


**VIRGINIA DEPARTMENT OF TRANSPORTATION**

**MATERIALS DIVISION**

**MEMORANDUM**

<b>GENERAL SUBJECT: Castings on Approved List 61</b>	<b>NUMBER: MD 459-23</b>
<b>SPECIFIC SUBJECT: Revise Section 204.32a to ensure the Manual of Instructions QA program is in accordance with Sec. 224 of the VDOT Specifications.</b>	<b>DATE: March 9, 2023</b>
	<b>SUPERSEDES:</b>
<b>APPROVED: Babish Charles dax24016</b>	<b>Charles A. Babish, PE State Materials Engineer</b>  Digitally signed by Babish Charles dax24016 Date: 2023.03.09 11:24:28 -05'00'

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**EFFECTIVE DATE**

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- This memorandum is effective April 1, 2023.
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**PURPOSE/NEED/SCOPE/REQUIREMENTS**

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Changes are in Blue Highlight

**Sec. 204.32 Steel**

**(a) Castings, Forgings, and Shafting**

(224)Malleable, Gray Iron, Ductile Iron and Steel Castings will be accepted from Approved List No. 61.

For a Casting Manufacturer to be included on Approved List No. 61, the Manufacturer shall be in the VDOT QA program described in the following section. The program involves sampling, testing, documentation, and certification of the product by the Manufacturer in combination with VDOT monitoring.

**Quality Control Plan**

The Manufacturer shall submit for VDOT's approval a Quality Control Plan. The plan must be site specific. The plan must indicate in detail how the Manufacturer proposes to control equipment, raw materials, production

methods and finished casting products to ensure that the specified products are obtained. The plan shall include the following:

- Cover sheet for each facility to include
  - Current date (month, date, year)
  - Physical location of the plant
  - Point of contact
  - Phone number
  - Email address
- List products that are manufactured under plan
- Description of how shipping records, inventory records, certifications, test report numbers, and other documents are maintained that are needed to ensure that shipment of castings have the proper acceptance documentation.
- Define all responsible parties
- The method of identification of each lot of material during manufacture, test, storage and shipment
- The method of sampling and testing of raw materials and the finished product, including lot determination and type of test performed.
- A plan for dealing with QC sample failures. This plan shall include how the Manufacturer plans to initiate an investigation and how the Manufacturer shall implement corrective action to remedy the cause of the problem.
- Sample shipping ticket/bill of lading for a VDOT project

The QC plan will be reviewed for content by a VDOT QA Industrial Inspector. The QA Industrial Inspector is responsible for the acceptance of the QC plan in accordance with the Castings Quality Control Plan Checklist found in appendix II-K of this chapter. The VDOT QA Industrial Inspector will be responsible for the Manufacturer's adherence to the approved QC plan. The VDOT QA Manager has the authority to remove non-compliant Manufacturers from Approved List No. 61.

The plant QC Manager shall update the QC plan annually and anytime changes are made such as changes in QC personnel, management, plant ownership or changes in items manufactured. The VDOT QA Industrial Inspector shall be notified by the QC Manager within three days of such changes occurring. Facility visits will be made annually or as needed.

The Manufacturer shall issue "We certify that these materials conform to AASHTO (specify test method) in accordance with the VDOT Specifications Section 224.02 and VDOT Castings Manufacturers Quality Assurance Program. These materials are manufactured in the USA." on each shipping document, and the statement shall be signed by a responsible company representative. When delivering directly to a VDOT project, shipping documents shall include Contractor, project number, and project descriptions. Copies of the shipping documents shall be emailed weekly to the QA Industrial Inspector monitoring the facility.

~~Steel, ductile iron, or malleable castings and steel forgings and shafting will be sampled and tested by the manufacturer. Certified physical and chemical analyses of these tests submitted to the Materials Division will be the basis of approval, and visual inspection in the field will be all that is required, as outlined in Sec. 207. See also Sec. 207 for exceptions to the above in cases where cast steel, ASTM A27, and malleable cast iron, ASTM A47, are used in rest area construction.~~

~~Gray iron, AASHTO M306 and M105, shall be accepted from Gray Iron Casting Manufacturers on QA Program (Approved List 61). Under this program, manufacturers will have approved Quality Control Plans, which define how they intend to maintain all shipping records, inventory records, test report numbers, and other documents needed to assure that materials shipped have the proper acceptance documentation. The Plan will define the responsible parties and describe when, where, and how the records are maintained. The Quality Control Plan will be reviewed for content by the Central Office, Quality Assurance Section. The Quality Assurance Engineer is responsible for the acceptance or rejection of the Quality Assurance Plan in accordance with the Gray Iron Quality Control Plan Checklist Found Appendix II-J of this chapter. The Quality Assurance Engineer shall be responsible~~

for the manufacturer's adherence to the approved Quality Control Plan and has the authority to remove non-compliant manufacturers from the list. The approved manufacturers will be added to a list maintained in the Manual of Instructions.—

### **QC Plan Review Checklist for Gray Iron Casting Manufacturers**

Information included in the QC Plan:

Plant Name

Location

Coversheet to Facility

Last Revision Date

Statement of Commitment to Quality Control

Plant Personnel Organizational Chart

— Plant Manager

— QC Technician

— Personnel Qualifications

— Line of Reporting

List of items produced under the plan

Records

— Types of records kept

— Retention time of records

Materials Section

— Source of Raw materials/Scrap

— Certifications of materials

Product Inspection/Verification procedures

Testing/Frequency performed

Problem resolution procedure/Status of out of spec castings

Storage of product

Shipping of product

Example of Stamped Delivery Ticket and Certification Letter which includes the following statement:

“We certify that these items conform to AASHTO M306 or M105, Class 35B in accordance with the VDOT Road and Bridge Specifications Section 224.02 (b) and to the VDOT Gray Iron Castings Manufacturers Quality Assurance Program. These items are manufactured in United States of America”

# Appendix K : QC Plan Review Checklist for Malleable, Gray Iron and Ductile Iron Casting Manufacturers

Plant Name: \_\_\_\_\_

Location: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewer: \_\_\_\_\_

Reviewer's Section: \_\_\_\_\_

**Description:** This Quality Control (QC) Plan Review Check List will be used by the VDOT QA Industrial Inspector to assess the completeness of the QC Plan submitted by the Casting Manufacturer. If the QC Plan is deemed complete, the QC Plan can be approved and the Casting Manufacturer may fabricate product for VDOT projects according to the instructions.

## Does the QC Plan have a:

### Cover sheet specific to the Facility with the latest revision date?

Yes \_\_\_ No \_\_\_

This sheet shall also include the facility's physical address, mailing address, telephone number, web address, and current date. Any time there is plan to update or resubmission this cover sheet shall be updated.

### Statement of Commitment to Quality Control:

Yes \_\_\_ No \_\_\_

Statement shall reflect Facility's commitment to their QC plan and VDOT Specifications.

### Plant Personnel Organizational Chart:

Yes \_\_\_ No \_\_\_

To include Plant Manager, QC Technicians/Manager/Director, Personnel Qualifications, and the line of reporting.)

### List of Castings produced for VDOT projects

Yes \_\_\_ No \_\_\_

### Records:

List of Records maintained in plan

Yes \_\_\_ No \_\_\_

Retention time of records (Min. 5 years)

Yes \_\_\_ No \_\_\_

### Materials Section:

Are the location and retention time of the following documentation included?

Source of any Raw Materials/Scrap (Buy America (or BABA) Compliant

Yes \_\_\_ No \_\_\_

Certifications of Materials (Raw Materials and Finished Products)

Yes \_\_\_ No \_\_\_

### Product Inspection/Verification Procedures

Yes \_\_\_ No \_\_\_

### Testing/Frequency performed

Yes \_\_\_ No \_\_\_

### Problem resolution procedure, status of out of spec. castings

Yes \_\_\_ No \_\_\_

### Storage of product

Yes \_\_\_ No \_\_\_

### Shipping of Product

Yes \_\_\_ No \_\_\_

**Example of a Stamped Delivery Ticket and Certification Statement which includes the following statement:**

Yes \_\_\_ No \_\_\_

“We certify that these items conform to AASHTO (specify test method) in accordance with the VDOT Specifications Section 224.02 and to the VDOT Castings Manufacturers Quality Assurance Program. These materials are manufactured in United States of America”

Status:            Approved / Rejected

By: \_\_\_\_\_

Title: \_\_\_\_\_

If rejected, what areas were non-compliant: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_

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**PROCEDURES**

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**NOTES**

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**REFERENCES**

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**COPY DISTRIBUTION:**

Deputy Chief Engineer  
Division Administrators  
District Administrators  
District Location & Design Engineers  
District Construction Engineers  
District Maintenance Engineers  
District Bridge Engineers  
District Traffic Engineers

VDOT Resident Engineers  
Federal Highway Administration  
Virginia Ready Mix Association  
Precast Concrete Association of Virginia  
Virginia Transportation Construction Alliance  
Virginia Asphalt Association  
American Concrete Paving Association Mid-Atlantic Chapter  
Old Dominion Highway Contractors Association