

SECTION 00596 - RETAINING WALLS

(Follow all instructions. If there are no instructions above a subsection, paragraph, sentence, or bullet, then include them in the project but make necessary modifications to only include project specific specifications. Delete specifications that do not apply to the project.)

Comply with Section 00596 of the Standard Specifications modified as follows:

(Use the following subsection .00 to list acceptable approved proprietary retaining wall ALTERNATES to fully detailed retaining walls shown on the contract plans. Fill in the proprietary retaining wall product or system name (including the "TM" symbol), company name and telephone number from the ODOT System Summary Sheet, Section 4, of the ODOT Retaining Structures Manual. Repeat as required.)

00596.00 Scope - Add the following the end of this subsection:

A proprietary retaining wall, to be constructed at Station _____, may be selected from the following list as an alternate to the retaining wall shown:

- _____
Retaining Wall, provided by _____,
telephone: _____

- *(Repeat as necessary.)*

(Use the following paragraphs to list acceptable approved proprietary retaining wall OPTIONS when a fully detailed retaining wall is NOT shown on the contract plans. Fill in the proprietary retaining wall product or system name (including the "TM" symbol), company name and telephone number from the ODOT System Summary Sheet, Section 4, of the ODOT Retaining Structures Manual. Repeat as required.)

Select a proprietary retaining wall, to be constructed at Station _____, from the following list:

- _____
Retaining Wall, provided by _____,
telephone: _____

- *(Repeat as required)*

(Use the following lead-in paragraph and subsection .01 if cost reduction proposals (Value Engineering) are allowed. List all requirements affecting acceptance of a retaining wall material, product or system, e.g., aesthetic treatments, appurtenances, etc.)

Add the following subsection:

00596.01 Cost Reduction Proposals - Cost Reduction proposals according to 00140.70 will only be considered for retaining wall materials, products or proprietary retaining walls that are approved by the ODOT Retaining Structures Program prior to advertising the Project. A wall material, product, or proprietary retaining wall is considered approved by the ODOT Retaining Structures Program if:

- The ODOT Retaining Structures Coordinator has issued a letter of approval for the wall material, product, or proprietary retaining wall, or
- The wall material, product, or proprietary retaining wall is listed as "approved-prequalified", "approved-conditional", or "approved-experimental" in the ODOT Retaining Structures Manual.

Information about approved wall materials, products, and proprietary retaining walls is available from the ODOT Retaining Structures Coordinator at 503-986-4200.

(Use the following lead-in paragraph and bullets when cost reduction proposals for proprietary retaining walls are allowed.)

Cost reduction proposals for proprietary retaining walls shall meet the following requirements:

- Be a proprietary retaining wall for which the Contractor complies with the requirements of 00596.04 and 00596.40(a) and meets all other specification requirements for this Project except as approved by the Engineer.
- The Contractor shall be responsible for, provide, and demonstrate the following:
 - Evaluating external stability for the proposed proprietary retaining wall (including sliding, overturning, bearing capacity, and global or deep seated stability) and providing a complete, stamped set of plans.
 - Perform all additional geotechnical exploration and structural or geotechnical analysis that is necessary for the proposed proprietary retaining wall.
 - Demonstrate to the satisfaction of the Engineer that the proposed proprietary retaining wall will adequately perform all the functions of the structure it is being proposed to replace.

(Use the following lead-in paragraph when cost reduction proposals for other wall materials and products are allowed. Add bullets as needed.)

Cost reduction proposals for other wall materials and products shall meet the following requirements:

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(Use the following subsection .10 and (e) when adding specifications for unique or project-specific materials. Be sure to include a subsection name after "(e)".

Obtain information from the Retaining Structures Coordinator. Fill in the title of the subsection as appropriate.)

00596.10 **General Materials** - Add the following:

(e)

(Use the following subsection .13(e) on projects with MSE retaining walls.)

00596.13(e) **MSE Retaining Wall Precast Concrete Facing Panels** - Revise this subsection as follows:

(Use the following subsection (1) on projects with MSE retaining walls except when the ARES™ Retaining Wall System is specified.)

(1) Portland Cement Concrete - Replace the sentence with the following:

Use Class 4000 - 1 1/2 or 3/4 concrete.

(Use the following subsection (1) when the ARES™ Retaining Wall System is specified.)

(1) Portland Cement Concrete - Replace the sentence with the following:

Use Class 4000 - 1 1/2 or 3/4 concrete except for the ARES™ Retaining Wall System. Use Class 4500 - 1 1/2 or 3/4 concrete for the ARES™ Retaining Wall System.

(Use the following subsection (3) on projects with MSE retaining walls except when the ARES™ Retaining Wall System is specified.)

(3) Curing - Replace the sentence with the following:

Fully support and do not strip the forms from the units until the concrete reaches a minimum compressive strength of 1000 psi.

(Use the following subsection (3) when the ARES™ Retaining Wall System is specified.)

(3) Curing - Replace the sentence with the following:

Fully support and do not strip the forms from the units until the concrete reaches a minimum compressive strength of 1000 psi. For ARES™ Retaining Wall System, fully support and do not strip the forms from the units until the concrete reaches a minimum compressive strength of 1500 psi.

(Use the following subsection .13(g) when prefabricated modular concrete blocks are required.)

00596.13(g) **Prefabricated Modular Concrete Blocks** - Replace the paragraphs that begin "(1) Concrete..." and "(2) Grade..." with the following paragraphs:

(1) Concrete - Provide commercial grade concrete according to Section 00440.

(2) Marking - On the rear face of each block, scribe the date of manufacture, the production subplot number, and the piecemark.

Replace the paragraph that begins "(7) Acceptance of Blocks..." with the following paragraph:

(7) Acceptance of Blocks - Acceptability will be determined by tolerances, visual inspection, and concrete strength. Concrete strength will be based on production sublots. A production subplot will be 20 blocks or a signal days production run, whichever is less. The production subplot will be represented by a single compressive strength sample of one set of cylinders.

In the paragraph that begins "(8) Rejection...", replace the bullet that begins "Concrete not suitable..." with the following bullet:

- Non-specification concrete

(Use the following subsection .16(c-1) for proprietary designs.)

00596.16(c-1) Geotextile - For proprietary designs, provide a geotextile according to the proprietor's and the manufacturer's specifications and preapproved for the proprietary system selected.

(Use the following subsection .16(c-1) for non-proprietary designs.)

00596.16(c-1) Geotextile - For designs shown on the plans (i.e., non-proprietary designs), provide retaining wall geotextile meeting the following property values:

(Obtain fill-in the blank information from the Designer of Record.)

Geotextile Property	Test Method	Minimum Retaining Wall Geotextile Values
Wide-Width strip tensile	ASTM D 4595	_____ lb./in.
Puncture Strength	ASTM D4833	75 lb.
Trapezoidal Tear	ASTM D 4533	50 lb.
Apparent opening size (AOS), U.S. Std Sieve	ASTM D 4751	No. 40 maximum
Permittivity	ASTM D 4491	0.05 s ⁻¹
Ultraviolet Stability	ASTM D 4355	70% retrained strength

(Use the following subsection .16(c-2) for proprietary designs.)

00596.16(c-2) Geogrid - For proprietary designs provide a geogrid according to the proprietor's and the manufacturer's specifications and preapproved for the proprietary system selected.

(Use the following subsection .16(c-2) for non-proprietary designs. Obtain information from the Designer of Record.)

00596.16(c-2) Geogrid - For designs shown on the plans, provide retaining wall geogrid meeting the following values:

Retaining Wall Geogrid	Ultimate Strength ASTM 6637 (T _{ULT})	Long-Term Strength (T _{al})	Pullout Resistance Factor F*
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(Use the following subsection .41(b) when MSE granular backfill is required.)

00596.41(b) Testing - Under the Density bullet, add the following bullet to the end of the list:

- When base aggregate is used as MSE backfill according to 00596.11(g-1-b), compact the backfill material to 100% of relative maximum density as determined by AASHTO T 99 Standard Proctor Method D, with coarse particle correction according to AASHTO T 224.

(Use the following subsection .80 to list estimated quantities. Obtain information from the Bridge Designer.)

00596.80 Measurement - Add the following to the end of this subsection:

The estimated quantities, for estimating purposes only, of listed materials are as follows:

Structure Number	Material	Estimated Quantities
	Excavation	_____ cu. yd.
	Shoring	_____ foot
	Granular Wall Backfill	_____ cu. yd.
	Granular Structure Backfill	_____ cu. yd.
	MSE Granular Backfill	_____ cu. yd.
	Concrete	_____ cu. yd.
	Steel Reinforcement	_____ lb.
	Rock Gabions	_____ cu. yd.