

INSURANCE SPECIAL PROVISIONS

CONTRACT: C201395

COUNTY: GASTON

A. In addition to any other forms of insurance or bonds required elsewhere in the contract documents, the Contractor will be required to provide coverage for all work to be performed on Railroad right(s) of way under the terms of the contract by carrying insurance of the following kinds:

1. **CONTRACTOR'S COMMERCIAL GENERAL LIABILITY INSURANCE:**

a. The Contractor shall furnish an original and one copy of the certificates of insurance to the Department of Transportation as evidence that, with respect to the operations he performs on railroad right of way, he carries Commercial General Liability Insurance including "XCU" coverage providing for limits of liability as follows:

<u>COVERAGE</u>	<u>MINIMUM COMBINED LIMITS OF LIABILITY</u>
Bodily Injury Liability	\$ 2,000,000 Per Occurrence
Property Damage	\$ 2,000,000 Aggregate

b. If any part of the work is sublet, similar insurance and evidence thereof in the same amounts as required of the Prime Contractor, shall be provided by or in behalf of the Sub-contractor to cover his operations on railroad right of way. As an alternative, the Prime Contractor may provide insurance for the Sub-contractor by means of separate and individual policies.

c. Certificates of Insurance holders are to be the addresses given below. Certificates shall make reference to the project, mile- post and county.

Division of Highways
Dept. of Transportation
c/o Utilities Coordination Unit
P. O. Box 25201
Raleigh, North Carolina 27611

2. RAILROAD PROTECTIVE LIABILITY INSURANCE:

a. The Contractor shall furnish to the Department of Transportation an original and one duplicate of the Railroad Protective Liability Insurance Policy with limits of liability as follows:

<u>COVERAGE</u>	<u>MINIMUM COMBINED LIMITS OF LIABILITY</u>
Bodily Injury Liability	\$5,000,000 Per Occurrence
Property Damage Liability	\$10,000,000 Aggregate Per Annual Policy Period
Physical Damage to Property	

b. The Standard for this protective insurance shall follow the requirements of the Federal-Aid Policy Guide outlined under 23 CFR 646A.

The Railroad Protective Liability Policy is to be written on the ISO/RIMA Form No. CG 00 35 06 90 including Endorsements CG 28 31 11 85 and IL 00 21 or their equivalents.

c. The names insured, description of the work and designation of the job site to be shown on the Policy are as follows:

Named Insured: Norfolk Southern Railroad Company
 Three Commercial Place
 Norfolk, Virginia 23510-2191
 Attn: D. W. Fries, Director Risk Management

Description and Designation: All construction on Railroad Right of Way from Milepost 403.75 to Milepost 402.62 located left and right of, Survey Line L from Survey Station 10+00 to Survey Station 29+60 on Project 8.1811201 in Gaston County, North Carolina

B. The Railroad Protective Liability Policy shall contain a clause requiring that sixty (60) days written notice be given the Department of Transportation and the Railroad Company prior to cancellation or change.

All other policies and certificates shall contain a clause requiring that thirty (30) days written notice be given to the Department of Transportation and the Railroad Company prior to cancellation or change. The notices shall make reference to the project, milepost and county.

NOTICE TO:

Norfolk Southern Railroad Company
Three Commercial Place
Norfolk, Virginia 23510-2191

COPY NOTICE TO:

Division of Highways
Department of Transportation
c/o Utilities Coordination Unit
P. O. Box 25201
Raleigh, North Carolina 27611

C. All insurance herein before specified shall be carried until the final inspection and acceptance of the project, or that portion of the project within railroad right of way, by the Department of Transportation or, in the case of subcontractors, until the Contractor furnishes a letter to the Engineering stating that the subcontractor has completed his subcontracted work within railroad right of way to the satisfaction of the Contractor and that the Contractor will accomplish any additional work necessary on railroad right of way with his own forces. It is understood that the amounts specified are minimum amounts and that the Contractor may carry insurance in larger amounts if he so desires. As to "aggregate limits" , if the insurer establishes loss reserves equal to or in excess of the aggregate limit specified in any of the required insurance policies, Contractor shall immediately notify the Department of Transportation and shall cease all operations until the aggregate limit is reinstated. If the insurer establishes loss reserves equal to or in excess of one/half of the aggregate limit, Contractor shall arrange to restore the aggregate limit to at least the minimum amount stated in these requirements. Any insurance policies and certificates taken out and furnished due to these requirements shall be approved by the Department of Transportation and the Railroad Company as to form and amount prior to beginning work on railroad right of way.

No extra allowance will be made for the insurance required hereunder, the entire cost of same to be included in the unit contract price bids for the several pay items.

D. Evidence of insurance as required above shall be furnished for review to the Department of Transportation at the address shown below after which it will be forwarded by the Department of Transportation to the Railroad.

Send to Department:

Division of Highways
Department of Transportation
c/o Utilities Coordination Unit
P. O. Box 25201
Raleigh, North Carolina 27611

RAILROAD SITE DATA:

The following information is provided as a convenience to the Contractor. This information is subject to change and the Contractor should contact the Railroad to verify the accuracy. Since this information is shown as a convenience to the Contractor but is subject to change, the Contractor shall have no claims whatsoever against either the Railroad or the Department of Transportation for any delays or additional costs incurred based on changes in this information.

- 1. Number of tracks - 1
- 2. Number of trains per day - 23 freight / 2 passenger
- 3. Maximum speed of trains - 60mph max / 79mph max

MSE RETAINING WALLS

(10-03-02)

1.0 DESCRIPTION

Design, prepare plans, and construct MSE retaining walls to the lines, grades and locations shown in the plans and in accordance with this specification and the details shown in the plans. Work includes all excavation, leveling pad, concrete face panel, concrete coping, retaining wall backfill, the fabric above the #57 stone, and all other materials, labor, tools, equipment and incidentals necessary to complete the work.

Furnish any one of following retaining wall systems in accordance with this Special Provision. Declare the choice of retaining wall system at the Preconstruction Conference for the project. The wall system chosen at the Preconstruction Conference becomes the required wall system for the contract.

The Reinforced Earth Wall as manufactured by:

The Reinforced Earth Company
8614 Westwood Center Drive, Suite 1100
Vienna, VA 22182
Telephone (703) 821-1175

The Retained Earth Wall as manufactured by:

Foster Geotechnical
1372 Old Bridge Road, Suite 101
Woodbridge, VA 22192
Telephone (703) 499-9818

The Hilfiker RSE Wall as manufactured by:

T and B Structural Systems
637 W. Hurst Boulevard, Suite 2A
Hurst, TX 76053
Telephone (817) 280-9858

Value engineering proposals for other wall systems are not considered.

Design the retaining walls to meet the criteria of the current AASHTO Standard Specifications for Highway Bridges and the requirements specified in the plans.

Submit eight sets of complete working drawings/shop plans, erection plans and design calculations, sealed by a North Carolina Registered Professional Engineer, for review and approval prior to beginning wall work. Allow 40 days for review and approval from the date they are received by the Engineer until they are returned to the Contractor.

Provide the option chosen to meet the requirements of the plans, this Special Provision and the Standard Specifications.

2.0 GENERAL

The Resident Engineer schedules a Preconstruction Conference with representatives from the Contractor, the retaining wall system Supplier, and the Soils and Foundation Section to discuss construction details and inspection of the retaining wall.

Provide all necessary material from the Supplier chosen.

Obtain from the Supplier technical instruction and guidance in preconstruction activities, including the Preconstruction Conference, and on-site technical assistance during construction. Follow any instructions from the Supplier closely unless otherwise directed.

3.0 MATERIALS

A. Concrete Panels

Provide the concrete mix designed by the Supplier and approved by the State Materials Engineer prior to use. Furnish a copy of the Supplier's approval to the Engineer and to the Materials and Tests Unit in Raleigh. Design the mix to meet the strength requirements included in this Special Provision under the heading "Casting of Precast Concrete Face Panels".

B. Concrete Leveling Pad

Provide Class A concrete conforming to the applicable requirements in Sections 420 and 1000 of the Standard Specifications for the leveling pad.

C. Concrete Coping

Use Class A Concrete for coping and apply the requirements in Sections 420, 1000, and 1077 of the Standard Specifications. The requirements in Sections 425 and 1070 of the Standard Specifications apply to the reinforcing steel in coping. If preferred, precast coping is permitted unless otherwise stated in the plans.

D. Reinforcing Steel, Reinforcing Mesh, Mats, or Strips, Tie Strips and Fasteners

Use reinforcing Steel conforming to the applicable requirements in Sections 425 and 1070 of the Standard Specifications.

Shop-fabricate tie strips of hot rolled steel conforming to the minimum requirements of ASTM A570-85, Grade 50 (Grade 345) or equivalent. Shop fabricate the reinforcing mesh or mats of cold drawn steel wire conforming to the minimum requirements of AASHTO M32 (M32M) and weld into the finished mesh fabric in accordance with AASHTO M55 (M55M). Hot roll reinforcing strips from bars to the required shape and dimensions with their physical and mechanical properties conforming to AASHTO M223 (M223M), Grade 65 (Grade 450). Cut to lengths and tolerances shown on the plans and punch holes for bolts in the locations shown on plan details. The minimum bending radius of tie strips is 1 inch (25 mm). Inspect all reinforcing and tie strips

carefully to ensure they are true to size and free from defects that may impair their strength or durability. Galvanize in accordance with the minimum requirements of AASHTO M111.

Use 1/2" (12.70 mm) diameter bolts, nuts and washers conforming to AASHTO M164 (M164M). Provide Bolt and thread lengths in accordance with Supplier's recommendations. Hot-dip galvanize bolts and nuts in accordance with the requirements of AASHTO M232 (M232M).

E. Miscellaneous Panel Components and Attachment Devices

Provide miscellaneous concrete face panel components, including dowels, polyvinylchloride pipe, stirrups, etc., in accordance with the Supplier's recommendations.

Fabricate clevis connector and connector bar from cold drawn steel wire conforming to the requirements of AASHTO M32 (M32M) and welded in accordance with AASHTO M55 (M55M). Galvanize loops in accordance with AASHTO M111.

Cold form mat anchors or buttonheads, where applicable, symmetrically about the axis of the wire to develop the minimum guaranteed ultimate tensile strength of the wire. Do not use a cold forming process that causes indentations in the wire. Provide mat anchors and buttonheads that do not contain wide open splits or splits not parallel with the axis of the wire.

Galvanize mat anchors and buttonheads after fabrication in accordance with the requirements of AASHTO M111. Repair damage to the galvanized coating prior to or during installation in the acceptable manner providing a coating comparable to that provided by AASHTO M111.

F. Joints and Joint Materials

Provide the type and grade bearing pads approved by the chosen Supplier.

Where shown on the plans, provide a polyester filter fabric cover, approved by the Supplier, for horizontal and vertical joints between panels. Use adhesive approved by the manufacturer to attach the fabric material to the rear of the facing panels.

G. Alignment Pins

Use 5/8" (16 mm) diameter, mild steel and smooth bars galvanized in accordance with AASHTO M111 for pins to align the face panels during construction.

H. #57 Washed Crushed Stone Backfill (Retaining Wall)

Use backfill material conforming to the applicable requirements of Section 1005 of the Standard Specifications and meeting the following criteria:

B. Acceptance

Supply concrete for precast panels that attains a 28 day compressive strength of 4000 psi (27.6 MPa) unless otherwise shown on plans.

Acceptance of the concrete face panels with respect to compressive strength is determined on the basis of production lots. A production lot is a group of panels that is represented by a single compressive strength sample and consists of either 40 panels or a single day's production, whichever is less. Make compression tests on standard 6" x 12" (152 mm by 305 mm) or 4" x 8" (102 mm by 203 mm) test specimens prepared in accordance with AASHTO T23. Conduct compressive strength testing in accordance with AASHTO T22.

Cast a minimum of four cylinders for each production lot sampled. Cure all specimens in the same manner as the panels. An acceptance test result is the average compressive strength of two cylinders.

The lot is acceptable if the test results are equal to or greater than 4000 psi (27.6 MPa).

If a production lot fails to meet the specified compressive strength requirements, the production lot is rejected unless the Supplier, at his own expense, obtains and submits evidence of a type acceptable to the Engineer that the strength and quality of the concrete placed within the panels of the production lot is acceptable. If such evidence consists of tests made on cores taken from the panels within the production lot, obtain and test the cores in accordance with the requirements of AASHTO T24.

C. Miscellaneous

1. Casting

Set all panel components in place in the forms to conform to the details on the plans and accepted shop plans prior to casting. Cast the panels on a flat area with the front face of the form at the bottom and the rear face at the top. Set tie strip guides or clevis connectors on the rear face.

Give special care to the clevis connectors: Place all clevis connectors normal to the panel and attach them to the alignment templates using the bars provided with the forms. Tolerance for the vertical and horizontal alignment of the clevis connectors is $\pm 1/8$ " (3 mm). Clean the holes inside the loops so that they are free of all concrete and debris.

Place the concrete in each unit without interruption and consolidate using an approved vibrator, supplemented by hand tamping to force the concrete into corners of the forms and prevent the formation of stone pockets or cleavage planes. Use clear form oil of the same manufacture throughout the casting operation.

2. Concrete Finish

Provide an ordinary surface finish as defined by Subarticle 420-18(B) of the Standard Specifications for the front face (exposed face of wall) unless otherwise shown on the plans. Screed the rear face of the panel to a uniform surface finish to eliminate open pockets of aggregate and surface distortions in excess of 1/4 inch (6 mm).

3. Tolerances

Manufacture all units within the following tolerances:

- All dimensions within 3/16 inch (5 mm), except the lateral position of the tie strips to within 1 inch (25 mm).
- Surface defects on formed surfaces are not to exceed 1/8 inch in 5 feet (3mm in 1.5 m).

4. Marking

Clearly scribe the date of manufacture, the production lot number, and the piece-mark on the rear face of each panel.

5. Handling, Storage and Shipping

Handle, store and ship all units in such manner as to eliminate the danger of discoloration, chipping, cracks, fractures and excessive bending stresses. Support panels in storage on firm blocking located immediately adjacent to tie strips to avoid bending the tie strips. Store panels in a horizontal position and stack no more than six high. Do not ship panels prior to 5 days after production.

5.0 CONSTRUCTION METHODS

A. Site Preparation

Perform surface excavation operations and random fill construction in the vicinity of the structure in accordance with the applicable portions of this Special Provision, and in reasonably close conformity to the lines, grades, dimensions, and cross-sections shown on the plans.

B. Retaining Wall Excavation

Excavate all material necessary for the construction of the retaining walls in accordance with the plans and this provision. Excavation includes the construction and subsequent removal of all necessary bracing, shoring, sheeting and cribbing and all pumping, bailing, and draining. Perform random backfilling in accordance with the details in the plans and dispose of or stockpile surplus or unsuitable excavated material as directed by the Engineer.

Perform all necessary clearing and grubbing at the site in accordance with Section 200 of the Standard Specifications.

Notify the Engineer a sufficient time before beginning the excavation so that measurements may be taken of the undisturbed ground.

Shore or brace the excavation in accordance with local and state safety standards. Perform excavation and related work in such sequence that no portion of the retaining wall will be endangered by subsequent operations.

When the retaining wall is adjacent to a traveled way, obtain approval before beginning the excavation. Submit drawings and design calculations in accordance with the provisions of Subarticle 410-5(D) of the Standard Specifications.

Notify the Engineer after excavating each location of the wall. Do not place the concrete leveling pad until the depth of the excavation and the character of the foundation material have been approved.

Remove all sheeting and bracing as the random backfilling progresses.

Obtain approval for all random backfill material. Large or frozen lumps, wood or other undesirable material is not allowed in the backfill. Compact all backfill in accordance with Subarticle 235-4(C) of the Standard Specifications.

C. Wall Erection

1. Foundation Preparation

Prior to wall construction, grade the foundation for the structure level for a width equal to or exceeding the length of soil reinforcing or as shown on the plans. Compact the foundation to a minimum of 95% of the maximum dry density as determined by AASHTO T99.

2. Leveling Pad Construction

Construct an unreinforced concrete leveling pad of Class A concrete having the dimensions and at the locations and elevations shown on the plans. Cure the leveling pad a minimum of 24 hours before placement of wall panels.

3. Placing Concrete Face Panels

Place precast concrete panels vertically with equipment that does not damage the panels. For erection, handle panels by means of eyes set into the upper edge of the panels. Use other placement methods when approved by the Supplier and Engineer. Place panels in successive horizontal lifts in accordance with the details and at the locations shown on the plans. Externally brace the first lift of panels. Proceed with backfill placement as hereinafter specified. As panel and backfill lifts progress, maintain the panels in vertical position by means of temporary wooden wedges

placed in the joint at the junction of the two adjacent panels on the external side of the wall. The maximum tolerance for vertical (plumbness) and horizontal alignment is 3/4 inch (19 mm) when measured along a 10 foot (3 m) straightedge. The maximum allowable offset in any panel joint is 3/4 inch (19 mm). The overall vertical tolerance of the wall (plumbness from top to bottom) is 1/2 inch (13 mm) per 10 feet (3 m) of wall height. As wall erection progresses, install horizontal and vertical joint filler in accordance with the Supplier's instructions.

4. Placing Retaining Wall Backfill and Soil Reinforcing

Place backfill within the structure closely following the erection of each lift of panels. Place the backfill material in layers for the full width shown on the plans. Place layers not more than 7½ inches (190 mm) in depth loose thickness and compact. Compact #57 stone backfill with at least four passes of an 8 – 10 ton (7.3 - 9.1 metric ton) vibratory roller in the vibratory mode, or as directed by the Engineer. At each tie strip level, reinforcing mesh level, or reinforcing mat level of the wall, level and compact the backfill material before placing and attaching tie strip, mat or mesh. Place the reinforcing strips, mat or mesh normal to the face of the wall or as shown on the plans. Compact backfill layers in a direction parallel to the wall and without disturbance or distortion of reinforcing strips, mats, mesh, or wall panels. Use only a hand-operated mechanical compactor within 3 feet (1 m) of the face of the wall as a precaution against pushing panels outward and distorting the vertical face of the wall. Exercise extreme care to prevent bending panel tie strips, mats, or mesh during compaction. Compact as required with a minimum of three passes of the compactor.

At the end of each day's operation, slope the areas adjacent to the stone backfill such that in the event of rain, surface runoff will be diverted away from the backfill area. Contamination of the stone backfill by soil fines from runoff is grounds for rejection of the backfill.

5. Placing Concrete Coping

When cast-in-place coping is used, place a 1/2 inch deep vertical contraction joint in all exposed faces at a spacing equal to two panel widths and in accordance with Article 825-10(B) of the Standard Specifications. Place the contraction joints in the coping so that it aligns with the vertical joints between the panels.

6.0 BASIS OF PAYMENT

Payment will be made under:

MSE Retaining Walls, Sta. _____ Lump Sum