

MARYLAND DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL REQUIREMENTSⁱ

Introduction

The Maryland Department of Transportation (MDOT) maintains a list of approved proprietary retaining wall systems. The list includes several types of retaining wall systems. This list is available on the MDOT website at <https://www.roads.maryland.gov/obd/MSEWallList.pdf>. Retaining wall vendor submittal requirements for requesting approval are maintained by and available from the MDOT Office of Structures (OOS).

The requirements are stated the Proprietary Retaining Wall Approval Process, Guidelines and Procedures Memorandum. See this document for full discussion of MDOT approval process and additional notes and details on items to be submitted. The submittal and approval process consists of four steps. These steps are:

- Step 1 – Request for Inclusion
- Step 2 – Wall System Information
- Step 3 – Design Evaluation
- Step 4 – Submittal of Standard Details

MDOT does not specifically require an IDEA report. The items requested in each of these steps has been compare to the items required per the IDEA protocols (available at <https://www.geoinstitute.org/special-projects/idea>). The bulk of the items and information requested are contained within an IDEA report.

However, there are some additional items requested, which are not listed on the IDEA protocols. A retaining wall supplier with an IDEA report should supplement their report with the additional, specific items that MDOT requires. Specific items to supplement are summarized below and are organized under the four steps. Information that is identical to, and therefore redundant to, IDEA protocol listed items is not listed in this supplemental requirements report.

This listing is based upon the MDOT guidelines and procedure memorandum dated October 16, 2018. For additional information see the MDOT Proprietary Retaining Wall Approval Process, Guidelines and Procedures Memorandum. MDOT should contact the IDEA webmaster and update their report when their policies, etc. change. This supplemental requirements report is readily updateable, and a revision number and date should be noted.

Supplement Items

Step 1 – Request for Inclusion

This step is a retaining wall system supplier requesting the desire to be placed on the approved list. Basic information on the system; i.e., sound theoretical and practical basis, and past experience in construction and performance; should accompany this request. No supplemental information should be required if a supplier submits an IDEA report with their request.

Step 2 – Wall System Information

Most of the items requested in this step are contained in an IDEA report. However, there are some specific items requested by MDOT that are not specifically listed in the IDEA protocols. Therefore, with this step submittal, a wall system supplier should supplement their IDEA report with the following specific items:

- The system theory and the year it was first used
- Where and how the theory was developed
- Laboratory and field experiments which support the theory
- Practical applications with descriptions and color photos. Direction to a manufacturer's website containing this information is acceptable.
- Limitations and disadvantages of the system
- Any known failures of the system, including where, how and why it failed. If applicable, include information on how the system was repaired.
- Typical unit costs, supported by data from actual projects.

Step 3 – Design Evaluation

In this step, the wall system supplier must have the total wall system reviewed by an independent professional engineer, registered in Maryland, and acceptable to this Office. The independent professional engineer shall stamp the design calculations indicating that they have been reviewed and found to be acceptable.

Design evaluation is addressed in the IDEA review process and report. However, the IDEA would not necessarily have been performed by a Maryland professional engineer, or one that has been evaluated for acceptability by MDOT. Nor would the calculations be signed and sealed by the reviewer. Supplemental requirements must address these MDOT items.

MDOT requires that the wall system design comply with the current AASHTO LRFD Specifications. Any deviation from the AASHTO codes should be clearly mentioned in the submittal, and all the design guidelines used in the design of the wall system should be listed in the submittal package. Also, note that if the supplier prefers to obtain approval of the wall system for the application where a concrete traffic barrier is mounted on top of the wall, then the design calculations should be provided showing the wall system is capable of resisting the impact loads that will get transferred from the barrier to the wall. The design calculations performed as per the guideline presented in the NCHRP Report 663 (if applicable to the wall system) is acceptable. Other design procedures/calculations reviewed and approved by a registered professional engineer, experienced in the related field, is also acceptable. If crash testing has been performed on the wall system, then the crash test results certified by a registered professional engineer is also considered for approval.

There are two options to supplement the IDEA report to meet the MDOT requirements. One, an independent professional engineer, registered in Maryland, and acceptable to MDOT performs this work. The other option is to contact the Geo-Institute and inquire into the availability of an IDEA reviewer to perform this work.

Step 4 – Submittal of Standard Details

Once a retaining wall system is on the Approved Proprietary Retaining Walls list, the wall firm shall provide standard details and specifications for review and approval by the Office of Structures. This post approval step would be performed by the specific wall system supplier and design engineer (and is beyond the scope of an IDEA report).

ⁱ Report Ver 1, December 2020.