.95	2.50

Labor pull 1-144 fiber strands in innerduct	1000 -1999 ft	Ft		1.62	2.27	2.91	
Labor pull 1-144 fiber strands in innerduct	>2000 ft	Ft		1.73	2.42	3.09	
In Conduit without innerduct							
Labor pull 1-144 fiber strands	1 - 499 ft	Ft		1.16	1.63	2.08	
Labor pull 1-144 fiber strands	500 - 999 ft	Ft		1.39	1.95	2.50	
Labor pull 1-144 fiber strands	1000 -1999 ft	Ft		1.62	2.27	2.91	
Labor pull 1-144 fiber strands	>2000 ft	Ft		1.73	2.42	3.09	
In Open Ceiling							
Labor pull 1-144 fiber strands	1 - 499 ft	Ft		1.27	1.77	2.27	
Labor pull 1-144 fiber strands	500 - 999 ft	Ft		1.51	2.11	2.70	
Labor pull 1-144 fiber strands	1000 -1999 ft	Ft		1.73	2.42	3.09	
Labor pull 1-144 fiber strands	>2000 ft	Ft		1.97	2.76	3.53	
Innerduct Labor							
Labor innerduct installation in conduit	1 - > 2000 ft	Ft		1.16	1.63	2.08	
Labor innerduct installation in open ceiling	1 - > 2000 ft	Ft		1.27	1.77	2.27	
Other							
Labor to Rod& Rope	1 - 499 ft	Ft		0.92	1.29	1.65	
Labor to Rod& Rope	500 - 999 ft	Ft		1.05	1.47	1.88	
Labor to Rod& Rope	1000 -1999 ft	Ft		1.16	1.63	2.08	
Labor to Rod& Rope	>2000 ft	Ft		1.27	1.77	2.27	
Labor fiber termination and test Multimode- Hot Melt	per strand/Per end	Ea		17.35	24.29	31.09	
Labor fiber termination and test Multimode- Anaerobic	per strand/Per end	Ea		17.35	24.29	31.09	
Labor fiber termination and Test Singlemode- Hot Melts	per strand/Per end	Ea		17.35	24.29	31.09	
Labor fiber termination and Test Singlemode Anaerobic	per strand/Per end	Ea		17.35	24.29	31.09	
Labor fiber pre installation test (OTDR)	per strand/Per end	Ea		8.67	12.14	15.54	
Labor fiber fusion splice Multimode	per splice	Ea		28.91	40.48	51.81	
Labor fiber fusion splice Singlemode	per splice	Ea		28.91	40.48	51.81	
				0.00	0.00	0.00	
Corning Fiber Rack Mount Housings (CCH) AND SUBSTITUTIONS							
Closet Connector Housing, 12 CCH Panel Capacity, 144 Fiber	CCH-04U	Corning	EA	270.11	34.86	48.81	62.48
Closet Connector Housing, 6 CCH Panel Capacity, 72 Fiber	CCH-03U	Corning	EA	240.66	34.86	48.81	62.48
Closet Connector Housing, 4 CCH Panel Capacity, 48 Fiber	CCH-02U	Corning	EA	211.98	34.86	48.81	62.48
Closet Connector Housing, 2 CCH Panel Capacity, 24 Fiber	CCH-01U	Corning	EA	178.26	34.86	48.81	62.48

CCH Panel Capacity, 24 Fiber								
Corning - Fiber - Closet Connector/Housing Panels - NO SUBSTITUTIONS					MATERIALS	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
6 Strand Fiber - SC Adapter (duplex) multimode	CCH-CP06-57	Corning	EA	35.15	5.79	8.11	10.38	
6 Strand Fiber - SC Adapter (duplex) singlemode	CCH-CP06-59	Corning	EA	40.46	5.79	8.11	10.38	
6 Strand Fiber - ST Adapter, multimode	CCH-CP06-15T	Corning	EA	26.03	5.79	8.11	10.38	
12 Strand Fiber - SC Adapter (duplex) multimode	CCH-CP12-57	Corning	EA	60.51	5.79	8.11	10.38	
12 Strand Fiber - SC Adapter (duplex) singlemode	CCH-CP12-59	Corning	EA	71.13	5.79	8.11	10.38	
12 Strand Fiber - ST Adapter, multimode	CCH-CP12-15T	Corning	EA	42.00	5.79	8.11	10.38	
Corning - Fiber - Closet Connector/Housing Accessories - NO SUBSTITUTIONS					MATERIALS	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
Lock Kit (Required for each housing)	HDWR-Lock-Kit	Corning	EA	19.57	5.79	8.11	10.38	
Patch Field Cover (Required for each Rack Unit)	CCH-TOP-CVR	Corning	EA	48.78	5.79	8.11	10.38	
Berk-Tek - Fiber Cable - Adventure Inside & Outside - Interlocking Armored Cable - Plenum - NO SUBSTITUTIONS					MATERIALS	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
12 Strand Fiber, 62.5 / 125 mm	LTPK012CB3510/25	Berk-Tek	FT	2.08				
12 Strand Fiber, 50 / 125 mm	LTPK012EB3010/25	Berk-Tek	FT	2.24				
12 Strand Fiber, Singlemode	LTPK012AB0403	Berk-Tek	FT	1.66				
24 Strand Fiber, 62.5 / 125 mm	LTPK12B024CB3510/25	Berk-Tek	FT	4.00				
24 Strand Fiber, 50 / 125 mm	LTPK12B024EB3010/25	Berk-Tek	FT	4.90				
24 Strand Fiber, Singlemode	LTPK12B024AB0403	Berk-Tek	FT	4.14				
Berk-Tek - Fiber - Buffer tube Fan-Outs - NO SUBSTITUTIONS					MATERIALS	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY

Indoor 24" tubing, 6 fiber	10033626	Berk-Tek	EA	14.90	34.86	48.81	62.48
Indoor 24" tubing, 12 fiber	10033624	Berk-Tek	EA	19.76	34.86		
Ortronics - Fiber - Rack Mount Housings - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 5PM	LABOR HOLD
Rack Mount Fiber Cabinet, 3 Panel Capacity, 36 Fiber	OR-FC01U-P	Ortronics	EA	216.88	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 6 Panel Capacity, 72 Fiber	OR-FC02U-P	Ortronics	EA	244.82	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 9 Panel Capacity, 108 Fiber	OR-FC03U-P	Ortronics	EA	272.76	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 12 Panel Capacity, 144 Fiber	OR-FC04U-P	Ortronics	EA	300.69	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 3 Panel Capacity, 18 Fiber	OR-615MMC-18P-00	Ortronics	EA	125.83	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 6 Panel Capacity, 36 Fiber	OR-615MMC-36P-00	Ortronics	EA	196.97	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 9 Panel Capacity, 72 Fiber	OR-615MMC-72P-00	Ortronics	EA	270.55	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 12 Panel Capacity, 144 Fiber	OR-61500014-00	Ortronics	EA	249.86	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 3 Panel Capacity, 24 Fiber	OR-FC01U-C	Ortronics	EA	223.79	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 6 Panel Capacity, 48 Fiber	OR-FC02U-C	Ortronics	EA	251.72	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 9 Panel Capacity, 108 Fiber	OR-FC03U-C	Ortronics	EA	279.67	34.86	48.81	62.48
Rack Mount Fiber Cabinet, 12 Panel Capacity, 144 Fiber	OR-FC04U-C	Ortronics	EA	307.61	34.86	48.81	62.48
Blank Adapter	OR-0FP-BLANK	Ortronics	EA	3.39	5.79	8.11	10.38
Fiber Cabinet Bend Limiting Clips	OR-FCBL-002	Ortronics	EA	9.83	5.79	8.11	10.38
Ortronics - Fiber - Wall Mountable Housings - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 5PM	LABOR HOLD
Wall Mount Fiber Cabinet, 2 Panel Capacity, 24 Fiber	OR-615SMFC-24P	Ortronics	EA	98.01	69.73	97.62	124.96
Wall Mount Fiber Cabinet, 4 Panel Capacity, 72 Fiber	OR-615SMFC-48P	Ortronics	EA	203.56	69.73	97.62	124.96
Wall Mount Fiber Cabinet, 8 Panel Capacity, 96 Fiber	OR-615SMFC-96P	Ortronics	EA	410.28	69.73	97.62	124.96
Ortronics - Fiber - Connectors - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 5PM	LABOR HOLD

SUBSTITUTIONS								
ST Compatible 50µm Multimode	OR-205KAN9EA-MM	Ortronics	EA	5.80				
ST Compatible 62.5µm Multimode	OR-205KAN9EA-MM	Ortronics	EA	5.80				
SC Compatible 50µm Multimode	OR-205KAN9FA-MM	Ortronics	EA	5.22				
SC Compatible 62.5µm Multimode	OR-205KAN9FA-MM	Ortronics	EA	5.22				
ST Compatible Singlemode	OR-205KAN9EA-SM	Ortronics	EA	7.99				
SC Compatible Singlemode	OR-205KAN9FA-SM	Ortronics	EA	6.60				
Ortronics - Fiber Connector Panels - NO SUBSTITUTIONS					MATERIAL	LABOR	LABOR OUTSIDE 8AM/6-5PM	LABOR HOLIDAY
6 Strand Fiber - SC AQUA Adapter (duplex) multimode	OR-OFP-SCD06LC	Ortronics	EA	33.83	5.79	8.11	10.38	
6 Strand Fiber - SC Adapter (duplex) singlemode	OR-OFP-SCD06AC	Ortronics	EA	43.35	5.79	8.11	10.38	
6 Strand Fiber - ST Adapter, multimode	OR-OFP-STS06NB	Ortronics	EA	19.54	5.79	8.11	10.38	
12 Strand Fiber - SC AQUA Adapter (duplex) multimode	OR-OFP-SCD12LC	Ortronics	EA	49.41	5.79	8.11	10.38	
12 Strand Fiber - SC Adapter (duplex) singlemode	OR-OFP-SCD12AC	Ortronics	EA	63.92	5.79	8.11	10.38	
12 Strand Fiber - ST Adapter, multimode	OR-OFP-STD12MB	Ortronics	EA	31.03	5.79	8.11	10.38	
Ortronics - Fiber Patch Cords - NO SUBSTITUTIONS					MATERIAL	LABOR		
Multimode 62.5/125 SC to SC 1 meter	OR-61150D62001M99C	Ortronics	EA	32.01				
Multimode 62.5/125 SC to SC 3 meter	OR-61150D62003M99C	Ortronics	EA	35.00				
Multimode 62.5/125 SC to LC 1 meter	OR-61150D62001M79C	Ortronics	EA	34.40				
Multimode 62.5/125 SC to LC 3 meter	OR-61150D62003M79C	Ortronics	EA	37.40				
Multimode 62.5/125 LC to LC 1 meter	OR-61150D62001M77C	Ortronics	EA	36.79				
Multimode 62.5/125 LC to LC 3 meter	OR-61150D62003M77C	Ortronics	EA	39.77				
Multimode 62.5/125 SC to ST 1 meter	OR-61150D62001M39C	Ortronics	EA	28.66				

Multimode 62.5/125 SC to ST 3 meter	OR-61150D62003M39C	Ortronics	EA	31.66			
Multimode 62.5/125 ST to ST 1 meter	OR-61150D62001M33C	Ortronics	EA	25.30			
Multimode 62.5/125 ST to ST 3 meter	OR-61150D62003M33C	Ortronics	EA	28.31			
Multimode 62.5/125 SC to MTRJ 1 meter	OR-61150D62001M29C	Ortronics	EA	30.92			
Multimode 62.5/125 SC to MTRJ 3 meter	OR-61150D62003M29C	Ortronics	EA	33.92			
Multimode 62.5/125 ST to MTRJ 1 meter	OR-61150D62001M23C	Ortronics	EA	27.59			
Multimode 62.5/125 ST to MTRJ 3 meter	OR-61150D62003M23C	Ortronics	EA	30.57			
Multimode 50/125 SC to SC 1 meter	OR-626DF2LR-FF001M	Ortronics	EA	35.82			
Multimode 50/125 SC to SC 3 meter	OR-626DF2LR-FF003M	Ortronics	EA	40.61			
Multimode 50/125 SC to LC 1 meter	OR-626DF2LR-FG001M	Ortronics	EA	38.87			
Multimode 50/125 SC to LC 3 meter	OR-626DF2LR-FG003M	Ortronics	EA	43.65			
Multimode 50/125 LC to LC 1 meter	OR-626DF2LR-GG001M	Ortronics	EA	41.91			
Multimode 50/125 LC to LC 3 meter	OR-626DF2LR-GG003M	Ortronics	EA	46.69			
Multimode 50/125 SC to ST 1 meter	OR-626DF2LR-EF001M	Ortronics	EA	31.15			
Multimode 50/125 SC to ST 3 meter	OR-626DF2LR-EF003M	Ortronics	EA	37.18			
Multimode 50/125 ST to ST 1 meter	OR-626DF2LR-EE001M	Ortronics	EA	28.97			
Multimode 50/125 ST to ST 3 meter	OR-626DF2LR-EE003M	Ortronics	EA	33.75			
Multimode 50/125 SC to MTRJ 1 meter	OR-626DF2LR-CF001M	Ortronics	EA	37.30			
Multimode 50/125 SC to MTRJ 3 meter	OR-626DF2LR-CF003M	Ortronics	EA	43.19			
Multimode 50/125 ST to MTRJ 1 meter	OR-626DF2LR-CE001M	Ortronics	EA	38.42			
Multimode 50/125 ST to MTRJ 3 meter	OR-626DF2LR-CE003M	Ortronics	EA	43.19			
Singlemode 9/125 SC to SC 1 meter	OR-626DC2IR-RR001M	Ortronics	EA	49.18			
Singlemode 9/125 SC to SC 3 meter	OR-626DC2IR-RR003M	Ortronics	EA	51.50			
Singlemode 9/125 SC to LC 1 meter	OR-626DC2IR-RS001M	Ortronics	EA	50.55			
Singlemode 9/125 SC to LC 3 meter	OR-626DC2IR-RS003M	Ortronics	EA	52.86			

Singlemode 9/125 LC to LC 1 meter	OR-626DC2IR-SS001M	Ortronics	EA	51.91			
Singlemode 9/125 LC to LC 3 meter	OR-626DC2IR-SS003M	Ortronics	EA	52.13			
Singlemode 9/125 SC to ST 1 meter	OR-626DC2IR-QR001M	Ortronics	EA	45.68			
Singlemode 9/125 SC to ST 3 meter	OR-626DC2IR-QR003M	Ortronics	EA	48.01			
Singlemode 9/125 ST to ST 1 meter	OR-626DC2IR-QQ001M	Ortronics	EA	42.18			
Singlemode 9/125 ST to ST 3 meter	OR-626DC2IR-QQ003M	Ortronics	EA	44.50			
Innerduct - Plenum				MATERIAL			
1" Innerduct - Plenum	Carlou PLM100T-8000		FT	1.76			
1" Innerduct - Non Plenum	4404-04R/6500		FT	0.52			
Telecom Rooms							
Material/Labor Description	Part Number	Vendor	Unit				
Mount Battery Boxes				MATERIAL	LABOR	LABOR OUTSIDE	LABOR HOLIDAY
						5PM	
MOUNT BATTERY BOX	PER BOX		Ea	0.00	27.28	38.19	48.88
Wall Mount Racks - Chatsworth Products, Inc. - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE	LABOR HOLIDAY
						5PM	
Universal Swing Gate Rack, 35" H X 18" D X 19" W	11348-519	CPI	EA	318.14	173.46	242.84	310.84
CPI-Cube-it 48"HX24WX24D W/Plexi Door	11900-748	CPI	EA	646.82	173.46	242.84	310.84
CPI Cube-it cabinet-24"X24"X24"(Black)	11840-724	CPI	EA	468.78	173.46	242.84	310.84
CPI Cube-it Fan kit	11842-701	CPI	EA	90.65	27.28	38.19	48.88
Equipment Racks - Chatsworth Products, Inc. - NO				MATERIAL	LABOR	LABOR OUTSIDE	LABOR HOLIDAY

SUBSTITUTIONS							DE MATERIALS 5PM	
Enhanced Standard 19" X 7' Equipment Rack	55059-503	CPI	EA	119.45	115.65	161.91	207.24	
QuadraRack Server Frame Black	15053-703	CPI	EA	607.81	173.46	242.84	310.84	
QuadraRack 4-Post Frame 7' Black	50120-703	CPI	EA	582.19	173.46	242.84	310.84	
QuadraRack 4-Post Frame 7' Clear	50120-503	CPI	EA	582.19	173.46	242.84	310.84	
QuadraRack Expanda Rack 7' Black	50110-703	CPI	EA	309.45	173.46	242.84	310.84	
QuadraRack Expanda Rack 7' Clear	50110-503	CPI	EA	309.45	173.46	242.84	310.84	
Screws/Cage nuts #12-24 pkg 25 (QuadraRack Server)	12639-001	CPI	PK G	26.91	5.79	8.11	10.38	
Teraframe Cabinet	FF3B123EC22	CPI	EA	2194.21	173.46	242.84	310.84	
Teraframe Cabinet Vertical Cable Manager	34441-C02	CPI	EA	192.04	8.67	12.14	15.54	
Teraframe Cabinet Front-to-Back Cable Managers	34551-C01	CPI	EA	65.77	8.67	12.14	15.54	
Teraframe Cabinet Vertical Power Cord Manager	34582-C45	CPI	EA	98.67	8.67	12.14	15.54	
Teraframe Cabinet Vertical Power Strip Manager	34595-C05	CPI	EA	46.47	8.67	12.14	15.54	
Teraframe Cabinet Power Cord Management Kit	34413-C01	CPI	EA	46.03	8.67	12.14	15.54	
Teraframe Cabinet Power Strip Mounting Bracket Kit	34407-C01	CPI	EA	54.71	8.67	12.14	15.54	
Shelves and Equipment Racks - Onagword Products - NO SUBSTITUTIONS					MATERIAL	LABOR	LABOR OFFSIDE 8AM TO 5PM	LABOR HOLD BY
19" Full Size Sliding Keyboard & Mouse Tray	11546-501	CPI	EA	205.94	11.56	16.18	20.72	
23" Full Size Sliding Keyboard & Mouse Tray	12062-523	CPI	EA	177.56	11.56	16.18	20.72	
Double Sided Heavy Duty Rack Shelf, 19"	11164-519	CPI	EA	122.72	8.67	12.14	15.54	
Double Sided Heavy Duty Rack Shelf, 23"	11164-523	CPI	EA	143.46	8.67	12.14	15.54	
Equipment Shelf, Single Sided (Monitor), 19"	40074-500	CPI	EA	74.10	8.67	12.14	15.54	
Equipment Shelf, Single Sided (Monitor), 23"	40075-500	CPI	EA	104.25	8.67	12.14	15.54	
Double Sided Shelf, 19"	40108-519	CPI	EA	89.15	8.67	12.14	15.54	
Double Sided Shelf, 23"	40108-523	CPI	EA	124.60	8.67	12.14	15.54	
Adjustable Monitor Shelf, 19"	11245-519	CPI	EA	147.80	8.67	12.14	15.54	
Adjustable Monitor Shelf, 23"	11245-523	CPI	EA	167.70	8.67	12.14	15.54	

Adjustable Monitor Strap Shelf, 19"	11628-519	CPI	EA	218.68	8.67	12.14	15.54
Adjustable Monitor Strap Shelf, 23"	11628-523	CPI	EA	236.36	8.67	12.14	15.54
Tower CPU Adjustable Tie-Down Brackets, 19"	12086-519	CPI	EA	130.42	8.67	12.14	15.54
Tower CPU Adjustable Tie-Down Brackets, 23"	12086-523	CPI	EA	140.96	8.67	12.14	15.54
Equipment Tie-Down Bracket, 19"	11349-519	CPI	EA	38.40	8.67	12.14	15.54
Equipment Tie-Down Bracket, 23"	11349-523	CPI	EA	39.95	8.67	12.14	15.54
Fixed Shelf Solid Black (QuadraRack Server)	16351-719	CPI	EA	105.19	8.67	12.14	15.54
Fixed Shelf Vented Black (QuadraRack Server)	16350-719	CPI	EA	161.49	8.67	12.14	15.54
Sliding Shelf Extra Heavy Duty (QuadraRack Server)	12700-719	CPI	EA	387.74	8.67	12.14	15.54
Monitor Shelf/Keyboard Black (QuadraRack 4-Post)	12495-719	CPI	EA	317.13	8.67	12.14	15.54
Fixed Shelf 19" X 29" Black (QuadraRack 4-Post)	14070-719	CPI	EA	102.92	8.67	12.14	15.54
LCD & Monitor Shelf	13381-724	CPI	EA	1396.88	8.67	12.14	15.54
Sliding Shelf 19" X 24" Black (QuadraRack 4-Post)	12346-719	CPI	EA	286.89	8.67	12.14	15.54
Vertical Cable Management Chatsworth Products, Inc. NO SUBSTITUTIONS				MATERI AL	LABOR	LABOR OUTSIDE DE SAMPLING 5PM	LABOR HOLIDAY
Narrow Double Vertical Rack Wire Minder, 3.65"	12096-503	CPI	EA	291.36	11.56	16.18	20.72
Double Vertical Rack Wire Minder, 6"	11729-503	CPI	EA	327.00	11.56	16.18	20.72
Combination Cabling Section(CCS) 3.65"	SK-6229-703	CPI	EA	353.15	11.56	16.18	20.72
Combination Cabling Section(CCS) 6"	SK-6230-703	CPI	EA	414.70	11.56	16.18	20.72
Horizontal Cable Management Chatsworth Products, Inc. NO SUBSTITUTIONS				MATERI AL	LABOR	LABOR OUTSIDE DE SAMPLING 5PM	LABOR HOLIDAY
1RMU Front Only horizontal wire manager	30139-719	CPI	EA	39.63	8.67	12.14	15.54
2RMU Front Only horizontal wire manager	30130-719	CPI	EA	40.53	8.67	12.14	15.54
3RMU Front Only horizontal wire manager	30131-719	CPI	EA	59.27	8.67	12.14	15.54

Cable Runway and Accessories - Chatsworth Products, Inc. - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR POWER
Alternate Space Cable Runway, 12"	31472-112	CPI	EA	91.98	173.46	242.84	310.84
Universal Cable Runway, 9' 11-1/2" X 12"	10250-112	CPI	EA	73.16	173.46	242.84	310.84
Alternate Space Cable Runway, 18"	31472-118	CPI	EA	102.04	173.46	242.84	310.84
Universal Cable Runway, 9' 11-1/2" X 18"	10250-118	CPI	EA	83.68	173.46	242.84	310.84
Cable Runway Radius Drop 18"	12100-118	CPI	EA	27.33	5.79	8.11	10.38
Support Bracket For Cable Runway 18"	11746-118	CPI	EA	35.70	8.67	12.14	15.54
Wall Angle Cable Runway Support Kit 18"	11421-118	CPI	EA	21.97	8.67	12.14	15.54
Channel Rack to Runway Mounting Plate, Grey 18"	12730-118	CPI	EA	31.51	5.79	8.11	10.38
Cable Runway Radius Outside Bend 18"	10723-118	CPI	EA	82.08	11.56	16.18	20.72
Cable Runway Radius Inside Bend 18"	10724-118	CPI	EA	82.08	11.56	16.18	20.72
Cable Runway Movable Cross Member 18"	12115-118	CPI	EA	41.72	5.79	8.11	10.38
Cable Runway Corner Bracket	11959-115	CPI	EA	65.32	5.79	8.11	10.38
Cable Runway Radius Drop	12100-112	CPI	EA	24.82	11.23	15.72	20.12
Heavy Duty Butt-Splice Kit	11299-001	CPI	EA	22.22	8.67	12.14	15.54
Junction Splice Kit	11302-001	CPI	EA	7.82	8.67	12.14	15.54
Support Bracket For Cable Runway	11746-112	CPI	EA	32.91	8.67	12.14	15.54
Wall Angle Cable Runway Support Kit	11421-112	CPI	EA	19.20	8.67	12.14	15.54
Channel Rack to Runway Mounting Plate, Grey	12730-112	CPI	EA	30.26	8.67	12.14	15.54
Cable Runway Radius Outside Bend	10723-112	CPI	EA	79.71	11.56	16.18	20.72
Cable Runway Radius Inside Bend	10724-112	CPI	EA	79.71	11.56	16.18	20.72
J-Bolt Kit	11308-001	CPI	EA	3.35	8.67	12.14	15.54
Cable Runway Movable Cross Member	12115-112	CPI	EA	37.95	5.79	8.11	10.38
Cable Runway Elevation Kit 3"	10506-102	CPI	EA	29.33	5.79	8.11	10.38
Cable Runway Elevation Kit 6"	10506-106	CPI	EA	30.10	5.79	8.11	10.38
Combination Pan Head, Pilot Point, Mounting Screws	40605-001	CPI	EA	9.45	5.79	8.11	10.38
Cable runway Slip-On threaded rod support bracket	10873-001	CPI	EA	24.20	5.79	8.11	10.38
Vert Wall Bracket (Gold/Pk2)	10608-001	CPI	EA	13.02	5.79	8.11	10.38
CPI slotted support brkt-5/8" thread rod	10607-001	CPI	EA	4.64	5.79	8.11	10.38

CPI-Compression connector lug #2	40162-904	CPI	EA	5.44	5.79	8.11	10.38
CPI-Butt Swivel Splice	10487-001	CPI	EA	22.06	5.79	8.11	10.38
CPI-Junction Swivel Splice	10488-001	CPI	EA	22.06	11.56	16.18	20.72
CPI-Vertical Swivel Splice	10489-001	CPI	EA	22.06	5.79	8.11	10.38
CPI threaded rod ceiling support 5/8"	11406-001	CPI	EA	7.62	11.56	16.18	20.72
End Caps	10642-001	CPI	EA	5.82	5.79	8.11	10.38
CPI -Threaded Ceiling Kit	11310-003	CPI	EA	22.03	11.56	16.18	20.72
CPI-Ladder rack foot kit	11309-001	CPI	EA	23.39	11.56	16.18	20.72
Cable Runway and Accessories - Chatsworth Products, Inc. - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
KoldLok Raised Floor Grommet - Split Integral Grommet	13671-001	CPI	EA	86.17	173.46	242.84	310.84
Accessories - Allentel - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
Allentel 1/2 Blue Backboard	GB183A1	Allentel	EA	15.36	11.56	16.18	20.72
Allentel Half Module Backboard-White	GB183A-White	Allentel	EA	15.15	8.67	12.14	15.54
Allentel Mushroom Board-White	GB187D1-White	Allentel	EA	8.23	5.79	8.11	10.38
Accessories - Allen Bradley - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
Allen Bradley-mini DIN steel mounting rail	1492-DR3	Allen Bradley	EA	5.12	11.56	16.18	20.72
Allen Bradley-mini terminal blocks	1492-WM4	Allen Bradley	EA	1.26	8.67	12.14	15.54
Allen Bradley-Side Jumper	1492-SJ6-10	Allen Bradley	EA	2.46	5.79	8.11	10.38
Accessories - ADC - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLIDAY
ADC Fuse panel	PWX-001RGCS10PWD B	ADC	EA	507.09	11.56	16.18	20.72

Accessories - BUSSMAN - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLD DAY
1/4 AMP FUSE (BOX OF 10)	GMT 1/4	Bussmann	BOX	42.21	11.56	16.18	20.72
5 AMP FUSE (BOX OF 10)	GMT 5	Bussmann	BOX	42.21	11.56	16.18	20.72
Accessories - Bejed - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLD DAY
2" Spillway	BJ-2049A-001	Bejed	EA	17.15	27.59	38.62	49.44
4" Spillway	BJ-2049B-001	Bejed	EA	28.82	27.59		
Grounding							
Material/Labor Description	Part Number	Vendor	Unit	MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLD DAY
Grounding Cable and Accessories - Chasworth - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLD DAY
BICSI & ANSI/EI/TIA Ground Bus Bar, 12" TMGB Pattern	40153-012	CPI	EA	98.46	11.56	16.18	20.72
BICSI & ANSI/EI/TIA Ground Bus Bar, 20" TMGB Pattern	40153-020	CPI	EA	212.76	11.56	16.18	20.72
Cable Runway Ground Straps Kit	40164-001	CPI	EA	23.68	5.79	8.11	10.38
Cable Runway Ground Straps Kit	40164-025	CPI	EA	486.07	5.79	8.11	10.38
1/4" Compression Lugs, 1 ea.	40162-901	CPI	EA	5.13	2.89	4.05	5.18
1/4" Compression Lugs, 50 ea.	40162-951	CPI	EA	218.41	2.89	4.05	5.18
6 AWG Stranded Ground Wire (Green)	THHN-6-STR-GRN	NA	FT	286.96	2.37	3.32	4.25
Grounding Accessories - 3M - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLD DAY

Cable shield bond clamp	4460-S	3M	EA	1.14	11.56	16.18	20.72
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Paging

Material/Labor Description	Part Number	Vendor	Unit				
Paging Equipment - Bogen NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE	LABOR HOLD
				EA	R	DE	DAY
CPU, Paging Module	PCM-CPU	Bogen	EA	108.00	11.56	16.18	20.72
TIM, Paging Module	PCM-TIM	Bogen	EA	132.43	11.56	16.18	20.72
ZPM, Paging Module	PCM-ZPM	Bogen	EA	92.28	11.56	16.18	20.72
Power Supply for PCM - CPU	PCM-PS2	Bogen	EA	27.50	5.79	8.11	10.38
Power Supply 12V	PCMPS2	Bogen	EA	27.50	5.79	8.11	10.38
Mounting Bracket, TPU Amplifier	RPK82	Bogen	EA	24.09	11.56	16.18	20.72
Mounting Bracket, PCM2000	RPK84	Bogen	EA	24.09	11.56	16.18	20.72
15 Watt Amplifier	TPU15A	Bogen	EA	193.03	11.56	16.18	20.72
35 Watt Amplifier	TPU35B	Bogen	EA	315.22	11.56	16.18	20.72
60 Watt Amplifier	TPU60B	Bogen	EA	384.51	11.56	16.18	20.72
100 Watt Amplifier	TPU100B	Bogen	EA	422.35	11.56	16.18	20.72
250 Watt Amplifier	TPU250	Bogen	EA	781.69	11.56	16.18	20.72
Surface Mount Ceiling Speaker 4 Watt Multi-tap	SM4T	Bogen	EA	33.85	69.73	97.62	124.96
Tile Bridge for SM4T Speaker	SMTB	Bogen	EA	21.46	11.56	16.18	20.72
Ceiling Speaker 4 Watt Multi-tap with Volume Control	S810T725PG8WVK	Bogen	EA	26.96	69.73	97.62	124.96
Ceiling Speaker Enclosure	RE84	Bogen	EA	9.39	69.73	97.62	124.96
Tile Bridge for SB10T725PG8WVK Speaker	TB8	Bogen	EA	4.85	11.56	16.18	20.72
Single Gang 10 Watt Volume Attenuator	AT10A	Bogen	EA	22.43	69.73	97.62	124.96
ProHold digital announcer w/ 4 minutes of storage	PRO4	Bogen	EA	277.67	69.73	97.62	124.96
Voice activated relay	VAR1	Bogen	EA	92.83	14.03	19.65	25.15
Telephone access module	TAMB	Bogen	EA	166.52	14.03	19.65	25.15
Mini DIN steel mounting rail	1492-DR3	Allen Bradley	EA	5.12	11.56	16.18	20.72
Mini Terminal Block	1492-WM4	Allen Bradley	EA	1.26	11.56	16.18	20.72
Side Jumper	1492-SJ6-10	Allen Bradley	EA	2.46	5.79	8.11	10.38
Paging Equipment - Bogen NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE	LABOR HOLD
				EA	R	DE	DAY

					BAM to 5PM				
Cut-in Round Speaker Assembly	C5/BUW/VK	Quam	EA	30.94	11.56	16.18	20.72		
Speaker Braces	SSB-2	Quam	EA	7.54	5.79	8.11	10.38		
Round Speaker Back Box	ERD-8	Quam	EA	12.41	34.86	48.81	62.48		
Drop in Speaker Assembly	C10DV/2-B70/TR	Quam	EA	30.88	34.86	48.81	62.48		
Rating Equipment Atlas NO. SUBSTITUTIONS					MATERIAL	LABOR	LABOR OUTF. IDE. BAM to 5PM	LABOR HOLD. AM	
Horn Speaker	AP-15T	Atlas	EA	100.91	34.86	48.81	62.48		
Volume Control 10 Watt	AT-10	Atlas	EA	18.24	69.73	97.62	124.96		
Volume Control 35 Watt	AT-35	Atlas	EA	21.20	69.73	97.62	124.96		
Cable 1/2-1000 Feet General CABLE NO. SUBSTITUTIONS					MATERIAL				
1 pr 18 Awg - PVC (Clear) Speaker Cable	E1032S	General	FT	0.07					
1 pr 18 Awg - Plenum (Clear) Speaker Cable	C3112.41.86	General	FT	0.18					

Miscellaneous

Material/Labor Description	Part Number	Vendor	Unit						
Other Parts					MATERIAL	LABOR	LABOR OUTF. IDE. BAM to 5PM	LABOR HOLD. AM	
LD 10 Raceway	LD10WH-6A	Panduit	FT	2.33	4.34				
LD 10 Drop Ceiling Adapter	DCEFX1W	Panduit	EA	5.36	5.79	8.11	10.38		
Fire Stopping Material	Per Conduit End	Tech	EA	5.08	14.46	20.25	25.92		
P-Rod	Per Rod	Tech	EA	13.39	5.79	8.11	10.38		
Stringer	Per Stringer	Tech	EA	14.07	5.79	8.11	10.38		
J hook	Per J-Hook	Tech	EA	3.49	5.79	8.11	10.38		
4" Sleeve	Per Sleeve	Tech	EA	73.25	28.91	40.48	51.81		
CP 658T 2" Firestop Plug-package of 20	00378287	Hilti	EA	21.50	28.91	40.48	51.81		
CP 658T 4" Firestop Plug-package of 20	00378288	Hilti	EA	28.81	28.91	40.48	51.81		
Misc Nuts, Bolts, Velcro and consumables	NA	Tech	lot	0.00	28.91	40.48	51.81		

MPLS Cut-In Ring	MPLS	Caddy	EA	1.47	28.91	40.48	51.81
ACCESSORIES - COOPER B-LINE - NO SUBSTITUTIONS				MATERIAL	LABOR	LABOR OUTSIDE 8AM to 5PM	LABOR HOLD
15/16" T-Bar Ceiling Grid Support Clip	78101102891 BA1-T	COOPER B-LINE	EA	1.38	5.79	8.11	10.38
9/16" T-Bar Ceiling Grid Support Clip	78205125587 BA1-95	COOPER B-LINE	EA	1.68	5.79	8.11	10.38

EXHIBIT C
Cable Certification Testing
General Testing Criteria
(Applies to all cable certification testing)

- 1) Customer reserves the right to be present during any or all testing.
- 2) All cabling not tested strictly in accordance with these procedures shall be retested at no additional cost to the customer.
- 3) 100 percent of the installed cable must be tested.
- 4) Test equipment shall be fully charged prior to each day's testing.
- 5) All tests must be performed using the Fluke DTX 1800 Cable Analyzer model cable tester, no substitute testers are allowed.
- 6) All voice and data jacks will be tested and test results supplied within five working days after cutover date.
- 7) Test results must be provided in electronic report format using the LinkWare Cable Test Management software on CD or compact flash memory cards. Handwritten test reports are not acceptable. Electronic reports must be accompanied by a Certificate signed by an authorized representative of the Contractor warranting the truth and accuracy of the electronic report data. Certificate must reference traceable circuit numbers that match the electronic record.
- 8) Test reports shall include the following information for each cabling element tested:
 - a) Tester manufacture, model, main unit serial number, remote unit serial number, main unit adapter type, remote unit adapter type, software version, operator.
 - b) Circuit ID number and project/job name.
 - c) Auto test specification used.
 - d) Date and time of test.
 - e) Overall pass/fail indication.
 - f) Wire map results that indicate the cabling has no shorts, opens, miss-wires, split, reversed or crossed pairs, and end-to-end connectivity is achieved.
 - g) Two copies of the test results will be provided in electronic and printed format. Printed format shall be the summary report provided by the LinkWare Cable Test Management software program, not the detailed report.

- 9) Any individual test that fails the relevant performance specification shall be marked as a FAIL and action taken to correct the problem.
- 10) Overall pass/fail indication.

Category 6 Data Cable Certification Testing

- 1) All testing shall be performed in conformance with EIA/TIA 568-B.2 using a permanent link test setup. Cabling shall meet the performance specifications for Category 6 specific to TIA/EIA 568 B.
- 2) Tester profile will be configured as follows:
 - a) Attenuation, Near End Cross Talk (NEXT), Power Sum Near End Cross Talk (PSNEXT), Return Loss, Equal Level Far End Cross Talk (ELFEXT), Power Sum Equal Level Far End Cross Talk (PSELFEXT), Length (in meters), propagation delay, delay skew.
 - b) Analysis function shall be performed for margin checking, attenuation warning, and complete ELFEXT.
 - c) All cables shall be certified for 100baseT and 1000baseT networks.
 - d) All tests shall be performed to 250 MHz.
 - e) Save mode all measured points and allow re-certification of test results at a later date and allow full analysis of test data using the LinkWare Cable Test Management software.
 - f) Attenuation, NEXT, PSNEXT, Return Loss, ELFEXT and PSELFEXT data that indicate the worst-case result, the frequency at which it occurs, the limit at that point and the margin. Information shall be provided for all pairs or pair combinations and in both directions.
 - g) Length (in meters), propagation delay and delay skew relative to the applicable limit.

Voice Cable Certification Testing

- 1) All voice cable locations will be tested for wire map to verify that the cabling has no shorts, opens, miss-wires, split, reversed or crossed pairs, and end-to-end connectivity.
- 2) Testing will verify that the "A" jack (white) is on pairs 1&2 and the "B" jack is on pairs 3&4.

Copper Feed Certification Testing

- 1) All copper backbone cables shall be tested for shorts, opens, polarity, and crossed pairs using the Fluke DTX 1800 Cable Analyzer.

Fiber Certification Testing

- 1) The Contractor shall be responsible for testing and troubleshooting every fiber optic strand of every installed and terminated fiber optic cable.
- 2) The following tests apply for both multimode and single mode fiber cables.
- 3) The testing procedure for each fiber optic strand is as follows:
 - a) Perform end-to-end, bi directional power loss tests at 850nm and 1300nm wavelengths for multimode and 1310nm and 1550nm for single mode fibers.
 - b) The allowable loss budget for each terminated cable run will be calculated by adding up the maximum allowable loss for splices, mated connectors, and fiber length. The following maximum allowable loss budgets apply for cable and connectors:
 - i) Fusion Splices: Maximum allowable loss per spliced strand: .2dB
 - ii) Connectors: Maximum allowable loss per mated connector pair: .50dB
 - iii) Fiber: Maximum allowable loss for each fiber strand shall not exceed the manufacture maximum attenuation rating of the cable under test.
 - c) If a fiber strand of a cable run exceeds the specified maximum power loss, the fiber strand shall then be tested with and OTDR to determine whether it is the fiber strand or the connector that exceeds the power loss margin.
 - d) If the connector exceeds the power loss margin, then re-polish and/or re-terminate the connector and repeat the testing procedures above.
 - e) If the fiber strand exceeds the specified power loss budget, then a new cable shall be installed to replace the fiber strand at fault and all testing procedures above shall be repeated.
 - f) Record and document the length and power loss readings in relative decibels (dB) for every strand. Indicate as part of the testing documentation those runs that exceeded the power loss margins and the action taken (re-pulling the cable, re-polishing or re-terminating the connector).
- 4) Tester profile will be configured as follows:
 - a) Test Limit – Custom
 - b) Use Default Values From – TIA568B Backbone MM
 - c) Max Length Limit – (To be provided by customer based on engineered application)
 - d) Maximum Loss @ 850 nm 3.5 db/km To be provided by customer based on engineered application)

- e) Maximum Loss @ 1300 nm 1.5 db/km To be provided by customer based on engineered application)
 - f) Maximum Connector Loss .3 db
 - g) Maximum Splice Loss .2 db
 - h) Fiber Type – Set to manufacturer specifications based on the type of cable under test or set to custom and set to specific cable specification.
 - i) Remote End Setup – Smart Remote
 - j) Bi Directional – Yes
 - k) Number of adapters - (To be provided by customer based on engineered application)
 - l) Number of Splices - (To be provided by customer based on engineered application)
 - m) Connector Type – SC
 - n) Test Method – B (See attachment, Mandrel must be used during testing)
- 5) Test reports shall include the following information for each cabling element tested:
- a) Tester manufacture, model, main unit serial number, remote unit serial number, main unit adapter type, remote unit adapter type, software version, operator.
 - b) Circuit ID number and project/job name.
 - c) Auto test specification used.
 - d) Date and time of test.
 - e) Attenuation loss per mated pair. Information shall be provided for all pairs or pair combinations and in both directions at 850nm and 1300nm for multimode and 1310nm and 1550nm for single mode fibers. Any individual test that fails the relevant performance specifications shall be marked as a FAIL and action taken to correct the problem.
 - f) Length (in meters) relative to the applicable limit. Any individual test that fails the relevant performance specification shall be marked as a FAIL and action taken to correct the problem.
 - g) Overall pass/fail indication.

Certifying Fiber Cabling

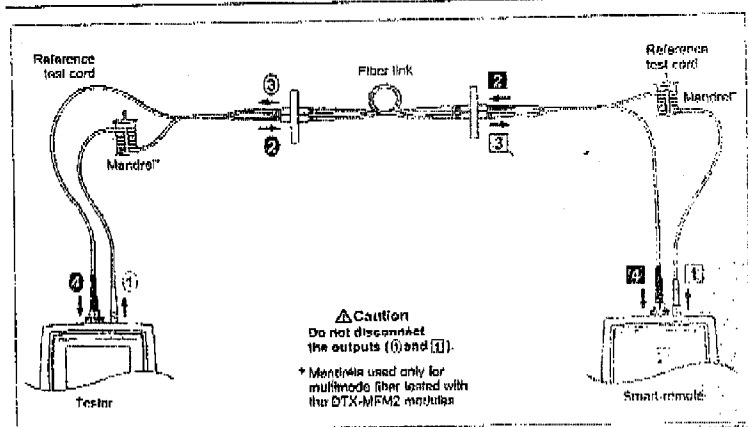


Figure 9. Smart Remote Mode Test Connections (Method II)

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DTX-MFM2/GFM2/SFM2 Fiber Modules
Users Manual

Table A-2 shows the test methods required by standards.

Table A-2. Test Methods Required by Standards

Standard or Application	Test Method	Standard or Application	Test Method
TIA-568-B	B	10GBASE-S	B
ISO 11801	B	10GBASE-L	B
EN50173	D	10GBASE-LX	D
10BASE-PB	A	10GBASE-E	B
10BASE-PP	A	Fibre Channel	B
10BASE-PL	A	ATMI	B
10/100BASE-SX	B	FddI	B
100BASE-FX	B	Token Ring	D
1000BASE-LX	B	Pluck Networks General Fiber	B
1000BASE-SX	B		

A-2

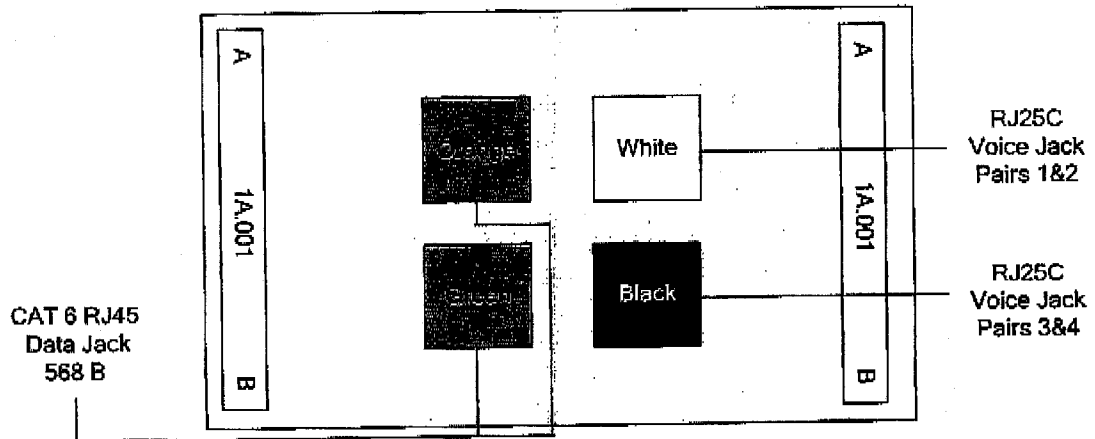
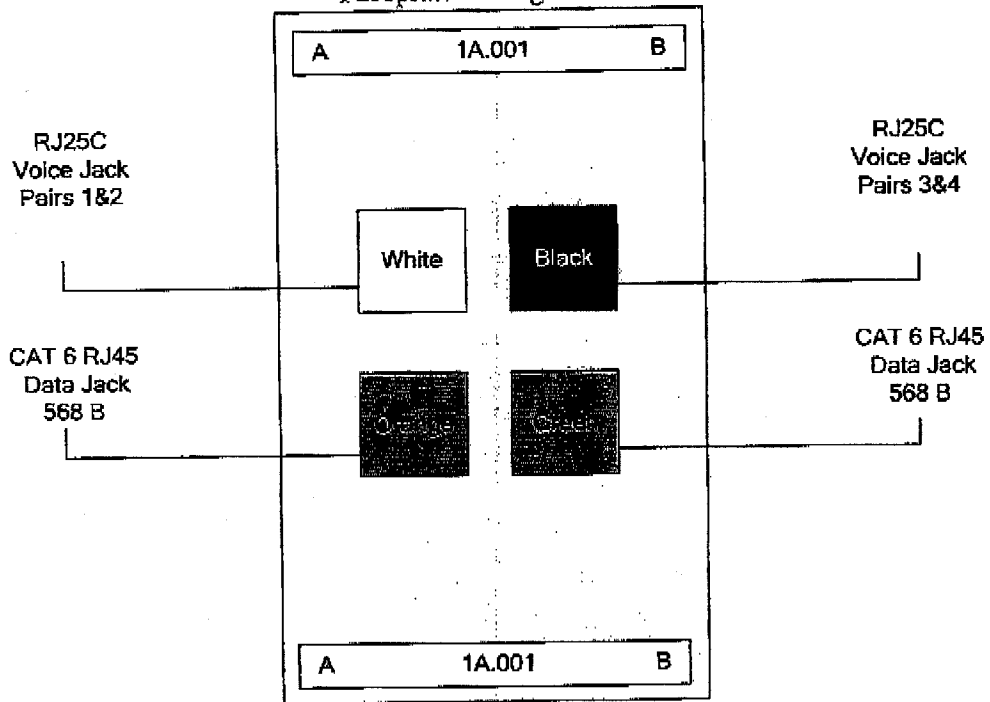
Category 5E Data Cable Certification Testing

- 1) Customer reserves the right to be present during any or all testing.
- 2) All cabling not tested strictly in accordance with these procedures shall be retested at no additional cost to the customer.
- 3) 100 percent of the installed cable shall be tested.
- 4) Test equipment shall be fully charged prior to each day's testing.

- 5) All testing shall be performed in conformance with EIA/TIA 568-B.2 using a permanent link test setup. Cabling shall meet the performance specifications for Category 5E specific to TIA/EIA 568 B.
- 6) All tests shall be performed using the Agilent Technologies WireScope 350 model cable tester, no substitute testers are allowed.
- 7) Test results shall be provided in electronic report format using the ScopeData Pro software on CD or compact flash memory cards. Handwritten test reports are not acceptable. Electronic reports shall be accompanied by a Certificate signed by an authorized representative of the Contractor warranting the truth and accuracy of the electronic report data. Certificate shall reference traceable circuit numbers that match the electronic record.
- 8) Tester profile will be configured as follows:
 - a) Attenuation, Near End Cross Talk (NEXT), Power Sum Near End Cross Talk (PSNEXT), Return Loss, Equal Level Far End Cross Talk (ELFEXT), Power Sum Equal Level Far End Cross Talk (PSELFEXT), Length (in meters), propagation delay, delay skew, Ambient Noise and Resistance.
 - b) Analysis function shall be performed for margin checking, attenuation warning, and complete ELFEXT.
 - c) All cables shall be certified for 100baseT and 1000baseT networks.
 - d) All tests shall be performed to 350 MHz.
 - e) Save mode shall be the "full data set" to save all measured points and allow re-certification of test results at a later date and allow full analysis of test data using the Scope Data Pro software.
- 9) Test reports shall include the following information for each cabling element tested:
 - a) Tester manufacture, model, serial number, software version and date of last factory calibration.
 - b) Circuit ID number and project/job name.
 - c) Auto test specification used.
 - d) Date and time of test.
 - e) Wire map results that indicate the cabling has no shorts, opens, miswires, split, reversed or crossed pairs, and end-to-end connectivity is achieved.
 - f) Attenuation, NEXT, PSNEXT, Return Loss, ELFEXT and PSELFEXT data that indicate the worst-case result, the frequency at which it occurs, the limit at that point and the margin. Information shall be provided for all pairs or pair combinations and in both directions. Any individual test that fails the relevant performance specifications shall be marked as a FAIL and action taken to correct the problem.

- g) Length (in meters), propagation delay and delay skew relative to the applicable limit. Any individual test that fails the relevant performance specification shall be marked as a FAIL and action taken to correct the problem.
- h) Overall pass/fail indication.

EXHIBIT D
Faceplate Configuration



**Face Plate Configuration
TracJack Surface Mount Locations**

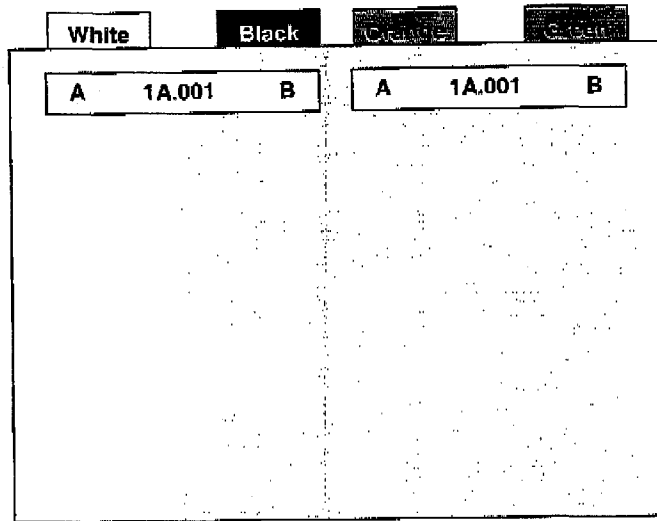


EXHIBIT E - TELECOMM ROOM

Communication Room Design

Rev: 4/28/04

Scale: 1/2" = 1'-0"

Legend:

3/4" MC Brass Ring (placement all walls as indicated, (not stress). Physical Panels shall be mounted with the MC cable lacing out and hung vertically, sealing at the ceiling and extending 2" towards the floor. Panel will be similar 1/2" gap.

Door: Door face with light colored VCT tile, installed according to manufacturer's specification. Minimum head bearing of 100 lbs/lin ft.

Light Fixtures and Sprinkler Systems (heads) should not be installed directly above the cable ladders. The sprinkler lines should not be run parallel above the cable ladders.

Room lighting shall have a minimum of 10 lumens/lin ft. in all areas. Place 4 tu in model light fixtures on the location suggested on the drawing. If available, not directly above the cable ladders. Do not use diffuser light fixtures.

Air Conditioning: (2) 2.0 Ton A/C Split Units (with coil of 4 tons, 48,000 BTU/hr). Should maintain an ambient room temp. between 65-75 degrees Fahrenheit. Relative humidity of 30-65%. Should have capacity ONLY, with no heat. Same as in all other rooms. Must be placed in the room. Mount the units where the top of the units is about 7 ft. from the finished ceiling and about 1 ft. below the horizontal cable ladder at the location as indicated on the drawing. Power for the units must be supplied by dedicated circuits, separate from the communications room. Refrigerant and condensation lines must not be placed above any portion of the computer racks and tie in above the floor grid. Refer to the Equipment Installation Specification on the following page for more details.

Electrical:

(1) Dedicated 170V 100 Amp Grounded with isolated ground. Terminals shall be on a metal surface. A surface mounted 450 amp rated vertical cable tray is to be used. Each dedicated circuit must be clearly labeled on the electrical outlet cover and on the panel. Refer to the Equipment Installation Specification on the following page for more details.

(2) 110 VAC, ground purpose outlet outlets at 4'2" from the floor. They shall be from one single 20 Amp. circuit.

Dedicated 110VAC 15 Amp circuit in a surface mounted 65 Breaker Box. Each circuit will have its own N/GT, Neutral and Ground Lines. Mount electrical box on physical backbone at a height of 72" AFF.

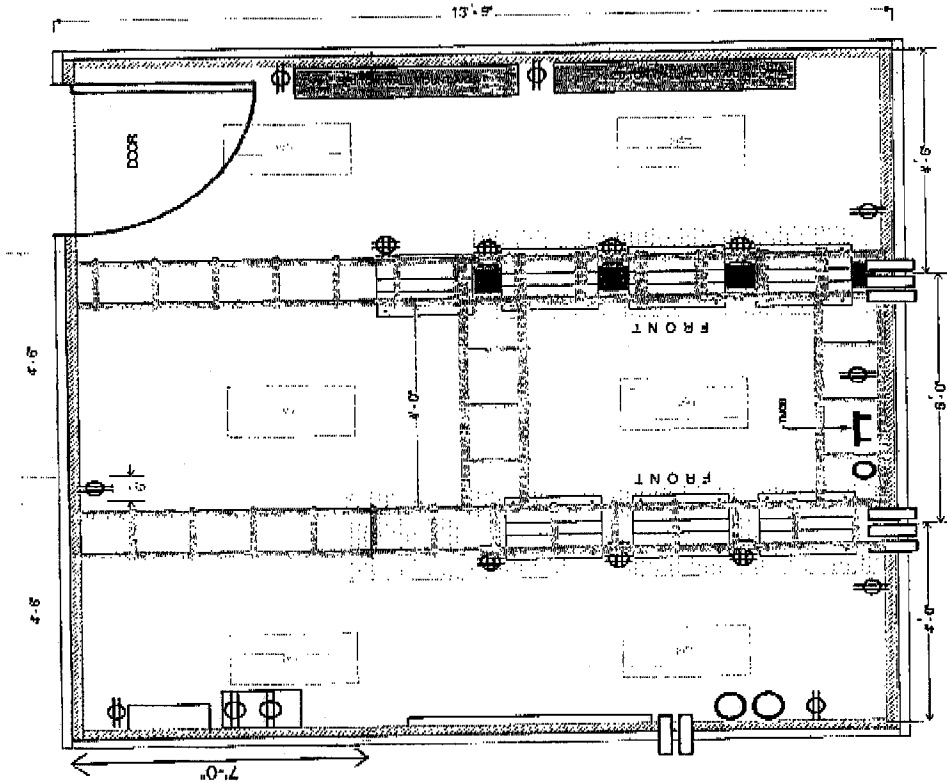
Conduits to Comm. Room

(1) 4" conduits from 1st Co MPCE Location (Electrical Room) to above ceiling location in the Comm. Room.

Conduits will run in a trench 2'-0" deep, vertically, without the addition of a pull box.

(2) 2" conduit from the Main Building Comm. Room to the designated wall location.

Grounding: Install a minimum 6 AWG stranded conductor from the Common Building Ground source to the designated location in the Comm. Room. Bond to the provided Main Ground Bus Bar (MGB).



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EXHIBIT F
NETCLEAR WARRANTY

Contract ID # ITARC-28070-002-008-01/12