

B941 - MECHANICALLY STABILIZED EARTH SYSTEMS (As specified in OPSS 941 November 2025)

941.1 GENERAL

The work under these items consists of design and construction of mechanically stabilized earth systems (MSE) including fabrication, delivery and installation of precast concrete MSE and backfilling.

MSE accepted for use on ministry contracts are listed in the ministry's Designated Sources for Materials (DSM) lists for MSE.

941.2 REFERENCES

- Ministry of Transportation Publications - Designated Sources for Materials (DSM) Lists - MSE
- Ministry of Transportation Publications - Structural Manual
- Ministry of Transportation Publications - Guideline for Applying for Approval of Retained Soil Systems (RSS) on the Designated Sources of Materials (DSM) for MTO Projects
- Canadian Highway Bridge Design Code (CHBDC), CSA-S6
- RSS Design Guidelines

941.3 TENDER ITEMS

Item Code	Title	Col Type	U.O.M.	PQP
0941-00??	Backfill for MSE, Ultra Lightweight	Normal	tonnes	N
0941-00??	Backfill for MSE, Lightweight	Normal	tonnes	N
0941-00??	Backfill for MSE, High Performance	Normal	tonnes	N
0941-00??	Backfill for MSE, Medium Performance	Normal	tonnes	N
0941-00??	Backfill for MSE, Low Performance	Normal	tonnes	N
0941-00??	MSE, True Abutment, Fabrication	Normal	m ²	Y
0941-00??	MSE, False Abutment, Fabrication	Normal	m ²	Y
0941-00??	MSE, Wall/Slope, High Performance, Fabrication	Normal	m ²	Y
0941-00??	MSE, Wall/Slope, Medium Performance, Fabrication	Normal	m ²	Y
0941-00??	MSE, Wall/Slope, Low Performance, Fabrication	Normal	m ²	Y
0941-00??	MSE with Finishing Cap, Wall/Slope, High Performance, Fabrication	Normal	m ²	Y
0941-00??	MSE with Finishing Cap, Wall/Slope, Medium Performance, Fabrication	Normal	m ²	Y
0941-00??	MSE, True Abutment, Delivery	Normal	LS/m ²	N
0941-00??	MSE, False Abutment, Delivery	Normal	LS/m ²	N
0941-00??	MSE, Wall/Slope, High Performance, Delivery	Normal	LS/m ²	N
0941-00??	MSE, Wall/Slope, Medium Performance, Delivery	Normal	LS/m ²	N
0941-00??	MSE, Wall/Slope, Low Performance, Delivery	Normal	LS/m ²	N

0941-00??	MSE with Finishing Cap, Wall/Slope, High Performance, Delivery	Normal	LS/m ²	N
0941-00??	MSE with Finishing Cap, Wall/Slope, Medium Performance, Delivery	Normal	LS/m ²	N
0941-00??	MSE, Roadbase Embankment, Installation	Normal	LS/m ²	N
0941-00??	MSE, True Abutment, Installation	Normal	LS/m ²	N
0941-00??	MSE, False Abutment, Installation	Normal	LS/m ²	N
0941-00??	MSE, Wall/Slope, High Performance, Installation	Normal	LS/m ²	N
0941-00??	MSE, Wall/Slope, Medium Performance, Installation	Normal	LS/m ²	N
0941-00??	MSE, Wall/Slope, Low Performance, Installation	Normal	LS/m ²	N
0941-00??	MSE with Finishing Cap, Wall/Slope, High Performance, Installation	Normal	LS/m ²	N
0941-00??	MSE with Finishing Cap, Wall/Slope, Medium Performance, Installation	Normal	LS/m ²	N

941.4 SPECIFICATIONS

The requirements for mechanically stabilized earth systems are contained in OPSS 941.

941.5 SPECIAL PROVISIONS - None

941.6 STANDARD DRAWINGS

There are no Ontario Provincial Standard Drawings directly applicable to this type of work.

941.7 DESIGN

Design shall be according to the RSS Design Guidelines and Canadian Highway Bridge Design Code (CHBDC), CSA S6.

941.8 COMPUTATION

941.8.1 Item Payment Basis

Backfill items are measured in tonnes. Fabrication items are PQP items and measured in metre squared.

The remaining items are lump sum and measured in metre squared.

941.8.2 Sources of Information

The main source of information for the quantities of the tender items is the contract drawings.

941.8.3 Method of Calculation

Fabrication item quantities should be measured in metre squared from the contract drawings.

The remaining quantities are measured for use by the Estimating Office. These quantities will not form part of the tender document.

Quantities shall be measured according to the RSS Design Guidelines.

941.9 DOCUMENTATION**941.9.1 Contract Drawings**

Contract preparation shall be according to the RSS Design Guidelines.

941.9.2 Quantity Sheets

The Quantity for each structure shall be shown separately on the “Quantities - Structural Sheet”.

941.9.3 Documentation Accuracy

All fabrication items are documented to the nearest whole metre squared.

941.9.4 Non-Standard Special Provisions

Non-standard special provisions (NSSPs) and non-standard tender items (NSTIs) shall be created to address project specific situations which are not covered under applicable standards. Designer should determine the need for a NSSP and NSTI to address the specific situations for the completion of the work. For example:

- a) When the MSE is not covered under the DSM list (i.e. in a flood plain or height exceeds 12 m) and a site-specific design is required.