

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Ed.)
Seismic Design Category = C (Seismic Zone - 3) [No Seismic Analysis] Δ (Seismic Analysis)
Design earthquake response spectral acceleration coefficient at 1.0 second period, $S_{D1} = 0.369g$
Acceleration Coefficient (effective peak ground acceleration coefficient), $A_g = 0.338g$

Design Loading:

For strength limit state and extreme event limit state, the wall designer to confirm that the minimum Capacity to Demand Ratio (CDR) for bearing, sliding, overturning, eccentricity, and internal stability is greater than or equal to 1.0. MSE wall designer shall include this note on shop drawings.

For Extreme Event I limit state, the wall designer shall design wall for $\gamma_{EQ} = 0.5$

$\Phi_r = 22^\circ$ and Unit weight, $\gamma_b = 120$ pcf for retained backfill material to be retained by the mechanically stabilized earth wall system.

$\Phi_r = 22^\circ$ for unimproved foundation ground where wall is to bear.

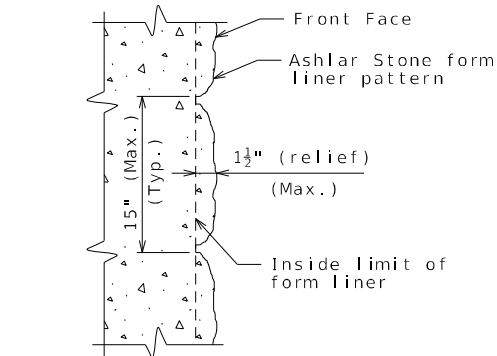
Δ improved
For unimproved foundation ground, factored bearing resistance is 2.2 ksf for strength limit state and factored bearing resistance is 3.0 ksf for extreme event limit state.

The maximum applied factored bearing stress for the strength and extreme event limit state(s) at the foundation level shall be shown on the shop drawings and shall be less than the factored bearing resistance.

Factored bearing resistance shall be used as shown on the plans. No adjustments are allowed.

Contractor shall include design Φ_r (actual $\Phi_r \geq 34^\circ$) and the total unit weight, γ_r , for the select granular backfill (reinforced backfill and wedge area backfill) for structural systems on shop drawings. Contractor shall identify source of select granular backfill material, submit proctor in accordance with AASHTO T 99 (ASTM D698) and gradation with the shop drawings. When backfill material is too coarse to develop a proctor curve the contractor shall determine the maximum dry density (relative density) in accordance with ASTM D4253 and ASTM D4254 and assume percent passing the 200 sieve for optimum water content.

Total unit weight, $\gamma_r = (95\% \text{ compaction}) \times (\text{maximum dry density}) \times (1 + \text{optimum water content})$



FORM LINER DETAIL
(PRECAST MODULAR PANEL WALL)

Notes for Form Liners:

The cost of form liners for MSE wall systems, complete in place, will be considered completely covered by the contract unit price for Mechanical Stabilized Earth Wall System.

Form liner shall be constructed in accordance with Special Provisions.

The following is a list of form liner manufacturers and types which may be used. Depth of relief for all form liner patterns shall vary up to 1 1/2". The height of any single 'stone' shall be 15" maximum.

- Scott System, Inc.: Form liner pattern #167 "Ashlar Stone"
- Fitzgerald Formliners: Form liner pattern #16986 "Ashlar Stone"
- Greenstreak: Form liner pattern #330 "Ashlar Stone"
- Spec Formliners: Form liner pattern #1515 "Ashlar Stone"
- Customrock: Form liner pattern #12020 "Tollway Ashlar"
- An approved equal

Designed: BWC 12/08/24
Detailed: SMC 09/29/25
Checked: HNG 09/29/25

Note: This drawing is not to scale. Follow dimensions.

Design $\Phi_r = 34^\circ$ for the select granular backfill (reinforced backfill) for structural systems.

No-~~Seismic-Analysis~~ provisions may be considered for MSE wall design in accordance with LRFD 11.5.4.2.

Use default values for the pullout friction factor, F^* , in accordance with LRFD figure 11.10.6.3.2-2 and default value for scale effect correction factor, α , in accordance with LRFD table 11.10.6.3.2-1. For approved steel strips not shown in LRFD figure 11.10.6.3.2-2, use $F^* \leq 2.0$ at zero depth and $F^* \leq \tan \Phi_r$ at 20 feet depth and Φ_r design = 34° . F^* and α values shall be shown on the shop drawings.

Design Unit Stresses:

All concrete for leveling pad and coping shall be Class B or B-1 with $f'_c = 4000$ psi.

The minimum compressive strength of concrete for precast modular panel shall be 4,000 psi in accordance with Sec 1052.

Excavation:

Excavation quantities and pay items are given on the roadway plans. Excavation quantities are based on a soil reinforcement length of 8 ft. The soil reinforcement length may vary based upon the wall design selected by the contractor. Plan excavation quantities will be paid regardless of any actual quantities removed based on the soil reinforcement length and design selected.

The MSE wall system shall be built vertical.

The MSE wall system shall be built in accordance with Sec 720.

The MSE wall system shall be a precast modular panel wall system.

Precast modular panel, drycast modular block, wetcast modular block and coping (or capstone) reinforcement shall be epoxy coated.

A filter cloth meeting the requirements for a Separation Geotextile material shall be placed between the select granular backfill for structural systems and the backfill being retained by the mechanically stabilized earth wall system.

Coping shall be required on this structure. When CIP coping sections extend beyond the limits of a single panel, bond breaker (roofing felt or other approved alternate) between wall panel and coping is required. Coping joints shall use 3/4-inch chamfers and shall be sealed with 3/4-inch joint filler. Coping reinforcement shall terminate 1 1/2-inch minimum from face of coping joint.

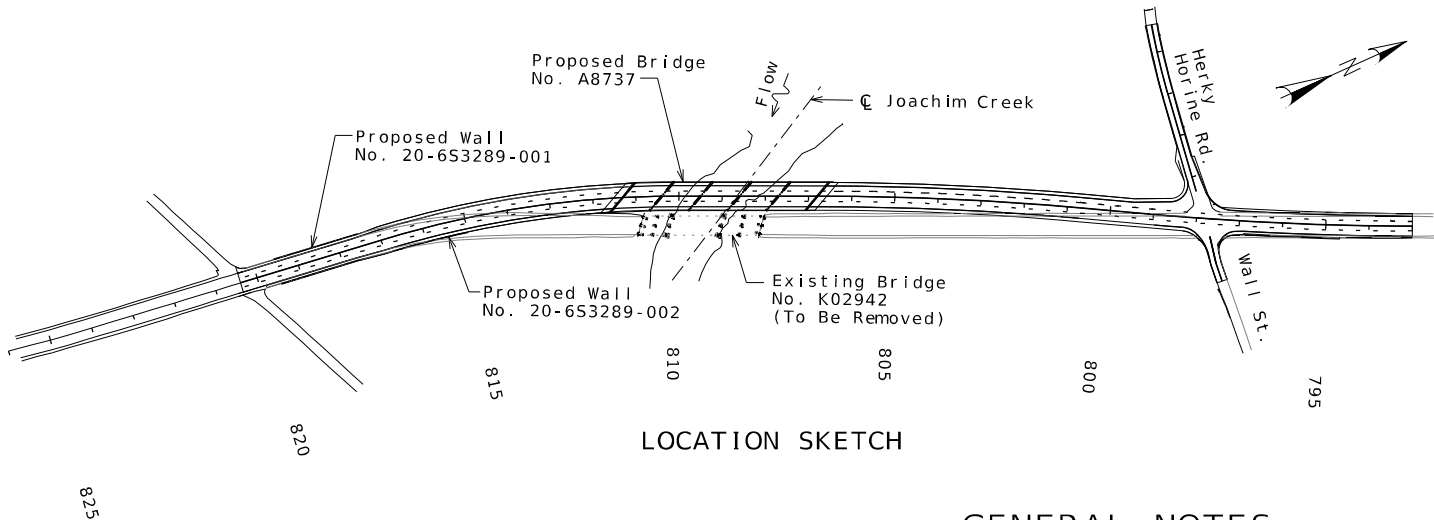
The contractor shall be solely responsible to coordinate construction of the wall with bridge and roadway construction and ensure that the bridge and roadway construction, resulting or existing obstructions, shall not impact the construction or performance of the wall. Soil reinforcement shall be designed and placed to avoid damage by pile driving, guardrail post installation, utility and sign foundations. (See Roadway and Bridge plans.)

Minimum 18" wide geotextile strips shall be centered at vertical and horizontal joints of panel. Geotextile material shall be adhered to back face of panel using an adhesive compound supplied by the manufacturer. All edges of each fabric strip shall provide a positive seal. A minimum 12" overlap shall be provided between spliced filter fabric.

Aluminized soil reinforcement shall have edges coated with coating material per manufacturer.

Soil reinforcement shall be spaced to avoid roadway drop inlet behind wall.

Upper two layers of soil reinforcement shall be extended 3 feet beyond the lower layers when wall height is greater than or equal to 10 feet.



LOCATION SKETCH

GENERAL NOTES
FOR MSE WALL NO. 20-6S3289-001



THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY.

DATE PREPARED
09/29/25

ROUTE STATE
61/67 MO

DISTRICT SHEET NO.
BR 2

COUNTY
JEFFERSON

JOB NO.
J6S3289

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
20-6S3289-001

DESCRIPTION	DATE
Δ Note Revised	09-29-25

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

MoDOT

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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Professional Engineer
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IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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Design Specifications:

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Seismic Design Category = C (Seismic Zone - 3) ~~[(No Seismic Analysis)]~~ (Seismic Analysis)
Design earthquake response spectral acceleration coefficient at 1.0 second period,
 $S_a < 0.15 = 0.369g$
Acceleration Coefficient (effective peak ground acceleration coefficient), $A_s = 0.338g$
Design Loading:
For strength limit state and extreme event limit state, the wall designer to confirm that the minimum Capacity to Demand Ratio (CDR) for bearing, sliding, overturning, eccentricity, and internal stability is greater than or equal to 1.0. MSE wall designer shall include this note on shop drawings.

For Extreme Event I limit state, the wall designer shall design wall for $\gamma_{EQ} = 0.5$

$\Phi_b = 22^\circ$ and Unit weight, $\gamma_b = 120$ pcf for retained backfill material to be retained by the mechanically stabilized earth wall system.

$\Phi_r = 22^\circ$ for unimproved foundation ground where wall is to bear.

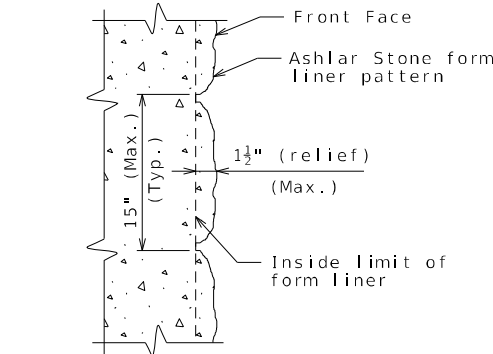
For unimproved foundation ground, factored bearing resistance is 3.0 ksf for strength limit state and factored bearing resistance is 4.0 ksf for extreme event limit state.

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Factored bearing resistance shall be used as shown on the plans. No adjustments are allowed.

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Designed: BWC 12/08/24
Detailed: SMC 09/29/25
Checked: HNG 09/29/25

Note: This drawing is not to scale. Follow dimensions.

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The minimum compressive strength of concrete for precast modular panel shall be 4,000 psi in accordance with Sec 1052.

Excavation:

Excavation quantities and pay items are given on the roadway plans. Excavation quantities are based on a soil reinforcement length of 0.95H or a minimum of 8 ft. The soil reinforcement length may vary based upon the wall design selected by the contractor. Plan excavation quantities will be paid regardless of any actual quantities removed based on the soil reinforcement length and design selected.

The MSE wall system shall be built vertical.

The MSE wall system shall be built in accordance with Sec 720.

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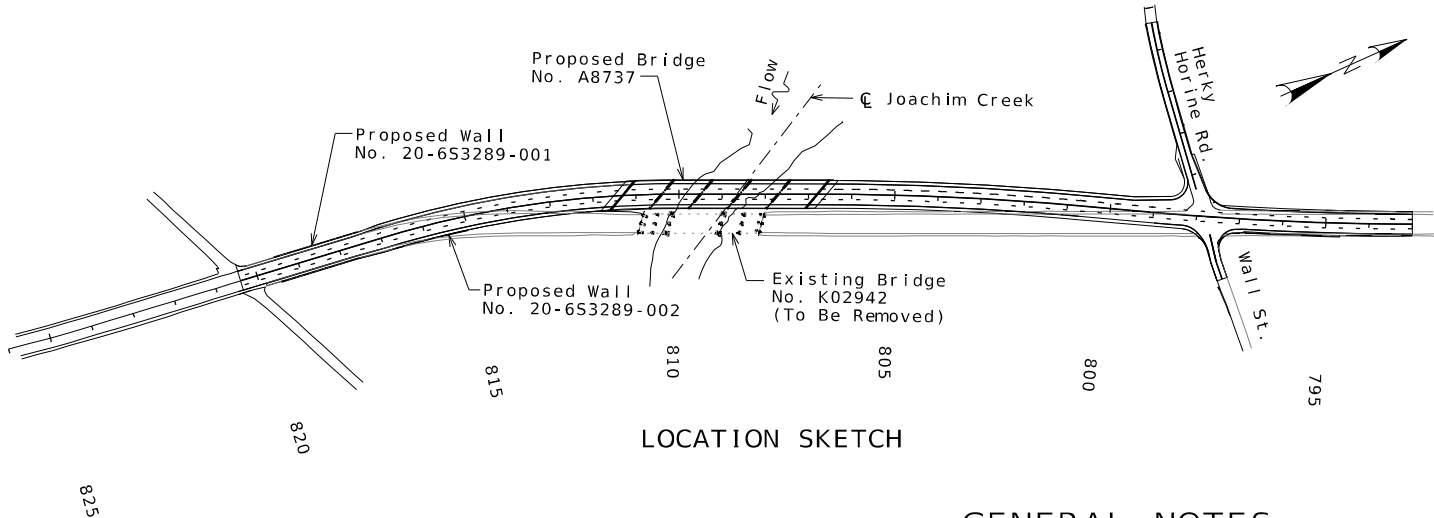
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Upper two layers of soil reinforcement shall be extended 3 feet beyond the lower layers when wall height is greater than or equal to 10 feet.



LOCATION SKETCH

GENERAL NOTES
FOR MSE WALL NO. 20-6S3289-002



THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY.

DATE PREPARED
09/29/25

ROUTE STATE
61/67 MO

DISTRICT SHEET NO.
BR 2

COUNTY
JEFFERSON

JOB NO.
J6S3289

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
20-6S3289-002

DESCRIPTION	DATE
Note Revised	09-29-25



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* NO DIRECT PAY FOR SAWCUT OVER PIPE

* - SEE PIPE TABLE FOR TOTAL

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