

April 24, 2014

**This Addendum is being issued to provide additional information under Section 2.5.1.5 “WIM Server PC and WIM Reader Server Software” for the above named TORFP. All information contained herein is binding on all offerors who respond to this TORFP.**

- 1. Please be aware that there are two (2) Sections 2.5.1.5 the first is titled:**  
Cellular router (for broadband communications to mobile laptops and other PC clients)

**The Second Section 2.5.1.5 is titled:**  
WIM Server PC and WIM Reader Server Software

- 2. The following pertains to the Second Section 2.5.1.5 titled:** WIM Server PC and WIM Reader Server Software

### RITIS Data Format Requirement

**Under Section 2.5.1.5, WIM Server PC and WIM Reader Server Software, Item 6, Page 16 of the solicitation, the RITIS requirement states the following:**

- 6.** The VWS application shall provide a means to push data, in real-time, to a 3rd-party remote system (University of Maryland’s RITIS – Regional Integrated Transportation Information System). RITIS is the consolidated single sign-on image and data repository for all remote VWS sites, and is the central VWS application used by law enforcement. **The required data format shall be available upon request to Offerors.** The push data shall be provided through database replication, web services, or some other data synchronization method deemed acceptable by the University.

**THIS IS A MANDATORY REQUIREMENT.**

**A technical description and schema layouts for this requirement are provided below:**

Each field device shall connect to the University of Maryland, CATT Lab via TCP to a standard Java 5 EE JMS 1.1 broker. The hostname or IP address of the broker will be provided by the CATT Lab.

This connection is restricted by username and password. These credentials will be provided by the CATT Lab.

This connection is restricted by IP address per device, so the device must have a public IP address. The IP address for each device must be provided to the CATT Lab.





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**Office of Procurement**  
**CATS+ TORFP J02B4400004**  
**SHA – Virtual Weigh Station (VWS) Project Phase II**  
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Each device shall push XML as TextMessage

(<http://docs.oracle.com/javase/5/api/javax/jms/TextMessage.html>) objects to two different, uniquely named JMS Topics specified by the CATT Lab: one topic for vehicle data and one topic for image data. The data is sent asynchronously whenever a relevant vehicle is detected by the device.

The vehicle data must conform to the veh.xsd schema attached.

The image data must conform to the img.xsd schema attached.

Documentation for Java EE 5, JMS 1.1: <http://docs.oracle.com/javase/5/tutorial/doc/bncdq.html>

For any additional information regarding this requirement that the Offeror might need, contact information for personnel at University Of Maryland CATT Lab is provided below.

1. Michael Pack, Director, CATT Laboratory, University of Maryland, Center for Advanced Transportation Technology, 3144 J. Kim Engineering Bldg, College Park, MD 20742. Phone: 301.405.0722 (office), 240.676.4060 (cell)
2. Michael VanDaniker, Visualization Programs Manager, CATT Laboratory, University of Maryland, Center for Advanced Transportation Technology, 3144 J. Kim Engineering Bldg, College Park, MD 20742. Phone: 301.405.3166 (office)
3. Ray Douglass, RF Systems Architect/Operations Manager, CATT Laboratory, University of Maryland, Center for Advanced Transportation Technology, 3144 J. Kim Engineering Bldg, College Park, MD 20742. Phone: 301.405.0762 (office)

**See next 2 pages for veh.xsd – schema file and img.xsd – schema file**



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**veh.xsd – schema file**

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:jaxb="http://java.sun.com/xml/ns/jaxb"
  jaxb:version="2.1" elementFormDefault="qualified">
  <xs:element name="veh">
    <xs:annotation>
      <xs:appinfo><jaxb:class name="Vehicle"/></xs:appinfo>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element name="datetime" type="xs:string"/>
        <xs:element name="grossWt" type="xs:integer"/>
        <xs:element name="class" type="xs:integer"/>
        <xs:element name="speed" type="xs:decimal"/>
        <xs:element name="violation" type="xs:boolean"/>
        <xs:element name="offScale" type="xs:boolean"/>
        <xs:element name="overHeight" type="xs:boolean"/>
        <xs:element name="wrongDir" type="xs:boolean"/>
        <xs:element name="stopped" type="xs:boolean"/>
        <xs:element name="tooClose" type="xs:boolean"/>
        <xs:element name="overWtGross" type="xs:boolean"/>
        <xs:element name="overWtAxle" type="xs:boolean"/>
        <xs:element name="overWtTandems" type="xs:boolean"/>
        <xs:element name="overWtBridge" type="xs:boolean"/>
        <xs:element name="overSpeed" type="xs:boolean"/>
        <xs:element name="speedChange" type="xs:boolean"/>
        <xs:element name="unbalanced" type="xs:boolean"/>
        <xs:element name="random" type="xs:boolean"/>
        <xs:element name="overLength" type="xs:boolean"/>
        <xs:element name="vehFlags" type="xs:integer"/>
        <xs:element name="numAxles" type="xs:integer"/>
        <xs:element name="axle" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="wt" type="xs:integer"/>
              <xs:element name="overWtAxle" type="xs:boolean"/>
              <xs:element name="overWtTandems" type="xs:boolean"/>
              <xs:element name="overWtBridge" type="xs:boolean"/>
              <xs:element name="unbalanced" type="xs:boolean"/>
              <xs:element name="axleFlags" type="xs:integer"/>
              <xs:element name="spacing" type="xs:decimal"/>
            </xs:sequence>
            <xs:attribute name="item" use="required" type="xs:integer"/>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="distanceUnits" use="required" type="xs:NCName"/>
      <xs:attribute name="id" use="required" type="xs:integer"/>
    </xs:complexType>
  </xs:element>
</xs:schema>
```



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```
<xs:attribute name="lane" use="required" type="xs:integer"/>
<xs:attribute name="speedUnits" use="required" type="xs:NCName"/>
<xs:attribute name="station" use="required"/>
<xs:attribute name="wtUnits" use="required" type="xs:NCName"/>
</xs:complexType>
</xs:element>
</xs:schema>
```

**img.xsd – schema file**

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:jaxb="http://java.sun.com/xml/ns/jaxb"
jaxb:version="2.1" elementFormDefault="qualified">
<xs:element name="veh">
<xs:annotation>
<xs:appinfo><jaxb:class name="Image"/></xs:appinfo>
</xs:annotation>
<xs:complexType>
<xs:sequence>
<xs:element name="datetime" type="xs:string"/>
<xs:element name="image" type="xs:base64Binary"/>
</xs:sequence>
<xs:attribute name="id" use="required" type="xs:integer"/>
<xs:attribute name="lane" use="required" type="xs:integer"/>
<xs:attribute name="station" use="required"/>
</xs:complexType>
</xs:element>
</xs:schema>
```

**End of Addendum #1**



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**This Addendum is being issued to provide corrections, deletions and additions to the above named TORFP. All information contained herein is binding on all offerors who respond to this TORFP.**

**\*\*SHA SITE VISITS\*\***

Manoj Pansare and David Czaropinski are available on the following dates for Site Visits:  
 May 5, 6 and 7

Please contact Manoj at [mpansare@sha.state.md.us](mailto:mpansare@sha.state.md.us) or Dave at [dczorapinski@sha.state.md.us](mailto:dczorapinski@sha.state.md.us) directly, to coordinate a Site Visit.

**\*\*SITE PRIORITY LIST\*\***

- MDTA – EB US 40 at the Thomas J Hatem Memorial Bridge – 1
- MDTA – WB US 40 at the Thomas J Hatem Memorial Bridge – 2
- SHA – SB I-81, South of MD 58 (Salem Ave) – 3
- MDTA – NB I-95 at Millard E Tydings Memorial Bridge – 4
- MDTA – SB I -85 at Millard E Tydings Memorial Bridge – 5
- SHA – NB US 13 (near SHA ATR #37, Tulls Corner Road) – 6
- MDTA – NB I-895 at the Baltimore Harbor Tunnel – 7
- MDTA - SB I-895 at the Baltimore Harbor Tunnel – 8
- MDTA – SB I-95 at Ft. McHenry Tunnel – 9
- MDTA – EB I-695 at Francis Scott Key Bridge – 10
- MDTA – WB I-695 at Francis Scott Key Bridge – 11
- MDTA – SB Broening Highway – 12
- SHA – NB I-81, North of Veterans Memorial Highway plaque – 13

\*\*\*\*\*

**TORFP J02B4400004 – SHA Virtual Weigh Station (VWS) Project Phase II has been updated with the following Changes, Deletions, and Additions and is attached:**

**The following are changes, Deletions, and Additions**

1. Page 13, Section 2.5, Requirements: 2. c. Metered Power Service  
**DELETE: Section 2.5, Requirements: 2. c. Metered Power Service**
  
2. Page 20 and 21, Section 2.5.2.7, Metered Power Service  
**DELETE: Section 2.5.2.7, Metered Power Service**





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**Addendum #2**

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3. Page 22, Section 2.5.3.4, Installation, Item 12:

**DELETE:** TO Contractor shall verify that all permits are in place (environmental approvals, ROW approvals, lane closure and TCP permits, etc.) and existing utilities have been properly located and marked.

**ADD:** TO Contractor shall **obtain and** verify that all permits are in place (environmental approvals, ROW approvals, lane closure and TCP permits, etc.) and existing utilities have been properly located and marked.

4. Page 23, Section 2.5.3.4, Installation, Item 19: (Last sentence):

**DELETE:** Work shall be coordinated with the appropriate SHA and District or County entity.

**ADD:** Work shall be coordinated with the appropriate SHA, **MDTA**, and District or County entity.

5. Page 23, Section 2.5.3.4, Installation:

**ADD:** **Item 22.**  
**Each VWS site shall be inspected for proper construction and all equipment installation, including poles, foundations, concrete pours, cabinets, equipment internal and external to the WIM cabinet, including but not limited to electrical installation, cabling, grounding, cable terminations, post-installation site remediation by an SHA designated inspector(s). The inspector(s) shall be present at all times during the installation process. The TO Contractor shall coordinate the services of the inspector(s) with the TO Manager and/or their designated agency responsible for inspections. At no time shall any construction or installation work be initiated or performed without an inspector present. Inspection payments shall be made outside the scope of this contract using existing state procurement vehicles.**

6. Page 26, Section 2.5.3.6, Warranty, Item 6, first sentence:

**DELETE:** In the event that a defect or failure, in the opinion of SHA, constitutes an emergency, which will jeopardize or impair service operation, then SHA will provide the TO Contractor both verbal and written notice thereof and the TO Contractor shall commence “corrective work” within three business days after receipt of such verbal or written notice.

**ADD:** In the event that a defect or failure, in the opinion of SHA, constitutes an emergency, which will jeopardize or impair service operation, then SHA will provide the TO Contractor both verbal and written notice thereof and the TO

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Contractor shall commence “corrective work” within **twenty-four (24) hours** after receipt of such verbal or written notice.

7. Page 26, Section 2.5.3.6, Warranty, Item 9:

**DELETE:** After the first date of placing the VWS system at each site into operation, and until the expiration of the warranty period for that site, maintenance and support for all equipment shall be available from the TO Contractor, on site, within three (3) business days of notification of the need for maintenance and support.

**ADD:** After the first date of placing the VWS system at each site into operation, and until the expiration of the warranty period for that site, maintenance and support for all equipment shall be available from the TO Contractor, on site, **as mentioned in Section 2.5.4, Service Level Agreement.**

8. Page 29, Section 2.5.5, Backup/Disaster Recovery

**DELETE:** The TO Contractor shall perform backups of the operating system, web, application, and database server and all data on a nightly basis to a redundant hot swappable disk located inside the WIM cabinet. The TO Contractor shall be required to perform a quick field replacement should the primary disk fail. All vehicle class, weight, volume and violation data shall be maintained on site for a full year. Vehicle images shall be maintained on site for six (6) months.

**ADD:** The TO Contractor shall perform backups of the operating system, web, application, and database server and all data on a nightly basis to a redundant hot swappable disk located inside the WIM cabinet. The TO Contractor shall be required to perform a quick field replacement should the primary disk fail. All vehicle class, weight, volume and violation data shall be maintained on site for a full year. Vehicle images shall be maintained on site for **three (3) months.**

9. Page 32, Table – ID 2.6.2.6 – In the last column, add the following bullet after “user training manual”

**ADD:**                   • **Completed inspection by SHA inspector**

10. Page 32, Table – ID 2.6.2.8 – QA/Acceptance Testing - In the last column, first bullet

**DELETE:**               • SHA inspection results, including remediation

**ADD**                   • SHA inspection results and remediation, including site restoral to original condition, seeding, mulching, and cleanup as required in 2.5.3.5, Item 1





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11. Page 32, Table – ID 2.6.2.8 – QA/Acceptance Testing – In the last column, add the following bullet

**ADD** • Validation and verification of real time VWS data feed integration into RITIS

12. Page 40, 3.2.1, Technical Proposal – Note:

**DELETE:** 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.

**ADD:** Note - State of Maryland experience can be included as part of **Section G1 and G2** above as project or contract experience. State of Maryland experience is neither required nor given more weight in proposal evaluations.

13 Page 69, Attachment 3 – Task Order Agreement – 3. Time for Performance

**DELETE:** 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+ TORFP on receipt of a Notice to Proceed from the TO Manager. The term of this TO Agreement is for a period of three (3) years from Notice to Proceed, commencing on the date of Notice to Proceed and terminating three (3) years from Notice to Proceed. At the sole option of the State, this TO Agreement may be extended for two (2) additional, one (1) year periods for a total TO Agreement period ending on Month, Day, Year.

**ADD:** 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+ TORFP on receipt of a Notice to Proceed from the TO Manager. **The term of this TO Agreement is for a period of five (5) years from Notice to Proceed, commencing on the date of Notice to Proceed and terminating five (5) years from Notice to Proceed.**

14 UPDATED Attachment 10 – Non-Disclosure Agreement

**Please use only the attached UPDATED - ATTACHMENT 10 – NON\_DISCLOSURE AGREEMENT when submitting with your proposal**

15. UPDATED Attachment 1 - Price Proposal Excel Workbook

**Please use only the attached UPDATED - ATTACHMENT 1 – PRICE PROPOSAL EXCEL WORKBOOK when submitting with your proposal (see attachment)**

**End of Addendum #2**



May 2, 2014

**This Addendum is being issued to provide updated site visit information, provide new Due Date and Time for Questions, provide Modification to Appendix #3, Provide Answers to Questions from the Pre-Proposal Meeting, and reminders to the above named TORFP. All information contained herein is binding on all offerors who respond to this TORFP.**

**UPDATED SITE VISIT INFORMATION**

Site visit schedule and contact information is as follows (Note - all interested master contractors will be taken out together, we cannot coordinate multiple site visits):

Manoj Pansare and David Czorapinski are available on the following dates for SHA location Site Visits: May 5 and 6.

Please contact Manoj at [mpansare@sha.state.md.us](mailto:mpansare@sha.state.md.us) or Dave at [dczorapinski@sha.state.md.us](mailto:dczorapinski@sha.state.md.us) directly, to coordinate a SHA Site Visit.

Josh Golomb (MDTA approved consultant) is available on the following dates for MDTA location site visits: May 5, May 7 and May 8 until 2PM.

Please contact Josh Golomb at [jgolomb@rkk.com](mailto:jgolomb@rkk.com) directly to coordinate a MDTA site visit.

**DUE DATE AND TIME CHANGE FOR QUESTIONS**

The Due Date and Time for Questions has been extended. The new Due Date and Time is now:

**Friday, May 9 2014 Close of Business**

**MODIFICATION TO APPEDDIX #3**

We have been informed by MDTA that VWS Site #7 location has changed. This is a modification to Appendix 3. The change, it provided by attachment to this email. (SEE ATTACHED)

**QUESTIONS & ANSWERS**

1. **Question:** Power was mentioned, will SHA make sure there is power available at the sites?  
**Answer:** Yes, when each site is deployed SHA and MDTA will ensure power is available at each location.
  
2. **Question:** What is the timeline for site installations?





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**Answer:** We intend to complete 4 site installations every year.

3. **Question:** As far as calibrations, are these to be included in the price?

**Answer:** Yes, the first year of system maintenance under warranty will include two (2) calibrations.

4. **Question:** For the cost of the sensor replacement, do you want a separate line item cost for this?

**Answer:** Under the new Attachment 1 – Price Proposal Excel Workbook Line Item 6 will cover Site Sensor Replacement. We need a price for a QWIM 2 (dual strip) sensor and loop replacement, including installation, calibration, MOT and TCP, single lane.

5. **Question:** You mentioned a PC in the cabinet? Is this a requirement?

**Answer:** Please keep in mind this PC is in the configuration that we have today at existing VWS locations. If your proposed solution has, as an example, a controller that also includes WIM application functionality, as long as it meets \*all\* the requirements and can recover on its own this is acceptable. If a site loses power it needs to come back on its own, unattended. A rack mounted monitor and a keyboard is requested for local diagnostics at the cabinet.

6. **Question:** You mentioned metered power; will this power be located in a reasonable distance at the site?

**Answer:** SHA and MDTA will attempt to ensure it is located at a reasonable distance from the site.

7. **Question:** When we look at the existing sites will this be indicative of distance of where the power would be located for the future sites?

**Answer:** Yes, to some extent.

8. **Question:** All interface is to be with RITIS, does our proposed solution have to interface with RITIS?

**Answer:** Yes, it will need to interface with RITIS in real time and meet the latency requirements. This is a mandatory requirement. The RITIS requirements and schemas were provided in Addendum #1. RITIS is the single sign-on solution for law enforcement. Law enforcement does not log in to individual sites.



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9. **Question:** Why the time and material portion?

**Answer:** Because we would like to know potential labor rates in case we do not choose the maintenance options that are proposed. If it is not cost effective to go with the maintenance options we may choose to go with the time and material portion

10. **Question:** What if we choose to propose more than 4 sites per year?

**Answer:** Based on our available resources we choose to keep it at 4 per year at this time.

11. **Question:** So there will be no more than two sites being deployed in parallel?

**Answer:** Yes

12. **Question:** Is there a site location deployment priority list?

**Answer:** This list will be supplied in Addendum #2

13. **Question:** Regarding the payment schedule – progress payments - how does that work?

**Answer:** Progress payments will be made after the site is completed and user testing acceptance, and after each progress payment milestone is complete, per the deliverables table on page 31.

14. **Question:** Is this a five year term or a four year term with two option years?


**Answer:** This contract cannot exceed five years.

### REMINDERS

\*Your proposals will be large and may be sent in multiple emails. Please remember to number your emails (example: 1 of 3, 2 of 3, 3 of 3), and to confirm that ALL emails have been received.

\*All portions of your proposal must be received prior to the Due Date and Time or your offer will not be considered for award. We cannot accept only a portion of your proposal. If for example your financial comes in after the cut off and your technical was on time, we cannot accept your entire proposal

\*The Procurement Officer is your only contact for this procurement [jpalechek@mdot.state.md.us](mailto:jpalechek@mdot.state.md.us)



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\*If you are not a master contractor and are interested as a potential subcontractor, make sure you receive all of the addenda and information that is distributed regarding this TORFP by contacting the Procurement Officer.

\*If you require an official answer to your questions posed here today, please submit your question in writing. Currently the cut off for Questions is May 9, 2014 Close of Business. The summary of the pre-proposal is part of Addendum #2 and Q&A are listed above, but if you desire a more technical or detailed answer, please submit your question in writing to [jpalechek@mdot.state.md.us](mailto:jpalechek@mdot.state.md.us).

**End of Addendum #3**



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**Appendix 1**

**ADDITIONAL DESIGN AND  
CONSTRUCTION SPECIFICATIONS**



**CONTRACT PROVISIONS**

CATS + TORFP# J02B4400004

(NCHRP) REPORT 350 IMPLEMENTATION SCHEDULE

1 of 2

**NOTICE TO ALL HOLDERS OF THIS CONTRACT DOCUMENT**

**NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)  
REPORT 350 IMPLEMENTATION SCHEDULE FOR DEVICES USED IN THE  
MAINTENANCE OF TRAFFIC**

Except as otherwise specified in this Section, all items for the maintenance of traffic, including those listed under the following categories, shall be crashworthy in conformance with Level 3 or other Level as specified by the Engineer in conformance with the safety crash testing and performance criteria published in the National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features." When conformance with NCHRP Report 350 is required, the Contractor shall provide the Engineer with the manufacturers' certifications that the devices comply with the specified criteria.

Unless specifically waived by an attachment to these Contract Provisions, devices must be approved by the Office of Traffic and Safety.

**Category 1 Devices**

These devices are cones, tubular markers, flexible delineator posts, and drums, all without any accessories or attachments, which are used for channelization and delineation.

**Category 2 Devices**

These devices are Type I, II, and III barricades; portable sign supports with signs; intrusion alarms; and drums, vertical panels, and cones, all with accessories or attachments.

**Category 3 Devices**

- (a) Truck Mounted Attenuators (TMAs) and Trailer Truck Mounted Attenuators (TTMAs) .
- (b) Temporary Barrier.
  - (1) Concrete Barrier.
  - (2) Traffic Barrier W Beam and Water Filled Barrier.
  - (3) Steel/Aluminum Barrier.
- (c) Temporary End Treatments.

**Category 4 Devices**

These devices are area lighting supports, arrow panels, and portable variable message signs that are usually portable or trailer-mounted.

**CONTRACT PROVISIONS**  
**(NCHRP) REPORT 350 IMPLEMENTATION SCHEDULE**

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<b>WORK ZONE DEVICES</b>	<b>IMPLEMENTATION SCHEDULE TO CONFORM TO NCHRP REPORT 350 CRITERIA</b>
<p>CATEGORY 1                      Cones, tubular markers, flexible delineator posts, and drums (all without any accessories or attachments)</p>	<p>All devices shall conform to NCHRP Report 350 criteria.</p>
<p>CATEGORY 2                      Type I, II, and III barricades; portable signs supports with signs; intrusion alarms; and drums, vertical panels, and cones (all with accessories or attachments)</p>	<p>All devices shall conform to NCHRP Report 350 criteria.</p>
<p>CATEGORY 3                      (a) Truck Mounted Attenuators (TMAs);                      Trailer Truck Mounted Attenuators (TTMAs)                      (b) Temporary Barriers                          (1) Concrete Barrier                          (2) Traffic Barrier W Beam and Water Filled Barrier                          (3) Steel/Aluminum Barrier                      (c) Temporary End Treatments</p>	<p>All devices shall conform to NCHRP Report 350 criteria.</p>
<p>CATEGORY 4                      Portable trailer mounted devices including area lighting supports, arrow panels, and changeable message signs</p>	<p>The Contractor may use devices that do not conform to NCHRP Report 350 criteria, until compliance dates are established. Use of these devices shall comply with the provisions of Part 6 of the MUTCD.</p>



**CONTRACT PROVISIONS**  
**OCCUPYING WETLANDS**

CATS + TORFP# J02B440004

1 of 1

**OCCUPYING WETLANDS**

The Contractor is hereby alerted to the importance of preserving wetland areas. The Administration, in conjunction with the various environmental agencies, has developed these Contract Documents so as to minimize or eliminate disturbance and damage to existing wetland areas. In order to accomplish this, the following must be rigidly adhered to:

- (a) Prior to performing any work on the project, the areas of wetland will be identified and marked as directed by the Administration. All personnel of the Contractor or sub-contractors shall be alerted to these designated areas.
- (b) The Contractor or sub-contractors shall not impact any wetland or waterway, whether it be permanently or temporarily unless otherwise stipulated in the permit application and approved as an authorized action by the appropriate regulatory agency. No fill shall be placed in these areas without a permit.
- (c) If a Contractor or sub-contractor has to impact a wetland or waterway that is not covered by an existing wetland permit, they shall immediately notify the Engineer. The Engineer will notify the Environmental Programs Division to determine the extent of any permit modification. At that time the Environmental Programs Division will request a permit modification or submit a permit application.
- (d) If the Contractor impacts any wetland or waterway for which they do not have a wetland permit, they shall be responsible for restoring the wetland areas and possibly mitigating the wetland impacts to the full satisfaction of the environmental agencies, which could include monetary compensation.
- (e) The cost of restoration and mitigation of the impacted areas shall be at no additional cost to the Administration.

The importance of not abusing the wetland areas cannot be overemphasized. Abuse of wetland areas could jeopardize the operation of the total Contract and could be cause for a shut-down. If a shut-down occurs because of the Contractor's failure to secure the required permits (i.e. the Contractor's method of work includes impacts not approved by previously acquired permits), the Contractor's negligence or operations, all costs and damages to the Contractor and to the State will be at no additional cost to the Administration. Noncompliance with these requirements will not be considered for an extension of Contract time.





**CONTRACT PROVISIONS**  
**TRAFFIC CONTROL PLAN CERTIFICATION**

CATS + TORFP# J02B440004  
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**TRAFFIC CONTROL PLAN CERTIFICATION**

PRIOR TO THE COMMENCEMENT OF WORK ON THIS PROJECT, THE SUCCESSFUL BIDDER WILL BE REQUIRED TO COMPLETE A TRAFFIC CONTROL PLAN CERTIFICATION, CONTAINING THE INFORMATION SHOWN BELOW. THE CERTIFICATION FORM WILL BE PROVIDED TO THE SUCCESSFUL BIDDER UPON AWARD OF THE CONTRACT.

The Administration's Traffic Control Plan (TCP) has been reviewed and the following course of action shall be followed:

**Option 1** See note below  
The TCP is accepted and shall be used on this project.

**Option 2** See note below  
The TCP is accepted; however, revisions and/or additions shall be submitted for approval in conformance with the Administration's Specifications 104.01.

**Option 3** \_\_\_\_\_  
The TCP is not accepted and revision shall be submitted for approval in accordance with the Administration's Specifications 104.01.

It is understood that the effective implementation of the approved TCP is the responsibility of the Contractor. Minor modifications may be made by the Traffic Manager if field conditions warrant and prior concurrence is obtained from the Engineer. Significant changes to the TCP will be submitted to the Engineer in writing, for approval, in conformance with the Administration's Specifications 104.01.

\_\_\_\_\_  
(DATE)

\_\_\_\_\_  
(SIGNATURE)

\_\_\_\_\_  
(PRINT SIGNATURE)

\_\_\_\_\_  
(TITLE)

Note: Option 1 and 2 shall not be used on this project. The TO contractor must prepare a TCP based on the requirements in the Administrations Specifications 104.01.



**NOTICE TO ALL HOLDERS OF THIS CONTRACT DOCUMENT**

**HIGH VISIBILITY SAFETY APPAREL POLICY**

**BACKGROUND.** Research indicates that high visibility garments have a significant impact on the safety of employees who work on highways and rights-of-way. In addition, high visibility garments may help to prevent injuries and accidents and to make highway workers more visible to the motoring public, which ultimately improves traffic safety.

**STATEMENT OF POLICY.**

- (a) The High Visibility Safety Apparel Policy provides a standardized apparel program.
- (b) The program seeks to improve the visibility of all persons who work on Administration highways and rights-of-way.
- (c) All apparel shall contain the appropriate class identification label.
- (d) Compliance with this policy is retroactive and becomes effective immediately. All affected employees shall receive high visibility apparel awareness training.

**APPLICABILITY.** This policy applies to all Administration employees and all other persons who work on Administration highways and rights-of-way. All workers shall wear, at a minimum, Class 2 ANSI/ISEA 107/2004 apparel.

- (a) For Administration employees, this apparel shall have a fluorescent yellow-green background material color and be the outermost garment worn.
- (b) Retro-reflective material color for Administration employee apparel shall be silver or white and be visible at a minimum distance of 1,000 feet. The retro-reflective safety apparel shall be designed to clearly recognize and differentiate the wearer from the surrounding work environment. The retro-reflective material may be contrasted by fluorescent orange background material not exceeding one and one half inches on either side of the retro-reflective material.
- (c) For non-Administration employees, this apparel shall be either fluorescent orange-red or fluorescent yellow-green background material color and be the outermost garment worn.
- (d) Retro-reflective material color for non-Administration employee apparel shall either be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and be visible at a minimum distance of 1,000 feet. The retro-reflective safety apparel shall be designed to clearly recognize and differentiate the wearer from the surrounding work environment.



**CONTRACT PROVISIONS**  
**HIGH VISIBILITY SAFETY APPAREL POLIC**

**REFERENCES.**

- (a) ANSI/ISEA 107/2004 standard – American National Safety Institute/International Safety Equipment Association
- (b) MUTCD 2003 – Manual for Uniform Traffic Control Devices - Sections 6D.03B and 6E.02
- (c) Visibility Research – The VCTR 1989 report concludes that fluorescent colors, when compared with non-fluorescent colors, enhance the daytime conspicuity of worker clothing.

**DEFINITIONS.**

- (a) Apparel – The outermost high-visibility garment worn by employees who work on Administration highways and rights-of-way.
- (b) Highways – All roads owned by the Maryland Department of Transportation and maintained by the Administration.
- (c) High Visibility – The ability for workers to be distinguishable as human forms to be seen, day and night, at distances that allow equipment operators and motorists to see, recognize, and respond.

**NOTICE TO CONTRACTOR**

**PROJECT SCHEDULE.** Section 109 shall only apply when a CPM Project Schedule item is included in the Schedule of Prices. Otherwise, all Project Schedules shall conform to Section 110.

**NOTICE TO BIDDERS.** The Proposal Form Packet in this Invitation for Bids requires the following information be submitted for the Bidder and each firm quoting or considered as subcontractors:

- (a) Name of firm.
- (b) Address of firm.
- (c) MBE, Non-MBE, DBE, or Non-DBE.
- (d) Age of firm.
- (e) Annual gross receipts per last calendar year.

Note that there are provisions for submitting copies for additional subcontractors, and that an "X" is required to indicate whether or not additional copies have been submitted.

**BOOK OF STANDARDS.** The Book of Standards for Highway and Incidental Structures is now available only on the Administration's Internet Site at [www.marylandroads.com](http://www.marylandroads.com). The Book of Standards can be located by clicking on Business with SHA; Business Standards and Specifications; and Book of Standards for Highway and Incidental Structures. Hard copies of the Book of Standards will no longer be sold in the Cashiers Office and hard copy distributions of the Standard updates will no longer be made.

**PAYMENT OF STATE OBLIGATIONS.** Electronic funds transfer will be used by the State to pay the Contractor for any Contract expected to exceed \$200,000 and any other State payments unless the State Comptroller's Office grants the Contractor an exemption.

Therefore, by submitting a response to this solicitation, the Bidder/Offeror agrees to accept payment by electronic funds transfer unless the State Comptroller's Office grants an exemption.

Prior to the Award of the Contract the selected Bidder/Offeror shall register using the X-10 Vendor Electronic Funds (EFT) Registration Request Form. The instructions and the form are located on the internet at [compnet.comp.state.md.us/gad](http://compnet.comp.state.md.us/gad).

Any request for exemption shall be submitted to the State Comptroller's Office at the address specified on the X-10 form and shall include the business identification information as stated on the form and include the reason for the exemption.

**REQUEST FOR INFORMATION.** Any information regarding the requirements or the interpretation of any provision of the Contract Documents shall be requested, in writing, and delivered prior to the scheduled date of bid opening. Responses to questions or inquiries having any material effect on the bids shall be made by written addenda sent to all prospective bidders. The Administration will not respond to telephone requests for information concerning this invitation for bids that would materially affect the bid.

**SPECIAL PROVISIONS**  
**NOTICE TO CONTRACTOR**

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Written requests for information or questions shall be addressed to:

Task Order Manager  
Dave Czorapinski, Chief, Motor Carrier Division  
Maryland State Highway Administration  
7491 Connelley Drive  
Hanover, Maryland 21076  
Phone (410) 582-5732  
Fax (410) 787-2863  
Email: [dczorapinski@sha.state.md.us](mailto:dczorapinski@sha.state.md.us)

Each request for information or questions shall include the Contract number and the name and address of the originator.

**MAINTENANCE OF TRAFFIC NOTE.**

The Engineer shall be contacted for approval at least 72 hours in advance of the commencement of any work assignment, explaining the work to be constructed and to request a Lane Closure Permit. A copy of the Lane Closure Permit shall be faxed to the appropriate Assistant District Engineer – Traffic/Maryland Transportation Authority Traffic Manager. The Contractor is responsible for obtaining any Work Zone Permits and clearances from the appropriate District/Authority offices.

All work shall be performed in accordance with the MOT standards MD104.00-01 thru MD 104.06-24. No work is to begin until all traffic control devices are in place and operational. All equipment and traffic control devices are to be removed from the roadway and full traffic capacity restored during non-working periods.

Maintenance of Traffic shall include all engineering and work related to the development and application of the TCP(s), as well as all related items of work including furnishing, placement, maintenance, removal and relocation of devices; and the necessary labor, tools, equipment, and incidentals such as drums, Type III barricades, temporary traffic signs, portable variable message signs, Traffic manager, cellular telephones, and digital cameras, to ensure the desired result of a safe and efficient work area.

Maintenance of Traffic will not be measured but the cost will be incidental to all items in the contract.

**STAGING AREA NOTE.**

The contractor shall locate construction staging areas so as to not result in impacts to Waters of U.S. including jurisdictional wetlands, whether it be permanently or temporarily. Areas of waters and wetlands have not been identified nor marked by the Administration.

**EROSION AND SEDIMENT CONTROL NOTE.**

All disturbed areas shall be stabilized at the end of each work day. No disturbed area shall be left unstabilized overnight unless the runoff is directed to an MDE approved sediment control device. When the disturbed area cannot be stabilized at the end of each work day, it is the responsibility of the Contractor to install and utilize erosion and sediment control measures such as, but not limited to, silt fence, inlet protection, stone outlet structures, and dewatering devices as instructed in the

**SPECIAL PROVISIONS**  
**NOTICE TO CONTRACTOR**

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General Sediment Control Notes and as directed by the Engineer or MDE Inspector. No measurement or direct payment will be made to the Contractor for sediment control devices. All costs incurred thereby shall be included in and considered incidental to the other pay items set up in the Contract. The Contractor is advised that at no time shall an area of 5,000 square feet or more of land be disturbed or 100 cubic yards or more of earth be moved on any one worksite without MDE approval.

**UTILITY NOTE.**

The Contractor shall locate, testpit and be responsible for the safety of all existing utilities in the vicinity of the work.

**RIGHT OF WAY STATUS.**

The Contractor is advised that all work on this project is to be completed within the existing SHA Right of Way.

**ENVIRONMENTAL PERMITS.**

Each Virtual Weigh Station location must be coordinated with and reviewed by SHA's Project Planning Division, Environmental Programs Division, and Highway Hydraulics Division to ascertain project impacts and obtain environmental approvals as required prior to the work assignment letter. See TC Section 3 – Scope of Work for Design Build Terms and Conditions for additional Environmental Permitting requirements.

Any locations involving the creation of any new impervious areas may require the inclusion of SWM facilities into the project and will require approval by MDE's Plan Review Division prior to construction. SHA shall obtain individual approval from MDE for any site that disturbs over 5,000 square feet of land or involves 100 cubic yards or more of earth movement. The Contractor is advised not to commence any ground disturbing activities until such approval is obtained and available on site.

**SUPERVISION.**

The Contractor shall assign to the Contract, as his agent, competent supervision capable of communicating in English, and capable of reading and thoroughly understanding the Contract documents.

**TC SECTION 3**  
**SCOPE OF WORK FOR DESIGN-BUILD**  
**TERMS AND CONDITIONS**

**ADD:** After section TC 3.04

**TC 3.05          DESIGN-BUILD - DESIGN AND CONSTRUCTION SCOPE OF SERVICE**

Where the words Design-Build are used it shall be construed to mean the TO Contractor's Project Team which includes designer(s) and contractor(s). Where the words Designer are used it shall be construed to mean the designers working for the TO Contractor. Where the words Contractor are used it shall be construed to mean the prime TO contractor and sub-contractor(s) working for the prime TO Contractor.

This project includes, but is not limited to the following items of work, which the Design-Build Team shall perform and provide. This section sets forth provisions that are design and construction related; however, this section also impacts construction activities and other work.

Specific design and construction criteria are discussed separately following this section.

**3.05.01          General Requirements**

The Design-Build Team shall provide the services and perform tasks described in this Invitation for Bids in compliance with the applicable policies and procedures of the Administration and requirements set forth in "Volume II -Specifications for Consulting Engineers' Services," dated April 1986.

The Design-Build Team shall comply with all Federal, State and local laws, ordinances and regulations applicable to the activities and obligations associated with this project.

**3.05.02          Qualified**

The Design-Build Team shall have experienced personnel qualified in the development of plans, specifications and estimates for the work outlined in the TORFP Section 2 – Scope of Work. The Design-Build Team shall be knowledgeable in coordinating utility designs, utility connections and working with other agencies and the public.

**3.05.03          Design Constraints**

The Design-Build Team shall construct the project within available right of way. This includes the final Project, as well as any and all work required to maintain drainage and traffic during construction (including detour roads) and any and all work required to control erosion and sediment laden water.

### **3.05.04 Quality of Design and Construction**

The Design-Build Team shall be fully responsible for performing a complete, coordinated, economical, timely, fully functional quality design, including survey and geotechnical elements, all in compliance with the TORFP. The Design-Build Team shall include a complete check of all design and other calculations, plans and specifications in this plan. This check shall include both the overall concept and various element coordination check and the detail check of the calculations for each plan and specification. The design and the check shall be performed by experienced design professionals, licensed in the State of Maryland that have not participated in any of the design up to the checking process. These individuals may be employed either by the Designer or by an independent design firm other than the Design-Build Team.

All plans and specifications required for construction of a work element shall be checked prior to their transmittal to the Administration.

The Administration may require that the Design-Build Team provide checked calculations to the Administration for specific elements of the design prior to approving the design. The Administration will endeavor to provide the Design-Build Team with written requests for such submittals at least 7 days prior to the date the Administration requires the submittal. The Administration may request that checked calculations be submitted on demand. In such instances, the Design-Build Team shall provide the checked calculations immediately.

The checked calculations shall be submitted to the Administration with the other Record Documents submitted at the appropriate milestone reviews.

### **3.05.05 Calculation Certification**

#### **3.05.05.1 Professional Seals**

All calculations, plans, specifications and other technical documents transmitted to the Administration shall be signed and sealed by both of the Professional Engineers licensed in the State of Maryland who are responsible for the design and checking of that document. Landscape plans shall be prepared, signed, and sealed by a Landscape Architect licensed in the State of Maryland. Reforestation plans and application shall be signed and sealed by either a Maryland Licensed Landscape Architect, Licensed Forester, or a qualified professional that is certified by the MD DNR/Forest Service. The certifications at the start and conclusion of the Work, required in Section TC 3.08.03, shall also be sealed by a Professional Engineer licensed in the State of Maryland and signed by the corporate representative of the Design-Build Team, Designer and checker(s).

**The Design-Build team must retain the services of a Professional Engineer licensed in the State of Maryland.**



3.05.05.2 Design Quality Assurance

The Administration may periodically audit the Design-Build Team's, the Designer's, and the checker's work to ensure that it is being done in conformance with the Contract requirements. The Administration will endeavor to perform these audits so as not to interfere with the progress in the work. The Design-Build Team shall fully cooperate with and assist the Administration in conducting such audits. The Design-Build Team shall maintain all records and any other elements of the work in a current and readily available manner so that, should the Administration audit the work, everything shall be readily available.

Any quality assurance reviews or audits conducted by the Administration shall in no way remove from the Design-Build Team the responsibility for designing and constructing all elements of the Work in conformance with its Design Quality Control Plan and all requirements of the Contract. The Administration shall at all times have the authority to require the Design-Build Team to re-perform any work that the Administration determines is not in conformance with any of the provisions of the Contract or with any drawings, specifications, other documents prepared by the Design-Build Team. Any re-work shall not serve as the basis for claims for additional compensation or time by the Design-Build Team.

**3.05.06 Highway Engineering**

N/A

**3.05.07 Structural Engineering**

N/A

**3.05.08 Noise Abatement**

N/A

**3.05.09 Geotechnical Engineering**

The Design-Builder shall conduct supplemental subsurface explorations, analyses, design and construction for all geotechnical components of the Project in accordance with all applicable criteria and standards cited herein and as applicable.

**3.05.10 Pavement Engineering**

N/A

**3.05.11 Traffic Engineering**

The Design-Build Team shall prepare signing, signal, roadway and sign lighting, and final pavement marking plans as part of the highway construction plans using the latest CADD

Standards available from the SHA Office of Traffic & Safety (OOTS).

OOTS and District Traffic will review and approve all signing, signal, lighting, and pavement marking plans for this project. All catalog cuts and working drawings pertaining to traffic items shall be reviewed and approved by the Design-Build Team.

The Design-Build Team shall maintain all existing traffic control devices operations throughout the project limits. All traffic control device modifications to existing and/or temporary signals shall be reviewed and approved by the Office of Traffic & Safety Traffic Engineering Design Division.

**3.05.12 Roadside Landscape Planting and Reforestation**

N/A

**3.05.13 Utility Relocations and Permits**

The Design-Build Team shall be responsible for coordination of all activities during design and construction with regard to utilities and permits. See TC Section 3.15 - Utility Statement contained elsewhere in this Attachment for additional requirements.

**3.05.14 Stormwater Management (SWM) Design and Approvals**

N/A

**3.05.15 Surface Storm Drainage Design and Approvals**

N/A

**3.05.16 Erosion and Sediment Control (ESC) Design and Approvals**

See Environmental Permitting Section below and Special Provisions - Notice to Contractor for additional requirements.

**3.05.17 Engineering Studies**

The Design-Build Team shall be responsible for engineering studies as required to determine solutions to any unforeseen situations that may be discovered during this project, and submission of these studies to the Administration for approval. These studies shall be prepared as per the SHA Consultant Services Specifications, Volume II.

**3.05.18 Coordination with the Administration**

The traffic control plans for a particular phase of work must be approved by the Administration's District Traffic Engineer/Authority's Traffic Manager before Final Plans and Specifications approval will be given and before construction can begin for that phase of work.

For the protection of both the Design-Build Team and the Administration, all submittals prepared by the Design-Build Team shall be dated and initialed by the Design-Build Team as a file copy submission.

**3.05.19 Additional Services**

The Design-Build Team shall be responsible for all necessary field surveys required for the project, which shall conform to Maryland Grid System NAD 83/91 and NAVD 88.

**3.05.20 Environmental Permits**

The Administration will coordinate, submit, and obtain environmental approvals required for each Virtual Weigh Station location separately from SHA's Project Planning Division, Environmental Programs Division, and Highway Hydraulics Division to ascertain project impacts as required at the Preliminary Design Review Phase.

The Design-Builder shall conduct its design and construction activities in accordance with these specifications such that no action or inaction on the part of the Design-Builder shall result in non-compliance with the requirements of the necessary permits and approvals required by the Project.

The Design-Builder shall obtain approvals from the Administration for any changes in design and/or construction activities that affect any permit conditions and would require a modification approval from the regulatory agencies. All conditions in the permits shall be adhered to unless modifications are accepted and approved by the Administration and the regulatory agencies. Delays due to permit modification approval for permits, requested by the Design-Builder, will not result in additional costs to the Administration nor will the Contract be extended.

The Design-Build Team cannot alter the concept activities in such a manner that increases or creates new wetland, buffer, waterway, floodplain impacts compared to those impacts which were authorized by the original permit, without obtaining all required permits or modifications from the appropriate regulatory agencies. If the Design-Build team determines that wetlands, buffers, or floodplains will be impacted, the Design-Build team shall be responsible to obtain the permits from MDE and USACE. The Design-Build Team shall be responsible for addressing any comments or issues the regulatory agencies and/or the Administration may have, including those pertaining to avoidance and minimization measures. The Design-Build Team shall also be responsible for designing, implementing, and monitoring any mitigation which may be required due to the additional wetlands, buffers, or floodplain impacts proposed by the Design-Builder. It is not the responsibility of, nor guaranteed by, the Administration that approval or authorization will be granted by the regulatory agencies.

**3.05.21 Phase V Services**

Phase V services consist of partnering during design and construction, checking shop drawings, redesign under construction, revisions, as-built plans, and provisions for expert court testimony.

The Design-Build Team shall provide all services and perform tasks described in compliance with the requirement policies of Administration as stipulated throughout this TORFP and Volume II.

**3.05.22 Conformance with Contract and Proposal**

All construction, construction-related work, and all other work must conform to the Contract, to the Technical Proposal submitted by the Design-Build Team and to the construction plans prepared by the Design-Build Team.

**3.05.23 Check Shop Drawings**

The Design-Build Team shall correct any errors or omissions found by the Administration during QA-QC of such approved shop drawings at no additional cost to the Administration.

The Design-Build Team shall challenge all the work of the detailer, approving that, which is correct, or most appropriate and red lining and commenting on incorrect or less appropriate details or design. The importance of this approach is emphasized since inferior detailed design could negate the benefits of quality general design. Each shop drawing shall bear the official stamp of the Design-Build Engineer, attesting to their review and approval by the Design-Build Engineer. This work is to be done under the supervision of and shall be the responsibility of a Maryland Registered Professional Engineer.

**3.05.24 Conformance with Approved Plans and Specifications****3.05.24.1 Construction Plans and Project Specifications**

All work shall be done in conformance with the details and dimensions shown on the approved Final Plans and Specifications, and shall meet the requirements in the specifications/special provisions approved as a part of the Final Plans and Specifications submission and portions thereof.

**3.05.24.2 Plan Revisions after Approval of Final Plans and Specifications**

All plan revisions made after Final Plans and Specifications approval shall have approval of the Administration prior to implementation.

**3.05.24.2.1 Revisions**

Redesigns after Final Plans and Specifications approval shall be superimposed on the original project plans in green. Old design details, dimensions and notes shall not be erased, but X'd out in green. The date that the revision was made shall be indicated in the title block of each revised plan sheet. Revisions require prior approval of the Division that is affected by the change and finally the

Administration's Director, Office of Traffic and Safety.

#### 3.05.24.2.2 As-Built Drawings

Field changes/variances from the details and dimensions shown on the plans shall be superimposed on the approved set of drawings in green. Old details, dimensions and notes shall not be erased, but X'd out in green. Each revision must be identified with a Hexagon with the letter A in the center. This symbol is available in MD SHA's Cad Standards. The date that the revision was made shall be indicated in the title block of each revised plan sheet. The As-Built Plans shall reflect any field revision made during construction.

The Design-Build Team shall submit one comprehensive set of As-Built plans at the completion of the project that are signed and sealed by the Engineer. The comprehensive set of As-builts will include an index sheet and a key plan which graphically represents and annotates each phase of the plan submittal if there are multiple submittals. The comprehensive set of as-builts will be assembled and numbered consecutively, beginning with sheet one of the first submittal and ending with the last sheet of the final submittal. The index and key plan will allow for more easily understood and navigable drawings within the overall project limits in the future.

#### 3.05.24.2.3 Computer Files

The Design-Build Team shall also submit Black and White images, at 200 DPI-TIF and PDF files, of the As-Built Plans on CD ROM. The As-Built plans shall be scanned starting with the Title Sheet. The file names will be the Construction Contract Number, followed by a dot (.), followed by a sequential number beginning with 1001. The sequential number must correspond with the plan sheet numbering. This number is followed by another (.) and then the TIF and PDF extension. Example: WO6345270.1001.tif. All scanned TIF and PDF images will be scanned in such a way that they do not appear upside down upon opening. The cover of the CD ROM shall be labeled with the SHA contract number, date, route number, and project description.

#### 3.05.24.2.4 Traffic Control Plans

Any deviations from the approved traffic control plans, details or concepts must have prior approval of the Administration's Assistant District Engineer, Traffic/Authority's Traffic Manager.

**3.05.24.2.5 Permits**

The Design-Build Team shall obtain approvals from the appropriate regulatory agencies for any changes in design and/or construction activities that affect any permit conditions.

**3.05.25 Coordination with Other Contractors**

The Design-Build Team shall coordinate all design and construction, including that of any subcontractors, with other designers, contractors, the utility companies, governmental agencies, Administration personnel, and operating personnel concerning site access, establishment and use of temporary facilities, work schedules, and other elements of the specified work, which require interfacing with others.

**TC 3.06 ADMINISTRATION SERVICES**

The Administration will provide the following services:

**3.06.01 General Administration Services**

- Provide CADD standards, engineering standards, design criteria, as-built plans, existing R/W plats and prints of other design projects for use as examples or guides.
- Provide erosion and sediment control standard sheets, traffic design standard details, Maintenance of Traffic (MOT) standard plates, etc.
- Schedule and coordinate all milestone meetings for this project.
- Provide accident statistics and other traffic data Average Daily Traffic (ADT), Design Hourly Volume (DHV), percentage of trucks, etc.
- Provide review of all redesign and revisions.
- Provide overall management and liaison services related to project phases.
- Review and approve design concepts, plans, contract drawings, documents and estimates.
- Provide existing Right-of-Way plats and/or Right-of-Entry agreements.
- Acquire Right-of-Way for roadway construction as determined by the Administrations design concept plans.

**3.06.02 Traffic Services**

The Administration's Office of Traffic and Safety (OOTS) will provide the following:

- A review of signing, signal, pavement marking and lighting plans.
- Design charts for ground mounted sign supports and foundations.
- Copies of existing standard sheets; however, these may require some revisions by the Design-Build Team.
- Engineering standards, design criteria, and copies of the past design projects for use as examples or guides.
- Functional operation and requirements for the traffic signals.
- When the Design-Build Team proposes any item that differs in any way from the Administration's Standards, OOTS will review those shop drawings for signs, foundation details for sign structures, fabrication drawings for sign structures, and catalog cuts for electrical items.
- Handwritten Structure Design Sheets.

**3.06.03 Construction Inspection**

The Administration will follow its normal construction inspection policies and procedures. However, measurement of quantities will serve to verify that the plan and specification requirements are met and for other purposes at the discretion of the Administration. The Design-Build contract does not alter the authorities of the Administration's District Engineer, Project Engineer, or construction inspection personnel in their Administration of the construction contract.

**3.06.04 Conduct Pre-Construction Conference**

The Administration will conduct the conference and take minutes. Representation at the conference shall include:

3.06.04.1 Preconstruction Conference Attendees

- A responsible officer of the Design-Build Team;
- The Project Manager;
- The SHA Construction Project Engineer;
- The SHA Design Engineer;

- A responsible officer of any major subcontractors.

#### 3.06.04.2 Pre-Construction Conference Topics

The Design-Build Team should be prepared to discuss the following issues at the conference (at a minimum):

- Designation of responsible personnel;
- Correspondence/communication;
- Distribution of contract documents;
- Approval of subcontractors;
- Progress schedule (design and construction);
- Critical work sequencing;
- Permits and licenses;
- Submission schedule;
- Submittal of Shop Drawings, project data and samples;
- Itemized schedule listing dates by which other submissions will be forwarded to the Administration;
- Major equipment, deliveries and priorities;
- Site utilization plans;
- Office and storage area;
- Construction constraints;
- Coordination of all interface activities;
- Training;
- Availability of utilities/need for temporary services;
- Procedures for maintaining Record Documents;
- Material submittals and approvals;



- Processing of field decisions and change orders;
- Close-out procedures;
- Review of miscellaneous procedures;
- Safety;
- Utility relocations, and
- Utility connections to all existing and proposed TCD's.

**3.06.05 Conduct Progress Meetings**

The Administration will conduct progress meetings on a regular basis, as scheduled at the project initiation meeting and pre-construction conference. The Design-Build Team shall prepare all meeting minutes and distribute them to attendees and team members for review and comment weekly. Additional progress meetings may be necessary at the discretion of the Administration to maintain coordination of design and construction activities. Representatives at the meetings shall be qualified and authorized to act on behalf of the entity each represents.

**3.06.06 Permits**

As part of this RFP/IFB, the Administration is providing the permits and approvals based on the proposed activities. See Section 3.06.22, Environmental Permits, for a list of the permits that will be obtained by the Administration.

**TC 3.07 DELIVERABLES**

Deliverables will be produced in both the design and construction phases. They include construction documents, reports, an engineer's office, public relations materials, design exceptions and property owner information.

**3.07.01 Plans**

3.07.01.1 General Requirements

The Design-Build Team shall deliver upon request and at no additional cost hard copies of maps, plans and drawings as well as electronic copies of all computer files. This includes Microstation files used to develop the design and drafting of this project. These files must be logically indexed and labeled to enable Administration personnel to use at any time.

**3.07.01.2 Refinements to Contract Documents**

The Design-Build Team shall develop refinements to the contract documents within the parameters of the proposed cost that better achieve the project goals.

**3.07.01.3 Contract Plans and Specifications**

The Design-Build Team shall provide contract plans and any required specifications, in accordance with "Volume II" and this TORFP. The Design-Build Team will develop specifications for construction that identify the details of the proposed work. The intent is that the work will be done in accordance with the Standard Specifications, project specific Special Provisions, the "standard" Special Provisions, and the Special Provisions Inserts which are normally included in an Administration advertised TORFP.

The specifications to be prepared by the Design-Build Team and submitted to the Administration for review and approval will, in addition to all of the specifications mentioned above, include any specifications developed by the Design-Build Team that supplement or modify what is provided in the TORFP.

Throughout the design phase, the Design-Build Team shall prepare and update 50 scale reproducible maps of the design to be used for meetings, briefings, etc. Where needed for added clarification, 20 scale reproducible maps shall be provided for use by the Administration. The scale of the roadway plans should be 50 scale unless more detail is needed.

The Design-Build Team shall provide the Administration with sufficient data to answer property owners' and other requests for information concerning the project's effects, status, etc.

**3.07.01.4 Drafting and CADD Standards**

The Design-Build Team shall utilize SHA supplied Microstation files, including data collector survey and photogrammetry in their design and drafting. The Design-Build Team shall utilize the Microstation drafting software packages Version V8 or later, and/or GEOPAK. All of the design and drafting will utilize all Administration CADD Standards including but not limited to feature tables, file-naming standards, parameter files, font libraries, cell libraries and color tables.

**3.07.01.5 Traffic Control Plans**

The Design-Build Team shall prepare detailed Traffic Control Plans (TCPs) as required for various stages of construction showing traffic patterns, signs, barricades, etc. These plans will be developed at a scale of 1 in. = 20 ft. or 1 in. = 50 ft. and shall layout in detail each phase of construction as coordinated with the erosion and sediment control

and landscape plans. Final TCPs shall be submitted for final review, and may include cross-sections, temporary signals and/or signal phasing modification plans and interim drainage. All existing highway lighting systems, sign lighting and traffic signals are to be kept fully operational throughout the construction period. In the event some or all of the existing lighting must be taken out of service, consideration should be given to temporary lighting systems and maximizing usage of new lighting systems. All lane closures shall be as outlined elsewhere in this TORFP, and shall be approved by and coordinated with the District Traffic Office of the State Highway Administration and/or the Maryland Transportation Authority's Traffic Manager.

#### 3.07.01.6 Utility Map

The Design-Build Team shall develop a utility map graphically showing all existing utilities within proposed Right-of-Way. This map shall be at the scale of the roadway plans. Existing utilities are to be clearly indicated and labeled. Connections between valve boxes, manholes, poles, etc., are to be shown and labeled with the type of existing service, e.g. 8 in. Sanitary, 4 in. H.P. Gas, 200 K.V. Transmission, etc. This map is to be kept current with proposed utility relocations shown and made available for review and use by Administration and Utility Company staff. Existing utilities are to be shown and clearly labeled on plans, profile and cross-sections.

#### **3.07.02 Reports**

The Design-Build Team shall perform engineering computations and/or analysis and maintain all backup data. This data must be available to the Administration at all times; and clear, legible copies shall be furnished to the Administration upon request. Stormwater Management reports, drainage reports, geotechnical report and field inspections reports, computations, and maps shall be submitted to the Administration for review and/or approval and placement in permanent files. These computations shall be for the total project and in accordance with Administration procedures. Design Exceptions shall be documented in report form and submitted to the Administration.

**TC SECTION 3.15 UTILITY DESIGN AND RELOCATION CRITERIA****3.15.01 Utility Statement****3.15.01.01 General**

The Design-Build Team's attention is called to the requirements of Section GP-5.05, GP-7.13 and GP-7.17.

**3.15.01.02 Potential Utilities Within Project Limits**

The Design-Build Team (DBT) is alerted to the potential presence of overhead and underground utilities including but not limited to water, sanitary sewer, gas, electric, communications, utility conduit, poles and house service connections that may be located within the limits of the State Highway Administration (SHA)/Maryland Transportation Authority (MdTA) right of way and within the limits of the construction project. It is the responsibility of the DBT to avoid, protect, coordinate, and relocate these utilities as necessary to maintain service, safety and project schedule with minimal disruption to the traveling public or utility customers.

The DBT is responsible to coordinate with these utilities on the overall project design, schedule and construction. As it is impossible to determine how a DBT will perform certain operations or how much space will be needed to perform those operations, the relocations will be based on the utility companies' safety and clearance requirements. It may be necessary for the DBT to utilize non-typical methods in some cases to avoid impacting utility facilities. Associated costs will be incidental to the overall contract lump sum.

**3.15.01.03 Non-Impacted Utilities**

Other utilities including but not limited to Level 3 Communications and Comcast Cable may maintain existing facilities that may fall within the limits of this project but are not anticipated to be impacted. Immediate notification shall be made by the DBT to the utility owner and the SHA District Utility Engineer (DUE) if a conflict with these utilities is identified. If the DBT impacts these facilities, the DBT will be responsible to coordinate the necessary design and relocation at no cost to the SHA or the utility owner.

**3.15.01.04 SHA/MdTA Traffic Control Devices**

The DBT shall coordinate the design and construction of any and all utility service connections to existing and proposed Traffic Control Devices with the utility company. The DBT shall be responsible for all conduits, manholes, cabling, meter cans and disconnect switches as required by the utility to obtain the electric utility connection.

Monthly energy use charges and the final connection fees will be the responsibility of the Administration.

The DBT shall review all existing and proposed traffic structures and related equipment to ensure a minimum of ten (10) feet clearance from all existing and proposed utility lines. Relocations and or adjustments may be necessary to obtain the clearance that is required by the Office of Traffic and Safety to ensure the signals can be maintained in compliance with the High Voltage Line Act. NO EXCEPTIONS will be made.

#### **3.15.01.05 Permitting**

The DBT shall obtain all required utility permits from the Administration and all necessary Governmental Approvals with regard to utility work that it performs including service connections. The Administration will require utility relocation plans that have been approved by the utility owner with the permit package. If the DBT has reasonable cause to believe that a utility owner performing construction work on the Site does not have necessary approvals, or is in violation of the approvals, the Design-Builder shall notify the Administration immediately after discovery.

#### **3.15.01.06 Existing Utility Services**

Existing utility service connections are not shown on the plans, therefore, the DBT must communicate with the utility companies and use all means necessary to locate existing services and protect as necessary.

Should a service require relocation, the DBT is responsible for the coordination and work required to relocate, reconnect and remove the existing service. The cost of this work will be incidental to the lump sum cost of the project. Utility services must be maintained at all times during construction, unless written permission is obtained from the Utility Owner and/or the Administration.

#### **3.15.01.09 Existing Utility Locations**

The DBT is responsible to follow the MISS UTILITY process prior to any excavation or work associated with this project. Utility locations shown on the plans are for the convenience of the DBT and shall not be considered accurate or complete unless it has been located and verified by a test hole. The cost for this coordination and time consumption is considered incidental to all work performed.

**Utility facilities owned by the Administration are not marked by MISS UTILITY.**

Regarding the marking of SHA owned facilities, the DBT shall contact the following (a minimum 72-hour advance notice is required):

SHA Fiber Optic and Communication Cables: Statewide Operations Center at 1-800-543-2515. Utility depth information has been collected by SHA OOM Communications and is posted on Projectwise for informational purposes only, the DBT must field verify.

Intelligent Transportation System (ITS) devices: SHA OOM Communications 410-747-8590 **AND** ITS Operations 410-787-7662.

SHA owned street lighting: District offices; District 2 (410) 778-3061, District 5 (410) 841-5450.

SHA owned traffic signal facilities: Hanover Complex Signal Shop 410-787-7652.

Regarding the marking of MdTA owned facilities, the DBT shall contact the following (a minimum 72-hour advance notice is required):

The Contractor shall provide a written notification of intent to excavate an area to the Maryland Transportation Authority at least 72 hours in advance of such activity. The Maryland Transportation Authority is not a subscriber to utility marking services. This notification shall permit the Authority to mark any utilities within the excavation area.

The written notification shall be provided to the Authority's Project Engineer and a copy provided to the Administrator at the affected facility as indicated below:

Dick Wolf, FMT Administrator, (410) 537-1310

Gordon Garrettson, WPL Administrator, (410) 295-8157

#### **3.15.01.10 Surface Utility Frames**

The DBT shall make all adjustments to surface utility frame and covers located in pavement and concrete, not limited to manholes, water valves, water meters, gas valves and gas meters. The DBT must coordinate with the utility owner on the specifications and schedule. This work is incidental to the respective LS item.

#### **3.15.01.11 Utilities: Guidelines and Technical Requirements**

##### **General**

All utilities within the Project area, designed and/or constructed by the Design-Build Team, shall be placed in accordance with applicable Governmental Rules, including the Administration's utility regulations and policies, Utility Policy Manual and Utility Procedure Manual, the applicable Utility Standards, Maryland Tariff, and other requirements specified in the Contract Documents.

**TERMS AND CONDITIONS**

**TC SECTION 4  
CONTROL OF WORK**

**TC-4.02 FAILURE TO ADEQUATELY MAINTAIN PROJECT**

98 **ADD:** To the second paragraph.

Additionally, an appropriate deduction will be made from the Contractor's next progress estimate for each day or portion thereof that Maintenance of Traffic deficiencies exist, and will continue until the deficiencies are satisfactorily corrected and accepted by the Engineer. Any portion of a day will be assessed a full day deduction. The deduction will be equal to a prorata share of the lump sum price bid for Maintenance of Traffic or an amount prorated from the Engineer's estimate, whichever is more. The amount prorated will be the per diem amount established by using the working days (based upon calendar dates when required) divided into the total value of the bid item or the Engineer's estimate of that item, whichever is more.

The above noted deduction will be assessed on the next progress estimate if:

The Contractor does not take action to correct the deficiencies and properly assume the responsibilities of maintaining the project (as determined by the Engineer) within four hours of receiving a notice to comply with the required maintenance provisions.

The deduction will be equal to the daily prorated share of the lump sum price bid for Maintenance of Traffic or \$500 per day, whichever is more for each day or portion thereof that the deficiencies exist, and will continue until the deficiencies and proper assumption of the required maintenance provisions are satisfactorily corrected and accepted by the Engineer. The amount of monies deducted will be a permanent deduction and are not recoverable. Upon satisfactory correction of the deficiencies, payment of the Maintenance of Traffic lump sum item will resume.



**SPECIAL PROVISIONS INSERT**

CATS + TORFP# J02B4400004

TC 6.10 — RECYCLED OR REHANDLED MATERIAL

1 of 1

**TERMS AND CONDITIONS**

**TC SECTION 6  
RESTRICTIONS AND PERMITS**

112 **DELETE:** TC 6.10 – RECYCLED OR REHANDLED MATERIAL in its entirety.

**INSERT:** The following.

**TC 6.10 – RECYCLED OR REHANDLED MATERIAL.**

Refer to 900.03 in the Contract Documents.



**TERMS AND CONDITIONS**

**TC SECTION 6  
RESTRICTIONS AND PERMITS**

**TC-6.14 STORING MATERIALS AND EQUIPMENT ON/  
AGAINST STRUCTURES RESTRICTIONS**

115 **DELETE:** The first paragraph, “Materials and equipment...be possibly overstressed.”

**INSERT:** The following.

Materials, equipment and waste shall not be stored on or against any structure or structure element during the construction phase or finished or final configuration unless the written permission is obtained from the Administration’s District Office and the Office of Structures, and the Authority’s Office of Engineering for each type of material or equipment to be stored.

Loads, vehicle or other weight that exceeds the bridge posted weight limit, if posted, or exceed Maryland’s legal vehicle loads on bridges, with no bridge weight limits, are prohibited on the structure at any time. If necessary to impose loads on the structure, submit to the Engineer the type of material, the area that will be affected by the load, and its location on the structure. No stock pile of material regardless of unit weight shall be more than 4 ft high. If equipment is to be used, submit the maximum gross weight, axle spacing, load per axle, and proposed location on the structure. The maximum gross weight includes the vehicle weight and the most critical load position that is being addressed, i.e. front axle on crane with boom extended and element hanging. A special Hauling Permit is required anytime equipment is moved that is over legal weight limit.

The professional engineer registered in the State of Maryland experienced in bridge design shall perform a load analyses to ensure that the load on the structure will not create an overstress condition. This analysis should also include application of legal loads also crossing the structure, if applicable. Such assurance does not guarantee acceptance by the Office of Structures and/or the Authority’s Office of Engineering which reserves the sole right to accept or reject the proposed loading.

**CATEGORY 100  
PRELIMINARY**

**SECTION 104 — MAINTENANCE OF TRAFFIC**

**104.01 TRAFFIC CONTROL PLAN (TCP).**

**104.01.01 DESCRIPTION.**

149 **DELETE:** The fourth paragraph sentence ~~“Refer to contract Documents for Work Restrictions.”~~ in its entirety.

**INSERT:** The following.

**Work Restrictions.** The Engineer reserves the right to modify or expand the methods of traffic control or working hours as specified in the Contract Documents. Any request from the Contractor to modify the work restrictions shall require written approval from the Engineer at least 72 hours prior to implementing the change. The Contractor shall submit a copy of the original work restrictions with the written request.

Work is not permitted on Saturdays or Sundays.

Work is not permitted on the holidays, or work day preceding and following holidays indicated below with an ~~X~~”, except for Thanksgiving and Christmas on MdTA Roadways. No lane closures are permitted two days before, two days after and on the Thanksgiving and Christmas Holidays on MdTA Roadways:

- New Year's Day, January 1
- Martin Luther King's Birthday, the third Monday in January
- President's Day, the third Monday in February
- Good Friday
- Easter Weekend
- Memorial Day, the last Monday in May
- Independence Day, July 4
- Labor Day, the first Monday in September
- Columbus Day, the second Monday in October (WPL Only)
- Veteran's Day, November 11 (WPL Only – if it falls on a Friday or Monday)
- Thanksgiving Day, the fourth Thursday in November
- Christmas Day, December 25

All work in District 5 requires that contact shall be made with D5 Traffic & D5 Construction offices to ensure that there are no conflicting special events or construction activity.

**For MdTA (Authority) Roadways the following additional restrictions apply:**

If a holiday falls on a Thursday, Friday or Monday, no closures will be allowed during that weekend.

On Monday of each week, the Contractor shall provide the Engineer with a complete list of anticipated lane and shoulder closures for the following two weeks, allowing the Authority a minimum of fourteen (14) calendar days or ten (10) working days notification. The Engineer shall then notify the affected facilities, the Engineering Division's Traffic Section and other appropriate offices. No lane closures shall be made without prior written approval of the Engineer in the form of an Authority lane/shoulder closure permit. The Authority is not responsible for lost workdays resulting from the Contractor failing to submit schedules or providing notification of maintenance of traffic requirements in a timely manner. Other contractors may be actively working in or around the vicinity of this project. The Contractor shall cooperate with and coordinate work activities with contractors in adjoining or overlapping work areas.

The Contractor is responsible for obtaining lane/shoulder closure or other Permits from all affected agencies that require permits for work on their right of way, including those listed in this Special Provision. The Contractor shall make contact with the representative from the affected agency, through the Project Engineer and provide a copy of all coordination correspondence to the Authority. Sufficient time shall be allowed for review and approval of the permit application.

As directed by the Engineer, temporary lane and shoulder closures will not be permitted during periods of falling precipitation, in heavy fog or otherwise poor visibility, or in the event of emergencies such as serious traffic accidents or unusually severe traffic congestion. In the event that a temporary lane or shoulder must be reopened as directed by the Engineer or authorized Authority staff, the Contractor shall evacuate all equipment, materials and personnel from the lane within thirty (30) minutes.

**MdTA Contacts.**

CONTACT	TITLE	PHONE NUMBER
Dick Wolf	FMT Administrator	410-537-1310
Gordon Garrettson	WPL Administrator	410-295-8157
Donald Maclean	Traffic Manager	410-537-7848

**The following additional restrictions only apply to U.S. 50/301 in the vicinity of and on the William Preston Lane, Jr. Memorial Bridge (WPL):**

If a holiday happens to fall between May 1 and September 30, no closures will be permitted during the week of the holiday without the express approval of the William Preston Lane Jr. Memorial (Chesapeake Bay) Bridge (Facility) Administrator

No lane or shoulder closures will be permitted without written approval of the Facility Administrator.

**SPECIAL PROVISIONS**  
 104.01 — TRAFFIC CONTROL PLAN

The Contractor will not be permitted to use any portions of the existing roadway or interfere with or impede the free flow of traffic in any manner during prohibited hours. All existing lanes of traffic along US Route 50/301 must be completely open during these hours.

The Contractor must provide a means of communication to the William Preston Lane Jr. Memorial (Chesapeake Bay) Bridge Police detachment as a safety requirement. Acceptable forms of communication shall consist of a mobile telephone, citizens band or two-way radio.

<b>TEMPORARY LANE OR SHOULDER CLOSURE SCHEDULE</b>			
<b>ROADWAY</b>	<b># LANE(S) / SHOULDER CAN BE CLOSED</b>	<b>DAY OF THE WEEK</b>	<b>CLOSURE PERIOD (TIME OF DAY)</b>
<b>SHA District 2</b> U.S. 50 East Bound Lanes (from the bay bridge to the Dorchester Co. Line.)	No Shoulder/ Lane Closure will be permitted	Fridays	( May thru Oct ) No Lane Closures
	Shoulder/Lane Closure will be permitted without affecting traffic		(Nov thru April)
U.S. 50 West Bound Lanes (from the Dorchester Co. line to the bay bridge.)	No Shoulder/ Lane Closure will be permitted	Mondays	(May thru Oct) No Lane Closures
	Shoulder/Lane Closure will be permitted without affecting traffic		(Nov thru April)
MD 213 from the Chester River Bridge (Kent co) to MD 279	No work shall begin before 9:00 A.M. And shall end before 3:00 P.M.	Daily	

**SPECIAL PROVISIONS**  
 104.01 — TRAFFIC CONTROL PLAN

<p>MD roadways in District 2 not named above.</p>	<p>Shall permit lane closures without affecting the flow of traffic</p>	<p>Daily</p>	
<p><b><u>SHA District 5</u></b>                  U.S. 301 (White Plains Area)</p>	<p>0/0                  1/1                  0/0                  0/1                  1/1                  1/1                  2/1 (if at least 3 lanes in one direction)</p>	<p>Mon-Fri                  Mon-Fri                  Mon-Fri                  Sun-Thur                  Sun-Thur                  Mon-Fri.                  Mon-Fri.</p>	<p>5am-9am                  9am-3pm                  3pm-8pm                  8pm-10pm                  10pm-12 midnight                  12 midnight – 5am                  12 midnight - 5am</p>
<p><b><u>MdTA Roadways</u></b>                  I-95 – Fort McHenry Tunnel (FMT)</p> <p><i>No lane/shoulder closures are permitted 2 hours before, during or 2 hours after a stadium event</i></p>	<p>Southbound, South of I-395 Single Lane Closure</p> <p>Southbound, North of I-395 Single Lane Closure</p> <p>Northbound, South of I-395 Single Lane Closure</p> <p>Northbound, North of I-395 Single Lane Closure</p> <p>Southbound, South of I-395 Single Lane Closure</p> <p>Southbound, North of I-395 Single Lane Closure</p> <p>Northbound, South of I-395 Single Lane Closure</p>	<p>Monday – Thursday</p> <p>Monday – Thursday</p> <p>Monday – Thursday</p> <p>Monday – Thursday</p> <p>Friday</p> <p>Friday</p> <p>Friday</p>	<p>9:00 AM – 2:30 PM</p> <p>9:00 AM – 2:30 PM</p> <p>9:30 AM – 2:30 PM</p> <p>7:00 AM – 2:30 PM</p> <p>9:00 AM – 1:00 PM</p> <p>9:30 AM – 1:00 PM</p> <p>9:30 AM – 1:00 PM</p>

**SPECIAL PROVISIONS**  
 104.01 — TRAFFIC CONTROL PLAN

CATS + TORFP# J02B4400004  
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	Northbound, North of I-395 Single Lane Closure	Friday	7:00 AM – 1:00 PM
	Southbound, South of I-395 Single Lane Closure	Monday – Thursday	7:30 PM – 5:00 AM
	Southbound, North of I-395 Single Lane Closure	Monday – Thursday	7:00 PM – 5:00 AM
	Northbound, South of I-395 Single Lane Closure	Monday – Thursday	7:30 PM – 5:00 AM
	Northbound, North of I-395 Single Lane Closure	Monday – Thursday	7:30 PM – 7:00 AM
	NB & SB Single Lane Closure	Friday & Saturday	9:00 PM – 9:00 AM
	Northbound, South of I-395 & SB Single Lane Closure	Sunday	9:00 PM – 5:00 AM
	Northbound, North of I-395 Single Lane Closure	Sunday	9:00 PM – 7:00 AM
	NB & SB Double Lane Closure – 4 Lane Section	Sunday – Thursday	9:30 PM – 5:00 AM
	NB & SB Double Lane Closure – 3 Lane Section	Sunday – Thursday	10:30 PM – 5:00 AM
	NB & SB Double Lane Closure – 4 Lane Section	Friday – Saturday	10:00 PM – 9:00 AM
	NB & SB Double Lane Closure – 3 Lane	Friday – Saturday	10:30 PM – 8:00 AM

**SPECIAL PROVISIONS**  
 104.01 — TRAFFIC CONTROL PLAN

<p>U.S. 50/301 – William Preston Lane, Jr. Memorial Bridge (WPL)</p> <p><u>October 1 through April 30:*</u></p> <p><i>No lane closures permitted from December 23 through January 2</i></p> <p><i>Any eastbound closure will require implementation of contra-flow operation on the westbound bridge</i></p> <p><i>* Between the hours of 5 am and 9 pm no more than one of the existing five traffic lanes may be closed at any time</i></p> <p>U.S. 50/301 – William Preston Lane, Jr. Memorial Bridge (WPL)</p> <p><u>May 1 through September 30:*</u></p> <p><i>Any eastbound closure will require eastbound contra-flow</i></p>	Section		
	Triple Lane Closure – 4 lane Section	Monday - Thursday	11:00 PM – 5:00 AM
	Single Lane Eastbound	Monday – Thursday	9:00AM – 2:30PM
	Single Lane Eastbound	Monday – Thursday	9:00PM – 6:00AM
	Single Lane Eastbound	Friday	9:00AM – 12:00Noon
	Single Lane Eastbound	Saturday & Sunday	10:00PM – 6:00AM
	Single Lane Westbound	Monday – Thursday	9:00AM – 2:30PM
	Single Lane Westbound	Monday – Thursday	7:00PM – 5:00AM
	Single Lane Westbound	Friday	9:00AM – 12:00Noon
	Single Lane Westbound	Saturday & Sunday	9:00PM – 7:00AM
	Double Lane Westbound	Monday – Thursday	9:00PM – 5:00AM
	Single Lane Eastbound	Monday – Thursday	9:00AM – 2:30PM
	Single Lane Eastbound	Monday – Thursday	10:00PM – 6:00AM
Single Lane Westbound	Monday – Thursday	9:00AM – 2:30PM	
Single Lane Westbound	Monday – Thursday	9:00PM – 5:00AM	

<p><i>operation on the westbound bridge</i></p> <p><i>* Between the hours of 5 am and 9 pm no more than one of the existing five traffic lanes may be closed at any time</i></p>			
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149 **ADD:** The following after the last paragraph, ~~Any monetary savings...and the Administration.~~

When closing or opening a lane on freeways, expressways, and roadways with posted speed  $\geq 55$  mph, a work vehicle shall be closely followed by a protection vehicle (PV) during installation and removal of temporary traffic control devices. The PV shall consist of a work vehicle with approved flashing lights, a truck-mounted attenuator (TMA) with support structure designed for attaching the system to the work vehicle, and arrow panel (arrow mode for multilane roadways and caution mode on two-lane, two-way roadways) The work vehicle size and method of attachment shall be as specified in the TMA manufacture’s specification as tested under NCHRP Test Level 3.

When a temporary lane or shoulder closure is in effect, work shall begin within one hour after the lane is closed. Any delay greater than one hour with no work in progress shall require the Contractor to remove the lane closure at no additional cost to the Administration. The Contractor's Traffic Manager shall attend Pre-Construction and Pre-Paving Meetings and shall discuss traffic control and the Traffic Control Plan including procedures to be implemented for lane closures.

All closures shall be in conformance with the approved TCP and under the direction of the Contractor's Traffic Manager and the Engineer.

Workers and equipment, including temporary traffic control devices needed for setting up a lane closure or restriction, are prohibited in the lane or shoulder to be closed or restricted before the time permitted in the Contract work restrictions unless otherwise noted below or as approved by the Engineer.

Temporary traffic control devices to be used for lane/shoulder closure may be placed on the shoulder of the roadway by workers no earlier than 15 minutes prior to actual time lane/shoulder closure or restriction is permitted, or as directed by the Project Engineer. Temporary traffic signs may be displayed to traffic at this time.

Workers shall not enter a lane open to traffic. Workers may be present on shoulders to prepare for lane closure setup no earlier than 15 minutes prior to actual time lane/shoulder closure or restriction is permitted, or as directed by the Project Engineer.



**SPECIAL PROVISIONS**

104.01 — TRAFFIC CONTROL PLAN

If in the opinion of the Project Engineer a lane closure is determined to be detrimental to the motoring public, it will be the option of the Project Engineer to terminate the lane closure.

All temporary lane or shoulder closures shall be restored at the end of the closure period and no travel lane shall be reduced to less than 10 ft. (for SHA Roadways) or less than 11 ft. (for MdTA Roadways). Prior to opening the closed lane or shoulder, the Contractor shall clear the lane or shoulder of all material, equipment, and debris.

Failure to restore full traffic capacity within the time specified will result in a deduction being assessed on the next progress estimate in conformance with the following. This is in addition to the requirements specified in TC-4.02.

<b>ELAPSED TIME, MINUTES</b>	<b>DEDUCTION</b>
1 - 5	\$ <u>50.00</u>
Over 5	\$ <u>50.00</u> per Minute (In addition to the Original 5 minutes)

**SPECIAL PROVISIONS**

104.11 — TEMPORARY PAVEMENT MARKINGS

**CATEGORY 100  
PRELIMINARY**

**SECTION 104 — MAINTENANCE OF TRAFFIC**

166 **DELETE:** Section 104.11 TEMPORARY PAVEMENT MARKINGS. in its entirety.

**INSERT:** The following.

**104.11 TEMPORARY PAVEMENT MARKINGS.**

**104.11.01 DESCRIPTION.** Furnish, install, and remove temporary pavement markings as specified in the Contract Documents or as directed by the Engineer. These markings shall include lines, letters, numbers, arrows, and symbols.

**104.11.02 MATERIALS.**

Removable Preformed Pavement Marking Material	Refer to the
Nontoxic Lead Free Waterborne Pavement Markings	Contract Documents
Black Out Tape	QPL

**104.11.03 CONSTRUCTION.**

**104.11.03.01 Quality Assurance/Quality Control.** Quality control testing shall be completed by the Contractor’s Administration certified technicians. The Engineer will complete the quality assurance checks in conformance with MSMT 729 by performing the Nighttime Visibility Evaluations.

**104.11.03.02 Warranty Period.** The Contractor shall maintain and be responsible for any defects in the pavement markings for a period of 180 days from the date of application. The Contractor shall replace the pavement markings as necessary within this period as directed by the Engineer at no additional cost to the Administration. Refer to GP-5.11.

**104.11.03.02 Application and Removal.** The pavement markings shall be applied in conformance with the manufacturer’s recommendations and the Contract Documents. Markings shall be applied in the same direction as the flow of traffic. The markings shall be located as specified in the Contract Documents or as directed by the Engineer.

Pavement markings may be applied to either new or existing paved surfaces. When applied to newly paved surfaces, the markings shall be placed before traffic is allowed on the pavement. Nontoxic lead free waterborne pavement markings shall be used for all temporary pavement markings except for the final surface. However, the Contractor may use removable preformed pavement markings at no additional cost to the Administration.

When at the “end of season”, the temperatures are too low to allow the placement of removable tape on the final surface, a written exception request may be submitted to the Engineer to allow the use of nontoxic lead free waterborne paint in lieu of removable tape until the following striping season.

When it is appropriate to shift lanes, all nonapplicable pavement markings within the travel way and adjacent to the travel way as directed by the Engineer shall be completely removed.

## SPECIAL PROVISIONS

CATS + TORFP# J02B4400004

### 104.11 — TEMPORARY PAVEMENT MARKINGS

2 of 2

**Surface Condition.** Prior to application of pavement markings, the pavement surface shall be clean, dry, and free of all contaminants, including curing compound, dirt, and loose particles. Residual pavement markings shall be removed. Loose or poorly constructed markings shall also be removed.

**Pavement Marking Removal.** All removable preformed pavement markings shall be completely removed prior to application of the permanent markings. On stage construction or final surfaces of portland cement concrete pavements, any objectionable adhesive residue shall be removed by water blasting or other methods as may be approved by the Engineer. Open flame is prohibited to remove adhesive residue, or any pavement markings. The Contractor shall remove all nonapplicable pavement markings so that there is no damage to the existing or final surface.

**Retroreflectance.** The initial retroreflectance readings for temporary pavement markings shall be a minimum of 250 and 150 millicandellas/lux/square meter for white and yellow, respectively. The Engineer will monitor the pavement markings in conformance with MSMT 729 during the Contractor's 180 day period of responsibility.

**104.11.04 MEASUREMENT AND PAYMENT.** Payment for Removable Preformed Pavement Markings, Removal of Removable Preformed Pavement Markings, Nontoxic Lead Free Waterborne Pavement Marking Paint, and the Removal of Existing Pavement Markings will be measured and paid for using one or more of the items listed below and as specified in the Contract Documents.

The payment will be full compensation for furnishing, placing, complete removal of lines, letters, numbers, arrows, symbols, and the removal of all residue. In addition, payment will cover maintenance and replacement during the 180 day period, and for all material, labor, equipment, tools, and incidentals necessary to complete the work. Removal and replacement of temporary pavement markings required beyond the 180 day period will be measured and paid for at the Contract unit price for the pertinent temporary pavement marking item.

Temporary markings replaced during the 180 day period as a result of plowing (as determined by the Engineer) will be paid for at the Contract unit price for the pertinent temporary marking item.

- (a) Nontoxic Lead Free Waterborne Pavement Marking Paint-in width specified-per linear foot.
- (b) Removable Preformed Pavement Line Markings-in width specified-per linear foot.
- (c) Removable Preformed Letters, Symbols, Arrows, and Numbers per each.
- (d) Removal of Removable Preformed Pavement Markings-any width-per linear foot.
- (e) Removal of Removable Preformed Letters, Symbols, Arrows and Numbers per each.
- (f) Removal of Existing Pavement Line Markings-any width per linear foot.
- (g) Removal of Existing Letters, Symbols, Arrows, and Numbers per each.
- (h) Black Out Tape Lines-in width specified-per linear foot.
- (i) Removal of Black Out Tape Lines-any width-per linear foot.



**CATEGORY 100  
PRELIMINARY**

**SECTION 104 — MAINTENANCE OF TRAFFIC**

**104.14 CONES FOR MAINTENANCE OF TRAFFIC.**

**104.14.02 MATERIALS.**

171 **DELETE:** First paragraph on this page “Cones shall be...an upright position”.

**INSERT:** The following.

All cones shall meet MdMUTCD and be new or like new condition. All cones shall be orange in color. Cones shall be at least 28 in. high, 10 in. diameter at the inside of the base, and reflectorized with two white retroreflective stripes. The top stripe shall be 6 in. wide and located 3 to 4 inches from the top of the cone. The second stripe shall be 4 in. wide and located 2 inches below the top band.

**Tall-Weighted Cones.** When specified, tall-weighted cones shall be at least 42 in. high and 7 in. diameter at the inside of the base. Tall-weighted cones shall be manufactured of low density polyethylene (LDPE) and have four high performance wide angle white and orange retroreflective stripes. The stripes shall be horizontal, circumferential and 6 in. wide. Alternate stripe colors with the top stripe being orange. Any nonretroreflective spaces between the orange and white stripes shall not exceed 1/2 in.

**104.14.03 CONSTRUCTION.**

**ADD:** The following after the first paragraph “The Contractor’s name...away from traffic”.

Equip all cones with approved weights or anchor collars, (15 lb maximum) as needed to maintain an upright position. Anchor collars shall fit to the base of the cone. For tall-weighted cones use anchor collars weighing 10 to 30 lb.



**CATEGORY 100  
PRELIMINARY**

**SECTION 104 — MAINTENANCE OF TRAFFIC**

**104.31 ACCESSIBLE PEDESTRIAN MAINTENANCE OF TRAFFIC.**

**104.31.01 DESCRIPTION.** Provide and maintain an accessible pedestrian route, to the “maximum extent feasible”, throughout the project’s limits. When an existing pedestrian access route within the public right of way is blocked by construction, alteration, or maintenance activity, an alternate accessible pedestrian route shall be provided.

The phrase to the “maximum extent feasible” applies in areas where the nature of an existing facility or site conditions makes it virtually impossible to comply fully with applicable accessibility standards through a planned alteration. In these circumstances, the alternate accessible pedestrian route shall provide the maximum physical accessibility that is feasible, or a design waiver must be approved by SHA’s Office of Highway Development.

**104.31.02 MATERIALS.** Not applicable

**104.31.03 CONSTRUCTION.** The following considerations shall be taken into account when addressing accessible pedestrian maintenance of traffic:

- (a) All pedestrians, including persons with disabilities, shall be provided with a reasonably safe, convenient and accessible path that replicates as much as practicable the existing pedestrian facilities.
- (b) The width of the existing pedestrian facility should be maintained if practical. When it is not possible to maintain a minimum width of 60 in. throughout the entire length of the pedestrian route, a minimum width of 36 in. shall be provided with 60 x 60 in. passing zones at least every 200 ft, to allow individuals in wheelchairs to pass.
- (c) Traffic control devices and other construction materials and features shall not intrude into the usable width of the sidewalk, temporary pathway or other pedestrian facility.
- (d) Signs and other devices mounted lower than 7 ft above the temporary pedestrian pathway shall not project more than 4 in. into accessible pedestrian route.
- (e) A smooth, continuous hard surface shall be provided throughout the entire length and width of the pedestrian route throughout construction. There shall be no curbs or vertical elevation changes greater than 1/4 in. in grade or terrain that could cause tripping or be a barrier to wheelchair use. Vertical elevation differences between 1/4 in. and 1/2 in. shall be beveled at a maximum 2:1 slope. The slip resistance coefficient is .80 minimum using test method C 1028 (dry method).



**SPECIAL PROVISIONS INSERT**

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104.31 — ACCESSIBLE PEDESTRIAN MAINTENANCE OF TRAFFIC

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- (f) When channelization is used to delineate a pedestrian pathway, a continuous detectable edging should be provided throughout the length of the facility such that pedestrians using a white cane can follow it. Edging should protrude at least 6 in. above the surface of the sidewalk or pathway with the bottom of the edging a maximum of 2.5 in. above the surface
- (g) Temporary ramps shall be provided when an alternate pedestrian route crosses a curb and no permanent ramps are in place. The width of the ramp shall be a minimum of 36 in. and the slope of the ramp shall not exceed 10:1. Temporary detectable warning mats must be installed at street crossings and signalized entrances. The slip resistance coefficient is .80 minimum using test method C 1028 (dry method).
- (h) When possible, an accessible pedestrian route shall be provided on the same side of the street as the disrupted route. When it is not feasible to provide a same-side accessible pedestrian route an accessible pedestrian detour route shall be provided.
- (i) Information regarding closed pedestrian routes, alternate crossings, and sign and signal information shall be communicated to pedestrians with visual disabilities by providing devices such as audible information devices, accessible pedestrian signals or barriers and channelizing devices that are detectable to the pedestrians traveling with the aid of a white cane or who have low vision.
- (j) It is desirable that pedestrians cross to the opposite side of the roadway at intersections rather than mid-block. Appropriate signing shall be placed at the intersections.
- (k) Access to transit stops shall be provided and maintained at all times.

**104.31.04 MEASUREMENT AND PAYMENT.** Unless otherwise specified, Accessible Pedestrian Maintenance of Traffic will not be measured but the cost will be incidental to the Lump Sum item for Maintenance of Traffic.

**CATEGORY 100  
PRELIMINARY**

**SECTION 107 CONSTRUCTION STAKEOUT**

195 **107.03 CONSTRUCTION.**

**DELETE: 107.03.01 LINE AND GRADE**

**INSERT:** The following.

**107.03.01 CONSTRUCTION.** For installation of Traffic Control Devices, arrange a meeting with the Engineer to stakeout all items indicated on the sketches, plans, and in the Special Provisions. This meeting shall occur prior to the notice to proceed for the work assignment. Any dimensional or quantity changes resulting from the stakeout shall not be designated or indicated as a change order, or a cause for increase in time for work assignment completion as stated in the Contract Documents.

199 **107.04 MEASUREMENT AND PAYMENT.**

**ADD: Intersection Utility Stakeout.** Intersection Utility Stakeout for Traffic Control Devices will not be measured but the cost will be incidental to other pertinent items specified in the Contract Documents.

**CATEGORY 300  
DRAINAGE**

**SECTION 308 — EROSION AND SEDIMENT  
CONTROL**

**308.01 DESCRIPTION.**

253 **ADD:** The following after the third paragraph.

**General Notes.**

(a) **MDE Notification.** If an Erosion and Sediment Control Permit is issued for this project, notify the Administration and MDE in writing or by telephone (410) 537-3510 at the following points:

- (1) Pre-construction meeting.
- (2) Erosion and sediment control meeting (minimum 7 working days prior to commencing earth disturbing activities).
- (3) Following installation of initial sediment control measures.
- (4) During installation of major sediment control basins/traps.
- (5) Prior to removal or modification of any sediment control structures.
- (6) Prior to removal of all sediment control devices.
- (7) Prior to final acceptance by the Administration.

(b) **Ingress/Egress Controls.** Protect all points of construction ingress and egress to prevent the deposition of materials on public roads. Immediately remove all materials deposited on public roads. The flushing of road surfaces is prohibited.

Control all ingress and egress points through the use of a stabilized construction entrance conforming to 308.03.30.

(c) **Inspection.** Inspect all erosion and sediment control measures daily and maintain continuously in an effective operating condition.

(d) **Shutdowns and/or Penalties.** Total compliance with the approved erosion and sediment control plan is expected at all times. In cases where the Contractor is found to be in non-compliance, the Administration may take steps to impose selected or total shutdowns and impose per day penalties for non-compliance.

The Administration may impose a total or partial shutdown if the project may adversely impact the waters of the State.

(e) **Record Keeping.** Make the project's approval letter, approved erosion and sediment control plans, approved change requests, daily log books and test reports available on-site for inspection by duly authorized officials of MDE.



- (f) **Erosion and Sediment Control Excavation.** Place silt removed from control devices in an approved waste site either on or off the project. Material stored on-site may be reused once it is dried and if it conforms to the Administration's requirements for embankment or any unspecified need.
- (g) **Off-Site Utility Work.** Follow these additional best management practices for sediment control for utility construction in areas outside of designed controls:
- (1) Call "Miss Utility" at 1-800-257-7777 48 hours prior to the start of work.
  - (2) Place excavated material on the high side of the trench.
  - (3) Backfill, compact and stabilize trenches for utility installations at the end of each working day. When this is not possible, follow (4).
  - (4) Place temporary silt fences immediately downstream of any disturbed area intended to remain disturbed for more than one day.
- (h) **Sensitive Areas.** No construction activities are allowed within specified sensitive areas of the project without prior notification of the Engineer. Designate a responsible party to monitor all work in these areas to assure that reasonable care is taken in or adjacent to these areas. Areas considered sensitive are defined as: floodplains, wetlands (tidal, nontidal and associated buffers) critical areas, forested areas, archeological sites, historic sites, parkland, and open water.
- (i) **Standard Stabilization Note.** Following initial soil disturbance or redisturbance, complete permanent or temporary stabilization within seven (7) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1); and fourteen days (14) as to all other disturbed or graded areas on the project site.
- (j) **Site Information (Not for Bidding Purposes).**
- |  |     |             |
|--|-----|-------------|
| (1) Total area of site                             | n/a | acres       |
| (2) Area disturbed                                 | n/a | acres       |
| (3) Area to be roofed or paved                     | n/a | acres       |
| (4) Total cut                                      | n/a | cubic yards |
| (5) Total fill                                     | n/a | cubic yards |
| (6) Off-site waste/borrow area location (if known) | n/a |             |
- (k) **Incremental Stabilization.** Refer to the current Maryland Standards and Specifications for Soil Erosion and Sediment Control for the incremental stabilization of cuts and fills.
- (l) **Disturbed Areas.** Place excavated trench material for any storm drain pipe and underdrain pipe installation on the high side of the trench. Backfill, compact, and stabilize trenches for any storm drain pipe and underdrain pipe installations at the end of each working day.

Stabilize all other disturbed areas at the end of the working day. Place silt fence downgrade of any areas that cannot be stabilized at the end of the work day such that all runoff from the disturbed area will be filtered.

**(m) Removal of Controls.** Establish permanent stabilization for all contributory disturbed areas and obtain permission from MDE and the Administration prior to prior to the removal of sediment control measures.

Immediately stabilize any areas disturbed by the removal of sediment control measures.

**(n) Notice of Enforcement.** Sediment and erosion control regulations will be strictly enforced.

**308.05 DESIGN CERTIFICATION**

**Insert:** The following:

**ENVIRONMENTAL INFORMATION**

*MDE #*

**DESIGN CERTIFICATION**

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II, AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT EROSION AND SEDIMENT AND STORMWATER MANAGEMENT REGULATIONS."

\_\_\_\_\_  
NAME

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
MARYLAND REGISTRATION NUMBER  
P.E., R.L.S. OR R.L.A. (circle)

\_\_\_\_\_  
DATE

"PROFESSIONAL CERTIFICATION. 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. \_\_\_\_\_, EXPIRATION DATE: \_\_\_\_\_."

**CATEGORY 500**  
**PAVING**

**TUBULAR MARKERS**

**DESCRIPTION.** Furnish and install Tubular Markers, and surface mount bases as specified in the contract documents, or as directed by the Engineer.

**MATERIALS.**

Type III Retroreflective Sheeting 950.03.02

The Tubular Markers shall be comprised of a tubular mast, and a surface mount base.

The mast shall have a diameter of 2 to 2.5 in. which remains constant along its length, and shall be 36 in. long. The mast shall be formed of a durable, non-discoloring, co-extruded polyethylene material. The top of the mast shall capped to prevent the intrusion of water. The bottom of the mast will be designed to be compatible with the base, and be reinforced where it inserts into the base.

**Flexibility.** The mast shall be tested for flexibility as follows:

One mast will be selected at random, conditioned at 100 degrees Fahrenheit for 2 hours, and then bent at 90 degrees. The time required for the post to straighten will be recorded, and the mast reconditioned for 20 minutes at 100 degrees. The bending/conditioning process will be repeated for a total of 5 bends, with all times to straighten recorded.

If the mast takes longer then 60 seconds to straighten for any cycle, the Tubular Marker is unacceptable.

If the mast exhibits any splits or cracks which are open from the exterior to the interior, the Tubular Marker is unacceptable.

**Color.** The Tubular Markers mast color shall meet the requirements of the MUTCD and shall be as specified in the contract documents. The color shall be integral to the material from which the post is formed. Painted posts are not acceptable. Each mast shall have two bands of Type III white retroreflective sheeting placed around them.

**SPECIAL PROVISIONS**  
500- TUBULAR MARKERS

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**CONSTRUCTION:**

The mast will be designed to inserted into a surface mount base and secured by a pin lock. The connection will securely hold the mast upright, while allowing for the masts removal and replacement, using the same base, when the mast is damaged.

The retroreflective bands shall consist of 3 in. strips of retroreflective material which go completely around the mast. A minimum of 2 bands will be used. The top band will be located 2 in. from the top of the Tubular Markers. Each band shall be separated from the band above by a minimum of 2 in.

The surface mount base shall be held in position by a bonding epoxy, butlepac, or thermoplastic material as recommended by the manufacturer. Each base shall have a locking mount compatible with the mast. When secured to the roadway, the base shall not project more then 3 in. above the roadway.

**MEASUREMENT AND PAYMENT** Tubular Markers will be measured and paid for at the contract unit price per each. The payment will be full compensation for layout, furnishing and placing of the Tubular Marker, surface mount base, and for all labor, equipment, tools and incidentals necessary to complete the work.

**CATEGORY 800**  
**TRAFFIC**

**CATALOG CUTS AND WORKING DRAWINGS**

**DESCRIPTION.** Prepare and transmit submittals to demonstrate the performance of the work in accordance with the Contract Documents. Submittal schedules, catalog cuts, shop drawings, installation methods, manufacturer's certifications, photometric data and working drawings shall be furnished on all Contractor furnished items for highway signing, sign lighting, highway lighting and traffic signals. Stakeouts of the sign locations shall be submitted for all sign structure locations as specified in the Contract Documents

**MATERIALS.** Not Applicable.

**CONSTRUCTION.**

**Submittal Requirements.** Submittals shall be scheduled and coordinated with the Contractor's construction schedule. A complete submittal schedule and list of required submittals shall be submitted with the first submittal, but no later than three days after the pre-construction conference. The schedule for submission of submittals shall be arranged so that related equipment items are submitted concurrently.

The Engineer may require changes to the submittal schedule to permit concurrent review of related equipment. Shop drawings for closely related items such as a sign and ITS support structures shall be submitted together.

**Submittal Documents.** Drawings shall be neat in appearance, legible and explicit to enable proper review. They shall be complete and detailed to show fabrication, assembly and installation details, wiring and control diagrams, catalog data, pamphlets, descriptive literature, and performance and test data. They shall be accompanied by calculations or other sufficient information to provide a comprehensive description of the structure, machine or system provided and its intended manner of use. If drawings deviate from the Contract Documents, advise the Engineer in writing with the submittal and state the reason for the deviation.

No portion of the work requiring a Contractor's drawing shall be started nor shall any materials be fabricated, delivered to the site, or installed prior to the approval or qualified approval of the drawings. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved Contractor's drawings shall be at the Contractor's risk. The Administration will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

Shop drawings shall show types, sizes, accessories, layouts including plans, elevations and sectional views, component, assembly and installation details, and all other information required to illustrate how applicable portions of the Contract requirements will be fabricated and installed. In case of fixed mechanical and electrical equipment, layout drawings drawn to scale, shall be submitted to show required clearances for operation, maintenance and replacement of parts. Manufacturer's certified performance curves, catalog cuts, pamphlets, descriptive literature, installation and application recommendations, shall be provided and indicate conformance to the Contract Documents. Certifications shall be originals. Certification shall also be sent to the Office of Materials and Technology (OMT) as required in the Contract Documents.

Manufacturer's catalog, product and equipment data shall include materials type, performance characteristics, voltage, phase, capacity, and similar data along with wiring diagrams when applicable. Indicate catalog, model and serial numbers representing specified equipment. Provide complete component information to verify all specified required items. Installation recommendations and instructions shall provide written Manufacturer's detail step by step preparation and installation of the materials, and products including recommended tolerances and space for maintenance and operation.

Catalog cuts for sign luminaires shall have photometric data attached for each sign to be illuminated. Photometric printouts shall include the sign number, the illumination on a one foot square grid covering the entire sign face, the average illumination, the maximum to minimum uniformity ratio, and a working drawing for the sign face attached.

Catalog cuts for roadway luminaires shall have photometric data attached as specified in the Contract Documents.

Submit working drawings as required for changes, substitutions, contractor design items, and Contractor designed methods of construction. Requirements for working drawings will be listed in appropriate Specification Sections and in Special Provisions. Drawings shall be accompanied by calculations or other information to completely explain the structure, machine or system described and its intended use. Review and approval of such drawings by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract.

Working drawings and calculations as submitted shall be sealed, dated and signed by a Professional Engineer registered in the State of Maryland.

The review and approval of Contractor's drawings by the Administration shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract. The Contractor shall be responsible for the verification and accuracy of all dimensions and insuring that all Contractor furnished items are compatible, and conform to all design and performance criteria.

All risks of error and omission are assumed by the Contractor and the Engineer will have no responsibility therefor.

**Submittal Process.** Each drawing submitted shall have affixed to it the following Certification Statement, signed by the Contractor:

"By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and pertinent data and I have checked and coordinated each item with other applicable approved drawings and Contract requirements."

With the first submittal, include a submittal schedule, listing by Specification Section number, all submittals required and approximate date submittal will be forwarded.

Each submittal having catalog descriptions, shop drawings, working drawings, photometric data, manufacturer's certifications, method of construction and manufacturer's installation recommendations shall be submitted to:

Task Order Manager  
Dave Czorapinski, Chief, Motor Carrier Division  
Maryland State Highway Administration  
7491 Connelley Drive  
Hanover, Maryland 21076  
Phone (410) 582-5732  
Fax (410) 787-2863  
Email: [dczorapinski@sha.state.md.us](mailto:dczorapinski@sha.state.md.us)

Each submittal shall have a transmittal page that indicates the Contractor's and Subcontractor's address and phone numbers. Submittals containing multiple items need the transmittal only on the exterior of each package. For original submittals, and each subsequent resubmittal that may be required, 9 copies will be submitted for projects administered by the District, and 6 copies will be submitted for projects administered by Office Of Traffic and Safety. A separate copy shall be forwarded to the Engineer.

All submittals for approval shall have the following identification data, as applicable, contained thereon or permanently adhered thereto.

- (a) Drawing title, drawing number, TIMS number, TOD number, revision number, and date of drawing and revision.
- (b) Applicable Contract Drawing Numbers and Specification Section and Paragraph Numbers.

**SPECIAL PROVISIONS**  
**CATALOG CUTS AND WORKING DRAWINGS**

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The first page of every catalog description, working drawing and material certification shall be stamped in red with the following. All pertinent Contract Document information shall be filled in the spaces provided.

MARYLAND STATE HIGHWAY ADMINISTRATION	
SUBMITTAL PACKAGE # _____ DATED _____	
CONTRACT # _____ LOCATION _____	
PROJECT DESC. _____	
ITEM # _____ THIS ITEM CONTAINS _____ PAGES	
ITEM DESCRIPTION _____	
<input type="checkbox"/> ACCEPTED	
<input type="checkbox"/> ACCEPTED AS NOTED	
<input type="checkbox"/> REJECTED - REVISE & RESUBMIT	
REVIEWERS NAME _____	DATE _____

Indicate the submittal package by sequential numbering and date of submittal. Catalog, product data or brochure submittals containing various products, sizes and materials shall be underscored or highlighted to indicate the salient features required to meet the specifications. Likewise, items not applicable to the Contract shall be marked "not applicable" or crossed out.

If one or more of the items in a submittal are not approved, resubmittal of only the unapproved items is required, highlighted to show the particular item being resubmitted. Resubmittals shall bear original submittal number and be lettered sequentially.

Three copies of all Contractor's drawings will be returned to the Contractor.

Each submittal shall be in accordance with the submission schedule. Allow thirty days for checking and appropriate action by the Engineer.



**SPECIAL PROVISIONS**  
CATALOG CUTS AND WORKING DRAWINGS

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Contractor's submittals will be returned, marked with one of the following classifications:

**ACCEPTED:** no corrections, no marks

**ACCEPTED AS NOTED:** a few minor corrections. Item shall be installed in accordance with the corrected drawings.

**REJECTED - REVISE & RESUBMIT:** requires corrections or is otherwise not in accordance with the Contract Documents. No items shall be fabricated. Correct and resubmit drawings as per original submission. Allow thirty days for checking and appropriate action by the Engineer.

**MEASUREMENT AND PAYMENT.** Catalog cuts, manufacturer's certifications, photometric data and working drawings will not be measured but the cost will be incidental to the pertinent items specified in the Contract Documents.

**CATEGORY 800**  
**TRAFFIC**

**WOOD POLES - CLASS II**

**DESCRIPTION.** Furnish and install Class II wood poles as specified in the contract documents or as directed by the Engineer.

**MATERIALS.**

**General**

Wood Poles	ANSI 05.1 Latest Revisions
Poles Conditioning	AWPA (American Wood-Preservers Association) CI-79, latest Revision
Pole Preservatives	AWPA P8 or AWPA P9. Latest Revisions
Pole Branding	AWPA M6, latest revision
Steel Span Wire	950.12
Steel Guy Rod (Single Thimble Eye)	Diameter min. 1/2" - 5/8"
3 Bolt Clamp	

Wood Poles shall be Southern Pine, Treatment Group C (steam conditioned) or treatment Group D (kiln-drying).

Poles must be flat roofed.

All surfacing and trimming must be done prior to treatment.

Poles may be seasoned by air-seasoning, kiln-drying, steaming, heating in the preservative, or a combination of methods. Boulton drying is not permitted.

Shaving of all poles shall be full-length machine-shaved. The depth of cut shall not be more than necessary to remove inner bark.

There shall be no abrupt changes in the contour of the pole surface between the groundline and the aboveground sections.

The lower 2 ft of poles may be trimmed to remove wood fibers causing butt flare, provided sufficient sapwood remains to obtain the minimum penetration requirements.

The following defects are prohibited:

- (a) Cross Breaks (cracks)
- (b) Decay, except as permitted under "decayed knots"
- (c) Dead streaks
- (d) Holes, open or plugged, except holes for test purposes, which shall be plugged.
- (e) Hollow butts or tops, except as permitted under hollow pith centers and defective butts.
- (f) Marine borer damage
- (g) Nails, spikes, and other metal not specifically authorized by this specification. All other foreign material is prohibited.
- (h) Ring knots, A ring of knots consisting of four or more knots in a 3 in. section of the pole
- (i) Bark knots, A knot that is undergrown and partially encased with outer bark, in excess of 3 in. diameter.
- (j) Knot cluster. Two or more knots grouped together as a unit with the fibers of the wood deflected around the entire unit
- (k) Decayed Knots -Type II "decayed Knots" where depth of decay exceeds 1/2 in.
- (l) Short Crook - A localized deviation from straightness which, within any section 5 ft or less in length, is more than 1/4 the mean diameter of the crooked section.
- (m) Pole Sweep. A straight line joining the surface of the pole at the top and ground line, shall not be separated from the surface of the pole by more than 1 in. for each ten ft of pole length.
- (n) Indentations, attributed to loading or handling slings, that are 1/4 in. or more deep over 20% or more of the pole circumference, or indentations which result from careless handling more than 1/2 in. deep at any point.
- (o) Spiral grain (twist grain) exceeds one complete twist in any 20 ft.

### **Pole Preservative Treatment**

Poles may be heated in oil-type preservatives at atmospheric pressure to facilitate penetration of preservative.

Poles to be impregnated with the preservative by application of the standard empty cell (Rueping) process shall be performed in accordance with the standard "Poles - Preservative Treatment by Pressure Processes" (AWPA C4, latest revision).

**SPECIAL PROVISIONS**  
**WOOD POLES CLASS II**

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No material other than poles shall be treated with poles.

The minimum net retention of Pentachlorophenol, as determined from 20 boring samples taken from any charge, shall not be less than the following.

Minimum Retention: (lbs. Penta/cu. ft.)	
Zone Assayed	0.5 - 2.0 in.
Retention	.45

Retention of Pentachlorophenol shall be determined by AWWA A5, latest revision.

**CONSTRUCTION.**

The following marking and code letter information shall be legibly and permanently burn branded with characters not less than 5/8 in. high. The markings shall be placed squarely on the face of the pole at 10 ft above the pole butt end and in the butt end of each pole in the following order.

- (1) Supplier's Brand
- (2) Plant Designation
- (3) Month and Year of Treatment
- (4) Code Letters; "SP" denoting Southern Pine and the preservative code, such as "P" for Pentachlorophenol in Petroleum (AWPA M-6).
- (5) Retention and Assay, such as "45-A"
- (6) Class and Length

**MEASUREMENT AND PAYMENT.** Class II wood poles shall be measured and paid for at the contract unit price each. The payment will be full compensation for the poles, anchors and guy rods all guy cables and connectors, labor, tools, materials, and incidentals necessary to complete this work.

**CATEGORY 800**  
**TRAFFIC**

**GALVANIZED TRAFFIC SIGNAL PEDESTAL POLES AND**  
**TRANSFORMER BASES**

**DESCRIPTION.** Furnish and install galvanized traffic signal pedestal poles and transformer bases at locations specified in the Contract Document or as directed by the Engineer.

**MATERIALS.** Design must meet 2001 edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals except as noted in the contract documents. All welding must conform to American Welding Society (AWS) Structural Welding Code D1.1 - Steel, Tubular Structures.

Determine each pedestal pole's height by the total height of the pedestal pole including the transformer base.

- (a) 10 ft pole height consists of a 103 in. steel shaft with a steel base plate plus a 17 in. transformer base.
- (b) 14 ft pole height consists of a 151 in. steel shaft with a steel base plate plus a 17 in. transformer base.
- (c) 20 ft pole height consists of a 240 in. steel shaft with a steel base plate plus a 17 in. transformer base.

Each pedestal pole furnished shall consist of a design from a steel shaft with a steel base plate, transformer base and all miscellaneous hardware.

- (a) The pedestal pole shaft shall be fabricated of one length and shall have one longitudinal weld, parallel to the long axis of the pedestal pole shaft, with no transverse welds. The longitudinal weld must be finished to form a smooth outside surface and the wall of the pedestal pole shaft must be uniform in thickness including the welded area. The pedestal pole shaft must be round or multi-sided (less than eight sides not acceptable) in cross section. 14 ft units must be uniformly tapered from butt to tip with a 1 in. reduction in diameter for each 7 ft in length (0.14 in./ ft). 10 ft unit must not be tapered.
- (1) 10 ft pedestal pole shaft shall be 4-1/2 in. outside diameter, Schedule 40 pipe, and conform to A 501.

**SPECIAL PROVISIONS**  
**800 GALVANIZED TRAFFIC SIGNAL PEDESTAL POLES**

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- (2) All 14 ft pedestal poles must be 7-1/2 in. outside diameter at the base and be made of 11 gauge (0.119 in.) thickness steel conforming to A 595, Grade A or equivalent.
- (3) All 20 ft pedestal poles must be 7-1/2 in. outside diameter at the base and be made of 3 gauge (0.25 in.) thickness steel conforming to A 595, Grade A or equivalent
- (b) The base plate material shall meet the requirements of A 709, Grade 36. The base plate shall be secured to the lower end of the pedestal pole shaft by two continuous electric arc welds. The base plate shall telescope the pedestal pole shaft with one weld on the inside of the base plate at the end of the pedestal pole shaft. The remaining weld shall be located on the outside of the base plate at the top of the pedestal pole shaft. The weld connection shall develop the full strength of the adjacent pedestal pole shaft to resist bending action. All bases plate shall be fabricated with the holes for anchor bolts to the size and location dimensions as shown in MD-818.16 and 818.17.
- (c) 14 ft pedestal poles shall be furnished with entrance ways for cable as noted in the contract documents. These holes must be factory drilled and a straight tapped coupling, conforming to Underwriters Laboratory's UL-6 Specification, for 2 in. rigid conduits, must be installed for each hole. A nipple with a unitized hexagonal fitting and integral inside radius on one end must then be installed and fully seated on the interior side of the coupling. Location and installation of the coupling shall be as shown in MD-818.17.
- (d) All pedestal poles and hardware, except materials manufactured from stainless steel or cast aluminum, shall be hot dipped galvanized. The galvanized coating shall conform to the thickness, adherence and quality requirements of A 123 and A 153 for hardware. Threaded components must be chased and cleaned after galvanizing. All internally threaded components shall be tapped oversize the minimum amount required to permit assembly on the coated externally threaded fastener. Internally threaded components shall be provided with a lubricant which shall be clean and dry to the touch.
- (e) Each pedestal pole shall be furnished with a removable domed cap, fabricated from cast aluminum, circumferentially attached to the side of the pole with three hex head type 304 stainless steel bolts (1/4 in. - 20 UNC).
- (f) Each pedestal pole shall have an identification plate mechanically attached 6 in. above the pedestal pole base plate and oriented so that the identification plate may be read from a ground observation position.

- (g) Recessed hub type, galvanized malleable iron plugs shall be inserted flush into all couplings.

**Transformer Bases**

- (a) All transformer bases must be approved by FHWA as meeting breakaway under NCHRP 350.
- (b) Each transformer base shall be furnished with four hex head bolts, four hex head nuts and all associated hardware as shown on the appropriate detail for fastening the pedestal pole base plate to the top of the transformer base. All bolts must conform to A 325 specifications and must be galvanized.

**Anchor Bolts**

- (a) Each pedestal pole anchor bolt shall be made of steel conforming to M 314, Grade 55 S1
- (b) Anchor bolt threads shall be of cut thread design with a minimum 6 in. of threads at the top.
- (c) The template and anchor plates shall be as shown on MD801.01.
- (d) The diameter of the anchor bolt shall be stamped into the top of the threaded end of each anchor bolt.
- (e) Each anchor bolt shall be provided with two attached heavy hex nuts and two attached flat washers.
  - (1) Anchor bolt nuts shall conform to A 194, grade 2 or 2H, or A 563, D or DH.
  - (2) All nuts shall be tapped oversize the minimum amount required to permit assembly on the coated externally threaded fastener.
  - (3) Washers shall conform to F 436.
- (f) All nuts, washers, and the top 12 in. of all anchor bolts shall be hot dipped or mechanically galvanized. The galvanized coating shall conform to the thickness, adherence and quality requirements of A 123 or A 153 for hardware.

**SPECIAL PROVISIONS**  
800 GALVANIZED TRAFFIC SIGNAL PEDESTAL POLES

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All high strength bolts (of a given length), nuts (of a given size) and washers (of a given diameter) shall be from the same manufacturing lot per each requisition of materials. The use of foreign made fasteners is prohibited!

**CONSTRUCTION.**

Refer to 818.03

**MEASUREMENT AND PAYMENT.**

Furnish and Install Breakaway Pedestal pole any size. This work shall include furnishing and installing pedestal poles in the heights specified, break-away base, concrete foundation as per 801 specifications, and a ground rod per 804 specifications in the nearest handhole. The payment will be full compensation for all materials, labor, equipment, tools, and incidentals necessary to complete the work.

Install Breakaway Pedestal any size. This work shall include installing Administration furnished pedestal poles in the heights specified, break-away base, concrete foundation as per 801 specifications, and a ground rod per 804 specifications in the nearest hand-hole. The payment will be full compensation for all materials, labor, equipment, tools, pick-up of materials and incidentals necessary to complete the work.

Anchor bolts will be measured and paid for as specified in Section 801.



**SPECIAL PROVISIONS**  
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**Tag Detail**

Mfg: _____ <sup>[1]</sup> Contract #: _____ <sup>[2]</sup>
Pole Diameter: _____ <sup>[3]</sup> Height: _____ <sup>[4]</sup> Gauge: _____ <sup>[5]</sup>
Anchor Bolts: _____ <sup>[6]</sup> Bolt Circle: _____ <sup>[7]</sup>

**Tag Reference**

- [ 1 ] Name of the manufacturer of the pedestal pole.
- [ 2 ] Administration Contract Number of the pedestal pole.
- [ 3 ] Pole outside diameter at the base: 4-½ in. O.D. or 7-½ in. O.D.
- [ 4 ] Pole height<sup>1</sup>: 10ft' , 14ft, 20 ft
- [ 5 ] Pole gauge: Schedule 40 or 11 GA
- [ 6 ] Anchor bolt size: 1 in. Dia. x 40 in. Length
- [ 7 ] Bolt circle diameter: 11 in. Dia.

<sup>1</sup>Pole height includes the height of the pedestal pole and transformer base. Typically, the transformer base is 17 in. in height which corresponds to 10 ft pole having a height of 103 in.; and a 14 ft having a height of 151 in

**CATEGORY 800**  
**TRAFFIC**

**MAST ARMS AND MAST ARM POLES -**  
**SINGLE, TWIN AND TRIPLE**

**DESCRIPTION.** Furnish and install galvanized traffic signal mast arms and mast arm poles at locations specified in the Contract Document or as directed by the Engineer.

**MATERIALS.** Design shall meet the 2001 edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals except as noted. All welding shall conform to American Welding Society (AWS) Structural Welding Code D1.1 - Steel, Tubular Structures.

Each mast arm(s) and mast arm pole structure furnished shall consist of a design from a steel pole shaft with a steel base plate and flange plate, steel mast arm shaft(s) with steel flange plate(s), four flange bolts per mast arm, four anchor bolts and miscellaneous hardware.

(a) Manufacture the mast arms and mast arm poles from steel tubing conforming to A 595 Grade A or equal. Each mast arm and mast arm pole shall be fabricated of one length and shall have one longitudinal weld, parallel to the long axis of the mast arm or mast arm pole, with no transverse welds. Finish the longitudinal weld to form a smooth outside surface and the wall of the mast arms and mast arm poles shall be of uniform thickness including the welded area. The mast arms and mast arm poles shall be round or multi-sided ( 8 sides or more ) in cross section and be uniformly tapered from butt to tip with a 1 in. reduction in diameter for each 7 ft in length (0.14 in./ ft). Mast arms shall be of two piece design for all mast arms 50 ft and 60 ft in length. Mast arms shall be of three piece design for all mast arms 70 ft in length. Any combination of two piece of 50 ft and 60 ft arms of the same butt diameter shall fit together and any combination of two or three piece of 60 ft and 70 ft mast arms in sequence shall fit together. The bolted splice for two or three piece mast arms shall be as specified in the Contract Document.

(1) 50 ft mast arms shall have a butt section 30 ft in length.

(2) 60 ft and 70 ft mast arms shall have a butt section of 35 ft in length.

(3) 38 ft single piece mast arms shall be 9 in. outside diameter at the flange plate and made of 7 gauge (0.179 in.) thickness steel.

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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- (4) 50 ft two piece mast arm butt sections shall be 10 in. outside diameter at the flange plate and made of 3 gauge (0.250 in.) thickness steel.
  - (5) 60 ft two piece and 70 ft three piece mast arm butt sections shall be 12.5 in. outside diameter at the flange plate and made of 3 gauge (0.250 in.) thickness steel.
  - (6) All extension sections of two and three piece mast arms shall be made of 7 gauge (0.179 in.) thickness steel.
  - (7) Single 27 ft mast arm pole designed with a 38 ft mast arm length shall be 12 in. outside diameter at the base plate and made of 7 gauge (0.179 in.) thickness steel.
  - (8) Single 27 ft mast arm pole designed with a 50 ft mast arm length shall be 13 in. outside diameter at the base plate and made of 3 gauge (0.250 in.) thickness steel.
  - (9) Single 27 ft mast arm pole designed with 60 ft or 70 ft mast arm lengths shall be 15 in. outside diameter at the base plate and made of zero gauge (0.312 in.) thickness steel.
  - (10) Twin 27 ft mast arm poles designed with 50 ft mast arm lengths shall be 13 in. outside diameter at the base plate base and made of 3 gauge (0.250 in.) thickness steel.
  - (11) Twin 27 ft mast arm poles designed with mast arm lengths for one mast arm of 50 ft and the remaining mast arm of 60 ft or 70 ft shall be 15 in. outside diameter at the base plate and made of zero gauge (0.312 in.) thickness steel.
  - (12) Triple 27 ft mast arm pole designed with mast arm lengths for one mast arm of 38 ft, second mast arm of 60 or 70 ft and the third mast arm of 50 ft shall have 15 in. outside diameter at the base plate and made of zero gauge (0.312 in.) thickness steel.
- (b) The material for mast arm pole base plate shall conform to A 709, Grade 36 and shall be of sufficient size and strength. Secure the base plate to the lower end of the mast arm pole by two continuous electric arc welds. The base plate must telescope the mast arm pole with one weld on the inside of the base plate at the end of the mast arm pole shaft. Locate the remaining weld on the outside of the base plate, around the circumference of the mast arm pole. The weld connection shall develop the full strength of the adjacent mast arm pole shaft to resist bending action. Fabricate all base plates with the holes for anchor bolts to the size and location dimensions as shown on the appropriate detail.

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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- (c) All mast arms and mast arm poles must be furnished with flange plate(s) as noted in the details. Connect these attachments, including the bolts, in such a manner as to develop the minimum guaranteed yield and ultimate tensile strength for the mast arm and mast arm pole. This assembly shall be capable of transferring the maximum moment being carried by the mast arm without distortion or rotation of the mast arm or the attachment. Connect flange plate(s) by the use of 4 bolts. The size of the plates and bolts shall be as shown in the details. Furnish four (1-1/2 in. O.D.) rubber grommets for each mast arm to accommodate signal heads wiring access.
- (d) Secure the mast arm flange plate to the lower end of the mast arm pole by two continuous electric arc welds. The mast arm flange plate shall telescope the mast arm with one weld located on the inside of the flange plate at the end of the mast arm. Locate the remaining weld on the outside surface of the flange plate around the circumference of the mast arm pole. The weld connections shall develop the full strength of the adjacent mast arm to resist bending action.
- (e) Mast arm flange plates and mast arm pole flange plates surfaces shall be plane to within 1/16 in. and shall be free of any buildup of galvanizing (drips, runs, etc.) which would prevent intimate contact between the connecting surfaces.
- (f) Weld access hole frames into the mast arm pole as detailed in MD 818.11. A galvanized steel cover, conforming to A 709, Grade 36 shall cover the access hole frame. Secure the access hole cover's top to the access hole frame by a hinge fabricated from 0.063 in. stainless steel using a 0.120 in. diameter stainless steel hinge pin. Secure the hinge to the access hole frame with 2 ( 1/4 in. - 20 UNC) hex head stainless steel bolts. Secure the hinge access hole cover by 2 ( 1/4 in. - 20 UNC) hex head stainless steel bolts and lock nuts. Provide a slotted opening at the bottom of the access hole cover to allow for attachment of a furnished (1/4 in. - 20 UNC) hex head stainless steel bolt into the access hole frame face.
- (g) A 3/8 in. diameter X 1 in. stud copper servit post for two #6 AWG stranded wire shall be furnished into the bottom of the access hole frame.
- (h) Provide mast arm poles with entrance ways for cable as noted on the appropriate detail. These holes shall be factory drilled and a straight tapped coupling, conforming to Underwriters Laboratory's UL-6 Specification, for 3 in. rigid conduits, shall be installed for each hole. A nipple with a unitized hexagonal fitting and integral inside radius on one end shall then be installed and fully seated on the interior side of the coupling. Location and installation of the coupling shall be as shown in the details.

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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- (i) Install "J" hooks as follows, located 1 ft above the highest mast arm T dimension.
  - (1) Weld a single "J" hook inside the pole for single mast arm poles.
  - (2) Weld two "J" hooks inside the pole for twin mast arm poles and triple mast arm poles.
- (j) Hot dip galvanize all mast arms, mast arm poles, access hole frames and hardware, except materials manufactured from stainless steel or cast aluminum. The galvanized coating shall conform to the thickness, adherence and quality requirements of A 123 or A 153 for hardware. Chase and clean threaded components after galvanizing. Tap all internally threaded components the minimum amount required to permit assembly on the coated externally threaded fastener. Provide internally threaded components with a lubricant which shall be clean and dry to the touch.
- (k) Furnish each mast arm pole with four removable ornamental anchor bolt covers made of cast aluminum. Bolt holes for attaching the bolt covers to the base plate shall be drilled at the location obtained by following the diagonal line of the base plate until it intersects the bolt circle diameter, then proceeding tangentially from the bolt circle diameter a distance equal to the Anchor Bolt Center to Bolt Slot Center Distance as provided in the MD 818.14. Attachment to the base shall be made using hex head stainless steel bolts (1/4 in.- 20 UNC).
- (l) Furnish each mast arm extension section and mast arm pole with a removable domed cap, fabricated from cast aluminum, circumferentially attached to the outside of the pole shaft or mast arm end with 3 hex head stainless steel bolts (1/4 in.- 20 UNC). All mast arm caps shall have inside diameter one in. Larger than the outside diameter of mast arm end.
- (m) Each mast arm and mast arm pole shall have an identification plate mechanically attached, oriented such that the identification plate may be read from a ground observation position.
  - (1) Single piece mast arms and the butt section of two and three piece mast arms shall have the identification plate attached 6 in. above the flange plate.
  - (2) Each extension section of two and three piece mast arms shall have the identification plate attached 6 in. from the larger diameter end.
  - (3) Poles shall have the identification plate attached 6 in. above the bottom flange plate.
- (n) Insert recessed hub type, galvanized malleable iron plugs flush into all mast arm pole couplings.

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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**Anchor Bolts.**

- (a) Make each mast arm pole anchor bolt of steel in accordance with F1554, Grade 55 S1.
- (b) Anchor bolt threads shall be of cut thread design with a minimum 9 in. of threads at the top and bottom.
- (c) The template and anchor plates shall be as shown the contract documents.
- (d) Stamp the diameter of the anchor bolt into the top of the threaded end of each anchor bolt.
- (e) Provide each anchor bolt with two anchor bolt nuts and two flat washers.
  - (1) Anchor bolt nuts shall conform to A 194 grade 2 or 2H or A 563 D or DH.
  - (2) Tap all nuts oversize the minimum amount required to permit assembly on the coated externally threaded fastener.
  - (3) Washers shall conform to F436.
- (f) Hot dip or mechanically galvanize all nuts, washers and the top 12 in. of all anchor bolts. The galvanized coating shall conform to the thickness, adherence and quality requirements of A 123 or A 153 for hardware.

All high strength bolts (of a given length), nuts (of a given size) and washers (of a given diameter) shall be from the same manufacturing lot per each requisition of materials. The use of foreign made fasteners is prohibited!

**Alternate Design.** Alternate mast arm and mast arm pole designs will be considered provided the following qualifications are observed:

- (a) Alternate mast arm designs may use sectional construction provided each section has a minimum length of 30 ft except for the outer most section.
- (b) Overlap between sections shall be a minimum 18 in.
- (c) Bolt circle diameters shall be as specified in the Contract Document.
- (d) Alternate post designs may be straight (not tapered) sections and shall have a base diameter equal to, or no greater than 1 in. more than, those values shown on the typicals.
- (e) All alternate design must be structurally equivalent to the original design and as approved by the Engineer.

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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**CONSTRUCTION** Refer to 818.03

**MEASUREMENT AND PAYMENT**

Furnish and Install Traffic Signal Structures (Mast Arm Poles and Mast Arms). This work shall include furnishing and installing traffic signal structures in the "T" dimensions, heights, and lengths specified, concrete foundation as per 801 specifications, and a ground rod per 804 specifications in the nearest hand-hole. The payment will be full compensation for all materials, labor, equipment, tools, and incidentals necessary to complete the work.

Install Steel Pole & Single and Twin Mast Arm(s). This work shall include installing Administration furnished poles and mast arms as specified, concrete foundation as per 801 specifications, and a ground rod per 804 specifications in the nearest hand-hole. The payment will be full compensation for all materials, labor, equipment, tools, pick-up of materials and incidentals necessary to complete the work.

Anchor bolts will be measured and paid for as specified in section 801.

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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**Tag Details**

**Single Mast Arm Pole**

Mfg:	<u>  [1]  </u>	Contract. #:	<u>  [2]  </u>
Pole Height:	<u>  [3]  </u>		
Arm Sizes:	<u>  [4]  </u>		
Anchor Bolts:	<u>  [5]  </u>	Bolt Circle:	<u>  [8]  </u>
Flange Bolts:	<u>  [7]  </u>		

**One Piece Mast Arm**

Mfg:	<u>  [1]  </u>	Contract #:	<u>  [2]  </u>
Arm Length:	<u>  [6]  </u>		
Flange Bolts:	<u>  [7]  </u>		

**Two or three Piece Mast Arm - Butt Section**

Mfg:	<u>  [1]  </u>	Contract #:	<u>  [2]  </u>
Butt For Arms:	<u>  [4]  </u>		
Flange Bolts:	<u>  [7]  </u>		
Connection Bolt:	<u>  [9]  </u>		



**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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**Two or three Piece Mast Arm –  
Extension Section**

Mfg:	<u>  [1]  </u>	Contract #:	<u>  [2]  </u>
Extension Arm:	<u>  [6]  </u>		
Connection Bolt:	<u>  [9]  </u>		

**Twin Mast Arm Pole  
(Identical Size Flange Plates)**

Mfg:	<u>  [1]  </u>	Contract #:	<u>  [2]  </u>
Pole Height:	<u>  [3]  </u>		
Arm Sizes:	<u>  [4]  </u>		
Anchor Bolts:	<u>  [5]  </u>	Bolt Circle:	<u>  [8]  </u>
Flange Bolts:	<u>  [7]  </u>		

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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**Twin Mast Arm Pole**  
**(Different Size Flange Plates)**

Mfg:	<u>    </u> [1]	Contract #:	<u>    </u> [2]
Pole Height:	<u>    </u> [3]		
Left Arm Sizes:	<u>    </u> [4]		
Right Arm Sizes:	<u>    </u> [4]		
Anchor Bolts:	<u>    </u> [5]	Bolt Circle:	<u>    </u> [8]
Left Arm Flange Bolts:	<u>    </u> [7]		
Right Arm Flange Bolts:	<u>    </u> [7]		
Pole Type	<u>    </u> [10]		

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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**Triple Mast Arm Pole**  
**(Different Size Flange Plates)**

Mfg:	<u>[1]</u>	Contract #:	<u>[2]</u>
Pole Height:	<u>[3]</u>		
Left Arm Sizes:	<u>[4]</u>		
Center Arm Sizes:	<u>[4]</u>		
Right Arm Sizes:	<u>[4]</u>		
Anchor Bolts:	<u>[5]</u>	Bolt Circle:	<u>[8]</u>
Left Arm Flange Bolts:	<u>[7]</u>		
Center Arm Flange Bolts:	<u>[7]</u>		
Right Arm Flange Bolts:	<u>[7]</u>		

**Tag Reference**

- [ 1 ] Name of the manufacturer of the mast arm or mast arm pole.
- [ 2 ] Administration Contract Number of the mast arm or mast arm pole.
- [ 3 ] 27 ft height.

**SPECIAL PROVISIONS**  
**MAST ARMS AND MAST ARM POLES**

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[ 4 ] Mast Arm Size and Orientation<sup>1</sup>

<u>Pole Gauge Size</u>	<u>Indicate</u>
7 GA	38'
3 GA	50'
0 GA	60' or 70'

[ 5 ] Anchor Bolts

<u>Pole Gauge Size</u>	<u>Indicate</u>
7 GA	1-1/2" x 54" & 2 Washers
3 GA	1-3/4" x 66" & 2 washers
0 GA	2" x 72" & 2 washers

[ 6 ] Mast Arm Length

-

<u>Constructed Extension for arm length</u>	<u>Indicate</u>
50'	50'
60'	60'-70'
70'	70'

[ 7 ] Flange Bolt Size<sup>2</sup>

<u>Pole Gauge Size</u>	<u>Indicate</u>
7 GA	1-1/4" x 4" & washer
3 GA	1-1/2" x 5" & washer
0 GA	1-1/4" x 6-1/2" & 2 flat washers & lock washer

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<sup>1</sup>For twin mast arm poles with identical size flange plates, indicate **L & R** preceding the 50' mast arm size; for twin mast arm poles with different size flange plates, indicate either 50' or 60'-70' mast arm sizes in the corresponding Left Arm Size or Right Arm Size as oriented by the line bisecting the acute angle formed by the two mast arm pole flange plates. For triple mast arm poles with different size flange plates, indicate either 50', 60'-70' or 38' mast arm sizes in the corresponding Left Arm Size, Center Arm Size or Right Arm Size as oriented by the centerline of the mast arm pole center flange plate.

<sup>2</sup>For twin mast arm poles with identical size flange plates, indicate **L & R** preceding the 1-1/2" x 5" & washer Flange Bolt Size; for twin mast arm poles with different size flange plates, indicate either 1-1/2" x 5" & washer or 1-1/4" x 6-1/2" & 2 flat washers & lock washer flange bolt sizes in the corresponding Left Flange Bolt Size or Right Flange Bolt Size as oriented by the line bisecting the acute angle formed by the two mast arm pole flange plates. For triple mast arm poles with different size flange plates, indicate either 1-1/2" x 5" & washer, 1-1/4" x 6-1/2" & 2 flat washers & lock washer or 1-1/4" x 4" & washer flange bolt sizes in the corresponding Left Flange Bolt Size, Center Flange Bolt Size or Right Flange Bolt size as oriented by the centerline of the mast arm pole center flange plate.

**SPECIAL PROVISIONS**  
MAST ARMS AND MAST ARM POLES

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[ 8 ] Bolt Circle

<u>Pole Gauge Size</u>	<u>Indicate</u>
7 GA	16" Dia.
3 GA	18" Dia.
0 GA	22" Dia.

[ 9 ] Connection Bolt Size

<u>Two or three Piece Arm Size</u>	<u>Indicate<sup>3</sup></u>
50'	5/8" x Var.
60'	5/8" x Var.
70'	5/8" x Var.

[ 10 ] Standard or Alternate Twin.

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<sup>3</sup>Length to be determined by the successful bidder.

**CATEGORY 800**  
**TRAFFIC**

**UTILITY CONNECTIONS, AND UTILITY STAKEOUT**

**DESCRIPTION.** This work shall consist of utility connections, and utility stakeout, as specified in the Contract Documents or as directed by the Engineer.

**MATERIALS.**

Disconnect Switches and Utility Connections

950.13.10

**CONSTRUCTION.** Arrange a meeting with the utility company representatives, Traffic Operations Division representatives, the Engineer and the District Utility Engineer as specified in the Contract Documents to establish a schedule for utility connections before any equipment or material is installed.

Do not disconnect, de-energize, reconnect, tamper with, or otherwise handle any of a utility company's facilities. The Contractor shall be responsible for the utility service connections to the utility company's supplied point of service.

Make the necessary arrangements with the utility companies to insure having needed utilities available at the time of turn on. Any utility energization, connection or disconnection delays will not be considered a valid reason for any work time extension claim. Difficulties in securing utility company services are to be reported to the Engineer at the earliest possible time.

**Utility Stakeout.** Notify the appropriate agencies listed in the Contract Documents, and those listed below a minimum of 72 hours (excluding weekends and holidays) prior to the Contractor's anticipated beginning of any underground work.

- a) In Montgomery County, request Montgomery County (240-777-2100) to stakeout their ITS and signal facilities.
- b) Request the Statewide Operations Center (800-543-2515) to stake out SHA fibreoptic and communication cables.
- c) Request the Communications Division (410-747-8590 ) to stake out ITS devices.
- d) Request appropriate RME to stake out lighting.
- e) Notify the Hanover Complex Signal Shop (410-787-7652) of all requests for signal and ITS stakeouts.

**SPECIAL PROVISIONS**  
**UTILITY CONNECTIONS**

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Plan the work to minimize interference with any existing traffic control devices.

Existing equipment shall remain in it's original condition until the new equipment has been completed, satisfactorily tested and its operation accepted by the Engineer.

**MEASUREMENT AND PAYMENT. Utility Connection.** Utility Service Equipment connections will be measured and paid for as specified in 807.04.01.

All utility company energization, connection or disconnection costs will be the responsibility of the Administration.

**Utility Stakeout.** Utility Stakeout will not be measured but the cost will be incidental to other pertinent items specified in the Contract Documents.

**CATEGORY 800  
TRAFFIC**

**SECTION 810 — ELECTRICAL CABLE, WIRE,  
AND CONNECTORS**

**810.02 MATERIALS.**

**ADD:** Cable Duct End Seals shall consist of a one-piece heat shrinkable device designed to provide a waterproof seal around the cable duct and each individual cable. The Cable Duct End Seal shall have separate entranceways for each cable, and shall hold the cables apart when applied.

**810.03. CONSTRUCTION.**

**810.03.03 Preassembled Cable Duct**

**Delete:** The second paragraph beginning “After backfilling...” in it’s entirety.

**INSERT:** The following.

After backfilling demonstrate that the conductors move freely within the duct by pulling the conductors out a minimum of length of 2 ft. Pulling Tension shall conform to 810.03.02. The cable shall be then pulled to it’s original position, and the Cable Duct End Seals installed. After installation of the Cable Duct End Seals, but prior to installing connector kits or splices, the electrical circuit testing shall be performed as specified in 820.03.02 (b) and the results recorded. The contractor shall record the length of cable, locations of both ends of the cable duct, and the insulation resistance on a form acceptable to the Engineer, and forward the form to the Engineer.

**823.04 MEASUREMENT AND PAYMENT.**

**810.04.01**

**ADD:** Preassembled Cable Duct that has not had the required electrical tests performed and reported to the engineer will not be measured or paid for.

**ADD:**

**810.04.03** Cable Duct End Seals shall be measured and paid for at the contract unit price per each.





**CATEGORY 900**  
**MATERIALS**

655 **ADD:** The following after the last paragraph of 900.02 TECHNICIAN QUALIFICATION REQUIREMENTS.

**900.03 RECYCLED MATERIALS.**

**900.03.01 CERTIFICATION.** All recycled or rehandled material furnished or supplied for use may require testing and certification to ensure compliance with all State and local applicable environmental and EPA regulations. The required testing may include, but not be limited to, the EPA Toxicity Characteristic Leaching Procedure (TCLP) or its successor. Provide testing and certification for all recycled materials at no additional cost to the Administration. Evaluation and interpretation of the test data will be made by an OMT Quality Assurance Manager. The above requirements do not preclude the normal materials acceptance process, and the recycled material shall meet all applicable specifications. EPA regulations governing the use of the material, certified test results, and material safety data sheets shall accompany the source of supply letter and sample submitted for approval.

Refer to the Contract Documents for recycled materials not covered by this specification.

**900.03.02 RECLAIMED/RECYCLED CONCRETE (RC).**

**Usage.** Use RC for the following with written approval:

- (a) Graded Aggregate Base (GAB).
- (b) Common, Select, or Modified Borrow:
  - (1) At least 2 ft above saturated soil or groundwater conditions,
  - (2) At least 100 ft from surface waters (streams, creeks, or rivers),
  - (3) At least 3 ft from exposed metal surfaces, and,
  - (4) At least 3 ft from geotextile.
- (c) Riprap.

Do not use RC as Capping Borrow nor as aggregate for the following:

- (a) Portland cement concrete.
- (b) Hot mix asphalt.



- (c) Drainage systems.
- (d) Mechanically stabilized earth (MSE) systems:
  - (1) MSE walls.
  - (2) Reinforced soil slopes (RSS).
  - (3) Reinforced earth slopes (RES).
- (e) In embankment construction as follows:
  - (1) Within 1 ft of the top surface of any area to be vegetated.
  - (2) Within 2 ft of saturated soil or groundwater conditions.
  - (3) Within 100 ft of any surface water course (streams, creeks, or rivers).
  - (4) Within 3 ft of any metal pipe or shoring.
- (f) Under pervious or porous surfaces.

**Grading Requirements.** The grading requirements for the use of RC are:

- (a) Table 901 A when used as GAB or for any other application within the pavement structure.
- (b) 204.02 when used in embankment construction.
- (c) 916.01 when used as Borrow material.
- (d) 901.02.01 when used as riprap.

RC shall not contain more than 5 percent brick and hot mixed asphalt material by mass except when used as Common Borrow.

**pH Requirements.** The pH shall be less than 12.0 for all applications. RC usage shall not cause water leaving the site to exceed a pH of 8.5. RC may be blended with natural materials to control the pH. RC used as GAB requires daily testing to monitor the pH, and as directed.

**Quality Control.** The producer shall submit a Quality Control Plan and obtain approval prior to production. The plan shall include, but not be limited to, the operational techniques and procedures proposed to produce the RC product. Quality control includes the sampling and testing performed to validate the quality of the product during production operations.



**Quality Assurance.** OMT Quality Assurance personnel will perform quality assurance inspection, sampling, and testing at the point of processing/reclamation. Additional inspection and compaction control will be performed by the Project Engineer.

**900.03.03 RECYCLED ASPHALT PAVEMENT (RAP).**

**Usage.** Use RAP for Common, Select, Capping, or Modified Borrow.

Do not use RAP as aggregate for the following:

- (a) Graded Aggregate Base (GAB).
- (b) Portland cement concrete.
- (c) Drainage systems.
- (d) Embankment construction.
  - (1) Within 1 ft of the top surface of any area to be vegetated.

Refer to MSMT 412 and M 323 for the use of RAP in hot mix asphalt mixes.

**Grading Requirements.** The grading requirements for the use of RAP are:

- (a) 204.02 when used in embankment construction,
- (b) 916.01 when used as Borrow material,
- (c) 901.02.01 when used as riprap.

**Quality Control.** Create a captive stockpile for storing the RAP prior to use. Create a new captive stockpile and take new acceptance samples for gradation approval whenever the source of the RAP changes.

**Quality Assurance.** OMT Quality Assurance personnel will sample and test the RAP stockpiles to ensure that they meet the above gradation requirements. The completed test results will be reviewed by the OMT Soils and Aggregate Division for approval.

**Construction of Control Test Strip.** The location, equipment, and methods used to construct the control test strip shall be as directed; prior to approval. The equipment and methods used to construct the control test strip shall be the same as those used in subsequent construction. Place and test the control test strip when the RAP is 32°F or higher to establish the maximum density. RAP is temperature sensitive, which may affect the density.



Construct the control test strip that shall be at least 100 ft long, 12 ft wide and a maximum compacted lift thickness of 6 in. Prepare the subgrade for the control test strip in accordance with 204.03.07. Do not construct the control strip, or perform any subsequent construction, on frozen subgrade.

Compact the RAP for the control test strip with one pass of the roller. Measure the density after one pass with a nuclear density gauge (backscatter method) at the frequency for capping material at five random locations distributed across the length and width of the control test strip, as directed. Record the measurements and mark the locations for future reference.

Compact the RAP for the control test strip with a second pass of the roller. Measure and record the density again at the exact locations previously tested and as described above. Prepare a plot of density versus the number of roller passes. Continue this process until the maximum dry density of the control strip is established.

There should be no drop in average density during construction of the control test strip for each lift. A drop in the average density of greater than 2 pcf during construction of the control test strip is an indication that the material is not properly compacting, and a new test strip shall be constructed.

The Project Engineer may require the Contractor to cut into the control test strip for visual inspection. All material, labor, equipment, tools, and incidentals necessary to provide an approved control test strip shall be at no additional cost to the Administration.

**Compaction Control.** Use the roller pattern and number of passes determined from the construction of the test strip to compact the RAP for production placement. The density of the RAP compacted for production work shall be at least 97 percent of the maximum density obtained from the control test strip. Recheck the density of the production work if it is less than 97 percent of the maximum density obtained from the control test strip. Construct a new control test strip if the second density does not meet the 97 percent requirement. Construct a new control test strip if the measured density of the compacted RAP for production work exceeds 105 percent.

Establish one rolling pattern to achieve maximum density for each use based on the control test strips. Samples or results produced prior to the construction of any new stockpiles will not be considered.



**CATEGORY 900  
MATERIALS**

**SECTION 901 — AGGREGATES**

664 **DELETE: 901.05 STONE FOR GABIONS** in its entirety.

**INSERT:** The following.

**901.05 STONE FOR GABIONS.** Meet the quality requirements specified in 901.03 except the loss by sodium sulfate shall not be greater than 12 percent:

<b>DEPTH OF BASKET in.</b>	<b>SIZE OF INDIVIDUAL PIECES * in.</b>
6	3 – 6
9	4 – 7
12	4 – 7
18	4 – 7
36	4 – 12

\*Size of pieces will be determined visually.



**CATEGORY 900**  
**MATERIALS**

665 **DELETE:** SECTION 902 — PORTLAND CEMENT CONCRETE AND RELATED PRODUCTS in its entirety.

**INSERT:** The following.

**SECTION 902 — PORTLAND CEMENT CONCRETE AND RELATED PRODUCTS**

**902.01 STORAGE.** Storage of materials shall conform to the Contract Documents and as directed by the Engineer.

**902.02 CERTIFICATION OF PORTLAND CEMENT AND BLENDED HYDRAULIC CEMENT.** The manufacturer shall furnish certification as specified in TC-1.02. The certification shall also include:

- (a) The mill shall report its quality control procedures, and submit a new report whenever there is a procedural change.
- (b) The mill's control laboratory shall be inspected by the Cement and Concrete Reference Laboratory of the National Institute of Standards and Technology on their regularly scheduled visits. The Engineer shall be provided with copies of the reports of these inspections along with an account of the action taken to correct cited deficiencies.
- (c) Records of data accumulated by the quality control procedures shall be produced upon request.
- (d) A certified document shall accompany each shipment stating that the contents conform to all applicable requirements. Additionally, the document shall show the producer's name, mill location, carrier number, date loaded, weight contained in carrier, silo number, consignee, destination, Contract number, and type of cement. The signature and title of the signer shall be shown on the document.
- (e) The mill shall, upon request, supply certified chemical and physical test values that can be associated with any sample representing cement drawn from a particular silo on a given date.
- (f) Acceptance of cement by certification will be terminated if test results differ from mill results by more than the precision limits given in the test method. The acceptance procedure will then revert to storage testing and approval prior to shipment.

**902.03 HYDRAULIC CEMENT.**

**902.03.01 Portland Cement.** M 85, with the fineness and the time of setting determined using T 153 and T 131, respectively.



**SPECIAL PROVISIONS INSERT**  
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**902.03.02 Ground Iron Blast Furnace Slag.** M 302, Grade 100 or 120. The Contractor may request to substitute a maximum of 50 percent of the weight of cement with ground iron blast furnace slag. When ground iron blast furnace slag is used, the minimum cement factor and water/cement ratio will be determined on the basis of the combined weight of the portland cement and ground iron blast furnace slag. When ground iron blast furnace slag is used to control alkali silica reactivity, see Table 902 B for percentage.

**902.04 BLENDED HYDRAULIC CEMENT.** M 240, Type I (PM) or a Type IP containing 15 to 25 percent pozzolan by weight of cement. Maximum loss on ignition is 3.0 percent. Do not use ground iron blast furnace slag for blending. The requirement for a manufacturer's written statement of the chemical composition is waived.

**902.05 MASONRY CEMENT.** C 91, except the water retention and staining tests are waived.

**902.06 CONCRETE ADMIXTURES.** Do not use concrete admixtures that contribute more than 200 ppm of chlorides based on the cement content when tested per MSMT 610. Use only prequalified admixtures.

Do not use pozzolan and Type I (PM) or Type IP cement in the same mix. Since the strength gains are delayed with these materials, a longer period of time may be required for curing and form removal.

**902.06.01 Air Entraining Admixtures.** M 154.

**902.06.02 Chemical Admixtures.** M 194, Type A, D, or nonchloride C.

**902.06.03 High Range Water Reducing Admixtures.** M 194, except that it shall be a liquid, the water content shall be a maximum of 85 percent of that of the control, and the durability factor shall be a minimum of 90. Use Type F for early strength, which shall produce a minimum compressive strength in 12 hours of 180 percent of that of the control. Use Type G when early strength is not specified. The manufacturer shall furnish certification as specified in TC-1.02. The certification shall include curves indicating the fluid ounces of admixture per 100 lb of cement as related to water reduction and strength gain for 12 hours when used with a minimum cement factor of 700 lb.

**902.06.04 Pozzolans.** The use of pozzolans may be requested to control alkali silica reactivity or for other reasons. When a pozzolan is used, determine the minimum cement factor and water/cement ratio on the basis of the combined weight cement and pozzolan. See Table 902 B for percentage of fly ash, and microsilica.

(a) **Fly Ash.** M 295, pozzolan Class C or F, except that the maximum permissible moisture content shall be 1.0 percent, and when used in concrete Mix Nos. 3 and 6 the maximum loss on ignition 3.0 percent.

(b) **Microsilica.** C 1240, except that the oversize requirement is waived.



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**902.06.05 Corrosion Inhibitors.** Corrosion inhibitors shall be calcium nitrite based and contain a minimum of 30 percent active ingredients by mass. The gallonage of corrosion inhibitor used in the concrete mixture shall be included as water when determining the water/cementitious materials ratio.

**902.07 PORTLAND CEMENT CONCRETE CURING MATERIALS.** Use burlap cloth, sheet materials, liquid membrane forming compounds, or cotton mats.

**902.07.01 Burlap.** M 182, Class 1, 2, or 3.

**902.07.02 Sheet Materials.** M 171 with the following exceptions:

- (a) **White Opaque Burlap Polyethylene Sheeting.** Tensile strength and elongation requirements are waived. Use sheeting having a finished product weight of not less than 10 oz/yd<sup>2</sup>.
- (b) **White Opaque Polyethylene Backed Nonwoven Fabric.** 902.07.02(a), with the thickness requirement waived. Use material having a finished product weight of not less than 5 oz/yd<sup>2</sup>.
- (c) **White Opaque Polyethylene Film.** Tensile strength and elongation requirements are waived.

**902.07.03 Liquid Membrane.** M 148. Field control testing of the white pigmented curing compounds is on the basis of weight per gallon. The samples shall not deviate more than  $\pm 0.3$  lb/gal from the original source sample.

**902.07.04 Cotton Mats.** Cotton mats consist of a filling material of cotton bats or bats covered with unsized cloth and tufted or stitched to maintain the shape and stability of the unit under job conditions of handling.

Use coverings of either cotton cloth, burlap or jute having the following properties:

- (a) Cotton cloth covering shall weigh not less than 6.0 oz/yd<sup>2</sup> and have an average of not less than 32 threads/in. of warp and not less than 28 threads/in. of filling. Use raw cotton, cotton comber waste, cotton card strip waste, or combinations thereof as the raw material used in the manufacture of the cotton cloth.
- (b) Burlap or jute covering for cotton mats shall weigh not less than 6.4 oz/yd<sup>2</sup> and shall have not less than 8 threads/in. of warp and not less than 8 threads/in. of filling. Use the grade known commercially as "firsts" and they shall be free from avoidable imperfections in manufacture and from defects or blemishes affecting the serviceability.

Use a cotton bat, or bats made of raw cotton, cotton waste, cotton linters, or combinations thereof, as the filling material for the mats. Mats shall weigh not less than 12 oz/yd<sup>2</sup>.





**SPECIAL PROVISIONS INSERT**  
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**902.08 FORM RELEASE COMPOUNDS.** Use form release compounds that effectively prevent the bond of the concrete to the forms. Form release compounds shall not cause discoloration of the concrete or adversely affect the quality or rate of hardening at the interface of the forms.

The flash point of the form release compound shall not be less than 100 F when tested per T 73.

**902.09 PARAFFIN WAX.** Use clear paraffin wax for use as a bond breaker for concrete. The flash point shall not be less than 380 F when tested under D 92.

**902.10 PORTLAND CEMENT CONCRETE.** Section 915 and as specified herein.

**902.10.01 Proportioning.** Prior to the start of construction, submit to the AME the source and proportions of materials to be used for each concrete mix. The mixture shall meet 902.10.03.

The concrete, with the exception of water and chemical admixtures, shall be proportioned by weight. Water and chemical admixtures may be proportioned by volume or weight. The mix shall be uniform and workable.

**902.10.02 Materials.**

Coarse Aggregate	901.01
Fine Aggregate	901.01
Cement	902.03 and 902.04
Concrete Admixtures	902.06
Synthetic Fibers	902.15
Water	921.01

**902.10.03 Portland Cement Concrete Mixtures.**



**SPECIAL PROVISIONS INSERT**  
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The concrete mixes shall conform to the following:

**TABLE 902 A**

PORTLAND CEMENT CONCRETE MIXTURES									
MIX NO.	28 DAY SPECIFIED COMPRESSIVE STRENGTH	STANDARD DEVIATION	CRITICAL VALUE	MIN CEMENT FACTOR	COARSE AGGREGATE SIZE	MAX WATER/ CEMENT RATIO	SLUMP RANGE	TOTAL AIR CONTENT	CONCRETE TEMPERATURE
	psi	psi	psi	lb/yd <sup>3</sup>	M 43 / M 195	by wt	in.	%	F
1	2500	375	2430	455	57, 67	0.55	2 – 5	5 – 8	70 ± 20
2	3000	450	3010	530	57, 67	0.50	2 – 5	5 – 8	70 ± 20
3	3500	525	3600	580	57, 67	0.50	2 – 5	5 – 8	70 ± 20
4	3500	525	3600	615	57, 67	0.55	4 – 8	N/A	70 ± 20
5	3500	525	3600	580	7	0.50	2 – 5	5 – 8	70 ± 20
6	4500	675	4770	615	57, 67	0.45	2 – 5	5 – 8	65 ± 15
7	4200	630	4420	580	57	0.50	1½ – 3	5 – 8	70 ± 20
8	4000	600	4180	750	7	0.42	2 – 5	5 – 8	65 ± 15
9	3000 (a)	N/A	N/A	800	57, 67	0.45	4 – 8	5 – 8	70 ± 20
10	4500	675	4770	700	¾" – No. 4	0.45	2 – 5	6 – 9	65 ± 15
11	4200	630	4420	—	57, 67	0.45	2 – 5	5 – 8	65 ± 15
12	4200	630	4420	—	¾" – No. 4	0.45	2 – 5	6 – 9	65 ± 15

- Note 1: When concrete is exposed to water exceeding 15,000 ppm sodium chloride content, Type II cement shall be used. In lieu of Type II cement, a Type I cement may be used in combined form with an amount of up to 50 percent replacement with ground iron blast furnace slag, or an amount of up to 25 percent replacement with Class F fly ash. The Contractor shall submit to the Engineer the proposed mix proportions and satisfactory test results per C 1012 showing a sulfate resistance expansion not exceeding 0.10 percent at 180 days
- Note 2: The temperature of Mix No. 6 when used for other than superstructure work as defined in TC-1.02 shall be 70 ± 20 F.
- Note 3: Type A or D admixture shall be added to bridge, box culvert, and retaining wall concrete.
- Note 4: Nonchloride Type C admixtures may be used when approved by the Engineer.
- Note 5: Other Slump Requirements:  
 When a high range water reducing admixture Type F or Type G is specified, the slump shall be 4 to 8 in.  
 When synthetic fibers are specified, the slump shall be 5 in. maximum.  
 When concrete is to be placed by the slip form method, the slump shall be 2-1/2 in. maximum.  
 When the absorption of the coarse aggregate is greater than 10 percent, the slump shall be 3 in. maximum.
- Note 6: Mix 9 shall contain a Type F high range water reducing admixture.
- Note 7: Mix 10 and 12 shall be proportioned as specified in 211.2 of the ACI's Recommended Practices for Selection Proportions for Structural Lightweight Concrete. The maximum average Density of Cured Concrete shall be 118 lb/ft<sup>3</sup>. Control testing for Density of Cured Concrete shall be two companion cylinders for each 100 yd<sup>3</sup>, or fraction thereof, as specified in M 195.
- Note 8: Mix 11 and 12 shall also conform to all requirements as specified in Table 902 C.
- (a) Acceptance will be based on a minimum compressive strength of 3000 psi in 24 hours. Design approval will be given based on trial batch obtaining a minimum compressive strength of 2500 psi in 12 hours. Testing shall conform to 902.10.08 except that cylinders shall remain in the molds until tests are conducted.

Coarse and fine aggregate having an expansion up to 0.10 percent when tested for alkali silica reactivity (ASR) MSMT 212 may be used without restriction. Aggregates having an expansion greater than 0.10 but less than 0.35 percent are considered reactive and may only be used when one of the options in table 902 B are employed. Those having an expansion of 0.35 percent and greater are prohibited.



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**TABLE 902 B**

OPTION	ALKALI CONTENT OF CEMENT % max	REPLACE CEMENT WITH		SPECIFICATION
		MATERIAL	% BY WEIGHT	
1	1.50	Class F Fly Ash	15 – 25	M 295
2	1.50	Ground Iron Blast Furnace Slag	25 – 50	M 302 Grade 100 or 120
3	1.50	Microsilica	5 – 7	C 1240
4	—	Blended Cement (a)	100	M 240
5	0.60 (b)	Low Alkali Cement	100	M 85

(a) Pozzolan content of 15 – 25 percent by weight of cement

(b) For mix 9 used for Portland cement concrete pavement repairs; the maximum allowable percentage of alkalis in Portland cement shall be 0.70.

When reactive aggregate is used, designate which option will be used to control the formation of the ASR gel. If an option other than option 5 in Table 902 B above is chosen, conduct tests per MSMT 212 using the reactive aggregate and the proposed cementitious material. The expansion test results shall not be greater than 0.10 percent. When more than one reactive aggregate is used in a concrete mix, each shall be tested individually and the maximum amount of pozzolan required to reduce the expansion of all the aggregates to 0.10 percent or less shall be used. Submit the aggregate source, test results, and the percent and type of replacement cement to the Engineer. The Engineer may withhold source approval pending verification testing.



**TABLE 902 C**

<b>MIX PHYSICAL PROPERTIES</b>		
<b>TEST PROPERTY</b>	<b>TEST METHOD</b>	<b>SPECIFICATION LIMITS</b>
Minimum Cementitious Materials Factor, lb/yd <sup>3</sup>	—	580
Maximum Content of Portland Cement, lb/yd <sup>3</sup>	—	550
Water/Cementitious Materials Ratio by Wt.	—	0.45
Corrosion Inhibitor, gal/yd <sup>3</sup>	902.06.05	2.0
Synthetic Fibers, lb/yd <sup>3</sup>	902.15	1.5
Permeability of Field Concrete, moving average of three tests, coulombs max	T 277 Modified	2500
Permeability of Field Concrete, individual test, coulombs max	T 277 Modified	3000
Shrinkage at 28 days, microstrains	C 157	400

Note 1: Only Type I or II Portland cement shall be used.

Note 2: Mixes shall contain ground iron blast furnace slag, fly ash or microsilica.

Note 3: The water to cement ratio shall be based upon the total water to cementitious materials ratio. The gallonage of the corrosion inhibitor shall be included in the water/cementitious materials ratio.

Note 4: The permeability test value of field concrete shall be the average of two test specimens representing production concrete. Test specimens shall be molded on the project site in 4 x 8 in. molds conforming to M 205. Test specimens shall be handled under same conditions as compressive strength test specimens in conformance with C 31 for the first seven days. When seven days old, they shall be cured in a 100 F water bath for the remainder of the 28 day curing. The 28 day rapid chloride permeability of the specimens will be determined in conformance with T 277. Test for the geometry of test specimens will be waived.

Note 5: Shrinkage tests will be performed on trial mixes only.

Note 6: High range water reducing admixture may be used except the water reducing requirements will be waived.

Note 7: A sealer conforming to 902.12 shall be used on the finished surface.

**902.10.04 Trial Batch.** A trial batch shall be prepared to certify that each mix meets 902.10.05 and 902.10.06. Approval will be given when the test results meets the minimum required average strength.

Make arrangements with the AME at least two weeks in advance, to have an authorized representative present during the batching and testing. Each trial batch shall consist of at least 3 yd<sup>3</sup> of concrete. Supply all equipment, and labor required to produce the trial batches and conduct the required tests at no additional cost to the Administration.

The AME may waive the requirement for a trial batch when past performance records show that the required average strength requirement has been met.



**902.10.05 Design Required Average Strength.**

Specified compressive strength, $f_c'$ , psi	Required average compressive strength, $f_{cr}'$ , psi
$f_c' \leq 5000$	Use the larger value computed from Eq. (A-1) and (A-2) $f_{cr}' = f_c' + 1.34s$ (A-1) $f_{cr}' = f_c' + 2.33s - 500$ (A-2)
Over 5000	Use the larger value computed from Eq. (A-1) and (A-3) $f_{cr}' = f_c' + 1.34s$ (A-1) $f_{cr}' = 0.90 f_c' + 2.33s$ (A-3)

where:

- $f_c'$  = the 28 day specified compressive strength.
- $s$  = the standard deviation as specified in 902.10.06.

A test is defined as the average strength of two companion cylinders.

**902.10.06 Standard Deviation.**

- (a) When past performance records are available, a standard deviation will be established from documented performance records of the producer consisting of a minimum of 15 consecutive 28 day compressive strength tests obtained within the last 12 months.

The standard deviation will be established as the product of the calculated standard deviation and multiplier.

NUMBER OF TESTS	MULTIPLIER FOR STANDARD DEVIATION
15	1.16
20	1.08
25	1.03
30 or more	1.00

Interpolate for intermediate number of tests.



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(b) When past performance records are not available, the required average strength shall meet to the following:

Specified compressive strength, $f_c'$ , psi	Required average compressive strength, $f_{cr}'$ , psi
$f_c' < 3000$	$f_{cr}' = f_c' + 1000$
$3000 \leq f_c' \leq 5000$	$f_{cr}' = f_c' + 1200$
$f_c' > 5000$	$f_{cr}' = 1.10 f_c' + 700$

**902.10.07 Standard of Control.** The average of all sets of three consecutive strength tests shall equal or exceed the critical value as specified in 902.10.03 which shall be computed using the following formula:

$$\text{Critical Value} = f_c' + (1.14 \times S) - 500$$

Failure to conform to this criteria shall be cause for immediate investigation and remedial action up to and including suspension of production. A design standard deviation equal to 15 percent of the specified strength shall be used for calculation until a minimum of 15 test results are obtained.

The actual average strength and standard deviation shall be computed upon the availability of 28 day strength data comprising a minimum of 15 tests. Should this determination indicate an excessive margin of safety, the concrete mix may be modified to produce lower average strength as approved by the Engineer. If these calculations indicate a coefficient of variation greater than 15, the quality of the concrete and testing will be evaluated.



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**902.10.08 Testing.** Sampling per T 141. Testing as follows:

TEST	METHOD	MINIMUM TEST FREQUENCY	RESPONSIBILITY
Temperature (e)	T 309	1 per 50 yd <sup>3</sup> (or fraction thereof)	Project Engineer
Slump (a)(e)	T 119	1 per 50 yd <sup>3</sup> (or fraction thereof)	Project Engineer
Air Content (a)(e)	T 152 T 196	1 per 50 yd <sup>3</sup> (or fraction thereof)	Project Engineer
Compression (b)(c)(d)	T 23	1 per 50 yd <sup>3</sup> (or fraction thereof)	Project Engineer
Compression (b)(c)(d) Mix No. 7 Only	T 23	3 per Day	Project Engineer

- (a) A second test will be made when the first slump or air content test fails. Acceptance or rejection will be based on the results of the second test.
- (b) Compressive strength tests are defined as the average of two companion cylinders.
- (c) The Contractor shall be responsible for the making of all early break cylinders and furnishing the molds, stripping, curing/delivery of all cylinders, including 28 day cylinders, to the testing laboratory.
- (d) The Project Engineer will be responsible for making, numbering and signing the 28 day cylinders.
- (e) When constructing plain and reinforced concrete pavements, the testing frequency for slump, air content, and temperature shall be 1 per 100 yd<sup>3</sup> or fraction thereof.

**902.10.09 Acceptance.** Concrete will be acceptable if both of the following requirements are met:

- (a) The average of all sets of three consecutive strength tests equal or exceed the specified design strength.
- (b) No individual strength test (average of two companion cylinders) falls below the specified design strength by more than 500 psi.

**902.10.10 Price Adjustment.** A price adjustment will be based on the Contract unit price per cubic yard of concrete. If the unit is a lump sum item, the price per cubic yard for the concrete will be determined by dividing the cubic yards into the Contract lump sum price.

- (a) **Test Results More Than 500 psi Below the Specified Design Strength.** Failing strength tests will be considered individually with a price adjustment being applied on the percentage basis as shown below.

(Price per yd<sup>3</sup>) X (quantity of yd<sup>3</sup> represented by the failing concrete strength) X (percent of failure).

Example:

$$\$400.00 \text{ per yd}^3 \times 50 \text{ yd}^3 \times [1 - (3600 / 4500 \text{ psi})] = \$4,000.00$$



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No payment will be allowed when the test results fall below 50 percent of the specified design strength for structural concrete or 40 percent for incidental concrete.

The Engineer will determine when the strength of the concrete represented by the failing tests is sufficient to remain in place or whether it must be removed and replaced with Specification concrete.

- (a) **Test Results 500 psi or Less than the Specified Design Strength.** Strength failures 500 psi or less than the specified design strength will be averaged with the next two consecutive tests. If those two tests include a failure greater than 500 psi, those tests will be evaluated as in 902.10.10(a) and replaced with the next consecutive test. If the resulting average falls below the specified design strength, a price adjustment will be applied as specified in the table below. Any failure will only be included in one grouping.

<b>STRENGTH BELOW THE SPECIFIED (avg of 3 tests) DESIGN LEVEL, psi</b>	<b>ADJUSTMENT FACTOR</b>
MIX NO. 1 THRU MIX NO. 7	
1 – 100	0.005
101 – 200	0.01
201 – 300	0.02
301 – 400	0.04
401 – 500	0.08

Adjustment price equals (price per yd<sup>3</sup>) X (quantity of yd<sup>3</sup> represented by the failing cylinders) X (the adjustment factor).

Example:

$$\$400.00 \text{ per yd}^3 \times 50 \text{ yd}^3 \times 0.01 = \$200.00$$

**902.11 MORTAR FOR GROUT.** Mortar used for grouting anchor bolts, pipe, handrail posts, and miscellaneous items shall be composed in accordance with one of the following:

- (a) One part Portland cement or blended hydraulic cement and one part mortar sand by dry loose volume.
- (b) Prepared bag mixes consisting of Portland cement or blended hydraulic cement and mortar sand. The prepared mixes shall produce a mortar meeting the strength requirements specified in the Contract Documents.
- (c) Use nonshrink grout when specified. The grout shall have a minimum compressive strength of 5000 psi in seven days when tested as specified per T 106, except that the cube molds shall remain intact with a top firmly attached throughout the curing period. The nonshrink grout shall have a minimum expansion of 0.0 percent after seven days when tested as specified per T 160.





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- (d) Epoxy grout shall consist of sand and epoxy mixed by volume in per the manufacturer's recommendations. The grout shall be capable of developing a minimum compressive strength of 6500 psi in 72 hours when tested per MSMT 501. Sand for epoxy grout as specified in 901.01.
- (e) An epoxy or polyester anchoring system may be used when approved by the Engineer in accordance with the manufacturer's recommendations. Strength values shall be as specified in the Contract Documents.

**902.12 LINSEED OIL.** Shall consist of a 50-50 mixture (by volume) of boiled linseed oil meeting Federal Specification TT-L-190 and kerosene per D 3699.

**902.13 LATEX MODIFIED CONCRETE.** Portland cement concrete containing prequalified Laboratory approved styrene butadiene latex emulsion is defined as Latex Modified Concrete (LMC).

Latex emulsion shall have a minimum of 90 percent of the nonvolatiles as styrene butadiene polymers. The latex emulsion as specified in Table 902.13 A. The material shall be stored in suitable containers and be protected from freezing and exposure to temperatures in excess of 85 F.

LMC shall be proportioned using volumetric mixing and designed as follows:

<b>LATEX MODIFIED CONCRETE</b>	
<b>MATERIAL</b>	<b>SPECIFICATION LIMITS</b>
Portland Cement, CWT/yd <sup>3</sup> , min	6.6
Latex Emulsion/Cement Ratio	0.31 – 0.34
Water/Cement Ratio, max	0.22
Entrained Air, %	6.0 ± 3
Slump, in.	5 ± 1

The physical properties of LMC shall conform to Table 902.13 B. The Contractor shall furnish the necessary 3 X 6 in. molds per M 205 to be used for the fabrication of compressive strength cylinders.

**Control and Acceptance Sampling.**

- (a) Submit a two qt minimum sample, of the styrene butadiene latex emulsion to the AME daily for each lot of material used in a day's production.
- (b) A batch for LMC is defined as the capacity of the equipment being used on the project. Slump and air samples will be taken and tested before the placement of a batch is permitted. The slump shall be measured four to five minutes after discharge from the mixer. The test material shall be deposited off the deck and not be disturbed during this



**SPECIAL PROVISIONS INSERT**  
902-PORTLAND CEMENT CONCRETE

waiting period. One additional sample for slump and air will be taken randomly during the placement of each batch. For seven day compressive strength, two tests each per batch are required. A test is defined as consisting of two companion cylinders. The samples for these tests will be taken at random while the placement is in progress.

**TABLE 902.13 A**

<b>REQUIREMENTS FOR CHEMICAL PROPERTIES OF LATEX EMULSION MATERIALS</b>				
<b>PROPERTY</b>	<b>SPECIFICATIONS</b>		<b>QUALITY ASSURANCE TESTS</b>	
	<b>LIMITS</b>	<b>TOLERANCE</b>	<b>PREQUALIFICATION TESTS</b>	<b>CONTROL AND ACCEPTANCE</b>
Color	White	—	X	X
pH	9.0 – 11.0	—	X	X
Weight, lb/gal	8.40 – 8.47	—	X	X
Solids Content, %	46 – 53	—	X	X
*Butadiene Content, % of polymer	30 – 40	—	—	—
Viscosity @ 10 rpm-cps	Match Original	± 20	X	X
*Surface Tension, dynes/cm max	50	—	—	—
*Mean Particle Size, polymer – Å	1400 – 2500	—	—	—
Coagulum, % max	0.10	—	X	X
*Freeze-Thaw Stability, coagulum, % max	0.10	—	X	X
Infrared Spectra of Latex Film	Match Original	—	X	X
Infrared of Alcohol, Soluble Portion of Latex	Match Original	—	X	X
Shelf Life, min	1 yr	—	X	—

Note 1: Quality assurance tests shall be conducted as specified in MSMT 612 except those denoted by an \* shall be conducted as specified in FHWA RD – 78-35.

Note 2: The original or prequalification sample shall be accompanied by the producer's certification on all of the tests and properties noted above and as specified in TC-1.02. The certification shall contain actual test values of the product and the infrared spectrograph.

Note 3: A separate certification is required for each lot of material. The certification shall note the date of manufacture, lot size, and whether or not the material is identical to the formulation of the original sample.



**TABLE 902.13 B**

<b>LATEX MODIFIED CONCRETE PHYSICAL PROPERTIES</b>			
<b>TEST PROPERTY</b>	<b>TEST VALUES</b>	<b>QUALITY ASSURANCE TESTS</b>	
		<b>PREQUALIFIED TESTS</b>	<b>CONTROL AND ACCEPTANCE</b>
7 Day Compressive Strength, psi min	3000	X	X
28 Day Compressive Strength, psi min	3500	X	—
42 Day Compressive Strength, psi min	3500	X	—
7 Day Flexural Strength, psi min	550	X	—
28 Day Flexural Strength, psi min	650	X	—
42 Day Shear Bond Strength, psi min	2000	X	—
Durability Factor, 300 cycles, % min	85	X	—
Chloride Permeability, Ppm max	510	X	—
Scaling Resistance, 50 cycles, max	3	X	—

Note 1: Quality assurance tests shall be conducted as specified in MSMT 721.

Note 2: Seven Day Compressive Strength Test will be used for Control & Acceptance of the material. The minimum specified design strength is 3000 psi at seven days. The mix design approval and acceptance will be based on a coefficient of variation of 10 percent with a probability of 1 in 10 tests falling below the specified strength. Only test values 80% or greater than the specified strength will be accepted

**902.14 RAPID HARDENING CEMENTITIOUS MATERIALS FOR CONCRETE PAVEMENT REPAIRS.** Materials shall be a dry, packaged cementitious mortar having less than 5 percent by weight of aggregate retained on the 3/8 in. sieve and meet the following requirements:

**Classification.**

- Class I — For use at ambient temperatures below 50 F.
- Class II — For use at ambient temperatures of 50 to 90 F.
- Class III — For use at ambient temperatures above 90 F.

**Chemical Requirements.** C 928 except that no organic compounds such as epoxy resins or polyesters as the principal binder.



**SPECIAL PROVISIONS INSERT**  
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**Physical Requirements.** Meet the following when tested per MSMT 725:

<b>COMPRESSIVE STRENGTH, psi min</b>				
<b>CLASSIFICATION</b>	<b>&lt; 2 hr</b>	<b>2-6 hr</b>	<b>6 hr</b>	<b>28 days</b>
Type I — Slow	—	—	2000	4500
Type II — Rapid	—	2000	—	4500
Type III — Very Rapid	2500	—	—	4500

<b>TEST RESULTS</b>	
<b>TEST PROPERTY</b>	<b>LIMITS</b>
Bond Strength, 7 days, psi min	2000
Length Change, increase after 28 days in water, based on length at 3 hr, % max	+ 0.15
Length Change, decrease after 28 days, % max	- 0.15
Freeze Thaw, loss after 25 cycles in 10% CaCl <sub>2</sub> solution, % max	8
Initial Setting Time, minutes min	10

**Marking.** All packages delivered to the project shall be marked with the following information:

- (a) Date material was packaged.
- (b) Approximate setting time.
- (c) Recommended dosage of water or liquid component.
- (d) Mixing instructions.
- (e) Class or temperature range.

**Certification.** The manufacturer shall furnish certification as specified in TC-1.02 showing the actual test results for each class and type of material submitted to the Laboratory.

**902.15 SYNTHETIC FIBERS.** When synthetic fibers are specified in the Contract Documents, the fibers shall be 1/2 to 1-1/2 in. long and conform to C 1116, Type III. The manufacturer shall furnish certification as specified in TC-1.02. The quantity of fibers used and their point of introduction into the mix shall conform to the fiber manufacturer's recommendations.



**CATEGORY 900**  
**MATERIALS**

**SECTION 908 — REINFORCEMENT STEEL**

703 **DELETE:** 908.07 thru .10 in their entirety.

**INSERT:** The following.

**908.07 FABRICATED STEEL BAR MATS.** Steel shall meet A 184.

**908.08 WIRE FABRIC FOR PNEUMATICALLY APPLIED MORTAR AND CONCRETE ENCASMENT.** Fabric shall meet A 185 and be galvanized as specified in 906.01.01. Fabricate from size W1.4 wire on 3 in. centers in each direction or from W0.9 wire on 2 in. centers in each direction.

**908.09 COLD DRAWN STEEL WIRE.** Concrete reinforcement shall meet M 32.

**908.10 TIE DEVICES FOR CONCRETE PAVEMENT.** Tie device sizes shall be as specified and produce a frictional force of at least 160 lb/ft per foot of spacing when tested per MSMT 512.

**908.11 STEEL STRAND.** M 203, Grade 270, Low Relaxation Strand.

**SPECIAL PROVISIONS**

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950.06-ELECTRICAL CABLE AND WIRE

1 of 1

**CATEGORY 950  
TRAFFIC MATERIALS**

**SECTION 950.06-ELECTRICAL CABLE AND WIRE**

794 **950.06.03 Cable Duct.**

**DELETE:** Delete the last sentence of 950.06.03.

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**INSERT:** The following.

Cable shall be type XHHW, rated for 600 volts.



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**CATEGORY 100  
PRELIMINARY  
SECTION 104 – MAINTENANCE OF TRAFFIC**

**SECTION 104.01 — TRAFFIC CONTROL PLAN**

149 **DELETE:** The fourth paragraph sentence, “Refer to contract Documents for Work Restrictions.”

**INSERT:** The following:

**AGENCY CONTACTS**

CONTACT	TITLE	PHONE NUMBER
x	x	x

**Maryland Transportation Authority**

CONTACT	TITLE	PHONE NUMBER
x	Facility Administrator	x
x	Facility Maintenance Supervisor	x
x	Traffic Manager	x
x	AOC/CHART-SOC	x
x	x	x
x	x	x



## **Virtual Weigh Station (VWS) Project Phase II**

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**Work Restrictions.** The Contractor shall provide the Engineer with a complete list of anticipated lane and shoulder closures, allowing the Authority a minimum of fourteen (14) calendar days or ten (10) working days notification. The Engineer shall then notify the affected facilities, the Office of Engineering and Construction Division's Traffic Section and other appropriate offices. No lane closures shall be made without prior written approval of the Engineer in the form of an Authority lane/shoulder closure permit.

The Engineer reserves the right to modify or expand the methods of traffic control or working hours as specified in the Contract Documents. Any request from the Contractor to modify the work restrictions shall require written approval from the Engineer at least 72 hours prior to implementing the change. The Contractor shall submit a copy of the original work restrictions with the written request. No lane closures shall be made without prior written approval of the Engineer in the form of an Authority lane/shoulder closure permit. Schedules are required to establish traffic control requirements and to coordinate TCP work zones. The Authority is not responsible for lost workdays resulting from the Contractor failing to submit schedules or providing notification of maintenance of traffic requirements in a timely manner. Other contractors may be actively working in or around the vicinity of this project. The Contractor shall cooperate with, and coordinate work activities with Contractors in adjoining or overlapping work areas.

The Contractor shall be aware that he is responsible for obtaining Lane/Shoulder Closure or other Permits from all affected agencies that require them, including those listed in this Special Provision. The Contractor shall make contact directly with the representative from the affected agency, through the Project Engineer, and provide a copy of all correspondence to the Authority. Sufficient time shall be allowed for review and approval of the permit application.

The Contractor shall abide by the Allowable Lane or Shoulder Closure Schedules as provided herein and as determined by the approval of his lane closure permit application. The Contractor shall provide ten (10) working days advanced notice of intent to close lanes. Notice shall be given to the MDTA Engineer, affected agency representative as listed herein as well as the local Fire Departments and local Police Departments of any lane closures that could affect their emergency operations.





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### ALLOWABLE LANE OR SHOULDER CLOSURE SCHEDULES

Time of Day	Days of the Week	Allowed Closures
<b>Baltimore Harbor Tunnel – Roadway</b>		
7:00 AM – 3:00 PM	Monday – Thursday	Single Lane Closure/Shoulder Southbound, South of I-295
9:30 AM – 2:30 PM	Monday – Thursday	Single Lane Closure/Shoulder Southbound, North of I-295
7:00 AM – 3:00 PM	Monday – Thursday	Single Lane Closure/Shoulder Northbound, South of I-295
9:00 AM – 2:30 PM	Monday – Thursday	Single Lane Closure/Shoulder Northbound, North of I-295
7:00 AM – 1:00 PM	Friday	Single Lane Closure/Shoulder Southbound, South of I-295
9:30 AM – 1:00 PM	Friday	Single Lane Closure/Shoulder Southbound, North of I-295
7:00 AM – 1:00 PM	Friday	Single Lane Closure/Shoulder Northbound, South of I-295
9:30 AM – 12:00 Noon	Friday	Single Lane Closure/Shoulder Northbound, North of I-295
8:00 PM – 5:00 AM	Monday – Thursday	Single Lane Closure/Shoulder Northbound or Southbound
10:00 PM – 10:00 AM	Friday – Saturday	Single Lane Closure/Shoulder Northbound or Southbound
10:00 PM – 5:00 AM	Sunday	Single Lane Closure/Shoulder Northbound or Southbound
10:00 PM Friday – 10:00 AM Sunday	Friday – Sunday	Single Lane Closure/Shoulder Continuous Northbound or Southbound (Subject to Administrator’s Approval)
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>Baltimore Harbor Tunnel – Tunnel Bore Closures (See Note 1)</b>		
8:30 PM – 4:30 AM	Monday – Thursday	Northbound or Southbound
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>Francis Scott Key Bridge (MD 695)</b>		
9:00 AM – 3:00 PM	Monday – Friday	Single Lane Closure/Shoulder (Inner Loop Westbound; Outer Loop Eastbound)
7:00 PM – 5:00 AM	Monday – Thursday	Single Lane Closure/Shoulder (Inner Loop Westbound; Outer Loop Eastbound)
9:00 PM – 5:00 AM	Friday – Monday	Single Lane Closure/Shoulder (Inner Loop Westbound; Outer Loop Eastbound)
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>Fort McHenry Tunnel - Roadway</b>		
9:00 AM – 2:30 PM	Monday – Thursday	Single Lane Closure/Shoulder Southbound, South of I-395



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Time of Day	Days of the Week	Allowed Closures
9:30 AM – 2:30 PM	Monday – Thursday	Single Lane Closure/Shoulder Southbound, North of I-395
9:30 AM – 2:30 PM	Monday – Thursday	Single Lane Closure/Shoulder Northbound, South of I-395
7:00 AM – 2:30 PM	Monday – Thursday	Single Lane Closure/Shoulder Northbound, North of I-395
9:00 AM – 1:00 PM	Friday	Single Lane Closure/Shoulder Southbound, South of I-395
9:30 AM – 1:00 PM	Friday	Single Lane Closure/Shoulder Southbound, North of I-395
9:30 AM – 1:00 PM	Friday	Single Lane Closure/Shoulder Northbound, South of I-395
7:00 AM – 1:00 PM	Friday	Single Lane Closure/Shoulder Northbound, North of I-395
7:30 PM – 5:00 AM	Monday – Thursday	Single Lane Closure/Shoulder Southbound, South of I-395
7:00 PM – 5:00 AM	Monday – Thursday	Single Lane Closure/Shoulder Southbound, North of I-395
7:30 PM – 5:00 AM	Monday – Thursday	Single Lane Closure/Shoulder Northbound, South of I-395
7:30 PM – 7:00 AM	Monday – Thursday	Single Lane Closure/Shoulder Northbound, North of I-395
9:00 PM – 9:00 AM	Friday and Saturday	Single Lane Closure/Shoulder Northbound and Southbound
9:00 PM – 5:00 AM	Sunday	Single Lane Closure/Shoulder Northbound, South of I-395 and Southbound
9:00 PM – 7:00 AM	Sunday	Single Lane Closure/Shoulder Northbound, North of I-395
9:30 PM – 5:00 AM	Sunday – Thursday	Double Lane Closure, 4-Lane Section Northbound and Southbound
10:30 PM – 5:00 AM	Sunday – Thursday	Double Lane Closure, 3-Lane Section Northbound and Southbound
10:00 PM – 9:00 AM	Friday and Saturday	Double Lane Closure, 4-Lane Section Northbound and Southbound
10:30 PM – 8:00 AM	Friday and Saturday	Double Lane Closure, 3-Lane Section Northbound and Southbound
11:00 PM – 5:00 AM	Monday – Thursday	Triple Lane Closure, 4-Lane Section
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>Fort McHenry Tunnel – Tunnel Bore Closures (See Note 2)</b>		
8:00 PM – 5:00 AM	Monday – Thursday	I-95 Northbound
7:00 PM – 5:00 AM	Monday – Thursday	I-95 Southbound
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>Governor Harry W. Nice Memorial Bridge</b>		
9:00 AM – 3:00 PM	Monday – Thursday	Single Lane Closure
9:00 AM – 12:00 Noon	Friday	Single Lane Closure
8:00 PM – 5:00 AM	Monday – Thursday	Single Lane Closure



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Time of Day	Days of the Week	Allowed Closures
10:00 PM – 5:00 AM	Sunday	Single Lane Closure
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>Intercounty Connector (MD 200)</b>		
9:00 AM – 3:00 PM	Monday – Friday	Single Lane Closure/Shoulder
9:00 PM – 5:00 AM	Monday – Thursday	Single Lane Closure/Shoulder
11:00 PM – 5:00 AM	Monday – Thursday	Double Lane Closure
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>John F. Kennedy Highway (I-95)</b>		
9:00 AM – 12:00 Noon	Friday in Four Lane Sections	Single Lane Closure/Shoulder
9:00 AM – 3:00 PM	Monday – Thursday in Four Lane Sections	Single Lane Closure/Shoulder Southbound
7:00 PM – 5:00 AM	Monday – Thursday in Four Lane Sections	Single Lane Closure/Shoulder Southbound
9:00 PM – 5:00 AM	Monday – Thursday in Three Lane Sections	Single Lane Closure/Shoulder Southbound
Thanksgiving through New Years 9:00 PM – 5:00 AM	Monday – Thursday in Four Lane Sections	Single Lane Closure/Shoulder Southbound
Thanksgiving through New Years 10:00 PM – 5:00 AM	Monday – Thursday in Three Lane Sections	Single Lane Closure/Shoulder Southbound
9:00 PM – 5:00 AM	Monday – Thursday in Four Lane Sections	Double Lane Closure Southbound
Thanksgiving through New Years 10:00 PM – 5:00 AM	Monday – Thursday in Four Lane Sections	Double Lane Closure Southbound
11:00 PM – 5:00 AM	Monday – Thursday in Three Lane Sections	Double Lane Closure Southbound
11:00 PM – 4:00 AM	Monday – Thursday in Four Lane Sections	Triple Lane Closure Southbound
8:30 AM – 2:30 PM	Monday – Thursday in Four Lane Sections	Single Lane Closure/Shoulder Northbound
9:00 PM – 5:00 AM	Monday – Thursday	Single Lane Closure/Shoulder Northbound
11:00 PM – 5:00 AM	Monday – Thursday in Three or Four Lane Sections	Double Lane Closure Northbound
12:00 Midnight – 5:00 AM	Monday – Thursday in Four Lane Sections	Triple Lane Closure Northbound
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>Thomas J. Hatem Memorial Bridge</b>		
9:00 AM – 3:00 PM	Monday – Thursday	Single Lane Closure/Shoulder
7:00 AM – 7:00 PM	Saturday and Sunday	Single Lane Closure/Shoulder
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<b>William Preston Lane, Jr. Memorial Bridge (See Note 3)</b>		
<i>October 1 – April 30</i>		
9:00 AM – 2:30 PM	Monday – Thursday	Single Lane Closure Eastbound
9:00 PM – 6:00 AM	Monday – Thursday	Single Lane Closure Eastbound



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Time of Day	Days of the Week	Allowed Closures
9:00 AM – 12:00 Noon	Friday	Single Lane Closure Eastbound
10:00 PM – 6:00 AM	Saturday and Sunday	Single Lane Closure Eastbound
9:00 AM – 2:30 PM	Monday – Thursday	Single Lane Closure Westbound
7:00 PM – 5:00 AM	Monday – Thursday	Single Lane Closure Westbound
9:00 AM – 12:00 Noon	Friday	Single Lane Closure Westbound
9:00 PM – 7:00 AM	Saturday and Sunday	Single Lane Closure Westbound
9:00 PM – 5:00 AM	Monday – Thursday	Double Lane Closure Westbound
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)
<i>May 1 – September 30</i>		
9:00 AM – 2:30 PM	Monday – Thursday	Single Lane Closure Eastbound
10:00 PM – 6:00 AM	Monday – Thursday	Single Lane Closure Eastbound
9:00 AM – 2:30 PM	Monday – Thursday	Single Lane Closure Westbound
9:00 PM – 5:00 AM	Monday – Thursday	Single Lane Closure Westbound
12:00 Midnight – 5:00 AM	Monday – Thursday	15 Minute Full Closure (See Restrictions Below)

Notes:

1. Maintenance of Traffic for Baltimore Harbor Tunnel - tunnel bore closures are furnished and installed by MDTA maintenance personnel.
2. Maintenance of Traffic for Fort McHenry Tunnel – tunnel bore closures are furnished and installed by MDTA maintenance personnel. Only one bore in each direction may be closed at any given time.
3. Between the hours of 5:00 AM and 9:00 PM no more than one of the existing five traffic lanes may be closed at any time. No lane closures permitted from December 23 through January 2. Any eastbound closure will require contra-flow operation on the westbound bridge.



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	New Year's Day	Good Friday	Easter	Memorial Day	Independence Day	Labor Day	Columbus Day	Veterans Day	Thanksgiving Day	Christmas Day	Remarks
<b>Baltimore Harbor Tunnel - Roadway</b>	x	x	x	x	x	x			x	x	See Notes 1, 2, 3
<b>Baltimore Harbor Tunnel – Tunnel Bore Closures</b>	x	x	x	x	x	x			x	x	See Notes 1, 2, 3
<b>Francis Scott Key Bridge (MD 695)</b>	x	x	x	x	x	x			x	x	See Note 3
<b>Fort McHenry Tunnel – Roadway</b>	x	x	x	x	x	x			x	x	See Notes 1, 2, 3
<b>Fort McHenry Tunnel – Tunnel Bore Closures</b>	x	x	x	x	x	x			x	x	See Notes 1, 2, 3
<b>Governor Harry W. Nice Memorial Bridge</b>	x	x	x	x	x	x			x	x	See Note 3
<b>InterCounty Connector (MD 200)</b>	x	x	x	x	x	x			x	x	See Note 3
<b>John F. Kennedy Highway (I-95)</b>	x	x	x	x	x	x			x	x	See Notes 4, 5
<b>Thomas J. Hatem Memorial Bridge</b>	x	x	x	x	x	x	x		x	x	See Notes 6, 7, 8
<b>William Preston Lane, Jr. Memorial Bridge</b>	x	x	x	x	x	x	x	x**	x	x	See Notes 3, 9

\* No lane closures are permitted the day before or the day after Holidays, unless otherwise noted

\*\* No lane closures are permitted only if Veterans Day falls on a Friday or Monday

**Notes:**

1. No lane/shoulder closures are permitted two hours before, during, or two hours after any major traffic generating event in Baltimore City, such as but not limited to Baltimore Orioles games, Ravens games, or the Baltimore Grand Prix as directed by the Engineer.
2. No lane closures are permitted two days before, two days after, and on the following holidays: Thanksgiving, Christmas.
3. If a holiday happens to fall on a Thursday, Friday, or Monday, no closures will be permitted on the Holiday, the day preceding or following the Holiday, nor the Saturday or Sunday of that weekend.
4. No work will be allowed on Tuesday prior to Thanksgiving Day, and the following Monday after Thanksgiving Day.
5. If a holiday happens to fall during a weekend or on the day preceding and/or following a weekend, no work will be permitted on that weekend or on the day preceding or following that weekend.
6. No lane closures are permitted on Memorial Day Weekend.
7. No lane closures are permitted on Labor Day Weekend.
8. No lane closures are permitted on Friday through Monday after Thanksgiving Day.
9. If a holiday happens to fall between May 1 and September 30, no closures will be permitted during that week of the holiday without the express approval of the William Preston Lane, Jr. Memorial (Chesapeake Bay) Bridge (Facility) Administrator.



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Full closures (i.e. traffic drags) will be permitted only with prior written approval for (insert type of work that will require traffic drags) as directed by the Engineer.

- 149 **ADD:** The following after the last paragraph, “Any monetary savings.....and the Administration.”

Contractor’s requests for changes to the Allowable Lane or Shoulder Closure Schedules must be submitted in writing to the Engineer. Changes must receive written approval from both the facility Administrator and the Authority’s Office of Engineering and Construction.

The Contractor will not be permitted to use any portions of the existing roadway or interfere with or impede the free flow of traffic in any manner during prohibited hours.

As directed by the Engineer, lane and shoulder closures will not be permitted during periods of falling precipitation, in heavy fog or otherwise poor visibility, or in the event of emergencies such as serious traffic accidents or unusually severe traffic congestion. In the event that a closed lane or shoulder must be reopened as directed by the Engineer or authorized Authority staff, the Contractor shall evacuate all equipment, materials and personnel from the lane within 30 minutes.

The Contractor must provide a means of communication to the MDTA/MSP Police detachment/barracks as a safety requirement. Acceptable forms of communication shall consist of a mobile telephone, citizens band or portable two-way radio.

When a lane or shoulder closure is in effect, work shall begin within one hour after the lane or shoulder is closed. Any delay longer than one hour with no work in progress shall require the Contractor to remove the lane or shoulder closure at no additional cost to the Authority. The Contractor’s Certified Traffic Manager shall attend pre-construction meetings and shall discuss traffic control and the Traffic Control Plan including procedures to be implemented for lane closures.

All lane and shoulder closures shall be in conformance with the approved TCP and under the direction of the Contractor’s Certified Traffic Manager and the Engineer. The Contractor shall have a certified Temporary Traffic Control Manager on site at all times active work is being completed. Additionally, the Temporary Traffic Control Manager shall be made available during non-work hours in cases of emergency. The contractor shall provide contract name and 24/7 contact information for the designated Temporary Traffic Control Manager.

Workers and equipment, including temporary traffic control devices needed for setting up a lane closure or restriction, are prohibited in the lane or shoulder to be closed or



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restricted before the time permitted in the contract work restrictions and permit unless otherwise noted below or as approved by the Engineer.

Temporary traffic control devices to be used for lane/shoulder closure may be placed on the shoulder of the roadway by workers no earlier than 15 minutes prior to the actual time listed on the approved lane/shoulder closure permit. Temporary traffic signs may be displayed to traffic at this time. Workers shall not enter a lane open to traffic earlier than the actual time listed on the approved lane/shoulder closure permit. Workers may be present on shoulders to prepare for lane closure setup no earlier than 15 minutes prior to the actual time listed on the approved lane/shoulder closure permit.

All lane and shoulder closures shall be restored at the end of the closure period and no travel lanes shall be reduced to less than 11 ft. Prior to opening the closed lane or shoulder, the Contractor shall clear the lane or shoulder of all material, equipment and debris.

No equipment, material or debris shall be stored or permitted to stand in open areas closer than thirty (30) feet from where traffic is being maintained unless protected by traffic barrier. Equipment, material or debris stored behind protective barrier shall not be less than four (4) feet distance from the outside face (farthest face from traffic lane) of the protective barrier. The Contractor's employees shall not park their vehicles within the right-of-way of the through highway, unless written permission for an exception is given by the Engineer.

If a shoulder closure is requested and approved for additional hours than is permitted by the Allowable Lane or Shoulder Closure Schedules, the Contractor shall protect the work area, including all equipment, material, construction and personal vehicles, and personnel around by installing temporary concrete barrier in accordance with MD 104.01-23, MD 104.01-24, MD 104.01-25, and MD 104.06-14. All leading concrete barrier blunt-ends shall be properly protected with crash cushions in accordance with MD 104.01-70, MD 104.01-72, MD 104.01-72, and MD 104.01-73.

The contractor shall maintain function for all access points (including emergency/police turn-arounds) in, or adjacent to, the work area.

All temporary diamond work zone traffic control signs installed along I-95, I-895, I-695, or MD 200 shall be 60" x 60" in size.

Failure to restore traffic capacity within the time specified will result in deduction being assessed on the next progress estimate in conformance with the following: This is in addition to the requirements specified in TC-4.02:



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ELAPSED TIME, MINUTES	DEDUCTION
1-5	\$xx
Over 5	\$xx per minute (in addition to the original 5 minutes)

A protection vehicle (PV) shall be used in any lane and/or shoulder closure. The PV shall consist of a work vehicle with approved flashing lights, a truck-mounted attenuator (TMA) with support structure designed for attaching the system to the work vehicle, and approved arrow panel (arrow mode for multilane roadways and caution mode on two-lane, two-way roadways) The work vehicle size and method of attachment shall be as specified in the TMA manufacture's specification as tested under NCHRP 350 Test Level 3. Placement of the PV shall be as directed by the Engineer.



# Appendix 3

Virtual Weigh Station (VWS) Phase II

CATS + TORFP #J02B4400004

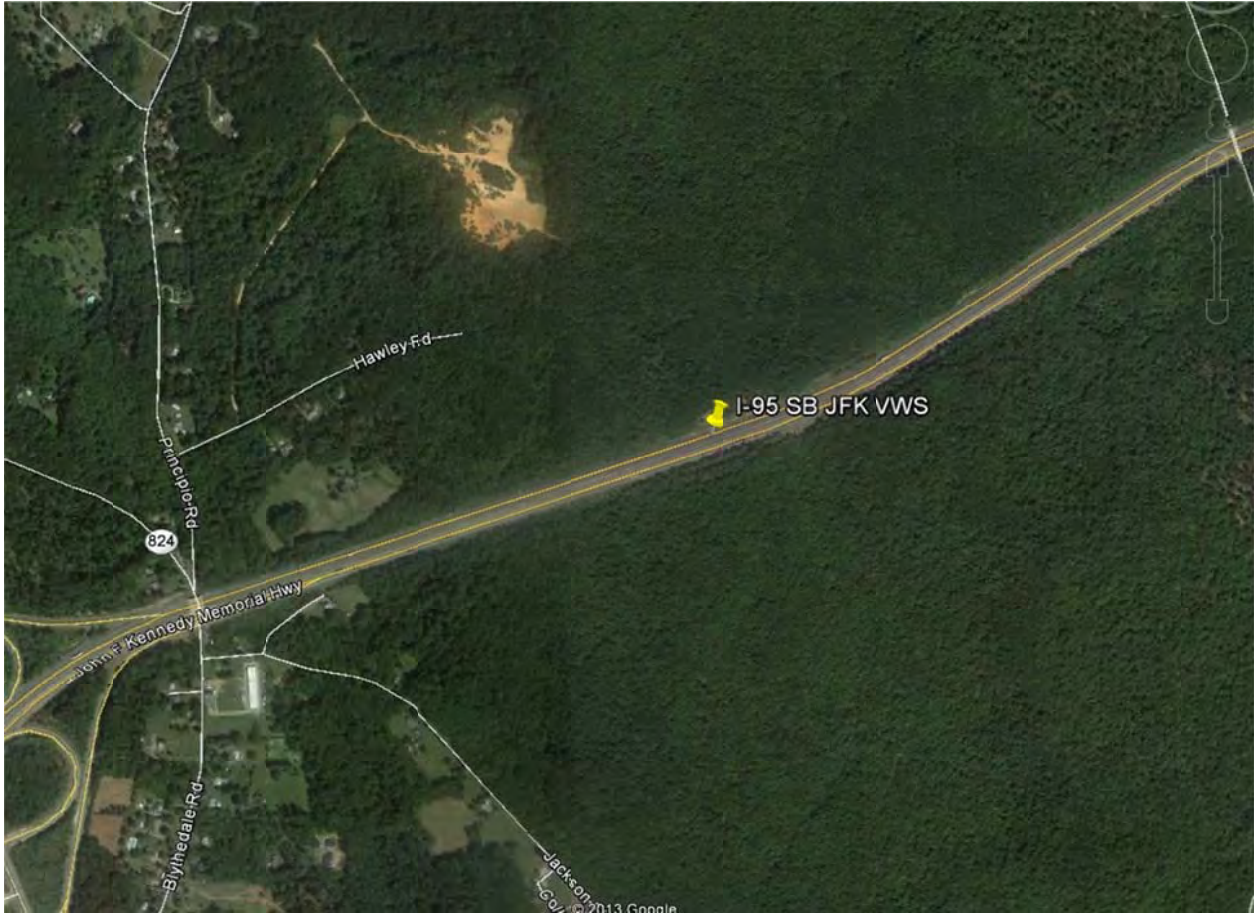
# MARYLAND TRANSPORTATION AUTHORITY

## Proposed Virtual Weigh Scale Locations

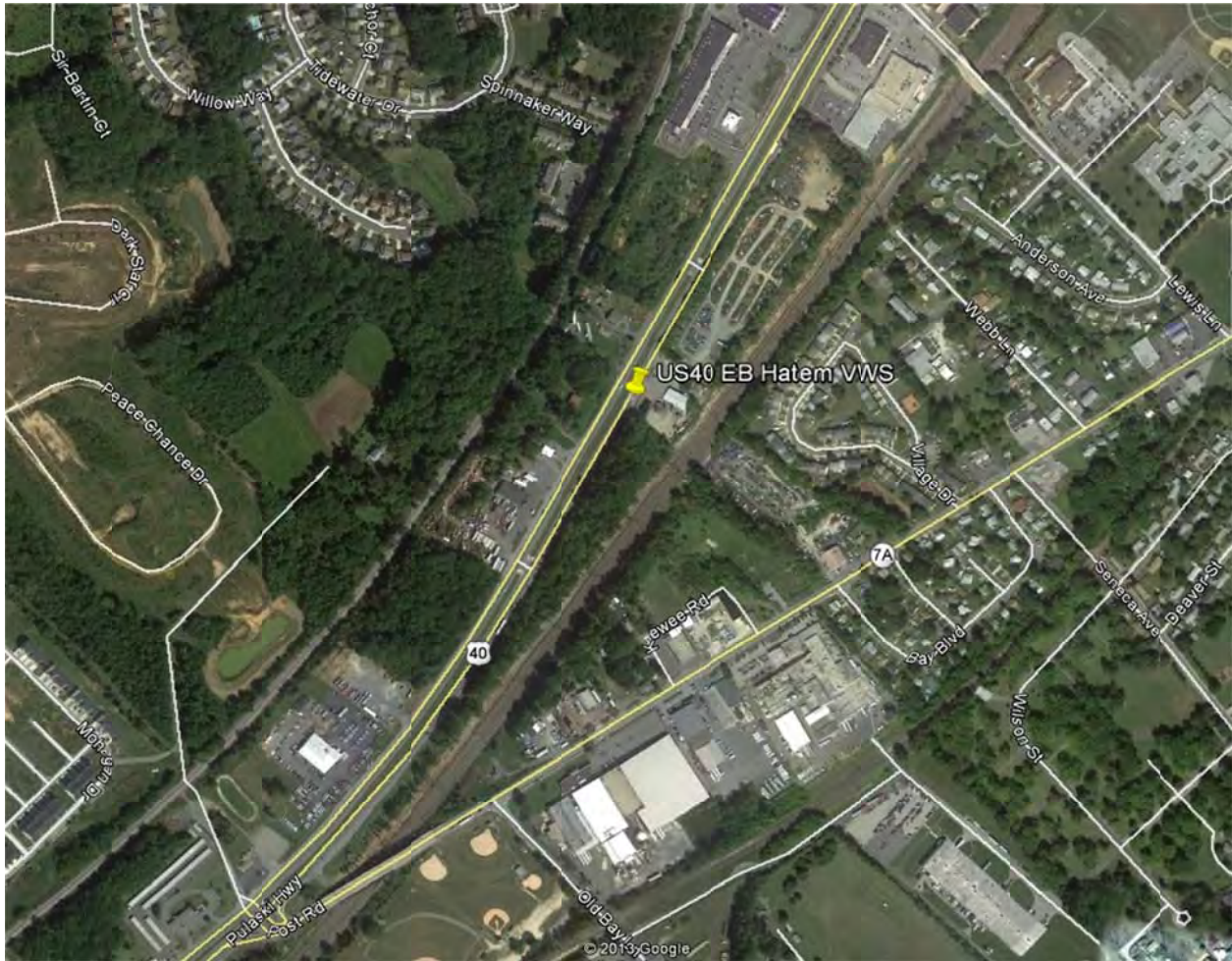
1. NB I-95 at the Millard E. Tydings Memorial Bridge (double scale in the two right lanes) – Cecil County,  $39^{\circ}35'7.38''\text{N}$ ,  $76^{\circ}5'12.02''\text{W}$ , Mile Point 1.11 (approx.)



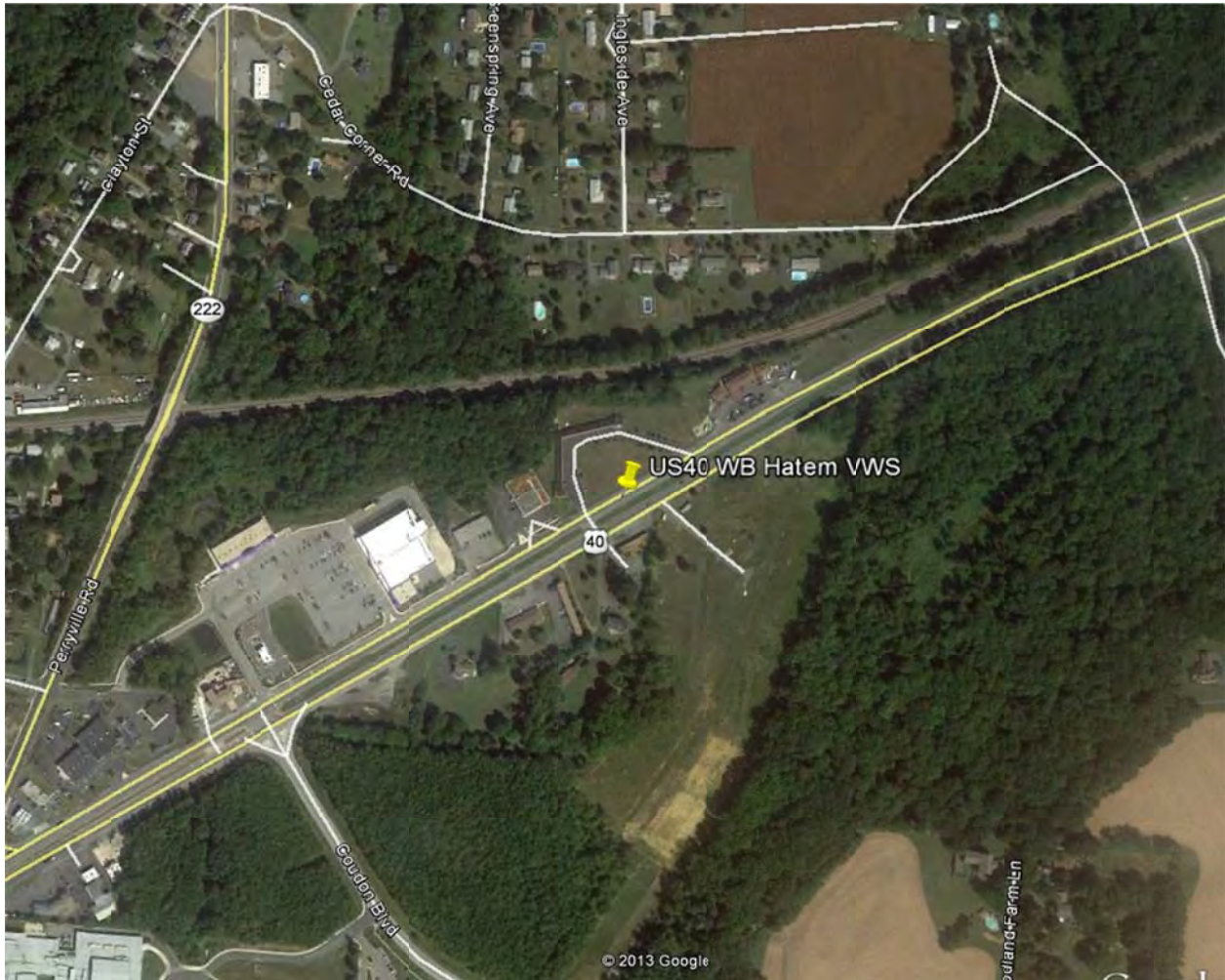
2. SB I-95 at the Millard E. Tydings Memorial Bridge (double scale in the two right lanes) – Cecil County,  $39^{\circ}35'57.01''N$ ,  $76^{\circ}2'55.45''W$ , Mile Point 3.45 (approx.)



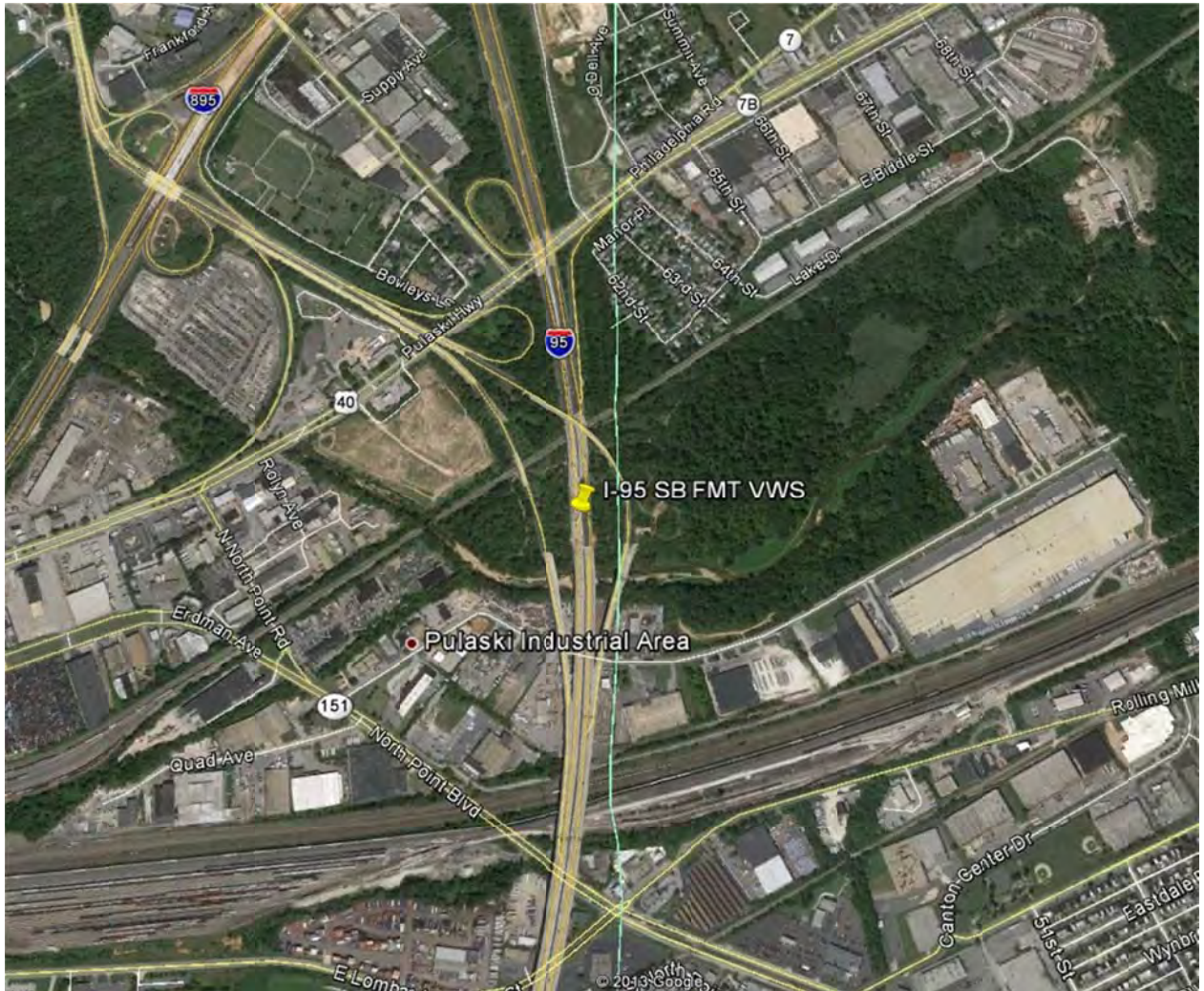
3. EB US 40 at the Thomas J. Hatem Memorial Bridge (double scale in both EB lanes) – Harford County, 39°32'29.41"N, 76°6'36.25"W, Mile Point 16.79 (approx.)



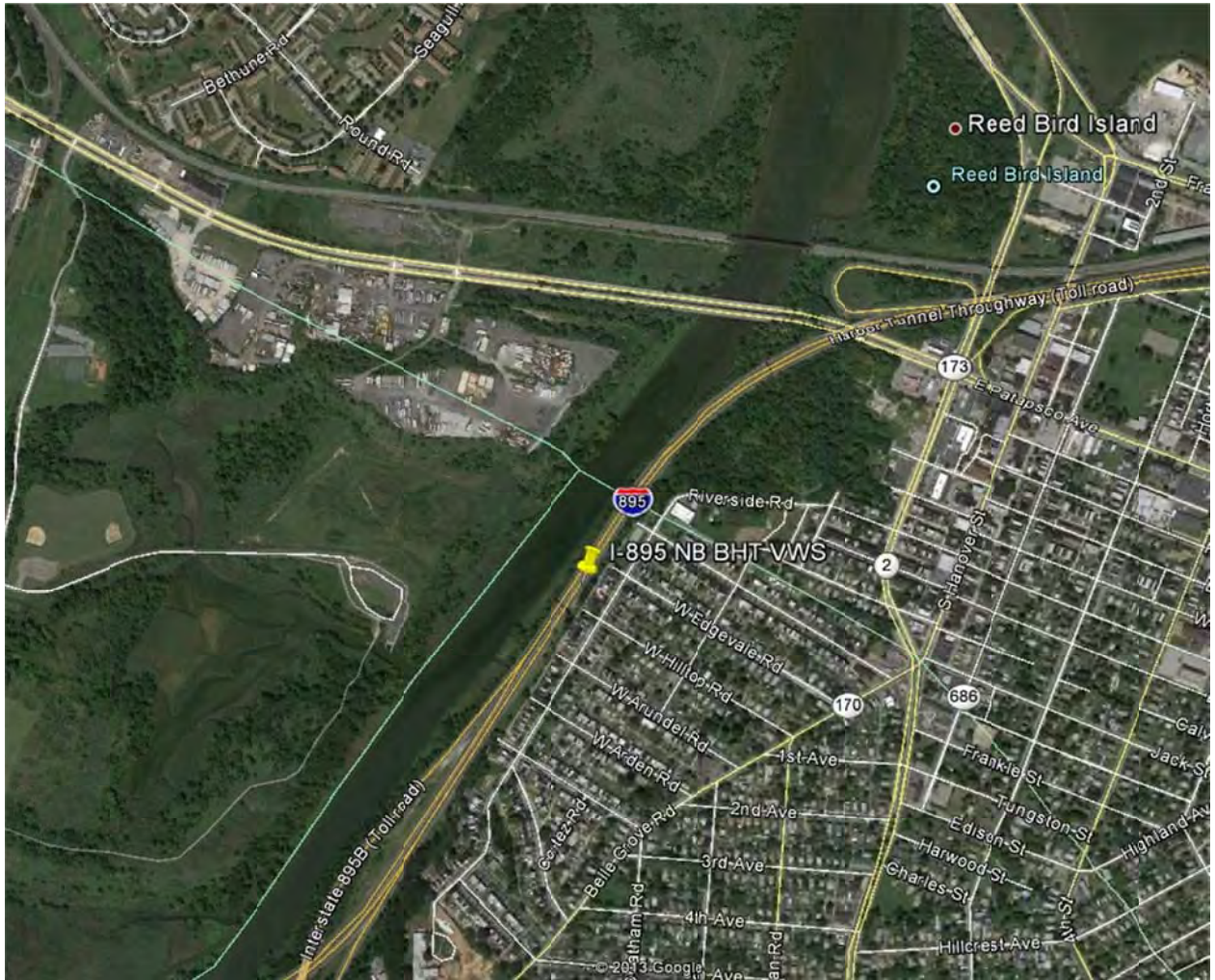
- WB US 40 at the Thomas J. Hatem Memorial Bridge (double scale in both WB lanes) – Cecil County, 39°34'23.33"N, 76°3'45.69"W, Mile Point 1.65 (approx.)



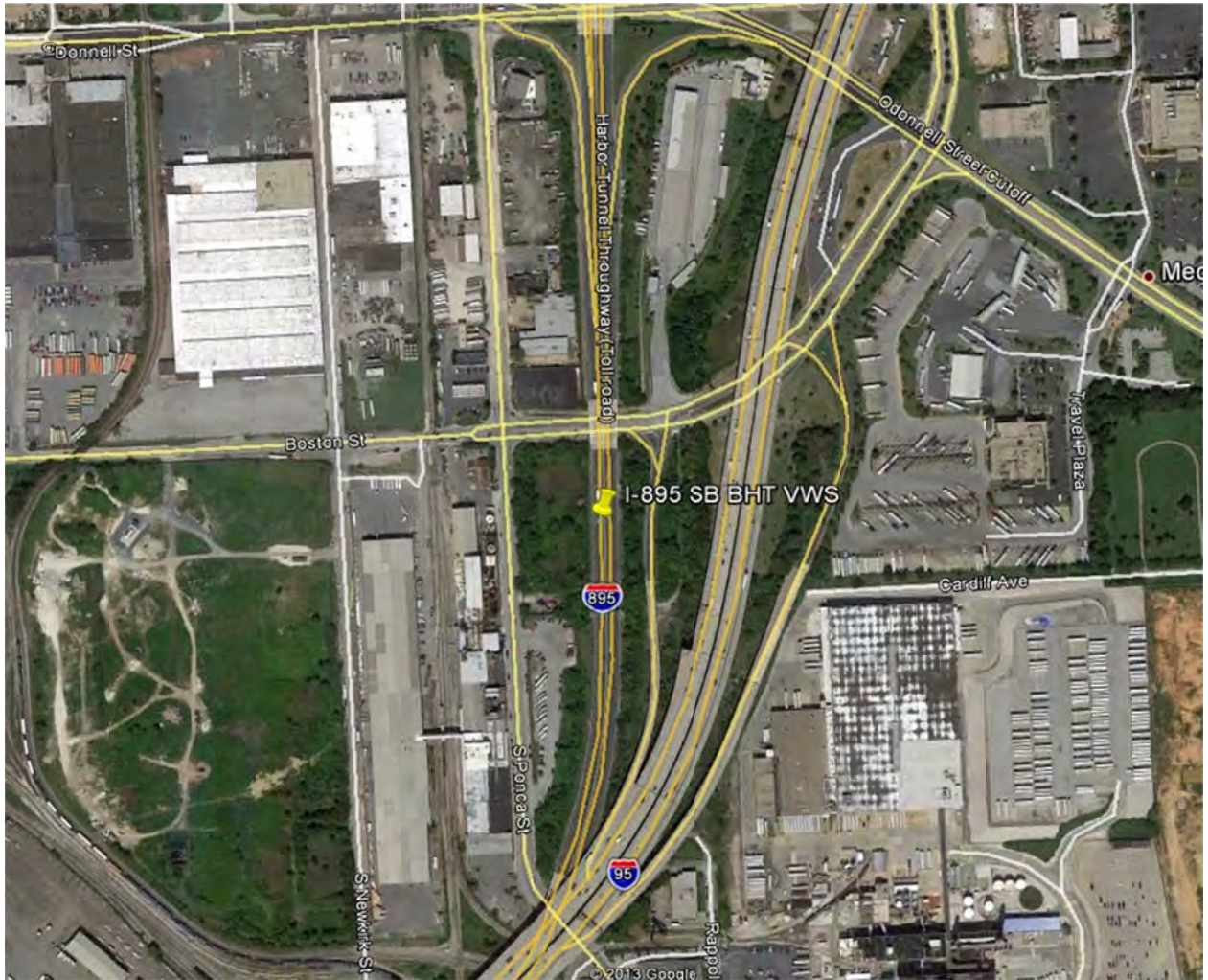
5. SB I-95 at the Fort McHenry Tunnel (double scale in the two right lanes) – Baltimore City, 39°18'13.54"N, 76°31'50.27"W



6. NB I-895 at the Baltimore Harbor Tunnel (double scale in both NB lanes) – Anne Arundel County, 39°14'8.23"N, 76°37'7.05"W, Mile Point 0.70 (approx.)



7. SB I-895 at the Baltimore Harbor Tunnel (double scale in both SB lanes) – Baltimore City,  $39^{\circ}16'36.26''N$ ,  $76^{\circ}33'11.92''W$

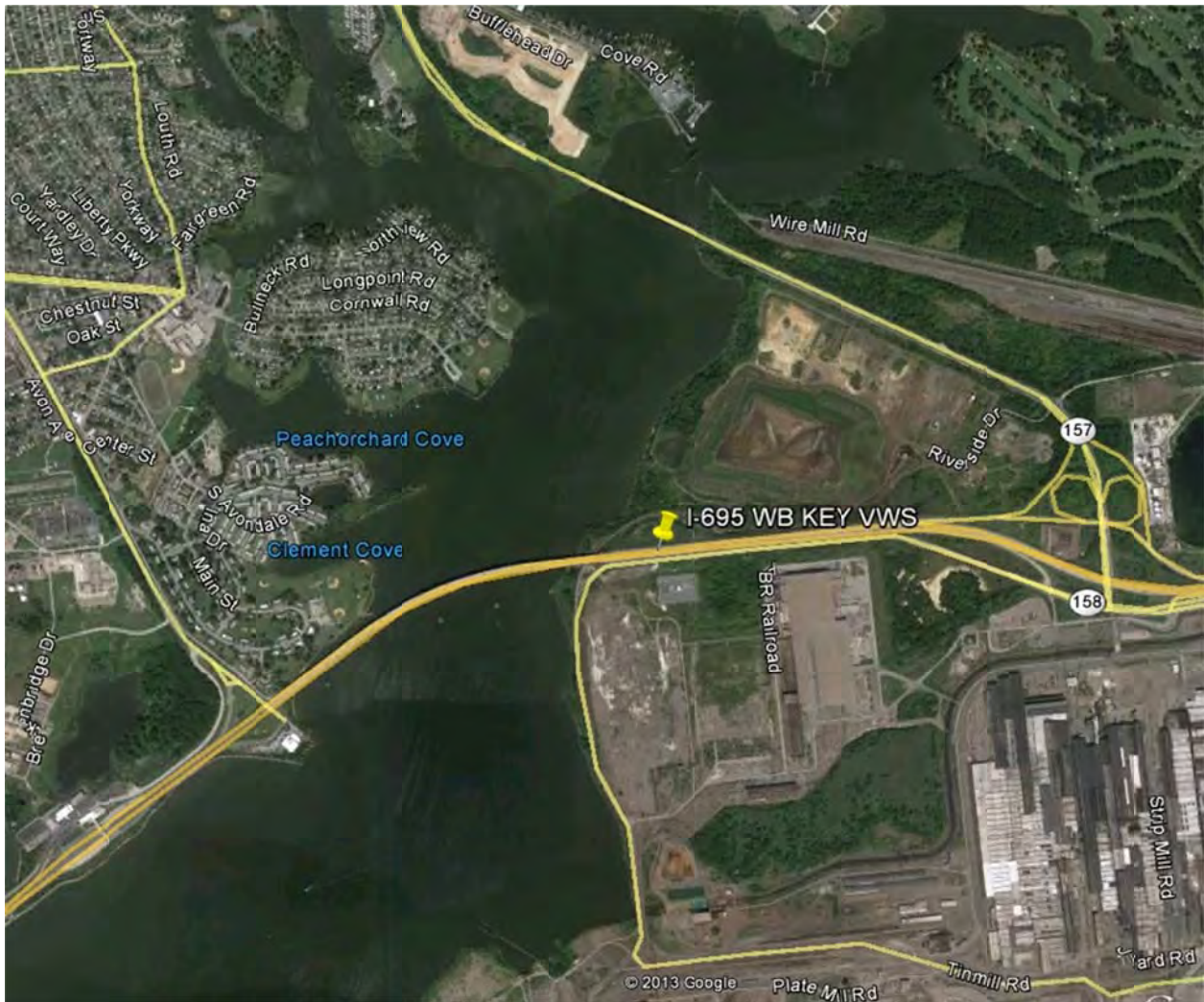




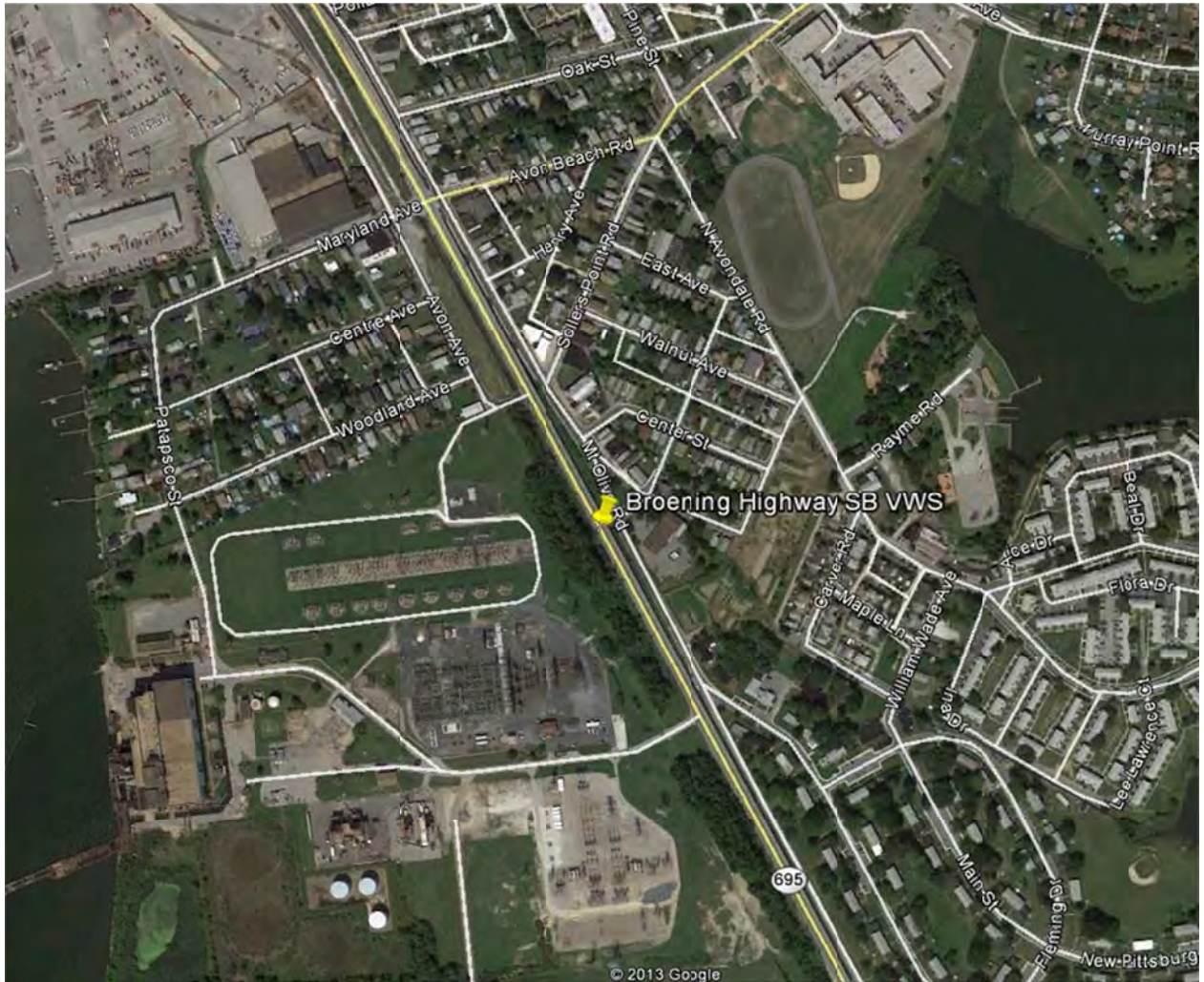
8. EB I-695 at the Francis Scott Key Bridge (double scale in both EB lanes) – Baltimore City,  
39°12'28.22"N, 76°32'37.60"W



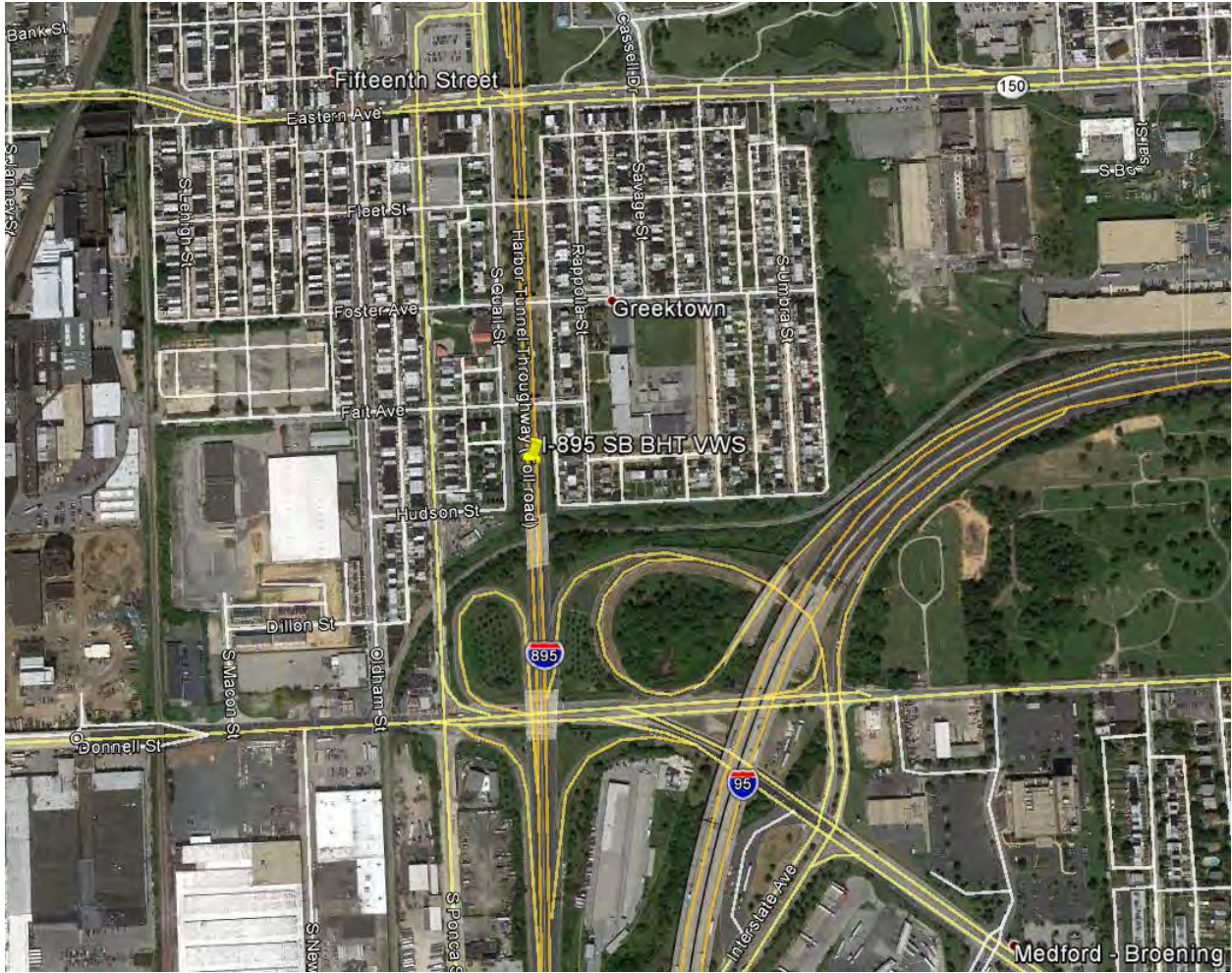
9. WB I-695 at the Francis Scott Key Bridge (double scale in both WB lanes) – Baltimore County, 39°14'16.60"N, 76°29'24.35"W, Mile Point 11.08 (approx.)



10. SB Broening Highway (single scale in SB lane) – Baltimore County, 39°14'24.10"N,  
76°30'39.59"W, Mile Point 1.49



7. SB I-895 at the Baltimore Harbor Tunnel (double scale in both SB lanes) – Baltimore City, 39°17'0.32"N, 76°33'12.68"W



## Appendix 4

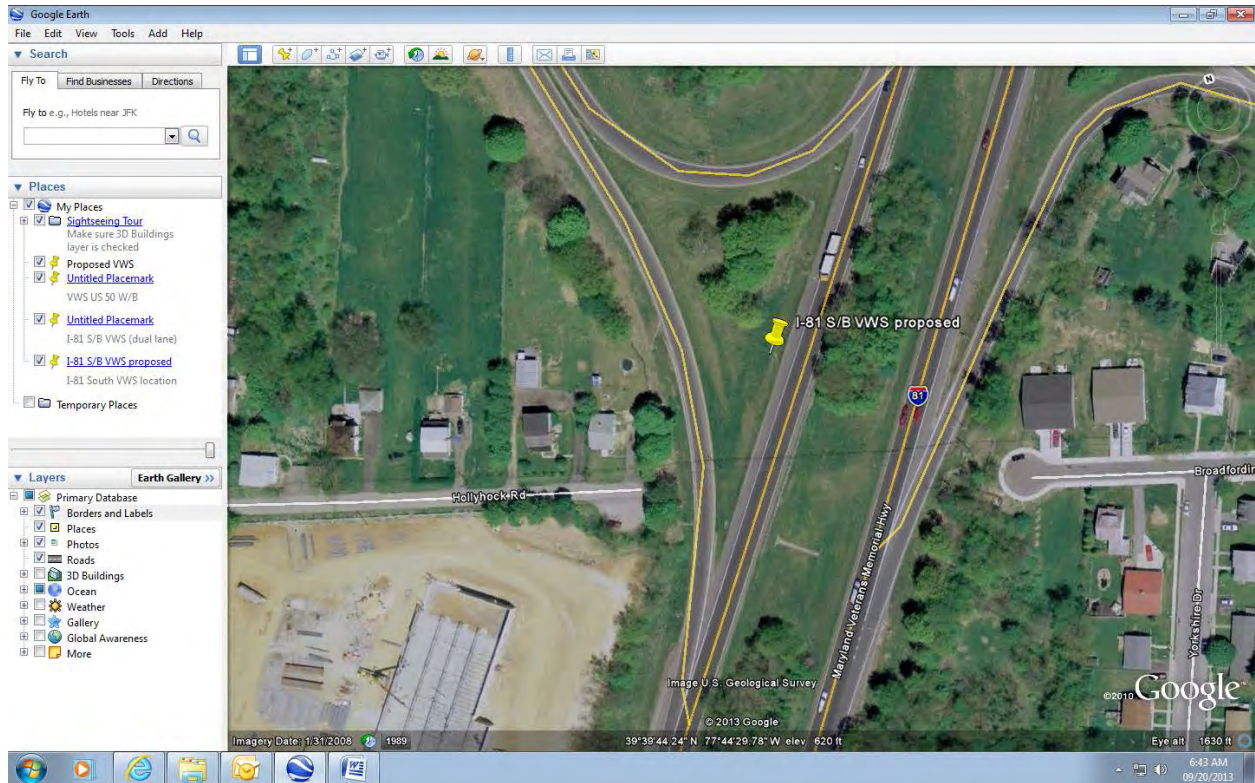
Virtual Weigh Station (VWS) Phase II

CATS + TORFP #J02B4400004

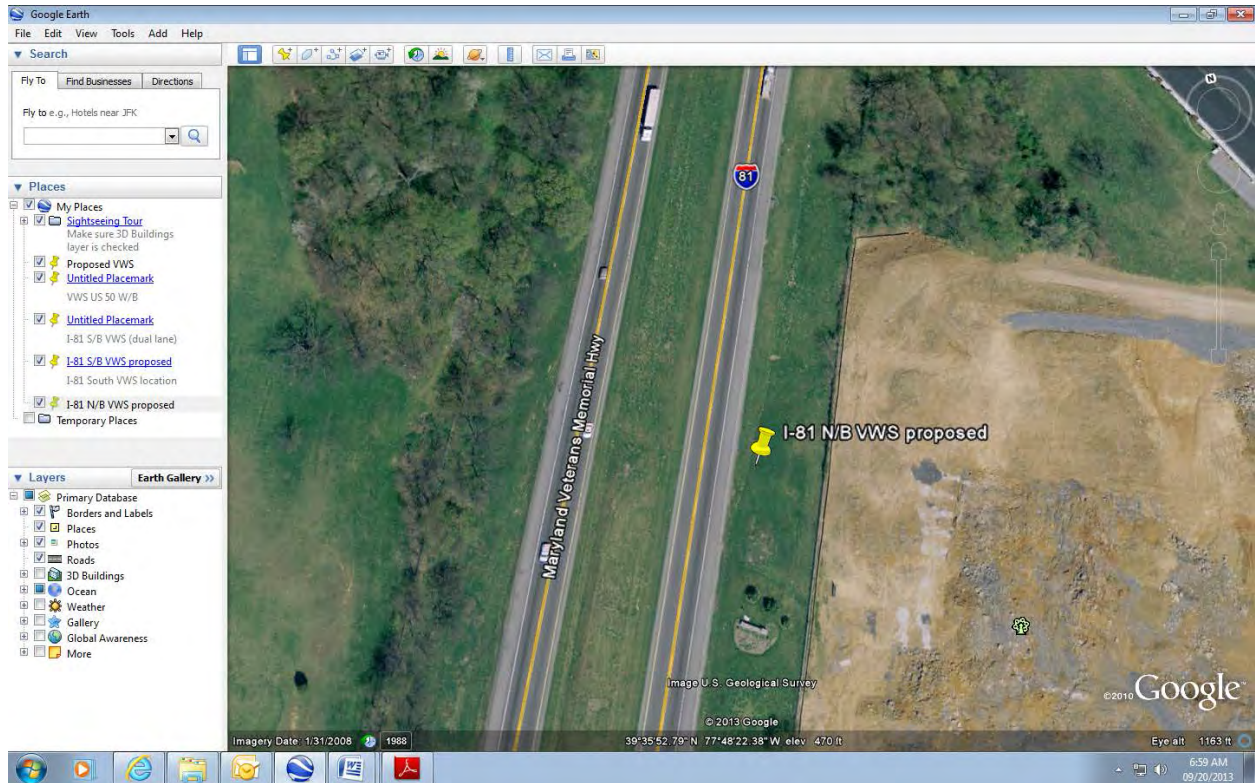
# Maryland State Highway Administration

## Proposed Virtual Weigh Scale Locations

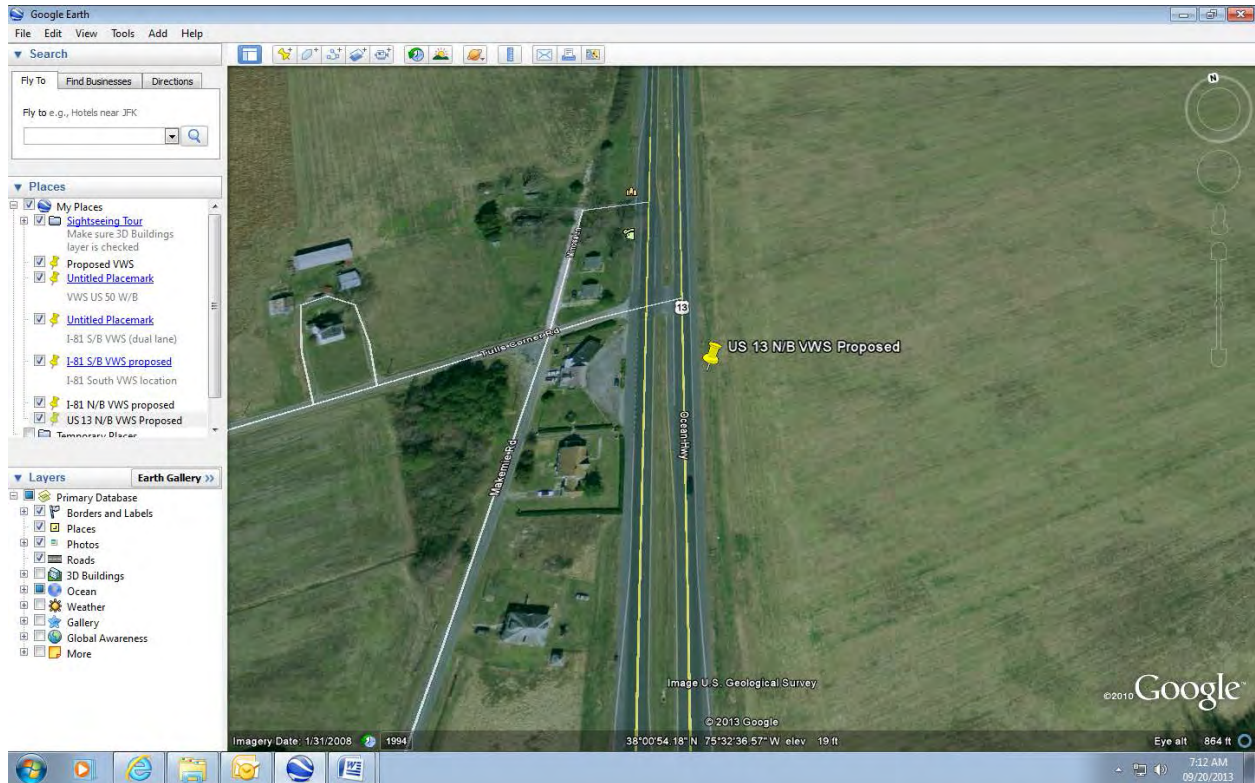
1. Proposed I-81 South Location – 39 degrees 39' 44.23N, 77 degrees 44'29.80W South of MD58 (Salem Ave)



- Proposed I-81 North location – 39 degrees 35'52.93N, 77 degrees 48' 24.32W (50 ft North of Veteran's Memorial Highway plaque/structure)



- Proposed US 13 North location – 38 degrees 00' 54.23"N, 75 degrees 32' 36.55"W (just north of existing new SHA ATR #37 behind existing new guardrail)





## Appendix 5

### Virtual Weigh Station (VWS) Phase II

CATS + TORFP# J02B4400004

#### Existing VWS sites for maintenance and system preservation

1. S/B MD Route 32, 200 ft east of Triadelphia Road overpass - SHA - single lane site
2. S/B MD Route 213, Mile point 17.3, near Georgetown Cemetary Road – SHA - single lane site
3. N/B US Route 301, 1 mile south of MD Route 227 – SHA - single lane site
4. I-83 North near exit 31, Middletown Road – SHA - dual lane site
5. E/B US 50 at Bay Bridge near exit 31, Whitehall Road – SHA - dual lane site (currently under construction)
6. N/B I-95, Caton Avenue exit ramp, prior to ramp weigh station signs – MDTA - single lane site
7. W/B US Rte 50 at Bay Bridge, prior to bridge crossing – MDTA - dual lane site

Note: Exact locations will be furnished upon request during or after pre-proposal conference.

Appendix 6 - Sample Submission Plans

Virtual Weigh Station (VWS) Phase II

CATS + TORFP # J02B4400004

SAMPLE ONLY



INDEX OF SHEETS  
SEE SHEET 2

# Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION PLANS OF PROPOSED HIGHWAY S.H.A. CONTRACT NO. CATS 11 TORFP#J02B040076 OF MASTER CONTRACT #060B9800035 FEDERAL AID PROJECT NO. SHA VIRTUAL STATION (VWS) PROJECT

### AASHTO DESIGN CRITERIA

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE 2001 PUBLICATION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."

### STANDARD SPECIFICATIONS BOOK, BOOK OF STANDARDS AND MUTCD

ALL WORK ON THIS PROJECT SHALL CONFORM TO: THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATIONS SPECIFICATIONS ENTITLED STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2008 REVISIONS THEREOF OR ADDITIONS THERETO; THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATIONS BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES AND THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

### RIGHT OF WAY

RIGHT OF WAY AND EASEMENT LINES SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THEY ARE NOT OFFICIAL. FOR OFFICIAL FEE RIGHT OF WAY AND EASEMENT INFORMATION, SEE APPROPRIATE RIGHT OF WAY PLATS.

### UTILITIES

THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE OF THE ACCURACY OF SAID LOCATIONS.

### COMPLETENESS OF DOCUMENTS

THE STATE HIGHWAY ADMINISTRATION SHALL ONLY BE RESPONSIBLE FOR THE COMPLETENESS OF DOCUMENTS OBTAINED DIRECTLY FROM THE STATE HIGHWAY ADMINISTRATION'S CASHIER'S OFFICE. FAILURE TO ATTACH ADDENDA MAY CAUSE THE BID TO BE IRREGULAR.

### ADA COMPLIANCE

THE DESIGN OF THIS PROJECT HAS INCORPORATED FACILITIES FOR THE ELDERLY AND HANDICAPPED IN COMPLIANCE WITH THE STATE AND FEDERAL LEGISLATION

### ENVIRONMENTAL INFORMATION

MDE # ##-XX-###

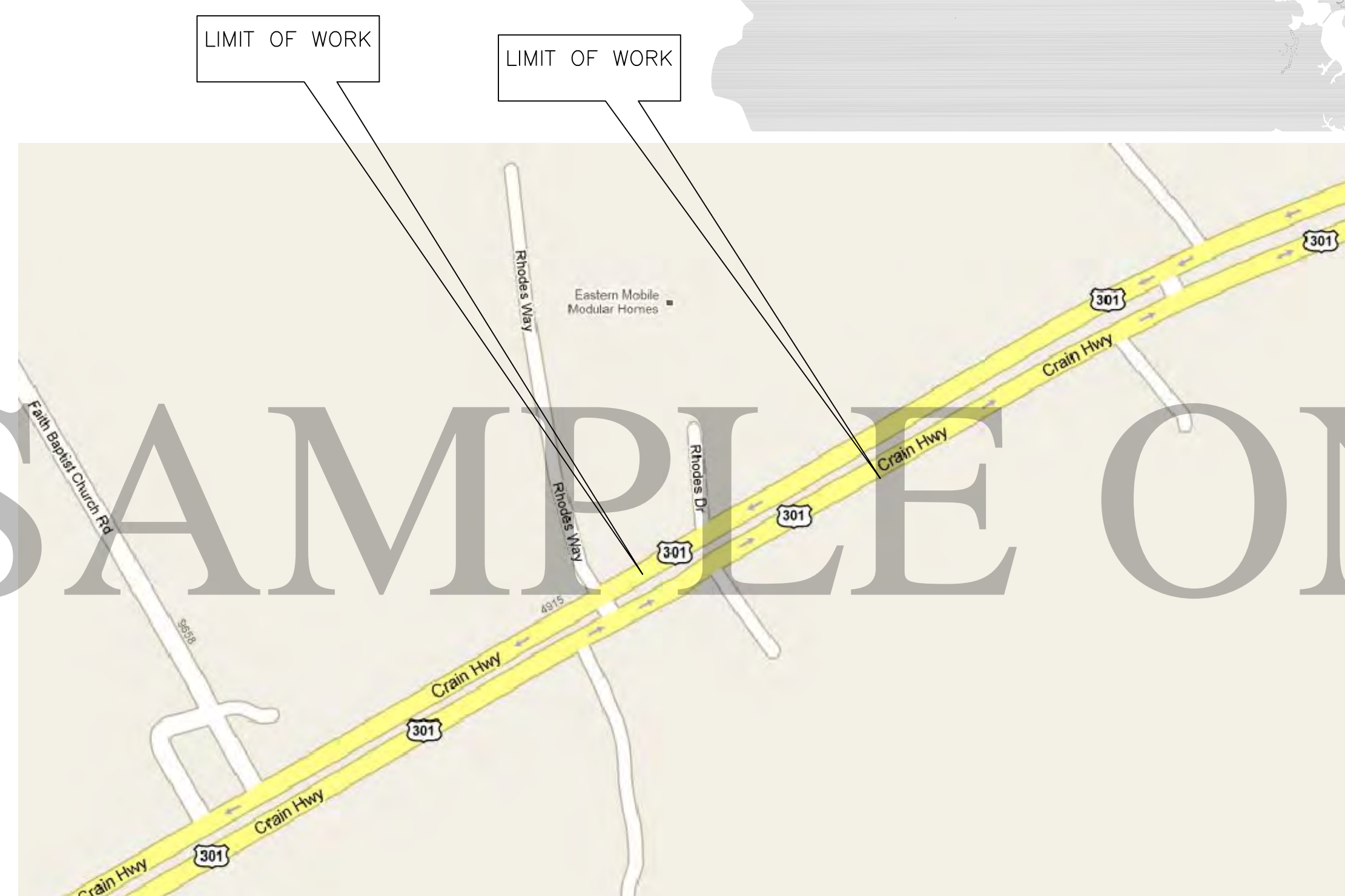
ALL STORMWATER MANAGEMENT FACILITIES CONSTRUCTED FOR CONTRACT NO. X1234567 SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE STATE HIGHWAY ADMINISTRATIONS BEST MANAGEMENT PRACTICES (BMP) INSPECTION AND REMEDIATION PROGRAM. SEDIMENT AND EROSION CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION.

### STANDARD STABILIZATION NOTE :

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN (7) CALENDER DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND FOURTEEN DAYS (14) AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

### OWNERS / DEVELOPERS CERTIFICATION :

I / WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I HEREBY AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE INSPECTORS.



CHARLES COUNTY

LENGTH OF PROJECT:  
US 301 NB = 0.10 miles

# SAMPLE ONLY



SIGNATURE  
PROFESSIONAL CERTIFICATION  
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. 34236  
EXPIRATION DATE: 05/25/2013

DESIGN DESIGNATION	
ROADWAY	US 301 NB
CONTROLS / YEARS	
AVERAGE DAILY TRAFFIC (A.D.T.)	
DESIGN HOURLY VOLUME (D.H.V.)	
DIRECTIONAL DISTRIBUTION	
% TRUCKS - A.D.T.	
% TRUCKS - D.H.V.	
DESIGN SPEED M. P. H.	
FUNCTIONAL CLASSIFICATION	
CONTROL OF ACCESS	
INTENSITY OF DEVELOPMENT	
TERRAIN	
ANTICIPATED POSTED SPEED	

REVISIONS	
NOTE: See Sheet No. 2 for List of Revised Sheet Numbers	

R-O-W PLAT NUMBERS	SURVEY BOOK NUMBERS

## AS BUILT 02/06/12

REVIEWED AND APPROVAL RECOMMENDED DATE

CHIEF, MOTOR CARRIER DIVISION

APPROVAL RECOMMENDED DATE

DIRECTOR, OFFICE OF TRAFFIC AND SAFETY

APPROVED DATE

DEPUTY ADMINISTRATOR / CHIEF ENGINEER FOR PLANNING, ENGINEERING, REAL ESTATE AND ENVIRONMENT

STRUCTURAL CONSULTANTS  
11725 Cloverland Court, Suite C,  
Baton Rouge, La. 70809

## DRAWING INDEX

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DRAWING INDEX	SHEET 2
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MDSHA STANDARDS	SHEET 5
PLAN	SHEET 6
LOOP AND SENSOR LAYOUT	SHEET 7
CAMERA POLE AND FOUNDATION DETAILS	SHEET 8
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CONTROL BOX SCHEMATIC	SHEET 14
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# SAMPLE ONLY

### CABINET DRAWINGS

WIM ENCLOSURE DETAIL	SHEET 18
WIM PEDESTAL MOUNTING DETAIL	SHEET 19

### DETAILS

OVER HEIGHT DETECTOR DETAIL	SHEET 20
CAMERA , IR LIGHT & PAN TILT MOTOR	SHEET 21

**AS BUILT**  
02/06/12

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION  
SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

**STRUCTURAL  
CONSULTANTS**

11725 Cloverland Court, Suite C,  
Baton Rouge, La. 70809

APPROVALS	REVISIONS	DRAWING INDEX	
TEAM LEADER _____		SCALE NONE	DATE 07/22/11
ASST. DIV. CHIEF _____		DESIGNED BY JSC	COUNTY CHARLES
DIVISION CHIEF _____		DRAWN BY JSC	LOGMILE _____
OFFICE DIRECTOR _____		CHECKED BY WC	TMS NO. _____
		F.A.P. NO. _____	TOD NO. _____
		DRAWING NUMBER: BAMD-VWS-001	
		SHEET NO. 2 OF 21	

# GENERAL CONSTRUCTION NOTES:

INSTALLATION AND CONSTRUCTION SHALL CONFORM TO THE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS SECTIONS APPLICABLE, STANDARD PLANS DATED AND EFFECTIVE FOR THE CURRENT YEAR, AND ANY SPECIAL MUNICIPALITY CODE PROVISIONS.

1. THE LOCATION OF ALL AERIAL AND UNDERGROUND UTILITY FACILITIES ARE NOT SHOWN ON THESE PLANS. UNDERGROUND UTILITIES WHETHER SHOWN OR NOT WILL BE LOCATED AND FLAGGED BY THE UTILITIES UPON REQUEST OF THE CONTRACTOR. NO EXCAVATION WILL BE PERMITTED IN THE AREA OF UNDERGROUND UTILITIES UNTIL ALL SUCH FACILITIES HAVE BEEN LOCATED AND IDENTIFIED TO THE SATISFACTION OF ALL PARTIES. THE EXCAVATION MUST BE PERFORMED WITH EXTREME CARE IN ORDER TO AVOID ANY POSSIBILITY OF DAMAGE TO THE UTILITY FACILITY.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND UTILITIES ENCOUNTERED IN AREAS WHERE EXCAVATIONS ARE INDICATED AND SHALL REPAIR ANY SUCH DAMAGE AT OWN EXPENSE. WHERE UTILITY LINES MUST BE MAINTAINED UNDER STRUCTURE, THEY SHALL BE PROPERLY SLEEVED THROUGH FOUNDATION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OR REPAIR OF ANY DAMAGE CAUSED BY THEM OR THEIR SUBCONTRACTORS.
4. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND NOTIFY ALL UTILITIES AND THE SHA/MD AT LEAST 72 HOURS IN ADVANCE OF CONSTRUCTION.
5. THE CONTRACTOR SHALL NOTIFY SHA AS REQUIRED IN ATTACHMENT 14 SECTION 104 TO COORDINATE TRAFFIC CONTROL REQUIREMENTS.
6. THE CONTRACTOR IS REQUIRED TO SUBMIT A WEEKLY SCHEDULE PRIOR TO START OF WORK EACH WEEK. (NO EXCEPTIONS)
7. POLE MOUNTED DETECTOR AND EQUIPMENT LOCATIONS SHALL BE AS DEPICTED ON SITE PLAN. THE CONTRACTOR SHALL VERIFY EQUIPMENT FIELD LOCATIONS WITH THE ACS FIELD ENGINEER PRIOR TO INSTALLATION.
8. THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL CONDUCTORS NECESSARY FOR THE INTENDED OPERATION AS NOTED ON THESE PLANS, NEC AND ALL APPLICABLE SHA CODES.
9. PROVIDE ANCHOR BOLT NUT COVERS IF REQUIRED DUE TO EXTERIOR INSTALLATION.
10. ALL PULLBOXES AND COVERS SHALL BE PER SHA STANDARDS MD 811.01, MD 811.02 AND MD 811.03. ALL CONTROL CABINET FOUNDATIONS SHALL BE INSTALLED PER MD 806.01 NEMA SIZE 5 BASE MOUNTED CABINET.
11. ALL CONCRETE FORMS ARE TO BE INSPECTED BY SHA ENGINEER AND/OR REPRESENTATIVE BEFORE CONCRETE IS PLACED.
12. ALL SUBCONTRACTORS TO PROVIDE LIABILITY INSURANCE AND WORKERS COMPENSATION BENEFITS IN ACCORDANCE WITH STATE LAW FOR ALL WORKERS AND AGENTS WHO WILL BE ON THE SITE AT ANY TIME WHILE PERFORMING WORK ON THIS PROJECT. ALL WORK SHALL BE IN ACCORDANCE WITH NEC, ALL LOCAL, STATE AND FEDERAL CODES, ORDINANCES AND ANY APPLICABLE AMENDMENTS.

13. ALL DEBRIS, EXCESS MATERIAL, ETC. IS TO BE REMOVED BY THE CONTRACTOR BY THE END OF THE JOB. JOB TO BE LEFT SUFFICIENTLY CLEAN AS TO WARRANT SHA APPROVAL.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, FEES AND INSPECTIONS AS MAY BE REQUIRED FOR COMPLETION OF THE JOB AS PER ALL GOVERNING AGENCIES.
15. THE CONTRACTOR TO PROVIDE COST ESTIMATE FOR ALL WORK SHOWN ON DRAWINGS AND WORK NORMALLY REQUIRED TO CARRY OUT THE DESIGN INTENT OF THESE DRAWINGS.
16. DRAWINGS MAY NOT BE TO SCALED. WORK SHALL BE GOVERNED BY DIMENSION ONLY. DISCREPANCIES BETWEEN THE DRAWINGS AND/OR THE EXISTING SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF ACS IMMEDIATELY.
17. EQUIPMENT SHALL NOT BE INSTALLED ON MEDIANS LESS THAN FIVE FEET (5') IN WIDTH.
18. RELATED EQUIPMENT SHALL NOT BE INSTALLED WITHIN FIVE FEET (5') OF FIRE HYDRANT.
19. RELATED EQUIPMENT SHALL NOT BE INSTALLED WITHIN FOUR FEET (4') OF ADA RAMPS.
20. CONTRACTOR SHALL SUPPLY AS-BUILT DRAWINGS TO ACS ENGINEERING DEPARTMENT WITHIN THIRTY (30) DAYS OF CONSTRUCTION COMPLETION. THESE AS BUILT DRAWINGS SHALL BE COMPREHENSIVE AND SHALL PROVIDE THE ACTUAL LOCATIONS OF ALL EQUIPMENT AND PULLBOXES BY DIMENSION OR COORDINATE. THESE DRAWINGS SHALL BE PRESENTED IN A LEGIBLE FORMAT.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE RESPECTIVE OWNERS AND OTHER AGENCIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.  
CONTACT:  
\* GAS COMPANY  
\* WATER DISTRICT  
\* PHONE COMPANY  
\* CABLE COMPANY  
\* LOCAL AND/OR STATE EXCAVATION AUTHORITY
22. ALL SURFACE MATERIALS THAT ARE DISTURBED BY EXCAVATION AND BACK FILL OPERATIONS SHALL BE REPLACED AND RESTORED IN KIND EQUAL TO OR EXCEEDING THE ORIGINAL CONDITION, INCLUDING SODDING AND SEEDING PER ATTACHMENT 14 SECTION 308.
23. ALL CONNECTIONS IN PULL BOXES WILL BE MADE USING SUBMERSIBLE SECONDARY CONNECTORS MEETING ANSI C119.1.
24. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.
25. ALL BURIED CONDUIT SHALL BE A MINIMUM OF 36" BELOW GRADE. LOCATION OF TRENCHING SHALL NOT REQUIRE EXTENSIVE REMOVAL AND/OR ALTERATION OF TREES OR OTHER NATURAL FEATURES VISIBLE FROM THE HIGHWAY. AFTER FILL, LANDSCAPING SHALL BE RESTORED TO ITS PRIOR CONDITION.
26. ALL WORK SHALL COMPLY WITH THE SHA STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION AND THE MARYLAND MANUAL OF UNIFORM TRAFFIC CONTROL LATEST EDITION.
27. CONTRACTOR SHALL CONFORM TO THE REGULATIONS OF THE EPA, MDE, AND THE SHA.
28. ALL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL OF THE STATE OF MARYLAND.
29. CONTRACTOR SHALL NOT STORE MATERIAL, EXCESS DIRT, OR EQUIPMENT ON THE SHOULDERS, PAVEMENT OR THE MEDIAN STRIP. THE PAVEMENT SHALL BE KEPT FREE BY THE CONTRACTOR FROM MUD AND FROM EXCAVATION WASTE FROM TRUCKS OR OTHER EQUIPMENT.
30. ON COMPLETION OF THE WORK, ALL EXCESS MATERIAL SHALL BE REMOVED FROM THE RIGHT-OF-WAY BY CONTRACTOR.
31. IN ACCOMPLISHMENT OF THE WORK BY THE CONTRACTOR, NO DRAINAGE STRUCTURES OR CHANNELS WILL BE ALTERED.
32. ALL CONDUITS BELOW GRADE SHALL BE SCHEDULE 80 PVC AND ALL CONDUIT ABOVE GRADE SHALL BE GALVANIZED RIGID STEEL UNLESS OTHERWISE NOTED.

SAMPLE ONLY

**AS BUILT**  
02/06/12

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION  
SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

**STRUCTURAL CONSULTANTS**  
11725 Cloverland Court, Suite C,  
Baton Rouge, La. 70809

REVISIONS	GENERAL NOTES	
	SCALE NONE	DATE 07/22/11 CONTRACT NO. CATS II TORFF#022040076
	DESIGNED BY JSC	COUNTY CHARLES
	DRAWN BY JSC	LOGMILE
	CHECKED BY WC	TIMS NO.
	F.A.P. NO.	TOD NO.
	DRAWING NUMBER: BAMD-VWS-001	
	SHEET NO. 3 OF 21	

# GENERAL CONSTRUCTION NOTES CONT.:

33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY ROADWAY OR BRIDGE ELEMENTS THAT MAY OCCUR DURING THE CONSTRUCTION OF THIS PROJECT DUE TO HIS OPERATIONS. ANY COST OF SUCH REPAIRS SHALL BE BORNE BY THE CONTRACTOR.
34. ELECTRICAL AND COMMUNICATION PULL BOXES ARE TO BE INSTALLED AT APPROXIMATE LOCATIONS AS SHOWN ON THE PLAN SHEETS AND PER MARYLAND DEPARTMENT OF TRANSPORTATION STANDARDS
35. UNDER DRAIN OUTLETS MAY HAVE BEEN PLACED ALONG THE ROADWAY. THE CONDUIT AND CONDUCTORS REQUIRED BETWEEN PULLBOXES AND EQUIPMENT MUST BE PLACED TO AVOID DAMAGE TO THE OUTLETS.
36. ANY HOLES EXCAVATED FOR POLE FOUNDATIONS SHALL BE COVERED IF LEFT OVERNIGHT. THE COVERING SHALL BE SUFFICIENTLY SECURE TO AVOID UNINTENTIONAL DISPLACEMENT BY PERSONS, WIND OR VEHICLES
37. PLACE MATERIAL EXCAVATED FROM FOUNDATION AROUND THE SIDES OF THE FOUNDATION WHERE NECESSARY TO PROVIDE CONTINUITY WITH THE ORIGINAL SLOPE. THIS EXCAVATED MATERIAL SHALL BE COVERED
38. THE CONTRACTOR SHALL PROVIDE ONE SET OF AS-BUILT DRAWINGS (FULL SIZE) SHOWING CONDUIT ROUTING,
39. THE CONTRACTOR SHALL SECURE AND PROVIDE MATERIAL CERTIFICATION DOCUMENTATION FOR ALL MATERIAL PROCURED AND SHALL SUBMIT TO MDSHA FOR APPROVAL PRIOR TO CONSTRUCTION COMMENCING.
40. THE CONTRACTOR SHALL VERIFY RIGHT OF WAY LINES SHOWN ON THESE DRAWINGS PRIOR TO CONSTRUCTION. ALL EQUIPMENT, CONDUIT, ETC. SHALL BE INSTALLED WITHIN THE EXISTING RIGHT OF WAY.
41. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL CERTIFICATION PLAN TO THE SHA. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL REQUIRED TO SAFELY CONTROL TRAFFIC DURING CONSTRUCTION.
42. CONTRACTOR SHALL ADHERE TO THE HIGH VISIBILITY SAFETY APPROVAL POLICY OF THE SHA.
43. THE CONTRACTOR SHALL FAX A COPY OF THE LANE CLOSURE PERMIT TO THE APPROPRIATE ASSISTANT DISTRICT ENGINEER-TRAFFIC/MARYLAND TRANSPORTATION AUTHORITY TRAFFIC MANAGER. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY WORK ZONE PERMITS AND CLEARANCES FROM THE APPROPRIATE DISTRICT/AUTHORITY OFFICES.
44. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH MANAGEMENT OF TRAFFIC STANDARDS MD104.00 THRU MD 104.06-24. NO WORK IS TO BEGIN UNTIL ALL TRAFFIC CONTROL DEVICES ARE IN PLACE AND OPERATIONAL. ALL EQUIPMENT AND TRAFFIC CONTROL DEVICES ARE TO BE REMOVED FROM THE ROADWAY AND FULL TRAFFIC CAPACITY RESTORED DURING NON WORKING PERIODS.
45. CONTRACTOR SHALL INSTALL AND UTILIZE EROSION AND SEDIMENT CONTROL MEASURES SUCH AS, BUT NOT LIMITED TO, SILT FENCE, INLET PROTECTION, STONE OUTLET STRUCTURES AND DEWATERING DEVICES.
46. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY POWER AND WATER DURING CONSTRUCTION.
47. THE CONTRACTOR SHALL BE AWARE THAT OVERHEAD HIGH VOLTAGE POWER LINES MAY EXIST AND SHALL MAINTAIN A MINIMUM 10' CLEARANCE WITH ALL EQUIPMENT AND MATERIAL.
48. THE CONTRACTOR SHALL VERIFY THE LOCATION OF MISS UTILITY MARKED UTILITIES WITH A TEST HOLE BEFORE EXCAVATING.
49. THE CONTRACTOR SHALL NOTE THAT UTILITY FACILITIES OWNED BY SHA ARE NOT MARKED BY MISS UTILITY. THE CONTRACTOR SHALL NOTIFY THE SHA 72 HOURS IN ADVANCE AT THE FOLLOWING CONTACT NUMBERS TO REQUEST UTILITY MARKING:

SHA FIBER OPTIC AND COMMUNICATIONS CABLES: STATE WIDE OPERATIONS CENTER AT (800)-543-2515

INTELLIGENT TRANSPORTATION SYSTEM: SHA DDM COMMUNICATIONS AT (410)-747-8570 AND ITS OPERATIONS AT (410) 787-7662

SHA OWNED STREET LIGHTING: DISTRICT OFFICES; DISTRICT 5 (410) 841-5450

SHA OWNED TRAFFIC SIGNAL FACILITIES: HANDOVER COMPLEX SIGNAL SHOP AT (410) 787-7652

50. NO MATERIAL OF ANY KIND MAY BE STAGED ON OR NEAR ANY BRIDGE STRUCTURE.

51. THE CONTRACTOR IS NOT PERMITTED TO WORK ON SATURDAYS OR SUNDAYS. WORK IS NOT PERMITTED ON HOLIDAYS OR WORK DAY PRECEDING OR FOLLOWING A HOLIDAY. NO LANE CLOSURES ARE ALLOWED TWO DAYS BEFORE AND TWO DAYS AFTER THE THANKSGIVING AND CHRISTMAS HOLIDAYS.

52. ALL WORK IN DISTRICT 5 REQUIRES THAT CONTACT SHALL BE MADE WITH DISTRICT 5 TRAFFIC AND CONSTRUCTION OFFICES TO ENSURE THAT NO CONFLICTING SPECIAL EVENTS OR CONSTRUCTION ACTIVITY.

53. CONTRACTOR SHALL REFERENCE CATS II TORFP# J02B9200076 ATTACHMENT 14 INCLUDED WITH THIS DRAWING PACKAGE FOR ADDITIONAL MDSHA INFORMATION REGARDING CONSTRUCTION OF THESE VWS SITES.

## SPECIFIC CONSTRUCTION NOTES:

1. THE SUBCONTRACTOR SHALL INSTALL ALL SUBSTRUCTURES ACCORDING TO LOCAL GOVERNING AGENCY FROST LINE REQUIREMENTS WHERE APPLICABLE.

2. THE SUBCONTRACTOR SHALL MODIFY ALL SIDEWALKS WHERE NECESSARY, IN COMPLIANCE WITH THE ADA STANDARDS, TO ALLOW ACCESS FOR HANDICAP PEDESTRIAN PASSAGE.

3. THE SUBCONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS REQUIRED BY THE SHA PER ATTACHMENT 14 SECTION 104. THIS TRAFFIC CONTROL SHALL PROVIDE A SAFE WORKING ENVIRONMENT FOR ALL WORKERS AND SHALL EXCLUDE ALL PEDESTRIAN TRAFFIC FROM THE PROJECT.

4. CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD PRIOR TO DEVIATING FROM DESIGNS SHOWN IN THESE DOCUMENTS. DEVIATIONS SHALL BE PRESENTED IN WRITING FOR THE OR APPROVAL PRIOR TO START OF CONSTRUCTION.

SAMPLE ONLY

LEGEND			
○—	POLE WITH MAST ARM	—BE—	BURIED ELECTRICAL
→	DIRECTION OF TRAFFIC	—BC—	BURIED COMMUNICATION
■	PULL BOX	—BT—	BURIED TELEPHONE
□	AVI CABINET	—OP—	OVERHEAD POWER
—OT—	OVERHEAD TELEPHONE	—	SENSOR
		□	INDUCTIVE LOOP

ABBREVIATIONS			
ES	EDGE OF SHOULDER	AVI	AUTOMATED VEHICLE IDENTIFICATION EXISTING
EDL	EDGE OF DRIVING LANE	AWG	AMERICAN WIRE GAUGE
ROW	RIGHT OF WAY	G	GROUND CONDUCTOR
ICN	IN CAB NOTIFICATION	NEC	NATIONAL ELECTRICAL CODE
BE	BURIED ELECTRICAL	GRC	GALVANIZED RIGID STEEL CONDUIT
BC	BURIED COMMUNICATION	BORE	BEGINNING OF RAMP ENTRANCE
MDdot	MARYLAND DEPARTMENT OF TRANSPORTATION		
GORE	GORE POINT - WHERE WHITE (EDL) LINE MEETS EXIT RAMP LINE		

**AS BUILT**  
02/06/12

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION

**STRUCTURAL CONSULTANTS**  
11725 Cloverland Court, Suite C,  
Baton Rouge, La. 70809

REVISIONS	GENERAL NOTES, LEGEND, AND ABBREVIATIONS	
	SCALE: NONE	DATE: 07/22/11
	DESIGNED BY: JSC	COUNTY: _____
	DRAWN BY: JSC	LOGMILE: _____
	CHECKED BY: WC	TMS NO.: _____
	F.A.P. NO.: _____	TOD NO.: _____
	DRAWING NUMBER: BAMD-VWS-001	SHEET NO. 4 OF 21

**SHA STANDARDS**

**SHA STANDARDS CONT.:**

**TRAFFIC CONTROL STANDARDS**

MD 104.00-01	GENERAL NOTES (INTRODUCTION)
MD 104.00-02	GENERAL NOTES (INTRODUCTION & DEFINITIONS)
MD 104.00-03	GENERAL NOTES (DEFINITIONS)
MD 104.00-04	GENERAL NOTES (DEFINITIONS)
MD 104.00-05	GENERAL NOTES (ABBREVIATIONS)
MD 104.00-06	GENERAL NOTES (SIGNS)
MD 104.00-07	GENERAL NOTES (SIGNS)
MD 104.00-08	GENERAL NOTES (SIGNS & PORTABLE VARIABLE MESSAGE SIGNS-PVMS)
MD 104.00-09	GENERAL NOTES (PORTABLE VARIABLE MESSAGE SIGNS-PVMS & ARROW PANELS)
MD 104.00-10	GENERAL NOTES (CHANNELIZING DEVICES)
MD 104.00-11	GENERAL NOTES (PAVEMENT MARKINGS)
MD 104.00-12	GENERAL NOTES (FLAGGING)
MD 104.00-13	GENERAL NOTES (VEHICLES & WORK HOUR RESTRICTIONS)
MD 104.00-14	GENERAL NOTES (TEMPORARY LIGHTING, PAYMENT DROP-OFF & CLEAR ZONES)
MD 104.00-16	GENERAL NOTES (SIGHT DISTANCE & WORK ZONE SPEED LIMITS ALONG 65 & 60 MPH ROADWAYS)
MD 104.00-17	GENERAL NOTES (WORK ZONE SPEED LIMITS ALONG 65 & 60 MPH ROADWAYS & HIGHWAY/RAIL GRADE CROSSINGS)
MD 104.00-18	GENERAL NOTES (TRAFFIC CONTROL PLANS)
MD 104.01-01	ROADWAY TYPES
MD 104.01-02	SIGN SPACING CHART
MD 104.01-03	PROJECT LIMITS SIGNS
MD 104.01-11	GENERAL NOTES TEMPORARY TRAFFIC CONTROL DEVICE SELECTION CHART
MD 104.01-12	REGULATORY, WARNING AND SPECIAL SIGNS
MD 104.01-13	REGULATORY, WARNING AND SPECIAL SIGNS
MD 104.01-14	REGULATORY, WARNING AND SPECIAL SIGNS
MD 104.01-15	REGULATORY, WARNING AND SPECIAL SIGNS
MD 104.01-16	REGULATORY, WARNING AND SPECIAL SIGNS
MD 104.01-17A	ROAD SIGN / SIGN SUPPORT PLACEMENT
MD 104.01-17B	ROAD SIGN / SIGN SUPPORT PLACEMENT
MD 104.01-17C	ROAD SIGN / SIGN SUPPORT PLACEMENT
MD 104.01-17D	ROAD SIGN / SIGN SUPPORT PLACEMENT
MD 104.01-18A	VEHICLE CONSPICUITY AND LIGHTING
MD 104.01-18B	TEMPORARY TRAFFIC CONTROL VEHICLE SELECTION CHART
MD 104.01-21	PROTECTION VEHICLE WITH REAR TRUCK MOUNTED ATTENUATOR
MD 104.01-22	PORTABLE VARIABLE MESSAGE SIGN PLACEMENT ALL ROADWAYS/ALL SPEEDS
MD 104.01-30A	CHANNELIZATION DEVICE USAGE (EQL/LESS THAN 40 MPH OVER 12 HRS. NIGHTTIME USE)
MD 104.01-30B	CHANNELIZATION DEVICE USAGE (EQL/LESS THAN 40 MPH)
MD 104.01-30C	CHANNELIZATION DEVICE USAGE (GREATER THAN 40 MPH)
MD 104.01-30D	CHANNELIZATION DEVICE USAGE CRITERIA TABLE

MD 104.01-80	TAPER LENGTH CRITERIA TABLE
MD 104.01-81	TYPICAL APPLICATION NOTES
MD 104.05-01	SHOULDER WORK/EXP-FREEWAY GREATER THAN 40 MPH
MD 104.05-07	RIGHT LANE CLOSURE/EXP-FREEWAY GREATER THAN 40 MPH
MD 104.05-08	LEFT LANE CLOSURE EXP-FREEWAY GREATER THAN 40 MPH
MD 104.06-01	INSTALLING LANE CLOSURE STEPS - 1 AND 2
MD 104.06-02	INSTALLING LANE CLOSURE STEPS - 3 AND 4
MD 104.06-03	INSTALLING LANE CLOSURE - STEP 5 REMOVING LANE CLOSURE - STEP 6
MD 104.06-04	REMOVING LANE CLOSURE - STEPS 7 AND 8

**LOOP AND SENSOR STANDARDS**

MD810.01	SPLICE FOR LOOP DETECTOR WIRE AND LOOP DETECTOR LEAD IN
MD810.03	LOOP DETECTOR LEAD IN INSTALLATION
MD815.01	LOOP DETECTOR INSTALLATION
STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS	
MD810.03.06	LOOP DETECTOR WIRE AND LOOP DETECTOR LEAD IN
MD815.03.01	SAW CUT
MD815.03.02	SAW CUT SEALING
MD820.03.01	GENERAL CONSTRUCTION

**HANDHOLE (PULLBOX) STANDARDS**

MD811.01	HANDHOLE (MATERIAL DETAIL)
MD811.02	HANDHOLE FRAME AND COVER
MD811.03	HANDHOLE INSTALLATION

**POLE STANDARDS**

MD821.01-01	BREAKAWAY TRANSFORMER BASE FOR 10', 14', & 20' PEDESTAL POLES
MD801.01	SIGNAL STRUCTURE FOUNDATION

SAMPLE ONLY

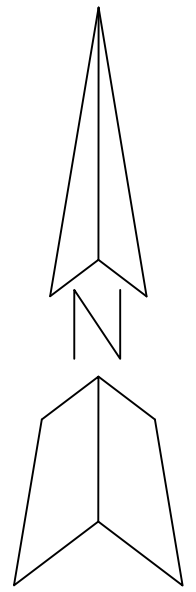
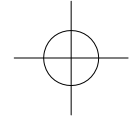
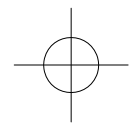
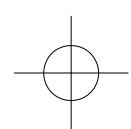
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02/06/12

NOTE:  
LOOP AND SENSORS SHALL BE INSTALLED  
AT NIGHT UNLESS DIRECTED OTHERWISE  
BY MDSHA.

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION  
SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

**STRUCTURAL CONSULTANTS**  
11725 Cloverland Court, Suite C,  
Baton Rouge, La. 70809

REVISIONS	MDSHA STANDARDS
	SCALE NONE DATE 07/22/11 CONTRACT NO. CATS 11 TORP#A02040076
	DESIGNED BY JSC COUNTY CHARLES
	DRAWN BY JSC LOGMILE
	CHECKED BY WC TMS NO.
	F.A.P. NO. TOD NO.
	DRAWING NUMBER: BAMD-VWS-001 SHEET NO. 5 OF 21



CONTRACTOR'S NOTE:  
THE CONDUIT SHOWN SHOULD BE  
INSTALLED BETWEEN THE MIN OF 10'  
FROM THE EDGE OF SHOULDER TO  
A MAX. OF 37' FROM EDGE OF  
SHOULDER.

**CABLE SCHEDULE**

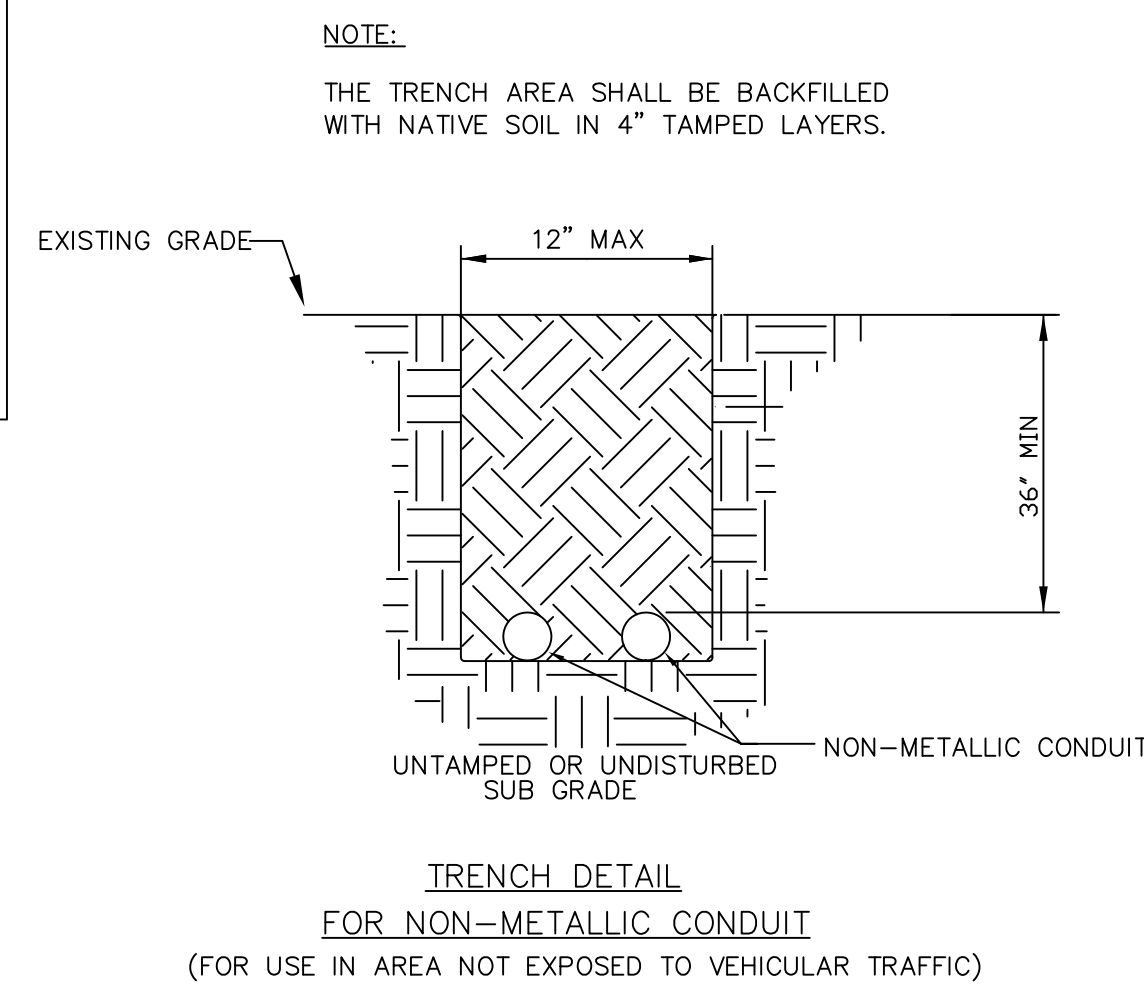
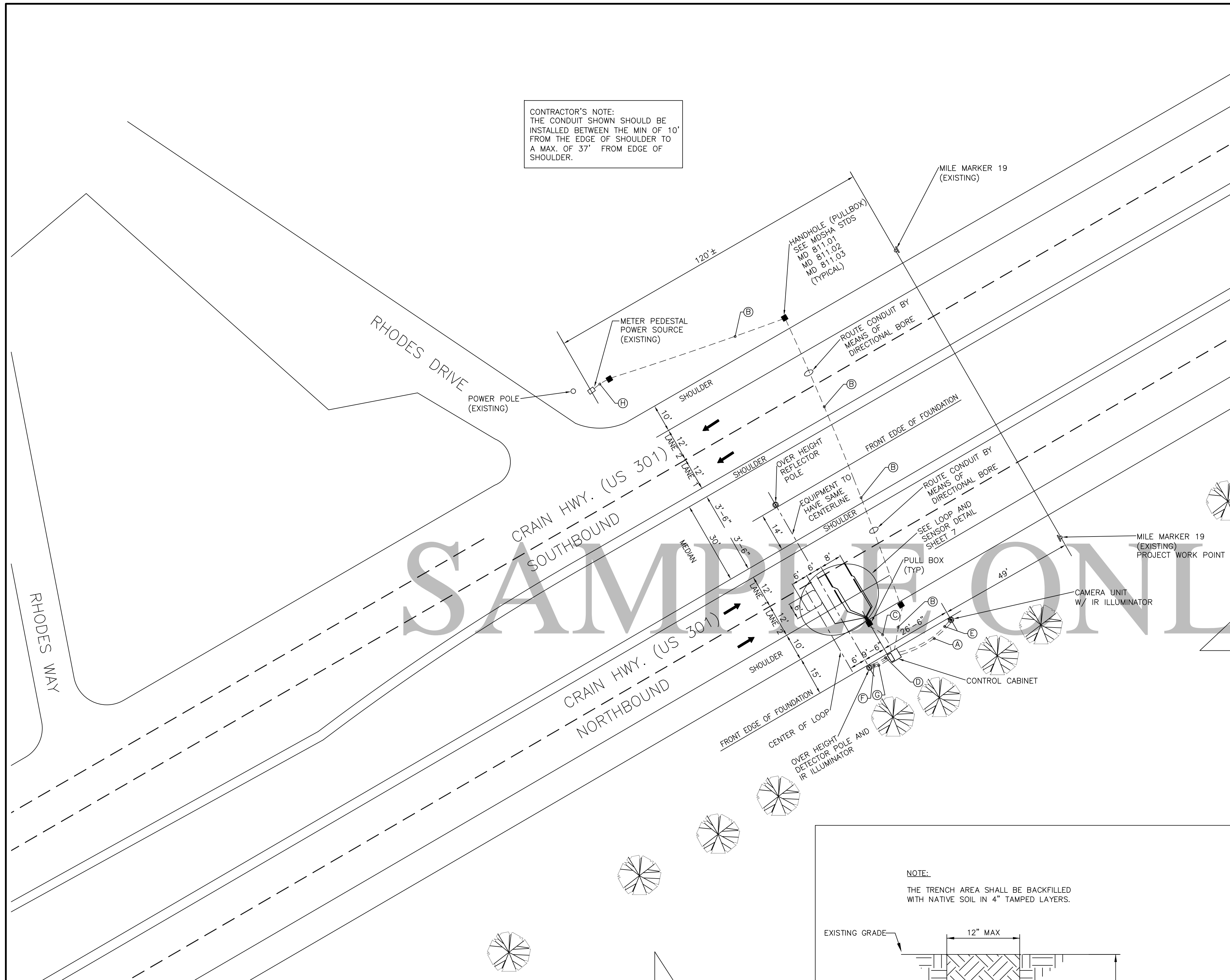
①	#6 AWG WIRE
②	24V AC POWER 2 CONDUCTOR SHIELDED CABLE
③	24V DC POWER 3 CONDUCTOR SHIELDED CABLE
④	CAT 5e SHIELDED (BELDEN 7919A OR EQUIVALENT)
⑤	IMS A 51-5 #14 AWG CABLE TWISTED
⑥	RG59 CABLE
⑦	ANTENNA CABLE
⑧	#6 AWG GROUND WIRE
⑨	#10 AWG (SEE NOTE 21)
⑩	CAT 5e SHIELDED (BELDEN 7919A OR EQUIVALENT) SEE NOTE 21

**CONDUIT SCHEDULE**

①	2" PVC
②	3" PVC

LETTER	CONDUIT SIZE	CONDUIT CONSTRUCTION	TYPE OF SERVICE	EQUIPMENT SERVED	CABLE QUANTITY			
					①	②	③	
A	2"	PVC	POWER	CAMERA UNIT	1	②	③	⑨
B	3"	PVC	POWER	FROM POWER SOURCE	2	①	1	⑧
C	2"	PVC	COMMS	LOOP AND SENSORS	1	⑤	4	⑥
D	2"	PVC	POWER	OVER HEIGHT DETECTION UNIT	1	③		
E	2"	PVC	COMMS	CAMERA UNIT	1	④	1	⑩
F	2"	PVC	COMMS	CELLULAR SERVICE	1	⑦		
G	2"	PVC	POWER	IR ILLUMINATOR	1	②		
H	2"	PVC	POWER	FROM POWER SOURCE	2	①	1	⑧

- NOTES:**
- THE CONTRACTOR SHALL INSTALL ALL SUBSTRUCTURES ACCORDING TO SHA/MD FROST LINE REQUIREMENTS WHERE APPLICABLE.
  - THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO ENSURE THAT WORKERS ARE SAFE FROM UNKNOWN UNDERGROUND POWER UTILITIES.
  - THE CONTRACTOR SHALL EMPLOY TRAFFIC CONTROL MEASURES AS REQUIRED TO PROTECT WORKERS FROM VEHICULAR TRAFFIC.
  - THE CONTRACTOR SHALL VERIFY WITH ACS THAT LEGAL PERMISSION HAS BEEN RECEIVED TO PLACE EQUIPMENT ON ANY PROPERTY NOT LOCATED WITHIN THE RIGHT OF WAY.
  - CONTRACTOR SHALL NOTIFY MISS UTILITY AT (800) 257-7777 AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION. NOTIFY MDSA FOR SIGNAL OR LIGHTING CIRCUIT LOCATION ON STATE ROADWAYS.
  - THE CONTRACTOR SHALL NOT (1) STAGE WORK, (2) STORE MATERIALS OR (3) PERMIT PARKING OF EQUIPMENT AND/OR CONSTRUCTION-RELATED VEHICLES IN THE PUBLIC RIGHTS-OF-WAY OR PUBLICLY-OWNED PROPERTY WITHOUT PRIOR APPROVAL.
  - CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE MARYLAND STATE HIGHWAY ADMINISTRATION (SHA) BOOK OF STANDARDS, LATEST EDITION.
  - IF TEMPORARY PARKING, INGRESS/EGRESS OR PEDESTRIAN RESTRICTIONS SHALL BE REQUIRED DURING PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING SIGNS AND NOTIFYING ALL AFFECTED RESIDENTS/BUSINESSES AT LEAST 1 DAY IN ADVANCE. CONTRACTOR IS RESPONSIBLE FOR CONTACTING APPROPRIATE SHA/MD AUTHORITY BEFORE ANY OF THE ABOVE MODIFICATIONS ARE ENACTED.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING DUST, DEBRIS AND MUD FROM ENTERING ALL ROADWAYS. IF DUST, DIRT, DEBRIS AND/OR MUD HAPPEN TO OVERRIDE THE PREVENTION MEASURES AND ENTER THE ROADWAY OR SIDEWALK CONTRACTOR SHALL BE REQUIRED TO CLEAN THE ROADWAY OR SIDEWALK AS SOON AS POSSIBLE, AT CONTRACTOR EXPENSE.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING SILT AND DEBRIS OUT OF STORM DRAIN SYSTEM DURING CONSTRUCTION AND SHALL CLEAN THE SYSTEM THOROUGHLY, AT THE CONTRACTOR'S EXPENSE, PRIOR TO FINAL ACCEPTANCE BY THE SHA.
  - WHEN WORKING IN THE AREA OF AN EXISTING GAS LINE, THE CONTRACTOR SHALL VERIFY THAT NO LEAKS EXIST PRIOR TO ANY WORK IN THE AREA. A GAS COMPANY REPRESENTATIVE MUST BE PRESENT AT THE PROJECT SITE BEFORE ANY EXCAVATION WITHIN A GAS LINE EASEMENT AREA.
  - CONTRACTOR SHALL ENSURE THAT ALL EQUIPMENT IS SEPARATED FROM MAIN POWER SUPPLY BY MEANS OF A DISCONNECT.
  - PLACE 4" MIN. OF TOPSOIL IN ALL GREEN AREAS BEFORE PERMANENT SEEDING IS PERFORMED.
  - MINIMUM 2% SLOPES MUST BE PROVIDED FOR ADEQUATE DRAINAGE OF GRASSY AREAS.
  - ALL CONTRACTORS MUST COMPLY WITH ALL SHA, STATE AND FEDERAL LABOR AND INDUSTRY REGULATIONS WHICH INCLUDE MDSA, OSHA, ETC.
  - IF ROAD OR ANY PART OF THE ROAD IS TO BE CLOSED, A DETAILED DETOUR AND/OR CLOSURE PLAN SHALL BE SUBMITTED TO THE SHA/MD TRAFFIC ENGINEER FOR APPROVAL.
  - CONTRACTOR IS RESPONSIBLE FOR ALL COST RELATED TO TEMPORARY AND PERMANENT TRAFFIC CONTROL (PAVEMENT MARKINGS, SIGNAGE, SIGNALIZATION, TRAFFIC BARRIERS, FLAGGERS, ETC.)
  - CONTRACTOR SHALL ENSURE A MINIMUM OF 1'-0" VERTICAL CLEARANCE WHERE NEW CONDUIT CROSSES EXISTING UTILITIES.
  - ALL NEW CONDUIT SHALL BE INSTALLED WITH LOCATOR TAPE PER SHA STANDARD SECTION 809.
  - THE DISTANCES OFF OF ROADWAY AND/OR BEHIND GUARDRAIL FOR ALL EQUIPMENT MUST BE STAKED OUT, FIELD VERIFIED, AND APPROVED BY THE ENGINEER OR HIS APPOINTED REPRESENTATIVE.
  - CABLE AND WIRE FOR FUTURE FCU AND LPR EQUIPMENT TO BE MOUNTED TO CAMERA POLE. CONTRACTOR SHALL COIL UP AN ADDITIONAL 7' OF CABLE AND WIRE IN CAMERA BASE FOR THIS EQUIPMENT.



**STRUCTURAL CONSULTANTS**  
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Baton Rouge, La. 70809

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02/06/12

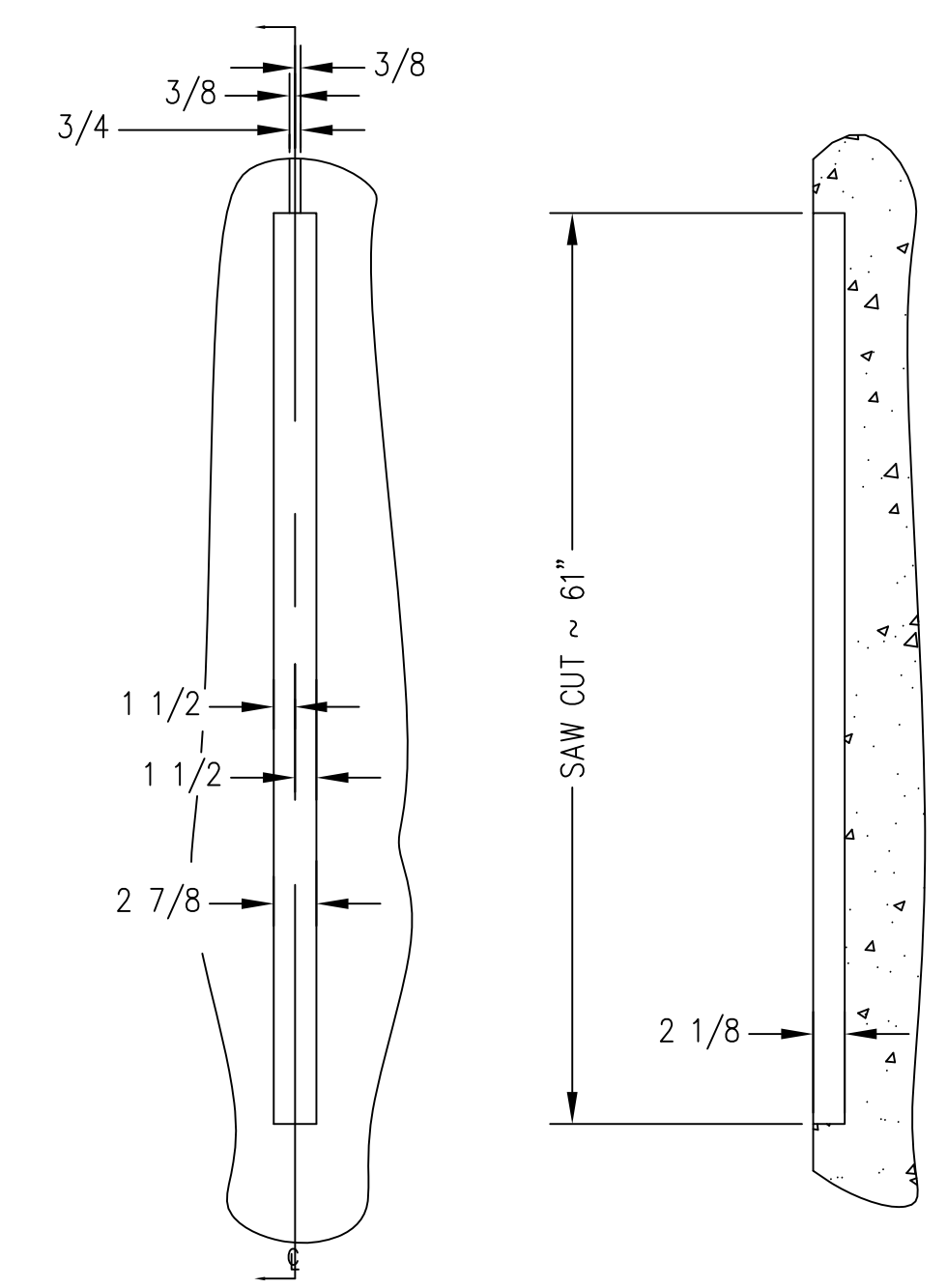
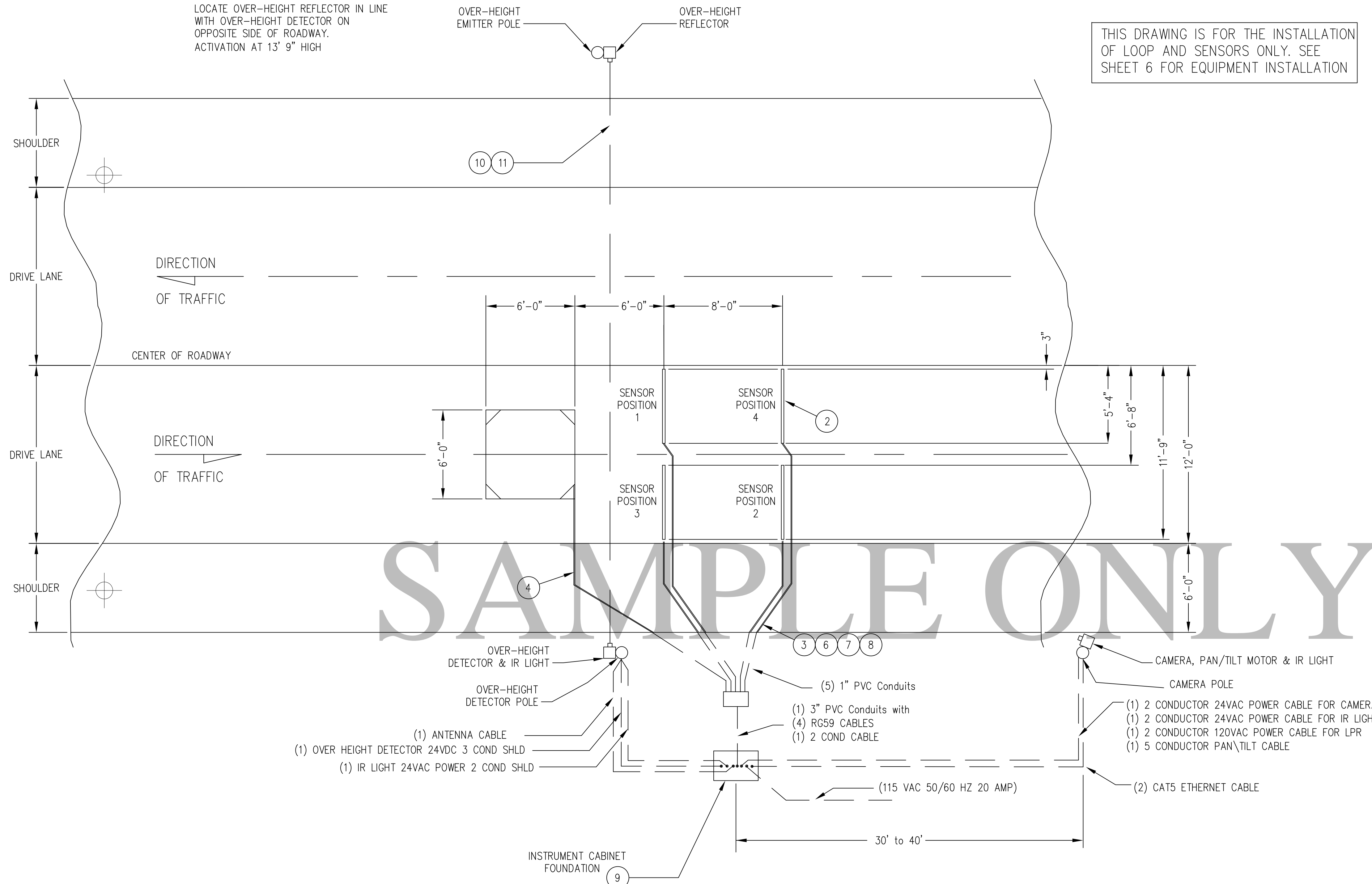
**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION  
SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

REVISIONS	PLAN		
	SCALE NONE	DATE 07/22/11	CONTRACT NO. CATS II TOPP#A02B0400076
	DESIGNED BY JSC	COUNTY CHARLES	
	DRAWN BY JSC	LOGMILE	
	CHECKED BY WC	TIMS NO.	
	F.A.P. NO.	TOD NO.	
DRAWING NUMBER: BAMD-VWS-001		SHEET NO. 6 OF 21	



LOCATE OVER-HEIGHT REFLECTOR IN LINE WITH OVER-HEIGHT DETECTOR ON OPPOSITE SIDE OF ROADWAY. ACTIVATION AT 13' 9" HIGH

THIS DRAWING IS FOR THE INSTALLATION OF LOOP AND SENSORS ONLY. SEE SHEET 6 FOR EQUIPMENT INSTALLATION



WIM SENSOR TRENCH  
TYPICAL 2 PLACES  
SEE NOTE #3

**AS BUILT**  
02/06/12

- NOTES:
- ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD.
  - SEE INSTALLATION INSTRUCTIONS FOR INSTALLING WIM SENSORS.
  - FROM END OF SENSOR SAW CUTS TO PAVEMENT INSERT 1" FLEXIBLE NON-METALLIC CONDUIT INTO 1-1/4" SAWCUT SLOT. SEE INSTRUCTIONS.
  - SAWCUT LOOP WIRE TO PAVEMENT WINDOW BORE. INSTALL IN FLEX CONDUIT TO J-BOX.
  - THE USER SHALL PROVIDE & MAINTAIN THE SURFACE OF THE PAVED ROADWAY 150 FT. IN ADVANCE OF AND BEYOND THE WIM-SYSTEM SENSORS AND SHALL BE MAINTAINED IN A CONDITION SUCH THAT A 6 IN. DIAMETER CIRCULAR PLATE .125 IN THICK CANNOT BE PASSED BENEATH A 20 FT. LONG STRAIGHT EDGE WHEN THE STRAIGHT EDGE IS POSITIONED AND MANEUVERED AS SPECIFIED IN ASTM DESIGNATION: E 1318-92.
  - DISTANCES LISTED ARE FOR REFERENCE ONLY.
  - MAINTAIN AT LEAST 12" SPACING BETWEEN SPACER SLOTS & SENSOR CONDUIT SLOTS.
  - FLEXIBLE CONDUIT, PULL BOX, FOUNDATION, AND IN-GROUND CONDUIT TO BE PROVIDED BY OTHERS.
  - ACTUAL CONDUIT LOCATIONS IN CABINET FOUNDATION MAY VARY FROM ILLUSTRATIONS.
  - OVERHEIGHT DETECTION MUST BE LOCATED BETWEEN CENTER OF LOOP AND DOWNSTREAM WIM SENSOR.
  - WIM SENSORS ARE 40 METERS LONG. NO EXTENSIONS OR SPLICES ARE ALLOWED IN THE SENSOR CABLE.

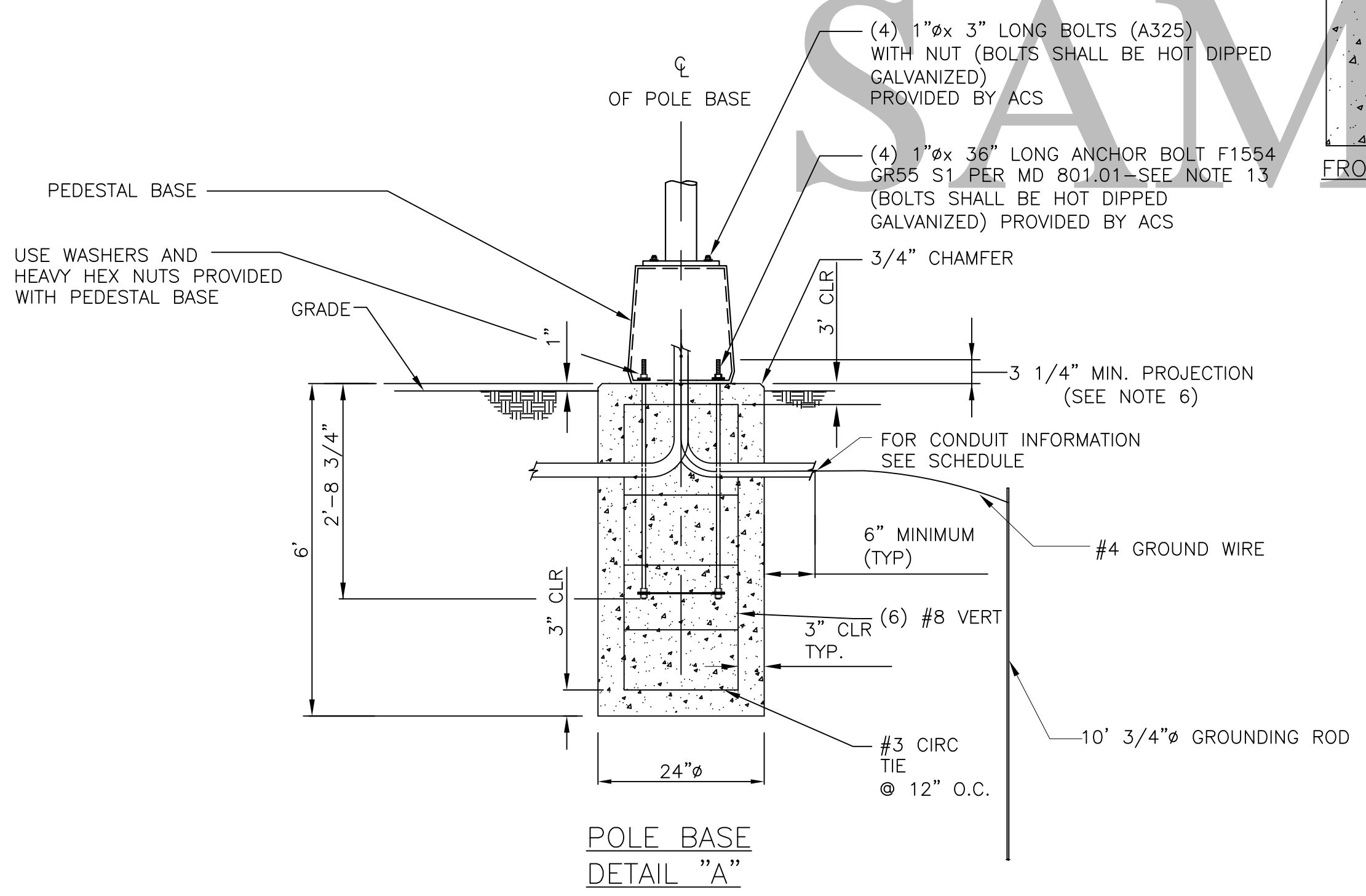
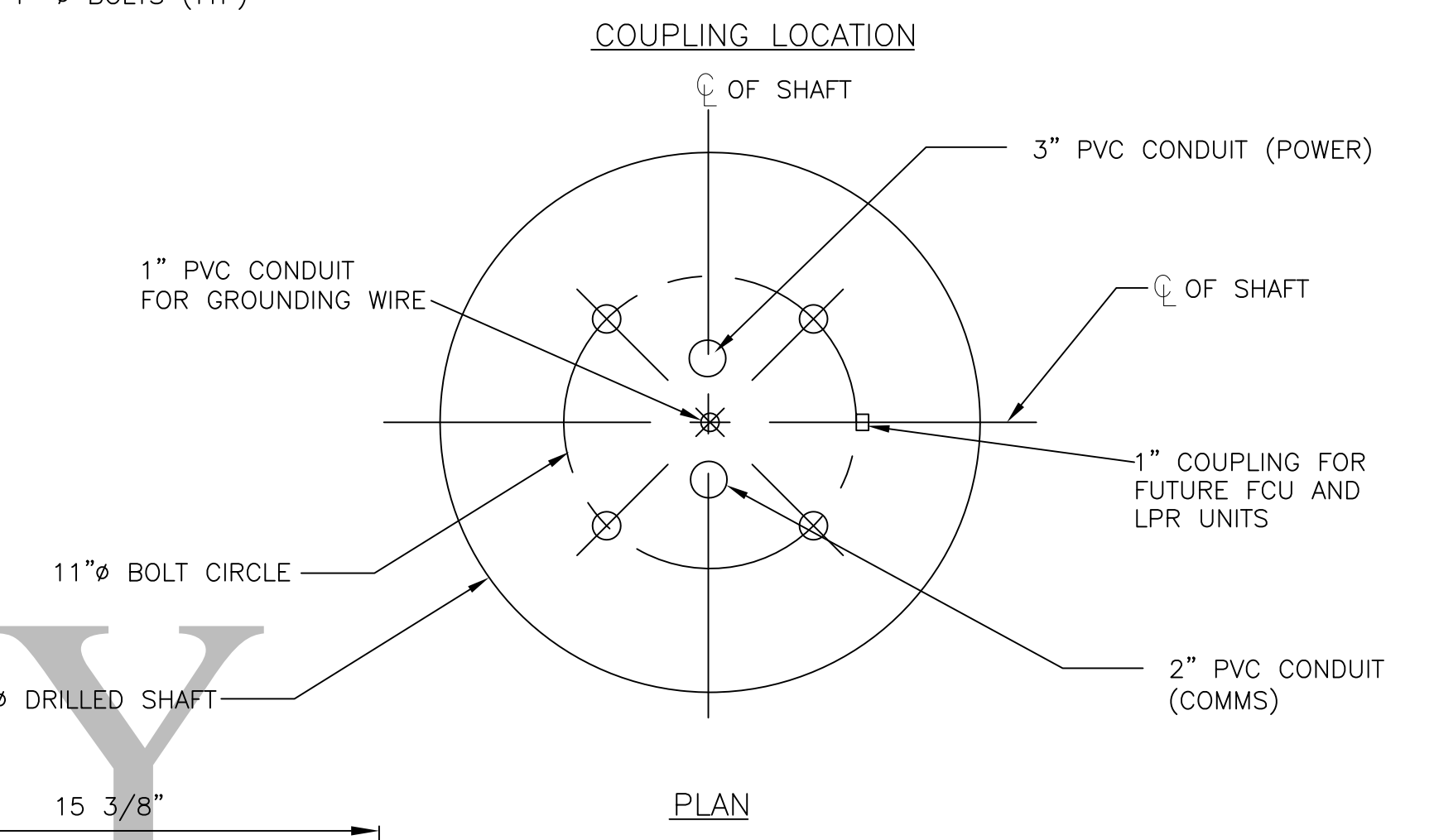
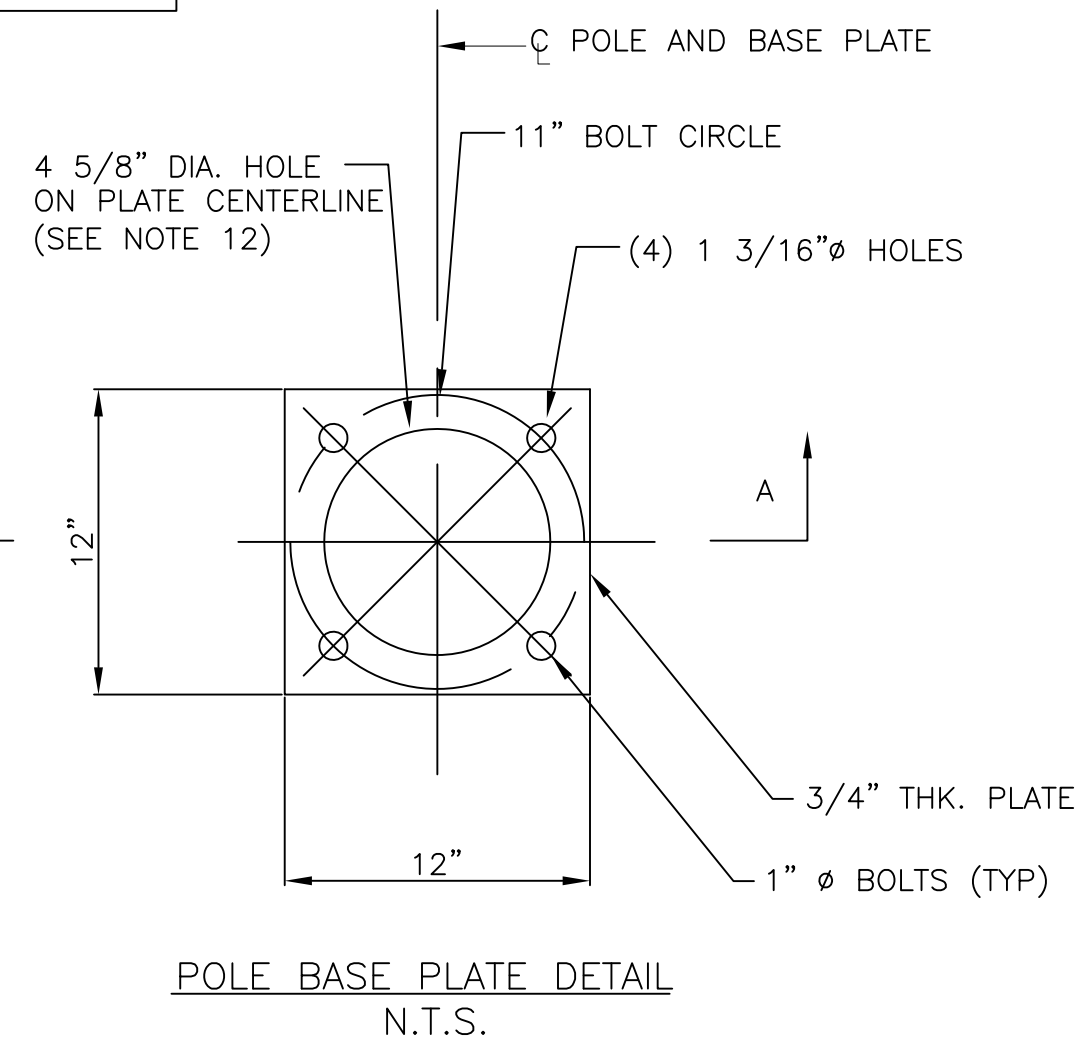
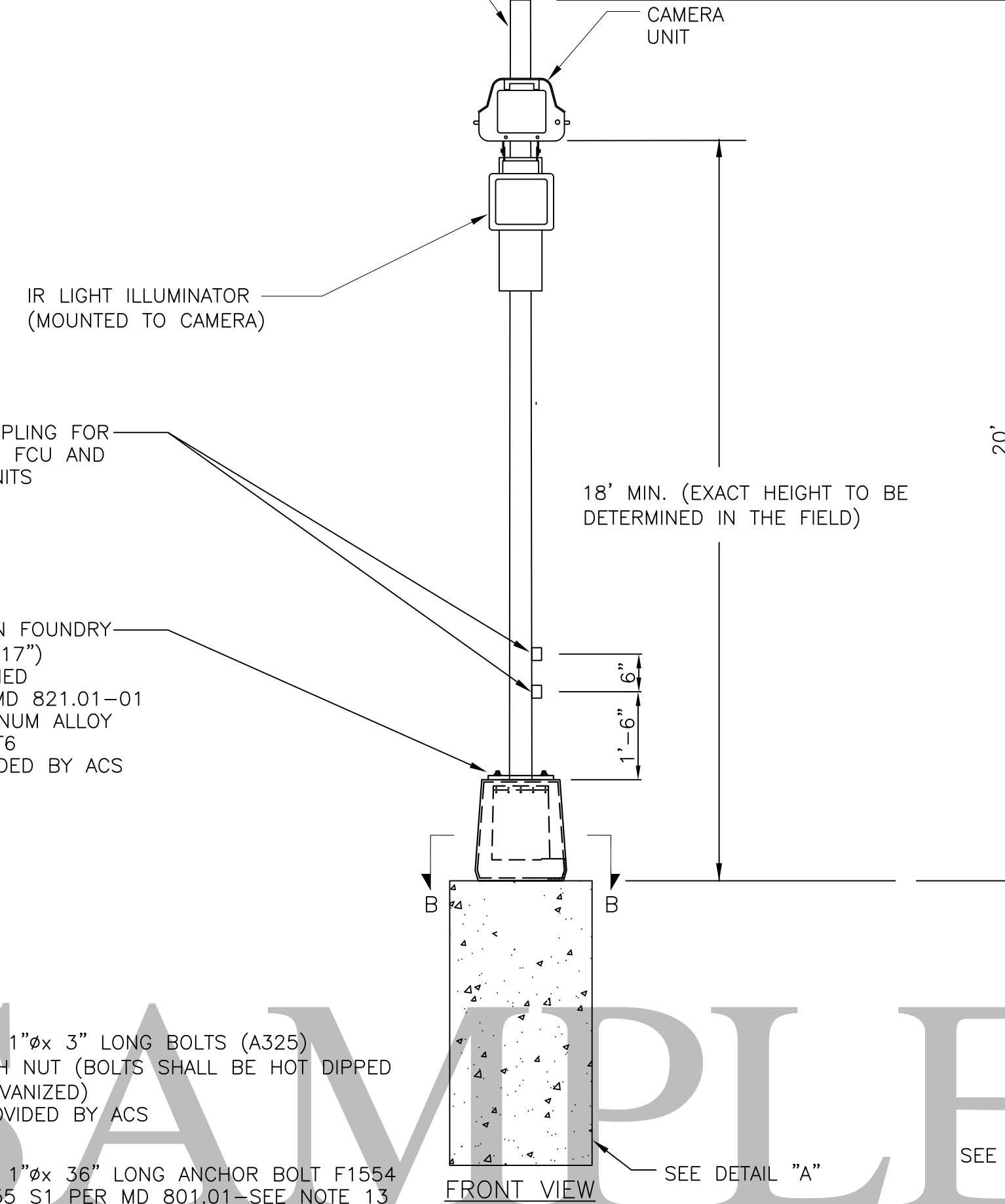
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Baton Rouge, La. 70809

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
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SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

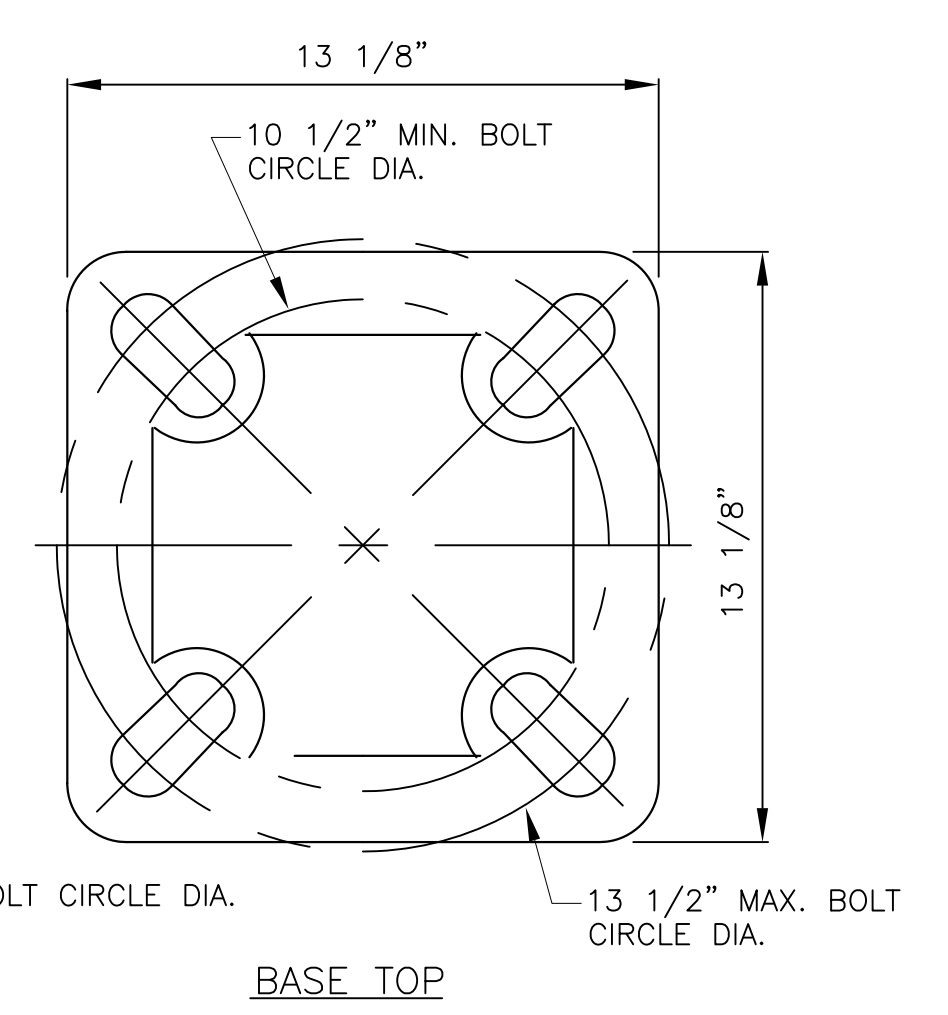
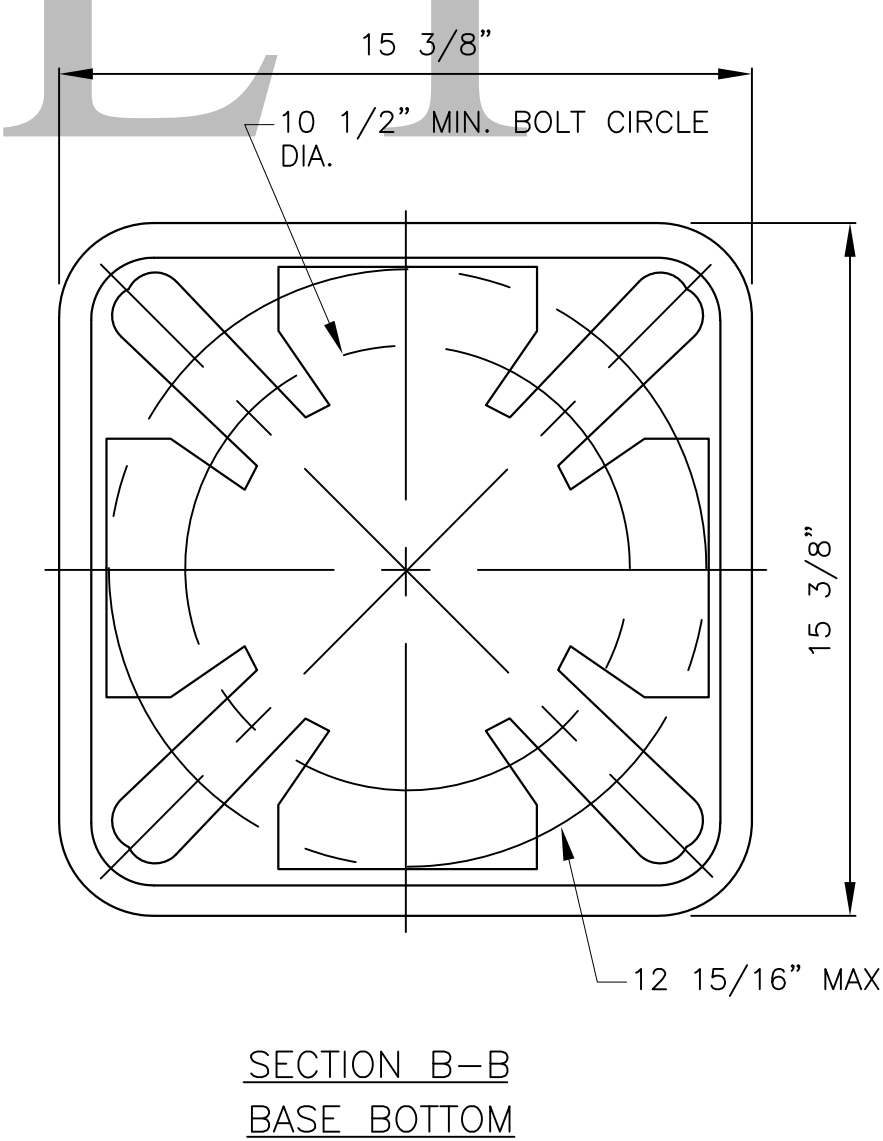
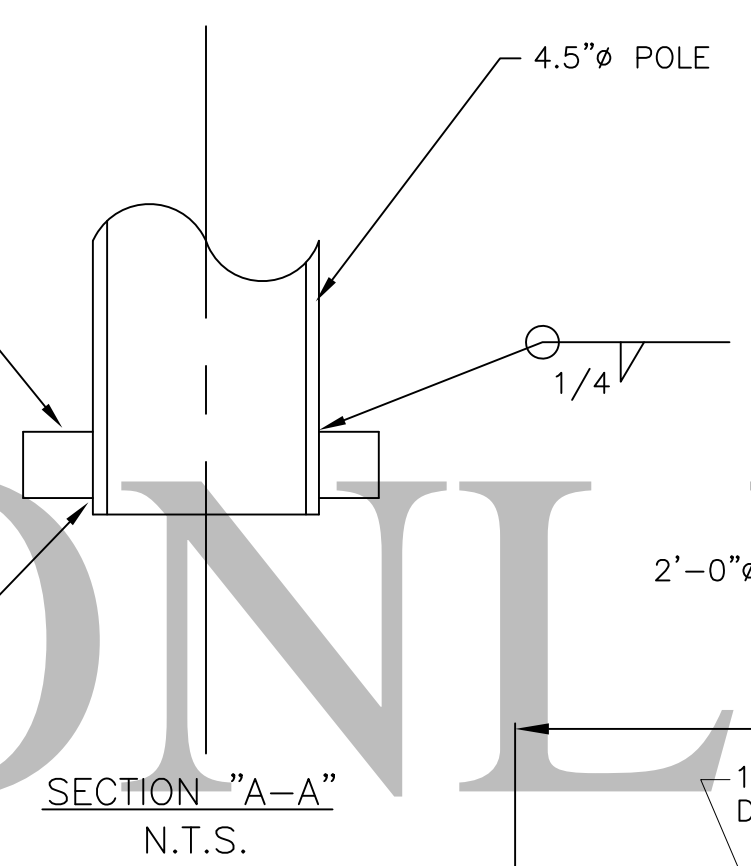
REVISIONS	LOOP AND SENSORS LAYOUT		
	SCALE NONE	DATE 07/22/11	CONTRACT NO. CATS 11 TORP#A02B040076
	DESIGNED BY JSC	COUNTY CHARLES	
	DRAWN BY JSC	LOGMILE	
	CHECKED BY WC	TMS NO.	
	F.A.P. NO.	TOD NO.	
DRAWING NUMBER: BAMD-VWS-001		SHEET NO. 7 OF 21	

18'-7" GALV. STEEL POLE  
NON-TAPERED A500 GR. B  
HSS 4.5 x .237 THK.

SUBCONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT  
LEAST THREE (3) WORKING DAYS PRIOR TO COMMENCEMENT OF  
EXCAVATION. MISS UTILITY 1-800-282-8555



- NOTES:**
1. ALL CONCRETE SHALL BE SHA MIX NO.3 - 3500 PSI COMPRESSIVE STRENGTH.
  2. ALL REINFORCING SHALL BE HIGH STRENGTH DEFORMED BARS, GRADE 60, ASTM A615, WITH 60,000 PSI MINIMUM YIELD POINT.
  3. THE PLACEMENT OF CONCRETE AND RE-BAR SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND SHA STANDARDS.
  4. ALL EMBEDDED ANCHOR BOLTS SHALL BE F1554 (55 KSI) GRADE STEEL.
  5. CONTRACTOR SHALL PROTECT EXCAVATIONS FROM INCLEMENT WEATHER UNTIL CONCRETE HAS BEEN POURED.
  6. CONTRACTOR TO VERIFY BOLT PROJECTION IN FIELD BEFORE INSTALLATION OF SHAFT.
  7. ALL PEDESTAL BASE ASSEMBLIES ARE TO BE BREAKAWAY.
  8. 1" SCHEDULE 40 PVC CONDUIT FOR GROUNDING CONDUCTOR, GROUND ROD TO BE LOCATED IN OR NEAR ADJACENT HAND HOLE.
  9. ALL GROUNDING SHALL BE BONDED TOGETHER TO FORM A GROUNDING SYSTEM.
  10. BASE PLATE BOLTS SHALL BE GALVANIZED 1" DIA. A325 WITH HEAVY HEX NUTS AND HARDENED WASHERS ON TOP AND BOTTOM.
  11. BASE OF POLE SHALL EXTEND 1/4" THROUGH HOLE IN BASE PLATE AND SHALL BE WELDED ON TOP AND BOTTOM OF PLATE WITH WELD AS SHOWN ON POLE BASE PLATE DETAIL.
  12. CONTRACTOR TO NOTIFY ACS PRIOR TO CONSTRUCTION IF THERE ARE ANY POTENTIAL OBSTRUCTIONS IN THE VICINITY OF THE CAMERA AND FLASH UNITS THAT COULD IMPACT THE PERFORMANCE OF THE SYSTEM.
  13. CONTRACTOR SHALL TIE (2) #6 REBARS TO ANCHOR BOLTS AND VERTICAL BARS FOR GROUNDING AND CONTACT.
  14. BREAKAWAY BASE SHALL BE COATED ON BOTTOM WITH COAL TAR EPOXY BITUMASTIC 300M OR APPROVED EQUAL. THE COATING SHALL BE BETWEEN 6 AND 8 MILS THICK.
  15. CONTRACTOR SHALL FIELD REPAIR GALVANIZED COATING AS REQUIRED.
  16. CONTRACTOR SHALL INSTALL ALL GROUND RODS IN GROUND ACCESS WELLS.



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Baton Rouge, La. 70809

**AS BUILT**  
02/06/12

REVISIONS		CAMERA POLE AND FOUNDATION DETAILS	
SCALE	NONE	DATE	07/22/11
DESIGNED BY	JSC	COUNTY	CHARLES
DRAWN BY	JSC	LOGMILE	
CHECKED BY	WC	TIMS NO.	
F.A.P. NO.		TOD NO.	
DRAWING NUMBER: BAMD-VWS-001		SHEET NO. 8 OF 21	

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION  
SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

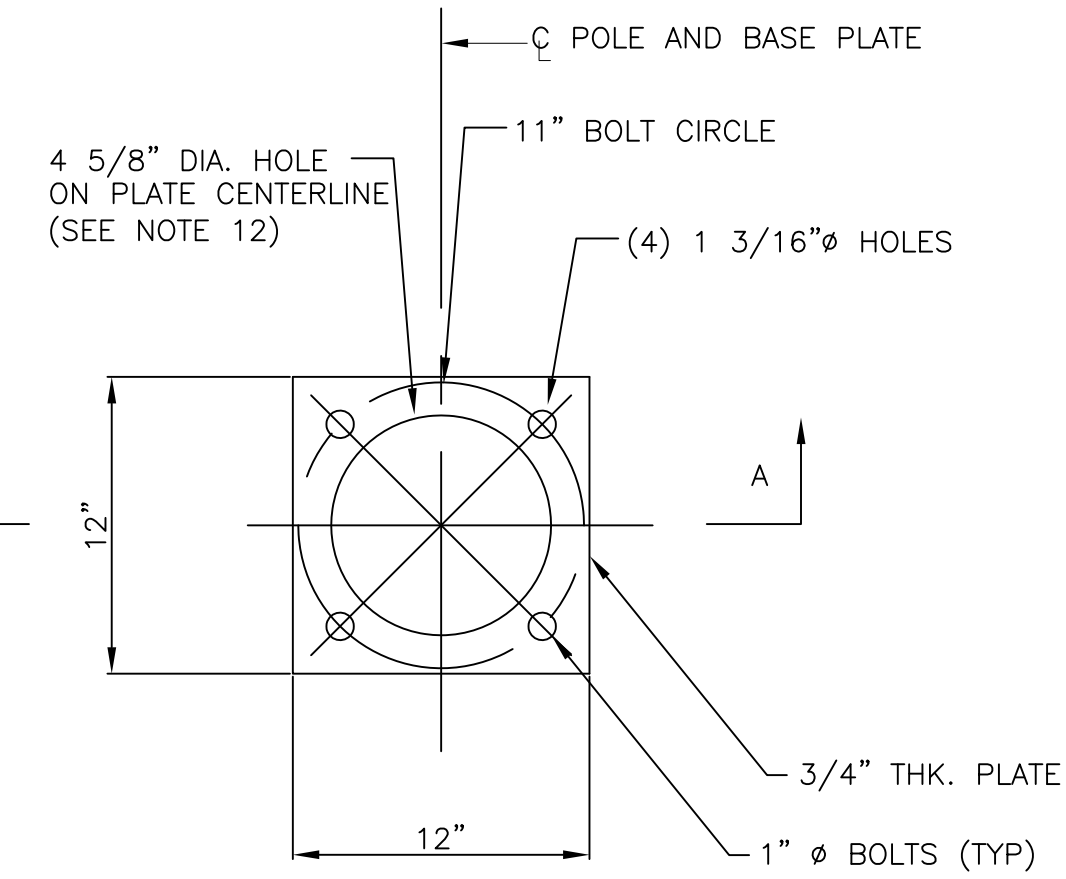
SUBCONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST THREE (3) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION. MISS UTILITY 1-800-282-8555

18'-7" GALV. STEEL POLE  
NON-TAPERED A500 GR. B  
HSS 4.5 x .237 THK.

OVERHEIGHT DETECTOR  
OR REFLECTOR  
(MOUNTED TO POLE)

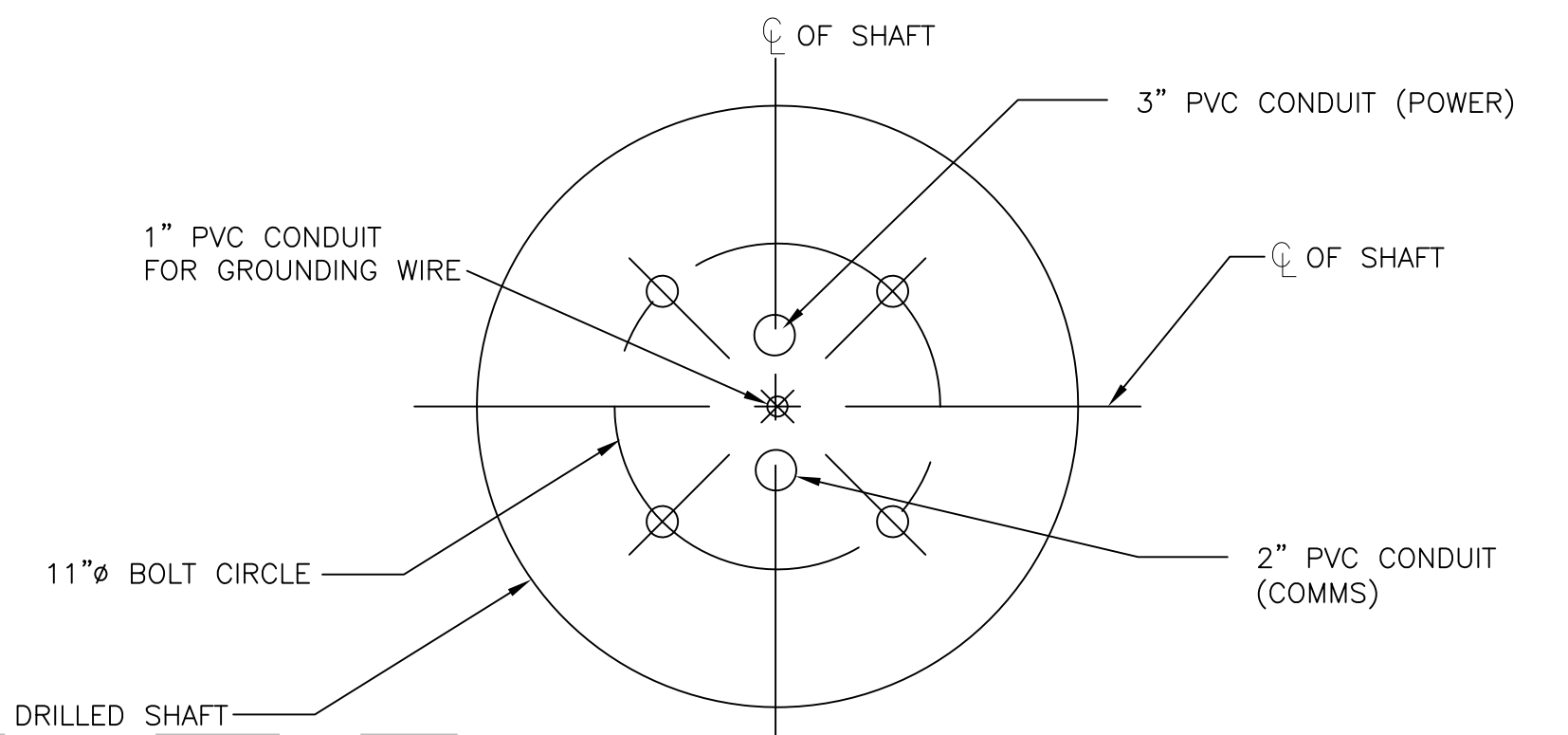
IR ILLUMINATOR  
(MOUNTED TO OVERHEIGHT DETECTOR  
POLE ONLY)

AKRON FOUNDRY  
(TB1-17")  
MODIFIED  
PER MD 821.01-01  
ALUMINUM ALLOY  
356-T6  
PROVIDED BY ACS

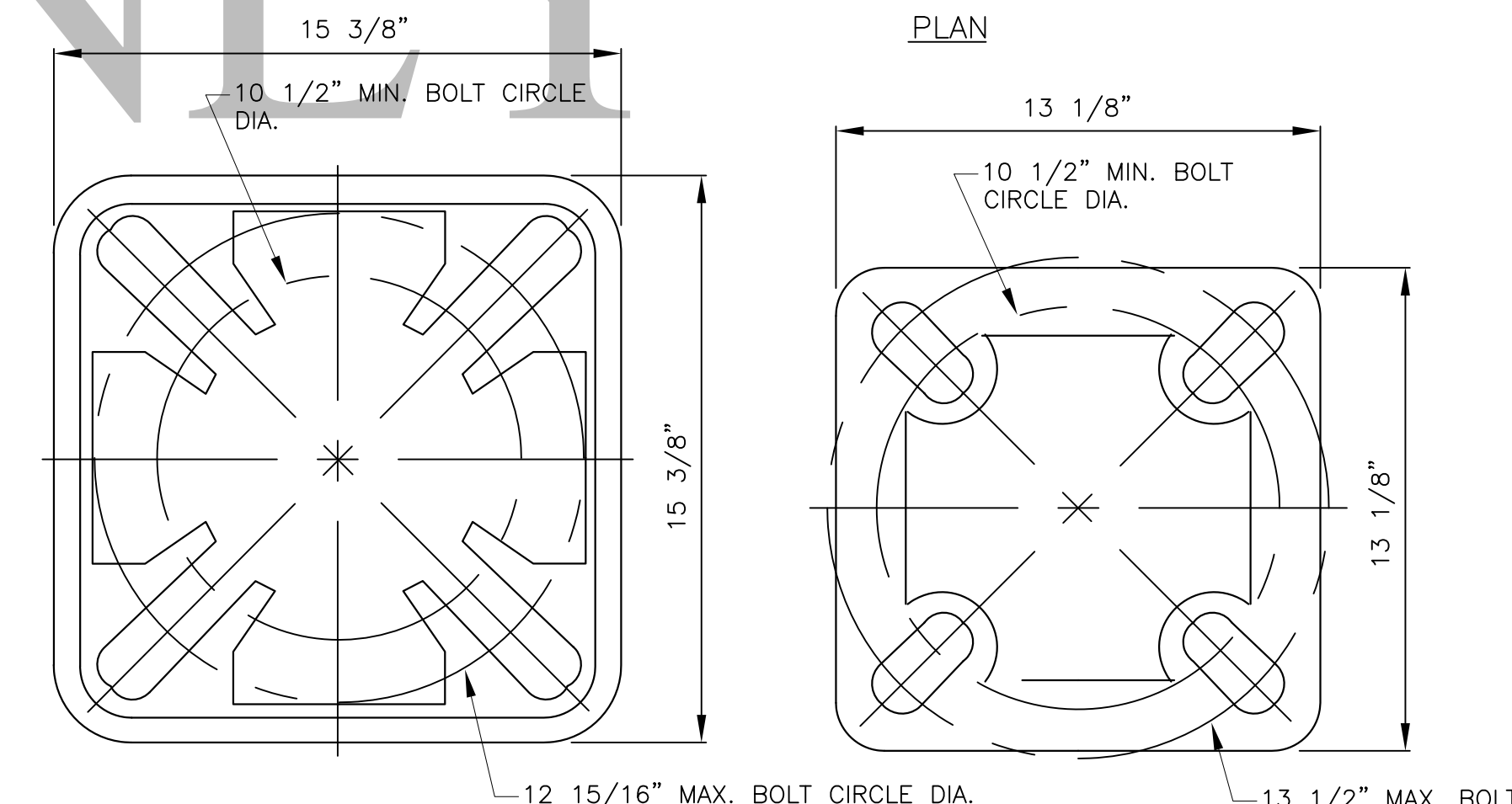


POLE BASE PLATE DETAIL  
N.T.S.

COUPLING LOCATION



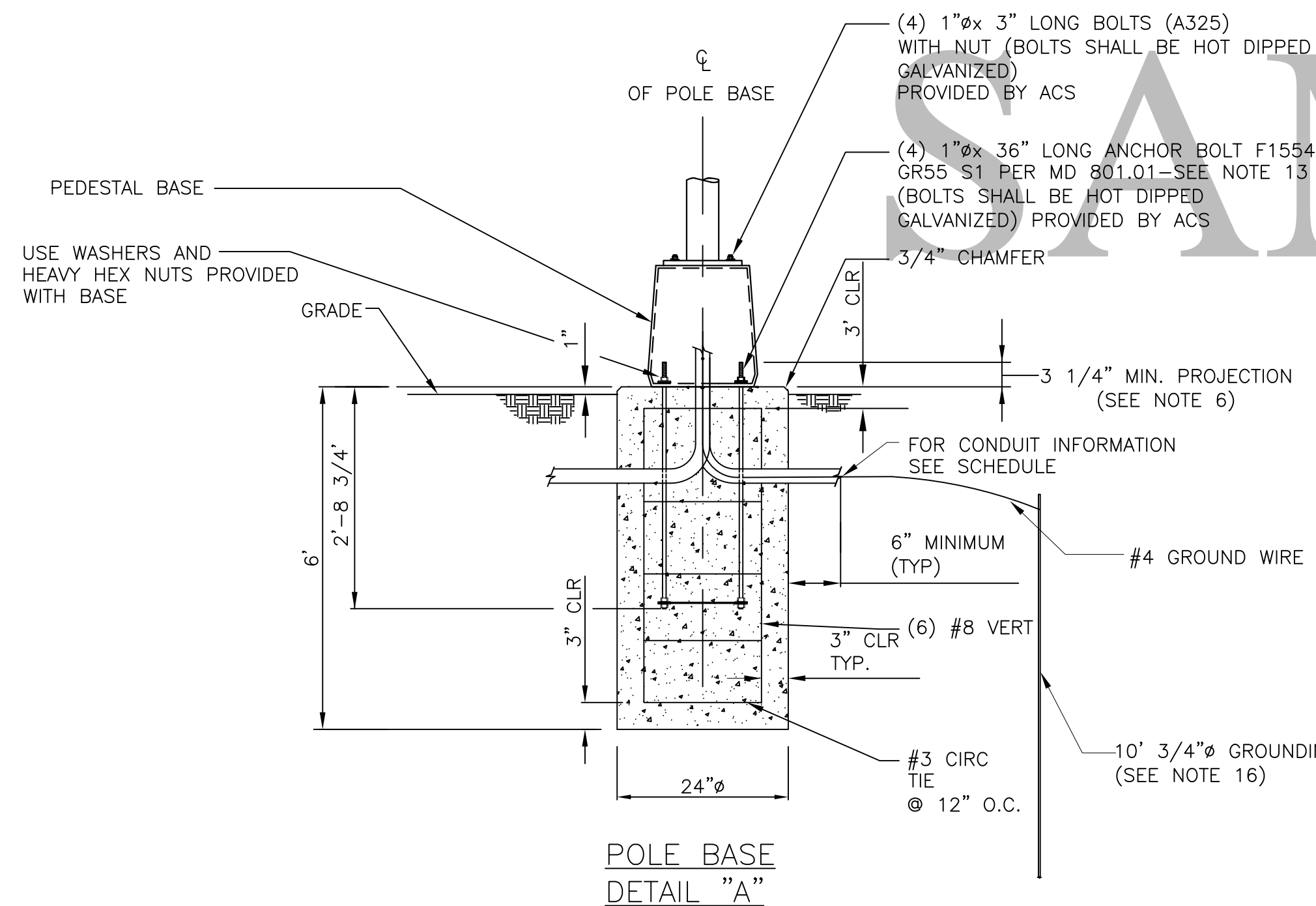
PLAN



SECTION B-B  
BASE BOTTOM

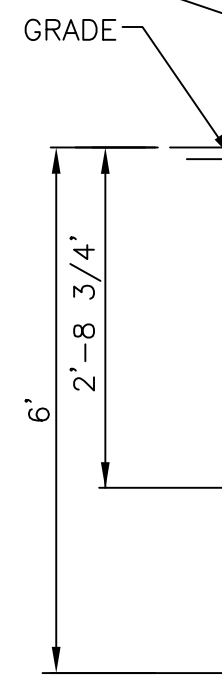
BASE TOP

- NOTES:
1. ALL CONCRETE SHALL BE SHA MIX NO.3 - 3500 PSI COMPRESSIVE STRENGTH.
  2. ALL REINFORCING SHALL BE HIGH STRENGTH DEFORMED BARS, GRADE 60, ASTM A615, WITH 60,000 PSI MINIMUM YIELD POINT.
  3. THE PLACEMENT OF CONCRETE AND RE-BAR SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND SHA STANDARDS.
  4. ALL EMBEDDED ANCHOR BOLTS SHALL BE F1554 (55 KSI) GRADE STEEL.
  5. CONTRACTOR SHALL PROTECT EXCAVATIONS FROM INCLEMENT WEATHER UNTIL CONCRETE HAS BEEN POURED.
  6. CONTRACTOR TO VERIFY BOLT PROJECTION IN FIELD BEFORE INSTALLATION OF SHAFT.
  7. ALL PEDESTAL BASE ASSEMBLIES ARE TO BE BREAKAWAY.
  8. 1" SCHEDULE 40 PVC CONDUIT FOR GROUNDING CONDUCTOR, GROUND ROD TO BE LOCATED IN OR NEAR ADJACENT HAND HOLE.
  9. ALL GROUNDING SHALL BE BONDED TOGETHER TO FORM A GROUNDING SYSTEM.
  10. BASE PLATE BOLTS SHALL BE GALVANIZED 1" DIA. A325 WITH HEAVY HEX NUTS AND HARDENED WASHERS ON TOP AND BOTTOM.
  11. BASE OF POLE SHALL EXTEND 1/4" THROUGH HOLE IN BASE PLATE AND SHALL BE WELDED ON TOP AND BOTTOM OF PLATE WITH WELD AS SHOWN ON POLE BASE PLATE DETAIL.
  12. CONTRACTOR TO NOTIFY ACS PRIOR TO CONSTRUCTION IF THERE ARE ANY POTENTIAL OBSTRUCTIONS IN THE VICINITY OF THE CAMERA AND FLASH UNITS THAT COULD IMPACT THE PERFORMANCE OF THE SYSTEM.
  13. CONTRACTOR SHALL TIE (2) #6 REBARS TO ANCHOR BOLTS AND VERTICAL BARS FOR GROUNDING AND CONTACT.
  14. BREAKAWAY BASE SHALL BE COATED ON BOTTOM WITH COAL TAR EPOXY BITUMASTIC 300M OR APPROVED EQUAL. THE COATING SHALL BE BETWEEN 6 AND 8 MILS THICK.
  15. CONTRACTOR SHALL FIELD REPAIR GALVANIZED COATING AS REQUIRED.
  16. CONTRACTOR SHALL INSTALL ALL GROUND RODS IN GROUND ACCESS WELLS.



POLE BASE  
DETAIL "A"

PEDESTAL BASE  
USE WASHERS AND  
HEAVY HEX NUTS PROVIDED  
WITH BASE

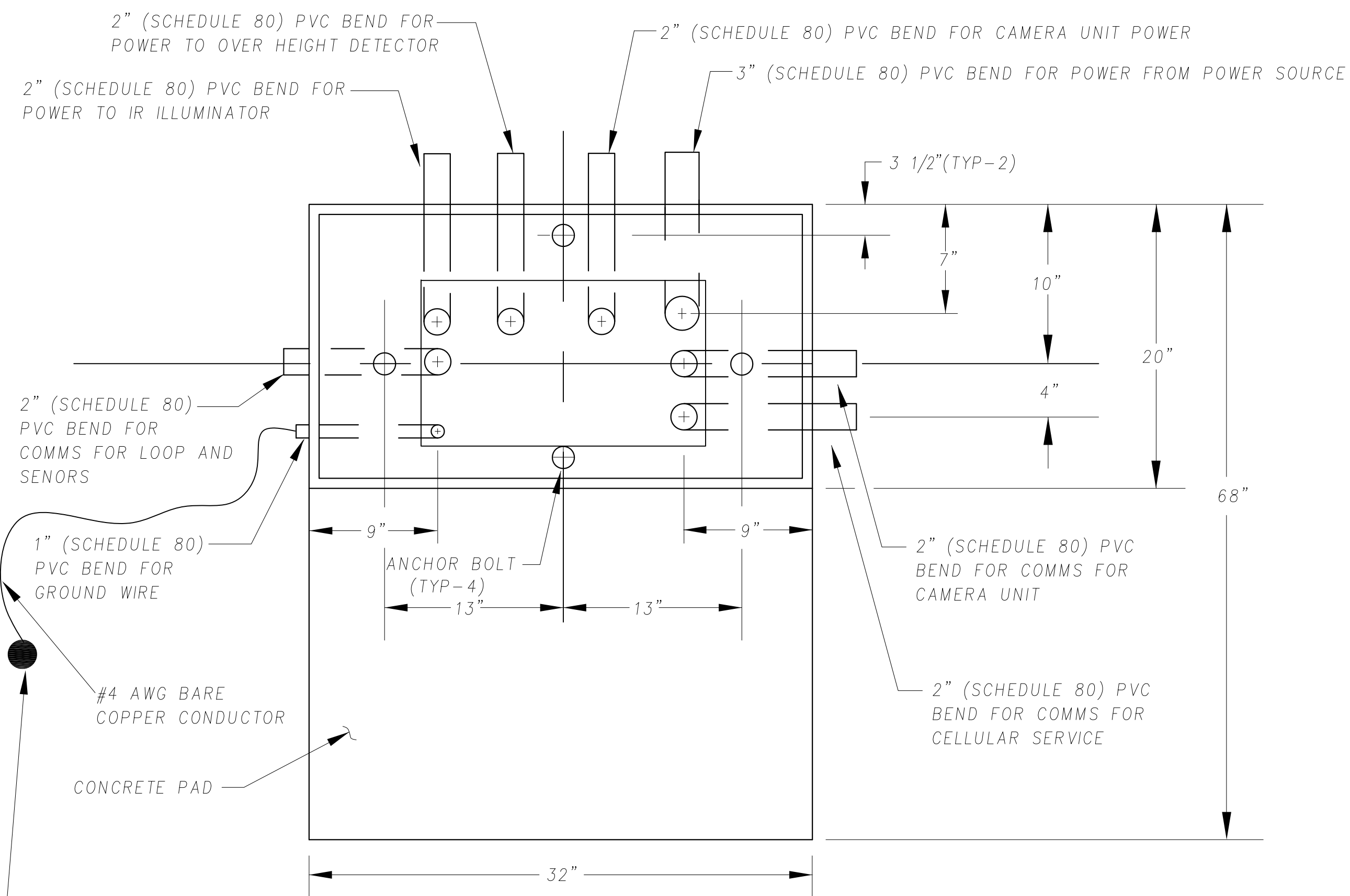


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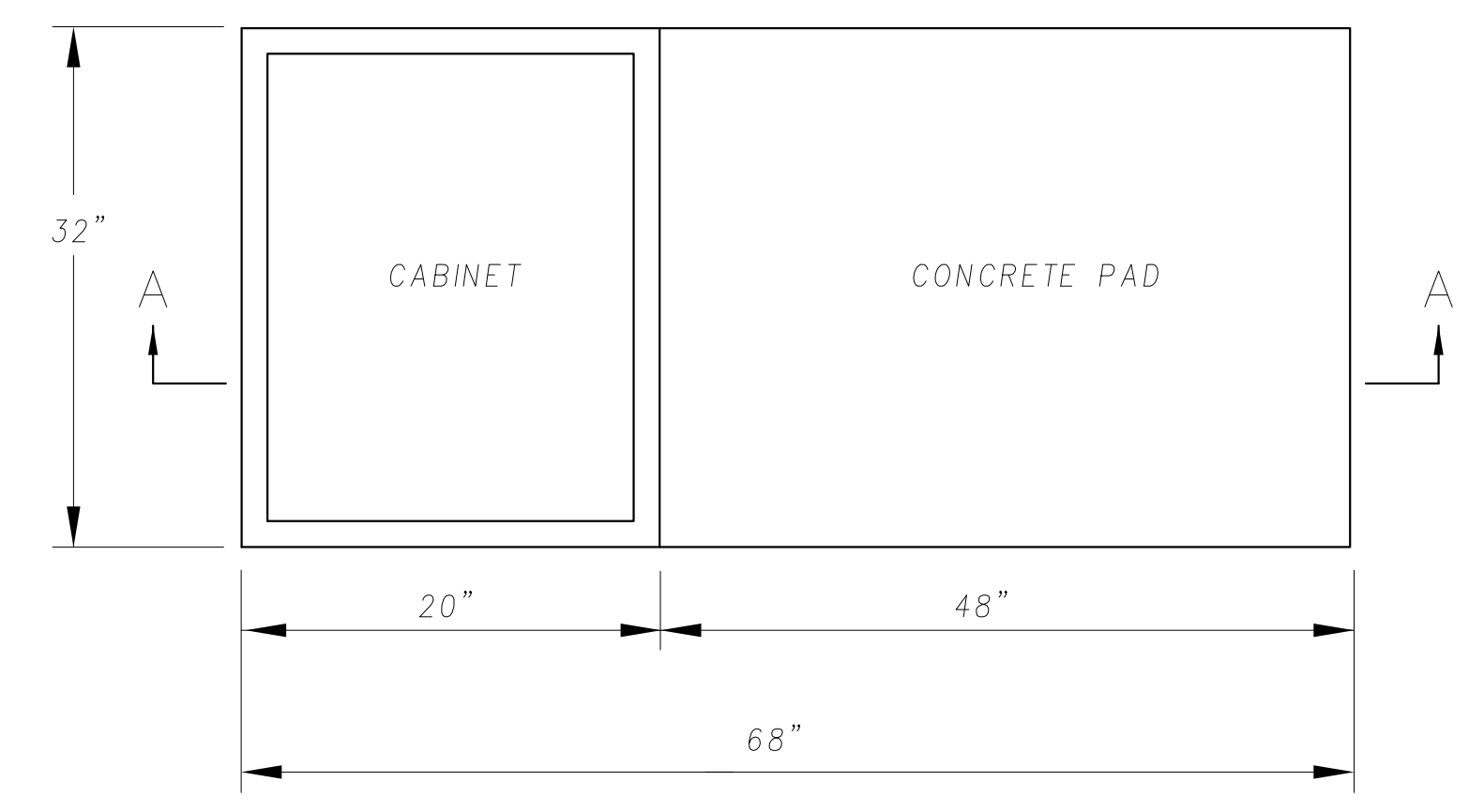
**AS BUILT**  
02/06/12

REVISIONS	OVERHEIGHT DETECTOR AND REFLECTOR POLE AND FOUNDATIONS DETAILS		
	SCALE	NONE	DATE 07/22/11 CONTRACT NO. CATS II TORP#A02B0400076
	DESIGNED BY	JSC	COUNTY CHARLES
	DRAWN BY	JSC	LOGMILE
	CHECKED BY	WC	TIMS NO.
	F.A.P. NO.		TOD NO.
DRAWING NUMBER: BAMD-VWS-001		SHEET NO. 9 OF 21	

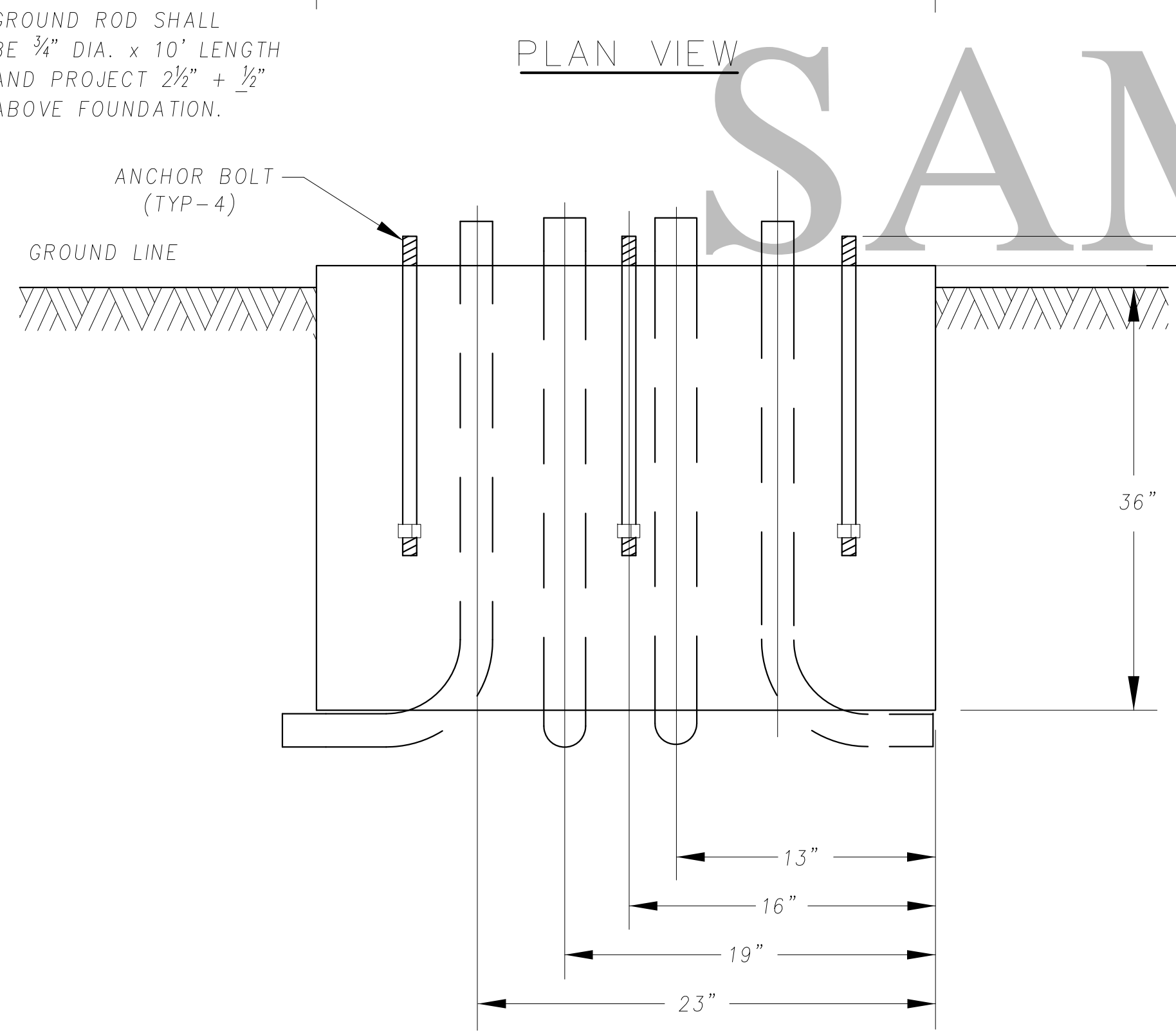
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11725 Cloverland Court, Suite C,  
Baton Rouge, La. 70809



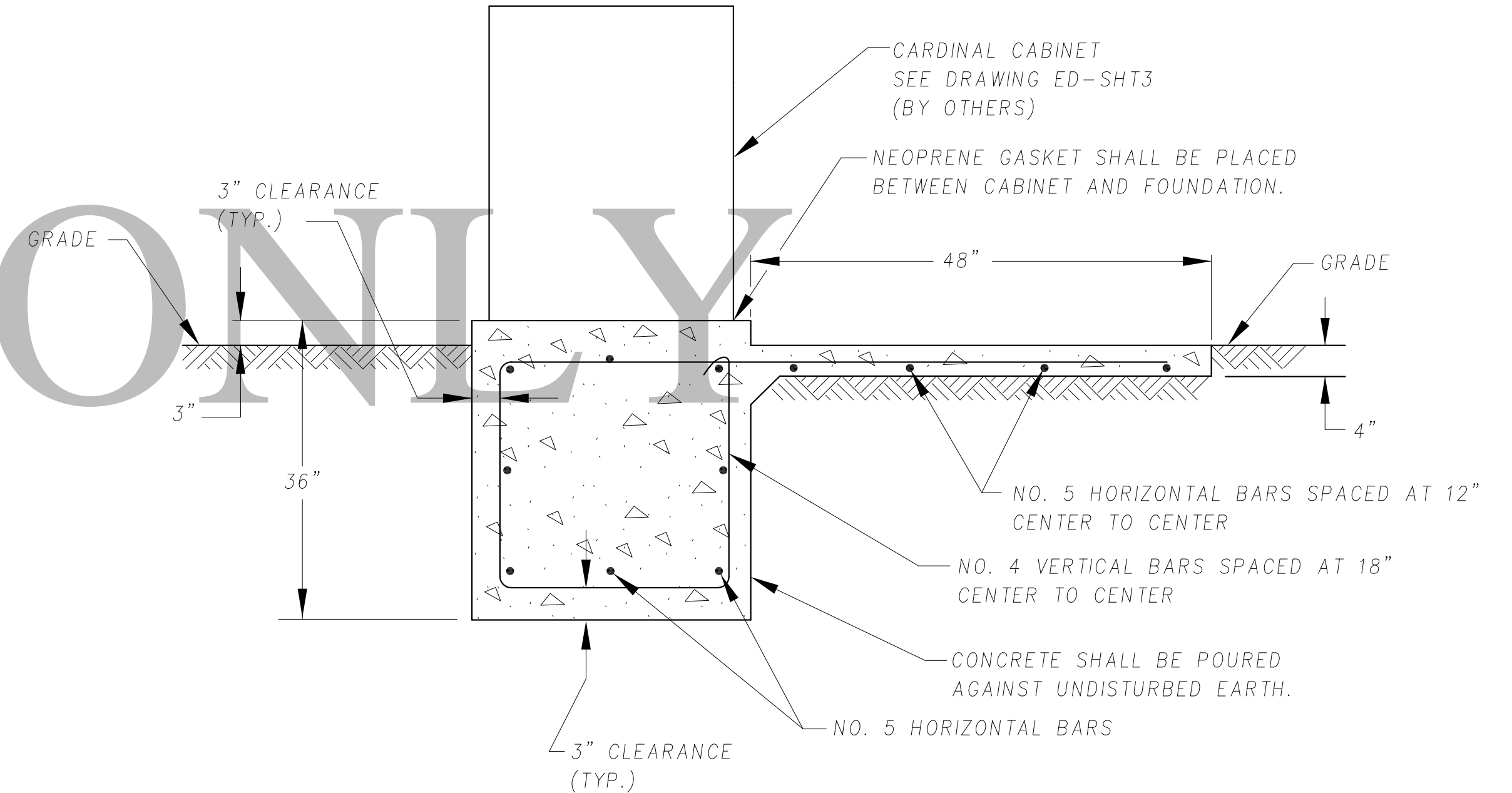
PLAN VIEW



PLAN VIEW



ELEVATION VIEW



SECTION A-A

- NOTES:**
1. BENDS, GROUND ROD, AND ANCHOR BOLTS TO PROJECT ABOVE BASE  $2\frac{1}{2}'' + \frac{1}{2}''$ .
  2. ALL CONDUIT AND GROUND ROD LOCATIONS  $+ \frac{1}{2}''$ .
  3. ALL ANCHOR BOLT LOCATIONS  $+ \frac{1}{4}''$ .

**GENERAL NOTES:**

1. ALL CONCRETE SHALL BE SHA MIX NO. 3 3500 PSI.
2. ALL REINFORCING SHALL BE HIGH STRENGTH DEFORMED BARS, GRADE 60, ASTM A615, WITH 60,000 PSI MINIMUM YIELD POINT.
3. ALL EMBEDDED ANCHOR BOLTS SHALL BE  $3/4'' \phi$  F1554 GRADE 55 SI X 12" LONG.

**AS BUILT**  
02/06/12

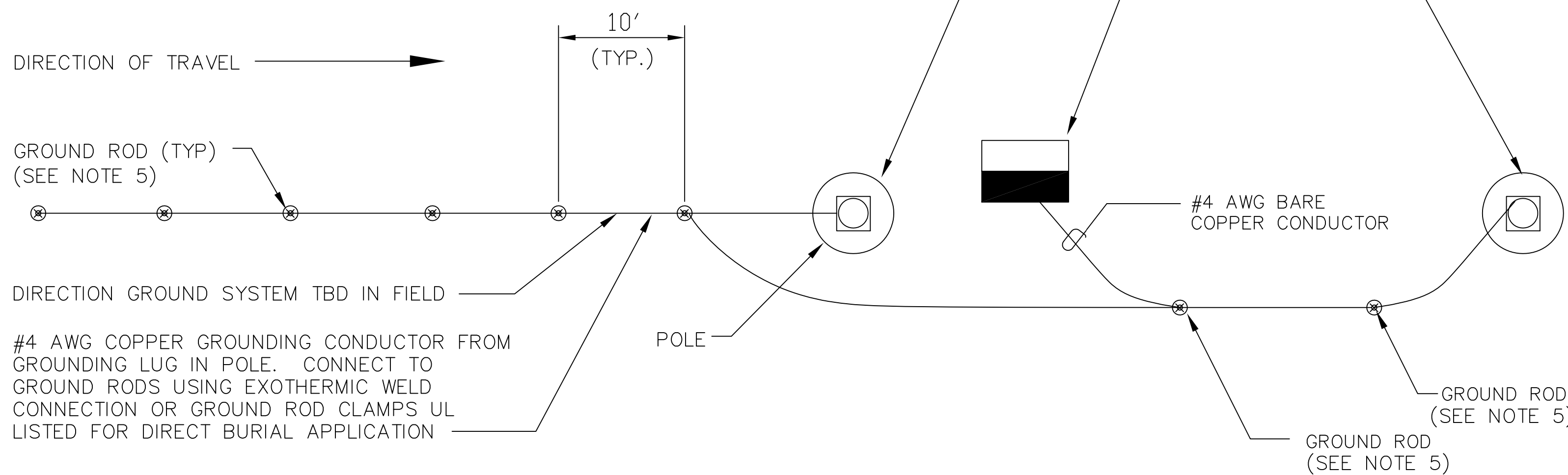
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REVISIONS	CONTROL CABINET FOUNDATIONS DETAILS	
	SCALE NONE	DATE 07/22/11 CONTRACT NO. CATS 11087P402040076
	DESIGNED BY JSC	COUNTY CHARLES
	DRAWN BY JSC	LOGMILE
	CHECKED BY WC	TMS NO.
	F.A.P. NO.	TOD NO.
	DRAWING NUMBER: BAMD-VWS-001	SHEET NO. 10 OF 21

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**NOTES:**

1. POLE FOR LOCATION SHALL BE PROVIDED WITH #4 AWG BARE COPPER CONDUCTOR CONNECTED TO (8) 3/4" DIA. x 10' LONG GROUND RODS SPACED AT 10'-0" APART FOR SYSTEM LIGHTNING PROTECTION.
2. CONNECT CABINET GROUND TERMINAL TO GROUND ROD AND POLE GROUND LUG WITH #4 AWG BARE COPPER CONDUCTOR.



#4 AWG COPPER GROUNDING CONDUCTOR FROM GROUNDING LUG IN POLE. CONNECT TO GROUND RODS USING EXOTHERMIC WELD CONNECTION OR GROUND ROD CLAMPS UL LISTED FOR DIRECT BURIAL APPLICATION

BRONZE SERVICE POST GROUND CONNECTOR SSS-4-A1-SMH AS SUPPLIED BY PENN-UNION OR ENGINEER APPROVED EQUAL

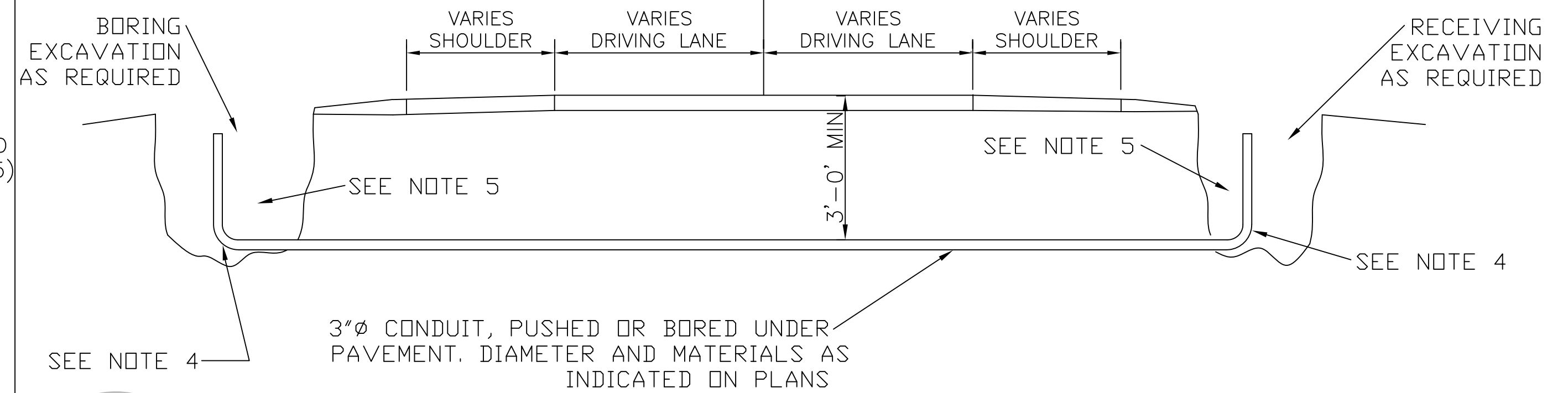
NO. 4 GROUND WIRE FROM GROUND ROD

INTERIOR WELDED GROUND LUG PROVIDED WITH POLE

**POLE GROUNDING DETAIL**

**NOTES:**

1. LIGHTNING PROTECTION SYSTEM, WHEN CALLED OUT, SHALL CONSIST OF :
  - 1.1 6 EA. GROUND RODS 10' ON CENTER AND DRIVEN TO A DEPTH OF APPROXIMATELY 6" BELOW GRADE.
  - 1.2 ALL GROUND RODS SHALL BE 3/4"Ø AND SHALL BE DRIVEN TO A DEPTH OF 10'-0".
  - 1.3 #4 AWG BARE COPPER CONDUCTOR SHALL BE USED TO CONNECT THE GROUND RODS TO EACH OTHER AND TO THE BASE OF THE POLE.
  - 1.4 DIRECTION OF GROUNDING SYSTEM LAYOUT FROM POLE SHOULD BE FIELD VERIFIED TO OBTAIN THE BEST EARTH CONTACT AND PROTECTION FROM DAMAGE.
2. GROUNDING CONNECTIONS OF CONDUCTORS TO GROUND RODS SHALL BE MADE USING EXOTHERMIC WELD CONNECTIONS OR GROUND ROD CLAMPS UL LISTED FOR DIRECT BURIAL APPLICATION.
3. GROUND RODS SHALL BE COPPER PLATED STEEL.
4. CONTRACTOR SHALL APPLY NOALOX ANTI-OXIDANT COMPOUND PASTE TO ALL GROUND CONNECTIONS.
5. CONTRACTOR SHALL PLACE ALL GROUND RODS IN GROUND ACCESS WELLS GAW910 AS SUPPLIED BY HARGER OR APPROVED EQUAL.



**SAMPLE ONLY**

BORING DETAIL NOT TO SCALE

**GENERAL NOTES:**

1. ALL LANDSCAPING SHALL BE REPAIRED OR REPLACED IN KIND AFTER COMPLETION OF TRENCHING.
2. CONDUIT SHALL BE INSTALLED IN A MANNER THAT FACILITATES PULLING OF FUTURE CABLES PER SHA STANDARD SECTION 805.
3. CONDUIT SHALL BE INSTALLED WITH LOCATOR TAPE AND USE MARKER TAPE APPLIED TO SURFACE OF ROADWAY TO LOCATE PATH OF BORING BENEATH ROAD PER SHA STANDARD SECTION 809.
4. CONTRACTOR SHALL INSTALL 90° CONDUIT FITTINGS TO ROUTE VERTICALLY TO NEW TRAFFIC RATED PULL BOX.
5. CONTRACTOR SHALL BACKFILL EXCAVATIONS WITH STRUCTURAL FILL AND COMPACT TO 95% PROCTOR. REPAIR SURFACE IN KIND.

**AS BUILT**  
02/06/12

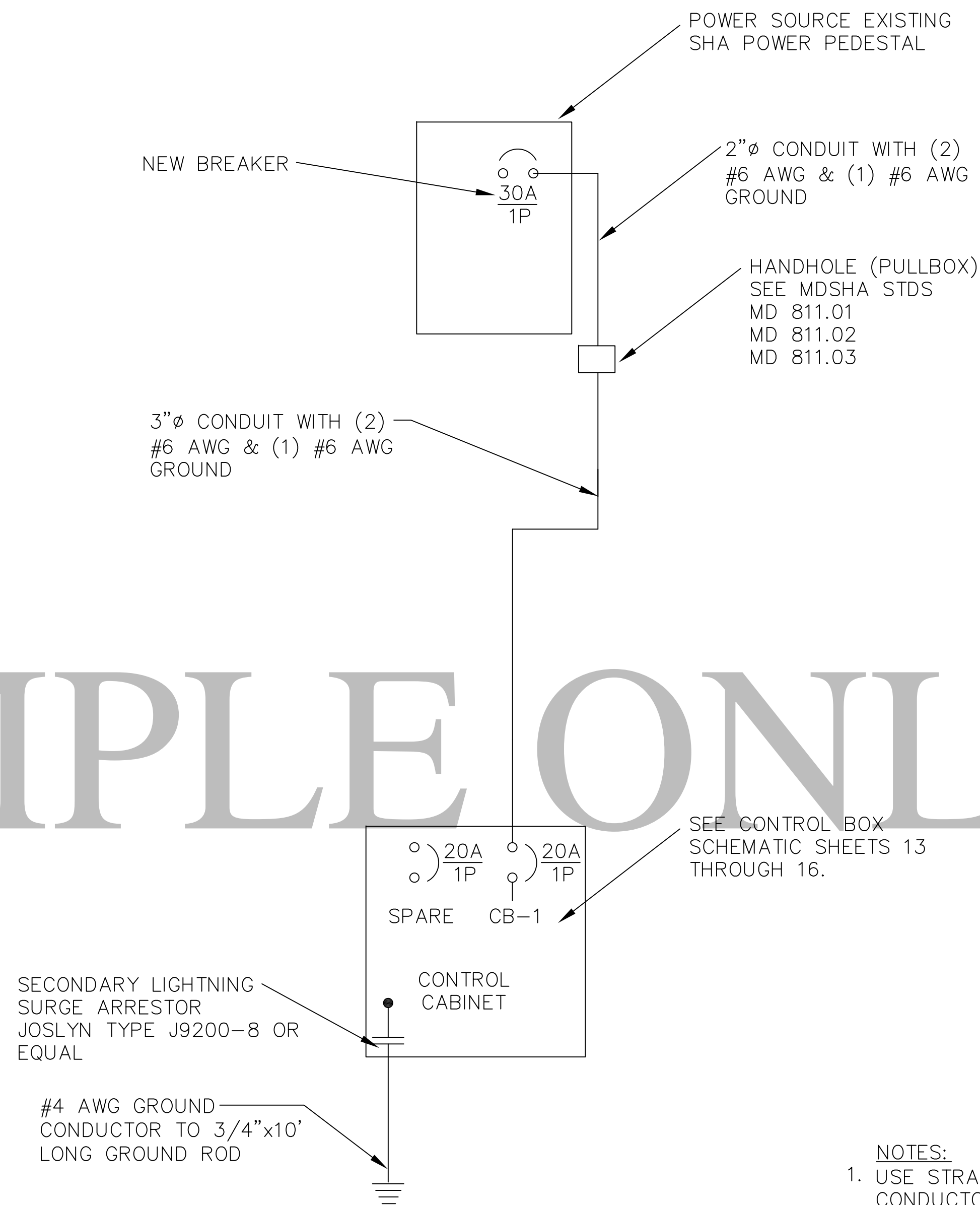
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REVISIONS		GROUNDING AND BORING DETAILS	
SCALE NONE DATE 07/22/11 CONTRACT NO. CATS # TORFP#02B0400076		DESIGNED BY JSC COUNTY CHARLES	
DRAWN BY JSC LOGMILE		CHECKED BY JSC TMS NO.	
F.A.P. NO.		TOD NO.	
DRAWING NUMBER: BAMD-VWS-001		SHEET NO. 11 OF 21	

# SAMPLE ONLY



- NOTES:**
1. USE STRANDED COPPER CONDUCTOR THROUGHOUT.
  2. USE INSULATED TYPE THW COLOR CODED CONDUCTOR UNLESS OTHERWISE NOTED. BARE COPPER CONDUCTOR SHALL BE STRANDED.

**AS BUILT**  
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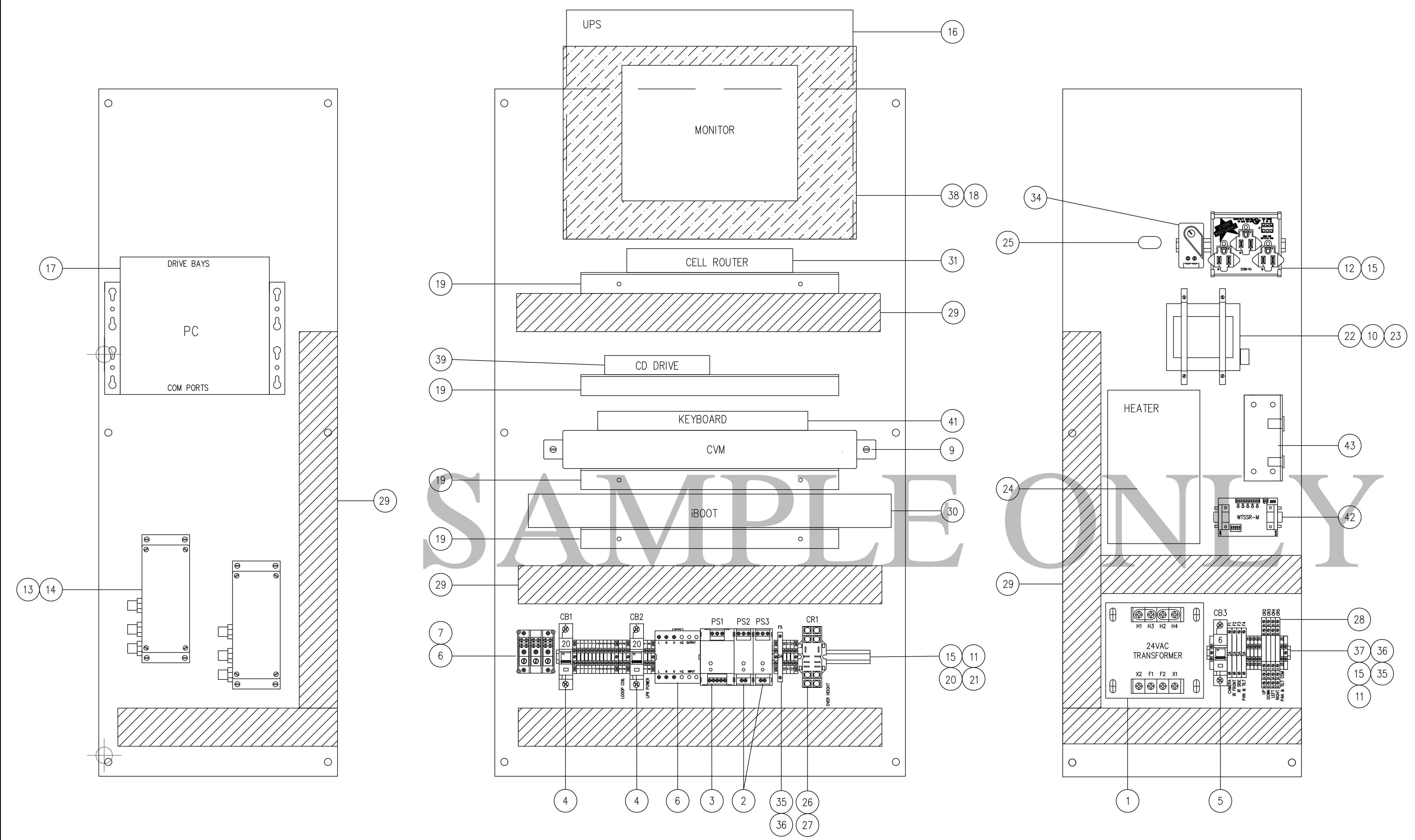
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NORTHBOUND SINGLE LINE DIAGRAM  
FOR VWS SYSTEM

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REVISIONS	SINGLE LINE DIAGRAM		
	SCALE NONE	DATE 07/22/11	CONTRACT NO. CATS II TORFP4028040076
	DESIGNED BY JSC	COUNTY CHARLES	
	DRAWN BY JSC	LOGMILE	
	CHECKED BY WC	TMS NO.	
	F.A.P. NO.	TOD NO.	
DRAWING NUMBER: BAMD-VWS-001		SHEET NO. 12 OF 21	

N/A	45	IMSA 51-7	CABLE - LOOP WIRE IMSA 51-7
N/A	44	6980-2052	CABLE - LOOP LEAD IN WIRE IMSA 50-2
2	43	73K4129	PAN / TILT SWITCH
1	42	WTSSR-M	PAN / TILT CONTROLLER
1	41	KB3700TP	KEYBOARD
	40		
1	39	SE-S084F/RSBS	PC EXTERNAL CD DRIVE
1	38	VS102	PC MONITOR
2	37	MDL5	FUSE 5AMP
3	36	MDL2	FUSE 2AMP
5	35	3004171	FUSE BLOCK
1	34	6660-1007	THERMOSTAT, FAN
1	33	6660-1006	FAN
0	32	HOFT150116G100	AIR CONDITIONER
1	31	LAN-CELL 2	PROXICAST CELLULAR ROUTER
1	30	IBB-N15	i-BOOT
N/A	29	6980-0403	WIRE WAY
4	28	6850-0115	RELAY 12VDC
1	27	6850-0061	RELAY SOCKET
1	26	6850-0062	RELAY 24VDC
1	25	6930-0008	HEATER THERMOSTAT
1	24	6660-0126	HEATER
1	23	6600-1234	LOOP DETECTOR CABLE ASSY.
1	22	6600-1231	LOOP DETECTOR
N/A	21	6610-2281	TERMINAL BLOCK
N/A	20	6600-1247	TERMINAL BLOCK JUMPER
4	19	8501-C008-18	SHELF
1	18	8543-D105-08	UPS SHELF
1	17	SC240S	PC - COMPUTER
1	16	6800-1036	UPS
N/A	15	6600-1236	DIN RAIL
2	14	6600-1227	CHARGE AMP
2	13	6600-1226	CHARGE AMP CABLE
1	12	6600-1246	AC OUTLET
N/A	11	6610-2282	GROUNDING TERMINAL
2	10	8543-B109-08	LOOP DET. BRACKET
1	9	CVM-1R	W.I.M. CVM CONTROLLER
1	8	6600-1245	SURGE PROTECTOR
1	7	6610-2279	POWER DISTRIBUTION BLOCK
1	6	6610-2285	POWER DISTRIBUTION BLOCK COVER
1	5	6910-2406	CIRCUIT BREAKER - 6 AMP
2	4	6910-2420	CIRCUIT BREAKER - 20 AMP
1	3	6800-1009	12V POWER SUPPLY
2	2	6800-1065	24VDC POWER SUPPLY
1	1	CE010350	24VAC TRANSFORMER

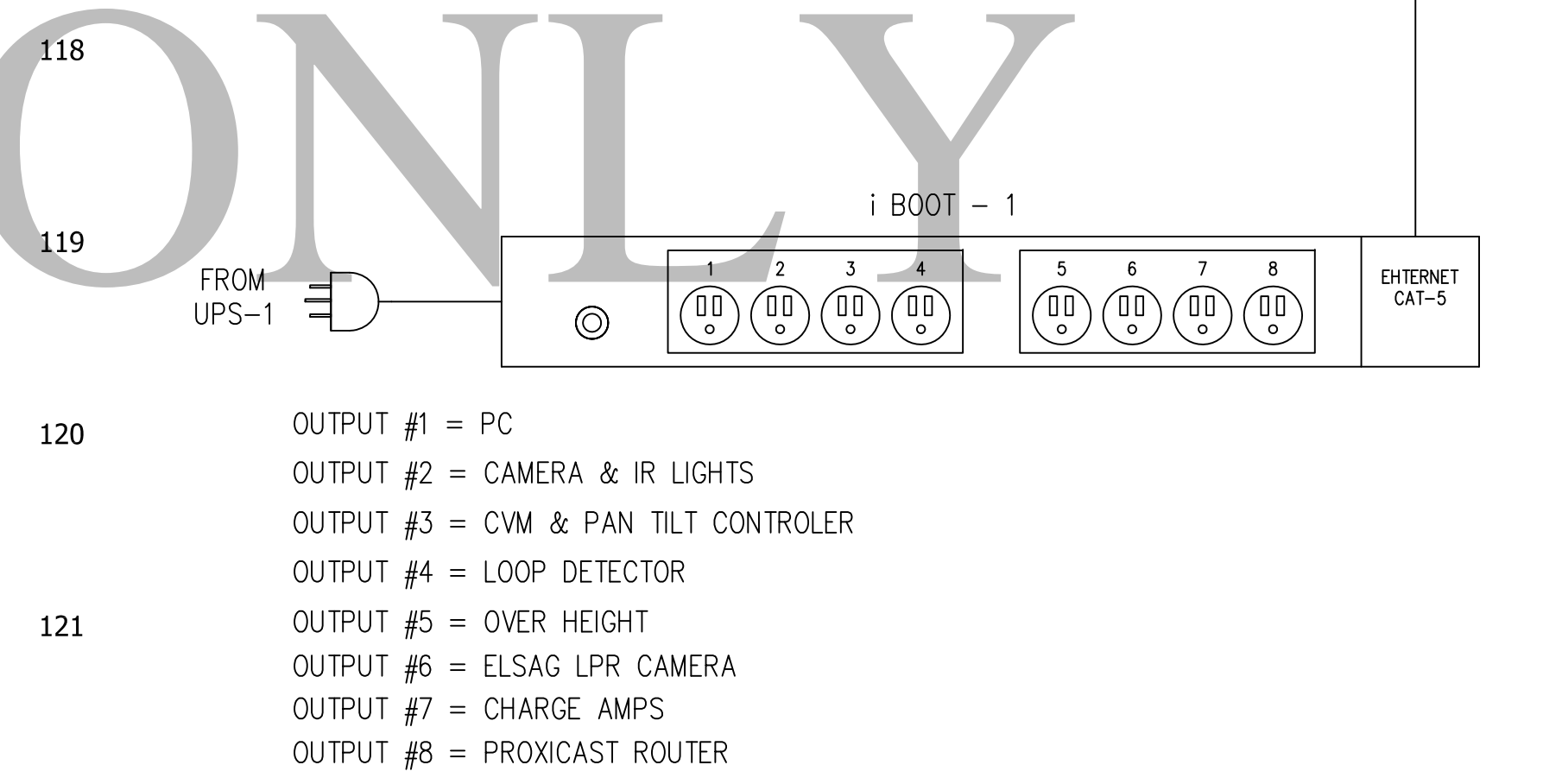
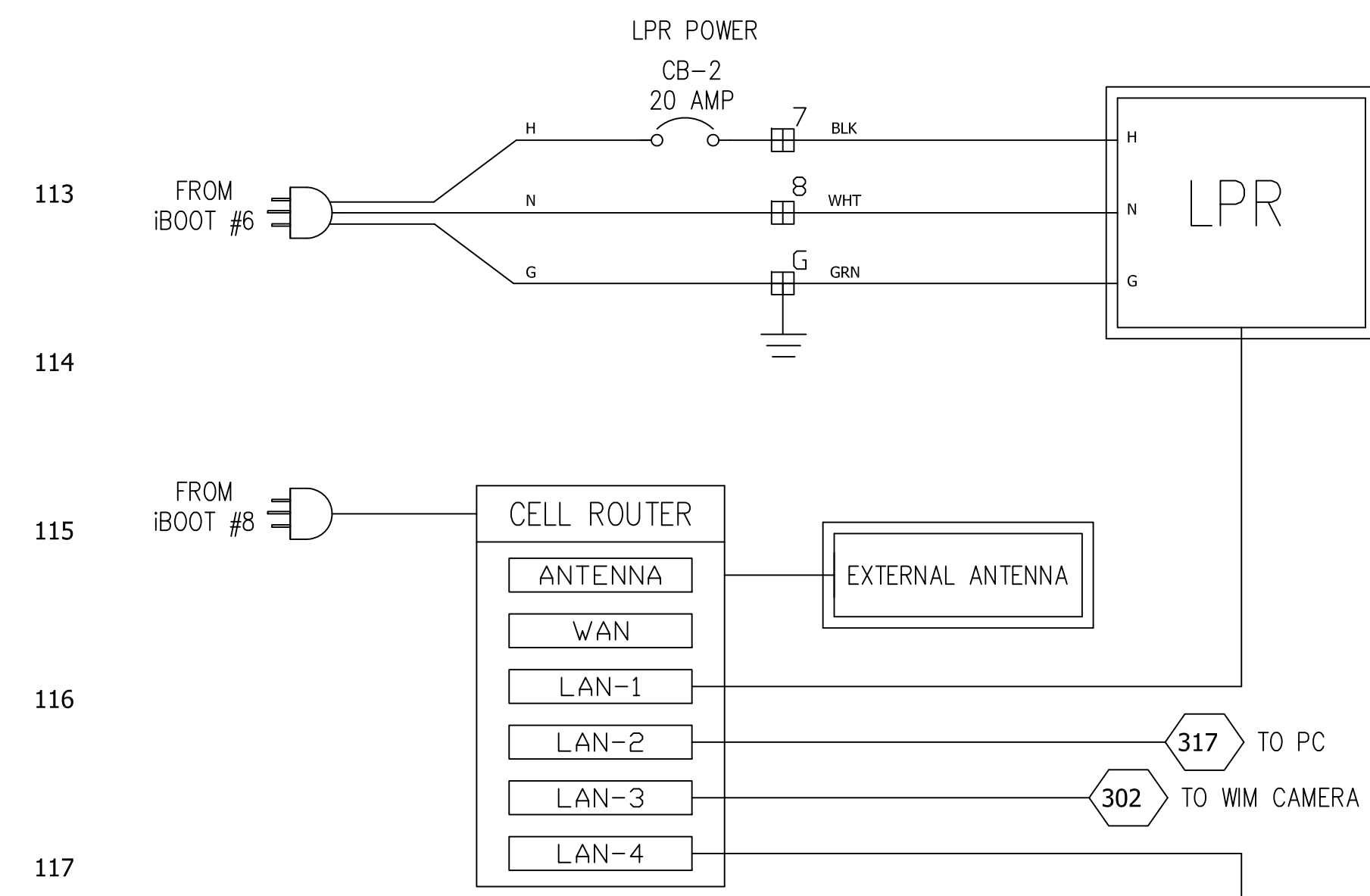
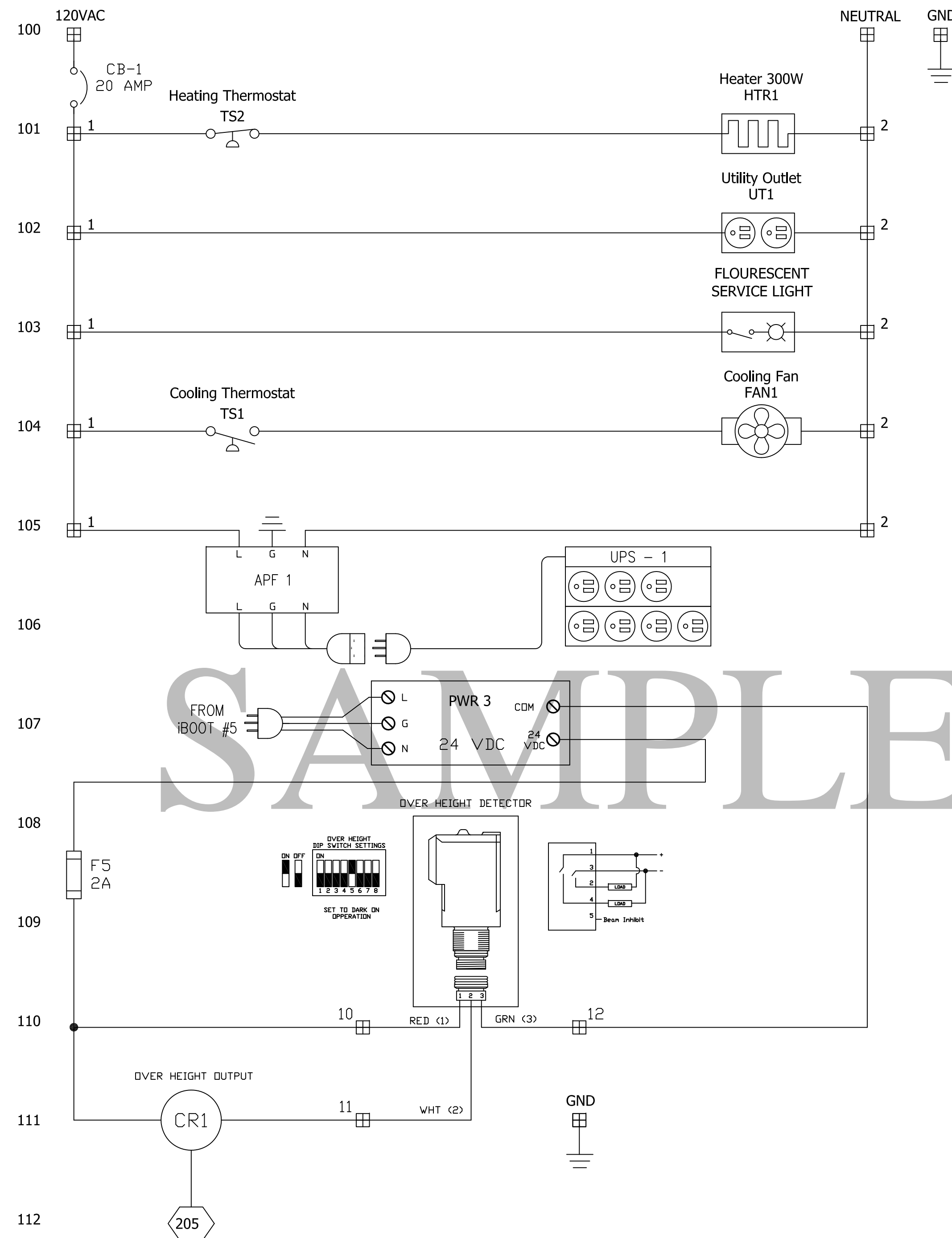


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**NORTHBOUND CONTROL BOX INTERNALS  
FOR VWS SYSTEM**

REVISIONS	CONTROL BOX INTERNALS
	SCALE NONE DATE 07/22/11 CONTRACT NO. CATS # 10897#A028400076
	DESIGNED BY JSC COUNTY CHARLES
	DRAWN BY JSC LOGMILE
	CHECKED BY WC TMS NO.
	F.A.P. NO. TOD NO.
	DRAWING NUMBER: BAMD-VWS-001 SHEET NO. 13 OF 21



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SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

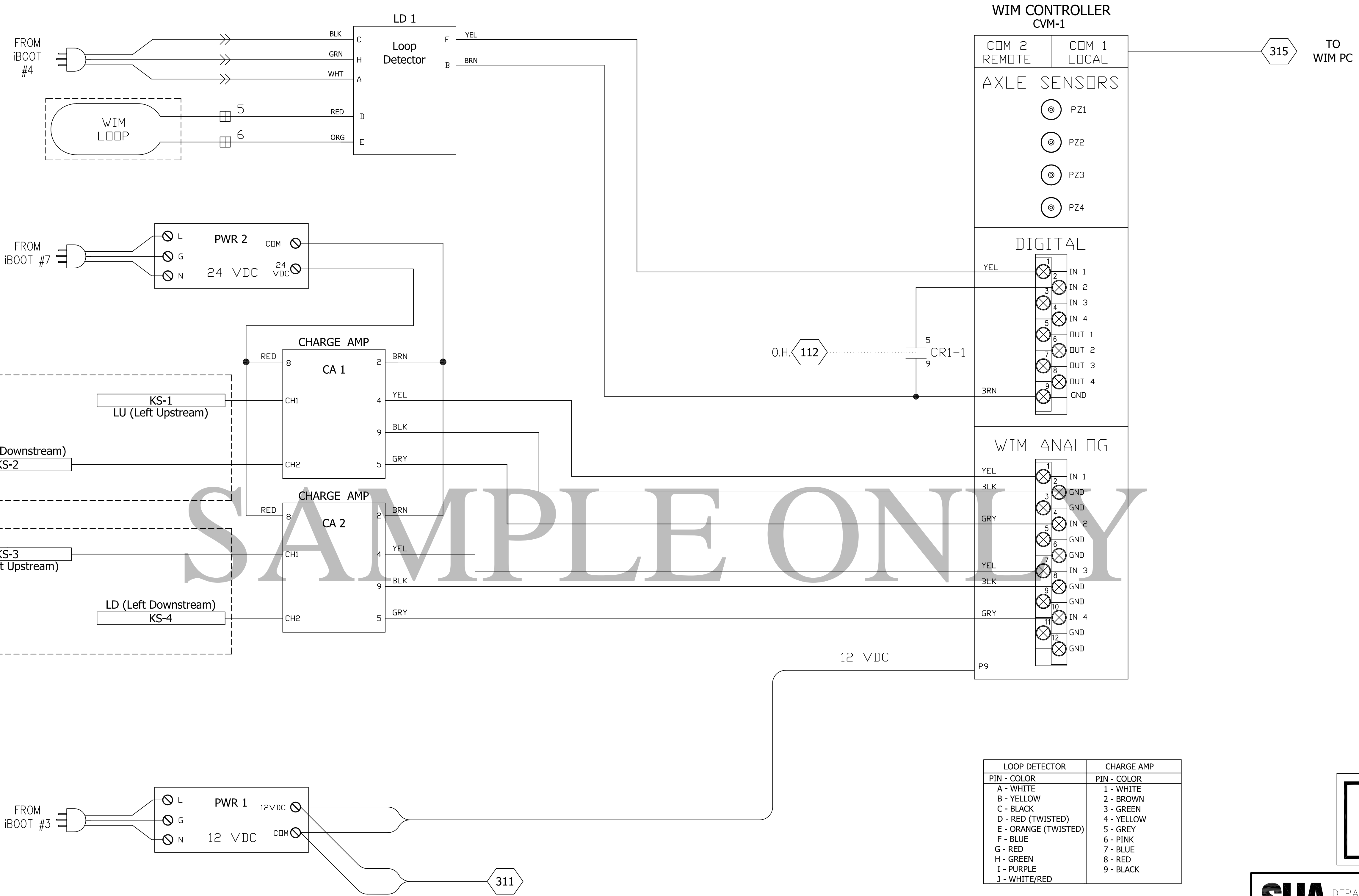
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	SCALE NONE DATE 07/22/11 CONTRACT NO. CATS II TOPP#A020400076
	DESIGNED BY JSC COUNTY CHARLES
	DRAWN BY JSC LOGMILE
	CHECKED BY WC TMS NO.
	F.A.P. NO. TOD NO.
	DRAWING NUMBER: BAMD-VWS-001 SHEET NO. 14 OF 21

NORTHBOUND CONTROL BOX SCHEMATIC SHEET 1 OF 4  
FOR VWS SYSTEM

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200  
201  
202  
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\* SEE NOTE 1

\* SEE NOTE 1

\* NOTE 1  
SEE GENERAL  
ARRANGEMENT DRAWING  
FOR CORRECT SENSOR  
POSITIONS

LOOP DETECTOR PIN - COLOR	CHARGE AMP PIN - COLOR
A - WHITE	1 - WHITE
B - YELLOW	2 - BROWN
C - BLACK	3 - GREEN
D - RED (TWISTED)	4 - YELLOW
E - ORANGE (TWISTED)	5 - GREY
F - BLUE	6 - PINK
G - RED	7 - BLUE
H - GREEN	8 - RED
I - PURPLE	9 - BLACK
J - WHITE/RED	

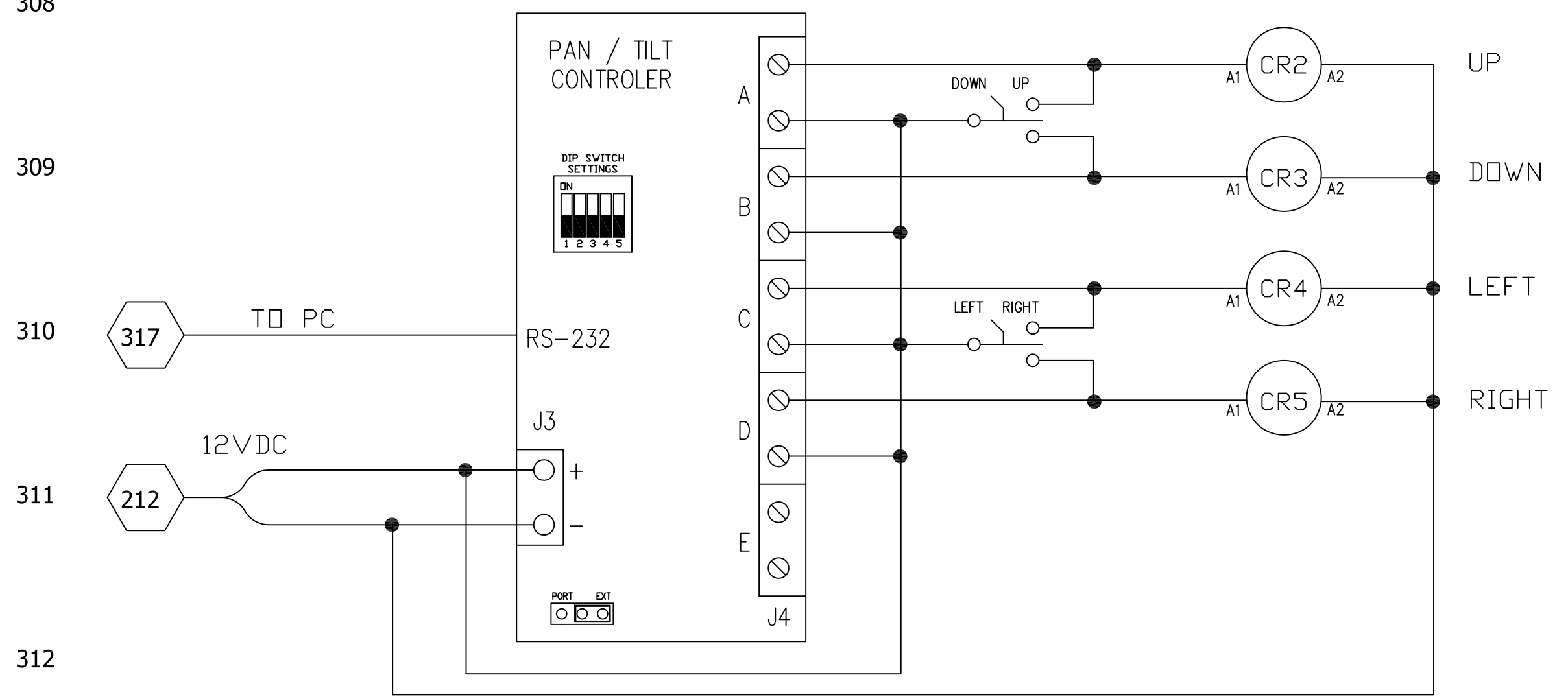
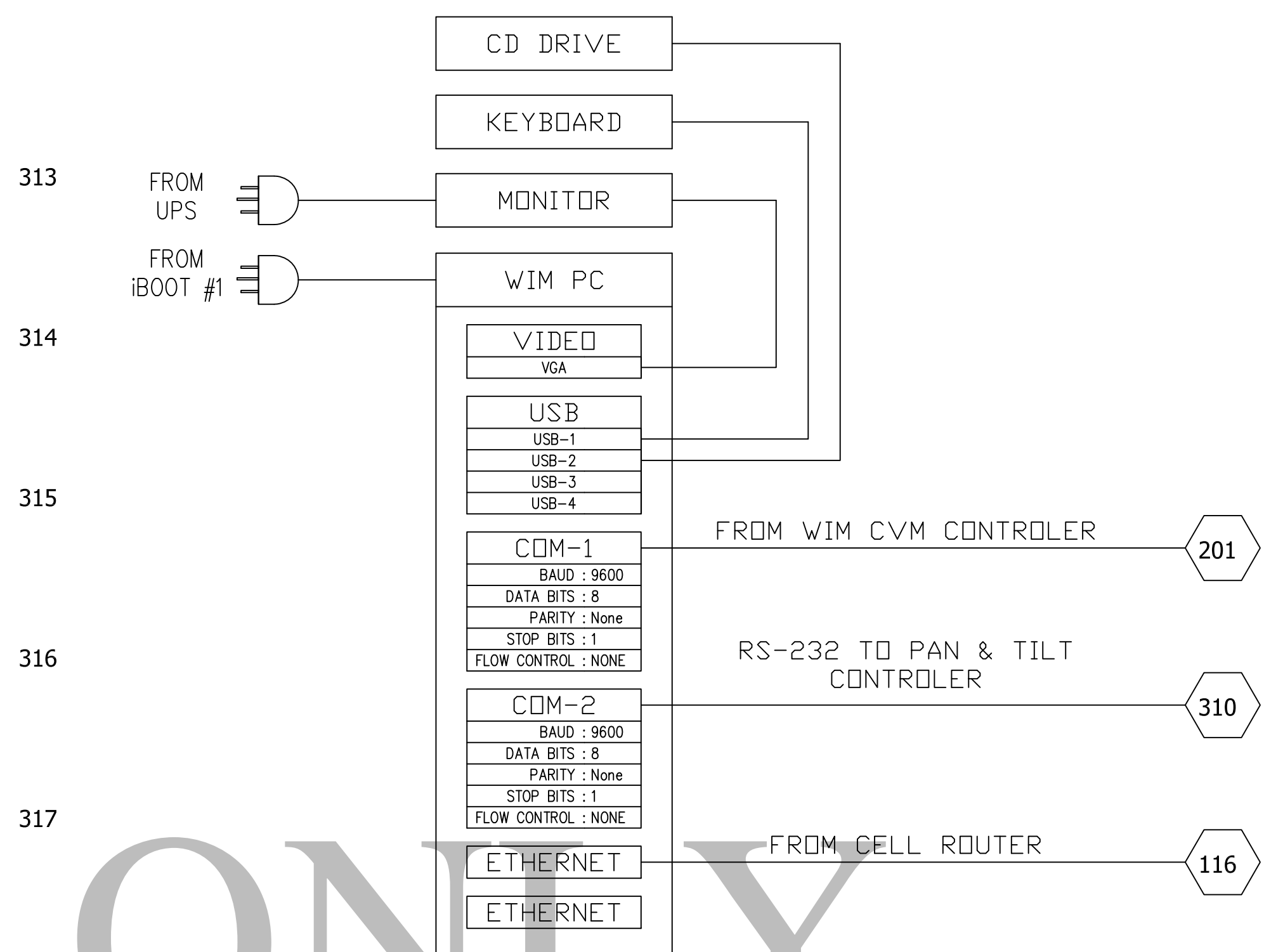
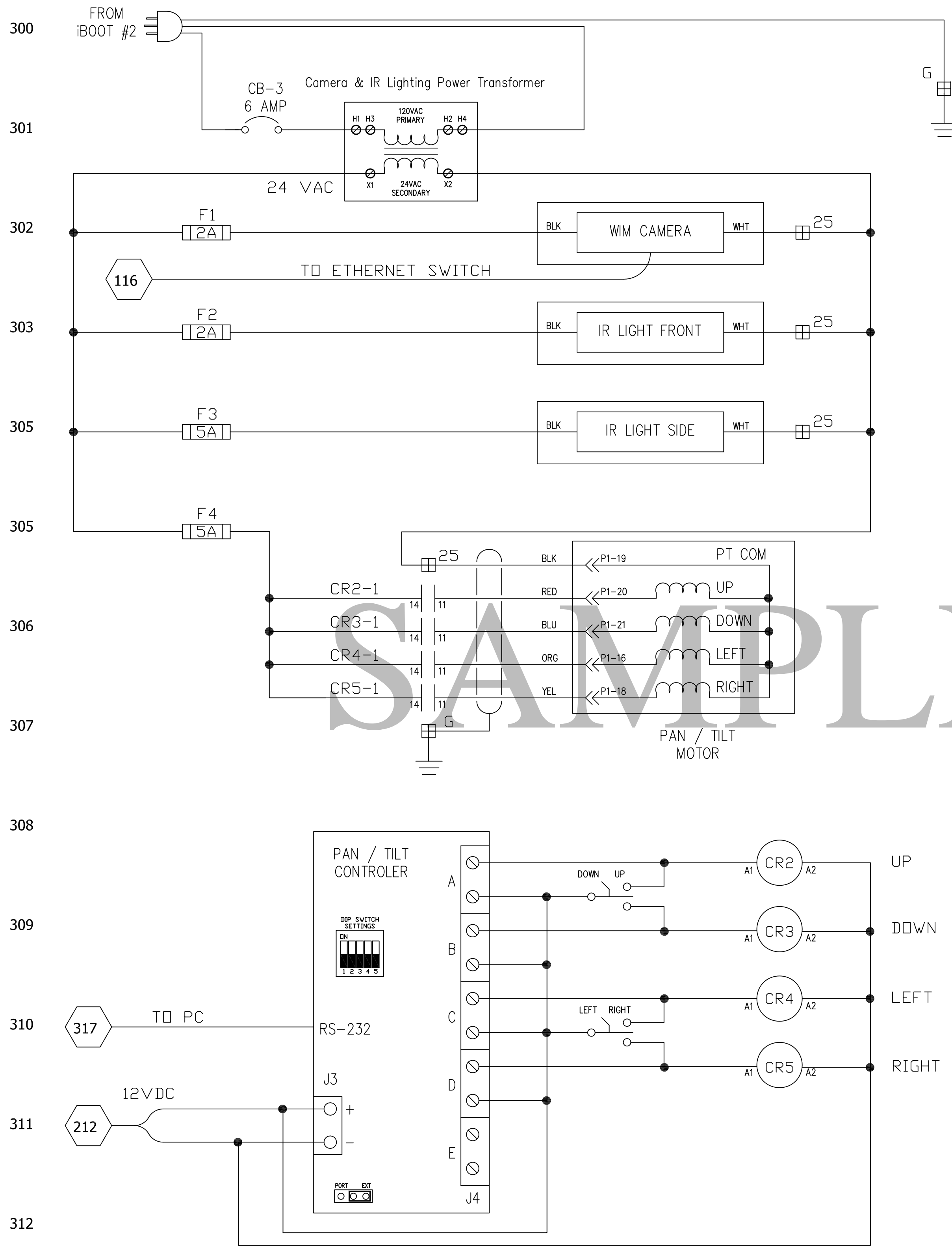
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REVISIONS	CONTROL BOX SCHEMATIC
	SCALE NONE DATE 07/22/11 CONTRACT NO. CATS II TOPP#A020400076
	DESIGNED BY JSC COUNTY CHARLES
	DRAWN BY JSC LOGMILE
	CHECKED BY WC TMS NO.
	F.A.P. NO. TOD NO.
	DRAWING NUMBER: BAMD-VWS-001 SHEET NO. 15 OF 21

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NORTHBOUND CONTROL BOX SCHEMATIC SHEET 2 OF 4  
FOR VWS SYSTEM



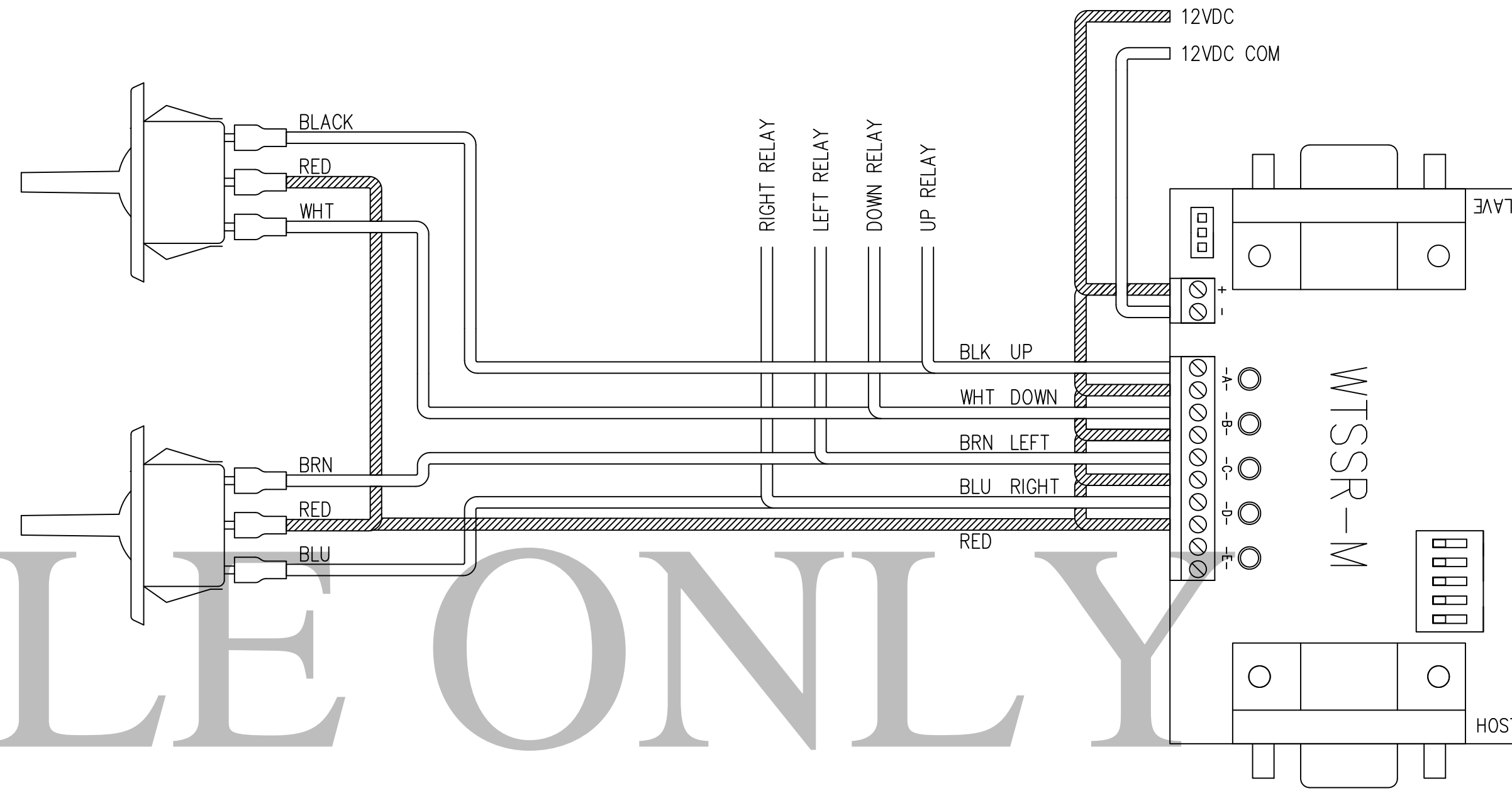
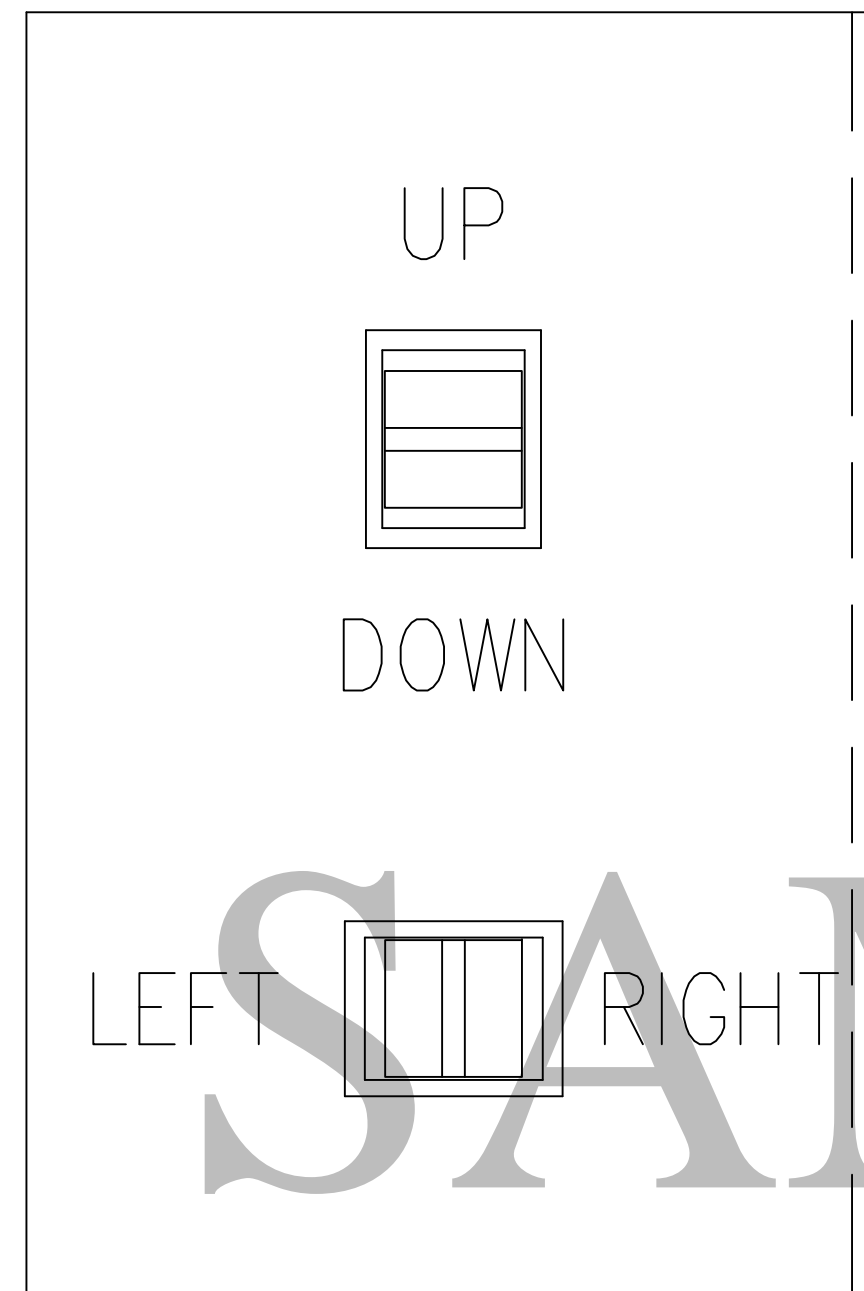
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REVISIONS	CONTROL BOX SCHEMATIC
	SCALE NONE DATE 07/22/11 CONTRACT NO. CATS II TOPP#A020400076
	DESIGNED BY JSC COUNTY CHARLES
	DRAWN BY JSC LOGMILE
	CHECKED BY WC TMS NO.
	F.A.P. NO. TOD NO.
	DRAWING NUMBER: BAMD-VWS-001 SHEET NO. 16 OF 21

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NORTHBOUND CONTROL BOX SCHEMATIC SHEET 3 OF 4  
FOR VWS SYSTEM



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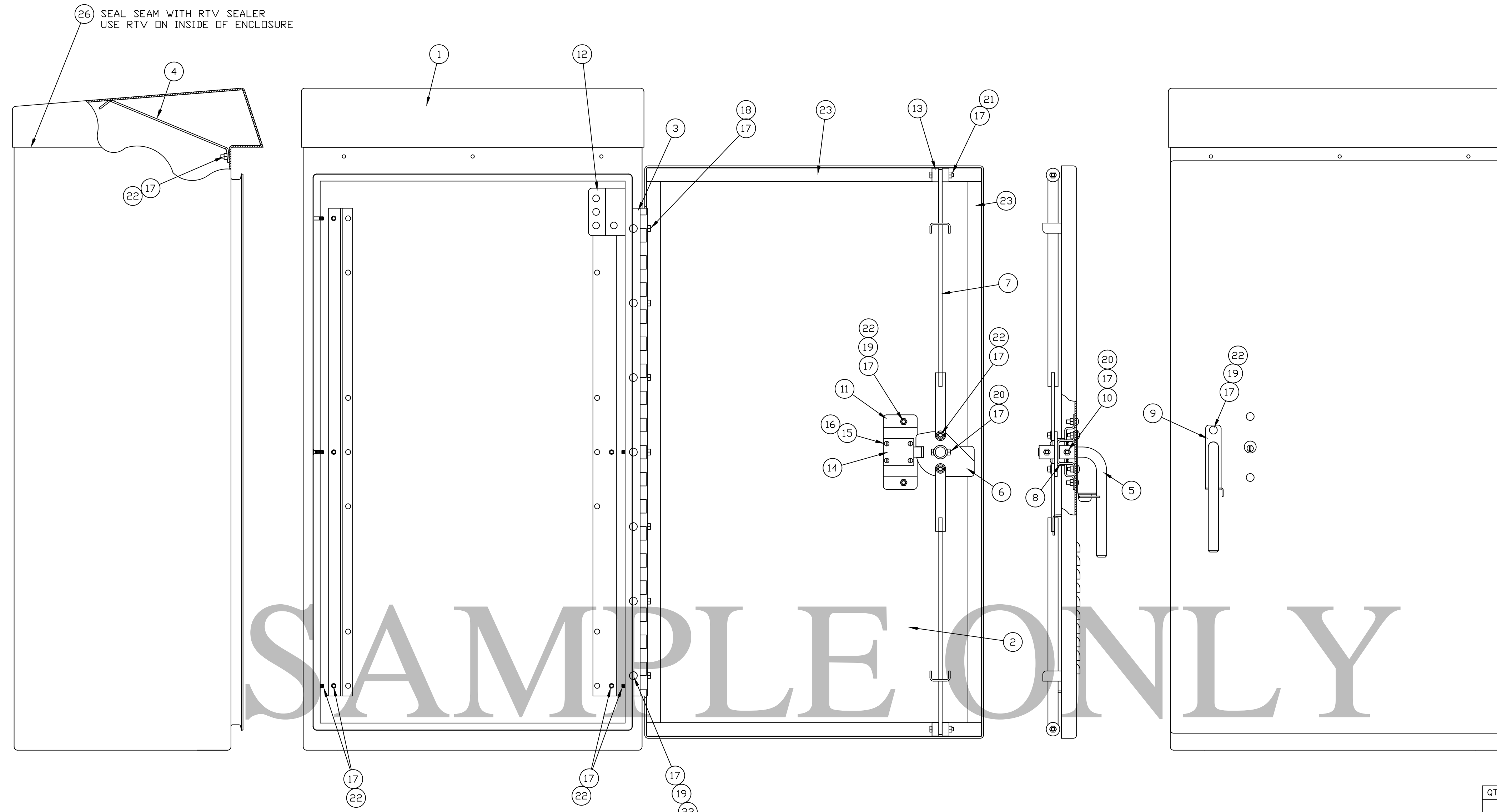
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STATE HIGHWAY ADMINISTRATION  
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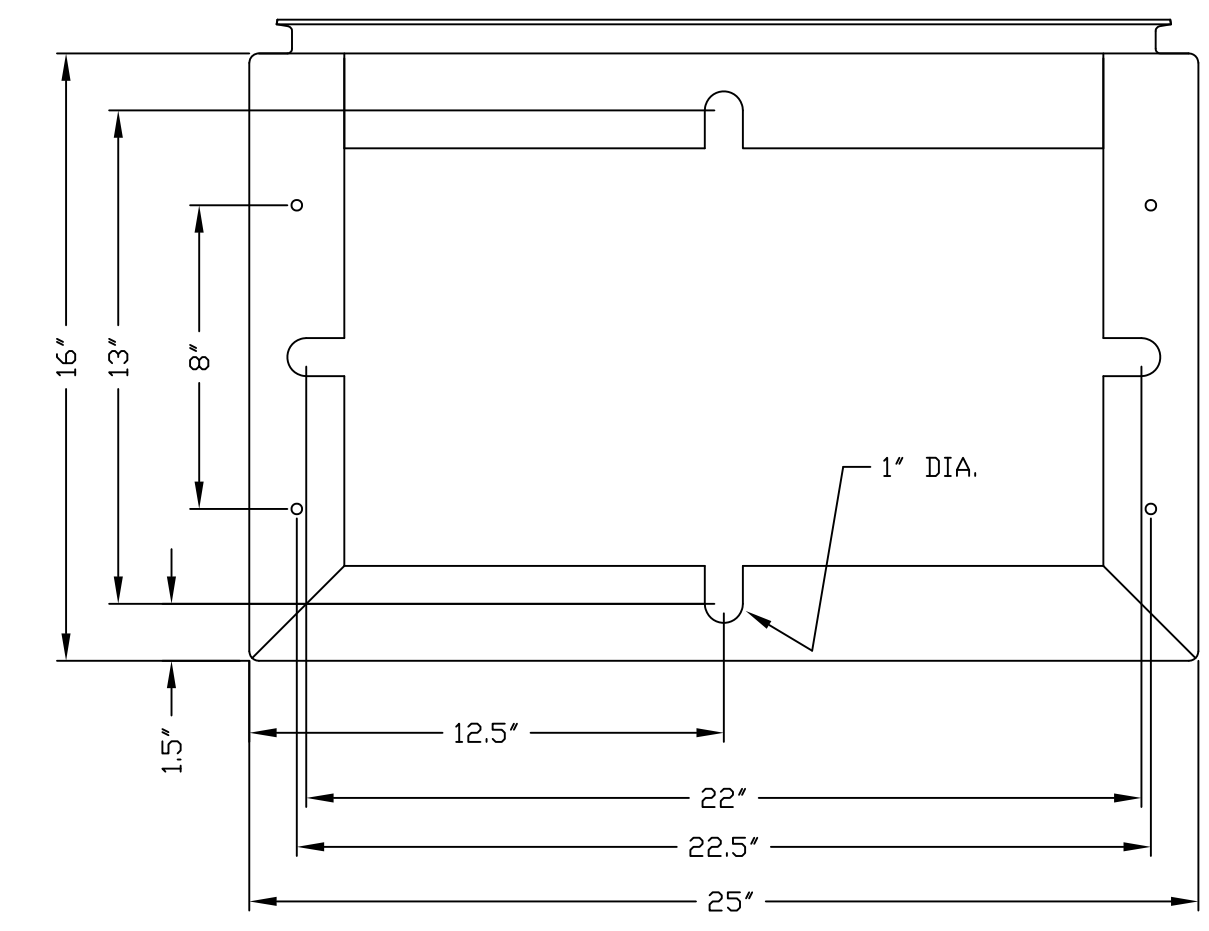
REVISIONS	CONTROL BOX SCHEMATIC
	SCALE NONE DATE 07/22/11 CONTRACT NO. CATS II TOPP#A020400076
	DESIGNED BY JSC COUNTY CHARLES
	DRAWN BY JSC LOGMILE
	CHECKED BY WC TMS NO.
	F.A.P. NO. TOD NO.
	DRAWING NUMBER: BAMD-VWS-001 SHEET NO. 17 OF 21

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NORTHBOUND CONTROL BOX SCHEMATIC SHEET 4 OF 4  
FOR VWS SYSTEM



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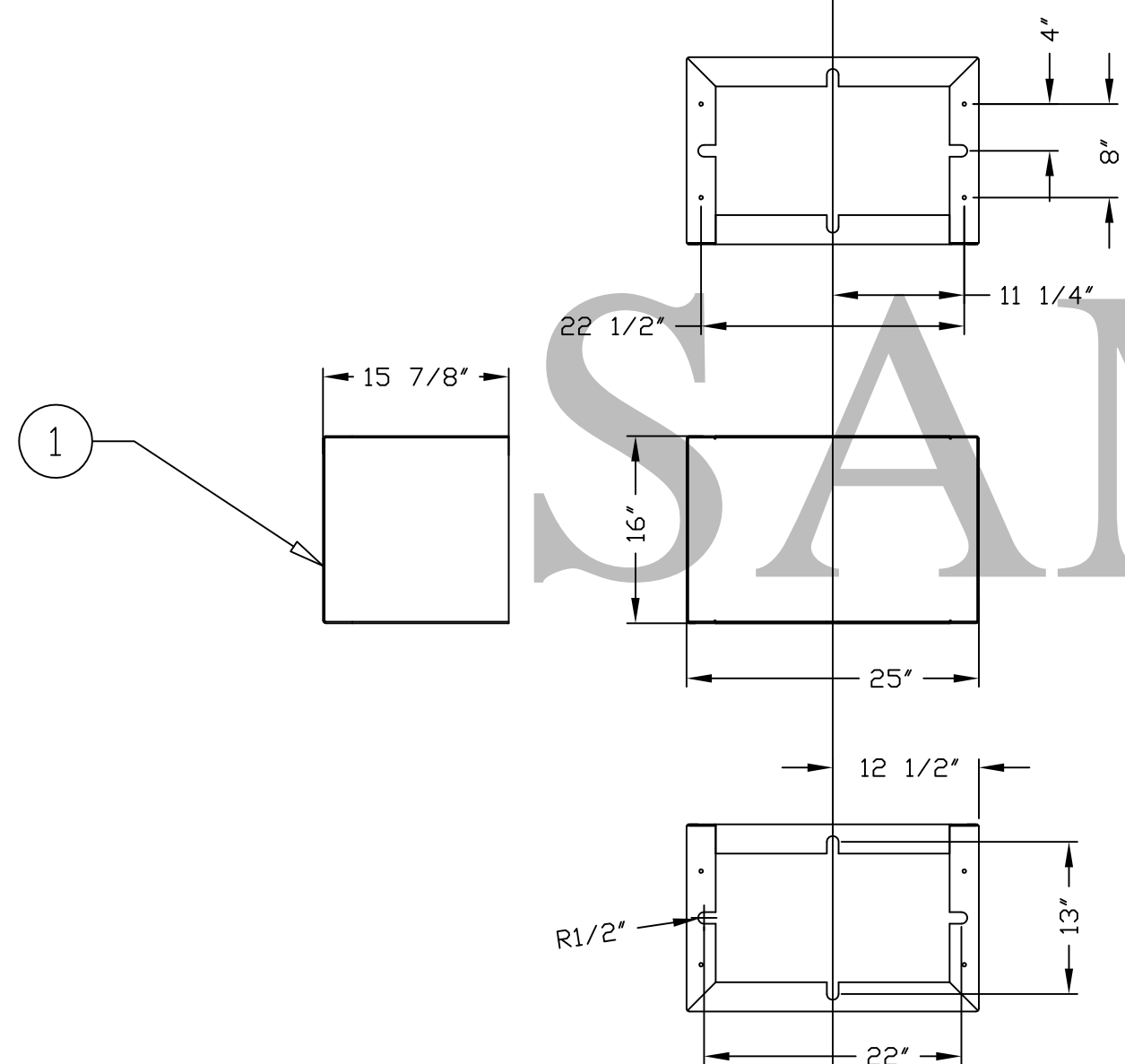
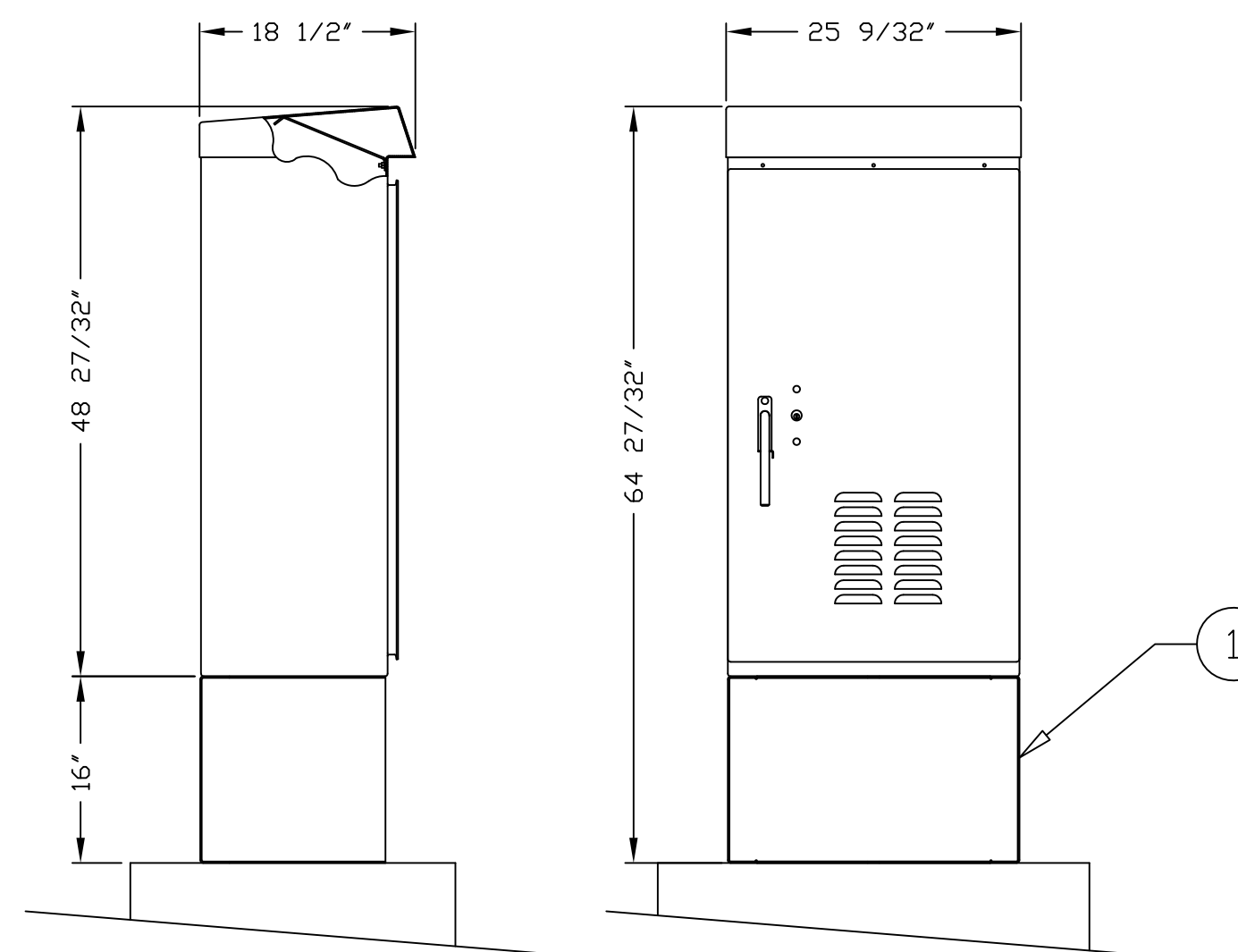
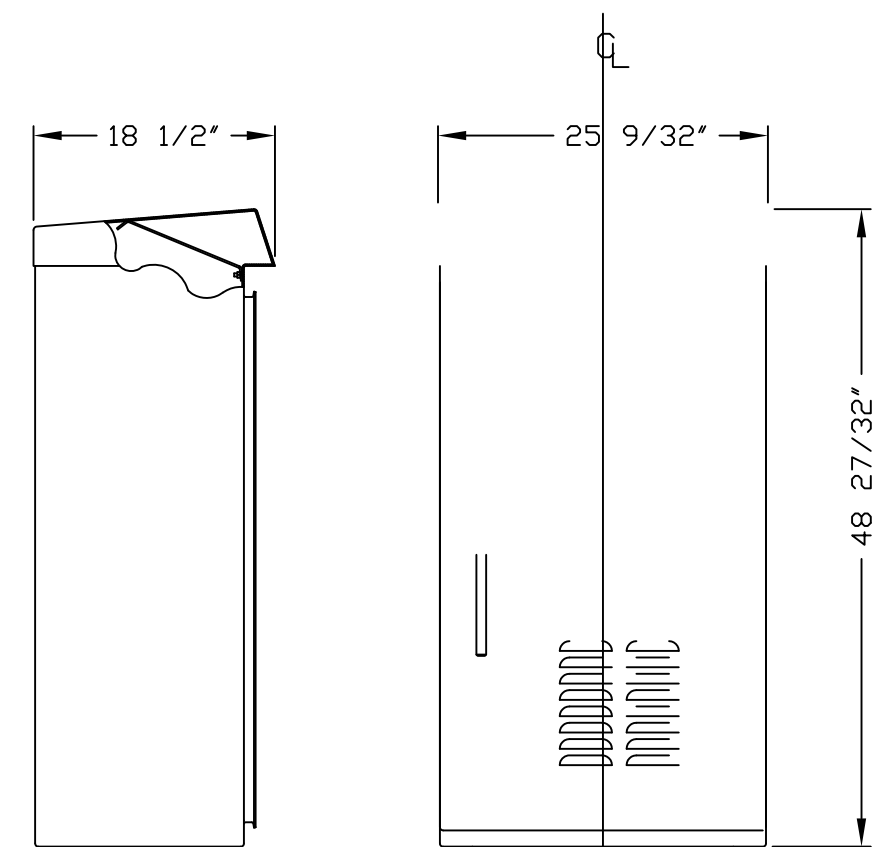
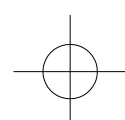
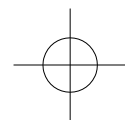
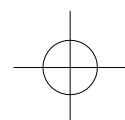
A/R	QTY.	ITEM ASSY	PART/DWG. NUMBER	DESCRIPTION	MATERIAL OR SOURCE	WT. EACH	
26			6560-0041	RTV SEALER CLEAR			
25							
24							
129.5'	23		6650-0018	GASKET MATERIAL	2 PIECES CUT 24 3/4" LONG 2 PIECES CUT 40" LONG		
32	22		6024-0004	WASHER FLAT S.S.	1/4"		
2	21		6007-0015	BOLT HEX HEAD S.S.	1/4-20 x 1 3/4"		
2	20		6007-0023	BOLT HEX HEAD S.S.	1/4-20 x 1 1/4"		
11	19		6007-0024	BOLT CARRAGE S.S.	1/4-20 x 3/4"		
7	18		6007-4100	BOLT CARRAGE S.S.	1/4-20 x 1/2"		
45	17		6013-0026	1/4-20 HEX JAM S.S.	ELASTIC STOP NUT		
4	16		6024-1010	#10 STARWASHER			
4	15		6021-1225	ROUND HEAD MACH SCW	10-32 x 1 1/4"		
1	14		6540-0011	DOOR LOCK A1548IRS	245054810		
4	13		8543-B029-08	ROLLER WHEEL			
1	12		8543-C008-08	DOOR SWITCH BRACKET			
1	11		8543-C004-0A	LOCK MOUNTING BRKT			
1	10		8543-B005-08	LOCK COLLAR			
1	9		8543-B018-08	HANDLE LOCK BRACKET			
1	8		8543-B006-08	HANDLE BRACKET			
2	7		8543-C025-0A	LATCH BAR			
1	6		8543-B019-0A	LATCH ASSY			
1	5		8543-C017-0A	HANDLE WELDMENT			
4							
1	3		8543-B011-0A	HINGE WELDMENT			
1	2		ED207050-13	DOOR WELDMENT			
1	1		ED207050-8	ENCLOSURE WELDMENT			
QTY.	QTY.	QTY.	ITEM ASSY	PART/DWG. NUMBER	DESCRIPTION	MATERIAL OR SOURCE	WT. EACH
			WT.	PARTS/MATERIAL LIST			

AS BUILT  
02/06/12

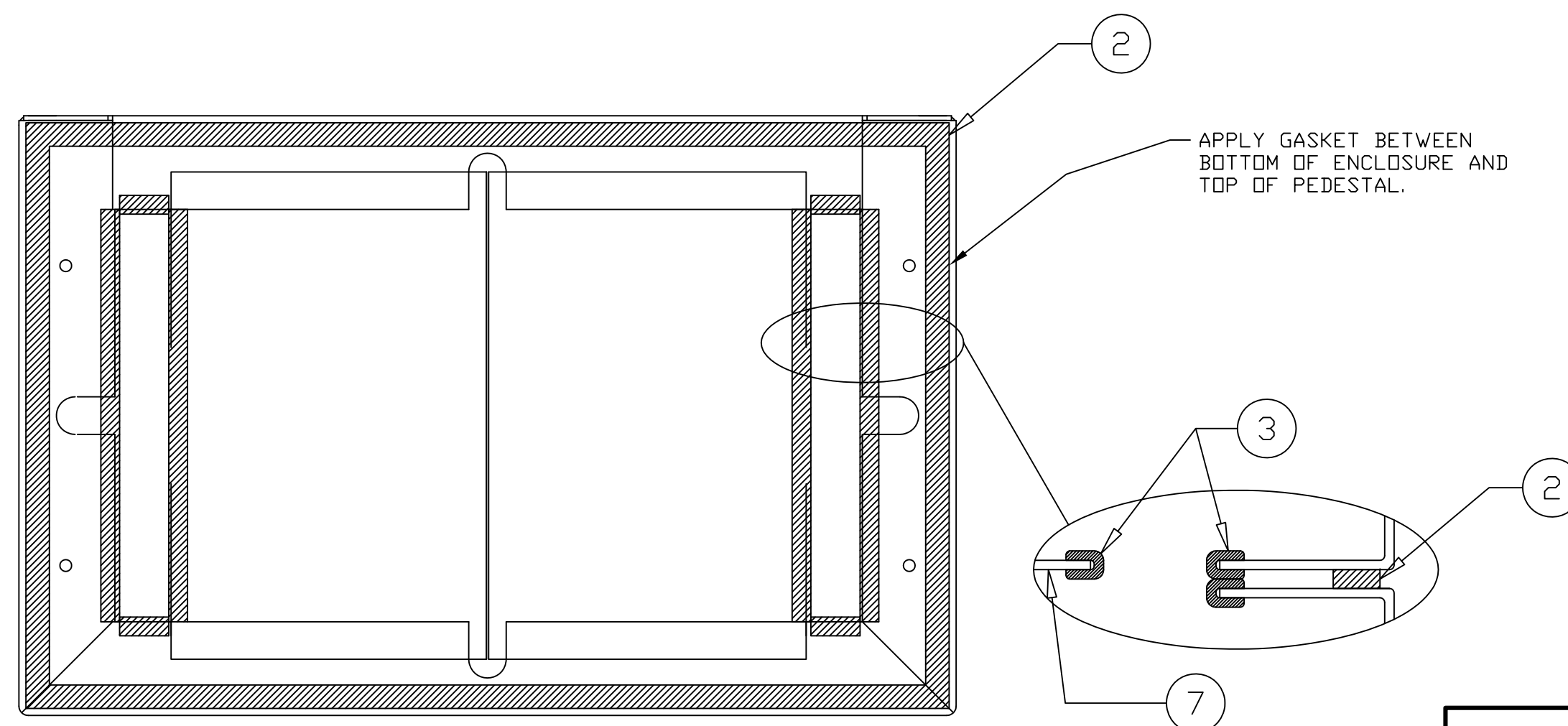
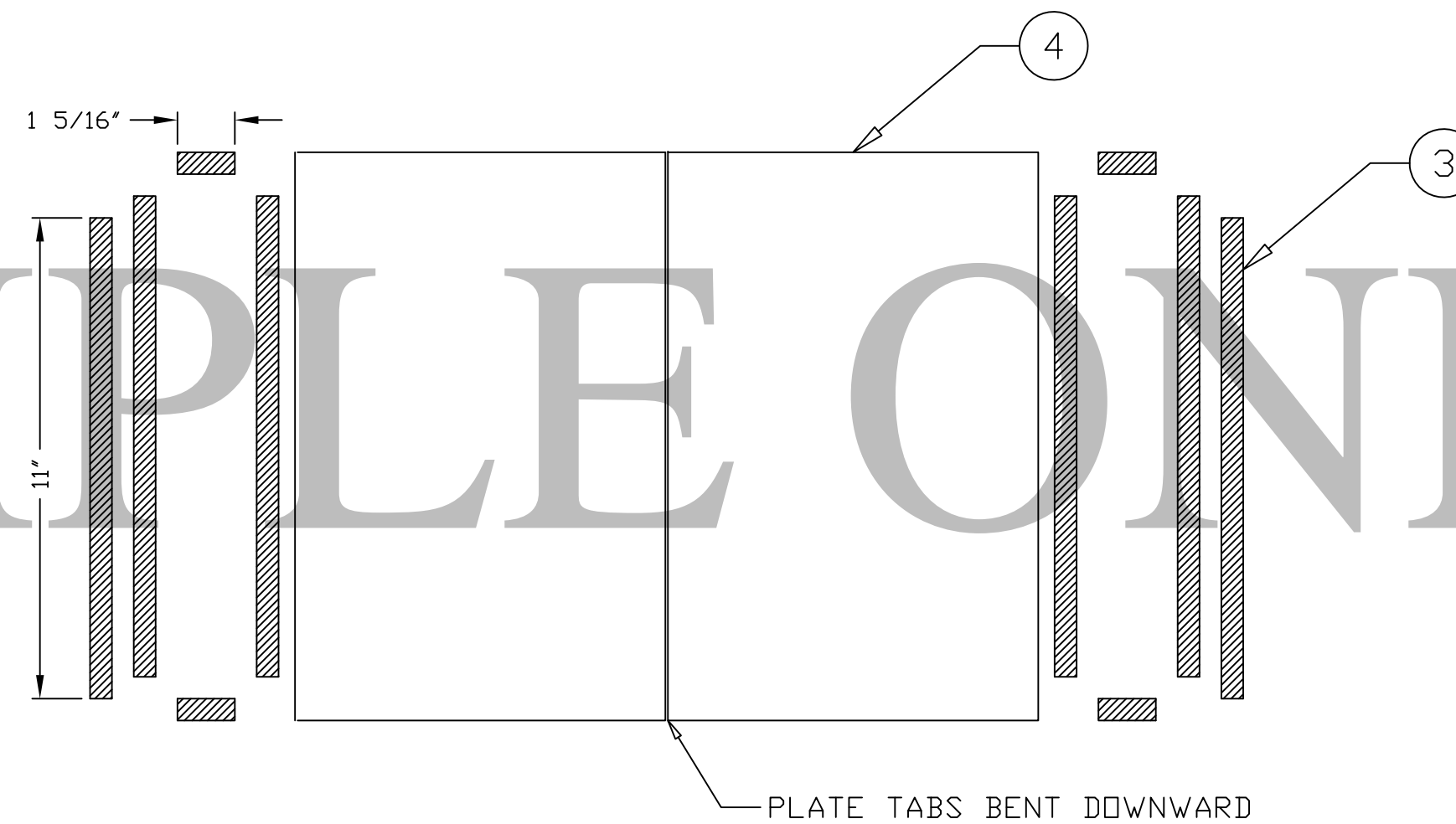
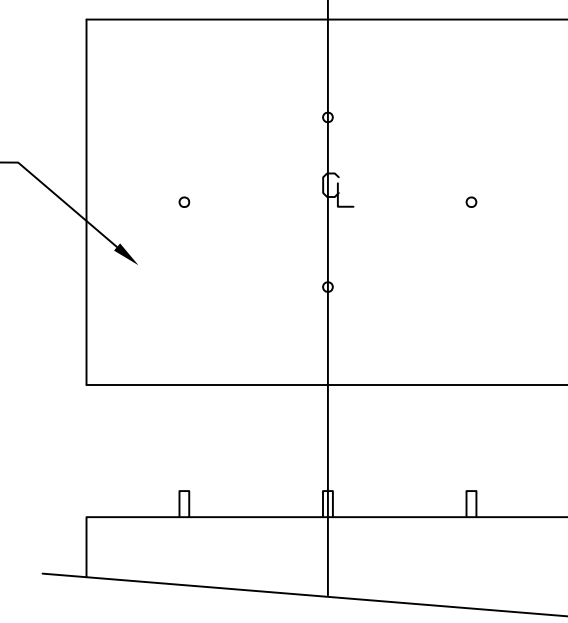
**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION  
SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

**STRUCTURAL CONSULTANTS**  
11725 Cloverland Court, Suite C,  
Baton Rouge, La. 70809

REVISIONS	WIM ENCLOSURE	
	SCALE NONE	DATE 07/22/11 CONTRACT NO. CATS II TOPP#A020400076
	DESIGNED BY JSC	COUNTY CHARLES
	DRAWN BY JSC	LOGMILE
	CHECKED BY WC	TIMS NO.
	F.A.P. NO.	TOD NO.
	DRAWING NUMBER: BAMD-VWS-001	SHEET NO. 18 OF 21



CUSTOMER FURNISHED SLAB AND ANCHOR BOLTS  
(SEE DRAWING 8543-D207-0A FOR DETAIL)



**ASSEMBLY INSTRUCTIONS:**

- 1) ANCHOR PEDESTAL TO CONCRETE BASE.
- 2) APPLY GASKET TO TOP OF PEDESTAL. SEE ILLUSTRATION FOR CORRECT POSITION.
- 3) BOLT WIM ENCLOSURE TO PEDESTAL USING THE SUPPLIED BOLTS, NUTS, AND WASHERS.
- 4) PLACE BOTH FALSE BOTTOM PLATES IN THE ENCLOSURE. SEE ILLUSTRATION FOR CORRECT PLACEMENT.
- 5) CUT 6 PIECES OF TRIM 11' LONG AND 4 PIECES 1 5/8' LONG.
- 6) WITH FALSE BOTTOM PLATE IN POSITION, APPLY TRIM TO BOTTOM PLATES. THIS TRIM ALSO ACTS AS A STOP TO PREVENT THE PLATE FROM MOVING OUT OF POSITION.
- 7) APPLY REMAINING PIECES OF TRIM TO THERE RESPECTIVE EDGES. SEE ILLUSTRATION FOR CORRECT LOCATION.

QTY.	QTY.	QTY.	ITEM ASSY	PART/DWG. NUMBER	DESCRIPTION	MATERIAL OR SOURCE	WT. EACH
	4	7		6024-0039	LOCK WASHER		
	4	6		6013-0045	1/4 X 20 NUT		
	4	5		6007-0011	1/4 X 20 BOLT		
	2	4		8543-C208-08	FALSE BOTTOM		
	8 FT	3		6540-1113	TRIM		
	8 FT	2		6030-0051	GASKET		
	1	1		8543-D150-0A	PEDESTAL		
PARTS/MATERIAL LIST							

SAMPLE ONLY

**AS BUILT**  
02/06/12

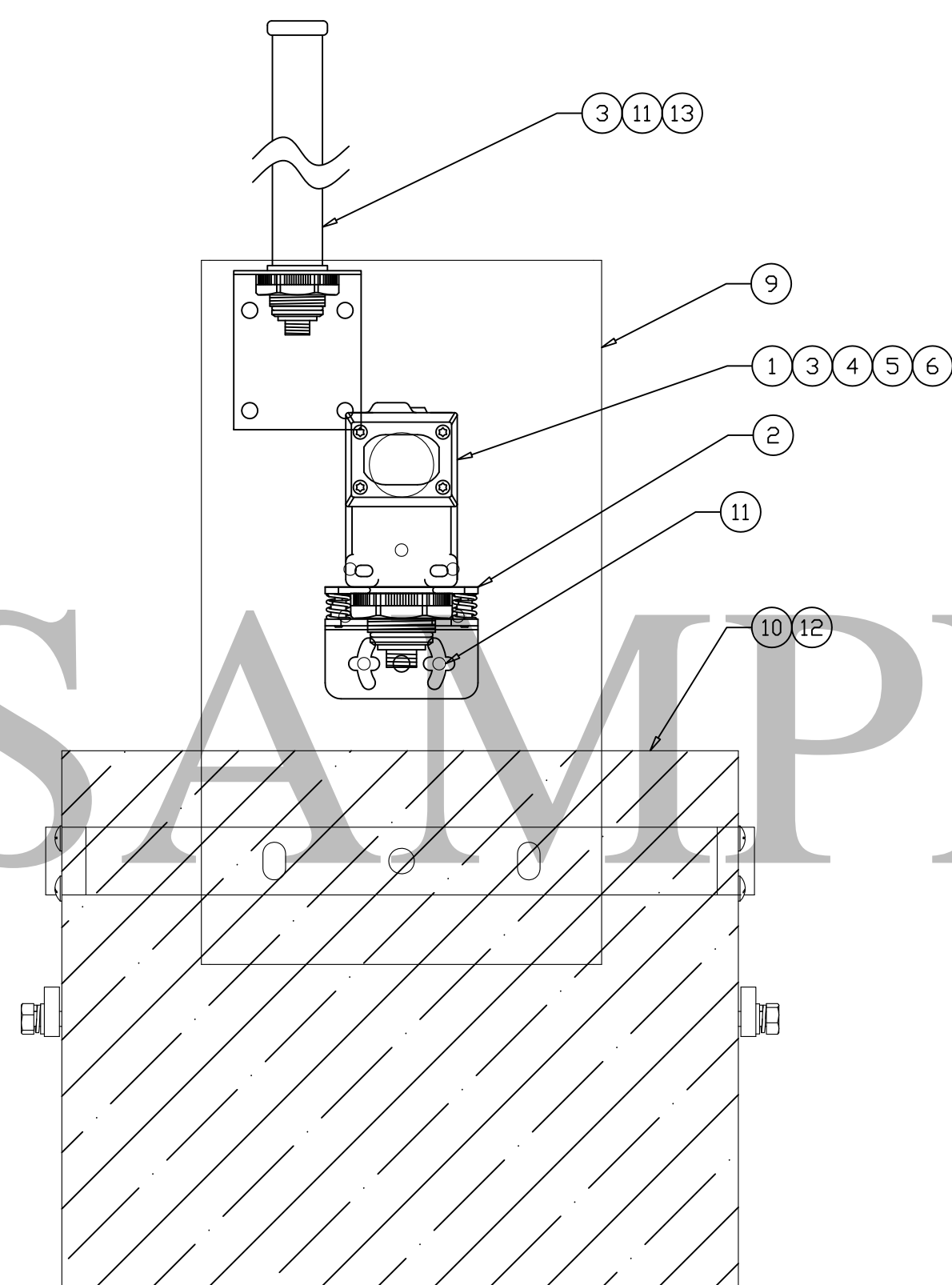
**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
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REVISIONS	PEDESTAL MOUNTING DETAIL	
	SCALE NONE	DATE 07/22/11 CONTRACT NO. CATS II TOPP#A020400076
	DESIGNED BY JSC	COUNTY CHARLES
	DRAWN BY JSC	LOGMILE
	CHECKED BY WC	TIMS NO.
	F.A.P. NO.	TOD NO.
	DRAWING NUMBER: BAMD-VWS-001	SHEET NO. 19 OF 21

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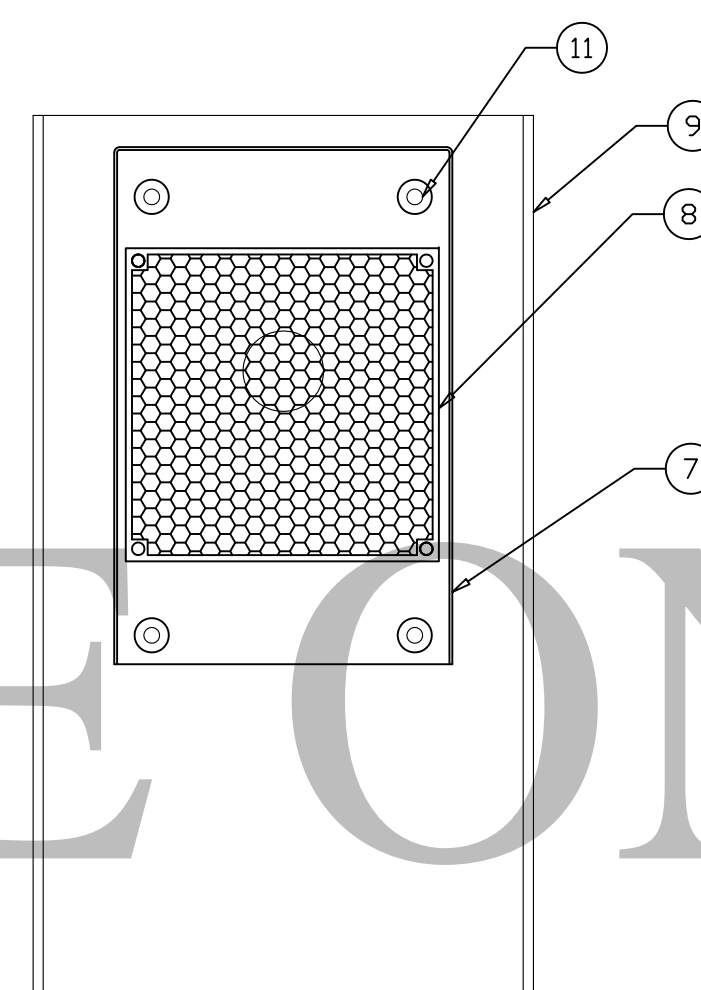
1	13	CA4N100	ANTENNA CABLE
AR	12	6980-0252	IR LIGHT POWER CABLE
10	11	M6 BOLT	M6 BOLT
1	10	SLED120-8BD	IR LIGHT
2	9	EXMB.015	POLE MOUNTING PLATE
1	8	BRT-92X92C	OVER HEIGHT REFLECTOR
1	7	MB207050 SHT3	OVER HEIGHT REFLECTOR HOUSING
1	6	Q45BB6LLPQ6	OVER HEIGHT SENSOR
AR	5	6980-1029	OVER HEIGHT SENSOR CABLE
1	4	FIC-M12F5	OVER HEIGHT SENSOR CABLE CONNECTOR
1	3	ANT-126-001	CELLULAR ANTENNA WITH BRACKET
1	2	SMB46A	OVER HEIGHT SENSOR MOUNTING BRACKET
1	1	45LM58D	OVER HEIGHT SENSOR TIMING MODULE

OVER HEIGHT DETECTOR &  
SIDE IR LIGHT ASSEMBLY &  
CELLULAR ANTENNA



FRONT VIEW

OVER HEIGHT REFLECTOR



FRONT VIEW

SAMPLE ONLY

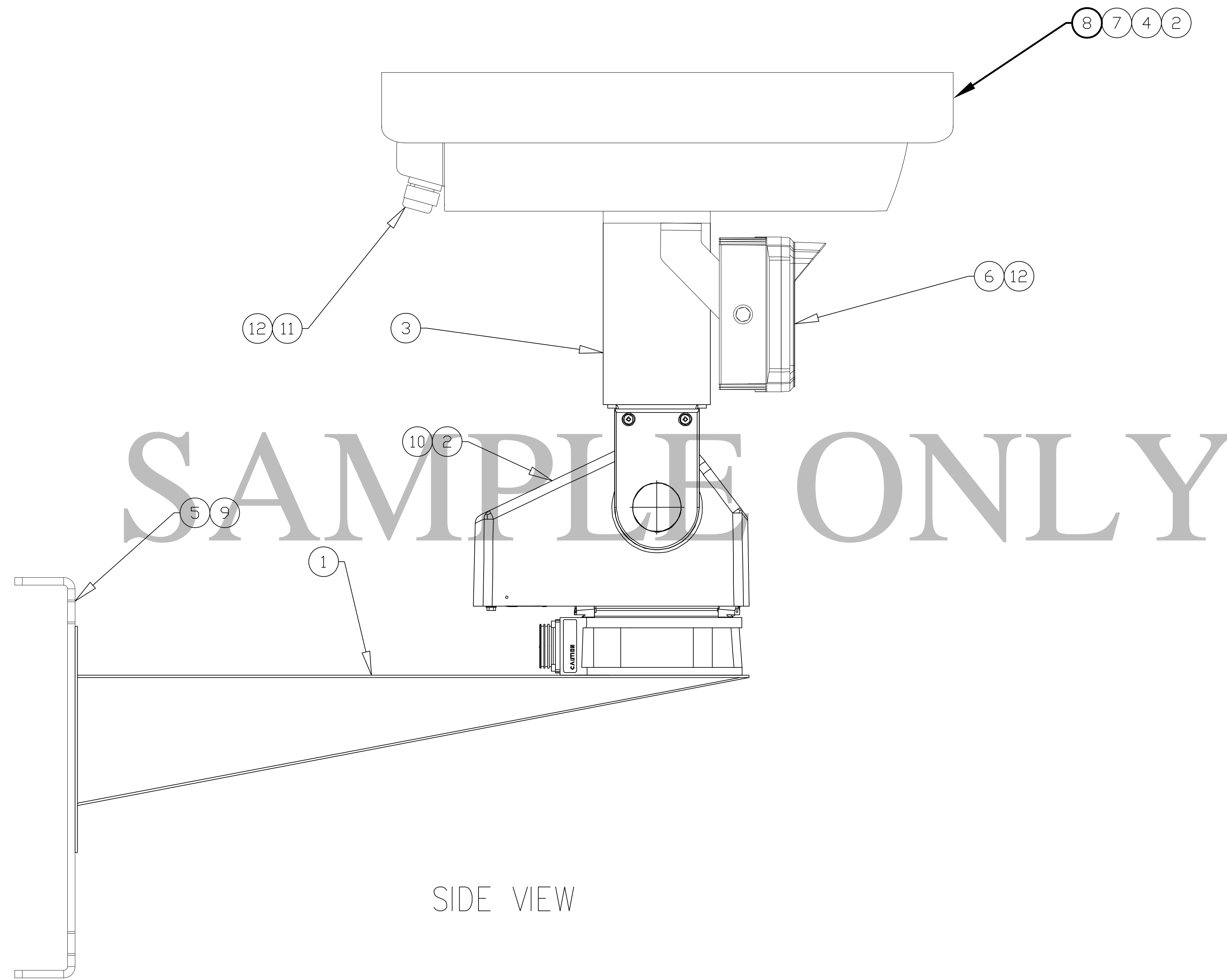
**AS BUILT**  
02/06/12

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION  
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US 301 NORTHBOUND

REVISIONS	OVER HEIGHT DETECTOR DETAILS
	SCALE NONE DATE 07/22/11 CONTRACT NO. CATS II TOPP#A020400076
	DESIGNED BY JSC COUNTY CHARLES
	DRAWN BY JSC LOGMILE
	CHECKED BY WC TMS NO.
	F.A.P. NO. TOD NO.
	DRAWING NUMBER: BAMD-VWS-001 SHEET NO. 20 OF 21

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AR	12	6980-0252	IR & CAMERA POWER CABLE
2	11	6610-2081	CORD GRIP
AR	10	244680	PAN TILT CONTROL CABLE
AR	9	M6 BOLT	M6 BOLT
AR	8	CAT5 CABLE	CAT5 CABLE
2	7	6560-0304	RUBBER PLUG
1	6	UFLED 60-8BD	IR LIGHT
1	5	LTC 9225/00	POLE MOUNTING PLATE
1	4	KBE-498-V75-20N	CAMERA
1	3	MC207050 SHT2	SPACER
1	2	LTC 9418/20	PAN TILT MOTOR
1	1	LTC 9222/00	CAMERA MOUNTING BRACKET



SIDE VIEW

**AS BUILT**  
02/06/12

**SHA** STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
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MOTOR CARRIER/ TRAFFIC ENGINEERING DESIGN DIVISION  
SHA VIRTUAL WEIGH STATION (VWS) PROJECT  
US 301 NORTHBOUND

REVISIONS	<b>CAMERA , IR LIGHT &amp; PAN TILT MOTOR</b>
SCALE NONE DATE 07/22/11 CONTRACT NO. CATS II TOPP#A020400076	
DESIGNED BY JSC COUNTY CHARLES	
DRAWN BY JSC LOGMILE	
CHECKED BY WC TMS NO.	
F.A.P. NO. TOD NO.	
DRAWING NUMBER: BAMD-VWS-001	SHEET NO. 21 OF 21

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