REQUEST FOR PROPOSALS FOR

INTELLIGENT TRANSPORTATION SYSTEMS RETROFIT BETWEEN MILEPOST 162.0 AND MILEPOST 172.0 AND AT MILEPOST 99.5 AND MILEPOST 120.0 IN BEDFORD AND FULTON COUNTIES, PENNSYLVANIA

ISSUING OFFICE

Pennsylvania Turnpike Commission
Intelligent Transportation System/Traffic Department

RFP NUMBER

10-40110-2393

DATE OF ISSUANCE

January 13, 2010

REQUEST FOR PROPOSALS FOR

RFP NUMBER 10-40110-2393

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PART I

GENERAL INFORMATION FOR PROPOSERS

I-1. Purpose. This request for proposals (RFP) provides interested PROPOSERS with sufficient information to enable them to prepare and submit proposals for consideration by the Pennsylvania Turnpike Commission (Commission) to satisfy a need for retrofitting the existing Intelligent Transportation System (ITS) along the PA Turnpike between Mile Post (MP) 162.0 and MP 172.0 and along PennDOT I-70 at MP 149.1 WB.

Work items include, but are not limited to:

- Remove and dispose of existing Variable Speed Limit Signs (VSLS) at all the 25 locations as shown in Appendix G between MP 162.0 and MP 172.0.
- Remove and dispose Variable Message Signs (VMS) between MP 162.0 and MP 172.0, (as shown in Appendix G) and replace with new VMS. Do not remove the sign structure, structure foundation, controller cabinet, and cabinet foundation.
- Design, procure, install, integrate, and test, for the proposed ten (10) front access VMS and controllers, along the mainline. Utilize existing sign structure and foundation at the VMS locations. Existing sign structure and foundation details are shown in Appendix G. Utilize existing controller cabinet. Utilize existing power and communication services (from the point of service to the control cabinet) including but not limited to conduit, cabling, and wiring. (The Commission will integrate the VMS into the MIST system.)
- Provide training for users and those maintaining the VMS devices.
- Remove and dispose of one (1) existing VMS Sign, sign structure, and VMS controller cabinet and foundation along I-70 WB at MP 149.1. Regrade, seed and perform final site cleanup, to the satisfaction of the Commission.
- Design, procure, install, integrate, and test, for one (1) new VMS, foundation, center mount structure with access ladder and cat walk, controller and controller cabinet on PennDOT I-70 MP 149.1 WB. Include in this design a complete electrical power supply and CDMA telephone service for VMS operations by both the Commission and PennDOT. (The Commission will integrate the VMS into the MIST system.) **A Highway Occupancy Permit will NOT be required for this VMS installation.**
- Provide training for users and those maintaining the VMS device.
- Install uninterrupted power supplies (UPS) and backup batteries at all the existing nine (9) RWIS cabinets.
- Replace existing pole mounted equipment cabinet, UPS and battery backup system with a new pole mounted cabinet, UPS and battery backup system at two (2) Spread Spectrum Radio (SSR) locations noted in this RFP.
- Design, procure, and install 65 MPH static speed limit signs and sign post at five (5) locations as indicated in this RFP.
- Upgrade the existing RWIS central software at the Highspire facility to a solution similar to the Quiote Navigator Software.
- Upgrade all existing RWIS firmware in the project area as well the RWIS at MP 99.5 and MP 120. There is a total of 11 RWIS site upgrades.

The work location for this contract is between milepost 162.0 and milepost 172.0, milepost 99.5 and 120.0 along the PA. Turnpike and on PennDOT I-70 at milepost 149.1 WB in Bedford and Fulton Counties, Pennsylvania.

I-2. Issuing Office. This RFP is issued for the Commission by:

Intelligent Transportation System/Traffic Department
Contact: Lou Cortelazzi, ITS Manager
Pennsylvania Turnpike Commission
PO Box 67676
Harrisburg, PA 17106-7676

Phone – 717-939-9551 ext 3450; Fax – 717-986-9762
Email - lcortela@paturnpike.com

The Issuing Office is the sole point of contact in the Commission for this RFP.

I-3. Scope. This RFP contains instructions governing the proposals to be submitted and the material to be included therein; a description of the service to be provided; requirements which must be met to be eligible for consideration; general evaluation criteria; and other requirements to be met by each proposal.

I-4. Problem Statement. The Turnpike Commission is retrofitting the existing ITS devices along the PA Turnpike and PennDOT I-70 roadways. The intent of this contract is to acquire the services of a PROPOSER to provide the Turnpike Commission with this retrofitted ITS system to manage traffic, increase mobility, and improve safety. Additional detail is provided in Part IV of this RFP.

I-5. Type of Contract. It is proposed that if a contract is entered into as a result of this RFP, it will be a deliverables-based contract. The Commission may in its sole discretion undertake negotiations with PROPOSERS whose proposals as to price and other factors show them to be qualified, responsible, and capable of performing the work.

I-6. Rejection of Proposals. The Commission reserves the right to reject any and all proposals received as a result of this request, or to negotiate separately with competing PROPOSERS.

I-7. Subcontracting. Any use of subcontractors by a PROPOSER must be identified in the proposal. During the contract period use of any subcontractors by the selected PROPOSER that were not previously identified in the proposal must be approved in advance in writing by the Commission.

A firm that responds to this solicitation as a PROPOSER may not be included as a designated subcontractor to another firm that responds to the same solicitation. **Multiple responses under any of the foregoing situations may cause the rejection of all responses of the firm or firms involved.** This does not preclude a firm from being set forth as a designated subcontractor to more than one prime PROPOSER responding to the project advertisement.

I-8. Incurring Costs. The Commission is not liable for any costs the PROPOSER incurs in preparation and submission of its proposal, in participating in the RFP process or in anticipation of award of contract.

I-9. Mandatory Pre-proposal Conference. A **mandatory** pre-proposal conference will be held on Thursday, **January 28, 2010 at 10:00 AM** in the Large Board Room at the Commission's Central Administration Building located at 700 South Eisenhower Blvd., Middletown, PA 17057. In view of the limited facilities available for the conference, it is requested representation be limited to three (3) individuals per PROPOSER Team. The purpose of this conference is to clarify any points in the RFP, which may not have been clearly understood. Questions submitted in writing to the issuing office by **Friday, January 22, 2010** will be answered and discussed at the pre-proposal conference. Answers furnished during the conference will not be official until verified, in writing, by the Issuing Office. Additional questions may be forwarded to the Issuing Office **after** the Pre-Proposal Conference, but must be received no later than **Thursday, February 11, 2010**. All questions and written answers will be issued as an addendum to and become part of this RFP and will be posted to the website within two (2) weeks after this final question due date.

FAILURE OF THE PRIME CONTRACTOR TO BE REPRESENTED AND SIGNED IN AT THIS MANDATORY PRE-PROPOSAL CONFERENCE WILL BE CAUSE FOR AUTOMATIC REJECTION OF PROPOSAL.

I-10. Addenda to the RFP. If it becomes necessary to revise any part of this RFP before the proposal response date, addenda will be posted to the Commission's website under the original RFP document. It is the responsibility of the PROPOSER to periodically check the website for any new information or addenda to the RFP.

The Commission may revise a published advertisement. If the Commission revises a published advertisement less than ten days before the RFP due date, the due date will be extended to maintain the minimum ten-day advertisement duration if the revision alters the project scope or selection criteria. Firms are responsible to monitor advertisements/addenda to ensure the submitted proposal complies with any changes in the published advertisement.

I-11. Response. To be considered, proposals must be delivered to the Pennsylvania Turnpike Commission's Contracts Administration Department, Attention: Fran Furjanic, Contracts Supervisor, on or before **12:00 Noon, local time, Thursday, March 11, 2010.** The Pennsylvania Turnpike Commission is located at 700 South Eisenhower Boulevard, Middletown, PA 17057 (Street address). Our mailing Address is P. O. Box 67676, Harrisburg, PA 17106.

Please note that use of U.S. Mail delivery does not guarantee delivery to this address by the above-listed time for submission. PROPOSERS mailing proposals should allow sufficient delivery time to ensure timely receipt of their proposals. If the Commission office location to which proposals are to be delivered is closed on the proposal response date, due to inclement weather, natural disaster, or any other cause, the deadline for submission shall be automatically extended until the next Commission business day on which the office is open. Unless the PROPOSERS are otherwise notified by the Commission, the time for submission of proposals shall remain the same.

I-12. Proposals. To be considered, PROPOSERS should submit a complete response to this RFP, using the format provided in Part II. Each PROPOSER should submit **five (5) color copies** to the Contracts Administration Department. No other distribution of proposals will be made by the PROPOSER. Each proposal page should be numbered for ease of reference. Proposals must be signed by an official authorized to bind the PROPOSER to its provisions and include the PROPOSER'S Federal Identification Number. For this RFP, the proposal must remain valid for at least**,** 120 days.

Moreover, the contents of the proposal of the selected PROPOSER will become contractual obligations if a contract is entered into.

Each and every PROPOSER submitting a proposal specifically waives any right to withdraw or modify it, except as hereinafter provided. Proposals may be withdrawn by written, telefax or email notice received at the Commission's address for proposal delivery prior to the exact hour and date specified for proposal receipt. However, if the PROPOSER chooses to attempt to provide such written notice by telefax transmission, the Commission shall not be responsible or liable for errors in telefax transmission. A proposal may also be withdrawn in person by a PROPOSER or its authorized representative, provided its identity is made known and it signs a receipt for the proposal, but only if the withdrawal is made prior to the exact hour and date set for proposal receipt. A proposal may only be modified by the submission of a new sealed proposal or submission of a sealed modification which complies with the requirements of this RFP.

I-13. Economy of Preparation. Proposals should be prepared simply and economically, providing a straightforward, concise description of the PROPOSER'S ability to meet the requirements of the RFP. Proposals will be limited to 20 pages (not including appendices) no smaller than 12pt. font, 8½ x 11 inch page size (larger pages are allowed for figures, cut sheets or tables, but they must be folded into the overall proposal and used sparingly).

I-14. Discussions for Clarification. PROPOSERS who submit proposals may be required to make an oral or written clarification of their proposals to the Issuing Office to ensure thorough mutual understanding and PROPOSER responsiveness to the solicitation requirements. The Issuing Office will initiate requests for clarification.

I-15. Best and Final Offers. The Issuing Office reserves the right to conduct discussions with PROPOSERS for the purpose of obtaining "best and final offers" from ALL qualified proposers through a one-step selection process. To obtain best and final offers from ALL qualified PROPOSERS the Issuing Office may do one or more of the following: a) enter into pre-selection negotiations; b) schedule oral presentations; c) request a Schedule of Values; and d) request revised proposals. The Issuing Office will limit any discussions to responsible PROPOSERS whose proposals the Issuing Office has determined to be reasonably susceptible of being selected for award.

I-16. Prime PROPOSER Responsibilities. The selected PROPOSER will be required to assume responsibility for all services offered in its proposal whether or not it produces them. Further, the Commission will consider the selected PROPOSER to be the sole point of contact with regard to contractual matters.

I-17. Proposal Contents. Proposals will be held in confidence and will not be revealed or discussed with competitors, unless disclosure is required to be made (i) under the provisions of any Commonwealth or United States statute or regulation; or (ii) by rule or order of any court of competent jurisdiction. All material submitted with the proposal becomes the property of the Pennsylvania Turnpike Commission and may be returned only at the Commission's option. Proposals submitted to the Commission may be reviewed and evaluated by any person other than competing PROPOSERS at the discretion of the Commission. The Commission has the right to use any or all ideas presented in any proposal. Selection or rejection of the proposal does not affect this right.

In accordance with the Pennsylvania Right-to-Know Law (RTKL), 65 P.S. § 67.707 (Production of Certain Records), Proposers shall identify any and all portions of their Proposal that contains

confidential proprietary information or is protected by a trade secret. Proposals shall include a written statement signed by a representative of the company/firm identifying the specific portion(s) of the Proposal that contains the trade secret or confidential proprietary information.

Proposers should note that "trade secrets" and "confidential proprietary information" are exempt from access under Section 708(b)(11) of the RTKL. Section 102 defines both "trade secrets" and "confidential proprietary information" as follows:

> Confidential proprietary information: Commercial or financial information received by an agency: (1) which is privileged or confidential; **and** (2) the disclosure of which would cause substantial harm to the competitive position of the person that submitted the information.
>
> Trade secret: Information, including a formula, drawing, pattern, compilation, including a customer list, program, device, method, technique or process that: (1) derives independent economic value, actual or potential, from not being generally known to and not being readily ascertainable by proper means by other persons who can obtain economic value from its disclosure or use; **and** (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy. The term includes data processing software by an agency under a licensing agreement prohibiting disclosure.

65 P.S. §67.102 (emphasis added).

The Office of Open Records has determined that a third party must establish a trade secret based upon factors established by the appellate courts, which include the following:

> the extent to which the information is known outside of his business;
> the extent to which the information is known by employees and others in the business;
> the extent of measures taken to guard the secrecy of the information;
> the value of the information to his business and to competitors;
> the amount of effort or money expended in developing the information; and
> the ease of difficulty with which the information could be properly acquired or duplicated by others.

See Crum v. Bridgestone/Firestone North Amer. Tire., 907 A.2d 578, 585 (Pa. Super. 2006).

The Office of Open Records also notes that with regard to "confidential proprietary information the standard is equally high and may only be established when the party asserting protection shows that the information at issue is either 'commercial' or 'financial' and is privileged or confidential, and the disclosure ***would*** cause substantial competitive harm." (emphasis in original).

For more information regarding the RTKL, visit the Office of Open Records' website at www.openrecords.state.pa.us.

I-18 Debriefing Conferences. PROPOSERS whose proposals are not selected will be notified of the name of the selected PROPOSER and given the opportunity to be debriefed, at the PROPOSER'S request. The Issuing Office will schedule the time and location of the debriefing. The PROPOSER will not be compared with other PROPOSERS, other than the position of its proposal in relation to all other proposals.

I-19. News Releases. News releases pertaining to this project will not be made without prior Commission approval, and then only in coordination with the Issuing Office.

I-20. Commission Participation. Unless specifically noted in this section, PROPOSERS must provide all services to complete the identified work. The Issuing Office will provide the necessary workspace to accommodate up to two individuals for the duration of the initial deployment (for database entry, training, report generation, etc.) and for a period of two months after cutover to the new system.

I-21. Cost Submittal. The cost submittal shall be placed in a separately sealed envelope within the sealed proposal and kept separate from the technical submittal. **Failure to meet this requirement may result in disqualification of the proposal.**

I-22. Term of Contract. The term of the contract will commence on the Effective Date (as defined below) and will end within 12-months from the Notice to Proceed (NTP) date. All the construction for the project will end within 12-months from the NTP date. The Commission shall fix the Effective Date after the contract has been fully executed by the PROPOSER and by the Commission and all approvals required by Commission contracting procedures have been obtained.

I-23. PROPOSER'S Representations and Authorizations. Each PROPOSER by submitting its proposal understands, represents, and acknowledges that:

a. All information provided by, and representations made by, the PROPOSER in the proposal are material and important and will be relied upon by the Issuing Office in awarding the contract(s). Any misstatement, omission, or misrepresentation shall be treated as fraudulent concealment from the Issuing Office of the true facts relating to the submission of this proposal. A misrepresentation shall be punishable under 18 Pa. C.S. 4904.

b. The price(s) and amount of this proposal have been arrived at independently and without consultation, communication or agreement with any other PROPOSER or potential PROPOSER.

c. Neither the price(s) nor the amount of the proposal, and neither the approximate price(s) nor the approximate amount of this proposal, have been disclosed to any other firm or person who is a PROPOSER or potential PROPOSER, and they will not be disclosed on or before the proposal submission deadline specified in the cover letter to this RFP.

d. No attempt has been made or will be made to induce any firm or person to refrain from submitting a proposal on this contract, or to submit a proposal higher than this proposal, or to submit any intentionally high or noncompetitive proposal or other form of complementary proposal.

e. The proposal is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive proposal.

f. To the best knowledge of the person signing the proposal for the PROPOSER, the PROPOSER, its affiliates, subsidiaries, officers, directors, and employees are not currently under investigation by any governmental agency and have not in the last four (4) years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding or proposing on any public contract, except as disclosed by the PROPOSER in its proposal.

g. To the best of the knowledge of the person signing the proposal for the PROPOSER and except as otherwise disclosed by the PROPOSER in its proposal, the PROPOSER has no outstanding, delinquent obligations to the Commonwealth including, but not limited to, any state tax liability not being contested on appeal or other obligation of the PROPOSER that is owed to the Commonwealth.

h. The PROPOSER is not currently under suspension or debarment by the Commonwealth, or any other state, or the federal government, and if the PROPOSER cannot certify, then it shall submit along with the proposal a written explanation of why such certification cannot be made.

i. The PROPOSER has not, under separate contract with the Issuing Office, made any recommendations to the Issuing Office concerning the need for the services described in the proposal or the specifications for the services described in the proposal.

j. Each PROPOSER, by submitting its proposal, authorizes all Commonwealth agencies to release to the Commission information related to liabilities to the Commonwealth including, but not limited to, taxes, unemployment compensation, and workers' compensation liabilities.

I-24. Governing Specifications. This RFP is subject to and governed by the specifications herein and contained within the Appendices, Commission Specifications, Commission Standard Special Provisions, and PennDOT Publication 408/2007, including all changes and latest updates. Within these specifications where dual measurement and tabular options are presented, English standards apply.

The project also is subject to the following PennDOT Special Provisions contained in Appendix C of the RFP:

- G5A. Revisions to Specifications.
- G6A. Purchasable Items.
- G401A. Advance Notice of Traffic Restrictions.
- P9011B. Flagger Training.

PART II

INFORMATION REQUIRED FROM PROPOSERS

Proposals must be submitted in the format, including heading descriptions, outlined below. To be considered, the proposal must respond to all requirements in this part of the RFP. Any other information thought to be relevant, but not applicable to the enumerated categories, should be provided as an appendix to the proposal. Each proposal shall consist of two (2) separately sealed submittals. The submittals are as follows: (i) Technical Submittal, in response to **Sections II-1 through II-7** hereof; (ii) Cost Submittal, in response to Section **II-8** hereof.

The Commission reserves the right to request additional information which, in the Commission's opinion, is necessary to assure that the PROPOSER'S competence, number of qualified employees, business organization, and financial resources are adequate to perform according to the RFP.

The Commission may make such investigations as deemed necessary to determine the ability of the PROPOSER to perform the work, and the PROPOSER shall furnish to the Issuing Office all such information and data for this purpose as requested by the Commission. The Commission reserves the right to reject any proposal if the evidence submitted by, or investigation of, such PROPOSER fails to satisfy the Commission that such PROPOSER is properly qualified to carry out the obligations of the agreement and to complete the work specified.

II-1. Statement of the Problem. The PROPOSER shall provide text to verify complete understanding of the services required by this RFP.

II-2. Management Summary. Include a narrative description of the PROPOSER's approach and services to be provided.

II-3. Work Plan. Describe in narrative form your technical plan for accomplishing the work. Use the task descriptions in Part IV of this RFP as your reference point. Include in the text what type of VMS equipment and how it will mount to the existing and proposed structures the PROPOSER intends to use at each location. Modifications of the task descriptions are permitted; however, reasons for changes should be fully explained. Include a detailed project schedule or similar type display, time related, showing each event anticipated by the PROPOSER. If more than one approach is apparent, comment on the reason(s) for choosing a particular approach.

II-4. Past Performance - The PROPOSER must either be PennDOT Prequalified (P1, P2 and P3) for ITS construction and integration, or provide substantial backup to demonstrate their (personnel and previous work experience) ability to complete this project. The PROPOSERS design consultant and all subconsultants must have a current Annual Qualification Package on file with the BOD Consultant Agreement section and be registered business partners in ECMS. The PROPOSER must also submit information on contracts/subcontracts performed over the past five (5) years for organizations (commercial, state, local, Federal, etc.) involving similar or related services. The PROPOSER shall submit no more than 10 contract/subcontract descriptions for the entire proposed team (PROPOSER plus major subcontractors/engineers). The PROPOSER must submit this information on the most recently completed contracts/subcontracts or on-going contract/subcontracts that are at least three months into the period of performance. The following information must be provided.

- Customer name, address, and telephone number.
- Technical office point(s) of contact (name, telephone number, and email address).
- Contracting/Business office point(s) of contact (name and telephone number).
- Contract name and number, if applicable.
- Date of contract award and period of performance.
- Type of contract.
- Total contract dollar value at time of award.
- Start/End dates of Contract. Identify if the contract was completed early, late, or on-time.
- Brief description of product or services.
- Brief description of the contract's relevance to the Task Areas of this project.
- Matrix of Past Performance and Experience. PROPOSER shall create a matrix relating past work performed by the proposed team (prime PROPOSER plus major subcontractors) to the Task Areas of this project.

II-5. Personnel. Include the number, and names where practical, of executive and professional personnel, analysts, auditors, researchers, programmers, consultants, etc., who will be engaged in the work. The proposal shall demonstrate the PROPOSERS ability to perform Task 2, described in Part IV. For this project, the PROPOSER must include the following individuals:

- Project Manager – This person will serve as the PROPOSERS overall Point of Contact for the project. Document the experience of this individual to demonstrate a minimum of three (3) projects and five (5) years successfully managing ITS projects of similar size and content.
- Lead Construction Foreman - This person will serve as the PROPOSERS overall construction foreman for the project. Document the experience of this individual to demonstrate a minimum of three (3) successfully completed ITS projects of similar size.
- ITS Project Manager - This person will serve as the PROPOSERS overall ITS Project Manager for the project. This person must be a licensed Professional Engineer, in good standing, in the Commonwealth of Pennsylvania. Document the experience of this individual to demonstrate a minimum of three (3) projects and five (5) years successfully designing ITS projects of similar size and content.
- Lead ITS Engineer - This person will serve as the PROPOSERS overall ITS Designer for the project. This person must be a licensed Professional Engineer, in good standing, in the Commonwealth of Pennsylvania. Document the experience of this individual to demonstrate a minimum of three (3) projects and five (5) years successfully designing ITS projects of similar size and content.
- Lead ITS Integrator - This person will serve as the PROPOSERS overall ITS Integrator for the project. Document the experience of this individual to demonstrate a minimum of three (3) projects and five (5) years successfully integrating ITS projects of similar size and content.

Show where these personnel will be physically located during the time they are engaged in the work. Include through a resume or similar document, educational background and experience in which each team member will be providing their expertise i.e. project management, database engineering, software engineering, etc. Indicate the responsibilities each will have in this project and how long each has been with your company.

Identify the major subcontractors you intend to use and the services they will perform. Where subcontractors are named, include information regarding their role, personnel to be provided, and

through resumes or similar documents, their educational background and experience. Indicate the responsibilities each will have in this project and how long each has been with the named subcontractor.

II-6. Training. The PROPOSER will provide one training session on all ITS subsystems during the contract period. The training will consist of separate training for both operators and field technicians and will occur before System Acceptance Testing (SAT). This training will be digitally recorded and provided to the Commission within 2 weeks of this training.

II-7. DBE/MBE/WBE Participation. The Commission is committed to the inclusion of disadvantaged, minority, and woman firms in contracting opportunities. The minimum participation level for DBE/MBE/WBEs in this contract will be 10% total. Responding firms shall clearly identify DBE/MBE/WBE firms, expected to participate in this contract, in their Proposal. If the selected firm does not meet the minimum requirement for DBE/MBE/WBE participation, they will be required to demonstrate good faith efforts to achieve the required level. The Commission recognizes the following small, disadvantaged, woman and minority-owned business certifications for this RFP:
PA Unified Certification Program www.paucp.com
PA Department of General Services www.dgs.state.pa.us
National Minority Supplier Development Council www.nmsdcus.org
Women Business Enterprise National Council www.wbenc.org
U.S. Small Business Administration small disadvantaged businesses or 8(a) small disadvantaged business concerns

Evidence of "Good Faith" includes but is not limited to:

1. Vendor shall solicit through all reasonable and available means (pre-proposal meetings, advertisements and/or written notices) the interest of DBE/MBE/WBEs who have the capability to perform the work of the contract. Make solicitations for services/goods that are within the project scope and which you reasonably expect to utilize.

2. Vendor shall keep a detailed record indicating date, type of contact, DBE/MBE/WBE business contacted, and the services/goods solicited.

3. Vendor shall provide adequate information to DBE/MBE/WBEs, in a timely manner, about the project description to allow adequate time for their response to solicitations.

4. Vendor shall contact issuing agency for lists of certified DBE/MBE/WBEs and keep a record of all solicitations made.

5. Vendor shall identify portions of work (goods/services) that can be performed by DBE/MBE/WBEs and keep a record of all solicitations made.

6. Vendor shall use the services of available minority/women business assistance offices at the state and local level to identify DBE/MBE/WBEs and keep a record of such contacts.

If further information is desired concerning DBE/MBE/WBE participation, direct inquiries to the Pennsylvania Turnpike Commission's Contracts Administration Department by calling (717) 939-9551, Extension 4241.

II-8. Cost Submittal. The information requested in this section shall constitute your cost submittal. **The Cost Submittal shall be placed in a separate sealed envelope within the sealed proposal, separate from the technical submittal.**

PROPOSERS should **not** include any assumptions in their cost submittals. If the PROPOSER includes assumptions in its cost submittal, the Issuing Office may reject the proposal. PROPOSERS should direct in writing to the Issuing Office pursuant to Part I-9 of this RFP any questions about whether a cost or other component is included or applies. All PROPOSERS will then have the benefit of the Issuing Office's written answer so that all proposals are submitted on the same basis.

The following materials **must** be provided in the sealed Cost Submittal. Failure to provide any of these completed items will constitute an incomplete Cost Submittal and result in an automatic rejection of the PROPOSER'S proposal.

1. Completed PROPOSER'S Bid Sheet. (The Bid Sheet is located on pages 20 and 21 of this RFP.)

2. Completed Schedule of Values form, as applicable, **for each bid item**, except items 0608-0001, 2931-0001, and 9900-0440. A sample Schedule of Values form is located on the next page of this RFP.

FIGURE 1
RETROFIT OF INTELLIGENT TRANSPORTATION SYSTEMS
MP 162.0 TO MP 172.0, PENNDOT I-70 MP 149.1 WB
AND MILE POSTS 99.5 AND 120.0
SCHEDULE OF VALUES (SAMPLE SHEET)
RFP NO. 10-40110-2393
Sheet ____ of ____

Bid Item No.:	_____
Bid Item Description:	_____
Engineering: (Includes complete site, ITS and structure design.)	$ _____
Foundation: (Includes complete installation - Excavation, Concrete, Rebar, Anchor Bolts)	$ _____
Structure: (Includes complete installation - Fabrication, Delivery, Installation)	$ _____
Control Cabinet: (Includes complete installation - Fabrication, Delivery, Installation)	$ _____
ITS Equipment:	$ _____
Maintenance and Protection of Traffic (MPT):	$ _____
Power: (Includes all necessary material, equipment, labor, and coordination to provide a complete power supply to the site.)	$ _____
Total Communications: (Includes all necessary material, equipment, labor, and coordination to provide a communications system (dial-up) to the site.	$ _____
Integration:	$ _____
Testing/Training:	$ _____
Other: (All other items related to the construction of this site. e.g. guide rail, clearing and grubbing)	$ _____
ITEM TOTAL ***(MUST MATCH TOTAL ON BID SHEET)***	$ _____

II-9. Performance Bond. When awarded the contract, furnish a Performance Bond, with sufficient surety or sureties, in an amount equal to 100% of the contract price. Have the bond specify that the contracted work will be completed in a manner satisfactory to the Commission. Have the bond state that the Commission is not liable for any expenses incurred through the failure to complete the work as specified, nor liable for any damages growing out of the carelessness of the Contractor, the Contractor's employees, or subcontractors. Also furnish a Payment Bond in the amount of 100% of the contract price. Have a corporate surety, legally authorized to transact business in the State and satisfactory to the Commission, execute both bonds. If the Commission decides the bond surety is unsatisfactory, promptly furnish any additional required security to protect the Commission's interests and the interests of all persons, firms, or corporations who/which have furnished material, provided equipment on rental, or supplied/performed labor or services on, or in connection with, the performance of the work for this contract.

Have participants in a joint venture submit a single Performance Bond and a single Payment bond, each signed by both the joint participants and by their surety. These bonds are to cover their joint and individual liability. The Proposer is required to include with the submittal statement on Bonding Agent's letterhead stating intent to provide the bonds required for this contract. The Proposer must be capable of and submit proof of ability to provide a 100% Performance Bond and 100% Payment Bond. Bonds must be underwritten by a bonding company with an "A" rating from Best of U.S. Treasury.

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

The selected PROPOSER shall only perform work on this contract after the Effective Date is affixed and the fully-executed contract sent to the selected PROPOSER. The Commission shall issue a written Notice to Proceed to the selected PROPOSER authorizing the work to begin on a date which is on or after the Effective Date. The selected PROPOSER shall not start the performance of any work prior to the date set forth in the Notice of Proceed and the Commission shall not be liable to pay the selected PROPOSER for any service or work performed or expenses incurred before the date set forth in the Notice to Proceed. No Commission employee has the authority to verbally direct the commencement of any work under this Contract.

PART III

CRITERIA FOR SELECTION

III-1. Mandatory Responsiveness Requirements. To be eligible for selection, a proposal should be (a) timely received from a PROPOSER; (b) properly signed by the PROPOSER; and (c) formatted such that all cost data is kept separate from and not included in the Technical Submittal.

III-2. Proposals will be reviewed and evaluated by a committee of qualified personnel selected by the Commission. This committee will recommend for selection the proposal that most closely meets the requirements of the RFP and satisfies Commission needs. Award will only be made to a PROPOSER determined to be responsive and responsible in accordance with Commonwealth Procurement Code.

III-3. The following criteria will be used in order of relative importance from highest to lowest in evaluating each proposal:

a. **Understanding the Problem.** This refers to the PROPOSER'S understanding of the Commission needs that generated the RFP, of the Commission's objectives in asking for the services or undertaking the study, and of the nature and scope of the work involved.

b. **Proposer Qualifications.** This refers to the ability of the PROPOSER to meet the terms of the RFP, especially the time constraint and the quality, relevancy, and recency of studies and projects completed by the PROPOSER. This also includes the PROPOSER'S financial ability to undertake a project of this size.

c. **Soundness of Approach.** Emphasis here is on the techniques for collecting and analyzing data, sequence, and relationships of major steps, and methods for managing the service/project. Of equal importance is whether the technical approach is completely responsive to all written specifications and requirements contained in the RFP and if it appears to meet Commission objectives.

d. **Cost.** Emphasis here is on the PROPOSER demonstrating to the Commission that the above criteria and the functional requirements of the RFP can be completed within a cost efficient manner. While this area may be weighted heavily, it will not normally be the deciding factor in the selection process. The Commission reserves the right to select a proposal based upon all the factors listed, and will not necessarily choose the firm offering the best price. The Commission will select the firm with the proposal that best meets its needs, at the sole discretion of the Commission.

e. **Personnel Qualifications.** This refers to the competence of professional personnel who would be assigned to the job by the PROPOSER. Qualifications of professional personnel will be measured by experience and education, with particular reference to experience on studies/services similar to that described in the RFP. Particular emphasis is placed on the qualifications of the project manager.

f. **DBE/MBE/WBE Participation.** This refers to the inclusion of D/M/WBE firms, as described in Part II-7, and the extent to which they are expected to participate in this contract. Participation will be measured in terms of total dollars committed to certified D/M/WBE firms.

PART IV

WORK STATEMENT

IV-1. Objectives.

The objective of this contract is to acquire the services of the PROPOSER to complete the Pennsylvania Turnpike's ITS expansion to effectively and efficiently manage congestion, improve safety and disseminate information to the motoring public. The Proposer will be required to design, supply, install, integrate, and test all equipment for full functionality and contract intention. In addition, the Proposer will train Commission personnel on field devices and TOC hardware/software to allow the Commission to better monitor and disseminate traffic information from their TOC facility. This work will include all required maintenance and protection of traffic in accordance with both Commission Standards and PennDOT Publications 213 and 647 and supplements therein. If there are any conflicts between the Commission and PennDOT standards, the PROPOSER shall follow the Commission standards.

IV-2. Nature and Scope of the Project. The Pennsylvania Turnpike is a key transportation route within the Commonwealth of Pennsylvania and a vital link in the roadway network of the eastern United States. The Turnpike is 512 miles in length with 55 fare collection facilities, twenty-two (22) service plazas and two (2) traveler information centers, twenty (20) maintenance facilities, eight (8) State Police Barracks, and five (5) tunnels. The proposed ITS subsystem retrofit will enable the Commission to better collect and disseminate roadway conditions and potential alternative routes to motorists to aide in the reduction of congestion. The system should have the capacity to include future expansion.

IV-3. Tasks.

Task A - Project Management

1. Provide a project schedule to Commission for review and approval of the tasks associated with all Phases of this project. The schedule, created in MS schedule or Primavera, shall detail, at a minimum the tasks provided below, as well as all tasks/subtasks required to complete each phase of the RFP in a clear and efficient manner. In addition, the schedule should identify the milestones listed in Appendix A page A-4.

2. Attend and conduct biweekly (once every 2 weeks) project status meetings. The PROPOSER is responsible to create and submit minutes to attendees, for all project meetings, within three (3) business days. Meeting minutes shall be consecutively numbered throughout the entire project and submitted in PDF format.

3. Project management is incidental to the project and will not be paid separately.

4. Comply with the Commissions (or their representative) Quality Assurnace / Quality Control (QA/QC) services.

Task B - Design, construct, integrate, test and train Commission personnel on the ITS subsystems being installed.

1. Remove and dispose of existing VSLS and associated sign post at all the 25 locations as shown in Appendix G between MP 162.0 and MP 172.0. The existing VSLS locations are shown in **Table 1B**. Remove the post mounted conduits to the ground level. Do not remove the foundations, junction boxes, and underground conduits. Label the circuit breakers at the VSLS cabinets, turn off the circuit breakers for the Variable Speed Limit Signs (VSLS), and disconnect power cable at the VSLS cabinet. Pull back the power and communication cable to the VSLS cabinet. Remove and dispose of the pulled back power and communication cables. Seal all the conduits both at the junction boxes and at the exposed ends using water-proof plugs to deny entry of rodents, water, or other liquids. In addition, label and turn off the circuit breaker at the point of services of the VSLS. Maintain the fiber connection between VSLS cabinet and the splice cabinet.

2. Remove and dispose of ten (10) existing Variable Message Sign (VMS) between MP 162.0 and MP 172.0 installed as part of the fog warning system project (as shown in Appendix G) and replace with new VMS. The existing VMS locations are shown in **Table 1A**. Don't remove the sign structure, structure foundation, controller cabinet, and cabinet foundation. Existing sign structure and foundation details are shown in Appendix G. Design, procure, install, integrate, test, and train, the proposed ten (10) front access VMS and controllers, along the mainline. (The Commission will integrate the VMS into the MIST system.) Utilize existing sign structure and foundation at the VMS locations. Utilize existing controller cabinet. Utilize existing power and communication services including but not limited to conduit, cabling, and wiring.

3. Remove and dispose of existing VMS board, structure, and foundation as identified in **Table 1A** on PennDOT I-70 milepost 149.1 westbound. Re-grade, seed and perform final site cleanup, to the satisfaction of the Commission. Design, procure, furnish, and install a completely functional center mount VMS location on I-70 milepost 149.1 westbound. (The Commission will integrate the VMS into the MIST system.) This location will include the PROPOSER to install one (1) LED VMS board, appropriate foundation, center mount structure with access ladder and cat walk, control cabinet, necessary guide rail, power and communications to each location as well as all integration and testing, as specified within these contract documents. The PROPOSER is required to provide all required hardware and software improvements at the Commissions facility to allow TOC operational staff complete control of this subsystem. The PROPOSER shall coordinate with the Commission on the final location of the VMS prior to the design submission. The PROPOSER shall utilize the existing power and communications facilities at this VMS as a base for the new VMS. Extension splices or any modifications to the power and communications services required to install a fully functional VMS system are the full responsibility of the PROPOSER. Since the VMS and all the associated equipment will be located on the PennDOT's Right-of-Way, the PROPOSER shall work jointly with the Commission and PennDOT during the design of this VMS and will follow Publication 213 during the construction. No Highway Occupancy Permit (HOP) will need to be obtained by the PROPOSER. The PROPOSER will contact the following PennDOT personnel a minimum of two (2) weeks prior to construction:

   Mark Eckley
   Bedford County Maintenance Manager
   814-623-6144

4. Remove and dispose of existing equipment cabinet and Uninterrupted Power Supply (UPS) and batteries for two (2) Spread Spectrum Radio (SSR) locations. Procure, furnish, and install a new equipment cabinet (utilizing the existing foundation), UPS, and batteries for these two (2) locations. Remove and dispose of the Uninterrupted Power Supply (UPS) and batteries for and nine (9) Road Weather Information System (RWIS) sites. Procure, furnish, and install a new UPS and battery backup system for all the RWIS sites. All SSR and RWIS sites are identified in **Table 1C**. Install one (1) UPS and four (4) batteries at each of the SSR and RWIS sites identified in **Table 1C**. The PROPOSER shall utilize the existing power and communications facilities at these SSR for the new UPS and battery backup. Any damage to the existing SSR and RWIS power and communications, conduit and cabling cause by the PROPOSER during the removal/install of the UPS and batteries will be immediately remediated by the PROPOSER to the pre-removal condition and to the satisfaction of the Commission without any additional cost to the Commission.
5. Design, procure, and install PennDOT standard 65 mph static Speed limit signs and sign post at five (5) locations as shown in **Table 1D**.

Construction of the above must begin within 90 days from Notice-to-Proceed. The actual required completion dates for project milestones will be finalized during the kick-off meeting for this work.

IV-4. Report and Project Controls

a. Upon being given a Notice-to-Proceed, the successful PROPOSER shall meet biweekly (every two weeks) with the Commissions Project Manager and their representatives to assess the status of the tasks included in IV-3 above, as directed by the Commission. This will be known as the Project Status Meeting. The Project Manager will schedule all meetings and will select location. It is anticipated that most meetings will take place at Turnpike Central Administration Building located at 700 South Eisenhower Blvd., Middletown, PA 17057

b. Project Status Report – At each Project Status Meeting, the PROPOSER will provide a report that details the work completed during the two weeks prior to the meeting as well as detail the work to be completed within the following two weeks. This report will include all work performed by the PROPOSERS engineers, subcontractors, and construction staff.

c. Problem Identification Report. An "as required" report, identifying problem areas. The report should describe the problem and its impact on the overall project and on each affected task. It should list possible courses of action with advantages and disadvantages of each, and include PROPOSER recommendations with supporting rationale.

Pennsylvania Turnpike Commission
Project 10-40110-2393
Table 1A - Equipment List
Existing Variable Message Sign (VMS) Locations

Site ID	Device ID[1]	MP	Direction	Equipment	Comments
Site 0	VMS0EM	162.1	EB	VMS	
Site 1	VMS1EM	163.0	EB	VMS	
Site 1A	VMS1WM	163.0	WB	VMS	
Site 3	VMS3EM	165.1	EB	VMS	
Site 3A	VMS3WM	165.1	WB	VMS	
Site 5	VMS5EM	167.0	EB	VMS	
Site 5A	VMS5WM	167.0	WB	VMS	
Site 7	VMS7EM	169.5	EB	VMS	
Site 7A	VMS7WM	169.5	WB	VMS	
Site 9	VMS9WS	171.6	WB	VMS	
Site 10	VMS12WS	149.1 (I-70)	WB	VMS	VMS to be installed in PennDOT's right of way.

Note 1: The last letter of the DeviceID identifies if the device is located in the side (S) of the road or in the median (M).

Pennsylvania Turnpike Commission
Project 10-40110-2393
Table 1B - Equipment List
Existing Variable Speed Limit Sign (VSLS) Locations

Site ID	Device ID[1]	MP	Direction	Equipment	Comments
Site 11	VSLS1WS	163.2	WB	VSLS	
Site 12	VSLS1EM	163.2	EB	VSLS	
Site 13	VSLS1ES	163.2	EB	VSLS	VSLS has been removed terminate in accordance with appendix G
Site 14	VSLS2WS	164.0	WB	VSLS	
Site 15	VSLS2EM	164.0	EB	VSLS	
Site 16	VSLS2ES	164.0	EB	VSLS	
Site 17	VSLS3WS	164.8	WB	VSLS	
Site 18	VSLS3EM	165.2	EB	VSLS	
Site 19	VSLS3ES	165.2	EB	VSLS	
Site 20	VSLS4WS	166.0	WB	VSLS	
Site 21	VSLS4ES	166.0	EB	VSLS	
Site 22	VSLS5WS	166.9	WB	VSLS	
Site 23	VSLS5ES	167.1	EB	VSLS	
Site 24	VSLS6WS	168.3	WB	VSLS	
Site 25	VSLS6WM	168.3	WB	VSLS	
Site 26	VSLS6ES	168.3	EB	VSLS	
Site 27	VSLS7WS	169.3	WB	VSLS	
Site 28	VSLS7WM	169.3	WB	VSLS	
Site 29	VSLS7ES	169.6	EB	VSLS	
Site 30	VSLS8WS	170.8	WB	VSLS	
Site 31	VSLS8WM	170.8	WB	VSLS	
Site 32	VSLS8ES	170.8	EB	VSLS	
Site 33	VSLS9WS	171.5	WB	VSLS	
Site 34	VSLS9WM	171.5	WB	VSLS	
Site 35	VSLS9ES	171.5	EB	VSLS	

Note 1: The last letter of the DeviceID identifies if the device is located in the side (S) or in the median (M).

Pennsylvania Turnpike Commission
Project 10-40110-2393
Table 1C - Equipment List
Existing Road Weather Information System (RWIS) and Spread Spectrum Locations

Site ID	MP	Direction	Equipment	Comments
Site 36	163.0	WB	RWIS	
Site 37	164.1	EB	RWIS	
Site 38	165.0	EB	RWIS	
Site 39	166.0	EB	RWIS	
Site 40	167.1	WB	RWIS	
Site 41	168.4	WB	RWIS	
Site 42	169.5	EB	RWIS	
Site 43	170.6	WB	RWIS	
Site 44	171.6	WB	RWIS	
Site 45	166.0	EB	SSR 1	
Site 46	170.4	EB	SSR 2	

Pennsylvania Turnpike Commission
Project 10-40110-2393
Table 1D - Equipment List
Proposed Static Speed Limit Sign (SSLS) Locations

Site ID	Device ID[1]	MP	Direction	Equipment	Comments
Site 47	SSLS1ES	162.0	EB	SSLS	
Site 48	SSLS1WS	166.9	WB	SSLS	
Site 49	SSLS1ES	167.1	EB	SSLS	
Site 50	SSLS2WS	171.5	WB	SSLS	
Site 51	SSLS2ES	173.0	EB	SSLS	

Note 1: The last letter of the DeviceID identifies if the device is located in the side (S) or in the median (M).

PROPOSER BID SHEET

RETROFIT OF INTELLIGENT TRANSPORTATION SYSTEMS

MP 162.0 TO 172.0

PROPOSER BID SHEET

PROJECT NO. 10-40110-2393

ITEM NO.	Quantity	Unit	ITEM DESCRIPTION	UNIT PRICE	TOTAL ITEM COST
0608-0001	1	LS	MOBILIZATION		
2624-0701	1	EA	CANTILEVER SLIDING ACCESS GATE		
2931-0001	100	SF	POST MOUNTED SIGNS, TYPE B (FINAL LOCATIONS TBD)		
9900-0400	1	LS	SITE 0: VMS AT MP 162.1 EB		
9900-0401	1	LS	SITE 1,1A: BACK-TO-BACK VMS AT MP 163.0		
9900-0402	1	LS	SITE 3,3A: BACK-TO-BACK VMS AT MP 165.1		
9900-0403	1	LS	SITE 5,5A: BACK-TO-BACK VMS AT MP 167.0		
9900-0404	1	LS	SITE 7,7A: BACK-TO-BACK VMS AT MP 169.5		
9900-0405	1	LS	SITE 9: VMS AT MP 171.6 WB		
9900-0406	1	LS	SITE 10: VMS ALONG I-70 AT MP 149.1 WB		
9900-0410	1	LS	SITE 11,12,13: REMOVE VSLS (3) AT MP 163.2		
9900-0411	1	LS	SITE 14,15,16: REMOVE VSLS (3) AT MP 164.0		
9900-0412	1	LS	SITE 17: REMOVE VSLS (1) AT MP 164.8		
9900-0413	1	LS	SITE 18,19: REMOVE VSLS (2) AT MP 165.2		
9900-0414	1	LS	SITE 20,21: REMOVE VSLS (2) AT MP 166.0		
9900-0415	1	LS	SITE 22: REMOVE VSLS (1) AT MP 166.9		

PROPOSER BID SHEET

RETROFIT OF INTELLIGENT TRANSPORTATION SYSTEMS
MP 162.0 TO 172.0
PROPOSER BID SHEET
PROJECT NO. 10-40110-2393

ITEM NO.	Quantity	Unit	ITEM DESCRIPTION	UNIT PRICE	TOTAL ITEM COST
9900-0416	1	LS	SITE 23: REMOVE VSLS (1) AT MP 167.1		
9900-0417	1	LS	SITE 24,25,26: REMOVE VSLS (3) AT MP 168.3		
9900-0418	1	LS	SITE 27: REMOVE VSLS (2) AT MP 169.3		
9900-0419	1	LS	SITE 28,29: REMOVE VSLS (1) AT MP 169.6		
9900-0420	1	LS	SITE 30,31,32: REMOVE VSLS (3) AT MP 170.8		
9900-0421	1	LS	SITE 33,34,35: REMOVE VSLS (3) AT MP 171.5		
9900-0430	2	EA	REPLACE EXISTING UPS AND BATTERY BACKUP AT SSR SITES		
9900-0431	9	EA	REPLACE EXISTING UPS AND BATTERY BACKUP AT RWIS SITES		
9900-0440	1	LS	SYSTEM SUPPORT EQUIPMENT		
9900-0450	11	EA	RWIS FIRMWARE UPGRADE		

TOTAL PROJECT BID

APPENDIX A

SPECIAL PROVISIONS

APPENDIX A
SPECIAL PROVISIONS, CONCEPTUAL LOCATION PLAN

GENERAL

This request for proposals (RFP) provides interested PROPOSERS with sufficient information to enable them to prepare and submit proposals for consideration by the Pennsylvania Turnpike Commission (Commission) to satisfy a need for retrofitting Intelligent Transportation (ITS) system along Turnpike mainline between MP 162.0 and MP 172.0 and along I-70 at MP 149.1 WB.

Work items include, but are not limited to:

- Removal and disposal of existing Variable Speed Limit Signs (VSLS) at all the 25 locations as shown in Appendix G between MP 162.0 and MP 172.0.
- Remove and dispose Variable Message Signs (VMS) between MP 162.0 and MP 172.0, (as shown in Appendix G) and replace with new VMS. Do not remove the sign structure, structure foundation, controller cabinet, and cabinet foundation.
- Design, procure, install, integrate, and test, for the proposed ten (10) front access VMS and controllers, along the mainline. Utilize existing sign structure and foundation at the VMS locations. Existing sign structure and foundation details are shown in Appendix G. Utilize existing controller cabinet. Utilize existing power and communication services (from the point of service to the control cabinet) including but not limited to conduit, cabling, and wiring.
- Provide training for users and those maintaining the VMS devices.
- Remove and dispose off one (1) existing VMS Sign, sign structure, and VMS controller cabinet and foundation along I-70 WB at MP 149.1. Re-grade, seed and perform final site cleanup, to the satisfaction of the Commission.
- Design, procure, install, integrate, and test, for one (1) new VMS, foundation, center mount structure with access ladder and cat walk, controller and controller cabinet on PennDOT I-70 MP 149.1 WB. Include in this design a complete electrical power supply and dial-up POTS telephone service for VMS operations by both the Commission and PennDOT. **A Highway Occupancy Permit will NOT be required for this VMS installation.**
- Provide training for users and those maintaining the VMS device.
- Install uninterrupted power supplies (UPS) and backup batteries at all the existing nine (9) RWIS cabinets.
- Replace existing pole mounted equipment cabinet, UPS and battery backup system with a new pole mounted cabinet, UPS and battery backup system at two (2) SSR locations

noted in this RFP.

- Design, procure, and install 65 MPH static speed limit signs and sign post at five (5) locations as indicated in this RFP.
- Upgrade the existing RWIS central software at the Highspire facility to a solution similar to the Quiote Navigator Software.
- Upgrade all existing RWIS firmware in the project area as well the RWIS at MP 99.5 and MP 120.

The designation "Engineer" in the RFP documents shall refer to the appropriate Turnpike Commission point of contact, which will be provided upon Notice-To-Proceed to the PROPOSER.

RESTRICTION OF OPERATIONS DURING HOLIDAY PERIODS

Arrange schedule to provide maximum use of the roadway during holiday periods. Have all travel lanes, each direction, and all interchange ramps available to traffic during the holiday periods and special events. Applicable holiday periods and special events include:

2010 Holiday Schedule

EASTER	From 3:00 P.M., local time, Thursday, April 1 to 6:00 A.M., local time, Tuesday, APRIL 6, 2010.
MEMORIAL DAY	From 3:00 P.M., local time, Thursday, May 27 to 6:00 A.M., local time, Wednesday, June 2, 2010.
INDEPENDENCE DAY	From 3:00 P.M., local time, Wednesday, June 30 to 6:00 A.M., local time, Tuesday, July 6, 2010.
LABOR DAY	From 3:00 P.M., local time, Thursday, September 2 to 6:00 A.M., local time, Wednesday, September 8, 2010.
COLUMBUS DAY	From 3:00 P.M., local time, Friday, October 8 to 6:00 A.M., local time, Tuesday, October 12, 2010.
VETERANS DAY	From 3:00 P.M., local time, Tuesday, November 9 to 6:00 A.M., local time, Monday, November 15, 2010.

THANKSGIVING DAY .....From 3:00 P.M., local time, Tuesday, November 23 to 6:00 A.M., local time, Monday, November 29, 2010.

CHRISTMAS AND NEW YEARS.....From 3:00 P.M., local time, Thursday, December 23, 2010, to 6:00 A.M., local time, Monday, January 3, 2011.

PROTECTION AND COORDINATION OF UTILITIES

Ascertain and locate any utility lines in the vicinity of the entire project and take all precautions to fully protect the (utility) facility and service. Prior to performing any work in the vicinity of any underground or overhead line or service, advise the facility owner at least 72 hours in advance of initiating work and provide all measures for protection in accordance with the National Electric Safety Code, the Occupational Safety and Health Administration's Regulations and as deemed necessary by the facility owner with the Engineer's concurrence. Coordinate protection and relocation of utilities with the facility owner.

Attention is directed to the Provisions of Act 287 of 1974 and subsequent amendments, which specify the responsibilities in regard to public health and safety during excavation and demolition operations in areas of underground utilities. Contact the One Call System at 1-800-242-1776 for all facilities prior to performing underground work.

Immediately report to the facility owner, including the Department of Transportation, any break, leak, or other damage to the lines or protective coatings made or discovered during the work and immediately alert the occupants of the premises and the employees of any emergency created or discovered.

Perform all work required for the location, replacement, adjustment or reconstruction of underground utilities in accordance with the Commission’s Publication 408, Section 105.06.

No work by facility owners with identified utility facilities within the project limits or the Commission’s right-of-way is anticipated. The correctness of the information is not guaranteed and the Commission will not pay costs incurred by the PROPOSER or facility owners for work performed for their convenience, unless prior written consent is obtained from the Commission.

This work is incidental to the project.

COORDINATION OF WORK

Contractors working on either the same or adjacent projects are to cooperate with each other as part of their own scope of work and as directed. Without in any way limiting the foregoing

requirement, cooperate and coordinate to the extent necessary to satisfactorily conclude all work essential for the operation of the Turnpike. Include all considerations, financial and otherwise, resulting from this requirement herein to interface, coordinate, and cooperate with other PROPOSER'S working the same or other areas, as well as with the Commission and its authorized representative.

Arrange the work and place and dispose of the materials being used so as not to interfere with the operations of the other PROPOSER'S within the limits of, or adjacent to the project.

If any part of the work depends on proper execution or results upon the work of any other PROPOSER, within 2 working days of the start of the work, inspect the work of the other PROPOSER'S and report in writing to the Commission any apparent discrepancies, interferences, defects, or delays in such work that render it unsuitable for such proper execution and results. Failure to so inspect and report will constitute an acceptance of the other PROPOSER'S work as fit and proper to receive this work, except as to defects which may develop in the other PROPOSER'S work after the execution of the work hereunder.

If any PROPOSER does not complete the various portions of the work in general harmony, and another PROPOSER is caused damage or injury by the failure to so act in harmony, the PROPOSER damaged or injured is to settle with the PROPOSER causing the damage or injury by agreement or arbitrate such claim or disputes. The Commission, however, is not liable to any PROPOSER for any increased costs or damages resulting from the defective work, interference, final construction decisions, failure to coordinate and cooperate, or delays of other PROPOSER'S.

PROJECT SCHEDULE AND LIQUIDATED DAMAGES

The PROPOSER shall supply, within their proposal, a Project Schedule depicting at a minimum the following project milestones:

- Notice-to-Proceed (NTP)
- Submission of System Level Block Diagram
- Submission of Complete List of Equipment and Materials
- Submission of Engineering Design Package
- Final Approval of Engineering Design Package
- Factory Acceptance Testing (FAT)
- Begin Procurement of Materials
- Pre-Construction Meeting
- Start of Construction
- Installation/relocation of ITS devices
- Installation of head-end equipment.
- Submission of Final Testing and Training Documents
- Completion of construction and ITS System Acceptance Testing (SAT)
- Receive the Commission's Approval to begin 30-Day Operational Acceptance Testing (OAT)
- Completion of 30-Day Operational Acceptance Testing (OAT)

- Submission of Final Documentation
- Submission of any remaining documents
- Overall project completion

The PROPOSER shall utilize all available time, including multiple shifts, to complete the contract within the required time limit.

Complete all work and have all equipment pass final system acceptance tests within time frame presented in the schedule milestones. The warranty period will follow the final approval of the operational acceptance test milestone.

The anticipated time frame to complete the project is approximately twelve (12) months. The Commission reserves the right to negotiate these durations with the PROPOSER prior to contract award. The PROPOSER may be subject to liquidated damages in the amount of one thousand two hundred dollars ($1,200.00) for each calendar day that any work under the contract remains after the required completion dates. This provision shall continue in full force and effect for a maximum of 180 days following termination of the contract.

Liquidated damages shall be assessed only after the Commission notifies the PROPOSER in writing of the failure to meet the milestones, as detailed in the approved Final Project Schedule.

MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION

This work includes designing, furnishing, installing, maintaining, resetting, relocating, storing, and removal of all traffic control devices necessary for maintenance and protection of traffic during construction. The PROPOSER shall design all the Maintenance and Protection of Traffic Plans (MPT) and have them approved by the Commission and perform the work for the project using staging sequences approved by the Commission. A chart detailing site installation areas and associated MPT for each subsystem must be provided by the PROPOSER, and approved by the Commission, as well as a pre-construction meeting must be held a minimum of 30 days prior to the commencement of equipment field construction for each subsystem. For construction that requires lane closures and detours, the PROPOSER shall provide detour plans and brief narrative describing any supplemental equipment required. All detour plans must be approved by the Commission. When submitting the MPT for approval, during the Design Submission, the PROPOSER shall identify all Pennsylvania State Police (PSP) resources required, including expense.

Perform maintenance and protection of traffic in accordance with the Commission's PTS-900 through PTS-980 Standards.

Work associated with the sign located on PennDOT I-70, follow PennDOT Publication 213 during construction. The PROPOSER will contact the following PennDOT personnel a minimum of two (2) weeks prior to construction:

Mark Eckley
Bedford County Maintenance Manager

814-623-6144

For all single lane closing, refer to Appendix E, Minimum Lane Closing charts.

Design, furnish, install and maintain all required lights, guides, sandbags and appurtenances as deemed necessary by the Engineer for the proper maintenance and protection of traffic and to warn of any obstruction or hazard to traffic. Use Type A and Type B flasher units and Type C steady burn units on this project. Furnish, install, and maintain all shadow vehicles. Shadow vehicles must meet the requirements of the Commission's and PennDOT's Publication 203, Section 203.106.

Notify local municipal officials, police, fire, and EMS agencies in the counties of Bedford and Fulton, and the Commission's Commission Community Relations Coordinator two (2) weeks prior to starting work. Provide two (2) contact persons 24 hours a day that are able to respond within one (1) hour of notification for incidents and emergencies. Provide the name and telephone numbers to the Commission's Traffic Operations Center for distribution to the State Police, emergency personnel and the Commission's District Maintenance Managers.

During any highway incidents/emergencies requiring an Incident Commander, participate in the Unified Command System under direction of the designated on-scene Incident Commander (State Police or other State Agency). Provide any available equipment necessary to facilitate the opening of lanes to traffic as directed by the Inspector in Charge.

For night operations, provide non-glare balloon type work lighting, clothe all workers in reflective garments that outline the torso, arms and legs. All workers will wear strong yellow-green vests and hard hats.

The PROPOSER shall refer to Restriction of Operations during Holiday Periods section for periods of construction restrictions.

EROSION AND SEDIMENTATION CONTROL DURING CONSTRUCTION

Description - Provide, install, and maintain erosion control measures as indicated in Sections 845 and 865, and as directed by the Engineer. Perform all construction in a manner that controls pollution and soil erosion and adhere to the following:

A. Apply water to access roads, haul roads, and other work areas to keep dust within tolerable limits. Ensure that water used for sprinkling is completely additive free and approved by the Engineer. Use no material other than water, as specified herein, for dust control.

B. Locate equipment repair, maintenance, and staging areas so that chemicals, fuels, lubricants, etc., will not discharge into streams, drainage features, watercourses, or wetlands.

Construction - During the construction operations, take the following erosion and sediment control measures as specified herein and/or shown in the standard drawings.

A. Reduce to the greatest extent practicable the area and duration of exposure of readily erodible soils.

B. Retard the rate of runoff and trap sediment by utilizing inlet protection, silt fence barriers, rock filter outlets, and dewatering basins.

C. Direct all pump discharges resulting from dewatering operations to a suitable sediment trap.

D. Protect the soils by seeding, temporary vegetation, and/or mulching.

E. Complete and protect segments of work as rapidly as is consistent with construction schedules.

F. Isolate any active flow present at the time of ditch regarding by sand bagging, pumping, or other suitable means.

G. Stabilize all ditches within twenty (20) days.

If work is suspended for any appreciable length of time, implement temporary measures to control erosion. Temporary measures may include, but are not limited to diverting surface water from disturbed areas, sloping the top of fills in the upstream direction, diversions, mulching, and seeding. Soils or topsoil maintained in small stockpiles or in trucks for a short duration may be protected against erosion by covering with polyethylene or other plastic or rubber sheeting.

Upon permanent stabilization of all areas disturbed by construction, remove sediment from all control devices and remove all silt fence barriers from the site. Unless otherwise approved by the Engineer, dispose of all erosion and sediment control devices off site.

GENERAL PROJECT REQUIREMENTS

Description - This section describes the general requirements that the PROPOSER has to meet in retrofitting the ITS within MP 162.0 and MP 172.0 and along I-70 at MP 149.1. Items not specifically covered in these Special Provisions will be governed by the applicable sections of the 2007 Commonwealth of Pennsylvania, Department of Transportation Specifications, Publication 408, Change No. 5, (or latest version) and all applicable publications. Standard drawings include:

PENNSYLVANIA TURNPIKE COMMISSION STANDARD DRAWINGS

PTS-130 TYPE 2S GUIDERAIL INSTALLATION OCT 2007
(SHEETS 1 TO 5 OF 5)
PTS-135 TEMPORARY GUIDERAIL CONNECTION JUL 2006
(SHEETS 1, 2 OF 2)
PTS-900 MAINTENANCE AND PROTECTION OF TRAFFIC OCT. 2007
(SHEETS 1 TO 5, 8 OF 10)
PTS-910 MAINTENANCE AND PROTECTION OF TRAFFIC OCT. 2007
(SHEETS 1 TO 4, 7 OF 7)
PTS-960 MAINTENANCE AND PROTECTION OF TRAFFIC SIGN OCT. 2007
FABRICATION (SHEETS 1 TO 4 OF 4)
PTS-980 MISCELLANEOUS DETAILS OCT. 2007
(SHEET 2 OF 2)
PTS-340 ROAD WEATHER INFORMATION SYSTEM (RWIS) DETAILS
FEB.2009 (SHEET 1 OF 1)
PTS-350 ITS CONDUIT AND JUNCTION BOXES FEB. 2009
(SHEETS 1, 2 OF 2)
PTS-355 STRUCTURE MOUNTED ITS CONDUIT FEB. 2009
(SHEETS 1 TO 8 OF 8)
PTS-360 CONTROLLER CABINET FOUNDATIONS FEB. 2009
(SHEET 1 OF 1)
PTS-370 UTILITY SERVICE DETAILS FEB. 2009
(SHEETS 1 TO 4 OF 4)
PTS-380 ITS DEVICE GROUNDING DETAILS FEB. 2009
(SHEET 1 OF 1)

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS

BC-735M WALL CONSTRUCTION & EXPANSION JOINT DETAILS January 21, 2003
BC-736M REINFORCEMENT BAR FABRICATION DETAILS January 21, 2003
BC-741M OVERHEAD SIGN STRUCTURES, CANTILEVER AND CENTER-MOUNT STRUCTURES, STRUT LENGHTHS UP TO 40' January 21, 2003
RC-10M CLASSIFICATION OF EARTHWORK April 15, 2004
RC-11M CLASSIFICATION OF EARTHWORK FOR STRUCTURES April 15, 2004
RC-12M BACKFILL AT STRUCTURES March 30, 2006
RC-52M TYPE 2 STRONG POST GUIDE RAILS March 30, 2006
RC-54M BARRIER PLACEMENT AT OBSTRUCTIONS March 30, 2006
RC-60M RIGHT-OF-WAY FENCE April 15, 2004
RC-61M RIGHT-OF-WAY GATE AND REMOVABLE FENCE SECTIONS April 15, 2004
RC-64M CURBS AND GUTTERS April 15, 2004
RC-70M EROSION AND SEDIMENT POLLUTION CONTROL April 15, 2004
RC-80M HIGHWAY LIGHTING FOUNDATIONS April 15, 2004

RC-82M	HIGHWAY LIGHTING JUNCTION BOXES CAST-IN-PLACE OR PRECAST	April 15, 2004
RC-83M	HIGHWAY LIGHTING	April 15, 2004
TC-7804	ELECTRICAL DISTRIBUTION	June 30, 1989
TC-8702A	POST MOUNTED SIGNS, TYPE A	May 25, 2007

A. Scope of Work

Perform the following major tasks, at a minimum, in order to provide completely functional and operational ITS systems:

1. Remove and dispose of existing Variable Speed Limit Signs (VSLS) at all the 25 locations as shown in Appendix I between MP 162.0 and MP 172.0.

2. Remove and dispose of ten (10) existing Variable Message Sign (VMS), controllers and all communications and power cabling between this equipment, between MP 162.0 and MP 172.0 installed as part of the fog warning system project and replace with new VMS. Do not remove the sign structure, structure foundation, controller cabinet, and cabinet foundation.

3. Design, procure, install, integrate, test, and train for the proposed ten (10) front access VMS and controllers, along the mainline. Utilize existing sign structure and foundation at the VMS locations. Existing sign structure and foundation details are shown in Appendix I. Utilize existing controller cabinet. Utilize existing power and communication services including but not limited to conduit, cabling, and wiring.

4. Remove and dispose of one (1) existing VMS Sign, sign structure, and VMS controller cabinet and foundation along I-70 WB at MP 149.1. Re-grade, seed and perform final site cleanup, to the satisfaction of the Commission.

5. Design, procure, install, integrate, test, and train for one (1) new VMS, foundation, center mount structure with access ladder and cat walk, controller and controller cabinet at I-70 MP 149.1 WB. Include in this design a complete electrical power supply and dial-up POTS telephone service for VMS operations by both the Commission and PennDOT.

6. Install uninterrupted power supplies (UPS) and backup batteries at all the existing nine (9) RWIS cabinets.

7. Replace existing cabinet including the UPS and battery backup with a new cabinet, UPS and battery backup at two (2) SSR locations noted in this RFP. Utilize the existing cabinet foundation, if ground mounted. The existing concrete pads maybe used provided the PROPOSER specifies the anchor bolt installation and epoxy details.

8. Design, procure, and install 65 MPH static speed limit signs and sign post at five (5) locations as indicated in this RFP.

9. Reuse existing field power and communications necessary to make the field and Highspire facility systems fully operational. If required, the Contractor is responsible to coordinate with the utility companies for all power services. Furnish and install conduit, fittings, terminations, termination panels, junction boxes, cable, cable strain relief hardware and other ancillary accessories as required.

10. Furnish and install surge and lightning protection for cables entering and leaving all cabinets (VMS, communications, and power), as applicable.

11. Provide training and operations support equipment as per Appendix D.

12. Conduct all required tests, and submit test procedures and results to the Engineer.

13. Provide all incidental equipment and perform all necessary tasks to provide completely integrated (as System Acceptance Tested) and operational ITS systems.

14. Provide as built plan and all necessary documentation.

15. Seal all conduits and penetrations and conduits in junction boxes. Submit method of sealing to be approved by the Commission.

B. Equipment Requirements

1. General

a. Design and procure all equipment in a manner to minimize the number of manufacturers.

b. Procure all material and equipment, which meet the latest applicable standards of National Electrical Manufacturers Association (NEMA), Electronics Industries Association (EIA), National Electric Code (NEC) Underwriters Laboratory (UL), Publication 408, and these Special Provisions.

c. Procure the equipment from a manufacturer or manufacturers who have been successfully engaged in the manufacture of such equipment for a period of at least five years.

d. Submit certification(s) from the various manufacturer(s) of equipment supplied under this contract that they will carry in factory stock, for at least 10 years, all necessary parts and stock items to keep the equipment operational.

2. Parts and Material

In the selection of parts and materials, fulfillment of the requirements of these Special Provisions is of prime consideration. Design equipment to utilize the latest available techniques and utilize the

minimum number of different parts, subassemblies, circuits, cards and/or modules, to maximize standardization and commonality.

3. Electrical Components

   Use electrical components that are generally industry standard items available from several manufacturers. Comply with the latest industry standard practices, specifications and tests, or approved alternatives for all the components, being furnished under this contract to assure reliable operation of all the equipment.

4. Mechanical Components

   a. Hardware

      Provide stainless steel external screws, nuts and lock washers. Do not use self-tapping screws. For internal screws, nuts and lock washers, use corrosion resistant material or material suitably plated to resist corrosion. Use material in accordance with the highest industry practices.

   b. Material

      Provide parts made of corrosion resistant material, such as plastic, stainless steel, aluminum, or brass; or parts treated to resist corrosion, such as cadmium plating or galvanizing.

   c. Component Mounting and Identification

      Identify operating circuit components mounted on circuit boards by either identifying characters, which are legible and permanently printed on the circuit boards, and by the use of complete assembly drawings showing all components with values or by JEDEC numbers. Reference the identifying characters to their respective components in the schematic diagram and in the parts list.

C. Control Software

All proposed VMS control will be completed through the Commissions MIST system. The PROPOSER will coordinate with the Commission to aid in the integration of these VMS into the MIST system.

D. Design and Construction

Design and construct equipment such that performance will not be impaired after it has been subjected to shock and vibration caused by installation, transportation, maintenance handling, and normal use.

Install surge and lightning protection for all electrical and communication cables that are leaving or entering a cabinet. Provide resettable surge and lightning protection devices that can be subjected to multiple surges.

During construction work on the Commission's network and communication rooms, protect all equipment using dust-proof covers. Do not remove the dust-proof protection until after the work is completed and the work area cleaned.

1. Electrical

    a. Design Life

        Design all components in their normal circuit applications to operate continuously for at least 10 years.

    b. Power Requirements

        Provide equipment that meets the performance requirements at the specified power input level plus or minus 5%.

    c. Primary Input Power Interruption

        Provide equipment such that in the event of a power failure, proper operation will commence immediately after restoration of power without creating false information or malfunction.

    d. High Frequency Interference and Line Voltage Transients

        Protect the equipment power supply circuitry against high frequency electrical interference and line voltage transients.

    e. Wire Size

        Procure all wiring of such size to meet the requirements of the National Electric Code.

    f. Wire Identification

        Identify all wiring connected to terminal strips by the use of insulated preprinted sleeving slipped over the wire before final attachment.

    g. Wire Dressing

Procure wires cut to proper length before assembly. Do not double back wires to take up slack. Lace wires neatly into cables with nylon lacing or plastic straps. Secure cables with suitable clamps. Provide identification tags for all cables.

h. Cable Termination

Terminate all cables, as required, using appropriate termination panels, with built-in surge protection and test access ports.

i. Protection

Provide equipment containing readily accessible, manually replaceable circuit protection devices such as fuses, for equipment and power source protection.

j. Fail Safe

Provide and install equipment such that failure of individual equipment does not cause failure of the subsystem or system.

k. Static, Lightning and Surge Protection

Fully protect each piece of equipment from damage due to static electricity accumulation or discharge during unpacking, normal handling, and installation. Provide static electricity protection by case construction and by the use of protective devices on wires connected to the equipment. Use material and type of finish, which will not permit the accumulation of static electric charge. Provide a static-inhibiting device that can fit on a person's wrist, in all the cabinets. Protect all electrical and communication cables entering or leaving the equipment cabinets and which might be subject to damage, with bleeder resistors, current limiting resistors, zener diodes, MOVs, or other suitable means of limiting momentary current surges. Provide in-line, re-settable surge protection to avoid damage from lightning induced surges or other power line transients for all cables entering and leaving all cabinets. Provide transient suppression devices meeting the requirements of NEMA TS-2 specifications. Surge protection is incidental to the cost of equipment. Include surge protection details in the shop drawings for approval by the Engineer.

Coordinate with the equipment and surge protection device manufacturers to determine in-line voltage requirements.

2. Mechanical

a. Modular Design

Design equipment in a modular fashion such that major portions may be readily replaced in the field.

b. Keying

Mechanically key modules of unlike functions to prevent insertion into the wrong socket or connector.

c. Identification

Clearly identify all modules and assemblies with name, model number, serial number and any other pertinent information required to facilitate equipment maintenance.

E. Maintenance Provisions

Procure equipment designed for ease of maintenance. Make all component parts readily accessible for inspection and maintenance. Provide test points utilizing test jacks or equivalent to enable testing and troubleshooting with the equipment operating.

F. Environmental Design Requirements

Provide equipment meeting all of its specified requirements during and after exposure to any combination of the specified environmental and power line conditions.

Temperature Range: -30 degrees C to +74 degrees C, unless otherwise specified for each piece of equipment or subsystem.

Relative Humidity: Not to exceed 95%, non-condensing.

G. Personnel Safety

Procure equipment with provisions for personnel safety designed in. Design to prevent reversed assembly or installation of connectors, fasteners, etc., where possible malfunction or personnel hazards might occur. Properly ground in accordance with the requirements of the National Electric Code all external conductive material on the equipment. Provide electrical equipment having provisions to limit ground fault current and leakage current to levels below that prescribed by Underwriters Laboratories, Inc.

H. Quality Assurance Provisions

In cases where design tests are specified herein, documentation may be provided indicating that such tests have previously been satisfactorily completed and additional tests will not be required. Subject equipment to all tests as specified in Appendix D to determine conformance with all the applicable requirements. The Engineer reserves the right to have his/her representative witness all tests. The results of each test will be compared with the requirements specified herein. Failure to conform to requirements for any test will be subject to rejection by the Engineer.

Rejected equipment may be offered again for retest provided all non-compliances have been corrected and retested by the PROPOSER. Final inspection and acceptance of equipment will be made after delivery and successful completion of final system acceptance tests.

I. Preparation for Delivery

Package equipment to prevent shipping damage. All equipment must be in an undamaged and operational condition after delivery and unpacking in order to be accepted. Make all repairs or replacements to the satisfaction of the Engineer at no additional cost.

J. Field Cabinet Locks and Keys

Provide all cabinets with locks using a interchangeable core, as directed by the Commission. Number (No.) 2 key locks will not be acceptable. Following the successful completion of system acceptance test, provide the Commission with five sets of new keys for all field cabinets, with all cabinets keyed alike.

K. Trenches

At the end of each working day, backfill all the trenches to a point that is within 10 feet from the end of each trench. Cover the 10-foot length of the open trench with a ½-inch thick steel plate.

Mark on the center of each steel plate used for decking over trenches the following information:

PROPOSER's Name
Contact Person
Emergency Telephone Number

Each letter will be four inches high, in a space four inches wide, and each stroke forming each character will be 3/4 inch wide. Provide clear and legible lettering.

Use the appropriate method to label the trench plate so that the lettering will not be eradicated due to traffic or people movement over the trench plate. When placing trench

plates over excavations, secure the plates to the surface to prevent lateral movement avoiding an unsafe condition. Between the period of November 1st and April 1st, notify the Engineer of any steel plates used to cover excavation made in snow emergency routes.

L. Exposed Conduit

Use conduit made of Galvanized Rigid Steel (GRS) for all structure mounted conduit or exposed conduit, unless otherwise noted in the contract drawings.

DOCUMENTATION

Request for Proposal Requirements

Equipment submittals should be provided by the PROPOSER within response to the RFP to demonstrate that the equipment initially proposed for the project has the capability to meet the functional objectives and specifications required by these Special Provisions. The level of effort required for the submittal material could vary depending on the complexity of the equipment and the degree to which the proposed equipment is off-the-shelf or custom in nature. **No cost data is to be included within the initial equipment submission.**

Provide an overall project schedule detailing, at a minimum, the project milestones that will be followed by the PROPOSER to demonstrate compliance with the construction schedule. This schedule should detail meetings, design, equipment catalog cut sheet submissions, procurement, installation, testing, training, final documentation submission and maintenance tasks. This schedule must be approved by the Commission.

Design Submission Requirements

Submit within 10-days following Notice-to-Proceed (NTP) a Final project schedule in MS Schedule or Primavera detailing, at a minimum, those tasks included on page A4.

Submit within 30 calendar days following Notice-to-Proceed, system level block diagrams on 22 in. (H) x 34 in. (W) sheets which demonstrate the feasibility of the system as well as the interconnection of all equipment. Include in the block diagrams, the electrical and mechanical details and the interconnection details showing equipment part numbers, cable type, connectors, etc. Use separate sheets for field, central and complete system configurations. Include block diagrams for every major functional area.

Furnish an updated (from proposal) and complete list of equipment and material within 45 calendar days after Notice to Proceed. Include the name, manufacturer, part number and material specifications as applicable.

Submit for final approval the Engineering Design. The PROPOSER must receive approval of the Engineering Design within 3-months from the Notice-To-Proceed, and is responsible to

provide all documents to the Commission allowing the Commission a maximum of 10 business days to provide review comments.

Submit detailed testing procedures and traceability matrix as to which specific National Transportation Communications for ITS Protocol (NTCIP) standards, if applicable.

Design documentation consists of all drawings and text required to define the configuration of the system including both hardware and software documentation. The PROPOSER will be provided electronic base plan drawings (in PDF or MicroStation format) at the time of Notice-to-Proceed. The PROPOSER is required to provide the following sheets in the design set, which will be signed and sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania:

Title Sheet
Index Sheet
System Block Diagram
Summary of Equipment Sheets
Communication system Details
Highspire TOC Equipment Block Diagram
Cabinet Block Diagrams
Miscellaneous Details
Cable and Conduit Attachment Details
Roadway and Shoulder Closure Details
Typical Electrical Details
Typical Utility Pole Details
Structural and Foundations General Notes (I-70 VMS only)
VMS Structure Details Sheets (I-70 VMS only)
ITS General Notes
ITS Legend
ITS Plan Sheets for I-70 VMS Maintenance and Protection of Traffic Plans

CADD Requirements

All drawings including ITS construction plans, details, right-of-way plans and plots, profiles, typical sections, cross sections, shop drawings, details, schematics, etc. to be provided under this contract shall be accomplished and developed using computer-aided design and drafting (CADD) software and procedures conforming to the following criteria.

All CADD data shall be supplied in the DWG/DGN electronic digital format. No translations will be accepted. The PROPOSER shall ensure that all digital files and data (e.g., model files, reference files and resource files) are compatible with the Commissions primary CADD system and adhere to the standards and requirements specified herein. The term “compatible” means that data can be accessed directly by the target CADD system without translation, preprocessing, or post processing of the electronic digital data files. It is the responsibility of the consultant to ensure this level of compatibility.

CADD drawings shall be prepared in accordance with the Pennsylvania Turnpike Commission CADD Standards Manual. All other CADD Standards not covered by the Commissions CADD Standards Manual must be in accordance with PennDOT Highway Plans Presentation Manual, Publication 14M, July 2001 Edition. Standard drawing size shall be ANSI D (34" x 22") and the PTC CADD Standard file naming conventions for model and sheet files shall be used.

The PROPOSER shall submit a written request for approval of any deviations from the Commission's established CADD standard. No deviations from the Commission's established CADD standard will be permitted unless prior written approval of such deviation has been received from the Commission.

A copy of all CADD data and files developed under this contract shall be delivered to the Commission as part of the Final submission.

Submissions

Provide five (5) sets of all descriptive material, (manuals, cut-sheets, drawings, brochures, etc.), for each type of equipment and apparatus proposed for this project to demonstrate that the intended equipment or integration of intended equipment will meet the functional objectives and specifications of the system. Documentation for each subsystem shall be grouped together into one submission to provide a single complete subsystem package. The PROPOSER shall not submit incomplete or portions of a subsystem documentation, unless approved by the Commission's. If the PROPOSER does not receive prior approval to transmit an incomplete submission, the submission will be immediately rejected. Include in these documents sufficient technical data for complete evaluation of the proposed system by the Engineer. Provide original manuals or brochures or copies equal to originals.

Describe methods of expansion and maximum capacities.

Provide all user manuals and maintenance manuals for third party equipment.

The PROPOSER will provide five (5) hard copies and an electronic version (PDF format) of all documents transmitted for review. The Commission will be allowed a maximum of 10 calendar days to provide review comments to the PROPOSER for any documents submitted for review. Provide the following project documentation:

A. Equipment Manuals

Provide 5 (five) hard copies and one (1) electronic file (PDF format) of operating, maintenance and installation manuals for each type of equipment item to be furnished. Include in the manuals sufficient information to operate and maintain the equipment including schematic wiring and interconnection diagrams; complete instructions for proper installation including equipment outlines, mounting, weight, power and cooling requirements; a complete parts list and a list of recommended spares.

Include text, which completely describes all functional capabilities of the equipment. Explain all adjustments, how they are performed and their effect on equipment operation. Include flow charts, which describe troubleshooting procedures in a logical manner. Define expected signal levels and waveforms at key test points. Describe required test equipment and incorporate descriptions of its use in manual sections dealing with maintenance and repair of equipment items.

Submit test procedures and checklists required for the various stages of equipment tests as described in Appendix D.

Include information necessary for the proper installation, start-up, initialization, operation and fine-tuning of the equipment item.

Include environmental and operational specifications such as operating temperature range, power requirements, equipment weight, special handling considerations and equipment power dissipation rates and cooling requirements.

Submit all manuals to the Engineer for approval at least 30 calendar days prior to the anticipated start of the System Acceptance Testing for that equipment item.

B. Shop Drawings

Submit 5 (five) hard copies and one (1) electronic file (PDF format) of shop drawings on 22 in. (H) x 34 in. (W) sheets.

Include, at a minimum the following in shop drawings:

1. Wiring Diagrams (for I-70 VMS only)
2. Installation Drawings
3. Detail Drawings
4. Catalog information

C. Control Cabinet and Service Panel Drawings

Provide drawings, which show all terminals, terminations and connections within each equipment cabinet. At each terminal illustrate the terminal designation for the other end of the wire or cable. Cross-reference connections that go to equipment harnesses or connectors to the nomenclature used in that equipment's manual.

Tailor drawings to each individual cabinet.

Submit all drawings to be attached in cabinets to the Engineer for approval at least 30 calendar days prior to the system acceptance testing. Supply marked up copies of all cabinet drawings to the Engineer at the time of cabinet installation. Enclose drawings in a clear, plastic, waterproof enclosure.

Provide to the Engineer five (5) hard copy sets and one (1) electronic (PDF format) of final reproducible Mylar originals and four copies for each set of control cabinet and service panel drawings within at least 14 days following the approval of the 30-day operational test.

D. Installation Summary

Compile and furnish as-built installation summaries within at least 14 days of start of the 30-day operational test for each field installation. This summary will include the following information:

1. Equipment inventory including quantities of all equipment supplied under this contract, model number, manufacturer, and distributors for all equipment.

2. Cable lists specifying cable, wire pair and connector and pin assignments for all signal, power and ground leads.

3. Composite drawing of the system.

The Engineer has the right to stop the 30-day operational test if the installation summaries are not submitted within at least 14 days of the start of the test.

E. System Operations and Maintenance Manuals

Develop and deliver comprehensive systems operation and maintenance manuals for all the systems furnished under this contract. The objective of each manual is to present a systems oriented view of the operation and maintenance requirements of the system. Include a detailed functional description of the system. Include a description and streamlined step-by-step procedure for all routine operating events. Include equipment preventative maintenance procedures and equipment fine-tuning and adjustment procedures.

Submit all manuals to the Engineer for approval at least 14 calendar days prior to the anticipated start of the 30-day operational test.

<u>Final Documentation Submission Requirements</u>

The PROPOSER will provide five (5) hard copies and an electronic version (PDF format) of all documents transmitted as final documents and will include:

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A. As-Built Drawings and Details

Submit all As-Built drawings for the ITS device locations. As-Builts and details shall be on 22’ x 34” paper, as well as in PDF format. Include all As-Built plans, wiring diagrams, installation plans, cabinet diagrams, service panel drawings and detail drawings.

B. Final versions of all system operations and maintenance manuals (System Maintenance Manual, System Operator and Administrator Manuals)

C. All equipment and system/subsystem Warranties

D. All manufacturer equipment manuals

E. All final NTCIP compliance documentation, if applicable.

Payment

The payment schedule for the aforementioned items will be as follows:

- Project Management is incidental to other bid items and will not be paid separately.

- **Mobilization**

Section 608.1 Description. Revise this section by adding the following:

Include in negotiations with DBE subcontractors the opportunity to identify an item for their mobilization. Include any amounts agreed to in the contract lump sum bid price for mobilization, also list agreed to amounts for each DBE subcontractor on Attachment A (part of documentation required by special provisions Disadvantaged Business Utilization Requirements).

Section 608.4 Measurement and Payment. Revise completely to read:

- Lump Sum

Will be paid as specified in Section 110.05, and in accordance with the following schedule:

(a) Submit the detailed construction schedule specified in Section 108.03 indicating thereon the starting date of work subcontracted to DBE's. One month prior to the scheduled start of the subcontracted DBE work, but not earlier than the Notice to Proceed, 25 % of the amount shown on Attachment A for mobilization will be paid. The remaining 75% of the amount shown on Attachment A for mobilization will be paid in 3 equal payments, each payment made when subcontracted DBE work is 25%, 50% and 75% completed. Pay the affected DBE's within 7 days of receipt of payment from the Commission.

(b) Whenever work is performed equal to 10% of the total contract price, excluding the bid price for this item, the amount bid for mobilization less any payments made under Section 608.4(a), or 3% of the total contract price, excluding the bid price for this item, whichever is less, will be paid.

(c) Whenever work is performed equal to 25% of the total contract price, excluding the bid

price for this item, any remaining amount bid for mobilization less any payment made under Section 608.4(a), or an additional 2% of the total contract price, excluding the bid price for this item, whichever is less, will be paid.

(d) If the total contract lump sum price for mobilization has been paid prior to any payments made as specified in Section 608.4(a), pay 25% of the amount shown on Attachment A for mobilization to the affected DBE's not later than 10 days prior to the scheduled start of the subcontracted DBE work. Pay the remaining 75% as specified in Section 608.4(a).

(e) Upon completion of the project, any remaining amount bid for mobilization will be paid.

Item 2624-0701 (Cantilever Sliding Access Gate)

(a) The PROPOSER will be paid for Materials Stored on Hand, as per PennDOT Publication 408/2007 (latest version).

(b) The remainder of the bid price for item 2624-0701 will be paid upon the successful installation and final functional acceptance of the Cantilever Sliding Access Gate by the Commission.

Item 2931-0001 (<u>Post Mounted Signs, Type B</u>)

(c) The PROPOSER will be paid for Materials Stored on Hand, as per PennDOT Publication 408/2007 (latest version).

(d) The remainder of the bid price for item 2931-0001 will be paid upon the successful installation and final acceptance of the <u>Post Mounted Signs, Type B</u> by the Commission.

Items 9900-0400 through 9900-0405 (Replace VMS items)

(e) Ten percent (10%) of the bid price for all bid items will be paid upon the removal of the existing VMS and other non reusable cables and equipment, engineering design submission, approval of the design submission set by the Commission, and field review and approval of the information on the plan sets. Design plan set submission shall include the following, at a minimum:

1. Site Plans (ID Point of Service, Conduit, Junction Boxes, Equipment Location, Guide rail), as applicable
2. MPT Plans
3. Sediment Control Plans
4. Block Wiring Diagrams
5. Draft FAT, SAT and OAT Plans, including testing and traceability matrix.

6. Catalog Cut Sheets for all components. The PROPOSER may submit cut sheets for these items separate from the Design submission. If the cut sheets are approved by the Commission, the PROPOSER may begin to procure such items.

7. All plans shall be submitted in both hard copy and in electronic format (PDF and MicroStation).

(f) Fifty percent (50%) of the bid price for the bid items 9900-0400 through 9900-0405 will be paid upon the delivery of all equipment for each item to the project storage site (one central location) and proper certification of the successful completion of the factory acceptance tests, not exceeding the invoice price of the product.

(g) Twenty percent (20%) of the bid price for the bid items 9900-0400 through 9900-0405 will be paid upon the successful installation and completion of the System Acceptance Test (SAT) as specified. The SAT testing procedures must be approved by the Commission prior to the commencing of SAT testing.

(h) Ten percent (10%) of the bid price for the bid items 9900-0400 through 9900-0405 will be paid upon the successful completion of the Operational Acceptance Test (OAT) as specified. SAT testing on all project equipment must be completed prior to the commencement of OAT testing. The OAT testing procedures must be approved by the Commission prior to the commencing of OAT testing.

(i) Ten percent (10%) of the bid price for all bid items will be paid upon the Final Approval of all system documentation, which include:

1. Complete As-Built Plans including all Details

2. Submission of final training plan

3. Final training

4. Final System Operations and Maintenance Manuals (System Maintenance, System Administrator and Operator guides.)

5. Submission of all System/Subsystem Warranties

6. Submission of all Equipment Manuals

7. Submission of all Shop Drawings (Wiring Diagrams, Installation Drawings and Detail Drawings)

8. Submission of all Control Cabinet, and Service Panel Drawings

9. Complete NTCIP Compliance testing results and certifications

10. Software installation diskettes or CD-ROM’s

Items 9900-0406 Site 10 VMS Along PennDOT I-70 at MP 140.1 WB

(a) Ten percent (10%) of the bid price for the bid item will be paid upon the completion of the following:

1. Removal and disposal of the existing VMS, VMS foundation, and associated sign structure, controller, and cabinet.
2. Removal and disposal of non reusable power and communication cable and any other non reusable equipment,
3. Engineering Design submission, approval of the Design submission set by the Commission, and
4. Field review and approval of the information on the plan sets. Design plan set submission shall include the following, at a minimum:

    (a) Complete Foundation Design (Soil borings are not required for this project.)

    (b) Complete Structures Design.

    (c) Site Plan (ID Point of Service, Conduit, Junction Boxes, Equipment Location, Guide rail)

    (d) Structures Plan - Foundations (ITS device Plans and Elevations)

    (e) Guide rail design

    (f) MPT Plans

    (g) Sediment Control Plans

    (h) Block Wiring Diagrams

    (i) Draft FAT, SAT and OAT Plans, including testing and traceability matrix.

    (j) Catalog Cut Sheets for all components. The PROPOSER may submit cut sheets for these items separate from the Design submission. If the cut sheets are approved by the Commission, the PROPOSER may begin to procure such items.

    (k) All plans shall be submitted in both hard copy and in electronic format (PDF and MicroStation).

(b) Fifty percent (50%) of the bid price for the bid item will be paid upon the delivery of all equipment for each item to the project storage site (one central location) and proper certification of the successful completion of the factory acceptance tests, not exceeding the invoice price of the product.

(c) Twenty percent (20%) of the bid price for the bid item will be paid upon the successful installation and completion of the System Acceptance Test (SAT) as specified. The SAT testing procedures, must be approved by the Commission prior to the commencing of SAT testing.

(d) Ten percent (10%) of the bid price for the bid item will be paid upon the successful completion of the Operational Acceptance Test (OAT) as specified. SAT testing on all project equipment must be completed prior to the commencement of OAT testing. The OAT testing procedures must be approved by the Commission prior to the commencing of OAT testing.

(e) Ten percent (10%) of the bid price for all bid items will be paid upon the Final Approval of all system documentation, which include:

1. Complete As-Built Plans including all Details
2. Submission of final training plan
3. Final training
4. Final System Operations and Maintenance Manuals (System Maintenance, System Administrator and Operator guides.)
5. Submission of all System/Subsystem Warranties
6. Submission of all Equipment Manuals
7. Submission of all Shop Drawings (Wiring Diagrams, Installation Drawings and Detail Drawings)
8. Submission of all Control Cabinet, and Service Panel Drawings
9. Complete NTCIP Compliance testing results and certifications
10. Software installation diskettes or CD-ROM's

Item 9900-0410 through 9900-0421 (Removal of VSLS signs)

(a) 100% of item will be paid upon the completion of the work.

Item 9900-0430 Replace Existing UPS and Battery Backup at SSR Sites

(a) 100% of item will be paid upon the completion of the work.

Item 9900-0431 Replace Existing UPS and Battery Backup at RWIS Sites

(a) 100% of item will be paid upon the completion of the work.

Item 9900-0440 System Support Equipment

(a) Fifty percent (50%) of item 9900-0430, System Support Equipment, will be paid upon the delivery of all equipment to the project storage site (one central location) and proper certification of the successful completion of the factory acceptance tests, not exceeding the invoice price of the product. Upon approval of the 30-Day Operational Test, the remaining amount of the item will be paid to the PROPOSER.

Item 9900-0450 RWIS Firmware Upgrade

(a) Fifty percent (50%) of each location of item 9900-0450, RWIS Firmware Upgrade, will be paid upon the physical firmware upgrade at each site. Upon approval of the 30-Day Operational Test, the remaining amount of the item will be paid to the PROPOSER.

CONTRACTOR'S INSURANCE

A. General. Do not commence work under the contract until all insurance, and insurers, under this section have been obtained and approved by the Commission. Before or at the execution of a Contract, provide the Commission with certificates of insurance evidencing the coverage required. Have all primary and excess liability policies contain the following clause: "Thirty (30) days written notice of any cancellation, non-renewal, limit or coverage reduction is to be sent to the Commission by Certified Mail." The preceding is subject to existing Commonwealth of Pennsylvania statutory cancellation provisions relating to non-payment of premium and misrepresentation by the insured. Maintain the insurance described herein until the work is completed and a Final Certificate of Completion has been issued. All insurance policies must be written by an Insurance Company licensed and authorized to do business in Pennsylvania and acceptable to the Commission. Have all insurance policies and certificates signed by a resident Pennsylvania Agent of the issuing Company. However, in the case of an eligible surplus lines insurer, have all policies and certificates also signed by a party duly authorized to bind, on behalf of the eligible surplus lines insurer, the certified coverage's.

B. Worker's Compensation and Employer's Liability Insurance. Take out, pay for and maintain during the life of the contract, Worker's Compensation Insurance in statutory required limits for the protection of all employees. Provide, pay for and maintain during the life of the contract, Employer's Liability Insurance in limits of not less than $500,000 bodily injury each accident, $500,000 bodily injury by disease, and $500,000 bodily injury by disease each employee.

C. Commercial General Liability Insurance. Includes: Products/Completed Operations; Blanket Contractual Liability - All Written & Oral Contracts; premises and operations liability; explosion, collapse and underground; personal injury; independent contractors; broad form property damage; severability of interests provisions; personal injury and advertising liability; premises medical payments; host liquor liability; fire damage legal liability - real property; incidental malpractice (including employees); non-owned watercraft; and automatic coverage for newly acquired entities. The minimum required limits for the Commercial General Liability policy will be as follows:

- $2,000,000 Each Occurrence
- $2,000,000 Advertising and Personal Injury Limit
- $2,000,000 General Aggregate per Location/Per Site
- $2,000,000 Products and Completed Operations Aggregate
- $50,000 Fire Damage Legal, Any One Fire
- $5,000 Medical Payments

D. Commercial Automobile Liability Insurance - covering all owned hired, leased and non-owned vehicles with a minimum limit of liability of $1,000,000 per occurrence.

E. Commercial Umbrella/Excess Insurance - with the following minimum limits: 10/02/08 CS-107-15

- $5,000,000 per Occurrence
- $5,000,000 General Aggregate
- $5,000,000 Products/Completed Operations Aggregate

F. The Commercial General Liability and Automobile Liability policies will name the Pennsylvania Turnpike Commission, the Commonwealth of Pennsylvania, Pennsylvania Department of Transportation, Michael Baker, Jr., Inc., the Design Engineer and the Construction Manager, if any, as an Additional Insured.

G. Special Hazards. Requirements concerning Railroad Protective Insurance, Modification of Blasting Insurance Requirements and Insurance for other special hazards will, if required, be included in the Special Provisions.

H. Proof of Insurance. Before commencing work, furnish to the Commission three original certificates of insurance outlining the coverage's detailed above. The certificate will also indicate the Additional Insured status of the Commission and the appropriate cancellation/non-renewal notice wording.

The insurance company certificates will be in standard ACORD form and will contain the address and phone number of the insurance company or insurance agent. If appropriate, the Commission reserves the right to request certified copies of the contractor's insurance coverage's.

I. Payment. Incidental to the project.

WARRANTIES AND GUARANTEES

Description - Guarantee the equipment services, software and hardware provided under this Contract until final system acceptance (i.e., satisfactory completion of 30-Day operational test). Submit all equipment and material guarantees or warranties supplied by equipment manufacturer or supplier to the Commission in writing.

Software License, Warranty, Support, and Upgrades

A. The Commission's Rights

The PROPOSER and its subcontractors shall grant the Commission intellectual property rights to unlimited copies of any software/firmware, if any, acquired or created for use at any site or facility operated by the Commission. the Commission shall have the right to

duplicate any Documentation associated with the software/firmware for use of its employees or agents. If the VMS makes use of software packages purchased from a Third Party, the PROPOSER will provide the Commission enough licensed copies of that standard software package to properly implement the systems for this project. A total of 10 licenses are required for this contract for all software. The PROPOSER will coordinate with the Commission on the final number of software licenses required.

B. Warranty

Fully guarantee all Software/Firmware, and items, or materials created by, or manufactured by the PROPOSER, and provided under this Contract, to be FREE FROM DEFECTS (insofar as known) at the time of acceptance. For third-party suppliers, furnish the Commission those warranties offered as normal trade practice by those suppliers.

For one (1) year after approval of the operational testing and final acceptance, the PROPOSER will provide promptly, within one (1) month after made available by the manufacturer, any amendments or alterations to the software/firmware that may be required to correct errors present at the time of acceptance, which affect performance, in accordance with these Specifications. Any alterations will be preformed with a system configuration management process, which will first be approved by the Commission.

C. Upgrades

For one (1) year after acceptance, the PROPOSER will notify the Commission of upgrades, enhancements, or special features developed for these systems. The PROPOSER will provide upgrades and enhancements to the software that will improve the operating performance of the systems, but do not change the basic functions of the systems. These upgrades and enhancements shall be provided to the Commission at no charge. After this term it will be the sole responsibility of the Commission for requesting available upgrades, enhancements, or special features developed for these systems.

D. Level of Service

The LOS of the Warranty is equivalent to FHWA/McTrans LOS 1, "Full Technical and Maintenance Support". Provide the following:

Immediate (same-day) notification via email and telephone of any serious "defect/bug" discovered in a supported, maintained program.

Free replacements of programs, program modules, firmware, and documentation, which are updated to correct "defects/bugs". This is the implementation of the Warranty.

Full telephone, email and FAX, question and answer user support during normal business hours.

Send two (2) copies of each replacement /enhancement /upgrade /version /documentation via overnight express carrier delivery. The PROPOSER has the right to market or sell the software/firmware developed for the Commission to other vendors, agencies, or highway departments. In return, during the period of Warranty, the PROPOSER shall provide the Commission free of cost, those new versions of the software/firmware that may be developed as enhancements or modifications to meet the requirements of other highway departments

PROPOSER RESPONSIBILITY

General - It is the sole responsibility of the PROPOSER to provide the Commission with the complete retrofit of the ITS. The PROPOSERS final bid price for this contract, will not be altered unless additional work is mutually agreed upon between both the Commission and the PROPOSER.

A. The PROPOSER shall maintain all equipment procured under this Contract in proper working and fully operational condition throughout the period of construction, system acceptance testing, and successful completion of the 30-Day operational test period, as determined by the Commission. Proper working and operational conditions means that all field equipment, all hardware, and software meets the contract specifications, the intent of the project, and the manufacturer's specifications functions. All field and Highspire facility equipment must be installed and all equipment must have successfully completed System Acceptance Testing (SAT) before the 30-day Operational Acceptance Test (OAT) period can commence. The Department will provide the PROPOSER with written or oral approval to begin OAT testing. The Commission is not responsible for any delays or penalties incurred by the PROPOSER due to incomplete testing, or failure to provide a satisfactory system, prior to the start of the OAT testing.

If the equipment is damaged or rendered inoperable due to external reasons including, but not limited to, vehicular accidents on the roadway, rainstorm, snowstorm, or other natural disasters, restore to proper operating conditions within the applicable time frame as specified in Appendix E. If such damage occurs after the start of the 30-Day operational test and before the guaranty period, the PROPOSER will be reimbursed for the repair in accordance with the Commission's Publication 408, Section 110.03.

B. Variable Message Sign (VMS)

Design, furnish and install VMS on existing or new structures, as indicated in the RFP. Install the VMS components. Reuse existing electric and communication services. Coordinate with the VMS vendors to provide a fully functional and operational VMS system. The Commission will modify central control software (MIST) to allow the full operational use of both the existing and proposed VMS.

C. Communications and Electrical Service Installation

If applicable, notify the Commission 30 - 45 days prior to the installation of all communication services and electrical service. Service pole must be installed at the time of notice, and approved by the Commission.

Reuse existing power and communication connections.

SYSTEM SUPPORT EQUIPMENT

General - This work is the furnishing of system support equipment for the project. Provide equipment identical to those used elsewhere in the project and as specified under this Contract. All replaced equipment must be fixed and returned to the Contractor within 30-days of replacement. All spare equipment quantities must be provided to the Commission at the conclusion of the contract period.

Material - Furnish the following equipment and associated quantities for the VMS, in accordance with Appendix B:

A. LED Character Module (21)
B. VMS board power supply module (1)
C. UPS units (2)
D. 12-volts UPS batteries (5)

As directed by the Engineer, deliver all equipment to the Commission's, Project Manager in Highspire, PA.

APPENDIX B

VARIABLE MESSAGE SIGNS (VMS)
FUNCTIONAL REQUIREMENTS

APPENDIX B
VARIABLE MESSAGE SIGN (VMS) - FUNCTIONAL REQUIREMENTS

GENERAL

1. The PROPOSER shall design, furnish, and install a typical highway usage Light Emitting Diode (LED) Variable Message Signs (VMS) as described herein. The VMS shall utilized the existing Commission central software that that is capable of controlling all of the Commissions existing and proposed VMS from this contract, The VMS shall be used to provide variable displays to advise the travelers of changing weather conditions. This document describes the functional sign requirements for several locations within the Commission. The VMS, depending on the location, shall electronically vary the visual textual word, number, symbolic or graphic display as traffic conditions warrant. It is the intent of the Commission to utilize amber LED technology for all VMS signs.

   At locations along the mainline between milepost 162.0 and 172.0, design, furnish, completely install, integrate, and test all proposed VMS as described herein, and shown in Appendix A. Utilize existing foundations, structures, cabinets, guide rail, all power and communication. At location PennDOT milepost 149.1 westbound along PennDOT I-70, design, furnish, completely install, integrate, and test all proposed center mounted VMS as described herein, and shown in Appendix A, including all foundations, structures, signs, cabinets, guide rail, all power and dial-up communication. These signs shall be amber LED VMS, and shall be controlled by a client/server controlling software that is capable of controlling all of the Commissions existing and proposed VMS from this contract. The PROPOSER is required to trim all trees and vegetation to provide an unobstructed view of the VMS for up to 1000-feet. Integrate all VMS of this Part into the remote control and monitoring of all signs from the Commissions TOC within the Highspire facility.

   It is the sole responsibility of the PROPOSER to design, procure, install, and integrate a fully functional VMS system at the locations denoted in this contract, to the approval of the Commission. No additional payments will be made to the PROPOSER for the VMS system, unless it is additional work items mutually agreed upon by both the PROPOSER and the Commission.

   Material – Provide a fully debugged VMS system complete with all individual units, components, software modules, cabling, connectors, etc. that are completely compatible with each other and is capable of being controlled by the current MIST transportation management workstations operated by the Commission.

   General Requirements - The Variable Message Sign shall be designed in accordance with *NEMA Standards Publication TS-4, Hardware Standards for Dynamic Message Signs with NTCIP Requirements* and manufactured from an ISO-9001: 2000 facility.

   The VMS along the mainline (MP 162 – 172) shall consist of either a full matrix or three (3) line amber Light Emitting Diode (LED) pixel based matrix modules arranged to form

a line matrix display. The matrix shall be capable of displaying, at a minimum, three (3) rows of ten (10) characters each, with a nominal character size of 12-inches using a 7x5 pixel matrix for each character. The proposed VMS dimensions shall not exceed 76.6 square feet. The sign shall weight shall not exceed 650 pounds. The new VMS shall be compatible with the existing Turnpike's Central Software System (MIST). The Commission will integrate these VMS into the MIST system.

The VMS along PennDOT I-70 shall consist of either a full matrix or three (3) line amber Light Emitting Diode (LED) pixel based matrix modules arranged to form a line matrix display. The matrix shall be capable of displaying, at a minimum, three (3) rows of 15 characters each, with a nominal character size of 18-inches using a 7x5 pixel matrix for each character. The new VMS shall be compatible with the existing Turnpike's Central Software System (MIST) and shall be mounted on a structure conforming to the Commissions ITS Standards. The Commission will integrate this VMS into the MIST system. The structure and foundation for this VMS will be designed and furnished by the contractor.

Light Emitting Diodes (LED's)

- The LED's that make up the display modules shall be high luminous intensity T-1 3/4" type Aluminum Indium Gallium Phosphate AlInGaP II lamps as manufactured by Agilent, Series HLMP-AL16 or HLMP-BL16 or equivalent approved by the Representative. The LED's shall have an ultraviolet light inhibitor in the epoxy dome package and be of a production type already tested for use in high vibration commercial traffic environments and climate of the northeastern United States.

- The light emitted by the LED display shall be amber, with a dominant wavelength centered at 592 nanometers, plus or minus 2 nanometers.

- All LEDs shall have a nominal viewing cone of 30 degrees with a half-power angle of 15 degrees measured from the longitudinal axis of the LED.

- The LED's used in the display shall be obtained from batches sorted for luminous output, where the highest luminosity LED in the batch shall not be more than fifty percent more luminous than the lowest luminosity LED in the batch when operated at the manufacturer's recommended drive current. To ensure uniformity of display and operational life, all LED's used to make up a display module shall be obtained from the same manufacturing batch.

- The LED mean time before failure (MTBF) shall be a minimum of 100,000 hours of elapsed time calendar hours use in an ambient temperature of 131 degrees Fahrenheit, based on an average daily on-time usage factor of 50%, when driven at the specific forward current recommended by the LED manufacturer for normal daylight LED VMS display operation. As part of the LED manufacturer's technical specification sheet submittal, the specific forward current shall be noted.

- The statistical average long term light output degradation of the LED's used in the display, operated at the LED manufacturer's recommended drive current to achieve a minimum of 100,000 hours of operation without catastrophic failure in an ambient temperature of 131 degrees Fahrenheit, shall not exceed the following:
- A maximum of 10% reduction in light output after 10,000 hours of continuous on-time.

- A maximum of 25% reduction in light output after 50,000 hours of continuous on-time.

- Manufacturers documentation for high temperature operating life (HTOL) shall indicate if HTOL values are based upon actual or extrapolated data.

LED Display Modules

- The LED display modules shall have a minimum refresh rate of 60 times per second to prevent visible flicker.

- The LED's shall be grouped in pixels consisting of discrete LED's arranged in a continuous matrix display with individual pixel addressability. The centers of all pixels shall be arranged so as to maintain the same horizontal and vertical spacing between adjacent pixels. All pixels shall be replaceable. The LED grouping and mounting angle shall be optimized for maximum readability.

- The electronics for the LED VMS shall be fully configured to drive the total required number of LED's. The failure of any one pixel shall not affect the operation of any other pixel. The power driver circuitry shall be designed to minimize power consumption. Each LED display module shall have a diagnostic capability to detect a failure on the LED display module, down to the pixel level and report the failure to the VMS controller.

- Removal of any display module shall not affect the operation of the remaining modules.

- The LED VMS shall be protected from degradation due to sunlight. The method used shall not obstruct the view of the display or reduce the viewing angle below that provided by an unprotected LED VMS. The method and design of the LED VMS sunlight protection shall be approved by the Representative.

- Each pixel shall contain an adequate number of discrete LED's, based on a nominal pixel spacing of 2.57 inches (center to center) to meet the luminosity requirements herein.

- Each discrete LED on the display module is driven at the LED manufacturer's recommended drive current to achieve a minimum of 100,000 hours of operation without catastrophic failure.

- The full graphic display of the LED VMS shall be clearly visible and legible from in-vehicle viewing distance of 900 feet from the VMS face under clear daylight and nighttime conditions with the VMS face positioned in the roadway line of sight configuration shown on the Contract Drawings.

Dimming Circuitry

- The LED VMS shall have a photocell controlled dimming circuit which shall automatically adjust the luminance of the VMS display pixels in accordance with ambient light conditions. As part of the Contractor's shop drawing submittal, a complete schematic of the LED display power, driver and dimming circuits shall be provided for approval by the Representative.

- Continuous current drive shall be used at the maximum brightness level. The current used for maximum brightness shall not exceed the current used to achieve the rated mean time before failure (MTBF). The current used for maximum brightness shall be indicated as part of the shop drawing submittal.

- For luminance levels less than maximum brightness, either continuous current drive or current pulse width modulation shall be used to dim the LED's. If pulse width modulation is used, the dimming circuit shall be designed so that the maximum, instantaneous and average currents shall not exceed the rated peak and transient forward current ratings of the LED's.

- The LED VMS shall be equipped with a minimum of two external light sensors oriented in opposite directions and shall be scaled for up to 100,000 lux.

- The LED dimming circuit shall also incorporate temperature controlled dimming, which shall reduce the current through the LED's based on the temperature inside the VMS enclosure, so that the LED current does not exceed the rated LED current at that temperature. If the temperature of the VMS exceeds the rated operating temperature of the LED's the VMS shall blank-out, until the temperature has returned to safe operating levels.

- The LED dimming circuit shall not cause the LED display to flicker as the temperature oscillates above and below the rated operating temperature of the LED's.

Power Supply

- The LED display shall be operated at a low internal DC voltage not exceeding 24 Volts.
- The quantity of power supplies and current rating of each power supply shall be at least 25% spare capacity over that required to light every pixel of the LED VMS at full brightness.
- The LED VMS and controller shall have redundant power supplies wired so that in the event of a failure of any one power supply, the second power supply shall

automatically power that portion of the sign. Power supply failure shall be automatically reported by the VMS controller when polled by the VMS Central Processor.

- The power supplies shall be short circuit protected and shall reset automatically after 5 seconds of AC power off. The power supplies shall be protected by a suitable overcurrent protection device.
- The power supply shall have an efficiency rating of 85%, minimum.
- The operating temperature range of the power supply inside the VMS enclosure shall be -20 degrees Fahrenheit to 140 degrees Fahrenheit.
- The power supply shall be UL listed.

Sign Enclosures

- The LED VMS enclosures shall be of such design and shape as to house all necessary LED display modules, LED display driver electronics, transformers, and power supplies unless otherwise indicated on the Contract Drawings. The LED VMS enclosures shall have a weatherproof housing.
- The LED VMS enclosures shall be constructed of corrosion resistant aluminum material conforming to the following:
- Sheet aluminum shall be fabricated from aluminum alloy sheet meeting the requirements of ASTM B 209, Alloy 5052, Temper H3, or equivalent, minimum 0.125 inch thick. Cast aluminum shall be fabricated from aluminum alloy meeting the requirements of ASTM B 686, Alloy A 356 (A 13560) or equivalent. Flat cast surfaces exceeding 12 inches in both directions shall have a minimum thickness of 0.25 inches. Flat cast surfaces not exceeding 12 inches in both directions shall have a minimum thickness of 0.187 inches.
- All LED VMS enclosures shall meet the requirements for TYPE 3R enclosures according to NEMA Standard Publication 250. All seams and openings shall be designed to prevent entry of water resulting from high pressure washing of the LED VMS enclosure.
- Unpainted aluminum VMS enclosures shall be fabricated from mill-finish material and shall be cleaned using appropriate methods that will remove oil, film, weld black, and mill ink marks and render the surface clean, bright, smooth, and non-sticky to touch.
- Isolate all adjacent dissimilar materials, as approved by the Representative.
- All nuts and bolts used in the VMS assembly shall be stainless steel. All connecting surfaces shall be weatherproof and watertight when secured. All internal components shall be mounted so that there are no external protrusions.
- The LED VMS shall be in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals, except as modified herein: The VMS enclosures shall be designed and constructed to present a clean, neat appearance and the equipment located inside shall be

adequately protected from moisture, dust, dirt, corrosion, and excessive heat.

- All surfaces shall be suitably protected from the weather and painted. All corners and seams shall be heli-arc welded to provide a weatherproof seal around the entire case.
- The LED VMS enclosure shall not be adversely affected by salt from the roadways or marine environments or chemicals or fumes discharged from nearby automobiles, industries and other sources. The interior of the VMS face window and the LED's shall be easily accessible for cleaning and other maintenance.
- Appropriate precautions, such as heating elements or ventilation fans or openings, shall be taken to ensure that condensation does not occur between the matrix elements and the VMS window face, and that the environment inside all enclosures remains within the temperature and humidity limits required for proper operation of the sign's electronic components.
- All hinges used shall be continuous stainless steel, equipped with stainless steel hinge pins. Each hinge shall be secured with stainless steel bolts and lock nuts. The hinge pins and bolts shall be tamper proof.
- The dead load shall consist of the total weight as installed of the VMS enclosure and appurtenances. The point of application of weights of the individual items shall be their representative centers of gravity.
- Ice load shall be as per AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals except that ice load shall be applied to all sides and top surfaces of the VMS enclosure simultaneously.
- Wind load shall be as per AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals except as modified herein. The enclosure and their mountings shall withstand a sustained wind speed of 90 miles per hour (mph), with a gust factor of 1.3.
- Full 100 percent impact shall be used for handling and erection stress.
- The Contractor shall furnish mounting brackets that will allow for field adjustment of the VMS housing for optimizing the viewing angle after installation.
- The signs shall be capable of being mounted without gaining access to the inside of the enclosure. Any mounting eyes shall be attached to the VMS enclosure structural framing. The LED VMS enclosure shall be adaptable for mounting as shown on the Contract Drawings.
- Removal of any of the display modules or any other electronic or electrical component, shall not alter the structural integrity of the VMS display assembly or the VMS enclosure.
- For the VMS on PennDOT I-70, access to the interior of the VMS enclosure shall be rear access via canopy doors. Access to the interior of the VMS enclosure on the mainline (MP 162- MP 172) shall be rear access via canopy doors. No walk-

in housings shall be permitted. The access doors shall be hinged at the top and at some other intermediate point, so that when the access doors are in the open position, they shall create a temporary shelter that consists of a roof and partial rear wall. When all of the doors are open, the canopy shall protect the electronic equipment and maintenance personnel from the elements. The gap between two adjacent doors shall be no larger than 3/4 inch. Opening a canopy door shall allow maintenance personnel immediate access to circuit boards and internal sign parts, without having to remove any item in the sign, or the need to use any tools or to remove any device that could be dropped or lost, such as a locking pin or bolt. Each door shall be sealed to prevent the elements from entering, and shall have at least two locking points to keep unauthorized persons from accessing the interior of the VMS Sign. In addition, each door shall be provided with rigid, telescopic, retention device, to keep the door in the open position.

Alternate rear-access doors are acceptable. When in the open position, the doors shall not obstruct any portion of the opening. The doors system shall pull the door tight and compress a gasket located around the perimeter. The gasket shall prevent water from the interior of the cabinet.

- All serviceable components shall be modular, interchangeable and removable from within the VMS enclosure. The sign design shall allow unobstructed and convenient access to all serviceable components within the VMS enclosure and between the VMS display and the VMS display cover.

- Drain holes shall be provided and designed to remove any condensation that may form inside the VMS enclosure and allow any water that may have collected in the housing to escape. All holes shall be screened to prevent small objects, insects and creatures from entering into the enclosure.

<u>Ventilation</u>

- Electric exhaust fans shall be provided and sized to provide 25 percent excess ventilation capacity, with one fan inoperative, over that required to maintain the VMS enclosure interior temperature within the range over which the LED VMS components can operate without failure or degradation, during full daylight heat gain conditions. All fans shall have ball or roller bearings. Fan operation and failure shall be reported to the VMS Central Processor via the communications protocol.

- Louvered air inlets with removable, non-proprietary 500 micron, 2-stage filters and air deflector, sized to provide a maximum air intake velocity of 600 feet per minute with all fans operating. The direction of airflow and the filter characteristics (i.e. filter model number, type, dimensions and particle size) shall be permanently engraved on each air vent. Exhaust air vents, if without filters, shall be screened to prevent small objects and creatures from entering into the enclosure.

- Heating, cooling and dehumidifying equipment sized to maintain the internal VMS enclosure temperature within the operating ranges of the electric, electronic and

mechanical equipment components. The environmental equipment shall have controls which shall shutdown the LED VMS just prior to the temperature that the interior of the enclosure reaches the rated maximum operating temperature of the LED's, and shall restore operation when the temperature has returned to safe operating levels. The shutdown shall be automatically reported by the VMS controller when polled by the VMS Central Processor.

VMS Controller

- For the VMS along the mainline (MP 162 – MP 172), the PROPOSER shall utilize the existing cabinet to install the new VMS controller. All unnecessary materials utilized for the existing VMS shall be removed and disposed at the PROPOSED expense.
- The VMS controller shall be a microprocessor-based unit with sufficient on-board memory and input and output interfaces to provide all the functions required by this Section.
- The VMS controller shall accommodate both local and remote control from multiple host devices as described herein. Local control shall be supported from a locally connected Sign Programmer and local control panel unless otherwise indicated on the Contract Drawings. Remote control shall be supported from a remotely located VMS Central Processor (control computer system) unless otherwise indicated on the Contract Drawings.
- The VMS controller shall receive and interpret commands sent by the host device to either configure the VMS or cause a requested message to be displayed on the VMS. Based on the command, the VMS Controller shall provide return data to the host device to provide information about the status of the sign.
- The VMS controller shall be capable of simultaneously receiving commands from and transmitting status data to multiple host devices, i.e. the sign programmer, local control panel and the VMS Central Processor.
- The method of control of the LED VMS shall be dependent upon the setting of the Control Mode Selector switch in each local control panel. This switch shall allow for two modes of operation:
- "Remote" mode: This is the normal mode of operation of the LED VMS, where all control is from a remote VMS Central Processor, via NTCIP data exchanged directly between the remote VMS Central Processor and the VMS controller.
- "Local" mode: When the Control Mode Selector switch is in this position, control from the remote VMS Central Processor shall be disabled and the LED VMS shall be controlled in accordance with commands entered via the message selector switch on the Local Control Panel or a NTCIP data exchanged directly with a locally connected Sign Programmer. When in "local" mode, the remote VMS Central Processor shall still be able to monitor the status of the LED VMS.
- When switching from one mode to another, the LED VMS shall continue to display its current message, until it receives a command to display another

message, from either the remote VMS Central Processor or the local controls, as applicable.

- A change of position of the mode selector switch shall be reported to the VMS Central Processor, via the communications protocol.
- Each VMS controller shall have error detection and reporting features, which shall be utilized to guard against incomplete, or incorrect information transmission and message generation and display on the VMS face, as well as capability to detect a failure down to a replaceable component and report the failure and failed component. All errors and hardware failures shall be logged and reported to the VMS Central Processor, or Sign Programmer (if connected), via the communications protocol. The VMS controller shall have the capability to automatically recover from failure conditions when the failure conditions are corrected or the failures are no longer present, and report the restored operation of the LED VMS to the VMS Central Processor or sign programmer if connected.
- The VMS controller shall have diagnostic capabilities features to:
    - perform redundant checking of all data received and transmitted, incorporate cyclic redundancy check (CRC) error detection logic, as specified by the NTCIP standards (see below).
    - validate the content of all received transmissions.
    - check and report logic or data errors.
    - monitor status for communication line malfunction or break.
    - respond to system polling from the VMS Central Processor.
    - check and report errors in display driver operation. check and report the failure and location of bad pixels.
    - check and report the failure of bad fans
    - check and report whether the controller cabinet or VMS enclosure door is open or closed.
    - check the operation and report the failure and location of bad power supplies.
    - check the duration of power failures.
    - check and report the number of occurrences the watchdog timer resets the controller.
- Whenever any of the following error or failure conditions is detected, the controller shall blank the VMS and shall include the error or failure in the return message. Information of the specific failures shall be sent to the VMS Central Processor.
    - The number of pixels that are not working for the particular sign type exceed a specified maximum value. The Contractor shall determine this number for each sign type and have these numbers approved by the

Representative.

- The ratio of the number of pixels that actually achieve a commanded state divided by the number of pixels actually commanded to that state exceeds a legibility threshold value. The test shall include only those pixels that are contained in the actual character positions of the message text.
- Communication loss greater than a configurable time value measured in minutes. The default value shall be 10 minutes. If a system poll is not received within a configurable threshold period, the controller shall blank all signs connected to it. The configuration of system polling shall also have an option for disabling this feature.
- Upon detection of a power failure to the VMS controller or the LED VMS display(s) connected to the controller the current message displayed on the LED VMS just prior to the power failure shall be retained in memory.
- Upon power restoration, the LED VMS shall remain blank if the duration of the power failure exceeded the configurable long term power failure duration threshold, else the previous message shall be restored to its respective LED VMS. The default value of the long term power failure duration threshold shall be 10 minutes.
- Overheating condition in VMS enclosure: The LED dimming circuit shall also incorporate temperature controlled dimming, which shall reduce the current through the LED's based on the temperature inside the VMS enclosure, so that the LED current does not exceed the rated LED current at that temperature. If the temperature of the VMS exceeds the rated operating temperature of the LED's the VMS shall blank-out, until the temperature has returned to safe operating levels.

- Each VMS controller shall have the capability of displaying messages transmitted directly from a VMS Central Processor or Sign Programmer in addition to displaying locally commanded messages displayed from a pre-programmed local message library. Each sign's local message library shall have the capacity to store a minimum of 256 display messages with related display attributes for each message, such as flashing rate and percent "on" time. The local message library shall consist of:
  - A "changeable, non-volatile" local message library stored in battery backed RAM. The changeable local message library shall be programmable through both the VMS Central Processor and the Sign Programmer. The minimum number of "changeable" local messages, message text and associated display parameters shall be as defined in Table 1 below.
  - A "permanent, non-volatile" local message library, stored on EPROM shall be provided. Battery-backed RAM memory shall not be acceptable. The number of "permanent" local messages, message text and associated display parameters are indicated in Table 1 and Table 2 below in a generic manner; however, the Representative may request that the actual number

of permanent messages might be larger and that the actual message be change. If a microprocessor-based controller is used then EEPROM, flash RAM or similar technology memory devices, programmed as described herein, may be used to store the message library.

- Each VMS controller shall write messages on the LED VMS at a minimum rate of 300 characters per second.
- Each VMS controller shall have an easily accessible and clearly labeled ON/OFF switch. When in the "OFF" position all power shall be disconnected from the VMS control electronics and matrix units and the LED VMS displays shall blank out.
- The VMS controller shall have a momentary contact switch which resets the VMS controller when depressed. Operation of the momentary contact switch shall not require the user to hold the switch in the depressed position for more than 0.25 seconds.
- The VMS controller shall interface and communicate with one or more Operator Interfaces, as indicated on the Contract Drawings. Operator Interfaces and associated functions shall be as described elsewhere herein.
- The VMS controller shall be provided with all software and hardware required to perform the following functions:
    - Password protection to restrict access to control & configuration functions.
    - Fully programmable parameters for all functions described in this section.
    - Real-time clock and calendar for timing and scheduling of automatic functions. The calendar shall automatically adjust itself for leap years, and for changeover from Standard to Daylight savings time and back.
    - Variable message flash rate and percent "on" time.
    - Flash rate shall be adjustable in one-tenth second increments.
    - Percent "on" time shall be adjustable from 0 to 9.9 seconds, in one-tenth second increments.
    - Multi-page messages with variable page display times that are adjustable in one-tenth second increments from 0 to 15.0 seconds.
    - Negative text inversion (or inverse/reverse video) - switch between illuminated text on a dark background or dark text on an illuminated background. Inverse/reverse video shall be implemented with the use of standard NTCIP foreground and background objects.
    - Displayed line justification (center, left or right) with center justification as the default setting.
    - Displayed page justification (top, center, bottom) with center justification as the default setting.
    - Displayed message duration parameter, to specify how long the current message should remain displayed regardless of the status of the

communications with the VMS Central Processor.

- Communications Loss message threshold, to specify how long the current message should remain displayed in the absence of communications with the VMS Central Processor.
- Control of pixel luminance levels, both directly and based on ambient light levels obtained from the photocells. Luminance levels shall be stored in the VMS Controller and shall be adjustable, in a range of 0 to 255, on either:
- A continuous logarithmic basis, to match the normal human eye luminous response characteristic, or
- A 1/2 incremental dimming basis, where each lower dimming level is 1/2 the previous level.
- Monitoring of each pixel of the LED VMS.
- Monitoring of power failures: When a power failure is detected, the displayed message shall be retained in memory. If power to the VMS controller is restored within a configurable period of time, the last displayed message shall be restored. If the duration of the power failure exceeds the configured period of time, the LED VMS shall remain blank, until a command to display a message is received. Upon restoration of power, the VMS controller shall report the occurrence, time and duration of the power failure, to the VMS Central Processor or Sign Programmer, if connected.
- Hardware watchdog timer: The VMS controller shall have a hardware watchdog timer that shall check for a stall condition in the controller hardware, software or firmware. While the VMS controller is powered on, the software shall poll the watchdog timer. Upon reset, the watchdog timer shall initialize its timing circuit. If the watchdog timing circuit times out without being reset by the software, the watchdog counter shall be incremented and the watchdog shall reset the controller to clear a potential stall condition from the hardware, software or firmware and send an error message to the VMS Central Processor or Sign programmer, if connected, to advise of the condition. The number of occurrences the watchdog timer resets the controller shall be transmitted to the VMS Central Processor or Sign programmer, if connected, upon request, then cleared.
- Programmable Font Sets: The VMS controller shall support a minimum of 4 programmable font sets. Each font set shall be capable of being programmed from the VMS Central Processor or the Sign Programmer if connected. Three of the font sets shall look like the E-modified font set defined by the MUTCD, replicating the appearance of the font used on some static signage on the LED VMS. A single, double and triple stroke E-modified font shall be provided. A fourth font set shall be provided and shall replicate the Helvetica Medium font used on most static signage at the facility where the VMS is to be installed. Alternate font sets shall be provided if otherwise indicated on the Contract Drawings. All font sets

shall be submitted to the Representative for approval.

- Each font set shall include, but not be limited to, all upper case letters, numerals, punctuation marks and arrows that are displayed in each of the eight cardinal directions.
- The VMS controller shall keep a log of all system errors, malfunctions, automatic operations and locally controlled commands and activities. All logs shall be time and date stamped. The VMS controller shall have sufficient memory to store a minimum of 500 log entries. If 100% of the log storage memory has been reached without a successful download to the VMS Central Processor or a Sign Programmer, the oldest log entry shall be overwritten. The VMS controller shall download all log entries to a VMS Central Processor or Sign Programmer, upon user request from one of these devices and clear the log.

Communications

- The VMS between MP 162 and 172 shall utilize the existing fiber optics communications cables and terminals from the current system. The proposed VMS on PennDOT I-70 shall utilize a CDMA modem that will be provided by the Commission. The contractor shall provide layout space for the modem and antenna as well as provide power to this modem within the cabinet.

- The VMS controller shall have a minimum of two (2) serial data and one (1) Ethernet communications ports to facilitate simultaneous communications for local and remote control, programming and diagnostics.

- When connected to a serial port, the VMS shall automatically use the NTCIP communications stack associated with serial communications, i.e., NTCIP 2101, NTCIP 2201, and NTCIP 2301.

- When connected to the Ethernet port, the VMS shall automatically use the NTCIP communications stack associated with Ethernet communications, i.e., NTCIP 2104, NTCIP 2202, and NTCIP 2301.

  All ports shall be configurable.
  - Communications with the serial ports shall support all typical serial baud rates ranging from 1200 to 115,200 baud.
  - Communications with the Ethernet port shall be capable of communicating via TCP/IP or UDP/IP at 10 or 100 MB.

  The serial ports in the VMS sign controller shall be protected with surge protection to protect the modem communication port from over-voltage and over-current conditions between each signal line and ground.

VMS Software

- Furnish NTCIP compatible control/diagnostic software for the purpose of troubleshooting and testing during installation and testing. The software shall send requests to and receive responses over any TCP/IP-based network for the functions of controlling VMS messaging, monitoring system status and perform VMS diagnostics (detecting failed pixels, display drivers, power supplies, alarm conditions etc.).

- For the details and definitions for the actual NTCIP communications protocols used to accomplish this, see below.

Cabinet and Concrete Foundation (applicable only for sign along PennDOT I-70)

- Furnish a ground-mounted controller cabinet that shall be constructed to have a neat, professional appearance. The cabinet shall protect all internal components from rain, ice, dust and corrosion in an accordance with NEMA 3R standards, as described in *NEMA Standards Publication 250* and be made of aluminum (0.125-inch thick). The cabinet shall include the following:
    - A full-height standard EIA 19-inch rack
    - The main power supply and energy distribution system (main disconnect)
    - One work lamp to illuminate the work area, when the cabinet door is open (lamp shall automatically turn off when cabinet door is closed)
    - At least one 15 Amp, 120 VAC GFCI protected duplex service outlet
    - Lightning protection and terminations for the communication and control cables
    - Termination blocks for the control cables to and from the VMS sign housing
    - Permanently mounted document holder
    - Electrical drawings shall printed on water/tear-resistant material
    - A pullout shelf
    - An open door alarm that reports to the VMS controller
    - Surge protection on all incoming power lines meeting the following minimum specifications:
    - Maximum Clamp Voltage: 340V
    - Peak Current: 20,000 Amps
    - Response Time 5 nanoseconds
    - Occurrences 20 times at peak current
    - Minimum Series Inductance: 200 microhenries

Catwalk and Enclosed Ladder for rear access sign (applicable only for sign along PennDOT I-70)

- Furnish an anti-skid catwalk with handrails to offset the back of the sign from the structure, and to provide workspace for maintenance personnel and door clearance for rear access VMS. For access to the catwalk from the roadside, furnish a

ladder permanently attached to the back side (rear access VMS) of the post. The ladder shall be enclosed with accessibility to be restricted by a door with a locking mechanism. Submit shop drawings to the Representative for approval.

NTCIP

- All VMS and associated control equipment shall comply with the latest approved versions of the National Transportation Communication for ITS Protocol (NTCIP) Standards during installation as detailed in the following NEMA Standard Publications.

    - NTCIP 1102:2004 (v01.15, October 2005) – Octet Encoding Rules (OER) Base Protocol
    - NTCIP 1103 v01.26 (Approved, November 2005) – NTCIP Transportation Management Protocol (TMP) Base Protocol
    - NTCIP 1201:1996 and Amendment 1 – Global Objects (GO) Definitions
    - NTCIP 1203:1997 and Amendment 1 – NTCIP Object Definitions for Dynamic Message Signs, or the current version of this standard
    - NTCIP 2101:2001 (v01.19, November 26, 2001) – Point–to-MultiPoint Protocol (PMPP) using RS-232 Subnetwork Profile
    - NTCIP 2104:2003 (v01.11, September 2005) – Ethernet Subnetwork Profile
    - NTCIP 2201:2003 (v01.15, September 2005) – Transportation Transport Profile
    - NTCIP 2202:2001 (v01.05, December 2001) – Internet (TCP/IP and UDP/IP) Transport Profile
    - NTCIP 2301:2001 (v01.08, December 2001) – AP-STMF (Simple Transportation Management Framework) – Conformance Level 1
    - NTCIP 8004 v01.37a (Approved) – Structure and Identification of Management Information (SMI) Base Protocol

- The proposed VMS shall support both of the following communications stacks and provide a configuration mechanism to select either one of these stacks:
    - For serial communications: NTCIP 2101, NTCIP 2201, and NTCIP 2301
    - For Ethernet-type communications: NTCIP 2104, NTCIP 2202, and NTCIP 2301

- Furnish and install all mandatory objects specified by the NTCIP specifications and all other objects, both NTCIP optional and the manufacturer specific, that are required to provide the functionality to meet the requirements of these specifications.

- Each VMS Component shall support the Full, Standardized Object Range (FSOR) of all objects required by these procurement specifications, unless otherwise indicated below or approved by the Representative.

- The VMS system shall not require the support of any agency-specific or manufacturer-specific objects. However, the Contractor shall propose any object definitions necessary to fulfill the above functional requirements that are not addressable by standardized NTCIP-defined object definitions. All functional requirements and the corresponding NTCIP objects have been carefully reviewed and only functions that have corresponding NTCIP objects have been selected. Manufacturer-specific objects may be implemented in the sign controller but they shall in no way required to be used in order to communicate with the sign.

- The VMS shall support all mandatory objects of all mandatory Conformance Groups as defined in NTCIP 1201 and NTCIP 1203 and their amendments.

- The NTCIP Component shall also implement all mandatory objects of the following optional conformance groups.

    - Time Management, as defined in NTCIP 1201
    - Timebase Event Schedule, as defined in NTCIP 1201. The following list indicates the modified object requirements for this conformance group.

    - In the event of a conflict between the Contract Drawings and Specifications and the NTCIP standards, the Representative shall be solely responsible for the identification of the acceptable solution.

Construction – Provide installation and layout plans for approval by the Representative before construction.

Position sign for optimum view for motorists as per sign specifications.

Install a VMS control cabinet and controller cabinet foundation (applicable only for sign along PennDOT I-70). Install concrete cabinet foundation in accordance with Sections 1001 and 1002. Excavation shall be in accordance with Section 204. Secure the cabinet to foundation such that the complete cabinet assembly withstands a wind load of 90 mph and a gust factor of 1.3.

Install all interconnection cables inside conduits, which run between the sign controller unit and the sign support structure and within the sign support structure itself.

- Associated Cables and Wiring. Provide all wiring and grounding conforming to the requirements of Section 1104.05. Size of conductors will be as required by load and distance.

- Install power and control necessary to operate the variable message signs. Install the cables in liquid tight conduit in concealed locations as indicated, between the nipples on the sign support and sign case. The cables will use the sign support beams and legs as raceway and will be installed in continuous, unspliced lengths between the sign case and the VMS controller. Provide sufficient slack to ensure

that the connections to the controller and the power source will be possible without the need to add or splice any cables.

Variable Message Sign Bonding. Provide a VMS having an all metallic enclosure (except for the viewing window) electrically bonded to the support structure at all mounting bolt locations, consisting of an electrical bond wire or properly prepared electrical contact points.

SINGLE POST MOUNTED SIGN STRUCTURE, NEW VMS (APPLICABLE ONLY FOR SIGN ALONG PennDOT I-70)

Description – This work is the construction of single-post mounted sign structure and foundation for the new Variable Message Signs furnished under this Contract at locations indicated. The sign structures will follow the PTC-310 and PennDOT ITS standards. Where there is a conflict between the two standards, the Commissions standards will govern.

Material – Sections 948.2 and 1105.02, and as follows:

A. Provide materials and workmanship in accordance with the above Sections and the AASHTO/AWS/D1.5 Bridge Welding Code. Use ANSI/AWS/D1.1 for welding not covered in AASTHO/AWS/D1.5.

B. Provide structural steel conforming to ASTM A 709, Grade 36 designation except where noted otherwise.

C. Provide welded or seamless steel pipe conforming to ASTM A 53, Grade B. AS an alternate. Provide welded or seamless steal pipe conforming to ASTM A 500, Grade B.

D. Provide high-strength steel bolts conforming to ASTM A 325. Provide anchor bolts conforming to ASTM F 1554, Grade 55. Mechanically galvanize all bolts, nuts, and washers. Provide U-bolts conforming to ASTM A 449.

E. Epoxy/Urethane Paint:

1. Prepare surfaces to be painted in accordance with paint manufacturer's recommendations.
2. Apply polyamaide epoxy primer to 2-3 mils dry, 4-6 mils wet.
3. Apply acrylic aliphatic urethane top coat to 4-6 mils dry, 6-10 wet.
4. Fully cure to manufacturer's recommendations.
5. Package for shipment.

F. Fabrication - Grind all areas to be welded to bright metal. Butt weld splices are not permitted, unless shown on the plans. Complete all welding and required testing before any material is galvanized. Non-destructively test all

circumferential and stiffener welds using methods and procedures in accordance with section 948. The acceptable criteria are stated in Table 6.1 of ANSI/AWS D1.1. Provide full penetration groove weld and inspect as specified above. Provide maximum weld uncut of 0.01".

Hot-dip galvanize all components (except reinforcement bars, aluminum, and non ferrous incidentals) after fabrication per ASTM A 123 or ASTM A 153, as appropriate.

Structural steel, including all connection hardware and mounting components, shall have an epoxy/urethane paint applied over the hot-dip galvanizing. Paint color shall be brown, Federal Standard 595B No. 30108 Brown. Submit a color chip to the Bridge Engineer Manager for approval prior to purchasing and application.

Construction – Section 948.3 and as follows:

Submit detailed shop drawings for review and acceptance. All material and workmanship will be inspected at the fabrication shop.

Measurement and Payment – Lump Sum, for the location indicated.

REMOVAL OF VARIABLE MESSAGE SIGN (along PennDOT I-70 at milepost 149.1 westbound)

Description – This work consists of all labor, equipment and materials necessary for the dismantling and disposal of the VMS, VMS structure; VMS control cabinet and foundation on PennDOT I-70 WB at milepost 149.1. This work will also include the re-grading and seeding of the entire area and will follow the use of Publication 213 (Temporary Traffic Control Guidelines). The PROPOSER will not be responsible for obtaining the Highway Occupancy Permit (HOP) from PennDOT District 9-0 Traffic Department before any work is conducted.

Construction – The Contractor will be responsible for the entire dismantling and removal of all items associated with this VMS in accordance with Section 202 of PennDOT Publication 408. Remove the foundation to a level 2 feet below the existing grade. Grade, seed and mulch, as per sections 802, 804 and 805, as applicable.

Measurement and Payment – Paid under VMS sign item.

APPENDIX C

PENNDOT PUBLICATION 408 SPECIFICATIONS

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A. GENERAL

1. The PROPOSER is expected to utilize the following PennDOT standard specifications within their design, when Commission standards are not prevalent. The list is provided for informational purposes and is not intended to be a complete list of potential standard items. All specific standard PennDOT items and quantities must be provided by the PROPOSER at the time of their Engineering Design submission. All standard items utilized by the PROPOSER shall follow Publication 408/2007 standards, latest version.

2. The PROPOSER is expected to utilize the following anticipated Special and Modified items within their design, as proposed for this project. The list is provided for informational purposes and is not intended to be a complete list of potential special items. All special items and quantities must be provided by the PROPOSER at the time of their Engineering Design submission.

Specification Section	Item Description
0201	CLEARING AND GRUBBING
0204	CLASS 3 EXCAVATION
0608	MOBILIZATION
0619	PERMANENT IMPACT ATTENUATING DEVICE, TYPE II, TEST LEVEL 3
0620	TERMINAL SECTION, SINGLE
0620	TYPE 2-SC GUIDE RAIL
0627	TEMPORARY CONCRETE BARRIER
0804	SEEDING AND SOIL SUPPLEMENTS - FORMULA D MODIFIED
0804	SEEDING AND SOIL SUPPLEMENTS - FORMULA L MODIFIED
0805	MULCHING - STRAW
0810	SELECTIVE TREE TRIMMING
0845	EROSION AND SEDIMENTATION CONTROL DURING CONSTRUCTION
0901	MAINTENANCE & PROTECTION OF TRAFFIC DURING CONSTRUCTION
0901	ARROW PANELS
4910	JUNCTION BOXES, PennDOT J.B.-2, MODIFIED
4910	2/0 ELECTRICAL CABLE, COPPER, 1 CONDUCTOR, THWN/THHN INSULATED
4910	1/0 ELECTRICAL CABLE, COPPER, 1 CONDUCTOR, THWN/THHN INSULATED
4910	AWG 2 ELECTRICAL CABLE, COPPER, 1 CONDUCTOR, THWN/THHN INSULATED
4910	AWG 4 ELECTRICAL CABLE, COPPER, 1 CONDUCTOR, THWN/THHN INSULATED
0910	2" DIRECT BURIAL SCHEDULE 40 PVC CONDUIT
0910	3" DIRECT BURIAL SCHEDULE 40 PVC CONDUIT
0910	2" EXPOSED GRS CONDUIT
0931	POST MOUNTED SIGNS TYPE B
0936	STRUCTURE MOUNTED EXTRUDED ALUMINUM CHANNEL SIGNS
0936	STRUCTURE MOUNTED FLAT SHEET ALUMINUM SIGNS
4954	2" CONDUIT, MODIFIED
0954	TRENCH AND BACKFILL
0954	JUNCTION BOX, JB-27

Specification Section	Item Description
0955	VEHICULAR SIGNAL HEAD, ONE-SECTION
1001	CLASS A CEMENT CONCRETE
1002	REINFORCEMENT BARS
SPECIAL	ELECTRIC UTILITY SERVICES
SPECIAL	TELEPHONE SERVICES
SPECIAL	CLOSED CIRCUIT TELEVISION SYSTEM
SPECIAL	CAMERA LOWERING SYSTEM WITH POLE
SPECIAL	MICROWAVE DETECTOR SYSTEM
SPECIAL	COMMUNICATIONS SYSTEM
SPECIAL	COMPUTERS
SPECIAL	12 PAIR, 20 AWG TELEPHONE CABLE, T-1 LINE
SPECIAL	COMMUNICATIONS EQUIPMENT
SPECIAL	35' WOODEN UTILITY POLE ASSEMBLY
SPECIAL	TESTING
SPECIAL	TRAINING
SPECIAL	3/4" EMT
SPECIAL	2" EMT
SPECIAL	GUY WIRE ASSEMBLY
SPECIAL	TRANSFORMER ASSEMBLY
9910	6" DIRECT BURIAL SCHEDULE 40 PVC CONDUIT
9937	FLEXIBLE DELINEATOR - RED
9937	FLEXIBLE DELINEATOR - ORANGE

APPENDIX D

SYSTEM AND EQUIPMENT TESTING, AND TRAINING

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SYSTEM AND EQUIPMENT TESTING, AND TRAINING

A. GENERAL TESTING PROCEDURE

1. The Engineer shall have the right to witness and/or assign a representative to witness any test required in the Contract Documents.

2. All tests shall be conducted in accordance with approved test procedures. Testing is to be conducted by a qualified representative of the manufacturer of the element to be tested. Pertinent quantitative and qualitative test results shall be recorded on data summary sheets. All test records shall be submitted to Commission immediately following the test.

3. The PROPOSER shall complete testing for each element, subsystem in as few consecutive days as possible.

4. The PROPOSER shall provide all testing equipment necessary to perform and complete the testing described in the Contract Documents.

5. All test procedures shall document what equipment function is being tested, the exact testing procedures, and outcome. All tests will be pass or fail. At the end of each testing section, an area for contractor signature, Commission signature and date will be required. Also, at the end of each testing section, an Ad-hoc area (1 page) will be required for Commission and its consultant to document any other tests performed.

B. EQUIPMENT TESTS

1. The PROPOSER shall perform all tests required by the Contract Documents to ensure that the equipment and assemblies intended to be furnished and installed, meet or exceed the requirements of the Contract Documents and are ready to be integrated into the overall existing ITS System at the Commission's Highspire facility.

2. The PROPOSER shall conduct the following tests, on each subsystem that will be furnished and installed under this Contract: Engineering Design Approval/Field View; Factory Acceptance Testing (FAT); System Acceptance Test (SAT); 30-Day Operational Test. Costs for re-testing any parts within project testing, shall be the responsibility of the PROPOSER. Costs include all transportation, lodging and meals for one (1) Commission employee and one (1) Commission representative.

    a. Engineering Design Approval: The PROPOSER will submit to the Commission their Engineering Design package for review and approval. The Commission will review the package and provide comments. Upon resolution of all the Commission comments, the PROPOSER along with the Commission representatives shall conduct the Design Field View review in the field, at each location, before any construction or factory tests are commenced.

b. Testing at Manufacturers Facility: The PROPOSER representative along with one (1) Commission employee and one (1) Commission representative shall observe Factory Acceptance Tests (FAT) at the VMS manufacturer's facility prior to shipping the equipment. FAT testing shall also include NTCIP compliance testing. The PROPOSER shall provide testing procedures to validate NTCIP 1201, 1203, 2001 and 1205. The PROPOSER shall define, implement and utilize a 3rd party to test that all proposed equipment features and functions will be tested using known and established standard NEMA mandatory and optional objects and procedures as opposed to implementing manufacturer-specific objects and procedures. The PROPOSER shall provide all necessary equipment and software required to fully test NTCIP compliance. A traceability matrix should demonstrate functional requirements mapped to the related MIB object(s), and test procedures. The PROPOSER shall require the approval by the Commission of the FAT testing procedures a minimum of 30-days before the start of FAT testing. The PROPOSER shall utilize a traceability matrix format to the testing procedures to demonstrate compliance to the specifications.

c. System Acceptance Testing (SAT): After the equipment has been installed at the designated locations, the PROPOSER shall perform system acceptance testing. This testing shall verify that equipment has been installed properly and is fully functional in the field, as well as in the TMC. It will be the responsibility of the PROPOSER, during SAT testing, to demonstrate through testing procedures that each piece of field equipment is fully functional in the field as a stand alone unit, as well as a piece of equipment that is part of the entire system and can be operated from the TMC. The PROPOSER shall require the approval by the Commission of the SAT testing procedures a minimum of 30-days before the start of SAT testing. The PROPOSER shall utilize a traceability matrix format to the testing procedures to demonstrate compliance to the specifications.

d. Fiber Optic Cable Tests: Concurrently to the SAT, all fiber optic cable in this contract, will be tested. For this testing, all fiber optic cable shall be fully operational for Commission personnel to operate.

e. Operational Acceptance Testing (OAT): Upon installation of all field equipment within Phase I and Phase II of this contract, Operational Acceptance Testing (OAT) will begin. For this testing, the entire system shall be fully operational for the Commission personnel to operate.

3. Testing shall be conducted at key points in time, at the developmental, or production stage in order to find and eliminate problems associated with the design and operation of the equipment. The completion of each test shall not relieve the PROPOSER from any re-testing that may be necessary to eliminate subsequent test failures. Re-testing of any test is to be conducted to the level necessary to isolate the problem and establish a course of action to resolve the failure. The PROPOSER shall be responsible for all costs, expenses for one (1) Commission personnel and one (1) Commission

representative for delays resulting from re-testing, correcting previous test failures, or re-testing.

C. DESIGN APPROVAL/FIELD VIEW

1. The PROPOSER shall provide five (5) half-size (11" x 17") and one (1) CD-ROM (files in PDF format) containing all plans and documentation required for field installation, as described in Appendix A. The Commission and its representatives will perform a thorough design review. The PROPOSER shall submit the plan set a minimum of 21-days prior to the scheduled field review date. All comments provided by the Commission or its representatives must be fully incorporated into the plan set prior to the start of the field view.

2. Upon reviewing the Design plan set, the PROPOSER shall receive a copy (in MS Word Format) of all comments made during the Commission's review. The PROPOSER must submit written responses to all comments within 10 days.

3. During the field review, the PROPOSER, Commission and its representatives shall visit VMS and fiber optic cable installation locations in the field. A review of the design and all design concerns will be addressed for each location.

4. The PROPOSER shall prepare test documentation, conduct testing, record results and repeat testing as required under the general testing requirements.

D. FACTORY ACCEPTANCE TESTING (FAT)

1. Factory acceptance tests shall verify that all equipment satisfies the full range of operational and functional requirements before the equipment is shipped to the vender's assembling plant or project site.

2. The PROPOSER shall provide all transportation, lodging, meal and any other business related expenses for one (1) Commission personnel and one (1) Commission representative to attend the FAT for the VMS components. All travel arrangements will be made by the PROPOSER for these two (2) representatives.

3. PROPOSER shall prepare factory acceptance test documentation. The FAT shall be conducted on 3 or more element units, depending on the quantity of units of a particular item. Factory Acceptance Tests shall be conducted at the manufacturer's facility for all other units provided for this project. The PROPOSER and vender shall complete and sign FAT test forms for equipment not tested in front of the Commission and its representative and shall provide these forms to the Commission.

4. Equipment shall not be shipped from the factory or the vender's assembling plant to the project site until submitted test records and certifications have been approved by the Commission.

5. FAT tests shall be conducted, and approved by the Commission a minimum of 30 days prior to the start of field installation and commissioning.

E. SYSTEM ACCEPTANCE TEST (SAT)

1. System Acceptance Tests shall verify that all equipment has been installed properly in the field and is fully operational in a local mode (at the field site) as well as in the TMC. It will be the responsibility of the PROPOSER, during SAT testing, to demonstrate through testing procedures that each piece of field equipment is fully functional in the field as a stand alone unit, as well as a piece of equipment that is part of the entire system and can be operated from the TMC. SAT approval of all contract equipment is required before the start of Operation Acceptance Testing (OAT).

2. The PROPOSER shall provide all transportation and any other business related expenses for one (1) Commission personnel and one (1) Commission representative to attend the SAT. All travel arrangements will be made by the PROPOSER for these two (2) representatives.

3. PROPOSER shall prepare System Acceptance Test (SAT) documentation. The SAT shall be conducted on all field devices. System Acceptance Tests shall be conducted in the field as well as in the TMC.

4. SAT tests shall be conducted, and approved by the Commission prior to the start of Operational Acceptance Testing.

5. During SAT testing, if there are more than 3 failures of any VMS or fiber optic cable testing procedures, the testing will be stopped and the PROPOSER shall make any and all necessary repairs. All repairs will be documented. Once the repair are completed, and the systems are retested by the PROPOSER to verify proper functionality, the PROPOSER shall send a written letter to the Commission requesting the continuance of SAT testing, and provide verification that the system is functional. Re-testing, due to equipment failure, or due to PROPOSER delay, will not be at the expense of the Commission. The PROPOSER shall be required to pay for all expenses, including meals and transportation of any of the Commission testing personnel, and up to one (1) of their assignee's during system re-testing, until the testing is completed.

6. When testing the VMS, the PROPOSER shall utilize generic messages depicting that the sign is under test. At no time during testing shall the PROPOSER utilize words such as "Road Closed", "Emergency", or other words that can indicate an incident to the motorists.

7. After installation and agreement by the Commission to initiate testing, the System shall be tested in compliance with the System Acceptance Test Plan. The System Acceptance Test shall be conducted with all devices and components integrated as a System at the construction site with use of simulation expressly limited to perform stress and performance testing. The test scripts shall be used to validate the intended function and

performance of all field devices and infrastructure components, e.g., local processors, network components, etc. System Acceptance Testing shall demonstrate that all equipment satisfies the specification requirements herein and design changes approved by Commission.

8. All repairs, construction, or modifications as required to comply with this Section shall be performed by the PROPOSER without additional cost to the Commission.

9. Submit to Commission a System Acceptance Test Report at the conclusion of the test at locations on Commission property for the purpose of verifying and validating the accuracy and integrity of the System as installed. The Commission will review the report and respond; indicating approval or noting changes required either in the performance of the Work or in the report. Make all changes or perform additional Work as the Commission may direct prior to the start of the Operational Test.

10. Due to the need to advise patrons of traffic advisories, each Variable Message Sign (VMS) shall be placed into service upon successful completion of the test for that VMS. Prior to the installation of any VMS, however, install, configure and complete the field test for the Sign Management System to operate all of the VMS.

F. FIBER OPTIC CABLE TESTING

1. The PROPOSER shall submit a fiber optic testing plan for all fiber installed, to the Commission for review and approval prior to starting the test.

2. Prior to installing the fiber optic cable, the PROPOSER shall conduct such the below tests to ensure that the cable is in good condition and meets the specifications. The PROPOSER shall provide report to the Engineer of these tests.

3. After installing a fiber optic cable between termination points, the PROPOSER shall immediately test the cable. The PROPOSER shall present the test results to the Engineer for approval within one week of the test. The PROPOSER shall test the entire length of each fiber in each cable using an Optical Time Domain Reflectometer (OTDR), testing for all the wavelengths that the fiber is designed to carry. The Commission or his representative will witness all OTDR tests. The PROPOSER shall give the Commission durable, labeled plots of the results for each fiber, and shall also provide these plots on electronic media. The plots shall have a record of all OTDR settings and the OTDR locations written on the trace. The PROPOSER shall also submit a listing of splices and the associated losses in tabular form, along with calculations demonstrating that the OTDR results for each fiber meet the attenuation requirements of these specifications and that the optical properties of the cable have not been impaired by the installation.

4. If special software is necessary to view the results of the OTDR tests on a personal computer, two licensed copies of the software associated with these test shall be

provided to the Commission. The cost of this software will be considered incidental to the testing.

5. Also, perform an attenuation test with an optical power meter to demonstrate that the connectors at the ends of the run meet the attenuation specifications.

6. If the test results indicate that the cable, splices, or terminations do not meet the attenuation specifications, or if they indicate that the optical properties of the cable have been impaired during the installation, then the PROPOSER shall, at his expense, take such action as the Commission may approve to correct the problem. This may entail complete replacement of the fiber optic cable.

7. The PROPOSER shall, at a minimum, include the following documentation and tests in the fiber optic cable testing program:

   (a) List of test equipment;
   (b) Cable attenuation measurements in both directions at all wavelengths, including average link losses, for every fiber in every segment of every cable;
   (c) Loss for each splice and connection;
   (d) OTDR trace to each fiber with every event annotated as to what caused the event; and
   (e) Calculations demonstrating that the OTDR results for each fiber meet the attenuation requirements of these specifications.

8. The PROPOSER shall conduct Bit Error Rate Tests (BERT) tests in conjunction with circuit loop back tests to helps isolate equipment or line segments with degraded performance or certifies circuits for tune up and operational used. Typically, the technician will activate a loop back on one end of the communications link and activate the BERT test on the other and conduct the test for a certain period of time.

9. The PROPOSER supplied BERT tester functions shall include the following capabilities:

   (a) Input and output flow control, (Xon/Xoff and hardware)
   (b) Test patterns include QBF, 63, 511, 2047, alternate mark/space, all printable characters, all 256 hex values.
   (c) BERT tests can be timed or continuous.
   (d) The polling tests can be sync or async.
   (e) The BERT shall be capable of being the polling master or can be set to one of 16 remote addresses (slave). The unit shall be able to be polling only, or data blocks of various sizes can be sent at various rates. The unit shall be programmable control over the time from CTS until data is sent, the timeout, number of sync characters, or re-transmit criteria.
   (f) Timing tests include RTS/CTS delay, character counting, echo time measurement, modem clock speed measurement, flow control response time, transition time from high to low or low to high state of control leads, high or low status of control leads.

10. The BERT tester shall be able to fully test the following application:

    (a) Polling tests
    (b) Bit error rate testing
    (c) Throughput testing
    (d) Testing multiplexers
    (e) Testing modems
    (f) Testing terminal, printer and personal computers
    (g) Testing terminal servers
    (h) Bench testing or field testing
    (i) RTS/CTS delay measurement
    (j) Sync operation to 64 Kbps
    (k) Async operation to 38.4 Kbps
    (l) Externally clocked async operation to 64 Kbps
    (m) Test patterns - QBF, QBF###, 63, 511, 2047, alt mark/space, printable characters, all 256 hex characters
    (n) RS-232C male DTE connector

11. The PROPOSER shall submit a BERT testing plan for all serial data circuits installed to the Commission for review and approval prior to starting the test. Each BERT test shall be conducted for a minimum of 10 minutes utilizing at least two different test patterns. All BERT testing shall be conducted in the presence of the Commission.

G. OPERATIONAL ACCEPTANCE TEST (OAT)

1. Upon notification from the Commission of approval of the System Acceptance Test Report for the System including all of the subsystems and the PROPOSER's certification that the System is ready for operational testing, an Operational Test phase shall commence. The Operational Test shall be performed by the Commission operating staff with the advice and assistance of the PROPOSER operating the System during a thirty (30) consecutive day period.

2. During this period, the Commission's operating staff will operate the System as specified in the Operational Acceptance Test Plan using the final version of all applicable manuals, printed guides and procedures. During the test, field elements must be continuously monitored with daily reports generated to confirm proper integration with the software. Correct, as determined by the Commission, any Failure or malfunction of material significance during the test period. Said malfunctions include, but are not to be limited to, equipment failure or failure of the System or any subsystem to comply with the requirements stipulated in the Contract. A Failure that requires correction before proceeding with the testing is defined as any failure of any item of the equipment or software, or both, that prevents the Commission operating staff from performing meaningful use of the System or any subsystem.

3. If a subsystem has a Failure, as determined by the Commission or its representatives, then the Operational Test for that subsystem shall restart from day one. After the PROPOSER corrects a Failure for two (2) or more subsystems, the Operational Test for the entire System shall restart at day one, and shall continue until the results meet the conditions and terms of the performance period. During the Operational Test phase, the Commission, based upon information provided by the Commission operating staff, will determine the System's standard of performance as described herein and whether any failure shall be considered a Failure.

4. In the case where ten percent (10%) of similar equipment malfunctions during the test period, the Commission may declare a system defect and require replacement of similar equipment. When a system defect is declared, restart the 30-Day test for that specific system. The 30-day test period is to begin when all similar equipment is replaced and a system acceptance retest has been successfully completed. A total of 60 calendar days is provided for retests.

    a. Performance Period

    The Performance Period for operational testing shall begin on the date of notification to the PROPOSER by the Commission to commence operational testing and shall end when the System has met the Standard of Performance for the consecutive days required by operating in conformity with the Contract at the required Availability Level stated in the Specifications.

    b. Exchange and Expansion Equipment During System and Operational Testing

    Certify in writing to the Commission when exchange or expansion equipment, devices, or components are installed and ready for use. For the purpose of this Section, "expansion" is used to denote equipment, which is not specified in the approved final design Bill of Materials. Provide an Equipment or Component Installation Certificate, including date, for the equipment or component. If this occurs during the 30-day Operational Test, the performance period of thirty consecutive calendar days for the operational test shall recommence on the first Commission work day following acceptance of the PROPOSER's Equipment or Component Installation Certificate, at which time operational testing shall commence. It is not required that one thirty day period expire in order for another performance period to begin.

H. TEST DOCUMENTATION

1. The PROPOSER shall provide test documentation, including at a minimum, test equipment, special test software, test procedures, checklist, test forms and data summary sheets. Test documentation shall:

    a. Demonstrate that the System satisfies the intended project functionalities.

b. Reference the requirements matrix to show that all requirements will be tested to demonstrate compliance with the Basic Design Criteria.

Test procedures, test forms and checklists shall be referenced to the Contract Document requirements, listing each requirement to be tested.

2. Test documentation shall be submitted for Engineer's approval, at least 30 days prior to the scheduled start of testing. Test documentation that does not receive the Commission's approval shall be reworked until approved. Testing shall not start until test documentation has been approved. After test documentation is approved, PROPOSER shall provide at least 20 working day's notice prior to all tests to permit the Commission to schedule and observe each test.

I. TEST RESULTS AND ANALYSIS

1. The outcome of each test shall be compared with the specified functional performance and operational requirements. Failure to conform to the requirements of any test shall be considered a defect, and equipment and/or subsystems shall be subject to rejection by the Commission.

2. When an element unit is modified as a result of a defect, the PROPOSER shall prepare a report for the Commission's approval. The report shall describe the nature of the failure and the corrective action taken. If a failure pattern develops, the Commission may direct that design and construction modifications be made.

3. Equipment rejected because of defects limited to the specific unit being tested, may be offered for retest provided all non-compliant items have been corrected and re-tested by the PROPOSER and evidence thereof submitted to the Commission.

4. The PROPOSER shall analyze and categorize all defects as to whether they are limited to the specific unit being tested or are potential problems for all units.

5. For the case of defects common to multiple units, all deliverable units shall be modified without additional cost to the Commission. This modification includes design changes required to pass design approval tests.

6. If any of the test results fail to conform to the requirements of the applicable Technical Parameter, the equipment, subsystem or system failing shall be considered a defective item and shall be subject to rejection by the Commission. Rejected elements, sub-system or system may be offered for re-test, provided all the defects have been rectified by the PROPOSER and/or manufacturer and the required documentation submitted thereof to the Commission.

J. SYSTEM TESTING AND ACCEPTANCE

1. In addition to or as a supplement to all testing requirements described elsewhere in this part and the specifications, the PROPOSER shall conduct a full program of testing, the purpose of which shall be to demonstrate to the Commission's satisfaction that the System fulfills all of the specifications and requirements as set forth herein.

2. Pre-Acceptance Testing

    a. The PROPOSER shall be allowed to proceed with pre-acceptance testing without regular monitoring by the Commission. Without interrupting the PROPOSER's installation and testing schedule, the Commission and its representatives shall reserve the right to review testing progress and to witness the PROPOSER pre-acceptance tests. Test milestones for pre-acceptance testing shall be reflected in the Project Plan and Schedule, and testing progress shall be documented in the PROPOSER's regularly issued project status reports. The PROPOSER shall conduct all pre-acceptance tests to ensure compliance with the specification requirements herein and design changes approved by the Commission. Before proceeding with the assembly and integration of the subsystem equipment the PROPOSER shall test each unit of installed equipment on a stand alone basis. Subsequent to stand-alone equipment testing, the PROPOSER shall test the software and hardware components as an integrated subsystem.

    b. The PROPOSER shall certify the results of all pre acceptance tests and submit a certification to the Commission.

        1. Acceptance Testing Provisions - Prepare and deliver to the Commission a comprehensive Acceptance Test Plan that describes all the activities and tasks associated with testing during each test phase at least 30-days prior to the scheduled start of each test phase- Factory, System and Operational. The Acceptance Test Plan for each phase shall describe the activities and tasks associated with the tests to be performed during the appropriate acceptance test phase. At a minimum, the Acceptance Test Plan shall contain the following elements:

            a. A summary statement of the purpose and goal of each test phase

            b. The method of testing

            c. A description of the overall test environment

            d. A block diagram of all equipment and components used in the test Configuration

            e. Specification of the hardware and software required for the test which describes the number and type of devices to be used, describes what real-world inputs and outputs will be simulated and how the inputs and outputs will be simulated

f. A detailed matrix that identifies all design requirements and indicates where each requirement will be demonstrated as part of the test procedure. The matrix shall include, at a minimum, references to both the individual specification requirements and each approved design change.

g. A detailed test procedure which:

   1. Demonstrates that every feature and function to be provided in the furnished hardware and software conforms to the requirements of the Contract

   2. Identifies the contract requirements to be demonstrated as part of each individual test procedure through the specific references to both the specification requirements and the approved design changes

   3. Identifies the steps for each test to be performed, test purpose, conditions which will exist at the start of the test, and conditions/results expected at the conclusion of the test

   4. Identifies the success/failure status of each test along with adequate space for comments of the test witness to be recorded

   5. Describes the outputs to be provided to the Commission to document the test results (reports, database listings, statistical analyses, message displays, etc.).

h. After receipt of each Acceptance Test Plan, the Commission will review and comment on its content, and if necessary, the PROPOSER shall make appropriate changes to the Acceptance Test Plan to address the Commission's comments and resubmit the plan for Commission review and approval. the Commission requires a minimum of fifteen (15) workdays to review and comment or approves resubmitted test plans. Incorporate adequate time in the project schedule to address comments, resubmit a revised test plan, seek approval and perform each Acceptance test without changing the scheduled Acceptance test date. The PROPOSER shall be responsible for maintaining the scheduled date of all acceptance tests.

i. When all tests for a testing phase have been executed to the satisfaction of the Commission, prepare and deliver to the Commission an Acceptance Test Report along with the PROPOSER's written certification that the System has successfully passed all tests for that specific test phase. The Acceptance Test Report shall contain at a minimum the following sections:

   - Summary of the test phase

- Description of the tests performed to include, test conditions at start and end of each test, expected test results with Pass/Fail criteria, actual test results, signature block for individuals who witnessed the successful completion of the test, itemized list of unresolved items that were not completely compliant with the contract items and require correction prior to initiation of the next level of testing

- Action plan to conduct the next iteration of the test phase or a statement that the phase was completed successfully

j. the Commission and its representatives will evaluate each Acceptance Test Report and notify the PROPOSER of its evaluation. No acceptance test phase shall be initiated without the Commission's written approval of the Acceptance Test Plan specific to that phase, and no test phase shall be considered complete, nor may the PROPOSER proceed to the next step until the Commission has approved, in writing, the PROPOSER's Acceptance Test Report for the previous phase.

K. RECORD KEEPING

1. The PROPOSER shall develop and maintain during the life of the contract, a comment and response tracking log to facilitate monitoring the progress of all required submittals. The tracking log shall take the form of a spreadsheet or database and clearly delineate the process of all submittals up to and including final approval.

L. PROJECT IMPLEMENTATION REQUIREMENTS

The PROPOSER shall at its own expense prepare, maintain and update a detailed project plan and schedule as it relates to Work of this Section.

1. Project Plan and Schedule

Within thirty (30) calendar days after receipt by the PROPOSER of the acceptance of his Proposal and notice to proceed, the PROPOSER shall submit a Project Plan and Schedule to the Commission. The Project Plan and Schedule shall include Gantt charts with the critical path identified (using CPM) showing when tasks occur, when resources are required, and what task dependencies exist. The Project Plan and Schedule shall be of sufficient detail and clarity so that the Work can be reviewed and the Commission can monitor progress. The charts shall indicate a logical sequence of Work and identify all dependencies, personnel resources, material, equipment, and work areas required for completion of the Work. The degree of detail shall be sufficient to identify at a minimum:

a. Major contract phases, milestones and de1iverab1es as specified both within the PROPOSER's system development and installation methodology and those specifically identified herein.

b. Project activities with associated tasks and sub-tasks.

c. Interfaces and dependencies with preceding, concurrent, and succeeding work effort.

d. Resources needed and assignments down to the task level for staff, material, and equipment.

In addition to the above, the Project Plan and Schedule shall contain a detailed schedule for delivery of training, and any changes, updates or new information related to the PROPOSER's project organization, methodologies and standards, facilities, Quality Assurance Program or any other requirement, deliverable or feature related to the performance of the System, different from the information which the PROPOSER included in its Proposal.

2. Installation Plan of Technology Components

Prepare and deliver to the Commission a detailed Installation Plan of Technology Components that describes all the activities and tasks associated with the installation, integration, configuration and preparation of the central computer servers and subsystem components including communications equipment of the System prior to field testing. The Installation Plan shall also detail the stages of the System setup and configuration including the estimated time of completion for each stage. This plan shall be submitted for the Commission's review, and only upon the Commission's approval of the Installation Plan shall the PROPOSER commence the required Work.

The Installation Plan shall include the identification and description of all activities, tasks and stages of construction to be used in bringing the System to a fully operational state without disruption to current operation of the facility. Elements of the plan shall include, but are not limited to: installation plan drawings and product installation literature for all primary components of the System; a schedule and plan for the installation of all devices and computer hardware, and the loading of all software (with emphasis on what precautions shall be taken to minimize disruption of current operations); plans for the loading of the initial database; training; and. responsibilities for system administration during installation.

3. System Start-up and Initial System Administration - Once the Field Acceptance Testing has been successfully concluded, perform all activities necessary to ready the System for operation, including but not limited to:

- Instructions for System generation and loading of all initial data and parameters
- Data Initialization and Conversion (if any is required due to the PROPOSER's design)
- Initial database loading
- Initial Parameter Settings

- Adjustments of System parameters and thresholds to allow maximum performance and reliability shall be made as soon as practical.

The PROPOSER shall authorize and accept responsibility for application of power to equipment and initiation of operation, be responsible for running all initial diagnostics and System generation programs necessary to provide a complete working System.

4. Training

   a. Training Plan - Submit to the Commission for review and approval, a Training Plan which shall address Operator Training, Supervisor Training, System Administration Training and Maintenance Training. The Training Plan shall include at a minimum:

      1. A description of all training courses including identification of the purpose and goals of each course, duration of the course, type of presentations (lectures, labs) and identification of the facility and training equipment requirements (e.g., lecterns, overhead projectors, televisions, video cassette recorders, specific System hardware elements, etc.).

      2. A list of classroom instructors who shall conduct the training and description of their skills, experience and qualifications.

         a. Individual course curricula, course materials, manuals, study guides and workbooks.

         b. Course critique and evaluation forms for students.

         c. Post-training and or on-the-job technical reference guides.

         d. A detailed schedule for the delivery of all training courses.

      After receipt of the Training Plan, the Commission will comment on its content. Make appropriate changes to the Training Plan and resubmit for review and approval.

   b. Training Program

      1. After approval of the Training Plan and prior to the beginning of the Field Acceptance Test, conduct the specified training to the staff. The training program shall be implemented through the use of formal classroom training and/or other forms of presentation as recommended by the PROPOSER. The curriculum shall be designed so that each group of trainees shall be trained in the full repertoire of System commands which they may have to use in the course of performing their designated functions. Students shall be provided with complete sets of training materials and operating manuals during the training sessions, which they shall retain for use on the job at the completion of training.

Formal training shall also include a comprehensive student-testing program for determining that the intended training has been successfully imparted.

2. Submit to the Commission two (2) copies of each training manual for review and comment. After incorporating the Commission's comments, resubmit two (2) copies or each such manual until approved by the Commission. After approval by the Commission, submit to the Commission the number of copies of each approved manual as stipulated herein. In addition, submit three (3) CD-ROMS with an electronic version (PDF format) of the training manuals for future reproduction by the Commission.

3. Upon completion of each training program, prepare and submit to the Commission a training report which shall summarize the results of the training program, including a list of attendees and individual test results, course evaluation forms and recommendations for follow-up training or modifications to the curriculum.

c. Conduct of Training

1. Conduct the required training at the scheduled times and locations designated by the Commission consistent with the approved Training Plan. The full complement of training courses shall be conducted over the duration of this contract to accommodate shift personnel, vacations, new personnel and make-up sessions. The training shall include, but not be limited to, the following groupings of staff (with an estimated student population as stipulated herein). Re-fresher training will be required a maximum of two (2) times per year.

Staff Category	Number of Staff
Operations	8
Supervisory/Management/ System Administrators	6
Maintenance Supervisors	6

d. Training Manuals

1. Provide the Training Manuals and any other associated course materials, study guides and workbooks, as described in the approved Training Plan. These manuals shall be for instructional use during the Training Program, for study and for refresher use to provide training of all the features and functions of the System during normal and emergency operations. These manuals shall also be suitable for Commission use to train new operators, supervisors, system administrators and maintenance staff on an ongoing basis.

5. Operating Documentation

a. Submit to the Commission two (2) copies each of “System Administrators Manual”, “Site Specific Manual” and “Supervisor’s Manual” for review and approval. After incorporating the Commission’s comments, resubmit two copies of each such manual until approved by the Commission. Submit to the Commission five (5) copies of the approved “Standard Operating Procedures Manual” and five (5) copies each of the approved “System Administrator’s Manual”, “Site Specific Manual” and “Supervisor’s Manual”. In addition, submit 3 CD-ROMs with a PDF version of each manual. The CD-ROMs shall have a label with the date and “FINAL APPROVED” stamp, along with the project name, and number.

1. Standard Operating Procedures Manual

A System Standard Operating Procedures Manual shall be provided which contains graphical depictions and explanations of system operation for all operator functions specified under Operator Training. This manual shall be for instructional, study and refresher use and shall explain all the features and functions of the System for day-to-day operation (e.g., log-on, monitors, print daily reports). The manual shall also have a section for problems and/or exception conditions so the operator can resolve common operating problems (e.g., trouble shoot network problems, restart the System in the event of a component failure, clear jams). The manual shall also contain instructions on how to perform normal maintenance (e.g., changing paper for the printer). Submit to the Commission five (5) copies of approved Standard Operating Procedures manual and three (3) CD-ROM’s with PDF version of the full manual.

2. System Administrator’s Manual

A System Administrator’s Manual shall be provided which contains graphical depictions and written descriptions of all functions required for system maintenance and specified under System Administrator Training. This manual shall contain all procedures necessary for the proper monitoring and administration of the System. At a minimum, the manual shall contain separate sections that cover the following topics: backup and recovery, performance analysis, scheduled maintenance, audit and control, report production, contingency plan, configuration control, system diagnostics, database integrity, special requests and expendable supplies. A separate, removable section of the System Administration Manual shall contain information on the proper administration and control of the security features built into the System. Some of the information to be contained in this section includes: maintenance of user identifiers, password control, and security policy review. This System Administrator’s manual shall also include computer-generated listings of all system programs as an addendum under separate cover. Submit to the

Commission five (5) copies of approved System Administrator's manual and three (3) CD-ROM's with PDF version of the full manual.

3. Supervisor's Manual

   A Supervisor's Manual shall be provided with graphic descriptions of all functions and procedures required for system modifications specified under Supervisor Training. This manual shall contain all the instructions included in the Operator Procedures Manual plus instructions on printing standard and ad hoc reports. Submit to the Commission five (5) copies of approved Supervisor's manual and three (3) CD-ROM's with PDF version of the full manual.

4. System Preparation

   After System installation and until the System is formally accepted by the Commission, the PROPOSER shall undertake and perform all System preparation activities to ensure a fully functioning System that operates in conformance to the requirements of the Contract. Such activities shall include, but not be limited to, the following:

   a. Systems monitoring; System and application backup and archiving; System fault detection, diagnosis and correction, database initialization and updates, and report generation.
   b. Administration and control of System access and backup security.
   c. Capacity management and performance monitoring.
   d. Management of hardware, firmware, and software configuration changes.
   e. System documentation maintenance.
   f. Training and System user assistance.
   g. Monitor and manage physical protection devices stipulated in Technical Parameter herein.

5. Close-Out

   Upon successful completion of the 30-day Operational Test, prepare and submit to the Commission all materials necessary to close out the System design. This shall include, but not be limited to: the delivery of a fully functioning System that meets all performance and expansion requirements and that has successfully completed factory, field and operational testing; the delivery and approval of all documentation and; the training of all management, supervisory, operations, system administration and maintenance staff, as specified in the training plan; all documentation necessary for the operation of the System whether or not it has been submitted as part of a previous deliverable. This includes but is not limited to: third party software documentation and licenses, software executable code, hardware documentation, final Operating Documentation and maintenance manuals.

6. Schedule of Submittals

   In concert with the progress schedule, the PROPOSER shall complete the following schedule of design submittals and fill in the submittal dates. Submittals shall be within the time stipulated in the “Schedule of PROPOSER’s Design Submittals” herein.

SCHEDULE OF CONTRACTOR'S DESIGN SUBMITTALS

CONTRACTOR

SUBMITTAL	Submit Date:
Progress Schedule in accordance with "PROGRESS SCHEDULE" requirements	_____
Engineering Design Submission Package (Hardware and Software)	_____
Project Plan and Schedule	_____
Installation Schedule and Plan	_____
Acceptance Test Plan (FAT, SAT and OAT)	_____
Factory Acceptance Test Report	_____
System Acceptance Test Report	_____
Operational Acceptance Test	_____
Equipment Exchange/Expansion Certificate(s) during Factory Testing (if any)	_____
Equipment Exchange/Expansion Certificate(s) during Field Testing (if any)	_____
Equipment Exchange/Expansion Certificate(s) during Operational Testing (if any)	_____
Training Plan	_____
Preliminary Training Manuals for Review	_____
Approved Training Manuals	_____
Training Program Report	_____
Videotape of Instruction (Operations)	_____
Videotape of Instruction (Supervisory)	_____

Videotape of Instruction (Administrators) _____

Videotape of Instruction (Maintenance) _____

Videotape of Instruction (Operations) _____

Videotape of Equipment Operation _____

Close-out Documentation _____

Detailed Maintenance of Traffic Plans _____

Structural Calculations _____

Final Certified Set of Detailed
Contract Drawings and Detailed
Specifications _____

Catalog Cuts and Data Sheets _____

Shop Drawings for Signs and Poles _____

Operation, Maintenance
and Communication Protocol Manuals
For Approval _____

Final Operation, Maintenance
and Communication Protocol Manuals _____

Factory Inspection Test Procedures
Executed Factory Inspection
Test Results Document _____

Reproducible Master Set of
all Manual Documents _____

APPENDIX E

MINIMUM LANE CLOSURE CHARTS

(See Excel Spreadsheet-Attached Separately)

APPENDIX F

WAGE RATES

pennsylvania
DEPARTMENT OF LABOR & INDUSTRY

BUREAU OF LABOR LAW COMPLIANCE

PREVAILING WAGES PROJECT RATES

Project Name: Intelligent Transportaion Systems Retrofit

Awarding Agency: PA. Turnpike Commission
Contract Award Date: 3/29/2010
Serial Number: 10-00038
Project Classification: Heavy/Highway
Determination Date: 1/5/2010
Assigned Field Office: Altoona
Field Office Phone Number: 814-940-6224
Toll Free Phone Number:

Bedford County

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	8/1/2009		$30.82	$19.19	$50.01
Boilermakers	6/1/2008		$33.90	$20.06	$53.96
Bricklayer	6/1/2009		$25.31	$13.54	$38.85
Bricklayer	12/1/2009		$25.61	$14.19	$39.80
Carpenters	6/9/2009		$24.79	$9.68	$34.47
Carpenters	6/1/2010		$25.33	$10.14	$35.47
Carpenters	6/1/2011		$25.85	$10.61	$36.46
Cement Masons	6/1/2009		$23.65	$11.54	$35.19
Cement Masons	6/1/2010		$24.60	$11.99	$36.59
Dock Builder/Pile Drivers	1/1/2009		$28.85	$12.00	$40.85
Dock Builder/Pile Drivers	1/1/2010		$29.95	$12.25	$42.20
Drywall Finisher	6/1/2009		$24.45	$13.59	$38.04
Drywall Finisher	6/1/2010		$26.03	$13.26	$39.29
Drywall Finisher	6/1/2011		$27.28	$13.26	$40.54
Electric Lineman	5/31/2009		$39.54	$16.03	$55.57
Electricians & Telecommunications Installation Technician	12/26/2008		$33.11	$17.13	$50.24
Electricians & Telecommunications Installation Technician	12/25/2009		$35.61	$17.13	$52.74

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Electricians & Telecommunications Installation Technician	12/24/2010		$38.01	$17.13	$55.14
Elevator Constructor	1/1/2010		$39.88	$20.23	$60.11
Glazier	9/1/2009		$20.20	$14.00	$34.20
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	5/1/2009		$26.08	$13.12	$39.20
Laborers (Class 01 - See notes)	7/1/2009		$18.05	$9.19	$27.24
Laborers (Class 01 - See notes)	7/1/2010		$18.55	$9.74	$28.29
Laborers (Class 02 - See notes)	7/1/2009		$18.20	$9.19	$27.39
Laborers (Class 02 - See notes)	7/1/2010		$18.70	$9.74	$28.44
Laborers (Class 03 - See notes)	7/1/2009		$18.30	$9.19	$27.49
Laborers (Class 03 - See notes)	7/1/2010		$18.80	$9.74	$28.54
Laborers (Class 04 - See notes)	7/1/2009		$17.05	$9.19	$26.24
Laborers (Class 04 - See notes)	7/1/2010		$17.55	$9.74	$27.29
Landscape Laborer	7/1/2009		$18.25	$9.05	$27.30
Landscape Laborer (Skilled)	7/1/2009		$18.67	$9.05	$27.72
Landscape Laborer (Tractor Operator)	7/1/2009		$18.97	$9.05	$28.02
Marble Finisher	6/1/2009		$19.17	$10.55	$29.72
Marble Finisher	12/1/2009		$19.32	$11.05	$30.37
Marble Mason	6/1/2009		$19.42	$8.48	$27.90
Marble Mason	12/1/2009		$19.42	$8.91	$28.33
Millwright	6/1/2008		$32.71	$14.29	$47.00
Operators (Class 01 - see notes)	7/1/2009		$25.47	$12.63	$38.10
Operators (Class 01 - see notes)	7/1/2010		$26.37	$13.13	$39.50
Operators (Class 02 -see notes)	7/1/2009		$22.79	$12.63	$35.42
Operators (Class 02 -see notes)	7/1/2010		$23.69	$13.13	$36.82
Operators (Class 03 - see notes)	7/1/2009		$21.24	$12.63	$33.87
Operators (Class 03 - see notes)	7/1/2010		$22.14	$13.13	$35.27
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2009		$20.84	$12.63	$33.47
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2010		$21.74	$13.13	$34.87
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2009		$19.84	$12.63	$32.47
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2010		$20.74	$13.13	$33.87

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2009		$19.39	$12.63	$32.02
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2010		$20.29	$13.13	$33.42
Painters Class 6 (see notes)	6/1/2009		$24.77	$12.81	$37.58
Painters Class 6 (see notes)	6/1/2010		$25.28	$13.53	$38.81
Pile Driver Divers (Building, Heavy, Highway)	1/1/2009		$43.28	$12.00	$55.28
Pile Driver Divers (Building, Heavy, Highway)	1/1/2010		$44.39	$12.25	$56.64
Plasterers	6/1/2008		$20.97	$9.64	$30.61
Plumbers and Steamfitters	6/1/2009		$28.54	$18.48	$47.02
Plumbers and Steamfitters	6/1/2010		$30.14	$18.83	$48.97
Plumbers and Steamfitters	6/1/2011		$31.81	$19.18	$50.99
Pointers, Caulkers, Cleaners	7/1/2009		$25.88	$13.33	$39.21
Pointers, Caulkers, Cleaners	12/1/2009		$25.98	$13.83	$39.81
Roofers	6/1/2009		$26.00	$11.69	$37.69
Roofers	6/1/2010		$27.50	$11.69	$39.19
Sheet Metal Workers	6/1/2009		$29.56	$29.12	$58.68
Sign Makers and Hangars	7/1/2009		$24.17	$15.99	$40.16
Sprinklerfitters	7/1/2009		$33.35	$17.05	$50.40
Sprinklerfitters	1/1/2010		$33.85	$17.60	$51.45
Stone Masons	12/1/2007		$27.55	$13.47	$41.02
Stone Masons	12/1/2009		$28.92	$15.20	$44.12
Terrazzo Finisher	6/1/2009		$25.61	$12.04	$37.65
Terrazzo Finisher	12/1/2009		$25.76	$12.54	$38.30
Terrazzo Setter	6/1/2009		$26.15	$13.05	$39.20
Terrazzo Setter	12/1/2009		$26.30	$13.55	$39.85
Tile Finisher	12/1/2008		$20.62	$10.05	$30.67
Tile Finisher	12/1/2009		$20.92	$11.05	$31.97
Tile Setter	12/1/2008		$26.60	$12.95	$39.55
Tile Setter	12/1/2009		$27.10	$13.95	$41.05
Truckdriver class 1(see notes)	1/1/2009		$24.05	$11.35	$35.40
Truckdriver class 1(see notes)	1/1/2010		$24.80	$11.95	$36.75

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Truckdriver class 2 (see notes)	1/1/2009		$24.23	$11.44	$35.67
Truckdriver class 2 (see notes)	1/1/2010		$24.98	$12.04	$37.02
Truckdriver class 3 (see notes)	1/1/2009		$24.74	$11.69	$36.43
Truckdriver class 3 (see notes)	1/1/2010		$25.49	$12.29	$37.78

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter Welder	1/1/2009		$27.99	$12.16	$40.15
Carpenter Welder	1/1/2010		$28.94	$12.56	$41.50
Carpenters	1/1/2009		$27.28	$12.16	$39.44
Carpenters	1/1/2010		$28.23	$12.56	$40.79
Cement Finishers	1/1/2009		$26.72	$12.97	$39.69
Cement Finishers	1/1/2010		$27.62	$13.42	$41.04
Laborers (Class 01 - See notes)	1/1/2009		$23.20	$12.65	$35.85
Laborers (Class 01 - See notes)	1/1/2010		$23.65	$13.55	$37.20
Laborers (Class 02 - See notes)	1/1/2009		$23.36	$12.65	$36.01
Laborers (Class 02 - See notes)	1/1/2010		$23.81	$13.55	$37.36
Laborers (Class 03 - See notes)	1/1/2009		$23.85	$12.65	$36.50
Laborers (Class 03 - See notes)	1/1/2010		$24.30	$13.55	$37.85
Laborers (Class 04 - See notes)	1/1/2009		$24.30	$12.65	$36.95
Laborers (Class 04 - See notes)	1/1/2010		$24.75	$13.55	$38.30
Laborers (Class 05 - See notes)	1/1/2009		$24.71	$12.65	$37.36
Laborers (Class 05 - See notes)	1/1/2010		$25.16	$13.55	$38.71
Laborers (Class 06 - See notes)	1/1/2009		$21.55	$12.65	$34.20
Laborers (Class 06 - See notes)	1/1/2010		$22.00	$13.55	$35.55
Laborers (Class 07 - See notes)	1/1/2009		$24.20	$12.65	$36.85
Laborers (Class 07 - See notes)	1/1/2010		$24.65	$13.55	$38.20
Laborers (Class 08 - See notes)	1/1/2009		$25.70	$12.65	$38.35
Laborers (Class 08 - See notes)	1/1/2010		$26.15	$13.55	$39.70
Operators (Class 01 - see notes)	1/1/2009		$26.09	$14.44	$40.53
Operators (Class 01 - see notes)	1/1/2010		$26.89	$14.99	$41.88
Operators (Class 02 -see notes)	1/1/2009		$25.81	$14.44	$40.25
Operators (Class 02 -see notes)	1/1/2010		$26.61	$14.99	$41.60
Operators (Class 03 - See notes)	1/1/2009		$22.17	$14.44	$36.61
Operators (Class 03 - See notes)	1/1/2010		$22.97	$14.99	$37.96
Operators (Class 04 - See notes)	1/1/2009		$21.68	$14.44	$36.12
Operators (Class 04 - See notes)	1/1/2010		$22.48	$14.99	$37.47
Operators (Class 05 - See notes)	1/1/2009		$21.47	$14.44	$35.91

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 05 - See notes)	1/1/2010		$22.27	$14.99	$37.26
Painters Class 1 (see notes)	6/1/2009		$27.24	$12.81	$40.05
Painters Class 1 (see notes)	6/1/2010		$27.84	$13.53	$41.37
Painters Class 2 (see notes)	6/1/2009		$27.77	$12.81	$40.58
Painters Class 2 (see notes)	6/1/2010		$28.38	$13.53	$41.91
Painters Class 3 (see notes)	6/1/2009		$29.81	$12.81	$42.62
Painters Class 3 (see notes)	6/1/2010		$30.48	$13.53	$44.01
Painters Class 4 (see notes)	6/1/2009		$23.79	$12.81	$36.60
Painters Class 4 (see notes)	6/1/2010		$24.27	$13.53	$37.80
Painters Class 5 (see notes)	6/1/2009		$19.28	$12.81	$32.09
Painters Class 5 (see notes)	6/1/2010		$19.61	$13.53	$33.14
Piledrivers	1/1/2009		$28.85	$12.00	$40.85
Piledrivers	1/1/2010		$29.95	$12.25	$42.20

PREVAILING WAGES PROJECT RATES

Project Name: Intelligent transportation Systems Retrofit

Awarding Agency: PA. Turnpike commission
Contract Award Date: 3/29/2010
Serial Number: 10-00009
Project Classification: Heavy/Highway
Determination Date: 1/4/2010
Assigned Field Office: Altoona
Field Office Phone Number: 814-940-6224
Toll Free Phone Number:

Fulton County

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	6/29/2009		$29.88	$18.88	$48.76
Asbestos & Insulation Workers	6/28/2010		$31.88	$18.88	$50.76
Asbestos & Insulation Workers	6/27/2011		$33.88	$18.88	$52.76
Boilermaker (Repair Work)	3/1/2008		$21.87	$13.97	$35.84
Boilermakers	1/1/2010		$38.08	$25.29	$63.37
Bricklayer	6/1/2009		$25.31	$13.54	$38.85
Bricklayer	12/1/2009		$25.61	$14.19	$39.80
Carpenters (Drywall Hangers, Instrument Men, Soft Floor Layers)	6/1/2009		$24.79	$9.68	$34.47
Carpenters (Drywall Hangers, Instrument Men, Soft Floor Layers)	6/1/2010		$25.33	$10.14	$35.47
Carpenters (Drywall Hangers, Instrument Men, Soft Floor Layers)	6/1/2011		$25.85	$10.61	$36.46
Cement Finishers	5/1/2009		$24.00	$15.70	$39.70
Cement Finishers	5/1/2010		$27.50	$13.95	$41.45
Cement Finishers	5/1/2011		$29.50	$13.95	$43.45
Dock Builder/Pile Drivers	1/1/2009		$28.85	$12.00	$40.85
Dock Builder/Pile Drivers	1/1/2010		$29.95	$12.25	$42.20
Drywall Finisher	6/1/2009		$23.87	$12.84	$36.71
Drywall Finisher	6/1/2010		$25.45	$12.51	$37.96

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Drywall Finisher	6/1/2011		$26.70	$12.51	$39.21
Electric Lineman	5/31/2009		$39.54	$16.03	$55.57
Electricians & Telecommunications Installation Technician	12/26/2008		$33.11	$17.13	$50.24
Electricians & Telecommunications Installation Technician	12/25/2009		$35.61	$17.13	$52.74
Electricians & Telecommunications Installation Technician	12/24/2010		$38.01	$17.13	$55.14
Elevator Constructor	1/1/2009		$37.33	$21.20	$58.53
Elevator Constructor	1/1/2010		$38.84	$22.82	$61.66
Elevator Constructor	1/1/2011		$40.33	$24.44	$64.77
Elevator Constructor	1/1/2012		$41.84	$26.06	$67.90
Elevator Tender (Use Elevator Apprentice or Constructor)	1/1/2008		$0.00	$0.00	$0.00
Glazier	9/1/2009		$20.20	$14.00	$34.20
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	5/1/2009		$26.08	$13.12	$39.20
Laborers (Class 01 - See notes)	7/1/2009		$18.05	$9.19	$27.24
Laborers (Class 01 - See notes)	7/1/2010		$18.55	$9.74	$28.29
Laborers (Class 02 - See notes)	7/1/2009		$18.20	$9.19	$27.39
Laborers (Class 02 - See notes)	7/1/2010		$18.70	$9.74	$28.44
Laborers (Class 03 - See notes)	7/1/2009		$18.30	$9.19	$27.49
Laborers (Class 03 - See notes)	7/1/2010		$18.80	$9.74	$28.54
Laborers (Class 04 - See notes)	7/1/2009		$17.05	$9.19	$26.24
Laborers (Class 04 - See notes)	7/1/2010		$17.55	$9.74	$27.29
Landscape Laborer	7/1/2009		$18.25	$9.05	$27.30
Landscape Laborer (Skilled)	7/1/2009		$18.67	$9.05	$27.72
Landscape Laborer (Tractor Operator)	7/1/2009		$18.97	$9.05	$28.02
Marble Finisher	6/1/2009		$19.17	$10.55	$29.72
Marble Finisher	12/1/2009		$19.32	$11.05	$30.37
Marble Mason	6/1/2009		$19.42	$8.48	$27.90
Marble Mason	12/1/2009		$19.42	$8.91	$28.33
Millwright	6/1/2008		$32.71	$14.29	$47.00
Operators (Class 01 - Machines Doing Hook Work, Concrete Boom Truck)	7/1/2010		$20.29	$13.13	$33.42
Operators (Class 01 - see notes)	7/1/2009		$25.47	$12.63	$38.10

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 01 - see notes)	7/1/2010		$26.27	$13.13	$39.40
Operators (Class 02 -see notes)	7/1/2009		$22.79	$12.63	$35.42
Operators (Class 02 -see notes)	7/1/2010		$23.69	$13.13	$36.82
Operators (Class 03 - see notes)	7/1/2009		$21.24	$12.63	$33.87
Operators (Class 03 - see notes)	7/1/2010		$22.14	$13.13	$35.27
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2009		$20.84	$12.63	$33.47
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2010		$21.74	$13.13	$34.87
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2009		$19.84	$12.63	$32.47
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2010		$20.74	$13.13	$33.87
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2009		$19.39	$12.63	$32.02
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2010		$20.29	$13.13	$33.42
Painters Class 6 (see notes)	6/1/2009		$24.77	$12.81	$37.58
Painters Class 6 (see notes)	6/1/2010		$25.28	$13.53	$38.81
Pile Driver Divers (Building, Heavy, Highway)	1/1/2007		$40.40	$10.77	$51.17
Plasterers	5/1/2009		$22.48	$14.18	$36.66
Plasterers	5/1/2010		$25.98	$12.43	$38.41
Plumbers and Steamfitters	5/1/2009		$30.27	$18.16	$48.43
Plumbers and Steamfitters	5/1/2010		$32.27	$18.16	$50.43
Pointers, Caulkers, Cleaners	7/1/2009		$25.88	$13.33	$39.21
Pointers, Caulkers, Cleaners	12/1/2009		$25.98	$13.83	$39.81
Roofers (Composition)	5/1/2009		$30.00	$23.10	$53.10
Roofers (Composition)	5/1/2010		$33.50	$22.10	$55.60
Roofers (Shingle, Slate, Tile)	5/1/2009		$23.25	$13.62	$36.87
Sheet Metal Workers	6/1/2008		$28.98	$27.45	$56.43
Sheet Metal Workers	6/1/2009		$29.56	$29.12	$58.68
Sign Makers and Hangars	7/1/2009		$24.17	$15.99	$40.16
Sprinklerfitters	7/1/2009		$33.35	$17.05	$50.40
Sprinklerfitters	1/1/2010		$33.85	$17.60	$51.45
Stone Masons	12/1/2007		$27.55	$13.47	$41.02
Stone Masons	12/1/2009		$28.92	$15.20	$44.12

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Terrazzo Finisher	6/1/2009		$25.61	$12.04	$37.65
Terrazzo Finisher	12/1/2009		$25.76	$12.54	$38.30
Terrazzo Setter	6/1/2009		$26.15	$13.05	$39.20
Terrazzo Setter	12/1/2009		$26.30	$13.55	$39.85
Tile Finisher	6/1/2009		$20.77	$10.55	$31.32
Tile Finisher	12/1/2009		$20.92	$11.05	$31.97
Tile Setter	6/1/2009		$26.85	$13.45	$40.30
Tile Setter	12/1/2009		$27.10	$13.95	$41.05
Truckdriver class 1(see notes)	1/1/2009		$24.05	$11.35	$35.40
Truckdriver class 1(see notes)	1/1/2010		$24.80	$11.95	$36.75
Truckdriver class 2 (see notes)	1/1/2009		$24.23	$11.44	$35.67
Truckdriver class 2 (see notes)	1/1/2010		$24.98	$12.04	$37.02
Truckdriver class 3 (see notes)	1/1/2009		$24.74	$11.69	$36.43
Truckdriver class 3 (see notes)	1/1/2010		$25.49	$12.29	$37.78

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter Welder	1/1/2009		$27.99	$12.16	$40.15
Carpenter Welder	1/1/2010		$28.94	$12.56	$41.50
Carpenters	1/1/2009		$27.28	$12.16	$39.44
Carpenters	1/1/2010		$28.23	$12.56	$40.79
Cement Finishers	1/1/2009		$26.72	$12.97	$39.69
Cement Finishers	1/1/2010		$27.62	$13.42	$41.04
Laborers (Class 01 - See notes)	1/1/2009		$23.20	$12.65	$35.85
Laborers (Class 01 - See notes)	1/1/2010		$23.65	$13.55	$37.20
Laborers (Class 02 - See notes)	1/1/2009		$23.36	$12.65	$36.01
Laborers (Class 02 - See notes)	1/1/2010		$23.81	$13.55	$37.36
Laborers (Class 03 - See notes)	1/1/2009		$23.85	$12.65	$36.50
Laborers (Class 03 - See notes)	1/1/2010		$24.30	$13.55	$37.85
Laborers (Class 04 - See notes)	1/1/2009		$24.30	$12.65	$36.95
Laborers (Class 04 - See notes)	1/1/2010		$24.75	$13.55	$38.30
Laborers (Class 05 - See notes)	1/1/2009		$24.71	$12.65	$37.36
Laborers (Class 05 - See notes)	1/1/2010		$25.16	$13.55	$38.71
Laborers (Class 06 - See notes)	1/1/2009		$21.55	$12.65	$34.20
Laborers (Class 06 - See notes)	1/1/2010		$22.00	$13.55	$35.55
Laborers (Class 07 - See notes)	1/1/2009		$24.20	$12.65	$36.85
Laborers (Class 07 - See notes)	1/1/2010		$24.65	$13.55	$38.20
Laborers (Class 08 - See notes)	1/1/2009		$25.70	$12.65	$38.35
Laborers (Class 08 - See notes)	1/1/2010		$26.15	$13.55	$39.70
Operators (Class 01 - see notes)	1/1/2009		$26.09	$14.44	$40.53
Operators (Class 01 - see notes)	1/1/2010		$26.89	$14.99	$41.88
Operators (Class 02 -see notes)	1/1/2009		$25.81	$14.44	$40.25
Operators (Class 02 -see notes)	1/1/2010		$26.61	$14.99	$41.60
Operators (Class 03 - See notes)	1/1/2008		$21.37	$13.74	$35.11
Operators (Class 03 - See notes)	1/1/2009		$22.17	$14.44	$36.61
Operators (Class 03 - See notes)	1/1/2010		$22.97	$14.99	$37.96
Operators (Class 04 - See notes)	1/1/2009		$21.68	$14.44	$36.12
Operators (Class 04 - See notes)	1/1/2010		$22.48	$14.99	$37.47

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 05 - See notes)	1/1/2009		$21.47	$14.44	$35.91
Operators (Class 05 - See notes)	1/1/2010		$22.27	$14.99	$37.26
Painters Class 1 (see notes)	6/1/2009		$27.24	$12.81	$40.05
Painters Class 1 (see notes)	6/1/2010		$27.84	$13.53	$41.37
Painters Class 2 (see notes)	6/1/2009		$27.77	$12.81	$40.58
Painters Class 2 (see notes)	6/1/2010		$28.38	$13.53	$41.91
Painters Class 3 (see notes)	6/1/2009		$29.81	$12.81	$42.62
Painters Class 3 (see notes)	6/1/2010		$30.48	$13.53	$44.01
Painters Class 4 (see notes)	6/1/2009		$23.79	$12.81	$36.60
Painters Class 4 (see notes)	6/1/2010		$24.27	$13.53	$37.80
Painters Class 5 (see notes)	6/1/2009		$19.28	$12.81	$32.09
Painters Class 5 (see notes)	6/1/2010		$19.61	$13.53	$33.14
Piledrivers	1/1/2009		$28.85	$12.00	$40.85
Piledrivers	1/1/2010		$29.95	$12.25	$42.20

APPENDIX G

EXISTING VSLS AND VMS SITE INFORMATION
UPS AND BATTERY BACKUP SYSTEM CATALOG SHEETS
CANTILEVER SLIDING ACCESS GATE DETAIL
PROPOSED MAIN-LINE AND OFF-LINE VMS CUT SHEETS

COUNTY	DISTRI(
BEDFORD	2
EAST PROVIDENCE TOWNSHIP	

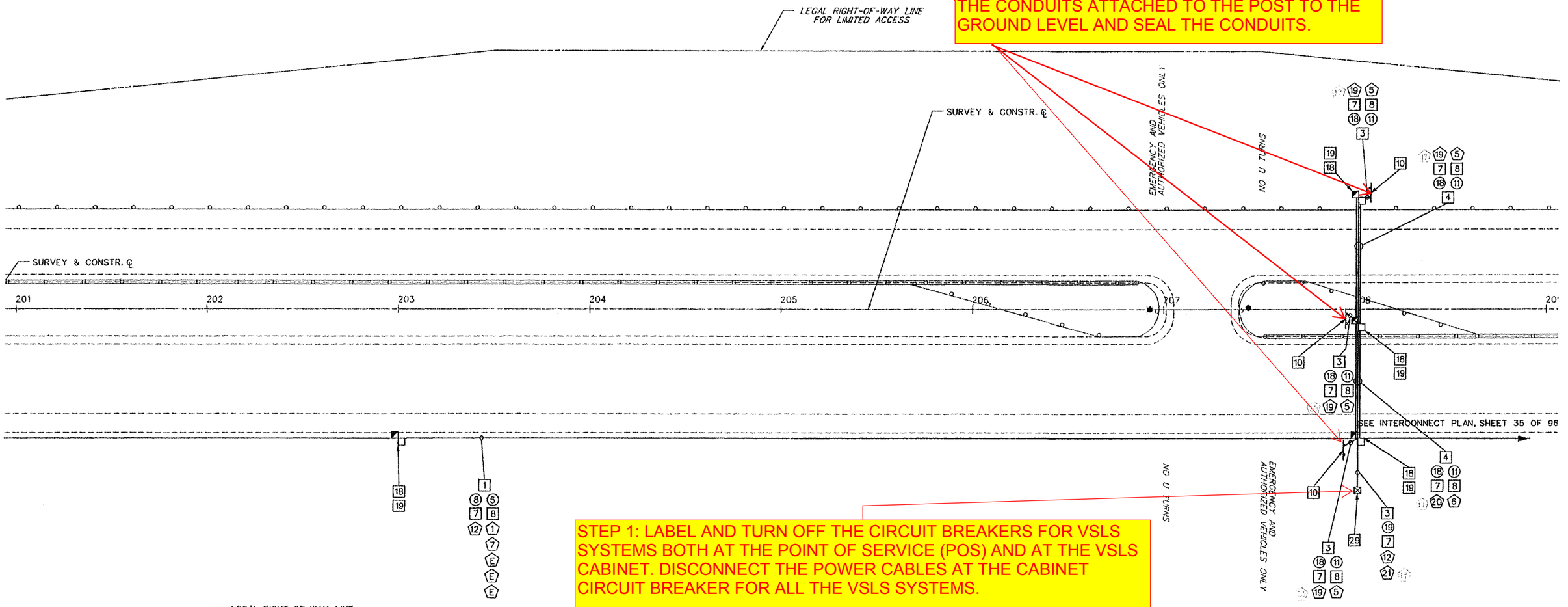
CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS

STEP 3: REMOVE VSLS (3) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.



STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS BOTH AT THE POINT OF SERVICE (POS) AND AT THE VSLS CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES AT THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.

CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III.
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I.
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.
9. INSTALL DMS SYSTEM.
10. INSTALL VSLS SYSTEM.
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE.
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11.
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE.
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX.
25. INSTALL GUY WIRE ASSEMBLY.
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
27. INSTALL ZONE LIMIT SIGN.
28. INSTALL CONDUITS ON NEW POLE.
29. INSTALL VSLS CABINET WITH BASE, TYPE A.
30. INSTALL VSLS CABINET WITH BASE, TYPE B.

NO.	REVISIONS	DATE	APP'D
3	REPLACES SHEET 45	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER — PE-057529

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 1 DETAIL PLAN
M.P. 163.0 TO 163.2

DWG. NAME: DPLN03.DGN	STRUCTURE NO. NOT APPLICABLE		
25 FT 0 25 FT	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	2 OF 2	45A OF 96

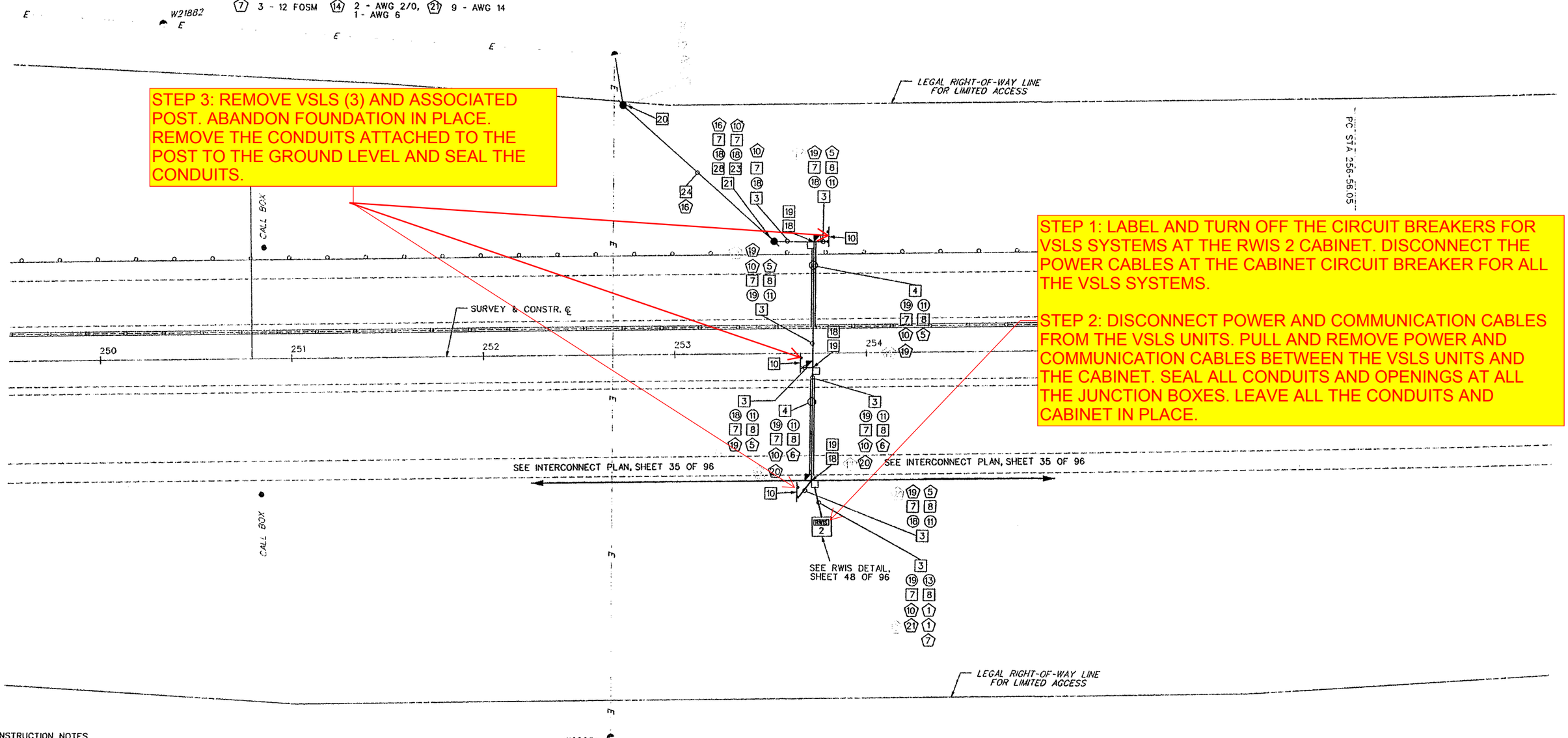
COUNTY	DIST
BEDFORD	2
EAST PROVIDENCE TOWNSHIP	

CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS



STEP 3: REMOVE VSLS (3) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.

STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS AT THE RWIS 2 CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES FROM THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.

CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III.
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I.
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.
9. INSTALL DMS SYSTEM.
10. INSTALL VSLS SYSTEM.
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE.
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11.
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE.
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX.
25. INSTALL GUY WIRE ASSEMBLY.
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
27. INSTALL ZONE LIMIT SIGN.
28. INSTALL CONDUITS ON NEW POLE.
29. INSTALL VSLS CABINET WITH BASE, TYPE A.
30. INSTALL VSLS CABINET WITH BASE, TYPE B.

⚠ —E— ALLEGHENY POWER

NO.	REVISIONS	DATE	APP'D
1	ADD UTILITY COMPANY	6/3/4	6/3/4
3	REPLACES SHEET 47	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — L. BRYAN HOOVER — PE-057579

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 2 DETAIL PLAN
M.P. 164.0 TO 164.1

DWG. NAME: DPLN04.DGN	STRUCTURE NO. NOT APPLICABLE	
25 FT 0 25 FT	CONTRACT NO.	DWG. NO. / SHEET NO.
	2004-182	1 OF 1 / 47A OF 96

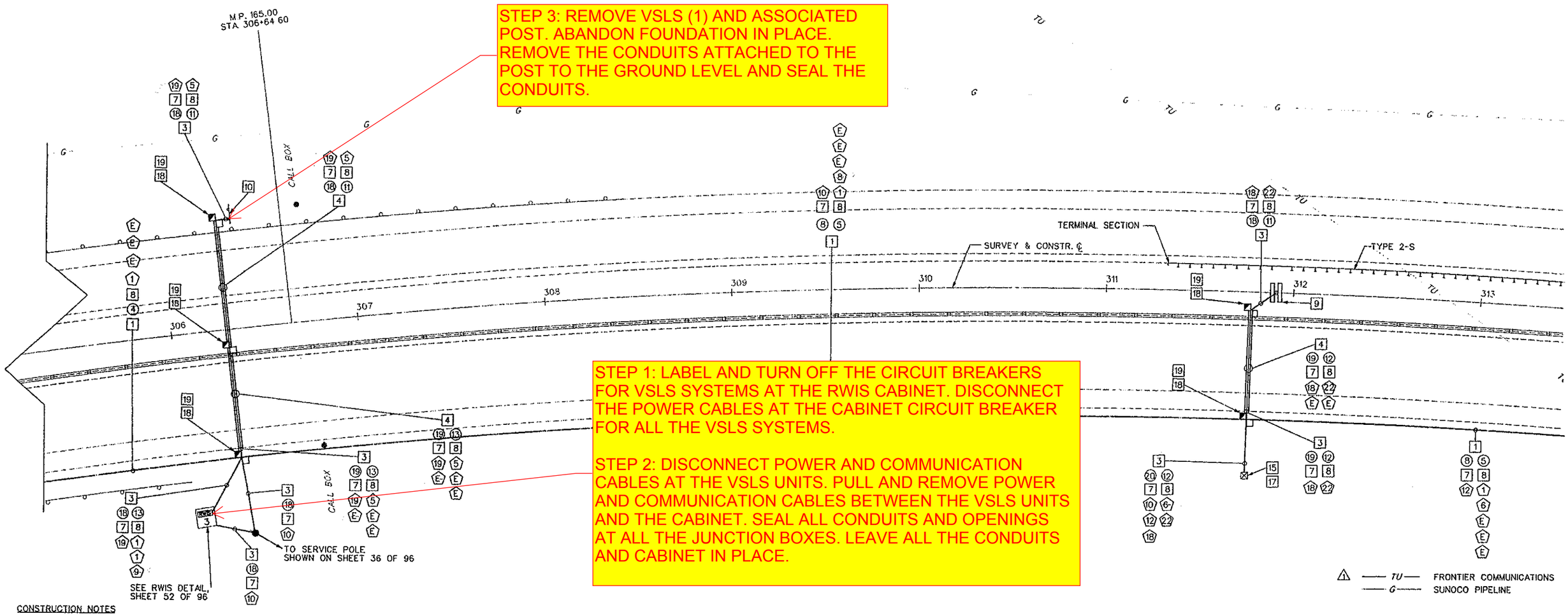
COUNTY	DISTR
BEDFORD/FULTON	2
VARIOUS TOWNSHIPS	

CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS



STEP 3: REMOVE VSLS (1) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.

STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS AT THE RWIS CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES AT THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.

CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I.
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.
9. INSTALL DMS SYSTEM
10. INSTALL VSLS SYSTEM.
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE.
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX.
25. INSTALL GUY WIRE ASSEMBLY
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER
27. INSTALL ZONE LIMIT SIGN.
28. INSTALL CONDUITS ON NEW POLE
29. INSTALL VSLS CABINET WITH BASE, TYPE A
30. INSTALL VSLS CABINET WITH BASE, TYPE B.

NO.	REVISIONS	DATE	APP'D
1	ADD UTILITY COMPANY	6/3/4	6/3/4
3	REPLACES SHEET 50	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER PE-057579

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 3 DETAIL PLAN
M.P. 164.8 TO 165.2

DWG. NAME: DPLN06.DGN | STRUCTURE NO. NOT APPLICABLE

25 FT 0 25 FT

CONTRACT NO.	DWG. NO.	SHEET NO.
2004-182	2 OF 3	50A OF 96

COUNTY	DISTRIC
FULTON	2
BRUSH CREEK TOWNSHIP	

CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS

LEGAL RIGHT-OF-WAY LINE FOR LIMITED ACCESS

STEP 3: REMOVE VSLS (2) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.

STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS BOTH AT THE POINT OF SERVICE (POS) AND AT THE VSLS CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES AT THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.

FULTON COUNTY
BEDFORD COUNTY
BEDFORD COUNTY
TYPE 2-S
TIE TO EXISTING
SURVEY & CONSTR. ℄
314
315
316
317
318
319
320
321
SEE INTERCONNECT PLAN, SHEET 36 OF 96
PT. STA. 319+53.76
BRUSH CREEK TOWNSHIP
EAST PROVIDENCE TOWNSHIP
FULTON COUNTY
RIGHT LANE ENDS MERGE LEFT
TU
G

CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III.
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I.
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.
9. INSTALL DMS SYSTEM.
10. INSTALL VSLS SYSTEM.
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE.
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11.
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE.
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX.
25. INSTALL GUY WIRE ASSEMBLY.
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
27. INSTALL ZONE LIMIT SIGN.
28. INSTALL CONDUITS ON NEW POLE.
29. INSTALL VSLS CABINET WITH BASE, TYPE A.
30. INSTALL VSLS CABINET WITH BASE, TYPE B.

TU — FRONTIER COMMUNICATIONS
G — SUNOCO PIPELINE

NO.	REVISIONS	DATE	APP'D
1	ADD UTILITY COMPANY	6/3/4	6/3/4
3	REPLACES SHEET 51	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
L. BRYAN HOOVER
ENGINEER
PE-057570

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 3 DETAIL PLAN
M.P. 164.8 TO 165.2

DWG. NAME: DPLN07.DGN
STRUCTURE NO. NOT APPLICABLE
25 FT 0 25 FT

CONTRACT NO.	DWG. NO.	SHEET NO.
2004-182	3 OF 3	51A OF 96

COUNTY	DIST
FULTON	2
BRUSH CREEK TOWNSHIP	

CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

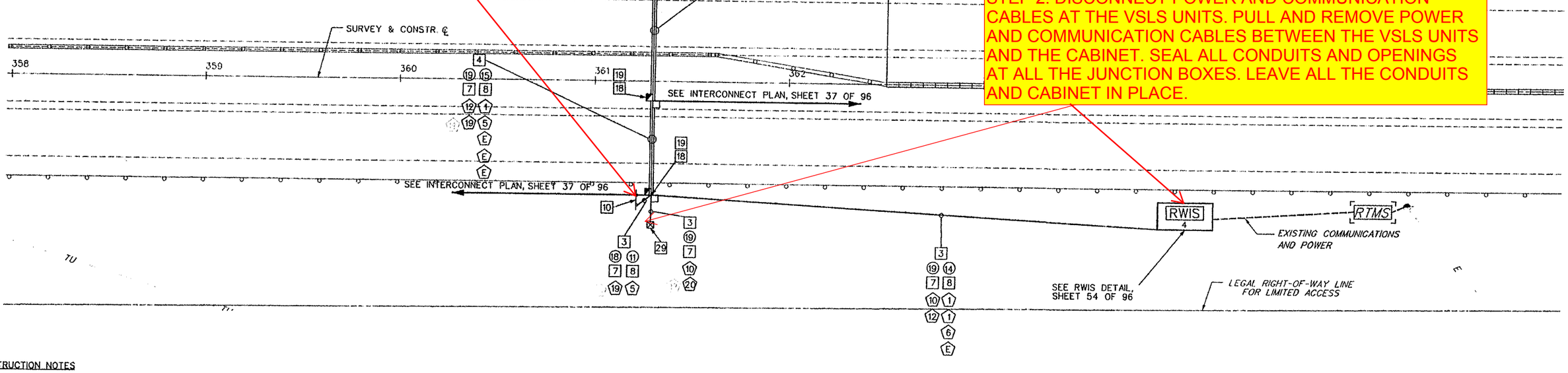
CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS

STEP 3: REMOVE VSLS (2) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.

STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS BOTH AT THE POINT OF SERVICE (POS) AND AT THE VSLS CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES AT THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.



CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III.
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I.
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.
9. INSTALL DMS SYSTEM.
10. INSTALL VSLS SYSTEM.
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE.
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11.
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE.
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX.
25. INSTALL GUY WIRE ASSEMBLY.
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
27. INSTALL ZONE LIMIT SIGN.
28. INSTALL CONDUITS ON NEW POLE.
29. INSTALL VSLS CABINET WITH BASE, TYPE A.
30. INSTALL VSLS CABINET WITH BASE, TYPE B.

NO.	REVISIONS	DATE	APP'D
3	REPLACES SHEET 53	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER PE-057579

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 4/SSR 1 DETAIL PLAN M.P. 166.0

DWG. NAME: DPLN08.DGN	STRUCTURE NO. NOT APPLICABLE		
25 FT 0 25 FT	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	1 OF 1	53A OF 96

COUNTY	DISTRICT
FULTON	2
BRUSH CREEK TOWNSHIP	

CABLES

1	1 - 96 FOSM	8	4 - 12 FOSM	15	SSR COMMUNICATIONS CABLE	22	DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
2	1 - 96 FOSM, 1 - 36 FOSM	9	5 - 12 FOSM	16	1 - AWG 2 AERIAL TRIPLEX	23	SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
3	1 - 36 FOSM	10	3 - AWG 8	17	3 - AWG 8, 3 - AWG 14	24	2 - AWG 2, 4 - AWG 8
4	2 - 36 FOSM	11	6 - AWG 8	18	6 - AWG 8, 6 - AWG 14	25	3 - AWG 8, 6 - AWG 14
5	1 - 12 FOSM	12	2 - AWG 2, 1 - AWG 8	19	3 - AWG 14	E	EMPTY CABLE CONDUIT
6	2 - 12 FOSM	13	4 - AWG 2, 2 - AWG 8	20	6 - AWG 14		
7	3 - 12 FOSM	14	2 - AWG 2/0, 1 - AWG 6	21	9 - AWG 14		

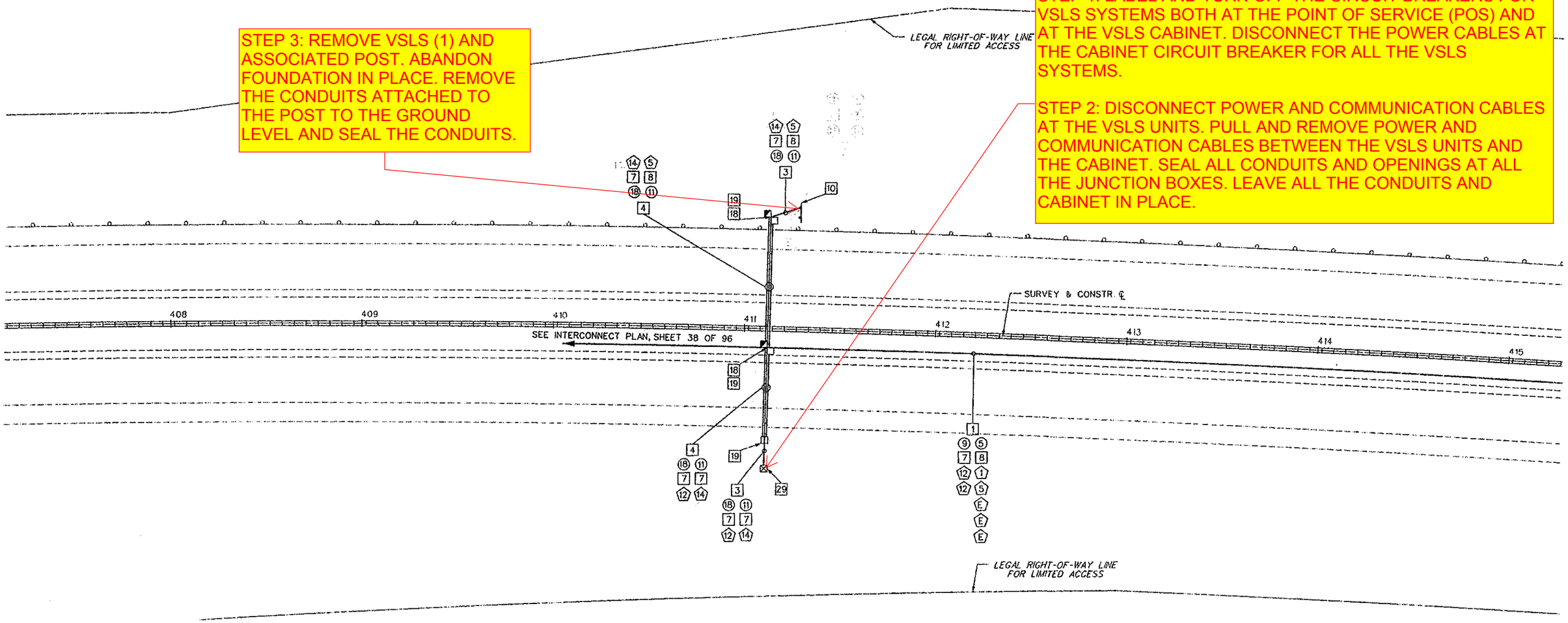
CONDUIT

1	1 - 1-1/4" HDPE	7	7 - 1-1/4" HDPE	13	3 - 1-1/4" GRS	19	2 - 2" GRS		
2	2 - 1-1/4' HDPE	8	1 - 2" HDPE	14	4 - 1-1/4" GRS	20	3 - 2" GRS		
3	3 - 1-1/4" HDPE	9	2 - 2" HDPE	15	5 - 1-1/4" GRS	21	4 - 2" GRS		
4	4 - 1-1/4 ' HDPE	10	3 - 2" HDPE	16	6 - 1-1/4" GRS				
5	5 - 1-1/4" HDPE	11	1 - 1-1/4" GRS	17	7 - 1-1/4" GRS				
6	6 - 1-1/4" HDPE	12	2 - 1-1/4" GRS	18	1 - 2" GRS				

STEP 3: REMOVE VSLS (1) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.

STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS BOTH AT THE POINT OF SERVICE (POS) AND AT THE VSLS CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES AT THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.



CONSTRUCTION NOTES

1	INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS)	8	INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT	15	INSTALL DOUBLE DMS CABINET WITH BASE	22	INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
2	INSTALL CONDUIT(S) IN TRENCH, TYPE III.	9	INSTALL DMS SYSTEM.	16	INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.	23	INSTALL NON-FUSED SERVICE DISCONNECT.
3	INSTALL CONDUIT(S) IN TRENCH, TYPE I.	10	INSTALL VSLS SYSTEM	17	INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.	24	INSTALL AWG 2 AERIAL TRIPLEX
4	INSTALL CONDUIT(S) USING JACKING	11	INSTALL RWIS	18	INSTALL JUNCTION BOX J.B.-11	25	INSTALL GUY WIRE ASSEMBLY
5	INSTALL 4" EXPOSED CONDUIT	12	INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR)	19	INSTALL JUNCTION BOX J.B.-12.	26	INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
6	INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.	13	INSTALL PAVEMENT SENSOR.	20	INSTALL ELECTRICAL SERVICE, TYPE A.	27	INSTALL ZONE LIMIT SIGN
7	INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.	14	INSTALL DMS CABINET WITH BASE	21	INSTALL WOOD POLE		

28	INSTALL CONDUITS ON NEW POLE						
29	INSTALL VSLS CABINET WITH BASE, TYPE A.						
30	INSTALL VSLS CABINET WITH BASE, TYPE B.						

NO.	REVISIONS	DATE	APP'D
3	REPLACES SHEET 55	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER — PE-057570

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 5 DETAIL PLAN M.P. 166.9 TO 167.1

DWG. NAME: DPLN09.DGN	STRUCTURE NO. NOT APPLICABLE		
25 FT 0 25 FT	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	1 OF 3	55A OF 96

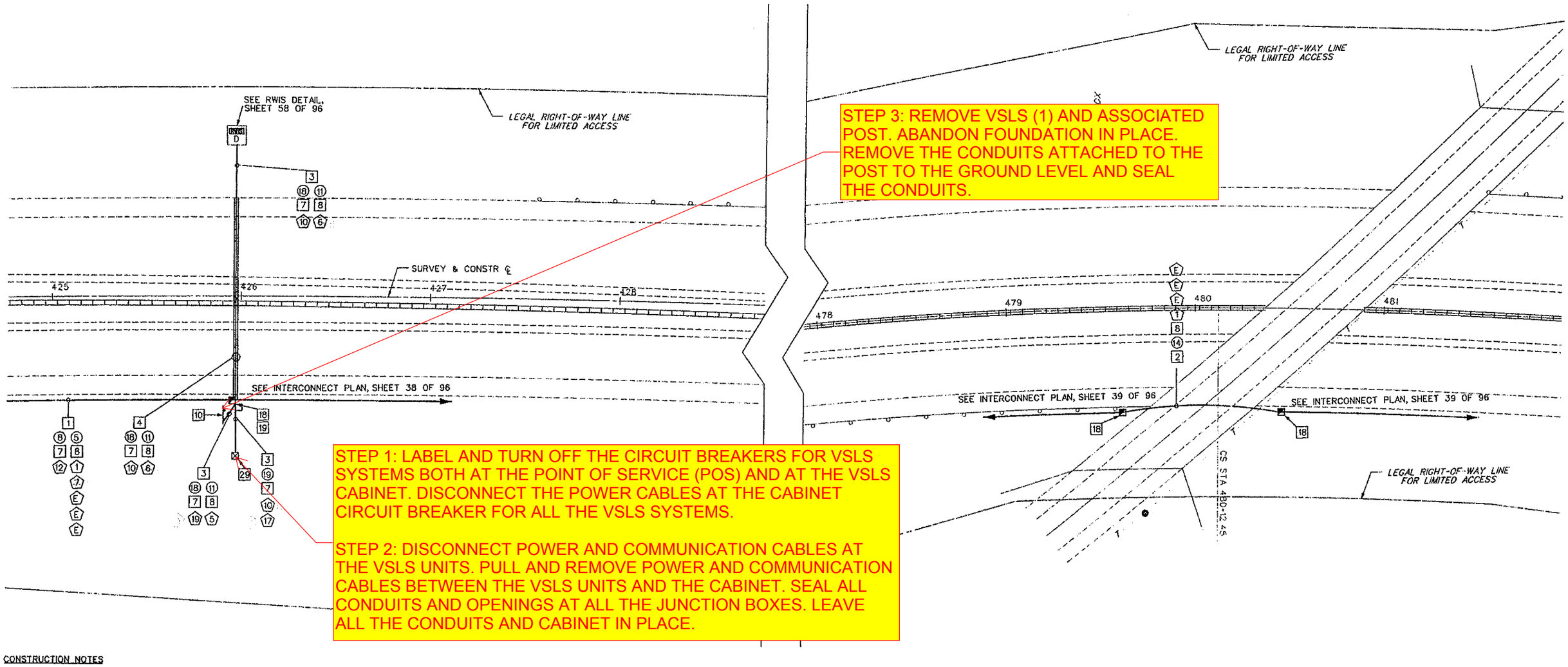
COUNTY	DISTRICT
FULTON	2
BRUSH CREEK TOWNSHIP	

CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS



CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III.
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT
9. INSTALL DMS SYSTEM
10. INSTALL VSLS SYSTEM
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR)
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11.
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE.
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX
25. INSTALL GUY WIRE ASSEMBLY.
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
27. INSTALL ZONE LIMIT SIGN
28. INSTALL CONDUITS ON NEW POLE.
29. INSTALL VSLS CABINET WITH BASE, TYPE A
30. INSTALL VSLS CABINET WITH BASE, TYPE B

NO.	REVISIONS	DATE	APP'D
3	REPLACES SHEET 57	8/25/4	8/25/4

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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — L. BRYAN HOOVER — PE-057570

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 5 DETAIL PLAN M.P. 166.9 TO 167.1

DWG. NAME: DPLN11.DGN	STRUCTURE NO. NOT APPLICABLE		
25 FT 0 25 FT	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	3 OF 3	57A OF 96

COUNTY	DISTRI
FULTON	2
BRUSH CREEK TOWNSHIP	

CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

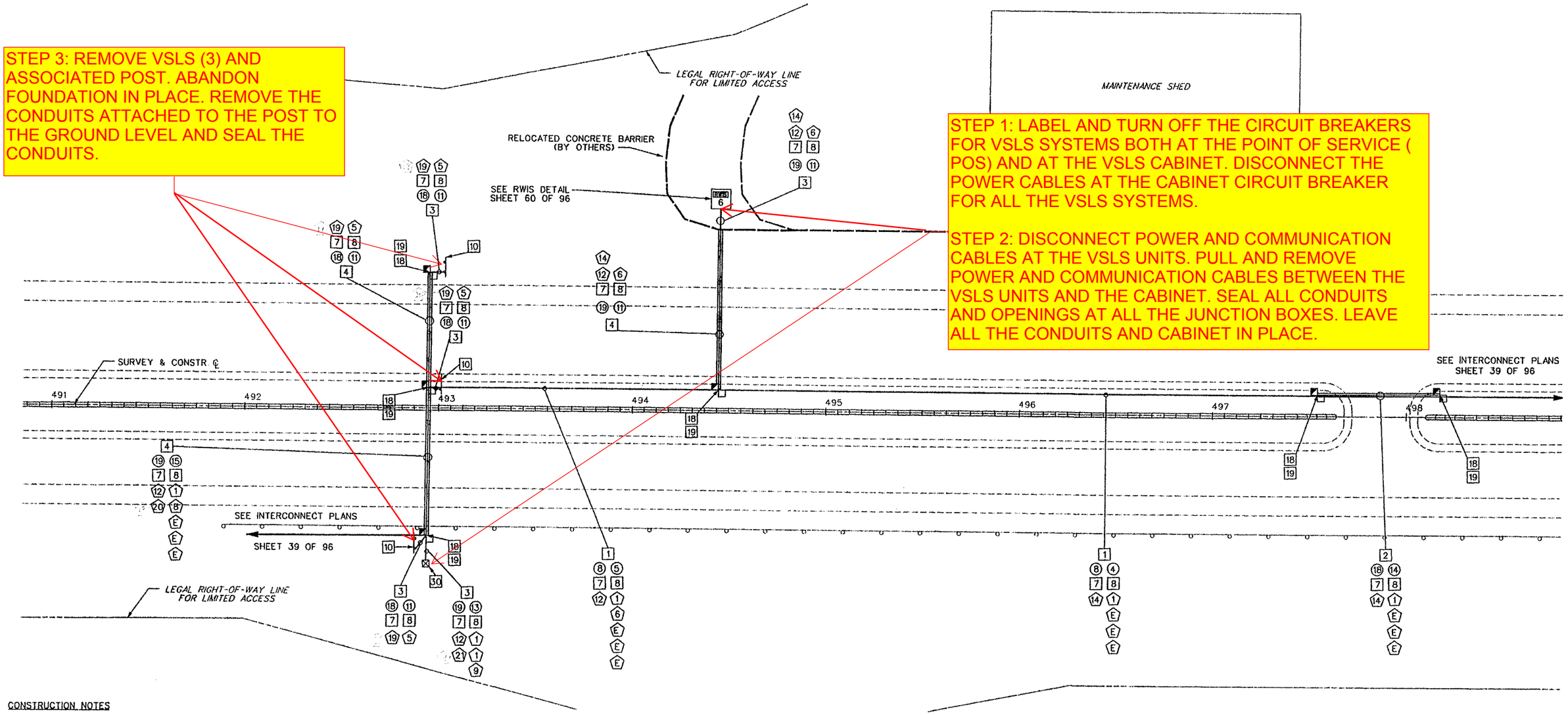
CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS

STEP 3: REMOVE VSLS (3) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.

STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS BOTH AT THE POINT OF SERVICE (POS) AND AT THE VSLS CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES AT THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.



CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III.
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I.
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.
9. INSTALL DMS SYSTEM.
10. INSTALL VSLS SYSTEM.
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE.
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11.
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE.
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX.
25. INSTALL GUY WIRE ASSEMBLY.
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
27. INSTALL ZONE LIMIT SIGN.
28. INSTALL CONDUITS ON NEW POLE.
29. INSTALL VSLS CABINET WITH BASE, TYPE A.
30. INSTALL VSLS CABINET WITH BASE, TYPE B.

NO.	REVISIONS	DATE	APP'D
3	REPLACES SHEET 59	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER — PE-057579

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 6 DETAIL PLAN M.P. 168.3 TO 168.4

DWG. NAME: DPLN12.DGN	STRUCTURE NO. NOT APPLICABLE		
25 FT 0 25 FT	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	1 OF 1	59A OF 96

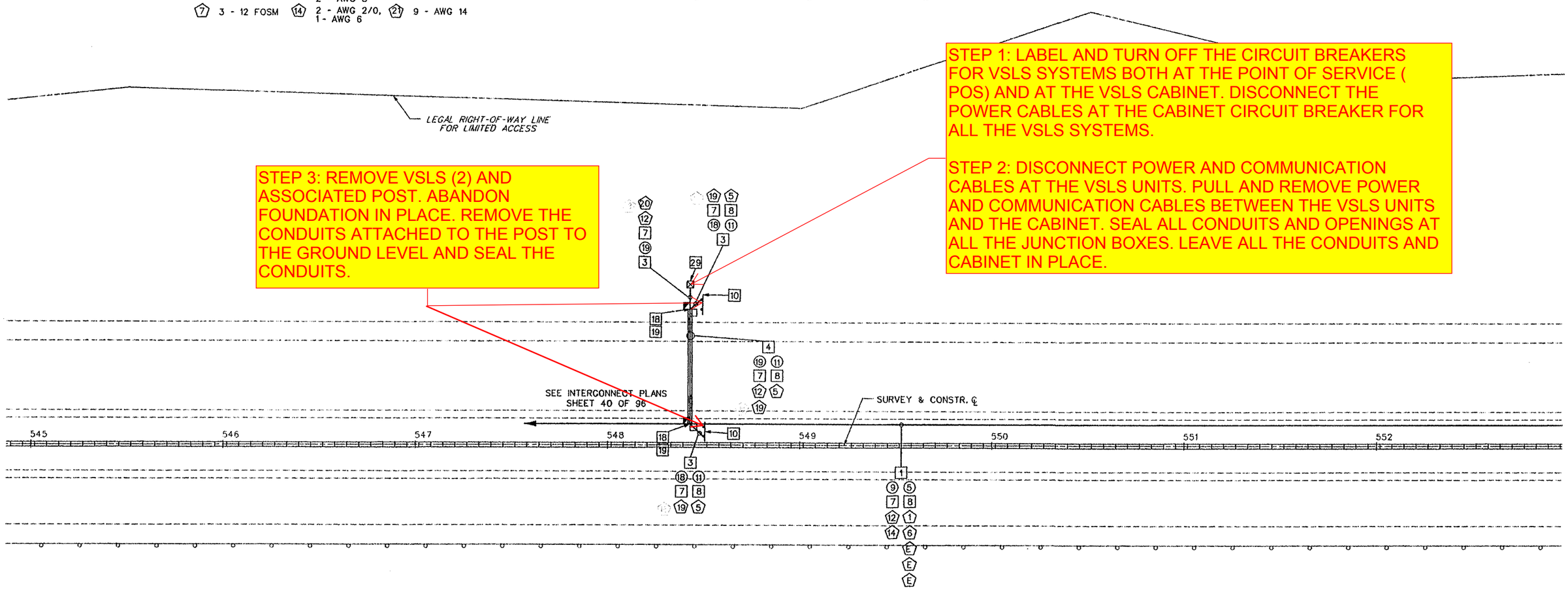
COUNTY	DISTRIC
FULTON	2
WELLS TOWNSHIP	

CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS



CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III.
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I.
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.
9. INSTALL DMS SYSTEM.
10. INSTALL VSLS SYSTEM.
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE.
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11.
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE.
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX.
25. INSTALL GUY WIRE ASSEMBLY.
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
27. INSTALL ZONE LIMIT SIGN.
28. INSTALL CONDUITS ON NEW POLE.
29. INSTALL VSLS CABINET WITH BASE, TYPE A.
30. INSTALL VSLS CABINET WITH BASE, TYPE B.

NO.	REVISIONS	DATE	APP'D
3	REPLACES SHEET 61	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER PE-057570

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 7 DETAIL PLAN
M.P. 169.3 TO 169.6

DWG. NAME: DPLN13.DGN	STRUCTURE NO. NOT APPLICABLE		
25 FT 0 25 FT	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	1 OF 3	61A OF 96

COUNTY	DISTR
FULTON	2
WELLS TOWNSHIP	

CABLES

1	1 - 96 FOSM	8	4 - 12 FOSM	15	SSR COMMUNICATIONS CABLE	22	DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
2	1 - 96 FOSM, 1 - 36 FOSM	9	5 - 12 FOSM	16	1 - AWG 2 AERIAL TRIPLEX	23	SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
3	1 - 36 FOSM	10	3 - AWG 8	17	3 - AWG 8, 3 - AWG 14	24	2 - AWG 2, 4 - AWG 8
4	2 - 36 FOSM	11	6 - AWG 8	18	6 - AWG 8, 6 - AWG 14	25	3 - AWG 8, 6 - AWG 14
5	1 - 12 FOSM	12	2 - AWG 2, 1 - AWG 8	19	3 - AWG 14	E	EMPTY CABLE CONDUIT
6	2 - 12 FOSM	13	4 - AWG 2, 2 - AWG 8	20	6 - AWG 14		
7	3 - 12 FOSM	14	2 - AWG 2/0, 1 - AWG 6	21	9 - AWG 14		

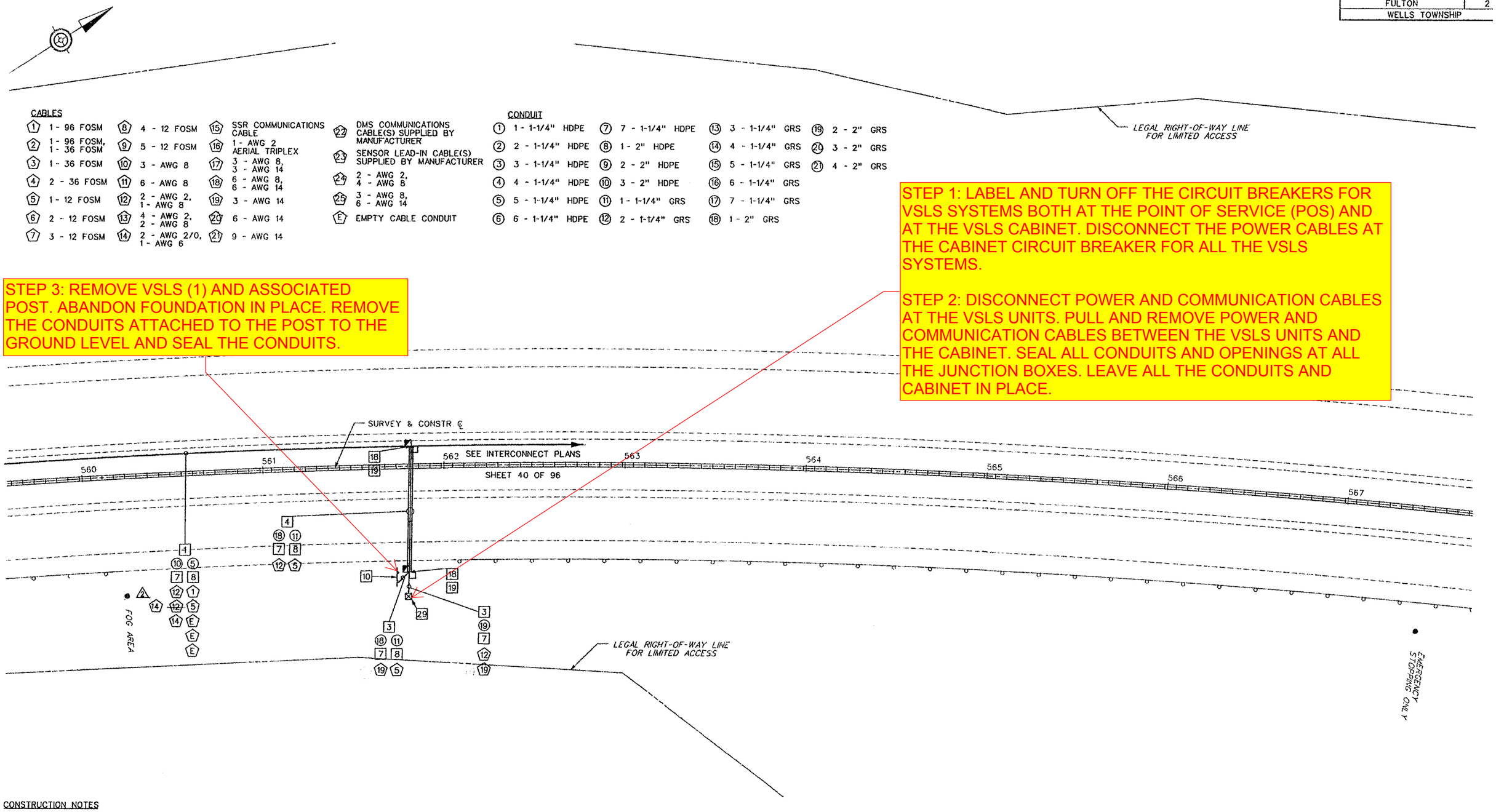
CONDUIT

1	1 - 1-1/4" HDPE	7	7 - 1-1/4" HDPE	13	3 - 1-1/4" GRS	19	2 - 2" GRS
2	2 - 1-1/4" HDPE	8	1 - 2" HDPE	14	4 - 1-1/4" GRS	20	3 - 2" GRS
3	3 - 1-1/4" HDPE	9	2 - 2" HDPE	15	5 - 1-1/4" GRS	21	4 - 2" GRS
4	4 - 1-1/4" HDPE	10	3 - 2" HDPE	16	6 - 1-1/4" GRS		
5	5 - 1-1/4" HDPE	11	1 - 1-1/4" GRS	17	7 - 1-1/4" GRS		
6	6 - 1-1/4" HDPE	12	2 - 1-1/4" GRS	18	1 - 2" GRS		

STEP 3: REMOVE VSLS (1) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.

STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS BOTH AT THE POINT OF SERVICE (POS) AND AT THE VSLS CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES AT THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.



CONSTRUCTION NOTES

1	INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).	8	INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.	15	INSTALL DOUBLE DMS CABINET WITH BASE.	22	INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
2	INSTALL CONDUIT(S) IN TRENCH, TYPE III.	9	INSTALL DMS SYSTEM.	16	INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.	23	INSTALL NON-FUSED SERVICE DISCONNECT.
3	INSTALL CONDUIT(S) IN TRENCH, TYPE I.	10	INSTALL VSLS SYSTEM.	17	INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.	24	INSTALL AWG 2 AERIAL TRIPLEX.
4	INSTALL CONDUIT(S) USING JACKING.	11	INSTALL RWIS.	18	INSTALL JUNCTION BOX J.B.-11.	25	INSTALL GUY WIRE ASSEMBLY.
5	INSTALL 4" EXPOSED CONDUIT.	12	INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).	19	INSTALL JUNCTION BOX J.B.-12.	26	INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
6	INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.	13	INSTALL PAVEMENT SENSOR.	20	INSTALL ELECTRICAL SERVICE, TYPE A.	27	INSTALL ZONE LIMIT SIGN.
7	INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.	14	INSTALL DMS CABINET WITH BASE.	21	INSTALL WOOD POLE.	28	INSTALL CONDUITS ON NEW POLE.
						29	INSTALL VSLS CABINET WITH BASE, TYPE A.
						30	INSTALL VSLS CABINET WITH BASE, TYPE B.

NO.	REVISIONS	DATE	APP'D
2	REVISE CABLE CALL OUT	7/6/4	7/6/4
3	REPLACES SHEET 63	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER PE-057579

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 7 DETAIL PLAN M.P. 169.3 TO 169.6

DWG. NAME: DPLN15.DGN	STRUCTURE NO. NOT APPLICABLE		
25 FT 0 25 FT	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	3 OF 3	63A OF 96

CABLES

1. 1 - 96 FOSM
2. 1 - 96 FOSM, 1 - 36 FOSM
3. 1 - 36 FOSM
4. 2 - 36 FOSM
5. 1 - 12 FOSM
6. 2 - 12 FOSM
7. 3 - 12 FOSM
8. 4 - 12 FOSM
9. 5 - 12 FOSM
10. 3 - AWG 8
11. 6 - AWG 8
12. 2 - AWG 2, 1 - AWG 8
13. 4 - AWG 2, 2 - AWG 8
14. 2 - AWG 2/0, 1 - AWG 6
15. SSR COMMUNICATIONS CABLE
16. 1 - AWG 2 AERIAL TRIPLEX
17. 3 - AWG 8, 3 - AWG 14
18. 6 - AWG 8, 6 - AWG 14
19. 3 - AWG 14
20. 6 - AWG 14
21. 9 - AWG 14
22. DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
23. SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
24. 2 - AWG 2, 4 - AWG 8
25. 3 - AWG 8, 6 - AWG 14
E. EMPTY CABLE CONDUIT

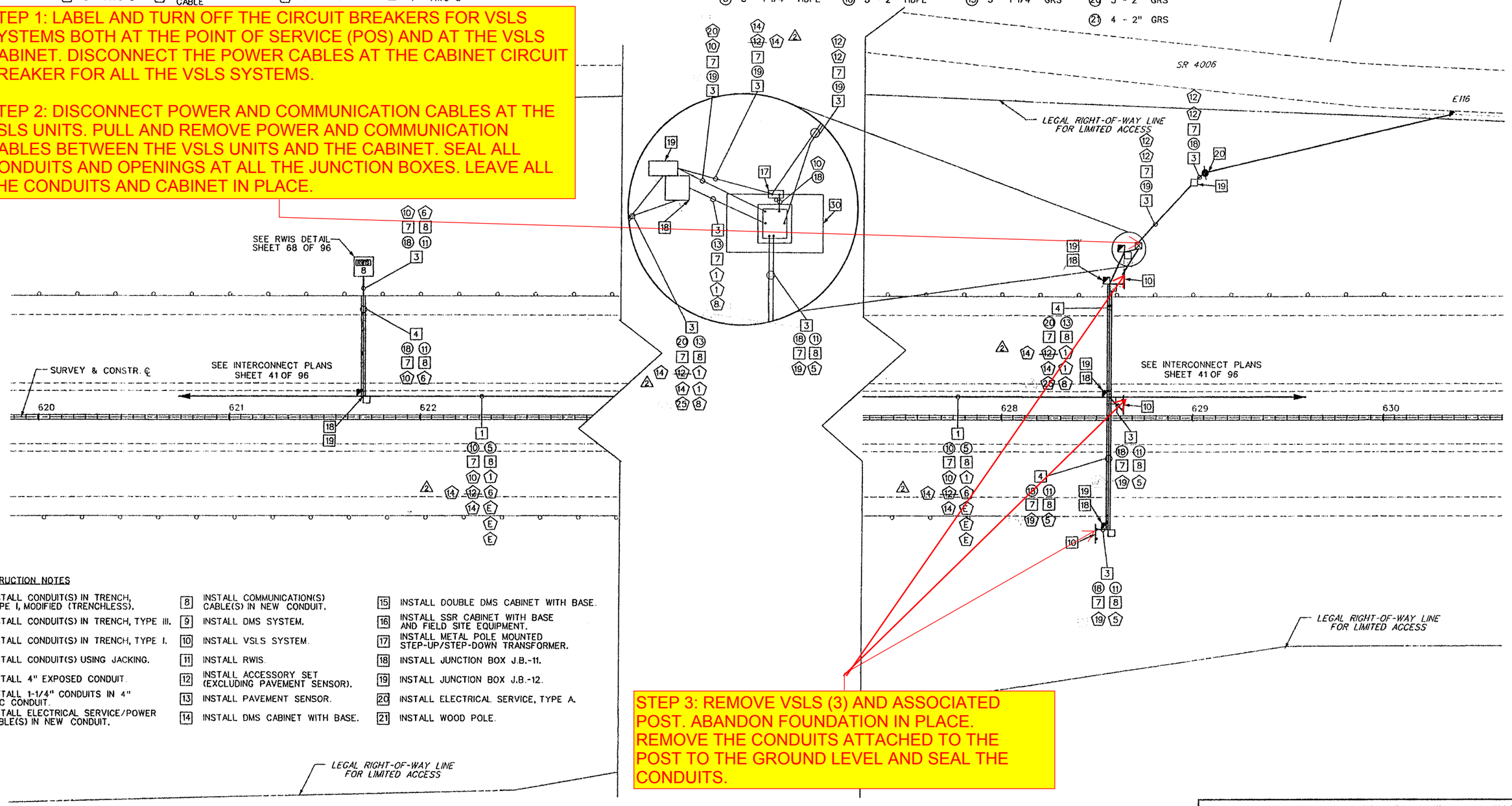
CONDUIT

1. 1 - 1-1/4" HDPE
2. 2 - 1-1/4" HDPE
3. 3 - 1-1/4" HDPE
4. 4 - 1-1/4" HDPE
5. 5 - 1-1/4" HDPE
6. 6 - 1-1/4" HDPE
7. 7 - 1-1/4" HDPE
8. 1 - 2" HDPE
9. 2 - 2" HDPE
10. 3 - 2" HDPE
11. 1 - 1-1/4" GRS
12. 2 - 1-1/4" GRS
13. 3 - 1-1/4" GRS
14. 4 - 1-1/4" GRS
15. 5 - 1-1/4" GRS
16. 6 - 1-1/4" GRS
17. 7 - 1-1/4" GRS
18. 1 - 2" GRS
19. 2 - 2" GRS
20. 3 - 2" GRS
21. 4 - 2" GRS

COUNTY	DIST
FULTON	2
VARIOUS TOWNSHIP	

STEP 1: LABEL AND TURN OFF THE CIRCUIT BREAKERS FOR VSLS SYSTEMS BOTH AT THE POINT OF SERVICE (POS) AND AT THE VSLS CABINET. DISCONNECT THE POWER CABLES AT THE CABINET CIRCUIT BREAKER FOR ALL THE VSLS SYSTEMS.

STEP 2: DISCONNECT POWER AND COMMUNICATION CABLES AT THE VSLS UNITS. PULL AND REMOVE POWER AND COMMUNICATION CABLES BETWEEN THE VSLS UNITS AND THE CABINET. SEAL ALL CONDUITS AND OPENINGS AT ALL THE JUNCTION BOXES. LEAVE ALL THE CONDUITS AND CABINET IN PLACE.



CONSTRUCTION NOTES

1. INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).
2. INSTALL CONDUIT(S) IN TRENCH, TYPE III.
3. INSTALL CONDUIT(S) IN TRENCH, TYPE I.
4. INSTALL CONDUIT(S) USING JACKING.
5. INSTALL 4" EXPOSED CONDUIT.
6. INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.
7. INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.
8. INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.
9. INSTALL DMS SYSTEM.
10. INSTALL VSLS SYSTEM.
11. INSTALL RWIS.
12. INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).
13. INSTALL PAVEMENT SENSOR.
14. INSTALL DMS CABINET WITH BASE.
15. INSTALL DOUBLE DMS CABINET WITH BASE.
16. INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.
17. INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.
18. INSTALL JUNCTION BOX J.B.-11.
19. INSTALL JUNCTION BOX J.B.-12.
20. INSTALL ELECTRICAL SERVICE, TYPE A.
21. INSTALL WOOD POLE.
22. INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
23. INSTALL NON-FUSED SERVICE DISCONNECT.
24. INSTALL AWG 2 AERIAL TRIPLEX.
25. INSTALL GUY WIRE ASSEMBLY.
26. INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
27. INSTALL ZONE LIMIT SIGN.
28. INSTALL CONDUITS ON NEW POLE.
29. INSTALL VSLS CABINET WITH BASE, TYPE A.
30. INSTALL VSLS CABINET WITH BASE, TYPE B.

STEP 3: REMOVE VSLS (3) AND ASSOCIATED POST. ABANDON FOUNDATION IN PLACE. REMOVE THE CONDUITS ATTACHED TO THE POST TO THE GROUND LEVEL AND SEAL THE CONDUITS.

NO.	REVISIONS	DATE	APP'D
2	REVISE CABLE CALL OUT	7/6/4	7/6/4
3	REPLACES SHEET 67	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER — PE-057516

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

SITE 8 DETAIL PLAN
M.P. 170.6 TO 170.8

DWG. NAME: DPLN17.DGN | STRUCTURE NO. NOT APPLICABLE

25 FT 0 25 FT

CONTRACT NO.	DWG. NO.	SHEET NO
2004-182	1 OF 1	67A OF 9

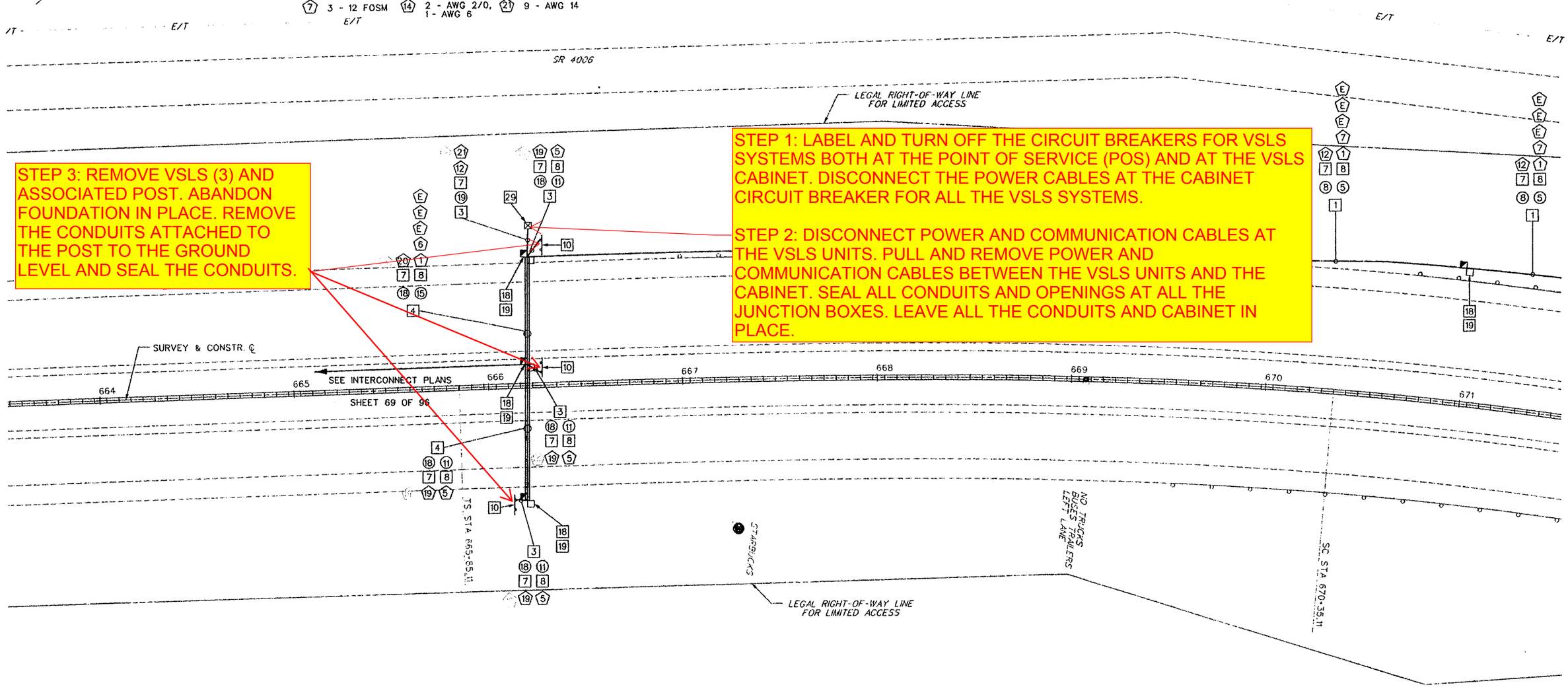
COUNTY	DISTRIC
FULTON	2
TAYLOR TOWNSHIP	

CABLES

1	1 - 96 FOSM	8	4 - 12 FOSM	15	SSR COMMUNICATIONS CABLE	22	DMS COMMUNICATIONS CABLE(S) SUPPLIED BY MANUFACTURER
2	1 - 96 FOSM, 1 - 36 FOSM	9	5 - 12 FOSM	16	1 - AWG 2 AERIAL TRIPLEX	23	SENSOR LEAD-IN CABLE(S) SUPPLIED BY MANUFACTURER
3	1 - 36 FOSM	10	3 - AWG 8	17	3 - AWG 8, 3 - AWG 14	24	2 - AWG 2, 4 - AWG 8
4	2 - 36 FOSM	11	6 - AWG 8	18	6 - AWG 8, 6 - AWG 14	25	3 - AWG 8, 6 - AWG 14
5	1 - 12 FOSM	12	2 - AWG 2, 1 - AWG 8	19	3 - AWG 14	E	EMPTY CABLE CONDUIT
6	2 - 12 FOSM	13	4 - AWG 2, 2 - AWG 8	20	6 - AWG 14		
7	3 - 12 FOSM	14	2 - AWG 2/0, 1 - AWG 6	21	9 - AWG 14		

CONDUIT

1	1 - 1-1/4" HDPE	7	7 - 1-1/4" HDPE	13	3 - 1-1/4" GRS	19	2 - 2" GRS
2	2 - 1-1/4" HDPE	8	1 - 2" HDPE	14	4 - 1-1/4" GRS	20	3 - 2" GRS
3	3 - 1-1/4" HDPE	9	2 - 2" HDPE	15	5 - 1-1/4" GRS	21	4 - 2" GRS
4	4 - 1-1/4" HDPE	10	3 - 2" HDPE	16	6 - 1-1/4" GRS		
5	5 - 1-1/4" HDPE	11	1 - 1-1/4" GRS	17	7 - 1-1/4" GRS		
6	6 - 1-1/4" HDPE	12	2 - 1-1/4" GRS	18	1 - 2" GRS		



CONSTRUCTION NOTES

1	INSTALL CONDUIT(S) IN TRENCH, TYPE I, MODIFIED (TRENCHLESS).	8	INSTALL COMMUNICATION(S) CABLE(S) IN NEW CONDUIT.	15	INSTALL DOUBLE DMS CABINET WITH BASE.	22	INSTALL ELECTRICAL SERVICE, TYPE A, MODIFIED.
2	INSTALL CONDUIT(S) IN TRENCH, TYPE III.	9	INSTALL DMS SYSTEM.	16	INSTALL SSR CABINET WITH BASE AND FIELD SITE EQUIPMENT.	23	INSTALL NON-FUSED SERVICE DISCONNECT.
3	INSTALL CONDUIT(S) IN TRENCH, TYPE I.	10	INSTALL VSLS SYSTEM.	17	INSTALL METAL POLE MOUNTED STEP-UP/STEP-DOWN TRANSFORMER.	24	INSTALL AWG 2 AERIAL TRIPLEX.
4	INSTALL CONDUIT(S) USING JACKING.	11	INSTALL RWIS.	18	INSTALL JUNCTION BOX J.B.-11.	25	INSTALL GUY WIRE ASSEMBLY.
5	INSTALL 4" EXPOSED CONDUIT.	12	INSTALL ACCESSORY SET (EXCLUDING PAVEMENT SENSOR).	19	INSTALL JUNCTION BOX J.B.-12.	26	INSTALL WOOD POLE MOUNTED STEP-UP TRANSFORMER.
6	INSTALL 1-1/4" CONDUITS IN 4" PVC CONDUIT.	13	INSTALL PAVEMENT SENSOR.	20	INSTALL ELECTRICAL SERVICE, TYPE A.	27	INSTALL ZONE LIMIT SIGN.
7	INSTALL ELECTRICAL SERVICE/POWER CABLE(S) IN NEW CONDUIT.	14	INSTALL DMS CABINET WITH BASE.	21	INSTALL WOOD POLE.	28	INSTALL CONDUITS ON NEW POLE.
						29	INSTALL VSLS CABINET WITH BASE, TYPE A.
						30	INSTALL VSLS CABINET WITH BASE, TYPE B.

NO.	REVISIONS	DATE	APP'D
3	REPLACES SHEET 69	8/25/4	8/25/4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — L. BRYAN HOOVER — ENGINEER PE-037579

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

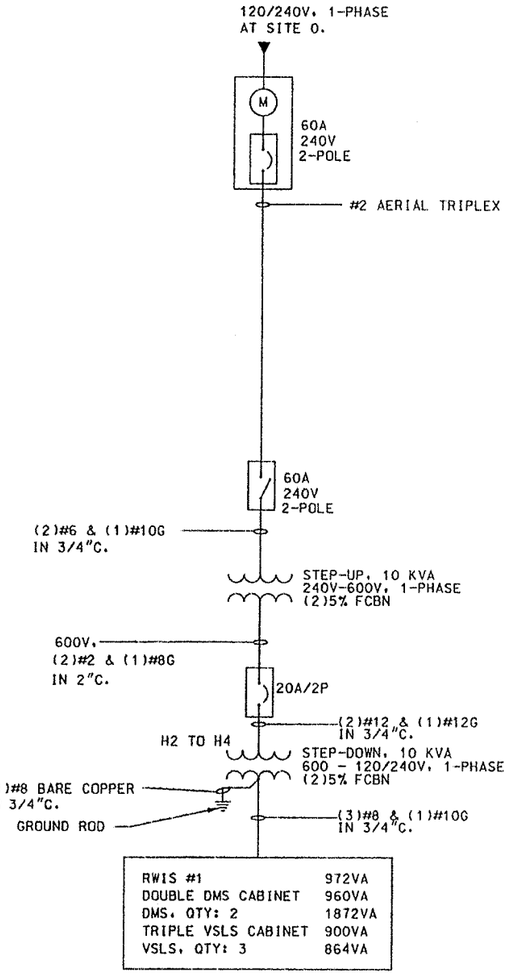
SITE 9 DETAIL PLAN M.P. 171.5 TO 171.6

DWG. NAME: DPLN18.DGN | STRUCTURE NO. NOT APPLICABLE

25 FT 0 25 FT

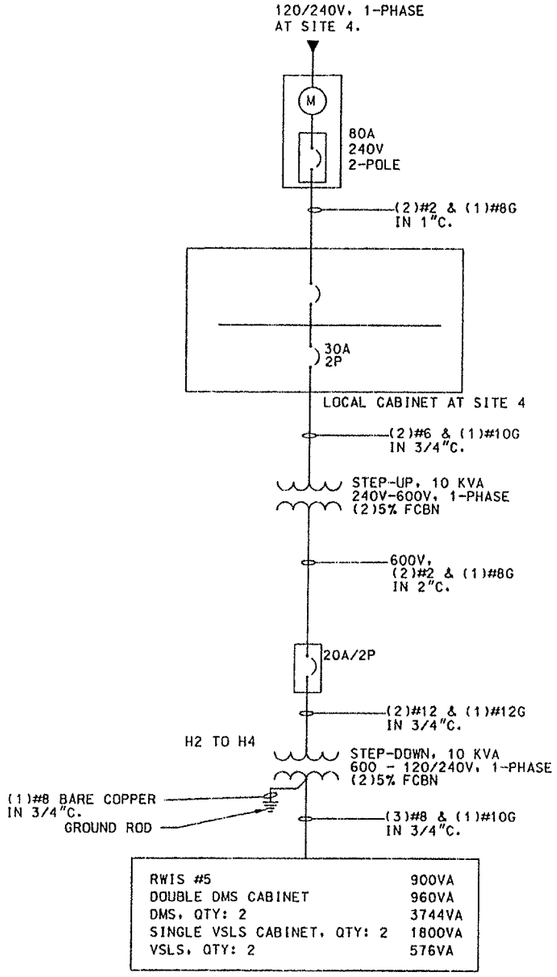
CONTRACT NO.	DWG. NO.	SHEET NO
2004-182	1 OF 2	69A OF 9

COUNTY	DISTRI
BEDFORD/FULTON	2
VARIOUS TOWNSHIPS	



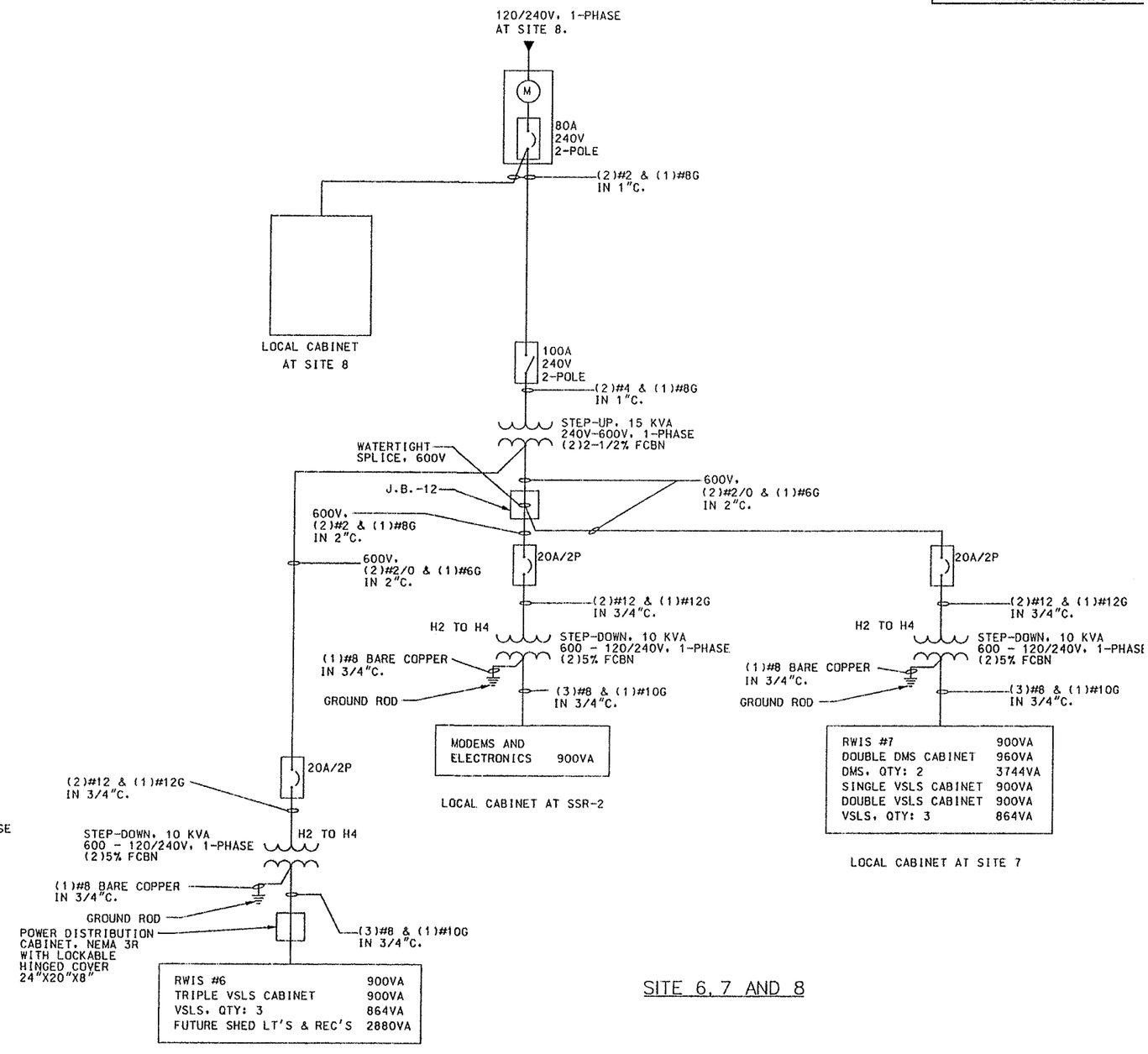
LOCAL CABINET AT SITE 1

SITE 0 AND 1



LOCAL CABINET AT SITE 5

SITE 4 AND 5



SITE 6, 7 AND 8

ELECTRICAL SINGLE LINE DIAGRAMS

NO.	REVISIONS	DATE	APP'D

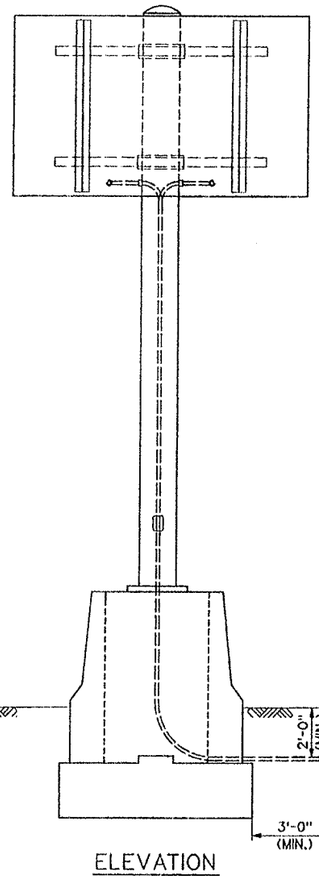
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL
VAHIT KIVANC CAGLAR
ENGINEER
PE-052295-E

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

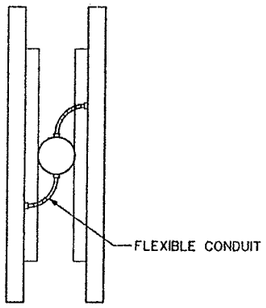
DETAILS

DWG. NAME: CDTL06.DGN	STRUCTURE NO. NOT APPLICABLE		
NOT TO SCALE	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	4 OF 7	26A OF 96

COUNTY	DISTRI
BEDFORD/FULTON	2
VARIOUS TOWNSHIPS	

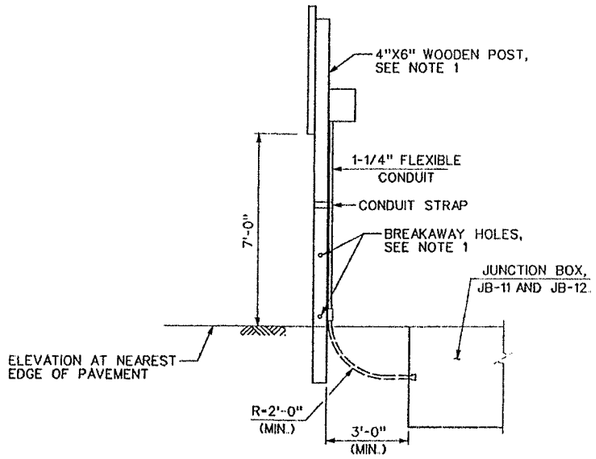


ELEVATION



PLAN

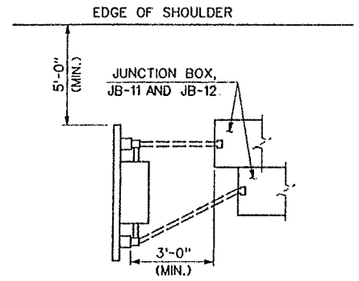
DMS SIGN STRUCTURE



ELEVATION

NOTES:

1. CONSTRUCT IN ACCORDANCE WITH TC-7702C UNLESS INDICATED OTHERWISE ON THE DETAIL.



PLAN

VSLS SIGN STRUCTURE

NO.	REVISIONS	DATE	APP'D

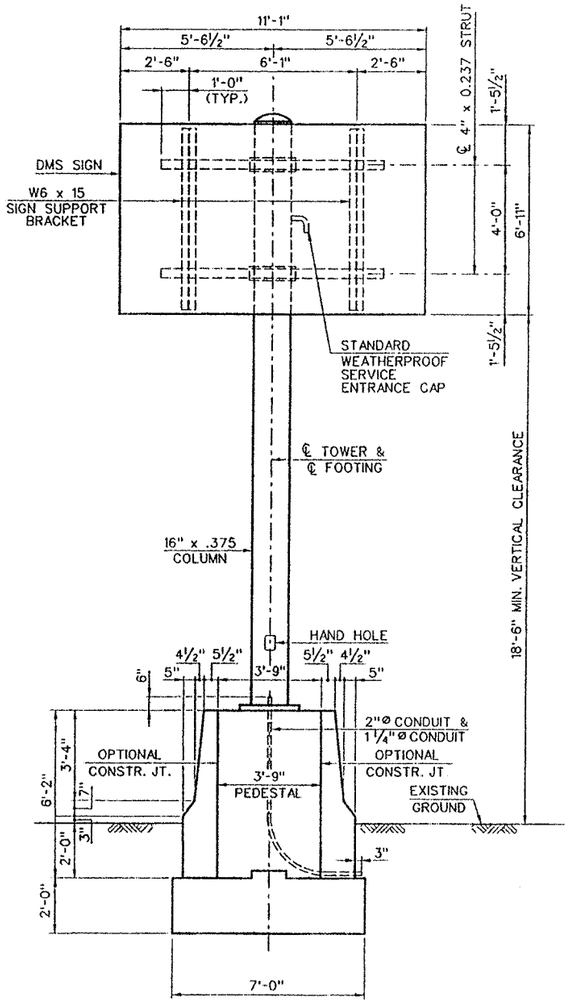
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
VAHIT KIVANC CAGLAR
PE-052295-E

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

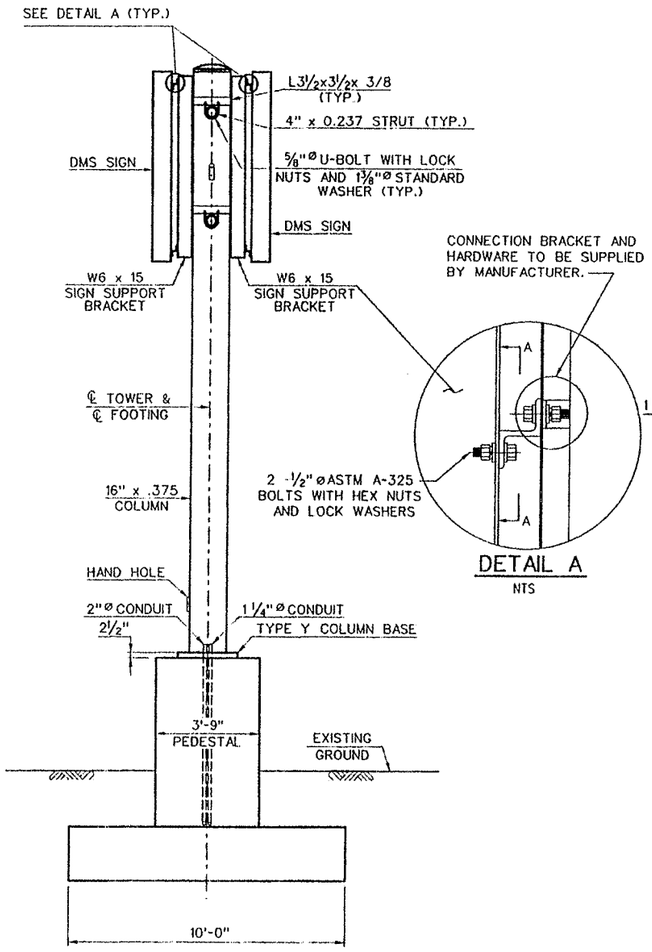
DETAILS

DWG. NAME: CDTL01.DGN	STRUCTURE NO. NOT APPLICABLE		
NOT TO SCALE	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	2 OF 7	24 OF 96

COUNTY	DISTRI
BEDFORD/FULTON	2
VARIOUS TOWNSHIPS	

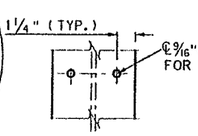


ELEVATION

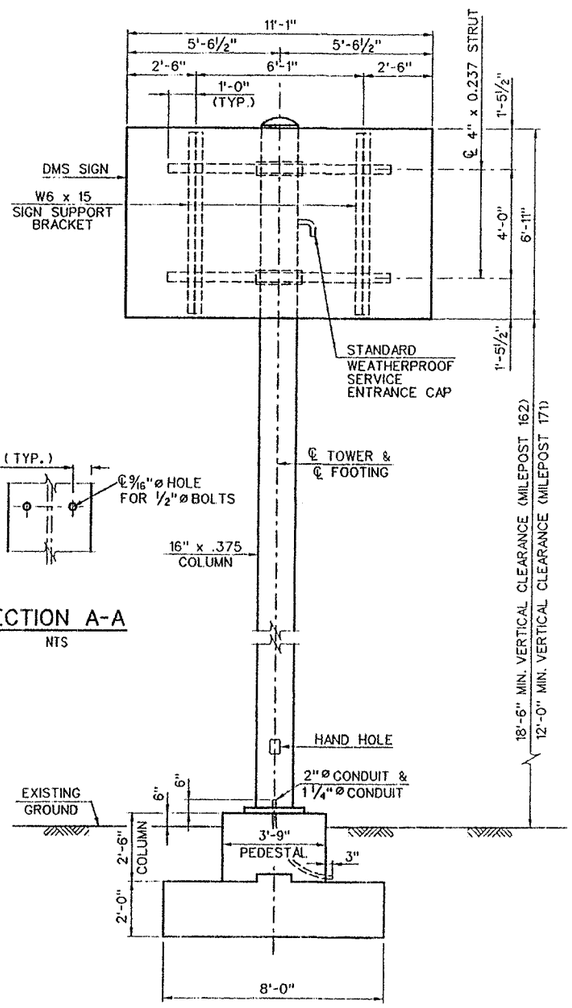


END VIEW

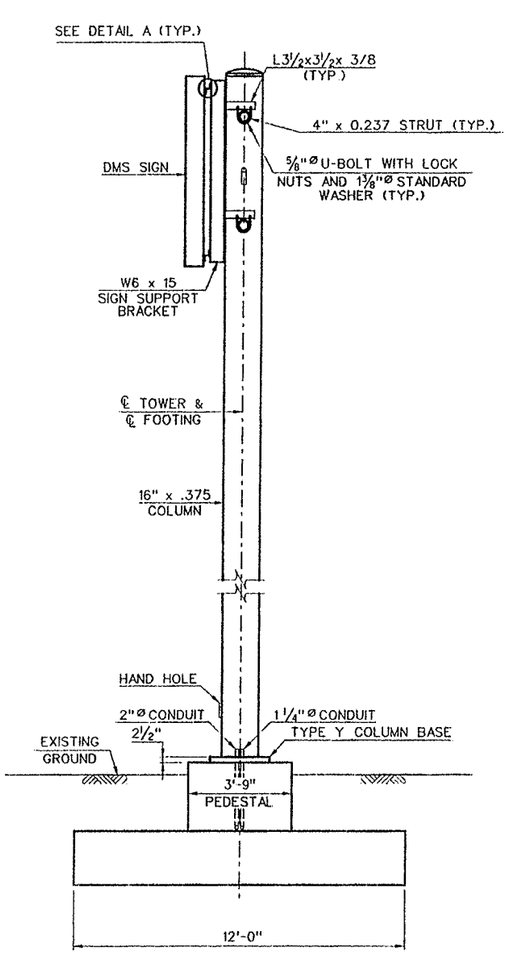
DETAIL A
NTS



SECTION A-A
NTS



ELEVATION



END VIEW

TYPE A - DMS SIGN STRUCTURE

1 0 1 2 FEET
SCALE: ⅜" = 1'-0"

TYPE B - DMS SIGN STRUCTURE

1 0 1 2 FEET
SCALE: ⅜" = 1'-0"

TABULATION OF QUANTITIES

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY					
			MILEPOST 162.1	MILEPOST 163.0	MILEPOST 165.1	MILEPOST 167.0	MILEPOST 169.5	MILEPOST 171.6
0204-0100	CLASS 3 EXCAVATION	C.Y.	21	16	16	16	16	21
1001-0010	CLASS A CEMENT CONCRETE	C.Y.	9	6	6	6	6	9
1001-0001	CLASS AA CEMENT CONCRETE	C.Y.	——	5	5	5	5	——
1002-0053	REINFORCEMENT BARS, EPOXY COATED	LBS.	762	1215	1215	1215	1215	762
0948-0600	STEEL SIGN STRUCTURE CENTER MOUNT	LS	1	——	——	——	——	——
0948-0601	STEEL SIGN STRUCTURE CENTER MOUNT	LS	——	1	——	——	——	——
0948-0602	STEEL SIGN STRUCTURE CENTER MOUNT	LS	——	——	1	——	——	——
0948-0603	STEEL SIGN STRUCTURE CENTER MOUNT	LS	——	——	——	1	——	——
0948-0604	STEEL SIGN STRUCTURE CENTER MOUNT	LS	——	——	——	——	1	——
0948-0605	STEEL SIGN STRUCTURE CENTER MOUNT	LS	——	——	——	——	——	1

SIGN TYPE & LOCATION

MILEPOST	SIGN TYPE	LOCATION
MILEPOST 162.1	TYPE B	MEDIAN
MILEPOST 163.0	TYPE A	MEDIAN
MILEPOST 165.1	TYPE A	MEDIAN
MILEPOST 167.0	TYPE A	MEDIAN
MILEPOST 169.5	TYPE A	MEDIAN
MILEPOST 171.6	TYPE B	WESTBOUND SHOULDER

NOTES:

- FOR DETAILS OF THE OVERHEAD SIGN STRUCTURE AND SIGN BRACKETS, SEE STANDARD DRAWING BC-741M, DATED JANUARY 21, 2003.
- FOR FOUNDATION DETAILS SEE SHEETS 74 & 75.

NO.	REVISIONS	DATE	APP'D

DESIGNED: DDF | CHK'D: JWP | DRAWN: TAD | CHK'D: JWP

COMMONWEALTH OF PENNSYLVANIA — JOSEPH W. PEGNETTER — ENGINEER NO. 052787-E — REGISTERED PROFESSIONAL

FOG DETECTION, TRAVELER INFORMATION AND DYNAMIC TRAFFIC CONTROL SYSTEM

DMS STRUCTURES PLAN AND ELEVATION

DWG. NAME: SHEET1	STRUCTURE NO. STRUCT		
SCALE AS SHOWN	CONTRACT NO.	DWG. NO.	SHEET NO.
	2004-182	1 OF 3	73 OF 96

UPS/BBS
Systems
MP2000, MP2400, MP2700

- 1500, 1800, 2000 watt; 2000, 2400, 2700VA
- Local Keypad Programmability - including status monitoring, setting/testing of various parameters, dry contact programming, and more. No laptop necessary.
- Backlit LCD Displays - easily readable in all light conditions.
- Six Fully Programmable Dry Contacts - provides greater control of system components and functions.
- Remote Access through a serial interface via an RS232, USB port or SNMP, TCP/IP, LAN communication card.
- Provides fully interactive program and status reporting using built-in, Windows™-compatible software.
- Time/Date Stamp of Events and Alarms - up to 100 events with download and print capability.
- Data Dump Commands available through RS232 port, USB port or SNMP, TCP/IP, LAN communication card.

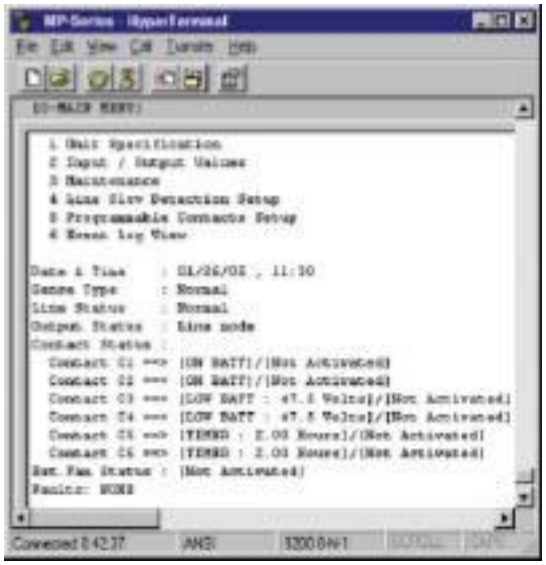
MYERS Power Products, Inc.

Features

	MP2000	MP2400	MP2700
Output Power (VA)	2000	2400	2700
Active Output Power (Watts)	1500	1800	2000
Transient voltage protection from damaging line spikes	♦	♦	♦
Low harmonic AC sine wave output	♦	♦	♦
Intelligent Buck and Boost Operation for brownout and surge protection	♦	♦	♦
Noise suppression, FCC Class A	♦	♦	♦
Multiple mounting configurations	♦	♦	♦
6 Fully programmable dry contacts for conrtol and reporting functionality	♦	♦	♦
1 Fully programmable input dry contact for control			♦
Backlit LCD display, 2 row by 20 characters White on Blue	♦	♦	
Backlit LCD display, 2 row by 20 characters Black on Green		♦	
Advanced Graphics Package		♦	♦
Vacuum flourescent display, 4 row by 20 character			♦
Display of real time values (Input/Output, Voltages)	♦	♦	♦
Time/Date stamp of events and alarms	♦	♦	♦
Intelligent remote communication capability via RS232, USB, SNMP	♦	♦	♦
Embedded Battery Monitoring System (optional)			♦
Fax Modem	♦	♦	♦

Status & Event Reporting

MP Series UPS provides fully interactive program and status reporting capabilities via built-in, Windows™-compatible software and serial cable (included). Whether using this feature for set-up, maintenance, or as a link to your traffic control command center, the ability to view moment-by-moment operations will enhance your traffic engineering and supervisory control capabilities.



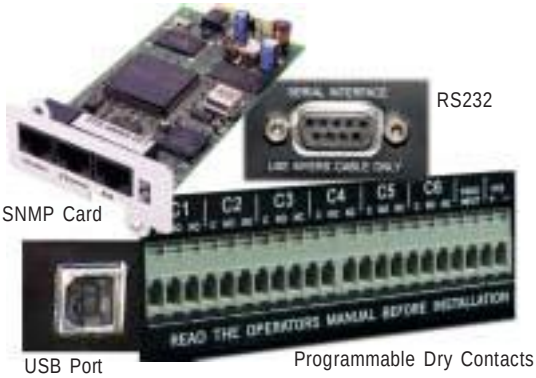
Advanced Display Readout

Myers MP Series™ provides you with the tools to monitor and maintain your system at peak performance. The MP Series utilizes a bright LCD display and touch keys to provide real time information including input/output status, battery percentages, online and load status, time/date stamp of events, and more. Easy-to-read scrolling menus assist you with maintenance and programming of functions.

MP Series UPS Displays

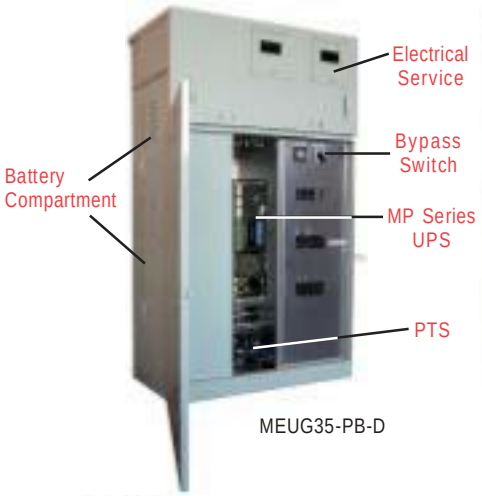
Connectivity

Effective system integration and communications depends on connectivity. In addition to AC input/output connectors, Myers MP Series provides NC/NO dry contacts (fully programmable), giving you greater versatility in powering external system components during normal or battery backup operations. An RS232 serial port, USB, SNMP card, or TCP/IP LAN card allows for complete remote communications.

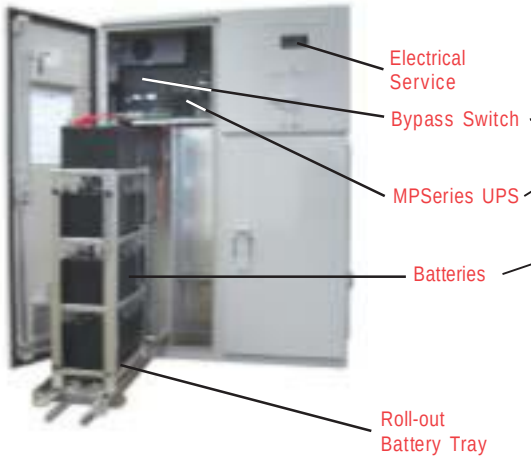


Installation Configurations

With MP Series UPS you not only get the right UPS components, you also benefit from Myers Power Products' years of experience in cabinet design to ensure your entire battery backup system is configured to precisely meet your needs. Standard and custom configurations are available for Type 170/332, NEMA, Myers MEUG service pedestals, and more.

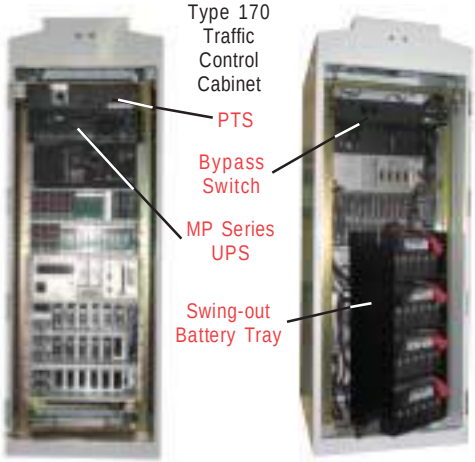


MEUG35-PB-D



BC-100G

Battery/UPS Cabinets



Complete systems can be packaged for internal installation into an existing cabinet, as an external add-on, or as a separate free-standing cabinet. Call to speak to a Myers engineer for more information.

Battery Options

MP Series UPS batteries are specifically designed for UPS applications and are completely sealed and maintenance-free. These absorbed glass mat, valve regulated lead acid (AGM/VRLA) batteries can withstand extreme temperatures, are rated non-spillable by ICAO IATA/DOT and available in a variety of ampere-hour ratings. Battery harnesses with "quick-connect" cables are included. Sample run times are listed below based on a single string (4 batteries) at 25°C.

TOTAL POWER REQUIRED (WATTS)	1 STRING 17AH @25C	1 STRING 33AH @25C	1 STRING 55AH @25C	1 STRING 65AH @25C	1 STRING 79AH @25C	1 STRING 92AH @25C	1 STRING 105AH @25C
2000	N/A	N/A	0 hr. 35 min.	0 hr. 45 min.	0 hr. 55 min.	1 hr. 00 min.	1 hr. 17 min.
1800	N/A	0 hr. 24 min.	0 hr. 45 min.	0 hr. 55 min.	1 hr. 10 min.	1 hr. 15 min.	1 hr. 30 min.
1500	N/A	0 hr. 30 min.	0 hr. 50 min.	1 hr. 05 min.	1 hr. 20 min.	1 hr. 45 min.	2 hr. 00 min.
1200	N/A	0 hr. 40 min.	1 hr. 05 min.	1 hr. 20 min.	1 hr. 40 min.	2 hr. 15 min.	2 hr. 30 min.
1000	N/A	0 hr. 55 min.	1 hr. 20 min.	1 hr. 40 min.	2 hr. 00 min.	2 hr. 40 min.	3 hr. 05 min.
875	0 hr. 28 min.	1 hr. 11 min.	1 hr. 50 min.	2 hr. 15 min.	2 hr. 40 min.	3 hr. 30 min.	4 hr. 00 min.
750	0 hr. 32 min.	1 hr. 17 min.	2 hr. 05 min.	2 hr. 35 min.	3 hr. 05 min.	3 hr. 55 min.	4 hr. 30 min.
650	0 hr. 39 min.	1 hr. 27 min.	2 hr. 25 min.	2 hr. 50 min.	3 hr. 20 min.	4 hr. 35 min.	5 hr. 10 min.
550	0 hr. 48 min.	1 hr. 40 min.	3 hr. 00 min.	3 hr. 20 min.	3 hr. 40 min.	5 hr. 10 min.	5 hr. 55 min.
450	0 hr. 58 min.	1 hr. 55 min.	3 hr. 30 min.	3 hr. 45 min.	4 hr. 05 min.	5 hr. 45 min.	6 hr. 45 min.
350	1 hr. 09 min.	2 hr. 10 min.	4 hr. 05 min.	4 hr. 10 min.	4 hr. 30 min.	6 hr. 25 min.	7 hr. 25 min.
250	1 hr. 20 min.	2 hr. 25 min.	4 hr. 40 min.	4 hr. 47 min.	4 hr. 55 min.	7 hr. 05 min.	8 hr. 05 min.
100	2 hr. 30 min.	6 hr. 00 min.	9 hr. 10 min.	12 hr. 30 min.	15 hr. 50 min.	20 hr. 00 min.	24 hr. 10 min.

Note: Stated run times are approximate. Actual run times depend on load requirements, frequency of operation, and temperature.

For more details, refer to Myers publication *Battery Options and Run Time Calculations.*

Standard Features

- Battery backup for signalized intersections.
- Fits in all types of Traffic Cabinets or can be mounted in a Custom Enclosure or Electrical Service pedestal.
- Low harmonic AC sinewave output.
- Fully programmable AC threshold voltages; ie, NEMA,Caltrans or Custom.
- Transient voltage protection from damaging line spikes.
- External connections are front panel accessible.
- RS232 and USB serial interface for easy programmability.
- Intelligent Buck and Boost Operation for brownout and surge protection.
- Battery Monitoring System (optional).
- Power conditioning insures reliable power.
- Back up power provided by sealed battery modules.
- Temperature-compensated charging maximizes battery life in harsh, outside environments.
- Noise suppression, FCC Class A
- Meets or exceeds Caltrans, TXDOT and GDOT UPS/BBS specifications.
- Multiple mounting configuations.
- UL/CSA Listed.

Three Modes of Backup Power are Available

Normal Operation

Normal Operation supporting full functions for intersections not exceeding module's specified output.*

Flash operation

Red/Amber flash operations for intersections that exceed module's specified output for Normal Operation.*

Normal/Flash Combo

Provides normal operation then reverts to flash after 2 hours or when 40% battery capacity is reached (factory default), thereby prolonging operating time.* MP Series UPS are fully programmable including duration, percentage, and dry contact assignment.

** Total load cannot exceed unit's maximum output for any operation.*

Options

- Power Transfer Switch
- Manual Bypass Switch
- Generator Kit: bypass switch, receptacle w/cover
- Separate battery enclosures
- Battery heater mats
- Remote Battery Monitoring System
- Black on Green LCD Screen
- Remote UPS Management Systems

Output Ratings

MP-2000:	Output Power (VA)	2000
	Active Output Power (watts)	1500
MP-2400:	Output Power (VA)	2400
	Active Output Power (watts)	1800
MP-2700:	Output Power (VA)	2700
	Active Output Power (watts)	2000

Dimensions

MP2000:	Width (inches/mm)	17 / 432
	Height (inches/mm)	5.25 / 133
	Depth (inches/mm)	11 / 279
	Weight (lbs/kg)	46.2 / 21
MP2400:	Width (inches/mm)	17 / 432
	Height (inches/mm)	5.25 / 133
	Depth (inches/mm)	11 / 279
	Weight (lbs/kg)	52.9 / 24
MP2700:	Width (inches/mm)	17 / 432
	Height (inches/mm)	5.25 / 133
	Depth (inches/mm)	11 / 279
	Weight (lbs/kg)	61 / 27
PTS (Power Transfer Switch):	Width (inches/mm)	4.75 / 121
	Height (inches/mm)	4.6 / 117
	Depth (inches/mm)	6.5 / 165
	Weight (lbs/kg)	7 / 3

Battery Run Time

Battery run time and recharging depends on load requirements and battery configurations. Refer to *Battery Options and Run Time Calculations* for more details.

MP Series UPS systems are 12V, 4-String Battery systems. For custom configurations contact Myers Power Products.

General Specifications

Input/Output	Voltage (VAC) nominal	120
	Frequency (Hz) nominal	60
Input Current (A)	maximum 20/25/30*	
Input Voltage Variation	-23% to +17%	
Voltage Waveform	Sine	
Typical Line Efficiency %	95-97	
Typical Output Voltage	<3%	
Total Harmonic Distribution	<3% THD	
Max Charge Current	10 (ADC)	
Max Transfer Time	60 (ms)	
Audible Noise	<32 at 1m (dBA)	
Unit Operating Temp.	-37°C to +74°C	
Battery Operating Temp.	-25°C to +74°C	
Lightning / Surge Protection:	Passes ANSI/IEEE C.62.41/C.62.45 Cat A & B	

*MP2000 / MP2400 / MP2700

"Invest in the power of Myers."

MYERS Power Products, Inc.

www.myerspowerproducts.com
866-MY-MYERS

Deka® unigy®

HIGH RATE SERIES

The Deka Unigy High Rate Series line of absorbed valve-regulated, lead-acid batteries is designed specifically for high-rate uninterruptible power supplies (UPS). These batteries are housed in polypropylene or flame-retardant polypropylene (rated 28 LOI), 12-volt monoblocks. Absorbed glass-mat construction lowers internal resistance for superior high-rate, short-term discharges. I.C.C.O., I.M.D.G., I.A.T.A. and D.O.T. air transport approved.

DATA SHEET FOR PART NUMBER:

45HR2000S

Standard: Black Cover, Grey Case

Specifications

NOMINAL VOLTAGE: 12-Volt
FLOAT CHARGE VOLTAGE: 13.50 @ 77°F (25°C)
EQUALIZE CHARGE VOLTAGE: 13.8
OPERATING TEMPERATURE: 50° to 95°F (10°C to 35°C)
TERMINAL: Lead terminal with 1/4 x 20 brass inserts
TORQUE VALUE: 60 inch lbs.
RIPPLE: Limited to 0.5% RMS or 1.5% of the float voltage
SAFETY VENT: Flame arresting, low-pressure, self sealing on flame-retardant
Low-pressure, self sealing on standard

Discharge Ratings in Watts Per Cell To Various End Voltages [at 77°F (25°C)]

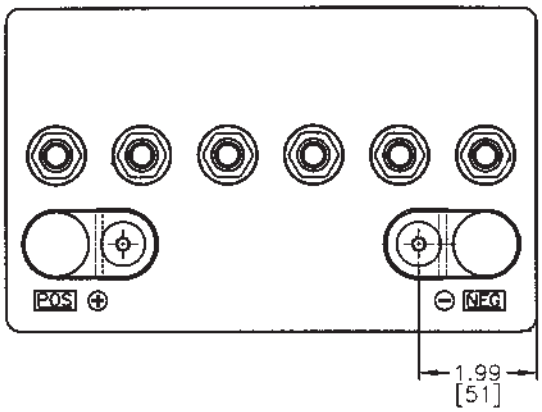
Volts Per Cell (V.P.C.)	1 Min.	5 Min.	10 Min.	15 Min.	20 Min.	30 Min.	40 Min.	50 Min.	60 Min.
1.90	258	169	138	121	109	85	70	60	53
1.85	268	203	162	134	118	95	78	67	57
1.80	289	217	179	144	124	98	82	71	60
1.75	308	285	194	150	126	99	83	72	60
1.70	309	286	197	154	130	102	84	72	61
1.67	310	288	204	**156**	133	103	85	73	63
1.60	313	289	214	160	136	104	85	74	63

Note: Above ratings conform to IEEE-485 standards.

Discharge Ratings in Amperes To Various End Voltages [at 77°F (25°C)]

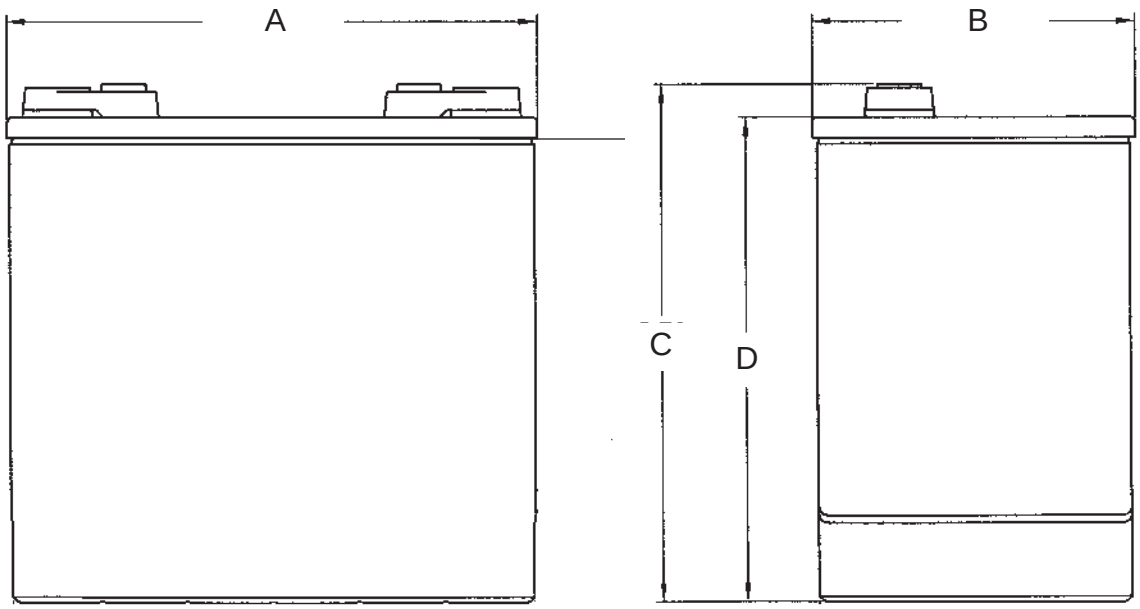
Volts Per Cell (V.P.C.)	15 Min.	30 Min.	60 Min.	3 Hrs.	8 Hrs.	12 Hrs.	20 Hrs.	48 Hrs.	100 Hrs.
1.90	62.20	43.90	28.00	12.65	5.56	3.84	2.40	1.10	0.57
1.85	68.40	48.20	30.60	13.58	5.75	3.93	2.46	1.13	0.60
1.80	74.50	50.10	32.40	14.25	6.04	4.21	2.65	1.18	0.60
1.75	78.90	51.10	33.00	15.00	6.25	4.36	2.75	1.25	0.63
1.70	82.60	52.00	33.70						
1.67	84.30	53.20	34.20						
1.60	86.70	54.10	34.80						

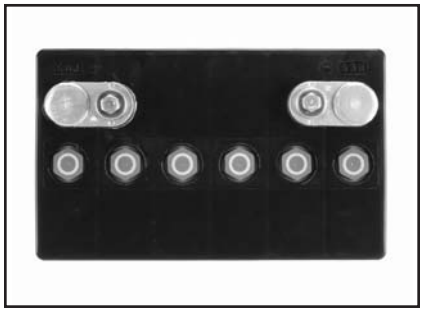
Note: Above ratings conform to IEEE-485 standards.



BATTERY	DIMENSIONS A	B	C	D	WEIGHT
45HR2000S	8.84 (225.0)	5.31 (135.0)	8.70 (221.0)	8.14 (206.8)	38.5 (17.5)

Chart contains dimensions in inches over millimeters and pounds over kilograms.





Part Number: ***45HR2000S***
Standard: *Black Cover, Grey Case*

LEAD RETURN
Pb
RECYCLE

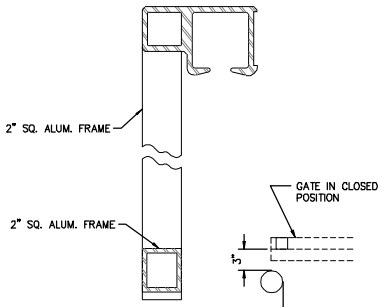
QUALITY SYSTEM CERTIFIED TO
ISO 9001
ISO/TS 16949

UL Recognized Component

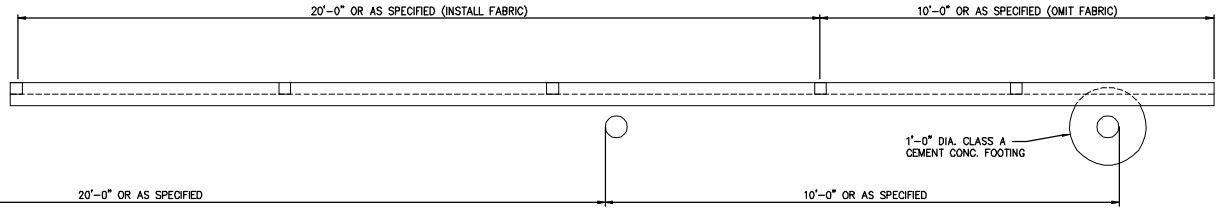
MK Battery
1645 South Sinclair Street • Anaheim, California 92806
Toll Free: 800-372-9253 • Tel: 714-937-1033 • Fax: 714-937-0818
Web: mkbattery.com • Email: sales@mkbattery.com

NOTES:

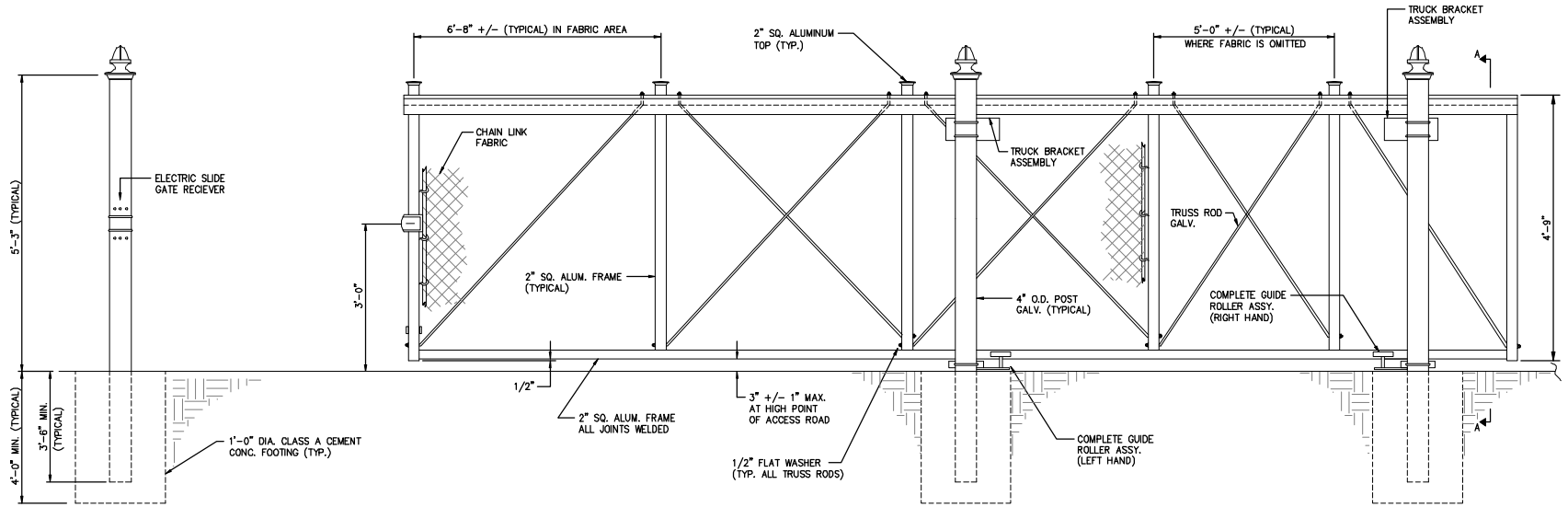
1. USE CANTILEVER SLIDING ACCESS GATES MANUFACTURED BY ANCHOR FENCE, INC., OR AN APPROVED EQUAL CONFORMING TO THE SPECIFICATIONS OF THE SPECIAL PROVISION.



SECTION "A–A"



PLAN VIEW



ELEVATION VIEW

PENNA TURN-PIKE

RECOMMENDED: OCTOBER 29, 2007
ASSISTANT CHIEF ENGINEER - DESIGN

APPROVED: OCTOBER 31, 2007
CHIEF ENGINEER

CANTILEVER SLIDING ACCESS GATE

PENNSYLVANIA TURNPIKE COMMISSION STANDARD DRAWING

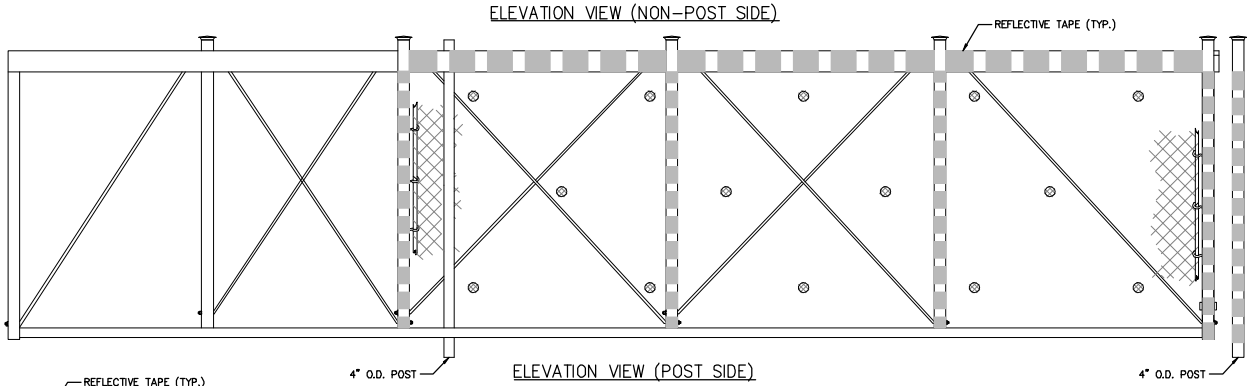
FILE NAME: PTS-150-1.dwg
DRAWING TYPE: 5A

SHEET 1 OF 2

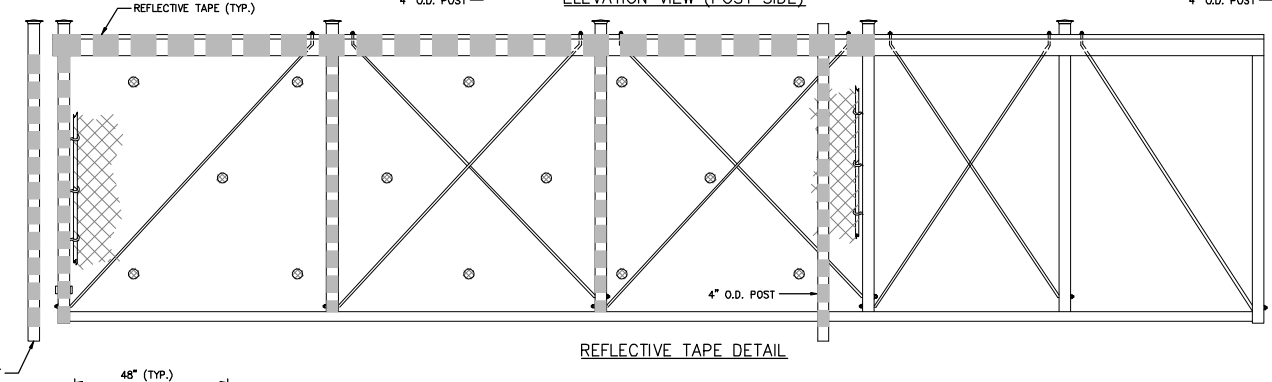
DATE: OCTOBER 2007

PTS-150

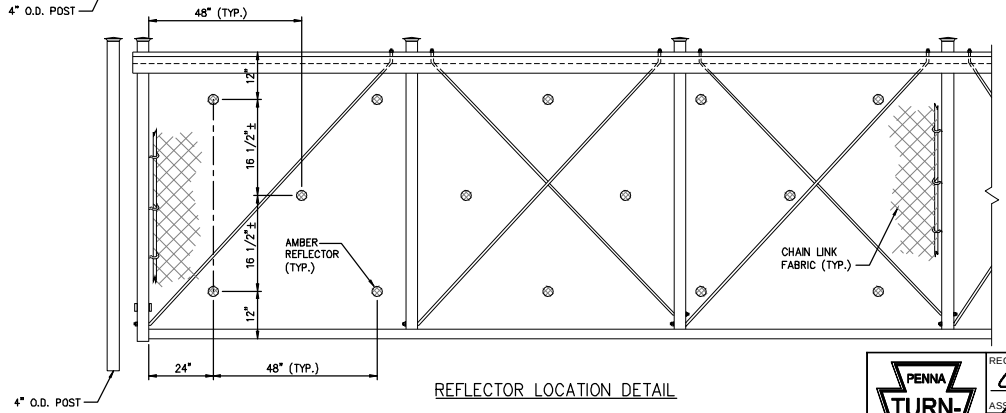
ELEVATION VIEW (NON-POST SIDE)



ELEVATION VIEW (POST SIDE)



REFLECTIVE TAPE DETAIL



REFLECTOR LOCATION DETAIL

NOTES:

1. AMBER REFLECTORS SHALL BE ATTACHED TO THE GATE BACK TO BACK THROUGH THE CHAIN LINK AT THE LOCATIONS SHOWN BY USE OF AN ANTI-THEFT BOLT AND NUT.
2. REFLECTIVE TAPE SHALL BE 3M DIAMOND GRADE CONSPICUITY MARKING ROLL, NUMBER 983-326, COLOR RED/WHITE, WIDTH 50 mm (2 INCHES) OR APPROVED EQUAL.

PENNA TURN-PIKE

RECOMMENDED: OCTOBER 29, 2007
ASSISTANT CHIEF ENGINEER - DESIGN
APPROVED: OCTOBER 31, 2007
CHIEF ENGINEER

CANTILEVER SLIDING ACCESS GATE

PENNSYLVANIA TURNPIKE COMMISSION STANDARD DRAWING

FILE NAME: PTS-150-2.dwg
DRAWING TYPE: 5A
SHEET 2 OF 2
DATE: OCTOBER 2007
PTS-150

Addendum No. 1

RFP 10-40110-2393
INTELLIGENT TRANSPORTATION SYSTEMS RETROFIT BETWEEN MILEPOST 162.0 AND MILEPOST 172.0 AND AT MILEPOST 99.5 AND MILEPOST 120.0 IN BEDFORD AND FULTON COUNTIES, PENNSYLVANIA

Prospective Respondents: You are hereby notified of the following information in regard to the referenced RFP:

REVISIONS

1. Page 1 of 22, 3rd bullet Clarification - The term "integrate" refers to the physical integration at the site. The contractor will coordinate with the Commission to re-establish the existing communications with the Harrisburg Operations Center. The existing communications for the signs from Milepost 162 to 172 are serial port controlled by IP addresses. There are 16 serial ports for each IP address.

2. Page 11 of 22 Section II-8 - Cost Submittal – Delete the last paragraph labeled 2 and replace with the following: Completed Schedule of Values form only for the following bid items: 9900-0400, 9900-0401, 9900-0402, 9900-0403, 9900-0404, 9900-0405, 9900-0406. A sample Schedule of Values form is located on the next page of the RFP (page 12 of 22).

3. Page 21 and 22 of 22 – Proposer Bid Sheet, pages 21 and 22 of 22 are replaced by the attached pages 21 and 22 of 22.

4. Page A1 of A30, Last bullet – Delete and replace with the following: Replace existing equipment cabinet, UPS and battery backup system with a new cabinet (utilizing the existing foundation), UPS and battery backup system at two (2) SSR locations noted in this RFP.

5. Page A6 of A30, first full paragraph last sentence – Remove reference to Publication 203, section 203.106 and replace with Publication 212 and 213.

6. Page A22 of A30, Item 2624-0701 (Cantilever Sliding Access Gate) – Delete this section in its entirety and replace with the following:

   Item 0624-0722 (Vehicular Gate for Type 1 Right-Of- Fence, 12-foot Opening Milepost 171.5 WB)

   (a) Provide a permanent Vehicular gate in accordance with Penn DOT Publication 408/2007 latest version and Penn DOT standard drawing RC-61M.

7. Page A25 of A30, Next to last Item, Item 9900-0440 System Support Equipment (a) – Change references item 9900-0430 to 9900-0440.

8. Page B2 of B18, first paragraph, first full sentence – Change reference from (10) characters each to (8) characters minimum.

9. Page B3 of B18, 2nd bullet up from the bottom – Delete and replace with the following: Each pixel shall contain an adequate number of discrete LED's, based on a nominal pixel spacing of 2.57 inches (center to center) for 18" height characters 15 characters across and pixel spacing of 1.75 to 1.85 inches (center to center) for 12" height characters 8 character minimum across.

10. Page B6 of B18, last bullet, 2nd sentence – Delete and replace with the following: Access to the interior of the VMS enclosure on the mainline (MP162 to 172) shall be front access via canopy doors, side hinge doors, or slide opening doors.

11. Page B7 of B18, 2nd paragraph, 1st sentence – Delete and replace with the following: Alternate rear-access doors are acceptable for the sign located on I-70.

12. Page B10 of B18, last paragraph, 2nd sentence that starts with: "The number of….." – delete this sentence in its entirety.

ADDITIONS

1. The Provisions of the Pennsylvania Wage Act of August 15, 1961, P.L. 987 as amended, together with the rates and regulations promulgated by the secretary of Labor and Industry, will apply to this project. Add the attached wage rates for Westmoreland, Somerset, and Dauphin to Appendix F.

2. Mandatory Pre-proposal Conference Sign-In-Sheet – Attached to this addendum.

QUESTIONS AND ANSWERS

Following are the responses to the questions received up to and including at the Mandatory Pre-Proposal Conference held on January 28, 2010:

Q: Is there a specification or design requirement for the access cantilever gate? Is it electronically operated?

A: See revisions number 6. Also the Proposers Bid Sheet has been revised to reflect changes in revision number 6.

Q: Under what pay item are we to upgrade the RWIS software at Highspire? This is listed on page 1 of 22.

A: An item for this work has been added to the Proposers Bid sheet.

Q: Pay item # 9900-0418 has only 1 site and should have 2. Pay item # 9900-0419 should only have 1 site.

A: The Proposers Bid Sheet has been revised to reflect the correct item description.

Q: B2 of B18 VMS along the mainline: specifications call for 10 character per line, is it 10 or 8 characters per line.

A: See revision number 8.

Q: Page B2, Please provides a weight provision for the VMS located along Penn DOT I-70.

A: The weight and size of the sign is depended on the manufacture providing the sign. This location requires a new foundation and structure that will need to meet the requirements of the specified sign in the RFP.

Q: Page B3, Please confirm a center to center pixel spacing of 1.75" for the 12" character modules.

A: See revision number 9.

Q: Page B6 – bullet 12, states the VMS at MP 162-MP 172 is to be rear access. From the drawings it would appear the VMS are to be front access. Please confirm the VMS supplied on MP 162 – MP 172 is to be front access as the drawings show.

A: See revision number 10.

Q: What are the field view requirements for this job? Who should we contact? Are there any procedures to follow, since there is median installation?

A: Prospective proposers may visit the sites as they feel necessary. Contact Louis L. Cortelazzi at 717-939-9551, X3450, e-mail: lcortela@paturnpike.com at least 24 hours before visit. All vehicles must have a vehicle warning light. All personnel must wear a hard hat and reflective vest within Turnpike Right-Of-Way.

Q: Page A22 of A30 requires a cantilever sliding gate. Where is the exact location of the access gate installation?

A: This item has been revised to include the location. See revision number 6.

Q: Page 1 of 22 mentions integration is required for the front access VMS. Does this include integration into MIST? Please define what integration is required.

A: See revision number 1.

Q: For the VMS on I-70: Is a new service disconnect required, or can the existing service panel be utilized?

A: Power service is available at this location; however a new service disconnect need to be re-established.

Q: Will the PTC provide the CDMA modem, or does the contractor provide the modem?

A: The contractor will be required to provide the modem.

Q: What design drawings/documentation is the PTC requiring for the mainline VMS replacements?

A: Detail drawings showing the sign attachment to the existing structure, along with shop drawings of the sign, cut sheets of the equipment enclosed in the equipment cabinet with interconnect diagrams.

Q: Typically a boring is required for new VMS. Is a boring for the I-70 VMS required, even though page A24 of A30 does not require it?

A: It is the proposers choice to use the foundation design as shown in the ITS Standards. This standard was based on a sign size that was 30 by 10 and with the least optimum soil conditions. The proposer may also choose to design a foundation in accordance Penn DOT design standards.

Q: Page 17 of 22 and A9 of A30 state to remove and replace the existing SSR cabinet, but use the existing foundation for the new cabinet. Page A1 of A30 (last bullet) states these cabinets are pole mounted (no foundation). Does the PTC want a pole mounted or ground mounted SSR cabinets?

A: Page A1 of A30 (last Bullet) was revised, see revision number 4 above.

All other terms, conditions and requirements of the original RFP issued January 13, 2010 remain unchanged unless modified by this Addendum.

PROPOSER BID SHEET

RETROFIT OF INTELLIGENT TRANSPORTATION SYSTEMS

MP 162.0 TO 172.0

PROPOSER BID SHEET

PROJECT NO. 10-40110-2393

ITEM NO.	Quantity	Unit	ITEM DESCRIPTION	UNIT PRICE	TOTAL ITEM COST
0608-0001	1	LS	MOBILIZATION		
0624-0722	1	EA	VEHICULAR GATE FOR TYPE ! RIGHT-OF-FENCE, 12 FOOT OPENING MILEPOST 171.5 WB		
2931-0001	100	SF	POST MOUNTED SIGNS, TYPE B (FINAL LOCATIONS TBD)		
9900-0400	1	LS	SITE 0: VMS AT MP 162.1 EB		
9900-0401	1	LS	SITE 1,1A: BACK-TO-BACK VMS AT MP 163.0		
9900-0402	1	LS	SITE 3,3A: BACK-TO-BACK VMS AT MP 165.1		
9900-0403	1	LS	SITE 5,5A: BACK-TO-BACK VMS AT MP 167.0		
9900-0404	1	LS	SITE 7,7A: BACK-TO-BACK VMS AT MP 169.5		
9900-0405	1	LS	SITE 9: VMS AT MP 171.6 WB		
9900-0406	1	LS	SITE 10: VMS ALONG I-70 AT MP 149.1 WB		
9900-0410	1	LS	SITE 11,12,13: REMOVE VSLS (3) AT MP 163.2		
9900-0411	1	LS	SITE 14,15,16: REMOVE VSLS (3) AT MP 164.0		
9900-0412	1	LS	SITE 17: REMOVE VSLS (1) AT MP 164.8		
9900-0413	1	LS	SITE 18,19: REMOVE VSLS (2) AT MP 165.2		
9900-0414	1	LS	SITE 20,21: REMOVE VSLS (2) AT MP 166.0		
9900-0415	1	LS	SITE 22: REMOVE VSLS (1) AT MP 166.9		

PROPOSER BID SHEET

RETROFIT OF INTELLIGENT TRANSPORTATION SYSTEMS
MP 162.0 TO 172.0
PROPOSER BID SHEET
PROJECT NO. 10-40110-2393

ITEM NO.	Quantity	Unit	ITEM DESCRIPTION	UNIT PRICE	TOTAL ITEM COST
9900-0416	1	LS	SITE 23: REMOVE VSLS (1) AT MP 167.1		
9900-0417	1	LS	SITE 24,25,26: REMOVE VSLS (3) AT MP 168.3		
9900-0418	1	LS	SITE 27,28: REMOVE VSLS (2) AT MP 169.3		
9900-0419	1	LS	SITE 29: REMOVE VSLS (1) AT MP 169.6		
9900-0420	1	LS	SITE 30,31,32: REMOVE VSLS (3) AT MP 170.8		
9900-0421	1	LS	SITE 33,34,35: REMOVE VSLS (3) AT MP 171.5		
9900-0430	2	EA	REPLACE EXISTING UPS AND BATTERY BACKUP AT SSR SITES		
9900-0431	9	EA	REPLACE EXISTING UPS AND BATTERY BACKUP AT RWIS SITES		
9900-0440	1	LS	SYSTEM SUPPORT EQUIPMENT		
9900-0450	11	EA	RWIS FIRMWARE UPGRADE		
9900-0460	1	LS	HIGHSPIRE RWIS CENTRAL SOFTWARE UPGRADE		

TOTAL PROJECT BID

pennsylvania
DEPARTMENT OF LABOR & INDUSTRY

BUREAU OF LABOR LAW COMPLIANCE

PREVAILING WAGES PROJECT RATES

Project Name: Itelligent Transportation Systems Retrofit

Awarding Agency: PA. Turnpike Commission
Contract Award Date: 3/29/2010
Serial Number: 10-00592
Project Classification: Heavy/Highway
Determination Date: 2/1/2010
Assigned Field Office: Altoona
Field Office Phone Number: 814-940-6224
Toll Free Phone Number:

Westmoreland County

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	8/1/2009		$31.32	$19.19	$50.51
Boilermakers	6/1/2008		$33.90	$20.06	$53.96
Bricklayer	12/1/2009		$27.53	$15.51	$43.04
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2009		$27.82	$11.19	$39.01
Cement Finishers	6/1/2009		$25.79	$11.82	$37.61
Cement Finishers	12/1/2009		$25.79	$12.27	$38.06
Cement Finishers	6/1/2010		$26.79	$12.27	$39.06
Cement Finishers	12/1/2010		$26.79	$12.77	$39.56
Dock Builder/Pile Drivers	1/1/2009		$28.85	$12.00	$40.85
Dock Builder/Pile Drivers	1/1/2010		$29.95	$12.25	$42.20
Drywall Finisher	6/1/2009		$24.45	$13.59	$38.04
Drywall Finisher	6/1/2010		$26.03	$13.26	$39.29
Drywall Finisher	6/1/2011		$27.28	$13.26	$40.54
Electric Lineman	6/1/2008		$37.45	$15.47	$52.92
Electric Lineman	5/31/2009		$39.54	$16.03	$55.57
Electricians & Telecommunications Installation Technician	12/26/2008		$33.11	$17.13	$50.24
Electricians & Telecommunications Installation Technician	12/25/2009		$35.61	$17.13	$52.74

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Electricians & Telecommunications Installation Technician	12/24/2010		$38.01	$17.13	$55.14
Elevator Constructor	1/1/2010		$39.88	$20.23	$60.11
Glazier	9/1/2009		$27.28	$17.32	$44.60
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2009		$29.43	$21.41	$50.84
Laborers (Class 01 - See notes)	6/1/2009		$20.92	$9.27	$30.19
Laborers (Class 01 - See notes)	12/1/2009		$20.92	$9.72	$30.64
Laborers (Class 02 - See notes)	6/1/2009		$21.07	$9.27	$30.34
Laborers (Class 02 - See notes)	12/1/2009		$21.07	$9.72	$30.79
Laborers (Class 03 - See notes)	6/1/2009		$21.20	$9.27	$30.47
Laborers (Class 03 - See notes)	12/1/2009		$21.20	$9.72	$30.92
Laborers (Class 04 - See notes)	6/1/2009		$21.67	$9.27	$30.94
Laborers (Class 04 - See notes)	12/1/2009		$21.67	$9.72	$31.39
Landscape Laborer	7/1/2009		$18.25	$9.05	$27.30
Landscape Laborer (Skilled)	7/1/2009		$18.67	$9.05	$27.72
Landscape Laborer (Tractor Operator)	7/1/2009		$18.97	$9.05	$28.02
Marble Finisher	6/1/2009		$19.17	$10.55	$29.72
Marble Finisher	12/1/2009		$19.32	$11.05	$30.37
Marble Mason	6/1/2009		$19.42	$8.48	$27.90
Marble Mason	12/1/2009		$19.42	$8.91	$28.33
Millwright	6/1/2008		$32.71	$14.29	$47.00
Operators (Class 01 - see notes)	6/1/2009		$28.99	$14.80	$43.79
Operators (Class 01 - see notes)	6/1/2010		$30.22	$15.32	$45.54
Operators (Class 02 -see notes)	6/1/2009		$25.80	$14.80	$40.60
Operators (Class 02 -see notes)	6/1/2010		$26.78	$15.32	$42.10
Operators (Class 03 - see notes)	6/1/2009		$24.08	$14.80	$38.88
Operators (Class 03 - see notes)	6/1/2010		$25.06	$15.32	$40.38
Painters Class 6 (see notes)	6/1/2009		$24.77	$12.81	$37.58
Painters Class 6 (see notes)	6/1/2010		$25.28	$13.53	$38.81
Plasterers	6/1/2009		$26.13	$11.70	$37.83
Plumbers and Steamfitters	6/1/2009		$28.54	$18.48	$47.02

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Plumbers and Steamfitters	6/1/2010		$30.14	$18.83	$48.97
Plumbers and Steamfitters	6/1/2011		$31.81	$19.18	$50.99
Pointers, Caulkers, Cleaners	7/1/2009		$25.88	$13.33	$39.21
Pointers, Caulkers, Cleaners	12/1/2009		$25.98	$13.83	$39.81
Roofers	6/1/2009		$26.00	$11.69	$37.69
Roofers	6/1/2010		$27.50	$11.69	$39.19
Sheet Metal Workers	7/1/2009		$31.38	$19.73	$51.11
Sprinklerfitters	7/1/2009		$33.35	$17.05	$50.40
Sprinklerfitters	1/1/2010		$33.85	$17.60	$51.45
Stone Masons	12/1/2007		$27.55	$13.47	$41.02
Stone Masons	12/1/2009		$28.92	$15.20	$44.12
Terrazzo Finisher	6/1/2009		$25.61	$12.04	$37.65
Terrazzo Finisher	12/1/2009		$25.76	$12.54	$38.30
Terrazzo Setter	6/1/2009		$26.15	$13.05	$39.20
Terrazzo Setter	12/1/2009		$26.30	$13.55	$39.85
Tile Finisher	6/1/2009		$20.77	$10.55	$31.32
Tile Finisher	12/1/2009		$20.92	$11.05	$31.97
Tile Setter	6/1/2009		$26.85	$13.45	$40.30
Tile Setter	12/1/2009		$27.10	$13.95	$41.05
Truckdriver class 1(see notes)	1/1/2009		$24.23	$11.44	$35.67
Truckdriver class 1(see notes)	1/1/2010		$24.98	$12.04	$37.02
Truckdriver class 2 (see notes)	1/1/2009		$24.38	$11.51	$35.89
Truckdriver class 2 (see notes)	1/1/2010		$25.13	$12.11	$37.24
Truckdriver class 3 (see notes)	1/1/2009		$24.91	$11.75	$36.66
Truckdriver class 3 (see notes)	1/1/2010		$25.64	$12.37	$38.01

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter Welder	1/1/2009		$28.23	$12.16	$40.39
Carpenter Welder	1/1/2010		$29.18	$12.56	$41.74
Carpenters	1/1/2009		$27.53	$12.16	$39.69
Carpenters	1/1/2010		$28.48	$12.56	$41.04
Cement Finishers	1/1/2009		$26.72	$12.97	$39.69
Cement Finishers	1/1/2010		$27.62	$13.42	$41.04
Iron Workers	6/1/2009		$29.43	$21.41	$50.84
Laborers (Class 01 - See notes)	1/1/2009		$23.30	$12.65	$35.95
Laborers (Class 01 - See notes)	1/1/2010		$23.75	$13.55	$37.30
Laborers (Class 02 - See notes)	1/1/2009		$23.46	$12.65	$36.11
Laborers (Class 02 - See notes)	1/1/2010		$23.91	$13.55	$37.46
Laborers (Class 03 - See notes)	1/1/2009		$23.85	$12.65	$36.50
Laborers (Class 03 - See notes)	1/1/2010		$24.30	$13.55	$37.85
Laborers (Class 04 - See notes)	1/1/2009		$24.30	$12.65	$36.95
Laborers (Class 04 - See notes)	1/1/2010		$24.75	$13.55	$38.30
Laborers (Class 05 - See notes)	1/1/2009		$24.71	$12.65	$37.36
Laborers (Class 05 - See notes)	1/1/2010		$25.16	$13.55	$38.71
Laborers (Class 06 - See notes)	1/1/2009		$21.55	$12.65	$34.20
Laborers (Class 06 - See notes)	1/1/2010		$22.00	$13.55	$35.55
Laborers (Class 07 - See notes)	1/1/2009		$24.20	$12.65	$36.85
Laborers (Class 07 - See notes)	1/1/2010		$24.65	$13.55	$38.20
Laborers (Class 08 - See notes)	1/1/2009		$25.70	$12.65	$38.35
Laborers (Class 08 - See notes)	1/1/2010		$26.15	$13.55	$39.70
Operators (Class 01 - see notes)	1/1/2009		$26.38	$14.44	$40.82
Operators (Class 01 - see notes)	1/1/2010		$27.18	$14.99	$42.17
Operators (Class 02 -see notes)	1/1/2009		$26.12	$14.44	$40.56
Operators (Class 02 -see notes)	1/1/2010		$26.92	$14.99	$41.91
Operators (Class 03 - See notes)	1/1/2009		$22.47	$14.44	$36.91
Operators (Class 03 - See notes)	1/1/2010		$23.27	$14.99	$38.26
Operators (Class 04 - See notes)	1/1/2009		$22.01	$14.44	$36.45
Operators (Class 04 - See notes)	1/1/2010		$22.81	$14.99	$37.80

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 05 - See notes)	1/1/2009		$21.76	$14.44	$36.20
Operators (Class 05 - See notes)	1/1/2010		$22.56	$14.99	$37.55
Painters Class 1 (see notes)	6/1/2009		$27.24	$12.81	$40.05
Painters Class 1 (see notes)	6/1/2010		$27.84	$13.53	$41.37
Painters Class 2 (see notes)	6/1/2009		$27.77	$12.81	$40.58
Painters Class 2 (see notes)	6/1/2010		$28.38	$13.53	$41.91
Painters Class 3 (see notes)	6/1/2009		$29.81	$12.81	$42.62
Painters Class 3 (see notes)	6/1/2010		$30.48	$13.53	$44.01
Painters Class 4 (see notes)	6/1/2009		$23.79	$12.81	$36.60
Painters Class 4 (see notes)	6/1/2010		$24.27	$13.53	$37.80
Painters Class 5 (see notes)	6/1/2009		$19.28	$12.81	$32.09
Painters Class 5 (see notes)	6/1/2010		$19.61	$13.53	$33.14
Piledrivers	1/1/2009		$28.85	$12.00	$40.85
Piledrivers	1/1/2010		$29.95	$12.25	$42.20

pennsylvania
DEPARTMENT OF LABOR & INDUSTRY

BUREAU OF LABOR LAW COMPLIANCE

PREVAILING WAGES PROJECT RATES

Project Name: Intelligent Transportation Systems Retrofit

Awarding Agency: PA. Turnpike Commission
Contract Award Date: 3/29/2010
Serial Number: 10-00593
Project Classification: Heavy/Highway
Determination Date: 2/1/2010
Assigned Field Office: Altoona
Field Office Phone Number: 814-940-6224
Toll Free Phone Number:

Somerset County

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	8/1/2009		$30.82	$19.19	$50.01
Boilermakers	6/1/2008		$33.90	$20.06	$53.96
Bricklayer	6/1/2009		$25.31	$13.54	$38.85
Carpenters	6/1/2009		$24.79	$9.68	$34.47
Carpenters	6/1/2010		$25.33	$10.14	$35.47
Carpenters	6/1/2011		$25.85	$10.61	$36.46
Cement Masons	6/1/2009		$23.65	$11.54	$35.19
Cement Masons	6/1/2010		$24.60	$11.99	$36.59
Dock Builder/Pile Drivers	1/1/2009		$28.85	$12.00	$40.85
Dock Builder/Pile Drivers	1/1/2010		$29.95	$12.25	$42.20
Drywall Finisher	6/1/2009		$24.45	$13.59	$38.04
Drywall Finisher	6/1/2010		$26.03	$13.26	$39.29
Drywall Finisher	6/1/2011		$27.28	$13.26	$40.54
Electric Lineman	5/31/2009		$39.54	$16.03	$55.57
Electricians & Telecommunications Installation Technician	12/26/2008		$33.11	$17.13	$50.24
Electricians & Telecommunications Installation Technician	12/25/2009		$35.61	$17.13	$52.74
Electricians & Telecommunications Installation Technician	12/24/2010		$38.01	$17.13	$55.14

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Elevator Constructor	1/1/2010		$39.88	$20.23	$60.11
Glazier	9/1/2009		$20.20	$14.00	$34.20
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	5/1/2009		$26.08	$13.12	$39.20
Laborers (Class 01 - See notes)	7/1/2009		$18.32	$9.26	$27.58
Laborers (Class 01 - See notes)	7/1/2010		$18.82	$9.81	$28.63
Laborers (Class 02 - See notes)	7/1/2009		$18.47	$9.26	$27.73
Laborers (Class 02 - See notes)	7/1/2010		$18.97	$9.81	$28.78
Laborers (Class 03 - See notes)	7/1/2009		$18.57	$9.26	$27.83
Laborers (Class 03 - See notes)	7/1/2010		$19.07	$9.81	$28.88
Laborers (Class 04 - See notes)	7/1/2009		$17.32	$9.26	$26.58
Laborers (Class 04 - See notes)	7/1/2010		$17.82	$9.81	$27.63
Landscape Laborer	7/1/2009		$18.25	$9.05	$27.30
Landscape Laborer (Skilled)	7/1/2009		$18.67	$9.05	$27.72
Landscape Laborer (Tractor Operator)	7/1/2009		$18.97	$9.05	$28.02
Marble Finisher	6/1/2009		$19.17	$10.55	$29.72
Marble Finisher	12/1/2009		$19.32	$11.05	$30.37
Marble Mason	6/1/2009		$19.42	$8.48	$27.90
Marble Mason	12/1/2009		$19.42	$8.91	$28.33
Millwright	6/1/2008		$32.71	$14.29	$47.00
Operators (Class 01 - see notes)	7/1/2009		$25.47	$12.63	$38.10
Operators (Class 01 - see notes)	7/1/2010		$26.37	$13.13	$39.50
Operators (Class 02 -see notes)	7/1/2009		$22.79	$12.63	$35.42
Operators (Class 02 -see notes)	7/1/2010		$23.69	$13.13	$36.82
Operators (Class 03 - see notes)	7/1/2009		$21.24	$12.63	$33.87
Operators (Class 03 - see notes)	7/1/2010		$22.14	$13.13	$35.27
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2009		$20.84	$12.63	$33.47
Operators (Class 04 - Chief of Party (Surveying and Layout))	7/1/2010		$21.74	$13.13	$34.87
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2009		$19.84	$12.63	$32.47
Operators (Class 04 - Instrument Person (Surveying & Layout))	7/1/2010		$20.74	$13.13	$33.87
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2009		$19.39	$12.63	$32.02

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 04 - Rodman/Chainman (Surveying and Layout))	7/1/2010		$20.29	$13.13	$33.42
Painters Class 6 (see notes)	6/1/2009		$24.77	$12.81	$37.58
Painters Class 6 (see notes)	6/1/2010		$25.28	$13.53	$38.81
Plasterers	6/1/2008		$20.97	$9.64	$30.61
Plumbers and Steamfitters	6/1/2009		$28.54	$18.48	$47.02
Plumbers and Steamfitters	6/1/2010		$30.14	$18.83	$48.97
Plumbers and Steamfitters	6/1/2011		$31.81	$19.18	$50.99
Pointers, Caulkers, Cleaners	7/1/2009		$25.88	$13.33	$39.21
Pointers, Caulkers, Cleaners	12/1/2009		$25.98	$13.83	$39.81
Roofers	6/1/2009		$26.00	$11.69	$37.69
Roofers	6/1/2010		$27.50	$11.69	$39.19
Sheet Metal Workers	7/1/2009		$31.38	$19.73	$51.11
Sprinklerfitters	7/1/2009		$33.35	$17.05	$50.40
Sprinklerfitters	1/1/2010		$33.85	$17.60	$51.45
Stone Masons	12/1/2009		$28.92	$15.20	$44.12
Terrazzo Finisher	6/1/2009		$25.61	$12.04	$37.65
Terrazzo Finisher	12/1/2009		$25.76	$12.54	$38.30
Terrazzo Setter	6/1/2009		$26.15	$13.05	$39.20
Terrazzo Setter	12/1/2009		$26.30	$13.55	$39.85
Tile Finisher	6/1/2009		$20.77	$10.55	$31.32
Tile Finisher	12/1/2009		$20.92	$11.05	$31.97
Tile Setter	6/1/2009		$26.85	$13.45	$40.30
Tile Setter	12/1/2009		$27.10	$13.95	$41.05
Truckdriver class 1(see notes)	1/1/2009		$24.23	$11.44	$35.67
Truckdriver class 1(see notes)	1/1/2010		$24.98	$12.04	$37.02
Truckdriver class 2 (see notes)	1/1/2009		$24.38	$11.51	$35.89
Truckdriver class 2 (see notes)	1/1/2010		$25.13	$12.11	$37.24
Truckdriver class 3 (see notes)	1/1/2009		$24.91	$11.75	$36.66
Truckdriver class 3 (see notes)	1/1/2010		$25.64	$12.37	$38.01

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter Welder	1/1/2009		$28.23	$12.16	$40.39
Carpenter Welder	1/1/2010		$29.18	$12.56	$41.74
Carpenters	1/1/2009		$27.53	$12.16	$39.69
Carpenters	1/1/2010		$28.48	$12.56	$41.04
Cement Finishers	1/1/2009		$26.72	$12.97	$39.69
Cement Finishers	1/1/2010		$27.62	$13.42	$41.04
Laborers (Class 01 - See notes)	1/1/2009		$23.30	$12.65	$35.95
Laborers (Class 01 - See notes)	1/1/2010		$23.75	$13.55	$37.30
Laborers (Class 02 - See notes)	1/1/2009		$23.46	$12.65	$36.11
Laborers (Class 02 - See notes)	1/1/2010		$23.91	$13.55	$37.46
Laborers (Class 03 - See notes)	1/1/2009		$23.85	$12.65	$36.50
Laborers (Class 03 - See notes)	1/1/2010		$24.30	$13.55	$37.85
Laborers (Class 04 - See notes)	1/1/2009		$24.30	$12.65	$36.95
Laborers (Class 04 - See notes)	1/1/2010		$24.75	$13.55	$38.30
Laborers (Class 05 - See notes)	1/1/2009		$24.71	$12.65	$37.36
Laborers (Class 05 - See notes)	1/1/2010		$25.16	$13.55	$38.71
Laborers (Class 06 - See notes)	1/1/2009		$21.55	$12.65	$34.20
Laborers (Class 06 - See notes)	1/1/2010		$22.00	$13.55	$35.55
Laborers (Class 07 - See notes)	1/1/2009		$24.20	$12.65	$36.85
Laborers (Class 07 - See notes)	1/1/2010		$24.65	$13.55	$38.20
Laborers (Class 08 - See notes)	1/1/2009		$25.70	$12.65	$38.35
Laborers (Class 08 - See notes)	1/1/2010		$26.15	$13.55	$39.70
Operators (Class 01 - see notes)	1/1/2009		$26.38	$14.44	$40.82
Operators (Class 01 - see notes)	1/1/2010		$27.18	$14.99	$42.17
Operators (Class 02 -see notes)	1/1/2009		$26.12	$14.44	$40.56
Operators (Class 02 -see notes)	1/1/2010		$26.92	$14.99	$41.91
Operators (Class 03 - See notes)	1/1/2009		$22.47	$14.44	$36.91
Operators (Class 03 - See notes)	1/1/2010		$23.27	$14.99	$38.26
Operators (Class 04 - See notes)	1/1/2009		$22.01	$14.44	$36.45
Operators (Class 04 - See notes)	1/1/2010		$22.81	$14.99	$37.80
Operators (Class 05 - See notes)	1/1/2009		$21.76	$14.44	$36.20

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 05 - See notes)	1/1/2010		$22.56	$14.99	$37.55
Painters Class 1 (see notes)	6/1/2009		$27.24	$12.81	$40.05
Painters Class 1 (see notes)	6/1/2010		$27.84	$13.53	$41.37
Painters Class 2 (see notes)	6/1/2009		$27.77	$12.81	$40.58
Painters Class 2 (see notes)	6/1/2010		$28.38	$13.53	$41.91
Painters Class 3 (see notes)	6/1/2009		$29.81	$12.81	$42.62
Painters Class 3 (see notes)	6/1/2010		$30.48	$13.53	$44.01
Painters Class 4 (see notes)	6/1/2009		$23.79	$12.81	$36.60
Painters Class 4 (see notes)	6/1/2010		$24.27	$13.53	$37.80
Painters Class 5 (see notes)	6/1/2009		$19.28	$12.81	$32.09
Painters Class 5 (see notes)	6/1/2010		$19.61	$13.53	$33.14
Piledrivers	1/1/2009		$28.85	$12.00	$40.85
Piledrivers	1/1/2010		$29.95	$12.25	$42.20

pennsylvania
DEPARTMENT OF LABOR & INDUSTRY

BUREAU OF LABOR LAW COMPLIANCE

PREVAILING WAGES PROJECT RATES

Project Name: Intelligent Transportation Systems Retrofit

Awarding Agency: PA. Turnpike Commission
Contract Award Date: 3/29/2010
Serial Number: 10-00590
Project Classification: Highway
Determination Date: 2/1/2010
Assigned Field Office: Harrisburg
Field Office Phone Number: 717-787-4763
Toll Free Phone Number: 800-932-0665

Dauphin County

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	6/29/2009		$29.88	$18.88	$48.76
Asbestos & Insulation Workers	6/28/2010		$31.88	$18.88	$50.76
Asbestos & Insulation Workers	6/27/2011		$33.88	$18.88	$52.76
Boilermaker (Repair Work)	3/1/2008		$21.87	$13.97	$35.84
Boilermaker (Repair Work)	1/1/2010		$22.09	$15.15	$37.24
Boilermakers	1/1/2010		$38.08	$25.29	$63.37
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	5/3/2009		$27.84	$14.13	$41.97
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	10/4/2009		$27.84	$14.18	$42.02
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	5/2/2010		$29.77	$14.22	$43.99
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2009		$24.56	$11.52	$36.08
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2010		$25.71	$12.02	$37.73
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2011		$27.16	$12.22	$39.38
Cement Finishers	5/1/2009		$24.00	$15.70	$39.70
Cement Finishers	5/1/2010		$27.50	$13.95	$41.45
Cement Finishers	5/1/2011		$29.50	$13.95	$43.45

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Dock Builder/Pile Drivers	1/1/2009		$28.85	$12.00	$40.85
Dock Builder/Pile Drivers	1/1/2010		$29.95	$12.25	$42.20
Drywall Finisher	5/1/2009		$22.15	$9.14	$31.29
Drywall Finisher	5/1/2010		$22.15	$10.24	$32.39
Drywall Finisher	5/1/2011		$22.15	$11.49	$33.64
Electric Lineman	5/31/2009		$37.27	$15.43	$52.70
Electricians	12/1/2009		$27.45	$15.41	$42.86
Elevator Constructor	1/1/2009		$37.33	$21.20	$58.53
Elevator Constructor	1/1/2010		$38.84	$22.82	$61.66
Elevator Constructor	1/1/2011		$40.33	$24.44	$64.77
Elevator Constructor	1/1/2012		$41.84	$26.06	$67.90
Elevator Tender (Use Elevator Apprentice or Constructor)	1/1/2008		$0.00	$0.00	$0.00
Glazier	5/1/2009		$25.05	$7.53	$32.58
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2009		$27.07	$21.85	$48.92
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2010		$28.97	$21.85	$50.82
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2011		$31.22	$21.85	$53.07
Laborers (Class 01 - See notes)	5/1/2009		$18.76	$8.28	$27.04
Laborers (Class 01 - See notes)	5/1/2010		$19.66	$8.68	$28.34
Laborers (Class 02 - See notes)	5/1/2009		$20.76	$8.28	$29.04
Laborers (Class 02 - See notes)	5/1/2010		$21.66	$8.68	$30.34
Laborers (Class 03 - See notes)	5/1/2009		$22.36	$8.28	$30.64
Laborers (Class 03 - See notes)	5/1/2010		$23.26	$8.68	$31.94
Laborers (Class 04 - See notes)	5/1/2009		$23.86	$8.28	$32.14
Laborers (Class 04 - See notes)	5/1/2010		$24.76	$8.68	$33.44
Millwright	5/1/2009		$27.41	$13.47	$40.88
Operators (Building/Heavy, Class 01 - See Notes)	5/1/2009		$29.42	$16.89	$46.31
Operators (Building/Heavy, Class 01 - See Notes)	5/1/2010		$30.76	$17.85	$48.61
Operators (Building/Heavy, Class 01 - See Notes)	5/1/2011		$32.06	$18.85	$50.91
Operators (Building/Heavy, Class 01a - See Notes)	5/1/2009		$31.67	$17.55	$49.22

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Building/Heavy, Class 01a - See Notes)	5/1/2010		$33.01	$18.51	$51.52
Operators (Building/Heavy, Class 01a - See Notes)	5/1/2011		$34.31	$19.51	$53.82
Operators (Building/Heavy, Class 02 - See Notes)	5/1/2009		$29.13	$16.81	$45.94
Operators (Building/Heavy, Class 02 - See Notes)	5/1/2010		$30.47	$17.77	$48.24
Operators (Building/Heavy, Class 02 - See Notes)	5/1/2011		$31.77	$18.77	$50.54
Operators (Building/Heavy, Class 02a - See Notes)	5/1/2009		$31.38	$17.48	$48.86
Operators (Building/Heavy, Class 02a - See Notes)	5/1/2010		$32.72	$18.44	$51.16
Operators (Building/Heavy, Class 02a - See Notes)	5/1/2011		$34.02	$19.44	$53.46
Operators (Building/Heavy, Class 03 - See Notes)	5/1/2009		$26.22	$15.94	$42.16
Operators (Building/Heavy, Class 03 - See Notes)	5/1/2010		$27.55	$16.91	$44.46
Operators (Building/Heavy, Class 03 - See Notes)	5/1/2011		$28.85	$17.91	$46.76
Operators (Building/Heavy, Class 04 - See Notes)	5/1/2009		$25.08	$15.61	$40.69
Operators (Building/Heavy, Class 04 - See Notes)	5/1/2010		$26.42	$16.57	$42.99
Operators (Building/Heavy, Class 04 - See Notes)	5/1/2011		$27.72	$17.57	$45.29
Operators (Building/Heavy, Class 05 - See Notes)	5/1/2009		$24.64	$15.47	$40.11
Operators (Building/Heavy, Class 05 - See Notes)	5/1/2010		$25.97	$16.44	$42.41
Operators (Building/Heavy, Class 05 - See Notes)	5/1/2011		$27.27	$17.44	$44.71
Operators (Building/Heavy, Class 06 - See Notes)	5/1/2009		$23.76	$15.21	$38.97
Operators (Building/Heavy, Class 06 - See Notes)	5/1/2010		$25.09	$16.18	$41.27
Operators (Building/Heavy, Class 06 - See Notes)	5/1/2011		$26.39	$17.18	$43.57
Operators (Building/Heavy, Class 07/A - See Notes)	5/1/2009		$35.30	$19.38	$54.68
Operators (Building/Heavy, Class 07/A - See Notes)	5/1/2010		$36.91	$20.43	$57.34
Operators (Building/Heavy, Class 07/A - See Notes)	5/1/2011		$38.47	$21.53	$60.00
Operators (Building/Heavy, Class 07/B - See Notes)	5/1/2009		$34.96	$19.27	$54.23
Operators (Building/Heavy, Class 07/B - See Notes)	5/1/2010		$36.56	$20.33	$56.89
Operators (Building/Heavy, Class 07/B - See Notes)	5/1/2011		$38.12	$21.43	$59.55
Painters Class 1 (see notes)	5/1/2009		$22.17	$8.97	$31.14

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Painters Class 1 (see notes)	5/1/2010		$22.17	$10.07	$32.24
Painters Class 1 (see notes)	5/1/2010		$22.17	$10.07	$32.24
Painters Class 2 (see notes)	5/1/2009		$24.05	$8.97	$33.02
Painters Class 2 (see notes)	5/1/2010		$24.05	$10.07	$34.12
Painters Class 2 (see notes)	5/1/2011		$24.05	$11.32	$35.37
Painters Class 3 (see notes)	5/1/2009		$28.05	$8.97	$37.02
Painters Class 3 (see notes)	5/1/2010		$28.05	$10.07	$38.12
Painters Class 3 (see notes)	5/1/2011		$28.05	$11.32	$39.37
Pile Driver Divers (Building, Heavy, Highway)	1/1/2007		$40.40	$10.77	$51.17
Plasterers	5/1/2009		$22.48	$14.18	$36.66
Plasterers	5/1/2010		$25.98	$12.43	$38.41
Plumbers and Steamfitters	5/1/2009		$30.27	$18.16	$48.43
Plumbers and Steamfitters	5/1/2010		$32.27	$18.16	$50.43
Roofers (Composition)	5/1/2009		$30.00	$23.10	$53.10
Roofers (Composition)	5/1/2010		$33.50	$22.10	$55.60
Roofers (Shingle, Slate, Tile)	5/1/2009		$23.25	$13.62	$36.87
Sheet Metal Workers	6/1/2008		$28.98	$27.45	$56.43
Sheet Metal Workers	6/1/2009		$29.56	$29.12	$58.68
Sign Makers and Hangars	7/1/2009		$24.17	$15.99	$40.16
Sprinklerfitters	7/1/2009		$33.35	$17.05	$50.40
Sprinklerfitters	1/1/2010		$33.85	$17.60	$51.45
Terrazzo Finisher	5/1/2009		$26.54	$14.37	$40.91
Terrazzo Finisher	5/1/2010		$27.89	$14.42	$42.31
Terrazzo Setter	5/1/2009		$25.86	$17.27	$43.13
Terrazzo Setter	5/1/2010		$27.21	$17.32	$44.53
Tile & Marble Finisher	5/1/2009		$21.48	$12.39	$33.87
Tile & Marble Layer	5/1/2009		$24.20	$13.81	$38.01
Truckdriver class 1(see notes)	5/1/2009		$28.58	$0.00	$28.58
Truckdriver class 1(see notes)	5/1/2010		$29.58	$0.00	$29.58
Truckdriver class 1(see notes)	5/1/2011		$30.73	$0.00	$30.73

PREVAILING WAGES PROJECT RATES

Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Truckdriver class 2 (see notes)	5/1/2009		$28.65	$0.00	$28.65
Truckdriver class 2 (see notes)	5/1/2010		$29.65	$0.00	$29.65
Truckdriver class 2 (see notes)	5/1/2011		$30.80	$0.00	$30.80
Truckdriver class 3 (see notes)	5/1/2009		$29.14	$0.00	$29.14
Truckdriver class 3 (see notes)	5/1/2010		$30.14	$0.00	$30.14
Truckdriver class 3 (see notes)	5/1/2011		$31.29	$0.00	$31.29

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenters	5/1/2009		$25.30	$9.86	$35.16
Carpenters	5/1/2010		$25.98	$10.83	$36.81
Carpenters	5/1/2011		$27.03	$11.43	$38.46
Iron Workers	7/1/2008		$26.67	$20.49	$47.16
Laborers (Class 01 - See notes)	5/1/2009		$16.22	$11.03	$27.25
Laborers (Class 01 - See notes)	5/1/2010		$16.77	$11.88	$28.65
Laborers (Class 01 - See notes)	5/1/2011		$17.32	$12.78	$30.10
Laborers (Class 02 - See notes)	5/1/2009		$22.84	$11.03	$33.87
Laborers (Class 02 - See notes)	5/1/2010		$23.39	$11.88	$35.27
Laborers (Class 02 - See notes)	5/1/2011		$23.94	$12.78	$36.72
Laborers (Class 03 - See notes)	5/1/2009		$19.83	$11.03	$30.86
Laborers (Class 03 - See notes)	5/1/2010		$20.38	$11.88	$32.26
Laborers (Class 03 - See notes)	5/1/2011		$20.93	$12.78	$33.71
Laborers (Class 04 - See notes)	5/1/2009		$20.18	$11.03	$31.21
Laborers (Class 04 - See notes)	5/1/2010		$20.73	$11.88	$32.61
Laborers (Class 04 - See notes)	5/1/2011		$21.28	$12.78	$34.06
Laborers (Class 05 - See notes)	5/1/2009		$20.85	$11.03	$31.88
Laborers (Class 05 - See notes)	5/1/2010		$21.40	$11.88	$33.28
Laborers (Class 05 - See notes)	5/1/2011		$21.95	$12.78	$34.73
Laborers (Class 06 - See notes)	5/1/2009		$20.27	$11.03	$31.30
Laborers (Class 06 - See notes)	5/1/2010		$20.82	$11.88	$32.70
Laborers (Class 06 - See notes)	5/1/2011		$21.37	$12.78	$34.15
Laborers (Class 07 - See notes)	5/1/2009		$20.56	$11.03	$31.59
Laborers (Class 07 - See notes)	5/1/2010		$21.11	$11.88	$32.99
Laborers (Class 07 - See notes)	5/1/2011		$21.66	$12.78	$34.44
Laborers (Class 08 - See notes)	5/1/2009		$21.04	$11.03	$32.07
Laborers (Class 08 - See notes)	5/1/2010		$21.59	$11.88	$33.47
Laborers (Class 08 - See notes)	5/1/2011		$22.14	$12.78	$34.92
Operators (Highway, Class 01 - See Notes)	5/1/2009		$27.45	$16.30	$43.75
Operators (Highway, Class 01 - See Notes)	5/1/2010		$28.79	$17.26	$46.05

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Highway, Class 01 - See Notes)	5/1/2011		$30.09	$18.26	$48.35
Operators (Highway, Class 01a - See Notes)	5/1/2009		$29.70	$16.98	$46.68
Operators (Highway, Class 01a - See Notes)	5/1/2010		$31.04	$17.94	$48.98
Operators (Highway, Class 01a - See Notes)	5/1/2011		$32.34	$18.94	$51.28
Operators (Highway, Class 02 - See Notes)	5/1/2009		$26.27	$15.96	$42.23
Operators (Highway, Class 02 - See Notes)	5/1/2010		$27.61	$16.92	$44.53
Operators (Highway, Class 02 - See Notes)	5/1/2011		$28.91	$17.92	$46.83
Operators (Highway, Class 03 - See Notes)	5/1/2009		$25.58	$15.75	$41.33
Operators (Highway, Class 03 - See Notes)	5/1/2010		$26.91	$16.72	$43.63
Operators (Highway, Class 03 - See Notes)	5/1/2011		$28.21	$17.72	$45.93
Operators (Highway, Class 04 - See Notes)	5/1/2009		$25.13	$15.62	$40.75
Operators (Highway, Class 04 - See Notes)	5/1/2010		$26.46	$16.59	$43.05
Operators (Highway, Class 04 - See Notes)	5/1/2011		$27.76	$17.59	$45.35
Operators (Highway, Class 05 - See Notes)	5/1/2009		$24.62	$15.47	$40.09
Operators (Highway, Class 05 - See Notes)	5/1/2010		$25.95	$16.44	$42.39
Operators (Highway, Class 05 - See Notes)	5/1/2011		$27.25	$17.44	$44.69
Operators (Highway, Class 06 - See Notes)	5/1/2009		$27.69	$16.36	$44.05
Operators (Highway, Class 06 - See Notes)	5/1/2010		$29.03	$17.32	$46.35
Operators (Highway, Class 06 - See Notes)	5/1/2011		$30.33	$18.32	$48.65
Operators (Highway, Class 06/A - See Notes)	5/1/2009		$29.94	$17.02	$46.96
Operators (Highway, Class 06/A - See Notes)	5/1/2010		$31.28	$17.98	$49.26
Operators (Highway, Class 06/A - See Notes)	5/1/2011		$32.58	$18.98	$51.56
Operators (Highway, Class 07/A - See Notes)	5/1/2009		$32.94	$18.67	$51.61
Operators (Highway, Class 07/A - See Notes)	5/1/2010		$34.55	$19.72	$54.27
Operators (Highway, Class 07/A - See Notes)	5/1/2011		$36.10	$20.83	$56.93
Operators (Highway, Class 07/B - See Notes)	5/1/2009		$31.53	$18.25	$49.78

PREVAILING WAGES PROJECT RATES

Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Highway, Class 07/B - See Notes)	5/1/2010		$33.13	$19.31	$52.44
Operators (Highway, Class 07/B - See Notes)	5/1/2011		$34.69	$20.41	$55.10
Piledrivers	5/1/2009		$25.30	$9.86	$35.16
Piledrivers	5/1/2010		$25.98	$10.83	$36.81
Piledrivers	5/1/2011		$27.03	$11.43	$38.46
Truckdriver class 1(see notes)	5/1/2009		$28.58	$0.00	$28.58
Truckdriver class 1(see notes)	5/1/2010		$29.58	$0.00	$29.58
Truckdriver class 1(see notes)	5/1/2011		$30.73	$0.00	$30.73
Truckdriver class 2 (see notes)	5/1/2009		$28.65	$0.00	$28.65
Truckdriver class 2 (see notes)	5/1/2010		$29.65	$0.00	$29.65
Truckdriver class 2 (see notes)	5/1/2011		$30.80	$0.00	$30.80
Truckdriver class 3 (see notes)	5/1/2009		$29.14	$0.00	$29.14
Truckdriver class 3 (see notes)	5/1/2010		$30.14	$0.00	$30.14
Truckdriver class 3 (see notes)	5/1/2011		$31.29	$0.00	$31.29

SIGN-IN SHEET

PREPROPOSAL CONFERENCE RFP #10-40110-2393

DATE: January 28, 2010

TIME: 10:00 AM

	COMPANY NAME	REP NAME	ADDRESS	PHONE	EMAIL
1	MH Corbin Inc	Kevin Francis	960 Rt 15 Hwy S. Williamsport PA	614 205 1407	kfrancis@mhcorbinInc.com
2	SES America	Mark Sykes	90 Douglas Pike Smithfield RI	401 232-3370	MSykes@SESAmerica.com
3	JMT	Brad Brosius	220 St. Charles Way, Suite 200, York, PA 17402	717-741-6210	bbrosius@jmt.com
4	JACOBS	Megan Gould	900 Northbrook Dr. Trevose, PA 19053	215-355-3577	Megan.Gould@jacobs.com
5	Dixon Electric	Bill Ernest	261 Ward Drive Claysburg, PA 16625	814-239-8175	BErnest@DixonElectric.us
6	DIXON ELECTRIC	ROB LAFFERTY	261 WARD DRIVE CLAYSBURG PA 1662	814 239-8175	RLAFFERTY@DIXONELECTRIC.US
7	Signal Sense	Dave Sullivan	878 Sussex Blvd. Broomall, PA	302/558-6300	JDSullivan@comcast.net
8	TElvent	Rick White	1390 Picard Dr. Rockville MD 20850	240-888-9931-C 301-354-1368-O	Rick.White@Telvent.com
9	Ahmad Mahmoud Kuharchik	Ahmad Mahmoud	420 Schooley St, Exeter, Pa 18643	570-654 3391	AMahmoud@Kuharchik.com
10	KUHARCHIK CONST	BOB GORDON	420 SCHOOLEY AVE EXETER	570 654 3391	RGORDON@KUHARCHIK.COM
11	Kuharchik construction	Nick QARMOUT	420 Schooley Ave, Exeter	570-654-3791	NQARMOUT@Kuharchik.com
12	Michael Baker Jr, Inc.	Rick Reidy	c/o PTC	717 939-9551 x2620	rreidy@paturnpike.com
13	PTC	GARY GRAHAM	c/o PTC	" " " x5990	GGRAHAM@PATURNPIKE.COM
14	PENNONI ASSOCIATES INC.	LARRY BANKERT	1215 MANOR DRIVE, SUITE 100 Mechanicsburg, PA 17055	717-975-6481	lbankert@pennoni.com
15	Carr + Duff, Inc	Peter Huber	2100 Byberry Rd. Huntingdon Valley, PA 19006	215-672-4200 x148	phuber@carrduff.com

SIGN-IN SHEET

PREPROPOSAL CONFERENCE RFP #10-40110-2393

DATE: January 28, 2010

TIME: 10:00 AM

	COMPANY NAME	REP NAME	ADDRESS	PHONE	EMAIL
16	TRANSCORE	ALAN OTWELL	7611 DERRY ST, HBG, PA 17111	717 561 5828	ALAN.OTWELL@TRANSCORE.COM
17	TRANSCORE	John Fuller	8158 Adams Drive, Hummelstown, PA 17036	717 561 5975	john.fuller@transcore.com
18	Adesta LLC	JOEL Mulder	40W200 Jack London St. St. Charles, IL 60175	630513-7028	jmulder@adestagroup.com
19	ADESTA LLC	GREG LASALA	910 OAK TREE ROAD SOUTH PLAINFIELD, NJ 07080	908-756-1181	GLASALA@ADESTA GROUP.COM
20	Gannett Fleming	Keith Mullins	1515 Market St. Suite 2020 Philadelphia PA 19102	215-557-0337	kmullins@gfnet.com
21	ADESTA, LLC	KEVIN GLYNN	910 OAK TREE ROAD SOUTH PLAINFIELD, NJ 07080	908-453-3979	kglynn@adestagroup.com
22	Henkels & McCoy	Jamie Berrier	5230 N Susquehanna Trail York, PA 17406	717-266-5611	Jberrier@henkels.com
23	ADESTA, LLC.	NATHAN J. HAUCK	910 OAK TREE ROAD SOUTH PLAINFIELD, NJ 07080	443-845-7256	NHAUCK@ADESTAGROUP.COM
24	Wellington Power Corp	Joe Bacha	40th & Butler St Pittsburgh PA 15201	412-292-2044	jbacha@wellingtonpower.com
25	Wellington Power Corp	Craig Robeson	40th+ Butler Streets Pittsburgh, PA 15201	412-287-3398	crobeson@wellingtonpower.com
26	~~DON KLINGENSMITH~~ PTC	DON KLINGENSMITH		717-939-9551 x 5850	dklingen@paturnpike.com
27	~~Dan Corey~~ AECOM	Dan Corey	260 S. BROAD ST - SUITE 1500 Phila, PA ~~19103~~ 19102	215-735-0232	daniel.corey@aecom.com
28	SIGNAL SERVICE INC	DOUG WACHENFELD	1020 ANDREW DR WEST CHESTER PA 19380	610 429 8073 484 459 6057 (C)	dwachenfeld@SIGNALSERVICE.COM
29	PTC	Wanda Metzger		717 939 9551 EXT 4282	wmetzger@paturnpike.com
30	PTC	Lou Cortelazzi		11 x 3450	lcortela@Paturnpike.com

Addendum No. 2

RFP 10-40110-2393
INTELLIGENT TRANSPORTATION SYSTEMS RETROFIT BETWEEN MILEPOST 162.0 AND MILEPOST 172.0 AND AT MILEPOST 99.5 AND MILEPOST 120.0 IN BEDFORD AND FULTON COUNTIES, PENNSYLVANIA

Prospective Respondents: You are hereby notified of the following information in regard to the referenced RFP:

REVISIONS

1. Add the following to the Project Schedule and Liquidated Damages section found on pages A4 and A5 of A30:

A thirty (30) calendar day down time will be allowed for the removal, installation of new, activation and field test of all the VMS signs from MP 162 to 172. This work must occur before the end of October 2010. Liquidated damages will be assessed in accordance with the RFP. The 30 day operational period, and or final acceptance testing will not be considered a part of the tasks required during the thirty (30) calendar day down time period.

2. Delete Revision 8 from Addendum 1.

Language will remain as stated in the original RFP. A 10 character sign with 12 inch high characters using a 7 x 5 pixel matrix is required.

3. Revision 9 from Addendum 1 is revised as follows:

". . . for 12" height characters **10** character minimum across."

QUESTIONS and ANSWERS

Following are the responses to the questions received as of February 11, 2010:

Q: Reference RFP, Part IV, Work Statement, Task B, 2., Page 16 of 22
The request for Proposal (RFP) states "Don't remove the sign structure, structure foundation, controller cabinet, and cabinet foundation." According to this sentence we are to use the existing controller cabinet at the VMS location. Generally, ordering a VMS includes the fully populated cabinet with equipment specific to the sign being ordered. Per discussions with VMS manufactures, if they do not provide the cabinet with the VMS, they will have to send technicians to the job site to install the controller equipment in the existing cabinet. This will most likely

result in a higher cost than populating the cabinet at the factory and shipping it with the VMS. Will the Pennsylvania Turnpike Commission (PTC) consider changing this specification and allowing the contractor to provide and install a new VMS and Controller Cabinet for each VMS location?

A: No

Q: Reference Drawing PTS-910, Sheet 7 of 7, Note 2
The RFP states "For median operations where the median shoulder is less than 12 FT wide, use single lane traffic patterns, per PTS-910, sheet 4 of 7, left lanes closed both directions." For removal of the existing VSLs, due to the short amount of time required in the median, will PTC allow an exception to this specification, and require only the operations as shown on PTS-910 sheet 7 of 7, allowing the contractor to use a stationary shoulder closure, with channelizing devices for the shoulder in both directions?

A: Setup MPT in accordance with PTS-910.

Q: Reference General
Are there as-built drawings showing foundation details for the existing foundation to be removed at MP 149.1 WB along I-70? If not, can the PTC provide foundation dimensions to all bidders?

A: The dimensions of the I-70 foundation are 23 feet long by 4 feet wide by 3 feet 7 inch deep.

Q: Reference General
Are the VMS and VSLS signs being removed to be returned to the PTC, or will the contractor be responsible for the disposal of them?

A: The contractor is responsible for the removal and disposal of the VMS and VSLS in accordance with the RFP.

Q: Would certifications in lieu of factory acceptance testing be acceptable for the equipment?

A: Yes, as long as they are certifications for the factory testing of that equipment.

Q: Can DBE/MBE/WBE equipment suppliers count toward the goal?

A: Yes

Q: Would you like resumes to be included for the 5 key people and if so, would they count toward the page limit or could they be attached as an appendix?

A: Resumes may be included for key personnel and be a part of an Appendix.

Q: Do you want P-code documentation or is just stating that you have the required P-codes adequate?

A: Indicate Prequalification and/or personnel and previous work experience to complete this project.

Q: Is a project field office to be provided by the Contractor?

A: An inspector's field office is not a requirement for this project; however the contractor may install a field office for his operation if he wishes to do so.

Q: Will topographic survey information (sufficient for design) be provided in the area of the I-70 VMS?

A: No

Q: Are the existing mainline VMS's currently operational?

A: Nine (9) of the ten VMS signs are operational. WB sign Milepost 163 is out of service.

All other terms, conditions and requirements of the original RFP issued January 13, 2010 remain unchanged unless modified by this Addendum.