CONSULTING AND TECHNICAL SERVICES II (CATS II)

TASK ORDER REQUEST FOR PROPOSALS (TORFP)

VALLEY LEE COMMUNICATIONS TOWER CONSTRUCTION

CATS II TORFP #F50B3400031

DEPARTMENT OF INFORMATION TECHNOLOGY

ISSUE DATE: NOVEMBER 20, 2012

KEY INFORMATION SUMMARY SHEET

This Consulting and Technical Services II (CATS II) Task Order Request for Proposals (TORFP) is issued to obtain the services necessary to satisfy the requirements defined in Section 2 - Scope of Work. All CATS II Master Contractors approved to perform work in the functional area under which this TORFP is released are invited to submit a Task Order (TO) Proposal to this TORFP. All Master Contractors must complete and submit a Master Contractor Feedback form via the CATS II web site if not submitting a proposal. The form is accessible via, your CATS II Master Contractor login screen and clicking on TORFP Feedback Response Form from the menu. In addition to the requirements of this TORFP, the Master Contractors are subject to all terms and conditions contained in the CATS II RFP issued by the Maryland Department of Information Technology and subsequent Master Contract Project Number 060B9800035, including any amendments.

TORFP Title:	Valley Lee Communications Tower Construction
Functional Area:	FA 13, Tower Installation
TORFP Issue Date:	11/20/2012
Closing Date and Time:	12/11/2012 at 10:00 AM
TORFP Issuing Agency:	Department of Information Technology (DoIT)
Send questions to:	Mr. Denis McElligott Denis.McElligott@maryland.gov (CC: roxann.king@maryland.gov, Ed.Macon@maryland.gov)
TO Procurement Officer:	Mr. Denis McElligott Office Phone Number: 410-260-6125 Denis.McElligott@maryland.gov
TO Manager:	Ed Macon Cell Phone Number: 410-370-2430 Ed.Macon@maryland.gov
TO Project Number:	F50B3400031
TO Type:	Fixed price
Period of Performance:	80 Days from issuance of a Notice to Proceed
MBE Goal:	3 percent
Small Business Reserve (SBR):	No
Primary Place of Performance:	Rear of 45350 Happyland Rd Valley Lee, St. Mary's County, MD

TO Pre-proposal Conference	11/28/2012 at 11:00 AM Rear of 45350 Happyland Rd Valley Lee, St. Mary's County, MD Site walk is mandatory See Attachment 6 for directions.

SECTION 1 - ADMINISTRATIVE INFORMATION

1.1 RESPONSIBILITY FOR TORFP AND TO AGREEMENT

The TO Procurement Officer has the primary responsibility for the management of the TORFP process, for the resolution of TO Agreement scope issues, and for authorizing any changes to the TO Agreement. See Section 2.15 for information on change orders.

The TO Manager has the primary responsibility for the management of the work performed under the TO Agreement; administration functions, including issuing written directions; ensuring compliance with the terms and conditions of the CATS II Master Contract; and, in conjunction with the selected Master Contractor, achieving on budget/on time/on target (e.g., within scope) completion of the Scope of Work.

1.2 TO AGREEMENT

Based upon an evaluation of TO Proposal responses, a Master Contractor will be selected to conduct the work defined in Section 2 - Scope of Work. A specific TO Agreement, Attachment 3, will then be entered into between the State and the selected Master Contractor, which will bind the selected Master Contractor (TO Contractor) to the contents of its TO Proposal, including the price proposal.

1.3 TO PROPOSAL SUBMISSIONS

The TO Procurement Officer will not accept submissions after the stated closing date and exact time in the Key Information Sheet above. Due to the large size of the files, the TO proposal is to be submitted via hand delivery or shipment as two attachments in MS Word format on a CD-R disk. **Email submissions will not be accepted.** The first file will be the TO Proposal technical response to this TORFP and titled, "CATS II TORFP #F50B3400031 Technical". The second file will be the financial response to this CATS II TORFP and titled, "CATS II TORFP #F50B3400031 Financial". The following proposal documents must be submitted with required signatures as .PDF files with signatures clearly visible:

- Attachment 1 – Price Proposal
- Attachment 2 - MBE Forms D-1 and D-2
- Attachment 4 - Conflict of Interest and Disclosure Affidavit
- Attachment 10 – Living Wage Affidavit of Agreement
- Proposal Bond as required in Section 1.9
- Letter providing evidence that the Master Contractor is capable of securing the bonds required in TORFP Sections 1.10 and 1.11.

1.4 ORAL PRESENTATIONS/INTERVIEWS

All Master Contractors and proposed staff may be required to make an oral presentation to State representatives. Significant representations made by a Master Contractor during the oral presentation shall be submitted in writing. All such representations will become part of the Master Contractor's proposal and are binding, if the Contract is awarded. The Procurement Officer will notify Master Contractor of the time and place of oral presentations.

1.5 MINORITY BUSINESS ENTERPRISE (MBE)

A Master Contractor that responds to this TORFP shall complete, sign, and submit all required MBE documentation (Attachment 2 - Forms D-1 and D-2) at the time it submits its TO Proposal. **Failure of the Master Contractor to complete, sign, and submit all required MBE documentation at the time it submits its TO Proposal will result in the State's rejection of the Master Contractor's TO Proposal.**

1.6 CONFLICT OF INTEREST

The TO Contractor awarded the TO Agreement shall provide IT technical and/or consulting services for State agencies or component programs with those agencies, and must do so impartially and without any conflicts of interest. Each Master Contractor shall complete and include a Conflict of Interest Affidavit in the form included as Attachment 4 this TORFP with its TO Proposal. If the TO Procurement Officer makes a determination that facts or circumstances exist that give rise to or could in the future give rise to a conflict of interest within the meaning of COMAR 21.05.08.08A, the TO Procurement Officer may reject a Master Contractor's TO Proposal under COMAR 21.06.02.03B.

Master Contractors should be aware that the State Ethics Law, State Government Article, §15-508, might limit the selected Master Contractor's ability to participate in future related procurements, depending upon specific circumstances.

1.7 NON-DISCLOSURE AGREEMENT

Certain system documentation may be available for potential Offerors to review at a reading room at 301 W Preston St, Baltimore, MD 21201. Offerors who review such documentation will be required to sign a Non-Disclosure Agreement (Offeror) in the form of Attachment 7. Please contact the TO Procurement Officer of this TORFP to schedule an appointment.

In addition, certain documentation may be required by the TO Contractor awarded the TO Agreement in order to fulfill the requirements of the TO Agreement. The TO Contractor, employees and agents who review such documents will be required to sign, including but not limited to, a Non-Disclosure Agreement (TO Contractor) in the form of Attachment 8.

1.8 LIMITATION OF LIABILITY CEILING

Pursuant to Section 27(C) of the CATS Master Contract, the limitation of liability ceiling is hereby reduced as follows: Contractor's liabilities per claim under this TORFP shall not exceed 5 times the total TO Agreement amount.

1.9 PROPOSAL SECURITY

Each Master Contractor must submit with its proposal a Proposal Bond in the amount of 5 percent of the total price proposed to guarantee for 180 days after the Due Date for Receipt of Proposals the availability of the equipment and services at the offered price. The bond shall be in the form provided in Attachment 15 and underwritten by a surety company authorized to do business in the State and subject to approval by DoIT, or other acceptable security for bond as described in COMAR 21.06.07. A certified check or cashier's check payable to DoIT may also serve as a Proposal Bond.

Offerors may request a release of the bond after the date of the award in return for a release signed by the Offeror and accepted by DoIT.

1.10 PERFORMANCE BOND

The successful Master Contractor must submit a Performance Bond, TORFP Attachment 14, or other suitable securities as identified within COMAR 21.06.07, in the amount of the value for the TO Agreement for the period of the contract award. The cost of this bond, or other suitable security, is to be included in the total price proposed and is not to be proposed and will not be recoverable as a separate cost item. The Performance Bond or other suitable security shall be delivered to the State by the Master Contractor within 5 days of recommendation for award. **A letter must be submitted from a bonding company with the technical proposal providing evidence that the Master Contractor is capable of securing the performance bond required.** Acceptable security for bid, performance, and payment bonds is limited to a bond in a form satisfactory to the State underwritten by a surety company authorized to do business in this State.

Assistance in obtaining a bid, performance and payment bonds may be available to qualifying small businesses through the Maryland Small Business Development Financing Authority (MSBDFA). MSBDFA can directly

issue bid, performance or payment bonds up to $750,000. MSBDFA may also guaranty up to 90% of a surety's losses as a result of a contractor's breach of contract; MSBDFA exposure on any bond guaranteed may not, however, exceed $900,000. Bonds issued directly by the program will remain in effect for the duration of the contract, and those surety bonds that are guaranteed by the program will remain in effect for the duration of the surety's exposure under the contract. To be eligible for bonding assistance, a business must first be denied bonding by at least one surety on both the standard and specialty markets within 90 days of submitting a bonding application to MSBDFA. The applicant must employ fewer than 500 full-time employees or have gross sales of less than $50 million annually, have its principal place of business in Maryland or be a Maryland resident, must not subcontract more than 75 percent of the work, and the business or its principals must have a reputation of good moral character and financial responsibility. Finally, it must be demonstrated that the bonding or guarantee will have a measurable economic impact, through job creation and expansion of the state's tax base. Applicants are required to work through their respective bonding agents in applying for assistance under the program. Questions regarding the bonding assistance program should be referred to:

Maryland Department of Business and Economic Development
Maryland Small Business Development Financing Authority
217 E. Redwood Street, 22nd Floor
Baltimore, Maryland 21202
Phone: (410) 767-4270
Fax: (410) 333-6931

1.11 PAYMENT BOND

The Master Contractor shall submit to the Procurement Officer, within 10 business days after notice of recommended award, a Payment Bond in the amount of the TO Agreement. The bond shall be in the form provided in Attachment 13 and issued by a surety company licensed to do business in the State and shall be subject to approval by the State. The Payment Bond shall be maintained throughout the term of this TO Agreement, or renewal option period, if exercised. Evidence of renewal of the Payment Bond and payment of the required premium shall be provided to DoIT. This bond shall also secure liquidated damages.

Failure of the Master Contractor to submit and maintain the required Payment Bond coverage throughout the term of the TO Agreement, and renewal option period if exercised, will constitute an event of Default under the Master Contract.

The Payment Bond shall be forfeited to DoIT, in whole or in part, if the Master Contractor defaults in its payment of subcontractors or vendors for work performed under this TO Agreement.

1.12 CONTRACT MANAGEMENT OVERSIGHT ACTIVITIES

DoIT will be performing contract management oversight on the CATS II master contract. As part of that oversight, DoIT has implemented a process for self-reporting contract management activities of CATS II task orders (TO). This process shall typically apply to active TOs for operations and maintenance services valued at $1 million or greater, but all CATS II TOs are subject to review.

Attachment 9 is a sample of the TO Contractor Self-Reporting Checklist. DoIT will send initial checklists out to applicable TO Contractors approximately three months after the award date for a TO. The TO Contractor shall complete and return the checklist as instructed on the checklist. Subsequently, at six month intervals from the due date on the initial checklist, the TO Contractor shall update and resend the checklist to DoIT.

1.13 PROMPT PAYMENT OF SUBCONTRACTORS

This TO Agreement and all subcontracts issued under this TO Agreement are subject to the provisions of State Finance and Procurement Article, §15-226, Annotated Code of Maryland, and COMAR 21.10.08. In §A-D, the terms "undisputed amount", "prime contractor", "contractor", and "subcontractor" have the meanings stated in COMAR 21.10.08.01.

A Master Contractor shall promptly pay its subcontractors an undisputed amount to which a subcontractor is entitled for work performed under this contract within 10 days after the contractor receives a progress payment or final payment for work under this contract.

If a Master Contractor fails to make payment within the period prescribed in §B, a subcontractor may request a remedy in accordance with COMAR 21.10.08.

A Master Contractor shall include in its subcontracts for work under this contract, wording that incorporates the provisions, duties and obligations of §A-D, State Finance and Procurement Article §15-226, Annotated Code of Maryland, and COMAR 21.10.08.

1.14 DIFFERING SITE CONDITIONS

The Master Contractor shall promptly, and before such conditions are disturbed, notify the TO Manager in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in this TORFP, or (2) unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in this TORFP. The TO Manager shall promptly investigate the conditions, and if the TO Manager finds that such conditions do materially so differ and cause an increase or decrease in the Master Contractor's cost of, or the time required for, performance of any part of the work under this contract, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the contract modified in writing accordingly.

No claim of the Master Contractor under this clause shall be allowed unless the Master Contractor has given the notice required in above; provided, however, the time prescribed therefore may be extended by the State.

No claim by the Master Contractor for an equitable adjustment here under shall be allowed if asserted after final payment under this contract.

1.15 SITE INVESTIGATION

The Master Contractor acknowledges that the Master Contractor has investigated and is satisfied as to the conditions affecting the work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, tides or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecution of the work. The Master Contractor further acknowledges that it is satisfied as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the State, as well as from information presented by the drawings and specifications made a part of this contract. Any failure by the Master Contractor to acquaint itself with the available information may not relieve the Master Contractor from responsibility for estimating properly the difficulty or cost of successfully performing the work. The State assumes no responsibility for any conclusions or interpretations made by the Master Contractor on the basis of the information made available by the State.

1.16 WARRANTY

All tower materials, galvanizing, tower foundation materials, tower structures and all attachments and appurtenances thereto shall be guaranteed against defects in material and workmanship for a minimum of five (5) years after final, written acceptance of the project.

All equipment shelters, equipment shelter foundations, HVAC units, generator and other associated equipment shall be guaranteed against defects in material and workmanship for a minimum of two (2) years after final, written acceptance of the project.

The supplied tower lighting system shall be guaranteed against defects in material and workmanship for a minimum period of five (5) years after final, written acceptance of the project.

All other materials and labor provided by the Master Contractor shall be guaranteed against defects in materials and workmanship for a minimum of two (2) years after final, written acceptance of the project.

After the initial, two-year warranty period, the state, in its discretion, may reduce the performance bond amount to 40% of the total contract price.

SECTION 2 - SCOPE OF WORK

2.1 PURPOSE

DoIT is involved with a multi year, infrastructure project to provide Maryland's public safety agencies a network of State owned radio tower sites. DoIT is issuing this CATS II TORFP for the purchase and turnkey installation of one 330 ft, self supporting radio tower with FAA approved tower lighting system, Two (2) 12x38x10 ft shelters and associated foundations; one with a 75 Kw backup generator, liquid propane tank and associated foundation and other site improvements.

2.2 ROLES AND RESPONSIBILITIES

2.2.1 State Project Managers (PM) – Individuals who coordinate the CATS II, FA13 Master Contractors, sub contractors and daily operations of the project. Email correspondence shall be sent to the PM.

Ed Macon (ed.macon@maryland.gov) (cell 410 370 2430)

2.2.2 Master Contractor PM – The Master Contractor shall provide one PM to coordinate all daily operations and subcontractor activities. The PM's contact info will be supplied upon award. It will include his name, cell, landline, email and mailing address. Direct coordination with subcontractors will only occur during extraneous situations and is strongly discouraged.

2.3 PROJECT BACKGROUND

This network of State owned radio tower supports current radio operations for State Police, SHA, Emergency Medical Services, Department of Natural Resources Police, Military Department and other government radio systems. These towers will also support the State's future 700 Mhz, interoperable radio system. Current and future towers are located throughout the State of Maryland. This site generally consists of at least two 12x38x10 equipment shelters one with emergency generator, one 330 ft self supporting radio tower with FAA approved lighting system, one liquid propane tank and associated site improvements to facilitate in/egress of the site and equipment installation.

2.4 TECHNICAL SPECIFICATION

See Attachment 5 for technical specifications for the equipment and services to be provided by the TO Contractor.

2.5 DELIVERABLES

2.5.1 DELIVERABLE SUBMISSION PROCESS

For each written deliverable, draft and final, the TO Contractor shall submit to the TO Manager one hard copy and one electronic copy compatible with Microsoft Office 2000, Microsoft Project 2000 and/or Visio 2000.

Drafts of all final deliverables are required at least two weeks in advance of when all final deliverables are due. Written deliverables defined as draft documents must demonstrate due diligence in meeting the scope and requirements of the associated final written deliverable. A draft written deliverable may contain limited structural errors such as poor grammar, misspellings or incorrect punctuation, but must:

A) Be presented in a format appropriate for the subject matter and depth of discussion.

B) Be organized in a manner that presents a logical flow of the deliverable's content.

C) Represent factual information reasonably expected to have been known at the time of submittal.

D) Present information that is relevant to the Section of the deliverable being discussed.

E) Represent a significant level of completeness towards the associated final written deliverable that supports a concise final deliverable acceptance process.

Upon completion of a deliverable, the TO Contractor shall document each deliverable in final form to the TO Manager for acceptance. The TO Contractor shall memorialize such delivery in an Agency Receipt of Deliverable Form. The TO Manager shall countersign the Agency Receipt of Deliverable Form indicating receipt of the contents described therein.

Upon receipt of a final deliverable, the TO Manager shall commence a review of the deliverable as required to validate the completeness and quality in meeting requirements. Upon completion of validation, the TO Manager shall issue to the TO Contractor notice of acceptance or rejection of the deliverables in an Agency Acceptance of Deliverable Form. In the event of rejection, the TO Contractor shall correct the identified deficiencies or non-conformities. Subsequent project tasks may not continue until deficiencies with a deliverable are rectified and accepted by the TO Manager or the TO Manager has specifically issued, in writing, a waiver for conditional continuance of project tasks. Once the State's issues have been addressed and resolutions are accepted by the TO Manager, the TO Contractor will incorporate the resolutions into the deliverable and resubmit the deliverable for acceptance. Accepted deliverables shall be invoiced within 30 days in the applicable invoice format (Reference 2.13 Invoicing).

A written deliverable defined as a final document must satisfy the scope and requirements of this TORFP for that deliverable. Final written deliverables shall not contain structural errors such as poor grammar, misspellings or incorrect punctuation, and must:

A) Be presented in a format appropriate for the subject matter and depth of discussion.

B) Be organized in a manner that presents a logical flow of the deliverable's content.

C) Represent factual information reasonably expected to have been known at the time of submittal.

D) Present information that is relevant to the Section of the deliverable being discussed.

The State required deliverables are defined below. Within each task, the TO Contractor may suggest other subtasks or deliverables to improve the quality and success of the project.

2.5.2 DELIVERABLE DESCRIPTIONS / ACCEPTANCE CRITERIA

ID #	Deliverable Description	Acceptance Criteria	Time of Performance
2.5.2.1	Project Schedule	A document suitable for tracking all current and pending activities. At a minimum, the schedule shall show milestones, deliverables, times of performance, degrees of completion and resources for all activities starting with NTP and ending with final deliverables. This is a single, periodically updated deliverable encompassing all activities.	Weekly
2.5.2.2	One 330 ft radio tower designed in compliance with the attached specifications.	-Passes an independent tower inspection. The first inspection will be provided by the State. Subsequent inspections will be provided at the vendor's expense. -Passes a visual inspection of the tower at the time of delivery. Galvanizing, welds,	*see note below

		flanges, overall design and condition will be inspected by an agent of the State.	
2.5.2.3	2 12x38 Equipment Shelters designed in compliance with the attached specifications and the latest version of R56.	-Passes a visual inspection upon delivery. -Any shelter discrepancies discovered during the project or the final walk through are corrected to the satisfaction of the State. -Any discrepancies discovered during the State provided R56 inspections are corrected to the satisfaction of the State.	*see note below
2.5.2.4	Civil construction site improvements -Demolition of existing building, foundation and appurtenances, as required -E&S and SWM controls -Grading/access road -Fence	-Each improvement/system passes civil engineering inspections -Passes visual inspections conducted by DoIT PMs -Passes MDE/SHA environmental inspections where applicable (include completed site sign off by MDE)	*see note below
2.5.2.5	Bi Weekly Construction schedule and updates	-Submission on 2nd and final Thursday of every month for the duration of the project or as required. -Submission in writing per details in attached scope of work. -Attendance on a biweekly conference call with a representative of the State and a suitable vendor representative. This will occur on the 2nd and final Thursday of every month for the duration of the project. Vendors will be expected to update progress, forecast upcoming milestones and discuss other items as directed by the State PMs.	*see note below
2.5.2.6	Close out binders	-Submitted to DoIT PMs prior to billing for final invoice. One will be submitted to DoIT PMs and another left on site.	*see note below
2.5.2.7	"As Built" Drawings	-Submit three hard copies and one soft copy of as built drawings to DoIT PMs	*see note below

Acceptance by the State of the work to be performed hereunder shall be final and conclusive except as regards latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards any warranty or guaranty hereunder.

Note: The asterisk (*) denotes the dates submitted in the TO Contractor's Construction Schedule (see Attachment 12 – Construction Schedule). Because deliverable due dates are dependent upon the State's declaration of a Notice to Proceed (NTP), the Construction Schedule timing shall be expressed in terms of NTP + X calendar days.

2.6 REQUIRED PROJECT POLICIES, GUIDELINES AND METHODOLOGIES

The TO Contractor shall be required to comply with all applicable laws, regulations, policies, standards and guidelines affecting information technology projects, which may be created or changed periodically. The TO Contractor shall adhere to and remain abreast of current, new, and revised laws, regulations, policies, standards and guidelines affecting project execution. The following policies, guidelines and methodologies can be found at http://doit.maryland.gov/policies/Pages/ContractPolicies.aspx under "Policies and Guidance." These may include, but are not limited to:

- The State's System Development Life Cycle (SDLC) methodology
- The State Information Technology Security Policy and Standards
- The State Information Technology Project Oversight
- The State of Maryland Enterprise Architecture
- The TO Contractor shall follow the project management methodologies that are consistent with the Project Management Institute's Project Management Body of Knowledge Guide. TO Contractor's staff and sub contractors are to follow a consistent methodology for all TO activities.

2.7 TO CONTRACTOR EXPERTISE REQUIRED

The TO Contractor and any subcontractors must document a professional level of expertise in:

-Construction of Erosion and Sediment Device in accordance with the latest Maryland Department of the Environment (MDE) specifications and construction drawings.

-Supervision/certification by a certified Professional Engineer for the construction of all appropriate storm water management devices as required.

2.8 TO CONTRACTOR MINIMUM QUALIFICATIONS

The TO Contractor shall be capable of furnishing all necessary services required to successfully complete all tasks and work requirements and produce high quality deliverables described herein. The Master Contractor shall demonstrate, in its proposal, that it possesses such expertise in-house or has fostered strategic alliances with other firms for providing such services.

-The TO Contractor shall have proof of Green and Yellow card E&S control credentials.

2.9 RETAINAGE

Five percent of the total TO Agreement value shall be retained by the State and will not be released until final payment.

2.10 INSURANCE

Any damage to finished surfaces, surrounding areas, equipment shelter, etc., from this installation shall be repaired to the damaged party's satisfaction at the TO Contractor's expense. The TO Contractor shall maintain liability in the event of an accident at the site. This policy is to cover the TO Contractor and all subcontracted personnel as well as property liability coverage. The amount of this insurance shall be no less than $1,000,000.

2.11 PREVAILING WAGES

For TO Proposals with a price totaling $500,000 or more Prevailing Wage Rates apply. For these TO Proposals only, the wage rates to be paid laborers and mechanics on this TO Agreement is by order of the Commissioner of Labor and Industry as outlined on Attachment 19. It is mandatory upon the successful Master Contract and any subcontractor, to pay not less than the specific rates to all workers employed by the Master Contractor and subcontractor(s) execution of the TO Agreement. Reference: Annotated Code of Maryland State Finance and Procurement, Section 17-201 thru 17-226 inclusive. These rates were taken from the locality determination, issued

pursuant to the Commissioner's authority under State Finance and Procurement Article Section 17-209, Annotated Code of Maryland.

2.12 LIQUIDATED DAMAGES

Time is an essential element of the contract and it is important that the work be vigorously prosecuted until completion.

For each day that any work shall remain uncompleted beyond the 180 days time of performance, the Master Contractor shall be liable for liquidated damages in the amount of $700 per day, provided, however, that due account shall be taken of any adjustment of specified completion time(s) for completion of work as granted by approved change orders.

Additionally, for each day that the project has a 'D' rating as assigned by a MDE Field Inspector or other responsible individual, the Master Contractor and/or the Master Contractor's surety shall be liable for liquidated damages in the amount of $745 per day. Failure to upgrade the project to the minimum of a 'B' rating within 72 hours will result in the project being rated 'F.' For each day that the project has an 'F' rating, the Master Contractor and/or the surety shall be liable for liquidated damages in the amount of $1,045 per day.

2.13 INVOICING

Payment will only be made upon completion and acceptance of the deliverables as defined in 2.5.2.

Invoice payments to the TO Contractor shall be governed by the terms and conditions defined in the CATS II Master Contract. Invoices for payment shall contain the TO Contractor's Federal Tax Identification Number, as well as the information described below, and must be submitted to the TO Manager for payment approval. Payment of invoices will be withheld if a signed Acceptance of Deliverable form is not submitted.

The TO Contractor shall submit invoices for payment upon acceptance of separately priced deliverables, on or before the 15th day of the month following receipt of the approved notice(s) of acceptance from the TO Manager. A copy of the notice(s) of acceptance shall accompany all invoices submitted for payment.

2.13.1 INVOICE SUBMISSION PROCEDURE

This procedure consists of the following requirements and steps:

A) The invoice shall identify the Department of Information Technology as the TO Requesting Agency, deliverable description, associated TO Agreement number, date of invoice, period of performance covered by the invoice, and a TO Contractor point of contact with telephone number.

B) The TO Contractor shall send the original of each invoice and supporting documentation (itemized billing reference for employees and any subcontractor and signed Acceptance of Deliverable form , for each deliverable being invoiced) submitted for payment to the Department of Information Technology at the following address:

DoIT – Wireless
ATTN: Denis McElligott
301 W Preston St, Suite 1304
Baltimore, MD 21201

C) Invoices for final payment shall be clearly marked as "FINAL" and submitted when all work requirements have been completed and no further charges are to be incurred under the TO Agreement. In no event shall any invoice be submitted later than 60 calendar days from the TO Agreement termination date.

2.14 MBE PARTICIPATION REPORTS

Monthly reporting of MBE participation is required in accordance with the terms and conditions of the CATS II Master Contract by the 15th day of each month (send to: doit.mbe@doit.state.md.us). The TO Contractor shall provide a completed MBE Participation form (Attachment 2, Form D-5) to DoIT at the same time the invoice copy

is sent. The TO Contractor shall ensure that each MBE Subcontractor provides a completed MBE Participation Form (Attachment 2, Form D-6). Subcontractor reporting shall be sent directly from the subcontractor to DoIT. DoIT will monitor both the TO Contractor's efforts to achieve the MBE participation goal and compliance with reporting requirements. The TO Contractor shall email all completed forms, copies of invoices and checks paid to the MBE directly and to the DoIT MBE Officer.

2.15 CHANGE ORDERS

(1) The TO Procurement Officer unilaterally may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make any change in the work within the general scope of the contract, including but not limited to changes:

(a) In the specifications (including drawings and designs):
(b) In the method or manner of performance of the work;
(c) In the State-furnished facilities, equipment, materials, service, or site; or
(d) Directing acceleration in the performance of the work.

(2) Any other written order or an oral order, including a direction, instruction, interpretation or determination, from the TO Procurement Officer that causes any such change, shall be treated as a change order under this clause, provided that the TO Contractor gives the TO Procurement Officer written notice stating the date, circumstances, and source of the order and that the TO Contractor regards the order as a change order.

(3) Except as herein provided, no order, statement, or conduct of the TO Procurement Officer shall be treated as a change under this clause or entitle the TO Contractor to an equitable adjustment hereunder.

(4) Subject to paragraph (6), if any change under this clause causes an increase or decrease in the TO Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by an order, an equitable adjustment shall be made and the contract modified in writing accordingly; provided, however, that except for claims based on defective specifications, no claim for any change under (2) above shall be allowed for any costs incurred more than 20 days before the TO Contractor gives written notice as therein required; and provided further, that in the case of defective specifications for which the State is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the TO Contractor in attempting to comply with such defective specifications.

(5) If the TO Contractor intends to assert a claim for an equitable adjustment under this clause, he shall, within 30 days after receipt of a written change order under (1) above or the furnishing of written notice under (2) above, submit to the TO Procurement Officer a written statement setting forth the general nature and monetary extent of such claim, unless this period is extended by the State. The statement of claim hereunder may be included in the notice under (2) above.

(6) Each contract modification or change order that affects contract price shall be subject to the prior written approval of the TO Procurement Officer and other appropriate authorities and to prior certification of the appropriate fiscal authority of fund availability and the effect of the modification or change order on the project budget or the total construction cost. If, according to the certification of the fiscal authority, the contract modification or change order will cause an increase in cost that will exceed budgeted and available funds, the modification or change order may not be made unless sufficient additional funds are made available or the scope of the project is adjusted to permit its completion within the project budget.

(7) No claim by the TO Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this contract.

SECTION 3 - TASK ORDER PROPOSAL FORMAT AND SUBMISSION REQUIREMENTS

3.1 REQUIRED RESPONSE

Each Master Contractor receiving this CATS II TORFP must respond within the submission time designated in the Key Information Summary Sheet. Each Master Contractor is required to submit one of two possible responses: 1) a proposal along with a completed Master Contractor Feedback Form; or 2) a Master Contractor Feedback Form only. The feedback form helps the State understand for future contract development why Master Contractors did or did not submit proposals. The form is accessible via the CATS II Master Contractor login screen and clicking on TORFP Feedback Response Form from the menu.

3.2 FORMAT

If a Master Contractor elects to submit a TO Proposal, the Master Contractor shall do so in conformance with the requirements of this CATS II TORFP. A TO Proposal shall contain the following sections in order:

3.2.1 TECHNICAL PROPOSAL

A) Proposed Services

1) Executive Summary: A high level overview of the Master Contractor's understanding of the background, purpose, and objectives of the TORFP. The Executive Summary shall summarize the Master Contractor's capabilities and experience, and summarize the proposed methodology and solution for achieving the objectives of the TORFP.

2) Proposed Solution: A detailed narrative of the Master Contractor's proposed methodology and solution for completing the requirements and deliverables in Section 2 - Scope of Work. This section should include a comprehensive schedule of tasks and times frames for completing all requirements and deliverables, including any tasks to be performed by State or third party personnel.

3) Attachment 12 – Construction Schedule in draft form. The final schedule will be a deliverable under the task order and the contractor will be bound by this schedule. The Construction Schedule may include tasks to be performed by the State or third parties as appropriate.

4) Assumptions: A description of any assumptions formed by the Master Contractor in developing the Technical Proposal. Master Contractors should not include assumptions that are exceptions to TORFP terms and conditions.

5) Organization Chart: Identify all permanent personnel and subcontractors working on the project.

6) Tower Technical Details: A description of the manufacture, any technical documents related to the tower and tower foundation design. This will include, but is not limited to, preliminary shop drawings, technical sheets or correspondence from the manufacturer. List assumptions used for the tower design.

7) Shelter Technical Details: A description of the manufacturer, any technical documents related to the shelter and shelter foundation design. This will include, but is not limited, to preliminary shop drawings, technical sheets or correspondence from the manufacturer. List any appropriate assumptions used for the shelter design.

8) Documents:

i. Proof of insurance

ii. Proposal Bond – Attachment 15

iii. Performance bond capability letter from bond company

iv. Payment bond capability letter from bond company

v. Copies of green/yellow E&S credentials

vi. Evidence of tower site construction safety policies and procedures

vii. Attachment 4 – Conflict of Interest and Disclosure Affidavit

viii. Attachment 2 – D1 and D2

ix. Attachment 10 – Living Wage Affidavit

B) Proposed Personnel

1) Identify and provide resumes for all proposed personnel by labor category including the proposed PM. The resume should feature prominently the proposed personnel's skills and experience as they relate to the Master Contractor's proposed solution and Section 2 – Scope of Work.

2) Certification that all proposed personnel meet the minimum required qualifications and possess the required certifications in accordance to Section 2.

3) Provide the names and titles of the Master Contractor's management staff who will supervise the personnel and quality of services rendered under this TO Agreement.

C) MBE Participation

1) Submit completed MBE documents Attachment 2 - Forms D-1 and D-2.

D) Subcontractors

1) Identify all proposed subcontractors, working on the project by name, including MBEs, and their roles in the performance of Section 2 - Scope of Work. Resumes of proposed subcontractors key supervisors and leadership should be included.

E) Master Contractor and Subcontractor Experience and Capabilities

1) Provide up to three examples of projects or contracts the Master Contractor has completed that were similar to Section 2 - Scope of Work. Each example must include contact information for the client organization complete with the following:

a) Name of organization.

b) Point of contact name, title, and telephone number

c) Services provided as they relate to Section 2 - Scope of Work.

d) Start and end dates for each example project or contract. If the Master Contractor is no longer providing the services, explain why not.

2) State of Maryland Experience: If applicable, the Master Contractor shall submit a list of all contracts it currently holds or has held within the past five years with any entity of the State of Maryland. For each identified contract, the Master Contractor shall provide:

a) Name of organization.

b) Point of contact name, title, and telephone number

c) Services provided as they relate to Section 2 - Scope of Work.

d) Start and end dates for each example project or contract. If the Master Contractor is no longer providing the services, explain why not.

e) Dollar value of the contract.

f) Whether the contract was terminated before the original expiration date.

g) Whether any renewal options were not exercised.

Note - State of Maryland experience can be included as part of Section E2 above as project or contract experience. State of Maryland experience is neither required nor given more weight in proposal evaluations.

F) Proposed Facility

1) Identify Master Contractor's facilities, including address, from which any work will be performed.

G) State Assistance

1) Provide an estimate of expectation concerning participation by State personnel.

H) Confidentiality

1) A Master Contractor should give specific attention to the identification of those portions of its proposal that it considers confidential, proprietary commercial information or trade secrets, and provide justification why such materials, upon request, should not be disclosed by the State under the Public Information Act, Title 10, Subtitle 6, of the State Government Article of the Annotated Code of Maryland. Contractors are advised that, upon request for this information from a third party, the TO Procurement Officer will be required to make an independent determination regarding whether the information may be disclosed.

3.2.2 FINANCIAL RESPONSE

A) A description of any assumptions on which the Master Contractor's Financial Proposal is based (Assumptions shall not constitute conditions, contingencies, or exceptions to the price proposal);

B) Attachment 1 - Completed Financial Proposal

SECTION 4– TASK ORDER AWARD PROCESS

4.1 OVERVIEW

The TO Contractor will be selected from among all eligible Master Contractors within the appropriate functional area responding to the CATS II TORFP. In making the TO Agreement award determination, the TO Requesting Agency will consider all information submitted in accordance with Section 3.

4.2 TECHNICAL PROPOSAL EVALUATION CRITERIA

The following are criteria for evaluating a TO Proposal in descending order of importance:

A. Expertise, experience and credentials of proposed personnel. This will include, but is not limited to:
    a. General Contractor's Project Manager
    b. Sub contractor personnel in key leadership roles
    c. General Contractor's leadership/executives
    d. Sub contractor's leadership/executives
    e. Any other pertinent personnel proposed by the Master Contractor; not limited to foremen, specialized sub contractors, inspectors, etc.

B. Master Contractor's proposed solution.

C. Attachment 12 – Proposed Construction Schedule for completion of the project

D. Proposed shelter delivery plan

E. Past performance of the Master Contractor in constructing communication tower sites

F. Safety policies/procedures

4.3 SELECTION PROCEDURES

A. The TO Procurement Officer will review the proposals for compliance with the MBE and bonding requirements. Master Contractors who fail to meet these requirements will not have their proposals considered.

B. The Master Contractor and proposed personnel will be assessed for compliance with the expertise and minimum qualifications in Sections 2.7 and 2.8 of the TORFP. Master Contractors who fail to meet the required expertise and minimum qualifications will be disqualified and their proposals eliminated from further consideration.

C. TO Proposals deemed technically qualified will have their financial proposal considered. All others will receive e-mail notice from the TO Procurement Officer of not being selected to perform the work. Qualified TO Proposal financial responses will be reviewed and ranked from lowest to highest price proposed.

D. The most advantageous TO Proposal offer considering technical and financial submission shall be selected for the work assignment. In making this selection, price will have the greatest merit.

4.4 COMMENCEMENT OF WORK UNDER A TO AGREEMENT

Commencement of work in response to a TO Agreement shall be initiated only upon receipt by the State of the required Performance and Payment bonds from the TO Contractor and issuance of a fully executed TO Agreement, a Non-Disclosure Agreement (TO Contractor), a Purchase Order, and by a Notice to Proceed authorized by the TO Procurement Officer.

ATTACHMENT 1 – PRICE PROPOSAL

PROVIDED AS A SEPARATE DOCUMENT

ATTACHMENT 2 – MINORITY BUSINESS ENTERPRISE FORMS

TO CONTRACTOR MINORITY BUSINESS ENTERPRISE REPORTING REQUIREMENTS

CATS II TORFP #F50B3400031

These instructions are meant to accompany the customized reporting forms sent to you by the TO Manager. If, after reading these instructions, you have additional questions or need further clarification, please contact the TO Manager immediately.

1. As the TO Contractor, you have entered into a TO Agreement with the State of Maryland. As such, your company/firm is responsible for successful completion of all deliverables under the contract, including your commitment to making a good faith effort to meet the MBE participation goal(s) established for TORFP. Part of that effort, as outlined in the TORFP, includes submission of monthly reports to the State regarding the previous month's MBE payment activity. Reporting forms D-5 (TO Contractor Paid/Unpaid MBE Invoice Report) and D-6 (Subcontractor Paid/Unpaid MBE Invoice Report) are attached for your use and convenience.

2. The TO Contractor must complete a separate Form D-5 for each MBE subcontractor for each month of the contract and submit one copy to each of the locations indicated at the bottom of the form. The report is due no later than the 15th of the month following the month that is being reported. For example, the report for January's activity is due no later than the 15th of February. With the approval of the TO Manager, the report may be submitted electronically. Note: Reports are required to be submitted each month, regardless of whether there was any MBE payment activity for the reporting month.

3. The TO Contractor is responsible for ensuring that each subcontractor receives a copy (e-copy of and/or hard copy) of Form D-6. The TO Contractor should make sure that the subcontractor receives all the information necessary to complete the form properly, i.e., all of the information located in the upper right corner of the form. It may be wise to customize Form D-6 (upper right corner of the form) for the subcontractor the same as the Form D-5 was customized by the TO Manager for the benefit of the TO Contractor. This will help to minimize any confusion for those who receive and review the reports.

4. It is the responsibility of the TO Contractor to make sure that all subcontractors submit reports no later than the 15th of each month, regardless of whether there was any MBE payment activity for the reporting month. Actual payment data is verified and entered into the State's financial management tracking system from the subcontractor's D-6 report only. Therefore, if the subcontractor(s) do not submit their D-6 payment reports, the TO Contractor cannot and will not be given credit for subcontractor payments, regardless of the TO Contractor's proper submission of Form D-5. The TO Manager will contact the TO Contractor if reports are not received each month from either the prime contractor or any of the identified subcontractors. The TO Contractor must promptly notify the TO Manager if, during the course of the contract, a new MBE subcontractor is utilized. Failure to comply with the MBE contract provisions and reporting requirements may result in sanctions, as provided by COMAR 21.11.03.13.

ATTACHMENT 2 – MINORITY BUSINESS ENTERPRISE FORMS

FORM D – 1

CERTIFIED MBE UTILIZATION AND FAIR SOLICITATION AFFIDAVIT

This document shall be included with the submittal of the Offeror's TO Proposal. If the Offeror fails to submit this form with the TO Proposal, the TO Procurement Officer shall determine that the Offeror's TO Proposal is not reasonably susceptible of being selected for award.

In conjunction with the offer submitted in response to TORFP No. F50B3400031, I affirm the following:

1. I acknowledge the overall certified Minority Business Enterprise (MBE) participation goal of 3 percent and, if specified in the TORFP, sub-goals of ____ percent for MBEs classified as African American-owned and ____ percent for MBEs classified as women-owned. I have made a good faith effort to achieve this goal.

   OR

   After having made a good faith effort to achieve the MBE participation goal, I conclude that I am unable to achieve it. Instead, I intend to achieve an MBE goal of _____percent and request a waiver of the remainder of the goal. If I am selected as the apparent TO Agreement awardee, I will submit written waiver documentation that complies with COMAR 21.11.03.11 within 10 business days of receiving notification that our firm is the apparent low bidder or the apparent awardee.

2. I have identified the specific commitment of certified Minority Business Enterprises by completing and submitting an MBE Participation Schedule (Attachment 2 - Form D-2) with the proposal.

3. I acknowledge that the MBE subcontractors/suppliers listed in the MBE Participation Schedule will be used to accomplish the percentage of MBE participation that I intend to achieve.

4. I understand that if I am notified that I am the apparent TO Agreement awardee, I must submit the following documentation within 10 working days of receiving notice of the potential award or from the date of conditional award (per COMAR 21.11.03.10), whichever is earlier.

   (a) Outreach Efforts Compliance Statement (Attachment D-3)

   (b) Subcontractor Project Participation Statement (Attachment D-4)

   (c) MBE Waiver Documentation per COMAR 21.11.03.11 (if applicable)

   (d) Any other documentation required by the TO Procurement Officer to ascertain offeror's responsibility in connection with the certified MBE participation goal.

   If I am the apparent TO Agreement awardee, I acknowledge that if I fail to return each completed document within the required time, the TO Procurement Officer may determine that I am not responsible and therefore not eligible for TO Agreement award. If the TO Agreement has already been awarded, the award is voidable**.**

5. In the solicitation of subcontract quotations or offers, MBE subcontractors were provided not less than the same information and amount of time to respond as were non-MBE subcontractors.

I solemnly affirm under the penalties of perjury that the contents of this paper are true to the best of my knowledge, information, and belief.

_____	_____
Offeror Name	Signature of Affiant
_____	_____
Address	Printed Name, Title

_____

_____

_____

_____

Date

SUBMIT AS A .PDF FILE WITH TO RESPONSE

ATTACHMENT 2 – MINORITY BUSINESS ENTERPRISE FORMS

FORM D – 2

MINORITY BUSINESS ENTERPRISE PARTICIPATION SCHEDULE

This document shall be included with the submittal of the TO Proposal. If the Offeror fails to submit this form with the TO Proposal, the TO Procurement Officer shall determine that the TO Proposal is not reasonably susceptible of being selected for award.

TO Prime Contractor (Firm Name, Address, Phone)	Task Order Description
Task Order Agreement Number F50B3400031	
List Information For Each Certified MBE Subcontractor On This Project	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	

USE ATTACHMENT D-2 CONTINUATION PAGE AS NEEDED

SUMMARY

TOTAL MBE PARTICIPATION: _____ %
TOTAL WOMAN-OWNED MBE PARTICIPATION: _____ %
TOTAL AFRICAN AMERICAN-OWNED MBE PARTICIPATION: _____ %

Document Prepared By: (please print or type)

Name:_____ Title:_____

SUBMIT AS A .PDF FILE WITH TO RESPONSE

ATTACHMENT 2 – MINORITY BUSINESS ENTERPRISE FORMS

FORM D – 2

MINORITY BUSINESS ENTERPRISE PARTICIPATION SCHEDULE (CONTINUED)

List Information For Each Certified MBE Subcontractor On This Project	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/SIC	
Percentage of Total Contract	

ATTACHMENT 2 – MINORITY BUSINESS ENTERPRISE FORMS

FORM D – 3

OUTREACH EFFORTS COMPLIANCE STATEMENT

In conjunction with the bid or offer submitted in response to TORFP #F50B3400031, I state the following:

1. Offeror identified opportunities to subcontract in these specific work categories:

2. Attached to this form are copies of written solicitations (with bidding instructions) used to solicit certified MBEs for these subcontract opportunities.

3. Offeror made the following attempts to contact personally the solicited MBEs:

4. ☐ Offeror assisted MBEs to fulfill or to seek waiver of bonding requirements.

   (DESCRIBE EFFORTS)

   ☐ This project does not involve bonding requirements.

5. ☐ Offeror did/did not attend the pre-proposal conference

   ☐ No pre-proposal conference was held.

_____	By:	_____
Offeror Name		Name
_____		_____
Address		Title
		_____
		Date

SUBMIT WITHIN 10 WORKING DAYS OF RECEIVING NOTICE OF THE POTENTIAL AWARD

ATTACHMENT 2 – MINORITY BUSINESS ENTERPRISE FORMS

FORM D – 4

SUBCONTRACTOR PROJECT PARTICIPATION STATEMENT

SUBMIT ONE FORM FOR EACH CERTIFIED MBE LISTED IN THE MBE PARTICIPATION SCHEDULE

Provided that _____ is awarded the TO Agreement in
(Prime TO Contractor Name)

conjunction with TORFP No. F50B3400031, it and _____,
(Subcontractor Name)

MDOT Certification No. _____, intend to enter into a contract by which the subcontractor shall:

(Describe work to be performed by MBE):

_____

_____

_____

_____

_____

☐ No bonds are required of Subcontractor

☐ The following amount and type of bonds are required of Subcontractor:

By:	By:
_____	_____
Prime Contractor Signature	Subcontractor Signature
_____	_____
Name	Name
_____	_____
Title	Title
_____	_____
Date	Date

SUBMIT WITHIN 10 WORKING DAYS OF RECEIVING NOTICE OF THE POTENTIAL AWARD

ATTACHMENT 2 – MINORITY BUSINESS ENTERPRISE FORMS

FORM D – 5

MINORITY BUSINESS ENTERPRISE PARTICIPATION TO CONTRACTOR PAID/UNPAID INVOICE REPORT

Report #: _____ Reporting Period (Month/Year): _____ **Report is due by the 15th of the following month.**	CATS II TORFP #F50B3400031 Contracting Unit _____ Contract Amount_____ MBE Sub Contract Amt_____ Contract Begin Date_____ Contract End Date_____ Services Provided_____

Prime TO Contractor:	Contact Person:	
Address:		
City:	State:	ZIP:
Phone:	FAX:	
Subcontractor Name:	Contact Person:	
Phone:	FAX:	
Subcontractor Services Provided:		
List all unpaid invoices over 30 days old received from the MBE subcontractor named above: **1.** **2.** **3.** **Total Dollars Unpaid: $_____**		

**If more than one MBE subcontractor is used for this contract, please use separate forms.

Return one copy of this form to the following address:

MBE Officer Department of Information Technology Procurement Unit 45 Calvert Street, 4th Floor Annapolis, MD 21401 DoIT.MBE@DoIT.state.md.us	

Signature:_____ Date:_____

SUBMIT AS REQUIRED IN TO CONTRACTOR MBE REPORTING REQUIREMENTS

ATTACHMENT 2 – MINORITY BUSINESS ENTERPRISE FORMS

FORM D – 6

MINORITY BUSINESS ENTERPRISE PARTICIPATION SUBCONTRACTOR PAID/UNPAID INVOICE REPORT

Report #: _____ Reporting Period (Month/Year): __/_____ **Report Due By the 15th of the following Month.**	CATS II TORFP #F50B3400031 Contracting Unit _____ Contract Amount_____ MBE Sub Contract Amt_____ Contract Begin Date_____ Contract End Date_____ Services Provided_____

MBE Subcontractor Name:		
MDOT Certification #:		
Contact Person:		
Address:		
City:	State:	ZIP:
Phone:	FAX:	
Subcontractor Services Provided:		

List all payments received from Prime TO Contractor during reporting period indicated above. **1.** **2.** **3.** **Total Dollars Paid: $_____**	**List dates and amounts of any unpaid invoices over 30 days old.** **1.** **2.** **3.** **Total Dollars Unpaid: $_____**
Prime TO Contractor:	Contact Person:

Return one copy of this form to the following address:

MBE Officer Department of Information Technology Procurement Unit 45 Calvert Street, 4th Floor Annapolis, MD 21401 DoIT.MBE@maryland.gov	

Signature:_____ Date:_____

SUBMIT AS REQUIRED IN TO CONTRACTOR MBE REPORTING REQUIREMENTS

ATTACHMENT 3 – TASK ORDER AGREEMENT

CATS II TORFP# F50B3400031 OF MASTER CONTRACT #060B9800035

This Task Order Agreement ("TO Agreement") is made this day of Month, 2011 by and between Task Order Contractor (TO Contractor) and the STATE OF MARYLAND, Department of Information Technology..

IN CONSIDERATION of the mutual premises and the covenants herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Definitions. In this TO Agreement, the following words have the meanings indicated:
    a. "Agency" means the Department of Information Technology, as identified in the CATS II TORFP #F50B3400031.
    b. "CATS II TORFP" means the Task Order Request for Proposals #F50B3400031, dated XXXXX XX, 2011 including any addenda.
    c. "Master Contract" means the CATS II Master Contract between the Maryland Department of Information Technology and TO Contractor dated June 1, 2009.
    d. "TO Procurement Officer" means Denis McElligott. The Agency may change the TO Procurement Officer at any time by written notice to the TO Contractor.
    e. "TO Agreement" means this signed TO Agreement between Department of Information Technology and TO Contractor.
    f. "TO Contractor" means the CATS II Master Contractor awarded this TO Agreement, whose principal business address is _____.
    g. "TO Manager" means Ed Macon of the Agency. The Agency may change the TO Manager at any time by written notice to the TO Contractor.
    h. "TO Proposal - Technical" means the TO Contractor's technical response to the CATS II TORFP dated date of TO Proposal – Technical.
    i. "TO Proposal – Financial" means the TO Contractor's financial response to the CATS II TORFP dated date of TO Proposal - Financial.
    j. "TO Proposal" collectively refers to the TO Proposal – Technical and TO Proposal – Financial.

2. Scope of Work

2.1 This TO Agreement incorporates all of the terms and conditions of the Master Contract and shall not in any way amend, conflict with or supersede the Master Contract.

2.2 The TO Contractor shall, in full satisfaction of the specific requirements of this TO Agreement, provide the services set forth in Section 2 of the CATS II TORFP. These services shall be provided in accordance with the Master Contract, this TO Agreement, and the following Exhibits, which are attached and incorporated herein by reference. If there is any conflict among the Master Contract, this TO Agreement, and these Exhibits, the terms of the Master Contract shall govern. If there is any conflict between this TO Agreement and any of these Exhibits, the following order of precedence shall determine the prevailing provision:
    a. The TO Agreement,
    b. Exhibit A – CATS II TORFP
    c. Exhibit B – TO Proposal-Technical
    d. Exhibit C – TO Proposal-Financial

2.3 The TO Procurement Officer may, at any time, by written order, make changes in the work within the general scope of the TO Agreement. No other order, statement or conduct of the TO Procurement Officer or any other person shall be treated as a change or entitle the TO Contractor to an equitable adjustment under this Section. Except as otherwise provided in this TO Agreement, if any change under this Section causes an increase or decrease in the TO Contractor's cost of, or the time required for, the performance of any part of the work, whether or not changed by the order, an equitable adjustment in the TO Agreement price shall be made and the TO Agreement modified in writing accordingly. The TO Contractor must assert in writing its right to an adjustment under this Section within thirty (30) days of receipt of written change order and shall include a written statement setting forth the nature and cost of such claim. No claim by the TO Contractor shall be allowed if asserted after final payment under this TO Agreement. Failure to agree to an adjustment under this Section shall be a dispute under the Disputes clause of the Master Contract. Nothing in this Section shall excuse the TO Contractor from proceeding with the TO Agreement as changed.

3. Time for Performance

Unless terminated earlier as provided in the Master Contract, the TO Contractor shall provide the services described in the TO Proposal and in accordance with the CATS II TORFP on receipt of a Notice to Proceed from the TO Manager. The term of this TO Agreement is for a period of 80 days, commencing on the date of Notice to Proceed terminating on Month Day, Year.

4. Consideration and Payment

4.1 The consideration to be paid the TO Contractor shall be done so in accordance with the CATS II TORFP and shall not exceed total amount (BID AMOUNT) of task order. Any work performed by the TO Contractor in excess of the not-to-exceed ceiling amount of the TO Agreement without the prior written approval of the TO Manager is at the TO Contractor's risk of non-payment.

4.2 Payments to the TO Contractor shall be made as outlined Section 2 of the CATS II TORFP, but no later than thirty (30) days after the Agency's receipt of a proper invoice for services provided by the TO Contractor, acceptance by the Agency of services provided by the TO Contractor, and pursuant to the conditions outlined in Section 4 of this Agreement.

4.3 Each invoice for services rendered must include the TO Contractor's Federal Tax Identification Number which is_____. Charges for late payment of invoices other than as prescribed by Title 15, Subtitle 1, of the State Finance and Procurement Article, Annotated Code of Maryland, as from time-to-time amended, are prohibited. Invoices must be submitted to the Agency TO Manager unless otherwise specified herein.

4.4 In addition to any other available remedies, if, in the opinion of the TO Procurement Officer, the TO Contractor fails to perform in a satisfactory and timely manner, the TO Procurement Officer may refuse or limit approval of any invoice for payment, and may cause payments to the TO Contractor to be reduced or withheld until such time as the TO Contractor meets performance standards as established by the TO Procurement Officer.

IN WITNESS THEREOF, the parties have executed this TO Agreement as of the date hereinabove set forth.

TO Contractor Name

_____ _____

By: Type or Print TO Contractor POC Date

Witness: _____

STATE OF MARYLAND, Department of Information Technology

_____ _____

By: Denis McElligott, TO Procurement Officer Date

Witness: _____

ATTACHMENT 4 – CONFLICT OF INTEREST AFFIDAVIT AND DISCLOSURE

A) "Conflict of interest" means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the State, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.

B) "Person" has the meaning stated in COMAR 21.01.02.01B(64) and includes a bidder, Offeror, Contractor, consultant, or subcontractor or subconsultant at any tier, and also includes an employee or agent of any of them if the employee or agent has or will have the authority to control or supervise all or a portion of the work for which a bid or offer is made.

C) The bidder or Offeror warrants that, except as disclosed in §D, below, there are no relevant facts or circumstances now giving rise or which could, in the future, give rise to a conflict of interest.

D) The following facts or circumstances give rise or could in the future give rise to a conflict of interest (explain in detail—attach additional sheets if necessary):

E) The bidder or Offeror agrees that if an actual or potential conflict of interest arises after the date of this affidavit, the bidder or Offeror shall immediately make a full disclosure in writing to the procurement officer of all relevant facts and circumstances. This disclosure shall include a description of actions which the bidder or Offeror has taken and proposes to take to avoid, mitigate, or neutralize the actual or potential conflict of interest. If the contract has been awarded and performance of the contract has begun, the Contractor shall continue performance until notified by the procurement officer of any contrary action to be taken.

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THIS AFFIDAVIT ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

Date:_____ By:_____

(Authorized Representative and Affiant)

SUBMIT AS A .PDF FILE WITH TO RESPONSE

ATTACHMENT 5 – TECHNICAL SPECIFICATIONS

PROVIDED AS A SEPARATE DOCUMENT

ATTACHMENT 6 – DIRECTIONS

TO THE PRE-TO PROPOSAL CONFERENCE

The Pre-proposal Conference will be held on Wednesday, 28th of November at 11:00 AM at Rear of 45350 Happyland Rd., Valley Lee, St. Mary's County, MD.

ATTACHMENT 7 – NON-DISCLOSURE AGREEMENT (OFFEROR)

This Non- Disclosure Agreement (the "Agreement") is made this ___ day of _____ 201_, by and between _____ (hereinafter referred to as "the OFFEROR ") and the State of Maryland (hereinafter referred to as " the State").

OFFEROR warrants and represents that it intends to submit a TO Proposal in response to CATS II TORFP #F50B3400031 for Valley Lee Communications Tower Construction. In order for the OFFEROR to submit a TO Proposal, it will be necessary for the State to provide the OFFEROR with access to certain confidential information including, but not limited, to _____. All such information provided by the State shall be considered Confidential Information regardless of the form, format, or media upon which or in which such information is contained or provided, regardless of whether it is oral, written, electronic, or any other form, and regardless of whether the information is marked as "Confidential Information". As a condition for its receipt and access to the Confidential Information described in Section 1.7 of the TORFP, OFFEROR agrees as follows:

1. OFFEROR will not copy, disclose, publish, release, transfer, disseminate or use for any purpose in any form any Confidential Information received under Section 1.7, except in connection with the preparation of its TO Proposal.
2. Each employee or agent of the OFFEROR who receives or has access to the Confidential Information shall execute a copy of this Agreement and the OFFEROR shall provide originals of such executed Agreements to the State. Each employee or agent of the OFFEROR who signs this Agreement shall be subject to the same terms, conditions, requirements and liabilities set forth herein that are applicable to the OFFEROR.
3. OFFEROR shall return the Confidential Information to the State within five business days of the State's Notice of recommended award. If the OFFEROR does not submit a Proposal, the OFFEROR shall return the Confidential Information to Denis McElligott, DoIT on or before the due date for Proposals.
4. OFFEROR acknowledges that the disclosure of the Confidential Information may cause irreparable harm to the State and agrees that the State may obtain an injunction to prevent the disclosure, copying, or other impermissible use of the Confidential Information. The State's rights and remedies hereunder are cumulative and the State expressly reserves any and all rights, remedies, claims and actions that it may have now or in the future to protect the Confidential Information and/or to seek damages for the OFFEROR'S failure to comply with the requirements of this Agreement. The OFFEROR consents to personal jurisdiction in the Maryland State Courts.
5. In the event the State suffers any losses, damages, liabilities, expenses, or costs (including, by way of example only, attorneys' fees and disbursements) that are attributable, in whole or in part to any failure by the OFFEROR or any employee or agent of the OFFEROR to comply with the requirements of this Agreement, OFFEROR and such employees and agents of OFFEROR shall hold harmless and indemnify the State from and against any such losses, damages, liabilities, expenses, and/or costs.
6. This Agreement shall be governed by the laws of the State of Maryland.
7. OFFEROR acknowledges that pursuant to Section 11-205.1 of the State Finance and Procurement Article of the Annotated Code of Maryland, a person may not willfully make a false or fraudulent statement or representation of a material fact in connection with a procurement contract. Persons making such statements are guilty of a felony and on conviction subject to a fine of not more than $20,000 and/or imprisonment not exceeding 5 years or both. OFFEROR further acknowledges that this Agreement is a statement made in connection with a procurement contract.
8. The individual signing below warrants and represents that they are fully authorized to bind the OFFEROR to the terms and conditions specified in this Agreement. If signed below by an individual employee or agent of the OFFEROR under Section 2 of this Agreement, such individual acknowledges that a failure to comply with the requirements specified in this Agreement may result in personal liability.

OFFEROR: _____ BY: _____

NAME: _____ TITLE: _____

ADDRESS:_____

SUBMIT AS REQUIRED IN SECTION 1.7 OF THE TORFP

ATTACHMENT 8 – NON-DISCLOSURE AGREEMENT (TO CONTRACTOR)

THIS NON-DISCLOSURE AGREEMENT ("Agreement") is made as of this ___ day of _____, 201__, by and between the State of Maryland ("the State"), acting by and through its DoIT (the "Department"), and _____ ("TO Contractor"), a corporation with its principal business office located at _____ and its principal office in Maryland located at _____.

RECITALS

WHEREAS, the TO Contractor has been awarded a Task Order Agreement (the "TO Agreement") for Valley Lee Communications Tower Construction TORFP No. F50B3400031 dated release date for TORFP, (the "TORFP) issued under the Consulting and Technical Services procurement issued by the Department, Project Number 060B9800035; and

WHEREAS, in order for the TO Contractor to perform the work required under the TO Agreement, it will be necessary for the State to provide the TO Contractor and the TO Contractor's employees and agents (collectively the "TO Contractor's Personnel") with access to certain confidential information regarding _____ (the "Confidential Information").

NOW, THEREFORE, in consideration of being given access to the Confidential Information in connection with the TORFP and the TO Agreement, and for other good and valuable consideration, the receipt and sufficiency of which the parties acknowledge, the parties do hereby agree as follows:

1. Confidential Information means any and all information provided by or made available by the State to the TO Contractor in connection with the TO Agreement, regardless of the form, format, or media on or in which the Confidential Information is provided and regardless of whether any such Confidential Information is marked as such. Confidential Information includes, by way of example only, information that the TO Contractor views, takes notes from, copies (if the State agrees in writing to permit copying), possesses or is otherwise provided access to and use of by the State in relation to the TO Agreement.

2. TO Contractor shall not, without the State's prior written consent, copy, disclose, publish, release, transfer, disseminate, use, or allow access for any purpose or in any form, any Confidential Information provided by the State except for the sole and exclusive purpose of performing under the TO Agreement. TO Contractor shall limit access to the Confidential Information to the TO Contractor's Personnel who have a demonstrable need to know such Confidential Information in order to perform under the TO Agreement and who have agreed in writing to be bound by the disclosure and use limitations pertaining to the Confidential Information. The names of the TO Contractor's Personnel are attached hereto and made a part hereof as Exhibit A. Each individual whose name appears on Exhibit A shall execute a copy of this Agreement and thereby be subject to the terms and conditions of this Agreement to the same extent as the TO Contractor. TO Contractor shall update Exhibit A by adding additional names as needed, from time to time.

3. If the TO Contractor intends to disseminate any portion of the Confidential Information to non-employee agents who are assisting in the TO Contractor's performance of the TORFP or who will otherwise have a role in performing any aspect of the TORFP, the TO Contractor shall first obtain the written consent of the State to any such dissemination. The State may grant, deny, or condition any such consent, as it may deem appropriate in its sole and absolute subjective discretion.

4. TO Contractor hereby agrees to hold the Confidential Information in trust and in strictest confidence, to adopt or establish operating procedures and physical security measures, and to take all other measures necessary to protect the Confidential Information from inadvertent release or disclosure to unauthorized third parties and to prevent all or any portion of the Confidential Information from falling into the public domain or into the possession of persons not bound to maintain the confidentiality of the Confidential Information.

5. TO Contractor shall promptly advise the State in writing if it learns of any unauthorized use, misappropriation, or disclosure of the Confidential Information by any of the TO Contractor's Personnel or the TO Contractor's former Personnel. TO Contractor shall, at its own expense, cooperate with the State in seeking injunctive or other equitable relief against any such person(s).

6. TO Contractor shall, at its own expense, return to the Department, all copies of the Confidential Information in its care, custody, control or possession upon request of the Department or on termination of the TO Agreement.

7. A breach of this Agreement by the TO Contractor or by the TO Contractor's Personnel shall constitute a breach of the TO Agreement between the TO Contractor and the State.

8. TO Contractor acknowledges that any failure by the TO Contractor or the TO Contractor's Personnel to abide by the terms and conditions of use of the Confidential Information may cause irreparable harm to the State and that monetary damages may be inadequate to compensate the State for such breach. Accordingly, the TO Contractor agrees that the State may obtain an injunction to prevent the disclosure, copying or improper use of the Confidential Information. The TO Contractor consents to personal jurisdiction in the Maryland State Courts. The State's rights and remedies hereunder are cumulative and the State expressly reserves any and all rights, remedies, claims and actions that it may have now or in the future to protect the Confidential Information and/or to seek damages from the TO Contractor and the TO Contractor's Personnel for a failure to comply with the requirements of this Agreement. In the event the State suffers any losses, damages, liabilities, expenses, or costs (including, by way of example only, attorneys' fees and disbursements) that are attributable, in whole or in part to any failure by the TO Contractor or any of the TO Contractor's Personnel to comply with the requirements of this Agreement, the TO Contractor shall hold harmless and indemnify the State from and against any such losses, damages, liabilities, expenses, and/or costs.
9. TO Contractor and each of the TO Contractor's Personnel who receive or have access to any Confidential Information shall execute a copy of an agreement substantially similar to this Agreement and the TO Contractor shall provide originals of such executed Agreements to the State.
10. The parties further agree that:
    a. This Agreement shall be governed by the laws of the State of Maryland;
    b. The rights and obligations of the TO Contractor under this Agreement may not be assigned or delegated, by operation of law or otherwise, without the prior written consent of the State;
    c. The State makes no representations or warranties as to the accuracy or completeness of any Confidential Information;
    d. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement;
    e. Signatures exchanged by facsimile are effective for all purposes hereunder to the same extent as original signatures; and
    f. The Recitals are not merely prefatory but are an integral part hereof.

TO Contractor/TO Contractor's Personnel:	**Department of Information Technology:**
Name:_____	Name: _____
Title:_____	Title:_____
Date: _____	Date: _____

EXHIBIT A

TO CONTRACTOR'S EMPLOYEES AND AGENTS WHO WILL BE GIVEN ACCESS TO THE CONFIDENTIAL INFORMATION

Printed Name and Address of Employee or Agent	Signature	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

SUBMIT AS REQUIRED IN SECTION 1.7 OF THE TORFP

ATTACHMENT 9 – TO CONTRACTOR SELF-REPORTING CHECKLIST

The purpose of this checklist is for CATS II Master Contractors to self-report on adherence to procedures for task orders (TO) awarded under the CATS II master contract. Requirements for TO management can be found in the CATS II master contract RFP and at the TORFP level. The Master Contractor is requested to complete and return this form by the ***Checklist Due Date*** *below. Master Contractors may attach supporting documentation as needed. Please send the completed checklist and direct any related questions to contractoversight@doit.state.md.us with the TO number in the subject line.*

Master Contractor:	
Master Contractor Contact / Phone:	
Procuring State Agency Name:	
TO Title:	
TO Number:	
TO Type (Fixed Price, T&M, or Both):	
Checklist Issue Date:	
Checklist Due Date:	

Section 1 – Task Orders with Invoices Linked to Deliverables

A) Was the original TORFP (Task Order Request for Proposals) structured to link invoice payments to distinct deliverables with specific acceptance criteria?

Yes ☐ **No** ☐ **(If no, skip to Section 2.)**

B) Do TO invoices match corresponding deliverable prices shown in the accepted Financial Proposal?

Yes ☐ **No** ☐ **(If no, explain why)** _____

C) Is the deliverable acceptance process being adhered to as defined in the TORFP?

Yes ☐ **No** ☐ **(If no, explain why)** _____

Section 2 – Task Orders with Invoices Linked to Time, Labor Rates and Materials

A) If the TO involves material costs, are material costs passed to the agency without markup by the Master Contractor?

Yes ☐ **No** ☐ **(If no, explain why)** _____

B) Are labor rates the same or less than the rates proposed in the accepted Financial Proposal?

Yes ☐ **No** ☐ **(If no, explain why)** _____

C) Is the Master Contractor providing timesheets or other appropriate documentation to support invoices?

Yes ☐ **No** ☐ **(If no, explain why)** _____

Section 3 – Substitution of Personnel

A) Has there been any substitution of personnel?

Yes ☐ **No** ☐ **(If no, skip to Section 4.)**

B) Did the Master Contractor request each personnel substitution in writing?

Yes ☐ **No** ☐ **(If no, explain why)** _____

C) Does each accepted substitution possess equivalent or better education, experience and qualifications than incumbent personnel?

Yes ☐ **No** ☐ **(If no, explain why)** _____

D) Was the substitute approved by the agency in writing?

Yes ☐ **No** ☐ **(If no, explain why)** _____

Section 4 – MBE Participation

A) What is the MBE goal as a percentage of the TO value? **(If there is no MBE goal, skip to Section 5)**

%

B) Are MBE reports D-5 and D-6 submitted monthly?

Yes ☐ **No** ☐ **(If no, explain why)** _____

C) What is the actual MBE percentage to date? (divide the dollar amount paid to date to the MBE by the total amount paid to date on the TO)

%

(Example - $3,000 was paid to date to the MBE sub-contractor; $10,000 was paid to date on the TO; the MBE percentage is 30% (3,000 ÷ 10,000 = 0.30))

D) Is this consistent with the planned MBE percentage at this stage of the project?

Yes ☐ **No** ☐ **(If no, explain why)** _____

E) Has the Master Contractor expressed difficulty with meeting the MBE goal?

Yes ☐ **No** ☐

(If yes, explain the circumstances and any planned corrective actions)

_____

Section 5 – TO Change Management

A) Is there a written change management procedure applicable to this TO?

Yes ☐ **No** ☐ **(If no, explain why)** _____

B) Does the change management procedure include the following?

Yes ☐ **No** ☐ Sections for change description, justification, and sign-off

Yes ☐ **No** ☐ Sections for impact on cost, scope, schedule, risk and quality (i.e., the impact of change on satisfying TO requirements)

Yes ☐ **No** ☐ A formal group charged with reviewing / approving / declining changes (e.g., change control board, steering committee, or management team)

C) Have any change orders been executed?

Yes ☐ **No** ☐

(If yes, explain expected or actual impact on TO cost, scope, schedule, risk and quality)

_____

D) Is the change management procedure being followed?

Yes ☐ **No** ☐ **(If no, explain why)** _____

ATTACHMENT 10 – LIVING WAGE AFFIDAVIT OF AGREEMENT

Contract No. _____

Name of Contractor _____

Address_____

City_____ State_____ Zip Code_____

If the Contract is Exempt from the Living Wage Law

The Undersigned, being an authorized representative of the above named Contractor, hereby affirms that the Contract is exempt from Maryland's Living Wage Law for the following reasons: (check all that apply)

__ Bidder/Offeror is a nonprofit organization

__ Bidder/Offeror is a public service company

__ Bidder/Offeror employs 10 or fewer employees and the proposed contract value is less than $500,000

__ Bidder/Offeror employs more than 10 employees and the proposed contract value is less than $100,000

If the Contract is a Living Wage Contract

A. The Undersigned, being an authorized representative of the above named Contractor, hereby affirms our commitment to comply with Title 18, State Finance and Procurement Article, Annotated Code of Maryland and, if required, to submit all payroll reports to the Commissioner of Labor and Industry with regard to the above stated contract. The Bidder/Offeror agrees to pay covered employees who are subject to living wage at least the living wage rate in effect at the time service is provided for hours spent on State contract activities, and to ensure that its Subcontractors who are not exempt also pay the required living wage rate to their covered employees who are subject to the living wage for hours spent on a State contract for services. The Contractor agrees to comply with, and ensure its Subcontractors comply with, the rate requirements during the initial term of the contract and all subsequent renewal periods, including any increases in the wage rate established by the Commissioner of Labor and Industry, automatically upon the effective date of the revised wage rate.

B. _____(initial here if applicable) The Bidder/Offeror affirms it has no covered employees for the following reasons (check all that apply):

__ All employee(s) proposed to work on the State contract will spend less than one-half of the employee's time during every work week on the State contract;

__ All employee(s) proposed to work on the State contract will be 17 years of age or younger during the duration of the State contract; or

__ All employee(s) proposed to work on the State contract will work less than 13 consecutive weeks on the State contract.

The Commissioner of Labor and Industry reserves the right to request payroll records and other data that the Commissioner deems sufficient to confirm these affirmations at any time.

Name of Authorized Representative: _____

Signature of Authorized Representative: _____

Date: _____ Title: _____

Witness Name (Typed or Printed): _____

Witness Signature & Date: _____

LIST OF ATTACHMENTS INCLUDED AS SEPARATE DOCUMENTS

ATTACHMENT 1 – FINANCIAL PROPOSAL

ATTACHMENT 5 – TECHNICAL SPECIFICATIONS

ATTACHMENT 11 – FOUNDATION INSPECTION SCOPE OF WORK

ATTACHMENT 12 – CONSTRUCTION SCHEDULE

ATTACHMENT 13 – PAYMENT BOND

ATTACHMENT 14 – PERFORMANCE BOND

ATTACHMENT 15 – PROPOSAL BOND

ATTACHMENT 16 – TYPICAL 330’ TOWER LOADING PLAN

ATTACHMENT 17 – TYPICAL SHELTER WITH GENERATOR

ATTACHMENT 17A – TYPICAL SHELTER WITHOUT GENERATOR

ATTACHMENT 18 – TOWER LAYOUT

ATTACHMENT 19 – PREVAILING WAGE RATES

ATTACHMENT 20 – 240VAC OUTLET POSITION

ATTACHMENT 21– GEOTECH

ATTACHMENT 22A-F - CONSTRUCTION DRAWINGS

ATTACHMENT 24 – CLOSE OUT PROCESS

STATE OF MARYLAND
DEPARTMENT OF INFORMATION TECHNOLOGY

TORFP #: F50B3400031

Site: Valley Lee Communications Tower

#	Project Line Item	Price
A	**Site Preparation Work**	
1	Survey and mark the Limits of Disturbance (LOD) in accordance with the attached construction drawings.	
2	Clearing and grading.	
3	Furnish and install sediment and erosion control systems and all storm water management features in accordance with the attached drawings.	
4	Furnish and install a stabilized construction entrance and site access road in accordance with the construction drawings.	
5	Construct the tower foundation per tower manufacturer's specifications.	
6	Construct two (2) 12x38ft. equipment shelter foundations.	
7	Construct one (1) 4x20ft. Concrete foundation for one (1) 1,000 gallon LP fuel tank.	
8	Install tower and shelter ground rings per the latest version of Motorola R56 installation standards.	
9	Upon completion of tower, shelter and site improvements, the TO Contractor will furnish and install surface materials in accordance with Attachments # 22 A-F Construction Drawings. TO Contractor shall restore all areas of grass or existing pavement which have been disturbed during construction.	
10	Install an eight (8) ft. high-galvanized chain link fence with two (2) feet of barbed wire on top, with a twenty (20) ft. wide, double leaf vehicle gate; and two (2) five (5) foot man gates around the site (includes tower, equipment shelter and additional shelter foundation) as shown on Attachments #22 A-F Construction Drawings.	
B	**Installation**	
11	Purchase and delivery of one (1) fully functional, 330 ft. above ground level, three (3) legged, solid legged, heavy duty, self-supporting, two-way microwave radio tower.	
12	Tower Erection	
13	Purchase and install tower lighting equipment on the 330 ft. tower (Total finished height of the tower including all appurtenances will be 348 ft.) as per FAA Advisory Circular AC70/7460-1-G or latest revision.	

14	Purchase and installation of one (1) 12x38x10 ft. concrete equipment shelter (height is inside dimension) with a 75kW generator.	
15	Purchase and installation of one (1) 12x38x10 ft. concrete equipment shelter without generator.	
16	Purchase and installation of one (1) new 1,000 gallon LP fuel tank with hookup to the generator and shall include first LP fill-up.	
17	Purchase and install two (2) extruded metal, 24-inch wide, no cantilever ice-bridges.	
18	Purchase and installation, per local utility standard, of an electrical backboard of steel post and unistrut construction to include CT cabinet if required, wire trough, main disconnect, at least one (1) electric company approved meter socket with room to accommodate a minimum of three (3) additional meters.	
19	Purchase and installation of conduits per specifications.	
20	Purchase and connection of electrical wiring.	
21	Supply 6” dia. bollards as needed in order to protect the propane fuel tank from possible damage caused by vehicles.	
	Total Evaluated Price:	

Submitted by:

Authorized Signature	**Title**
Printed Name of Authorized Signature	**Federal Employer Number**
Company	**Date**
Phone #	**Address**

SUBMIT COMPLETED DOCUMENT AS A PDF WITH SIGNATURE

ATTACHMENT 5
TECHNICAL SPECIFICATIONS
TORFP WORK# F50B3400031

1. Summary

This task order is for the purchase and turnkey installation of one (1) 330-foot self-supporting tower, two (2) 12x38 ft concrete foundations, two (2) 12x38x10-foot equipment shelters one (1)with a 75kW backup generator and one (1) 12x38x10-foot equipment shelter without generator, one (1) 1000 gallon propane tank for the County of St. Mary's at the following location:

VALLEY LEE COMMUNICATIONS TOWER
Rear of 45350 Happyland Rd.
Valley Lee, MD
Grid Coordinates: Latitude: N38-12-32.00, Longitude: W76-30-22.00

The TO Contractor shall comply with all applicable sections of the MD State Highway Administration Standards of Construction Specifications for Construction and Materials, July 2008 (Grey Book).

TO Contractors will only use approved tower and shelter designs. The following manufacturers have preapproved designs:

Nello Towers www.nelloinc.com
Tower Innovations www.towerinnovations.net
Sabre Towers www.sabreindustriesinc.com
Valmont www.Valmont.com

Cellxion www.cellxion.com
Fibrebond www.fibrebond.com
Mobile Modular www.mobilemodular.com

2. TORFP Specifications

The TO Contractor shall provide all coordination, functions, labor, materials, insurance and purchase items required to install a fully functional microwave and wireless communications site in accordance with the following specifications:

A. Site Preparation Work

1. Locating of any buried electrical and/or telephone cables on all of the property affected by the tower site construction and installation of electrical and communications conduits.

2. The TO Contractor shall follow the approved sequence of constructions as shown in the attached construction drawings. Any deviations must be approved by the County or MDE, as required.

3. TO Contractors may use subcontractors who have experience in civil / site work, Erosion and Sediment Control (E&S) implementation and Storm Water Management (SWM) and Storm Drain (SD) construction, etc in the context of SHA projects and meeting MD Dept of the Environment requirements. TO Contractors without green and yellow cards must use approved subcontractors to install and maintain soil and erosion controls who do have these certificates.

4. TO Contractor shall if applicable coordinate and meet with County or MDE environmental inspectors to obtain and ensure compliance with permits and regulations for maintaining sediment and erosion control. This will be done at least 7 days prior to any construction.

5. The TO Contractor will maintain an A or B rating for the E&S controls for the duration of the project. Grades of C, D or F may result in liquidated damages.

6. The TO Contractor will survey and mark the Limits of Disturbance (LOD) in accordance with the attached construction drawings.

7. The TO Contractor shall furnish and install sediment and erosion control systems and **all** storm water management features in accordance with the attached drawings. Sediment and erosion control systems may include but are not limited to: silt fencing, silt stakes, hay bales, etc. Disposition of any spoils shall be conducted in accordance with the most current version of Maryland Dept of the Environment (MDE) policy. Details are provided in Attachments #22 A-F Construction Drawings. Deviations from the drawings require County or MDE approval as appropriate. **A watertight container will be placed on site to contain up to and including the following: Approved Construction drawings, daily completed SWM/ES inspection logs, all applicable permits for construction, and copies of all materials related to the construction of the site (i.e., concrete delivery tickets, stone delivery tickets, MDI, etc.). The container must be placed in a conspicuous location on the site.** The site will be subject to random and scheduled inspections. Sites left dormant will be stabilized prior to departure in accordance with County or MDE standards as appropriate. Sites are subject to

inspection even during dormant periods. Maintenance of all E&S measures are required until approval is granted to remove each feature. One individual, designated by the TO Contractor, will be responsible for the supervision of all E&S controls and issues. This individual shall have a current green and yellow card.

8. The TO Contractor shall furnish and install a stabilized construction entrance and site access road in accordance with the construction drawings. Near completion of the site improvements the stabilized construction entrance will be restored to match the grade of the existing access road in accordance with the construction drawings

9. All concrete supplied shall originate from a State certified / SHA approved plant. Supplied concrete shall meet SHA, tower designer specifications and comply with Section 902 of the Grey Book. TO Contractors shall use a SHA approved concrete mix that complies with the tower and shelter foundation designers' specifications.

10. Construct the tower foundation per tower manufacturer's specifications.

11. Construct two (2) 12x38ft. equipment shelter foundations. The foundation design shall be approved by the shelter manufacturer. At a minimum its footers will extend at least 6 IN below the local frost line. The supply and installation of the equipment shelter foundation shall include: the construction of each concrete foundation shall contain an integrated continuous stoop for the doors, designed to support a 12x38x10ft. concrete equipment shelter (height is inside dimension).

12. Construct one (1) 4x20ft. Concrete foundation for one (1) 1,000 gallon LP fuel tank. The foundation will be constructed on compacted dirt and no less than 3 IN of 57 stone. The foundation will be at least six inches above final grade and be reinforced with rebar or 6x6 metal mesh.

13. Install tower and shelter ground rings per the latest version of Motorola R56 installation standards. This will include at least two test wells. Test wells shall not interfere with vehicular traffic. Locations will be verified by the Project Manager

14. Upon completion of tower, shelter and site improvements, the TO Contractor will furnish and install surface materials in accordance with Attachments # 22 A-F Construction Drawings. TO Contractor shall restore all areas of grass or existing pavement which have been disturbed during construction.

15. The TO Contractor shall install an eight (8) ft. high-galvanized chain link fence with two (2) feet of barbed wire on top, with a twenty (20) ft. wide, double leaf vehicle gate; and two (2) five (5) foot man gates around the site

(includes tower, equipment shelter and additional shelter foundation) as shown on Attachments #22 A-F Construction Drawings. The fence materials will be bonded/grounded in accordance with the latest version of R56. The TO Contractor shall utilize sufficiently sized insulated copper wire to bond the fence fabric and barbed wire. The insulation will be UV rated and black or grey in color. If the copper is not tinned, anti-oxidation compound will be furnished for any mechanical connections. The TO Contractor shall provide chains and combination style commercial grade padlocks for the security and man gates. The State Project Manager shall be given the combination and shall control access to the site.

B. Tower Specifications

1. The tower shall be a solid steel leg constructed, self-supporting, 330-ft tower. The tower shall be constructed of high-strength steel. All components and hardware are to be hot-dip galvanized with a zinc coating (per EIA standards) after fabrication. A zinc coating shall be permanently fused to the steel, so all surfaces are protected and no painting is required for rust protection. Upon delivery, the tower shall be subject to approval by the State Project Manager.

2. Exact placement of the tower and shelter shall be coordinated by the TO Contractor with the State Project Manager.

3. The tower shall be required to meet or exceed the latest **EIA 222-G** standards for this type of tower. It will be **designed to carry the number and type of antennas as per attached 330-ft State Tower loading plan (see TORFP Attachment # 16- Typical 330-ft State Tower Loading Plan).** The tower and associated installation shall conform to all local, County, State and Federal Equipment Shelter codes. The State of Maryland shall be responsible for obtaining Federal Aviation Administration (FAA) approval and permits. The tower will be designed with the following 222-G design criteria:

Three second wind gust:	120 MPH
Three second wind gust concurrent with radial ice:	40 MPH
Concurrent radial ice:	½ IN
Structure classification:	III
Exposure category:	B
Topographic category:	1
Crest Height:	N/A

4. The bottom 20 feet (minimum) of the tower shall have K-bracing construction to allow for ingress and egress under the tower. The top 60 ft. (minimum) of the tower shall contain no slope.

5. Spacing between tower legs shall not exceed 31 ft. If using a pad and pier foundation, keep the pad to no more than 45x45ft.

6. Proper and thorough grounding and bonding methods in accordance with currently published Motorola R56 standards shall be employed to provide maximum lightning protection.

7. The TO Contractor shall use soil borings supplied by the State for analysis to assure that the engineered tower foundation and the calculated ground loadings are acceptable. The TO Contractor shall furnish two (2) copies of the foundation designs and the ground loading calculations certified by a Maryland registered Professional Engineer (P.E.) to the Maryland State Department of Information Technology. The TO Contractor shall furnish a statement that the engineered tower foundations and the calculated ground loadings meet the manufacturer's recommended requirements**.**

8. Step bolts on one leg, safety climb and grounding bars are to be furnished and installed by the TO Contractor as part of the tower. Safety climb stand offs will be of sufficient length to ensure the safety climb does not rub on the flanges. Step bolt mounts will be permanently attached to the side of the climbing leg instead of the face/apex of the climbing leg. Tower ground bus bars will be grounded to the tower ground ring and bonded directly to the tower structure through the use of stainless steel hardware. Tower ground bus bars will be a minimum of ¼"x4"x24", (minimum 33 hole pairs) copper bars. One tower bus bar will be provided for each shelter installed.

9. The tower will be designed to accommodate two (2)"State" cable ladders (supplied by the TO Contractor) and one (1) "Cellular" cable ladder (supplied by others). The "State" cable ladders will be designed in accordance with the Tower Layout (Attachment #18). The "State" cable ladders will be a "rail" configuration with cable ladder side rails and rungs to accommodate at least fifteen (15) ¾ IN snap-ins and be at least three (3) FT wide. If the cable ladders are required to meet, a single ladder will extend to the top of the tower. The single cable ladder will accommodate at least fifteen (15) ¾ IN snap-ins and be at least three (3) FT wide. The project manager will determine where the two cable ladders meet and transition to the single cable ladder. The cable ladders will be mounted on the same face and the outside edge of the tower. The ladders will each originate on opposite outer edges of the face of the tower. They will originate approximately one foot from the leg of the tower and will remain one foot from the edge of the tower. One foot edge spacing will be maintained to the point where both cable ladders meet. From that point, a single cable ladder will extend, centered on the face, to the top of the tower. Cable ladders will not be positioned back to back. The "Cellular" cable ladder will be designed in accordance with the Tower layout (Attachment #18). The cellular cable ladder will be a "rail" configuration with cable ladder side rails and rungs to accommodate at least fifteen (15) ¾ in.

snap-ins and be at least three (3) ft. wide and will extend the full height of the tower. The feed lines will be arranged in accordance with the Tower Loading Plan (Attachment #16). Feed Lines heights will terminate at its corresponding antenna on the Tower Loading Plan (Attachment #16). The tower will be designed in compliance with the state loading plan, the above configuration and all other applicable sections of this task order.

10. All leg and leg flange PL material is ASTM A-572 grade 50 (F_y >= 50 ksi). All other material is ASTM A36 (F_y >= 36 ksi).

11. Anchor bolts will comply with ASTM A449 and be any number or size determined by the tower designer to comply with the requested load requirements.

12. Tower foundation concrete strength will be at least 4000 PSI or the tower foundation designer's recommendation; whichever is greater. Concrete testing will be conducted in accordance with DoIT's concrete inspection policy memorandum (see TORFP Attachment #11). Test cylinders will be crushed and results provided to the State project manager prior to stacking the tower. Tower erection will NOT commence until verification is provided that the concrete has reached the minimum compressive strength. Compressive strength can be tested prior to 28 days to expedite the tower erection, but this does not exclude the TO Contractor's responsibility to supply 28 day crush reports.

13. Non-chloride, non-corrosive concrete set accelerate may be utilized in compliance with ASTM-C-494 type C and ACI-318.

14. Water reducing admixture may be utilized in compliance with ASTM-C-494.

15. All admixtures should be dispensed into fresh concrete and sufficiently mixed. All admixtures must be added separately.

16. Minimum concrete cover of 3" on all steel.

17. Crown top of piers for drainage and chamfer all exposed concrete edges 1".

18. Compact backfill in 9" lifts. Remove all forms prior to backfill.

19. The TO Contractor shall purchase and install tower lighting equipment on the 330 ft. tower (Total finished height of the tower including all appurtenances will be 348 ft.) as per FAA Advisory Circular AC70/7460-1-G or latest revision according to the following specifications:

i. The TO Contractor ***shall use tower lighting manufacturer trained and certified personnel*** to install tower lighting equipment on the 330 ft. tower.
ii. The side markers shall be installed using stainless steel hose clamps, not plastic cable ties.
iii. The tower lighting system shall be an all LED system by Flash Technology Systems (http://www.flashtechnology.com/) (Part # FTS3621) or approved equivalent and manufactured to specifications for FAA type L-864 and FAA-AC 150/5345-43E.
iv. The TO Contractor shall install a medium intensity, dual strobe Type E-1 system that provides a white LED strobe for day operation and a red LED strobe for night operation as per FAA requirements. The side markers will also utilize LED technology. A 15 foot beacon extension assembly, with safety climb, shall be installed with flash head and lightning rod mounts and step bolts spaced alternately at approximately 15 inch intervals from the tower flange to the beacon. The beacon extension will be centrally mounted and not anchored to just one tower leg. It will be anchored to all three tower legs to distribute weight evenly. The beacon extension can be solid like the other legs on the tower or hollow, but no less than 4.5 IN outside diameter and ¼ IN wall thickness. The design must be approved by the State Project Manager prior to shipment.
v. The lighting rod will extend at least four (4) Ft. above the top of the beacon. No part of the lightning rod or mount that obstructs the beacon will be larger than 7/8" in diameter.
vi. The tower lighting system shall be supplied with remote and onsite diagnostics capabilities including software and direct connect cable.
vii. TO Contractor will supply temporary power to the lighting controller until permanent power is supplied. This will include all materials and labor to install temporary power and may include the use of a portable generator or a utility approved metering device, means of disconnect and receptacles. Delays in permanent power will be evaluated on a case by case basis and solutions will be directed by the State Project Manager.
viii. The supplied tower lighting system shall include 5-year parts warranty.
ix. The lighting controller will be bonded to the internal halo inside the generator room.

C. Equipment Shelter Specifications

12x38 ft Shelter with 75 Kw Generator:

1. Shelter installations must be in conformance with manufacturer's requirements for application of warranties provided by the manufacturer as well as be compliant with the current version Motorola R56 grounding requirements.

2. The equipment shelter supplied shall be a one-piece concrete communications equipment shelter and include a 75 Kw vapor propane fueled generator, 400-amp integrated load center, such as a Transtector ISP Series, incorporating the main service disconnect, manual transfer switch, surge protection and load center, and 200-amp sub feed with installation. The supplied equipment shelter shall be nominally sized 12x38x10 ft (height is inside dimension) and configured with two rooms as depicted in TORFP Attachment # 17 – Typical Equipment Shelter With Generator.

3. The double room shelter shall be provided with a NEMA 4, 250 Volt D.C., 600 Volt A.C. 200 amp, weatherproof emergency generator receptacle such as Appleton AJA20044-200, mounted on the front of the shelter to allow connection of a 50kW portable Emergency Generator in case of failure of the internal generator during a power outage. The generator receptacle shall be located in such a place that it will not interfere with the operation of the equipment room door. The receptacle's operation will be controlled by operating the manual transfer switch inside the equipment shelter.

4. Furnish a compatible Appleton plug such as AP20044CD with 50 Ft of conductors terminated in a pig tail. The plug will be designed to interface a portable generator with the Appleton receptacle mounted on the building. The plug will be weatherproof and the conductors will be adequately insulated and weatherproofed. They should be sized to safely connect a 50 kW emergency generator and mitigate any voltage drop. The cable assembly will be provided with each shelter and installed inside the generator compartment on an adequately sized hose bib in accordance with the attached shelter layout. If made of a conductive material the cable holder will be bonded per the latest version of R56. Shelters without generators will have the cable installed/stored just inside the door in accordance with the shelter layout drawings.

5. Two 16-port cable entry points complete with weatherproof caps shall be provided for antenna cable entry. One entry point will be located on the long side of the Equipment Shelter and the second entry point will be located on the end wall of the Equipment Shelter between the air conditioner units. These locations are shown in the supplied TORFP Attachment #17. Each port within both assemblies shall be four (4) inches in diameter, and shall be located with the top of the assembly located directly under the cable rack, in four (4) rows of four (4) ports each. In addition to the cable entry points, one single four inch PVC conduit sleeve for communications conduits and one single two inch PVC conduit sleeve for installation of S. O. cables to the tower lighting system, both with temporary end caps shall be installed. The actual location of these penetrations and sleeves must be confirmed with the Project Manager prior to the fabrication of the shelter.

6. Cable ladders (24 inches wide) shall be mounted eight feet above the finished floor, measured from the floor to the bottom of the cable ladder, as shown in Attachment # 17 – Typical Equipment Shelter With Generator.

7. Two 5-ton 230/208V-Single-phase, dual (redundant) wall-mounted, vertical, self contained HVAC units with 5-kw heat strips shall be installed at the locations specified on the equipment shelter drawing. Separate circuit breakers for each unit shall be installed in the main load circuit panel. The provided HVAC units shall have sufficient capacity for the Equipment Shelter size supplied, fully loaded with equipment. Each unit shall contain a time delay startup relay, low ambient control, and a forced air resistive heat strip. The HVAC controller will include a humidity control feature. The outside portions of the units will be weather/rodent and tamper proof.

8. All shelters shall be equipped with 16" ventilation fans with gravity operated back draft louvers and 16" gravity intake damper with filter and hood (bug and rodent intrusion resistant). Each fan shall be connected to a thermostatic device to allow automatic fan on-off control. The openings will be provided with shutters and weather hoods. All required exhaust piping and intake and exhaust plenums required for the manufacturer's recommended air flow shall be included as part of the installed equipment. All openings in the shelter structure for the provision of entry or exit of cables, equipment, ventilation, etc. must be sealed to prevent the invasion of the shelter interior by insects, rodents and external moisture.

9. Electric baseboard heater strips shall supply heating for the generator room. A thermostat mounted on the wall opposite the heater shall control the heater strips. The heater strips shall be sufficient for the size of the generator room to maintain a room temperature of 72 degrees F.

10. Insulation shall be non-combustible, with a vapor barrier. Wall and floor thickness shall provide an R-11 (minimum) rating, and the roof shall have an R-19 (minimum) rating.

11. Concrete Construction – The wall outer finish will be natural stone aggregate finish with an aesthetically pleasing earth tone.

12. Each foundation shall be comprised of concrete piers or concrete pad with steel reinforcement. The top of the finished foundation shall be 6 inches above finished grade. The foundations shall level each shelter such that all foundation to shelter contact points shall have equal loads. The equipment shelter is to rest flush on the poured concrete foundation without showing any gaps between shelter and pad and to be level to within ½ degree. The shelter shall have an integrated continuous stoop for the doors, and steps if necessary, to provide safe entry into the shelter. Installations requiring stoops more than 24 inches above grade shall have safety rails installed.

13. The minimum floor loading design will be 300lbs. per square foot (PSF). The minimum roof loading design will be 100lbs. per square foot (PSF). The minimum wall loading design will be 34 lbs. per square foot (PSF). The minimum wind loading design will be 50 lbs. per square foot (PSF).

14. Two reinforced steel finished doors shall be located on the shelter, per the attached drawings. The doors will be finished to match the appearance of the shelter. The doors shall be pre-hung, gasket sealed, insulated, approximately 3 foot by 7 foot, and in a metal frame. Doors will be supplied with door-closer, magnetic weather stripping, drip strip over door, doorstop, door sweep and a 42-inch door canopy. Door checks and door stops shall be provided along with a three (3) point locking system for maximum security. The doors will have non-removable ball bearing hinges and deadbolt locks with tamper plates installed. These deadbolt locks shall be security type with removable cylinders, such as "Best" locks. Each generator and equipment room door will be bonded to its frame with welding cable of an appropriate gauge in accordance with the latest version of R56. Braided cable will not be used.

15. The equipment shelter floor shall be covered with 1/8", 12" x 12" vinyl tile, light in color (beige, tan or white). The walls will be trimmed with a 4-inches high and 1/8 inch thick rubber base trim against the floor.

16. The walls will be covered with a minimum of white wood-grained paneling or white vinyl over ½ inch plywood. The equipment shelter shall have a ¾" X 4ft X 8ft plywood telephone mounting board installed as per attached shelter layout drawing TORFP Attachment # 17 – Typical Equipment Shelter with Generator.

17. Electrical installation and wiring shall conform to the latest version of the National Electrical Code. Surface mounted, grounded, duplex outlets shall be provided at five (5) foot intervals (where possible) around the interior walls. All wiring shall be installed in surface mount EMT conduit. Outlets shall be installed 18 inches above finished floor. Horizontal runs of conduit will be installed a minimum of 7 1/2 feet above the floor whenever possible with vertical connections to the surface mounted devices to minimize interference with installing equipment against the wall. Two weatherproof outlets will be installed on the exterior of the shelter. These outlets are to be located at both ends of the shelter. In addition, circuits supplying power to equipment racks # 3-16 in the shelter shall extend downward six (6) feet from boxes mounted at 22" intervals on the ceiling as shown in the supplied TORFP Attachment #17 - Typical Equipment Shelter with Generator.

18. Wiring for these drops shall be housed in "Sealtite" flexible conduit and each drop shall be terminated in a quad receptacle box. Each quad box shall contain two circuits and each circuit shall have its own dedicated 15 or 20-

amp circuit breaker. These drops shall be planned to fall immediately adjacent to the edge of the cable tray. The exact location for each drop must be confirmed with the Project Manager before the shelter is fabricated. The circuit breakers for the 240 VAC quad boxes supplying power to equipment racks # 1-3 shall be located in the main load center. Racks #1-3 shall be supplied with one junction box each containing one 240 Volt 20 amp circuit. The junction box will be fastened to the wall in accordance with the shelter drawings and supplied photos. All circuits will have a dedicated neutral installed in accordance with the latest Motorola R56 standard. The junction boxes will be mounted in line vertically.

19. **All low voltage wiring (i.e. alarm, control, etc.) shall be routed in separate conduits in accordance with the national electrical code.**

20. Power to the shelter shall be fed through a properly sized 240-Volt, fused single-phase disconnect switch mounted on the exterior wall of the shelter. (See Attachment #17 - Typical Equipment Shelter With Generator.).

21. Shelter is to be provided with 400-amp, 20-position (minimum) main load center, equipped with a minimum of twenty (20) 20-amp breakers. Breakers shall be "high magnetic" or high inrush current type (Square D, HM or equivalent). This box shall be installed at one end of the equipment area within five (5) feet of the primary cable entry port. In addition to the 400-ampere main load center, a minimum 20-position quad box load center shall be installed, fed from the main load center; the quad box load center shall be located on the generator room wall and shall supply power to quad boxes above rack positions 3-16. Load centers, circuit breakers and quad boxes shall be properly marked.

22. An interior system ground (halo) with a single #2 AWG stranded wire will be provided with proper connections to the shelter and, in turn, to the tower ground system. The halo will have a 6-inch break roughly opposite the Master Ground Bar. The #2 AWG ground wire for each row of racks will be suspended on independent ground lead stand offs as outlined in the typical shelter drawing. They will be positioned to ensure the #2 AWG lead is isolated from the main cable racks. No electrical conduit is allowed to bridge the 6" gap in the halo ground. The internal ground system will be mounted on the wall using 2-inch (2") standoff insulators, connected to two (2) minimum ¼" x 5"x 24", (33 hole pairs) minimum copper master ground bus bars that are installed directly under each cable entry port. The ground bus system shall be a Harger EPK16MOT bus bar system or an approved substitute. The copper ground bars on the back interior wall of the shelter will be connected to the corresponding exterior ground bar with stainless steel insulated feed through. The external ground bar will be connected through a minimum of three (3) 2-inch copper straps to the external building ground ring and tower

grounding system. All exterior connections shall be exothermically welded to ensure proper connection. Electrical ground will be bonded to the RF ground.

23. Purchase and installation of the following lightning protection devices in the equipment shelter:

    i. An IEEE Type 1 SAD/MOV protection device shall be part of the integrated load center and approved for use in the latest version of R56.

    ii. An IEEE Type 2 MOV protection device will be installed at the main power input inside the shelter, by means of a 60-Ampere (per "leg") breaker or fused disconnect, across the utility lugs of the transfer switch. The device will be installed inside of the equipment shelter and approved for use in the latest version of R56 such as Transtector IMAX series. Its installation will comply with the latest version of R56 and maintain the device's UL1449 (latest edition) listing.

    iii. An IEEE Type 3 SAD protection device will be installed across the 120V/20A circuit for the lighting controller. This device must be installed in such a manner that its replacement will not cause an outage to the tower lighting system. The device will be installed in the generator room near the lighting controller and approved for use in the latest version of R56.

    iv. All surge suppression devices will have the ability to create a dry contact alarm (contact closure upon alarm). This alarm will be integrated with the shelter alarm wiring. The dry contact alarms will be enabled from the factory.

24. The Air conditioning units shall be connected to the internal (halo) grounding system **only,** not to the external equipment shelter grounding system.

25. 48-inch, two or four-tube, energy efficient fluorescent fixtures shall provide sufficient lighting (minimum 50 foot candles) for the shelter in accordance with Attachment #17. The lights shall be controlled by a wall switch / timer internal to the shelter, and located next to the entry door. An exterior entry light shall be installed outside the main doorway of the structure. This light shall be controlled by a motion sensor wired through a wall switch inside the shelter.

26. The shelter shall be pre-wired, with the following functions, to a common point in the radio compartment and terminated with a split 66 Block. The 66 Block shall be mounted in the upper right-hand side of the punch block board. All alarms shall be punched down on the left-hand side of the punch block using solid wire. The 66 block will not be enclosed in any box or enclosure.

All functions/alarms will be programmed to be normally open. Upon alarm they will close.

1. High Temperature Alarm – Adjustable for over-temperature alert (may be integrated with HVAC system).
2. Low Temperature Alarm – Adjustable for under-temperature alert (may be integrated with HVAC system).
3. HVAC Failure Alarm- derived from the HVAC controller
4. Generator Running Alarm – Closure when generator is running.
5. Remote Generator Start – No transfer to load (a dry contact closure will remote start the generator but will not transfer to the load if commercial power is good)
6. Generator transfer to Load (a dry contact closure will initiate a transfer to load. If the generator is off, it will start the generator)
7. Low Oil Pressure Alarm
8. Low Coolant Alarm
9. Generator Overcrank Alarm
10. High Coolant Temperature alarm
11. Transfer Panel Switched- indicates that the transfer panel has switched to backup power
12. Equipment Room Door Alarm
13. Generator Room Door Alarm
14. Equipment Room Smoke Alarm
15. Equipment Room Heat Detector Alarm
16. Generator Room Smoke Alarm
17. Generator Room Heat Detector Alarm
18. Type I Surge Suppressor Alarm
19. Type II Surge Suppressor Alarm
20. Type III Lighting Controller Surge Suppressor Alarm
21. Strobe White Alarm (per strobe controller)
22. Strobe Red Alarm (per strobe controller)
23. Marker Alarm (per strobe controller)
24. Spare
25. Spare

27. On this double room shelter, there shall be a partition wall separating the emergency generator from the room containing the RF equipment. This partition wall shall have a one (1) hour fire rating (from the inside out and outside in). The floor under this section shall be reinforced to handle additional loading. Two gravity intake louvers and one exhaust fan with gravity louvers shall be installed. All louvers and openings will be wire covered for security and prevention of entry by rodents. A separate outside door shall be installed on this room and shall be identical to the equipment room door. (See Attachment #17 - Typical Equipment Shelter With Generator.)

28. The lighting for this room shall be controlled by a separate wall switch / timer internal to the room and located next to the entry door.

29. The TO Contractor shall supply with each equipment shelter a 75 Kilowatt, liquid propane vapor fueled, 1800-RPM generator, 60 Hz, 120/240 volt, single phase with a 400-amp Automatic Transfer Switch (ATS).

30. Installation shall include all materials, parts, labor, etc. to provide a fully functional generator back-up system. Included in the installed price is the transfer switch and all associated wiring as well as generator alarm programming in accordance with state requirements. Block heaters with necessary wiring are to be included. Fuel tank hookup, fuel tank, fuel tank pad and fuel supply piping to the shelter is to be provided by the site work TO Contractor. Fuel supply piping shall be non-metallic to comply with R56 single point grounding requirements. The fuel tank shall be connected to the tower ground ring.

31. Fuel strainers on the propane fuel systems must be installed for proper drainage to prevent moisture buildup in the line. Proper sized flex fuel lines need to be installed on all generators and the fuel line so as to not impede the proper flow of fuel and must not be sharply bent, or crimped. The flex jumper must be placed to ensure minimal engine vibration is transferred to the fuel solenoid assemblies to prevent rupture. The fuel line from the secondary regulator to the manifold shall not be less than 1" to minimize fuel pressure drop from no load to full load. The metal fuel line inside the room will be bonded to the internal halo where it enters the room. This can be done with a c-clamp style device at the fuel line. Proper venting of the fuel system must be installed to ensure no buildup of pressure and safe venting will occur. Fuel lines run in conduit or sleeves must be sealed from moisture. All exhaust piping that can come in contact with personnel will have a heat shield installed. Proper battery chargers must be installed for the appropriate system, either 12 VDC or 24 VDC, 110 VAC. Note: two (2) 12 VDC battery chargers is not acceptable on 24-volt systems.

32. The TO Contractor must perform on-site startup of the generator under full load, using a load bank. The original of the startup form must be completed and submitted prior to submission of an invoice for work performed. The State Project Manager or his designee must be notified in advance to attend the event at their discretion. The load bank test will be at least one hour and conducted under full load. The startup will also include the programming of all generator related alarms/function.

33. All alarm outputs from the generator are to be extended to the radio compartment via a data cable and terminated in a remote annunciator panel which provides both visual and audible alarm indications for each circuit monitored. The annunciator panel will also provide either normally open or

normally closed dry contacts which can be field selectable as needed to provide the proper inputs to the existing "66 block" for the dissemination of alarm information to the system. The annunciator panel will be located directly below the existing "66 block" in the radio compartment.

34. All wiring for the generator must be routed overhead. It is unacceptable to cross the floor with conduits.

35. An external minimum of ¼" x 4" x 24", (36 hole pairs) copper ground bar is to be installed on the outside of the shelter directly under the main cable entry port and attached with three (3), solid tinned copper, 2-inch ground straps, to the single ground point directly below the main cable entry port. Refer to Harger EPK16MOT)

36. The shelter shall be designed and installed per the latest version of Motorola R56 to include eye wash station, first aid kit, chemical and CO2 type fire extinguishers mounted on the partition wall in the radio compartment.

37. The shelter shall include one broom and dust pan (mounted to the wall), one six foot step ladder, one 30 gallon (plastic) garbage can and one box of 30 gallon garbage can liners.

38. An external ground ring shall be provided around each shelter foundation. Above grade ground tails will be provided for both shelter foundations. The same number, general location and length will be provided for the spare pad as are provided for the occupied foundation. The buried external ground ring shall be in direct contact with the earth at a depth of 30 inches below the earth's surface with ground rods driven into the earth at intervals not to exceed twice the ground rod length. In the event 10-foot ground rods cannot be driven shorter rods are acceptable if driven at the proper intervals. The external ground ring is to be placed 3 feet outside each shelter foundation in order to be outside the drip line of the shelters.

39. All grounds must be bonded together. This includes the generator, the shelters, the fuel tank, the fencing, and equipment shelter grounding systems, the ice bridge and the tower. The ground test reading must not normally exceed 5 OHMS. The State shall test all grounds using a fall-of-potential method test to determine compliance. In the event 5 OHMS cannot be reached by reasonable means and through no fault of the TO Contractor, the State will determine the course of action to be taken by the TO Contractor at an additional cost to the State. Grounds must test fewer than 10 OHMS for the site to be acceptable for reasons of personal safety.

12x38 ft Single Compartment Shelter Without Generator

1. Shelter installation must be in conformance with manufacturer's requirements for application of warranties provided by the manufacturer as well as be compliant with the current version of the Motorola R56 grounding requirements.

2. The equipment shelter supplied shall be a one-piece concrete communications equipment shelter without a backup generator. The shelter shall be equipped with a 200-amp integrated load center, such as Transtector ISP Series, incorporating the main service disconnect, manual transfer switch, surge protection and load center. The supplied equipment shelter shall be nominally sized 12 X 38 X 10 ft (height is inside dimension) and configured as a one-room shelter as depicted in the Equipment Shelter Layout Drawing (TORFP Attachment 17a – Shelter without Generator).

3. The shelter shall be provided with a NEMA 4, 250 Volt D.C., 600 Volt A.C. 200 amp, weatherproof emergency generator receptacle such as Appleton AJA20044-200, mounted on the front of the shelter to allow connection of a 50kW portable Emergency Generator in case of failure of the site generator during a power outage. The generator receptacle shall be located in such a place that it will not interfere with the operation of the equipment room door. The receptacle's operation will be controlled by operating the manual transfer switch inside the equipment shelter.

4. Furnish a compatible Appleton plug such as AP20044CD with 50 Ft of conductors terminated in a pig tail. The plug will be designed to interface a portable generator with the Appleton receptacle mounted on the building. The plug will be weatherproof and the conductors will be adequately insulated and weatherproofed. They should be sized to safely connect a 50 kW emergency generator and mitigate any voltage drop. The cable assembly will be provided with each shelter and installed inside the generator compartment on an adequately sized hose bib in accordance with the attached shelter layout. If made of a conductive material the cable holder will be bonded per the latest version of R56. Shelters without generators will have the cable installed/stored just inside the door in accordance with the shelter layout drawings.

5. One 24-port cable entry port and one 16-port cable entry port complete with weatherproof caps shall be provided for antenna cable entry. The main cable entry port will be a 24 position cable entry port and will be located on the back wall of the building. The secondary cable entry port will be a 16 position cable entry port and will be located on the end wall of the building between the air conditioner units. These locations are shown in the supplied Typical Equipment Shelter Layout Drawings. Each port within both assemblies shall be four (4) inches in diameter, and shall be located with the top of the assembly located directly under the cable rack. In addition to the two cable

entry ports, one four (4) inch PVC conduit sleeve for communications conduits shall be installed. The actual location of this penetration and sleeve must be confirmed with the Project Manager prior to the fabrication of the shelter. Do not penetrate the building without generator for tower lighting cables.

6. Cable ladder (24 inches wide), centered across the main cable entry port, and shall be mounted eight feet above the finished floor, measured from the floor to the bottom of the cable ladder, as shown in the attached (Attachment 17a) Shelter without generator layout drawing.

7. Two 5-ton 230/208V-Single-phase, dual (redundant) wall-mounted, vertical, self-contained HVAC units with 5-kw heat strips shall be installed at the locations specified on the equipment shelter drawing. Separate circuit breakers for each unit shall be installed in the main load circuit panel. The provided HVAC units shall have sufficient capacity for the building size supplied, fully loaded with equipment. Each unit shall contain a time delay startup relay, low ambient control, and a forced air resistive heat strip. The HVAC controller will have a humidity control module installed. The outside portions of the units will be weather/rodent and tamper proof.

8. The shelter shall be equipped with one 16" ventilation fan with gravity operated back draft louvers and 16" gravity intake damper with filters and hoods (bug and rodent intrusion resistant). Each fan shall be connected to a thermostatic device to allow automatic fan on-off control. The openings will be provided with shutters and weather hoods. All openings in the shelter structure for the provision of entry or exit of cables, equipment, ventilation, etc. must be sealed to prevent the invasion of the shelter interior by insects, rodents and external moisture.

9. Insulation shall be non-combustible, with a vapor barrier. Wall and floor thickness shall provide an R-11 (minimum) rating, and the roof shall have an R-19 (minimum) rating.

10. Concrete Construction – The wall outer finish will be natural stone aggregate finish with an aesthetically pleasing earth tone.

11. Each foundation shall be comprised of concrete piers or concrete pad with steel reinforcement. The top of the finished foundation shall be 6 inches higher than finished grading. The foundations shall level each shelter such that all foundation to shelter contact points shall have equal loads. The equipment shelter is to rest flush on the poured concrete foundation without showing any gaps between shelter and pad and to be level to within ½ degree. The shelter shall have a poured concrete entrance stoop for each entrance, and steps if necessary, to provide safe entry into the shelter. Installations requiring stoops more than 24 inches above grade shall have 42 inch safety rails installed.

12. The minimum floor loading design will be 300 lbs. per square foot (PSF). The minimum roof loading design will be 100 lbs. per square foot (PSF). The minimum wall loading design will be 34 lbs. per square foot (PSF). The minimum wind loading design will be 50 lbs. per square foot (PSF).

13. One reinforced steel finished door shall be located on the shelter, per the attached drawings. The door will be finished to match the appearance of the shelter. The door shall be pre-hung, gasket sealed, insulated, approximately 3 foot by 7 foot, and in a metal frame. Door will be supplied with door-closer, magnetic weather stripping, drip strip over door, doorstop, door sweep and a 42-inch door canopy. Door checks and door stops shall be provided along with a three (3) point locking system for maximum security. The door will have non-removable ball bearing hinges and deadbolt locks with tamper plates installed. These deadbolts locks shall be security type with removable cylinders, such as "Best" locks. Each equipment room door will be bonded to its frame with welding cable of an appropriate gauge in accordance with the latest version of R56. Braided cable will not be used.

14. The equipment shelter floor shall be covered with 1/8", 12" x 12" vinyl tile, light in color (beige, tan or white). The walls will be trimmed with a 4-inches high and 1/8 inch thick rubber base trim against the floor.

15. The walls will be covered with a minimum of white wood-grained paneling or white vinyl over ½ inch plywood. The equipment shelter shall have one (1) ¾" X 4ft X 8ft plywood telephone mounting board installed as per attached shelter layout drawing (TORFP Attachment # 17a – Shelter without Generator).

16. Electrical installation and wiring shall conform to the latest version of the National Electrical Code. Surface mounted, grounded, duplex outlets shall be provided at five (5) foot intervals (where possible) around the interior walls. All wiring shall be installed in surface mount EMT conduit. Outlets shall be installed 18 inches above finished floor. Horizontal runs of conduit will be installed a minimum of 7 1/2 feet above the floor whenever possible with vertical connections to the surface mounted devices to minimize interference with installing equipment against the wall. Two weatherproof outlets will be installed on the exterior of the shelter. These outlets are to be located at both ends of the shelter. In addition, circuits supplying power to equipment racks # 3-24 in the shelter shall extend downward six (6) feet from boxes mounted at 22" intervals on the ceiling as shown in the supplied Typical Equipment Shelter Layout Drawing (TORFP Attachment #17a – Shelter without Generator). Wiring for these drops shall be housed in "Sealtite" flexible conduit and each drop shall be terminated in a quad receptacle box. Each quad box shall contain two circuits and each circuit shall have its own dedicated 15 or 20-amp circuit breaker. These drops shall be planned to fall

immediately adjacent to the edge of the cable tray. The exact location for each drop must be confirmed with the Project Manager before the shelter is fabricated. The circuit breakers for the quad boxes supplying power to equipment racks # 1-4 shall be located in the main load center. Racks # 1-3 shall each be supplied with one junction box each containing one 20 amp 240 volt circuit. These junction boxes will be fastened to the wall in accordance with the shelter drawing and supplied photos. These junction boxes will be mounted vertically in line. Racks # 3 & 4 shall each be supplied with a quad box containing (2) two 120 volt 20 amp circuits. All circuits will have a dedicated neutral installed in accordance with the latest Motorola R56 standard. Do not install a dedicated circuit for a tower light in the shelter without generator.

17. Power to the shelter shall be fed through a properly sized 240-Volt, single-phase fused disconnect switch mounted on the exterior wall of the shelter. (See TORFP Attachment #17a Shelter without Generator drawing for locations.)

18. Shelter is to be provided with 200-amp, 20-position (minimum) main load center, equipped with a minimum of twenty (20) 20-amp breakers. Breakers shall be "high magnetic" or high inrush current type (Square D, HM or equivalent). This box shall be installed at one end of the equipment area within five (5) feet of the primary cable entry port. In addition to the 200-ampere main load center, a 100-amp, 40-position (minimum) quad box load center with 15 or 20-amp circuit breakers shall be installed, fed from a 100 amp breaker in the main load center; the quad box load center shall be located on the left end wall. Load centers, circuit breakers and quad boxes shall be properly marked.

19. An interior system ground (halo) with a single #2 AWG stranded wire will be provided with proper connections to the shelter and, in turn, to the tower ground system. The halo will have a 6-inch break roughly opposite the Master Ground Bar. The #2 AWG ground wire for each row of racks will be suspended on independent ground lead stand offs as outlined in the typical shelter drawing. They will be positioned to ensure the #2 AWG lead is isolated from the main cable racks. No electrical conduit is allowed to bridge the 6" gap in the halo ground. The internal ground system will be mounted on the wall using 2-inch (2") standoff insulators, connected to two (2) minimum ¼" x 5"x 24", (33 hole pairs) minimum copper master ground bus bars that are installed directly under each cable entry port. The ground bus system shall be a Harger EPK24MOT bus bar system or an approved substitute. The copper ground bars on the back interior wall of the shelter will be connected to the corresponding exterior ground bar with stainless steel insulated feed through. The external ground bar will be connected through a minimum of three (3) 2-inch copper straps to the external building ground ring and tower

grounding system. All exterior connections shall be exothermically welded to ensure proper connection. Electrical ground will be bonded to the RF ground

20. An IEEE Type 1 SAD/MOV protection device shall be part of the integrated load center and approved per the latest version of Motorola R56.

21. The Air conditioning units shall be connected to the internal (halo) grounding system **only**, not to the external equipment shelter grounding system.

22. 48-inch, two or four-tube, energy efficient fluorescent fixtures shall provide sufficient lighting (minimum 50 foot candles) for the shelter. The lights shall be controlled by a wall switch/ timer internal to the shelter, and located next to the entry door. An exterior entry light shall be installed outside the main doorway of the structure. This light shall be controlled by a motion sensor wired through a wall switch inside the shelter.

23. The shelter shall be pre-wired, with the following functions, to a common point in the radio compartment and terminated with a "66 Block". These alarms may be monitored using the equipment shelter with the generator and may include the following. If alarms are installed on a 66 block they will not be enclosed in a box or enclosure.

    - High Temperature Alarm – Adjustable for over-temperature alert (integrated with HVAC system).
    - Low Temperature Alarm – Adjustable for under-temperature alert (integrated with HVAC system).
    - Equipment Room Entry/Intrusion – Output when door is opened
    - Surge protector Alarms
    - Equipment Room Fire and Smoke Alarm
    - HVAC Fail

24. The lighting for this room shall be controlled by a separate wall switch/timer internal to the room and located next to the entry door.

25. An external ground ring is to be provided around each shelter foundation. The buried external ground ring shall be in direct contact with the earth at a depth of 30 inches below the earth's surface with ground rods driven into the earth at intervals not to exceed twice the ground rod length. In the event 10-foot ground rods cannot be driven shorter rods are acceptable if driven at the proper intervals. The external ground ring is to be placed 3 feet outside the shelter footprint in order to be outside the drip line of the shelter.

26. All grounds must be bonded together. This includes the generator, the shelters, the fuel tank, the fencing, and the equipment shelter grounding systems, the ice bridges and the tower. The ground test reading must not normally exceed 5 OHMS. The State shall test all grounds using a fall-of-potential method test to determine compliance. In the event 5 OHMS cannot be reached by reasonable means and through no fault of the TO Contractor, the State will determine the course of action to be taken by the TO Contractor at an additional cost to the State. Grounds must test fewer than 10 OHMS for the site to be acceptable for reasons of personal safety.

27. The shelter shall be designed and installed per the latest version of Motorola R56 to include eye wash station, first aid kit, chemical and CO2 type fire extinguisher.

28. The shelter shall include one broom and dust pan (mounted to the wall), one six foot step ladder, one 30 gallon (plastic) garbage can and one box of 30 gallon garbage can liners.

D. Specifications for Installation

1. Purchase and delivery of one (1) fully functional, 330 ft. above ground level, three (3) legged, solid legged, heavy duty, self-supporting, two-way microwave radio tower.

2. Installation of the tower shall include placing a foundation which is certified, signed and stamped by a Maryland registered Professional Engineer (certification must be provided with the response to the bid) that it is designed in accordance with the tower manufacturer's recommendations based upon the soil borings provided by the State (see TORFP Attachment #21 – Valley Lee Communications Tower Geotechnical Report).

3. The TO Contractor will furnish and install two (2), "State" cable ladders on one face of the tower. The supplied cable ladders will be installed in accordance with the state loading plan (Attachment #16), Tower layout (Attachment #18) and all other applicable sections of this task order.

4. The tower shall be erected to a height of 330 ft. (AGL) above ground in such a manner as to assure straightness and plumb.

5. Install tower lighting flash and SO cable on outside of cable ladder rail. The flash and SO cable should be routed along the cable ladder rail in a manner to prevent damage over sharp edges, inadvertent climbing, etc; and attached per manufactures specifications

6. Purchase and installation of one (1) 12x38x10 ft. concrete equipment shelter (height is inside dimension) with a 75kW generator and one (1) 12x38x10 ft. concrete equipment shelter without generator. The equipment shelters must rest flush on the poured concrete foundations without showing any gaps between Equipment Shelters and pad and leveled to within ½ degree. Typical Equipment Shelter drawing are supplied with this Task Order (Attachment #17) and should be used for pricing purpose.

7. An approved/certified shelter manufacturer representative will be on site for each shelter delivery to supervise the setting of the shelter. This individual will correct any foundation gaps or any deficiencies found due to shipment. This individual will also supervise the installation of any field installable items (e.g. hoods, light fixtures, etc).

8. Provision and installation of a liquid cooled, 1800 RPM, 75 kW propane vapor fueled generator complete with a 400-Amp automatic transfer switch capable of zero cross-over (in-phase switching) and time-delay neutral switching to eliminate service interruptions of the electronic equipment and the tower lighting system. The transfer switch will also have a programmable exercise timer. Time delay neutral will be programmable from at least 0-3 seconds. The exercise timer will allow preprogramming of time and date of weekly generator runs. The transfer switch will allow the weekly generator runs to be conducted with or without load.

9. Purchase and installation of one (1) new 1,000 gallon LP fuel tank with hookup to the generator and shall include first LP fill-up. Underground fuel supply piping shall be "plastic" high-performance polyethylene piping or equivalent. The above ground piping must be UV rated rubber jacketed corrugated metallic piping. The fuel tank shall be connected to the tower ground ring.

10. Generator start-up and test under full load (using load bank) after permanent power is connected to the equipment shelter must be coordinated with the State Project Manager. The test using the load bank will be one hour. The startup will include generator alarm/function programming.

11. Purchase and install two (2) extruded metal, 24-inch wide, no cantilever ice-bridges with a four tier "tee" or "tree" trapeze cable management systems to facilitate easy installation and removal of cables, such as Andrew WB-T24-4 or suitable equivalent. Ice bridge posts will be no less that 3" in diameter, spaced no more than 6' apart. Posts will be buried 36" encased in concrete. The ice bridges will be routed in accordance with Attachments #22 A-F and electrically insulated from the tower. The trapeze sections will be no more than four (4) feet apart. The ice bridges will be bonded to the external ground bus bars.

12. Purchase and installation, per local utility standard, of an electrical backboard of steel post and unistrut construction to include CT cabinet if required, wire trough, main disconnect, at least one (1) electric company approved meter socket with room to accommodate a minimum of three (3) additional meters.

13. Purchase and installation of two (2) 4-inch conduits, approx. 60 ft. in length from the existing power company supplied pad mounted transformer, to the TO Contractor supplied electrical backboard, and from the backboard into the disconnect switch, located on the back of the equipment shelter.

14. Purchase and connection of electrical wiring, per local electrical code, from the TO Contractor installed backboard to the fused disconnect on the back of the shelter and from fused disconnect located on the back of the shelter into the equipment shelter's 400-amp load center. Electrical work must be completed by a State of Maryland certified electrician.

15. Purchase and installation of three (3) 4-inch conduits, one (1) for electrical service and one (1) for communication cabling, with pull strings, each approximately 60-ft in length, from the 12x38 ft equipment shelter with generator to the 12x38 ft equipment shelter without generator. The communication conduits will originate at a minimum of 12x12x12 IN or larger communications cable pull box on the exterior of the shelter with generator and terminate in a similar box on the equipment shelter without generator in accordance with Attachments #22 A-F Construction drawings. The pull box will accommodate at least three (3) 4IN, schedule 40 conduits. This box will be weather proof and constructed of plastic or other non conductive materials. A pull box will be supplied by the TO Contractor for each shelter provided. The location of the pull box will be determined by the State Project Manager. A future, one (1) 4" communications conduit will extend from the communications cable pull box located on the exterior of equipment shelter with the generator to a location beyond the compound limits to a point determined by the Project Manager. Locator tape will be installed in all telco and electric trenches one (1) ft. above new conduits.

16. Supplied materials, including, but not limited to, equipment shelters and tower, LP tank, etc shall be new, unused and shall meet the latest design and fabrication standards of the Electronics Industry Association (EIA). A valid bill of sale for the fuel tank MUST BE PROVIDED upon installation.

17. All supplied materials shall be purchased, not leased.

18. Supply 6" dia. bollards as needed in order to protect the propane fuel tank from possible damage caused by vehicles.

19. The TO Contractor will provide placards affixed to every equipment and generator room door stating there is Electro Magnetic Energy dangers. These signs will comply with the latest version of Motorola's R56. The TO Contractor will provide placards affixed to every vehicle and man gate indicating the site is alarmed and under 24 hour surveillance. The signs will say: "Private property – No trespassing. This site is monitored by remote surveillance equipment. Equipment and entrances are alarmed and will notify local police of any intrusion." The TO Contractor will provide placards to the fence along the entrance to the site with the FCC ASR number. The sign will comply with FCC guidelines. The ASR number will be provided by the project manager. All signs will be metal, fade and weather proof. They will be permanently affixed to their respective gate or door. ASR signs will be provided with the delivery of the tower.

3. Inspection schedule/requirements

- **a.** Sediment and Erosion Controls – A preconstruction meeting will be conducted if applicable with the required inspectors at least 7 days prior to any disturbance. Controls will be randomly inspected by the appropriate inspectors having jurisdiction (County or State), but emphasis is placed after rain events. Corrections/repairs must be made within time limits specified by County or State requirements.
- **b.** Compaction tests – Construction inspectors will inspect each lift required for site grading, access road work and fill (to include the tower foundation). Non compliance may require the removal of fill and/or halting work.
- **c.** Storm Water Management – To Contractor will provide evidence of the installation of Storm Water Management materials and techniques. This is outlined in Attachments #22 A-F Construction Drawings and will be done at the TO contractor's expense.
- **d.** Cylinder break reports – The tower and shelter foundations will require PE certified crush reports at a minimum of 28 days. Tower erection or shelter installation may not occur until compressive strength is tested and verified in compliance with manufacturer and task order specification. Concrete used for the wall foundation will require tests. This will be coordinated through a private party at the TO Contractor's expense.
- **e.** Electrical inspection – Final wiring will be inspected prior to energizing the site. An approved third party inspection agency can be utilized if recognized by the local utility. This will be supplied by the TO Contractor.
- **f.** Tower Inspection – The tower's structural integrity, galvanizing condition and assembly will be inspected by a third party inspector furnished by DoIT.
- **g.** R56 Inspection – the site, tower and shelter will be subject to a R56 inspection. Discrepancies will be corrected at the TO Contractor's expense. The inspector will be furnished by DoIT.
- h. Punchlist – A final inspection will be conducted by DoIT personnel to ensure all items in the task order are completed to the satisfaction of the State.

i. NOTE:
THIS SITE NEEDS TO BE ESSENTIALLY COMPLETE AND ABLE TO ALLOW INSTALLATION AND OPERATION OF COMMUNICATIONS EQUIPMENT BELONGING TO THE COUNTY ON, OR BEFORE 3/7/2013.

4. Commencement of Work

Work in response to this Task Order shall be initiated only upon issuance of a fully executed Notice to Proceed, authorized by the State Program Manager.

5. Approvals

Prior to ordering the following drawings/designs shall be approved by the State Project Manager:
-Tower profile (Final drawings will have PE stamp)
-Tower foundation design (Final drawings will have PE stamp)
-Shelter drawings (Final drawings will have PE stamp)
-Foundation design (Final drawings will have PE stamp)
-Shop drawings for LP tank foundation
-Shop drawings for fence

6. Final Acceptance Sign-off

The TO Contractor will provide all items as outlined in the DoIT's close out policy (Attachment #24). The following is required to be demonstrated to the State of Maryland Project Manager upon project completion:

a. The lighting system has operated without fault for thirty (30) days.
b. The State receives a satisfactory inspection report from an independent tower vendor, funded by the State to perform a tower inspection, and all deficient items identified in the inspection report have been corrected to the State's satisfaction. The inspector will mark all deficiencies with blue, permanent paint pens. All corrections will be marked with yellow, permanent paint pens. The correction will be initialed and dated by the crew. Photos will be taken showing the correction to include the initials as proof that the correction was made. The State reserves the right to perform additional tower inspections to verify that deficient items have been corrected. Should the State require two (2) or more tower inspections to verify correction of deficient items, all costs of the additional inspections, beyond the second inspection, shall be deducted from the TO Contractor's final payment.
c. All other deficiencies noted by the State have been corrected to the State's satisfaction.
d. All construction materials, equipment, excess tools and other materials will be removed from the site. The shelter interior (equipment and generator room) will

be swept and all protective paper removed from the floors. The site should be neat and organized.

e. If applicable final acceptance by MDE that all work has been completed in accordance with the MDE permit.

ATTACHMENT 11 – FOUNDATION INSPECTION SCOPE OF WORK

SUMMARY: Tower construction vendors will incorporate the following series of tests and inspections to ensure proper quality/strength of all concrete poured and the proper foundation installation on all CATS II, FA13 jobs. These inspections will also incorporate verification of foundation dimensions, rebar dimensions, rebar layout and soil compaction. Test results will be supplied, reviewed and approved by DoIT prior to any structures being set on foundations, tower erection or backfilling operations. Field testing will be conducted by an independent, third party.

DETAILS: Each concrete batch (6-9 cubic yards) will have a corresponding batch report provided by the supplier. These will be included in the close out documentation. Batches will be uniquely identified on the batch report. The vendor will use MD SHA approved concrete mixes for all FA13 projects. Mix tables and more information on concrete specifications can be found in section 900.10.03 in the MD SHA grey book.

These mandatory tests/inspections must take place for the tower and shelter foundations:

1. Construction inspectors will verify the excavated foundation dimensions are correct.
2. The compaction of the tower foundation excavated materials will be tested in accordance with AASHTO T99 (Standard Proctor Test). Compaction results will be in accordance with the tower foundation designer's specification or the geotechnical report provided, whichever is greater. Excavated fill will only be used to backfill the foundation if they pass the compaction test.
3. The bearing pressure of the tower foundation sub grade will be tested. Bearing results will be in accordance with the tower foundation designer's specifications or the geotechnical report provided, whichever is greater. In the event, the vendor cannot meet the required bearing pressure they will solicit advice from the tower manufacturer and geotechnical engineer to achieve the desired results.
4. Construction inspectors will verify the proper rebar size, dimension, grade, configuration, layout, fastener/wire ties and other provisions as specified by the foundation designer are correct prior to any concrete pours.
5. Ambient air temperature and general weather conditions will be recorded and noted by the inspector. Readings will be taken at the time of delivery.
6. Concrete slump will be tested for each continuously poured section of caisson or every fifty (50) cubic yards of concrete on a pad and pier foundation. The slump will be tested in accordance with ASSHTO T119 testing standard. The slump will meet the tower foundation designer's specification. If none are noted, then the Slump will be measured in accordance with SHA Grey Book Specification 902.10.03, Chart A. Results will be recorded and supplied prior to acceptance of the given foundation. Work may be halted if the slump is not deemed acceptable.
7. Concrete temperature will be measured for each continuously poured section of a caisson or every fifty (50) cubic yards of concrete on a pad and pier foundation. Temperatures will be tested in accordance with ASSHTO T309 testing standard. Temperature will be in accordance with the foundation designer's specification. If no specifications are supplied then the

temperature will be measured in accordance with SHA Grey Book Specification 902.10.03, Chart A. Results will be recorded and supplied prior to acceptance of the given foundation.

8. Air entrainment will be tested and documented in accordance with ASSHTO T152 or T196. The results will be documented for each continuously poured caisson or 50 cubic yards for a pad and pier foundation. Air content will be within the foundation designer's specification or no more than 5-8%.
9. Compressive strength will be measured at 7 days after pour and 28 days after pour. Compressive strength tests will be tested in accordance with ASSHTO T23 testing standard. A minimum of one (1) set of four (4) cylinders will be taken for each continuously poured section of caisson or every fifty (50) cubic yards of concrete on a pad and pier foundation. Compressive strength will be a minimum of the tower foundation's specification or 4000 psi at 28 days, whichever is greater. At least one cylinder per set will be broken at 7 days and one at 28 days. If all 7 day sets have reached the required compressive strength then back fill operations and/or tower erection can commence. 14 day tests can be conducted if the 7 day tests are not within specification to expedite construction. 28 day tests will be conducted even if 7 day tests are deemed acceptable. Written results must be provided to the state project manager prior to tower erection. Shelter foundations will be at least 3000 psi or the shelter foundation designer's requirements, whichever is greater, at 28 days. Shelter foundations will require one (1) set of four (4) cylinders for both shelter foundations. Test cylinders will be cured on site. As weather conditions dictate, the vendor will provide a cure box to adequately insulate the test cylinders as they cure.

The inspector will provide photographs if necessary. If specifications are not met then the inspector has the authority to stop work until specifications are met.

CATS II FA 13 Construction Schedule
Valley Lee Communications Tower

Line	Item	Vendor submitted schedule	Date requirements (calendar days)
--------	Notice to proceed [NTP] (Provided by DoIT with approved purchase order)	----------	----------
1	Clearing and Grading		NTP + # Days
2	Shelter/Tower Foundation poured		NTP + # Days
3	Tower Delivery		NTP + # Days
4	Shelter Delivery		NTP + # Days
5	Tower Erection (will trigger request for tower inspection)		NTP + # Days
6	Final Grounding (will trigger request for R56 and punch list inspection)		NTP + # Days
7	Site Completion (to include punch list and R56 corrections)		NTP + # Days
8	Closeout documents submitted for state review		NTP + # Days
	Vendor Signature:		

Instructions: Vendors will submit this document with their signed/sealed bid proposal. Construction completion will be used to compare and evaluate supplied bids. The submitted schedule will also serve as the contractor's binding schedule for the project. Projects not completed within the scheduled completion shown on the schedule will be subject to an assessment for liquidated damages.

The vendor will write the number of days past the NTP in the boxes provided.

PAYMENT BOND

Principal	Business Address of Principal
Surety	**Obligee**
a corporation of the State of _____	STATE OF MARYLAND
and authorized to do business in the State of Maryland	By and through the following Administration ...Department of Information Technology
Penal Sum of Bond (express in words and figures) $_____	Date of Contract _____, 2012
Description of Contract: Valley Lee Communications Tower Project	Date Bond Executed _____, 2012
Contract Number: # F50B3400031	

The required payment bond shall be in the form specified as follows:

KNOW ALL MEN BY THESE PRESENTS, That we, the Principal named above and Surety named above, being authorized to do business in Maryland, and having business address as shown above, are held and firmly bound unto the Obligee named above, for the use and benefit of claimants as hereinafter defined, in the Penal Sum of this Payment Bond stated above, for the payment of which Penal Sum we bind ourselves, our heirs, executors, administrators, personal representatives, successors, and assigns, jointly and severally, firmly by these co-sureties, bind ourselves, our successors and assigns, in such Penal Sum jointly and severally as well as severally only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each co-surety binds itself, jointly and severally with the Principal, for the payment of such sum as appears above its name below, but if no limit of liability is indicated, the limit of such liability shall be the full amount of the Penal Sum.

WHEREAS, Principal has entered into or will enter into a contract with the State, by and through the Administration named above acting for the State of Maryland, which contract is described and dated as shown above, and incorporated herein by reference. The contract and all items incorporated into the contract, together with any and all changes, extensions of time, alterations, modifications, or additions to the contract or to the work to be performed thereunder or to the Plans, Specifications, and Special Provisions, or any of them, or to any other items incorporated into the contract shall hereinafter be referred to as the "Contract".

WHEREAS, it is one of the conditions precedent to the final award of the Contract that these presents be executed.

NOW THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and materials furnished, supplied and reasonably required for use in the performance of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject to the following conditions:

1. A claimant is defined to be any and all of those persons supplying labor and materials (including lessors of the equipment to the extent of the fair market value thereof) to the Principal or its subcontractors and subcontractors in the prosecution of the work provided for in the Contract, entitled to the protection provided by Section 9-113 of the Real Property Article of the Annotated Code of Maryland, as from time to time amended.

2. The above named Principal and Surety hereby jointly and severally agree with the Obligee that every claimant as herein defined, who has not been in full may, pursuant to and when in compliance with the provisions of the aforesaid Section 9-113, sue on this Bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant and have execution thereon. The Obligee shall not be liable for the payment of any costs or expenses of any such suit.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Payment Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

This Payment Bond shall be governed by and construed in accordance with the laws of the State of Maryland and any reference herein to Principal or Surety in the singular shall include all entities in the plural who or which are signatories under the Principal or Surety heading below.

IN WITNESS WHEREOF, Principal and Surety have set their hands and seals to this Payment Bond. If any individual is a signatory under the Principal heading below, then each such individual has signed below on his or her own behalf, has set forth below the name of the firm, if any, in whose name he or she is doing business, and has set forth below his or her title as a sole proprietor. If any partnership or joint venture is a signatory under the Principal heading below, then all members of each such partnership or joint venture have signed below, each member has set forth below the name of the partnership or joint venture, and each member has set forth below his or her title as a general partner, limited partner, or member of joint venture, whichever is applicable. If any corporation is a signatory under the Principal or Surety heading below, then each such corporation has caused the following: the corporation's name to be set forth below, a duly authorized representative of the corporation to affix below the corporation's seal and to attach hereto a notarized corporate resolution of power of attorney authorizing such action, and each such duly authorized representative to sign below and set forth below his or her title as a representative of the corporation. If any individual acts as a witness to any signature below, then each such individual has signed below and has set forth below his or her title as a witness. All of the above has been done as of the Date of Bond shown above.

In Presence of: Witness: _____ as to	Individual Principal _____(SEAL)
In Presence of: Witness: _____ as to _____ as to _____ as to	Co-Partnership Principal _____(SEAL) (Name of Co-Partnership) By:_____(SEAL) _____(SEAL) _____(SEAL)
Attest: _____ Corporate Secretary	Corporate Principal _____ (Name of Corporation) AFFIX By: _____ CORPORATE President SEAL
Attest: (SEAL) _____ Signature Bonding Agent's Name: _____ Agent's Address _____	_____ (Surety) AFFIX By: _____ CORPORATE SEAL Title _____ _____ (Business Address of Surety)

PERFORMANCE BOND

Principal | Business Address of Principal

Surety | Obligee:
STATE OF MARYLAND
a corporation of the State of _____ and authorized to do business in the State of Maryland | By and through the following Administration Department of Information Technology

(dollars) _____
Penal Sum of Bond (express in words and figures)

_____, 20_____
Date Bond Executed

_____, 20_____
Date of Contract

Contract Number:# F50B3400031
Description of Contract: Valley Lee Communications Tower Project

KNOW ALL MEN BY THESE PRESENTS, That we, the Principal named above and Surety named above, are held and firmly bound unto the Obligee named above in the Penal Sum of this Performance Bond stated above, for the payment of which Penal Sum we bind ourselves, our heirs, executors, administrators, personal representatives, successors, and assigns, jointly and severally, firmly by these presents. However, where Surety is composed of corporations acting as co-sureties, we, the co-sureties, bind ourselves, our successors and assigns, in such Penal Sum jointly and severally as well as severally only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each co-surety binds itself, jointly and severally with the Principal, for the payment of such sum as appears above its name below, but if no limit of liability is indicated, the limit of such liability shall be the full amount of the Penal Sum.

WHEREAS, Principal has entered into or will enter into a contract with the State of Maryland, by and through the Administration named above acting for the State of Maryland, which contract is described and dated as shown above, and incorporated herein by reference. The contract and all items incorporated into the contract, together with any and all changes, extensions of the time, alterations, modifications, or additions to the contract or to the work to be performed thereunder or to the Plans, Specifications, and Special Provisions, or any of them, or to any other items incorporated into the contract shall hereinafter be referred to as "the Contract."

WHEREAS, it is one of the conditions precedent to the final award of the Contract that these presents be executed.

NOW, THEREFORE, during the original term of said Contract, during any extensions thereto that may be granted by the Administration, and during the guarantee and warranty period, if any, required under the Contract, unless otherwise stated therein, this Performance Bond shall remain in full force and effect unless and until the following terms and conditions are meet:

1. Principal shall well and truly perform the Contract; and

2. Principal and Surety shall comply with the terms and conditions contained in this Performance Bond.

Whenever Principal shall be declared by the Administration to be in default under the Contract, the Surety may, within 15 days after notice of default from the Administration, notify the Administration of its election to either promptly proceed to remedy the default or promptly to complete the contract in accordance with and subject to its terms and conditions. In the event the Surety does not elect to exercise either of the above stated options, then the Administration thereupon shall have the remaining contract work completed, Surety to remain liable hereunder for all expenses of completion up to but not exceeding the penal sum stated above.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed there under or the Specifications accompanying the same shall in any way affect its obligations on the Performance Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

This Performance Bond shall be governed by and construed in accordance with the laws of the State of Maryland and any reference herein to Principal or Surety in the singular shall include all entities in the plural who or which are signatories under the Principal or Surety heading below.

IN WITNESS WHEREOF, Principal and Surety have set their hands and seals to this Performance Bond. If any individual is a signatory under the Principal heading below, then each such individual has signed below on his or her own behalf, has set forth below the name of the firm, if any, in whose name he or she is doing business, and has set forth below his or her title as a sole proprietor. If any partnership or joint venture is a signatory under the Principal heading below, then all members of each such partnership or joint venture have signed below, each member has set forth below the name of the partnership or joint venture, and each member has set forth below his or her title as general partner, limited partner, or member of joint venture, whichever is applicable. If any corporation is a signatory under the Principal or Surety heading below, then each such corporation has caused the following: the corporation's name to be set forth below, a duly authorized representative of the corporation to affix below the corporation's seal and to attach hereto a notarized corporate resolution or power of attorney authorizing such action, and each such duly authorized representative to sign below and to set forth below his or her title as a representative of the corporation. If any individual acts as a witness to any signature below, then each such individual has signed below and has set forth below his or her title as a witness. All of the above has been done as of the Date of Bond shown above.

In Presence of: **INDIVIDUAL PRINCIPAL**
Witness

_____ as to _____
(SEAL)

In Presence of: **CO-PARTNERSHIP PRINCIPAL**
Witness

_____(SEAL)
(Name of Co-Partnership)

_____ as to BY :_____(SEAL)

_____as to _____(SEAL)

_____as to _____(SEAL)

CORPORATE PRINCIPAL

_____
Attest: (Name of Corporation)

AFFIX
_____BY:_____CORPORATE
Corporate Secretary /Witness President SEAL

SURETY

Attest:

AFFIX
_____ BY:_____CORPORATE
Signature SEAL

Title:_____

_____
(Business Address of Surety)

Bonding Agent's Name_____

Agent's Address_____

ATTACHMENT #15 PROPOSAL BOND

Bond No. _____

KNOW ALL MEN BY THESE PRESENTS, that we, _____
(Offeror)

as Principal, hereinafter called the Principal, and

_____
(Bonding Company)

a corporation duly organized under the laws of the state of_____, as Surety, hereinafter called the Surety, are held and firmly bond unto the State of Maryland, hereinafter called "State" for the sum of (SHALL BE 5% OF THE TOTAL PROPOSED PRICE), for the payment of which sum, the said Principal and the said Surety bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a proposal for: F50B3400031 Valley Lee Communications Tower Project

NOW, THEREFORE, if the Principal, upon acceptance by the State of its proposal identified above, within the period specified herein for acceptance for one hundred-twenty (120) days, shall execute such further contractual documents, if any, and give such bond(s) as may be required by the terms of the proposal as accepted within the time specified ten (10) days if no period is specified) after receipt of the forms, or in the event of failure so to execute such further contractual documents and give such bonds, if the Principal shall pay the State for any cost of procuring the work which exceeds the amount of its proposal, then the above obligation shall be void and of no effect.

The Surety executing this instrument hereby agrees that its obligation shall not be impaired by any extension(s) of the time for acceptance of the proposal that the Principal may grant to the State, notice of which extension(s) to the Surety being hereby waived; provided that such waiver of notice shall apply only with respect to extensions aggregating not more than ninety (90) calendar days in addition to the period originally allowed for acceptance of the proposal.

THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK.

In Presence of: **INDIVIDUAL PRINCIPAL**
Witness

_____as to_____(SEAL)

In Presence of: **CO-PARTNERSHIP PRINCIPAL**
Witness

_____ _____(SEAL)
(Name of Co-Partnership)

_____ as to BY: _____(SEAL)

_____ as to _____(SEAL)

_____ as to_____(SEAL)

CORPORATE PRINCIPAL

Attest: _____
(Name of Corporation)

AFFIX

_____ BY: _____CORPORATE

Corporate Secretary President SEAL

SURETY

_____
(Name of Surety)

Attest:

AFFIX

_____ BY: _____CORPORATE

Secretary President SEAL

Bonding Agent's Name _____

Agent's Address _____

_____

_____

Business Address of Surety_____

_____

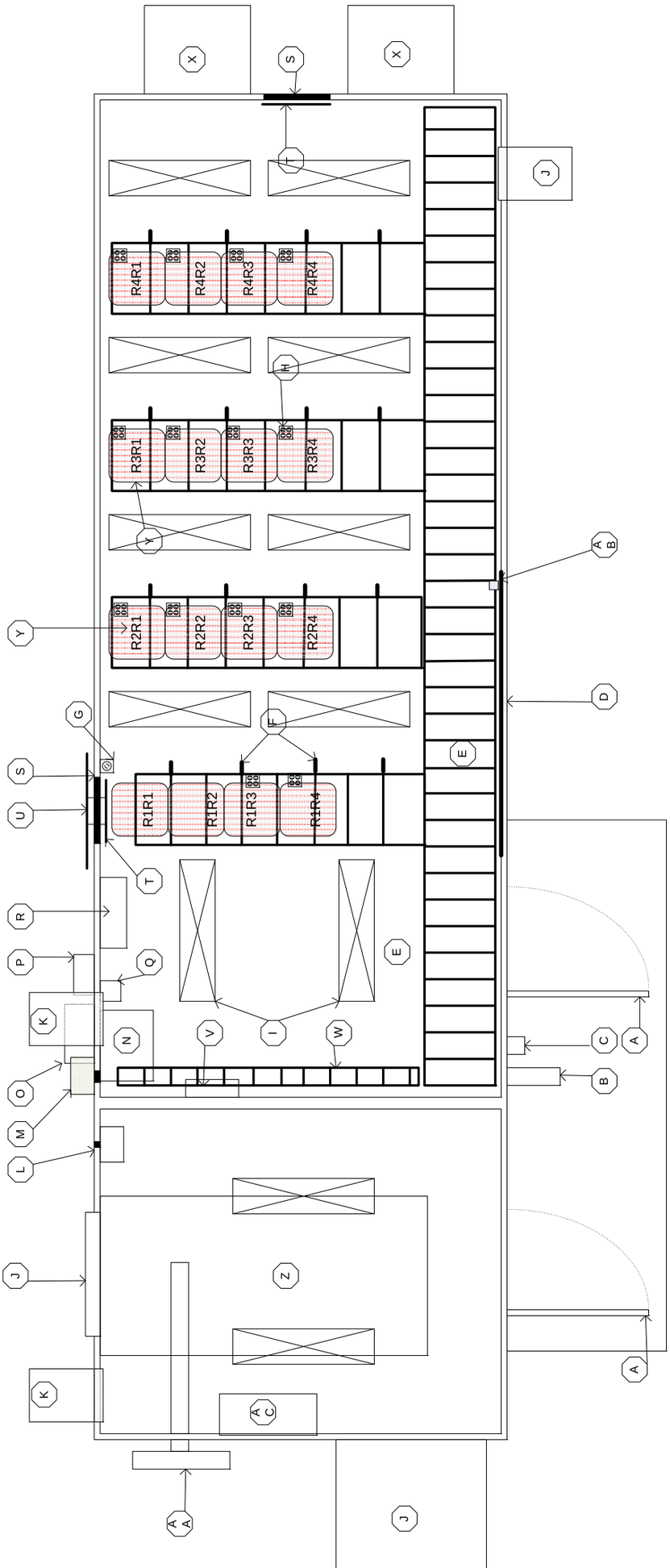
ATTACHMENT 16
Typical 330' State Tower Loading Plan

Antenna#	Mounting Location (Measured down from top)	Mounting Location (AGL)	Antenna Model	Azimuth	Frequency	Line Size	Cable Ladder
1	Top	330	BMR-12	0°	800 MHZ	1 5/8"	State
2	Top	330	BMR-12	120°	800 MHZ	1 5/8"	State
3	Top	330	BMR-12	240°	800 MHZ	1 5/8"	State
4	Top Less 20'	310	BMR-12	0°	800 MHZ	1 5/8"	State
5	Top Less 20'	310	BMR-12	120°	800 MHZ	1 5/8"	State
6	Top Less 20'	310	BMR-12	240°	800 MHZ	1 5/8"	State
7	Top Less 40'	290	BMR-12	0°	800 MHZ	1 5/8"	State
8	Top Less 40'	290	BMR-12	120°	800 MHZ	1 5/8"	State
9	Top Less 40'	290	BMR-12	240°	800 MHZ	1 5/8"	State
10	Top Less 60'	270	DB 420-D	0°	450 MHZ Dual fed antenna	2 X 7/8"	State
11	Top Less 60'	270	DB 420-D	120°	450 MHZ Dual fed antenna	2 X 7/8"	State
12	Top Less 60'	270	DB 420-D	240°	450 MHZ Dual fed antenna	2 X 7/8"	State
13	Top Less 80'	250	DB 224	0°	138-174 MHZ	7/8"	State
14	Top Less 80'	250	DB 224	120°	138-174 MHZ	7/8"	State
15	Top Less 80'	250	DB 224	240°	138-174 MHZ	7/8"	State

16	Top Less 100’	230 feet	(4) DAPA 59210 Panel Antenna array	0°	1710-1990 MHZ	4 X 1 5/8"	Cellular
17	Top Less 100’	230 feet	(4) DAPA 59210 Panel Antenna array	120°	1710-1990 MHZ	4 X 1 5/8"	Cellular
18	Top Less 100’	230 feet	(4) DAPA 59210 Panel Antenna array	240°	1710-1990 MHZ	4 X 1 5/8"	Cellular
19	Top Less 120’	210 feet	(4) DB858HV90E-SX Panel Antenna Array	0°	806-896 MHZ	4 X 1 5/8"	Cellular
20	Top Less 120’	210 feet	(4) DB858HV90E-SX Panel Antenna Array	120°	806-896 MHZ	4 X 1 5/8"	Cellular
21	Top Less 120’	210 feet	(4) DB858HV90E-SX Panel Antenna Array	240°	806-896 MHZ	4 X 1 5/8"	Cellular
22	Top Less 140’	190 feet	8' High Perf Solid Dish w/o radome	0°	6.000 GHz	EW63	State
23	Top Less 140’	190 feet	8' High Perf Solid Dish w/o radome	120°	6.000 GHz	EW63	State
24	Top Less 140’	190 feet	8' High Perf Solid Dish w/o radome	240°	6.000 GHz	EW63	State
25	Top Less 160’	170 feet	(4) DAPA 59210 Panel Antenna Array	0°	1710-1990 MHZ	4 X 1 5/8"	Cellular
26	Top Less 160’	170 feet	(4) DAPA 59210 Panel Antenna Array	120°	1710-1990 MHZ	4 X 1 5/8"	Cellular
27	Top Less 160’	170 feet	(4) DAPA 59210 Panel Antenna Array	240°	1710-1990 MHZ	4 X 1 5/8"	Cellular

28	Top Less 180’	150 feet	(4) DB858HV90E-SX Panel Antenna Array	0°	806-896 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular
29	Top Less 180’	150 feet	(4) DB858HV90E-SX Panel Antenna Array	120°	806-896 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular
30	Top Less 180’	150 feet	(4) DB858HV90E-SX Panel Antenna Array	240°	806-896 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular
31	Top Less 200’	130 feet	8' High Perf Solid Dish w/o radome	0°	6.000 GHz	EW63	State
32	Top Less 200’	130 feet	8' High Perf Solid Dish w/o radome	120°	6.000 GHz	EW63	State
33	Top Less 200’	130 feet	8' High Perf Solid Dish w/o radome	240°	6.000 GHz	EW63	State
34	Top Less 220’	110 feet	(4) DB858HV90E-SX Panel Antenna Array	0°	806-896 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular
35	Top Less 220’	110 feet	(4) DB858HV90E-SX Panel Antenna Array	120°	806-896 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular
36	Top Less 220’	110 feet	(4) DB858HV90E-SX Panel Antenna Array	240°	806-896 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular
37	Top Less 240’	90 feet	(4) DAPA 59210 Panel Antenna Array	0°	1710-1990 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular
38	Top Less 240’	90 feet	(4) DAPA 59210 Panel Antenna Array	120°	1710-1990 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular

39	Top Less 240’	90 feet	(4) DAPA 59210 Panel Antenna Array	240°	1710-1990 MHZ	4 X $1\ ^{5}/_{8}$"	Cellular



A	Door
B	Appleton Plug
C	Exterior Light
D	4x8 Telco board
E	24" cable ladders
F	Stand offs for #2 ground lead
G	(3) vertically mounted 240v outlets (twist lock type)
H	120V Quad box outlet
I	48IN lights

J	Intake hood
K	Temp activated fans
L	Light controller and penetration for SO cables
M	Pull box and 4IN penetration for telco
N	Auto transfer switch
O	Main service disconnect
P	Building subfeed disconnect
Q	Type2 MOV
R	Integrated load center

S	16 Port cable entry port
T	Internal ground bus bar
U	External ground bus bar
V	Subfeed
W	Teleco cable ladder
X	HVAC
Y	Rack footprint
Z	Generator
AA	Generator exhaust

AB	Alarm 66 Block (no enclosure)
AC	Appleton cable/hose bib
AD	
AE	
AF	
AG	
AH	
AI	
AJ	

State of Maryland

Typical 12x38 Ft Shelter
(with generator) Layout

DATE ORIGINAL	SCALE
9/8/08	¼" : 1"

LATEST REVISION	JOB NO.	CHECKED	DRAWN
C			

REVISIONS

NO.	DATE	DESCRIPTION
B	10/08	Added alarms
C	06/09	Changed location of 240VAC outlets/ added (4) 120VAC
D	03/11	Revised lighting plan

Drawn by: William Drew, PMP
William.Drew@doit.state.md.us
410-767-2366

-Dimensions are approximate.
-Final layout/design is subject to the State's approval.

TITLE

LATEST REVISION | DATE ORIGINAL

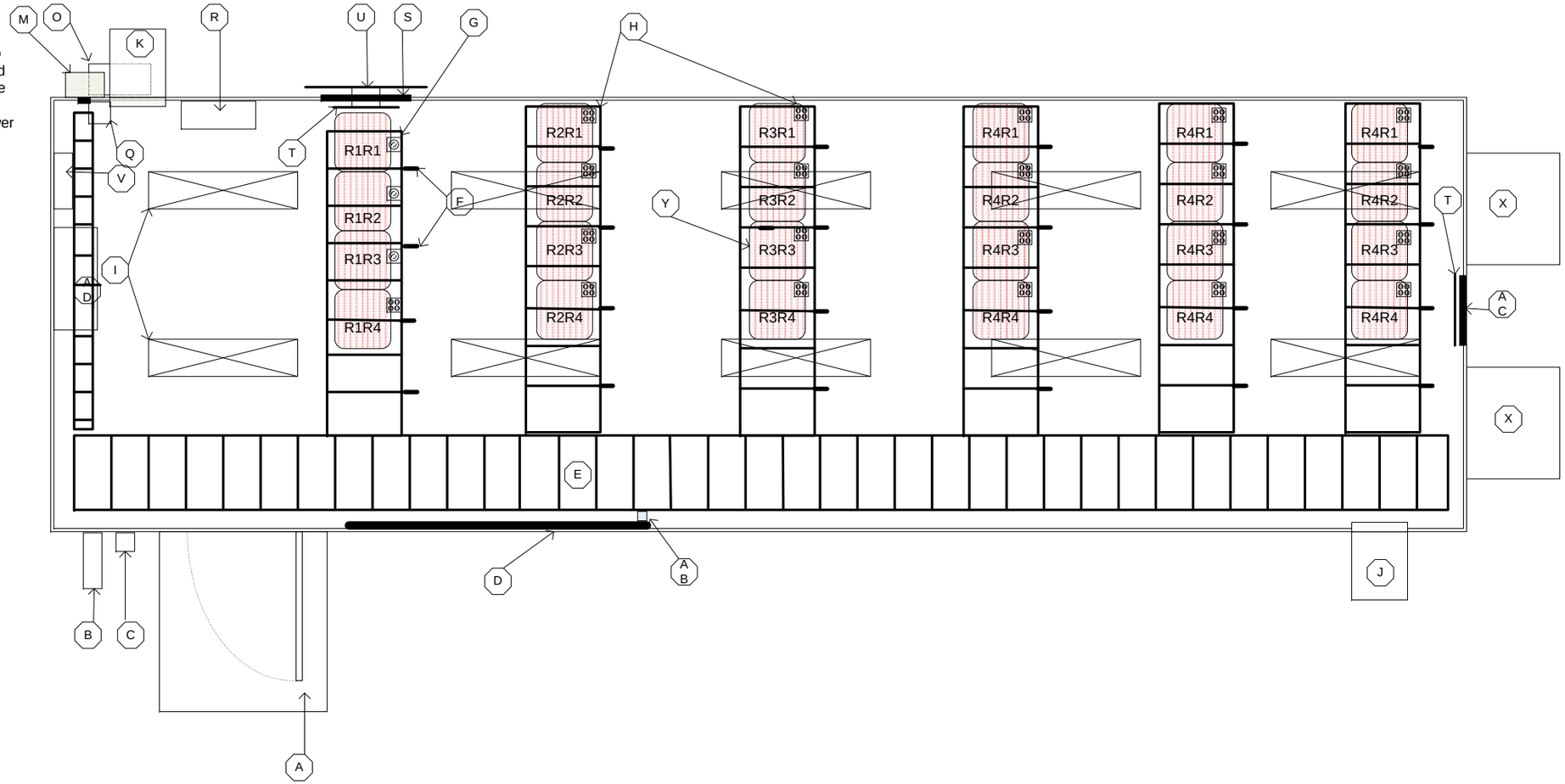
JOB NO. | SCALE

CHECKED | DRAWN

REVISIONS

NO.	DATE	DESCRIPTION

If there are two shelters ordered do not penetrate 12x38 without generator for tower light cables



A	Door
B	Appleton Plug
C	Exterior Light
D	4x8 Telco board
E	24" cable ladders
F	Stand offs for #2 ground lead
G	240v outlets (twist lock type)
H	120V Quad box outlet
I	48IN lights

J	Intake hood
K	Temp activated fans
L	Light controller and penetration for SO cables
M	Pull box and 4IN penetration for telco
N	Auto transfer switch
O	Main service disconnect
P	Building subfeed disconnect
Q	Type2 MOV
R	Integrated load center

S	24 Port cable entry port
T	Internal ground bus bar
U	External ground bus bar
V	Subfeed
W	Teleco cable ladder
X	HVAC
Y	Rack footprint
Z	Generator
AA	Generator exhaust

AB	Alarm 66 Block (no enclosure)
AC	16 Port cable entry port
AD	Appleton cable/hose bib
AE	
AF	
AG	
AH	
AI	
AJ	

TITLE

LATEST REVISION | DATE ORIGINAL

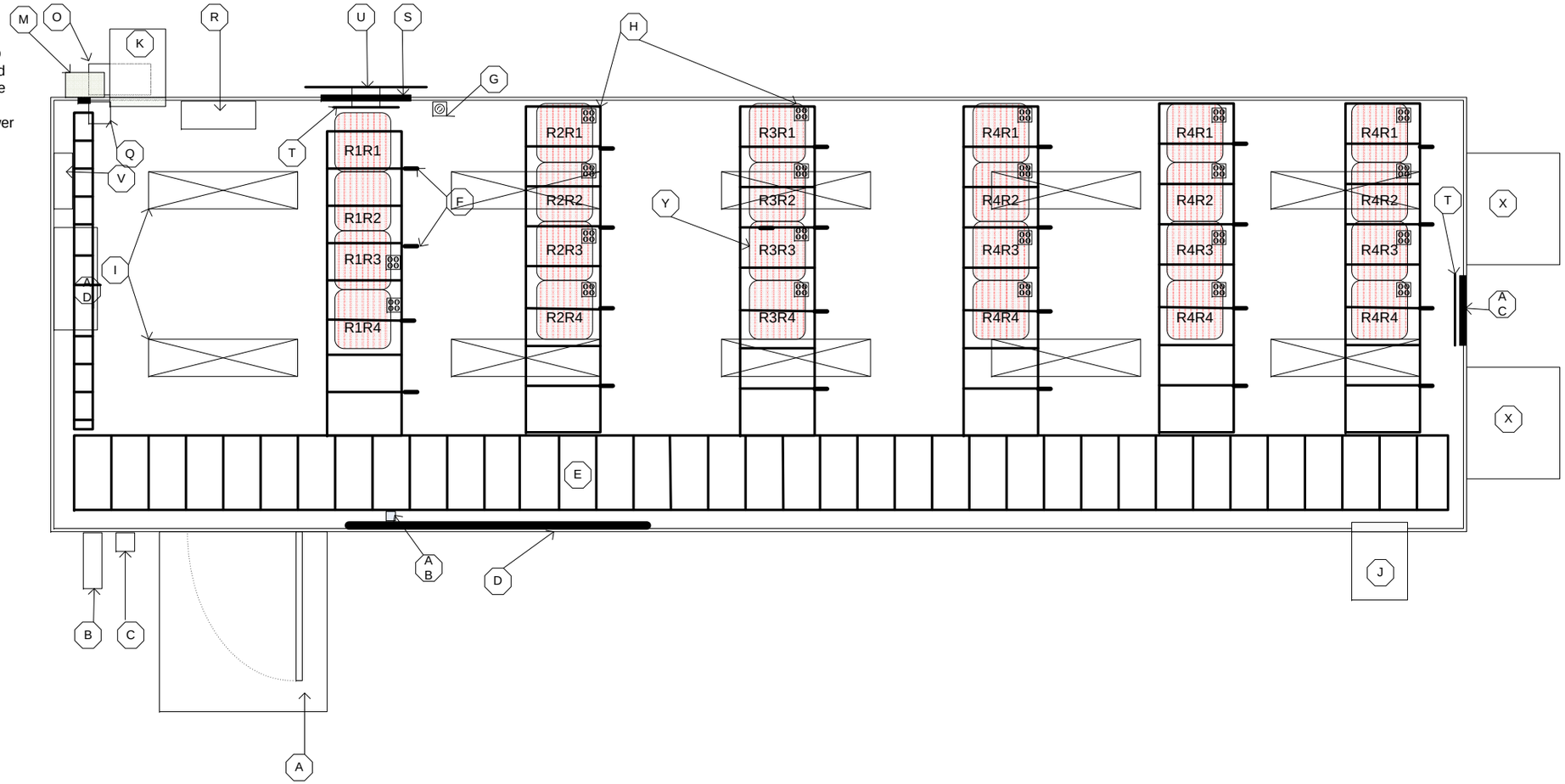
JOB NO. | SCALE

CHECKED | DRAWN

REVISIONS

NO.	DATE	DESCRIPTION

If there are two shelters ordered do not penetrate 12x38 without generator for tower light cables

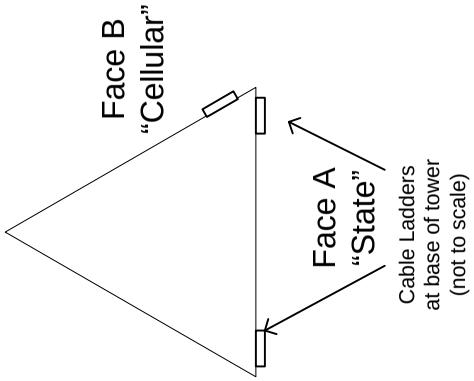


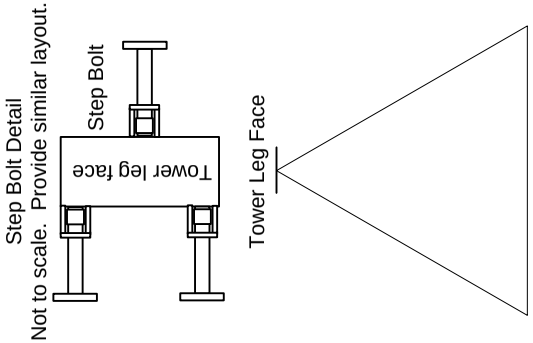
A	Door
B	Appleton Plug
C	Exterior Light
D	4x8 Telco board
E	24" cable ladders
F	Stand offs for #2 ground lead
G	240v outlets (twist lock type)
H	120V Quad box outlet
I	48IN lights

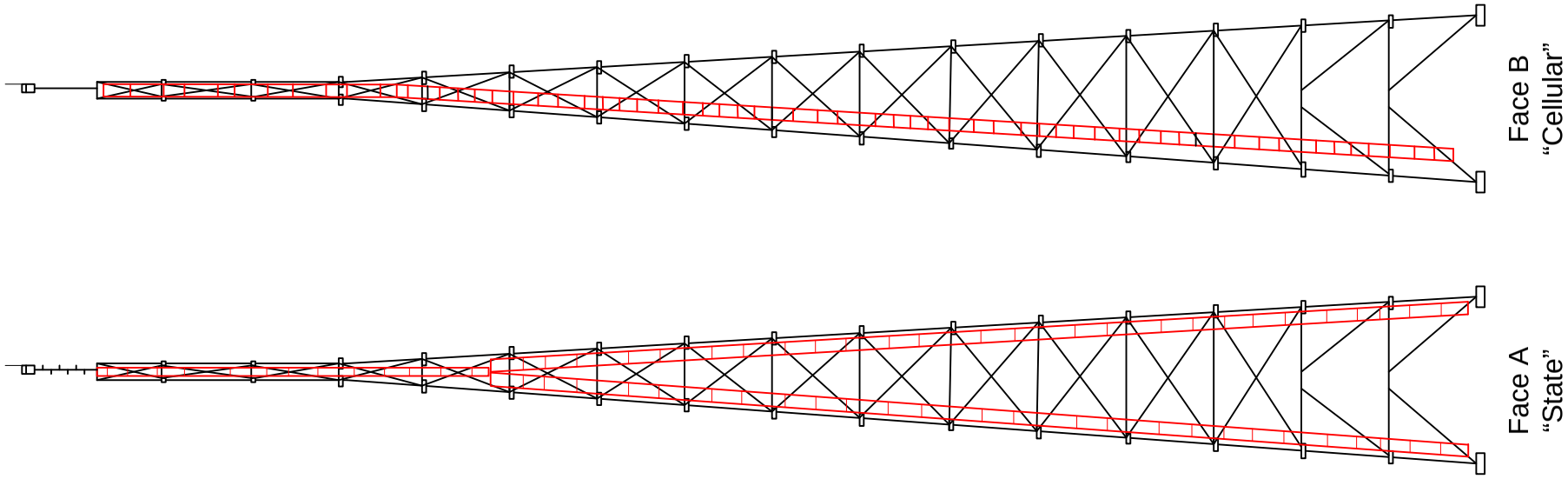
J	Intake hood
K	Temp activated fans
L	Light controller and penetration for SO cables
M	Pull box and 4IN penetration for telco
N	Auto transfer switch
O	Main service disconnect
P	Building subfeed disconnect
Q	Type2 MOV
R	Integrated load center

S	24 Port cable entry port
T	Internal ground bus bar
U	External ground bus bar
V	Subfeed
W	Teleco cable ladder
X	HVAC
Y	Rack footprint
Z	Generator
AA	Generator exhaust

AB	Alarm 66 Block (no enclosure)
AC	16 Port cable entry port
AD	Appleton cable/hose bib
AE	
AF	
AG	
AH	
AI	
AJ	







Typical State tower layout	Drawn by: Sean Javins sean.javins@doit.state.md.us			
	SIZE	FSCM NO	DWG NO	REV A
	SCALE 1in = 40ft. 0in.		SHEET 1 OF 3	

STATE OF MARYLAND

DEPARTMENT OF LABOR, LICENSING AND REGULATION
DIVISION OF LABOR AND INDUSTRY
PREVAILING WAGE SECTION
1100 N. Eutaw Street, Room 607
Baltimore, MD 21201
(410) 767-2342

November 16, 2012

REQUEST FOR ADVERTISEMENT AND NOTICE TO PROCEED

Roxann King, Agency Procurement Specialist
Information Technology
301 W. Preston Street, Room 1304
Baltimore, MD 21201

RE: Valley Lee Communications Tower Construction
Project No CATS II F50B3400031

Enclosed please find the Prevailing Wage Determination and Instructions for Contractors for the project referenced above.

Upon advertisement for bid or proposal of this project, you are requested to submit to this office the date and name of publication in which such advertisement appeared.

Once awarded, you are further directed to submit to this office, the NOTICE TO PROCEED for the project, complete with the date of notice, the name of the general contractor, and the dollar amount of the project. In addition, we ask that a representative of the prevailing wage Unit be invited to attend the Pre-Construction Conference.

Any questions concerning this matter may be referred to PrevailingWage@dllr.state.md.us

Sincerely,

Enclosures
Wage Determination
Instruction for the Contractor

C. Edward Poarch, II
Supervisor
Prevailing Wage Unit

PREVAILING WAGE INSTRUCTIONS FOR THE CONTRACTOR & SUBCONTRACTOR

The contractor shall electronically submit completed copies of certified payroll records to the Commissioner of Labor & Industry, Prevailing Wage Unit by going on-line to www.dllr.state.md.us/prevwage and following the instructions for submitting payroll information (NOTE: A contractor must register prior to submitting on-line certified payroll information).

If you have technical questions regarding electronic submittal, contact the Department at prevailingwage@dllr.state.md.us.

All certified payroll records shall have an accurate week beginning and ending date. The contractor shall be responsible for certifying and submitting to the Commissioner of Labor and Industry, Prevailing Wage Unit all of their subcontractors' payroll records covering work performed directly at the work site. By certifying the payroll records, the contractor is attesting to the fact that the wage rates contained in the payroll records are not less than those established by the Commissioner as set forth in the contract, the classification set forth for each worker or apprentice conforms with the work performed, and the contractor or subcontractor has complied with the provisions of the law.

A contractor or subcontractor may make deductions that are (1) required by law; (2) required by a collective bargaining agreement between a bona fide labor organization and the contractor or subcontractor; or (3) contained in a written agreement between an employee and an employer undertaken at the beginning of employment, if the agreement is submitted by the employer to the public body awarding the public work and is approved by the public body as fair and reasonable.

A contractor or subcontractor is required to submit information on-line on their fringe benefit packages including a list of fringe benefits for each craft employed by the contractor or subcontractor, by benefit and hourly amount. Where fringe benefits are paid in cash to the employee or to an approved plan, fund, or program, the contribution is required to be indicated.

Payroll records must be electronically submitted and received within 14 calendar days after the end of each payroll period. If the contractor is delinquent in submitting payroll records, processing of partial payment estimates may be held in abeyance pending receipt of the records. In addition, if the contractor is delinquent in submitting the payroll records, the contractor shall be liable to the contracting public body for liquidated damages. The liquidated damages are $10.00 for each calendar day the records are late.

Only apprentices registered with the Maryland Apprenticeship and Training Council shall be employed on prevailing wage projects. Apprentices shall be paid a percentage of the determined journey person 's wage for the specific craft.

Overtime rates shall be paid by the contractor and any subcontractors under its contracts and agreements with their employees which in no event shall be less than time and one-half the prevailing hourly rate of wages for all hours worked in excess of ten (10) hours in any one calendar day; in excess of forty (40) hours per workweek; and work performed on Sundays and legal holidays.

Contractors and subcontractors employing a classification of worker for which a wage rate was not issued SHALL notify the Commissioner of Labor & Industry, Prevailing Wage Unit, for the purpose of obtaining the wage rate for said classification PRIOR TO BEING EMPLOYED on the project. To obtain a prevailing wage rate which was NOT listed on the Wage Determination, a contractor or subcontractor can look on the DLLR webpage under prevailing wage.

Contractors and subcontractors shall maintain a valid copy of proper State and county licenses that permit the contractor and a subcontractor to perform construction work in the State of Maryland. These licenses must be retained at the worksite and available for review upon request by the Commissioner of Labor and Industry’s designee.

PREVAILING WAGE INSTRUCTIONS FOR THE CONTRACTORAND SUBCONTRACTOR [con't]

Under the Maryland Apprenticeship and Training Council requirements, consistent with proper supervision, training and continuity of employment and applicable provisions in collective bargaining agreements, a ratio of one journey person regularly employed to one apprentice shall be allowed. No deviation from this ratio shall be permitted without prior written approval from the Maryland Apprenticeship and Training Council.

Laborers may NOT assist mechanics in the performance of the mechanic's work, NOR USE TOOLS peculiar to established trades.

ALL contractors and subcontractors shall employ only competent workers and apprentices and may NOT employ any individual classified as a HELPER or TRAINEE on a prevailing wage project.

In 2009, the State Apprenticeship and Training Fund law was enacted, and the Department is in the process of implementation. See §17-601-17-606, State Finance and Procurement Article, Annotated Code of Maryland. There is no obligation to make contributions under this law at this time. However, the Department anticipates that obligations under this law will be required beginning in the spring of 2013. You will receive notice prior to when the obligations will become due.

Once implemented, this law will require that contractors and certain subcontractors performing work on certain public work contracts are required to make contributions toward apprenticeship. Contractors and subcontractors will have three options where they can choose to make their contributions: (1) participate in a registered apprenticeship training program; (2) contribute to an organization that has a registered apprenticeship training program; or (3) contribute to the State Apprenticeship and Training Fund.

For additional information, contact:
Division of Labor and Industry
Maryland Apprenticeship and Traning
1100 North Eutaw Street, Room 606
Baltimore, Maryland 21201
(410) 767-2246
E-Mail Address: matp@dllr.state.md.us

STATE OF MARYLAND

DEPARTMENT OF LABOR, LICENSING AND REGULATION
DIVISION OF LABOR AND INDUSTRY
PREVAILING WAGE SECTION
1100 N. Eutaw Street, Room 607
Baltimore, MD 21201
(410) 767-2342

The wage rates to be paid laborers and mechanics for the locality described below is announced by order of Commissioner of Labor and Industry.

It is mandatory upon the successful bidder and any subcontractor under him, to pay not less than the specific rates to all workers employed by them in executing contracts in this locality. Reference: Annotated Code of Maryland State Finance and Procurement, Section 17-201 thru 17-226.

These wage rates were taken from the locality survey of 2011 for St. Marys County, issued pursuant to the Commissioner's authority under State Finance and Procurement Article Section 17-209, Annotated Code of Maryland or subsequent modification.

**Note: If additional Prevailing Wage Rates are needed for this project beyond those listed below, contact the Prevailing Wage Unit. Phone: (410) 767-2342, email: prevailingwage@dllr.state.md.us.

Name and Title of Requesting Officer: Roxann King, Agency Procurement Specialist

Department, Agency or Bureau: Information Technology

301 W. Preston Street, Room 1304 Baltimore, MD

Project Number
CATS II F50B3400031

Determination Number
15644

Location and Description of work:
St. Marys County: Purchase and turnkey installation of one (1) 330-foot self-supporting tower, two (2) 12x38 ft concrete foundations, two (2) 12x38x10-foot equipment shelters one (1)with a 75kW backup generator and one (1) 12x38x10-foot
equipment shelter without generator, and one (1) 1000 gallon propane tank.

Date of Issue: Nov 16, 2012

BUILDING CONSTRUCTION

CLASSIFICATION	MODIFICATION REASON	BASIC HOURLY RATE	BORROWED FROM	FRINGE BENEFIT PAYMENT
BALANCING TECHNICIAN	SR	26.00	045	$4.83
BRICKLAYER	SR	20.00		$0.00
BRICKLAYER/SAWMAN	SR	24.84	510	$11.12
CARPENTER	SR	26.74		$7.51
CARPET LAYER	CR	26.36		$18.56
CEMENT MASON	SR	27.15		$9.77
COMMUNICATION INSTALLER TECHNICIAN	SR	23.15		$6.65 a+b
DRYWALL - SPACKLING, TAPING, & FINISHING	SR	24.64	017	$7.91
ELECTRICIAN	CR	39.75		$14.41
ELEVATOR MECHANIC	SR	38.55		$25.06
FIREPROOFER - SPRAYER	SR	21.00	027	$4.69

FIRESTOPPER	SR	25.11	510	$7.36	
GLAZIER	SR	27.29	003	$8.36	
INSULATION WORKER	SR	31.79		$14.73	
IRONWORKER	SR	28.83	017	$14.80	
IRONWORKER - FENCE ERECTOR	SR	28.83	033	$14.80	
IRONWORKER - ORNAMENTAL	SR	28.58	031	$14.80	
IRONWORKER - REINFORCING	SR	19.00	013	$0.00	
LABORER - AIR TOOL OPERATOR	SR	12.00		$0.00	
LABORER - ASPHALT PAVER	SR	15.00	005	$3.40	
LABORER - ASPHALT RAKER	SR	16.54	005	$3.50	
LABORER - BLASTER - DYNAMITE	SR	12.00		$0.00	
LABORER - BURNER	SR	12.00		$0.00	
LABORER - COMMON OR UNSKILLED	SR	12.00	045	$0.28	
LABORER - CONCRETE PUDDLER	SR	12.00		$0.00	
LABORER - CONCRETE SURFACER	SR	12.00		$0.00	
LABORER - CONCRETE TENDER	SR	12.00		$0.00	
LABORER - CONCRETE VIBRATOR	SR	12.00		$0.00	
LABORER - DENSITY GAUGE	SR	12.00		$0.00	
LABORER - FIREPROOFER - MIXER	SR	16.50	027	$3.49	
LABORER - GRADE CHECKER	SR	12.00		$0.00	
LABORER - HAND ROLLER	SR	12.00		$0.00	
LABORER - HAZARDOUS MATERIAL HANDLER	SR	12.00		$0.00	
LABORER - JACKHAMMER	SR	12.00		$0.00	
LABORER - LAYOUT	SR	12.00		$0.00	
LABORER - LUTEMAN	SR	16.54	005	$3.50	
LABORER - MASON TENDER	SR	12.00		$0.00	
LABORER - MORTAR MIXER	SR	12.00		$0.00	
LABORER - PIPELAYER	SR	12.00		$0.00	
LABORER - PLASTERER - HANDLER	SR	12.00		$0.00	
LABORER - SCAFFOLD BUILDER	SR	12.00		$0.00	
LABORER - TAMPER	SR	12.00		$0.00	
MILLWRIGHT	SR	30.24		$7.65	
PAINTER	SR	24.64	017	$7.91	
PAINTER - BRIDGE	SR	24.64	031	$7.91	
PILEDRIVER	SR	24.94	017	$8.18	
PLASTERER	SR	27.00	003	$5.95	
PLUMBER	SR	38.17		$15.82	a
POWER EQUIPMENT OPERATOR - ASPHALT DISTRIBUTOR	SR	18.00	005	$3.58	
POWER EQUIPMENT OPERATOR - BACKHOE	SR	19.00	013	$0.00	
POWER EQUIPMENT OPERATOR - BOBCAT	SR	24.05	510	$11.55	a+b
POWER EQUIPMENT OPERATOR - BOOM TRUCK	SR	32.11	031	$9.45	
POWER EQUIPMENT OPERATOR - BULLDOZER	SR	25.30	510	$11.55	a+b
POWER EQUIPMENT OPERATOR - CRANE	SR	33.39		$14.55	a+b
POWER EQUIPMENT OPERATOR - CRANE - TOWER	SR	34.00	031	$2.52	
POWER EQUIPMENT OPERATOR - DRILL - RIG	SR	27.64	001	$6.32	
POWER EQUIPMENT OPERATOR - EXCAVATOR	SR	15.00	045	$1.30	
POWER EQUIPMENT OPERATOR - FORKLIFT	SR	17.00		$0.00	
POWER EQUIPMENT OPERATOR - GRADALL	SR	25.95	510	$11.55	
POWER EQUIPMENT OPERATOR - GRADER	SR	25.03	005	$14.85	a
POWER EQUIPMENT OPERATOR - GUARD RAIL POST DRIVER	CR	24.85		$11.80	
POWER EQUIPMENT OPERATOR - HOIST	SR	25.47	001	$13.35	
POWER EQUIPMENT OPERATOR - LOADER	SR	24.95	510	$11.55	a+b
POWER EQUIPMENT OPERATOR - MASTER MECHANIC	SR	26.54	005	$11.01	
POWER EQUIPMENT OPERATOR - MECHANIC	CR	25.75		$11.80	
POWER EQUIPMENT OPERATOR - MILLING MACHINE	SR	21.63	005	$3.24	
POWER EQUIPMENT OPERATOR - OILER	SR	25.23	005	$14.97	a

POWER EQUIPMENT OPERATOR - PAVER	SR	18.89	005	$3.63
POWER EQUIPMENT OPERATOR - ROCK / STUMP TUB GRINDER	CR	25.75		$11.80
POWER EQUIPMENT OPERATOR - ROLLER - ASPHALT	SR	18.75	005	$3.63
POWER EQUIPMENT OPERATOR - ROLLER - EARTH	SR	14.00	005	$3.34 a
POWER EQUIPMENT OPERATOR - SCRAPER - PAN	SR	25.47	001	$13.35
POWER EQUIPMENT OPERATOR - SCREED	SR	25.03	005	$14.85
POWER EQUIPMENT OPERATOR - SWEEPER	SR	23.53	005	$14.85
RESILIENT FLOOR	CR	26.36		$18.56
RESILIENT FLOOR/CARPET LAYER	SR	26.36	045	$18.56
ROOFER/WATERPROOFER	SR	15.48	005	$1.27
SHEETMETAL WORKER	SR	37.09		$13.70
SPRINKLERFITTER	SR	29.95		$17.25
STEAMFITTER/PIPEFITTER	SR	37.62		$17.35 a
TILE & TERRAZZO FINISHER	SR	20.48	039	$8.84
TILE & TERRAZZO MECHANIC	SR	26.04	019	$9.99
TRUCK DRIVER - DUMP	SR	18.00	005	$3.58
TRUCK DRIVER - LOWBOY	SR	20.00	005	$3.16

FRINGE REFERENCES AS NOTED:

a. PAID HOLIDAYS: New Year Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

b. PAID VACATIONS: Employees with 1 year service - 1 week paid vacation;
2 years service - 2 weeks paid vacation;
10 years service - 3 weeks paid vacation.

c. PAID HOLIDAYS: New Year Day, Memorial Day, July 4th, Labor Day, Veteran's Day, Thanksgiving Day & Christmas Day.

Modification Codes

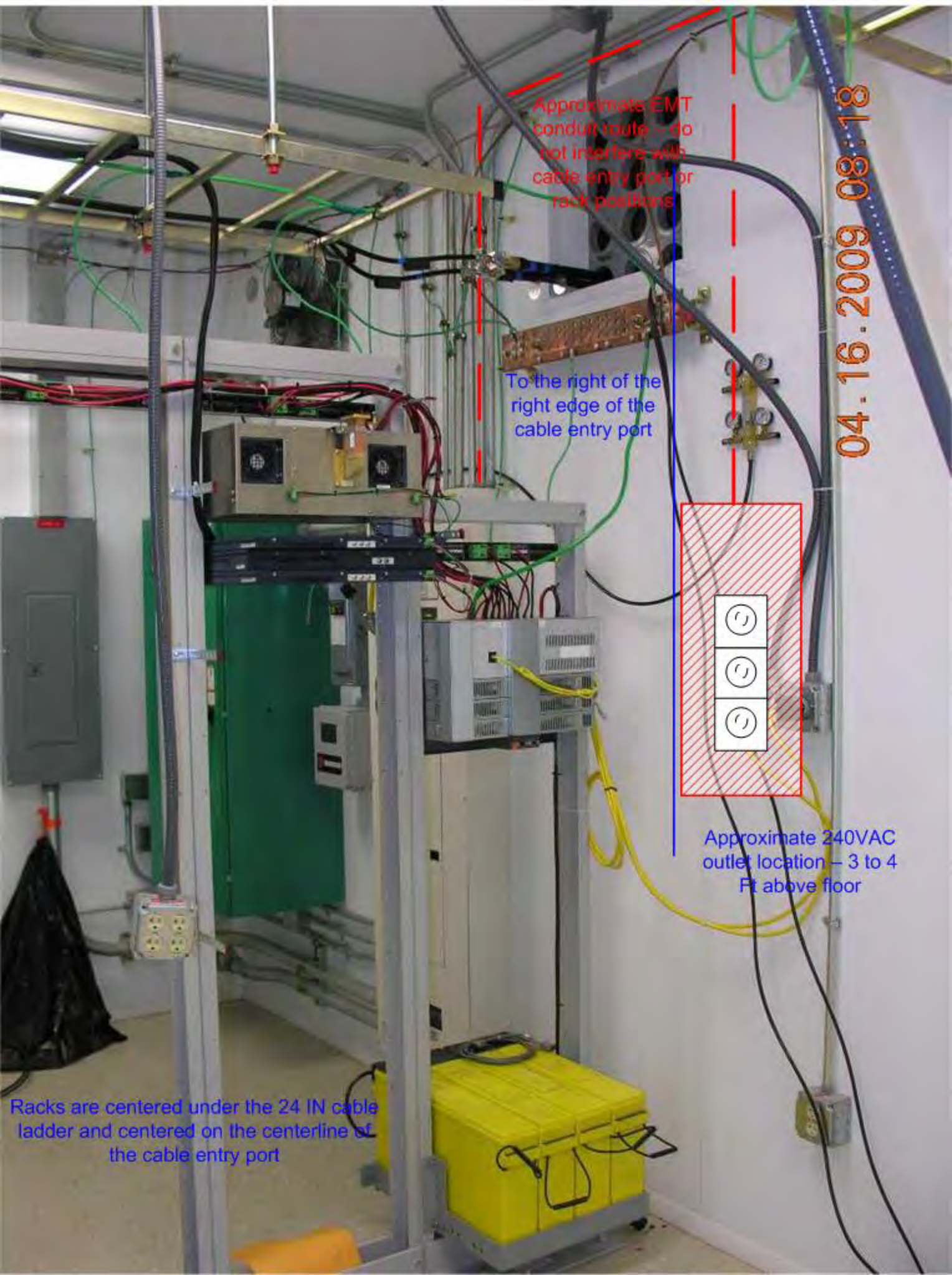
(AD) 17-209 Annual Determination from Survey Wage Data Received
(CH) 17-211 Commissioners' Hearing
(CR) 17-208 Commissioners' Review
(SR) 17-208 Survey Review by Staff

Each "Borrowed From" county is identified with the FIPS 3-digit county code unique for the specific jurisdiction in Maryland.

For additional information on the FIPS (Federal Information Processing Standard) code, see http://www.census.gov/datamap/fipslist/AllSt.txt

The Prevailing Wage rates appearing on this form were originally derived from Maryland's annual Wage Survey. The Commissioner of Labor & Industry encourages all contractors and interested groups to participate in the voluntary Wage Survey, detailing wage rates paid to workers on various types of construction throughout Maryland.

A mail list of both street and email addresses is maintained by the Prevailing Wage Unit to enable up-to-date prevailing wage information, including Wage Survey notices to be sent to contractors and other interested parties. If you would like to be included in the mailing list, please forward (1) your Name, (2) the name of your company (if applicable), (3) your complete postal mailing address, (4) your email address and (5) your telephone number to PWMAILINGLIST@dllr.state.md.us. Requests for inclusion can also be mailed to: Prevailing Wage, 1100 N. Eutaw Street - Room 607, Baltimore MD 21201-2201.


Approximate EMT conduit route – do not interfere with cable entry port or rack positions
To the right of the right edge of the cable entry port
Approximate 240VAC outlet location – 3 to 4 Ft above floor
Racks are centered under the 24 IN cable ladder and centered on the centerline of the cable entry port
04.16.2009 08:18

REVISED REPORT OF

SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING ANALYSIS

VALLEY LEE COMMUNICATIONS TOWER
VALLEY LEE, MARYLAND

FOR

ST. MARY'S COUNTY DEPARTMENT OF PUBLIC SAFETY

NOVEMBER 13, 2012

November 13, 2012

Mr. Bob Kelly
St. Mary's County Department of Public Safety
23115 Leonard Hall Drive
PO Box 653
Leonardtown, Maryland 20650

ECS Project No. 01:20352

Reference: Report of Subsurface Exploration and Geotechnical Engineering Analysis, Valley Lee Communications Tower, Valley Lee, Maryland

Dear Mr. Kelly:

As authorized by your acceptance of our proposal No. 01:42044-GPR revised on October 4, 2012, ECS Mid-Atlantic, LLC (ECS) has completed the subsurface exploration and geotechnical engineering analysis for Valley Lee Communications Tower in Valley Lee, Maryland. The enclosed report describes the subsurface exploration and laboratory testing programs and provides recommendations for development of the site. A Boring Location Diagram is included in the Appendix of this report, along with the boring logs for soil borings performed at the site. Recommendations with regards to the proper construction of the proposed communication tower and trailers are included in the text of the accompanying report.

We appreciate this opportunity to be of service to you in preparing this geotechnical evaluation. If there are any questions regarding the information and recommendations contained in this report, or with respect to any work performed to date, please do not hesitate to contact us.

Respectfully,

ECS MID-ATLANTIC, LLC

Veronica T. De Freitas, EIT
Staff Project Manager

Manol P. Andonyadis, P.E.
Principal Engineer

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REVISED REPORT

PROJECT

Subsurface Exploration and Geotechnical Engineering Analysis Valley Lee Communications Tower Valley Lee, Maryland

CLIENT

St. Mary's County Department of Public Safety
23115 Leonard Hall Drive
PO Box 653
Leonardtown, Maryland 20650

PROJECT NO. 01:20352

DATE November 13, 2012

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PROJECT OVERVIEW

Project Description and Site Conditions

We understand that the development will consist of the construction of a 340 foot communications tower with a an approximate 31 feet leg span, an approximate 11,000 squarefoot permeable pavement area with 12-inch subbase material and two 450 square-foot trailers to be located near the tower. It is our understanding that the permeable pavement area is to act as part of the stormwater management system for the developed area.

The site currently appears to be wooded and sloping from a high of EL. +109 feet to the east and a low of EL. +102 feet to the western portion of the proposed development. A new roadway is also expected to be constructed as part of this development; however, it is not included in our scope of services.

Please note that structural information was not provided at the time this report was written; however, we have assumed maximum column loads for the trailer to be in the order of 50 kips, and upward/downward forces for the 340 feet communications tower to be on the order 200 kips.

Purposes of Exploration and Scope of Work

The purposes of this exploration were to explore the soil and groundwater conditions at the site and to develop geotechnical engineering recommendations and pavement sections to guide design and construction of the project. We accomplished these purposes by:

1. Drilling five borings to explore the subsurface soil and groundwater conditions,
2. performing in-situ infiltration testing,
2. performing laboratory tests on selected representative soil samples from the borings to evaluate pertinent engineering properties,
3. analyzing the field and laboratory data to develop the engineering recommendations included in this report, and
4. preparing this written engineering report.

The conclusions and recommendations contained in this report are based on a total of four soil borings, referenced as B-1 through B-4, and one soil lead boring, referenced as B-5, for infiltration testing. Soil borings B-1 through B-3 were drilled within the proposed communications tower. Soil borings B-1 and B-2 were extended to approximately 70 feet below existing grade and soil boring B-3 was extended to approximately 40 feet below existing grades. Soil boring B-4 was drilled within the proposed trailers. Borings B-4 and B-5 were extended to approximately 10 feet below existing grades. The locations for the soil borings performed during the subsurface explorations were located and marked in the field by ECS using our Global Positioning Satellite (GPS) system. The GPS unit used for the boring layout is certified to sub-meter accuracy. Therefore, the GPS System is capable of locating borings within 3 feet of the intended location.

The ground surface elevations noted boring logs were interpolated from the existing topographic information contained on the topographic survey drawing prepared by Mehaffey and Associates, P.C. The elevations noted on the boring logs should be accurate to the nearest one foot. Please note that the elevations shown on the boring logs are only considered to be as accurate as the field taping procedures and the topographic survey from which they were previously obtained. Please refer to the Boring Location Diagram in the Appendix of this report for boring location information.

EXPLORATION PROCEDURES

Subsurface Exploration Procedures

The soil borings were performed utilizing a CME 75, truck mounted auger drill rig, which utilized continuous flight, hollow stem augers to advance the boreholes. Drilling fluid was not used in this process. After completion of the boring, the bore hole was backfilled with the auger spoils generated during the drilling process and patched with temporary asphalt patch.

Representative soil samples were obtained by means of the split-barrel sampling procedure in accordance with ASTM Specification D-1586. In this procedure, a 2-inch O.D., split-barrel sampler is driven into the soil a distance of 18 inches by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler through a 12-inch interval is termed the Standard Penetration Test (SPT) value and is indicated for each sample on the boring logs. This value can be used as a qualitative indication of the in-place relative density of cohesionless soils. In a less reliable way, it also indicates the consistency of cohesive soils. This indication is qualitative, since many factors can significantly affect the standard penetration resistance value and prevent a direct correlation among drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies.

A field log of the soils encountered in the borings was maintained by the drill crew. After recovery, each sample was removed from the sampler and visually classified. Representative portions of each sample were then sealed and brought to our laboratory in Chantilly, Virginia for further visual examination and laboratory testing.

Infiltration Testing

The purpose of infiltration testing is to determine the character, physical properties and Seasonal High Water Table (SHWT) of natural soils proposed to be used for infiltration of stormwater. Soils associated with potential infiltration location, and were conducted by continuous soil sampling utilizing hollow-stem auger drilling/standard split spoon sampling methods.

Infiltration testing was accomplished approximately 5 feet offset from lead soil boring B-5. The test was completed within +\- 2 feet of the anticipated infiltration facility subgrade invert. The infiltration test performed was run in general accordance with current Testing Requirements for Infiltration, Bioretention and Sand Filter Subsoil for the state of Maryland utilizing the falling head test method.

Laboratory Testing Program

Representative soil samples were selected and tested in our laboratory to check field classifications and to determine pertinent engineering properties. The laboratory testing program included visual classifications, moisture content tests, Atterberg Limits tests, grain size distribution analysis tests. All data obtained from the laboratory tests is included in the Appendix of this report.

Each soil sample was visually classified on the basis of texture and plasticity in accordance with the Unified Soil Classification System. The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. A brief explanation of the Unified System is included with this report. Various soil types were grouped into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs and profiles are approximate; in situ, the transitions may be gradual, rather than distinct.

The soil samples will be retained in our laboratory for a period of sixty days, after which, they will be discarded unless other instructions are received as to their disposition.

EXPLORATION RESULTS

Regional Geology

The proposed site is located in the Atlantic Coastal Plain Physiographic Province of Maryland. This Coastal Plain Province is characterized by a series of southeasterly dipping layers of relatively consolidated sandy clay deposits, with lesser amounts of gravel. These Coastal Plain deposits are estimated to be approximately 250 feet thick and are underlain by the eastward continuation of the crystalline rock of the Piedmont Physiographic Province.

In general, the higher elevations of the site area consist of terrace deposits of the Quaternary Age. The Potomac Group sediments of the Cretaceous Age underlie these deposits. Colluvial deposits cover the side of some slopes, and alluvial deposits can be found along streams in the area.

The Quaternary Terrace deposits consist predominantly of sands, with varying quantities of silt and gravel. Some thin, silty clay deposits with low to medium plasticity can also be encountered within the Quaternary deposits.

The Cretaceous Age Potomac Group deposits consist generally of interlensed, discontinuous, sand and clay layers that generally slope to the southeast at roughly 50 to 80 feet per mile, or approximately 0.5 to 0.8 degrees. The sand layers generally consist of fine to medium sand, with varying amounts of clay and silt. However, in isolated areas, significant amounts of gravel can also be encountered. The occurrences of the sand layers are discontinuous, both laterally and vertically.

The clay layers of the Potomac group are commonly referred to as "marine clay", although it is generally believed that they were deposited in a deltaic environment. These very stiff to hard clays are often moderately to highly overconsolidated and have a blocky structure. The clays vary in their composition and shear strength parameters. Fissures and slickensided surfaces are often present within these clays. In their natural state, these clays exhibit considerable strength, but after removal of overburden by erosion or grading, a significant reduction in shear strength occurs. This strength loss is attributable to opening of fissures, allowing water movement along the openings, which leads to a lowered effective strength along the slickensided surfaces. The residual shear strength of the clays is generally used in stability analyses to model conditions of reduced shear strength due to large, long-term movements of slopes.

These "marine clays" are highly plastic and have a high shrink/swell potential, due to the presence of montmorillonite as their predominant clay mineral. "Marine clays" are typically continuous layers in a lateral direction of considerable distance, although, in some cases, they may form isolated clay pockets, grade into sand, or pinch out.

Soil Conditions

A total of four soil borings, referenced as B-1 through B-4, and one lead soil boring for infiltration testing, referenced as B-5, were drilled for this subsurface exploration program. Borings, B-1 through B-3, were drilled within the proposed communications tower, while boring B-4 was drilled within the proposed trailer structure. The lead soil boring, boring B-5, was drilled as part

of infiltration testing for a proposed infiltration facility. Soil borings B-1 and B-2 were extended to approximately 70 feet below existing grades, soil boring B-3 was extended to approximately 40 feet below existing grades, and soil borings B-4 and B-5 were extended to approximately 10 feet below existing grades. Continuous sampling was performed within all soil borings to depths of up to approximately 14 feet.

At all boring locations approximately 4 to 6 inches of surficial “topsoil” was encountered at the subject site. Directly underneath the surficial “top soil” natural soils was encountered within all soil borings which where observed to be consistent with the regional geology and soil mapping. The natural soils generally consisted of interbedded layers of fine silty SAND (SM), lean CLAY (CL) with silt, sandy SILT (ML) with trace amounts of clay and fat CLAY (CH). Fat CLAY (CH) soils were only observed within the deeper borings at approximately 53 feet below existing grades. The natural soils exhibit Standard Penetration Test (SPT) N-values generally ranging between 5 blows per foot (bpf) and 33 bpf, which indicate loose to dense relative densities for cohesionless soils and medium stiff to hard for cohesive soils

Groundwater Observations

Observations for groundwater were made by the drilling crew during sampling and upon completion of the drilling operations at each boring location. In hollow-stem auger drilling operations, water is not introduced into the boreholes, and the groundwater position can often be determined by observing water flowing into or out of the boreholes. Visual observation of the soil samples retrieved during the auger drilling exploration can often be used in evaluating the groundwater conditions. Groundwater seepage was noted within the deeper borings, B-1 and B-2, and was recorded at a depth of approximately 38 feet to 40 feet below the existing grades (approximately EL. 68 feet to 66 feet).

It should be noted that the site is subject to shallower perched water conditions, where water becomes trapped within the existing fill or the granular deposits overlying less permeable cohesive soils. For this reason, perched groundwater could be anticipated within the proposed excavation limits.

Variations in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, and other factors not immediately apparent at the time of this exploration. Free water may also be encountered at the interface of fill materials and natural soils.

ANALYSIS AND RECOMMENDATIONS

Based on our subsurface exploration and geotechnical engineering analysis the site is considered suitable for the proposed communication tower and trailers provided that the recommendations of this report are followed. We recommend that the proposed communications tower be supported by a system of deep foundations consisting of drilled shafts. Shallow foundations appear suitable for foundation support of the proposed trailers. Low infiltration rates were observed during the field infiltration test within the proposed pavement area; therefore, the permeable pavement does not appear to be suitable for use as the stormwater management system. The geotechnical recommendations for the proposed development are presented in the following sections.

Infiltration Test Results and Recommendations

We understand that approximately 11,000 squarefoot of permeable pavement with 12-inch subbase material will be placed to act as part of the stormwater management system for the developed area. Infiltration testing was performed at approximately 3.5 feet below existing grades within the proposed permeable pavement area. The soils encountered within the permeable pavement area appear to be natural soils generally consist of fine silty SAND (SM) and SILT (ML) with clay. The location of the infiltration test at soil boring B-5 can be referenced on the Boring Location Diagram, attached in the report Appendix. The field infiltration test results identified an average field infiltration rate of approximate 0.25 inches per hour at an approximate elevation of 102.5 feet. The recommended infiltration rate is 0.1 inches per hour. Please see the Infiltration Test Recor/Calculation Sheet attached in the report Appendix.

According to the Appendix D.1 Testing Requirements for Infiltration Bioretention and Sand Filter Subsoils for the State of Maryland, for infiltration trench and basin practices, a minimum field infiltration rate of 0.52 inches per hour is required; lower rates preclude the use of these practices.

Based upon the results of the infiltration testing at the depth tested the soils encountered are not suitable for the proposed stormwater management system. Additional infiltration testing might be required; however, based on the subsurface results higher infiltration rates are not expected to be encountered.

Foundation Recommendations

Based on the subsurface exploration program, the site is suitable for the proposed communications tower and trailers provided that the following foundation recommendations are followed. The proposed communication tower should be supported by drilled shafts; while the proposed trailer should be supported by a system of shallow foundations. Structural loading information has not been provided to us; however we have assumed maximum column loads for the trailer to be in the order of 50 kips, and upward/downward forces for the 340 feet communications tower to be on the order 200 kips. Additionally, we have assumed that the proposed structure will be constructed at grade.

Drilled Shaft Foundations – Communications Tower

Straight drilled shafts (or caissons) may be used to support the tower structure at the site. The drilled shafts will derive their capacity principally through end-bearing via embedment into the soils. Straight drilled shafts designed for support of the tower structure at this site may be

designed for an allowable bearing capacity of 200 kips per shaft at tip elevations of approximately EL. 76 feet (F.S. = 2.0). Considering the proposed development, preliminary shaft lengths will be on the order of approximately 30 feet to 35 feet, depending on the final design; however, a deeper embedment depth may be required to prevent overturning and uplift of the communication tower. Once the communication tower design is further along, it will be necessary for the geotechnical engineer to conduct lateral and uplift analyses of the deep foundations. The structural engineer can request these analyses once the lateral and uplift foundation loading requirements are established.

At the elevation mentioned above, the shafts should be bearing on adequate soils. The 80 tons bearing capacity should have a minimum bearing soil SPT N-value of 12 bpf at the tip elevation of the shaft. We recommend that the shafts be geotechnically designed with a minimum Factor of Safety (F.S.) of 2.0. For the design of the drilled shaft, the following soil parameters should be utilized:

Table 1: Recommended Soil Parameters

Elevation (feet)	Friction Angle (degrees)	Moist Unit Weight (pcf)
106 to 100	26	115
100 to 50	28	110

Based on our analysis, we estimate total settlement of the shafts will be less than about 1 inch. Differential settlements between adjacent columns should be less than about 3/4 of the total settlement. If requested, additional information regarding specific column loads and shaft locations can be for detailed settlement analysis.

For drilled shafts supporting column loads, we recommend a minimum shaft diameter of 30 inches in order to allow access for inspection and cleaning. Due to the variability of the soils, and relatively granular nature of a majority of the site soils, we anticipate that belling of the shafts will not be feasible at this site. During construction, the shafts should be tested (at the design bearing elevation) with regard to the soil's SPT N-values in accordance with the recommendations contained above. All SPT testing shall be performed by the drilled shaft contractor under the observation of the geotechnical engineer. Down-hole shaft inspection will be required for all shafts, at the direction of the geotechnical engineer. All shafts shall be lined with a temporary steel casing and dewatered for potential down-hole inspection by the geotechnical engineer; this method is considered the "dry method" installation for drilled shafts.

It is possible that either cobbles or boulders may be encountered while drilling the shafts. Both cobbles and boulders can be problematic with regard to shaft installation and are sometimes regarded as drilling obstructions. There is no practical way to estimate the costs associated with boulder/cobble removal at this stage in the project. However, we suggest that a monetary contingency be carried in the project budget to account for difficult drilling in the drilled shaft areas. Regardless of deep foundation type, the presence of cobbles and boulders will be challenging with regard to installation, if encountered.

Drilled Shaft Construction Considerations

Belled shafts do not appear technically feasible based on the lack of a well defined, cohesive bearing stratum. Temporary steel casing will be required for the full shaft length, partially due to inspection requirements, and definitely to limit infiltrating groundwater that may impact the bearing condition or contaminate concrete. Concrete may be placed using a direct fall method,

as long as the concrete is not allowed to strike the sides of the caisson liner, or any reinforcing steel. If concrete free falls and strikes obstructions, it can segregate, resulting in undesirable strength properties. Otherwise, it has been our experience that the free fall method of installation results in compact concrete. In the upper 5 feet of the drilled pier, the use of vibratory equipment to further consolidate the concrete will be required. Since temporary steel casing will be needed, the concrete may be placed using a “pour and pull” technique. In this operation, it is critically important that the depth of the concrete be monitored to ensure positive pressure of concrete as the liner is extracted and that the elevation of the concrete be maintained above the bottom of the liner until final extraction of the liner. During placement operations, the elevation of the concrete should be monitored. At no time should the relative elevation of the concrete increase during extraction. This implies that the concrete is adhering to the shaft of the liner, which can result in a vacuum pressure, resulting in contamination of the drilled shaft. If it is expected that any drilled shafts are contaminated in this method, then it will be necessary to core drill the shaft, to determine shaft integrity.

Lateral and Uplift Load Analysis

Once the communication tower design is further along, it will be necessary for the geotechnical engineer to conduct lateral and uplift analyses of the deep foundations. The structural engineer can request these analyses once the lateral and uplift foundation loading requirements are established

Shallow Foundations Recommendations - Trailers

We understand that the proposed one-story trailers will be constructed at grade. The subsurface conditions encountered within the proposed trailers appear to be suitable for structural support on a shallow foundation system. Based on the results of our subsurface exploration, we recommend that the proposed trailer be supported on a shallow foundation system consisting of spread and/or continuous footings. We anticipate that the footings will bear on natural soils.

For footings placed to bear on natural soils, a maximum allowable soil bearing pressure of 2,000 psf can be used to size the footings. Soils that can accommodate the 2,000 psf bearing pressure can be identified as those natural soils having a minimum Standard Penetration Test (SPT) N-value of 8 blows per foot (bpf) or greater. The allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation bearing soils. Based on the recommended bearing pressure, total and differential settlement values are expected to be on the order of 1 inch and 0.75 inches, respectively.

All footing installations should be observed on a full time basis by a representative of the geotechnical engineer. During construction, the bearing capacity at the final footing excavations for footings constructed on natural soils should be documented in the field by the geotechnical engineer of record or his authorized representative to ensure that the in-situ bearing capacity at the bottom of each footing excavation is adequate for the design loads.

Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are made. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open

overnight, or if rainfall becomes imminent while the bearing soils are exposed, we recommend that a 2 to 3-inch thick "mud mat" of "lean" concrete be placed on the bearing soils before the placement of reinforcing steel.

In order to prevent disproportionately small footing sizes, we recommend that continuous footings have a minimum width of 1.5 feet and that isolated column footings have a minimum lateral dimension 2.5 feet. The minimum dimension recommended above help reduce the possibility of foundation bearing failure and excessive settlement due to local shear or “punching” action. In addition, footings should be placed at a depth to provide adequate frost cover protection. Therefore, we recommend that footings in heated areas be placed at a minimum depth of 2 feet below the finished grade, and perimeter footings, subject to climatic variation, be located at a minimum depth of 2.5 feet below finished grade.

Floor Slab Design

The existing subgrade soils appear suitable to support slab-on-grade construction that will bear on newly compacted engineered fill. For structures constructed at grade, we recommend heavy proofrolling of the subgrade soils with a loaded dump truck in order to identify any soft spots. Such soils should be undercut and replaced with suitable engineered fill in accordance with the Fill Placement section of this report. Slab subgrade areas should be observed by an experienced Geotechnical Engineer at the beginning of slab subgrade construction in order to aid in locating any soft deposits or unsuitable materials.

Although not anticipated, if high plasticity soils (MH or CH) are encountered at the floor slab subgrade, these materials should be removed to a depth of 2 feet and replaced with a non-expansive engineered fill material in accordance with the recommendations outlined in the Fill Placement section of this report.

We recommend that the floor slab be isolated from the foundation footings so that differential settlement of the structure will not induce shear stresses in the floor slab. Special attention should be given to the surface curing of the slab in order to minimize uneven drying of the slab and associated cracking.

We also recommend that the floor slab be underlain by a minimum of 4 inches of granular material having a maximum aggregate size of 1.5 inches and no more than 2% soil fines passing the No. 200 sieve. This granular layer will facilitate the fine grading of the subgrade, help prevent the rise of water through the floor slab and serve as the drainage layer. Prior to placing the granular material, the floor subgrade soil should be properly compacted, proofrolled, and free of standing water, mud, and frozen soil. Before the placement of concrete, a vapor barrier may be placed on top of the granular material to provide additional moisture protection.

Seismic Design Considerations

The International Building Code (IBC) 2009 requires site classification for seismic design based on the upper 100 feet of a soil profile. Where site specific data are not available to a depth of 100 feet, appropriate soil properties are permitted to be estimated by the registered design professional preparing the soils report based on known geologic conditions. The seismic site

class definitions for the weighted average of either the SPT N-values or the shear wave velocities in the upper 100 feet of the soil profile are presented in Table 1613.5.2 of the 2009 IBC Code and in the table below.

Site Class	Soil Profile Name	Shear Wave Velocity, Vs, (feet./s)	Standard Penetration Test (SPT) N-value
A	Hard Rock	Vs > 5,000 fps	N/A
B	Rock	2,500 < Vs ≤ 5,000 fps	N/A
C	Very dense soil and soft rock	1,200 < Vs ≤ 2,500 fps	N_{AVG} > 50 bpf
D	Stiff Soil Profile	600 ≤ Vs ≤ 1,200 fps	15 ≤ N_{AVG} ≤ 50 bpf
E	Soft Soil Profile	Vs < 600 fps	N_{AVG} < 15 bpf

In the absence of actual shear wave (Vs) data, we utilized the Standard Penetration Test (SPT) N-values recorded from the borings. Utilizing the known subsurface profile, a conservative estimate for a recommended site seismic classification of Site Class D should be applied for the proposed structure.

Subgrade Preparation and Earthwork Operations

Subgrade preparation operations should consist of stripping all vegetation, rootmat, topsoil, removal of the existing underground utilities, asphalt pavement, sidewalks, structures and any other soft or unsuitable material from the proposed trailers and communication tower areas. Where possible, stripping limits for proposed communication tower and trailers should be extended at least 10 feet plus an additional 1 foot for each foot of fill required at the additions exterior edge.

All utilities below the new construction must be removed, and the resulting excavation must be filled with new compacted fill soils in accordance with the Fill Placement and Compaction section of this report.

After stripping to the desired grade and prior to new fill placement, the exposed soils should be carefully examined to identify any localized loose, yielding or otherwise unsuitable materials by an experienced geotechnical engineer or his authorized representative. After examining the exposed soils, loose and yielding areas can be identified by proofrolling with an approved piece of equipment, such as a loaded dump truck having an axle weight of at least 10 tons. Any soft or unsuitable materials encountered during this proofrolling should be removed and replaced with an approved backfill compacted to the criteria given below in the section entitled Fill Placement and Compaction.

The preparation of fill subgrades and the proposed trailers and communication tower subgrades should be observed on a full-time basis. These observations should be performed by an experienced geotechnical engineer, or his representative, to document that all unsuitable materials have been removed, and that the subgrade is suitable for support of the proposed construction and/or fills. In some areas, excessively soft and/or wet soils may be encountered for

fill subgrades, especially in the winter or early spring months. Soil bridging lifts should not be used to span over soft fill subgrade soils within the expanded trailers and communication tower limits. All soft areas shall be excavated and removed.

Fill Placement and Compaction

Fill materials should consist of an approved material, free of organic matter, debris, and cobbles greater than 4 inches, and have a Liquid Limit and Plasticity Index less than 40 and 15, respectively. These soils should typically consist of SM, ML, SC, CL, and combinations thereof that meet the previously stated soil indices. SC soils with highly plastic fines (i.e., LL and PI greater than 40 and 15, respectively), are not suitable for use as structural fill. Unacceptable fill materials include topsoil and organic materials (OH, OL), elastic silts (MH), and high plasticity clays (CH). Under no circumstances should MH/CH soils be used as fill material in proposed structural or pavement areas. Such materials, if encountered during grading operations, should be removed and either stockpiled for later use in landscape fills, or placed in approved disposal areas either on site or off site.

Most of the on-site materials may be reused as engineered fill provided that they do not contain organics or foreign debris, are not highly plastic, are not environmentally impacted, and conform to the criteria outlined above. Based on observations made during the subsurface exploration program and following visual observation of the recovered soil samples, the natural soils may be suitable for reuse as engineered fill materials; however, additional laboratory testing will be required for confirmation of soils to be used as engineered fill. When using suitable on-site material, moisture adjustment is anticipated to be required to condition any before its placement in new structural fill areas.

Fill materials should be placed in lifts not exceeding 8-inches in loose thickness and moisture conditioned to within $\pm$2 percentage points of the optimum moisture content. Soil bridging lifts within the expanded trailers and communication tower limits should not be used since excessive settlement of the structures will likely occur. Where controlled fill soils will have a total thickness not exceeding 8 feet, the soils should be compacted to a minimum of 95% of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method. Fill placed in non-structural areas should be compacted to a minimum of 90% of the maximum dry density. Structural fill placed within the upper 12 inches below pavements including driveways and parking lot should be compacted to a minimum of 100% of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method. The expanded footprint of the proposed trailers and communication tower or pavement areas should be well defined, including the limits of the fill zones at the time of fill placement. Grade control should be maintained throughout the fill placement operations.

All fill operations should be observed on a full-time basis by an authorized representative of the Geotechnical Engineer of Record to determine that compaction requirements are being met. All fill shall be periodically tested to confirm that compaction is being achieved. A sufficient number of tests shall be taken in each lift before the next lift is placed, on the order of at least three tests per lift. The elevation and location of the tests should be clearly identified and recorded at the time of fill placement.

Compaction equipment suitable to the soil type used as fill should be selected to compact the fill. Theoretically, any equipment type can be used as long as the required density is achieved. Ideally, a steel drum roller would be most efficient for compacting and sealing the surface soils. All areas receiving fill should be graded to facilitate positive drainage away from the building pad and pavement areas of any free water associated with precipitation and surface run-off.

Fill materials should not be placed on frozen soils. All frozen soils should be removed prior to continuation of fill operations. All frost-heaved soils should be removed prior to placement of fill, stone, concrete, or asphalt.

Temporary and Permanent Slopes

If required for construction, temporary slopes constructed of onsite soils should be limited to 2H:1V or flatter, and maintained for not more than about 60 days unless they are designed by a geotechnical engineer. The temporary slopes should also be thoroughly vegetated to help minimize erosion of the surficial soils. Permanent slopes constructed of native granular soils should generally be flatter than 3H:1V unless they are designed by a geotechnical engineer. These slopes should be thoroughly protected and care should be taken to minimize the amount of surface runoff over the slopes.

If the temporary slopes as recommended above cannot be constructed, a temporary earth retention system (such as sheeting/shoring, lagging, or trench boxes) should be utilized to support the excavation and to minimize any undesirable movement of adjacent structures, utilities, or roadways.

Construction Considerations

We recommend that all field operations be observed full-time by a qualified soil technician to determine if materials are suitable and minimum compaction requirements are being met.

The surficial soils contain fines which are considered erodible. The Contractor should provide and maintain good site drainage during earthwork operations to help maintain the integrity of the surficial soils. All erosion and sedimentation shall be controlled in accordance with sound engineering practice and current County requirements.

In a dry and undisturbed state, the majority of the soil at the site will provide good subgrade support for fill placement and construction operations. However, when wet, this soil will degrade quickly with disturbance from contractor operations. Therefore, good site drainage should be maintained during earthwork operations which would help maintain the integrity of the soil.

Exposure to the environment may weaken the soils at the subbase level if excavations remain open for too long a time. Therefore, fill soils should be placed the same day that excavations are made. If the base/subbase soils are softened by surface water intrusion or exposure, the softened soils must be removed from the excavation bottom prior to placement of additional fill or asphalt.

Closing

This report has been prepared in order to aid in the evaluation of this project and provide information necessary for the design of the proposed communication tower and trailers. The scope is limited to the specific project and location described herein, and the project description represents our understanding of the significant aspects relevant to geotechnical design issues. In the event that changes in the development are planned, we should be informed so the changes can be reviewed and the conclusions of this report modified or approved in writing by the Geotechnical Engineer of Record. As a check, we recommend that we be authorized to review the project plans and specifications to confirm that our report recommendations have been interpreted in accordance with our intent. Without this review, we will not be responsible for misinterpretation of our data, our analysis, and/or our recommendations nor how these are incorporated into this final design.

APPENDIX

Unified Soil Classification System

Reference Notes for Boring Logs

Boring Logs B-1 through B-5

Laboratory Testing Summary

Liquid and Plastic Limits Test Report

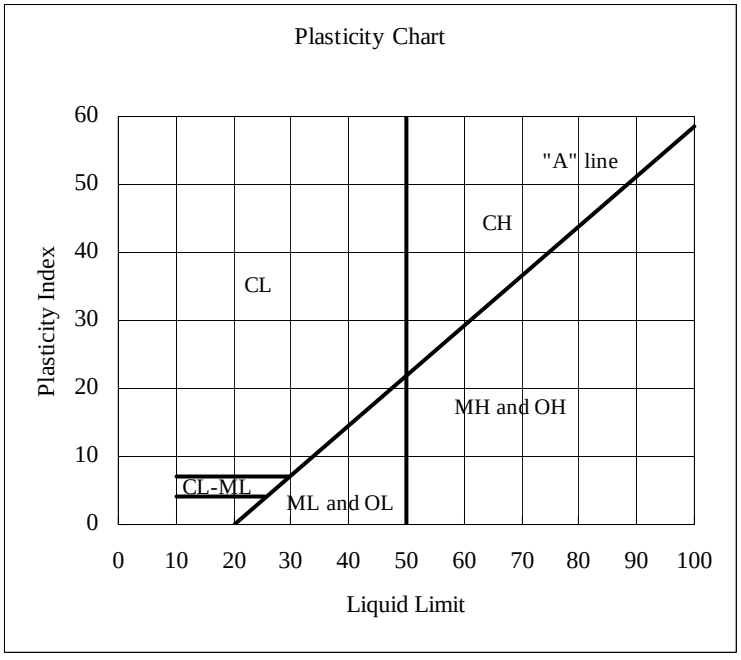
Particle Size Distribution Report

Infiltration Test Record/Calculation Sheet

Boring Location Diagram

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 Sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent GW, GP, SW, SP; More than 12 percent GM, GC, SM, SC; 5 to 12 percent Borderline cases requiring dual symbols [b]	$C_u = D_{60}/D_{10}$ greater than 4; $C_c = (D_{30})^2/(D_{10}xD_{60})$ between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM [a]	d	Silty gravels, gravel-sand mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u				
			GC		Clayey gravels, gravel-sand-clay mixtures		Atterberg limits below "A" line or P.I. less than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines		$C_u = D_{60}/D_{10}$ greater than 6; $C_c = (D_{30})^2/(D_{10}xD_{60})$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM [a]	d	Silty sands, sand-silt mixtures		Atterberg limits above "A" line or P.I. less than 4	Limits plotting in CL-ML zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u				
			SC		Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No. 200 Sieve)	Silts and clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity			
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL		Organic silts and organic silty clays of low plasticity			
	Silts and clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH		Inorganic clays of high plasticity, fat clays			
			OH		Organic clays of medium to high plasticity, organic silts			
	Highly Organic soils		Pt		Peat and other highly organic soils			



[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder. (From Table 2.16 - Winterkorn and Fang, 1975)

REFERENCE NOTES FOR BORING LOGS

I. Drilling Sampling Symbols

SS	Split Spoon Sampler	ST	Shelby Tube Sampler
RC	Rock Core, NX, BX, AX	PM	Pressuremeter
DC	Dutch Cone Penetrometer	RD	Rock Bit Drilling
BS	Bulk Sample of Cuttings	PA	Power Auger (no sample)
HSA	Hollow Stem Auger	WS	Wash sample
REC	Rock Sample Recovery %	RQD	Rock Quality Designation %

II. Correlation of Penetration Resistances to Soil Properties

Standard Penetration (blows/ft) refers to the blows per foot of a 140 lb. hammer falling 30 inches on a 2-inch OD split-spoon sampler, as specified in ASTM D 1586. The blow count is commonly referred to as the N-value.

A. Non-Cohesive Soils (Silt, Sand, Gravel and Combinations)

Density		*Relative Properties*	
< 4 blows/ft	Very Loose	Adjective Form	30% to <50%
5 to 10 blows/ft	Loose	With	15% to <30%
11 to 30 blows/ft	Medium Dense	Little	5% to <15%
31 to 50 blows/ft	Dense	Trace	<5%
Over 51 blows/ft	Very Dense		

Particle Size Identification		
Boulders		8 inches or larger
Cobbles		3 to 8 inches
Gravel	Coarse	1 to 3 inches
	Medium	½ to 1 inch
	Fine	¼ to ½ inch
Sand	Coarse	2.00 mm to ¼ inch (dia. of lead pencil)
	Medium	0.42 to 2.00 mm (dia. of broom straw)
	Fine	0.074 to 0.42 mm (dia. of human hair)
Silt and Clay		0.0 to 0.074 mm (particles cannot be seen)

B. Cohesive Soils (Clay, Silt, and Combinations)

Blows/ft	*Consistency*	*Unconfined Comp. Strength Q_p (tsf)*	*Degree of Plasticity*	*Plasticity Index*
Under 2	Very Soft	Under 0.25	None to slight	0 – 4
3 to 4	Soft	0.25-0.49	Slight	5 – 7
5 to 8	Medium Stiff	0.50-0.99	Medium	8 – 22
9 to 15	Stiff	1.00-1.99	High to Very High	Over 22
16 to 30	Very Stiff	2.00-3.00		
31 to 50	Hard	4.00–8.00		
Over 51	Very Hard	Over 8.00		

III. Water Level Measurement Symbols

WL	Water Level	BCR	Before Casing Removal	DCI	Dry Cave-In
WS	While Sampling	ACR	After Casing Removal	WCI	Wet Cave-In
WD	While Drilling	▽	Est. Groundwater Level	⊽	Est. Seasonal High GWT

The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in a granular soil. In clay and plastic silts, the accurate determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally applied.

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-1	1 OF 3

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 (1, 2, 3, 4, 5+)

ROCK QUALITY DESIGNATION & RECOVERY
RQD% — - — REC.% (20%, 40%, 60%, 80%, 100%)

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT (10, 20, 30, 40, 50+)

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 106

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Depth [6"]			
	S-1	SS	24	18	Fine Silty SAND, Trace Roots, Light Brown, Moist, Medium Dense, (SM)		105	3 5 8 10
	S-2	SS	24	19	Lean CLAY, With Silt, Trace Sand, Reddish Brown, Moist, Very Stiff to Hard, (CL)			10 12 15 17
5	S-3	SS	24	18				10 14 19 27
	S-4	SS	24	22			100	9 12 14 19
	S-5	SS	24	24	Sandy SILT, Trace Clay, Brown, Moist, Medium Stiff to Very Stiff, (ML)			7 9 12 14
10	S-6	SS	24	20			95	6 8 9 12
	S-7	SS	24	22				5 6 5 7
	S-8	SS	18	18				3 5 6
15							90	
	S-9	SS	18	18				4 4 6
20							85	
					Fine to Medium Silty SAND, Reddish Brown, Moist, Medium Dense, (SM)			
	S-10	SS	18	14				5 7 10
25							80	
30								

6.1, 13, 27, 20.6, 33, 25.0, 20.6, 26, 19.8, 21, 17, 19.7, 11, 11, 17.9, 10, 6.9, 17

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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 38.00 WS ☐ WD ☐	BORING STARTED 10/24/12	
WL(BCR) WL(ACR) 43.60	BORING COMPLETED 10/24/12	CAVE IN DEPTH @ 48.10'
WL 37.70	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-1	2 OF 3

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 1 2 3 4 5+

ROCK QUALITY DESIGNATION & RECOVERY
RQD% 20% 40% 60% 80% 100% - REC.%

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT 10 20 30 40 50+

ENGLISH UNITS

BOTTOM OF CASING ▰ LOSS OF CIRCULATION

SURFACE ELEVATION 106

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
	S-11	SS	18	15	Fine to Medium Silty SAND, Reddish Brown, Moist, Medium Dense, (SM)		75	4 6 7 (13)
	S-12	SS	18	14	Sandy SILT, Trace Clay and Quartz Fragments, Reddish Brown, Moist, Medium Stiff, (ML)			3 3 3 (6)
35							70	
	S-13	SS	18	16				2 3 4
40							65	
	S-14	SS	18	16	Fine to Medium SAND, Trace Silt and Gravel, Yellowish Brown, Moist, Medium Dense, (SP)			3 5 10 (15)
45							60	
	S-15	SS	18	16				7 14 19 (33)
50							55	
	S-16	SS	18	18	Fat CLAY, Dark Gray, Moist, Medium Stiff to Stiff, (CH)			2 3 3 (6)
55							50	
	S-17	SS	18	18				3 5 7 (12)
60							45	

CONTINUED ON NEXT PAGE.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 38.00 WS ☐ WD ☐	BORING STARTED 10/24/12	
WL(BCR) WL(ACR) 43.60	BORING COMPLETED 10/24/12	CAVE IN DEPTH @ 48.10'
WL 37.70	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-1	3 OF 3

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 1 2 3 4 5+

ROCK QUALITY DESIGNATION & RECOVERY
RQD% 20% 40% 60% 80% 100% — REC.%

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT 10 20 30 40 50+

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 106

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
65	S-18	SS	18	18		40	4 6 7 (13)
70	S-19	SS	18	18		35	3 5 8 (13)
75						30	
80						25	
85						20	
90						15	

Fat CLAY, Dark Gray, Moist, Medium Stiff to Stiff, (CH)

Sandy Fat CLAY, Dark Gray, Moist, Stiff, (CH)

END OF BORING @ 70.00'

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 38.00 WS ☐ WD ☐	BORING STARTED 10/24/12	
WL(BCR) WL(ACR) 43.60	BORING COMPLETED 10/24/12	CAVE IN DEPTH @ 48.10'
WL 37.70	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-2	1 OF 3

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 (1, 2, 3, 4, 5+)

ROCK QUALITY DESIGNATION & RECOVERY
RQD% — REC.% (20%, 40%, 60%, 80%, 100%)

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT (10, 20, 30, 40, 50+)

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 106

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Depth [6"]			2 4 7 12
	S-1	SS	24	20	Fine Silty SAND, Light Yellowish Brown, Moist, Medium Dense, (SM)		105	9 12 15 17
	S-2	SS	24	22	SILT, With Clay, Trace Sand, Reddish Brown, Moist, Very Stiff, (ML)			9 13 18 26
5	S-3	SS	24	20			100	7 10 13 15
	S-4	SS	24	24	Fine to Medium Silty SAND, Trace Clay, Reddish Brown, Moist, Medium Dense, (SM)			8 9 11 13
	S-5	SS	24	22	Sandy SILT, Trace Clay, Reddish Brown, Moist, Medium Dense, (ML)			6 8 9 12
10	S-6	SS	24	21			95	5 8 10 11
	S-7	SS	24	20				4 6 6
	S-8	SS	18	18				
15							90	
	S-9	SS	18	18				3 5 9
20							85	
					Sandy Lean CLAY, Trace Silt, Yellowish Brown, Moist, Stiff, (CL)			
	S-10	SS	18	18				4 6 6
25							80	
					Fine to Medium Silty SAND, Yellowish Brown, Moist, Medium Dense, (SM)			
	S-11	SS	18	16				5 7 6
30								

4.9 — 11 — 27 — 20.4 — 25.4 — 31 — 16.1 — 23 — 20 — 21.1 — 17 — 17.3 — 18 — 12 — 17.8 — 14 — 12 — 22.1 — 8.8 — 13

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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 40.00 WS ☐ WD ☐	BORING STARTED 10/26/12	
WL(BCR) WL(ACR) 41.90	BORING COMPLETED 10/26/12	CAVE IN DEPTH @ 44.90'
WL 37.80	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-2	2 OF 3

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 1 2 3 4 5+

ROCK QUALITY DESIGNATION & RECOVERY
RQD% 20% 40% 60% 80% 100% REC.%

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT 10 20 30 40 50+

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 106

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
						75	
	S-12	SS	18	18			6 9 7
35						70	
	S-13	SS	18	16			2 2 3
40						65	
	S-14	SS	18	15			3 5 10
45						60	
	S-15	SS	18	14			8 11 15
50						55	
	S-16	SS	18	18			2 2 3
55						50	
	S-17	SS	18	18			4 5 5
60						45	

Fine to Medium Silty SAND, Yellowish Brown, Moist, Medium Dense, (SM)

Fine Silty SAND, Brownish Red, Wet, Loose, (SM)

Fine SAND, Trace Silt, Tannish Brown, Wet, Medium Dense, (SP)

Medium Silty SAND, Trace Gravel, Tannish Brown, Wet, Medium Dense, (SM)

Fat CLAY, Gray, Moist, Medium Stiff, (CH)

16 — 5 — 26.0 — 15 — 25.3 — 26 — 5 — 10

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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 40.00 WS ☐ WD ☐	BORING STARTED 10/26/12	
WL(BCR) WL(ACR) 41.90	BORING COMPLETED 10/26/12	CAVE IN DEPTH @ 44.90'
WL 37.80	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-2	3 OF 3

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 (1, 2, 3, 4, 5+)

ROCK QUALITY DESIGNATION & RECOVERY
RQD% (20%, 40%, 60%, 80%, 100%) - REC.%

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 106

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT (10, 20, 30, 40, 50+)

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT
					Fat CLAY, Gray, Moist, Medium Stiff, (CH)				
65	S-18	SS	18	18			40	4 5 7	12
70	S-19	SS	18	18			35	4 6 7	13
					END OF BORING @ 70.00'				
75							30		
80							25		
85							20		
90							15		

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 40.00 WS ☐ WD ☐	BORING STARTED 10/26/12	
WL(BCR) WL(ACR) 41.90	BORING COMPLETED 10/26/12	CAVE IN DEPTH @ 44.90'
WL 37.80	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-3	1 OF 2

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 (1, 2, 3, 4, 5+)

ROCK QUALITY DESIGNATION & RECOVERY
RQD% — REC.% (20%, 40%, 60%, 80%, 100%)

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT (10, 20, 30, 40, 50+)

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 107

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	16	Topsoil Depth [4"] Fine Silty SAND, Trace Roots, Light Brown, Moist, Medium Dense, (SM)		105	1 3 4 / 10 12 15 / 15 17
	S-2	SS	24	20				5 10 14 / 19
5	S-3	SS	24	22	Sandy SILT, With Clay, Reddish Brown, Moist, Medium Dense, (ML)		100	4 7 9 / 10
	S-4	SS	24	18				4 6 8 / 11
	S-5	SS	24	20			95	4 6 7 / 10
10	S-6	SS	24	21	Sandy Lean CLAY, With Silt, Reddish Brown, Moist, Stiff to Very Stiff, (CL)			4 6 8 / 11
	S-7	SS	24	18				4 5 7
	S-8	SS	18	18			90	
15								
	S-9	SS	18	18			85	4 5 6
20								
	S-10	SS	18	18			80	4 6 7
25								
	S-11	SS	18	16				6 8 11
30								

Plotted values: 7, 6.2, 30, 13.4, 24, 25.1, 16, 22.3, 14, 20.2, 13, 20.8, 14, 12, 20.3, 11, 13, 26.0, 19

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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY WS ☐ WD ☐	BORING STARTED 10/25/12	
WL(BCR) WL(ACR) DRY	BORING COMPLETED 10/25/12	CAVE IN DEPTH @ 27.90'
WL DRY	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-3	2 OF 2

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 1 2 3 4 5+

ROCK QUALITY DESIGNATION & RECOVERY
RQD% 20% 40% 60% 80% 100% - REC.%

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT 10 20 30 40 50+

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 107

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Sandy Lean CLAY, With Silt, Reddish Brown, Moist, Stiff to Very Stiff, (CL)		75	
	S-12	SS	18	16				6 9 10 (19)
35					Fine to Medium Silty SAND, Yellowish Brown to Reddish Brown, Moist, Medium Dense, (SM)		70	
	S-13	SS	18	18				3 5 6 (11)
40					END OF BORING @ 40.00'		65	
45							60	
50							55	
55							50	
60								

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY WS ☐ WD ☐	BORING STARTED 10/25/12	
WL(BCR) WL(ACR) DRY	BORING COMPLETED 10/25/12	CAVE IN DEPTH @ 27.90'
WL DRY	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-4	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 (1 2 3 4 5+)

ROCK QUALITY DESIGNATION & RECOVERY
RQD% (20% 40% 60% 80% 100%) - REC.%

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

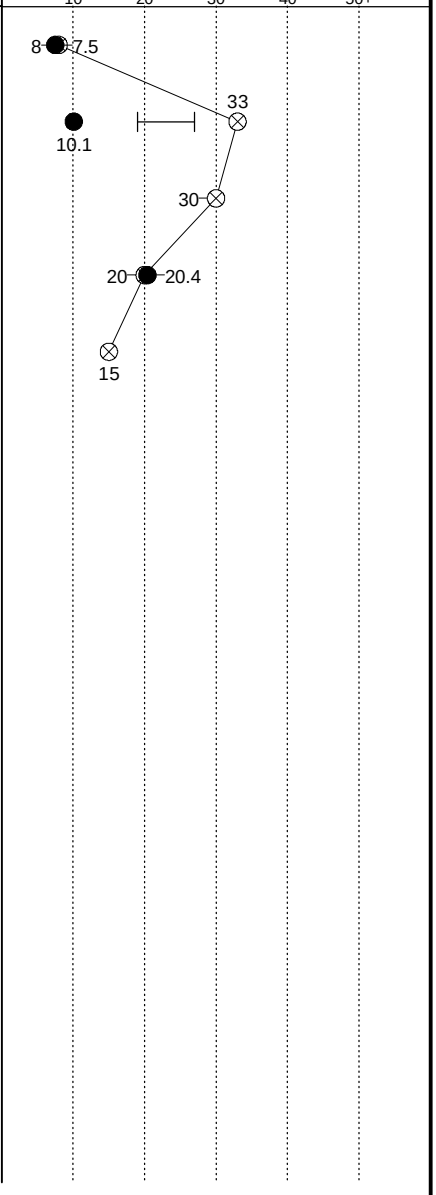
STANDARD PENETRATION BLOWS/FT (10 20 30 40 50+)

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 107

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Depth [6"]			2
	S-1	SS	24	18	Sandy Lean CLAY, Trace Roots, Yellowish Brown, Moist, Stiff to Hard, (CL)		105	3 5 11
	S-2	SS	24	24				12 15 18
5	S-3	SS	24	20	SILT, With Clay, Yellowish Brown, Moist, Hard, (ML)			25 9 13 17
	S-4	SS	24	24	Sandy SILT, Trace Clay, Reddish Brown, Moist, Medium Dense, (ML)		100	22 7 8 12 15
	S-5	SS	24	18				5 7 8 11
10					END OF BORING @ 10.00'		95	
15							90	
20							85	
25							80	
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL WS ☐ WD ☐	BORING STARTED 10/24/12	
WL(BCR) 6.00 WL(ACR) DRY	BORING COMPLETED 10/24/12	CAVE IN DEPTH @ 8.00'
WL	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

CLIENT	JOB #	BORING #	SHEET
St. Mary's County Dept of Public Safety	20352	B-5	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Valley Lee Communication Tower	

SITE LOCATION

45350 Happyland Road, Valley Lee, St. Mary's County

CALIBRATED PENETROMETER TONS/FT^2 (1 2 3 4 5+)

ROCK QUALITY DESIGNATION & RECOVERY
RQD% (20% 40% 60% 80% 100%) - REC.%

PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT %

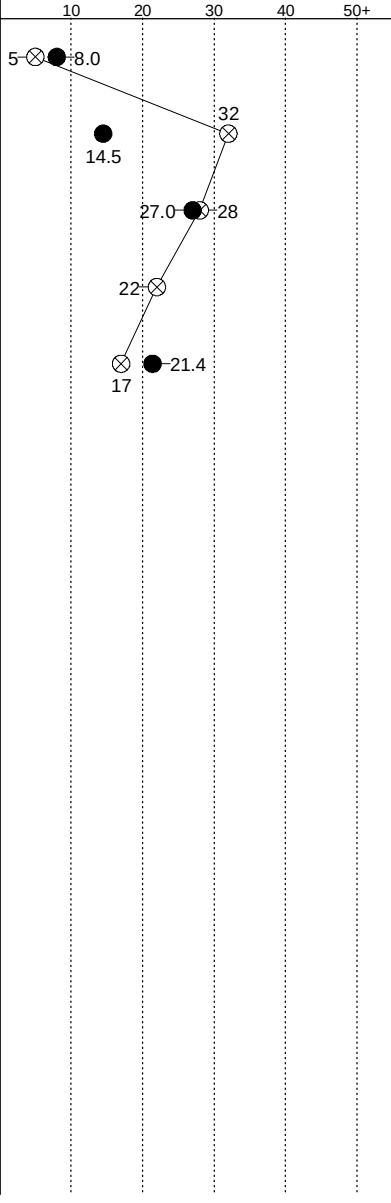
STANDARD PENETRATION BLOWS/FT (10 20 30 40 50+)

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION

SURFACE ELEVATION 105

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Depth [5"]		105	1 2 3
	S-1	SS	24	19	Fine Silty SAND, Light Yellowish Brown, Moist, Loose, (SM)			8 12 16
	S-2	SS	24	22	SILT, With Clay, Reddish Brown, Very Stiff, Moist,(ML)			16 18 10
5	S-3	SS	24	20			100	13 15 23
	S-4	SS	24	23	Sandy SILT, Trace Clay, Reddish Brown, Moist, Medium Dense, (ML)			8 10 12 15
	S-5	SS	24	20				7 7 10 13
10					END OF BORING @ 10.00'		95	
15							90	
20							85	
25							80	
30							75	



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY WS ☐ WD ☐	BORING STARTED 10/24/12	
WL(BCR) DRY WL(ACR) DRY	BORING COMPLETED 10/24/12	CAVE IN DEPTH @ 8.20'
WL DRY	RIG CME 75 FOREMAN Dale Price	DRILLING METHOD 3.25" Hollow Stem Auger

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	MC[1] (%)	Soil Type[2]	Atterberg Limits[3]			Percent Passing No. 200 Sieve[4]	Moisture - Density (Corr.)[5]		CBR Value[6]	Other
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)		
B-1												
	S-1	0.00 - 2.00	6.1									
	S-2	2.00 - 4.00	20.6									
	S-3	4.00 - 6.00	25.0									
	S-4	6.00 - 8.00	20.6									
	S-5	8.00 - 10.00	19.8									
	S-6	10.00 - 12.00	19.7									
	S-8	14.00 - 15.50	17.9									
	S-10	23.50 - 25.00	6.9									
B-2												
	S-1	0.00 - 2.00	4.9									
	S-2	2.00 - 4.00	20.4									
	S-3	4.00 - 6.00	25.4									
	S-4	6.00 - 8.00	16.1									
	S-5	8.00 - 10.00	21.1									
	S-6	10.00 - 12.00	17.3									
	S-8	14.00 - 15.50	17.8									
	S-10	23.50 - 25.00	22.1	CL	30	22	8	73.0				
	S-11	28.50 - 30.00	8.8									
	S-13	38.50 - 40.00	26.0									
	S-15	48.50 - 50.00	25.3									
B-3												
	S-1	0.00 - 2.00	6.2									
	S-2	2.00 - 4.00	13.4									
	S-3	4.00 - 6.00	25.1									
	S-4	6.00 - 8.00	22.3									
	S-5	8.00 - 10.00	20.2									
	S-6	10.00 - 12.00	20.8									

Notes: 1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 1140, 5. See test reports for test method, 6. See test reports for test method

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content (ASTM D 2974)

Project No.	**20352**
Project Name:	**Valley Lee Communication Tower**
PM:	**Veronica T. DeFreitas-Nicholson**
PE:	**Bryan C. Layman**
Printed On:	**Tuesday, November 13, 2012**

ECS Mid-Atlantic, LLC

Chantilly, VA

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	MC[1] (%)	Soil Type[2]	Atterberg Limits[3]			Percent Passing No. 200 Sieve[4]	Moisture - Density (Corr.)[5]		CBR Value[6]	Other
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)		
	S-8	14.00 - 15.50	20.3									
	S-10	23.50 - 25.00	26.0									
B-4												
	S-1	0.00 - 2.00	7.5									
	S-2	2.00 - 4.00	10.1	CL	27	19	8	74.3				
	S-4	6.00 - 8.00	20.4									
B-5												
	S-1	0.00 - 2.00	8.0									
	S-2	2.00 - 4.00	14.5									
	S-3	4.00 - 6.00	27.0									
	S-5	8.00 - 10.00	21.4									

Notes: 1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 1140, 5. See test reports for test method, 6. See test reports for test method

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content (ASTM D 2974)

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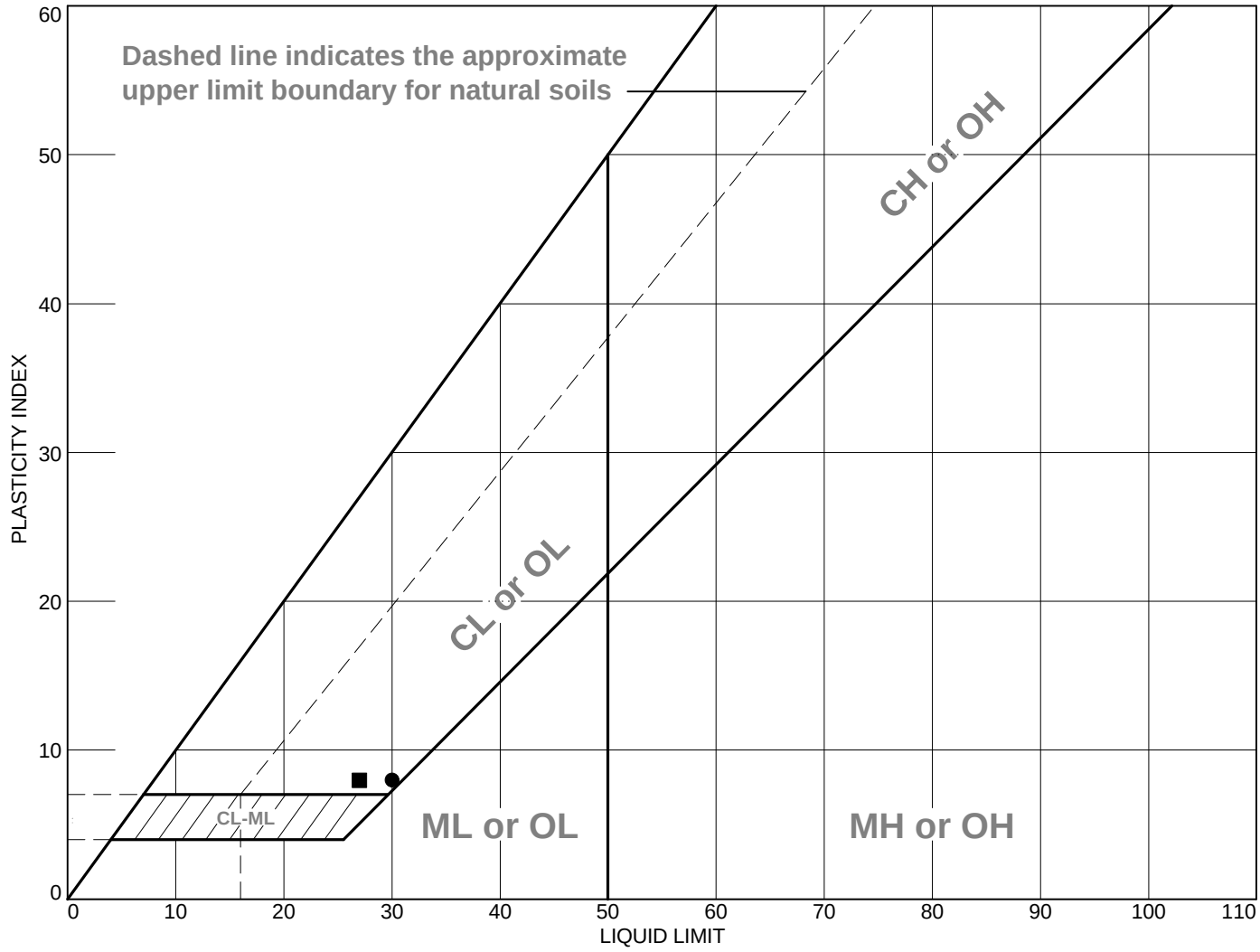
ECS Mid-Atlantic, LLC

Chantilly, VA

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Lean Clay w/Sand Yellowish Brown (CL)	30	22	8	99.5	73.0	CL
■	Lean Clay w/Sand Yellowish Brown (CL)	27	19	8	99.2	74.3	CL

Project No. 20352 **Client:** St. Mary's County Dept of Public Safety

Project: Valley Lee Communication Tower

● **Source of Sample:** B-2 **Depth:** 23.50-25.00 **Sample Number:** S-10

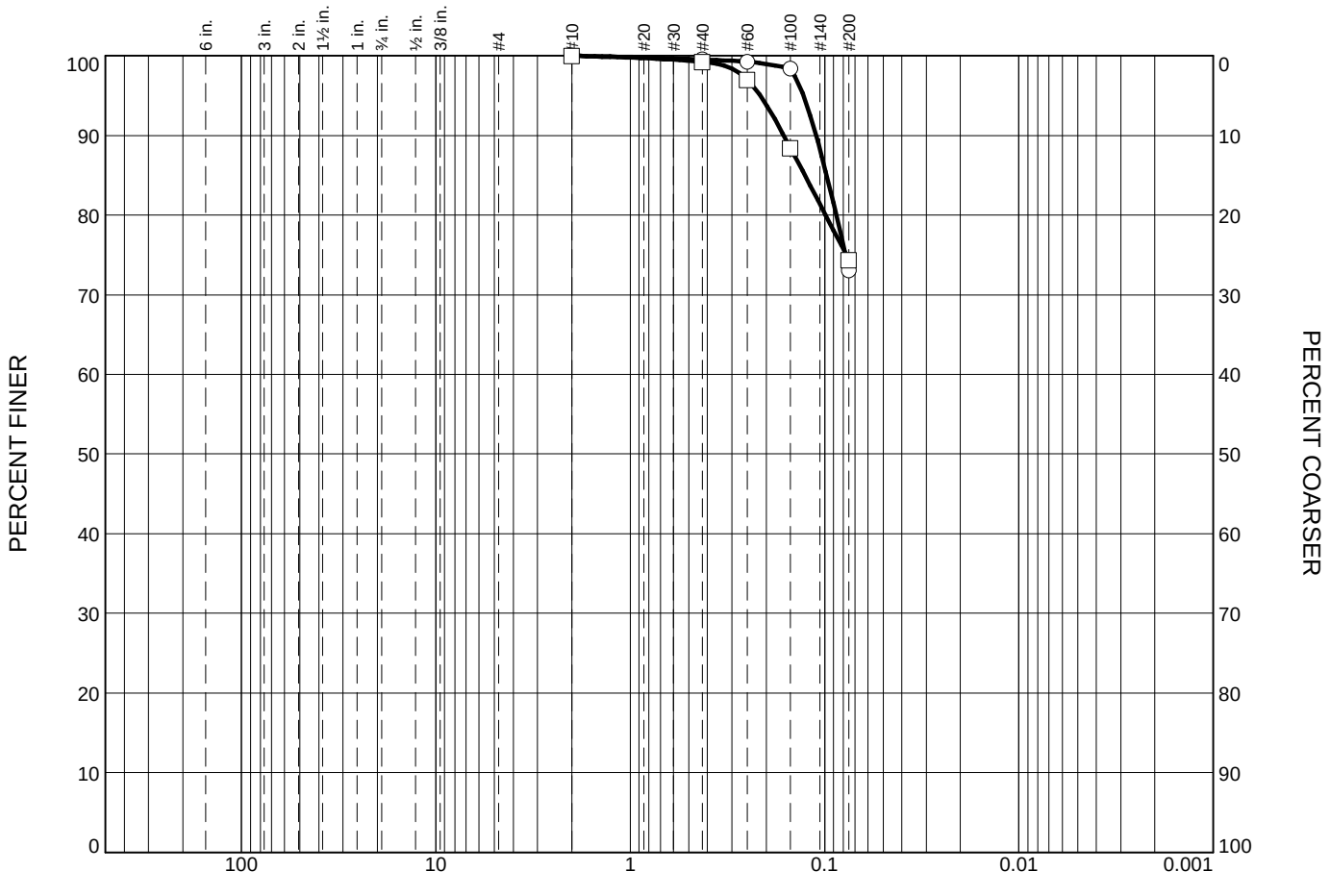
■ **Source of Sample:** B-4 **Depth:** 2.00-4.00 **Sample Number:** S-2

Remarks:

ECS Mid-Atlantic, LLC
14026 Thunderbolt Place, Suite 100
Chantilly, VA 20151-3232
Phone: (703) 471-8400 Fax: (703) 991-4848

Figure

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.5	26.5	73.0	
□	0.0	0.0	0.0	0.0	0.8	24.9	74.3	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	B-2	S-10	23.50-25.00	Lean Clay w/Sand Yellowish Brown (CL)	CL
□	B-4	S-2	2.00-4.00	Lean Clay w/Sand Yellowish Brown (CL)	CL

ECS Mid-Atlantic, LLC
14026 Thunderbolt Place, Suite 100
Chantilly, VA 20151-3232
Phone: (703) 471-8400 Fax: (703) 991-4846

Client: St. Mary's County Dept of Public Safety
Project: Valley Lee Communication Tower

Project No.: 20352 **Figure**

Tested By: DN **Checked By:** DVT

INFILTRATION TEST RECORD/CALCULATION SHEET

Job No: 20352 Job Name: Valley Lee Communication Tower Date: 10/25/12

Boring No: B-5

Perc Hole Depth (in.): 38.5

Reference Depths for Test (In):
12" = 26.5 24"= 14.50

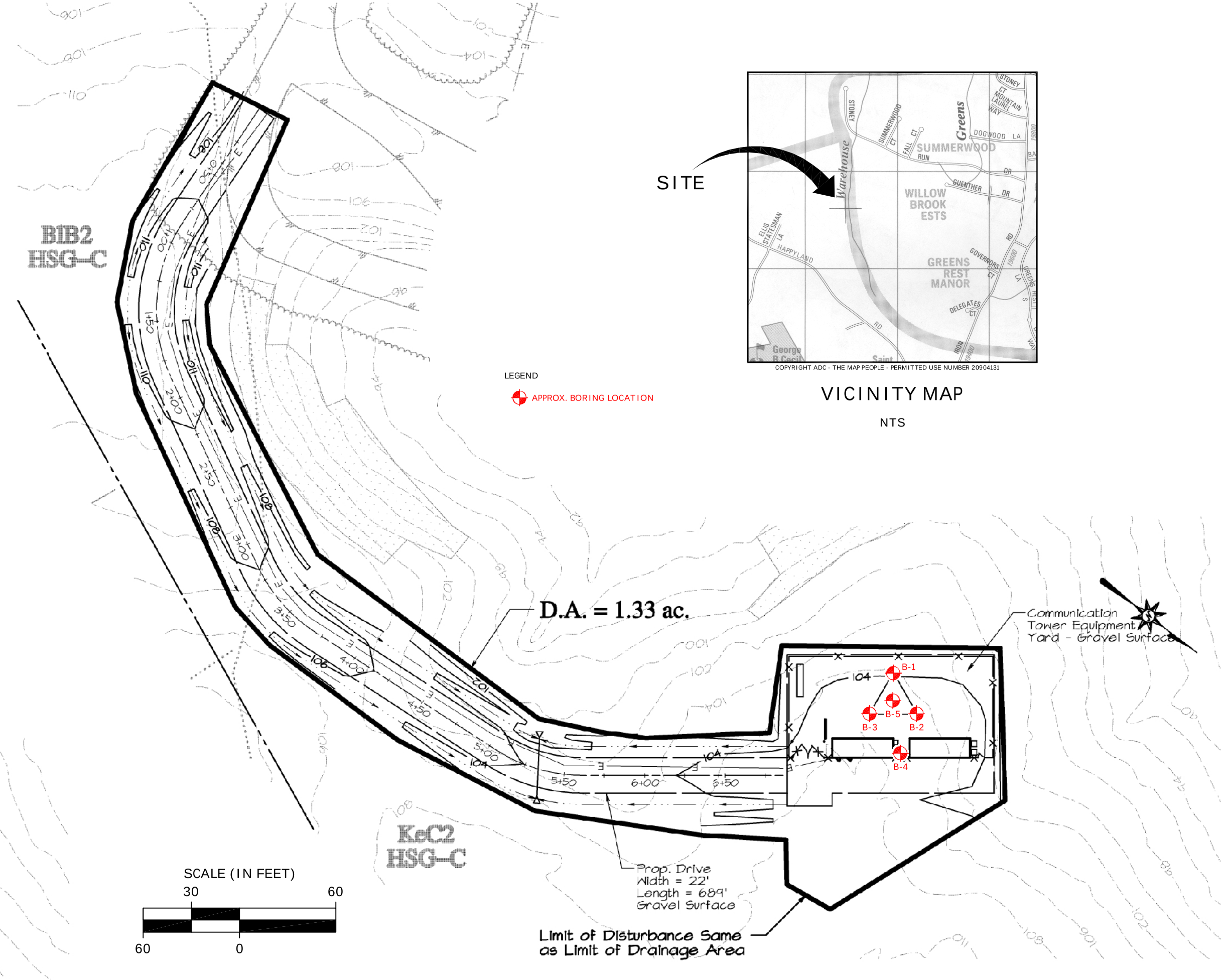
Test Intervals/Duration (Hrs.)	0.00	1.00	2.00	3.00	4.00
Duration	0:00	1:00	2:00	3:00	4:00
Actual Test Time (Start/Finish)	10:00	11:00	12:00	13:00	14:00
Measured Depth to water (in.)	12.50	12.75	13.00	13.25	13.50
Measured Depth. Added or initial (in.)	12.50	12.75	13.00	13.25	13.50
Head (in.)	26.0	25.8	25.5	25.3	25.0
Fall (in.)		0.3	0.3	0.3	0.3

Calculated Infiltration Rate (in./hr.):

Avg. Fall Over 4 hours: 0.25

Recommended Rate-1/2 Avg. Fall: 0.1

Comments:



LEGEND

APPROX. BORING LOCATION

SITE

COPYRIGHT ADC - THE MAP PEOPLE - PERMITTED USE NUMBER 20904131

VICINITY MAP

NTS

VALLEY LEE COMMUNICATION TOWER

ST MARY'S COUNTY, MD

BORING LOCATION DIAGRAM

ST. MARY'S COUNTY DEPT OF PUBLIC SAFETY

ECS REVISIONS

ENGINEER	DRAFTING
VTD	RAC

SCALE	1"=60'
PROJECT NO.	20352
SHEET	1 OF 1
DATE	11-09-12

Minor Site Plan

Valley Lee Communication Tower

Located at 45350 Happyland Road

Valley Lee, Maryland

Second Election District — St. Mary's County, Maryland

Soil Conservation General Notes

1. The Contractor shall notify M.D.E., Enforcement Division at telephone number 410.537.3510 after the pre-contruction has been held with the St. Mary's County Soil Conservation District and the perimeter controls have been installed.
2. Approval by the Inspection Agency shall be requested upon completion of the installation of the perimeter erosion controls and before proceeding with any other earth disturbance or grading.
3. Approval shall be requested upon final stabilization of all sites before removal of sediment controls.
4. Specifications for erosion control practises shall be the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" by the Maryland Departmnt of the Environment.
5. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within:
   A) Seven calendar days for all perimeter controls, dikes, swales, ditches, perimeter slopes and all slopes greater than 3 horizontal to 1 vertical (3:1) and
   B) Fourteen days as to all disturbed or graded areas in the project site.

6. Temporary Seeding Schedule:

Species	Minimum Seeding Rates lbs per acre	lbs/1,000 sf	Planting Depth (in)	2/1- 4/30	5/1- 8/14	8/15- 11/30
barley	122	2.80	.25-.50	X	-	by 10/15
oats	96	2.21	.25-.50	X	-	--
rye	140	3.22	.25-.50	X	-	X
Barley or rye plus Foxtail Millet	150	3.45	.25-.50	X	X	X

10-10-10 fertilizer shall be applied at 600 lbs per acre.
Lime shall be applied at 2 tons per acre or 100 lbs/1,000 SF.

Other mixes may be used as recommended by the Soil Conservation Service.

Soil preperation shall comply with Section G 20.0 & G 21.0 of the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL"

7. Permanent Seeding Schedule:

Species	Minimum Seeding Rates lbs per acre	lbs/1,000 sf	Planting Depth (in)	Recommended application dates
Tall fescue 75%				03/01 - 05/15
Canada bluegrass 10%				08/15 - 11/15
KY bluegrass 10%				
redtop 5%	150	3.40	.25-.50	
Weeping lovegrass 17%	4	0.90	.25-.50	03/01 - 05/15
Sericia lespedeza 83%	20	0.46		05/16 - 08/14
* Tall fescue 75%	80	2.00		03/01 - 05/15
w/ Lathco Flat Pea	40	1.00		
Canada bluegrass 10%				08/15 - 11/15
KY bluegrass 10%				
redtop 5%	150	3.40	.25-.50	

* To be used for the slope stabilization at the stream crossing.

Fertilizer application rate: 10-20-20: N 90 lbs/ac or 2.0 lbs/1,000 SF.
P205 175 lbs/ac or 4.0 lbs/1,000 SF.
K20 175 lbs/ac or 4.0 lbs/1,000 SF.

Lime application rate: 2 tons/ac. or 100 lbs/1,000 SF.

Soil preperation shall comply with Section G 20.0 & G 21.0 of the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL"

** Other mixes may be used as recommended by the Soil Conservation Service.

8. SEQUENCE OF CONSTRUCTION:

UTILITY INSTALLATION NOTES:
All trenches or holes created for utility installation shall be backfilled, compacted, and stabilized at the end of each working day. Excavated trench material shall be placed on the high side of the trench or hole. No more trench/hole shall be opened than can be stabilized the same day. If an area must be left unstabilized overnight, silt fence will be placed immediately downstream of all disturbed areas and stockpiles, and appropriate safety measures will be installed as required. If trenching is done on slopes 3:1 or greater, disturbed areas are to be stabilized with erosion control matting.

1. Contractor shall contact the St. Mary's County Soil Conservation District at 301.475.8502 x3 at least 5 days prior to the start of work and the contractor shall schedule a pre-construction meeting to be held prior to the start of work.
2. Clear and grub those areas necessary for the installation of the perimeter control devices. 2 days.
3. Installation and construction of perimeter control devices shall be done concurrently with clearing and grubbing. Culvert and rock outlet protection to be installed as perimeter control 7 days.
4. Rough Grade Site and bring to subgrade. 21 days
5. Begin Building construction (Building construction may run concurrently with other project activities). 60 days
6. Install stone base course and permeable pavement. 21 days
7. Fine grade site and permanently stabilize disturbed areas as they are brought to finish grade. 2 days.
8. After disturbed areas are stabilized, Contractor may install Drywells and connect to roofdrain.
9. Stabilize any remaining disturbed areas. 3 days
10. Remove sediment control devices upon approval of the inspector. 3 days.

Total Disturbed Area:	1.6 acres
Area to be vegetatively stabilized	0.90 acres
Earthwork: ** Cut	2,900 cubic yards
**Fill	150 cubic yards

**Earthwork and Estimated Quantities
Earthwork quantities shown hereon are provided to the Owner for Soil Conservation District approval and bonding purposes only. The Contractor should be aware that these quantities should not be used for bidding purposes. Quantities are based on Engineering Drawings and calculations and no allowance has been made for unsuitable soils, compaction, shrinkage, haul loss, or other similar error sources.

OWNER/DEVELOPER CERTIFICATION:

Any clearing, grading, construction or development, or all of these, will be done pursuant to this plan, and all responsible personnel involved in the construction project will have a "Certificate of Training" from a Maryland Department of the Environment approved training program before the beginning the Project.

10/18/2012
St. Mary's County Department of Public Safety. Date
Bob Kelly.

CONSULTANT CERTIFICATION:

I hereby certify that to the best of my knowledge and belief, these plans have been designed in accordance with the approved Erosion and Sediment Control Ordinance, regulations, standards.

10/18/2012
Jonathan Blasco, Professional Engineer Date

STATE OF MARYLAND
JONATHAN A. BLASCO
No. 21740
REGISTERED
PROFESSIONAL ENGINEER

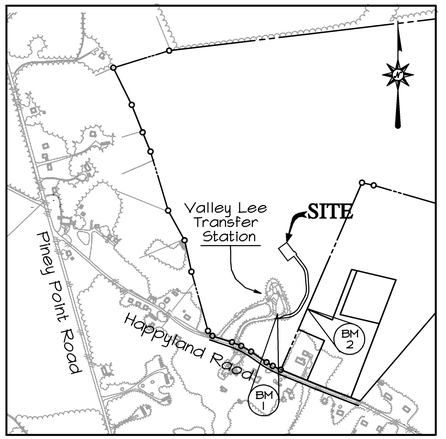
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No.21740, Expiration Date:10-8-2013.

Plot time: Thu Oct 18 14:58:48 2012

Bench Marks

BM # 1 - Nail Set
Elev. 104.87

BM #2 - Iron Pipe
Found Elev. 111.04



Location Map
Scale: 1"= 1000'

General Permit Narrative:

1. Utilization of environmental site design:
   This site has been designed in accordance with the current Stormwater Management ordinance. Bio-retention has been utilized to provide total water quality treatment for new impervious surfaces.
2. Maintenance of limits of disturbance to protect natural areas:
   A Sediment and Erosion Control plan showing the proposed limits of disturbance and perimeter controls has been designed in accordance with the current MDE requirements and submitted to the St. Mary's County Soil Conservation District for review and approval.
3. Control of construction equipment and vehicles:
   The Sediment and Erosion Control plan establishes a temporary construction entrance for vehicles and equipment. Vehicle traffic and land disturbance outside of the limits of disturbance are prohibited.
4. Evaluation and appropriate limitation of site clearing. The proposed building is being placed on existing parking lot. To minimize impact we are proposing to redeveloped the existing parking area. The site has been designed to reduce the limit of disturbance as much as possible.
5. Evaluation and designation of site area for phasing or sequencing:
   A sequence of construction is provided with the Sediment and Erosion Control Design.
6. Identification of soils at high risk for erosion and advanced stabilization techniques to be used:
   The project has been design to avoid highly erodible soils.
7. Identification of steep slopes and designation of limitations on clearing them:
   The steep slope existing within the forest conservation area and stream buffers. No disturbance is proposed in these sensitive areas.
8. Evaluation and designation of stabilization requirements and time limits and protection measures for discharges to the Chesapeake Bay, impaired waters or waters with an established Total Maximum Daily Load (TMDL): This site proposes the treatment of discharge from all proposed impervious surfaces in accordance with the Maryland 2000 Stormwater Design Manual prior to leaving the site limits. The site has also provided appropriate sediment and erosion control measures in accordance with the current Erosion Control standards.

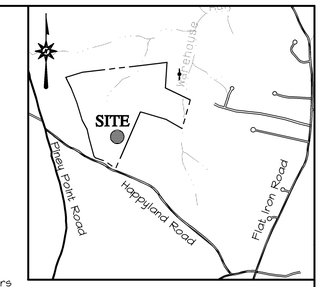
Abbreviations

BC	Back of Curb
CMP	Corrugated Metal Pipe
CO	Clean Out
d	Depth
El.	Elevation
EOP	Edge of Pave
ES	End Section
Esmt.	Easement
E.W.	Each Way
Ex.	Existing
FF	Finished Floor
H.P.	High Point
Inv.	Invert
L	Length
lf	Linear Feet
L.O.D.	Limit of Disturbance
MH	Manhole
O.C.	On Center
Prop.	Proposed
R	Radius
RCP	Reinforced Conc. Pipe
ROW	Right of Way
San.	Sanitary Sewer
SD	Storm Drain
TC	Top of Curb
Typ.	Typical
W	Width
W	Waterline
W	With
WHC	Water House Connection

Construction Notes:

1. The specifications for this project shall be those of the Maryland State Highway Administration titled "Standard Specifications for Construction and Materials", Maryland Department of Transportation, State Highway Administration, October, 1993, as currently amended.
2. No construction (i.e. grading, etc.) or the installation of utilities will be permitted in the bed of any proposed street until the street grade has been officially established, plat of same approved by the Department of Public Works and Transportation.
3. Traffic Control signs and Street name signs must be installed upon completion of the base asphalt course. The contractor/developer will be responsible for the maintenance of these signs until acceptance of the road into the County Highway Maintenance System. All installation shall be in accordance with the "Manual of Uniform Traffic Control Devices" as currently amended. (Not in Contract)
4. Sampling of materials (bank run gravel, etc.) shall be done in accordance with the St. Mary's County Subdivision Road Construction and Inspection Procedures as directed by the Department of Public Works and Transportation to insure compliance with the current Maryland State Highway Administration Specifications.
5. Stabilization of all drainage channels, road shoulders, slopes, and other disturbed areas will be completed prior to acceptance of the road into the St. Mary's County Highway Maintenance System.
6. Storm Drainage material shall be aluminized 12 gauge or 14 gauge where ph is equals 4, RCP, Aluminized CMP with head walls or standard end sections (SHA Standard No. 310.01 and 311.01). Reinforced concrete pipes shall be class IV. All reinforced concrete pipe end sections shall be in accordance with SHA Standard No. 368.03 and 368.04. All HDPE pipe used in storm sewer applications shall conform to the requirements in the latest edition of AASHTO M244 and ASTM F2306.
7. Stone or riprap shall be Class 1 as per Maryland State Highway Administration Specifications, Section 901.02.01 as currently amended.
8. All riprap is to be placed dry on filter cloth. Filter cloth shall meet the requirements of Section 421.04 of the Maryland SHA Specifications as currently amended.
9. Sod or seed mixtures used in lining drainage channels shall be Kentucky 31 Tall Fescue, unless otherwise directed by the Department of Public Works and Transportation and shall be in accordance with Maryland State Highway Administration Specifications Section 920.04.
10. Roadway centerline and edge markings shall be placed on all roads classified as a major collector or higher. All striping shall be in accordance with the Manual of Uniform Traffic Control Devices and all Materials shall meet the requirements of the Maryland State Highway Administration Specifications.
11. For urban roadways classified as a Minor Collector or higher, sidewalks shall be offset seven feet (7') from the curbing to provide a grass strip between the sidewalk and curb.
12. Soils found to be unsuitable for construction shall be excavated and removed as encountered during construction of road.
13. At least 48 hours prior to the start construction, the Contractor shall contact St. Mary's County Department of Public Works and Transportation 301.863.8400.
14. Prior to the installation of the work called for in this plan set, the Contractor shall take all necessary measurements to assure proper fabrication and installation. In case of any conflict between any part/s of the Plan and Specification or if any error or omission are discovered in the lines, grades, and dimensions, the Contractor shall notify the Engineer immediately and shall request a written clarification prior to proceeding with any work involved. If work proceeds with the knowledge of the error or omission and without a written clarification, such work shall not be considered in accordance with the Plans and Specifications.
15. Any and all damage to existing service roads, pavement, utilities or other facilities caused by accident or in the normal carrying out of the work shall be repaired by the Contractor at no additional cost to the Owner.
16. Existing utilities and existing conditions are shown based on site survey of visible features and record drawings at the time the plans were prepared. The Contractor shall be responsible to verify existance of underground utilities or any changes that may have occurred since the plans were prepared. The Engineer, the Surveyor, and the Owner do not narrant or guarantee the completeness of the information furnished.
17. Attention is called to Public Service Commission Order Number 60838, Chapter 863, effective date August 1, 1974 and Section 28A, Article 78 Annotated Code of Maryland, 1994 regarding the protection of underground utilities and the responsibility of the contractor contained therein. The Contractor shall contact "Miss Utility" 1.800.257.7777, gas, electric, and other underground facilities. The Contractor shall contact other utility companies which operate in the area and not in the "Miss Utility" program.

Drawing Index



Vicinity Map
Scale: 1"= 2000'

GENERAL NOTES

1. Owner:
   St. Mary's County Commissioners
   P. O. Box 653, Leonardtown, Maryland 20650
   301.475.4200

2. Consultant: Engineer
   Mehaffey & Associates, P.C.
   PO Box 2450
   Leonardtown, MD. 20650
   301.475.0406 fax 301.475.2822

3. Property Data:
   Tax Map 57 Block 18 Parcel 109
   Area = 117.17 ac.
   Second Election District
   Deed Reference: 159/ 00396
   Zoning District "RPD"
   Water category: NPS
   Sewer category: NPS

4. Proposed Use: #90 Communication Tower (high intensity)

5. Yard setbacks per Schedule 32.1:
   a. 35 ft front yard (Major Collector - Happyland Road)
   b. 20 ft rear yard
   c. 15 ft side yard

6. Bufferyards: Public Use (High Intensity)
   a. adjacent to residential - C
   b. adjacent to right-of-way - B
   c. adjacent to commercial - B

7. Property situated in Flood Hazard Zone "X" as shown on Firm Community Panel # 24037C0142E E. Effective date October 19, 2004.

8. Topography is from field run survey by the CTS, LLC and adjusted to Horizontal datum NAD 83/Vertical datum NAVD 88. County topography used for adjacent structures and drainage areas.

9. There are no tidal or non-tidal wetland on this site per National Wetland Inventory Map - Hollywood quadrangle.

10. The Forest Stand Delineation Plan, FFSD#12-18300008, for this project has been approved. Break even point established with FSD is 1.5 acres. The project may clear 1.5 acres of forest without any afforestation or reforestation requirements. Project proposes 1.5 ac. of forest clearing, thereofore project meet forest conservation requirements.

11. The project does not require any water or sewer services. No well is proposed and no new septic reserve area or drainfields are proposed.

Legend

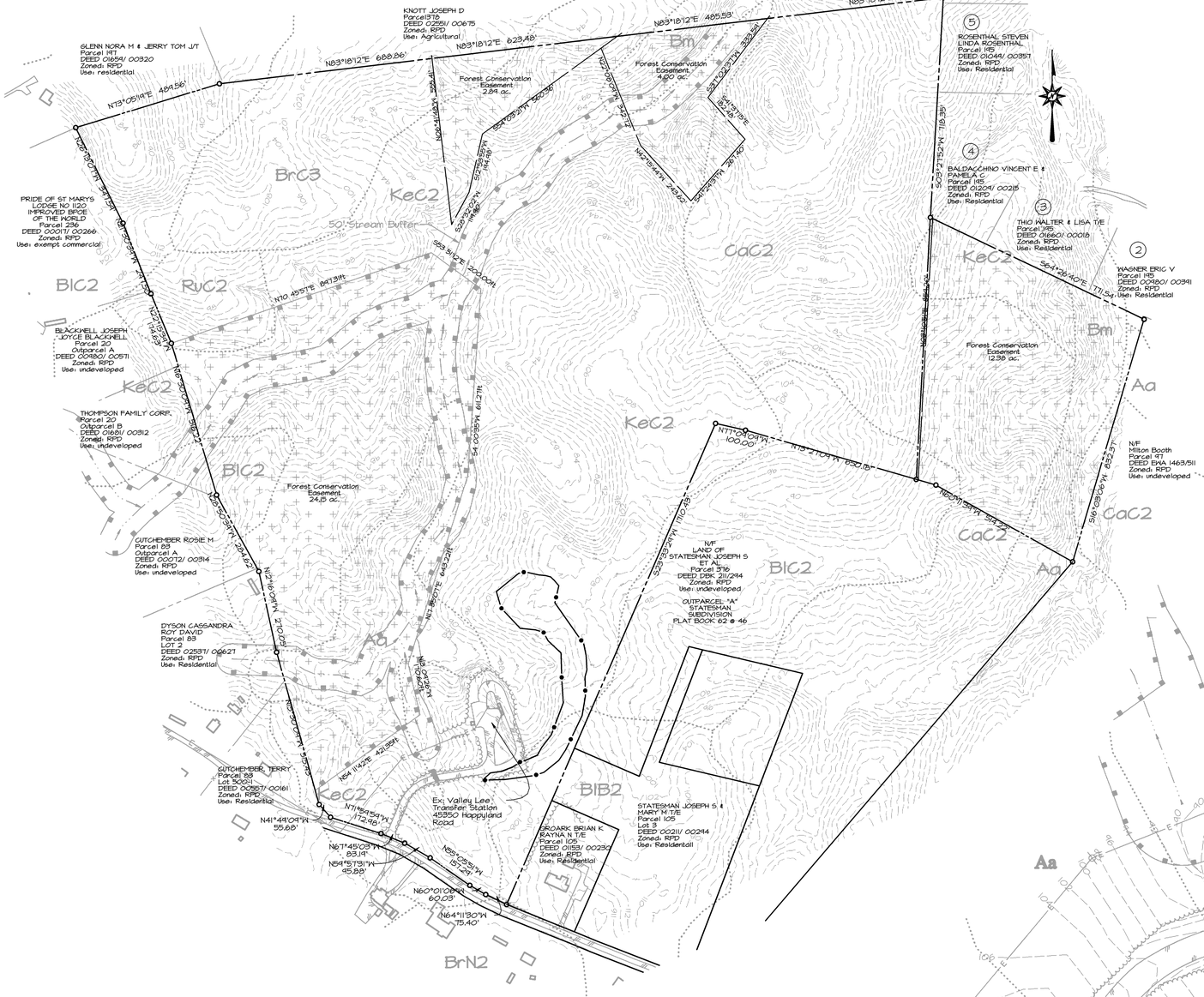
Existing		Proposed
	Property Line / ROW	
	Adjacent Property Lines	
	Forest Conservation Easement	
	Wood Line	
CaC2	Soils	
	50' Stream Buffer	
E E	Electric	E E
	Building	
	Contours	132
	Centerline	
	Pavement	
	Gravel	
	Ditch / Stream	
X X X	Fence	X X X
O R O R	Roof Drain	RD RD RD
	Storm Drain	
X 140.9	Spot Grade	145.00
	Flow Arrow	
	Limit of Disturbance	
	Earth Dike	ED/A-1
	Silt Fence	SF SF
	Stabilized Construction Entrance	S.C.E.
	Stone Outlet Structure	

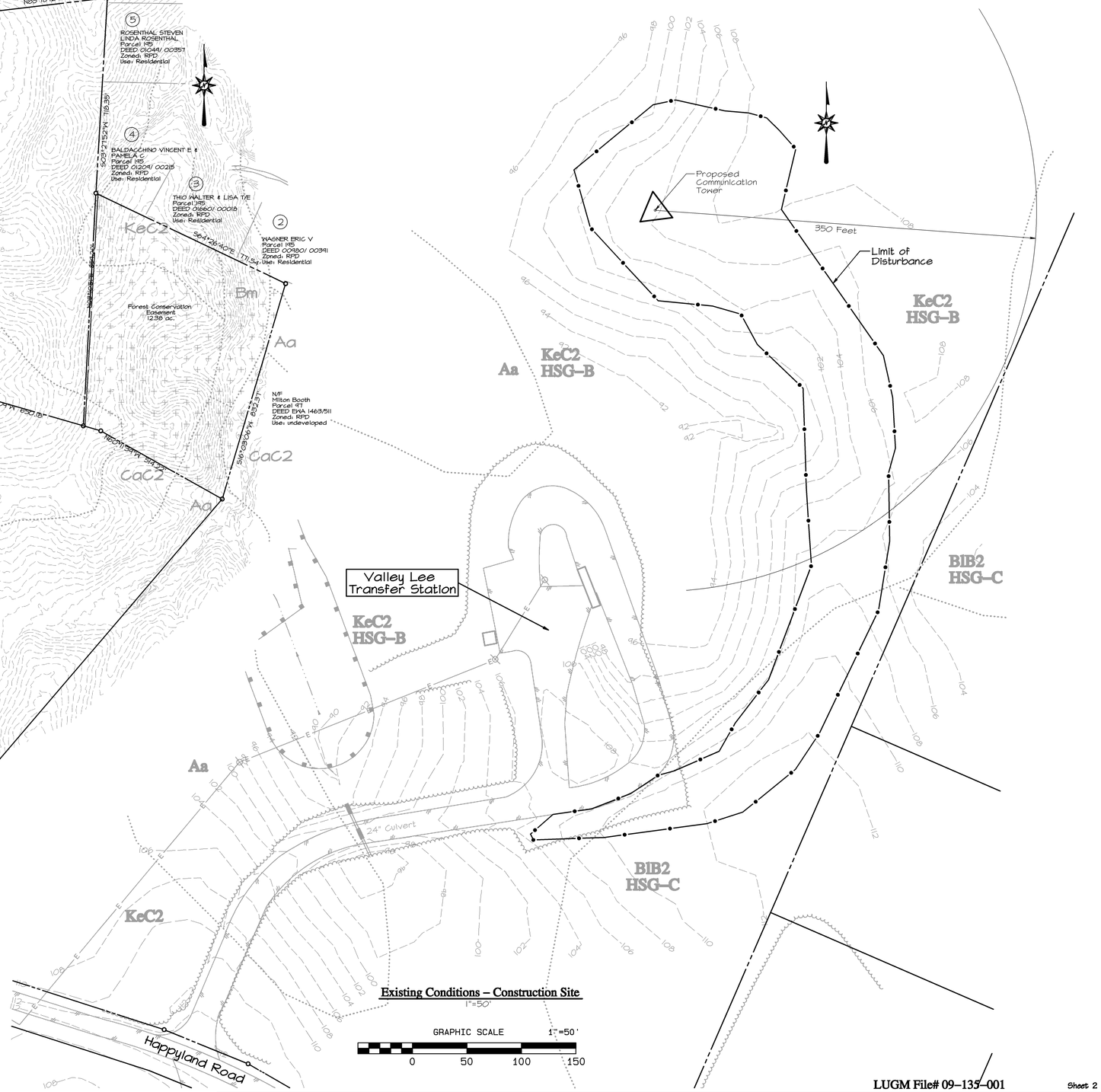
LUGM File# 09-135-001 Sheet 1 of 6

Drafted By: J. Blasco	
Date:10/8/2012	Scale: as shown
rev per DPW&T	10/18/2012
Revision	DATE

MEHAFFEY & ASSOCIATES, P.C.
Civil & Environmental Engineering • Land Planning
41650 Court House Drive - Loker Building - Suite 100
P.O. Box 2450 Leonardtown MD, 20650
301.475.0406 - 301.475.2822 (fax)

Cover Sheet
Valley Lee Communication Tower
Located at 45350 Happyland Road
Valley Lee, Maryland
Second Election District — St. Mary's County, Maryland





LUGM File# 09–135–001

Sheet 2 of 6

Drafted By: J. Blasco	
Date:10/8/2012	Scale: as shown
Revision	DATE

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Existing Conditions

Valley Lee Communication Tower

Located at 45350 Happyland Road
Valley Lee, Maryland

Second Election District — St. Mary's County, Maryland

Drafted By: J. Blasco	
Date: 10/8/2012	Scale: as shown
rev per DPNR T	10/18/2012
Revision	DATE

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Minor Site Plan

Valley Lee Communication Tower

Located at 45350 Happyland Road
Valley Lee, Maryland

Second Election District — St. Mary's County, Maryland

LUGM File# 09-135-001

S.O.S.
0.15 ac.

KeC2
HSG-B

BIB2
HSG-C

N64°49'44"E 103.61'

Nail Set
Elev. 109.87

Contractor to Sawcut Ex. Pave to Assure Good Connection

Overhead Electric Line

ED/A-1

S.C.E.

Prop. Utility Pole

Start Grass Swale 108.70

108.70
HP

HI PT 2+02.84
ELEV = 110.00

M-8 Swale
Trapazoidal Channel
DA3 Sta. 2+00-5+70
QIO= 0.96 cfs
VIO= 1.33 fps
QI = 0.14 cfs
VI = 0.28 fps
DI= 1.0"
S=2.5%
Bot. Width=6'
Side Slopes 3:1
Stabilize w/ 4" Topsoil, Seed & Mulch

BM
IPF
Elev. 111.04

N28°08'42"E 90.91'

S.O.S.
0.18 ac.

N04°13'24"W 110.04'

42 L.F.-15" RCP

M-8 Swale
Trapazoidal Channel
DA5 Sta. 2+00-5+70
QIO= 0.99 cfs
VIO= 1.34 fps
QI = 0.13 cfs
VI = 0.27 fps
DI= 1.0"
S=2.5%
Bot. Width=6'
Side Slopes 3:1
Stabilize w/ 4" Topsoil, Seed & Mulch

Stablize Area Immediately After Disturbance with 4" Topsoil, Seed & Mulch or Sod

ROP-III
La=6'
W=7.25'
D50=9.5"
Dmax=15"
Thickness=19"
on filter fabric

Sta. 5+70
ES 1
19,05'LF
MD368.01
Inv. 99.42

S.O.S.
0.12 ac.

Riprap V Ditch
QIO= 1.80 cfs
VIO= 4.38 fps
DIO= 4.44"
S= 10.8%
Width= 6'
(see detail)

S.O.S.
0.24 ac.

S.O.S.
0.10 ac.

Sta. 5+70
ES 2
20.49' RT
MD368.01
Inv. 99.63

Stablize Area Immediately After Disturbance with 4" Topsoil, Seed & Mulch or Sod

M-5 Drywell #1
DA = 456 sf (0.0105 ac.)
5' x 5' x 4' D
ESDv Provided = 40 cf
Building Gutters to Tie into Drywell w/ 4" Roof Drain

M-8 Swale
Trapazoidal Channel
DA5 Sta. 2+00-5+70
QIO=0.33 cfs
VIO= 0.67 fps
QI =0.05 cfs
VI =0.14 fps
DI= 0.72"
S=1.0%
Bot. Width=6'
Side Slopes 3:1
Stablize w/ 4" Topsoil, Seed & Mulch

N37°12'52"W 115.16'

Edge of Gravel Pad. Gravel to Extend 1.0 Ft. Beyond Fence Line

Grass Lined Backup Ditch (see Typial Driveway Section detail)

S.O.S.
0.16 ac.

M-8 Swale
Trapazoidal Channel
DA2 Sta. 5+70-7+20
QIO=0.91 cfs
VIO= 0.98 fps
QI =0.07 cfs
VI =0.16 fps
DI= 0.84"
S=1.0%
Bot. Width=6'
Side Slopes 3:1
Stabilize w/ 4" Topsoil, Seed & Mulch

8' Chain Link Fence (see detail)

M-5 Drywell #2
DA = 456 sf (0.0105 ac.)
5' x 5' x 4' D
ESDv Provided = 40 cf
Building Gutters to Tie into Drywell w/ 4" Roof Drain

S.O.S.
0.33 ac.

V - Ditch
QIO= 0.41 cfs
VIO= 1.3 fps
DIO= 3.84"
S= 1.50%
Stabilize w/ 4" Topsoil, Seed & Mulch

STOCKPILE

KeC2
HSG-B

BIB2
HSG-C

GRAPHIC SCALE 1"=20'
0 20 40 60

LAYOUT VIEW

Scale: 1"=20'

Edge of Gravel Pad. Gravel to Extend 1.0 Ft. Beyond Fence Line

8' Chain Link Fence (see detail)

127.00'

5.

4' x 20'

Conc. Pad

5'

Proposed Tower Height = 330'
Becon Extension =15'

30.00' Equal Side

63.00'

Equipment Board

4.0'

3' Pedestrain Gate

Building #1
F.F.=104.50
38.00'

Building #2
F.F.=104.50
38.00'

10.00'

12.00'

2' 4' 3' Door

3' 4' 3'

5' 4' 5'

22.00'

2' 20.00' 5'

Turn Around 8'

28.00'

Culvert Pofile

Scale: 1"=20'

CL Entrance
Sta. 5+70
Elev. 102.62

ES1
Sta. 5+70
19.05'LF
MD368.01

ES2
Sta. 5+70
20.49' RT
MD368.01

Prop. Grade

Ex. Grade

10 yr. 100.62

Inv. 99.42

Inv. 99.63

42 L.F. - 15" RCP
QIO=1.80 cfs
VIO=3.60 fps
S=0.5%

0%

Riprap V Ditch
QIO= 1.80 cfs
VIO= 4.38 fps
DIO= 4.44"
S= 10.8%
Width= 6'

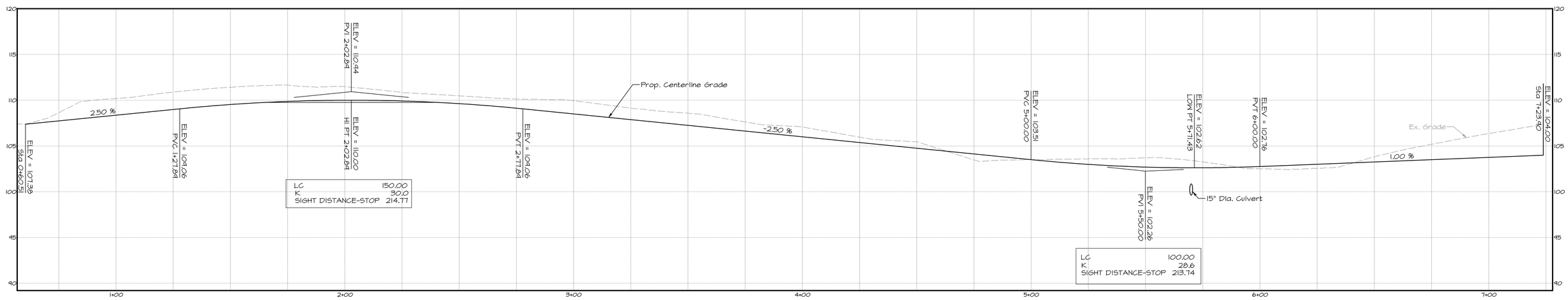
ROP-III
La=6'
W=7.25'
D50=9.5"
Dmax=15"
Thickness=19"
on filter fabric

105 100 95 90

1+00

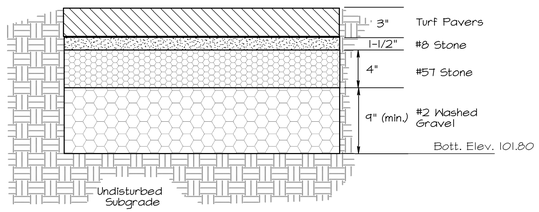
A-2 Permeable Pavement

Solls = B
Surface Area = 7,922 sf
Subbase Depth = 12"
ESDv Provided =1,553 c.f



Driveway Profile

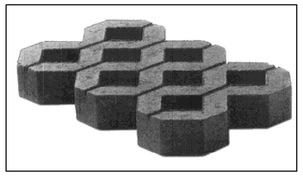
Scale: Horz. 1" = 20'
Vert. 1" = 5'



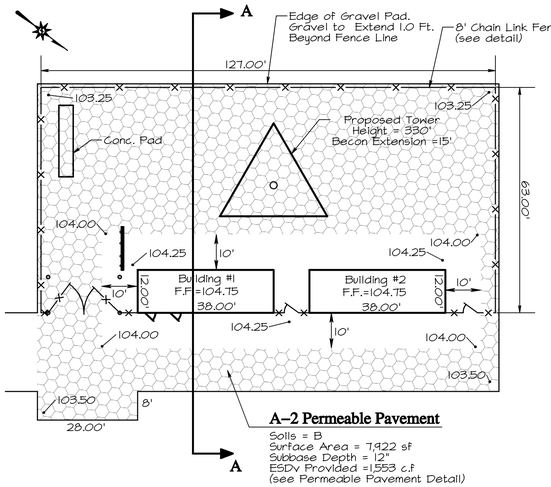
1. Stone to be placed on uncompacted earth.
2. Maintain Bottom Elevation of 102.25.
3. Contractor to use Turf Pavers, or approved equivalent.
4. Fill paver voids with #8 Stone.

A–2 Permeable Pavement Detail

not to scale



Turf Pavers



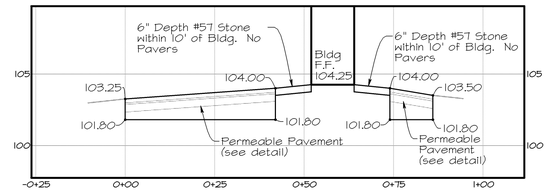
A–2 Permeable Pavement

Soils = B
Surface Area = 7,922 sf
Subbase Depth = 12"
ESDv Provided =1,553 c.f
(see Permeable Pavement Detail)

PERMEABLE PAVEMENT LAYOUT VIEW

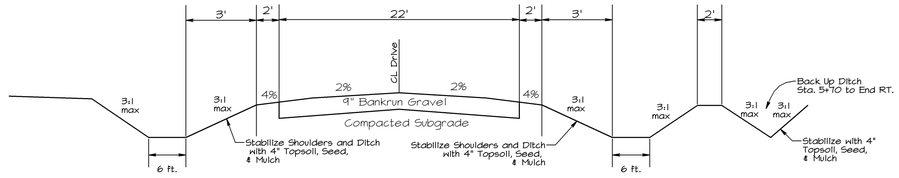
Scale: 1"=20'

PERMEABLE PAVEMENT



PERMEABLE PAVEMENT Section A–A

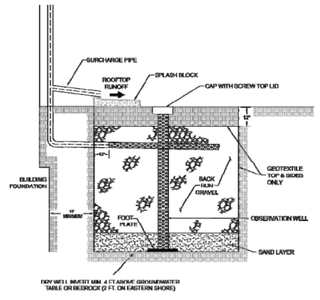
Scale: Horz. 1"=20'
Vert. 1"=5'



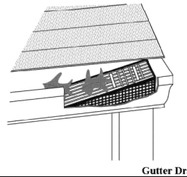
Typial Driveway Section

N.T.S.

Figure 5.13 Dry Well



Section



Gutter Drain Filter (Typical)

M–5 Drywell Detail

not to scale

STATE OF MARYLAND
JONATHAN A. BLASCO
No. 21740
REGISTERED
PROFESSIONAL ENGINEER

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No.21740, Expiration Date:10-8-2013.

GRAPHIC SCALE 1"=50'

0 50 100 150

Drafted By: J. Blasco		
Date:10/8/2012	Scale: as shown	
rev per DPW&T		10/18/2012
Revision		DATE

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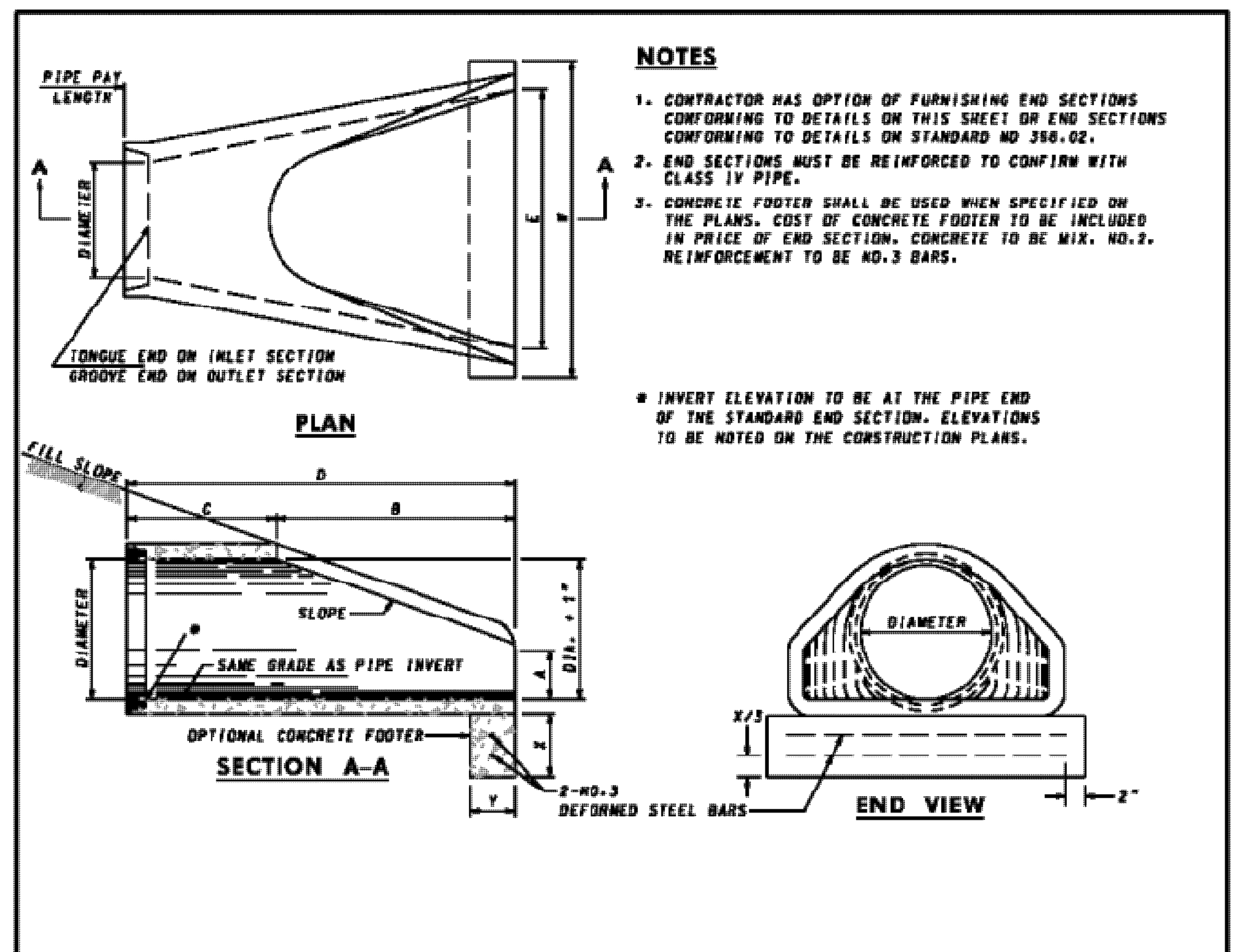
Profile and Details

Valley Lee Communication Tower

Located at 45350 Happyland Road
Valley Lee, Maryland

Second Election District — St. Mary's County, Maryland

LUGM File# 09–135–001

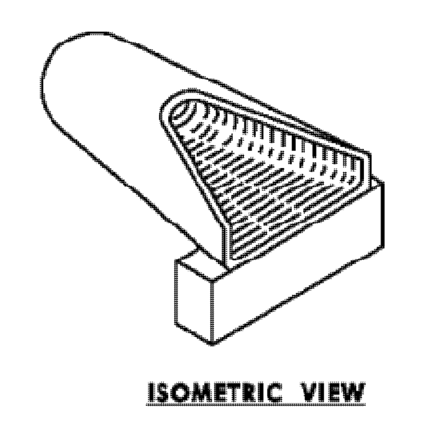


NOTES

1. CONTRACTOR HAS OPTION OF FURNISHING END SECTIONS CONFORMING TO DETAILS ON THIS SHEET OR END SECTIONS CONFORMING TO DETAILS ON STANDARD MD 358.02.
2. END SECTIONS MUST BE REINFORCED TO CONFIRM WITH CLASS IV PIPE.
3. CONCRETE FOOTER SHALL BE USED WHEN SPECIFIED ON THE PLANS. COST OF CONCRETE FOOTER TO BE INCLUDED IN PRICE OF END SECTION. CONCRETE TO BE MIX. NO.2. REINFORCEMENT TO BE NO.3 BARS.

* INVERT ELEVATION TO BE AT THE PIPE END OF THE STANDARD END SECTION. ELEVATIONS TO BE NOTED ON THE CONSTRUCTION PLANS.

SEE NOTE 3 ABOVE FOR CONCRETE FOOTER



ISOMETRIC VIEW

QUANTITIES FOR ESTIMATING PURPOSES ONLY

DIMENSIONS										QUANTITIES	
CONCRETE END SECTION							CONCRETE FOOTER				
DIA.	SLOPE	A	B	C	D	E	W	X	Y	CONC. C.Y.	STEEL LBS.
12"	3:1	4"	2'-0"	4'-0½"	6'-0½"	2'-0"	3'-0"	12"	9"	0.08	24.00
15"	3:1	6½"	2'-4"	3'-10"	6'-2"	2'-6"	3'-6"	12"	9"	0.10	28.50
18"	3:1	10½"	2'-2"	4'-0"	6'-2"	3'-0"	4'-0"	12"	9"	0.11	33.00
21"	3:1	9"	3'-0"	3'-1½"	6'-1½"	3'-6"	4'-6"	12"	9"	0.13	37.50
24"	3:1	11"	3'-7"	2'-8"	6'-3"	4'-0"	5'-0"	15"	9"	0.17	42.00
27"	3:1	10½"	4'-1½"	2'-0"	6'-1½"	4'-6"	5'-6"	15"	9"	0.19	46.50
30"	3:1	1'-1"	4'-5"	1'-10"	6'-3"	5'-0"	6'-0"	15"	9"	0.21	51.00
33"	3:1	1'-2"	4'-7"	2'-2"	6'-9"	5'-6"	6'-6"	15"	9"	0.23	55.50
36"	3:1	1'-3½"	5'-3"	3'-1"	8'-1½"	6'-0"	7'-3"	15"	9"	0.25	62.25
42"	3:1	1'-8½"	5'-5"	2'-10"	8'-3"	6'-6"	7'-9"	15"	9"	0.27	66.75
48"	3:1	2'-1"	6'-0"	2'-2"	8'-2"	7'-0"	8'-6"	18"	12"	0.47	73.50
54"	2.4:1	2'-5"	5'-2"	2'-10"	8'-0"	7'-6"	9'-0"	18"	12"	0.50	78.00
60"	2:1	2'-7"	4'-11"	3'-8½"	8'-7½"	8'-0"	9'-6"	18"	12"	0.53	82.50
66"	2:1	2'-4"	6'-6"	1'-9"	8'-3"	8'-6"	10'-0"	18"	12"	0.56	87.00
72"	2:1	2'-10"	6'-6"	1'-9"	8'-3"	9'-0"	10'-9"	18"	12"	0.60	93.75

SPECIFICATION 305 | CATEGORY CODE ITEMS

APPROVED Kirk G. McClelland — DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT

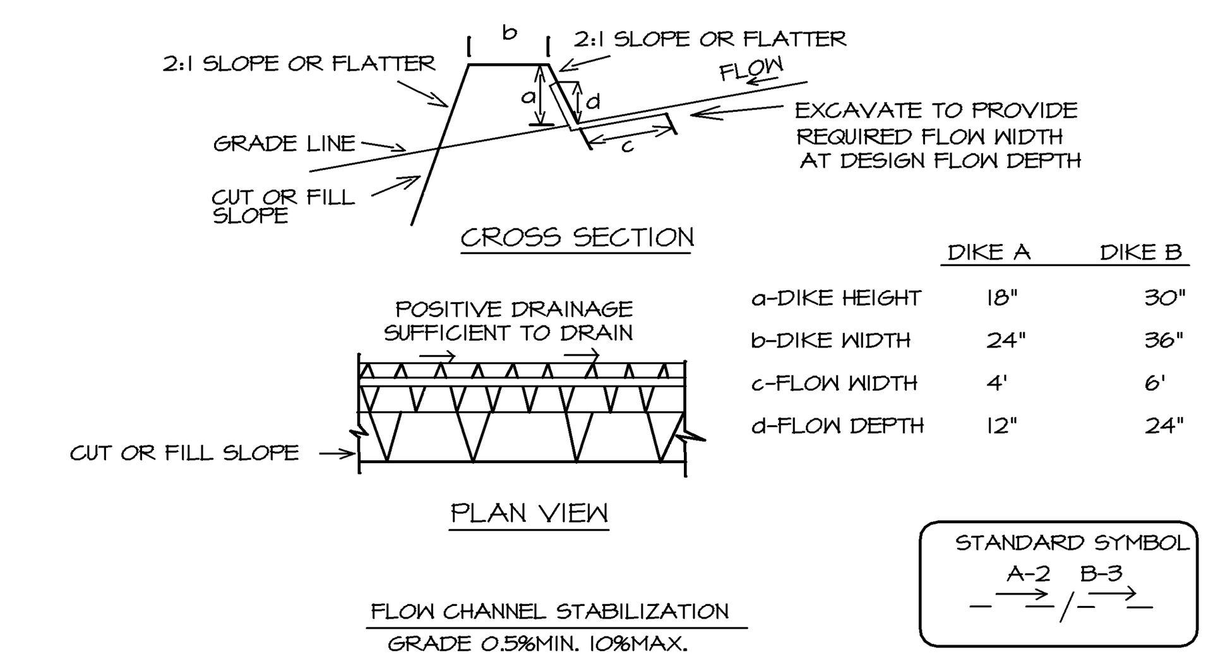
APPROVAL • SHA REVISIONS — APPROVAL 8-28-86 — REVISED 10-1-01 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION — APPROVAL 12-12-86 — REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STANDARD CONCRETE END SECTION ROUND CONCRETE PIPE

STANDARD NO. MD 368.01

DETAIL 1 - EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

STANDARD SYMBOL A-2 B-3

FLOW CHANNEL STABILIZATION
GRADE 0.5%MIN. 10%MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

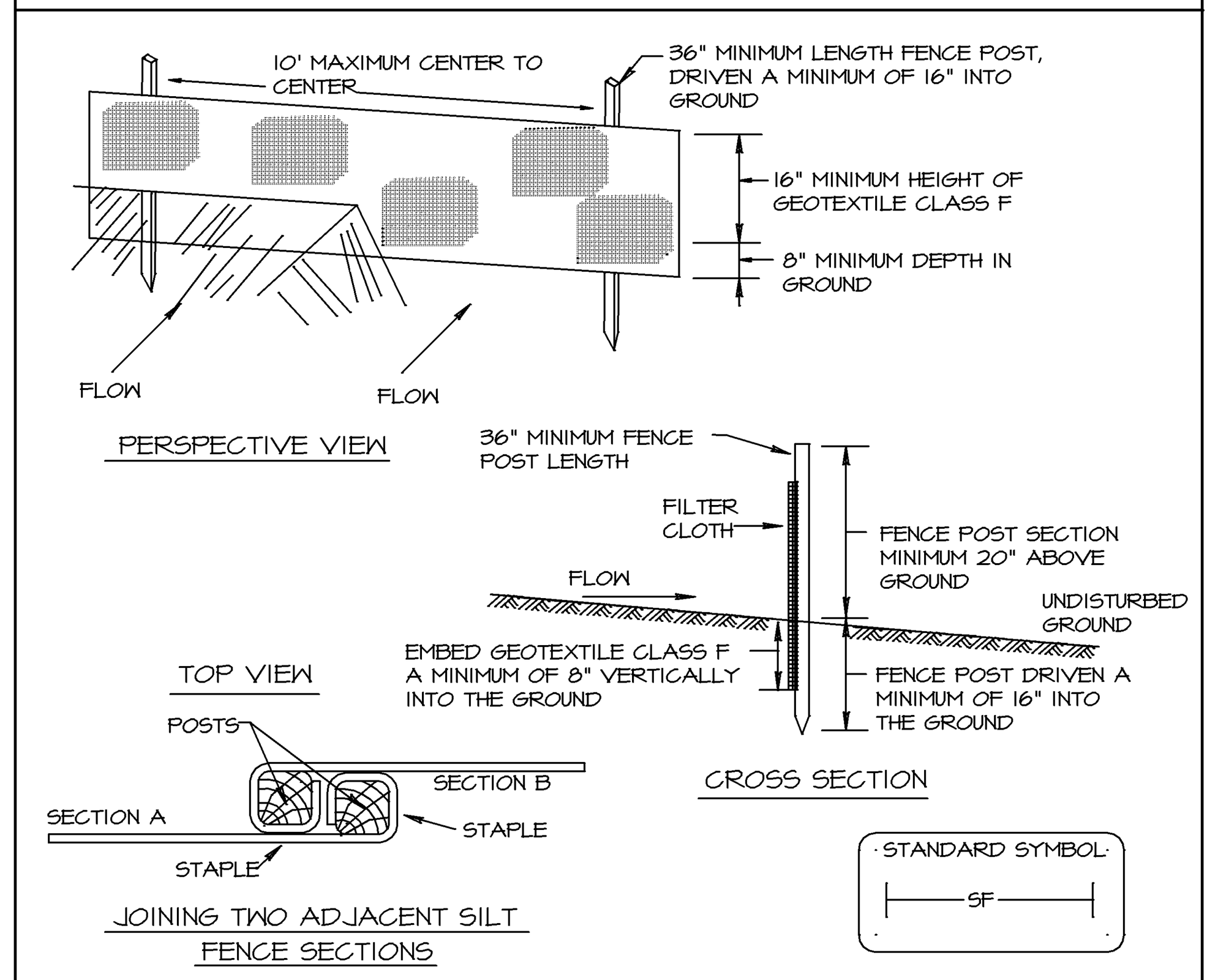
6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A - 1 - 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE



STANDARD SYMBOL —SF—

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

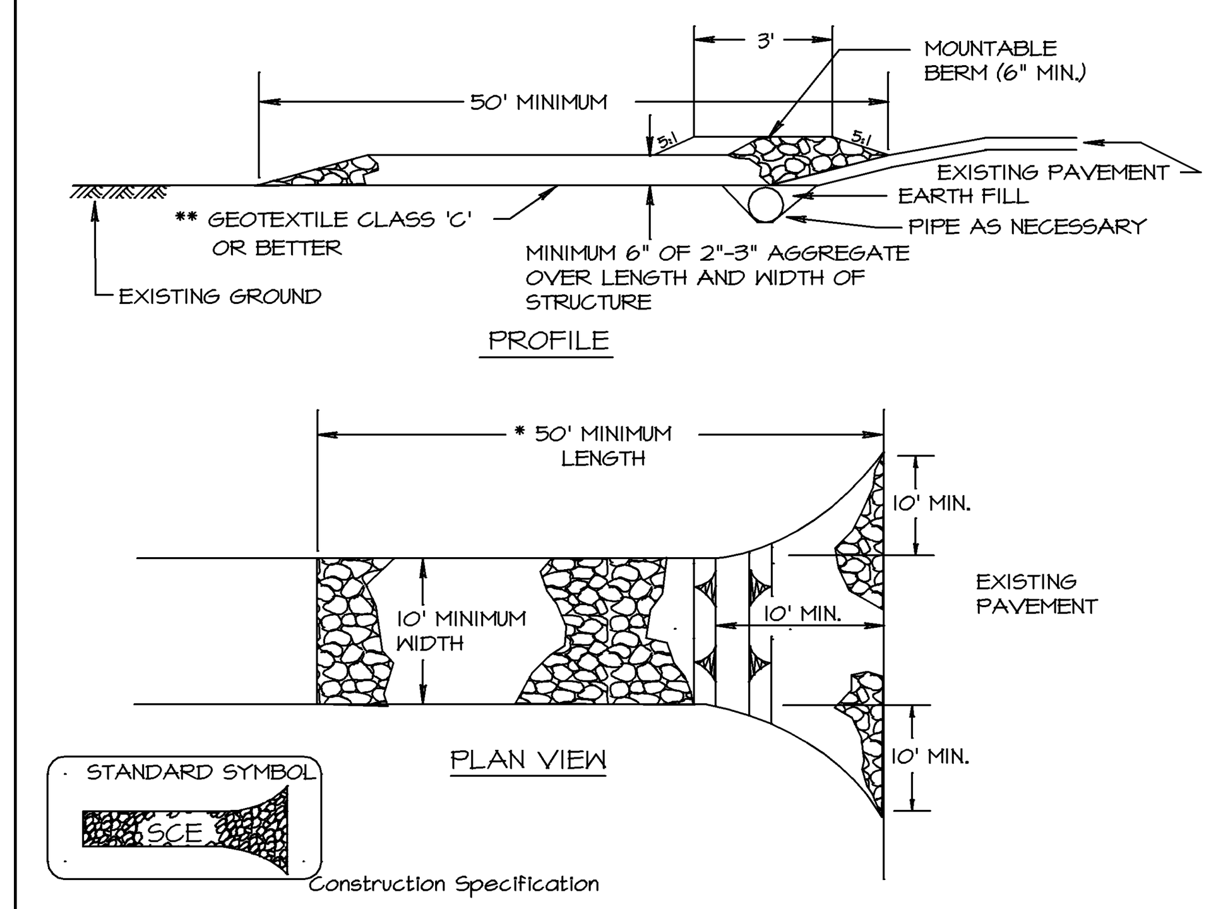
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft^2/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75%(min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50%of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

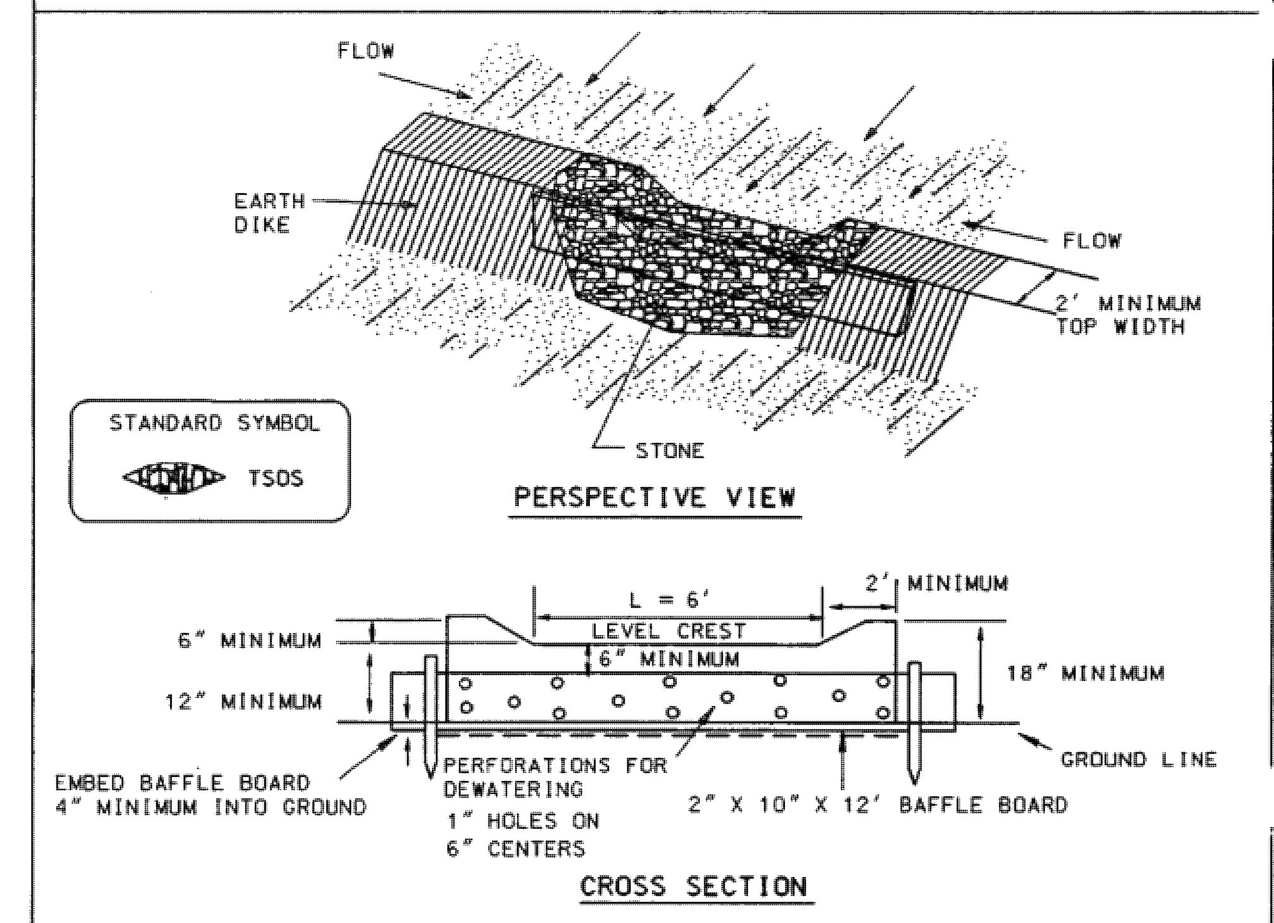
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 19 - STONE OUTLET STRUCTURE



Construction Specifications

1. Crushed stone shall be used. Gravel may be used if crushed stone is not available. The stone shall be 2"-3" in size.

2. The crest of the stone dike shall be at least 6" lower than the lowest elevation of the top of the earth dike and shall be level.

3. The stone outlet structure shall be embedded into the soil a minimum of 4".

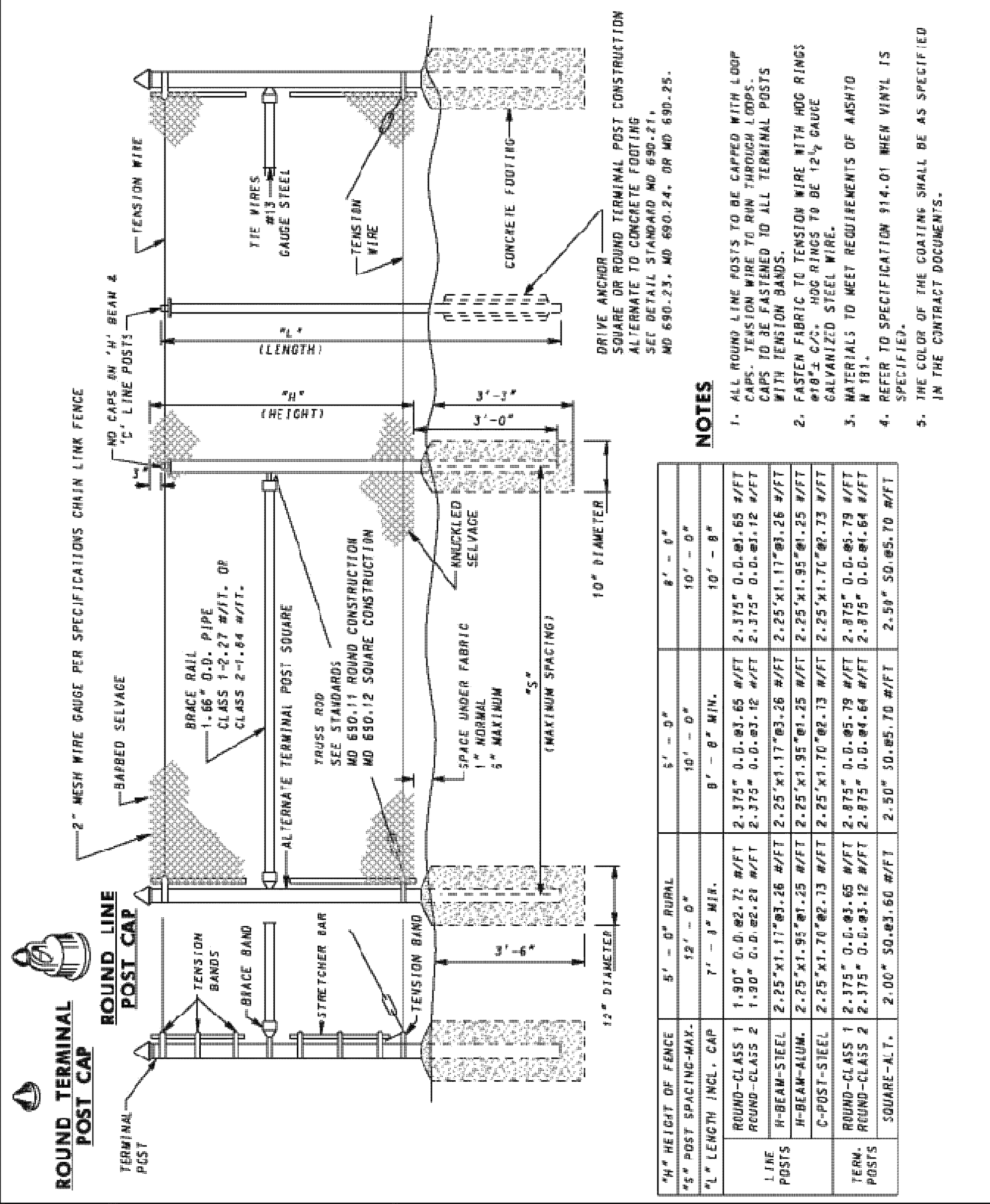
4. The minimum length of the crest of the stone outlet structure shall be 6'.

5. The stone outlet structure shall be inspected after each rain. Stone shall be replaced when the structure ceases to function and ponding results.

6. The baffle board shall be extended one foot into the dike, staked and embedded 4" into the existing ground.

7. The drainage area to this structure shall be less than ½ acre.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 11 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



SPECIFICATION 607 | CATEGORY CODE ITEMS

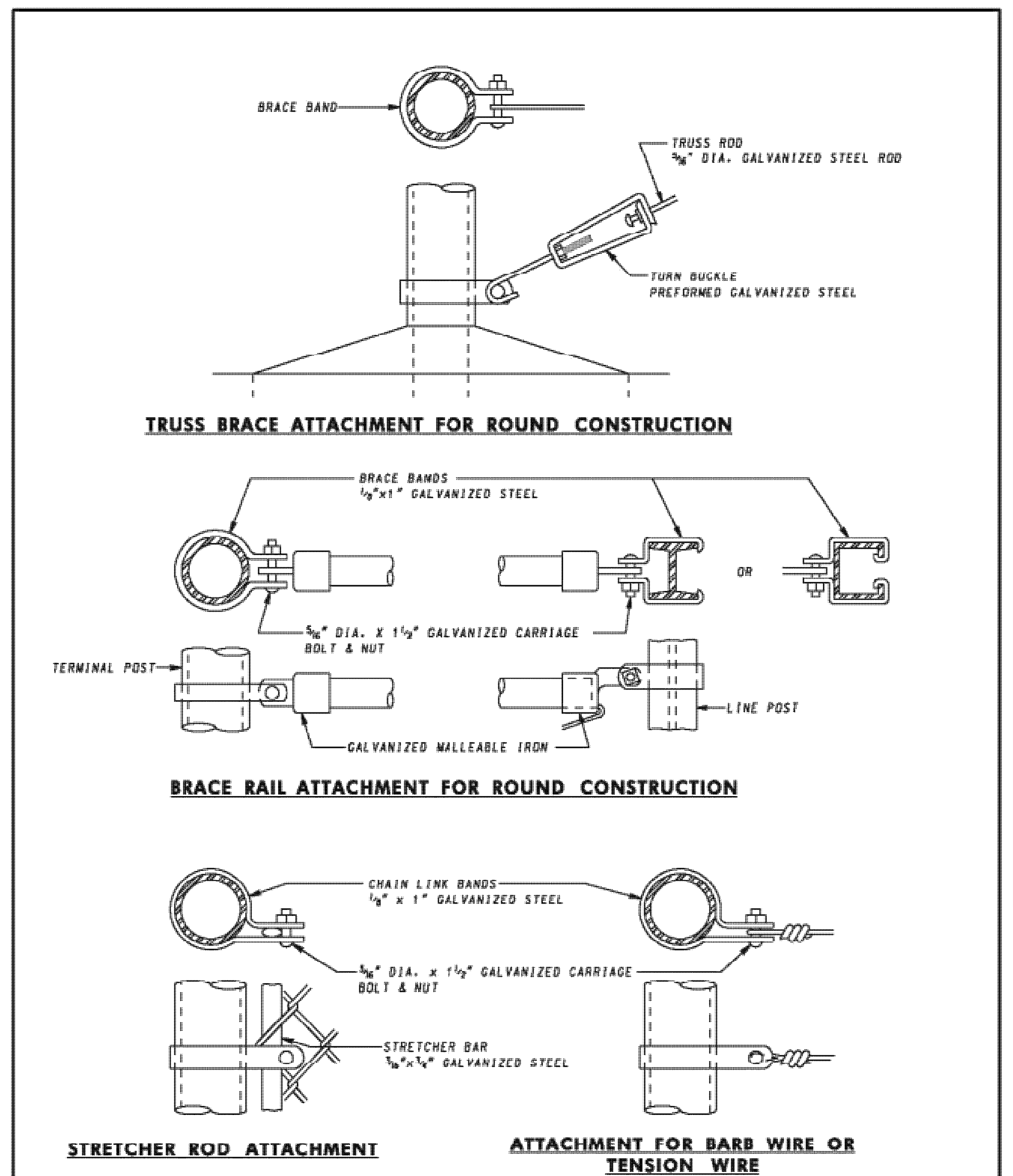
APPROVED Kirk G. McClelland — DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT

APPROVAL • SHA REVISIONS — APPROVAL 4-4-84 — REVISED 10-1-01 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION — APPROVAL 6-1-84 — REVISED 10-10-89

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

CHAIN LINK FENCE
TYPICAL 5 FT. RURAL 6 FT. & 8 FT

STANDARD NO. MD 690.01



SPECIFICATION | CATEGORY CODE ITEMS

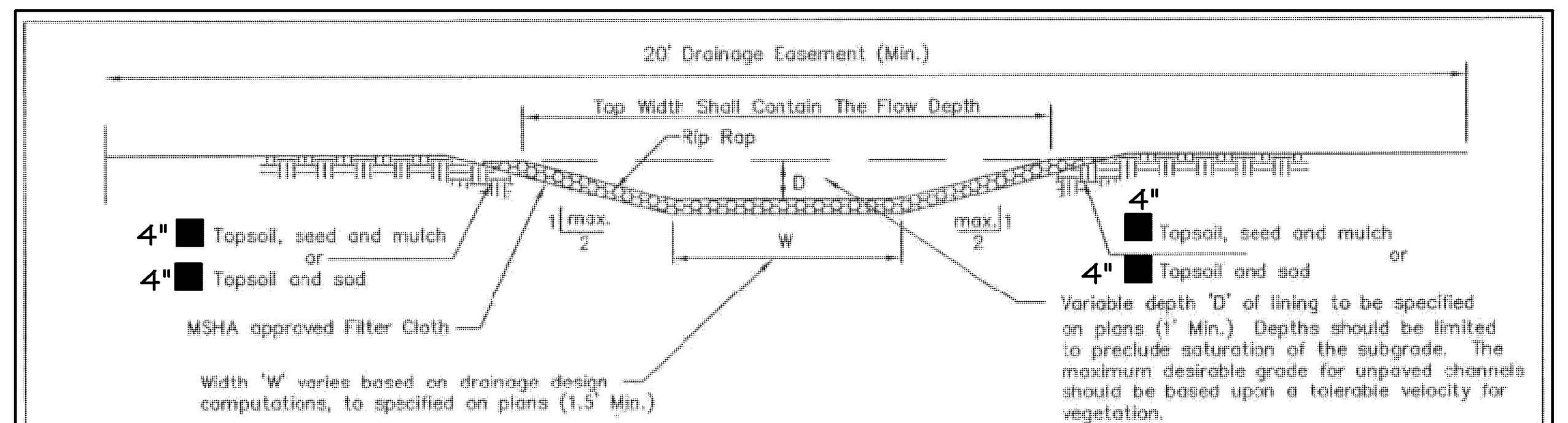
APPROVED Kirk G. McClelland — DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT

APPROVAL • SHA REVISIONS — APPROVAL 12-1-70 — REVISED 10-1-01 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION — APPROVAL 8-24-71 — REVISED 6-1-84

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

CHAIN LINK FENCE
BRACE & ROD ATTACHMENTS- ROUND CONSTRUCTION

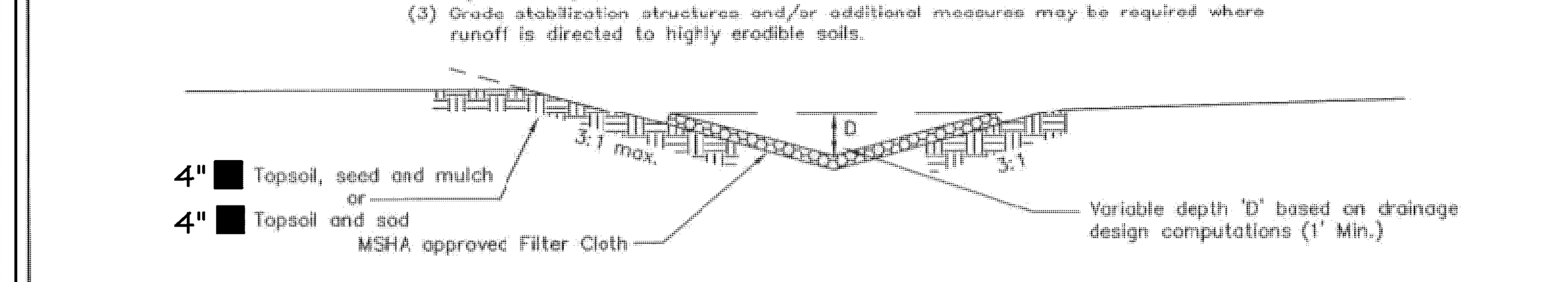
STANDARD NO. MD 690.11



Notes: (1) Various materials including concrete, asphalt, stone and nylon are used for linings where grass will not provide adequate protection. Smooth Linings generate higher velocities than rough linings such as stone and grass. Provision must often be be made to dissipate the energy of the high-velocity flow before it is released to avoid scour at the outlet and damage to the channel lining. If erosive velocities are developed because of smooth linings or steep grades, a special channel design or energy dissipater may be required. Concrete lined channels shall be designed with a minimum 6" thickness.

(2) The use of erosion control matting is preferred in lieu of rip-rap within County right-of-ways.

(3) Grade stabilization structures and/or additional measures may be required where runoff is directed to highly erodible soils.



St. Mary's County Department of Public Works & Transportation	Approved May 2002 — President, Board of County Commissioners — Director, DPW&T	Typical Sections Rip Rap Outfall Channel	Revised:	D 2

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No.21740, Expiration Date:10-8-2013.

GRAPHIC SCALE 1"=50'

0 50 100 150

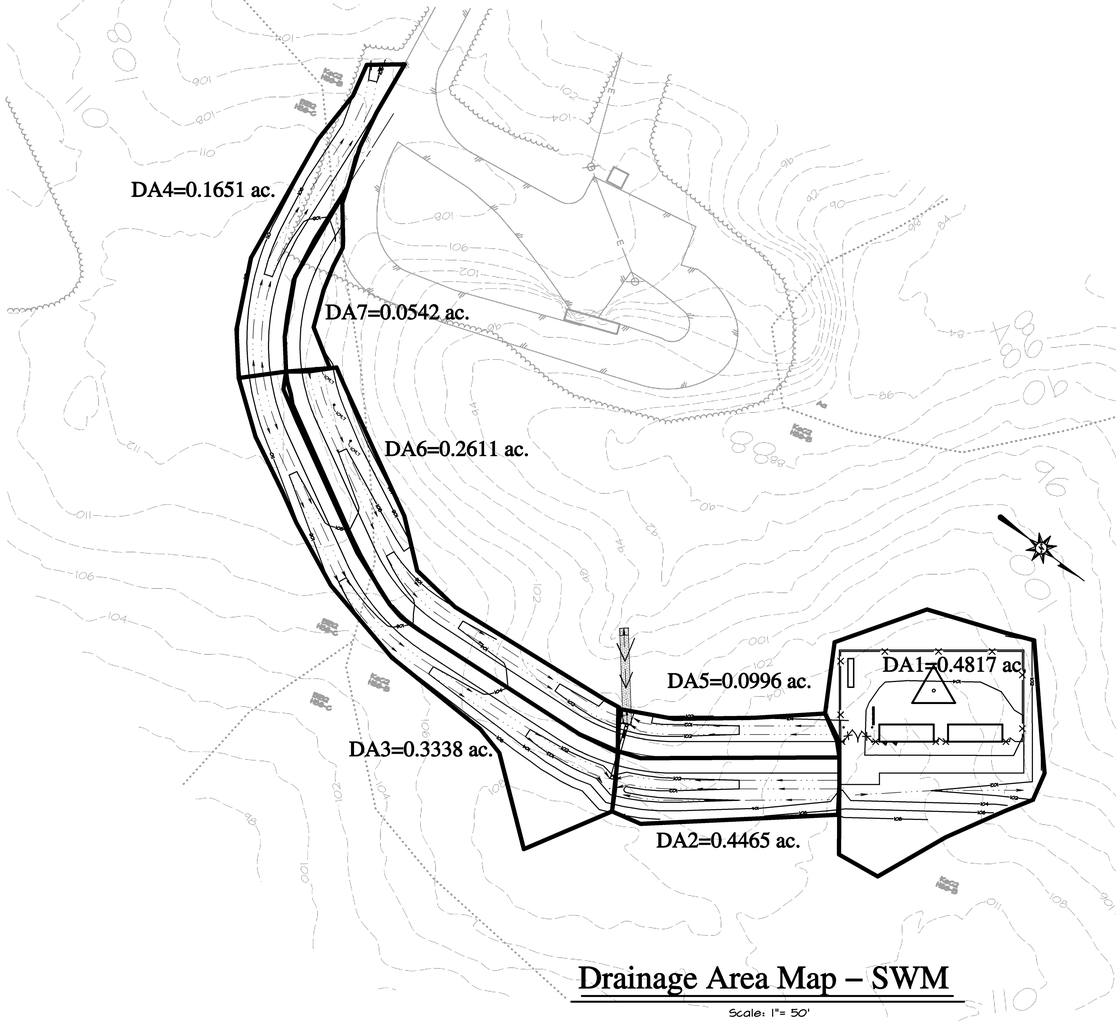
Drafted By: J. Blasco	
Date:10/8/2012	Scale: as shown
rev per DPW&T	10/11/2012
Revision	DATE

MEHAFFEY & ASSOCIATES, P.C.
Civil & Environmental Engineering • Land Planning
41650 Court House Drive - Loker Building - Suite 100
P.O. Box 2450 Leonardtown MD, 20650
301.475.0406 - 301.475.2822 (fax)

LUGM File# 09-135-001 | Sheet 5 of 6

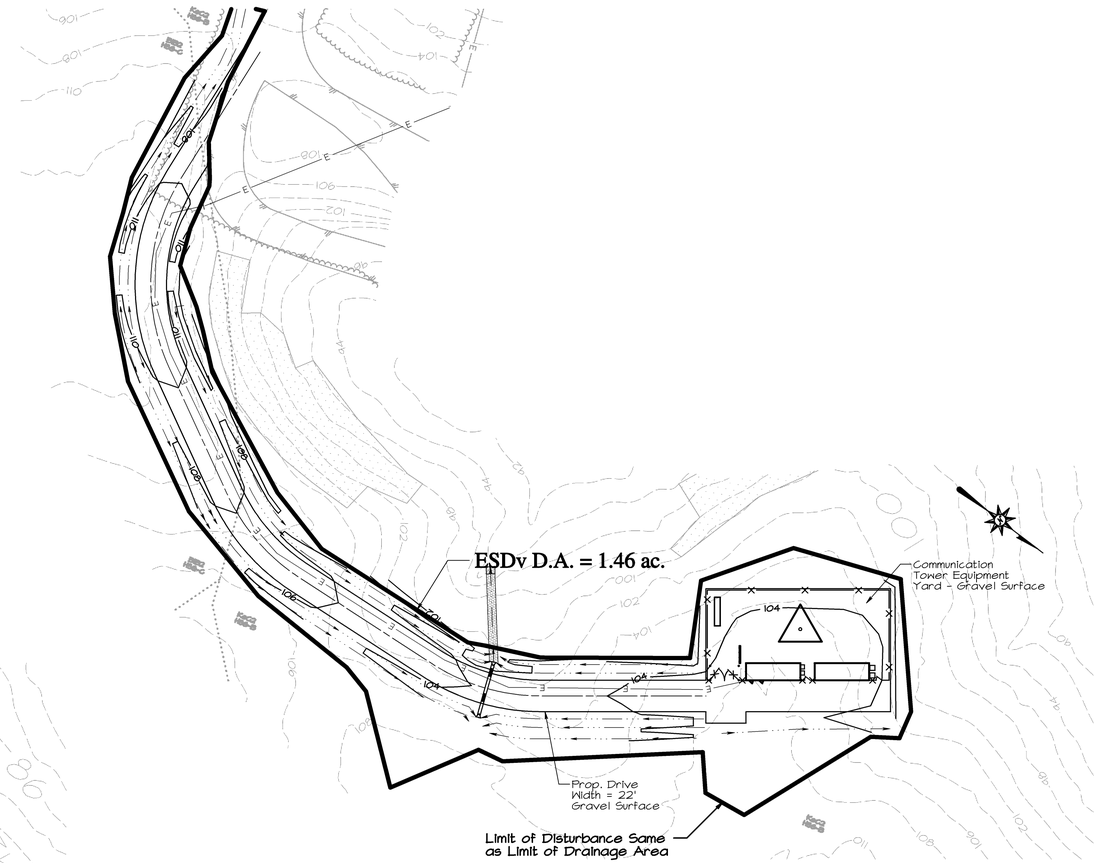
Existing Conditions
Valley Lee Communication Tower
Located at 45350 Happyland Road
Valley Lee, Maryland

Second Election District | St. Mary's County, Maryland



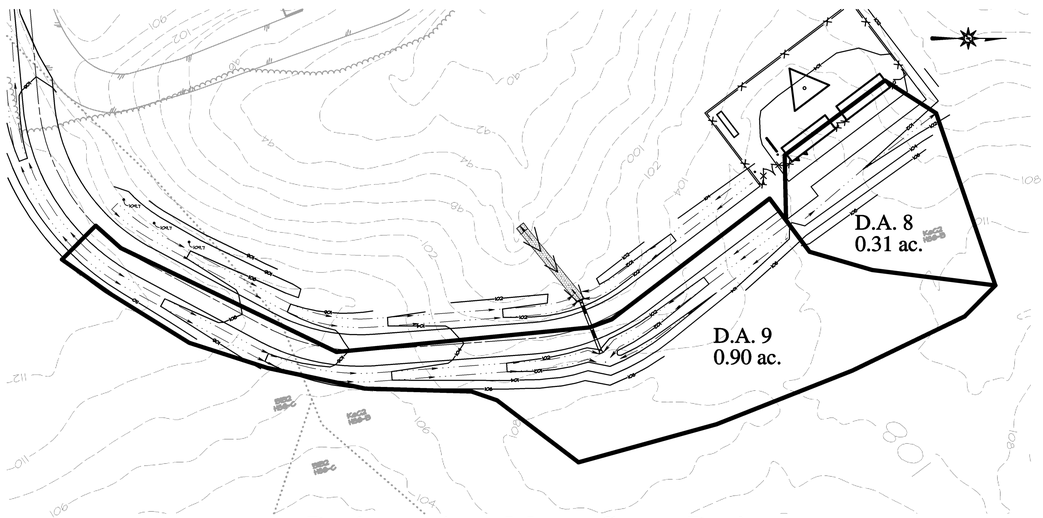
Drainage Area Map – SWM

Scale: 1"= 50'



ESDv Drainage Area Map

Scale: 1"= 50'



Drainage Area Map – Storm Drain

Scale: 1"= 50'

STATE OF MARYLAND
JONATHAN A. BLASCO
No. 21740
REGISTERED
PROFESSIONAL ENGINEER

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No.21740, Expiration Date:10-8-2013.

GRAPHIC SCALE 1"=50'

0 50 100 150

LUGM File# 09–135–001

Sheet 6 of 6

Drafted By: J. Blasco	
Date:10/8/2012	Scale: as shown
rev per DPW&T	10/18/2012
Revision	DATE

MEHAFFEY & ASSOCIATES, P.C.

Civil & Environmental Engineering • Land Planning

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Drainage Area Maps

Valley Lee Communication Tower

Located at 45350 Happyland Road
Valley Lee, Maryland

Second Election District — St. Mary's County, Maryland

ATTACHMENT 24

State Of Maryland
Dept. of Information Technology
Communication Tower
Closeout Acceptance Standards

Latest revision 06/30/10

Table of Contents

1. Intent

2. Closeout Book Set Up

3 Site Binder

301 W. Preston Street, Room 1304 • Baltimore, MD 21201
Tel: (410) 767-4200 • Fax: (410) 333-7285 • TTY Users: call via Maryland Relay
http://www.doit.maryland.gov

1. Intent

The intent of this document is to provide designated personnel with set guidelines, including specified performance metrics, for verifying completeness of construction of communication towers, shelters, and ancillary equipment. . Successful completion of the tests, set forth in this document will guarantee acceptance of a quality facility.

1.11 Tower Foundation

Tower foundation closeout documentation will include:
a. The reinforcement bar steel manufacturer will furnish certification of grade steel report. The certification shall include actual mill test results including the chemical and physical properties of the finished metal products.

1.12 Concrete Placement

a. Concrete placement shall comply with current ASTM and/or AASHTO specifications.
b. Concrete delivery tickets will include the following

- Concrete producers name, including address and phone number.
- Date and time batched concrete departed the mix facility.
- Concrete mixture (i.e. 4000 psi mix, % of air, slump, etc).
- Time batched concrete arrived and site location.
- Verified time of discharged concrete.

1. 13 Concrete Testing

3rd party independent inspection and certification report to include the following (provided at the vendor's expense):

- The sealed report will include a written report of inspection of the reinforcement bar in accordance with the approved tower foundation design.
- Certified concrete test cylinders break test report
- The report will include results of slump, air entrainment, weather conditions at the time of pour, the use of any admixtures per latest DoIT concrete inspection policy.

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1.14 Electrical Conduit/Equipment Installation

Electrical conduit, wiring and materials will be installed in accordance with National NEC codes and standard, local jurisdictional requirements, and local utility requirements. Documentation required for electrical installation is:

a. Photo documentation of underground conduit depicting depth of trench.
b. Photo documentation of underground utility marking tape.
c. Electrician's current Maryland License

1.15 Tower Erection and Installation

The tower installation will be in accordance with ASTM specifications. Closeout documentation will include:

a. A copy of the erection manual specification contained with the tower.
b. A copy of the lighting installation manual.
c. Copies of the safety climb installation manual.
d. Compliance letter from the installer certifying the tower has been installed in accordance with the manufactures specifications.
e. Provide photo documentation of the tower erection process (photo log attached in Exhibit A).
f. Provide photo documentation of any repairs or corrections made as a result of the State supplied tower inspection report.

1.16 Ground System/Underground Details

a. Provide photo documentation of ground ring depth, welded and mechanical ground connections
b. Provide certified documentation that high performance polyethylene "plastic" fuel line or similar substitute was installed.

1.17 Shelter Placement

Provide copy of shelter documents enclosed with the shelter. Provide shelter set photos.

1.18 Tower Lighting

Provide a copy of the tower light manual and diagnostic materials. Document that the tower light has been functional for at least 30 days and at the time of acceptance.

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a. Provide proof of warranty through the manufacturer or CATS II vendor.

1.19 Site grounding

Provide evidence of site grounding compliance through a three point – fall of potential test and resistance test of at least 10 equipment grounds with a clamp on test meter. These tests will be conducted at the vendors expense

a. Clamp on test will demonstrate less than 5 ohms of resistance for each ground tested.
b. Report will describe the ground lead tested, relative location within the site and the ground reading.
c. Fall of potential test will describe type of equipment used, soil type, equipment calibration date and test results.
d. All will be conducted by personnel trained on the equipment.

1.20 Liquid Propane Information

Provide evidence to support buried installation. The tank shall be new and unused.

a. Provide an invoice that demonstrates the installation of non metallic fuel line.
b. Provide photos of underground installation.
c. Provide a bill of sale demonstrating the tank's ownership by the State of Maryland.

1.21 Generator Start up

Provide factory certified inspection/start up documents. The initial setup and testing of the generator will be conducted by a factory certified representative. The required documentation under this section includes:

a. Record serial numbers, models, nomenclature, etc of the generator and automatic transfer switch.
b. Record and document all services performed to check the integrity of the delivered generator, alarm configuration, components and automatic transfer switch.
c. Record and document the generator's performance during the required one (1) hour load bank test (under full load).
    a. This will include indicators such as voltage output, frequency output, oil/water pressure, load, etc.

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d. Provide a copy of the generator and transfer switch warranty.

1.22 Site As Built Drawings

Provide three hard copies of site as built drawings. Provide one soft copy of the as built drawings.

a. In the event construction drawings are provided by the State the vendor will red line any changes and provide measurements/locations highlighting the actual location.
b. If no construction drawings are provided, then the vendor will create a set of as built drawings that show the location of the following items: Tower, shelters, LP tank/pad, electrical conduit, transformer, electric backboard, fence, ice bridges, etc. The drawings will be to scale.

1.23 Photo Documentation

Exhibit A
Photo Documentation Log

Format
All photographs must be submitted printed in color and contained within the photo tab of the closeout binder.

Pre Construction

1. Access road.
2. Utility path.
3. Utility Pole at primary power location, including pole number.
4. Proposed compound location 4 photos. North, East, West South.
5. Tower Location.
6. Shelter Pad location.

Construction

Tower Foundation

1. Tower foundation excavation and shoring.
2. Placement of rebar.
3. Placement of anchor bolts.
4. Tower foundation concrete placement.
5. Finished concrete.
6. Backfill and compaction of foundation.

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Shelter Foundation

1. Shelter foundation excavation, forms and shoring.
2. Placement of rebar.
3. Foundation concrete placement
4. Stoop forms, rebar and reinforcement
5. Finished concrete

Utilities

1. Power routing form primary pole location to tower site.
2. Telco routing from pole to demark.
3. Underground conduit depth.
4. Power and Telco conduit bends.

Generator and fuel tank

1. Installation of pad, including rebar, concrete, etc.
2. Underground fuel supply line trench, trench depth, and connections.
3. Photo evidence of installation of non-metallic fuel line.

Tower Installation

1. Erection of tower process (Minimum of 10).
2. Installation of lighting system.
3. Lighting cable routing (to include strain relief).

Fence Installation

1. Installation of corner, line and gate posts (minimum of 4).
2. Installation of fence fabric (minimum of 4).
3. Installation of barbed wire (minimum of 4).
4. Gates.

Antenna System

1. Antenna and Microwave mounts.
2. Antenna and Microwave model and serial number.
3. Digital photo verifying mounts are plumb and level.
4. Photo verifying mounts are secured to tower (including stiff arms).
5. Photos of coax grounding and ground kits.

Facility Grounding

1. Grounding trench including verification of trench depth.

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2. #2 solid to ground rod (minimum of 5 photos).
3. Underground exothermic welds (minimum of 5 photos)
4. Ice bridge grounding.
5. Entry port grounding.
6. Coax grounding (tower and port).
7. Fence grounding including grounding "buttons".
8. Fence Gate grounding.
9. Shelter grounding exterior / interior.

Post Construction

1. Tower profile. North, East, South West.
2. Compound and Tower with Shelter, North, East, South West.
3. Antenna System, including mount antennas coax, ice bridge entry port.
4. Generator including serial number model number.
5. Primary utility backboard, including meter and meter number.
6. Generator fuel tank location and connections.
7. Shelter bolted down.
8. Shelter door grounds.
9. Tower grounded.
10. Fire Extinguisher.

2. Closeout Book Set Up

Closeout binder will be submitted in one (1) hard copy and one (1) CD version with all photos in jpeg format

1. Site Name and Notes

   Provide title sheet to include:
   - Site name
   - Project number
   - Proper physical address
   - Company name
2. Manufacture Warranties
   - Include all manufactures warranties
3. Site Ground Resistance Reports
   - Provide post ground test
4. Concrete Test Reports
   - Provide Certified test reports
5. Site Photos
   - As required by Exhibit A
6. Tower and Foundation Drawings
   - Provide as required

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7. Shelter Drawings
    - Provide as required
8. Site As-Builts
    - Provide as required
9. Equipment Spec Sheets
    - Provide as required
10. Contract Task Orders
    - Mandatory submission required
11. Contract Purchase Order
    - Mandatory Submission
12. Material Safety Data Sheets
    - Mandatory Submission
13. Liquid Propane Information
    - Mandatory Submission

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