

2.2 All employees of Contractor shall have such knowledge and experience as will enable them to perform the duties assigned to them. Any employee of Contractor who, in the opinion of County, is incompetent or by his conduct becomes detrimental to the project shall, upon request of County, immediately be removed from association with the project.

2.3 Contractor shall provide all equipment, tools, materials, and other items necessary to perform the services as described herein.

Section 3. Compensation and Payment

3.1 Contractor's fees shall be calculated at the rates set forth in the attached Exhibit A. The Maximum Compensation for the performance of Services within the Scope of Services described in Exhibit A is two hundred fifteen thousand three dollars and 52/100 (\$215,003.52). In no case shall the amount paid by County under this Agreement exceed the Maximum Compensation without an approved change order.

3.2 All performance of the Scope of Services by Contractor including any changes in the Scope of Services and revision of work satisfactorily performed will be performed only when approved in advance and authorized by County.

3.3 Contractor will invoice County as set out in the Payment Schedule, attached hereto as Exhibit B. County will pay Contractor based on the following procedures: Upon completion of the tasks identified in the Scope of Services, Contractor shall submit to County two (2) original copies of invoices showing the amounts due for services performed in a form acceptable to County. County shall review such invoices and approve them within 30 calendar days with such modifications as are consistent with this Agreement and forward same to the Auditor for processing. County shall pay each such approved invoice within thirty (30) calendar days. County reserves the right to withhold payment pending verification of satisfactory work performed.

Section 4. Limit of Appropriation

4.1 Contractor clearly understands and agrees, such understanding and agreement being of the absolute essence of this Agreement, that County shall have available the total maximum sum of two hundred fifteen thousand three dollars and 52/100 (\$215,003.52), specifically allocated to fully discharge any and all liabilities County may incur.

4.2 Contractor does further understand and agree, said understanding and agreement also being of the absolute essence of this Agreement, that the total maximum compensation that Contractor may become entitled to and the total maximum sum that County may become liable to pay to Contractor shall not under any conditions, circumstances, or interpretations thereof exceed two hundred fifteen thousand three dollars and 52/100 (\$215,003.52).

Section 5. Time of Performance

The time for performance of the Scope of Services by Contractor shall begin with receipt of the Notice to Proceed from County. Contractor shall complete the tasks described in the Scope of Services within the time designated in the Installation Schedule and Payment Schedule or within such additional time as may be extended by the County.

Section 6. Modifications and Waivers

6.1 The parties may not amend or waive this Agreement, except by a written agreement executed by both parties.

6.2 No failure or delay in exercising any right or remedy or requiring the satisfaction of any condition under this Agreement, and no course of dealing between the parties, operates as a waiver or estoppel of any right, remedy, or condition.

6.3 The rights and remedies of the parties set forth in this Agreement are not exclusive of, but are cumulative to, any rights or remedies now or subsequently existing at law, in equity, or by statute.

Section 7. Termination

7.1 Termination for Convenience

7.1.1 County may terminate this Agreement at any time upon thirty (30) days written notice.

7.2 Termination for Default

7.2.1 County may terminate the whole or any part of this Agreement for cause in the following circumstances:

7.2.1.1 If Contractor fails to perform services within the time specified in the Scope of Services or any extension thereof granted by the County in writing;

7.2.1.2 If Contractor materially breaches any of the covenants or terms and conditions set forth in this Agreement or fails to perform any of the other provisions of this Agreement or so fails to make progress as to endanger performance of this Agreement in accordance with its terms, and in any of these circumstances does not cure such breach or failure to County's reasonable satisfaction within a period of ten (10) calendar days after receipt of notice from County specifying such breach or failure.

7.2.2 If, after termination, it is determined for any reason whatsoever that Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the County in accordance with Section 7.1 above.

7.3 Upon termination of this Agreement, County shall compensate Contractor in accordance with Section 3, above, for those services which were provided under this Agreement prior to its termination and which have not been previously invoiced to County. Contractor's final invoice for said services will be presented to and paid by County in the same manner set forth in Section 3 above.

7.4 If County terminates this Agreement as provided in this Section, no fees of any type, other than fees due and payable at the Termination Date, shall thereafter be paid to Contractor.

Section 8. Ownership and Reuse of Documents

All documents, data, reports, research, graphic presentation materials, etc., developed by Contractor as a part of its work under this Agreement, shall become the property of County upon completion of this Agreement, or in the event of termination or cancellation thereof, at the time of payment under Section 3 for work performed. Contractor shall promptly furnish all such data and material to County on request.

Section 9. Inspection of Books and Records

Contractor will permit County, or any duly authorized agent of County, to inspect and examine the books and records of Contractor for the purpose of verifying the amount of work performed under the Scope of Services. County's right to inspect survives the termination of this Agreement for a period of four years.

Section 10. Insurance

10.1 Prior to commencement of the Services, Contractor shall furnish County with properly executed certificates of insurance which shall evidence all insurance required and provide that such insurance shall not be canceled, except on 30 days' prior written notice to County. Contractor shall provide certified copies of insurance endorsements and/or policies if requested by County. Contractor shall maintain such insurance coverage from the time Services commence until Services are completed and provide replacement certificates, policies and/or endorsements for any such insurance expiring prior to completion of Services. Contractor shall obtain such insurance written on an Occurrence form from such companies having Bests rating of A/VII or better, licensed or approved to transact business in the State of Texas, and shall obtain such insurance of the following types and minimum limits:

10.1.1 Workers' Compensation insurance. Substitutes to genuine Workers' Compensation Insurance will not be allowed. Employers' Liability insurance with limits of not less than \$1,000,000 per injury by accident, \$1,000,000 per injury by disease, and \$1,000,000 per bodily injury by disease.

10.1.2 Commercial general liability insurance with a limit of not less than \$1,000,000 each occurrence and \$2,000,000 in the annual aggregate. Policy shall cover liability

for bodily injury, personal injury, and property damage and products/completed operations arising out of the business operations of the policyholder.

10.1.3 Business Automobile Liability insurance with a combined Bodily Injury/Property Damage limit of not less than \$1,000,000 each accident. The policy shall cover liability arising from the operation of licensed vehicles by policyholder.

10.1.4 Professional Liability insurance with limits not less than \$1,000,000.

10.2 County and the members of Commissioners Court shall be named as additional insured to all required coverage except for Workers' Compensation. All Liability policies including Workers' Compensation written on behalf of Contractor shall contain a waiver of subrogation in favor of County and members of Commissioners Court.

10.3 If required coverage is written on a claims-made basis, Contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of the contract; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of 2 years beginning from the time that work under the Agreement is completed.

Section 11. Indemnity

CONTRACTOR SHALL INDEMNIFY AND DEFEND COUNTY AGAINST ALL LOSSES, LIABILITIES, CLAIMS, CAUSES OF ACTION, AND OTHER EXPENSES, INCLUDING REASONABLE ATTORNEYS FEES, ARISING FROM ACTIVITIES OF CONTRACTOR, ITS AGENTS, SERVANTS OR EMPLOYEES, PERFORMED UNDER THIS AGREEMENT THAT RESULT FROM THE NEGLIGENT ACT, ERROR, OR OMISSION OF CONTRACTOR OR ANY OF CONTRACTOR'S AGENTS, SERVANTS OR EMPLOYEES.

Section 12. Confidential and Proprietary Information

12.1 Contractor acknowledges that it and its employees or agents may, in the course of performing their responsibilities under this Agreement, be exposed to or acquire information that is confidential to County. Any and all information of any form obtained by Contractor or its employees or agents from County in the performance of this Agreement shall be deemed to be confidential information of County ("Confidential Information"). Any reports or other documents or items (including software) that result from the use of the Confidential Information by Contractor shall be treated with respect to confidentiality in the same manner as the Confidential Information. Confidential Information shall be deemed not to include information that (a) is or becomes (other than by disclosure by Contractor) publicly known or is contained in a publicly available document; (b) is rightfully in Contractor's possession without the obligation of nondisclosure prior to the time of its disclosure under this Agreement; or (c) is independently developed by employees or agents of Contractor who can be shown to have had no access to the Confidential Information.

12.2 Contractor agrees to hold Confidential Information in strict confidence, using at least the same degree of care that Contractor uses in maintaining the confidentiality of its own confidential information, and not to copy, reproduce, sell, assign, license, market, transfer or otherwise dispose of, give, or disclose Confidential Information to third parties or use Confidential Information for any purposes whatsoever other than the provision of Services to County hereunder, and to advise each of its employees and agents of their obligations to keep Confidential Information confidential. Contractor shall use its best efforts to assist County in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limitation of the foregoing, Contractor shall advise County immediately in the event Contractor learns or has reason to believe that any person who has had access to Confidential Information has violated or intends to violate the terms of this Agreement and Contractor will at its expense cooperate with County in seeking injunctive or other equitable relief in the name of County or Contractor against any such person. Contractor agrees that, except as directed by County, Contractor will not at any time during or after the term of this Agreement disclose, directly or indirectly, any Confidential Information to any person, and that upon termination of this Agreement or at County's request, Contractor will promptly turn over to County all documents, papers, and other matter in Contractor's possession which embody Confidential Information.

12.3 Contractor acknowledges that a breach of this Section, including disclosure of any Confidential Information, or disclosure of other information that, at law or in equity, ought to remain confidential, will give rise to irreparable injury to County that is inadequately compensable in damages. Accordingly, County may seek and obtain injunctive relief against the breach or threatened breach of the foregoing undertakings, in addition to any other legal remedies that may be available. Contractor acknowledges and agrees that the covenants contained herein are necessary for the protection of the legitimate business interest of County and are reasonable in scope and content.

12.4 Contractor in providing all services hereunder agrees to abide by the provisions of any applicable Federal or State Data Privacy Act.

12.5 Contractor expressly acknowledges that County is subject to the Texas Public Information Act, TEX. GOV'T CODE ANN. §§ 552.001 *et seq.*, as amended, and notwithstanding any provision in the Agreement to the contrary, County will make any information related to the Agreement, or otherwise, available to third parties in accordance with the Texas Public Information Act. Any proprietary or confidential information marked as such provided to County by Contractor shall not be disclosed to any third party, except as directed by the Texas Attorney General in response to a request for such under the Texas Public Information Act, which provides for notice to the owner of such marked information and the opportunity for the owner of such information to notify the Attorney General of the reasons why such information should not be disclosed. The terms and conditions of the Agreement are not proprietary or confidential information.

Section 13. Independent Contractor

13.1 In the performance of work or services hereunder, Contractor shall be deemed an independent contractor, and any of its agents, employees, officers, or volunteers performing work required hereunder shall be deemed solely as employees of contractor or, where permitted, of its subcontractors.

13.2 Contractor and its agents, employees, officers, or volunteers shall not, by performing work pursuant to this Agreement, be deemed to be employees, agents, or servants of County and shall not be entitled to any of the privileges or benefits of County employment.

Section 14. Notices

14.1 Each party giving any notice or making any request, demand, or other communication (each, a "Notice") pursuant to this Agreement shall do so in writing and shall use one of the following methods of delivery, each of which, for purposes of this Agreement, is a writing: personal delivery, registered or certified mail (in each case, return receipt requested and postage prepaid), or nationally recognized overnight courier (with all fees prepaid).

14.2 Each party giving a Notice shall address the Notice to the receiving party at the address listed below or to another address designated by a party in a Notice pursuant to this Section:

County: Fort Bend County Transportation Department
301 Jackson Street
Richmond, TX 77469

With a copy to: Fort Bend County
Attn: County Judge
401 Jackson Street
Richmond, Texas 77469

Contractor: Audio Visual Technologies Group
12502 Exchange Dr., STE 404
Stafford, TX 77477

14.3 A Notice is effective only if the party giving or making the Notice has complied with subsections 14.1 and 14.2 and if the addressee has received the Notice. A Notice is deemed received as follows:

14.3.1 If the Notice is delivered in person, or sent by registered or certified mail or a nationally recognized overnight courier, upon receipt as indicated by the date on the signed receipt.

14.3.2 If the addressee rejects or otherwise refuses to accept the Notice, or if the Notice cannot be delivered because of a change in address for which no Notice was given, then upon the rejection, refusal, or inability to deliver.

Section 15. Compliance with Laws

Contractor shall comply with all federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any courts or administrative bodies or tribunals in any matter affecting the performance of this Agreement, including, without limitation, Worker's Compensation laws, minimum and maximum salary and wage statutes and regulations, licensing laws and regulations. When required by County, Contractor shall furnish County with certification of compliance with said laws, statutes, ordinances, rules, regulations, orders, and decrees above specified.

Section 16. Performance Warranty

16.1 Contractor warrants to County that Contractor has the skill and knowledge ordinarily possessed by well-informed members of its trade or profession practicing in the greater Houston metropolitan area and Contractor will apply that skill and knowledge with care and diligence to ensure that the Services provided hereunder will be performed and delivered in accordance with the highest professional standards.

16.2 Contractor warrants to County that the Services will be free from material errors and will materially conform to all requirements and specifications contained in the attached Exhibit A.

Section 17. Assignment and Delegation

17.1 Neither party may assign any of its rights under this Agreement, except with the prior written consent of the other party. That party shall not unreasonably withhold its consent. All assignments of rights are prohibited under this subsection, whether they are voluntarily or involuntarily, by merger, consolidation, dissolution, operation of law, or any other manner.

17.2 Neither party may delegate any performance under this Agreement.

17.3 Any purported assignment of rights or delegation of performance in violation of this Section is void.

Section 18. Applicable Law

The laws of the State of Texas govern all disputes arising out of or relating to this Agreement. The parties hereto acknowledge that venue is proper in Fort Bend County, Texas, for all legal actions or proceedings arising out of or relating to this Agreement and waive the right to sue or be sued elsewhere. Nothing in the Agreement shall be construed to waive the County's sovereign immunity.

Section 19. Successors and Assigns

County and Contractor bind themselves and their successors, executors, administrators and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of the other party, in respect to all covenants of this Agreement.

Section 20. Third Party Beneficiaries

This Agreement does not confer any enforceable rights or remedies upon any person other than the parties.

Section 21. Severability

If any provision of this Agreement is determined to be invalid, illegal, or unenforceable, the remaining provisions remain in full force, if the essential terms and conditions of this Agreement for each party remain valid, binding, and enforceable.

Section 22. Publicity

Contact with citizens of Fort Bend County, media outlets, or governmental agencies shall be the sole responsibility of County. Under no circumstances whatsoever, shall Contractor release any material or information developed or received in the performance of the Services hereunder without the express written permission of County, except where required to do so by law.

Section 23. Captions

The section captions used in this Agreement are for convenience of reference only and do not affect the interpretation or construction of this Agreement.

Section 24. Conflict

If there is a conflict between this Agreement and any attached item, the provisions of this Agreement shall prevail.

Section 25. Certain State Law Requirements for Contracts:

The contents of this Section are required by Texas Law and are included by County regardless of content.

25.1 Agreement to Not Boycott Israel Chapter 2271 Texas Government Code: Contractor verifies that if Contractor employs ten (10) or more full-time employees and this Agreement has a value of \$100,000 or more, Contractor does not boycott Israel and will not boycott Israel during the term of this Agreement.

25.2 Texas Government Code Section 2252.152 Acknowledgment: By signature below, Contractor represents pursuant to Section 2252.152 of the Texas Government Code, that

Contractor is not listed on the website of the Comptroller of the State of Texas concerning the listing of companies that are identified under Section 806.051, Section 807.051 or Section 2253.153.

Section 26. Human Trafficking

BY ACCEPTANCE OF CONTRACT, CONTRACTOR ACKNOWLEDGES THAT FORT BEND COUNTY IS OPPOSED TO HUMAN TRAFFICKING AND THAT NO COUNTY FUNDS WILL BE USED IN SUPPORT OF SERVICES OR ACTIVITIES THAT VIOLATE HUMAN TRAFFICKING LAWS.

Section 27. Child Support

Per Texas Family Code 231.006, a child support obligor or business entity remains ineligible to receive payments from state funds under a contract to provide property, materials, or services; or a state funded loan until: (1) All arrearages have been paid; (2) the obligor is in compliance with a written repayment agreement or court order as to any existing delinquency; or (3) the court of continuing jurisdiction over the child support order has granted the obligor an exemption from ineligibility as part of a court-supervised effort to improve earnings and child support payments. Before payment can be released Contractor will supply County with the name and social security number of the individual or sole proprietor and each partner, shareholder, or owner with an ownership interest of at least 25 percent of the business entity. Contractor certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.

Section 28. Additional Federal and State Terms and Conditions

Contractor understands and acknowledges that this Agreement may be totally or partially funded with federal and or state funds. As a condition of receiving these funds, Contractor represents that it is and will remain in compliance with all federal and or state terms as stated below. These terms flow down to all third party contractors and their subcontracts at every tier that exceed the simplified acquisition threshold, unless a particular award term or condition specifically indicates otherwise. The Contractor shall require that these clauses shall be included in each covered transaction at any tier.

28.1. Access for Individuals with Disabilities (ADA Access).

The Contractor agrees to comply with 49 U.S.C. § 5301(d), which states the Federal policy that elderly individuals and individuals with disabilities have the same right as other individuals to use public transportation services and facilities, and that special efforts shall be made in planning and designing those services and facilities to implement transportation accessibility rights for elderly individuals and individuals with disabilities. The Contractor also agrees to comply with all applicable provisions of section 504 of the Rehabilitation Act of 1973, as amended, with 29 U.S.C. § 794, which prohibits discrimination on the basis of disability; with the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 et seq., which requires that accessible facilities and services be made available to individuals with disabilities;

and with the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 et seq., which requires that buildings and public accommodations be accessible to individuals with disabilities, and any subsequent amendments to these laws. In addition, the Contractor agrees to comply with applicable implementing Federal regulations and directives and any subsequent amendments thereto, as follows:

- (1) U.S. DOT regulations, "Transportation Services for Individuals with Disabilities (ADA), 49 C.F.R. Part 37;
- (2) U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in programs and Activities Receiving or Benefiting from Federal Financial Assistance, 49 C.F.R. Part 27;
- (3) Joint U.S. Architectural and Transportation Barriers Compliance board (U.S. ATBCB)/U.S. DOT regulations, "Americans With Disabilities (ADA) Accessibility Specifications for Transportation Vehicles," 36 C.F.R. Part 1192 and 49 C.F.R. Part 38;
- (4) U.S. DOJ regulations, "Nondiscrimination on the Basis of Disability in State and Local Government Services," 28 C.F.R. Part 35;
- (5) U.S. DOJ regulations, "Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities," 28 C.F.R. Part 36;
- (6) U.S. General Services Administration (U.S. GSA) regulations, "Accommodations for the Physically Handicapped," 41 C.F.R. Subpart 101-19;
- (7) U.S. EEOC, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630;
- (8) U.S. Federal Communications Commission regulations, "Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled," 47 C.F.R. Part 64, Subpart F; and
- (9) U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194; FTA regulations, "Transportation for Elderly and Handicapped Persons", 49 C.F.R. Part 609; and
- (10) U.S. DOT regulations, "Transportation for Individuals with Disabilities: Passenger Vessels," 49 C.F.R. Part 39;
- (11) FTA Circular 4710.1, "Americans with Disabilities Act: Guidance"; and
- (12) Federal civil rights and nondiscrimination directives implementing the foregoing regulations, except to the extent the Federal Government determines otherwise in writing.

28.2. Access to Records and Reports.

The Contractor agrees to provide County, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the Agreement for the purposes of making audits, examinations, excerpts and transcriptions. Contractor also agrees, pursuant to 49 C.F.R. 633.17 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

The Contractor agrees to comply and will require all subcontractors of any tier to comply with the record retention requirements in accordance with 2 C.F.R. 200.333. The Contractor agrees to retain, and will require its subcontractors of all tiers to retain, complete and readily accessible records related in whole or in part to the contract, including, but not limited to, all books, records, accounts, statistics, leases, subcontracts, arrangements other third party arrangements of any type, reports, and supporting materials related to those records required under the Agreement for a period of not less than three years after the date of termination or expiration of the Agreement, except in the event of litigation or settlement of claims arising from the performance of the Agreement, in which case Contractor agrees to maintain same until County, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

28.3. Breaches and Disputes.

The parties shall attempt in good faith to resolve promptly any dispute arising out of or relating to the Agreement by negotiation between the parties. Disputes arising in the performance of this Agreement that are not resolved by agreement of the parties shall be decided in writing by the authorized representative of the County. This decision shall be final and conclusive unless within ten [10] days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the County. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the County shall be binding upon the Contractor and the Contractor shall abide by the decision.

Performance During Dispute - Unless otherwise directed by County, Contractor shall continue performance under the Agreement while matters in dispute are being resolved.

The requirement to seek mediation may be a condition required before filing an action at law or in equity, unless to do so would prevent either party from seeking relief in a court of law or equity under any applicable statute of limitations.

Claims for Damages - Should either party to the Agreement suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefor shall be made in writing to such other party within a reasonable time after the first observance of such injury of damage.

Rights and Remedies - The duties and obligations imposed by the Agreement and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the County or Contractor shall constitute a waiver of any right or duty afforded any of them under the Agreement, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

28.4. Buy America.

The Contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. 661.7, and include final assembly in the United States for 15 passenger vans and 15 passenger wagons produced by Chrysler Corporation, and microcomputer equipment and software. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content, subject to the Amendment below.

The FAST Act, effective October 1, 2015 amended the Buy America waiver for rolling stock to provide for a phased increase in the domestic content requirement for rolling stock to more than 65 percent for FY2018 and FY2019 and to more than 70 percent in FY2020 and beyond. The new provisions apply based on the date of delivery of the rolling stock. Domestic content requirement over the phase of the contract period shall be the provision applicable to the year of delivery of rolling stock procured under this contract.

Unlike rolling stock, manufactured goods must be 100-percent produced in the U.S. A manufactured good is considered produced in the United States if: (1) All of the manufacturing processes for the product take place in the United States; and (2) All of the components of the product are of U.S. origin. A component is considered of U.S. origin if it is manufactured in the United States, regardless of the origin of its subcomponents. 49 CFR 661.5(d). FTA has issued a number of [Buy America guidance letters](#) discussing manufactured goods.

A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

28.5. Cargo Preference-Use of United States-Flag Vessels.

The Contractor agrees: (a) to use privately owned US -Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material or commodities pursuant to the Agreement to the extent such vessels are available at fair and reasonable rates for US-Flag commercial vessels; and (b) to furnish within 20 working days following the date of loading for

shipments originating within the US or within 30 working days following the date of loading for shipments originating outside the US, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the contractor in the case of a subcontractor's bill-of-lading).

28.6. Civil Rights Requirements.

Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, sexual orientation, gender identity, age, status as a parent or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

Equal Employment Opportunity - The following equal employment opportunity requirements apply to the Agreement:

Race, Color, Creed, National Origin, Sex- The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, disability, age, sexual orientation, gender identity, or status as a parent. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § § 623 and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

28.7. Clean Air.

The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. The Contractor agrees to report each violation to the County and understands and agrees that the County will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office. The Contractor agrees it will not use any violating facilities. It will report the use of facilities placed on or likely to be placed on the U.S. EPA "List of Violating Facilities". It will report violations of use of prohibited facilities to FTA.

The Contractor also agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FTA.

28.8. Clean Water.

The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to the County and understands and agrees that the County will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office. The Contractor agrees it will not use any violating facilities. It will report the use of facilities placed on or likely to be placed on the U.S. EPA "List of Violating Facilities". It will report violations of use of prohibited facilities to FTA.

The Contractor also agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FTA.

28.9. Contract Work Hours and Safety Standards.

The Contractor shall comply with all federal laws, regulations, and requirements providing wage and hour protections for non-construction employees, in accordance with 40 U.S.C. § 3702, Contract Work Hours and Safety Standards Act, and other relevant parts of that Act, 40 U.S.C. § 3701 et seq., and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Non-construction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. part 5.

The Contractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three (3) years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.

Such records maintained under this paragraph shall be made available by the Contractor for inspection, copying, or transcription by authorized representatives of the FTA and the Department of Labor, and the Contractor will permit such representatives to interview

employees during working hours on the job.

The Contractor shall require the inclusion of the language of this clause within subcontracts of all tiers.

28.10. Disadvantaged Business Enterprise (DBE).

The Agreement is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs including 49 C.F.R. Part 26, Section 1101(b) of the FAST Act (23 U.S.C. § 101 note). The national goal for participation of Disadvantaged Business Enterprises (DBE) is 10%. **A separate contract goal has not been established for this procurement.**

The Contractor, and each Third Party Subcontractor must not discriminate on the basis of race, color, national origin, or sex in the award and performance of any FTA or U.S. DOT-assisted subagreement, third party contract, and third party subcontract, as applicable, and the administration of its DBE program or the requirements of 49 C.F.R. part 26.

The Contractor and each Third Party Subcontractor must take all necessary and reasonable steps under 49 C.F.R. part 26 to ensure nondiscrimination in the award and administration of U.S.FTA-assisted subagreements, third party contracts, and third party subcontracts, as applicable.

Failure by the Subrecipient and any of its Third Party Contractors or Third Party Subcontractors to carry out the requirements of this subparagraph 12.e(4)(b) is a material breach of this subagreement, third party contract, or third party subcontract, as applicable which may result in the termination of the Agreement or such other remedy as County deems appropriate, which may include, but is not limited to: (1) withholding monthly progress payments; (2) assessing sanctions; (3) liquidated damages; and/or (4) disqualifying the Contractor from future bidding as non-responsible. Each subcontract the Contractor signs with a subcontractor must include the assurance in this paragraph (see 49 C.F.R. 26.13(b)).

The successful bidder/offeror will be required to report its DBE participation obtained through race-neutral means throughout the period of performance.

The Contractor is required to pay its subcontractors performing work related to the Agreement for satisfactory performance of that work no later than 30 days after the Contractor's receipt of payment for that work from County. In addition, the Contractor is required to return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to the Agreement is satisfactorily completed.

The Contractor must promptly notify County whenever a DBE subcontractor performing work related to the Agreement is terminated or fails to complete its work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. The Contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without the prior written consent of County.

28.11. Distracted Driving.

The Contractor agrees to adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers, including policies to ban text messaging while using an electronic device supplied by an employer, and driving a vehicle the driver owns or rents, a vehicle Contractor owns, leases, or rents, or a privately-owned vehicle when on official business in connection with the Award, or when performing any work for or behalf of the County.

28.12. Energy Conservation.

The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

28.13. Environmental Justice.

The Contractor agrees to, and assures that it will, promote environmental justice by following: (1) Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," February 11, 1994, 42 U.S.C. § 4321 note, as well as facilitating compliance with that Executive Order, (2) U.S. DOT Order 5610.2, "Department of Transportation Actions To Address Environmental Justice in Minority Populations and Low-Income Populations," 62 Fed. Reg. 18377, April 15, 1997, and (3) the most recent edition of FTA Circular 4703.1, "Environmental Justice Policy Guidance for Federal Transit Administration Recipients," August 15, 2012, to the extent consistent with applicable federal laws, regulations, requirements, and guidance.

28.14. Environmental Protections.

The Contractor agrees to, and assures that it will, comply with all applicable environmental and resource use laws, regulations, and requirements, and follow applicable guidance, now in effect or that may become effective in the future, including state and local laws, ordinances, regulations, and requirements and follow applicable guidance.

28.15. Notice to Third Party Participants.

Federal requirements that apply to the County or the Award, the accompanying Award Agreement or any Amendments thereto may change due to changes in federal law, regulation, other requirements, or guidance, or changes in the Recipient's Award Agreement including any information incorporated by reference and made part of that Award Agreement will apply to the Contractor and any other Third-Party Agreements.

28.16. Fly America.

The Contractor agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 C.F.R. Part 301-10, which provide that recipients and sub-recipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

28.17. FTA Interest.

Contractor understands and agrees that FTA has a vested interest in the settlement of any violation of federal law, regulation, or disagreement involving federal funds used towards this Agreement, including, but not limited to, a default, breach, major dispute, or litigation, and FTA reserves the right to concur in any settlement or compromise."

28.18. Government-wide Debarment and Suspension.

The Contractor shall comply and facilitate compliance with U.S. FTA regulations, Nonprocurement Suspension and Debarment," 2 C.F.R. part 1200, which adopts and supplements the U.S. Office of Management and Budget (U.S. OMB) "Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)," 2 C.F.R. part 180. These provisions apply to each contract at any tier of \$25,000 or more, and to each contract at any tier for a federally required audit (irrespective of the contract amount), and to each contract at any tier that must be approved by an FTA official irrespective of the contract amount. As such, the Contractor shall verify that its principals, affiliates, and subcontractors are eligible to participate in this federally funded contract and are not presently declared by any Federal department or agency to be:

- (1) Debarred from participation in any federally assisted Award;
- (2) Suspended from participation in any federally assisted Award;
- (3) Proposed for debarment from participation in any federally assisted Award;
- (4) Declared ineligible to participate in any federally assisted Award;
- (5) Voluntarily excluded from participation in any federally assisted Award; or
- (6) Disqualified from participation in ay federally assisted Award.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

"The Certification in this clause is a material representation of fact relied upon by the County. If it is later determined by the County that the bidder or proposer knowingly rendered an erroneous

certification, in addition to remedies available to County, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 2 C.F.R. part 180, subpart C, as supplemented by 2 C.F.R. part 1200, while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.”

28.19. Incorporation of FTA Terms.

The provisions in this Section include, in part, certain Standard Terms and Conditions required by FTA, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by FTA, as set forth in FTA Circular 4220.1E, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in the Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any County requests which would cause County to be in violation of the FTA terms and conditions.

28.20. Intelligent Transportation Systems (ITS) Architecture and Standards.

Contractor ensures that they will conform to the National Intelligent Transportation Systems (ITS) Architecture requirements of 23 U.S.C. § 517(d), unless it obtains an exemption from those requirements, and follow FTA Notice, “FTA National ITS Architecture Policy on Transit Projects,” 66 Fed. Reg. 1455, January 8, 2001, and all other applicable federal guidance.

28.21. Lobbying.

Contractors who apply or bid for an award of \$100,000 or more shall file the certification required by 49 C.F.R. Part 20, “New Restrictions on Lobbying.” Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the Recipient.

28.22. No Government Obligation to Third Parties.

County and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the contract, absent the express written consent by the Federal Government, the Federal Government is not a party to the Agreement and shall not be subject to any obligations or liabilities to County, the Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting

from the contract. The Contractor agrees to include this clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

28.23. Notification to FTA.

Contractor understands that if a current or prospective legal matter that may affect the Federal Government emerges, the County must promptly notify the FTA Chief Counsel, or FTA Regional Counsel for the Region in which the County is located. (1) The types of legal matters that require notification include, but are not limited to, a major dispute, breach, default, litigation, or naming the Federal Government as a party to litigation or a legal disagreement in any forum for any reason. (2) Matters that may affect the Federal Government include, but are not limited to, the Federal Government's interests in the federal funds used towards this Agreement, or the Federal Government's administration or enforcement of federal laws, regulations, and requirements.

28.24. False Claims.

If the County has credible evidence that Contractor or other person has submitted a false claim under the False Claims Act, 31 U.S.C. § 3729 et seq., or has committed a criminal or civil violation of law pertaining to such matters as fraud, conflict of interest, bribery, gratuity, or similar misconduct involving federal assistance, the County must promptly notify the U.S. FTA Inspector General, in addition to the FTA Chief Counsel or Regional Counsel for the Region in which the County is located.

28.25. Program Fraud and False or Fraudulent Statements and Related Acts.

The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Project. Upon execution of the contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the Agreement or the FTA assisted project for which the Agreement work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

28.26. Prompt Payment.

The Contractor is required to pay its subcontractors performing work related to this Agreement for satisfactory performance of that work no later than 30 days after the Contractor's receipt of payment for that work from County. In addition, the Contractor is required to return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to this Agreement is satisfactorily completed.

28.27. Resource Recovery.

The Contractor agrees to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 C.F.R. part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

28.28. Safe Operation of Vehicles (Seat Belt).

Contractor shall encourage their employees and other personnel that operate company-owned vehicles, company rented-vehicles, or personally operated vehicles to adopt on-the-job seat belt policies and programs.

28.29. Sensitive Security Information.

Each third party contractor must protect, and take measures to ensure that its subcontractors at each tier protect, "sensitive security information" made available during the administration of a third party contract or subcontract to ensure compliance with 49 U.S.C. Section 40119(b) and implementing FTA regulations, "Protection of Sensitive Security Information," 49 CFR Part 15, and with 49 U.S.C. Section 114(r) and implementing Department of Homeland Security regulations, "Protection of Sensitive Security Information," 49 CFR Part 1520.

28.30. Termination.

(a) Termination for Convenience

County may terminate the Agreement, in whole or in part, at any time by written notice to the Contractor. If the Contractor has any property in its possession belonging to County, the Contractor will account for the same, and dispose of it in the manner County directs.

(b) Termination for Cause

(1) County may terminate the whole or any part of this Agreement for cause in the following circumstances:

- a. If Contractor fails to perform services within the time specified in the Scope of Services or any extension thereof granted by the County in writing;
- b. If Contractor materially breaches any of the covenants or terms and conditions set forth in the Agreement or fails to perform any of the other provisions of the Agreement or so fails to make progress as to endanger performance of the Agreement in accordance with its terms, and in any of these circumstances does not cure such breach or failure to County's reasonable satisfaction within a period of ten (10) calendar days after receipt of notice from County specifying such breach or failure.

(2) If, after termination, it is determined for any reason whatsoever that Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the County as if the contract had been terminated for convenience.

(3) Upon termination of the Agreement, County shall compensate Contractor in accordance with the terms for payment set out in the agreement, above, for those services which were provided under the Agreement prior to its termination and which have not been previously invoiced to County. Contractor's final invoice for said services will be presented to and paid by County in the same manner set forth in the Agreement.

(4) The County shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. In this event, the County may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the County resulting from the Contractor's refusal or failure to complete the work within specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the County in completing the work.

(5) The Contractor's right to proceed shall not be terminated nor shall the Contractor be charged with damages under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include: acts of God, acts of another contractor in the performance of a contract with the County, epidemics, quarantine restrictions, strikes, and freight embargoes.

(6) In the case of delay, the Contractor shall within ten (10) days from the beginning of any delay, notify the County in writing of the causes of any delay. If, in the judgment of County, the delay is excusable, the time for completing the work shall be extended. The judgment of County shall be final and conclusive for the parties, but subject to appeal under the Disputes clause(s) of the Agreement.

(7) Any such termination for default shall not in any way operate to preclude County from also pursuing all available remedies against Contractor and its sureties for said breach or default including specific performance, an injunction, any other equitable remedy or the right to money damages.

(8) In the event that County elects to waive its remedies for any breach by Contractor of any covenant, term or condition of the Agreement, such waiver by County shall not limit County's remedies for any succeeding breach of that or of any other covenant, term, or condition of the Agreement.

(9) Inasmuch as the Contractor can be adequately compensated by money damages for any breach of the Agreement, which may be committed by the County, the Contractor expressly agrees that no default, act or omission of the County shall constitute a material breach of its Agreement with the County, entitling Contractor to cancel or rescind the Agreement (unless the County directs Contractor to do so) or to suspend or abandon performance.

28.31. Change Orders.

Verbal change orders to the Agreement are not permitted. No changes in the scope, specifications, character, or complexity of work shall be made by the Contractor without first receiving written approval by the Fort Bend County Public Transportation Director or their designee properly defining and limiting any such change. Contractor shall be liable for all costs resulting from and/or for satisfactorily correcting any specification change not properly ordered by written modification to the Contract and signed by the Fort Bend County Public Transportation Director or their designee."

Within 14 calendar days after Contractor's receipt of the written change order request for modification of the Contract, Contractor shall submit to FBCPT Manager of Contracts and Procurement a detailed price schedule proposal for the work to be performed. This proposal shall be accepted or modified by negotiation between Contractor and the FBCPT Manager of Contracts and Procurement. At the time both parties shall execute a detailed Contract modification in writing. Disagreements that cannot be resolved within negotiations shall be resolved in accordance with the contract disputes clause."

It is distinctly understood and agreed that no claim for payment for work done or materials furnished by the Contractor outside of these parameters shall be paid by FBCPT. Any such services or materials furnished by Contractor without such written order shall be at the risk, cost and expense of the Contractor, and no claim for compensation for any such services or materials shall be made.

All such changes, which are mutually agreed upon by and between all parties, shall be incorporated in written amendments to the Contract. All such amendments shall state any increase or decrease in the amount of the compensation due to FBCPT for the change in the scope.

28.32. Debt to State.

The State of Texas shall not be responsible for the debts of the County or Subcontractor.

28.33. Required Assurance.

The Contractor and any Sub-contractors shall not discriminate on the basis of race, color, religion, national origin, or sex (including gender identity), disability, or age in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 "Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs" in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this agreement, which may result in the termination of this contract or such other remedy as the County deems appropriate, which may include, but is not limited to: (1) Withholding monthly progress payments; (2) Assessing sanctions; (3) Liquidated damages; and/or (4) Disqualifying the Contractor from future bidding as non-responsible.

Section 29. Certification Forms

Contractor has completed and submitted required forms and certifications attached here as Exhibit C.

Section 30. Force Majeure

Neither party shall be liable or responsible to the other party, nor be deemed to have defaulted under or breached this Agreement, for any failure or delay in fulfilling or performing any term of this Agreement when and to the extent such failure or delay is caused by or results from acts beyond the impacted party's ("Impacted Party") control, including, but not limited to, the following force majeure events ("Force Majeure Events"): (a) acts of God; (b) a natural disaster (fires, explosions, earthquakes, hurricane, flooding, storms, explosions, infestations), epidemic, or pandemic; (c) war, invasion, hostilities (whether war is declared or not), terrorist threats or acts, riot or other civil unrest; (d) government order or law; (e) actions, embargoes or blockades in effect on or after the date of this Agreement; (f) action by any governmental authority; (g) national or regional emergency; (h) strikes, labor stoppages or slowdowns or other industrial disturbances; and (i) shortage of adequate power or transportation facilities. The Impacted Party shall give Notice in writing within three (3) business days of the Force Majeure Event to the other party disclosing the estimated length of delay and the cause of the delay. The Impacted Party shall use diligent efforts to end the failure or delay and ensure the effects of such Force Majeure Event are minimized. The Impacted Party shall resume the performance of its obligations as soon as reasonably practicable after the removal of the cause. In the event that the Impacted Party's failure or delay remains uncured for a period of ten (10) days following Notice given by it, the other party may thereafter terminate this Agreement upon Notice.

Section 31. Entire Agreement

This instrument contains the entire Agreement between the parties hereto relating to the rights herein granted and the obligation herein assumed. Any oral representations or

modifications concerning this instrument shall be of no force or effect excepting a subsequent modification in writing signed by all the parties hereto.

IN TESTIMONY OF WHICH, THIS AGREEMENT shall be effective upon execution of all parties.

FORT BEND COUNTY

AUDIO VISUAL TECHNOLOGY GROUP, INC.

KP George, County Judge

Authorized Agent- Signature

Ashwak Brown

Date

Authorized Agent- Printed Name

President

ATTEST:

Title

9/21/2020

Laura Richard, County Clerk

Date

Reviewed by:

Perri D'Armond
FBC Public Transportation Department Director

AUDITOR'S CERTIFICATE

I hereby certify that funds are available in the amount of \$ _____ to accomplish and pay the obligation of Fort Bend County under this contract.

Robert E. Sturdivant, County Auditor

EXHIBIT A

EXHIBIT A

SCOPE OF SERVICE

Audio Visual Technologies Group (AVTG) shall provide the following services, in compliance with Video Surveillance System Specification (A-1) and Building Plans (A-2), to Fort Bend County as part of this contract:

Milestone 1 - Installation Schedule

Within fifteen (15) days of receipt of Notice to Proceed, AVTG shall provide an Installation Schedule. The Installation Schedule must be approved in writing by County prior to commencement of any work.

Milestone 2 - Delivery of Equipment

- a. Provide a complete bill of materials for all equipment provided under this contract
- b. Supply sixty-seven (67) IP cameras, both indoor and outdoor in accordance to the specifications defined in A-1. All cameras must be compliant with ONVIF standards (<https://www.onvif.org/>)
- c. Supply the cabling and mounting hardware to install cameras in accordance to the specifications defined in A-1. Per specifications, fiber-optic cabling and electrical power cabling to exterior parking lot cameras were installed during building constructions, and these existing cables will be used to connect the parking lot cameras to the Fort Bend County network.
- d. Supply camera software and software license for each camera. Software and licenses require a Pelco compatible server for proper operation.
- e. Delivery shall not be considered complete until equipment has been examined and accepted against the bill of materials and the contract by County in writing as meeting required specifications.

Milestone 3 - Installation

Install cameras and other equipment in accordance to the specifications defined in A-1 and in the locations defined in A-2

- a. AVTG shall consult Fort Bend County on camera placement and positioning. In the event, the camera locations defined in A-2 are not ideal, AVTG shall notify FBC in writing and provide recommendations. If a different camera mounting location is required, then this will not change the overall installation price. If Fort Bend County determines that additional cameras are needed, then AVTG will provide a quote for the additional cameras and installation price for approval.
- b. AVTG shall not be responsible for connecting cameras to the County network.
- c. AVTG will work with Fort Bend County IT Department to ensure all cameras are visible on their network once the Fort Bend County Provided Video Management System is installed and in operation.

d. Installation shall not be deemed complete until accepted in writing by County for full functionality, operability, and visibility (all camera views have been approved).

Milestone 4 – Training

Provide system administration and end-user training for cameras in accordance to the specifications defined in A-1

EXHIBIT A-1

1.0 VIDEO SURVEILLANCE SYSTEM SPECIFICATIONS

1.1 OVERVIEW

- a. Fort Bend County (FBC) intends to contract with one (1) vendor to provide, install, and maintain Video Cameras for the Video Surveillance System (VSS) for the Transit Facility.

1.2 WORK INCLUDED

- a. For the Transit Facility, the Scope of Work shall include turnkey proposal that includes, but not limited to, all necessary parts, materials, labor, installation, software, and maintenance to properly complete the proposed project.
- b. All camera communication cabling infrastructure to include Category 6 UTP network shall be provided for the Video Surveillance installing contractor, properly terminated at cameras being powered by switch POE (Cat-6), or media converter locations where (fiber) shall terminate inside an outdoor enclosure with equal specifications as OSVP-18168 on the designated light poles, and SB-14127 on the designated gate pedestals to the designated IT/Security closet locations shown on plans.
- c. All 10AWG electrical wiring used for the low voltage powering of required fiber optic to Ethernet POE+ media converters located at pole and pedestal termination points shall be in place for the Video Surveillance contractor. The contractor will connect a power supply which meets the selected fiber optic to Ethernet POE+ media converters manufacturer specified power requirements.
- d. Fiber optic to Ethernet POE+ media controllers shall accept SFP transceivers of a type fully supported by WS-C3850-12S-S network switch manufacturer model connecting to the Video Surveillance network. Fiber to POE+ Media converters must be spec 48VDC input to meet voltage requirements at the furthest pole.
- e. The power supply must have an adjustable range of 48VDC to 52VDC, or greater. This is usually adjustable with a potentiometer. The contractor would need two of these power supplies (1) for close power and (2) for furthest distance to adjust power output accordingly for each set based on distance. (Power balance)

- f. The contractor is responsible for sealing all building envelope penetrated during installation of VSS with a method approved by FBC staff. A one-year warranty is required for water intrusion to sealed areas.

1.3 QUALIFICATIONS

- a. The manufacturer shall have a minimum of five years' experience in producing IP video application software.
- b. Installers shall be trained, certified, and authorized by the Manufacturer to install, integrate, test, and commission the system.
- c. Submittal of work plan and equipment shall be approved in writing by FBC Staff prior to acceptance.
- d. Manufacturer's Qualifications: ISO 9000:2000 Registered Company

1.4 DELIVERY, STORAGE, AND HANDLING

- a. Deliver the camera(s), materials, and equipment to the site in the manufacturer's original, unopened, and undamaged container with identification labels intact.
- b. All hardware shall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.
- c. Protect camera(s), materials, and equipment during handling and installation to prevent damage.

1.5 PREPARATION

- a. The network design, configuration, low voltage configuration to and from the camera(s) shall be verified by the contractor for compatibility and performance with the camera(s) prior to the camera and system installation.
- b. Network configuration shall be tested and approved by the Contractor prior to the camera and system installation.

1.6 INSTALLERS

- a. Contractor personnel shall comply with all applicable state and local licensing requirements. Onsite Installers shall obtain product manufacturers training and certification.

1.7 REFERENCE STANDARDS

NETWORK

- a. IEEE 802.3 Ethernet Standards

VIDEO

- b. ISO / IEC 14496 –10, MPEG-4 Part 10 (ITU H.264)
- c. ISO / IEC 10918 – JPEG
- d. ONVIF – Profile S and Profile G
- e. Emissions
 - i. FCC-47 CFR Part 15, Class A
 - ii. CE, Class A
 - iii. ICES-003, Class A

1.8 NETWORK DOME CAMERA

- a. **PRODUCT: GENERAL CAMERA SPECIFICATIONS Sarix® IMP INDOOR AND ENVIRONMENTAL MINI DOMES UP TO 5 MEGAPIXEL, H.264, IR, DAY/NIGHT IP DOMES**
- b. The network camera system shall offer two simultaneous video streams and a third service streams with up to 3 MPx, 2048 x 1536 resolution.
- c. The network camera system shall possess the following primary characteristics:
 - i. Up to 5 megapixels (MPx) resolution
 - ii. Up to 30 images per second (ips) at 3 MPx
 - iii. Autofocus motorized remote zoom lens
 - iv. Integrated adaptive IR illumination (environmental IR models)
 - v. Operating temperature up to 55°C (131°F)
 - vi. Up to 64 GB edge storage with Micro SD card
 - vii. Motion detection and camera sabotage detection

- viii. Power over Ethernet (PoE+) Class 4, 24 VAC (environmental models)
- ix. All models vandal resistant to IK10
- x. PoE, 24 VAC, 12 VDC (indoor models)
- xi. Compatible with Pelco or approved, and third-party video systems
- xii. ONVIF Profile S and Profile G conformant

VIDEO/CAMERA

d. Imaging Device

i. MPx	Sensor	Maximum Resolution
ii. 5 MPx	1/1.8-inch	2592 x 1944 (5.0 MPx)
iii. 3 MPx	1/2.8-inch	2048 x 1536 (3.1 MPx)
iv. 2 MPx	1/2.8-inch	1920 x 1080 (2.1 MPx)
v. 1 MPx	1/3-inch	1280 x 960 (1.3 MPx)

e. CMOS

f. Electronic Shutter Range:

- a. 1/5 ~ 1/30,000 sec (1 and 5 MPx),
- b. 1/5 ~ 1/25,000 sec (2 MPx),
- c. 1/5 ~ 1/45,000 sec (3 MPx)

g. Minimum Illumination:

i. MPx	Sensitivity	Color	Mono
ii. 5 MPx f/1.2	0.30 lux	0.03 lux	0.10 lux 0.02 lux
iii. 3 MPx f/1.2	0.25 lux	0.03 lux	0.10 lux 0.02 lux
iv. 2 MPx f/1.2	0.25 lux	0.03 lux	0.10 lux 0.02 lux
v. 1 MPx f/1.4	0.05 lux	0.03 lux	0.10 lux 0.02 lux

LENS

- h. Lens Type Built-in; varifocal
- i. Focal Length f/1.4, 3 ~ 10.5 mm
- j. Focus Autofocus, motorized
- k. Zoom Remote
- l. Auto Iris Type DC drive lens
- m. Field Of View:

n. Lens	Angle of View	1 MPx	2 MPx	3 MPx	5 MPx
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- o. 3 to 10.5 mm Diagonal 110°~ 33° 116°~ 35° 115°~ 34° 110°~ 46°
 - i. Horizontal 85°~ 27° 100°~ 31° 88°~ 30° 88°~ 37°
 - ii. Vertical 62°~ 19° 54°~ 17° 52°~ 16° 64°~ 27°

VIDEO

- p. Video Streams: Up to 2 simultaneous streams, plus service stream; the secondary stream is variable based on the setup of the primary stream
- q. Video Overlay : Camera name, time, date, and customizable text with multiple supported languages
- r. **Available Resolutions:**

i.	MPx	Width	Height	Aspect Ratio
ii.	5.0	2592	1944	4:3
iii.	3.1	2048	1536	4:3
iv.	2.1	1920	1080	16:9
v.	1.2	1280	960	4:3
vi.	0.9	1280	720	16:9
vii.	0.5	800	600	4:3
viii.	0.3	640	480	4:3
ix.	0.1	320	240	4:3
x.	0.1	320	180	16:9

FRAME RATES

- | xi. | MPx | Images per Second (ips) |
|-------|-------|--|
| xii. | 5 MPx | 15, 12.5, 10, 7.5, 5, 3, 2, 1 |
| xiii. | 3 MPx | 30, 25, 20, 16.67, 15, 12.5, 10, 7.5, 5, 3, 2, 1 |
| xiv. | 2 MPx | 30, 25, 20, 16.67, 15, 12.5, 10, 7.5, 5, 3, 2, 1 |
| xv. | 1 MPx | 30, 25, 20, 16.67, 15, 12.5, 10, 7.5, 5, 3, 2, 1 |
- s. Video Encoding: H.264 High or Main profiles; and MJPEG
 - t. 6. Bit Rate Control: Constant bit rate (CBR), constrained variable bit rate (CVBR) with configurable maximum value.
 - u. Corridor Mode: Electronic image flip and mirror: 180°, 90° and 270° (H.264 only)
 - v. Service Stream: 640 x 480 or 640 x 352; 2 ips, JPEG
 - w. Window Blanking: 8 configurable windows

NETWORK

- x. Connectivity: 100 BASE-TX Ethernet with RJ-45 connector

- y. Protocols supported
 - i. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)
 - ii. Configuration: Dynamic Host Configuration Protocol (DHCP)
 - iii. Web services: Hypertext Transfer Protocol (HTTP), Secure HTTP (HTTPS)
 - iv. Network services: Domain Name System (DNS), Network Time Protocol (NTP), Internet Control Message Protocol (ICMP), Simple Network Management Protocol (SNMP) v2c/v3, Universal Plug and Play (UPnP)
 - v. Media: Real-Time Transport Protocol (RTP), Real-Time Streaming Protocol (RTSP)
 - vi. Multicast: Internet Group Management Protocol (IGMP)
 - vii. Notifications: File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP)
 - viii. Remote Access: Secure Shell (SSH)
 - ix. Security: Secure Sockets Layer (SSL), IEEE 802.1x (EAP-MD5, EAP-TLS, EAP-TTLS, EAP-PEAP, and EAP-FAST)
 - x. Quality of Service: IEEE 802.1p Layer 3 Differentiated Services Code Point (DSCP)
 - xi. DDNS – The network camera system shall support DDNS services offered by the Manufacturer and other publicly available service offerings. (DNS)

1.9 INDOOR / OUTDOOR PANOMERSIVE CAMERAS

- i. **PRODUCTS: INDOOR / OUTDOOR PANOMERSIVE IP NETWORK CAMERAS GENERAL CAMERA SECTION 180^o, 270^o OPTERA IP CAMERA PRODUCTS**
- ii. Manufacturer: Pelco or approved Equal

- iii. Model:
 - a. Camera ID C: IMM12018 or approved equal
 - b. Camera ID D: IMM12027 or approved equal

- iv. The IP Panoramic indoor/outdoor multi-sensor camera system shall transparently integrate video across all sensor's in the camera presenting a seamless fully stitched and blended total resolution of 12 megapixels (MPx), 2048 x 1536 x 4.
- v. The IP Panoramic indoor/outdoor multi-sensor camera system technology shall include options for 180°, 270°, and 360° camera functionality as well as provide pan and tilt adjustment of the camera module for 180° degree models and pan for 270° and 360° modules.
- vi. In conjunction with a Video Management System "VMS" that integrates the Panomersive Toolkit, the camera shall be able to support seamless panoramic views and simultaneous Immersive Views that allow for the pan, tilt and zoom in, across the entire field of view.
- vii. The IP Panoramic indoor/outdoor multi-sensor camera system housing technology shall meet the IK10 impact specification as well as standard mounting hardware capabilities that would include but not be limited to Pendant, Surface, and Ceiling mount hardware.
- viii. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide SureVision™ 2.0 technology that seamlessly delivers extended True Wide Dynamic Range (WDR), low-light performance, and anti-bloom technology, operating in a simultaneous mode of operation.
- ix. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide a slot for a removable, local storage medium (not provided by camera manufacturer) (Micro SD) to capture video clips of varying lengths in accordance with the ONVIF G Profile. Any Video Management System "VMS" that is conformant to this standard can initiate storage and retrieval of video, for instance, to safeguard against network failure.
- x. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide a service video stream in addition to and independent of the video streams.
- xi. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide advanced low-light capabilities for day/night models with sensitivity down to 0.03 lux for the 180° and 0.05 lux in the 270° and 360° models respectively while in night mode.

- xii. The IP Panoramic indoor/outdoor multi-sensor camera system shall support industry standard Power over Ethernet Plus (PoE+) IEEE 802.3at, Class4 to supply power to the camera over the network.
- xiii. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide options for clear and smoked lower domes.
- xiv. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide a Wide Dynamic Range (WDR) up to 120 dB with dynamic adjustments through the User Interface across the cameras field of view.
- xv. The IP Panoramic indoor/outdoor multi-sensor camera system shall have a mechanical IR cut filter mechanism for increased sensitivity in low-light installations. Set points for the IR cut filter feature shall be configurable through an embedded Web browser.
- xvi. The IP Panoramic indoor/outdoor multi-sensor camera system shall support H.264 High, Main or Base profiles, using constrained variable bit rate (CVBR) as the default, variable bit rate (VBR), or constant bit rate (CBR) with target range.
- xvii. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide 802.1x port security to establish point-to-point access through a wired or wireless port using Extensible Authentication Protocol (EAP).
- xviii. The IP Panoramic indoor/outdoor multi-sensor camera system shall conform to the ONVIF Profile S and Profile G, and support open architecture best practices with a published API available to third-party network video recording and management systems. A “Panomersive” SDK that would enable Video Management Systems to d-warp the streams from this camera into panoramic and Immersive Views shall be made available.
- xix. The IP Panoramic indoor/outdoor multi-sensor camera system shall support SNMP v2c and v3.
- xx. The IP Panoramic indoor/outdoor multi-sensor camera system shall support IPv6 configurations in conjunction with IPv4.

- xxi. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide Auto or Manual exposure settings for adjusting the amount of light detected by the camera sensor.
- xxii. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide user-selectable configurations for day/night auto mode. Transitional levels shall be used to set the desired light level for transitioning to night mode. Transition detect time shall control the length of time that the camera is exposed to a light level before changing to color or monochrome mode.
- xxiii. The IP Panoramic indoor/outdoor multi-sensor camera system shall be factory focused, requiring no manual adjustment of focus in the field.
- xxiv. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide User and Group settings to assign permissions and access levels to the camera.
- xxv. The IP Panoramic indoor/outdoor multi-sensor camera system shall be based on a 1/3.2-inch high-resolution CMOS sensor and includes four of them in the cameras standard configuration.
- xxvi. The IP Panoramic indoor/outdoor network camera system shall include a camera module, back box, and lower dome.
- xxvii. The IP Panoramic indoor/outdoor multi-sensor camera system shall support standard IT protocols.
- xxviii. The IP Panoramic indoor/outdoor multi-sensor camera dome system shall provide a 1000Base-T network interface.
- xxix. The IP Panoramic indoor/outdoor multi-sensor camera system shall be plenum-rated per 2008 NEC article 300.22(C) (2).
- xxx. The IP Panoramic indoor/outdoor multi-sensor camera system shall be vandal and tamper-resistant with an impact resistance of IK10 (20 Joules).

- xxxi. The IP Panoramic indoor/outdoor multi-sensor camera system shall be NEMA-4X, IP66 rated.
- xxxii. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide a 3/4-inch NPT conduit attachment on the side and top of the back box for in-ceiling and surface mounted applications.
- xxxiii. The IP Panoramic indoor/outdoor multi-sensor camera system shall attach to a standard (1900) 4-inch square box or standard 2-gang electrical box for surface mounted applications.
- xxxiv. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide a 1.5-inch NPT conduit attachment for pendant mounted applications.
- xxxv. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide for standards-based HTML interface.
- xxxvi. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide Window Blanking Technology for user-defined privacy areas.
- xxxvii. The IP Panoramic indoor/outdoor multi-sensor camera system shall feature open architecture connectivity for third-party software recording solutions allowing integration into virtually any IP-based system.
- xxxviii. The IP Panoramic indoor/outdoor multi-sensor camera system shall provide integrated video analytics with the ability to provide hardware and software alarms based on the analytic behaviors presented.
- xxxix. Analytics for the IP Panoramic indoor/outdoor multi-sensor camera system shall include
 - a. Abandoned Object: Detects objects placed in a defined zone and triggers an alarm if the object remains in the zone longer than the user-defined time allows. An airport terminal is a typical installation for this behavior. This behavior can also detect objects left behind at an ATM, signaling possible card skimming.

- b. Adaptive Motion: Detects and tracks objects that enter a scene and then triggers an alarm when the objects enter a user-defined zone. This behavior is primarily used in outdoor environments with light traffic to reduce the number of false alarms caused by environmental changes.
- c. Camera Sabotage: Detects contrast changes in the field of view. An alarm is triggered if the lens is obstructed with spray paint, a cloth, or a lens cap. Any unauthorized repositioning of the camera also triggers an alarm.
- d. Directional Motion: Generates an alarm in a high traffic area when a person or object moves in a specified direction. Typical installations for this behavior include an airport gate or tunnel where cameras can detect objects moving in the opposite direction of the normal flow of traffic or an individual entering through an exit door.
- e. Loitering Detection: Identifies when people or vehicles remain in a defined zone longer than the user-defined time allows. This behavior is effective in the real-time notification of suspicious behavior around ATMs, stairwells, and school grounds.
- f. Object Counting: Counts the number of objects that enter a defined zone or cross a tripwire. This behavior might be used to count the number of people at a store entrance/exit or inside a store where the traffic is light. This behavior is based on tracking and does not count people in a crowded setting.
- g. Object Removal: Triggers an alarm if an object is removed from a defined zone. This behavior is ideal for customers who want to detect the removal of high-value objects, such as a painting from a wall or a statue from a pedestal.
- h. Stopped Vehicle: Detects vehicles stopped near a sensitive area longer than the user-defined time allows. This behavior is ideal for airport

curbside drop-offs, parking enforcement, suspicious parking, traffic lane breakdowns, and vehicles waiting at gates.

- xl. The IP Panoramic indoor/outdoor multi-sensor camera system shall meet or exceed the following design and performance specifications.

CAMERA SPECIFICATIONS

1. Imaging Device: 1/3.2-inch
2. Imager Type: CMOS
3. Imager Readout: Progressive Scan
4. Highest Resolution: 12 MP, 2048 x 1536 x 4
5. Signal-to-Noise Ratio: >50 db
6. Sensitivity
 - a. 180° Model: f/2.0, 0.3 lux color (33 ms)
 - i. 0.14 lux mono (33 ms)
 - b. 270° Model: f/2.5, 0.5 lux color (33 ms)
 - i. 0.2 lux mono (33 ms)
 - c. Day/Night Capabilities: Yes
 1. Mechanical IR Cut Filte: Yes, (ON/OFF/AUTO selectable) with different set points
 - d. Wide Dynamic Range: 120 dB

LENS SPECIFICATIONS

7. Length
8. 180° Model: f/2.0 ~ 4.8 mm
9. 270° Model: f/2.5 ~ 2.7 mm
10. Field of View
11. 180° Model: 180° horizontal, 41° vertical
12. 270° Model: 270° horizontal, 73° vertical

VIDEO SPECIFICATION

13. Video Streams: Set of streams to deliver full resolution views; the secondary stream that comprises a lower resolution mosaic of above streams

14. Frame Rate(s): User selectable up to 12.5 frames per second (fps)
15. Video Encoding: H.264 High, Main, or Base profiles; MJPEG (mosaic stream only)
16. Bit Rate Control: Default maximum for Constrained Variable
 1. Rate (CVBR) at maximum resolution and frame rate
17. 180° Model: 28 Mbps Note: Actual bit rates are lower depending on scene complexity
18. Network
19. Supported Protocols TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, IPv6, SNMP v2c/v3, QoS, HTTP, HTTPS, SSH, SSL, SMTP, FTP, ARP, ICMP, and+ 802.1x(EAP) Note: IPv6 supports mixed IPv4 and IPv6 installations, but not IPv6-only deployments
20. Users
 - a. Unicast: Up to 20 simultaneous depending on the resolution settings, and frame rate
 - b. Multicast: Unlimited H.264
- xli. Security Access: Password protected
- xlii. Software Interface: Web browser view and setup
- xliii. Open API Integration: Pelco/Approved Equal API, Panomersive SDK, ONVIF Profile S and G

MINIMUM SYSTEM REQUIREMENTS

1. Processor: Intel® Core™ i3 processor, 2.4 GHz
2. Operating System: Microsoft Windows® 10, Windows® 7 (32- and 64-bit), or Windows Vista®; or Mac® OS X 10.9 (or later)
3. Memory: 4 GB RAM
4. Network Interface: 100 Mbit (or greater)
5. Monitor: Minimum of 1024 x 768 resolution, 16- or 32-bit pixel color resolution
6. Web Browser: Internet Explorer® 8.0 (or later); Mozilla®, Firefox® 35 (or later); Google® Chrome 40 (or later)

ANALYTICS

7. Open API: Can transmit behavior alarm data to third-party applications.

ELECTRICAL SPECIFICATIONS

8. Network Port: RJ-45 connector for 1000Base-T

1. 1 Gigabit/sec Auto MDI/MDI-X PoE+; Class 4
 9. Cabling Type: Category 5 or better
 10. Input Power: PoE+ (IEEE 802.3at, Class 4)
 11. Power Consumption
 12. Without Heater: 17 watts
 13. With Heater: 23 watts
 14. Local Storage: Micro SD, SDHC
 15. Alarm
 16. Unsupervised: Detects open or closed alarm state
 17. Supervised: Detects open and short alarm state with external
 - a. 1-kohm resistor to detect alarm tampering
 18. Input: 3.5 VDC maximum, 3.5 mA maximum
 19. Relay Output: \pm 32 VDC maximum, 150 mA maximum
- xliv. Audio
 - xlv. Streaming: Bidirectional: full or half duplex
 - xlvi. Input/Output: 600 ohm differential, 1Vp-p max. signal level
 - xlvii. Compression: G.711 PCM 8 bit, 8 kHz mono at 64 kbit/s
- xlviii. Back box and lower dome specifications
 - xliv. Indoor Vandal, In-Ceiling
 - i. Installation: Single back box for suspended or hard ceiling applications
 - ii. Back Box: Plenum rated
 - iii. Cable Entry: 0.75-inch NPT or 25 mm conduit attachments on side and top of back box
 - iiii. Operating Temperatures: -10° to 50°C (14° to 122°F)
 - lv. Operating Humidity: 15 to 85%, RH non-condensing
 - lvi. Impact Resistance: IK10
 - lvii. Shock and Vibration: EN50155 Category 1, Class B; IEC 60068:2-6 and 2-27, ISTA-2A, Sequence 5, MIL810G
 - lviii. Construction: Alodine aluminum
 - lviii. Indoor Vandal, Surface Mount
 - lix. Installation: Attaches to the standard 4-inch square outlet box and 2-gang electrical box; 0.75-inch NTP or 25 mm conduit attachments on side back box; wire entry through a grommet on top of back box
 - lx. Operating Temperatures: -10° to 50°C (14° to 122°F)
 - lxi. Operating Humidity: 15 to 85%, RH non-condensing
 - lxii. Impact Resistance: IK10

- lxiii. Shock and Vibration: EN50155 Category 1, Class B; IEC 60068:2-6 and 2-27, ISTA-2A, Sequence 5, MIL810G
- lxiv. Construction: Alodine aluminum
- lxv. Indoor Vandal, Pendant
- lxvi. Installation: 1.5-inch NPT conduit/pipe attachment
- lxvii. Operating Temperatures: -10° to 50°C (14° to 122°F)
- lxviii. Operating Humidity: 15 to 85%, RH non-condensing
- lxix. Impact Resistance: IK10
- lxx. Shock and Vibration: EN50155 Category 1, Class B; IEC 60068:2-6 and 2-27, ISTA-2A, Sequence 5, MIL810G
- lxxi. Construction: Alodine aluminum
- lxxii. Environmental Vandal, In-Ceiling
- lxxiii. Installation: Single back box for suspended or hard ceiling applications
- lxxiv. Back Box: Plenum rated
- lxxv. Cable Entry: 0.75-inch NPT or 25 mm conduit attachments on side and top of back box
- lxxvi. Operating Temperatures: -40° to 50°C (-40° to 122°F)
- lxxvii. Operating Humidity: 10 to 95%, RH non-condensing
- lxxviii. Impact Resistance: IK10
- lxxix. Shock and Vibration: EN50155 Category 1, Class B; IEC 60068:2-6 and 2-27, ISTA-2A, Sequence 5, MIL810G
- lxxx. Construction Alodine aluminum
- lxxxi. Ingress protection: IP66
- lxxxii. Environmental Vandal, Surface Mount
- lxxxiii. Installation: Attaches to the standard 4-inch square outlet box and 2-gang electrical box
- lxxxiv. Cable Entry: 0.75-inch NPT or 25 mm conduit attachments on side and top of back box.
Wire entry through the grommet on top of back box
- lxxxv. Operating Temperatures: -40° to 50°C (-40° to 122°F)
- lxxxvi. Operating Humidity: 10 to 95%, RH condensing
- lxxxvii. Impact Resistance: IK10
- lxxxviii. Shock and Vibration: EN50155 Category 1, Class B; IEC 60068:2-6 and 2-27, ISTA-2A, Sequence 5, MIL810G
- lxxxix. Construction: Alodine aluminum
 - xc. Ingress protection: IP66
 - xc. Environmental Vandal, Pendant
 - xcii. Installation: 1.5-inch NPT thread for use with Pelco/Approved Equal wall mounts

- xciii. Operating Temperatures: -40° to 50°C (-40° to 122°F)
- xciv. Operating Humidity: 10 to 95%, RH condensing
- xcv. Impact Resistance: IK10
- xcvi. Shock and Vibration: EN50155 Category 1, Class B; IEC 60068:2-6 and 2-27, ISTA-2A, Sequence 5, MIL810G
- xcvii. Construction: Alodine aluminum
- xcviii. Ingress protection: IP66

DOMES SYSTEM SPECIFICATIONS

1. Indoor Vandal, In-Ceiling 5.90 cm (2.32 in) above the ceiling, lower dome, 9.85 cm (3.88 in) below ceiling, 16.15 cm (6.36 in) diameter
2. Indoor Vandal, Surface Mount 14.65 cm (5.76 in) overall length (including dome) by 15.93 cm (6.27 in) diameter
3. Indoor Vandal, Pendant 17.80 cm (7.00 in) overall length (including dome) by 15.75 cm (6.20 in) diameter
4. Environmental Vandal, In-Ceiling 5.90 cm (2.32 in) above the ceiling, lower dome 9.85 cm (3.88 in) below ceiling, 16.15 cm (6.36 in) diameter
5. Environmental Vandal, Surface 14.65 cm (5.76 in) overall length (including dome) by 15.93 cm (6.27 in) diameter
6. Environmental Vandal, Pendant 17.80 cm (7.00 in) overall length (including dome) by 15.75 cm (6.20 in) diameter

MECHANICAL SPECIFICATIONS

7. Dome Attenuation
8. Clear: f/0.0 light loss
9. Smoked: f/1.0 light loss
10. Pan Adjustable (All Models): 370°
11. Tilt Adjustable (180 Model): 0° - 180°

GENERAL SPECIFICATIONS

- xcix. Unit Weight
 - c. In-Ceiling 1.5 kg (3.3 lb)
 - ci. Surface Mount 1.7 kg (3.9 lb.)
 - cii. Pendant Mount 1.7 kg (3.9 lb.)

- ciii. Warranty
- civ. 36-months, parts, and labor

- cv. Certifications/Ratings
- cvi. CE, Class A
- cvii. FCC, Class A
- cviii. UL/cUL Listed
- cix. ICES, Class A
- cx. KCC
- cxii. C-Tick
- cxiii. CB Scheme ITE
- cxiiii. NEMA Type 4X, and IP66 rating (Environmental Vandal)
- cxv. RoHS, Lead-Free, REACH
- cxvi. MTBF \geq 200,000 POH (Reporting standard is RELEX Modeling)

cxvi. REFERENCE STANDARDS

a. Network

i. IEEE

1. 802.3 Ethernet Standards
2. 802.1x – Port-based authentication

ii. Video

1. ISO / IEC 14496 –10, MPEG-4 Part 10 (ITU H.264)
2. ISO / IEC 10918 – JPEG
3. ONVIF – Profile S and Profile G

iii. Emissions

1. FCC-47 CFR Part 15, Class A
2. CE, Class A
3. ICES-003, Class A

iv. Environmental

1. ANSI / IEC 60529 – Degrees of Protection Provided by Enclosures – IP66
2. IK10 (20J) Impact Resistance / IEC62262

1.10 INDOOR/OUTDOOR, 360° IP NETWORK CAMERAS

- a. Manufacturer: Pelco or Approved Equal
- b. Model: Camera ID E: EVO05NID or approved equal
- c. Equipment and materials used shall be standard components that are manufactured and available for purchase as standard replacement parts as long as the product is commercially available from the manufacturer.
- d. All manufactured products shall be thoroughly tested and proven in actual use.
- e. All manufactured products shall include, at no additional cost, online support services and availability of a toll-free (U.S. and Canada), 24-hour technical assistance program (TAP) for emergencies.
- f. The manufacturer shall replace without charge, manufactured products proven defective in material or workmanship for the stated warranty period from the date of shipment.
- g. The camera shall be designed to provide H.264 and Motion JPEG video, and support resolutions up to 2144 x 1944 pixels.
- h. The camera shall provide a 100Base-TX network interface.
- i. The camera shall be IP-rated for ingress protection against dust and moisture such that it is suitable for indoor and outdoor use.
- j. The camera shall support open architecture best practices with a published API available to third-party network video recording and management systems.
- k. The camera shall be manufactured in solid-state electronics with no moving parts.

- l.** The camera shall have both FTP client and server capabilities.

- m.** The camera shall contain a built-in web server allowing the streaming of video, motion data, and input/output information from the camera configuration, available in standard browsers (Internet Explorer, Mozilla Firefox and Google Chrome) using HTTP, without the need for additional software. H.264 requires Quick Time.
 - i.** Web server support of up to 20 clients simultaneously over the network
 - ii.** Support for defining usernames and passwords for up to three different user types shown below
 - 1.** User viewing video and reviewing configuration
 - 2.** Operator as above. Image and system configuration
 - 3.** Administrator as above. User configurable port settings

- n.** The camera shall support both fixed IP addresses and dynamically assigned addresses provided by a Dynamic Host Control Protocol (DHCP) server.
 - i.** Accessible via an IP address within the link-local address range (169.254.*)

 - ii.** Automatic detection based on multicast when using a PC operating on a Windows operating system
 - 1.** IPv4 addressing

- o.** The camera shall be capable of providing bit rates up to 40 Megabits per second, MJPEG and 5MP at H.264.
 - i.** H.264 bandwidth controls
 - 1.** Capped constant bit rate setting
 - 2.** Average constant bit rate setting
 - 3.** Bit rate control "off" setting
 - 4.** Maximum FPS setting
 - 5.** GOP length setting

 - ii.** MJPEG bandwidth controls
 - 1.** Maximum FPS setting
 - 2.** Quality setting

- p. The camera shall be supported by the Onecam Grandeye Software Development Kit (SDK), to provide a necessary interface for integration of functionality into third-party software. This can provide client-side / NVR side 3D dewarping of both live and playback fisheye images.
- q. The camera shall provide built-in motion detection software that allows full configurability of sensitivity in motion detection with H.264. It will provide at least ten motion detection regions and configurable motion response.
- r. The camera shall have an audio microphone input (via 3.5mm jack; via RTSP using G711 codec (μ Law – 8K sample rate); via ONVIF S).
- s. The camera shall be equipped with an integrated event functionality, which can be triggered by External hardware input and Video motion detection. Response to triggers shall include activating external hardware output, notification via HTTP, and Image upload via FTP or SMTP.
- t. The camera shall provide at least ten privacy zones which shall hide polygonal regions on all video streams. Each privacy zone can be individually named.
- u. The camera shall be supplied with Windows-based configuration software which allows the assignment of IP addresses, multi-camera configuration, backup of cameras configuration and upgrade of firmware and software
 - i. Remote change and configure of camera IP settings /DHCP setting
 - ii. Remote import / Export of IP settings
 - iii. Remote upgrade of camera firmware
 - iv. Remote commands, camera settings, and values
 - v. All customer-specific settings, including IP address settings, shall be stored in non-volatile memory and shall not be lost during power cuts or soft reset
- v. The camera shall be monitored by a Watchdog functionality, which shall automatically reset the camera ships and software if a malfunction disables the camera's normal operation. The camera

shall have a diagnostics tool to test hardware functionality and review statistics and diagnose hardware faults.

w. The camera shall meet or exceed the following design and performance specifications.

i. General Specifications

1. IP66 (outdoor version only)
2. 12V, 1.0A (min) "LPS or NEC Class 2" power supply or Power over Ethernet (PoE) IEEE standard 802.3af
3. IPv4 (RFC 791)

ii. Hardware Specifications

1. 1/2.5-inch 5-Megapixel CMOS digital image sensor with an active array of 2592 x 1944 pixels
2. 185° 1.6mm / F2.0 5-Megapixel rated fisheye lens
3. TMS320DM368 DaVinci™ processor

VIDEO SPECIFICATIONS

iii. Supported Resolutions

1. 1/4 MPx (528 x 480)
2. 1 MPx (1056 x 960)
3. 2 MPx (1488 x 1360)
4. 4 MPx (2144 x 1944)

iv. Image Formats

1. Fisheye

- a. 1/4 MPx (528 x 480)
- b. 1 MPx (1056 x 960)
- c. 2 MPx (1488 x 1360)
- d. 4 MPx (2144 x 1944)

2. Transmission Speed

- a. 15 frames per second, all resolutions, using MJPEG and H.264
- b. Ten frames per second (4 MPx) MJPEG and H.264
- c. Streaming at the user-defined frame rate

3. Supported Protocols

- a. TCP/IP, HTTP, DHCP, DNS, NTP, FTP, SMTP, RSTP

COMPRESSION SPECIFICATIONS

- v. H.264 and Motion JPEG
- vi. 85 different compression levels for the all fisheye image resolutions on MJPEG
- vii. 100 different compression levels for all fisheye image resolutions on H.264

IMAGE CONTROL SPECIFICATIONS

- viii. Automatic exposure control
- ix. Automatic white balance (range; 2500K ~ 8000K)
- x. 50 Hz and 60Hz mains frequency flicker control
- xi. Sharpness control setting
- xii. EV compensation control setting
- xiii. Wide dynamic range setting (greater than 90db)
- xiv. Pictures down to 0.2 lux at 50 IRE / F2.0 (6500k)

ELECTRICAL SPECIFICATIONS

- xv. Input Voltage and Power Consumption
- xvi. Isolated power supply with an output voltage of 12VDC and a current rating of at least 1A
- xvii. Power over Ethernet (PoE) capability, in accordance with IEEE 802.3af Class 2 standard
- xviii. Power consumption of the camera shall be 8 watts (max)

ENVIRONMENTAL SPECIFICATIONS

- xix. Outdoor Camera
 - 1. Ingress-protected against dust and moisture in accordance with IP66
 - 2. Gore-Tex® vent on housing
 - 3. Operating temperature of -40°C to +55°C (-40°F to 131°F)
 - 4. Shock and vibration in accordance with BS EN 60068-2-64 and BS EN 600658-2-27
- xx. Indoor and Indoor Concealed Camera
 - 1. Operating temperature of -40°C to +55°C (-40°F to 131°F)
- xxi. Mechanical Specifications

1. Sealed IP66-rated cable entry point, side, and rear
2. External power via a 2.1mm socket at the rear of the camera
3. Alarm input/output socket shall be a 6-way (4 for alarm and 2 for RS485) 3.5mm pitch, Phoenix Contact socket with screw-down terminals

xxii. Lens and Lens Mount Specifications

1. 5 Megapixel resolution miniature fisheye lens with a focal length of 1.6mm
2. Lens mount of M12x0.5 thread

xxiii. Construction Specifications

1. Outdoor Enclosure
 - a. IP-66 standards for water and dust ingress
 - b. Vandal resistance IK-10 standard
 - c. Die-cast aluminum alloy housing
 - d. Bubble and trim ring made of polycarbonate polymers with UV inhibitors
2. Indoor Trim Enclosure
 - a. Manufactured from ABS
3. Concealed Enclosure
 - a. Manufactured from ABS

CERTIFICATIONS

- xxiv.** EMC to CISPR Class A
 - xxv.** cUL
 - xxvi.** FCC
 - xxvii.** CE
 - xxviii.** ICES-003
 - xxix.** Safety: UL60950
 - xxx.** IP66 standards
 - xxxi.** ONVIF Profile S Conformant
- x.** Equipment and materials used shall be standard components that are manufactured and available for purchase as standard replacement parts as long as the product is commercially available from the manufacturer.

- y. All manufactured products shall be thoroughly tested and proven in actual use.
- z. All manufactured products shall include, at no additional cost, online support services and availability of a toll-free (U.S. and Canada), 24-hour technical assistance program (TAP) for emergencies.
 - i. The manufacturer shall repair or replace without charge manufactured products proved defective in material or workmanship for the stated warranty period from the date of shipment.

1.11 CAMERA TYPE PTZ SPECTRA

- a. The High Definition Outdoor PTZ Dome Camera (“PTZ Dome camera”) shall provide video performance capable of providing selectable resolutions up to 1920 x 1080 pixels at up to 60 frames per second (fps).
- b. **Product - A high definition IP PTZ video dome camera, based on H.264 and MJPEG compression, capable of streaming up to 60 fps at resolutions up to 1920 x 1080, with dual streaming capability in an IP66 outdoor-rated dome housing.**
- c. Manufacturer: Pelco or Approved Equal
- d. Model:
 - i. Camera ID B: S6230-ESGL1 or approved equal
 - ii. Camera ID F: P2230-ESR or approved equal
 - iii. Camera ID G: S6230-ESGL or approved equal
- e. The PTZ dome camera shall possess the following primary characteristics:
 - i. Variable speed/high-speed pan/tilt drive unit with continuous 360° rotation up to 450°/sec
 - ii. H.264 and MJPEG compression

- iii.** 2.1 megapixels
- iv.** Dual streaming (two independent IP video streams)
- v.** Day/night operation with IR cut filter
- vi.** 12 x digital zoom, <20X> <30X> optical zoom
- vii.** Automatic Gain Control: 41 dB maximum
- viii.** Wide Dynamic Range (WDR): 130 dB minimum
- ix.** Integral video analytics with nine user-configurable behaviors
- x.** Electronic image stabilization
- xi.** PoE+ and High PoE capable
- xii.** Pelco/Approved Equal H.264 Smart Compression Technology
- xiii.** Multicast or unicast capable with unlimited H.264 viewers
- xiv.** Unicast capable with up to 20 simultaneous viewers
- xv.** Local storage via SD card
- xvi.** Audio input and output
- xvii.** Alarm input and output
- xviii.** IP66 rated housing

VIDEO

- f. Imager
 - i. Sensor: 1/2.8" Sony Exmor CMOS
 - ii. Minimum illumination
 - 1. Color mode: 20 lux (33 ms, F1.6), .025 lux (250 ms, F1.6)
 - 2. Color mode (low light).03 lux (33 ms, F1.6), .008 lux (250 ms, F1.6)
 - 3. Black & white mode:.06 lux (33 ms, F1.6), .008 lux (250 ms, F1.6)
 - 4. Black & White mode (low light).004 lux (33 ms, F1.6), .001 lux (250 ms, F1.6)
 - iii. Scanning: Progressive
 - iv. Image Control Settings
 - 1. Automatic white balance (AWB)
 - a. Selectable for:
 - i. Normal (7,500K to 2,500K)
 - ii. Extended (7,500K to 2,000K)
 - iii. Auto Tracking White (10,000K to 2,000K)
 - iv. Cool White – fixed mode for scenes with bluer light sources
 - v. Manual mode - provide the ability to configure red and blue values for color adjustment
 - b. Lighting modes: WDR, visibility enhancement, backlight compensation, normal
 - c. Defog mode (enhanced clarity in the presence of fog)
 - d. Exposure modes: automatic or manual
 - e. Day and night settings
 - f. Frequency
 - g. Image sharpness
 - h. Chroma
 - i. Image mirror or flip
 - j. Digital noise reduction
 - k. Privacy zone definition: up to 32 zones of window blanking
 - v. Additional capabilities:
 - 1. 130 dB WDR
 - 2. Backlight compensation
 - 3. Automatic gain control (AGC)
 - 4. Active noise filtering
 - 5. Electronic image stabilization

- vi. **Lens:** 4.7- 94 mm variable, F1.6 – F3.5, remote auto-focus
 - 1. Horizontal angle of view: <55.4° (wide) – 2.9° (tele)> <59.5° (wide) – 2.1° (tele)>
 - 2. Focus settings
 - a. Auto Focus: Automatically focuses during runtime operation.
 - b. Sure Focus: Camera autofocuses when pan, tilt, and zoom operations are complete or if the IR cut filter changes state.
 - c. When autofocus lock is achieved, autofocus shall turn off, fixing the focal position until the next PTZ operation.
 - d. If 30 seconds pass without an autofocus lock, the camera shall retain its focal position until the next PTZ action.
 - e. Focus Trace: Enables camera to use a focus trace curve when zooming based on the distance to ground-level targets in the scene
 - f. Install Height: Determines the distance between the camera and ground-level targets for focus trace operations

VIDEO STREAMS

- g. The PTZ dome camera shall support the transmission of two configurable video streams, each of which may have the following properties:
 - i. Compression type:
 - 1. H.264 (High, main, or Base profiles), available in Stream 1 and Stream 2
 - 2. MJPEG, available in Stream 2
 - ii. Available resolutions:
 - 1. 1920 x 1080 (16:9) (1080p)
 - 2. 1280 x 720 (16:9) (720p)
 - 3. 800 x 448 (16:9)
 - 4. 640 x 352 (16:9)
 - iii. Bitrate:1.8 Mbps – 8 Mbps
 - iv. Frame rate: 0 – 60 fps
- h. Video streams shall be supported ONVIF profile S.
- i. The PTZ dome camera shall have the following additional streams available:
 - i. Low-resolution JPEG stream for configuration of camera settings.
 - ii. Event stream displaying a list of alerts triggered by an active analytic behavior.
- j. Pelco's/Approved Equal H.264 Smart Compression Technology lowers bandwidth and storage requirements by up to 70% while reducing storage requirements.

STORAGE AND RECORDING

- i. The PTZ dome control shall have onboard SD card storage.
 - 1. Card type: SD
 - 2. Capacity: up to 32 GB
- ii. The local SD storage shall have the ability to be backed up to alternate media without removal of the SD card from the camera.
- iii. Local recording on the SD card shall commence upon loss of network connectivity, based on a pre-programmed schedule.
- iv. The video shall be recorded continuously in the case of a network outage.
- v. Alarm recording: The PTZ dome camera shall capture selectable 1, 5, or 10-second video clips on camera sabotage, motion detection, or alarm input.
- vi. Video recording and storage shall support ONVIF profile G.

k. Pan Tilt

- i. Pan Range: 360°
- ii. Tilt Range: +1° - 90°
- iii. Presets: up to 256
- iv. Accuracy: $\pm .1^\circ$
- v. Tours: up to 16

l. Pan Speed

- i. manual: $.1^\circ$ - 80° per second
- ii. maximum: 450° per second

m. Tilt Speed

- i. manual: $.1^\circ$ - 45° per second
 - ii. maximum: 450° per second
- n. Limit stops: configurable through a web browser

ANALYTICS

- o. Analytics shall be pre-loaded in the PTZ dome camera.
- p. The PTZ dome camera shall have the ability to detect motion within user-defined areas of the video image.
- q. Number of simultaneous running analytic behaviors: 3
 - i. Configurable behaviors:

1. Abandoned object detection of objects placed in a defined zone and triggers an alarm if the object remains in the zone longer than the user-defined time allows.
- r. Adaptive motion detection and tracking of objects that enter a scene and triggering of an alarm when the objects enter a user-defined zone.
- s. Auto tracker detection and tracking of movement in the camera's field of view, with automatic pan and tilt to follow the moving object until the object stops or disappears from the monitored area.
- t. Camera sabotage detection of contrast changes in the field of view, suitable to detect lens obstruction or unauthorized repositioning of the camera.
- u. Directional motion detection of person or object moving in a specified direction.
- v. Loitering detection Identification of people or vehicles remaining in a defined zone
 - i. longer than a user-defined time.
 - ii. Object counting the number of objects that enter a defined zone or cross a tripwire.
- w. Object removal detection of an object is removed from a defined zone.
- x. Stopped vehicle detection of vehicles stopped near a sensitive area longer than a
- y. user-defined time.

ADDITIONAL FEATURES

- z. Alarm – The PTZ dome camera shall have four-alarm/sensor inputs and a relay output for alarm or control.
 - i. The alarm input shall be able to detect an open or closed alarm state function in unsupervised or supervised modes.
 - ii. Input: 3.5 VDC maximum, 3.5mA maximum
 - iii. Relay Output: ± 32 VDC maximum, 150mA maximum
- aa. **Audio** – The PTZ dome camera shall have bi-directional audio capability.
 1. Input/Output: Line level/external microphone input; 600-ohm differential, 1 V p-p maximum
 2. Encoding: G711 - Alaw / mlaw
- bb. **Discovery** - the Manufacturer, shall offer a discovery program to identify all devices of his manufacture on the network.
- cc. **System Information**
 - i. The system settings of the PTZ dome camera shall be exportable as a separate file.

- ii. The PTZ dome camera shall maintain an access log of the system and motion-triggered events. The log shall be exportable to an Excel spreadsheet file.

1.12 CAMERA SOFTWARE

- a. The network camera system shall have a built-in web server which supports browser-based configuration.
- b. The camera's web server shall allow access to camera information and all primary software functions.
- c. The Manufacturer shall offer a video viewer and configuration to implement the following actions:

LIVE VIDEO

- i. Video stream selection
- ii. Video stream configuration
 - 1. Use preset video setting configurations
 - 2. Configure custom video setting configurations
 - a. compression type
 - b. resolution
 - c. image rate
 - d. I-frame interval
 - e. H.264 profile
 - f. Image quality
 - g. Bit rate control
 - 3. Multicast
 - 4. Unicast
 - 5. JPEG frame rate
- iii. Maximize view area of the video to the full size of the browser
 - 1. Revert to normal view
- iv. Open stream in new window
- v. Capture and save image as a .jpg file
- vi. Resize viewing area

IMAGE SETTINGS

- vii. image quality
- viii. exposure
- ix. focus
- x. white balance
- xi. window blanking
- xii. digital zoom
- xiii. lighting mode
- xiv. video noise reduction
- xv. digital processing (color and detail adjustment)
 - 1. image enhancement
 - 2. quick setup preset modes
 - 3. sharpness
 - 4. saturation
 - 5. contrast
 - 6. brightness
- xvi. exposure modes

RECORDING

- xvii. Initiate instant record and playback
- xviii. Manage SD card storage

EVENTS

- xix. configure event sources:
 - 1. external alarm events
 - 2. analytic events
- xx. e-mail setup
- xxi. define web addresses for notifications
- xxii. Camera network settings

SYSTEM

- xxiii. firmware upgrade
- xxiv. reset to factory default

- xxv. set date, time, and NTP server synchronization
- xxvi. user access control
- xxvii. view and export camera settings
- xxviii. view system logs

ACCEPTABLE WEB BROWSERS:

- xxix. Microsoft® Internet Explorer® 8.0 (or later)

- xxx. Google® Chrome™ 51 and later

- xxxi. Apple® Safari® 7.0.6

- xxxii. Mozilla® Firefox® 3.5.9 (or later)

d. The Manufacturer shall support integrations as follows:

- i. Video Management: VideoXpert™; Endura® 2.0 (or later); Digital Sentry® 7.3 (or later); Third-party system through Pelco/Approved Equal API/SDK, ONVIF Profile S, ONVIF Profile G, and ONVIF Profile Q

- ii. Mobile Application Pelco/Approved Equal Mobile

- iii. Camera Discovery and Firmware: Discover cameras upgrade firmware upgrade using Pelco/Approved Equal Device Utility 2 (version 2.2 or later) or Pelco /Approved Equal Utilities

1.13 NETWORK

- a. Connectivity: 100 BASE-TX Ethernet with RJ-45 connector

- b. Protocols supported
 - i. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)
- c. Configuration: Dynamic Host Configuration Protocol (DHCP)
- d. Web services: Hypertext Transfer Protocol (HTTP), Secure HTTP (HTTPS)
- e. Network services: Domain Name System (DNS), Network Time Protocol (NTP), Internet Control Message Protocol (ICMP), Simple Network Management Protocol (SNMP) v2c/v3, Universal Plug and Play (UPnP)
- f. Media: Real-Time Transport Protocol (RTP), Real-Time Streaming Protocol (RTSP)
- g. Multicast: Internet Group Management Protocol (IGMP)
- h. Notifications: File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP)
- i. Remote Access: Secure Shell (SSH)
- j. Security: Secure Sockets Layer (SSL), IEEE 802.1x (EAP-MD5, EAP-TLS, EAP-TTLS, EAP-PEAP, and EAP-FAST)
- k. Quality of Service: IEEE 802.1p Layer 3 Differentiated Services Code Point (DSCP)
- l. DDNS – The PTZ dome camera shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
- m. Security
 - a. The PTZ dome camera shall support IP address filtering whereby users can enter a list of allowed or blocked IP addresses for viewing video and configuring camera settings
 - b. The PTZ dome camera shall provide three levels of user access with password protection.
 - c. User authentication shall be available through a Lightweight Directory Access Protocol (LDAP) server.

a. Power

i. Source Options

1. 24 VAC and PoE+
2. PoE+ Class 4
3. 18 to 32 VAC range, 12 VDC

- ii. 2. Power Consumption: <16 W (with heater ring)

CONNECTORS:

- iii. Ethernet: RJ-45 connector

- iv. 2. External power: 2-conductor power to a terminal block

- b. **Construction Material:** Aluminum base and plastic trim ring, polycarbonate bubble (indoor models), aluminum construction, polycarbonate bubble (outdoor models)

- c. **Finish:** RAL 9003 (indoor models), RAL 7047 (outdoor models)

- d. **Impact Resistance:** IK10 (20J)

- e. **Dimensions (D x H):** 13.38 cm (5.27 in) x 11.74 cm (4.62 in)

f. Temperature:

- i. Operating: -10°C to 55°C (14°F to 131°F) (indoor models) -40°C to 55°C (-40°F to 131°F) (outdoor models)

- ii. 2. Storage: -40°C to 60°C (-40°F to 140°F) (indoor and outdoor models)

- g. **Ingress Protection:** IP66 (indoor/outdoor models)

- h. NEMA Type 4X (outdoor models with IMEEBAP adapter plate accessory)

- i. Certifications and Standards**
- j. CE – EN 55022 (Class A), EN 50130-4, EN 60950-1

- k. FCC (Class A) – 47 CFR Part 15

- l. UL and cUL Listed – UL 60950-1, CAN/CSA-C22.2 No. 60950-1-07

- m. ICES-003 (Class A)

- n. RCM

- o. KC

- p. ONVIF Profile S, Profile G, and Profile Q conformant

- q. Video Standards**
 - i. ISO / IEC 14496 –10, MPEG-4 Part 10 (ITU H.264)
 - ii. ISO / IEC 10918 – JPEG
 - iii. ONVIF – Profile S, Profile G, and Profile Q

- r. Emission Standards**
 - i. FCC (Class A) – 47 CFR Part 15
 - ii. CE – EN 55022 (Class A), EN 50130-4, EN 60950-1
 - iii. ICES-003, Class A

 - iv. Environmental Models
 - v. ANSI / IEC 60529 – Degrees of Protection Provided by Enclosures – IP66
 - vi. IK10 (20J) Impact Resistance / IEC62262
 - vii. National Electrical Manufacturers Association, NEMA 250-2003, 4X Enclosure Definition

- s. Electrical**
 - i. Power

1. Source Options
2. 24 VAC/VDC
- ii. PoE+: (802.3at, Class 4) High PoE
- iii. Power Consumption
- iv. With heater/blower
 1. 24 VAC: 81 VA
 2. 24 VDC: 3 A nominal
- v. With heater only
 1. PoE+: 18 W with High PoE injector
 2. High PoE: 60 W
- vi. Without heater or blower
 1. 24 VAC: 24 VA
 2. 24 VDC: 1 A nominal
 3. PoE+: 15 W
 4. High PoE: 15 W
- vii. External power (24 VAC/VDC): 2-conductor power to a terminal block

1.15 MECHANICAL AND ENVIRONMENTAL FOR CAMERA HOUSING

a. Housing Material

- i. Back box, lower dome: aluminum 316 stainless steel
- ii. Dome bubble: clear acrylic or smoked acrylic

b. Configuration: PTZ dome

- i. Conduit attachments
- ii. Pendant mounted: 1.5-inch NPT
- iii. In-ceiling: 3/4-inch NPT

c. Temperature

- i. Operating: 24 VAC/VDC: -45° C to 50° C (-49° F to 122° F)
- ii. PoE+: -20° C to 50° C (-4° F to 122° F)
- iii. High Poe: -45° C to 50° C (-49° F to 122° F)
- iv. Storage: 60° C (140° F) maximum

- d. **Relative Humidity:** 10 - 100%, non-condensing

- e. **Environmental Rating:** IP66

1.16 VIDEO SURVEILLANCE LOCAL SITE NETWORK EQUIPMENT

- a. Manufacturer Avaya
 - i. Model: FEDERAL TAA VSP 4850GTS-PWR+
 - ii. Qty.: 2
- b. Location: Maintenance Building

SWITCH DETAILS

- i. 48 10/100/1000 Gigabit Ethernet RJ45 ports
- ii. 48 ports support IEEE 802.3at PoE+ ports
- iii. 2 Combo SFP ports
- iv. Plus 2 x 1/10 Gigabit SFP+ ports
- v. System CPU operates at 533 MHz
- vi. The switch is configured with 1GB RAM
- vii. RJ-45 Console port provides industry standard serial port connectivity
- viii. Ships with 1 set of 44mm/19" rack mount brackets
- c. Dimensions 4.4cm – 1RU (H), 44.0cm (W), 43.68cm (D)
- d. Weight 11.98 Kg
- e. Power and Thermal
- f. Supplied with 1 x 1000-watt Field Replaceable
 - i. AC power supply
 - ii. Supports addition of second Field Replaceable AC power
 - iii. Supply for redundancy or additional PoE
 - iv. Thermal Rating 383 BTU/hr Maximum PoE budget
 - v. 855 watts when operating on one 1000w power supply
 - vi. 1855 watts when operating on two 1000w power supply

GENERAL REQUIREMENTS

- g. Frame length: 64 to 1518 Bytes (802.1Q Untagged), 64 to 1522 bytes (802.1Q Tagged)
- h. Jumbo Frame support: up to 9.6 Kbytes

- i. Switching Fabric Capacity: 184 Gbps
- j. Packet Forwarding Throughput (64-byte packets): 102 Mpps
- k. Latency (64-byte packets): 9 microseconds
- l. RSTP, MSTP
- m. VRRP Backup Master
- n. IPv4 and IPv6 Routing
- o. Policy-Based Routing
- p. Ingress & Egress Port ACLs
- q. Ingress VLAN ACLs
- r. Enterprise Device Manager GUI, on-box & off-box
- s. Configuration & Orchestration Manager
- t. Virtualization Performance & Fault Manager
- u. Virtualization Provisioning Service
- v. System Logging
- w. Mirroring: 1:1 / 1:M / M:1 / M:M
- x. Key Health Indicators
- y. Flight Recorder
- z. Auto MDIX
- aa. MACsec (VSP 4450GSX-PWR+ only)
- bb. TACACS+
- cc. SLAMon agent Layer 2
- dd. MAC Address: 32,000
- ee. Port-based VLANs: 4,059
- ff. Private VLANs/E-Tree: 1,000
- gg. MSTP Instances: 12
- hh. MLT/LACP Groups: 50
- ii. MLT Links per Group: 8
- jj. LACP Links per Group: 8 Active
- kk. Avaya VLACP Instances: 50
- ll. Avaya SLPP Instances: 128 Layer 3 IPv4 Routing Services
- mm. ARP Entries: 6,000
- nn. Static ARP Entries: up to 2,000 per VRF/Switch
- oo. IP Interfaces: 256
- pp. CLIP Interfaces: 64
- qq. IP Routes: up to 15,744

rr. IP Static Routes: 1,000 per VRF, 1,000 per Switch

ss. RIP Interfaces: 24

tt. RIP Routes: up to 15,744

uu. OSPF Interfaces: 100

vv. OSPF Routes: up to 15,744

ww. OSPF Areas: 12 per VRF, 64 per Switch

xx. BGP Peers: 12

yy. BGP Routes: up to 15,744

zz. ECMP Groups: 500

aaa. ECMP Paths per Group: 4

bbb. VRRP Interfaces: 64 or 24 with fast timers

ccc. RSMILT Interfaces: 252

ddd. IPv4 UDP Forwarding Entries: 128

eee. IPv4 DHCP Relay Forwarding Entries: 128

fff. IP Route Policies: 500 per VRF, 5,000 System-wide

ggg. VRF Instances: up to 128 Layer 3 IPv6 Routing Services

hhh. Neighbors: 4,000

iii. Static Neighbors: 128

jjj. IP Interfaces: 256

kkk. CLIP Interfaces: 64

lll. IP Configured Tunnels: 254

mmm. IP Routes: up to 7,488

nnn. IP Static Routes: 1,000

ooo. RIPng Interfaces: 24

ppp. RIPng Routes: up to 7,488

qqq. OSPFv3 Interfaces: up to 100

rrr. OSPFv3 Routes: up to 7,488

sss. OSPFv3 Areas: 64 per switch

ttt. ECMP Groups: 500

uuu. ECMP Paths per Group: 4

vvv. VRRP Interfaces: 64 or 24 with fast timers

www. RSMILT Interfaces: 252 Multicast

xxx. IGMP Interfaces: 4,059

yyy. PIM Active Interfaces: 128

zzz. PIM-SSM Static Channels: 512

aaaa. IP Multicast Streams: 1,000
bbbb. Fabric Connect-PIM Gateway Controllers per Region: 5
cccc. Fabric Connect-PIM Gateway Nodes per Region: 64
dddd. Fabric Connect-PIM Gateway Interfaces per BEB Node: 64
eeee. Fabric Connect-PIM Gateway Source Announcements: 6,000 Fabric
Connect
ffff. 802.1aq/RFC 6329 Shortest Path Bridging with Avaya extensions
gggg. MAC Address: 16,000
hhhh. NNI Interfaces/Adjacencies: up to 255
iiii. BCB/BEB Nodes per Region: 2,000
jjjj. BEB Nodes per VSN: 2,000
kkkk. L2 Virtual Service Networks: 1,000
llll. L3 Virtual Service Networks: up to 128
mmmm. IP Shortcut Routes: IPv4 up to 15,744, and IPv6 up to 7,488
nnnn. L2 Multicast Virtual Service Networks: 1,000
oooo. L3 Multicast Virtual Service Networks: 128 QoS & Filtering
pppp. IPv4 ACE: 1530 Ingress and 254 Egress
qqqq. IPv6 ACE: 256 Ingress
rrrr. QoS priority queues: 8 Operations & Management
ssss. Mirrored Ports: 49
tttt. sFlow: up to 100 samples per second
uuuu. Fabric RSPAN: 1,000 VLAN IDs
vvvv. IEEE
wwww. 802.1 Bridging (Networking) and Network Management
xxxx. 802.1D MAC Bridges (a.k.a. Spanning Tree Protocol)
yyyy. 802.1p Traffic Class Expediting and Dynamic Multicast Filtering
zzzz. 802.1t 802.1D Maintenance
aaaaa. 802.1w Rapid Reconfiguration of Spanning Tree (RSTP)
bbbbbb. 802.1Q Virtual Local Area Networking (VLAN)
cccccc. 802.1s Multiple Spanning Trees (MSTP)
dddddd. 802.1v VLAN Classification by Protocol and Port
eeeeee. 802.1ag Connectivity Fault Management
fffff. 802.1ah Provider Backbone Bridges
ggggg. 802.1aq Shortest Path Bridging (SPB) MAC-in-MAC
hhhhh. 802.1Qbp Equal-Cost Multi-Path (Shortest Path Bridging)

iiii. 802.1X Port-Based Network Access Control

jjjj. 802.1AB-2005 Station & Media Access Control Connectivity Discovery; aka LLDP (partial support)

kkkk. 802.1AE Media Access Control Security

llll. 802.1AX Link Aggregation

mmmmm. 802.3 Ethernet

nnnnn. 802.3-1983 CSMA/CD Ethernet (ISO/IEC 8802-3)

oooo. 802.3i-1990 10Mb/s Operation, 10BASE-T Copper

ppppp. 802.3u-1995 100Mb/s Operation, 100BASE-TX Copper, with Auto-Negotiation

qqqqq. 802.3x-1997 Full Duplex Operation, including Flow Control

rrrrr. 802.3z-1998 1000Mb/s Operation, implemented as 1000BASE-X SFP

sssss. 802.3ab-1999 1000Mb/s Operation, 1000BASE-T Copper

ttttt. 802.3ae-2002 10Gb/s Operation, implemented as 10GBASE-X SFP+ IETF

uuuuu. 768 UDP

vvvvv. 783 TFTP

wwwww. 791 IP

xxxxx. 792 ICMP

yyyyy. 793 TCP

zzzzz. 826 ARP

aaaaa. 854 Telnet

bbbbb. 894 Transmission of IP Datagrams over Ethernet Networks

ccccc. 896 Congestion Control in IP/TCP Internetworks

ddddd. 906 Bootstrap Loading using TFTP

eeeee. 950 Internet Standard Subnetting Procedure

fffff. 951 BOOTP: Relay Agent-only

ggggg. 959 FTP

hhhhh. 1027 Using ARP to Implement Transparent Subnet Gateways

iiii. 1058 RIP

jjjjj. 1112 Host Extensions for IP Multicasting

kkkkk. 1122 Requirements for Internet Hosts - Communication Layers

lllll. 1155 Structure and Identification of Management Information for TCP/IP-based Internets

mmmmm. 1156 MIB for Network Management of TCP/IP

nnnnn. 1157 SNMP

ooooo. 1212 Concise MIB Definitions

ppppp. 1213 MIB for Network Management of TCP/ IP-based Internets: MIB-II

qqqqq. 1215 Convention for Defining Traps for use with the SNMP

rrrrrr.	1256 ICMP Router Discovery
ssssss.	1258 BSD Rlogin
tttttt.	1271 Remote Network Monitoring MIB
uuuuuu.	1305 NTPv3
vvvvvv.	1321 MD5 Message-Digest Algorithm
wwwwwww.	1340 Assigned Numbers
xxxxxx.	1350 TFTPv2
yyyyyy.	1398 Ethernet MIB
zzzzzz.	1442 SMIv2 of SNMPv2
aaaaaa.	1450 SNMPv2 MIB
bbbbbbb.	1519 CIDR
cccccc.	1541 DHCP
dddddd.	1542 Clarifications & Extensions for BOOTP
eeeeee.	1573 Evolution of the Interfaces Group of MIB-II
ffffff.	1587 OSPF NSSA Option
gggggg.	1591 DNS Client
hhhhhh.	1650 Definitions of Managed Objects for the Ethernet-like Interface Types
iiiiii.	1657 Definitions of Managed Objects for BGP-4 using SMIv2
jjjjjj.	1723 RIPv2 Carrying Additional Information
kkkkkk.	1812 Router Requirements
llllll.	1850 OSPFv2 MIB
mmmmmm.	1866 HTMLv2
nnnnnn.	1907 SNMPv2 MIB
oooooo.	1930 Guidelines for creation, selection, and registration of an AS
pppppp.	1981 Path MTU Discovery for IPv6
qqqqqq.	2021 Remote Network Monitoring MIBv2 using SMIv2
rrrrrr.	2068 HTTP
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tttttt.	2131 DHCP
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wwwwwww.	2236 IGMPv2 Snooping
xxxxxx.	2284 PPP Extensible Authentication Protocol
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aaaaaaa. 2404 HMAC-SHA-1-96 within ESP and AH1
bbbbbbbb. 2407 Internet IP Security Domain of Interpretation for ISAKMP1
ccccccc. 2408 Internet Security Association and Key Management Protocol1
ddddddd. 2428 FTP Extensions for IPv6 and NAT
eeeeeee. 2452 TCP IPv6 MIB
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ggggggg. 2454 UDP IPv6 MIB
hhhhhhh. 2460 IPv6 Basic Specification
iiiiiii. 2463 ICMPv6
jjjjjjj. 2464 Transmission of IPv6 Packets over Ethernet Networks
kkkkkkk. 2466 MIB for IPv6: ICMPv6 Group
lllllll. 2474 Differentiated Services Field Definitions in IPv4 & IPv6 Headers
mmmmmmm. 2475 Architecture for Differentiated Service
nnnnnnn. 2541 DNS Security Operational Considerations
oooooooo. 2545 BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing
ppppppp. 2548 Microsoft Vendor-specific RADIUS Attributes
qqqqqqq. 2572 Message Processing and Dispatching for SNMP
rrrrrrr. 2573 SNMP Applications
sssssss. 2574 User-based Security Model for SNMPv3
ttttttt. 2575 View-based Access Control Model for SNMP
uuuuuuu. 2576 Coexistence between v1/v2/v3 of the Internet-standard Network Management
Framework
vvvvvvv. 2578 SMIPv2
wwwwwww. 2579 Textual Conventions for SMIPv2
xxxxxxx. 2580 Conformance Statements for SMIPv2
yyyyyyy. 2597 Assured Forwarding PHB Group
zzzzzzz. 2598 Expedited Forwarding PHB OA&M RFCs
aaaaaaaa. 2616 HTTPv1.1
bbbbbbbb. 2716 PPP EAP TLS Authentication Protocol
ccccccc. 2787 Definitions of Managed Objects for VRRP
ddddddd. 2818 HTTP over TLS
eeeeeee. 2819 Remote Network Monitoring MIB
ffffff. 2863 Interfaces Group MIB
ggggggg. 2865 RADIUS
hhhhhhh. 2874 DNS Extensions for IPv6

iiiiiii. 2925 Definitions of Managed Objects for Remote Ping, Traceroute, & Lookup Operations
 jjjjjjjj. 2933 GMP MIB
 kkkkkkkk. 2934 PIM MIB for IPv4
 llllllll. 2992 ECMP Algorithm
 mmmmmmmm. 3046 DHCP Relay Agent Information Option 82
 nnnnnnnn. 3162 RADIUS and IPv6
 ooooooooo. 3246 Expedited Forwarding PHB
 pppppppp. 3315 DHCPv6
 qqqqqqqq. 3376 IGMPv3
 rrrrrrrr. 3411 Architecture for Describing SNMP Management Frameworks
 ssssssss. 3412 Message Processing and Dispatching for SNMP
 tttttttt. 3413 SNMP Applications
 uuuuuuuu. 3414 USM for SNMPv3
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 wwwwwwww. 3416 Protocol Operations v2 for SNMP
 xxxxxxxx. 3417 Transport Mappings for SNMP
 yyyyyyyy. 3418 MIB for SNMP
 zzzzzzzz. 3484 Default Address Selection for IPv6
 aaaaaaaaa. 3513 IPv6 Addressing Architecture
 bbbbbbbbb. 3569 Overview of SSM
 cccccccc. 3579 RADIUS Support for EAP
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 eeeeeeee. 3596 DNS Extensions to support IPv6
 ffffffff. 3748 Extensible Authentication Protocol
 gggggggg. 3768 VRRP; plus draft-IETF-vrrp-ipv6-spec-08
 hhhhhhhh. 3810 MLDv2 for IPv6: Host Mode-only
 iiiiiii. 4007 IPv6 Scoped Address Architecture
 jjjjjjjj. 4022 TCP MIB
 kkkkkkkk. 4087 IP Tunnel MIB
 llllllll. 4113 UDP MIB
 mmmmmmmm. 4133 Entity MIB Version 3 (partial support)
 nnnnnnnn. 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
 ooooooooo. 4250 SSH Assigned Numbers
 pppppppp. 4251 SSH Protocol Architecture
 qqqqqqqq. 4252 SSH Authentication Protocol

rrrrrrrrr. 4253 SSH Transport Layer Protocol

sssssssss. 4254 SSH Connection Protocol

ttttttttt. 4255 DNS to Securely Publish SSH Key Fingerprints

uuuuuuuuu. 4256 Generic Message Exchange Authentication for SSH

vvvvvvvvv. 4291 IPv6 Addressing Architecture

wwwwwwwww. 4292 IP Forwarding Table MIB

xxxxxxxxx. 4293 IP MIB

yyyyyyyyy. 4301 Security Architecture for IP1

zzzzzzzzz. 4302 IP Authentication Header1

aaaaaaaaa. 4303 IP Encapsulating Security Payload1

bbbbbbbbbb. 4308 Cryptographic Suites for IPsec

ccccccccc. 4363 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering,
and Virtual LAN Extensions

ddddddddd. 4443 ICMP for IPv6

eeeeeeeeee. 4552 Authentication/Confidentiality for OSPFv3

fffffffff. 4835 Cryptographic Algorithm Implementation
Requirements for ESP & AH1

ggggggggg. 4861 Neighbor Discovery for IPv6

hhhhhhhhh. 4862 IPv6 Stateless Address Auto- Configuration

iiiiiiiiii. 5095 Deprecation of Type 0 Routing Headers in IPv6

jjjjjjjjj. 5187 OSPFv3 Graceful Restart (Helper-mode)

kkkkkkkkk. 5308 Routing IPv6 with IS-IS

lllllllll. 5340 OSPF for IPv6

mmmmmmmmm. 5798 VRRPv3 for IPv4 & IPv62

nnnnnnnnn. 6105 IPv6 Router Advertisement Guard

ooooooooo. 6329 IS-IS Extensions supporting Shortest Path Bridging QoS RFCs

ppppppppp. 7610 DHCPv6 Shield: Protecting Against Rogue DHCPv6 Servers 1

A. Vii. MTBF Values 214,542 to 311,104 hours (24.49 to 35.31 years)

1.17 HEADEND EQUIPMENT ENCLOSURES

- a. Manufacturer: Middle Atlantic Production or approved equal
- b. Model: WMRK-4236SVR-AB or approved equal

- c. Type: 19-inch gangable equipment rack.

GENERAL DESCRIPTION

- d. Compliance:
- e. EIA/TIA 310D
- f. Overall Dimensions:
- g. Height: 80.06 inches
- h. Width: 23.94 inches
- i. Depth: 38.26 inches
- j. Useable Dimensions:
- k. Height: 42 rack spaces
- l. Depth: 33.5 inches

- m. Construction: Fully welded
- n. Weight Capacity: 1,000 pounds.
- o. Materials:
- p. Top and Bottom: 14-gauge steel.
- q. Horizontal Braces: 16-gauge steel.
- r. Rear Door: 18-gauge steel.
- s. The finish of Structural Elements: Black textured powder coat.
- t. Rackrail:
 - i. 1. Two pairs of fully adjustable, 14-gauge steel rack rail with cage nut mounting holes in universal EIA spacing, includes two rear Z-rail adaptors
 - 1. Finish: Black powder coat
 - 2. Rackspace: Numbered.
- u. Rear Door: Split cupboard style, vented perforation with 76% open area.
- v. Removable Split Rear Knockout Panels:
- w. 1/2-inch, 3/4-inch, 1-inch, and 1-1/2-inch electrical knockouts installed in the bottom
- x. Top Knockouts:
- y. 1/2-inch, 3/4-inch, 1-inch, and 1-1/2-inch electrical knockouts and 5/8-inch BNC knockouts for UHF/VHF antennae formed in the top.
- z. Grounding and Bonding Stud: 1/4-20 by 1-inch threaded, installed in the base, allows installation to conform to NEC.
- aa. Removable Bottom Rear Cable Entry Plate.

- bb. Cable Gland Grommets: 4-inch diameter, quantity five, located on the top.
- cc. Cable Ladder Mounting Holes: top accepts 6-inch, 12-inch and 18-inch wide cable ladders.
- dd. Temperature Monitor with Display: includes temperature probe with 9-foot wire, LED display, top front of the rack.
- ee. Vertical Lacer Strip: 3-1/4-inch width, highly perforated, cable tie posts.
- ff. Vertical Power Strip: 20 Amp, ten outlets, corded.
- gg. Mounting Hardware: 100.
- hh. Option
- ii. Cable Ladder: 12-inch wide, 6-foot long.
- jj. Lacer Strip: 11-gauge steel, highly perforated.
- kk. Horizontal Cable Managers.
- ll. Copper busbar.
- mm. Door Latch

1.18 INSTALLATION

- a. The Contractor shall follow all manufacturer published installation and configuration instructions and guidelines.
- b. Before the permanent installation of the system, the Contractor shall test the system in conditions simulating the final installed environment and provide a report showing successful test results.
- c. The Contractor shall protect installed equipment enclosures from damage during construction.
- d. Contractor shall follow all Manufacturer-published guidance on proper installation and configuration of the camera(s).
- e. Contractor shall at its expense arrange for an authorized manufacturer representative to verify system configuration and operation prior to acceptance from FBC Staff.
- f. Contractor shall update and have the latest firmware and software versions updated on all system components and devices prior to acceptance.

- g. Upon notification, by FBC the contractor shall provide a manufacturer trained and certified technician onsite for service warranty repairs within 24 hours for 90 days from the time of completion acceptance. The repair should take place between the hours of 8:00 am and 5:00 pm Monday through Friday unless other arrangements are agreed in writing by Fort Bend County.
- h. Install equipment enclosures in accordance with the manufacturer's instructions. Install equipment enclosures plump, level, and square.
- i. Continuously verify that the site conditions agree with the documents and the design package.
 - i. Submit a report to the Construction Manager documenting changes to the site or conditions that affect the performance of the system to be installed.
 - ii. For those changes or conditions, which affect system installation or performance, provide (with the report) specification sheets, or written functional requirements to support the findings, and a cost estimate to correct the deficiency.
 - iii. No deficiency shall be corrected without written permission from the FBC staff.
- j. Installation on the County's facilities/locations shall not interrupt office/bus services within Fort Bend County and shall be coordinated with FBC ITS Manager and/or staff.
- k. The contractor shall clean worksite at the end of each day.

1.19 TRAINING AND SUPPORT

- a. Provide on-site training on a complete and fully operational system parallel and equal to the system being provided, to representatives of the Owner.
- b. The manufacturer shall provide software support and update for a period of 3-years at no additional cost to FBC.

1.20 WARRANTY AND LICENSING

- a. The manufacturer shall provide a limited 3-year warranty for manufacturer-supplied hardware to be free of defects in material and workmanship.

- b. The manufacturer shall provide a limited 3-year warranty for the software product to be free of defects in material and workmanship.
- c. The manufacturer shall provide options to extend the warranty by up to 5 years at the time of initial purchase.
- d. One-year labor warranty shall be provided with the option to extend annually if needed.
- e. If any defects are found within the warranty period, the defective equipment shall be replaced at no cost to the County.
- f. Client software shall not require a license and have no limitations on a number of client users.

1.21 REPAIR AND MAINTENANCE

- a. The vendor shall have new or unused parts to perform a repair to video cameras
- b. The vendor shall be able to fix emergency outages within twelve (12) hours. Emergency outages are defined as those affecting 50% or more of the total operating capacity.
- c. All the medium level outages should be fixed within two (2) business days, and low-level outages should be fixed within five (5) business days. Medium outages are defined as those affecting 30-49% of the total operating capacity of a given site. Also, low outages are anything below 30% of the total operating capacity of a given site.
- d. Vendors must maintain adequate hardware inventory to replace, repair, and/or maintain each system at the time dispatched.
- e. Vendor must be prepared to provide an immediate replacement for defective equipment, to include hardware covered under the manufacturer's warranty; and shall not remove a defective unit without an immediate replacement.
- f. Software maintenance must include software upgrades, fixes, and patches to camera software.
- g. The vendor must have off-site support services via telephone or email 24 hours a day. A required response time regarding issues is two (2) hours.

- h. The vendor must supply a cost breakdown for maintenance fees and detail what services are included. Proposal cost/price should include the first year of maintenance. Also, include pricing for maintenance for the following three (3) years (for budgetary purposes).

1.22 CLOSEOUT DOCUMENTS

- a. Product Data
 - i. Manufacturer's printed or electronic data sheets
 - ii. Manufacturer's installation and operation manuals
 - iii. Manufacturer's product data, including options and accessories.
 - iv. Warranty documentation
 - 1. Manufacturer's Standard Warranty.
- b. Vendor must provide as-built drawings at the end of the project.

1.23 ABBREVIATIONS

- a. AGC - Automatic Gain Control
- b. API - Applications Programming Interface
- c. ARP – Address Resolution Protocol
- d. AWB - Automatic White Balance
- e. BLC – Back Light Compensation
- f. CBR – Constant Bit Rate
- g. CMG - Core/Media Gateway Server
- h. CMOS – Complementary Metal Oxide Semiconductor

- i. CVBR - Constant and Variable Bit Rate
- j. DDNS – Dynamic Domain Name Server
- k. DHCP - Dynamic Host Configuration Protocol
- l. DNR – Digital Noise Reduction
- m. DNS - Domain Name Server
- n. EAP – Extensible Authentication Protocol
- o. FBC - Fort Bend County
- p. FPS - frames per second
- q. FTA - Federal Transit Administration
- r. FTP - File Transfer Protocol
- s. GUI - Graphical User Interface
- t. HTTP - Hypertext Transfer Protocol
- u. HTTPS – Secure Hypertext Transfer Protocol
- v. ICMP – Internet Control Message Protocol
- w. IGMP - Internet Group Management Protocol
- x. IP - Internet Protocol
- y. JPEG - Joint Photographic Experts Group
- z. LDAP - Lightweight Directory Access Protocol

- aa. MJPEG - Motion JPEG
- bb. MPEG - Moving Pictures Experts Group
- cc. MTP - Simple Mail Transfer Protocol
- dd. NTP - Network Time Protocol
- ee. PoE - Power over Ethernet
- ff. PPPoE - Point-to-Point Protocol over Ethernet
- gg. QoS – Quality of Service
- hh. RARP – Reverse Address Resolution Protocol
- ii. RTP - Real-Time Transport Protocol
- jj. RTSP - Real-Time Streaming Protocol
- kk. SMTP - Simple Mail Transfer Protocol
- ll. SNMP - Simple Network Management Protocol
- mm. SSH – Secure Shell
- nn. SSL – Secure Sockets Layer
- oo. TCP - Transmission Control Protocol
- pp. UDP - User Datagram Protocol
- qq. UPnP – Universal Plug and Play

rr. UPS - Uninterruptible Power Supply

ss. VBR – Variable Bit Rate

tt. VMS - Video Management System

uu. WDR – Wide Dynamic Range

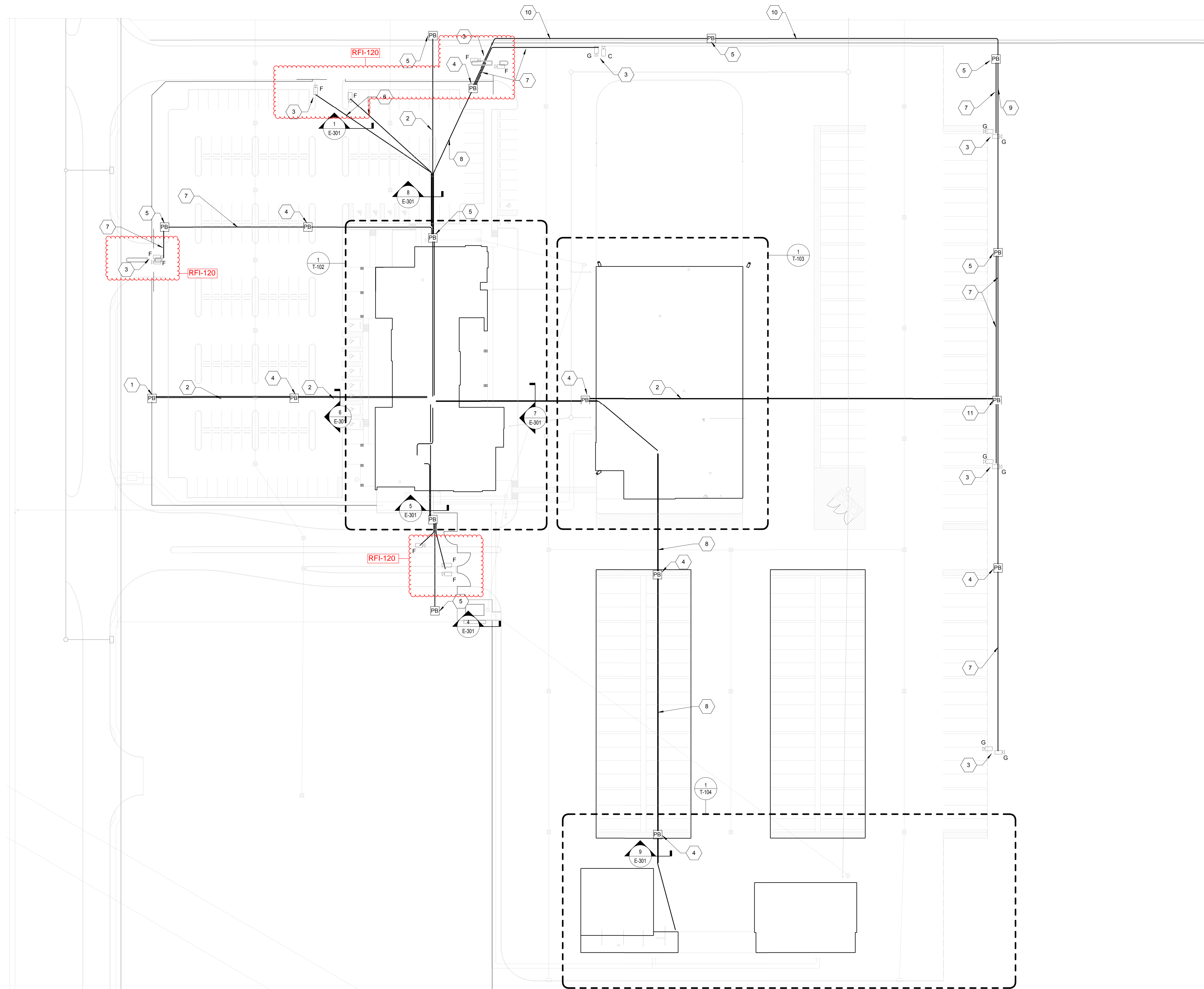
1.24 REFERENCES

- a. EIA/TIA 310D - Cabinets, Racks, Panels, and Associated Equipment.
- b. ISO 9001:2000 - Quality Management Systems – Requirements.
- c. NFPA 70 - National Electrical Code (NEC).

1.25 DEFINITIONS

- a. Cell – A defined area within a tab.
- b. Playlist – A series of recorded video clips.
- c. Role - A group of permissions defining abilities and responsibilities within a system.
- d. Tab - A layout populated with sources, e.g., video, and plug-ins.
- e. Tags - Custom attributes that users with sufficient rights can create and assign to cameras and devices, helping organize resources.
- f. Workspace - A collection of tabs spanning the monitors connected to a workstation.

EXHIBIT A-2



1 TELECOMMUNICATION CAMERA SITE PLAN
SCALE: 1" = 40'-0"
RF-038

GENERAL NOTES

- REFER TO SHEET T-801 FOR THE PROPOSED CAMERA SCHEDULE.
- INSTALL ALL TELECOMMUNICATION CONDUIT AT LEAST 2' BELOW GRADE.
- ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
- PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

KEYED NOTES

- PULLBOX PROVIDED IN ROADWAY SET. COORDINATE WITH ROADWAY CONTRACTOR FOR FINAL LOCATION AND CONTINUE CONDUITS AS SHOWN.
- PROVIDE (1) 4" CONDUIT WITH 144 STRAND FIBEROPTIC CABLE UNDERGROUND.
- PROPOSED PENETRATION LOCATION FOR POLE OR PEDESTAL MOUNTED CAMERAS. COORDINATE WITH OWNER FOR FINAL PENETRATION LOCATION, GASKET PENETRATIONS.
- PROVIDE PRECAST CONCRETE H20 RATED COVER PULL BOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION.
- PROVIDE STANDARD LIGHT WEIGHT PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB.
- PROVIDE (1) 2" CONDUIT WITH (2) CAT 6 CABLES.
- PROVIDE (1) 2" CONDUIT WITH (4) CAT 6 CABLES.
- PROVIDE (1) 4" CONDUIT WITH 20 CAT 6 CABLES AND (1) 4" CONDUIT WITH (1) 12 STRAND MULTIMODE FIBER OPTIC CABLE.
- PROVIDE (1) 2" CONDUIT WITH (8) CAT 6 CABLES.
- PROVIDE (1) 2" CONDUIT WITH (12) CAT 6 CABLES.
- PROVIDE H20 TRAFFIC RATED PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB. PROVIDE (1) 4" CONDUIT WITH FIBER OPTIC CABLE FROM THIS PULL BOX TO THE FUELING STATION LOCATED APPROXIMATELY 2,000 FT TO THE EAST. PROVIDE AN H20 TRAFFIC RATED PULLBOX EVERY 1000'.

KEY PLAN

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR PERMIT & CONSTRUCTION	02/28/18

FILE LOG

Manager	JDU
Design	MDM
Draw	NS
Check	MDM

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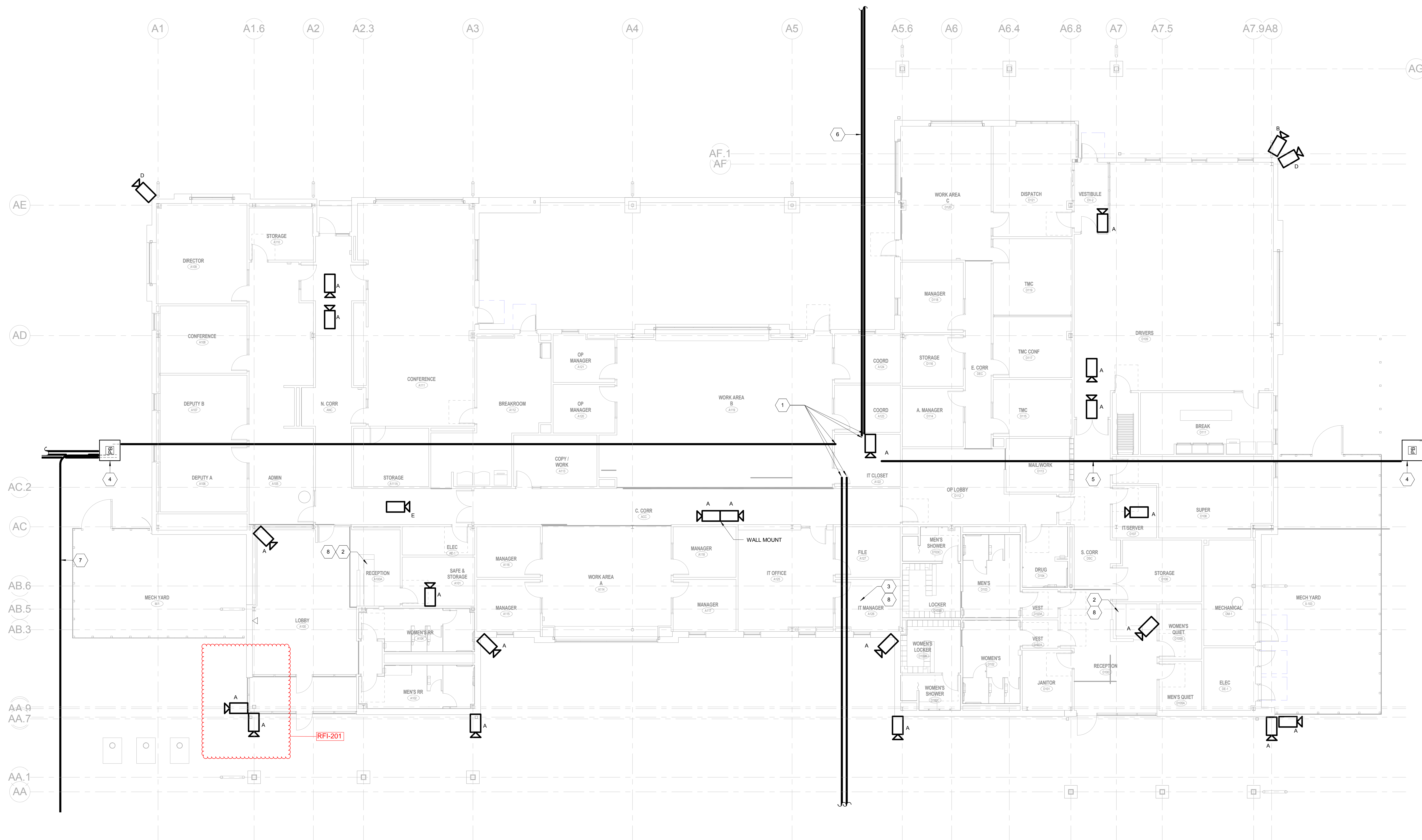
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SCALE: 1" = 40'-0"

Project No. 170-10807-002
Date: 02/28/2018

TELECOMMUNICATION SITE PLAN





1 TELECOMMUNICATION ADMIN BUILDING PLAN
SCALE: 1/8" = 1'-0"

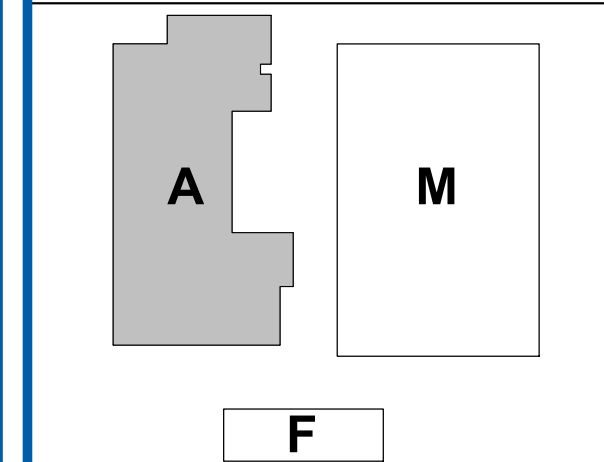
GENERAL NOTES

- REFER TO SHEET T-601 FOR THE PROPOSED CAMERA SCHEDULE.
- PROVIDE A 1" CONDUIT AND (2) CAT 6 CABLES FOR EACH CAMERA SHOWN. ROUTE BACK TO THE IT CLOSET ROOM A122.
- ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
- PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK/DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

KEYED NOTES

- PROPOSED PENETRATION LOCATION. COORDINATE WITH OWNER FOR FINAL PENETRATION LOCATION. CAP ALL PENETRATIONS.
- COORDINATE WITH LICENSED SECURITY CONTRACTOR TO PROVIDE A PELCO DECODER AT THIS LOCATION FOR CCTV CAMERAS. PROVIDE POWER AND DATA CONNECTIONS AS REQUIRED. NOTIFY OWNER AND ENGINEER OF ANY DISCREPANCIES.
- COORDINATE WITH LICENSED SECURITY CONTRACTOR TO PROVIDE A PELCO DS STATION AT THIS LOCATION FOR CCTV CAMERAS. PROVIDE POWER AND DATA CONNECTIONS AS REQUIRED. NOTIFY OWNER AND ENGINEER OF ANY DISCREPANCIES.
- PROVIDE STANDARD LIGHT WEIGHT PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" VEHICLE CURB.
- PROVIDE (1) 2" CONDUIT WITH (6) CAT 6 CABLES.
- PROVIDE (1) 4" CONDUIT WITH 55 CAT 6 CABLES AND (1) 4" CONDUIT WITH (2) 12 STRAND MULTIMODE FIBER OPTIC CABLE.
- PROVIDE (1) 2" CONDUIT WITH (4) CAT 6 CABLES.
- PROVIDE A CCTV DATA DROP IN THIS LOCATION. PROVIDE A YELLOW JACKET CAT-6 AND KEYSTONE FROM THE SECURITY IT CLOSET.

KEY PLAN



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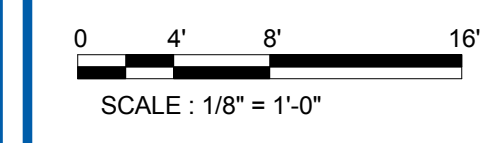
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Design	MDM
Draw	NS
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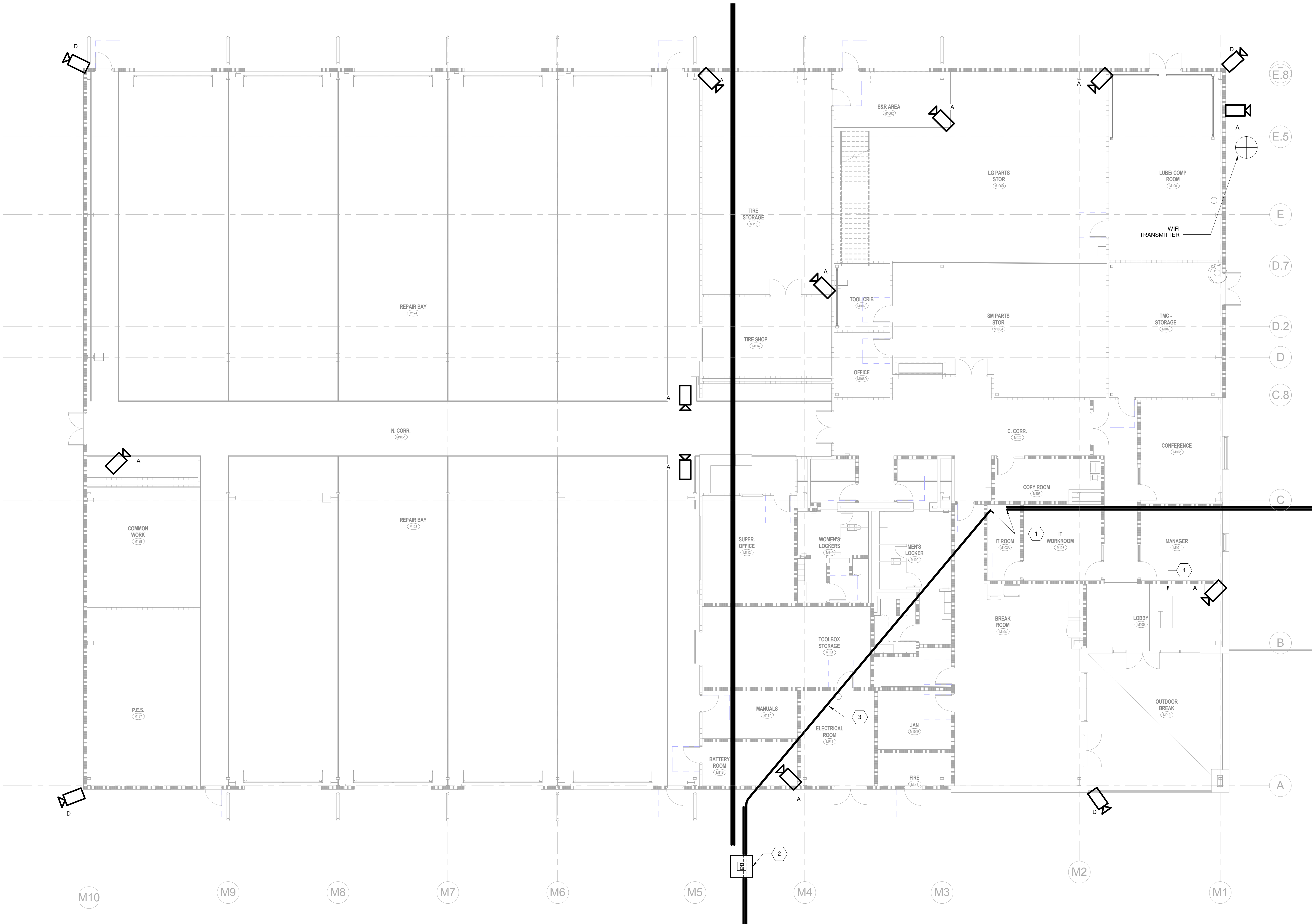


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Date: 02/28/2018

TELECOMMUNICATION ADMIN
BUILDING PLAN



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1 TELECOMMUNICATION MAINTENANCE BUILDING PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

- REFER TO SHEET T-201 FOR THE PROPOSED CAMERA SCHEDULE. PROVIDE A 1" CONDUIT AND (2) CAT 6 CABLES FOR EACH CAMERA SHOWN. ROUTE BACK TO THE IT CLOSET ROOM M103A.
- ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
- PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK/DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

KEYED NOTES

- PROPOSED PENETRATION LOCATION. COORDINATE WITH OWNER FOR FINAL PENETRATION LOCATION. CAP ALL PENETRATIONS.
- PROVIDE PRECAST CONCRETE WITH HS20 RATED COVER PULL BOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION.
- PROVIDE (1) 4" CONDUIT WITH 6 CAT 6 CABLES AND (1) 4" CONDUIT WITH (2) 12 STRAND MULTIMODE FIBER OPTIC CABLE.
- PROVIDE A CCTV DATA DROP IN THIS LOCATION. PROVIDE A YELLOW JACKET CAT-6 AND KEYSTONE FROM THE SECURITY IT CLOSET.

Public Transportation Bus Maintenance Facility

Rosenberg, Texas

Fort Bend County

301 Jackson St. Richmond, Texas 77469



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Suite 400
Houston, TX 77042
Tel 713-266-6900
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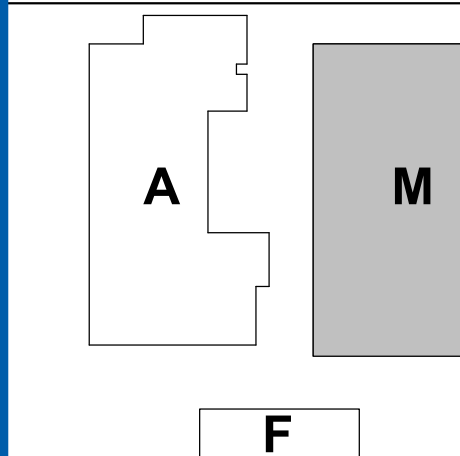


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KEY PLAN



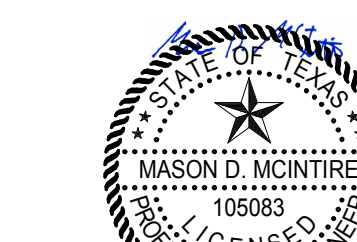
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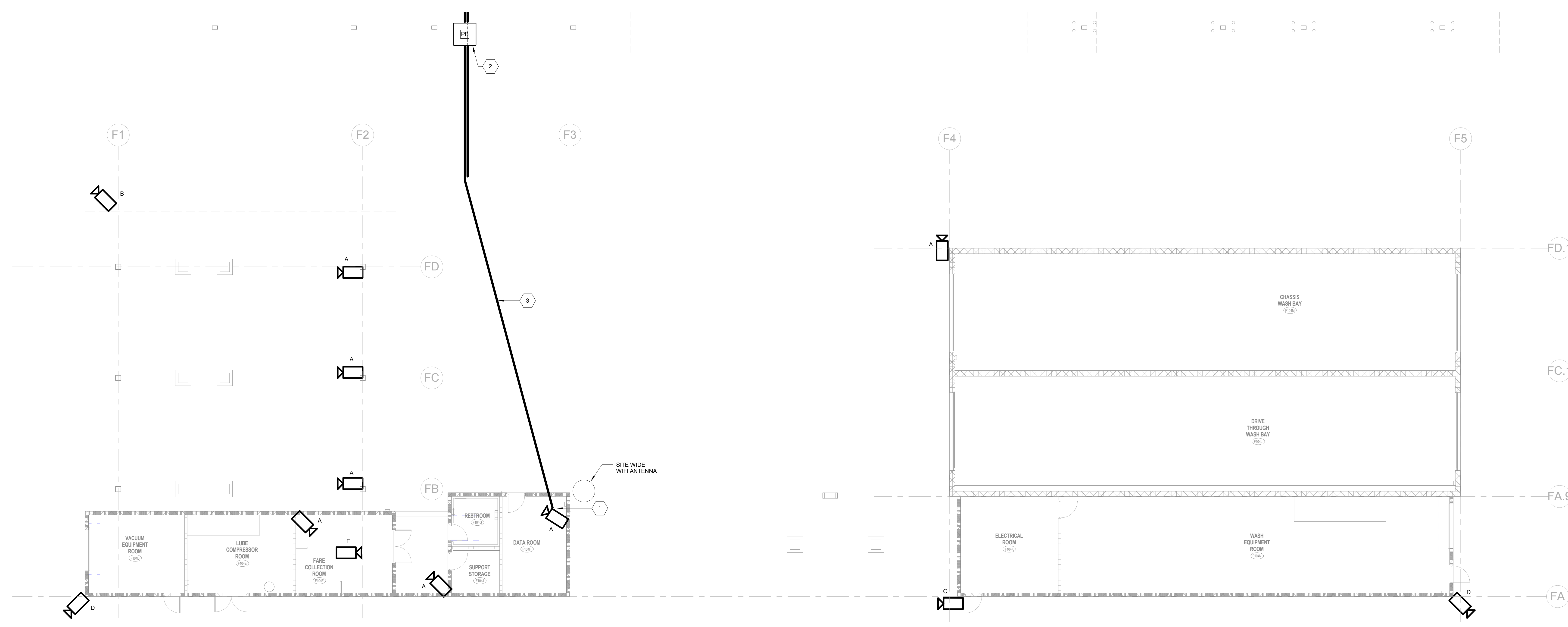
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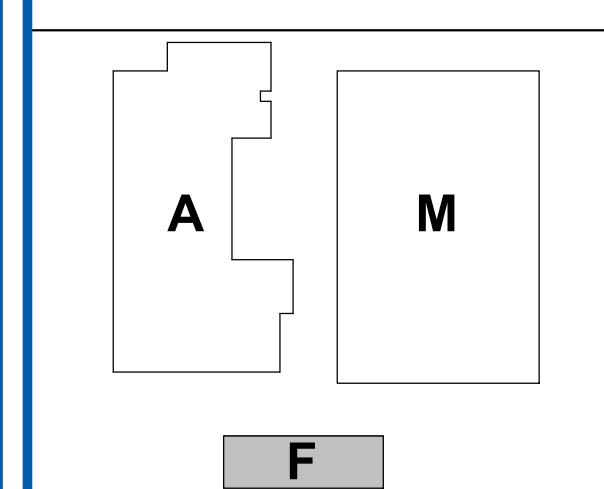
TELECOMMUNICATION MAINTENANCE BUILDING PLAN

T-103





KEY PLAN



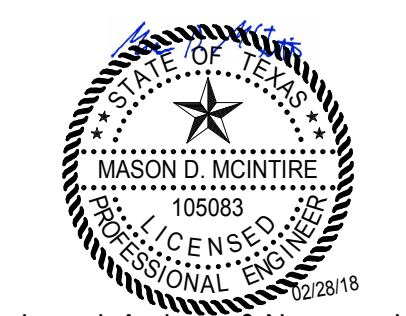
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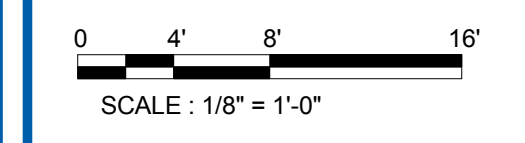
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Date: 02/28/2018

TELECOMMUNICATION FUEL
WASH STATION PLAN

1 TELECOMMUNICATION FUEL-WASH BUILDING PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

- REFER TO SHEET T-611 FOR THE PROPOSED CAMERA SCHEDULE. PROVIDE 1" CONDUIT AND (2) CAT 6 CABLES FOR EACH CAMERA SHOWN. ROUTE BACK TO THE DATA ROOM F104H.
- ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
- PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK/DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

KEYED NOTES

- PROPOSED PENETRATION LOCATION. COORDINATE WITH OWNER FOR FINAL PENETRATION LOCATION. CAP ALL PENETRATIONS.
- PROVIDE PRECAST CONCRETE HS20 RATED COVER PULL BOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION.
- PROVIDE (1) 4" CONDUIT WITH 20 CAT 6 CABLES AND (1) 4" CONDUIT WITH (1) 12 STRAND MULTIMODE FIBER OPTIC CABLE.



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1902 Washington Ave., Suite A Houston, Texas 77007 P: 713.337.5830

CAMERA SCHEDULE						
FIXTURE ID	MANUFACTURER	TYPE	MODEL	MOUNTING	INSTALLATION	NOTES
A	PELCO	STANDARD	NEXTGEN SARIX OR... Spectra Enhanced (Environmental Models)	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	
B	PELCO	PAN TILT ZOOM		TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	
C	PELCO	180° VIEW	IMM12018-xxx	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	INDOOR/OUTDOOR PANORAMIC IP CAMERA, 12 MPx
D	PELCO	270° VIEW	IMM12027-xxx	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	INDOOR/OUTDOOR PANORAMIC IP CAMERA, 12 MPx
E	PELCO	360° INDOOR DOME CAMERA	EVO-05NID	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	5 MPx, WHITE ENCLOSURE
F	PELCO	LICENSE PLATE CAMERA	NEXTGEN SARIX OR AS SPECIFIED	PEDESTAL MOUNT	COORDINATE LOCATION WITH OWNER.	
G	PELCO	PAN TILT ZOOM	Spectra Enhanced (Environmental Models)	LIGHT POLE MOUNT	INSTALL AT A MINIMUM OF 25'. COORDINATE LOCATION WITH OWNER.	

RFI-187

KEY PLAN

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR PERMIT & CONSTRUCTION	02/28/18

FILE LOG

Manager	JDJ
Design	MDM
Draw	NS
Check	MDM

STAMP



Lockwood, Andrews & Newnam, Inc.
Texas Registered Engineering Firm F-2614

GENERAL NOTES

- REFER TO SPECIFICATION 282300 IP VIDEO SURVEILLANCE SYSTEM FOR ADDITIONAL SYSTEM AND PERFORMANCE REQUIREMENTS.
- ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
- PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK/DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

KEYED NOTES

Project No. 170-10807-002
Date: 02/28/2018

TELECOMMUNICATION
SCHEDULES

T-601

PROJ: FBC Bus Maintenance Facility
3737 Bamore Road
Rosenberg, TX 77471

RFI#: 003

DATE: 9/6/18

SG PROJ #: 4018015.01

TO: Claud Marshall

FROM: Bryce Sutter

SUBJ: Telecommunication Pull Box

SPECIFICATIONS:

DRAWINGS: T101

QUESTION: (number each question)

RECOMMENDATION: (number each Option)

Please see attached Prism Electric RFI-002

BY, TITLE: Bryce Sutter, Assistant Project Manager

DATE REQUIRED:

STATUS: CRITICAL IMPORTANT ROUTINE

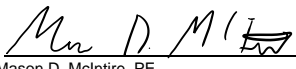
IMPACTS: COST TIME

RESPONSE: (List responses with same numbering as questions)

1 and 2. Provide pullboxes as shown on detail 1 sheet E-502.

3. Provide traffic rated covers. The area highlighted in the plan east area will become parking space in the future so traffic rated covers are required.

T-501 markup: Relocating that pullbox north of the admin building to limit conduit bends is acceptable.

BY:  **DATE:** 09/07/2018
Mason D. McIntire, PE
Lockwood, Andrews, & Newnam Inc.

RESPONSE TO:

RFI #2 – PEI RFI 002 - T101 Telecommunication Pull Box Clarification

Due
Sep 19, 2018

Sent on
Sep 05, 2018

Sent by
Richard Rios

Assigned to
No one assigned.

Question

Prism would like clarification on the following questions.

- 1.) On sheet T-101, note 5 says to provide a standard lightweight pull box. Are we to size per NEC code?
- 2.) Also on sheet T-101, note 11 states to provide an H20 traffic rated pull box, but does not specify a size. Are we to size per NEC code?
- 3.) Architectural site drawings call for traffic rated pull boxes in grass areas. Can Prism assume that if a pull box is not in a concrete area, it does not need to be traffic rated?

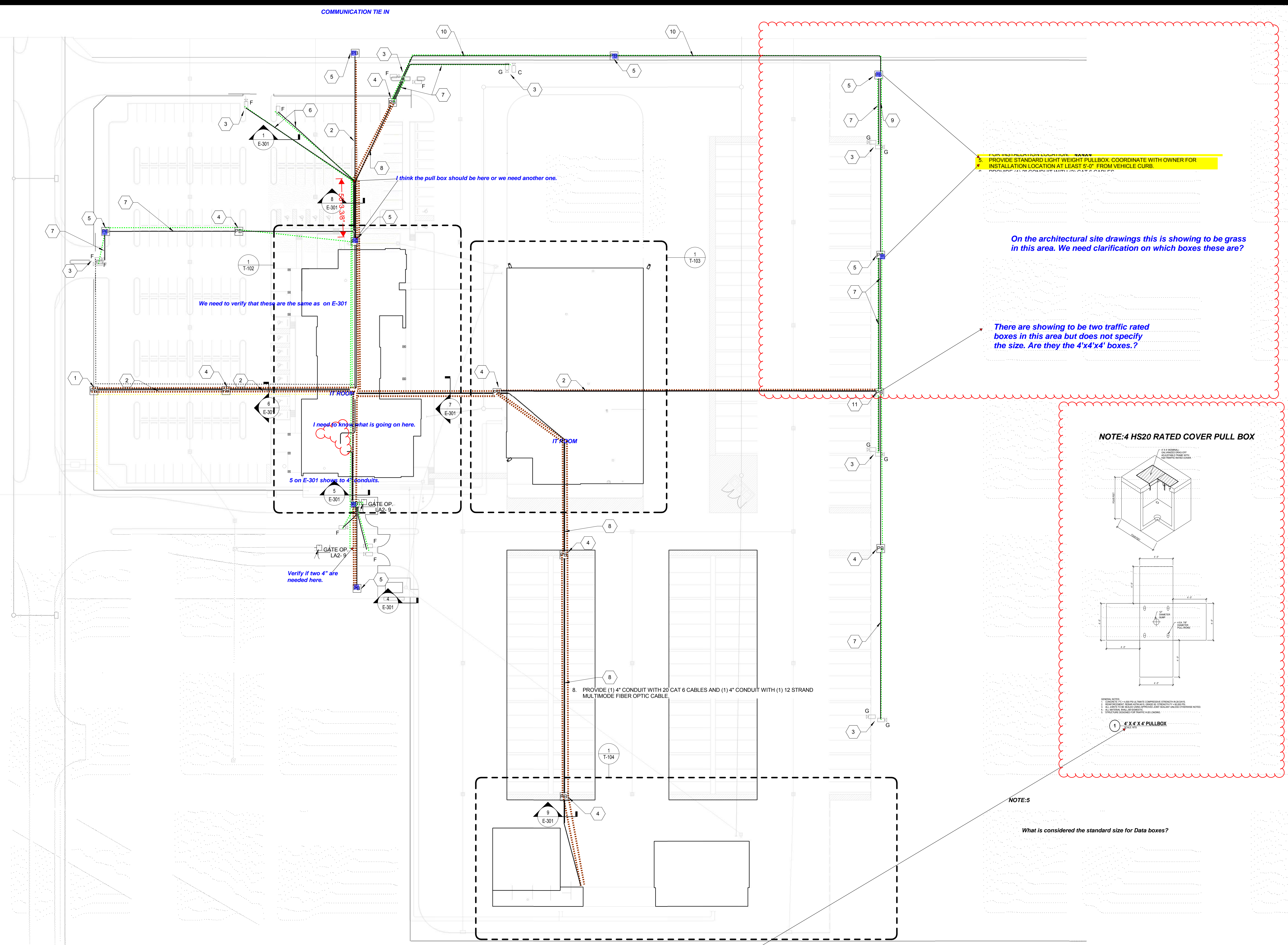
Please clarify these notes and requirements.

Answer

References (1)

»Document titled "RFI 002 - T101 Telecommunication Pull Box Clarification.pdf"

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1 TELECOMMUNICATION CAMERA SITE PLAN
SCALE: 1" = 40'-0"

- GENERAL NOTES**
- REFER TO SHEET T-801 FOR THE PROPOSED CAMERA SCHEDULE.
 - INSTALL ALL TELECOMMUNICATION CONDUIT AT LEAST 2' BELOW GRADE.
 - ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
 - PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK/DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

- KEYED NOTES**
- PULLBOX PROVIDED IN ROADWAY SET. COORDINATE WITH ROADWAY CONTRACTOR FOR FINAL LOCATION AND CONTINUE CONDUITS AS SHOWN.
 - PROVIDE (1) 4" CONDUIT WITH 144 STRAND FIBEROPTIC CABLE UNDERGROUND.
 - PROPOSED PENETRATION LOCATION FOR POLE OR PEDESTAL MOUNTED CAMERAS. COORDINATE WITH OWNER FOR FINAL PENETRATION LOCATION. CAP ALL PENETRATIONS.
 - PROVIDE PRECAST CONCRETE HS20 RATED COVER PULL BOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION.
 - PROVIDE STANDARD LIGHT WEIGHT PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB.
 - PROVIDE (1) 2" CONDUIT WITH (2) CAT 6 CABLES.
 - PROVIDE (1) 2" CONDUIT WITH (4) CAT 6 CABLES.
 - PROVIDE (1) 4" CONDUIT WITH 20 CAT 6 CABLES AND (1) 4" CONDUIT WITH (1) 12 STRAND MULTIMODE FIBER OPTIC CABLE.
 - PROVIDE (1) 2" CONDUIT WITH (8) CAT 6 CABLES.
 - PROVIDE (1) 2" CONDUIT WITH (12) CAT 6 CABLES.
 - PROVIDE H20 TRAFFIC RATED PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB. PROVIDE (1) 4" CONDUIT WITH FIBER OPTIC CABLE FROM THIS PULL BOX TO THE FUELING STATION LOCATED APPROXIMATELY 2,000 FT TO THE EAST. PROVIDE AN H20 TRAFFIC RATED PULLBOX EVERY 1000'.

5. PROVIDE STANDARD LIGHT WEIGHT PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB.

On the architectural site drawings this is showing to be grass in this area. We need clarification on which boxes these are?

There are showing to be two traffic rated boxes in this area but does not specify the size. Are they the 4'x4'x4' boxes.?

NOTE: 4 HS20 RATED COVER PULL BOX



1 4' x 4' x 4' PULLBOX

NOTE: 5
What is considered the standard size for Data boxes?

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asakura robinson
Planning, Urban Design, Landscape Architecture
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KEY PLAN

REVISIONS

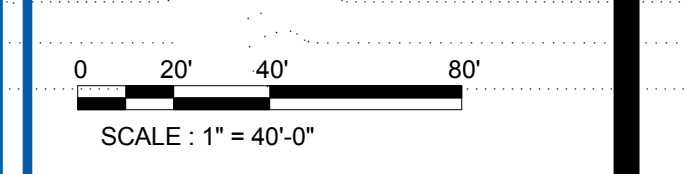
NO.	DESCRIPTION	DATE
0	ISSUED FOR PERMIT & CONSTRUCTION	02/28/18

FILE LOG

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Design	MDM
Draw	NS
Check	MDM

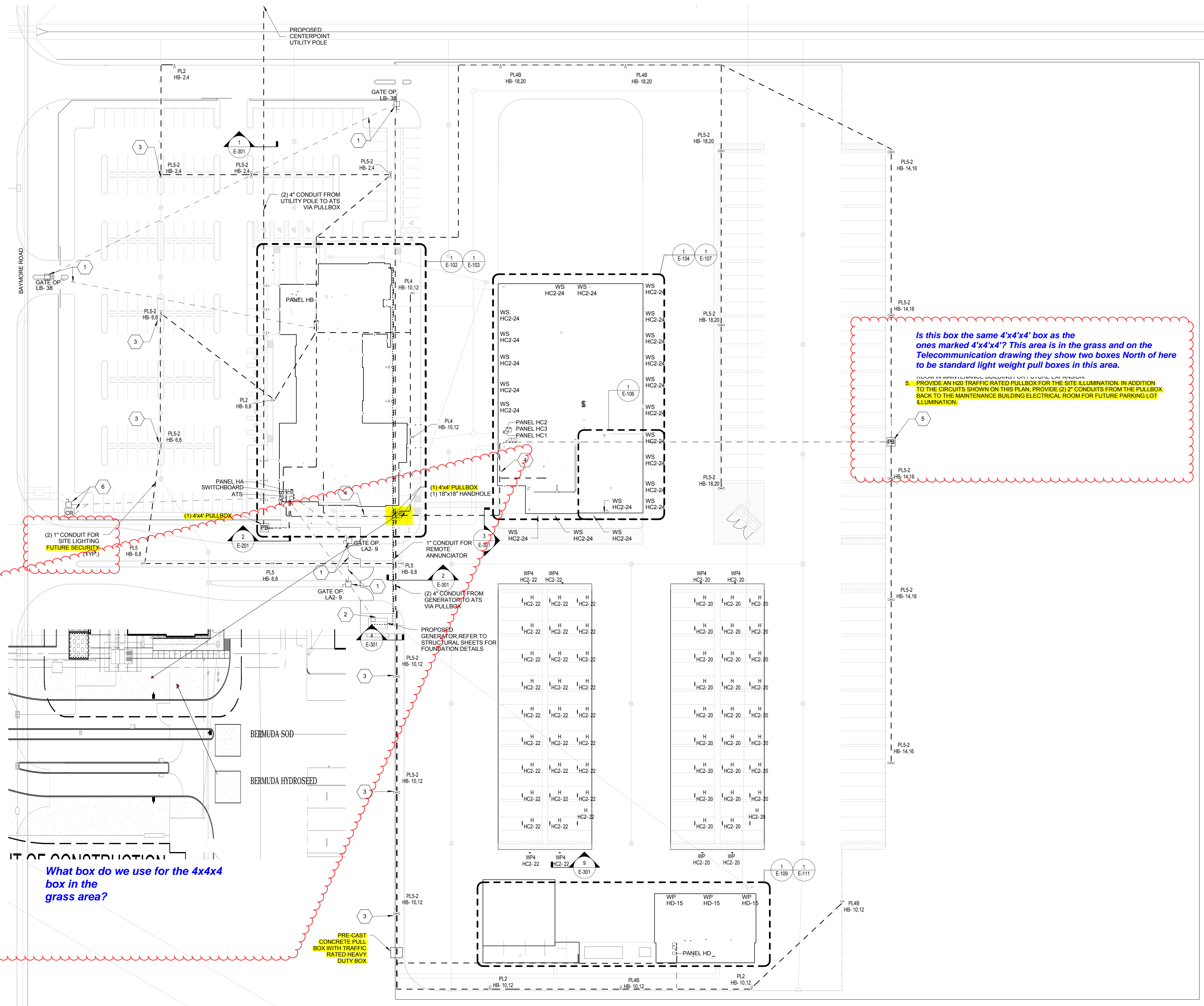
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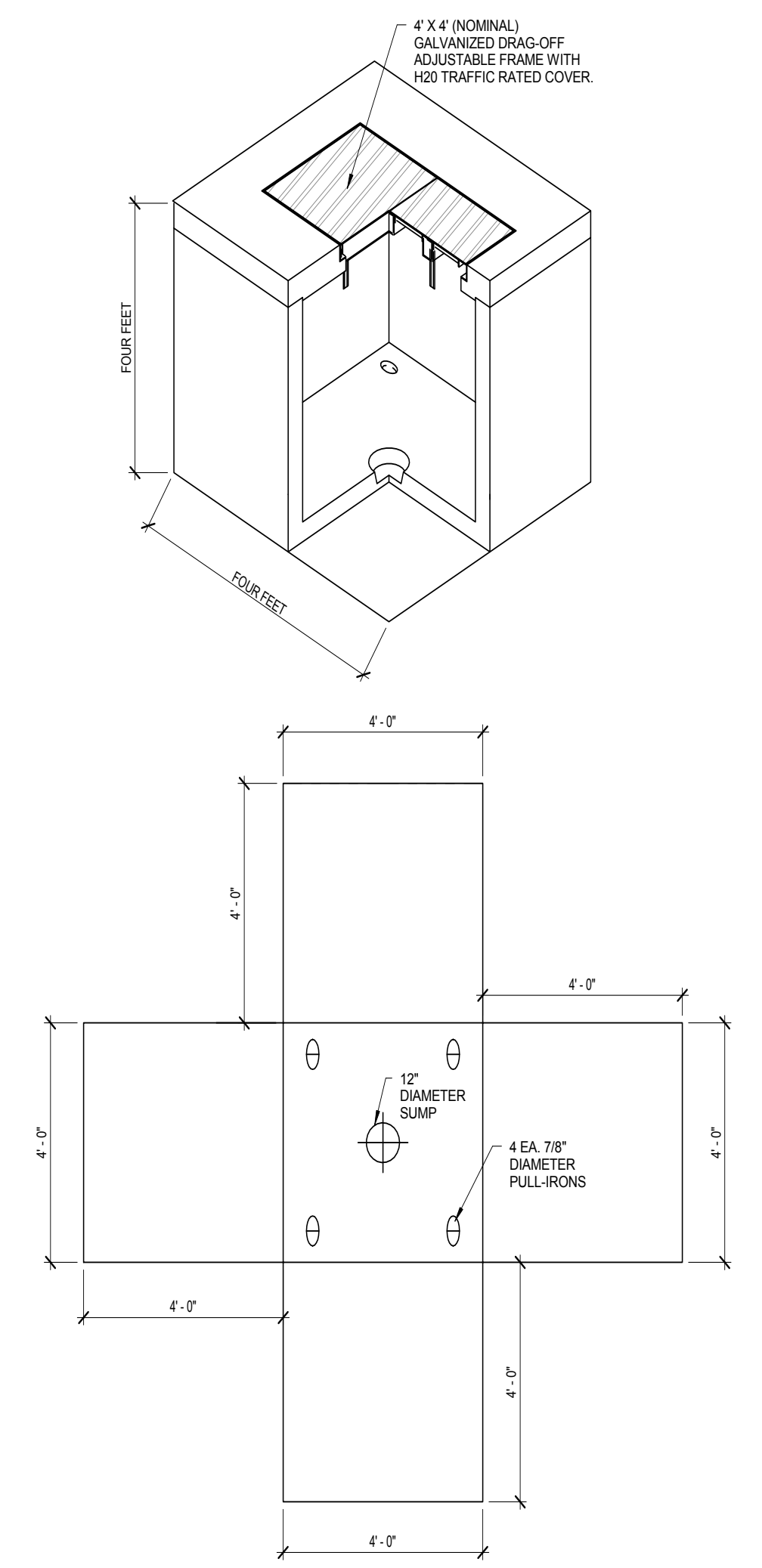


Project No. 170-10807-002
Date: 02/28/2018

TELECOMMUNICATION SITE PLAN



Is this box the same 4'x4'x4' box as the ones marked 4'x4'x4'? This area is in the grass and on the Telecommunication drawing they show two boxes North of here to be standard light weight pull boxes in this area.



- GENERAL NOTES:
1. CONCRETE: FC = 4,000 PSI ULTIMATE COMPRESSIVE STRENGTH IN 28 DAYS.
 2. REINFORCEMENT: REBAR ASTM A615 GRADE 60, STRENGTH F_y = 60,000 PSI.
 3. ALL JOINTS TO BE SEALED USING APPROVED JOINT SEALANT UNLESS OTHERWISE NOTED.
 4. ALL MATERIAL SHALL BE DOMESTIC.
 5. STRUCTURE DESIGNED FOR TRAFFIC H-20 LOADING.

1 4' X 4' X 4' PULLBOX
SCALE: 1/8\"/>

(2) 1\"/>

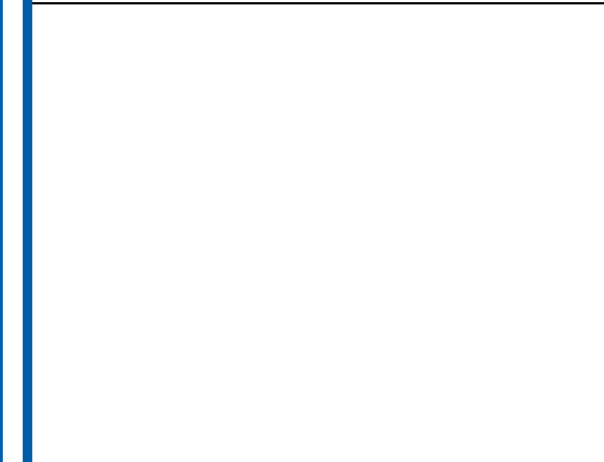
What box do we use for the 4x4x4 box in the grass area?

1 ELECTRICAL SITE PLAN
SCALE: 1\"/>

- GENERAL NOTES**
1. REFER TO SHEET E-001 FOR THE SYMBOLS AND LEGEND.
 2. REFER TO SHEET E-001 FOR THE PROPOSED ONE-LINE DIAGRAM.
 3. REFER TO SHEET E-602 FOR THE PROPOSED LIGHT FIXTURE SCHEDULE.
 4. PROVIDE A LIGHTING CONTROL PANEL AS SPECIFIED IN SECTION 28 05 23. ADJACENT TO EACH PANEL FEEDING THE LIGHTING CIRCUIT SHOWN. LOCATE PHOTOCELL ON ROOF AND COORDINATE PENETRATION WITH PEMB MANUFACTURER. REFER TO DETAIL 9E-301 FOR CONTROL SCHEMATIC.
 5. PROVIDE GATE OPERATORS AT EVERY ENTRANCE AND ENSURE LOOP DETECTORS ARE FUNCTIONING PROPERLY. NOTIFY THE BEGINNER AND OWNER OF ANY DISCREPANCIES.
 6. PROVIDE IT EQUIPMENT AS LISTED IN APPENDIX A SECTION 7 PARTS/PPOWER LIST FOR FORT BEND COUNTY PUBLIC TRANSPORTATION - 1/18/2017. COORDINATE WITH OWNER FOR FINAL LOCATIONS.
 7. COORDINATE WITH C-SERIES SHEETS FOR ALL SITE LIGHT POLE FOUNDATIONS.

- KEYED NOTES**
1. PROPOSED DISCONNECT FOR GATE OPERATOR SYSTEM. INSTALL (1) 1\"/>
 2. (1) 1\"/>
 3. COORDINATE FOUNDATIONS AND CONDUITS WITH PROPOSED WATER AND DRAINAGE LINES IN THIS AREA.
 4. PROVIDE JACKET WATER HEATER, BATTERY CHARGER, AND STRIP HEATER CIRCUITS AT GENERATOR. PROVIDE 1\"/>
 5. PROVIDE AN H20 TRAFFIC RATED PULLBOX FOR THE SITE ILLUMINATION. IN ADDITION TO THE CIRCUITS SHOWN ON THIS PLAN, PROVIDE (2) 2\"/>
 6. PROPOSED DISCONNECT AND CARD READER FOR GATE OPENER. INSTALL (1) 1\"/>

KEY PLAN



REVISIONS

NO.	DESCRIPTION	DATE
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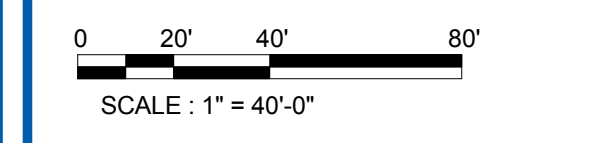
FILE LOG

Manager	JDJ
Design	MDM
Draw	NS
Check	MDM

STAMP



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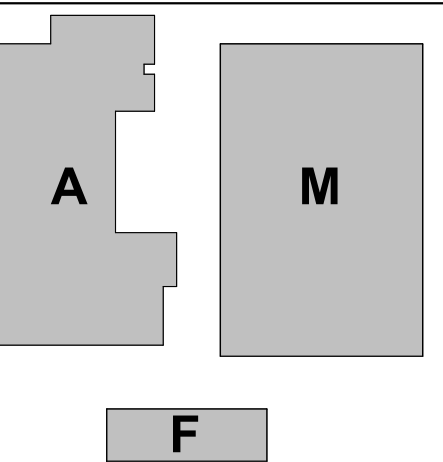


Project No. 170-10807-002
Date: 02/28/2018

ELECTRICAL SITE PLAN

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KEY PLAN



REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUE FOR PERMIT & CONSTRUCTION	2/28/18

FILE LOG

Manager	DANIEL ORTIZ, AIA
Design	NOEL COMPEAN
Draw	KATIE DOMINGUEZ
Check	HOWARD MERRILL, AIA

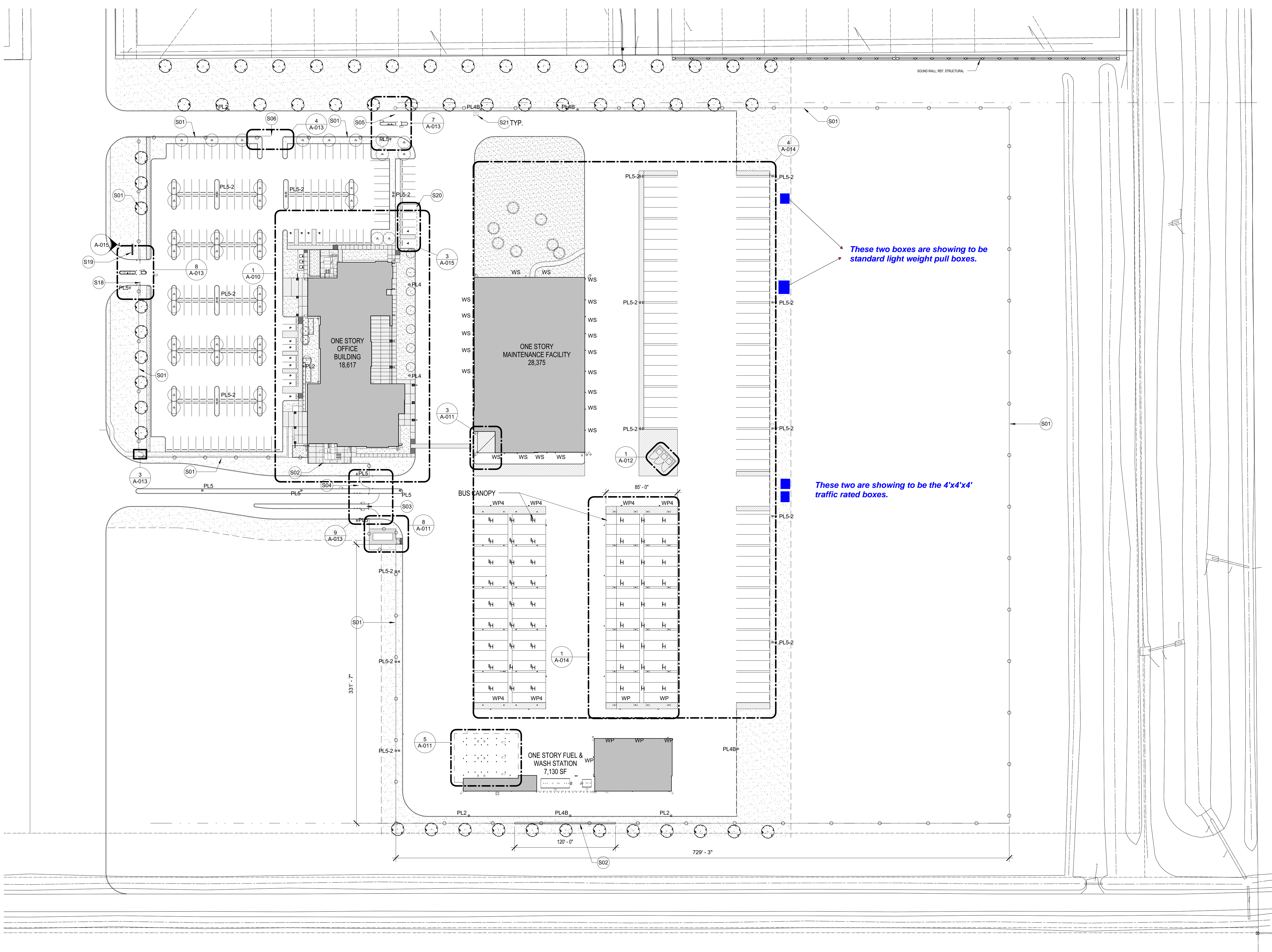
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Project No. 170-10807-002
Date: 02/28/2018

SITE PLAN

A-001



GENERAL NOTES

- SITE PLAN INDICATED GENERAL DESIGN INTENT OF ARCHITECTURAL SITE WORK REFER TO CIVIL DRAWINGS AND SPECIFICATIONS FOR SUB-SURFACE WORK AND LANDSCAPE DRAWINGS FOR OTHER WORK NOT SPECIFIED HEREIN.
- REFER TO SHEETS G-022 & G-023 FOR TYPICAL ACCESSIBILITY STANDARDS FOR ALL DESIGN STANDARDS AND REQUIREMENTS RELATED TO ACCESSIBILITY.
- COMPLY WITH THE REQUIREMENTS OF THE TEXAS ACCESSIBILITY STANDARDS FOR ALL DESIGN STANDARDS AND REQUIREMENTS RELATED TO ACCESSIBILITY.
- ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST POSSIBLE ROUTE OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE ENTRANCE.
- ACCESSIBLE PARKING SPACES SHALL BE AT LEAST 96" WIDE AND LEVEL WITH SLOPES NOT EXCEEDING 2% IN ALL DIRECTIONS.
- ACCESSIBLE PARKING SPACES SHALL BE DESIGNATED AS RESERVED BY A SIGN SHOWING THE "SYMBOL OF ACCESSIBILITY". AN ADDITIONAL "VAN ACCESSIBLE" SIGN SHALL BE MOUNTED BELOW FOR ALL VAN ACCESSIBLE SPACES.
- SLOPES OF CURB RAMPS ALONG AN ACCESSIBLE PATH SHALL NOT EXCEED 1:20. TRANSITIONS FROM RAMPS TO TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. THE MIN. WIDTH OF A CURB RAMP SHALL BE 36" EXCLUSIVE OF FLARED SIDES. RAMP SURFACES SHALL BE SLIP RESISTANT.
- CHANGES IN LEVEL UP TO 1/4" MAY BE VERTICAL WITHOUT EDGE TREATMENT, 1/2" SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2.
- ALL SITE SIGNAGE SHALL COMPLY WITH ALL APPLICABLE CODES, INCLUDING ACCESSIBILITY.

KEYED NOTES

Key Value	Keynote Text
S01	8' HIGH DECORATIVE IRON FENCE
S02	8' HIGH COMPOSITE WOOD FENCE
S03	8' HIGH CARD READER OPERATED GATE W/ COMMUNICATION TO RECEPTION. SPLIT SWINGING DECORATIVE IRON GATE
S04	8' HIGH AUTOMATIC SWINGING IRON GATE
S05	8' HIGH CARD READER OPERATED GATE W/ COMMUNICATION TO RECEPTION. SLIDING DECORATIVE IRON GATE
S06	8' HIGH MANUALLY OPERATED SLIDING IRON GATE
S18	42" HIGH CARD READER OPERATED GATE W/ COMMUNICATION TO RECEPTION. SLIDING DECORATIVE IRON GATE
S19	PROVIDE ADDITIONAL POWER AND DATA TO MONUMENT SIGN
S20	AVADEK CANOPY
S21	SITE CAMERA

SITE AND BUILDING INFORMATION

PROJECT ADDRESS	3737 BAMORE RD. ROSENBERG, TX 77471
GROSS SITE AREA:	50.216 ACRES
GROSS BUILDING FLOOR AREA:	54,122 SF
REQUIRED PARKING (PER ARTICLE 7 OF ORDINANCE):	
USE CLASSIFICATION	REQ'D # OF PARKING SPACES
OFFICE	5/1,000 SF (GROSS)
AUTO REPAIR	3/1,000 SF OFFICE (GROSS)
FUEL	4/REPAIR BAY
	2/DAY
	2/STACKING PER PUMP
	XXX
	XXX
	XXX
	10
TOTAL # OF REQ'D PARKING SPACES	
	93
	38
	36
	2
	10
SITE PARKING PROVIDED:	
PRIVATE PARKING-186	
BUS PARKING-172	

SITE LIGHT FIXTURE SCHEDULE

H	ACUCITY BRANDS	DMW2 L24 300LM ACL MD MVOLT GZ1 40K 80CRI
PL2	ACUCITY BRANDS	DSX2 LED 40K T2M MVOLT
PL4	ACUCITY BRANDS	DSX2 LED 40K T4M MVOLT
PL4B	ACUCITY BRANDS	DSX2 LED 40K T4M MVOLT
PL5	ACUCITY BRANDS	DSX2 LED 40K T5M MVOLT
PL5-2	ACUCITY BRANDS	DSX2 LED 40K T5M MVOLT
WP	ACUCITY BRANDS	WSR LED 2 SR3 MVOLT
WP2	ACUCITY BRANDS	OLWX1 LED 20W 40K
WP3	ACUCITY BRANDS	OLWX1 LED 40W 40K
WP4	ACUCITY BRANDS	WSR LED 2 SR4 MVOLT
WS	SPECTRUM	SPC0618SQUID 20L ND 20L XW 35K EX WL SDF6XT PT GL WL
X	ACUCITY BRAND	OLWX1 LED 40W 40K

1 SITE PLAN
SCALE: 1" = 50'-0"



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PROJ: FBC Bus Maintenance Facility
3737 Bamore Road
Rosenberg, TX 77471

RFI#: 038

DATE: 10.16.18

SG PROJ #: 4018015.01

TO: Claude Marshall

FROM: Bryce Sutter

SUBJ: DAC Excesive Conduit Re-Design

SPECIFICATIONS:

DRAWINGS: T-101

QUESTION: (number each question)

RECOMMENDATION: (number each Option)

In coordination with the subcontractor providing the work for the Access Control and the IP Surveillance, it appears that there is excessive conduit on the plan east side of the project. Please review and confirm that the removal of excess conduit from the design is acceptable.

Please see attached proposed conduit drawings.

BY, TITLE: Bryce Sutter, Assistant Project Manager

DATE REQUIRED: 10.24.18

STATUS: CRITICAL IMPORTANT ROUTINE

IMPACTS: COST TIME

RESPONSE: (List responses with same numbering as questions)

Redesign of conduits is acceptable for telecommunications, but the conduits need to be retained as shown on E-101 for the lighting circuits.

BY: Mason McIntire, PE **DATE:** 10/24/18

Mason D. McIntire

RESPONSE TO:

REQUEST FOR INFORMATION



TO: KEN, NGUYEN, PROJECT MANAGER
SPAW GLASS

RFI #	1
DATE	10/15/2018
DATE NEEDED BY	ASAP
PROJECT NAME	FBC BUS MAINT.
PROJECT #	9025-0300

RFI DESCRIPTION

IT HAS BEEN NOTICED THAT THERE IS EXCESSIVE CONDUIT BEING UTILIZED AROUND THE PERIMETER OF THE FACILITY. WE HAVE RE-DESIGNED THE CONDUIT PATHWAYS TO AIDE IN PROVIDING A MORE STREAMLINED WAY OF REACHING THE LOCATIONS IDENTIFIED ON THE DRAWINGS. ATTACHED ARE THE DESIGN SHOP DRAWINGS FOR APPROVAL. DAC IS REQUESTING APPROVAL FOR THE ALTERNATE PATHWAYS TO THE PATHWAYS SHOWN ON THE TELECOM DRAWINGS PAGE T-101. THIS CHANGE WILL HAVE NO COST IMPACT ON CABLING INSTALLATION

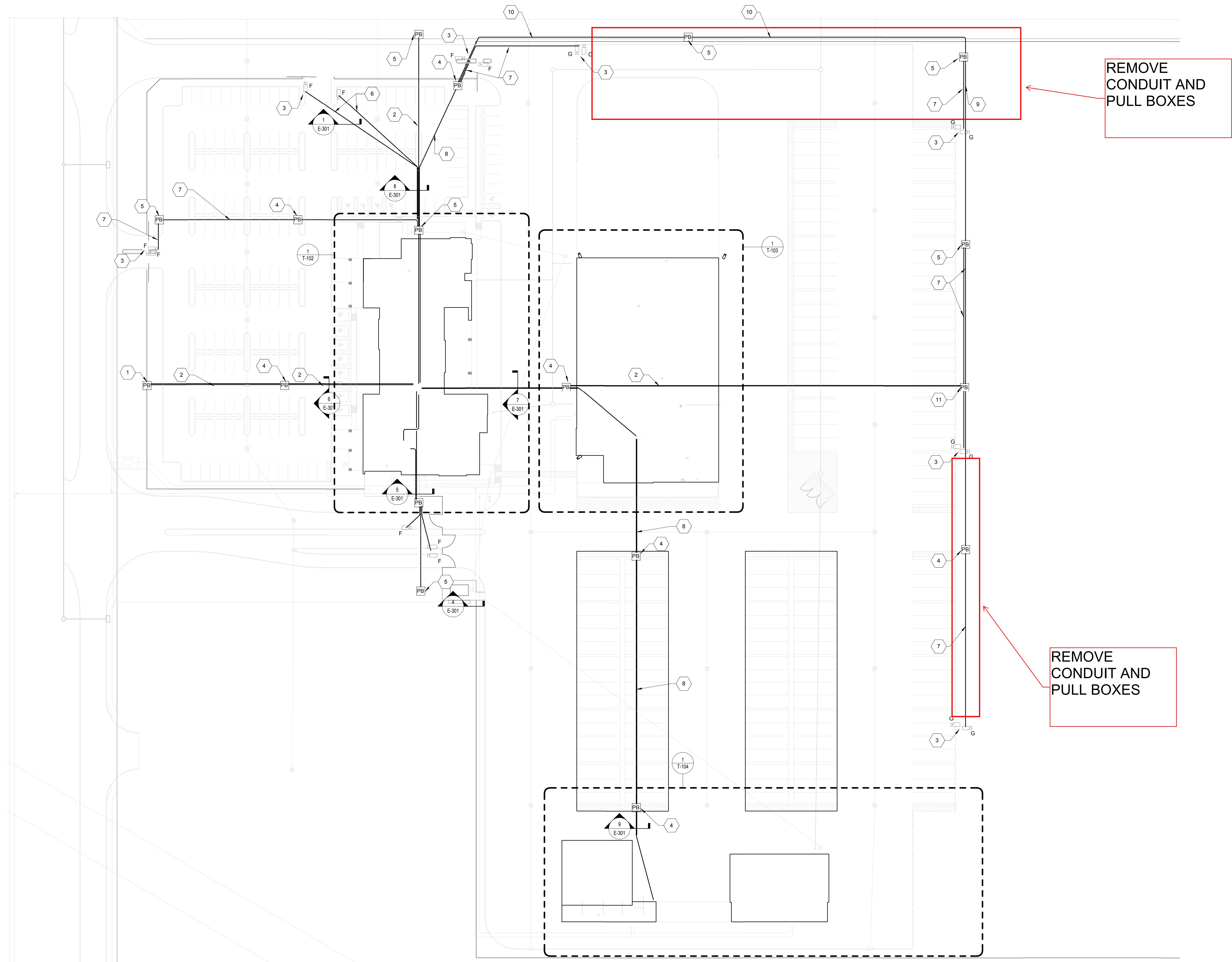
ATTACHMENTS: DAC REVISED CONDUIT PATHWAY DESIGN SHOP DRAWING, TELECOM T-101

SUBMITTED BY: STEPHEN GRISHAM, PROJECT MANAGER
DAC, INC

RESPONSE TO RFI

RESPONSE BY: (NAME, TITLE)
(COMPANY)

DATE:



1 TELECOMMUNICATION CAMERA SITE PLAN
SCALE: 1" = 40'-0"

GENERAL NOTES

1. REFER TO SHEET T-801 FOR THE PROPOSED CAMERA SCHEDULE.
2. INSTALL ALL TELECOMMUNICATION CONDUIT AT LEAST 2' BELOW GRADE.
3. ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
4. PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK/DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

KEYED NOTES

1. PULLBOX PROVIDED IN ROADWAY SET. COORDINATE WITH ROADWAY CONTRACTOR FOR FINAL LOCATION AND CONTINUE CONDUITS AS SHOWN.
2. PROVIDE (1) 4" CONDUIT WITH 144 STRAND FIBEROPTIC CABLE UNDERGROUND.
3. PROPOSED PENETRATION LOCATION FOR POLE OR PEDESTAL MOUNTED CAMERAS. COORDINATE WITH OWNER FOR FINAL PENETRATION LOCATION. CAP ALL PENETRATIONS.
4. PROVIDE PRECAST CONCRETE H20 RATED COVER PULL BOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION.
5. PROVIDE STANDARD LIGHT WEIGHT PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB.
6. PROVIDE (1) 2" CONDUIT WITH (2) CAT 6 CABLES.
7. PROVIDE (1) 2" CONDUIT WITH (4) CAT 6 CABLES.
8. PROVIDE (1) 4" CONDUIT WITH 20 CAT 6 CABLES AND (1) 4" CONDUIT WITH (1) 12 STRAND MULTIMODE FIBER OPTIC CABLE.
9. PROVIDE (1) 2" CONDUIT WITH (8) CAT 6 CABLES.
10. PROVIDE (1) 2" CONDUIT WITH (12) CAT 6 CABLES.
11. PROVIDE H20 TRAFFIC RATED PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB. PROVIDE (1) 4" CONDUIT WITH FIBER OPTIC CABLE FROM THIS PULL BOX TO THE FUELING STATION LOCATED APPROXIMATELY 2,000 FT TO THE EAST. PROVIDE AN H20 TRAFFIC RATED PULLBOX EVERY 1000'.

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**asakura
robinson**
Planning | Urban Design | Landscape Architecture
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KEY PLAN

REVISIONS

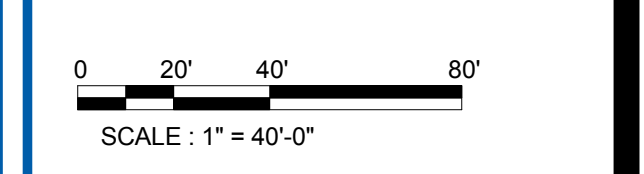
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Draw	NS
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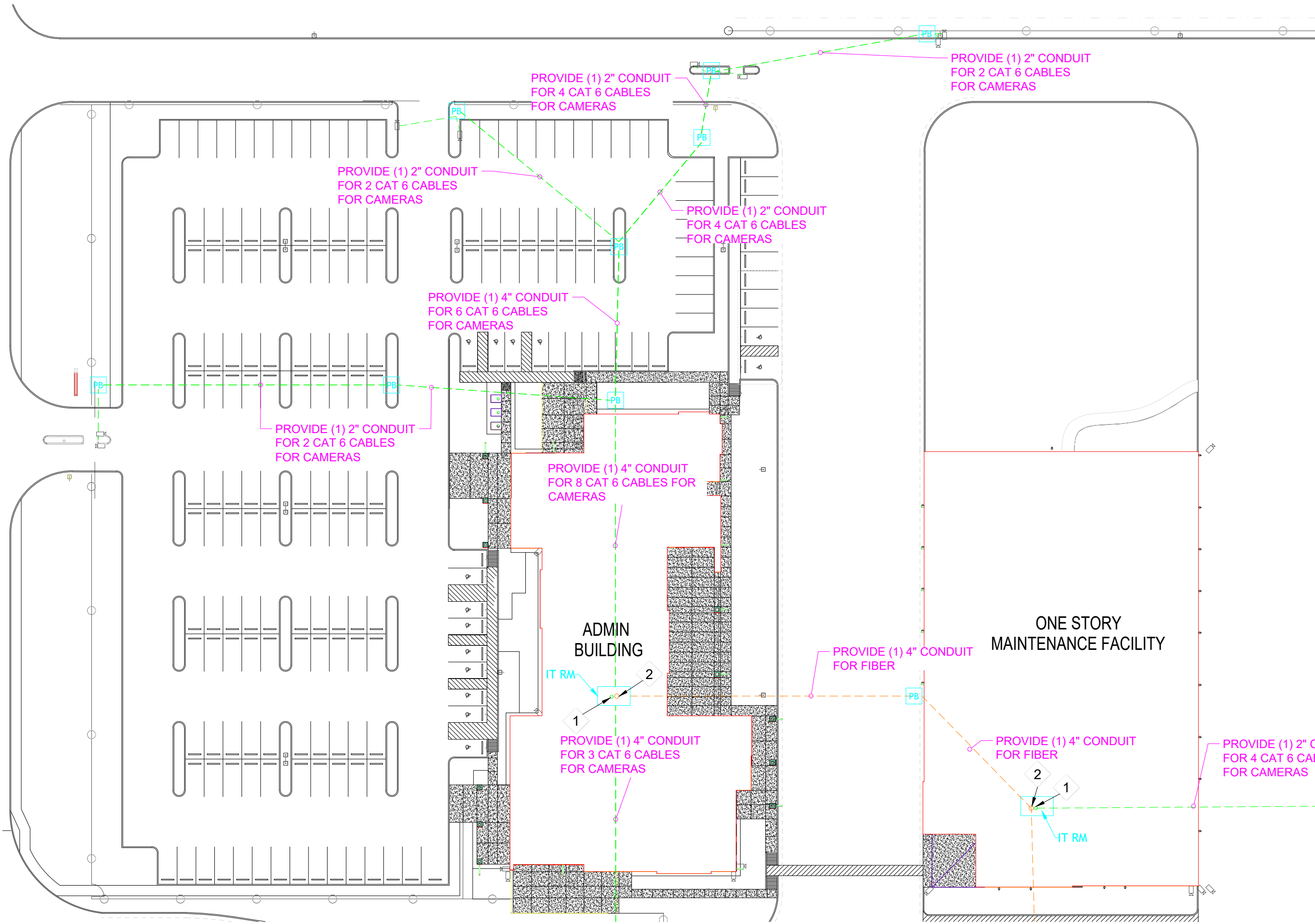
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Project No. 170-10807-002
Date: 02/28/2018

TELECOMMUNICATION SITE PLAN

2/23/2018 2:52:38 AM C:\Users\Nishant\Documents\AutoCAD\New\2018\FortBend\T-101-10807-002-Fort Bend Transit MFP - v1.dwg



GENERAL NOTES:
 - FIBER CABLE/CONDUIT ROUTE
 - CAT 6 CABLE/CONDUIT ROUTE

KEY NOTE:
 1 2" CONDUIT STUB OUT TO EXTERIOR PULL BOX
 2 4" CONDUIT STUB OUT TO EXTERIOR PULL BOX



Digital Air Control, Inc.
 Texas Security License B16589
 Houston, TX • 713-975-8160
 Dallas, TX • 817-617-7162
 http://www.digitalaircontrol.com

Project:	Security Upgrades
Address:	Waller Independent School District
Architect:	VLK Architects
Consulting Engineer:	####
General Contractor:	####
Mechanical Contractor:	####

Revisions			
Rev:	Description:	Date:	By:
00	Submittal Drawings	10/08/2018	HG
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			

Applies to:					
Unit:	eSC:	Addr:	Unit:	eSC:	Addr:

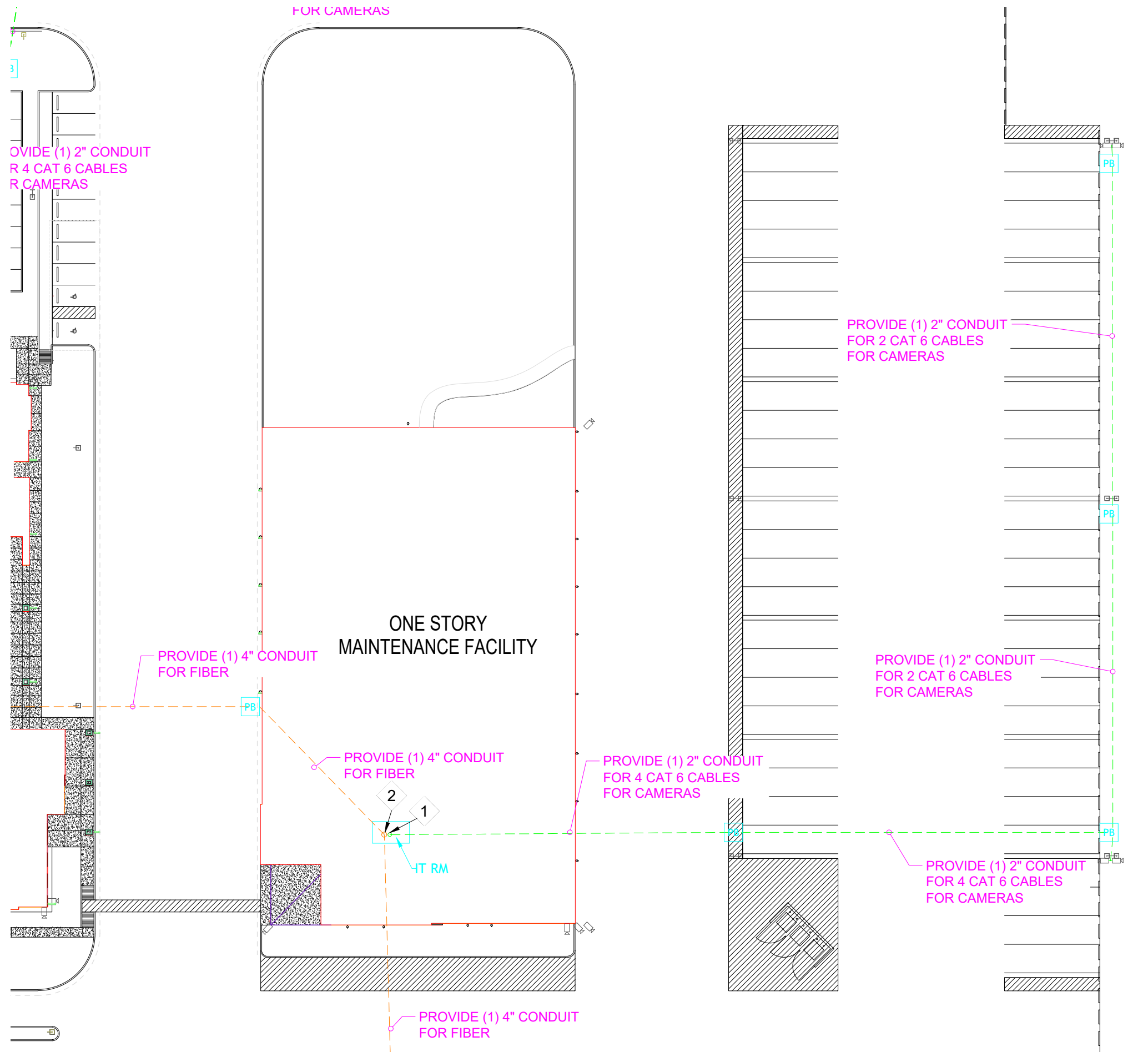
Drawing Title:
CABLE/CONDUIT ROUTE SITE PLAN

Job Number: H9025-03-00
Drawing #: SC2.05

1 CAMERA AND FIBER CABLE/CONDUIT ROUTE SITE PLAN

Scale: 1/16" = 1'-0"

Location: Z:\9025 - Fort Bend County\9025-03-00 - Fort Bend County Bus Maintenance Facility\Engineering\Design\Working CAD
 File Name: 9025-03-00 Fort Bend B.M.F. Site Plan_HG_10032018.dwg



PROVIDE (1) 2" CONDUIT
R 4 CAT 6 CABLES
R 4 CAMERAS

FOR CAMERAS

PROVIDE (1) 4" CONDUIT
FOR FIBER

ONE STORY
MAINTENANCE FACILITY

PROVIDE (1) 4" CONDUIT
FOR FIBER

IT RM

PROVIDE (1) 2" CONDUIT
FOR 4 CAT 6 CABLES
FOR CAMERAS

PROVIDE (1) 2" CONDUIT
FOR 2 CAT 6 CABLES
FOR CAMERAS

PROVIDE (1) 2" CONDUIT
FOR 2 CAT 6 CABLES
FOR CAMERAS

PROVIDE (1) 2" CONDUIT
FOR 4 CAT 6 CABLES
FOR CAMERAS

PROVIDE (1) 4" CONDUIT
FOR FIBER

1 CAMERA AND FIBER CABLE/CONDUIT ROUTE SITE PLAN

Scale: 1/16" = 1'-0"

GENERAL NOTES:
 - FIBER CABLE/CONDUIT ROUTE
 - CAT 6 CABLE/CONDUIT ROUTE

KEY NOTE:
 1 2" CONDUIT STUB OUT TO EXTERIOR PULL BOX
 2 4" CONDUIT STUB OUT TO EXTERIOR PULL BOX



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Project:	Security Upgrades
Address:	Waller Independent School District
Architect:	VLK Architects
Consulting Engineer:	####
General Contractor:	####
Mechanical Contractor:	####

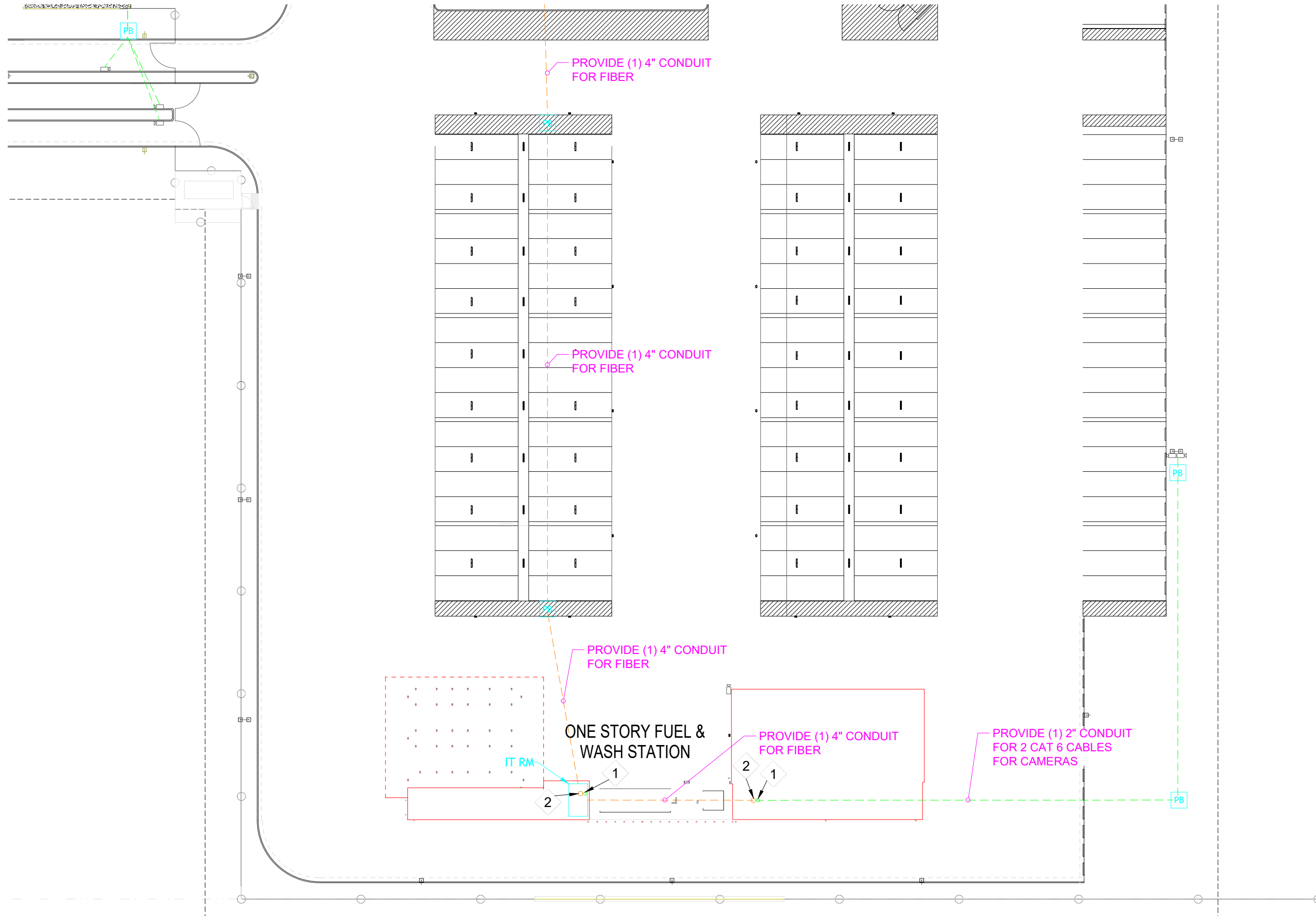
Revisions			
Rev:	Description:	Date:	By:
00	Submittal Drawings	10/08/2018	HG
01			
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10			
11			

Applies to:					
Unit:	eSC:	Addr:	Unit:	eSC:	Addr:

Drawing Title:
CABLE/CONDUIT ROUTE SITE PLAN

Job Number: H9025-03-00
 Drawing #: SC2.06

Location: Z:\9025 - Fort Bend County\9025-03-00 - Fort Bend County Bus Maintenance Facility\Engineering\Design\Working CAD
 File Name: 9025-03-00 Fort Bend B.M.F. Site Plan_HG_10032018.dwg



GENERAL NOTES:
 - FIBER CABLE/CONDUIT ROUTE
 - CAT 6 CABLE/CONDUIT ROUTE

KEY NOTE:
 1 2" CONDUIT STUB OUT TO EXTERIOR PULL BOX
 2 4" CONDUIT STUB OUT TO EXTERIOR PULL BOX



Digital Air Control, Inc.
 Texas Security License B16589
 Houston, TX • 713-975-8160
 Dallas, TX • 817-617-7162
 http://www.digitalaircontrol.com

Project:	Fort Bend Bus Maintenance Facility
Address:	3737 Bamore Road Rosenberg, TX 77471
Architect:	Rdlr Architects
Consulting Engineer:	####
General Contractor:	Spaw Glass
Mechanical Contractor:	####

Revisions			
Rev:	Description:	Date:	By:
00	Submittal Drawings	10/08/2018	HG
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			

Applies to:					
Unit:	eSC:	Addr:	Unit:	eSC:	Addr:

Drawing Title:
CABLE/CONDUIT ROUTE SITE PLAN

Job Number: H9025-03-00
Drawing #: SC2.07

Location: Z:\9025 - Fort Bend County\9025-03-00 - Fort Bend County Bus Maintenance Facility\Engineering\Design\Working CAD File Name: 9025-03-00 Fort Bend B.M.F. Site Plan_HG_10032018.dwg



SpawGlass Construction Corp.

13800 West Rd

Houston, TX 77041

(281) 970-5300

Request For Information

0120

Printed On: 02/28/2019

Page 1 of 1

Subject: Gate Entrance Pedestal Confirmation and Clarification

Date: 02/28/2019

Project: Fort Bend County Bus Maintenance Facility

Job: 4018015

Address: 3737 Bamore Road
Rosenberg TX 77471

Required: 03/05/2019

Phone:

Fax:

Est. Cost Impact : \$ Potentially

Est. Days Impact: Potentially

To: Claude Marshall
Huitt-Zollars, Inc

From: SpawGlass Construction Corp. Bryce Sutter

Request

Per A-013 details 7, 8 and 9 please confirm owner would prefer one dual height pedestal at the gate entrances in lieu of two single height pedestals.

Per T-101 note 3, please provide final penetration location for camera pedestals and provide height of pedestals for cameras.

Suggestion

Cost Impact: Potentially
Schedule Impact: Potentially

Cost Amount:
Days:

Answer **Accept Suggestion**

Distribution:

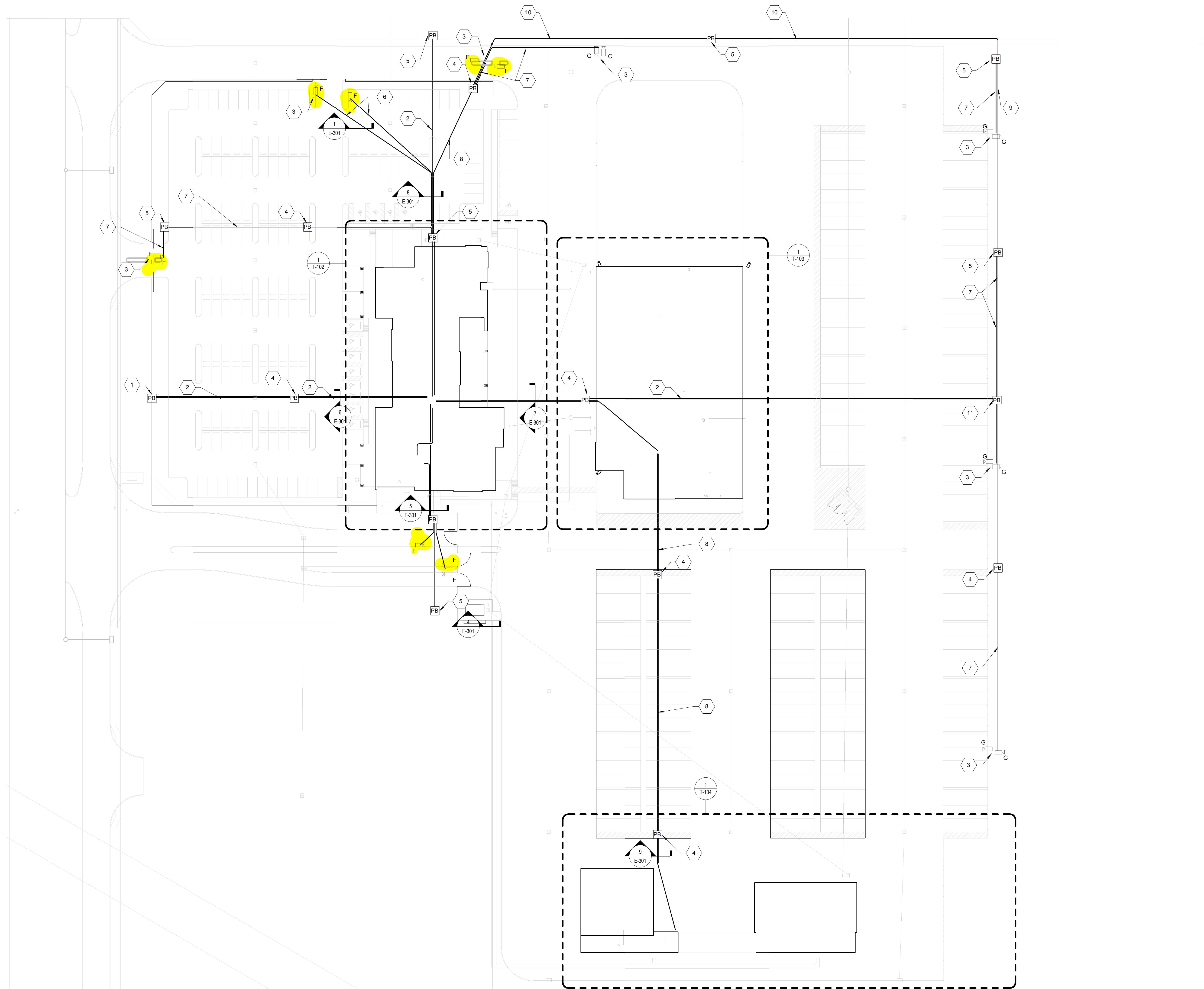
Answered By:

Signed: _____

Date:

It would be acceptable to use a single dual height pedestal instead of two pedestals.

Daniel Ortiz, AIA - RDLR Architects



1 TELECOMMUNICATION CAMERA SITE PLAN
SCALE: 1" = 40'-0"

RFI-038

GENERAL NOTES

1. REFER TO SHEET T-801 FOR THE PROPOSED CAMERA SCHEDULE.
2. INSTALL ALL TELECOMMUNICATION CONDUIT AT LEAST 2' BELOW GRADE.
3. ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
4. PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK/DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

KEYED NOTES

1. PULLBOX PROVIDED IN ROADWAY SET. COORDINATE WITH ROADWAY CONTRACTOR FOR FINAL LOCATION AND CONTINUE CONDUITS AS SHOWN.
2. PROVIDE (1) 4" CONDUIT WITH 144 STRAND FIBEROPTIC CABLE UNDERGROUND.
3. PROPOSED PENETRATION LOCATION FOR POLE OR PEDESTAL MOUNTED CAMERAS. COORDINATE WITH OWNER FOR FINAL PENETRATION LOCATION, CAPABLE PENETRATIONS.
4. PROVIDE PRECAST CONCRETE H20 RATED COVER PULL BOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION.
5. PROVIDE STANDARD LIGHT WEIGHT PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB.
6. PROVIDE (1) 2" CONDUIT WITH (2) CAT 6 CABLES.
7. PROVIDE (1) 2" CONDUIT WITH (4) CAT 6 CABLES.
8. PROVIDE (1) 4" CONDUIT WITH 20 CAT 6 CABLES AND (1) 4" CONDUIT WITH (1) 12 STRAND MULTIMODE FIBER OPTIC CABLE.
9. PROVIDE (1) 2" CONDUIT WITH (8) CAT 6 CABLES.
10. PROVIDE (1) 2" CONDUIT WITH (12) CAT 6 CABLES.
11. PROVIDE H20 TRAFFIC RATED PULLBOX. COORDINATE WITH OWNER FOR INSTALLATION LOCATION AT LEAST 5'-0" FROM VEHICLE CURB. PROVIDE (1) 4" CONDUIT WITH FIBER OPTIC CABLE FROM THIS PULL BOX TO THE FUELING STATION LOCATED APPROXIMATELY 2,000 FT TO THE EAST. PROVIDE AN H20 TRAFFIC RATED PULLBOX EVERY 1000'.

RFI-003

KEY PLAN

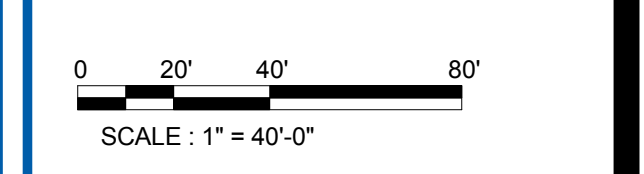
REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR PERMIT & CONSTRUCTION	02/28/18

FILE LOG

Manager	JDU
Design	MDM
Draw	NS
Check	MDM

STAMP



Project No. 170-10807-002
Date: 02/28/2018

TELECOMMUNICATION SITE PLAN





SpawGlass Construction Corp.

13800 West Rd

Houston, TX 77041

(281) 970-5300

Request For Information

0187

Printed On: 05/06/2019

Page 1 of 1

Subject: Building Surveillance Camera Mounting Clarification

Date: 05/06/2019

Project: Fort Bend County Bus Maintenance Facility

Job: 4018015

Address: 3737 Bamore Road
Rosenberg TX 77471

Required: 05/13/2019

Phone:

Fax:

Est. Cost Impact : \$ Potentially

Est. Days Impact: Potentially

To: Claude Marshall
Huitt-Zollars, Inc

From: SpawGlass Construction Corp. Bryce Sutter

Request

1. T-601 Camera Schedule requires coordination with the Owner to confirm the height of building mounted Cameras. The schedule indicates a dimension between 8' and 15' AFF. Please confirm the exact height for each camera.

2. No detail is given for Camera mounting. Please confirm a single gang or round weatherproof box will be adequate for Camera cable connections.

Suggestion

Cost Impact: Potentially
Schedule Impact: Potentially

Cost Amount:
Days:

Answer **Accept Suggestion**

Distribution:

Answered By:

Signed: _____

Date:



2925 Briarpark Drive
Suite 400
Houston, TX 77042
Tel 713-266-6900
www.lan-inc.com

RdIR ARCHITECTS

ARCHITECTURE | PLANNING | INTERIORS
1245 West 18th Street Houston, Texas 77008
phone 713.868.3121 www.rdir.com



810 South Mason Rd., Suite 208
Houston, TX 77450
Tel 832-327-6006



Planning Urban Design Landscape Architecture
1902 Washington Ave., Suite A Houston, Texas 77007 P. 713.337.5830

CAMERA SCHEDULE						
FIXTURE ID	MANUFACTURER	TYPE	MODEL	MOUNTING	INSTALLATION	NOTES
A	PELCO	STANDARD	NEXTGEN SARIX OR...	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	
B	PELCO	PAN TILT ZOOM	Spectra Enhanced (Environmental Models)	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	
C	PELCO	180° VIEW	IMM12018-xxx	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	INDOOR/OUTDOOR PANORAMIC IP CAMERA, 12 MPx
D	PELCO	270° VIEW	IMM12027-xxx	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	INDOOR/OUTDOOR PANORAMIC IP CAMERA, 12 MPx
E	PELCO	360° INDOOR DOME CAMERA	EVO-05NID	TYPICAL MOUNT	INSTALL BETWEEN 8' - 15' FROM GROUND. COORDINATE LOCATION WITH OWNER.	5 MPx, WHITE ENCLOSURE
F	PELCO	LICENSE PLATE CAMERA	NEXTGEN SARIX OR AS SPECIFIED	PEDESTAL MOUNT	COORDINATE LOCATION WITH OWNER.	
G	PELCO	PAN TILT ZOOM	Spectra Enhanced (Environmental Models)	LIGHT POLE MOUNT	INSTALL AT A MINIMUM OF 25'. COORDINATE LOCATION WITH OWNER.	

KEY PLAN

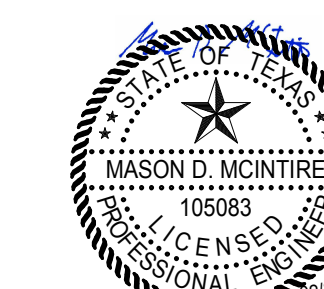
REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR PERMIT & CONSTRUCTION	02/28/18

FILE LOG

Manager	JDJ
Design	MDM
Draw	NS
Check	MDM

STAMP



Lockwood, Andrews & Newnam, Inc.
Texas Registered Engineering Firm F-2614

GENERAL NOTES

- REFER TO SPECIFICATION 282300 IP VIDEO SURVEILLANCE SYSTEM FOR ADDITIONAL SYSTEM AND PERFORMANCE REQUIREMENTS.
- ENGAGE A LICENSED SECURITY CONTRACTOR FOR THIS WORK. ENSURE THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
- PROVIDE YELLOW JACKET CABLE FOR ALL CCTV CAMERA NETWORK/DATA CABLING. ENSURE CABLE COLOR IS DISTINCT FROM NON-CCTV CAMERA DATA CABLING.

KEYED NOTES

Project No. 170-10807-002
Date: 02/28/2018

TELECOMMUNICATION
SCHEDULES

T-601



SpawGlass Construction Corp.

13800 West Rd

Houston, TX 77041

(281) 970-5300

Request For Information

0201

Printed On: 05/20/2019

Page 1 of 1

Subject: Admin CCTV and Fire Alarm at Store Front Clarification

Date: 05/20/2019

Project: Fort Bend County Bus Maintenance Facility

Job: 4018015

Address: 3737 Bamore Road
Rosenberg TX 77471

Required: 05/27/2019

Phone:

Fax:

Est. Cost Impact : \$ Potentially

Est. Days Impact: Potentially

To: Claude Marshall
Huitt-Zollars, Inc

From: SpawGlass Construction Corp. Gabby Salazar

Request

Please confirm that the following information is correct and provide alternate location for CCTV and pull station:

Sheet T-102 Telecommunication Admin Building Plan shows two cameras mounted on the aluminum store front at Room A100.

Sheet 250830_02 Fire Alarm System - Administration Building shows one pull station is mounted on the aluminum store front at Room A100.

Suggestion

Cost Impact: Potentially
Schedule Impact: Potentially

Cost Amount:
Days:

Answer **Accept Suggestion**

Relocate the cameras back to the corner of the lobby, coordinate final location with the Owner. Relocate the pull station back inside the lobby along that wall as shown. Relocations should be at no additional cost to the Owner.

Distribution:

Answered By: Mason McIntire, PE

Signed:

Date: 5/30/19



GENERAL NOTES

- REFER TO SHEET T-101 FOR THE REGISTERED CABLE SCHEDULE.
- PROVIDE THE CONDUIT AND CABLE TRAYS FOR EACH CAMERA SHOWN. ROUTE BACK TO THE CLOSEST ROOM A22.
- COMPLETE AND FUNCTIONAL SYSTEMS PROVIDED. NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES.
- ENSURE CABLE COLORS IS DISTINCT FROM NON-OCTA CAMERA DATA CABLING.

KEYED NOTES

- REGISTER GENERAL LOCATION. COORDINATE WITH OWNER FOR FINAL PRESENTATION LOCATION. CAP ALL PENETRATIONS.
- COORDINATE WITH LICENSED SECURITY CONTRACTOR TO PROVIDE A FIELD OF VISION FROM EACH CAMERA LOCATION.
- CONNECTIONS AS REQUIRED. NOTIFY OWNER AND ENGINEER OF ANY DISCREPANCIES OR DEFICIENCIES AS REQUIRED. NOTIFY OWNER AND ENGINEER OF ANY DISCREPANCIES.
- PROVIDE STANDARD LIGHT WEIGHT FIBER OPTIC CONDUIT WITH OWNER FOR CONNECTIONS AS REQUIRED. NOTIFY OWNER AND ENGINEER OF ANY DISCREPANCIES.
- PROVIDE (1) 2" CONDUIT WITH (6) CAT 6 CABLES.
- PROVIDE (1) 2" CONDUIT WITH (4) CAT 6 CABLES AND (1) 4" CONDUIT WITH (2) 12 STRAND MULTIMODE FIBER OPTIC CABLE.
- PROVIDE (1) 2" CONDUIT WITH (4) CAT 6 CABLES AND (1) 4" CONDUIT WITH (2) 12 STRAND MULTIMODE FIBER OPTIC CABLE. PROVIDE A YELLOW JACKET CAT 6 AND KEYSONE FROM THE SECURITY CLOSET.

1 TELECOMMUNICATION ADMIN BUILDING PLAN
SCALE: 1/8" = 1'-0"



Lockwood, Andrews & Newnam, Inc. 195514
Texas Registered Engineering Firm 195514

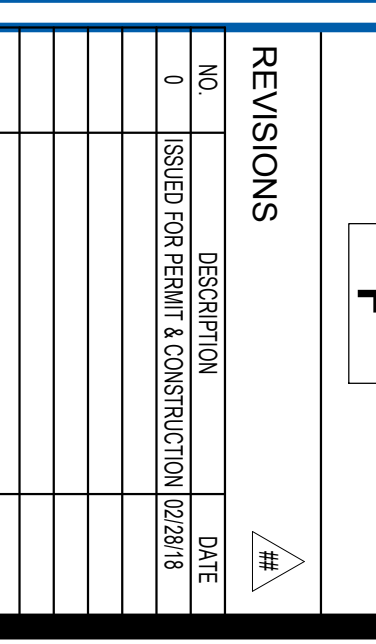
SCALE: 1/8" = 1'-0"

FILE LOG

Version	By	Date	Description
1	JDU	02/23/2018	ISSUE FOR PERMIT / CONSTRUCTION / REVISION
	MDM		
	NS		
	CKM		

REVISIONS

No.	Description	Date



REVISIONS

No.	Description	Date

FILE LOG

Version	By	Date	Description

FILE LOG

Version	By	Date	Description

FILE LOG

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Version	By	Date	Description

EXHIBIT A-3



Audio Visual Technologies Grp
 12502 Exchange Dr., STE 404
 Stafford, TX 77477
 281-240-2100 Fx 281-240-2250

Project Number: 102081

For :
FORT BEND COUNTY PUBLIC TRANSIT VIDEO SURVEILLANCE FOR FBC PT
This ** Proposal ** is Valid for 30 Days.

** Proposal ** to:
FORT BEND COUNTY AUDITOR PURCHASING PURCHASING 301 JACKSON STREET RICHMOND, TX 77469 Tel: (281) 341-4584

Project Site:
FORT BEND COUNTY PUBLIC TRANSIT CHRISTINA TORRES 3737 BAMORE ROAD ROSENBERG, TX 77471

Qty	Mfr-Part No.	Description	Unit Price	Extended
FBC-PUBLIC TRANSPORTATION FACILITY- VIDEO SURVEILLANCE				
DIR CONTRACT# TSO-3453				
VIDEO IP CAMERA COMPONENTS				
2	PEL-IMM1210181EP	PELCO OPTERA 180 ENV PND GRAY	1,808.00	3,616.00
9	PEL-P2230LESR	PELCO SP PRO 2M LL 30X IR ENV PDNT SR GRY	1,512.00	13,608.00
19	PEL-WMVESR	PELCO WALL MOUNT VANDAL 1.5" NPT LT GRAY	43.47	825.93
9	PEL-S6230ESGL1	PELCO SPECTRA ENHANCED 1080P LOW LIGHT 30X DOM	3,647.70	32,829.30
12	PEL-IWMGY	PELCO LGRY WALL MOUNT SPECTRA GRAY	75.60	907.20
12	PEL-PA402	ADAPTER , POLE, WM4000 & IWM MOUNTS	61.11	733.32
37	PEL-IMP2311ES	PELCO SARIX PRO 3 ENV DOME , 2MP	436.59	16,153.83
8	PEL-IMM120271EP	PELCO OPTERA IMM 12MP 270 ENV PED MNDM	1,808.10	14,464.80
2	PEL-EVOLN 360	INDR SRFMT 5M IP CAM WT	732.06	1,464.12
32	PEL-FMCIPG1POE	PELCO MEDIA CNVRT-SFP 1000M 1 CH POE	823.41	26,349.12
LICENSING				
75	PEL-U11C	PELCO 1 CHANNEL LICENSE	83.00	6,225.00
75	PEL-EXTWAR4	PELCO 4 YEAR EXTENDED WARRANTY	59.00	4,425.00
75	PEL-VXPSUP3Y	PELCO THREE YEAR SOFTWARE UPGRADE PLAN , PER CH	38.43	2,882.25
LIFT RENTAL				
1	AVTG-RENTAL	RENTAL OF LIFTS FOR OUTSIDE AND INSIDE CAMERAS	1,875.00	1,875.00

Qty	Mfr-Part No.	Description	Unit Price	Extended
SYSTEM CABLING				
2000 0	LIBERTY-24-4P-P-L6-E N-BLK	BLACK CATEGORY 6 U/UTP EN SERIES 23 AWG 4 PAIR unshielded cable	428.00 M	8,560.00
67	AVTG-MISC	MISC. CABLES, CONNECTORS, HARDWARE	125.00	8,375.00
INSTALLATION WARRANTY				
BELOW IS A BREAKDOWN OF THE SERVICE WARRANTY BY YEAR. EACH YEAR THIS WILL BE RENEWED FOR THE PRICE SPECIFIED.				
1	AVTG-1YRSLA	YEAR ONE OF SERVICE LEVEL AGREEMENT	6,500.00	6,500.00
1	AVTG-2YRSLA	YEAR TWO OF SERVICE LEVEL AGREEMENT	6,500.00	6,500.00
1	AVTG-3YRSLA	YEAR THREE OF SERVICE LEVEL AGREEMENT	6,500.00	6,500.00
TRAINING				
24	ADMIN-TRAINING	ADMIN/OPS TRAINING FOR FBC PERSONNEL	135.00	3,240.00
PROJECT SUBTOTAL:				166,033.87
AVTG INSTALLATION SERVICES				
AVTG INSTALLATION SERVICES SUBTOTAL				48,969.65

This ** Proposal ** is Valid for 30 Days.

50% Deposit, 50% On Completion

Legend: M=1000Ft

Signature: _____ Date: _____

Luis Gomez, SALES

By signing this proposal, the signators of this agreement warrant that they have the authority to enter into this contract and that they have read and agree to the attached Terms & Conditions statement.

Shipping & Handling:	_____
SubTotal:	\$215,003.52
Tax:	_____
Project Total:	\$215,003.52

AVTG A/V System Integration Terms & Conditions

System Implementation

AVTG will provide a turnkey system to include equipment, implementation and warranty, as defined on the attached Scope of Work and Project Quote. Our installation includes engineering, coordination and labor for display, video and related equipment to include required plates, connectors and cables.

System Engineering includes:

- Preparation of system functional interconnection diagram.
- Facility and equipment location.

Project Coordination includes:

Meetings with the client's technical representatives and project coordination team.

- System implementation monitoring.
- Project scheduling and oversight of AVTG team.
- Equipment staging at our shop.
- Assure final punch-list items are completed.

Field Labor includes:

- Pulling and bundling, termination and labeling of supplied cabling.
- Mounting and termination of computer interfaces.
- Installation of structural systems for supplied equipment.
- Control System Programming.
- Adjustment and balancing audio settings.
- Assure installed system functions as proposed.
- Site cleanup and trash removal.
- End-user training.

Inclusions

All equipment, wire and accessories required for a fully functional audio and visual system.

Labor associated with turnkey engineering, installation, programming, testing, and training.

Documentation CD, including as-built system CAD diagrams and Operation & Maintenance manuals.

Coordination and cooperation with the construction team in regards to installing the system.

User training on system operation.

Any additional trips, labor or materials due to failure of other work forces to have the a/v system rough-in work completed as anticipated and previously confirmed, will be added to the project billing as required.

DMX, DSS or other outside signals (provided by others) are not included in this scope of work unless previously agreed to on quotation.

Owner's architect will provide AVTG's engineering department with all required/ necessary architectural plans in AutoCad format at no-charge to AVTG.

AVTG reserves the right to modify our quotation pricing if proposal is not accepted within the stated time period.

AVTG may replace equipment vs. the Estimate/Quote should there be incompatibility, discontinuations etc. AVTG is not responsible for product discontinuations.

This quotation is based on installation at the specified site(s) set forth in the customer's requirements. If this configuration is to be used at other sites, travel and additional expenses may apply.

Payment Terms:

Subject to credit approval, the Owner shall pay AVTG within normal AVTG terms, typically 30 days of invoice date. Should payment not be received within this timeframe, AVTG reserves the right to charge a Late Fee of 1.5% per month on unpaid balance(s).

Systems Integration work where procurement, installation and completion of the work extend beyond a period of greater than ten days from the date of the order will be subject to progressive billing or invoicing in such case(s), AVTG will progressively bill for hardware, equipment, and materials received, stored and/or assigned to the project, along with a percentage of completed labor and services. Progressive billing/invoices are due and payable per AVTG normal credit terms of Net 30, unless otherwise stated in this quotation.

Due to the custom nature of A/V system integration, Owner requested changes once the equipment is in hand or in transit, will result in restocking fees. Provided that the manufacturer will accept return, restocking fees will be 30 - 50% of the equipment sales price plus freight in and out for standard equipment, and **100%** of the sales price plus freight for all **custom or special order items**. Any packaged software that has been opened **IS NOT** returnable/refundable. Should owner cancel a project in whole or part, prior to completion, the Owner agrees to pay AVTG for all costs incurred to date and/or to bring the project to a mutually acceptable close. In addition, the manufacturer must be willing to accept the returned item(s) with a restock fee. These costs are, but are not limited to: design and engineering services, control/dsp programming, project management, technical labor expended, sub-contracting expenses, materials and equipment costs, and

Exclusions

The following are not included in our scope of work:

All conduit, high voltage wiring panels, breakers, relays, boxes, receptacles, etc. Any related electrical work, including but not limited to 110VAC, conduit, core drilling, raceway and boxes except those specifically quoted.

Voice/Data cabling, IE analog phone lines, ISDN lines, network ports, etc.

Network connectivity, routing, switching and port configuration necessary to support a/v equipment except as specifically quoted.

AVTG is not responsible for damaged or missing "existing data" on computers.

Concrete saw cutting and/or core drilling.

Fire-wall, ceiling, roof and floor penetration, patching removal or fire-stopping.

Necessary sheet rock replacement and/or repair.

Any and all millwork (moldings, trim, etc.)- All millwork or modifications to project millwork to accommodate the AV equipment is to be provided by others unless otherwise noted in this proposal.

Painting, patching or finishing of architectural surfaces.

Permits.

HVAC and plumbing relocation.

Rough-in, bracing, framing, or finish trim carpentry for installation.

Cutting, structural welding, or reinforcement of structural steel members required for support of assemblies, if required.

Any applicable taxes, permits or bonds related to the project, unless otherwise stated in quotation.

All normal shipping costs not part of original quote will be added as a pass through cost to progress billing.

Site specific training unless otherwise specified.

Unless otherwise specified, the warranty provisions in this contract do not cover Owner Furnished Equipment (OFE). In addition, owner furnished equipment shall not be controlled unless otherwise stated in the inclusions above.

Owner furnished equipment or equipment provided by others that is integrated into the system being supplied by AVTG is assumed to be current industry acceptable equipment in good working order. If it is determined that this equipment is faulty or non-compatible upon installation or adversely affects the system, additional project charges may be incurred.

With FCC wideband channel changes effective in early 2009, AVTG cannot guarantee effective "wireless" communication devices unless specifically included in quotation.

Standard Warranty

AVTG warrants the A/V System furnished to be free from defects in workmanship (i.e., cables, connections, structures) failure for a period of 90 days, unless a one-year extended warranty has been quoted and accepted. This date will be from the date of acceptance or first beneficial use, whichever occurs first. Warranty service for such defects will be handled in a reasonable and timely manner from the time of notification to AVTG by the Owner or their agent.

Manufacturer's equipment warranties are of varying lengths (usually 90 days to 1 year). AVTG will warranty this equipment for the term established by the manufacturer on a DEPOT BASIS ONLY, unless an AVTG 1 year extended warranty is accepted in our quotation.

Warranty does not apply to any product that has been subject to misuse, neglect, accident, power pikes/surge/brown-out, overheating or operational error.

AVTG cannot be held liable for product continuations.

Statement of Non-Disclosure

The document (s) and System Design involved with this Quote is /are AVTG Intellectual Property, not intended for outside distribution without written approval from AVTG's System Engineering Department.

Dissemination of this proprietary document is subject to Consultation/Design Fees of \$2,500.00 minimum per document.

Client cannot recruit AVTG's staff for a "side job" and will pay damages up to 30% of technician's annual pay if done.

EXHIBIT B

**Exhibit B
Payment Schedule**

Year 1 Payment Milestones

Twenty (20%) of Year One total payment (\$202,003.52) shall be due at the completion of each Milestone.

Milestone 1 –Installation Schedule

\$40,400.70 will be due at the approval of the Installation Schedule. Approval shall be in writing and signed by the Director of Public Transportation.

Milestone 2 –Delivery of Equipment & Acceptance

\$40,400.70 will be due at Delivery of Equipment & Acceptance. Approval of Delivery of Equipment & Acceptance shall be in writing and signed by the Director of Public Transportation.

Milestone 3- Installation Completion

\$40,400.70 will be due at Installation Completion. Approval of Installation Completion shall be in writing and signed by the Director of Public Transportation.

Milestone 4- Training

\$40,400.70 will be due at Training. Approval of Training shall be in writing and signed by the Director of Public Transportation.

\$40,400.70 will be due at Final Acceptance. Approval of Final acceptance shall be in writing and signed by the Director of Public Transportation.

No payments will become due until written approval has been obtained and signed by the Director of Public Transportation.

Warranty Payments for Years 2 and 3

Year 2 shall commence one year after the date of Final Acceptance (date of approval of Milestone 4- Final Acceptance)

\$6,500.00 will be due for Year 2 warranty.

Year 3 shall commence two years after the date of Final Acceptance

\$6,500.00 will be due for Year 3 warranty.

EXHIBIT C

Project Proposal



Fort Bend County – Camera and Server Integration

4 BID DOCUMENTATION

Please review the following pages for specified documentation:

W-9 FORM

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Go to www.irs.gov/FormW9 for instructions and the latest information.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Audio Visual Technologies Group, Inc.

2 Business name/disregarded entity name, if different from above
Audio Visual Technologies Group, Inc.

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.
 Individual/sole proprietor or single-member LLC
 C Corporation
 S Corporation
 Partnership
 Trust/estate
 Limited liability company. Enter the tax classification (C-C corporation, S-S corporation, P-Partnership) ▶
Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.
 Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3).
Exempt payee code (if any) _____
Exemption from FATCA reporting code (if any) _____
(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
12502 Exchange Dr. Suite 404

6 City, state, and ZIP code
Stafford, Texas 77477

7 List account number(s) here (optional)

8 Requester's name and address (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number								
				-				

OR

Employer identification number									
7	4	-	1	2	9	7	8	3	5

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ *[Signature]* Date ▶ 1/2020

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

Cat. No. 10231X Form W-9 (Rev. 10-2018)

Contact Name: _____ Phone: _____

Project Proposal



Fort Bend County – Camera and Server Integration

VENDOR FORM

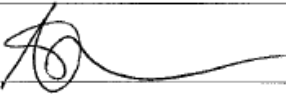


COUNTY PURCHASING AGENT
Fort Bend County, Texas

Vendor Information

Debbie Kaminski, CPPB
County Purchasing Agent

Office (281) 341-8640

Legal Company Name <small>(top line of W9)</small>	Acerra Technologies, Inc.		
Business Name <small>(if different from legal name)</small>	dba Audio Visual Technologies Group, Inc.		
Federal ID # or S.S. # <small>74-1297835</small>	DUNS # <small>041128166</small>		
Type of Business	<input checked="" type="checkbox"/> Corporation/LLC <input type="checkbox"/> Sole Proprietor/Individual	<input type="checkbox"/> Partnership <input type="checkbox"/> Tax Exempt Organization	Age in Business? 68
Publicly Traded Business	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Ticker Symbol _____		
Remittance Address	12502 Exchange Drive Suite 404		
City/State/Zip	Stafford, Texas 77477		
Physical Address	12502 Exchange Drive Suite 404		
City/State/Zip	Stafford, Texas 77477		
Phone/Fax Number	Phone: <u>281-240-2100</u> Fax: <u>281-240-2250</u>		
Contact Person	Ashley Brown		
E-mail	abrown@avtg.com		
Check all that apply to the company listed above and provide certification number.	DBE-Disadvantaged Business Enterprise _____	Certification # _____	
	SBE-Small Business Enterprise _____	Certification # _____	
	HUB--Texas Historically Underutilized Business <input checked="" type="checkbox"/>	Certification # <u>1741297835900</u>	
	WBE-Women's Business Enterprise _____	Certification # _____	
Company's gross annual receipts	<input type="checkbox"/> <\$500,000	<input checked="" type="checkbox"/> \$500,000-\$4,999,999	
	<input type="checkbox"/> \$5,000,000-\$16,999,999	<input type="checkbox"/> \$17,000,000-\$22,399,999	
	<input type="checkbox"/> >\$22,400,000		
NAICs codes (Please enter all that apply)	334310,512120,541715,611310,423690,334220,238210,334118		
Signature of Authorized Representative			
Printed Name	Ashley Brown		
Title	President/Owner		
Date	1/24/2020		

THIS FORM MUST BE SUBMITTED WITH THE SOLICITATION RESPONSE

Project Proposal



Fort Bend County – Camera and Server Integration

TAX FORM/DEBT/RESIDENCE CERTIFICATION FORM

Job No.: _____

TAX FORM/DEBT/RESIDENCE CERTIFICATION
(for Advertised Projects)

Taxpayer Identification Number (T.I.N.): 74-1297835

Company Name submitting Bid/Proposal: Audio Visual Technologies Group, Inc.

Mailing Address: 12502 Exchange Dr. Suite 404 Stafford, Texas 77477

Are you registered to do business in the State of Texas? Yes No

If you are an individual, list the names and addresses of any partnership of which you are a general partner or any assumed name(s) under which you operate your business

I. **Property:** List all taxable property in Fort Bend County owned by you or above partnerships as well as any d/b/a names. Include real and personal property as well as mineral interest accounts. (Use a second sheet of paper if necessary.)

<u>Fort Bend County Tax Acct. No.*</u>	<u>Property address or location**</u>
_____	<u>12502 Exchange Drive Suite 404 Stafford Texas 77477</u>
_____	_____
_____	_____
_____	_____

* This is the property account identification number assigned by the Fort Bend County Appraisal District.
** For real property, specify the property address or legal description. For business personal property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored at a warehouse or other location.

II. **Fort Bend County Debt** - Do you owe any debts to Fort Bend County (taxes on properties listed in I above, tickets, fines, tolls, court judgments, etc.)?

Yes No If yes, attach a separate page explaining the debt.

III. **Residence Certification** - Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Fort Bend County requests Residence Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

- (3) "Nonresident bidder" refers to a person who is not a resident.
- (4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

I certify that Audio Visual Technologies Grp., Inc. is a Resident Bidder of Texas as defined in Government Code §2252.001.
[Company Name]

I certify that _____ is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is Stafford, Texas.
[Company Name] [City and State]

Created 05/12

Project Proposal



Fort Bend County – Camera and Server Integration

ACKNOWLEDGEMENT OF STORMWATER MANAGEMENT PROGRAM FORM

Mandatory Form



Contractor Acknowledgement of Stormwater Management Program

I hereby acknowledge that I am aware of the stormwater management program and standard operating procedures developed by Fort Bend County in compliance with the TPDES General Permit No. TXR040000. I agree to comply with all applicable best management practices and standard operating procedures while conducting my services for Fort Bend County. I agree to conduct all services in a manner that does not introduce illicit discharges of pollutants to streets, stormwater inlets, drainage ditches or any portion of the drainage system. The following materials and/or pollutant sources must not be discharged to the drainage system as a result of any services provided:


1. Grass clippings, leaves, mulch, rocks, sand, dirt or other waste materials resulting from landscaping activities, (except those materials resulting from ditch mowing or maintenance activities)
2. Herbicides, pesticides and/or fertilizers, (except those intended for aquatic use)
3. Detergents, fuels, solvents, oils and/or lubricants, other equipment and/or vehicle fluids,
4. Other hazardous materials including paints, thinners, chemicals or related waste materials,
5. Uncontrolled dewatering discharges, equipment and/or vehicle wash waters,
6. Sanitary waste, trash, debris, or other waste products
7. Wastewater from wet saw machinery,
8. Other pollutants that degrade water quality or pose a threat to human health or the environment.

Furthermore, I agree to notify Fort Bend County immediately of any issue caused by or identified by:

Audio Visual Technologies Group, Inc.

(Company/Contractor)

that is believed to be an immediate threat to human health or the environment.



Contractor Signature

1/24/2020

Date

Ashley Brown

Printed Name

President/Owner

Title

Project Proposal



Fort Bend County – Camera and Server Integration

BUY AMERICA CERTIFICATION FORM (NOT APPLICABLE)

BUY AMERICA CERTIFICATION

Instructions:

Bidder to complete the Buy America Certification listed below. Bidder shall certify EITHER COMPLIANCE OR NON-COMPLIANCE (not both). This Certification MUST BE submitted with the Bidder's bid response.

Certification requirement for procurement of steel, iron, or manufactured products (required for contracts over \$150,000).

Certificate of Compliance with 49 U.S.C. 5323(j)(1)

The bidder or offeror hereby certifies that it **will** meet the requirements of 49 U.S.C. 5323(j)(1) and the applicable regulations in 49 ~~CFR~~ Part 661 and any amendments thereto.

Signature _____
Company Name Audio Visual Technologies Group, Inc.
Title President/Owner
Date 1-24-2020

Certificate of Non-Compliance with 49 U.S.C. 5323(j)(1)

The bidder or offeror hereby certifies that it **cannot comply** with the requirements of 49 U.S.C. 5323(j)(1) and 49 C.F.R. 661.5, but it may qualify for an exception pursuant to 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 C.F.R. 661.7.

Signature _____
Company Name _____
Title _____
Date _____

Special Note: Make sure you have signed only one of the above statements -- either Compliance OR Non-Compliance (not both).

Project Proposal



Fort Bend County – Camera and Server Integration

CERTIFICATION OF RESTRICTIONS ON LOBBYING

**CERTIFICATION
OF
RESTRICTIONS ON LOBBYING**
(Required for contracts over \$100,000.)

I, Ashunk Brown, President, hereby certify on behalf of
(Name) (Title)
the Audio Visual Technologies Grp, Inc. that:
(Company Name)

- (1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress, regarding the award of Federal assistance, or the extension, continuation, renewal, amendment, or modification of any Federal assistance agreement, contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any application for Federal assistance, federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL: "Disclosure of Form to Report Lobbying," including information required by the instructions accompanying the form, which form may be amended to omit such information as authorized by 49 CFR Part 20.110.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

The undersigned understands that this certification is a material representation of fact upon which reliance is placed and that submission of this certification is a prerequisite for providing Federal assistance for a transaction covered by 49 CFR Part 20.110. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Executed this 24 day of January, 2020

Signed: _____

Printed Name: Ashley Brown

Company Name: Audio Visual Technologies Group, Inc.

Project Proposal



Fort Bend County – Camera and Server Integration

DISCLOSURE OF LOBBYING ACTIVITIES

Approved by OMB
0348-0046

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See following page for public burden disclosure)

1. Type of Federal Action: <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. Report Type: <input type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change For material change only: Year _____ quarter _____ Date of last report _____
4. Name and Address of Reporting Entity: <input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if Known: Congressional District, if known:	5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime: Congressional District, if known:	
6. Federal Department/Agency:	7. Federal Program Name/Description: CFDA Number, if applicable: _____	
8. Federal Action Number, if known:	9. Award Amount, if known: \$	
10. a. Name and Address of Lobbying Registrant (if individual, last name, first name, MI):	b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI):	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature: _____ Print Name: <u>Asley Brown</u> Title: <u>President</u> Telephone No.: <u>240-200</u> Date: <u>1/29/2020</u>	
Federal Use Only	Authorized for Local Reproduction Standard Form - L.L.L. (Rev. 7-97)	

Project Proposal



Fort Bend County – Camera and Server Integration

CERTIFICATION REGARDING GOVERNMENT WIDE DEPARTMENT AND SUSPENSION (NONPROCUREMENT)

CERTIFICATION REGARDING GOVERNMENT-WIDE DEBARMENT AND SUSPENSION (NONPROCUREMENT)

This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Bidder/Offeror is required to verify that none of the contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The Bidder/Offeror is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by _____ (agency name). If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to _____ (agency name), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

DATE 1-24-2020

SIGNATURE *AJ*

COMPANY Audio Visual Technologies Grp, Inc.

NAME Ashley Brown

TITLE President



Consolidated Certification Form

Form PTN-130
(Rev. 4/19)
Page 1 of 7

I. GENERAL:

The undersigned vendor certifies to abide by these clauses and include the following clauses in each subcontract financed in whole or in part with Federal Transit Administration (FTA) funds. Vendors are certifying by reference the entire list of FTA's current fiscal year Certifications and Assurances (for fiscal year: 2019), and shall download the same at: <https://www.transit.dot.gov/funding/grantee-resources/certifications-and-assurances/certifications-assurances>

A. Access to Third Party Contract Records (ALL)

As required by 49 U.S.C. § 5325(g). The VENDOR agrees provide sufficient access to records as needed to assure proper project management and compliance with Federal laws and regulations.

B. Interest of Members of or Delegates to Congress (ALL)

The vendor certifies that no member of or delegate to the Congress of the United States (US) shall be admitted to any share or part of this contract or to any benefit arising therefrom.

C. Prohibited Interest (ALL)

The vendor certifies that no member, officer or employee of the Public Body or of a local public body during his or her tenure or one year thereafter shall have any interest, direct or indirect, in this contract or the proceeds thereof.

D. Cargo Preference - Use of United States-Flag Vessels (property transported on ocean vessels)

The vendor agrees: a. to use privately owned US -Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for US-Flag commercial vessels; b. to furnish within 20 working days following the date of loading for shipments originating outside the US, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the contractor in the case of a subcontractor's bill-of-lading).

E. Energy Conservation (ALL)

The vendor agrees to comply with mandatory standards and policies relating to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

F. No Obligation by the Federal Government. (ALL)

The Purchaser and vendor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the Purchaser, Contractor or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract).

G. Program Fraud and False or Fraudulent Statements or Related Acts (ALL)

The vendor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this project. The vendor certifies truthfulness and accuracy of any statement it makes pertaining to the FTA-assisted project. The vendor acknowledges that if it makes, or causes to be made, a false, fictitious or fraudulent claim, statement, submission or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 as deemed appropriate. The vendor acknowledges that if it makes, or causes to be made, a false, fictitious or fraudulent claim, statement submission, or certification to the Federal Government relating to the FTA-assisted project, per 49 U.S.C. §5307, the Government reserves the right to impose the penalties of 18 U.S.C. §1001 and 49 U.S.C. §5307(n)(1) on the Contractor, as deemed appropriate.

H. Contract Work Hours (all over 100K)

(1) **Overtime requirements** - No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages - In the event of any violation of the clause set forth in paragraph (1) of this section, the contractor & any subcontractor responsible therefore shall be liable for unpaid wages and shall be liable to the United States for liquidated damages which shall be computed for each individual laborer, mechanic, watchman or guard employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$10 for each calendar day that an individual was required / permitted to work over 40 hours in a workweek without payment of overtime wages required by the clause in paragraph (1) of this section.

(3) Withholding for unpaid wages and liquidated damages - The purchaser shall upon its own action or upon written request of the Department of Labor (DOL) withhold or cause to be withheld, from any money payable for work performed by the contractor or subcontractor under any contract or other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as set-forth in paragraph (2) of this section.

(4) Subcontracts - The contractor or subcontractor shall include the clauses set forth in this section and require the same from subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these clauses.

(5) Payrolls and basic records - Payrolls and related basic records shall be maintained by the contractor during the course of the work and preserved for three years thereafter for all laborers and mechanics working at the work site (or under the United States Housing Act of 1937 or the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address and social security number of each worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records showing that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and records of the costs anticipated or actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of registration of apprenticeship programs, certification of trainee programs, registration of the apprentices and trainees, and ratios & wage rates prescribed in applicable programs.

I. Civil Rights (over 10K)

(1) Nondiscrimination - In accordance with Title VI of the Civil Rights Act (CRA), as amended, 42 U.S.C. §2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. §6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. §12132, and Federal transit law at 49 U.S.C. §5332, the vendor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the vendor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

(2) Equal Employment Opportunity - The following equal employment opportunity requirements apply:

(a) Race, Color, Creed, National Origin, Sex - In accordance with Title VI of the CRA, as amended, 42 U.S.C. §2000e, and Federal transit laws at 49 U.S.C. §5332, the vendor agrees to comply with all applicable equal employment opportunity requirements of U.S. DOL regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, DOL," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. §2000e note), and with any applicable Federal statutes, executive orders, regulations and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The vendor agrees to take affirmative action to ensure that applicants are employed & treated during employment without regard to their race, color, creed, national origin, sex or age. Action shall include but not be limited to employment, upgrading, demotion, transfer, recruitment, layoff, termination, rates of pay or other forms of compensation; and selection for training, including apprenticeship. The vendor agrees to comply with any implementing requirements FTA may issue.

(b) Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967 (29 U.S.C. §§623 and 49 U.S.C. §5332), the vendor agrees to refrain from discrimination against present and prospective employees for reason of age, and comply with any implementing requirements FTA may issue.

(c) **Disabilities** - In accordance with section 102 of the Americans with Disabilities Act (42 U.S.C. §12112), the contractor agrees to comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities, and to comply with any implementing requirements FTA may issue.

J. Incorporation of Federal Transit Administration (FTA) Terms (ALL)

The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA circular 4220.1F are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any transit agency requests which would cause the transit agency to violate FTA terms and conditions.

K. Application of Federal, State, & Local Laws, Regulations, & Directives (Federal Changes) (ALL)

The VENDOR agrees that Federal laws and regulations control project award and implementation. The VENDOR understands and agrees that unless the recipient requests FTA approval in writing, the VENDOR may incur a violation of Federal laws or regulations or this agreement if it implements an alternative procedure or course of action not approved by FTA. The VENDOR understands and agrees that Federal laws, regulations, and directives applicable on the date on which Federal assistance is awarded may be modified from time to time. In particular, new Federal laws, regulations, and directives may become effective after the date the project agreement is effective, and might apply to that project agreement. The VENDOR agrees that the most recent versions of such Federal laws, regulations, and directives will apply to the administration of the project at any particular time.

L. Right of the State Government to Terminate (ALL)

Upon written notice, the VENDOR agrees that the State Government may suspend or terminate all or any part of State assistance if terms of the project agreement are violated, if the State Government determines that the purposes of the laws authorizing the Project would not be adequately served by the continuation of State assistance for the Project, if reasonable progress on the Project is not made, if there is a violation of the project agreement that endangers substantial performance of the Project, or if the State Government determines that State assistance has been willfully misused by failing to make appropriate use of Project property. Termination of State assistance for the Project will not typically invalidate obligations properly incurred before the termination date to the extent those obligations cannot be canceled. The State Government reserves the right to require the refund of the entire amount of State assistance provided for the Project or a lesser amount.

M. Disputes, Breaches, Defaults, or Other Litigation (over 150K)

The VENDOR agrees that FTA has a vested interest in the settlement of any dispute, breach, default, or litigation involving the Project. Accordingly:

a. Notification to FTA. The VENDOR is aware that recipients of Federal assistance must notify FTA in writing of any current or prospective major dispute, breach, default, or litigation that may affect the Federal Government's interests in the Project or the administration or enforcement of Federal laws or regulations. If the Federal Government is to be named as a party to litigation for any reason, in any forum, the appropriate FTA Regional Counsel is to be notified in writing before doing so.

b. Federal Interest in Recovery. The VENDOR is aware that the Federal Government retains the right to a proportionate share, based on the percentage of the Federal share awarded for the Project, of proceeds derived from any third party recovery.

c. Enforcement. The VENDOR agrees to pursue its legal rights and remedies available under any third party contract or available under law or regulations.

d. FTA Concurrence. The VENDOR is aware that FTA reserves the right to concur in any compromise or settlement of any claim involving the Project.

e. Alternative Dispute Resolution. The VENDOR is aware that FTA encourages the use of alternative dispute resolution procedures, as may be appropriate.

f. Agency Process.

Transit agency enters dispute resolution process here.

N. Fly America (foreign air transport or travel)

The Contractor agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

O. Recycled Products (all products)

The contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR 247.

P. Access for Individuals with Disabilities (ALL)

The VENDOR agrees to comply with 49 U.S.C. § 5301(d), which states the Federal policy that elderly individuals and individuals with disabilities have the same right as other individuals to use public transportation services and facilities, and that special efforts shall be made in planning and designing those services and facilities to implement transportation accessibility rights for elderly individuals and individuals with disabilities. The VENDOR also agrees to comply with all applicable provisions of section 504 of the Rehabilitation Act of 1973, as amended, with 29 U.S.C. § 794, which prohibits discrimination on the basis of disability; with the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 *et seq.*, which requires that accessible facilities and services be made available to individuals with disabilities; and with the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 *et seq.*, which requires that buildings and public accommodations be accessible to individuals with disabilities; and with other laws and amendments thereto pertaining to access for individuals with disabilities that may be applicable. In addition, the VENDOR agrees to comply with applicable implementing Federal regulations any later amendments thereto, and agrees to follow applicable Federal directives except to the extent FTA approves otherwise in writing. Among those regulations and directives are: (1) U.S. DOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 C.F.R. Part 37; (2) U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27; (3) Joint U.S. Architectural and Transportation Barriers Compliance Board (U.S. ATBCB)/U.S. DOT regulations, "Americans With Disabilities (ADA) Accessibility Specifications for Transportation Vehicles," 36 C.F.R. Part 1192 and 49 C.F.R. Part 38; (4) U.S. DOJ regulations, "Nondiscrimination on the Basis of Disability in State and Local Government Services," 28 C.F.R. Part 35; (5) U.S. DOJ regulations, "Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities," 28 C.F.R. Part 36; (6) U.S. General Services Administration (U.S. GSA) regulations, "Accommodations for the Physically Handicapped," 41 C.F.R. Subpart 101-19; (7) U.S. EEOC, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630; (8) U.S. Federal Communications Commission regulations, "Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled," 47 C.F.R. Part 64, Subpart F; (9) U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194; (10) FTA regulations, "Transportation for Elderly and Handicapped Persons," 49 C.F.R. Part 609; and (11) Federal civil rights and nondiscrimination directives implementing the foregoing Federal laws and regulations, except to the extent the Federal Government determines otherwise in writing.

Q. Debarment and Suspension (over 25K)

The vendor hereby certifies that it and its principals have not presently or within a three year period been debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal agency; and the vendor hereby certifies that it and its principals have not presently or within a three-year period been convicted of or had a civil judgment rendered against them for the commission of a fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, state or local) transaction; violation of Federal or state antitrust statutes; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property.

R. Clean Water & Air (over 150K)

The vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§7401 et seq. The vendor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to the FTA and the EPA.

S. Non-Lobbying (over 150K)

The undersigned certifies to the best of his or her knowledge and belief that:


1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned to any person for influencing or attempting to influence any officer or employee of an agency, a member of Congress, an officer or employee of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

2) If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this federal contract, grant, loan or cooperative agreement, the undersigned shall complete and submit standard form LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.

3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

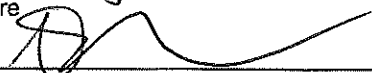
This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, USC. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

T. Lobbying and Disclosure Certification

Name of Company <i>Audio Visual Technologies Group, Inc.</i>	Printed Name of Person Completing Form <i>Ashley Brown</i>
Date <i>2-13-20</i>	Signature 

U. CERTIFICATION TO PURCHASER:

- A. The undersigned vendor certifies that the manufactured good(s) furnished will meet or exceed the specifications, and/or that services rendered will comply with the terms of the solicitation or contract.
- B. The undersigned vendor certifies that it has read all of the bid, proposal, or contract documents and agrees to abide by the terms, certifications, and conditions thereof.

Name of Company <i>Audio Visual Technologies Group, Inc.</i>	Address <i>12502 Exchange Dr, Suite 404</i>
Telephone <i>28-246-2100</i>	Printed Name of Person Completing Form <i>Ashley Brown</i>
Date <i>2-13-20</i>	Signature 
Description of Commodity or Service	
SS# or Tax ID # <i>74-1297 835</i>	
Disadvantaged Business Enterprise Information	
Type of Organization (circle)	
<input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> General Proprietorship <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Limited Partnership <input type="checkbox"/> Limited Proprietorship	
Is your firm a DBE? <input type="checkbox"/> (yes) <input type="checkbox"/> (no)	
If yes, what type? <i>HUB/Woman Owned</i>	

V. Disadvantaged Business Enterprises (DBE) Certification (Transit Vehicle Manufacturer or TVM)

The vendor will provide products compliant with 49 CFR 26.40 regarding the vehicle manufacturer's overall DBE goal.

Name of manufacturer of vehicle(s) to be delivered: *N/A*

W. Disadvantage Business Enterprise (DBE) Race-Neutral Required Clauses (Non-TVM):

The DBE rules set forth in 49 CFR Part 26 apply to all contracts funded in whole or in part with Federal DOT funds. Contracts and subcontracts must contain the clauses listed in 49 CFR 26.13 and 49 CFR 26.29. Sub-recipients with contracts that contain a DBE goal must coordinate with their PTC in order to ensure solicitations and contracts comply with DBE requirements.

49 CFR 26.13 -- What assurances must recipients and contractors make?

Each contract you sign with a contractor (and each subcontract the prime contractor signs with a subcontractor) must include the following assurance:

The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible."

49 CFR 26.29 -- What Prompt Payment Mechanisms Must Recipients Have?

Grantees must establish a contract clause requiring prime contractors to pay subcontractors for satisfactory performance no later than 30 days from receipt of each payment the grantee makes to the prime contractor. This clause must require the prompt return of retainage payments from the prime contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. For more information on these please review 49 CFR 26.29 and the FTA Best Practice Procurement Manual.

X. Altoona Test Certification (for rolling stock purchases) (Check one of the following):

- The vehicle has been Altoona tested, report number: _____
- The vehicle is exempt from testing IAW 49 CFR 665.
- The vehicle is currently being tested at Altoona.

Funds will not be released until the purchasing agency gets a copy of the Altoona test report, as appropriate, per 49 CFR 665.

Y. Federal Motor Vehicle Safety Standards (FMVSS) Certification (for rolling stock purchases)

Any vehicles provided by the vendor will comply with all applicable FMVSS. The vendor shall submit 1) manufacturer's FMVSS self-certification sticker information that the vehicle complies with relevant FMVSS or 2) manufacturer's certified statement that the contracted buses will not be subject to FMVSS regulations.

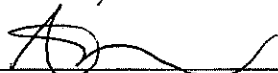
FMVSS Certification

Name of Company	Printed Name of Person Completing Form
Date	Signature

Z. Buy America (Check where applicable): (over \$150K rolling stock, construction, materials)

- The vendor or offeror hereby certifies it will comply with the requirements of 49 USC 5323(j) and the applicable regulations in 49 CFR 661, providing Buy America compliant manufactured goods or rolling stock.
- The vendor or offeror cannot comply with the requirements 49 USC 5323(j), but may qualify for an exception to the requirement pursuant to the regulations in 49 CFR 661.

Buy America Certification

Name of Company <i>Audio Visual Tech Grp. Inc.</i>	Printed Name of Person Completing Form <i>Ashley Brown</i>
Date <i>2-13-20</i>	Signature 

II. **SPECIAL PROJECT TYPE PROVISIONS - the following addenda are attached and endorsed as appropriate:**

- A. Construction or Architectural & Engineering Projects
- B. Transit Operations or Management Projects
- C. Intelligent Transportation System or Research & Development