Print Date: 9/10/2018

BRIDGE DESIGN SPECIAL PROVISION CHECKLIST
SPECIAL PROVISIONS REQUIRED FOR STANDARD SPECIFICATIONS,
2013 EDITION AND 2016 SUPPLEMENTAL

PROJECT NO.: N/A
COUNTY: Fayette
P.I. NO.: 0012878
LETTING: March 2019

SPEC. NO.	REQ'D	DESCRIPTION
443		ELASTOMERIC PROFILE BRIDGE JOINT SEALS
449		BRIDGE DECK JOINT SEALS
500		CONCRETE STRUCTURES (BOX GIRDER FALSEWORK)
500		CONCRETE STRUCTURES (HPC PSC GIRDERS)
500		CONCRETE STRUCTURES (MASS CONCRETE)
500	X	CONCRETE STRUCTURES (CLASS D CONCRETE)
500		CONCRETE PARAPET, SPCL DESIGN
501		STEEL STRUCTURES (FRACTURE CRITICAL)
501		STEEL STRUCTURES (STATE FURNISHED BEAMS)
502		TIMBER STRUCTURES (TEMPORARY TIMBER WALKWAY)
502		TIMBER STRUCTURES (COMPOSITE MARINE BR TIMBER)
509		PRESTRESSING CONCRETE BY POST TENSIONING (GROUT)
511		REINFORCING STEEL (MECHANICAL SPLICES)
518		RAISE EXISTING BRIDGE
519		CONC BRIDGE DECK OVERLAY W/ HYDRODEMOLITION
519		CONC BRIDGE DECK OVERLAY (BONDED)
519		FAST TRACK CONCRETE OVERLAY OR PATCH
519		CONC BRIDGE DECK OVERLAY (TWO-PART POLYMER)
520		PILING – PREDRILLING IN LIEU OF SPUDDING & JETTING
520	X	PILING (WEAP – LRFD)
520		PILOT HOLES
521		PATCHING CONCRETE BRIDGE STRUCTURES
522		SHORING (PROJECT SPECIFIC)
523	X	DYNAMIC PILE TESTING (LRFD)
524		DRILLED CAISSON FOUNDATION
534	X	PEDESTRIAN OVERPASS BRIDGE
627	X	MSE WALL (STANDARD)
628		PERMANENT SOIL NAILED WALL
629		GENESIS MSE RETAINING WALL
851		HPS STEEL
865		MANUFACTURE OF PSC BRIDGE MEMBERS (HPC)
		NO BRIDGE RELATED SPECIAL PROVISIONS

Revised: October 19, 2017
First Use Date: April 8, 2011

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

PROJECT NO.: 0012878, FAYETTE COUNTY

P.I. NO.: 0012878

Section 500—Concrete Structures

Add the following to 500.1.03.A:

The Contractor is responsible for all concrete mix designs. Submit a mix design for approval to the Office of Materials and Testing. Include the sources, actual quantity of each ingredient, design slump, design air and laboratory results that demonstrate the ability of the design to attain the required compressive strength at 28 days.

Prepare and test at least 8 cylinders according to ASTM C192 and AASHTO T22 to ensure that the demonstrated laboratory compressive strength at 28 days exceeds the minimum acceptance strength (X). Make the specimens from two or more separate batches with an equal number of cylinders made from each batch. The minimum acceptance strength is:

$$X = f'c + 500 \text{ psi } (X = f'c + 3.4 \text{ MPa})$$

Where, f'c is the required minimum compressive strength at 28 days for Class D concrete as shown in Table 1–Concrete Mix Table.

Add the following to Table 1—Concrete Mix Table:

Table 1—Concrete Mix Table

English								
Class of Concrete	**(2) Coarse Aggregate Size No.**	**(1 & 6) Minimum Cement Factor lbs/yd³**	**Max Water/ Cement Ratio lbs/lbs**	**(5) Slump Acceptance Limits (in) Lower - Upper**		**(3 & 7) Entrained Air Acceptance Limits (%) Lower - Upper**		**Minimum Compressive Strength at 28 days (psi)**
Class D	**57,67**	**650**	**0.445**	**2**	**4**	**3.5**	**7.0**	**4000**
Metric								
Class of Concrete	**(2) Coarse Aggregate Size No.**	**(1 & 6) Minimum Cement Factor kg/m³**	**Max Water/ Cement Ratio kg/kg**	**(5) Slump Acceptance Limits (mm) Lower - Upper**		**(3 & 7) Entrained Air Acceptance Limits (%) Lower - Upper**		**Minimum Compressive Strength at 28 days (MPa)**
Class D	**57,67**	**386**	**0.445**	**50**	**100**	**3.5**	**7.0**	**28**

Delete Subsection 500.3.04.F.1.b

Add the following to Subsection 500.3.04.F.1:

f. Class D—Bridge superstructure concrete or as called for on the Plans

DEPARTMENT OF TRANSPORTATION
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SPECIAL PROVISION

SR 54 MULTI-USE TRAIL & BRIDGE, FAYETTE COUNTY
PI NO. 0012878

SECTION 520—PILING

Delete Sub-Section 520.3.05.D.1 and substitute the following:

520.3.05.D.1. Determine Driving Resistance
Drive piles in one continuous operation. Determine the driving resistance of the piling based on the method specified in the plans, which will be one of the following methods (a – c):

a. Upon completion of the dynamic pile testing in accordance with Special Provision Section 523. The pile bearing will be determined by computing the penetration per blow with less than ¼-inch (6-mm) rebound averaged through 12 inches (305 mm) each of penetration. When it is considered necessary by the Engineer, the average penetration per blow may be determined by averaging the penetration per blow through the last 10 to 20 blows of the hammer. In soft material the driving resistance may be determined, at the Engineer's discretion, after delaying driving operations and performing pile re-strikes.

b. Upon completion of the loading test in accordance with Sub-Section 520.3.05.D.2.

c. Shall not be used when driving pile to hard rock. Using FHWA-modified Gates Formula as provided below:

$R_{ndr} = 1.75\ (E_d)^{0.5} \log_{10}(10N_b) - 100$ (kips) U.S units

$R_{ndr} = 7\ (E_d)^{0.5} \log_{10}(10N_b) - 550$ (kN) S.I. units

Where:

R_{ndr} = nominal pile driving resistance measured during pile driving

E_d = developed hammer energy. This is the kinetic energy in the ram at impact for a given blow. If ram velocity is not measured, it may be assumed equal to the potential energy of the ram at the height of the stroke, taken as the ram weight times the actual stroke (ft-lb for U.S units, kN-m for S.I. units)

N_b = Number of hammer blows for 1.0 inch of pile permanent set (blows/in)

These resistance formulas apply only when:

- The hammer has a free fall.
- The head of the pile is not broomed, crushed, spalled, or excessively crimped.
- The penetration rate is reasonably uniform.

Determining driving resistance by formula is not a Pay Item. Provide the facilities for determining driving resistance by formula as an incidental part of the work.

Once the driving resistance has been determined by one of the methods noted above, do not continue to drive piles if the Engineer determines that the piles have reached practical refusal. Practical refusal is defined as 20 blows per inch with the hammer operating at the highest setting or setting determined by the Engineer and less than ¼-inch (6-mm) rebound per blow. The Engineer will generally make this determination within 2 inches (51 mm) of driving. However, the Engineer will not approve the continuation of driving at practical refusal for more than 12 inches (305 mm). When the required pile penetration cannot be achieved by driving without exceeding practical refusal, use other penetration aids such as jetting, spudding, predrilling or other methods approved by the Engineer.

d. Wave Equation: Use the Wave Equation Analysis for Piles (WEAP) program to evaluate the suitability of the proposed driving system chosen from the methods noted above (including the hammer, follower, capblock and pile cushions) as well as to estimate the driving resistance to achieve the pile bearing requirements and to evaluate pile driving stresses. Use the WEAP program to show that the hammer is capable of driving to a driving resistance equal 130% (1.3 times) the driving resistance shown in the Plans without overstressing the piling in compression or tension and without reaching practical refusal.

Perform the WEAP analysis with personnel who are experienced in this type work, and have performed this analysis on a minimum of 15 projects. Provide a list of the qualifications and experience of the personnel to perform the WEAP analysis for this Project.

The Engineer may modify the scour resistance shown in the plans if the dynamic pile test is used to determine the actual soil resistance through the scour zone. Also, the Engineer may make modifications in scour resistance when the Contractor proposes drilling and/or jetting to reduce the soil resistance in the scour zone.

A minimum of two weeks prior to beginning any pile driving operations, submit to the Engineer for evaluation and approval the following information on all of the proposed pile driving system(s) to be used on the Project including but not limited to:

i. Items on Pile Driving Equipment Data Sheet
ii. Other information on the driving system required by the Engineer

iii. A WEAP program output indicating the approximate depth or elevation where the pile will achieve the bearing required
iv. Valid Driving Criteria.

Valid driving criteria is defined as having the required hammer having a hammer set greater than 3 blows per inch and less than 10 blows per inch at the driving resistance for that pile.

If WEAP analyses show that the hammer(s) will overstress the pile, modify the driving system or method of operation as required to prevent overstressing the pile. Resubmit the modified pile driving system information and WEAP program output to the Engineer for re-evaluation. Do not begin pile driving operations until the Engineer has approved the qualifications of the personnel, the WEAP program output, and the pile driving system(s).

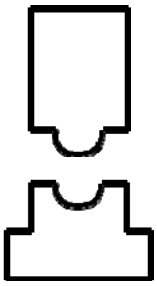
Approval of the pile driving system(s) is also based on satisfactory field trials with dynamic pile testing. Obtain approval from the Engineer for the pile driving system(s) based on satisfactory field performance.

If piles require different hammer sizes, the Contractor may elect to drive with more than one size hammer or with a variable energy hammer, provided that the hammer is properly sized and cushioned, will not damage the pile, and will develop the required resistance.

For penetration of weak soils by concrete piles, use thick cushions and/or reduced stroke to control tension stresses during driving.

Pile Driving Data Form

Contract ID: Structure Name:
PI Number: Structure No.:
County Pile Driving Contractor:



Hammer

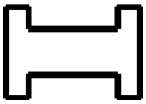
Manufacturer: _____ Model No. _____
Hammer Type: _____ Serial No. _____
Manufacturers Maximum Rated Energy: _____(ft-k)
Stroke at Maximum Rated Energy: _____(ft)
Range in Operating Energy: _____ to _____(ft-k)
Range in Operating Stroke: _____ to _____(ft)
Ram Weight: _____ (kips)
Modifications: _____

Striker Plate

Weight: _____(kips) Diameter: _____(in)
Thickness: _____(in)

Hammer Cushion

Material 1 Material 2
Name: _____ Name: _____
Area: _____(in^2) Area: (in^2)
Thickness/Plate: _____(in) Thickness/Plate:_____(in)
No. of Plates: _____ No. of Plates: _____
Total Thickness of Hammer Cushion: _____(in)

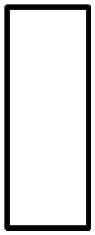


Helmet

Weight including inserts: _____(kips)

Pile Cushion

Material: _____
Area: _____(in^2) Thickness/Sheet: _____(in)
No. of Sheets: _____
Total Thickness of Pile Cushion: _____(in)



Pile

Pile Type: _____
Wall Thickness: _____(in) Taper: _____
Cross Sectional Area: ___(in^2) Weight/Meter: _____
Ordered Length: _____(ft)
Driving Resistance: _____(kips)
Description of Splice: _____
Driving Shoe/Closure Plate Description: _____

Submitted By: _____ Date: _____

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

SR 54 MULTI-USE TRAIL & BRIDGE, FAYETTE COUNTY
PI NO. 0012878

SECTION 523 - DYNAMIC PILE TESTING

523.1 General Description

The work consists of performing dynamic pile testing using the Pile Driving Analyzer (PDA) to monitor the driving of piles with accelerometer and strain gauges attached to the piles. Piles to be dynamically tested will be identified in the Special Provision or on the Plans. Prior to pile driving, the Engineer will determine production or test piles to be dynamically tested. Perform the dynamic pile testing in accordance with ASTM D4945-12.

Take dynamic measurements during driving of any required piles. Drive the pile as shown in the Special Provisions or on the Plans.

523.2 Materials

Furnish measuring instruments for dynamic pile testing. Attach instruments near the top of the piles with bolts placed in drilled holes. Furnish materials, labor and equipment necessary for installation of the instruments.

523.3 Construction Requirements

Measure wave speed prior to driving piles. Wave speed measurements will not be required for Steel H piles or metal shell piles. When wave speed measurements are performed, place the piles in a horizontal position not in contact with other piles.

Perform dynamic pile testing during driving. Modify the driving to reduce the stress and/or eliminate the damage, should the recommended stress level be exceeded or if damage occurs (determined visually or as indicated by the instrumentation).

Do not exceed the following maximum driving stresses, as determined by the dynamic pile testing:

1. For Steel piles:

   0.9 Fy, where Fy = Yield strength of steel

2. For Prestressed Concrete Piles:

Compression:

$$\sigma_{dr} = (0.85f'_c - f_{pe})$$

Tension in Normal Environments:

$$\sigma_{dr} = \left(0.095\sqrt{f'_c} + f_{pe}\right)$$

Tension in Severe Corrosive Environments:

$$\sigma_{dr} = \varphi_{da} f_{pe}$$

where;
σ_{dr} = maximum allowed driving stress, ksi
$f'c$= specified minimum 28-day compressive strength of concrete, ksi
$f pe$= effective prestress in concrete, ksi, (after all losses) at the time of driving taken as 0.78 times the initial prestress force

Re-drive friction piles that do not obtain bearing after a freeze period of a minimum of 24 hours or for a period designated on the Plans, whichever is longer. Reset the gauges if required. Re-strike the pile with a warm hammer until a maximum penetration of 3 inches (76 mm) or 40 blows is reached, whichever occurs first. The Engineer may modify the Pile Driving Objective based on the results of the PDA work.

Provide two weeks' notice prior to the driving of designated piles and cooperate with the Engineer in connection with the performance of Dynamic Pile Testing.

Provide a complete report consisting of but not limited to PDA field monitoring data, results of CAPWAP computer analyses, and recommendations such as pile lengths, hammer fuel setting, and valid driving criteria. Valid driving criteria is defined as having the required hammer having a hammer set greater than 3 blows per inch and less than 10 blows per inch at the driving resistance for that pile. Submit the report electronically in PDF format and the electronic data files of the PDA analysis and CAPWAP to the Geotechnical Bureau and allow seven (7) calendar days for review and approval before proceeding with driving production piles.

523.4 Measurement

The Dynamic Pile Tests performed in accordance with these Specifications will be counted separately for payment. (Refer to plans summary sheet for the required amount of PDA testing.)

523.5 Payment

The Dynamic Pile Test completed and accepted will be paid for at the Contract unit Price. This payment will be full compensation for all costs of complying with this specification, including incidentals, additional work, and any delays incurred in conjunction therewith.

Payment will be made under:

Item No. 523. Dynamic Pile Test_____ . . . . . Per Each

Office of Materials and Testing

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

P.I. NO.: 0012878

FAYETTE COUNTY

Section 534—Pedestrian Overpass Bridge

Add the following:

534.1 General Description

This Specification covers the design, materials, fabrication, transportation, erection, measurement, and payment for a Pedestrian Bridge complete in place.

534.1.01 Definitions

The Pedestrian Overpass Bridge is that portion of the bridge above the top of the cap, excluding cheek walls, and consists of a simply supported, open top, steel through-truss span that is compatible with the bridge substructure. The Pedestrian Bridge includes, but is not limited to, anchor bolts, bearing assemblies, concrete walkways, and pedestrian and bicycle railing.

534.1.02 Related References

A. Standard Specifications

Section 105—Control of Work

Section 106—Control of Materials

Section 500—Concrete Structures

Section 501—Steel Structures

Section 511—Reinforcement Steel

Section 535—Painting Structures

B. Referenced Documents

AASHTO LRFD Bridge Design Specifications, 7th Edition - 2014, unless otherwise shown in the plans.

AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges, 2009 Edition, unless otherwise shown in the plans.

American Institute of Steel Construction (AISC), Manual of Steel Construction, 13th Edition.

534.1.03 Submittals

A. Plans

Submit plans, calculations, and specifications to the Engineer for approval prior to beginning fabrication and construction. Sign and seal plans, calculations, and specifications by a registered professional engineer currently licensed to practice in the State of Georgia.

B. Contractor and Fabricator Qualifications

Proposed suppliers must be on the GDOT Qualified Products List 60 – Steel Bridge Fabricators and have at least five (5) years experience designing and fabricating these type structures and a minimum of five (5) successful bridge projects, of similar construction, each of which has been in service at least three (3) years. List the location, bridge size, owner, and a contact for reference for each project.

Bridge(s) shall be fabricated by a fabricator who is currently certified by the American Institute of Steel Construction to have the personnel, organization, experience, capability, and commitment to produce fabricated structural steel for the category "Major Steel Bridges" as set forth in the AISC Certification Program. Quality control shall be in accordance with procedures outlined for AISC certification.

C. Shop Drawings

Provide shop drawings for fabrication and erection of the Pedestrian Overpass Bridge to the GDOT Office of Bridge Design for review and acceptance after being reviewed and stamped approved by the Engineer of Record for the original contract plans. Shop drawings shall contain material sizes and types, weld sizes and locations, and all necessary details, dimensions and information to allow fabrication of the Pedestrian Overpass Bridge in conformance with the requirements of the contract.

D. Fabrication Schedule

Ensure that the fabricator submits a proposed fabrication schedule to the State Materials Engineer that includes the following:

- Correct PI Number, County and Project Number (as applicable)
- Bridge Number
- Starting date
- Estimated completion date

534.2 Design Criteria

A. Geometry

Provide the following:

1. Inside clear width between handrails of 12'- 0" (3.6m), unless otherwise shown on the Plans.
2. The length as shown on the Plans.

B. Loading

Include the following loads in the design:

1. Self weight.
2. Uniformly distributed pedestrian load of 90 pounds per square foot (4.31 kN/m^2), unless otherwise shown in the plans.
3. A moving concentrated load equal to AASHTO H-10 (M2.3) loading; truck only, without impact, unless otherwise shown in the plans.

534.3 Materials

A. Structural Steel

Use unpainted structural steel unless otherwise shown in the plans.

Fabricate structural steel in accordance with ASTM A 709 Grade 50W (A 709M Grade 345) for plates and structural shapes, and ASTM A 606 (A 606M) or ASTM A 847 (A 847M) for tubular sections.

Minimum yield strength is equal to or greater than 50,000 psi (345 MPa).

The minimum material thickness for structural steel members shall be in accordance with the provisions of Article 6.7.3 of the AASHTO LRFD Specification for Highway Bridges except that the minimum material thickness of closed structural tubular members is 1/4 inch (6 mm).

B. Concrete

Use Class D concrete placed in accordance with the Plans.

C. Composite Steel Floor Deck

Use a galvanized steel composite floor deck with a minimum thickness of .0336 inch (.85mm) (22 gage). Manufacture the composite floor deck by a member of the Steel Deck Institute.

D. Bolts

Bolt field splices with High Strength ASTM F 3125, Grade A325 (A 325M) or A490 (A 490M), Type 3 bolts. Do not use galvanized anchor bolts with weathering steel components.

E. Accessories

1. Railing

   Use railings with a smooth outside surface without protrusions and depressions. Attach railing forty two (42) inches (1067 mm) above the floor deck in accordance with the AASHTO Specifications. Grind-smooth the ends of all angles that are provided as part of the railing assembly. Use only tubes with closed ends.

2. Toe Plate

   Attach a five (5) inch (125 mm) steel channel two (2) inches (50 mm) above the floor deck.

534.4 Construction Requirements

534.4.01 Personnel

General Provisions 101 through 150.

534.4.02 Equipment

General Provisions 101 through 150.

534.4.03 Preparation

General Provisions 101 through 150.

534.4.04 Fabrication

A. Fabrication

1. Workmanship

   Perform the fabrication, welding, shop connections, and workmanship in accordance with Section 501 of the Georgia DOT Standard Specifications.

2. Welding

   Perform all field welding by certified welders that have in their possession a current welding certification card issued by the Georgia DOT Office of Materials and Testing and in accordance with section 501 of the Georgia DOT Standard Specifications.

3. Camber

   Fabricate each truss to produce a 1.0% positive camber after all dead loads have been applied.

4. Finish

   Sand blast all prominently exposed surfaces of weathering steel in accordance with the Steel Structures Painting Council (SSPC) Surface Preparation Specification No. 6 “Commercial Blast Cleaning”.

5. Splice

   Show all shop and field splices and details in shop drawings.

B. Delivery and Erection

1. Notify the Project Engineer two weeks in advance of delivery of the bridge superstructure unit.
2. Install anchor bolts in accordance with the manufacturer’s recommendations.

3. Paint anchor bolts, bearing assemblies and all steel members within 3'-0" from bearing assemblies in accordance with Section 535 of the Specifications. Paint to match color of steel pedestrian bridge.

534.4.05 Quality Acceptance

Shop Inspection:

Give two weeks' notice to the Department's State Materials Engineer before beginning mill or shop work so that inspection arrangements can be made. Inspection at the mill or shop is intended to facilitate work and avoid errors and does not relieve the Contractor of the responsibility for imperfect material or work quality.

Do not roll or fabricate material until:

- The State Materials Engineer has been informed where the orders have been placed.
- The inspection is arranged or waived.

Furnish the facilities necessary for the inspection of materials and work quality in the mill and shop. Allow Inspectors free access to the necessary mill and shop locations, and cooperate with the Inspector during inspection.

Shop inspection is required for steel and other metal materials being fabricated.

Inspectors will do the following:

a. Determine if steel members, member components, or other fabricated steel components meet the Plans and Specifications and Standard Operating Procedures.

b. Identify the steel by color code and correlate its heat numbers obtained from certified mill test reports.

NOTE: Do not cut steel or apply prime paint until the Inspector completes this step.

c. Check fabrication, especially the grade of steel, dimensions, welding, and bolting.

d. Perform necessary non-destructive testing to determine conformance with the Specifications and Plans.

e. Reject materials or work that does not meet the Specifications.

NOTE: Even if the Inspector accepts materials or members, they can be rejected later if found defective. Promptly replace or repair rejected materials or members at no additional cost to the Department.

534.4.06 Quality Assurance

Furnish a warranty against defects in material and workmanship for a period of ten (10) years from the manufacturer.

534.4.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

534.5 Measurement

This work will be measured for payment on a Lump Sum basis, complete and accepted in place.

534.5.01 Limits

General Provisions 101 through 150.

534.6 Payment

This work will be paid for at the Contract Price per pedestrian overpass bridge complete in place. Payment includes all material (structural steel, high strength bolts, composite steel deck forms, concrete, bearing assemblies, anchor bolts, and lights), labor, and equipment necessary to complete the work.

Payment will be made under:

Item No. 534	Pedestrian Overpass Bridge, Sta –	Lump Sum

534.6.01 Adjustments

General Provisions 101 through 150.

Revised: January 22, 2018
First Use Date: February 6, 2017

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

PROJECT NO.: 0012878, FAYETTE COUNTY

P.I. NO.: 0012878

Section 627—Mechanically Stabilized Embankment Retaining Wall-Contractor Design

Delete Subsection 627.3.03.B and substitute the following:

B. Wall Design

Use the following design criteria for a Contractor designed wall:

1. Provide one of the following wall systems:
   ARES (Tensar Earth Technologies)
   Reinforced Earth Wall (The Reinforced Earth Company)
   Sine Wall MSE Panel Systems (Sine Wall)
   Stabilized Earth Wall (Vistawall Systems)
   Tricon Retained Soil Wall (Tricon Precast)
2. Design the MSE Wall according to the current AASHTO Standard Specifications for Highway Bridges including interims. (Mechanically Stabilized Earth Wall Design – Section 5.8)
3. Design the MSE wall to account for all live load, dead load and wind load from all traffic barrier, lights, overhead signs, sound barriers and other appurtenances located on top and adjacent to the wall. Design MSE walls to account for all external forces. Also, design bridge abutment walls for a lateral load as defined in the plans. If lateral load is not defined on plans then design bridge abutment wall for a lateral load equal to 5% of the dead load transmitted through the bearings, as reported on the bearing sheet of the bridge. This load shall be considered a destabilizing force for the entire reinforced mass as well as a load to be resisted by reinforcement attached to the back of the abutment seat. It should be applied at the top of the abutment seat.
4. Design MSE Walls within 100 feet of a bridge abutment for a minimum service life of 100 years.
5. Assume responsibility for all temporary shoring that may be necessary for wall construction. Design the shoring using sound engineering principles.
6. Use permanent concrete wall facing panels that are at least 7 in (175 mm) thick.
7. Provide a minimum length of soil reinforcement as defined in the plans. If the minimum is not defined in the plans, then provide a minimum length of soil reinforcement of 10 feet (3 m) or seven-tenths (0.7) of the wall height, whichever is greater.
8. Ensure that the special wall backfill extends a minimum of 12 in (300 mm) past the end of the soil reinforcement.
9. Use the Architectural treatment of facing panels as indicated on the Department's drawings.

10. Provide internal walls to allow for future widening if shown on the wall envelope. Ensure the internal walls have galvanized wire or concrete facing. Ensure as a minimum that the facing of the internal walls extend to the back limit of the MSE Wall Backfill for the permanent wall.
11. Ensure the maximum panel area does not exceed 35 square feet (3.25 square meters).
12. Design the Traffic Barrier H or Coping B Parapet to satisfy the requirements of AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014, Section A13.2-1 for a railing Test Level of TL-4 except that the F_t load shall equal 76 kips. Evaluate overturning and sliding using a 10 kip force distributed to a maximum length of the moment slab joint spacing.
13. A Foundation Investigation Report may be available from the Geotechnical Engineering Bureau of the Department. The information contained in this report may be used by the Contractor to assist in evaluating existing conditions for design as well as construction. However, the accuracy of the information is not guaranteed and no requests for additional monies or time extensions will be considered as a result of the Contractor relying on the information in this report.
14. Ensure the following requirements are met:
    - The gutterline grade on the proposed top of wall submitted matches the gutter elevations required by the plans.
    - The top of coping is at or above the top of coping shown on the envelope.
    - The leveling pad is at or below the elevation shown on the wall envelope.
    - Any changes in wall pay quantities due to changes in the wall envelope are noted in the contractor's plans
    - All changes in quantities due to the proposed walls being outside the wall envelope (step locations, ending wall at full panel, etc.) are shown as separate quantities.
15. Ensure the minimum embedment of the wall (top of leveling pad) is at least 2 feet (600 mm). If the soil slopes away from the bottom of the wall, lower the bottom of the wall to provide a minimum horizontal distance of 10 ft (3 m) to the slope. [i.e. a 2:1 slope in front of the wall requires 5 ft (1.5 m) of embedment; a 4:1 slope in front of the wall requires 2.5 ft (750 mm) of embedment]
16. If the Department's review of the submitted plans and calculations results in more than two submittals to the Department by the Contractor, the Contractor will be assessed for all reviews in excess of two submittals. The assessment for these additional reviews will be at the rate of $60.00 per hour of engineering time expended.