CONSTRUCTION SPECIFICATIONS

Furnace Street Subsidence Repair Design

Prepared for:

Maryland Department of the Environment
Abandoned Mine Land Division
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Frostburg, Maryland 21532

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POTESTA

FURNACE STREET SUBSIDENCE REPAIR DESIGN

TABLE OF CONTENTS

SECTIONS

SECTIONS PAGE

Acronyms

CO – Contracting Officer
DGS/AMLD – Department of General Services/Abandoned Mine Land Division
SHA – Maryland State Highway Administration
AASHTO – American Association of State Highway and Transportation Officials
ASTM – American Society of Testing Materials

List of Drawings

Sheet No.	Description
1	Cover Sheet
2	General Project Notes
3	Existing Site Conditions Plan
4	Reclamation Site Plan
5	Erosion and Sediment Control Plan
6	Site Sections
7	Site Profile B
8	Drainage Profiles
9	Miscellaneous Details
10-12	Erosion & Sediment Control Details
13-14	Boring Logs

SECTION 1

PROJECT DESCRIPTION

The purpose of this project is to stabilize an area of Furnace Street in Lonaconing, Maryland, that is experiencing differential movement, with tension cracks, which appear to be related to potential subsidence of an underground deep mine. The stabilization includes excavation the width of the roadway in the vicinity of the tension cracks to remove overburden materials and then rebuild the road subgrade with a layer of limestone aggregate, choking it off with smaller sized aggregate as you progress toward the surface, with a new bituminous pavement at the surface. The project will also include a concrete curb and gutter with a drop inlet along the upper edge of the road to collect surface water and then connecting this with a storm line to be tied into the existing drop inlet along lower Furnace Street. The guardrail will also be replaced within the rebuild area.

SECTION 2

GENERAL REQUIREMENTS

2.1 SCOPE OF WORK

The Furnace Street Subsidence Repair Design project is in the town of Lonaconing, Maryland, on Furnace Street about 600 feet southwest of its intersection with Alexander Street and St. Peters Place. Surface tension cracks have developed over a length of approximately 200 feet of the roadway and the guardrail has begun to lean.

The work shall consist of furnishing all equipment, labor, supervision, and material necessary to ensure that grading, construction, and maintenance will be carried out to conform to the proposed reclamation plans designated hereafter. This includes all surveying and construction stakeout work.

The proposed work will involve, at a minimum, but not limited to, the following:

2.1.1 Removal of approximately 3 to 8 feet of overburden below the road.

2.1.2 Construction of drainage structures including underdrains, a drop inlet, and cleanouts.

2.1.3 Reconstruction of road base with stone.

2.1.4 Construction of curb and gutter.

2.1.5 Construction of road surface with asphalt pavement.

2.1.6 Installation of guardrails.

2.1.7 Submittals for substitutions shall be after the award only.

2.1.8 An Inspector's field office is not required for this contract.

2.2 COORDINATION AND INTERFERENCES

The Engineer's Drawings are generally diagrammatic and indicative of the work and as such, cannot show actual construction conditions. Modifications to the work to compensate for minor interferences and structural obstructions shall be accomplished as part of the work at no additional cost to the State.

2.3 SPECIAL REQUIREMENTS

2.3.1 The Contractor shall have the right to build and maintain temporary access roads within the designated work limits required to accomplish the work, subject to approval of the DGS/AMLD. All roads shall be regraded and stabilized upon completion of the site work or removed as directed by the DGS/AMLD.

2.3.2 Maintenance - The Contractor shall be responsible for maintaining all completed work until the final completion and acceptance of the project by the DGS/AMLD.

2.3.3 The Contractor shall always maintain a complete copy of the plans and specifications on the project site.

2.3.4 The Contractor shall be required to submit a Spill Prevention, Control and Countermeasure (SPCC) Plan for aboveground fuel storage containers if the storage capacity for a single container is more than 660 gallons or the aggregate aboveground storage capacity is greater than 1320 gallons. The SPCC plan should emphasize spill prevention and comply with the Environmental Protection Agency (EPA) Oil Pollution Prevention Regulation, Title 40, Code of Federal Regulations, Part 112.

2.3.5 The project will be conducted under the direction of the DGS/AMLD's Representative. Wherever any features of the work are not set forth in these Drawings and Technical Specifications, it is understood that such work will be governed by the rules of the best prevailing practice for that class of work as determined by the DGS/AMLD.

2.3.6 The contractor shall video or adequately photograph the entire project site prior to starting construction in the event of any issues arise during or after construction.

2.3.7 This project is being funded through the Infrastructure Investment and Jobs Act which was enacted on November 15, 2021. As part of the Act the following items must be met for expenditure of funds:

A. <u>Buy America Domestic Procurement Preference</u>

As required by Section 70914 of the Bipartisan Infrastructure Law (also known as the Infrastructure Investment and Jobs Act), P.L. 117-58, on or after May 14, 2022, none of the funds under a federal award that are part of Federal financial assistance program for infrastructure may be obligated for a project unless all of the iron, steel, manufactured products, and construction materials used in the project are produced in the United States, unless subject to an approved waiver. The requirements of this section must be included in all sub-awards, including all contracts and purchase orders for work or products under this program. Contractor shall submit proof of compliance with this section with their technical submittals.

Recipients of an award of Federal financial assistance are hereby notified that none of the funds provided under this award may be used for a project for infrastructure unless:

1. All iron and steel used in the project are produced in the United States this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
2. All manufactured products used in the project are produced in the United States — this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and

3. All construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

For further information on the Buy America preference, please visit www.doi.gov/grants/BuyAmerica. Additional information can also be found at the White House Made in America Office website: www.whitehouse.gov/omb/management/made-in-america/.

Definitions

"Construction materials" includes an article, material, or supply that is or consists primarily of:

- Non-ferrous metals
- Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)
- Glass (including optic glass)
- Lumber
- Drywall

"Construction Materials" does **not** include cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

"Domestic content procurement preference'' means all iron and steel used in the project are produced in the United States; the manufactured products used in the project are produced in the United States; or the construction materials used in the project are produced in the United States.

"Infrastructure" includes, at a minimum, the structures, facilities, and equipment for, in the United States, roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property. Infrastructure includes facilities that generate, transport, and distribute energy.

''Project'' means the construction, alteration, maintenance, or repair of infrastructure in the United States.

B. Davis-Bacon Act - All laborers and mechanics employed by the contractor or subcontractors in the performance of construction, alteration, or repair work on this project must be paid wages not less than those prevailing on similar projects in the locality, as determined by the Secretary of Labor in accordance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3148). Accordingly, certified payrolls shall be submitted to DGS/AMLD.

C. Applicant Violator System (AVS) – According to 30 C.F.R. §874.16 and §875.20, the successful bidder must be under eligible 30 C.F.R. §§ 773.12, 773.13, 773.14 at the time of contract award to receive a permit or be provisionally issued a permit to conduct surface mining operations. Within 5 days of notice of award, the successful bidder must submit the Applicant Violator System form located on OSMRE's website located at: https://www.osmre.gov/avs. This form shall be submitted to the DGS/AMLD project manager who will verify that the company is eligible for contract award.

D. Coal Industry Employees - Contractors are to, when practicable, provide preference to current or former employees of the coal industry for work on this project. The contractor will report to DGS/AMLD on the extent to which current or former employees of the coal industry have been employed for this project. The contractor shall report the name of the employee, the position, the former or current coal industry employer, position in the coal industry (i.e., equipment operator, surveyor, mechanic, etc.).

2.3.8 Except to the extent that the contract documents impose longer warranty obligations on the Contractor for all or any part of the work, the Contractor warrants for a two-year period commencing on the date of substantial completion of the project as a whole or on such other date agreed between the parties:

A. That the work contains no faulty or imperfect material or equipment or any imperfect, careless, or unskilled workmanship.

B. That all mechanical and electrical equipment, machines, devices, etc., shall be adequate for the use to which they are intended, and shall operate with ordinary care and attention in a satisfactory and efficient manner.

C. Found not to be as guaranteed by this section or otherwise not in conformity with the contract and that it will make good all damage caused to other work or materials in the process of complying with this section.

D. That the entire work should be watertight and leak-proof in every particular.

1. This section (*refer to Department of General Services, General Condition for Construction Contracts; Section 9.13*) provides for a period during which the contractor is bound to replace work in addition to being liable for failure to perform the contract in accordance with its terms. Nothing herein releases or limits the Contractor's liability for latent defects or for any substantial failure to perform the work in accordance with the contract, even if such defects or failure are discovered after the expiration of the warranty period provided by this section.

END OF SECTION

SECTION 3

MOBILIZATION / DEMOBILIZATION

3.1 SCOPE

The work shall consist of the mobilization and demobilization of the Contractor's forces and equipment necessary for performing the work required under this contract.

3.2 MOBILIZATION

Upon receipt of notice to proceed, the Contractor shall initiate and complete measures necessary to commence clearing and grubbing, to create site access and to maintain the operation. This includes all costs and activities related to establishing and maintaining site access. The Contractor must develop and maintain access to the site for equipment and in doing so, shall minimize the disturbance to landowners' property and inconvenience to the public (i.e., noise, litter, parking spaces, traffic flow, dust, runoff water, etc.).

Mobilization shall include delivering to the site and assembling in working order all necessary equipment, materials, supplies, and incidental items to complete the work described herein. Prior to the commencement of work, the Contractor's equipment shall be subject to approval of DGS/AMLD. Equipment shall be maintained in first-class operating condition at all times. Mobilization shall also include supplies, bonds, required insurance and/or other initial expenses, safety devices and measures, and securing any and all permits necessary.

3.3 DEMOBILIZATION

When the DGS/AMLD has determined that the project has been satisfactorily completed, the Contractor shall remove all equipment, supplies, debris, and waste material from the project site. The site shall be restored to a condition judged safe and acceptable by the DGS/AMLD. Any damage to property caused by the Contractor shall be repaired at the Contractor's expense to the satisfaction of the DGS/AMLD.

3.4 METHOD OF PAYMENT

Payment for Mobilization/Demobilization shall be per lump sum.

END OF SECTION

SECTION 4

QUALITY CONTROL

4.1 SCOPE

The work shall consist of ensuring the materials supplied and the works performed are in conformance with these specifications.

4.2 APPLICABLE PUBLICATIONS

Work shall comply with, but not be limited to, the provisions of the following codes, standards, and specifications:

- AASHTO
- Maryland Department of Transportation, State Highway Administration, Standard Specifications for Construction and Materials
- ASTM and American Concrete Institute (ACI 318)

4.3 SUBMITTALS

The Contractor shall submit an electronic copy of shop drawings, catalog cuts, and material certifications as applicable of all off-site materials to be incorporated into the work. Written approval from the DGS/AMLD will be required prior to incorporation of these items into the work.

Only new and first-class materials that conform to the requirements of these specifications shall be used unless specified otherwise. When requested by the DGS/AMLD, the Contractor shall furnish a written statement of the origin, composition, and manufacturer of any or all materials (manufactured, produced, or grown) that are to be used in the work.

4.4 CONSTRUCTION METHODS

The Contractor shall furnish the services of his own testing laboratory or select an independent testing laboratory. The laboratory must operate under the direct supervision of a Registered Professional Civil Engineer. The laboratory must be approved by the DGS/AMLD.

The sources of supply of each material used shall be approved by the DGS/AMLD before delivery is started. If, at any time, sources previously approved fail to produce materials acceptable to the DGS/AMLD, the Contractor shall furnish materials from other approved sources.

4.5 METHOD OF PAYMENT

Payment for Quality Control shall be per lump sum.

END OF SECTION

SECTION 5

SEDIMENT AND EROSION CONTROL

5.1 SCOPE

The work consists of furnishing, maintaining, and installing sediment and erosion control measures to limit on-site erosion and to adequately contain sediment within the work limits throughout the life of the project.

5.2 GENERAL

Silt fence shall be installed at the project site as shown on the drawings. Grading and excavation shall not be started in any area until the clearing and grubbing operations within the area affected have been completed.

5.3 MATERIALS

Silt Fence

Filter Cloth - The filter cloth shall be composed of strong rot-proof polymeric fiber forms into a woven or non-woven fabric, which meets the following specifications:

- Minimum Tensile Strength (ASTM D 1682) 200 lbs.
- Minimum Burst Strength (ASTM D 751) 400 lbs.
- Minimum Puncture Strength (ASTM D 751) 80 lbs.

Equivalent Opening Size:

- Soil Type 1 (ST-1) 50%-80% passing U.S. No. 200 Sieve, EOS less than or equal to U.S. No. 70 Size; Soil Type 2 (ST-2) 50% passing U.S. No. 200 Sieve, EOS less than or equal to D85 of Soil

Minimum Permeability $(1x10)^{-2}$ cm/sec

Posts - Posts shall be 2" x 2" x 4' rough cut oak or an approved equivalent. Required spacing shall be 6’ centers for silt fence.

SMARTfence 42

The SMARTfence shall be the 42-inch version manufactured by Ferguson Waterworks, which meets the following specifications:

- Minimum Grab Tensile Strength (ASTM D 4632) 445 lbs.
- CBR Puncture (ASTM D 6241) 1,800 lbs.
- Apparent opening size (ASTM D 4751) Sieve #70
- Water Flow Rate (ASTM D 4491) 32 gpm/sf

Posts – Posts shall be 6 ft Steel T-stakes (1.25 lbs./ft.)

Filter Log

Fill log netting uniformly with compost that meet the following specifications:

- pH 5.0 to 8.5
- Moisture Content 30% - 60%, wet weight basis
- Organic Matter Content 25% - 65% dry weight basis
- Physical Contaminants <1% dry weight basis
- Particle size (dry weight) 3in, 100% passing
  1 in, 90 - 100% passing
  0.75 in, 70 – 100% passing
  0.25 in, 30 – 60% passing
  0.04 in, 30% min. passing

Stake filter log with 2-inch by 2-inch stakes with 4 foot maximum spacing.

5.4 CONSTRUCTION PERFORMANCE

Silt Fence

Install the silt fence below all disturbed areas and at the location shown on the plans. The silt fence shall be installed in accordance with the 2011 Maryland Standards and Specification for Soil Erosion and Sediment Control. See the Silt Fence Detail on Sheet 10 in the contract drawings.

SMARTfence

Install the SMARTfence below all disturbed areas and at the location shown on the plans. The SMARTfence shall be installed in accordance with the 2011 Maryland Standards and Specification for Erosion and Sediment Control. See the SMARTfence detail on Sheet 10 in the contract drawings.

Filter Log

Install the Filter Logs at the location shown on the plans, the Filter Logs shall be installed in accordance with the 2011 Maryland Standards and Specification for Erosion and Sediment Control. See the Filter Log detail on Sheet 12 in the contract drawings.

5.5 STAGING OF EARTHWORK ACTIVITIES

Sediment and erosion control devices shall be installed by the contractor and approved by the Maryland Department of the Environment prior to beginning any further land disturbance to prevent siltation and pollution of areas adjacent to the project. The excavation and moving of soil materials will be scheduled so that the smallest possible areas will be unprotected from erosion for the shortest time feasible.

5.6 REQUIREMENTS OF REGULATORY AGENCIES

The Contractor shall refer to the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control published by the Maryland Department of the Environment in association with

the Soil Conservation Service and State Soil Conservation Committee and shall be a part of these specifications.

5.7 RESTORATION

All disturbed areas shall be restored to a condition better than or equal to that which existed prior to construction, or to the condition as shown on the plan.

5.8 WORK AREA AND MAINTENANCE

All construction shall be confined to the minimum area necessary to accommodate the Contractor, equipment, and work force engaged in this project. Periodic maintenance checks of the soil erosion and sediment control practices shall be performed by the contractor to ensure all the sediment control practices are working properly. All sediment and erosion control devices shall be inspected after each rainfall event and any structure damaged shall be repaired immediately. All sediment and erosion control devices shall be maintained in place until final acceptance of the project.

5.9 METHOD OF PAYMENT

Payment for Sediment and Erosion Control shall be per lump sum.

END OF SECTION

SECTION 6

SITE PREPARATION, CLEARING AND GRUBBING

6.1 SCOPE

The Contractor shall furnish labor, materials, equipment and perform all operations required to complete clearing, grubbing and site preparation as shown on the plans and specified herein.

6.2 JOB CONDITIONS

6.2.1 Environmental Requirements - Exercise the necessary means and methods to control dust on the site during performance of the work.

6.2.2 Burns - Perform burning in accordance with local laws and regulations. The Contractor shall be responsible for obtaining all permits associated with burning. Prior to burning, the contractor must prepare an area free of coal refuse and other debris. The burning area is subject to the approval of the DGS/AMLD.

6.2.3 Protection - Preserve all objects, including trees and shrubs, which have been designated to remain by being marked with ribbon prior to the pre-bid conference. The means and methods used for protection are the option of the Contractor.

6.2.4 Advance - Initially the clearing and grubbing will be limited to the installation of the sediment control measures. Upon completion of the sediment and erosion control measures, the clearing and grubbing operation may be performed, as necessary.

6.2.5 Existing Facilities - Provide adequate means for protecting all structures, buildings, and utilities, whether underground, on the surface, or above the ground against all construction activity.

6.3 PERFORMANCE

6.3.1 Site Preparation - Site preparation shall consist of locating existing utilities within and adjacent to the work area. The Contractor is responsible for damage to utilities and other structures and is solely responsible for repair or replacement of the utility. The Contractor may contact Miss Utility at 1-800-257-7777 and arrange for the utilities to be located.

This work shall also include the establishment of staging areas for equipment and material storage. The Contractor is responsible for the security of his/her equipment and materials. Damage or loss of equipment or materials is the responsibility of the Contractor.

6.3.2 Clearing and Grubbing - This work shall consist of the removal and disposal of trees, stumps, roots, brush, snags, rubbish, and other objectionable material located within the work limits as required to meet the final grades and install the sediment and erosion control devices. All stumps, roots and root clusters having a diameter of 1” or larger shall be grubbed out to a depth of 1’ below the ground surface in areas receiving less than 1’ of fill. In all other areas, the trees shall be cut flush to the ground.

Trees greater than 6" in diameter shall be cut to full length logs and neatly stockpiled on-site for the landowner's use. Brush shall be accumulated in stacks. It shall be the responsibility of the Contractor to obtain, at no expense to DGS/AMLD, all necessary areas for the disposal of cleared and grubbed materials in accordance with any applicable local, state, and/or federal regulations.

Clearing and grubbing within the brush and tree-covered section of the site shall be limited to only what is necessary to create and maintain safe and suitable access to the work site. All logs, cordwood, branch wood or other forms of wood derived from the destruction or removal of any tree, measuring 6" in diameter or greater at a point two feet from the surface of the ground, shall be cut in full lengths and neatly stacked onsite at an approved location.

Cleared and grubbed areas shall be graded to provide positive drainage and prevent ponding of water.

6.3.3 Disposal - Cleared and grubbed material may be disposed of by burning in a controlled area to be approved by the DGS/AMLD. A burning permit shall be required, and the Contractor will be responsible for obtaining it. Any cleared and grubbed materials and all material not suitable for burning shall be disposed of at an approved and fully permitted off-site disposal area. The off-site disposal area shall be in compliance with all Federal, State and local permits. If the contractor burns the cleared and grubbed material, a burning area shall be prepared in an area that is isolated from the coal seam, coal refuse and all other flammable materials.

6.4 METHOD OF PAYMENT

Payment for site preparation, clearing, and grubbing shall be per lump sum, and shall include the installation of a farm gate at the designated location on the plans.

END OF SECTION

SECTION 7

DRAINAGE STRUCTURES

7.1 DESCRIPTION

This work shall consist of furnishing all labor, equipment, and materials necessary to construct the drainage structures shown on the drawings and as specified herein. The work shall include, but not be limited to, a drop inlet, an underdrain, cleanouts, and piping.

7.2 MATERIALS

7.2.1 Excavated materials shall consist of in place natural ground and rock. All excavation is unclassified and shall be considered incidental to placement of drainage structures.

7.2.2 ADS Inc., Solid HDPE Storm Pipe (12") shall have a smooth interior and annular exterior corrugations and meet or exceed ASTM F2736 and AASHTO M330.

7.2.3 ADS Inc., Perforated Drain Pipe (6") shall have annular exterior corrugations and meet or exceed ASTM F667 and AASHTO M252.

7.2.3 The catch basin shall be a standard MDSHA single precast Type S inlet with standard grate and frame.

7.2.4 The stone for underdrain shall consist of sound, durable #57 Stone. The stone shall consist of particles of clean, hard, tough, durable rock, and free from adherent coating.

7.2.5 Plastic cleanouts shall be required at the locations as shown on the plans or as directed by the Engineer and shall be HDPE body with HDPE threaded plug.

7.2.6 Filter fabric for use in the underdrain shall be non-woven such as Mirafi 160N or approved equal.

7.3 CONSTRUCTION METHODS

7.3.1 The catch basin, cleanouts, and storm piping shall be constructed to the line, grade, and templates as shown on the plans or as directed by the DGS/AMLD. Excess material from drainage structure excavation that is suitable for soil cover shall be segregated, stockpiled, and utilized to supplement "Revegetation" operations. Otherwise, excess material from the grading and excavation work for the project must be disposed of at a commercial site that is fully permitted and in compliance with all federal, state, and local laws. The disposal site must be approved by DGS/AMLD.

7.3.2 Stone, filter fabric, pipe, and cleanouts for the underdrain shall be placed in conformance to the details in the plans or as directed by the Engineer.

7.4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

7.4.1 The method of measurement for the 12-inch HDPE Storm Pipe shall be paid per linear foot measured along the flowline of the pipe and include excavation, purchase and placement of rock and all materials, labor, equipment, and incidentals necessary to complete the work.

7.4.2 The method of measurement for the 6-inch HDPE Underdrain shall be paid per linear foot measured along the centerline and shall include the excavation of the trench, the pipe, stone, and filter fabric required to install the underdrain and all materials, labor, equipment, and incidentals necessary to complete the work.

7.4.3 The method of measurement for the standard MDSHA single precast Type S inlet with standard grate and frame shall be lump sum and include the excavation and placement of the cast-in-place or precast concrete, and all materials, labor, equipment, and incidentals necessary to complete the work.

7.4.4 The method of measurement for the "cleanouts" shall be per each unit. This shall include all labor, equipment, and materials necessary for installation.

7.5 PAY ITEMS

Item 7.1, "12-inch HDPE Storm Pipe," per linear foot.
Item 7.2, "6-inch HPDE Underdrain," per linear foot.
Item 7.3, "Type S Inlet," per linear foot.
Item 7.4, "Cleanout," per each.

END OF SECTION

SECTION 8

ROAD REPAIR

8.1 DESCRIPTION

This work shall consist of furnishing all labor, equipment, and materials necessary for the removal of road and subgrade to the elevation shown on the drawings and then reconstructed using durable limestone and crusher stone road subgrade as shown on the drawings and specified herein. This work shall include, but not be limited to, excavation, construction of subgrade, roadway pavement section, curb and gutter, and traffic barriers.

8.2 MATERIALS

8.2.1 Unclassified excavated materials shall consist of in-place natural ground and rock.

8.2.2 The constructed road subgrade shall consist of durable limestone (D_{50}=6").

8.2.3 The roadway sub-base shall consist of 1-1/2-inch crusher run stone.

8.2.4 The roadway pavement shall consist of a 4-inch hot-mix asphalt base course and a 2-inch hot mix surface course.

8.2.5 Concrete curb and gutter shall be MDSHA modified type A combination concrete curb and gutter.

8.2.6 Traffic barrier shall be a Maryland Department of Transportation W-Beam barrier installed along Furnace Street as shown on the contract drawings.

8.2.7 Only new and first-class materials shall be used. See Section 4.0 of these specifications.

8.3 CONSTRUCTION METHODS

8.3.1 The excavated material shall be removed to the extent as shown on the plans or as directed by the DGS/AMLD. Excess material from excavation that is suitable for soil cover shall be segregated, stockpiled, and utilized to supplement "Revegetation" operations. Otherwise, excess material from the grading and excavation work for the project must be disposed of at a commercial site that is fully permitted and in compliance with all federal, state, and local laws. The disposal site must be approved by DGS/AMLD.

8.3.2 Durable Limestone D50=6" shall be placed in subgrade in successive layers, not to exceed 15 inches in loose thickness before compaction. The layers shall be constructed approximately horizontal. Each layer, before starting the next, shall be leveled and smoothed by means of power-driven graders, dozers, or other suitable equipment with adequate weight, capacity, and power to do the work. Each layer, before starting the next, shall be compacted by at least four passes over the entire surface with a steel-drum vibrating roller that weights at least 5 tons and exerts a vertical vibrating force of not less than 20,000 pounds at a frequency not less than 1,200 times per minute. Layers shall be extended across the entire fill at the level of deposition unless otherwise authorized by the Engineer.

The 1.5" Crusher Run Stone shall be placed above the durable limestone in successive layers, not to exceed 3 inches in thickness before compaction. The layers shall be constructed approximately horizontal. Each layer, before starting the nest, shall be leveled and smoothed by means of power-driven graders, dozers, or other suitable equipment with adequate weight, capacity, and power to do the work. Layers shall be extended across the entire fill at the level of deposition unless otherwise authorized by the engineer. Each layer, before starting the next, shall be compacted to 95% of the standard proctor density at +/- 2% of optimum moisture content.

8.3.3 Machine place hot-mix bituminous asphalt mix on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted. Spread mix at a minimum temperature of 250° F and regulate paver machine speed to obtain a smooth, continuous surface free of pulls and tears in the asphalt paving mat.

Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix and use suitable hand tools to smooth surface.

8.3.4 Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."

8.3.5 Compaction General: Begin compaction as soon as placed and when hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers. Complete compaction before mix temperature cools to 185° F.

Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density.

Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent or greater than 96 percent.

Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

8.3.6 Installation Tolerances

1. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances: Base Course - plus or minus 1/2 inch, Surface Course – Plus 1/4 inch, no minus.
2. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

    a. Base Course: 1/4 inch
    b. Surface Course: 1/8 inch
    c. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

8.4 METHOD OF PAYMENT

8.4.1 The method of measurement for unclassified excavation shall be per cubic yard and shall include materials, labor, equipment, and incidentals necessary to complete the work.

8.4.2 The method of measurement for the subgrade stone (D_{50} =6”) shall be per ton and shall include materials, labor, equipment, and incidentals necessary to complete the work.

8.4.3 The method of measurement for the road subbase stone (1-1/2 crusher run) shall be per ton and shall include materials, labor, equipment, and incidentals necessary to complete the work.

8.4.4 The method of measurement for bituminous asphalt pavement shall be per ton, for both base and surface courses, and shall include the asphalt materials, labor, equipment, and incidentals necessary to complete the work.

8.4.5 The method of measurement for MDSHA standard type combination concrete curb and gutter shall be per linear foot measured along the centerline and shall include materials, labor, equipment, and incidentals necessary to complete the work.

8.4.6 The method of measurement for the W-Beam Traffic Barrier shall be paid per linear foot as measured along the centerline of the traffic barrier, and shall include materials, labor, equipment, and incidentals necessary to complete the work.

8.5 PAY ITEMS

Item 8.1, "Unclassified Excavation," per cubic yard.
Item 8.2, "Sub-grade Stone - D_{50} =6" Durable Limestone," per ton.
Item 8.3, "Sub-base Stone – 1-1/2 Crusher Run," per ton
Item 8.4, "Bituminous Asphalt Pavement - Surface," per ton.
Item 8.5, "Bituminous Asphalt Pavement - Base," per ton.
Item 8.6, "Concrete Curb and Gutter," per linear foot.
Item 8.7, "W-Beam Traffic Barrier," per linear foot.

END OF SECTION

SECTION 9

REVEGETATION

9.1 SCOPE

This work will consist of preparing, furnishing, and applying all materials for the permanent revegetation of all disturbed areas and temporary revegetation, as necessary, in accordance with these specifications.

9.2 MATERIALS

9.2.1 Certified Seed - All seed shall be from the latest crop available and tested no more than nine (9) months prior to use. The Contractor shall provide DGS/AMLD representative with a seed certification from the supplier.

9.2.2 Fertilizer - 20-20-20 at 400 lbs./ac.

9.2.3 Lime - Agricultural grade ground limestone, minimum 50% oxides (CaO+MgO)

9.2.4 Mulch - Hay or Straw at 3 T./ac.

9.3 PERMANENT SEEDING AND MULCHING

9.3.1 Seedbed Preparation and Treatment - Upon the completion of backfilling, topsoil distribution and final grading of all disturbed areas, the following lime and fertilizer rates will be utilized by the Contractor. A minimum of 400 lbs. per acre of fertilizer, and a minimum of four (4) tons per acre of ground limestone shall be applied upon completing application of soil amendments. Soil preparation shall be accomplished by discing all disturbed areas. On areas where equipment cannot operate, the seedbed shall be prepared by hand scarifying to provide a roughened surface so that broadcast seed will stay in place. All disturbed areas shall be limed, fertilized, seeded, and mulched within seven (7) days after final grading of topsoil.

9.3.2 Seed Application - Once the seedbed is prepared, apply the specified seed mixture evenly over the entire disturbed areas. Seeding shall be done at such times of the year when soil conditions are suitable for tillage and when moisture and temperatures are suitable for plant growth. No permanent seeding will be made between October 1 and March 15. The seeding mixture to be used is as follows; with amounts indicating pure live seed:

Seed Mixture

Orchard Grass	(15 lbs./ac.)
Timothy	(10 lbs./ac.)
Birdsfoot Trefoil	(10 lbs./ac.) Triple Inoculated
Red Clover	(5 lbs./ac.) Triple Inoculated
Red Top	(5 lbs./ac.)
Perennial Rye Grass	(8 lbs./ac.)
Annual Rye	(5 lbs./ac.)

9.3.3 Mulch Application - Immediately upon completing seed application, the contractor shall apply 3 tons of mulch per acre over all seeded areas. The mulch shall be spread evenly with no bare or excessively thick areas of application. Mulch anchoring will be performed immediately after mulch application. Mulch lost due to wind or runoff shall be immediately replaced.

9.4 TEMPORARY SEEDING AND MULCHING

All areas, which have been backfilled and will remain inactive for at least seven (7) days will be temporarily seeded and mulched. Areas that are graded, but cannot be permanently seeded within the date specified in Section 9.3 shall be temporarily seeded and mulched and the mulched anchored by tracking-in. All seed shall be from the latest crop available. The Contractor shall provide a seed certification from the supplier. The temporary seeding and mulching mixture to be used is as follows:

(One of the following seeds.)

Annual Ryegrass	(40 lbs./ac.)
Lime	(2 T./ac.)
Fertilizer (10-20-20)	(436 lbs./ac.)
Mulch - Hay or Straw	(3 T./ac.)

Any areas temporarily seeded due to date limitations shall be reworked and permanently seeded as soon as seeding dates and conditions allow, with no additional compensation for the work.

9.5 METHOD OF PAYMENT

Payment for Revegetation shall be per lump sum.

END OF SECTION

SECTION 10

UTILITIES

10.1 DESCRIPTION

This work shall consist of all necessary measures to relocate, maintain, and protect all utilities within the limits of work specified herein and on the construction drawings.

The Contractor shall notify the utility in writing at least 15 but preferably 30 days prior to the time work within the area will be done.

The Contractor shall be responsible for making all necessary arrangements and/or performing all necessary work to the satisfaction of the affected utility company and/or the Maryland Department of Transportation in connection with any disturbances within their right-of-way or services.

The Contractor shall be solely responsible for locating all utilities within the limits of work. All damage done to existing utilities by the Contractor shall be the sole responsibility of the Contractor. In the event damage does occur, the Contractor shall notify the affected utility and the DGS/AMLD immediately, make or have made all necessary repairs, and bear the expenses thereof and resulting damage caused thereby.

The Contractor shall obtain right-of-entry and/or any necessary permits for repairs or relocation.

Utility Companies Contacts: Miss Utility of Maryland 1-800-257-7777

10.2 MATERIALS

All materials used for utility related disturbance shall be in accordance with these specifications or as indicated by the affected utility.

10.3 CONSTRUCTION METHODS

All work shall be in accordance with these specifications or in accordance with those methods as indicated by the affected utility.

10.4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

The Contractor will not bid on utility work but will be reimbursed the actual approved paid invoice cost. The Contractor shall submit an estimate for utility relocation to the DGS/AMLD for approval from the utilities affected by the proposed reclamation. The actual approved paid invoice cost will be reimbursed.

10.5 PAY ITEMS

Item 10.0, "Utilities," No bid item.

END OF SECTION