

DELETIONS HIGHLIGHTED IN RED, ADDITIONS IN YELLOW

MISCELLANEOUS ENVIRONMENTAL PROVISIONS

The Standard Specifications are revised as follows:

SECTION 104, AFTER LINE 552, INSERT AS FOLLOWS:

If any archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, the discovery shall be reported to the Department of Natural Resources within two (2) business days in accordance with Indiana Code 14-21-1-27 and 29; the department shall be contacted by telephone at (317) 232-1646.

SECTION 107, AFTER LINE 241, INSERT AS FOLLOWS:

If construction or demolition is conducted in a wooded area where blackbirds or bats may have roosted for three to five years, precautionary measures shall be taken to avoid an outbreak of histoplasmosis, a fungal disease stemming from accumulated bird or bat droppings, which, when spores become airborne, can result in infections over an entire community downwind of the site. Precautionary measures shall include wetting down the area prior to cleanup. More detailed information is available by contacting the Acute Disease Control Division of the Indiana State Department of Health at (317) 233-7272. The cost of precautionary measures shall be included in the cost of the contract pay items.

SECTION 107, AFTER LINE 247, INSERT AS FOLLOWS:

The project lies within a wellhead protection area. No mixing or storing of hazardous or objectionable substances will be permitted within 200 feet of a wellhead. Any of the following types of spills within the project area shall be reported to the Indiana Department of Environmental Management by calling 1-888-233-7745, and to Indiana American Water Company at 1-800-492-8373: 1) Hazardous substance or extremely hazardous substances in excess of 100 pounds or the reportable quantity, whichever is less; 2) Spills of petroleum in excess of 55 gallons; and, 3) Spills of objectionable substances.

SECTION 107, AFTER LINE 271, INSERT AS FOLLOWS:

Cutback asphalt or asphalt emulsion containing more than seven percent oil distillate shall not be used from April 1 through October 31.

SECTION 107, AFTER LINE 288, INSERT AS FOLLOWS:

For any equipment or temporary structures exceeding a height of 100 ft, FAA Form 7460 (Notice of Construction or Alteration) shall be filed.

SECTION 107, AFTER LINE 505, INSERT AS FOLLOWS:

No work shall be performed in storm water channels or swales during periods of high flow.

Measures shall be taken to prevent sediment runoff to Happy Hollow Ditch from areas of excavated or deposited soils and from the installation of culverts and pipes in channels and swales.

Construction equipment shall be refueled and maintained in areas away from Happy Hollow Ditch or channels or swales entering Happy Hollow Ditch.

All vegetative wastes shall be chipped or shredded into mulch, delivered to a registered yard waste composting facility, or otherwise disposed of by methods deemed appropriate by the City of West Lafayette Parks and Recreation Department.

SECTION 107, AFTER LINE 525, INSERT AS FOLLOWS:

107.14.1 Tree Disturbance

All trees outside the construction limits shall not be disturbed.

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TEMPORARY PIPE INLET PROTECTION, RIPRAP

The Standard Specifications are revised as follows:

SECTION 205, AFTER LINE 108, INSERT AS FOLLOWS:

(o) Temporary Pipe Inlet Protection

Temporary pipe inlet protection, consisting of revetment riprap on geotextiles, shall be constructed as shown on the plans or as directed.

SECTION 205, BEGIN LINE 147, INSERT AS FOLLOWS:

protection will be measured per each unit installed. Revetment riprap for temporary pipe inlet protection will be measured by the ton. Geotextiles for temporary pipe inlet protection will be measured by the square yard.

SECTION 205, AFTER LINE 166, INSERT AS FOLLOWS:

For at the contract unit price per each unit installed. Revetment riprap for temporary pipe inlet protection will be paid for in accordance with 616.13. Geotextiles for temporary pipe inlet protection will be paid for in accordance with 616.13.

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CURB INLET PROTECTION

The Standard Specifications are revised as follows:

SECTION 205, AFTER LINE 101, INSERT AS FOLLOWS:

Curb inlet protection shall consist of a metal frame or basket inserted under a storm drain casting and supporting a geotextile fabric. The metal frame and geotextile fabric shall be capable of trapping sediment while permitting flow to enter the storm drain during large storm events.

Geotextiles used for curb inlet protection shall be in accordance with 918.02.

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COMPACTED AGGREGATE, NO. 53, CRUSHED LIMESTONE

The Standard Specifications are revised as follows:

SECTION 303, AFTER LINE 6, INSERT AS FOLLOWS:

Construction requirements for all compacted aggregate shall be in accordance with 303.

SECTION 303, AFTER LINE 1615, INSERT AS FOLLOWS:

All material shown on the plans as compacted aggregate, no. 53, crushed limestone, shall be in accordance with 904 as modified herein.

SECTION 303, AFTER LINE 70, INSERT AS FOLLOWS:

Pay Item

Pay Unit Symbol

Compacted Aggregate, No. 53, Crushed Limestone.....TON

SECTION 904, AFTER LINE 8, INSERT AS FOLLOWS:

Aggregate material for compacted aggregate, no. 53, crushed limestone, for use as a base course under HMA or PCCP pavement, shall be limited to crushed limestone.

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WOOD RAILING

The Standard Specifications are revised as follows:

SECTION 604, AFTER LINE 24, INSERT AS FOLLOWS:

All materials shall be southern yellow pine no. 1 and shall be dense treated in accordance with 911.02. Posts shall be rough sawn timber in accordance with 911.02(d).

All fasteners shall be hot-dip galvanized in accordance with ASTM A 153 or ASTM A 653(coating designation G-185)

SECTION 604, AFTER LINE 282, INSERT AS FOLLOWS:

Payment will be made under:

Pay Item

Pay Unit Symbol

Hand Rail, Pedestrian, Wood.....LFT

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FOUNDATIONS **AND STAIRS**

The Standard Specifications are revised as follows:

SECTION 604, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

604.01 Description

This work shall consist of constructing HMA or PCC sidewalks; curb ramps; concrete stairs and steps; ~~or~~ the reconstruction of PCC sidewalks; *or concrete foundations for future bus and park shelter structures* in accordance with 105.03.

SECTION 604, AFTER LINE 19, INSERT AS FOLLOWS:

Welded Wire Fabric..... 910.01

Concrete, C, Structures..... 702

Welded wire fabric for concrete reinforcement of foundation slabs shall be 6x6-W1.4xW1.4 smooth steel wire fabric.

SECTION 604, AFTER LINE 42, INSERT AS FOLLOWS:

Construction of concrete foundations for future bus and park shelters, including footings and slabs, shall be in accordance with the applicable requirements of 604.03 and as shown on the plans.

SECTION 604, AFTER LINE 260, INSERT AS FOLLOWS:

Foundation footings will be measured by the cubic yard based on the neat lines shown on the plans. Foundation slabs will be measured by the cubic yard based on the neat lines shown on the plans. Welded wire fabric for concrete slab reinforcement will not be measured.

SECTION 604, AFTER LINE 282, INSERT AS FOLLOWS:

Foundation footings will be paid for at the contract unit price per cubic yard for concrete, A, substructure. Foundation slabs will be paid for at the contract unit price per cubic yard for concrete, C, structures.

SECTION 604, AFTER LINE 301, INSERT AS FOLLOWS:

The cost of welded wire fabric shall be included in the cost of the pay items of this section.

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REINFORCING STEEL FOR PCCP DRIVEWAYS

The Standard Specifications are revised as follows:

SECTION 610, AFTER LINE 18, INSERT AS FOLLOWS:

*Reinforcing Steel.....910.01
Welded Wire Fabric.....910.01*

Welded wire fabric for concrete reinforcement of private and commercial PCCP driveways shall be 6x6-W1.4xW1.4 smooth steel wire fabric.

SECTION 610, AFTER LINE 33, INSERT AS FOLLOWS:

Reinforcing steel and welded wire fabric shall be installed for all commercial and private PCCP driveways in accordance with the details shown on the plans.

SECTION 610, AFTER LINE 55, INSERT AS FOLLOWS:

Reinforcing steel and welded wire fabric for PCCP driveways will not be measured for payment.

SECTION 610, AFTER LINE 101, INSERT AS FOLLOWS:

The cost of reinforcing steel and welded wire fabric for PCCP driveways shall be included in the cost of PCCP for Approaches.

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PEDESTRIAN BRIDGE RENOVATION (STRUCTURE NO. 24)

The Standard Specifications are revised as follows:

SECTION 712, AFTER LINE 7, INSERT AS FOLLOWS:

Renovation of the pedestrian bridge (structure no. 24) shall consist of furnishing the materials for and the removal and construction of portions of the timber structure in accordance with 105.03.

SECTION 712, AFTER LINE 18, INSERT AS FOLLOWS:

All materials shall be southern yellow pine no. 1 and shall be dense treated in accordance with 911.02. Posts shall be rough sawn timber in accordance with 911.02(d). Brace members shall be in

accordance with 911.02(d). All deck members and all rails and caps shall meet the requirements of bridge lumber in accordance with 911.02(b).

Carriage bolts, nuts, and washers shall be galvanized, and shall be in accordance with 910.02(g). Nails shall be hot-dip galvanized in accordance with ASTM A 153.

Metal connector angles shall meet the requirements of ASTM A 653 SS Grade 33, coating class G-185 (1.85 oz zinc per square foot).

SECTION 712, AFTER LINE 94, INSERT AS FOLLOWS:

Metal connectors shall be provided with holes to accommodate fasteners. Hole diameters shall be between 100% and 125% of the shank diameter. Holes for fasteners for rails and rail caps shall be pre-drilled to a diameter between 50% and 75% of the fastener shank diameter.

SECTION 712, AFTER LINE 192, INSERT AS FOLLOWS:

Pedestrian bridge renovation will not be measured for payment.

SECTION 712, AFTER LINE 199, INSERT AS FOLLOWS:

Renovation of the pedestrian bridge will be paid for at the lump sum contract price for pedestrian bridge renovation.

SECTION 712, AFTER LINE 208, INSERT AS FOLLOWS:

The cost of partial removal, timber, lumber, fasteners, connectors, and necessary incidentals shall be included in the cost of pedestrian bridge renovation.

MATERIAL FOR PIPE TYPES 2 AND 3

The Standard Specifications are revised as follows:

SECTION 715, AFTER LINE 17, INSERT AS FOLLOWS:

Material for all pipe shown on the plans as pipe, type 2 or pipe, type 3 shall be reinforced concrete pipe, class III, having a $D_{0.01}$ rating of 1250.

UNSUITABLE SOILS

Description.

This work shall consist of replacing unsuitable soils at the trail subgrade, culverts and retaining wall foundations.

Construction Requirements.

All soft or unstable soils, including all soils having excessive moisture such that the specified subgrade compaction cannot be achieved and that are directed to be treated by removal, as well as any other unsuitable soils that may be encountered, and any soils not meeting the capacities required for the retaining wall as determined by geotechnical field verification testing, shall be removed and replaced with B borrow to the limits and depths as directed. B borrow shall be in accordance with 211.02 and compacted in accordance with 211.04.

The geotechnical evaluation report for this project indicates that 50% of the subgrade area for the trail pavement may have a moisture content higher than the anticipated optimum moisture content. Treatment to correct these conditions shall be as directed and may consist of scarifying and drying or removal and replacement.

An undistributed quantities of 100500 cubic yards of common excavation and 100500 cubic yards of B borrow are included in the contract for the purpose of replacing unsuitable soils.

Method of Measurement.

Unsuitable soil removal will be measured in accordance with 203.27. B borrow will be measured in accordance with 211.09. Scarifying and drying will be measured by the square yard for conversion to common excavation as set out herein.

Basis of Payment.

The accepted quantities of unsuitable soil removal will be paid for at the contract unit price for common excavation in accordance with 203.28. The accepted quantities of B borrow will be paid for at the contract unit price for in accordance with 211.10. The accepted quantities of trail subgrade area treated by scarifying and drying will be paid for as common excavation based on a rate of one cubic yard of common excavation for every 10 square yards of subgrade area treated by scarifying and drying.

LARGE UNIT MODULAR CONCRETE BLOCK RETAINING WALL

The Standard Specifications are revised as follows:

SECTION 732, BEGIN LINE 1, INSERT AS FOLLOWS:

LARGE UNIT MODULAR CONCRETE BLOCK RETAINING WALL

732.01 Description

This work shall consist of furnishing materials and installing modular block wall units with or without ground reinforcement in accordance with 105.03. The modular block wall shall be a large unit gravity wall system - "Redi-Rock" by Redi-Rock International as shown on the plans, "ReCon" by ReCon Retaining Wall Systems, Inc, "Big Block" by Big Block, Inc., Kansas City, or an approved equal.

This work shall also include furnishing and installing face plate units for the culvert outlet headwall for Structure No. 23 as shown on the plans.

MATERIALS

732.02 Materials

Materials shall be in accordance with the following:

<i>B Borrow.....</i>	<i>211.02</i>
<i>Coarse Aggregate, No. 8*.....</i>	<i>904.03</i>
<i>Concrete, Class A.....</i>	<i>702.03</i>
<i>Concrete, Class B.....</i>	<i>702.03</i>

Reinforcing Bars.....	910.01
Structure Backfill.....	904.05
Geogrid, Type I.....	918.05

**Coarse aggregate, No. 8 shall be crushed stone or ACBF, class D or higher*

Admixtures in accordance with ASTM C 1372 may be used for the modular block if approved by the Engineer.

(a) Concrete Modular Block Wall Units

Concrete modular block retaining wall units shall be in accordance with ASTM C 1372 and shall have a minimum compressive strength of 4000 psi (27.5 MPa) at 28 days. Modular block wall units utilizing type I or II cement will be considered acceptable for placement in the wall when 7-day strengths exceed 3500 psi (24.1 MPa). Concrete shall have 4.5 to 7.5% air entrainment by volume. Concrete unit weight shall be a minimum of 140 pounds per cubic foot.

Retarding agents, accelerating agents, coloring pigments, or additives containing chloride shall not be used without approval.

1. Testing and Inspection

- a. Material properties shall be in accordance with the requirements of 732.02 in lieu of Section 4.*
- b. Table I, “Strength and Absorption Requirements”, shall be modified to require that the average compressive strength, when sampled and tested in accordance with ASTM C 140, of a three unit compressive strength sample shall be 4000 psi (27.5 MPa) with no individual unit less than 3500 psi (24.1 MPa). Maximum absorption shall be 6%.*
- c. The modular block wall unit’s compressive strength shall be considered acceptable regardless of curing age when compressive test results indicate that the compressive strength is in accordance with 732.02(a).*
- d. Freeze-thaw durability testing shall be completed in accordance with Section 8.3 by a laboratory approved by the Department. Test results shall have been completed in accordance with ASTM C 1372 and be within 12 months prior to delivery. A type A certification in accordance with 916 for the freeze-thaw durability testing shall be submitted to the Engineer prior to use of the blocks.*
- e. Sampling and testing of the manufacturer's production lots will be conducted by the Engineer in accordance with ASTM C 140. If the compressive strength test result does not meet the requirements of 732.02(a), the production lot units may not be used. The manufacturer may resample the same production lot in the presence of the Engineer for retesting. The Engineer will test the additional samples in accordance with ASTM C 140. If the retested samples meet the requirements of 732.02 (a), the production lot may be used. If the retested samples do not meet the requirements of 732.02(a), all the units from the production lot may not be used.*

2. Rejection

Units shall be subject to rejection due to failure to be in accordance with the requirements specified above. In addition, the following defects may be sufficient cause for rejection.

- a. Defects which indicate imperfect molding
- b. Defects which indicate honeycombed or open texture concrete
- c. Defects in the physical characteristics of the concrete, such as broken or chipped concrete, or color variations or dunnage marks on the front face due to excessive form oil or other reasons.

The Engineer will determine whether spalled, honeycombed, chipped, or otherwise defective concrete shall be repaired or be cause for rejection. Repair of concrete, if permitted, shall be completed in a satisfactory manner. Repair to concrete surfaces, which are to be exposed to view after completion of construction shall be subject to approval.

3. Marking

The date of manufacture, the production lot number, and the place mark shall be clearly scribed on the rear face of each unit or on each shipping pallet.

4. Handling, Storage, and Shipping

All modular block wall units shall be handled, stored, and shipped so as to eliminate the danger of chipping, cracks, fractures, and excessive bending stresses.

(b) Concrete Pads

Concrete for concrete pads shall be Class B in accordance with 702.03.

(c) Backfill

Free draining backfill shall be coarse aggregate, No. 8, crushed stone or ACBF, class D or higher. Material placed beyond the limits of the free draining backfill shown on the plans may consist of either B borrow or coarse aggregate No. 8.

DESIGN REQUIREMENTS

732.03 General Design Requirements

The modular block wall shall consist of an aggregate a concrete leveling pad, concrete modular block wall units and when specified, ground reinforcement elements that are to be mechanically connected to the facing units. All walls consisting of four or more blocks (height at face greater than 4.5 feet) shall include ground reinforcement using geogrid type I at the block levels shown on the plans, with the geogrid reinforcement extending to the neat line limits of excavation and free-draining backfill as shown on the plans. Ground reinforcement shall have sufficient strength, frictional resistance, and quantity as required by design.

A geotechnical evaluation report for the contract is available for information purposes only. It is available through the department's website.

The final design and details for the "Redi-Rock" wall system are shown on the plans. The design and submittal requirements of 732.04 and 732.05 are not applicable for this wall system unless the proposed details differ from those shown on the plans or unless otherwise noted. For all wall systems other than "Redi-Rock", design and submittal shall be in accordance with 732.04, 732.05, and the applicable provisions below.

All modular block wall units shall be constructed in accordance with the approved plans and shop drawings based on the requirements herein. The recommendations of the wall system supplier shall not override the minimum performance requirements shown herein.

If the wall manufacturer needs additional information to complete the design, the Contractor shall be responsible for obtaining such information.

All appurtenances behind, in front of, under, mounted upon, or passing through the wall such as drainage structures, utilities, or other appurtenances shown on the plans shall be accounted for in the stability design of the wall.

The modular block wall design shall follow the general dimensions of the wall envelope shown on the plans. The plans will locate the leveling pad at or below the theoretical leveling pad. The top of the modular block wall unit shall be at or above the top of the wall elevation shown on the plans.

All leveling pads shall be unreinforced concrete having a minimum thickness as shown on the plans. Leveling pads for "Redi-Rock" wall systems shall include a shear curb for sliding resistance as shown on the plans. Leveling pads for other wall systems shall include shear curbs for sliding resistance if required by design.

The top of the modular block wall shall be designed to prevent the removal of the top course of blocks.

Cast-in-place concrete will not be an acceptable replacement for any modular block wall unit within the areas noted by the wall envelope.

Modular block wall units shall be designed to accommodate differential settlement of 1 linear unit in 100.

732.04 Design Criteria

The design by the manufacturer shall be in accordance with the requirements for the internal and the external stability of the wall mass, the bearing pressure, and overturning. The design shall be in accordance with the applicable requirements of the AASHTO Standard Specifications for Highway Bridges unless otherwise specified herein.

External loads which affect the internal stability shall be accounted for in the design. The size of all structural elements shall be determined such that the design load stresses do not exceed the allowable stresses found in the AASHTO Standard Specifications for Highway Bridges, unless otherwise shown on the plans.

The minimum standard modular block wall unit height shall be 18 in. The minimum depth of modular block wall units shall be 23 in.

The phi (Φ) angle for the internal design of the volume shall be assumed to be 34 degrees. The phi (Φ) angle of the backfill behind the modular block earth mass shall be assumed to be 30 degrees. Before construction begins, the structure backfill selected shall be tested by the Contractor to confirm compliance with the frictional requirement. The wall supplier shall be furnished a copy of the testing results for the backfill. The friction angle of the foundation soils shall be assumed to be 30 degrees.

The wall shall be defined by the wall envelope shown on the plans. For design purposes, the height of wall H shall be measured from the theoretical top of the leveling pad to the top of the wall. For a level surcharge situation, the top of the wall shall be measured to the top of the coping or to the gutter line of the traffic barrier. The top of the wall shall be the theoretical top of the modular block wall units only when a coping or barrier is not used. For an abutment face, the design height H shall be defined as the height measured from the top of the leveling pad to the top of the roadway surface. For a wall with a sloping surcharge the top of the wall shall be measured at a point 0.3H back from the face where the design height is H and the actual wall height is H.

Modular block wall units shall be dry stacked in a running bond configuration.

The actual applied bearing pressures under the stabilized mass for each reinforcement length shall be clearly indicated on the shop drawings and shall be equal to or less than a maximum allowable soil pressure of 2500 psf. Passive pressure in front of the wall mass will be assumed to be zero for design purposes. The angle of friction between the modular block wall and the concrete footing shall be assumed to be 22 degrees. The angle of friction between the cast-in-place concrete footing and the soil may be assumed to be a value of no more than 42 degrees, except that a value of 45 degrees may be used if the concrete-soil interface is roughened or keyed.

732.05 Submittals

For all manufacturers, including "Redi-Rock", product specifications and installation instructions shall be submitted to the Engineer. For "Redi-Rock" walls proposed to include details differing from those shown on the plans, and for products other than "Redi-Rock", the additional items described in the following paragraphs shall be submitted.

The Contractor shall submit one copy of the design computations for approval. An analysis of settlement, sliding, bearing capacity and overall slope stability shall be included with the design computations. If the computations are computer generated, one sample set of hand calculations, for one wall location, shall also be submitted. The Contractor shall submit eight sets of design drawings for approval after the design computations are approved and before beginning wall construction operations. Design computations and design drawings shall be signed and sealed by a professional engineer.

(a) The design drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the wall and shall include, but shall not be limited to, the following:

1. A plan and elevation sheet or sheets for each wall
2. An elevation view of the wall which shall include the elevation at the top of the wall at all horizontal and vertical break points at least every 50 ft (15 m) along the face of the wall, all steps in the leveling pads, the designation as to the type of modular block wall unit, the length of ground reinforcement, the distance along the face of the wall to where changes in length of the ground

reinforcement occur, and an indication of the original and final ground lines and maximum bearing pressures.

3. A plan view of the wall that indicates the offsets from the construction centerline to the face of the wall at all changes in horizontal alignment. A plan view and elevation view which detail the placing position and connection of all ground reinforcing elements in areas where piling, utility, or other structures are near the wall.

4. A typical cross section or cross sections showing elevation relationship between ground conditions and proposed grades

5. All general notes required for constructing the wall

6. All horizontal and vertical curve data affecting the wall

7. A listing of the summary of quantities on the elevation sheet for each wall

(b) The details for construction of walls around drainage facilities.

(c) All details of the architectural treatment.

Design calculations and shop drawings shall be submitted to the Engineer for review and approval.

CONSTRUCTION REQUIREMENTS

732.06 General Requirements

The block producer shall be a Certified Precast Concrete Producer, certified by ACPA or NPCA, except as otherwise set out herein. If the producer is not certified, block production shall be coordinated with the Engineer to permit on-site inspection and testing.

The wall supplier representative shall provide technical instruction, guidance in preconstruction activities including the preconstruction conference, and on-site technical assistance to the Contractor during construction.

The Contractor shall retain a qualified geotechnical engineer on the Department's approved list to provide verification testing of in-situ soils at the base of all walls with an exposed height exceeding 5 feet at an interval not exceeding 100 feet. The required allowable bearing capacity of the in-situ soils at the base of the wall shall be verified by the geotechnical engineer at these locations using approximate and empirical methods. Verification for a particular location shall be completed prior to commencing wall installation at that location. For all areas where soils do not meet the minimum allowable bearing pressure, the foundation soil shall be removed down to an elevation providing adequate bearing and replaced with B borrow in accordance with 211.02 and compacted in accordance with 211.04.

The Contractor shall perform the necessary work to verify that the foundation is at the correct elevation, that the wall is constructed to the correct alignment, and that the work is in accordance with the specified tolerances. The checking of alignments and tolerances shall include verifying that the plumbness of the modular block wall units is in accordance with 732.09 over the entire height of the wall. Alignment shall be checked at each layer of modular block wall units after

the backfill behind the modular block wall units has been compacted, and the results shall be recorded.

732.07 Foundation Preparation

The foundation for the structure shall be graded level for the width shown on the plans. Prior to wall construction, the foundation, if not in rock, shall be compacted in accordance with 203. The base of the wall excavation shall be proof rolled with approved compacting equipment. All soft soils, loose soils, vegetation, tree roots or other unsuitable material shall be further excavated until adequate support soils are encountered. The excavated material shall be replaced with B borrow. If unsuitable foundation material is encountered, it shall be removed and replaced with B borrow in accordance with 211.02 and compacted in accordance with 211.04.

At each foundation level, a concrete an aggregate leveling pad shall be provided as shown on the plans.

732.08 Retaining Wall Excavation

This work shall consist of the excavation of material whose removal is necessary for the construction of the modular block wall sections in accordance with the plans and the requirements herein. Excavation shall include the construction and subsequent removal of all necessary bracing, shoring, sheeting, cribbing, all pumping, bailing, and draining.

Prior to starting excavation operations at the wall site, clearing and grubbing shall be in accordance with 201.03. The Contractor shall clear and grub the area for the excavation in accordance with the limits shown on the plans. All timber, stumps, and debris shall be disposed of in accordance with 201.03.

The Contractor shall notify the Engineer a sufficient time before beginning the excavation so that measurements may be taken of the undisturbed ground.

Where necessary for safety, the excavation shall be shored or braced in accordance with State and local safety standards. Excavation and related work shall be performed such that no portion of the wall is endangered by subsequent operations.

Where excavation for the wall is adjacent to a traveled way, the method for shoring, sheeting, or bracing the excavation opening shall be approved before beginning the excavation. The Contractor shall submit five copies of drawings in accordance with 206.09 showing details of the proposed method of excavation protection.

After the excavation for each wall location has been performed, the Contractor shall notify the Engineer. The aggregate concrete leveling pad shall not be placed until the Engineer has approved the depth of the excavation and the foundation material.

All sheeting and bracing shall be removed as the backfilling progresses.

All material for backfill shall be subject to approval and shall be free from large or frozen lumps, wood, or other undesirable material. All backfill shall be compacted in accordance with 203.

732.09 Wall Erection

Modular block wall units shall be placed in successive horizontal lifts in the sequence shown on the plans as backfill placement proceeds. Modular block wall units shall be dry stacked in a

running bond configuration. As backfill material is placed behind the units, the units shall be maintained in vertical position.

Modular block wall units placed in contact with the ground or covered by standing water shall have face discoloration removed by means of a chemical wash. Modular block wall units shall be stored to minimize contact with the ground or being covered by standing water.

Horizontal alignment tolerances shall not exceed 3/4 in. (19 mm) when measured with a 10 ft (3 m) straightedge.

732.10 Backfill Placement

Backfill shall consist of free draining backfill within the limits shown on the plans. Backfill placed beyond these limits may consist of either free draining backfill or B borrow. Backfill placement shall closely follow erection of each course of modular block wall units with or without ground reinforcement. Backfill shall be placed so as to avoid damage or disturbance to the wall materials or misalignment of the modular block wall units. Wall materials that become damaged or disturbed during backfill placement shall be removed and replaced or corrected as directed. All misalignment or distortion of the modular block wall units due to placement of backfill outside the limits described herein shall be corrected as directed.

The work shall also include **backfilling beyond the theoretical length of the ground reinforcement in accordance with the details shown on the plans and** the disposal of surplus of unsuitable excavated materials as permitted.

Structure b Backfill shall be compacted to 95% of the maximum dry density in accordance with AASHTO T 99. Compaction equipment shall be in accordance with 409.03(d). **Density of the compacted aggregate will be determined in accordance with 203.24(b). If coarse aggregate No. 8 backfill material is used, c** Compaction shall consist of four passes with a vibratory roller, and one pass with the same roller in static mode. A vibratory roller shall be equipped with a variable amplitude system, a speed control device, and have a minimum vibration frequency of 1000 vibrations per min. A roller in accordance with 409.03(d)4 may be used. All displacement or rutting of the aggregate shall be repaired prior to placing subsequent material.

The maximum loose lift thickness shall not exceed 8 in. (200 mm) except that lifts 3 ft (1 m) from the wall or closer shall not exceed 5 in. (125 mm) in loose thickness. This lift thickness shall be decreased if necessary, to obtain the specified density.

Compaction within 3 ft (1 m) of the back face of the modular block wall units shall be achieved by means of a minimum of five passes with a lightweight mechanical tamper, roller, or vibratory system.

At the end of each day's operation, the last level of backfill shall be sloped away from the modular block wall units. In addition surface runoff from adjacent areas shall not be permitted to enter the wall construction site.

Cutting or altering of the basic structural section of the ground reinforcing at the site will be prohibited, unless the cutting is preplanned and detailed on the approved design drawings. Cutting shall only be considered if adequate additional ground reinforcement is provided to produce the required ground reinforcement strength shown in the approved calculations.

732.11 Acceptance

Random concrete tests, including yield, air content, and slump, shall be performed for each lot or fraction of thereof. One lot shall consist of 10,000 sft of block. Certified Precast Concrete Producers shall provide copies of all test reports for each lot with a Type A certification. Blocks shall be visually inspected on site.

732.12 Method of Measurement

Modular block wall units with or without ground reinforcement will be measured by the square yard (square meter) of wall surface area. Erection of modular block wall units will be measured by the square yard (square meter) of wall surface area. Common excavation will be measured by the cubic yard (cubic meter) in accordance with 203.27 to the neat lines shown on the plans. Structure backfill and B borrow will be measured in accordance with 211.09. Unsuitable foundation materials, if found, will be measured in accordance with 203.27, and B borrow for replacing unsuitable foundation materials will be measured in accordance with 211.09.

The measurement for concrete modular block wall units and wall erection will be based on the neat line limits of the wall envelope shown on the plans and not that of the wall system supplier. The wall envelope limits will be considered to be the vertical distance from the top of the leveling pad to the top of the wall, and the horizontal distance from the beginning to the end of the leveling pad.

Clearing and grubbing, free draining wall backfill, B borrow wall backfill, excavation, compacted aggregate No. 53, and compacted aggregate No. 8 will not be measured. G and geotextile materials if used in accordance with 732.05 will not be measured.

732.13 Stockpiled Modular Block Units

Partial payment may be made for block wall units stockpiled on the project site or at the Contractor's approved storage location. Partial payment will include the delivered cost of the units, as verified by invoices that include freight charges. The Contractor shall furnish the invoices. The partial payment will not exceed 75% of the contract unit price for modular block wall. Prior to authorizing partial payment, the Engineer will verify that the units are in accordance with 732.05(a).

732.14 Basis of Payment

Modular block wall units will be paid for at the contract unit price per square yard of wall surface area. Erection of Modular block wall units will be paid for by the square yard of wall surface area. Common excavation will be paid for at the contract unit price per cubic yard in accordance with 203.28 to the neat lines shown on the plans. Unsuitable foundation materials will be paid for at the contract unit price for common excavation in accordance with 211.10 203.28. B borrow for replacing unsuitable foundation materials will be paid for in accordance with 211.10.

Payment will be made under:

Pay Item	Pay Unit Symbol
Modular Block Wall, Large Unit.....	SYS
Modular Block Wall Erection.....	SYS
Common Excavation.....	CYS
B Borrow.....	CYS

The cost of all labor and materials for geotechnical verification testing of in-situ soils, aggregate leveling pad, structure free draining backfill, B Borrow backfill except as otherwise set out herein, geotextiles, and wall drainage pipe and appurtenances shall be included in the cost of the modular block wall.

The cost of modular blocks including ground reinforcing, fasteners, repair or replacement of units damaged or removed due to backfill placement, and incidentals shall be included in the cost of modular block wall.

The cost of aggregate and associated geotechnical testing shall be included in the cost of the modular block wall.

The cost of all labor and materials required to prepare the wall foundation and erect the modular block unit, including the face plates with dowels for the Structure No. 23 headwall, shall be included in the cost of modular block wall erection.

The cost of laboratory testing by an approved geotechnical laboratory for structural backfill or ACBF slag shall be included in the cost of the modular block wall.

The cost of all modular block wall materials including modular block wall units, face plate units with dowels for the Structure No. 23 headwall, compressive strength retesting if required, and necessary incidentals shall be included in the cost of the modular block wall.

The cost of clearing and grubbing, compacted aggregate, or replacement materials damaged during backfill placement if required, shall be included in the cost of modular block wall erection.

The cost of retesting or replacing failed modular block wall units will be included in the cost of the modular block wall.

SIGN INSTALLATION AT TRAIL PAVEMENT

The Standard Specifications are revised as follows:

SECTION 802, AFTER LINE 35, INSERT AS FOLLOWS:

Grout for post bases shall be a cementitious grout in accordance with the U.S. Army Corps of Engineers Specification CRD-C 621.

SECTION 802, AFTER LINE 68, INSERT AS FOLLOWS:

The HMA pavement shall be cored as shown on the plans at each post required to be installed on the trail pavement. The posts shall be driven through the cored hole and the hole filled with grout or other approved material to the top of the HMA pavement.

SECTION 802, AFTER LINE 362, INSERT AS FOLLOWS:

The cost of coring the HMA pavement, grout filling the cored hole around the sign post, and necessary incidentals shall be included in the cost of sign post, square, type 1, reinforced anchor base.

PAVEMENT MARKING FOR CROSSWALK

The Standard Specifications are revised as follows:

SECTION 808, AFTER LINE 484, INSERT AS FOLLOWS:

White painted 24 inch line for the crosswalk from station 50+52 to 50+88 will be measured as the total distance in linear feet of line placed.

SECTION 808, AFTER LINE 520, INSERT AS FOLLOWS:

Painted 24 inch line for the crosswalk from station 50+52 to 50+88 will be paid for at the contract unit price per linear foot of line, paint, solid, white, 24 in. for crosswalk.

DELETIONS HIGHLIGHTED IN RED, ADDITIONS IN YELLOW

103-C-036 OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY
INSURANCE COVERAGE FOR OPERATIONS OF DESIGNATED CONTRACTOR

(Revised 03-09-06)

The Standard Specifications are revised as follows:

SECTION 103, BEGIN LINE 417, DELETE AND INSERT AS FOLLOWS:

**(e) Owner's and Contractor's Protective Liability Insurance Coverage for
Operations of Designated Contractor**

The name insured in this policy shall be the State of Indiana c/o Indiana Department of Transportation, 100 N. Senate Avenue, Room N855, Indianapolis, Indiana 46204-2218. ~~If specified elsewhere in the contract, the named insured shall also include a local governmental agency.~~ *The named insured shall also be City of West Lafayette.*

107-R-169 STATEMENTS ABOUT EXISTING CONDITIONS OF
UTILITIES, ADDITIONAL RIGHT-OF-WAY, AND ENCROACHMENTS

(Revised 02-18-08)

The Standard Specifications are revised as follows:

SECTION 107, AFTER LINE 740, INSERT AS FOLLOWS:

107.26 Existing Conditions of Utilities, Additional Right-of-Way, and Encroachments

Such existing conditions are as described below.

(a) Utilities

The status of all utility companies and organizations potentially involved with the work to be performed are described below as known at the time this contract was prepared.

The facilities of Duke Energy exist within the project limits. The utility will be able to begin adjusting its facilities after the contractor has completed clearing activities along the roadway. It is anticipated that the utility will take approximately 45 calendar days to adjust its facilities. The company's work is anticipated to involve the relocation of the power distribution poles located at the following approximate stations: 5+72 Lt., 7+53 Rt., 9+12 Lt., 11+01 Lt., 24+06 Lt., 24+48 Lt., 29+07 Lt., and 30+75 Lt. If questions arise, Jim Shields of the utility may be contacted at 812-375-2071.

The facilities of Vectren Energy Delivery exist within the project limits. The utility will be able to begin adjusting its facilities after the contractor has completed clearing activities along the roadway. It is anticipated that the utility will take approximately 45 calendar days to adjust its facilities. If questions arise, Jim Yarnal of the utility may be contacted at 800-483-4000.

The facilities of Verizon North, Inc. exist within the project limits. The utility will be able to begin adjusting its facilities after the contractor has completed clearing activities along the roadway. It is anticipated that the utility will take approximately 30 calendar days to adjust its facilities. If questions arise, Ted Foster of the utility may be contacted at 765-423-3531.

The facilities of Indiana American Water exist within the project limits. The utility will be able to begin adjusting its facilities after the contractor has completed clearing activities along the roadway. It is anticipated that the utility will take approximately 25 calendar days to adjust its facilities. If questions arise, Chris Walsh of the utility may be contacted at 317-885-2424.

The facilities of Comcast exist within the project limits. The utility will be able to begin adjusting its facilities after the power and telephone utilities have relocated their facilities. It is anticipated that the utility will take approximately 30 calendar days to adjust its facilities. If questions arise, Kerry Plantenga of the utility may be contacted at 765-447-6886.

(b) Right-of-Way

There is no involvement of additional right-of-way for the contract.

(c) Encroachments

There is no involvement of encroachments for the contract.

(d) Other Noteworthy Conditions

There are no other noteworthy conditions which may affect the prosecution and progress of the contract.

(e) Preconstruction Conference Notification

The Contractor shall provide notification during the preconstruction conference about known corrections to or omissions of the information presented in 107.26(a) through 107.26(d) above. Otherwise, notification shall be provided as required in 105.06. Notifications regarding such corrections or omissions shall not alleviate the Contractor's inquiry or interpretation obligations as contained in 120 IAC 3-6-6.

108-C-091 FAILURE TO COMPLETE ON TIME FOR RESTRICTION

(Revised 08-21-06)

The Standard Specifications are revised as follows:

SECTION 108, AFTER LINE 543, INSERT AS FOLLOWS:

The work specified shall be arranged and prosecuted such that traffic is restricted on State Road 43 (North River Road) / State Road 443 (Happy Hollow Road) for not longer than the number of calendar days shown on the Proposal sheet.

If the necessary work is not completed and State Road 43 (North River Road) / State Road 443 (Happy Hollow Road) is not reopened to unrestricted traffic within the number of calendar days for restriction shown on the Proposal sheet, \$1500.00 will be assessed as liquidated damages, not as a penalty, but as damages sustained for each calendar day for which traffic on State Road 43 (North River Road) / State Road 443 (Happy Hollow Road) remains restricted in excess of the number shown on the Proposal sheet.

Extension of restriction time, if required, shall be in accordance with 108.08.
