DSR 009-09-002 – Big Sugar Creek
Emergency Watershed Protection Project
Barry County, Missouri

Specifications

Covering the proposed works of improvement for the Rip-Rap installation located in Big Sugar Creek along Hwy DD. The Rip-Rap installation area is located in Section 20-T21N-R28W in Barry County.

Specifications referred to herein shall form a part of these Construction and Material Specifications and the Contractor shall exercise special care to refer to them in request for quotations, in orders, and in subcontracts. Materials so specified shall conform to the technical requirements of the respective specifications referred to. Where used in these specifications, the terms "Engineer", "Contracting Officer", "Contracting Officer's Representative" and "Contracting Officer's Technical Representative" refer to the project sponsor's personnel unless otherwise noted.

Index of Construction Specifications

Number	Title
5	Pollution Control
95	Geotextile
427	Mobilization
440B	Seeding and Mulching
424	Channel Excavation
445	Rock Riprap

Index of Material Specifications

Number	Title
592	Geotextile

CORPS OF ENGINEERS
PERMIT GP-41
Pages 30-45

Missouri One Call
Call Before You Dig
1-800-DIG-RITE
1-800-344-7483

CONSTRUCTION SPECIFICATION

5. POLLUTION CONTROL

1. SCOPE

The work shall consist of installing measures or performing work to control erosion and minimize the production of sediment and other pollutants to water and air from construction activities.

2. MATERIALS

All materials furnished shall meet the requirements of the Material Specifications listed in Section 8 of this specification.

3. EROSION AND SEDIMENT CONTROL MEASURES AND WORKS

The measures and works shall include, but are not limited to, the following:

Staging of Earthwork Activities The excavation and moving of soil materials shall be scheduled to minimize the size of areas disturbed and unprotected from erosion for the shortest reasonable time.

Seeding Seeding to protect disturbed areas shall occur as soon as reasonably possible following completion of that earthwork activity.

Mulching Mulching to provide temporary protection of soil surfaces from erosion.

Diversions Diversions to divert water from work areas and to collect water from work areas for treatment and safe disposition. These works are temporary and shall be removed and the area restored to its near original condition when they are no longer required or when permanent measures are installed.

Stream Crossings Culverts or bridges where equipment must cross streams. These works are temporary and shall be removed and the area restored to its near original condition when they are no longer required or when permanent measures are installed.

Sediment Basins Sediment basins to collect, settle and eliminate sediment from eroding areas from impacting properties and streams below the construction site(s). These basins are temporary and shall be removed and the area restored to its original condition when they are no longer required or when permanent measures are installed.

Sediment Filters Straw bale filters or geotextile sediment fences to trap sediment from areas of limited runoff. Sediment filters shall be properly anchored to prevent erosion under or around them. These works are temporary and shall be removed and the area restored to its original condition when they are no longer required or when permanent measures are installed.

Waterways Waterways for the safe disposal of runoff from fields, diversions and other structures or measures. These works are temporary and shall be removed and the area restored to its original condition when they are no longer required or when permanent measures are installed.

Other Additional protection measures as specified in Section 8 of this specification or required by Federal, State, or Local Government.

4. CHEMICAL POLLUTION

The Contractor shall provide water-tight tanks or barrels, or construct a sump sealed with plastic sheets to be used to dispose of chemical pollutants, such as drained lubricating or transmission fluids, grease, soaps, concrete mixer wash water, asphalt, etc., produced as a by-product of the construction activities. At the completion of the construction work, sumps shall be removed and the area restored to its original condition as specified in Section 8 of this specification. Sump removal shall be conducted without causing pollution.

Sanitary facilities such as chemical toilets, or septic tanks shall not be located adjacent to live streams, wells, or springs. They shall be located at a distance sufficient to prevent contamination of any water source. At the completion of construction activities, facilities shall be disposed of without causing pollution as specified in Section 8 of this specification.

5. AIR POLLUTION

The burning of brush and/or slash, and disposal of other materials shall adhere to state and local regulations.

Fire prevention measures shall be taken to prevent the start or spreading of wild fires which may result from project activities. Firebreaks or guards shall be constructed and maintained at locations shown on the drawings.

All public access or haul roads used by the contractor during construction of the project shall be sprinkled or otherwise treated to fully suppress dust. All dust control methods shall insure safe construction operations at all times. If chemical dust suppressants are applied, the material shall be a commercially available product specifically designed for dust suppression and the application shall follow manufacturer's requirements and recommendations. A copy of the product data sheet and manufacturer's recommended application procedures shall be provided to the Engineer five (5) working days prior to the first application.

6. MAINTENANCE, REMOVAL, AND RESTORATION

All pollution control measures and temporary works shall be adequately maintained in a functional condition for the duration of the construction period. All temporary measures shall be removed and the site restored to near original condition.

7. MEASUREMENT AND PAYMENT

Method 1 For items of work for which specific unit prices are established in the contract, each item will be measured to the nearest unit applicable. Payment for each item will be made at the contract unit price for that item. For water or chemical suppressant items used for dust control for which items of work are established in Section 8 of this specification, measurement for payment will not include water or chemical suppressants that are used inappropriately or excessive to need. Such payment will constitute full compensation for the completion of the work.

Method 2 For items of work for which lump sum prices are established in the contract, payment will be made as the work proceeds and supported by invoices presented by the Contractor that reflect actual costs. If the total of all progress payments is less than the lump sum contract price for this item, the balance remaining for this item will be included in the final contract payment. Payment of the lump sum contract price will constitute full compensation for completion of the work.

Method 3 For items of work for which lump sum prices are established in the contract, payment will be prorated and provided in equal amounts on each monthly progress payment estimate. The number of months used for prorating shall be the number estimated to complete the work as outlined in the Contractor's approved construction schedule. The final month's prorate amount will be provided with the final contract payment. Payment as described above will constitute full compensation for completion of the work.

All Methods The following provisions apply to all methods of measurement and payment. Compensation for any item of work described in the contract but not listed in the bid schedule will be included in the payment for the item of work to which it is made subsidiary. Such items, and the items to which they are made subsidiary, are identified in Section 8 of this specification.

8. ITEM OF WORK AND CONSTRUCTION DETAILS

Item of work to be performed in conformance with this specification and the construction details therefore are:

a. Subsidiary Item, Pollution Control

(1) This item shall consist of scheduling of work, installing measures and performing work as needed to control erosion and minimize the production of sediment and other pollutants to the water and air during construction operations.

These temporary pollution control provisions contained herein shall be coordinated with other temporary and permanent pollution control features specified elsewhere in the contract or by state and local laws to assure effective pollution control.

(2) Stripping, clearing and grubbing shall not be done until the area is needed in the construction operations.

(3) All state and local laws governing pollution shall be followed.

(4) The construction site shall be maintained in a clean and safe condition during construction operations.

(5) Trash barrels shall be provided and utilized at the site. Trash shall be regularly collected and disposed of properly.

(6) Employ measures to prevent spilled fuels, lubricants, excessive suspended solids including dredged materials from entering the waters of the United States and formulate a contingency plan to be effective in the event of a spill. All waste oil, other chemicals, sewage and soils contaminated by such pollutants shall be removed from the site and disposed of in approved landfills.

(7) Conduct activities during low water periods to the extent possible. Limit crossing of waterways and use of construction machinery in waterways to the minimum extent necessary.

(8) Remove and properly dispose of all debris to prevent the accumulation of unsightly, deleterious and/or toxic materials in or near the water body. All construction debris must be disposed of off site in such a manner that it cannot enter into a waterway or into a wetland.

(9) Store all construction materials, equipment, and/or petroleum products, when not in use, above anticipated high water levels.

(10) Restrict the clearing of timber and other vegetation to the absolute minimum required to accomplish the work. Work should be limited to one side of the channel.

(11) This item of work will not be measured. No separate payment will be made for this item. Item is subsidiary to Bid Item #3, Rock Riprap (Type 4).

CONSTRUCTION SPECIFICATION

95. GEOTEXTILE

1. SCOPE

This work shall consist of furnishing all materials, equipment, and labor necessary for the installation of geotextiles.

2. QUALITY

Geotextiles shall conform to the requirements of Material Specification 592, Geotextile, and this specification.

3. STORAGE

Prior to use, the geotextile shall be stored in a clean dry location, out of direct sunlight, not subject to extremes of either hot or cold temperatures, and with the manufacturer's protective cover undisturbed. Receiving, storage, and handling at the job site shall be in accordance with the requirements listed in ASTM D 4873.

4. SURFACE PREPARATION

The surface on which the geotextile is to be placed shall be graded to the neat lines and grades as shown on the drawings. It shall be reasonably smooth and free of loose rock and clods, holes, depressions, projections, muddy conditions and standing or flowing water (unless otherwise specified in Section 7 of this specification).

5. PLACEMENT

Prior to placement of the geotextile, the soils surface will be reviewed for quality assurance of the design and construction. The geotextile shall be placed on the approved prepared surface at the locations and in accordance with the details shown on the drawings and specified in Section 7 of this specification. The geotextile shall be unrolled along the placement area and loosely laid, without stretching, in such a manner that it will conform to the surface irregularities when material or gabions are placed on or against it. The geotextile may be folded and overlapped to permit proper placement in designated area(s).

Method 1 The geotextile shall be joined by machine sewing using thread material meeting the chemical requirements for the geotextile fibers or yarn. The sewn overlap shall be six (6) inches and the sewing shall consist of two (2) parallel stitched rows at a spacing of approximately one (1) inch and shall not cross (except for any required re-stitching). The stitching shall be a lock-type stitch. Each row of stitching shall be located a minimum of two (2) inches from the geotextile edge. The seam type and sewing machine to be used shall produce a seam strength, in the specified geotextile, that provides a minimum of 90-percent of the tensile strength in the weakest principal direction of the geotextile being used, when tested in accordance with ASTM D 4884. The seams may be factory or field sewn.

The geotextile shall be temporarily secured during placement of overlying materials to prevent slippage, folding, wrinkling, or other displacement of the geotextile. Unless otherwise specified, methods of securing shall not cause punctures, tears or other openings to be formed in the geotextile.

Method 2 The geotextile shall be joined by overlapping a minimum of 18 inches (unless otherwise specified), and secured against the underlying foundation material. Securing pins, approved and provided by the geotextile manufacturer, shall be placed along the edge of the panel or roll material to adequately hold it in place during installation. Pins shall be steel or fiberglass formed as a "U", "L", or "T" shape or contain "ears" to prevent total penetration through the geotextile. Steel washers shall be provided on all but the "U" shaped pins. The upstream or up-slope geotextile shall overlap the abutting down-slope geotextile. At vertical laps, securing pins shall be inserted through the bottom layers along a line through approximately the mid-point of the overlap. At horizontal laps and across slope laps, securing pins shall be inserted through the bottom layer only. Securing pins shall be placed along a line approximately two (2) inches in from the edge of the placed geotextile at intervals not to exceed 12 feet unless otherwise specified. Additional pins shall be installed as necessary and where appropriate, to prevent any undue slippage or movement of the geotextile. The use of securing pins will be held to the minimum necessary. Pins are to remain in-place unless otherwise specified.

Should the geotextile be torn or punctured, or the overlaps or sewn joint disturbed, as evidenced by visible geotextile damage, subgrade pumping, intrusion, or grade distortion, the backfill around the damaged or displaced area shall be removed and restored to the original approved condition. The repair shall consist of a patch of the same type of geotextile being used and overlaying the existing geotextile. When the geotextile seams are required to be sewn, the overlay patch shall extend a minimum of one (1) foot beyond the edge of any damaged area and joined by sewing as required for the original geotextile except that the sewing shall be a minimum of six (6) inches from the edge of the damaged geotextile. Geotextile panels joined by overlap shall have the patch extend a minimum of two (2) feet from the edge of any damaged area.

Geotextile shall be placed in accordance with the following applicable specification according to the use indicated in Section 7:

a. Slope Protection The geotextile shall not be placed until it can be anchored and protected with the specified covering within 48 hours or protected from exposure to ultraviolet light. In no case shall material be dropped on uncovered geotextile from a height greater than three (3) feet.

b. Subsurface Drains The geotextile shall not be placed until drainfill or other material can be used to provide cover within the same working day. Drainfill material shall be placed in a manner that prevents damage to the geotextile. In no case shall material be dropped on uncovered geotextile from a height greater than five (5) feet.

c. Road Stabilization The geotextile shall be unrolled in a direction parallel to the roadway centerline in a loose manner permitting conformation to the surface irregularities when the roadway fill material is placed on its surface. In no case shall material be dropped on uncovered geotextile from a height greater than five (5) feet. Unless otherwise specified, the minimum overlap of

geotextile panels joined without sewing shall be 24 inches. The geotextile may be temporarily secured with pins recommended or provided by the manufacturer, but they shall be removed prior to placement of the permanent covering material.

6. MEASUREMENT AND PAYMENT

Method 1 For items of work for which specific unit prices are established in the contract, the quantity of geotextile for each type placed within the specified limits is determined to the nearest specified unit by measurements of the covered surfaces only, disregarding that required for anchorage, seams, and overlaps. Payment is made at the contract unit price. Such payment constitutes full compensation for the completion of the work.

Method 2 For items of work for which specific unit prices are established in the contract, the quantity of geotextile for each type placed with the specified limits is determined to the nearest specified unit by computing the area of the actual roll size, or partial roll size installed. The computed area will include the amount required for overlap, seams, and anchorage as specified. Payment is made at the contract unit price. Such payment constitutes full compensation for the completion of the work.

Method 3 For items of work for which specific lump sum prices are established in the contract, the quantity of geotextile is not measured for payment. Payment for geotextiles is made at the contract lump sum price and constitutes full compensation for the completion of the work.

All Methods The following provisions apply to all methods of measurement and payment. Compensation for any item of work described in the contract but not listed in the bid schedule is included in the payment for the item of work to which it is made subsidiary. Such items and the items to which they are made subsidiary are identified in Section 7 of this specification.

7. ITEM OF WORK AND CONSTRUCTION DETAILS

Item of work to be performed in conformance with this specification and the construction details therefore are:

a. Subsidiary Item, Geotextile

(1) This item shall consist of furnishing and installing the geotextile beneath the rock riprap.

(2) The geotextile fabric shall be non-woven, Class I, and meet or exceed requirements in Table 592-2, Material Specification 592. Fabric weight shall be a minimum of 14 ounces per square yard.

(3) Placement shall be by Method 2.

(4) This item of work will not be measured. No separate payment will be made for this item. Item is subsidiary to Bid Item #3, Rock RipRap (Type 4).

CONSTRUCTION SPECIFICATION

424. CHANNEL EXCAVATION

1. SCOPE

The work shall consist of removing sediment and debris from channel and the disposal of all excavated material.

2. EXCAVATION

The channel shall be excavated to the cross sections and grades shown on the plans. The excavated surfaces shall be reasonably smooth. The channel bank alignment shall be uniform.

3. DISPOSAL OF EXCAVATED MATERIALS

Material excavated from the channel shall be placed in spoil dikes as shown on plans. Spoil dikes shall be shaped reasonably smooth and shall be placed so surface water does not pond. Debris shall be separated from the soil materials, then burned, buried or otherwise disposed of at locations shown on the drawings or staked in the field.

4. MEASUREMENT AND PAYMENT

The quantity of this work shall not be measured.

Payment for items of work listed in the bid schedule will be made at the specific lump sum prices established in the contract. Such payment will constitute full compensation for all labor, materials, equipment, and all other items necessary and incidental to the performance of the work.

5. ITEM OF WORK AND CONSTRUCTION DETAILS

Item of work to be performed in conformance with this specification and the construction details therefore are:

a. Subsidiary Item, Channel Excavation

(1) This item shall consist of removing all of the material required to construct the stream bank protection or to place the geotextile fabric.

(2) Excavated material may be placed as earthfill, if suitable, on portions of the stream channel bank needing earthfill above existing waterline elevation. Excess material or material not suitable for earthfill shall be disposed of at a location designated by the sponsor. The exact placement of excavated material shall be approved in the field by the Contracting Officer's Representative.

(3) Broken concrete and other debris shall be disposed of at a location designated by the project sponsor.

(4) This item of work will not be measured. No separate payment will be made for this item. Item is subsidiary to Bid Item #3, Rock Riprap (Type 4).

CONSTRUCTION SPECIFICATION

427. MOBILIZATION

1. SCOPE

The work shall consist of the cost of premiums paid for performance and payment bonds and the mobilization of the Contractor's forces and equipment necessary for performing the work required under the contract.

It shall include the transportation of personnel, equipment, and operating supplies to the site; establishment of offices, building, and other necessary facilities at the site; and other preparatory work at the site.

It shall not include mobilization for any specific item of work for which payment for mobilization is provided elsewhere in the contract.

The specification covers mobilization for work required by the contract at the time of award. If additional mobilization costs are incurred during performance of the contract as a result of changed or added items of work for which the contractor is entitled to an adjustment in contract price, compensation for such costs will be included in the price adjustment for the items of work changed or added.

This item also includes demobilization, which is all activities and cost for transportation of personnel, equipment, and supplies not required or included in the contract from the site.

2. PAYMENT

Payment for this item is made at the contract lump sum bid price.

3. ITEM OF WORK AND CONSTRUCTION DETAILS

Item of work to be performed in conformance with this specification and the construction details therefore are:

a. Bid Item 1, Mobilization

(1) This item shall consist of all mobilization and demobilization needed to perform all work.

(2) Work shall also include any traffic control measures as required by the project sponsor.

CONSTRUCTION SPECIFICATION

440B. SEEDING AND MULCHING (South Missouri)

1. SCOPE

The work shall consist of preparing the area for treatment and furnishing and placing seed, legume inoculant, mulch, fertilizer, and soil amendments as specified. The area to be seeded and mulched shall include the designated work area and other disturbed areas. The limits of the area will be marked on the ground.

2. MATERIALS

Seed - All seed shall conform to the current rules and regulations of the state of Missouri and all seed will be from the latest crop available. Seed shall be labeled in accordance with the state laws and the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of invitations for bids. Bag tag figures will be evidence of purity and germination. No seed will be accepted with a test date of more than nine (9) months prior to the date of delivery to the site.

Seed that has become wet, moldy, or otherwise damaged in transit or storage will not be accepted. The percent of noxious weed seed allowable shall be as defined in the current state laws relating to agricultural seeds. Each type of seed shall be delivered in separate sealed containers and fully tagged unless an exception is granted in writing by the Contracting Officer.

Inoculation - All legume seeds such as ladino clover not pre-inoculated will be inoculated with the proper viable inoculant within 24 hours of planting. Pre-inoculated seed shall be planted prior to the expiration date of the inoculant tag or be re-inoculated with the appropriate inoculant within 24 hours prior to seeding. A sticker product will be used to adhere inoculant to the legume seeds.

Fertilizer - The fertilizer shall be a commercial grade fertilizer. The fertilizer shall meet the standard for grade and quality specified by state law. Where fertilizer is furnished from bulk storage, the contractor shall furnish a supplier's certification of analysis and weight. When required by the contract, a representative sample of the fertilizer shall be furnished to the Contracting Officer for chemical analysis.

Soil Amendments - Lime shall consist of standard ground agricultural limestone. Standard ground agricultural limestone is defined as ground limestone meeting current requirements of the State Department of Agriculture. Agricultural lime will be uniformly applied at a rate of 1500 pounds per acre of effective neutralizing material (ENM).

Mulch Materials - Mulch shall consist of wheat, oat, or rye straw, or grass hay as approved by the Contracting Officer's Technical Representative. The mulch material shall be air dry, reasonably light in color, and shall not be musty, moldy, caked, or otherwise of low quality. The use of mulch that contains noxious weeds will not be permitted. The contractor shall provide a method satisfactory to the Contracting Officer's Technical Representative for determining the weight of mulch furnished.

3. **SEEDING MIXTURES AND DATES OF PLANTING**

Unless otherwise specified on the drawings, seed will be sown:

1) Dormant Seeding Period from December 16 through February 29
2) Spring Seeding Period from March 1 through May 15
3) Summer Seeding Period from August 16 through September 15
4) Fall Seeding Period from September 16 through October 15

From May 16 to August 15, a cool season grass and legume mixture may be seeded if there is adequate soil moisture to a depth of 18 inches at the time of planting. Adequate soil moisture shall be the minimum moisture content as defined in this specification.

Seeding will not be performed outside of the date ranges stated above. From October 16 to December 15 or drought periods between May 16 and August 15, all operations may be performed except sowing the seed.

Seed will be applied based on pounds of Pure Live Seed (PLS) per acre. Calculate PLS for each species and seed lot with the following formula:

$$\text{PLS (Pure Live Seed)} = \frac{\text{Purity}}{100} \times \frac{(\text{Germination} + \text{Hard Seed})}{100}$$

Calculate the total seed required per species on the following formula:

$$\text{Bulk Seed (lb.)} = \frac{\text{Seeding Rate (lb./ac.)} \times \text{Seeded Area marked on ground (ac.)}}{\text{PLS}}$$

4. **SEEDING RATES AND DATES FOR SOUTH MISSOURI:** 1/

Mixture Seeding Rates (PLS) – Broadcast Seeding Methods Only

Species:	Dec 16 – May 15	May 16 – Aug 15	Aug 16 – Sept 15	Sept 16 – Oct 15
Tall Fescue	12.0 lb./ac.	18.0 lb./ac.	12.0 lb./ac.	12.0 lb./ac.
Redtop	1.3 lb./ac.	2.0 lb./ac.	1.3 lb./ac.	1.3 lb./ac.
Switchgrass 2/	2.1 lb./ac.	3.2 lb./ac.		
Ladino Clover	0.9 lb./ac.	1.4 lb./ac.	0.9 lb./ac.	
Orchardgrass			1.9 lb./ac.	3.2 lb./ac.

Mixture Seeding Rates (PLS) – Drill Seeding Methods Only

Species:	Dec 16 – May 15	May 16 – Aug 15	Aug 16 – Sept 15	Sept 16 – Oct 15
Tall Fescue	8.0 lb./ac.	12.0 lb./ac.	8.0 lb./ac.	8.0 lb./ac.
Redtop	0.9 lb./ac.	1.3 lb./ac.	0.9 lb./ac.	0.9 lb./ac.
Switchgrass 2/	1.4 lb./ac.	2.1 lb./ac.		
Ladino Clover	0.6 lb./ac.	0.9 lb./ac.	0.6 lb./ac.	
Orchardgrass			1.3 lb./ac.	2.1 lb./ac.

1/ South Missouri counties are Bates, Henry, Benton, Morgan, Moniteau, Cole, Osage, Gasconade, Franklin, and St. Louis including those counties to the south of those listed.
2/ An improved cultivar of switchgrass will be required for these seedings. Approved switchgrass cultivars are “Cave-In-Rock”, “Blackwell”, “Alamo” (lowland sites only), and “Kanlow” (lowland sites only).

5. FERTILIZING, SEEDBED PREPARATION, AND TREATMENT

Disturbed areas will be treated with seed, mulch, fertilizer, and soil amendments as specified in this construction specification. Areas to be seeded shall be dressed to a reasonably smooth, firm surface.

Fertilizer furnishing the following minimum amounts of available plant nutrients per acre shall be applied.

	All Areas
Nitrogen (N)	30 lb./ac.
Phosphate (P_20_5)	90 lb./ac.
Potash (K_2O)	90 lb./ac.

Fertilizer shall be applied uniformly over the designated seeding area. Fertilizer and soil amendments shall be thoroughly incorporated into the upper 3 to 6 inches of soil within 24 hours after being applied.

The seedbed will be prepared with common farm implements such as disks, harrows and cultipackers. Alterations to the finished lines and grades of any structure caused by seedbed preparation shall be regraded by the contractor to meet the requirements of the applicable drawings and specifications prior to seeding.

The moisture content of the finished seedbed (upper 3-4 inches) must be adequate for germination. **Minimum moisture content** is present when the soil material will form a ball which does not readily separate when kneaded in the hand. **Maximum moisture content** is present when free water is evident on the surface of the kneaded soil ball. Areas not accessible to field machinery shall be prepared by hand. Parking areas shall be ripped or disked to a minimum depth of 6 inches prior to seedbed preparation.

If seeding is to be completed within 24 hours following construction, seedbed preparation may not be required unless soil conditions are compacted, polished or freshly cut areas.

Rocks larger than 6 inches in diameter, trash, weeds, woody materials, and other debris that will interfere with seeding or maintenance shall be removed or disposed of as directed by the Contracting Officer's Technical Representative.

Seedbed preparation shall be suspended when soil moisture conditions are not suitable for the preparation of a satisfactory seedbed as determined by the Contracting Officer's Technical Representative.

6. SEEDING AND MULCHING

All seeding operations shall be performed in such a manner that the seed is applied in the specified quantities uniformly on the designated areas. Prior to mulching, apply seed uniformly at a depth of 1/8 to 1/4 inch with a drill or cultipacker type of seeder - or - broadcast seed uniformly and immediately cover to a depth of 1/8 to 1/4 inch with a cultipacker or smooth wheel roller. Seeding operation shall be performed immediately after seedbed preparation, if seeding dates permit.

Mulch shall be applied uniformly to the designated areas at the rate of two tons per acre. Mulch shall be applied to the seeding areas not later than two (2) days after seeding has

been performed. During the non-seeding periods mulch shall be applied within two (2) days after incorporation of fertilizer and soil amendments. An adequately weighted mulch tacker or crimper shall be used to anchor the mulch into the top one (1) inch of soil. On those areas too steep for safe operation if a mulch tacker or crimper, a non-asphalt tackifier will be applied with the straw mulch according to the manufacturer's recommendation in lieu of a mechanical operation. When required by the Contracting Officer's Technical Representative or as shown on plans, mulch tackifiers, binders, mesh, or netting will be used to help anchor mulch materials.

7. OVERSEEDING

When overseeding into mulch is necessary, planting will occur during the next seeding period with minimal disturbance to the mulch. The seeding rates listed in Section 4 will be increased by 100 percent (doubled) when overseeding into mulch. Seed may be applied either by broadcast methods only December 16 through February 29 in the dormant seeding period or with a no-till drill during any of the seeding periods designated in Section 3. There will be no tillage or mechanical operation to cover broadcasted seed during an overseeding operation. Prior to overseeding into mulch cover, any existing competitive growth will be controlled with suitable herbicides.

Adequate mulch cover will be maintained to provide protection for the establishing seedlings.

8. MEASUREMENT AND PAYMENT

For items of work for which specific unit prices are established in the contract, each area treated as specified will be measured to the nearest 0.1 acre. Payment for treatment will be made at the contract unit price for the designated treatment which shall constitute full compensation for all materials, labor, equipment, tools, and other items necessary and incidental to the completion of the work.

6. ITEMS OF WORK AND CONSTRUCTION DETAILS

Item of work to be performed in conformance with this specification and construction details therefore are:

a Subsidiary Item: Seeding and Mulching

1. This item shall consist of all work and materials needed to seed and mulch the disturbed areas.

2. Apply ground agricultural limestone and fertilizer uniformly as per soil test. In lieu of soil test information, the following application rates for fertilizer and lime will be used:

   a. In lieu of the rate shown in Section 2 of this specification, apply ground lime at a rate of 1500 lbs./acre of effective neutralizing material (ENM).

   b. In lieu of the rates shown in Section 3 of this specification, apply fertilizer uniformly over the designated seeding area at these rates:

Nitrogen (N)	60 pounds/acre
Phosphate (P_2O_5)	90 pounds/acre
Potash (K_2O)	90 pounds/acre

3. Incorporate lime and fertilizer to a depth of at least 3” into the soil immediately after application during preparation of seedbed. All rills and gullies shall be filled and smoothed prior to application of lime and fertilizer.

4. In areas not accessible to or too small for practical use of field machinery, the seedbed shall be prepared by hand.

5. In lieu of the mixtures shown in Section 4 of this specification, seed shall be furnished in amounts that equal or exceed the following rate per acre:

Tall Fescue	32 Pounds (PLS)
Wheat	25 Pounds per acre

6. In lieu of the seeding depths shown in Section 4 of this specification, apply seed uniformly at a depth of 1/8 to ¼ inch with a culti-packer type seeder or broadcast seed uniformly and cover 1/8 to ¼ inch deep with a culti-packer. Seeding operation shall be performed immediately after seedbed preparation. Cover broadcast seedings by culti-packing, dragging a harrow, or raking.

7. Mulch shall be small grain straw or grass hay relatively free of weed seed. The mulch shall be applied uniformly over the designated area at a rate of two tons per acre.

8. In lieu of the Measurement and Payment shown in Section 5 of this specification, payment for this item will be subsidiary to Bid Item #3, Riprap (Type 4). No measurement of area seeded will be made for payment purposes. Payment of the lump sum contract price for Bid Item #3 will constitute full compensation for the completion of the work.

CONSTRUCTION SPECIFICATION

445. ROCK RIPRAP

1. SCOPE

The work shall consist of the construction of rock riprap revetments and blankets, including filter, heavy filter fabric or bedding where specified.

2. MATERIALS

Rock riprap shall be obtained from the designated source or other approved source. It shall be free from dirt, clay, sand, rock fines and other materials not meeting the required gradation limits.

The size and grading of the rock shall be specified on the drawings.

Rock from designated sources shall be excavated, selected and processed as necessary to meet the quality and grading requirements as specified. The installed rock riprap shall conform to the specified grading limits.

Bedding aggregates when required, shall, unless otherwise specified, conform to the requirements for riprap.

Individual rock fragments for rock riprap and bedding shall be dense, sound and free from cracks, seams and other defects conducive to accelerated weathering. The rock fragments shall be angular to sub-rounded in shape. The least dimension of an individual rock fragment shall be not less than one-third the greatest dimension of the fragment.

Rock for riprap and bedding shall be sound, durable unweathered rock from approved sources.

Filter fabric when required, shall be of heavy duty non-woven materials of type specified on the drawings or otherwise approved.

3. SUBGRADE PREPARATION

The subgrade surfaces on which the rock riprap, filter, filter fabric or bedding is to be placed shall be cut or filled and graded to the lines and grades shown on the drawings. When earth fill to subgrade lines is required, it shall consist of approved materials and shall conform to the earthfill requirements.

Rock riprap, filter, filter fabric or bedding shall not be placed until the foundation is completed and the subgrade surfaces have been inspected and approved by the Engineer.

4. EQUIPMENT-PLACED ROCK RIPRAP

The rock riprap shall be placed by equipment on the surfaces and to the depths specified. The rock riprap shall be constructed to the full course thickness in one operation and in such a manner as to avoid serious displacement of the underlying materials. The rock riprap shall be delivered and placed in a manner that will insure that the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and spalls filling the voids between the larger rocks.

Rock riprap shall be placed in a manner to prevent damage to structures. Hand placing will be required to the extent necessary to prevent damage to the permanent works.

5. EQUIPMENT PLACED FILTER OR BEDDING

Bedding beneath riprap or filter shall be placed on the prepared subgrade surfaces as specified. Compaction of the filter or bedding aggregate will not be required, but the surface of such material shall be finished reasonably free of mounds, dips, or windrows.

6. MEASUREMENT AND PAYMENT

Method 1 For items of work for which specific unit prices are established in the contract, the quantity of each type of rock riprap placed within the specified limits is computed to the nearest ton by actual weight. The volume of each type of filter or bedding aggregate is measured within the specified limits and computed to the nearest cubic yard by the method of average cross-sectional end areas. For each load of rock riprap placed as specified, the Contractor shall furnish to the Engineer a statement-of-delivery ticket showing the weight, to nearest 0.1 ton.

Payment will be made at the contract unit price for each type of rock riprap, filter or bedding. Such payment is considered full compensation for completion of the work.

Method 2 For items of work for which specific unit prices are established in the contract, the quantity of each type of rock riprap placed within the specified limits is computed to the nearest 0.1-ton by actual weight. The quantity of each type of filter or bedding aggregate delivered and placed within the specified limits is computed to the nearest 0.1 ton. For each load of rock riprap placed as specified, the Contractor shall furnish to the Engineer a statement-of-delivery ticket showing the weight, to the nearest 0.1 ton. For each load of filter or bedding aggregate, the Contractor shall furnish to the Engineer a statement-of-delivery ticket showing the weight to the nearest 0.1 ton.

Payment will be made at the contract unit price for each type of rock riprap, filter or bedding. Such payment is considered full compensation for completion of the work.

Method 3 For items of work for which specific unit prices are established by the contract, the volume of each type of rock riprap and filter or bedding aggregate will be measured within the specified limits and computed to the nearest cubic yard by the method of average cross-sectional end areas.

Payment will be made at the contract unit price for each type of rock riprap, filter or bedding. Such payment is considered full compensation for completion of the work.

Method 4 For items of work for which specific unit prices are established by the contract, the volume of each type of rock riprap, including filter and bedding aggregate, will be measured within the specified limits and computed to the nearest cubic yard by the method of average cross-sectional end areas.

Payment will be made at the contract unit price for each type of rock riprap, including filter and bedding. Such payment is considered full compensation for completion of the work.

Method 5 For items of work for which specific unit prices are established by the contract, the quantity of each type of rock riprap placed within the specified limits is computed to the nearest ton by actual weight. For each load of rock for riprap placed as specified, the Contractor shall furnish to the Engineer a statement-of-delivery ticket showing the weight to the nearest 0.1 ton.

Payment will be made at the contract unit price for each type of rock riprap, including geotextile used for filter or bedding. Such payment is considered full compensation for completion of the work.

Method 6 For items of work for which specific unit prices are established by the contract, the volume of each type of rock riprap is measured within the specified limits and computed to the nearest cubic yard by the method of average cross-sectional end areas.

Payment will be made at the contract unit price for each type of rock riprap, including geotextile used for filter or bedding. Such payment is considered full compensation for completion of the work.

Method 7 For items of work for which specific unit prices are not established by the contract, the quantity of rock shall not be measured.

Payment will be made at the contract lump sum price, including geotextile used for filter or bedding. Such payment is considered full compensation for completion of the work.

All Methods The following provision apply to all methods of measurement and payment. Compensation for any item of work described in the contract but not listed in the bid schedule will be included in the payment for the item of work to which it is made subsidiary. Such items and the items to which they are made subsidiary are identified in Section 7.

No separate payment will be made for testing the gradation of the test pile. Compensation for testing is included in the appropriate bid item for riprap.

7. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details therefore are:

a) Bid Item #2, Riprap (Type 1)

1) This item shall consist of furnishing and placing rock riprap to construct the riprap stream bank protection as shown on the drawings.

2) All work shall be completed in compliance with the conditions of U.S. Army Corps of Engineers General Permit (GP) 41.

3) The source of the rock riprap shall be approved by the Government Representative prior to delivering the rock to the project location.

4) The Contractor shall provide a representative gradation pile of rock at the rock source location and at the project location. The size of the gradation pile shall be a minimum of two (2) tons. The length and width of each rock shall be individually measured along with the weight of each rock. The Contractor shall provide the Contracting Officer's Representative a copy of all of the weights and measurements of the rock in order to determine if the rock conforms to the gradation as listed on the plans.

5) The Contractor shall use riprap that meets Missouri Standard Specifications for Highway Construction requirements for Type 1 Rock Blanket to the lines and grades as shown on the drawings.

6) The rock shall be equipment placed.

7) Geotextile material conforming to Material Specification 592 will be used in lieu of rock bedding.

8) The channel shall be excavated as common excavation, and to the cross sections and grades shown on the plans to place the rock riprap. The excavated surfaces shall be reasonably smooth. This work is subsidiary to Bid Item #4, Rock Riprap. No separate payment will be made for this work.

9) Measurement and Payment shall be by Method 7 as stated in Section 6 of this specification.

b) <u>Bid Item #3, Riprap (Type 4)</u>

1) This item shall consist of furnishing and placing rock riprap to construct the riprap stream bank protection as shown on the drawings.

2) <u>All work shall be completed in compliance with the conditions of U.S. Army Corps of Engineers General Permit (GP) 41</u>.

3) The source of the rock riprap shall be approved by the Government Representative prior to delivering the rock to the project location.

4) The Contractor shall provide a representative gradation pile of rock at the rock source location and at the project location. The size of the gradation pile shall be a minimum of two (2) tons. The length and width of each rock shall be individually measured along with the weight of each rock. The Contractor shall provide the Contracting Officer's Representative a copy of all of the weights and measurements of the rock in order to determine if the rock conforms to the gradation as listed on the plans.

5) The Contractor shall use riprap that meets Missouri Standard Specifications for Highway Construction requirements for Type 4 Rock Ditch Liner to the lines and grades as shown on the drawings.

6) The rock shall be equipment placed.

7) Geotextile material conforming to Material Specification 592 will be used in lieu of rock bedding.

8) The channel shall be excavated as common excavation, and to the cross sections and grades shown on the plans to place the rock riprap. The excavated surfaces shall be reasonably smooth. This work is subsidiary to Bid Item #4, Rock Riprap. No separate payment will be made for this work.

9) Measurement and Payment shall be by Method 7 as stated in Section 6 of this specification.

10) Items of work subsidiary to this bid item are:

    a). Pollution Control – Construction Specification 5
    b). Geotextile Fabric – Construction Specification 095
    c). Seeding and Mulching – Construction Specification 440B.
    d). Channel Excavation – Construction Specification 424.

MATERIAL SPECIFICATION

592. GEOTEXTILE

1. SCOPE

This specification covers the quality of geotextiles.

2. GENERAL REQUIREMENTS

Fibers (threads and yarns) used in the manufacture of geotextile shall consist of synthetic polymers composed of a minimum of 85 percent by weight polypropylenes, polyesters, polyamides, polyethylene, polyolefins, or polyvinylidene-chlorides. They shall be formed into a stable network of filaments or yarns retaining dimensional stability relative to each other. The geotextile shall be free of defects and conform to the physical requirements contained in Tables 592-1 and 592-2. The geotextile shall be free of any chemical treatment or coating that significantly reduces its porosity. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet light.

Thread used for factory or field sewing shall be of contrasting color to the fabric and made of high strength polypropylene, polyester, or polyamide thread. Thread shall be as resistant to ultraviolet light as the geotextile being sewn.

3. CLASSIFICATION

Geotextiles shall be classified based on the method used to place the threads or yarns forming the fabric. The geotextiles will be grouped into woven and non-woven types.

a. Woven. Fabrics formed by the uniform and regular interweaving of the threads or yarns in two directions. Woven fabrics shall be manufactured from monofilament yarn formed into a uniform pattern with distinct and measurable openings, retaining their position relative to each other. The edges of fabric shall be selvedged or otherwise finished to prevent the outer yarn from unraveling.

b. Non-woven. Fabrics formed by a random placement of threads in a mat and bonded by heat-bonding, resin-bonding, or needle punching. Non-woven fabrics shall be manufactured from individual fibers formed into a random pattern with distinct but variable small openings, retaining their position relative to each other when bonded by needle punching, heat, or resin bonding. The use of non-wovens, other than the needle punched geotextiles, is somewhat restricted (see Note 3 of Table 2).

4. SAMPLING AND TESTING

The geotextile shall meet the specified requirements (Table 592-1 or 592-2) for the product style shown on the label. Product properties as listed in the lastest edition of the “Specifiers Guide”, Geotechnical Fabrics Report, ADDRESS: Industrial Fabrics Association International, 1801 County Road BW, Roseville, MN 55113-4061; and that represents minimum average roll values, are acceptable documentation that the product style meets the requirements of these specifications.

For products that do not appear in the above directory, or do not have minimum average roll values listed, typical test data from the identified production run of the geotextile will be required for each of the specified tests (Table 592-1 or 592-2) as covered under clause AGAR 452.236-76.

5. SHIPPING AND STORAGE

The geotextile shall be shipped/transported in rolls wrapped with a cover for protection from moisture, dust, dirt, debris, and ultraviolet light. The cover shall be maintained undisturbed to the maximum extent possible prior to placement.

Each roll of geotextile shall be labeled or tagged to clearly identify the brand, Class and the individual production run in accordance with ASTM D 4873.

TABLE 592-1. REQUIREMENTS FOR WOVEN GEOTEXTILES

Property	Test Method	Class I	Class II & III	Class IV
Tensile Strength (pounds) 1/	ASTM D 4632 Grab Test	200 minimum in any principal direction	120 minimum in any principal direction	180 min. in any principal direction
Elongation at Failure (percent) 1/	ASTM D 4632 Grab Test	<50	<50	<50
Puncture (pounds) 1/	ASTM D 4833	90 minimum	60 minimum	60 minimum
Ultraviolet Light (percent residual tensile strength)	ASTM D 4355 150-hours exposure	70 minimum	70 minimum	70 minimum
Apparent Opening Size (AOS)	ASTM D 4751	As specified but no smaller than 0.212 mm (#20)	As specified but no smaller than 0.212 mm (#20)	As specified but no smaller than 0.212 mm (#20)
Percent Open Area (percent)	CWO-02215-86	4.0 minimum	4.0 minimum	1.0 minimum
Permitivity sec^{-1}	ASTM D 4491	0.10 minimum	0.10 minimum	0.10 min.

1/ Minimum average roll value (weakest principal direction).

2/ U. S. Standard Sieve Size.

NOTE: CWO is a USACE reference.

TABLE 592-2. REQUIREMENTS FOR NON-WOVEN GEOTEXTILES

Property	Test Method	Class I	Class II	Class III	Class IV 3/
Tensile Strength (pounds) 1/	ASTM D 4632 Grab Test	180 minimum	120 minimum	90 minimum	115 min.
Elongation at Failure (percent) 1/	ASTM D 4632	≥50	≥50	≥50	≥50
Puncture (pounds)	ASTM D 4833	80 minimum	60 minimum	40 minimum	40 minimum
Ultraviolet Light (percent residual tensile strength)	ASTM D 4355 150-hours exposure	70 minimum	70 minimum	70 minimum	70 minimum
Apparent Opening Size (AOS)	ASTM D 4751	As specified max. # 40 2/	As specified max. # 40 2/	As specified max. # 40 2/	As specified max. # 40 2/
Permittivity sec^{-1}	ASTM D 4491	0.70 minimum	0.70 minimum	0.70 minimum	0.10 min.

1/ Minimum average roll value (weakest principal direction)

2/ U. S. Standard Sieve Size.

3/ Heat-bonded or resin-bonded geotextile may be used for Class III and IV. They are particularly well suited for Class IV. Needle-punched geotextiles are required for all other classes.

CESWL-RO February 21, 2008

General Permit GP-41 (2008-00066)

JOINT PUBLIC NOTICE
CORPS OF ENGINEERS - STATE OF MISSOURI
ISSUANCE OF A GENERAL PERMIT

ISSUANCE OF A GENERAL PERMIT
for the placement of dredged and fill material in waters of the United States associated with necessary repairs to structures, fills, stream channels, and ditches that were damaged from flooding events in the state of Missouri.
Expiration Date – December 31, 2013

TO WHOM IT MAY CONCERN:

Background. The District Engineers, U.S. Army Corps of Engineers, Little Rock, Memphis, and Vicksburg Districts, announce the issuance of a general permit to authorize deposition of fill material into waters of the United States, as regulated by Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, associated with excavation or placement of fill material for protection and/or repair of existing flood damaged structures, damaged land areas and/or damaged fills in the state of Missouri. The authority for permit issuance is found in Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code 403) and Section 404 of the Clean Water Act (33 U.S. Code 1344). Corps districts are authorized to develop general permits in accordance with Title 33, Code of Federal Regulations Parts 325.2(e)(2) and 325.5(c)(1).

Determination to Issue. After reviewing comments received on the public notice, it is our assessment that the work authorized will not have significant adverse environmental impacts and that the public interest will be served by issuance of the general permit.

The policies of this general permit will be subject to reconsideration at any time, but will be reviewed at least every five (5) years. This general permit is therefore issued for a period of 5 years until December 31, 2013, unless it is revoked or specifically extended in the interim. A copy of the general permit is enclosed.

Notification/Verification Requirement. Anyone wanting to do work under the proposed general permit would have to notify the Little Rock District and receive verification that the proposed work met the limits of the general permit. The notification/verification details are outlined in the Criteria for Authorization by General Permit NWKGP-41 attached to the general permit.

Consideration of New/Additional Information. If additional information, developed during the life of the permit, indicates factors contrary to the public interest, this general permit may be suspended, modified, or revoked.

Interested parties are requested to provide comments on this general permit at any time during the life of the permit. These comments will be reviewed and considered for renewal purposes after the permit has expired. Comments should be addressed to Chief, Regulatory Office, U.S. Army Corps of Engineers, P.O. Box 867, Little Rock, Arkansas 72203-0867.

NOTE: The mailing list for this Public Notice is arranged by state and county(s) where the project is located, and also includes any addressees who have asked to receive copies of all public notices. Please discard notices that are not of interest to you. If you have no need for any of these notices, please advise us so that your name can be removed from the mailing list.

//S//
Joyce C. Perser
Chief, Regulatory Office

Enclosure

DEPARTMENT OF THE ARMY PERMIT

Permittee General Public

Permit No. NWK GP-41

Issuing Office U.S. Army Corps of Engineers, Kansas City District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: To excavate or place fill material for protection and/or repair of existing flood damaged structures, damaged land areas and/or damaged fills as follows:

a. Repair of levees to existing elevations and cross-section, including breach closures and borrow operations
b. Bridge embankment protection (armoring) and/or repair
c. Repair of pre-existing highway or railroad embankments and the addition or repair of stone (armoring) protection
d. Repair of pre-existing utility protection structures
e. Placement of rock and/or earth materials for stream/ditch bank protection and/or stream/ditch bank restoration
f. Drainage channel/ditch restoration to pre-flood capacity and flow line unless the flow line must be altered due to other damage associated with the flood event
g. Restoration of creek channels to pre-flooding alignment and capacity
h. Construction of temporary roads and temporary fills to facilitate the completion of any of the listed activities

Note: Maintenance of existing flood damaged structures and/or flood damaged fills, which have been previously authorized, may be authorized by Nationwide Permit No. 3 or exempted by Part 323.4 of Federal regulations 33 CFR 320-331. The repair of uplands damaged by storms, floods or other discrete events may be authorized by Nationwide Permit No. 45 upon notification and review by the appropriate Corps of Engineers District, Regulatory Branch.

Project Location: In Waters of the United States, (rivers, lakes, streams, and wetlands) within the State of Kansas, including Indian Country, and within the State of Missouri that are declared flood disaster areas by the Governor of either state and/or the President of the United States.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2013. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

See continuation sheets, pages 4, 5, and 6 of this document.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(x) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(x) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorization required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

General Public – Signature Not Required

_____ _____

(PERMITTEE) (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

____*// signed //*__ _____

(DISTRICT COMMANDER) (DATE)
ROGER A. WILSON, JR.
BY: MARK D. FRAZIER
Chief, Regulatory Branch
Operations Division

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) (DATE)

Special Conditions:

a. You must sign and return the attached "Compliance Certification" after the authorized work and any required mitigation is completed. Your signature will certify that you completed the work in accordance with this permit, including the general and the special conditions, and that any required mitigation was completed in accordance with the permit conditions.

b. (**Activities occurring in navigable waters under Section 10 of the Rivers and Harbors Act of 1899 Only**) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

c. If any part of the authorized work is performed by a contractor, before starting work you must discuss the terms and conditions of this permit with the contractor; and, you must give a copy of this entire permit to the contractor.

d. You must contact the Corps of Engineers, submit application materials outlined in Appendix I, and you must submit a mitigation plan prior to completing any flood recovery/repair activity when the repair involves obtaining borrow from forested wetland, borrowing material from potential migratory bird nesting areas, clearing trees along stream channels, working in areas with known exotic species, and/or if the proposed repair activity includes restoration of a stream channel back to the original, pre-flood location. All other flood repair activities, including all repairs supervised by the Corps of Engineers, pursuant to Public Law 84-99 and/or all repairs supervised by the United States Department of Agriculture, pursuant to the Emergency Watershed Protection Program or to the Emergency Conservation Program can be completed without pre-construction notification to the Corps of Engineers. However, all completed flood repair work, authorized by this permit, must be reported to the Corps of Engineers, Regulatory Branch, within 60 days of completing the project. The report must include the location of the work, as-built drawings of the structure(s) and/or fill(s), and a discussion of the avoidance and minimization measures incorporated into the project and mitigation measures employed.

e. You must NOT dredge or excavate from the Missouri River or from the Kansas River in order to obtain borrow material for any flood repair project authorized by this permit.

f. You must employ measures to prevent spilled fuels, lubricants, excessive suspended solids including dredged material, and/or wet concrete from entering the waters of the United States and formulate a contingency plan to be effective in the event of a spill.

g. You must use clean, uncontaminated materials for fill in order to minimize excessive turbidity by leaching of fines, as well as to preclude the entrance of deleterious and/or toxic materials into the waters of the United States by natural runoff or by leaching. Use of small aggregate material less than 20 lbs per aggregate, such as creek gravel, for stabilization and erosion control is prohibited.

h. You must excavate or fill in the watercourse so as to minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation. Activities should be conducted during low water periods and outside major spawning season for fish, unless a waiver is obtained from the Corps of Engineers. Crossings of waterways and use of construction machinery in waterways should be limited to the minimum extent necessary.

i. You must immediately remove and properly dispose of all debris during every phase of the project in order to prevent the accumulation of unsightly, deleterious and/or toxic materials in or near the water body. All construction debris must be disposed of in an upland site, outside the floodplain, and in such a manner that it cannot enter into a waterway or into a wetland.

j. You must store all construction materials, equipment, and/or petroleum products, when not in use, above anticipated high water levels.

Special Conditions (continued):

k. You must restrict the clearing of timber and other vegetation to the absolute minimum required to accomplish the work. You must avoid the removal of mature trees to prevent potential impacts to bald eagle roost sites. Work should be limited to one side of the channel only. However, work from both sides of the channel is permitted if it is demonstrated that it results in minimizing tree clearing. Vegetated riparian buffer areas should be included along both sides of any channel restoration projects. All wooded areas cleared for site access must be allowed to return to forested habitat. Mitigation may be required for other timber clearing.

l. Upon completion of earthwork operations, you must seed, replant or otherwise protect from erosion all fills in the water or on shore, and other areas on shore disturbed during construction. If seeding does not successfully stabilize the disturbed soil areas by the end of the first growing season, you must implement alternate measures, such as placing riprap, slope terracing with untreated railroad ties, gabions or concrete blocks, or additional vegetative plantings, to protect the disturbed areas from further erosion. Clearing, grading, and replanting should be planned and timed so that only the smallest area is in a bare soil condition. You must contact the Corps of Engineers prior to beginning work on any additional erosion control measures so that we can determine if additional authorization is required.

m. You must dispose of excess concrete and wash water from concrete trucks and other concrete mixing equipment in an upland area above the ordinary high water mark and at a location where the concrete and wash water cannot enter the water body or an adjacent wetland area.

n. You must not dispose of any construction debris or waste materials below the ordinary high water mark of any water body, in a wetland area, or at any location where the materials could be introduced into the water body or an adjacent wetland as a result of runoff, flooding, wind, or other natural forces.

o. You must use only graded rock, quarry-run rock and/or clean concrete rubble for riprap. The material must be reasonably well graded, consisting of pieces varying in size from 20 pounds up to and including at least 150 pound pieces. Generally, the maximum weight of any piece should not be more than 500 pounds. Gravel and dirt should not exceed 15% of the total fill volume. If you use concrete rubble, you must break all large slabs to conform to the well graded requirement, and remove all exposed reinforcement rods, trash, asphalt, and other extraneous materials before you place the rubble in the waters of the United States. Size and gradation requirements can be changed provided approval is received from the Corps' Regulatory Branch prior to placement.

p. You must completely remove all temporary fills, including sand bags (to the extent practicable), in the Waters of the United States within 30 days of the end of the flood emergency and disposed of in accordance with special condition "h" above, unless the temporary fill is to be incorporated in the final repair of the structure. <u>If sand bags are needed for a longer duration until permanent repairs are made, you must request a waiver of this condition in writing. Temporary construction of levees to protect agricultural land in areas where no levees previously existed, are not authorized</u>.

q. You must avoid impacts to wetlands to the fullest extent practicable. When wetlands impacts are unavoidable, borrow site selection will be based on the following order of preference: upland (non-wetland) sources, areas riverward of the levee previously used for borrow, open prior converted cropland, farmed wetlands, or other authorized excavation sites. You must mitigate for all unavoidable proposed wetland excavation or fill activities authorized by this permit. You must develop mitigation plans on a case-by-case basis which must be approved by the Corps. This permit does not authorize actions designed to drain or otherwise convert wetlands to other uses, nor actions where a practicable alternative to impacting wetlands is available unless the Corps of Engineers, in consultation with other resource agencies, determine that sediment removal from existing wetlands will restore wetland functions and create valued habitat diversity. All borrow areas should have 5:1 horizontal to vertical side slopes and the water depth should be three feet deep or less under normal circumstances.

r. You must place all fills and structures such that they do not result in stream channel constriction or in redirection of flows in such a way as to cause upstream or downstream erosion. Channelization projects or shortening of waterways, other than restoration of creek channels to pre-flood alignment, are not authorized.

s. You must not undertake actions that are likely to jeopardize the existence of a threatened or endangered species or a species proposed for such designation as defined in the Federal Endangered Species Act, nor actions which are likely to destroy or adversely modify the critical habitat of such species. If the project requires the removal of mature trees along stream channels or from forested wetland you must contact the Corps of Engineers prior to any tree clearing activity.

Special Conditions (continued):

t. You must avoid activity in the proximity of a property listed in or eligible for listing in the National Register of Historic Places unless, after coordination with the State Historic Preservation Office of the affected state and/or the Advisory Council on Historic Preservation, a determination of "no effect" or "no adverse effect" is made in accordance with criteria established by 36 CFR 800. If an inadvertent discovery of any cultural or archaeological resource occurs you must immediately contact this office and you should suspend work in the area until a determination of eligibility for listing on the National Register of Historic Places is completed and any necessary consultation under Section 106 of the National Historic Preservation Act is completed.

u. You must not undertake any activity that results in a new structure or replacement of a previously authorized structure with an increase in scope or design of the original structure. Small changes that do not affect elevations, such as the reconstruction of a levee around a scour hole at pre-existing elevations, and that do not convert wetland to upland (non-wetland) or a different wetland use beyond what is unavoidable such as to go around a scour hole, may be authorized upon notification to the Corps. Levee breach repairs constructed on new alignments must be setback farther from the stream channel than the original alignment.

v. You must contact the Missouri Department of Natural Resources, Water Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or the Kansas Department of Health and Environment, Bureau of Water, Curtis State Office Building, 1000 Southwest Jackson, Topeka, Kansas 66612, in order to determine the need for a state permit for land disturbance, return water, or other activities that normally require such permits. Use of GP-41 shall not be construed or interpreted to imply the requirements for other permits are replaced or superseded. Any national pollutant discharge elimination system (NPDES) permits, general permits for land disturbance, or other requirements shall be complied with.

w. You must notify the Corps of Engineers if one of the following common exotic species occurs in the project area. The zebra mussel *(Dreissena polymorpha)*, Eurasian watermilfoil *(Myriophyllum spicatum*), purple loosestrife *(Lythrum salicaria)*, Johnson grass *(Sorghum halepense)*, sericia lespedeza *(Lespedeza cuneata)*, salt cedar *(Tamarix spp.)*, and reed canary grass *(Phalaris arundinacea)*. You must take appropriate actions to insure the prevention of the spread of any exotic species. The following best management practice can help prevent the spread of these species. Equipment brought on the project site should be washed to remove dirt, seeds and plant parts. If the equipment has been used in a body of water in the last 30 days it can be washed at a commercial car wash or dried for five or more days before using the equipment in another body of water. In addition, before transporting equipment from the project site visible water, mud, plants and animals should be removed. Waters that the zebra mussel is known to inhabit in Kansas and in Missouri can be found at the following website:
http://nas.er.usgs.gov/queries/zmbyst.asp

x. For activities occurring in Indian Country, you must request and obtain individual Section 401 Water Quality Certification from the Environmental Protection Agency (EPA). You may contact the EPA by writing US EPA, Region 7 Tribal Coordinator, 901 North 5th Street, Kansas City, Kansas 66101, or by calling (913) 551-7498. You must receive Section 401 Water Quality Certification, and comply with the conditions of that certification, during performance of any work under this permit. Should EPA issue programmatic certification for this GP during the term of the GP, the Corps will issue a supplemental public notice and General Condition 5 of the permit applies.

APPENDIX I

Criteria for Authorization by General Permit NWKGP-41

1. This general permit authorizes activities proposed by the general public, railroads, transportation departments, pipeline and utility companies, and government agencies.

2. If you propose to work under the authority of this General Permit and the project requires preconstruction notification as outlined in special condition ”d” of the permit, you must notify the appropriate Corps of Engineers district within 18 months of the end of the flood emergency (when the nearest river gauge drops below flood stage for two months), and receive authorization prior to starting work in the Corps jurisdiction. You must submit the following information:

a. A completed application form ENG 4345 or a letter which includes all information required by form ENG 4345. The ENG 4345 is available at: www.nwk.usace.army.mil/regulatory/regulatory.htm

b. You must clearly describe the proposed work so we can clearly and readily determine whether or not the proposed work complies with the General Permit.

c. The flood repair activities must be in counties declared disaster areas by the Governor of the State of Kansas, the Governor of the State of Missouri and/or the President of the United States.

d. An 8 1/2" x 11" drawing(s) showing the details of the proposed work.

e. An 8 1/2” x 11” map with the location of the proposed project clearly marked, including the Section, Township, and Range or the Latitude and Longitude location (decidegrees).

f. Discussion of possible alternatives and why they were not selected.

g. Also, as project proponent, you must send copies concurrently to the following addresses, but we will not necessarily solicit comments from these agencies. We will give these agencies an opportunity to request that we take discretionary authority to require that you apply for an individual permit, if a potential significant problem is identified.

1. For projects in Missouri contact:

U.S. Fish and Wildlife Service
Columbia Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203
(573) 234-2132

Missouri Department of Natural Resources
Water Pollution Control Branch
P.O. Box 176
Jefferson City, Missouri 65102
1-800-361-4827 or (573) 751-1300

U.S. Environmental Protection Agency
Watershed Planning and Implementation Branch
901 North Fifth Street
Kansas City, Kansas 66101
(913) 551-7003

Missouri Department of Natural Resources
Historic Preservation Program
P.O. Box 176
Jefferson City, Missouri 65102
(573) 751-7958

Missouri Department of Conservation
Policy Coordination
P.O. Box 180
Jefferson City, Missouri 65102-0180
(573) 522- 5115

* Federal Emergency Management Agency
Region VII
9221 Ward Parkway, Suite 300
Kansas City, Missouri 64114-3372
(816) 283-7063

* You must contact FEMA for all proposed development located in the 100-year floodplain of a National Flood Insurance Program (NFIP) participating community in order to comply with local floodplain management regulations and secure a floodplain development permit from that community.

3. For projects not requiring pre-construction notification, a report of the completed repair activities must be submitted that includes the location of the work, as-built drawings of the structure(s) and/or fill(s), and a discussion of the avoidance and minimization measures incorporated into the project and mitigation measures employed.

4. We may reevaluate the cumulative impacts of this general permit at our discretion at any time. We will reevaluate cumulative impacts at least every five (5) years.

5. The following is a list of flood damaged structures, damaged land areas and/or damaged fills authorized to be repaired under this general permit:

a. Repair of levees to existing elevations, including breach closures and borrow operations

b. Bridge embankment protection (armoring) or repair

c. Repair of pre-existing highway and/or railroad embankments and armor protection

d. Repair of pre-existing utility protection structures

e. Placement of rock and/or earth materials for emergency bank protection or restoration

f. Drainage ditch restoration to pre-flood capacity and flow line unless the flow line must be altered due to other damage associated with the flood event

g. Restoration of creek channels to pre-flooding alignment, capacity and flow line

h. Construction of temporary haul roads to facilitate any of the above listed activities

6. The District Engineer may require an individual permit on a case-by-case basis for any activity authorized herein.

7. You must complete the authorized work within the five year issuance period of the GP. If you need additional time to complete repairs or if flood damage occurs within the last year of the GP applicants must contact the appropriate Corps District for an extension of the authorization to complete the needed work. Contact should be made at least one month in advance of the GP expiration date.

8. Flood repair activities, supervised by the U. S. Army Corps of Engineers, pursuant to Public Law 84-99, and/or supervised by the United States Department of Agriculture, pursuant to the

Emergency Watershed Protection Program or the Emergency Conservation Program, do not require notification to the Corps of Engineers, Regulatory Branch. It is the responsibility of these federal agencies to comply with all environmental laws and Presidential Executive Orders.

COMPLIANCE CERTIFICATION

Special condition "a" of this permit document requires that you submit a signed certification regarding the completed work and any required mitigation. This certification page satisfies this condition if it is provided to the Little Rock District at the address shown at the bottom of this page upon completion of the project.

APPLICATION NUMBER: General Permit No. 41 (2008-00066)

APPLICANT (Enter name and mailing address):

PROJECT LOCATION (Enter latitude & longitude (decidegrees) or Section, Township and Range, County, State):

a. I certify that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions.

b. I certify that any required mitigation was completed in accordance with the permit conditions.

c. Your signature below, as permittee, indicates that you have completed the authorized project as certified in paragraphs a and b above.

_____ _____

(PERMITTEE) (DATE)

Return this certification to:

US Army Corps of Engineers, Little Rock
ATTENTION: CESWL-RO
PO Box 867
Little Rock, Arkansas 72203-0867

STATE OF MISSOURI Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

FEB 25 2008

Colonel Roger A. Wilson, Jr.
U.S. Army Corps of Engineers
Kansas City District
601 E. 12th Street, Suite 700
700 Federal Building
Kansas City, MO 64106-2896

GP-41 Statewide
NWKGP-41/PN07-2078/CEK004650

RE: GP 41, All Districts

Dear Colonel Wilson:

The Missouri Department of Natural Resources' Water Protection Program (department) has reviewed Public Notice General Permit (GP) 41 (PN07-588) CEK004650 in which the applicant proposes to issue regional GP-41 to authorize certain discharges of dredged or fill material in conjunction with the permanent protection and/or repair of flood damaged structures, damaged areas, and/or damaged fills in waters of the United States within the states of Missouri and Kansas.

The proposed General Permit would be applicable to all Army Corps of Engineers' Districts in Missouri (Kansas City - 2007-2078/GP-41; Little Rock - 2008-00066/GP-41, Memphis - 2007-588/GP-41; Rock Island - 2007-2061/GP-35; and St. Louis).

These projects are located along the Missouri River throughout Missouri. The Missouri River is a 303(d) listed water and caution shall be exercised not to negatively impact those sections of the river that are already impaired.

This office certifies that the proposed project will not cause the general or numeric criteria to be exceeded nor impair beneficial uses established in the Water Quality Standards, 10 CSR 20-7.031, provided the following conditions are met:

1. This general permit shall not be used for channelization or channel modification purposes.

2. Only the repair of structures due to flood damage are authorized with this permit. The construction of new structures will need additional review and issuance of a separate water quality certification.

3. Representatives from the department shall be allowed to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the letters and conditions of the permit.

Recycled Paper

4. Care shall be taken to keep machinery out of the waterway as much as possible. Fuel, oil and other petroleum products, equipment and any solid waste shall not be stored below the ordinary high water mark at any time or in the adjacent floodway beyond normal working hours. All precautions shall be taken to avoid the release of wastes or fuel to streams and other adjacent water bodies as a result of this operation.

5. Petroleum products spilled into any water body or on the banks where the material may enter waters of the state shall be immediately cleaned up and disposed of properly.

6. Only clean, nonpolluting fill shall be used. The following materials are not suitable for bank stabilization and shall not be used due to their potential to cause violations of the general criteria of the Water Quality Standards, 10 CSR 20-7.031 (A) – (H):
   a. Earthen fill, gravel, broken concrete where the material does not meet the specifications outlined below, and fragmented asphalt, since these materials are usually not substantial enough to withstand erosive flows;
   b. Concrete with exposed rebar;
   c. Tires, vehicles or vehicle bodies, construction or demolition debris are solid waste and are excluded from placement in the waters of the state;
   d. Liquid concrete, including grouted riprap, if not placed as part of an engineered structure; and
   e. Any material containing chemical pollutants (for example: creosote or pentachlorophenol).

   Recycled or broken concrete may be used provided that it is reasonably well graded, consisting of pieces varying in size from 20 pounds up to and including at least 150 pound pieces. Applicants must break all large slabs to conform to the well-graded requirement. Generally, the maximum weight of any piece shall not be more than 500 pounds. Gravel and dirt shall not exceed 15 percent of the total fill volume. All protruding reinforcement rods, trash, asphalt and other extraneous materials must be removed from the broken concrete prior to placement.

   Recycled or broken concrete being used simply as fill need not conform to the well-graded requirement. It shall, however, be free from extraneous materials and shall be placed to eliminate voids within the fill.

7. Clearing of vegetation/trees shall be the minimum necessary to accomplish the activity. A vegetated corridor shall be maintained from the high bank on either side of the jurisdictional channel to protect water quality and to provide for long-term stability of the stream channel, unless physical barriers prevent such a corridor.

8. The riparian area, banks, etc., shall be restored to a stable condition to protect water quality as soon as possible. Seeding, mulching and needed fertilization shall be within three days

of final contouring. On-site inspections of these areas shall be conducted as necessary to ensure successful re-vegetation and stabilization, and to ensure that erosion and deposition of soil in waters of the state is not occurring from these projects.

9. Best Management Practices shall be used during construction and/or repair to limit the amount of sedimentation into adjacent water bodies.

10. Temporary fills shall be removed promptly and the fill site restored immediately following construction.

11. The attendant Water Quality Certification for this permit shall not be construed or interpreted to imply the requirements for other permits are replaced or superceded. Any National Pollutant Discharge Elimination System (NPDES) Permits, Land Disturbance General Permits, or other requirements shall be complied with.

12. After avoidance and minimization for projects, impacts must be compensated for. Mitigation for the loss of aquatic stream resources shall be in conformance with the *Missouri Stream Mitigation Method.* This document may be found at the following link: *www.mvs.usace.army.mil/permits/permits.asp*.

You may appeal to have the matter heard by the administrative hearing commission. To appeal, you must file a petition with the administrative hearing commission within thirty (30) days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission.

Water Quality Standards must be met during any operations authorized by these permits. If you have any questions, please contact Ms. Carrie M. Schulte of the NPDES Permits and Engineering Section by phone at (573) 751-7023, by e-mail at carrie.schulte@dnr.mo.gov, or by mail at Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65109.

Sincerely,

WATER PROTECTION PROGRAM

Robert K. Morrison

Robert K. Morrison, P.E., Chief
Water Pollution Control Branch

RKM:csp

c: Mr. Bill Goodwin, Missouri Department of Conservation
Mr. Doyle Brown, Missouri Department of Conservation
Ms. Janet Sternburg, Missouri Department of Conservation
Mr. Mike Smith, Missouri Department of Conservation
Mr. Stuart Miller, Missouri Department of Conservation
Mr. Doug Berka, Army Corps of Engineers, Kansas City District
Mr. Keith McMullen, Army Corps of Engineers, St. Louis District
Mr. Larry Watson, Army Corps of Engineers, Memphis District
Mr. Wayne Hannel, Army Corps of Engineers, Rock Island District
Army Corps of Engineers, Kansas City District, MO State Regulatory Office
Army Corps of Engineers, Kansas City District, Truman Satellite Office
Army Corps of Engineers, Little Rock District
Mr. Carl Stevens, U.S. Environmental Protection Agency
Mr. Rick Hansen, U.S. Fish and Wildlife Service
DNR – KCRO, SLRO, NERO, SERO, SWRO