

SUPPLEMENTAL CONSTRUCTION SPECIFICATIONS

**SUPPLEMENTAL CONSTRUCTION SPECIFICATIONS
TEACH AML RECLAMATION PROJECT**

EXPLANATION

- A. The purpose of this Section of the Specifications is to provide supplemental information which is required to complete the Standard Construction Specifications and to set forth supplementary requirements, modifications and/or deletions which are required to make the whole of the Construction Specifications project specific.
- B. References to Section, Paragraph and Sub-paragraph numbers used in these Supplemental Construction Specifications are intended to coincide with reference numbers for corresponding Sections, Paragraphs and Sub-paragraphs in the Standard Construction Specifications.
- C. Where there is any variance between the Standard Construction Specifications and these Supplemental Construction Specifications, the Supplemental Construction Specifications shall take precedence.
- D. Where any section of the Standard Construction Specifications is modified or any Paragraph, Sub-paragraph or Clause thereof is changed or deleted by these Supplemental Construction Specifications, the unaltered provisions of that Section, Paragraph, Sub-paragraph or Clause in the Standard Construction Specifications shall remain in effect. Unless these Supplemental Construction Specifications make specific reference to the modification or deletion of a Paragraph, Sub-paragraph or Clause in the Standard Construction Specifications, no changes are intended and paragraphs contained in these Supplemental Construction Specifications are intended only to supplement, amplify, or clarify said Standard Construction Specifications.
- E. The following set of standard specifications, updated July 2013, has been used for this project:

- 02000 SUBSURFACE INVESTIGATION
- 02010 FIELD ENGINEERING
- 02100 MOBILIZATION, CLEARING & SITE PREPARATION
- 02110 IMPOUNDMENTS
- 02120 SEDIMENT AND EROSION CONTROL
- 02200 EARTHWORK, ROUGH GRADING
- 02220 EARTHWORK, DAMS
- 02300 DRAINAGE SYSTEMS, GENERAL
- 02400 SUBGRADE PREPARATION, WITHOUT COVER MATERIAL
- 02500 FENCING
- 02700 INTERIM SEEDING

SECTION 02000 – SUBSURFACE INVESTIGATION

1.1 DESCRIPTION

- A. Approximate locations and results of soil borings, and soil and surface water sampling are provided in the Hydrological and Geotechnical Reports provided in Appendix A and B, respectively.

SECTION 02010 – FIELD ENGINEERING

1.2 QUALITY ASSURANCE

- E. (New Paragraph) Surveys at the project site and used by the Engineer in preparing the Plans and Specifications are available for review through the Engineer.

SECTION 02100 – MOBILIZATION, SITE CLEARING & PREPARATION

1.2 QUALITY ASSURANCE

- D. Additional guidelines and information regarding the endangered Indiana Bat can be found at the following link: <http://www.fws.gov/midwest/endangered/mammals/inba/>

1.3 JOB CONDITIONS

- A. There are no known utilities within the construction limits shown on the plans. However, the Contractor shall complete utility locates (One Call) prior to commencing construction to verify that utilities do not exist, or to mark the locations of utilities that do exist.
- D. Following the Pre-Construction Conference, a brief walk through of the project limits will take place to discuss and identify trees to remain undisturbed. Refer to ISU Extension Publication PM-909, "Preventing Construction Damage to Trees" as an applicable standard to preventing damage to undisturbed trees during construction.

1.4 SUBMITTALS

- D. Existing fence locations have been mapped and are shown on the Plans. Adjacent fencing outside the construction limits shall not be removed. Additional fencing discussion is provided in 3.5 below.

3.2 PROTECTION

- E.
 1. Designated access roads shown on the Plans and used by the Contractor shall be maintained to allow reasonable access for four wheel drive vehicles. Secondary access or haul roads not indicated on the Plans shall be approved by the Engineer and reclaimed after use in accordance with Section 02400 and 02700. Contractor shall repair any damage to access or haul roads at no cost to the Division. Access road and haul road construction and maintenance shall be considered subsidiary to Mobilization/Demobilization.
 2. All traffic control devices and operations dealing with public traffic and roadways shall be in accordance with applicable Iowa laws and the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). Traffic control devices shall be installed prior to initiating grading activities.
 3. The Contractor shall be responsible for the safe movement of mobile equipment.
 4. The Contractor shall be responsible to reimburse the landowner for livestock or other property injured or damaged by Contractor's traffic on access roads.
 5. All landowner(s) gates shall remain closed during the work.

3.3 OFFICE AND LAY-DOWN AREA

- A. The preferred Contractor's construction staging, equipment storage, and materials lay down area is shown on the Plans. Staging areas to be established at locations other than that shown on the Plans must be submitted by the Contractor and approved by the Landowner, and acceptable to the Division and the Engineer.
- B. Engineer's Field Office
 1. A generator is an acceptable power source.

3.5 EXISTING FENCES

- A. The existing fence located along the north, south, and west project limits has been mapped and is identified on the Plans. Fence to be removed and replaced or salvaged to the landowner as shown on the Plans. All other fence shall be protected.
- B. As identified on the Plans, the existing fence spurs located off of the existing fence along the western portion of the project and running down to the existing water filled pit shall be removed and salvaged. The wire shall be carefully cut, pulled up where necessary, and rolled back; the posts shall be removed and stored for re-use by the Landowner. This fence will not be replaced.

3.7 DEBRIS REMOVAL AND DISPOSAL

- C. Burying
 - 1.b. If uncut tree trunks are placed in the muck of dewatered ponds, they shall be placed in such a way to minimize voids and allow proper compaction. Root balls shall be removed or alternated end for end in the stack, and limbs greater than eight (8) inches in diameter shall be removed prior to placement. Limbs smaller than eight (8) inches in diameter shall be broken or crushed into the stack to obtain desired results.

SECTION 02110 – IMPOUNDMENTS

1.1 DESCRIPTION

- A. 2. A minor dike of spoil material may be necessary across the existing outlet of the pond located on the southern edge to prevent outflow of water during the neutralization process. The cost for diking shall be considered incidental to work related to Impoundment Discharge.

3.4 NEUTRALIZATION AND DEWATERING PLANNING MEETING

- A. The Contractor shall develop the neutralization and dewatering plan detailing how the items in this section will be completed. The dewatering plan must be approved by the Division and the Engineer prior to dewatering.

3.7 TREATMENT AND DISCHARGE SUMMARY

- A. 1. The water filled pit located in the southwest corner of the site will require dewatering. According to a bathymetric survey completed November 30, 2012, the pit has a water depth of approximately 15 feet with an additional 14 feet of muck. At the time of the survey, the pit was estimated to store approximately 17 acre-feet (5.5 million gallons) of water.
- 2. A surface water sample was collected and analyzed on November 16, 2012, near the outlet of the water filled pit. The laboratory analytical water quality results for the sample are listed below. Additional water quality characteristics can be found in the Hydrological Report provided in Appendix A.

Analyte	Units	Values
Acidity	mg/L	174
pH	Unitless	3.4
Total Iron	mg/L	8.92
Total Manganese	mg/L	11.0
Total Suspended Solids	mg/L	12.7

B. For bidding purposes, assume the following treatment and samples.

Estimated Volume (Gallons)	Number of 1 st Round Composite Samples	Estimated Tons of Lime For Neutralization	Number of 2 nd Round Composite Samples
5,439,030	2	2	2

SECTION 02120 – SEDIMENT AND EROSION CONTROL

1.1 DESCRIPTION

C. The Contractor must comply with the SWPPP and advise the Division and the Engineer if any sediment or erosion control measures will be required to protect the area or work from imminent inclement weather. With approval and direction from the Division and the Engineer, the Contractor shall install additional Best Management Practices (BMPs) where necessary.

2.1 MATERIALS

G. Wattles

1. Wattles shall have a nominal diameter of twelve (12) inches.
3. Stakes shall be one (1) inch by two (2) inch wood stakes.

SECTION 02200 – EARTHWORK, ROUGH GRADING

1.2 QUALITY ASSURANCE

E. (New Paragraph) GPS Machine Mounted Grade Control Equipment

1. The Contractor’s attention is specifically called to the recommendation for the Contractor to provide GPS Machine Mounted Grade Control Equipment for finishing of the final design surface. The reclamation plan incorporates natural landform grading, which precludes the use of uniform slopes, and is difficult to represent with traditional grade control staking.
2. If GPS Machine Mounted Grade Control Equipment is used, the Contractor should provide competent, task-trained personnel to operate and maintain the GPS equipment. If used, the Contractor shall supply the GPS equipment ready to use including all base stations, radios, repeaters, receivers, and machine mount units necessary to perform the work.
3. If GPS Machine Mounted Grade Control Equipment is used, the Engineer will provide survey control points to the Contractor, and will provide Digital Terrain Model (DTM) files in an electronic format compatible with the Contractor’s GPS equipment.

1.3 JOB CONDITIONS

B. Earthwork Balance

1. Shrinkage Factor is presumed to be **11%** for mass balance. Mass balance adjustment areas are anticipated along the ridge located in the center of the project.

C. Original Ground Lines

1. Existing topography shown on the Plans was developed using publically available LiDAR data for Wapello County and supplemented with topographic and bathymetric survey data in select areas.

1.6 SITE DISTURBANCES

- B. The project area to be reclaimed and project access route does not overlap with CRP land.

3.8 EXCAVATION

- F. The Contractor is responsible and liable for determining if bracing, sloping, shoring, or benching is necessary in order to ensure safety and to comply with all OSHA regulations. Excavated surfaces too steep to be safe and stable if unsupported shall be supported as necessary to prevent adjacent ground from sliding and to safeguard personnel, equipment, and the work.

3.9 FILL PLACEMENT AND COMPACTION

- A. Fill shall be placed in twelve (12) inch or less loose thickness if compacted with rubber tire equipment and nine (9) inches or less loose thickness for tracked equipment. Additional compaction and earthwork considerations are provided in the Geotechnical Report in Appendix B.

3.10 FILL INITIATION IN PONDS AND WET AREAS

- D. Based on a bathymetric survey of the water filled pit completed on November 30, 2012, the muck in the pond bottom has a depth of approximately 14-feet.

3.11 GRADING

- D. (New Paragraph) Landform Grading

1. The use of GPS Machine Mounted Grade Control Equipment for finishing of the final design surface is highly recommended. The GPS equipment, if used, should use Real Time Kinematic (RTK) technology to achieve survey grade accuracy. The GPS Machine Mounted Grade Control Equipment should include an in-cab display which supports background mapping including the design breaklines and contours, and instantaneous cut/fill information at the blade location.
2. The GPS Machine Mounted Grade Control Equipment, if used, should be mounted on a crawler tractor, or other earthmoving equipment, of sufficient size and maneuverability to accurately construct the breaklines, channels, flowlines, ridges, and valleys shown on the Plans.
3. The Contractor shall use appropriate precautions during finish grading, subgrade preparation and seeding to avoid disturbing constructed channel flowlines. Damage caused to the final grade by Contractor's operations shall be repaired by the Contractor at no additional cost to the Division.

3.14 MEASUREMENT AND PAYMENT

- C. (Replaced – New Paragraph) *Finish Grading*: Contractor's unit price for Finish Grading shall represent full payment for all materials, equipment, grading, surveying, and all incidental work pertaining to constructing a finish grade that meets the requirements described in these Construction Specifications and shown on the Plans. Finish grading shall include completing the final surface to the lines and grades as shown on the Plans, or as provided by the Engineer, and blending slopes evenly to provide continuity of slopes and to provide smooth transitions between different slopes.

Areas to be included for measurement shall be those areas within the Construction Limits as identified on the Plans.

The Engineer will determine in acres, to the nearest one-tenth (1/10) acre, the actual area for which Finish Grading was completed. Contractor shall provide field measurements to show the limits of the area finish graded. Contractor shall be paid at the unit price for Finish Grading for each acre as measured above. Said unit price shall constitute full payment for constructing the finish surface to the lines and grades shown on the Plans. No separate payment item is included for unauthorized finish graded areas.

- D. (Renumbered and Revised) *Summary*: Proposal Bid Items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Excavation	Cu. Yd.
Finish Grading (New)	Acre

SECTION 02220 – EARTHWORK, DAMS

1.1 DESCRIPTION

- A. Dams are not included in this project. Work under this SECTION covers requirements for materials, tools, equipment and services necessary to prepare subgrades for wetland outlet, improvements to existing stream crossing, and buried grade control structures.

SECTION 02300 – DRAINAGE SYSTEMS, GENERAL

1.1 DESCRIPTION

- A. Terraces and piping are not included in this project.

2.4 FILTER FABRIC

- A. 1. Filter fabric used for grade control structures shall be a pervious sheet composed of plastic yarn (geotextile) fabricated into a pattern with distinct pores or openings.
2. The plastic yarn shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, or vinylidene-chloride, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultraviolet and heat exposure. The edges of the fabric shall be selvaged or otherwise finished to prevent the outer yarn from pulling away from the fabric.
3. The filter fabric shall be woven geotextile meeting the following requirements:

Properties	Method	Minimum Requirements
Grab Tensile Strength	ASTM D 4632	400 Pounds (in any principle direction)
Breaking Elongation	ASTM D 4632	20% max.
Puncture Strength	ASTM D4833	125 Pounds
Permittivity	ASTM D 4491	1.5 sec ⁻¹
Apparent Opening Size (US Sieve)	ASTM D4751	30
Flow Rate	ASTM D4491	115 gal/min/ft ²

2.7 EROSION STONE

- A. Erosion stone shall be used for improvements to the low water stream crossing as shown on the Plans.

2.15 GRANULAR BEDDING (NEW SECTION)

- A. Granular bedding used for grade control structures and wetland outlets shall consist of well graded durable aggregate placed in the thickness shown on the Plan. All material comprising the granular bedding shall be composed of durable particles reasonably free of sharp or angular particles capable of puncturing the plastic filter fabric.
- B. The aggregate shall have a gradation that conforms to the Iowa Department of Transportation specifications for pipe bedding material, Gradation No. 3. Refer to IDOT Section 4118.

Sieve Designation	Gradation No. 3 Percent Passing
1 ½"	100% passing
1"	95-100% passing
½ "	25-60% passing
Less than No. 4	0-10% passing

3.7 FILTER FABRIC

- A. During all periods of shipment and storage, the fabric shall be protected from direct sunlight, ultraviolet rays, temperatures greater than 140 degrees Fahrenheit (°F), mud, dirt, and debris. To the extent possible, the fabric shall be wrapped in a heavy-duty protective covering.

3.8 RIPRAP DITCHES & OTHER RIPRAP WORK

- A. The subgrade shall be prepared and compacted as specified in Section 02220 EARTHWORK, DAMS, Items 3.5 *Subgrade Preparation* and 3.9 *Controlled General Fill Placement*.

3.11 GRANULAR BEDDING (REPLACED - NEW SECTION)

- B. Granular bedding material shall be placed in one or more lifts on compacted subgrade. The subgrade shall be prepared and compacted as specified in Section 02220 EARTHWORK, DAMS, Items 3.5 *Subgrade Preparation* and 3.9 *Controlled General Fill Placement*.
- C. The top surface of the granular bedding shall be raked or otherwise spread to provide a uniform bedding plane for the overlying filter fabric and riprap.
- D. All filter fabric and granular bedding shall be in-place and approved by the Engineer prior to riprap placement.

3.12 MEASUREMENT AND PAYMENT (RENUMBERED AND REVISED)

- K. (Replaced – New Paragraph) *Granular Bedding*: The unit price shall include all materials and work required for installation of the granular bedding in conformance with these Construction Specifications and the Plans, including excavation, removal and disposal of excavated material, and furnishing and placing of the stone. Measurement for payment shall be based on the tonnage of granular bedding actually installed as determined from weight tickets, rounded to the nearest one-tenth (0.1) ton. Only material placed in accordance with the Plans and these Specifications shall be measured and paid.

- L. (Renumbered and Revised) *Summary*: Proposal Bid Items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Riprap	Ton
Erosion Stone	Ton
Filter Fabric	Square Yard
Granular Bedding (New)	Ton
Erosion Control Mat	Square Yard
Riser—Terrace	Each
Riser—Other	Each
Tiling—(size)	Lineal Foot
Pipe—(size)	Lineal Foot
Tile Outlet	Each
Grout	Cubic Yard
Terraces	Lineal Foot

SECTION 02400 – SUBGRADE PREPARATION, WITHOUT COVER MATERIAL

1.2 QUALITY ASSURANCE

- E. (New Paragraph) References

1. ASTM D1556: Density of Soil-in-Place by Sand-Cone Method or other equivalent method with Engineers approval,
2. ASTM D698: Moisture-Density Relations of Soils and Soil-Aggregate Mixtures – Standard Proctor Test.
3. ASTM D2922: Density of Soil and Soil Aggregate In-place by Nuclear Methods.
4. ASTM D3017: Standard Test Method for Water Content of Soil and Rock In-place by Nuclear Methods.

1.4 SUBMITTALS

- D. (New Paragraph) Contractor shall submit or assist with obtaining samples of Main Channel R1 undercut materials and undercut subgrade materials. The samples shall be obtained by or submitted to the designated Geotechnical Engineer at least ten (10) working days in advance of its intended use. All samples shall be marked with its source and intended use.
- E. (New Paragraph) Contractor shall schedule and coordinate all construction activities requiring observation and testing with Engineer and the designated Geotechnical Engineer.
- F. (New Paragraph) Copies of all laboratory and field tests will be provided to the Contractor, Engineer and Division.

3.2 TESTING

- E. (New Paragraph) Division shall pay all field and laboratory soil tests to ensure that proper compaction and moisture control are being achieved. All test data shall be regularly submitted by the selected Geotechnical Engineer to Engineer, Division, and Contractor (as specified in Section 02220 EARTHWORK, DAMS, Items 3.13 *Testing*).

- F. (New Paragraph) A minimum of one (1) standard Proctor test shall be performed on the Main Channel R1 undercut material and a minimum of one (1) standard Proctor test shall be performed on the Main Channel R1 undercut subgrade material.
- G. (New Paragraph) In-place field density tests shall be performed in sufficient number and locations to ensure that the Main Channel R1 undercut subgrade and undercut material are being placed and compacted in accordance with the Construction Specifications. As a minimum, one (1) test shall be performed in the subgrade and one (1) test shall be performed in the replaced undercut material at a maximum spacing of one hundred (100) feet along the length of Main Channel R1.
- H. (New Paragraph) All areas with failing tests shall be reworked by Contractor and retested by the Geotechnical Engineer until the required compaction and the proper moisture content is achieved (as specified in Section 02220 EARTHWORK, DAMS, Items 3.13 *Testing*).
- I. (New Paragraph) Additional or supplemental field or laboratory tests requested by or conducted for the convenience of Contractor shall be completed at no additional cost to Division (as specified in Section 02220 EARTHWORK, DAMS, Items 3.13 *Testing*).

3.4 MAIN CHANNEL R1 (REPLACED - NEW SECTION)

- A. Subgrade Preparation
 - 1. Engineer and Division shall approve the final grades along Main Channel R1 prior to incorporation of mulch and fertilizer materials by Contractor.
 - 2. After final grade acceptance, Contractor shall also excavate at least nine (9) inches of material below final grade along the bottom width and side slopes of Main Channel R1. This material shall be set aside to be replaced after this exposed layer has been treated.
- B. Application for Undercut Area
 - 1. Agricultural Lime –Agricultural lime (tons ECCE per acre) shall be applied at the same rate as that determined from the soil tests taken for the rest of the site.
 - 2. Fertilizer – Nitrogen (N) shall be applied at a rate of thirty (30) pounds per acre.
 - 3. Mulch – Mulch shall be applied at a rate of five (5) tons per acre.
- C. Incorporation for Undercut Area
 - 1. Contractor shall apply and incorporate the lime, fertilizer, and mulch into the exposed undercut area along Main Channel R1. The depth of incorporation shall extend at least nine (9) inches into the spoil material beneath the undercut level and shall be completed with an acceptable method as approved by the Engineer.
 - 2. Application will not be permitted during adverse conditions, such as high winds, surface frost to a depth of greater than one (1) inch, excessive moisture in the surface to be treated, or if rain is predicted within the time Contractor estimates will be required for application and incorporation of the mulch and fertilizer along the bottom width and side slopes of Main Channel R1.
 - 3. The undercut area along Main Channel R1 shall be compacted by the Contractor. The subgrade shall be compacted to at least ninety percent (90%) of the material's maximum standard Proctor dry density. The moisture content of the subgrade area shall be adjusted as needed by disking and drying or wetting to be within minus two percent (-2%) to plus four percent (+4%) of the material's optimum moisture content as determined by the standard Proctor test.

4. Compaction of the undercut area shall be accomplished with a sheep's foot roller meeting IDOT Section 2001.05A, soil compaction rollers. Manual compaction equipment shall be used as required to prevent damage to structures and shall meet the same compaction requirements. No other compaction equipment will be allowed, unless written approval is obtained from Division.

D. Replacement of Undercut Material

1. After application and incorporation of lime, fertilizer, and mulch is complete in the undercut subgrade, Contractor shall replace the excavated material.

E. Application for Replaced Undercut Material

1. Agricultural Lime –Agricultural lime (tons ECCE per acre) shall be applied at the same rate as that determined from the soil tests taken for the rest of the site.
2. Fertilizer – Nitrogen (N) shall be applied at a rate of thirty (30) pounds per acre.
3. Mulch – Mulch shall be applied at a rate of five (5) tons per acre.

F. Incorporation for Replaced Undercut Material

1. Contractor shall apply and incorporate the lime, fertilizer, and mulch into the replaced material from undercut area along the bottom width of Main Channel R1 as designated on the plans. The depth of incorporation shall extend at least nine (9) inches into the replaced undercut material and shall be completed with an acceptable method as approved by the Engineer.
2. The undercut material along Main Channel R1 shall be compacted by the Contractor. The undercut material shall be compacted to at least ninety percent (90%) of the material's maximum standard Proctor dry density. The moisture content of the undercut material shall be adjusted as needed by disking and drying or wetting to be within minus two percent (-2%) to plus four percent (+4%) of the material's optimum moisture content as determined by the standard Proctor test.
3. Compaction of the undercut material shall be accomplished with a sheep's foot roller meeting IDOT Section 2001.05A, soil compaction rollers. Manual compaction equipment shall be used as required to prevent damage to structures and shall meet the same compaction requirements. No other compaction equipment will be allowed for placement of undercut material, unless written approval is obtained from Division.

3.5 LIME-MULCH APPLICATION (RENUMBERED AND REVISED)

A. Application Rates

1. Contractor shall apply lime at a rate of five (5) tons ECCE/acre for bidding purposes. Actual application rate will vary depending on the recommendation of the soil tests.

3.6 MEASUREMENT AND PAYMENT (RENUMBERED AND REVISED)

- C. (Revised) *Wetland and Main Channel R1 Fertilizer*: Payment for fertilizer, Nitrogen (N), furnished, delivered, applied and incorporated into wetland areas and the bottom of Main Channel R1, per requirements of this SECTION, shall be made in accordance with Contractor's unit prices for wetland and Main Channel R1 fertilizer. Weigh tickets or weights printed on individual bags must accompany each shipment of fertilizer and shall form the basis for measurement and payment. Measurement for payment purposes shall be the actual weight to the nearest pound.

- E. (Replaced – New Paragraph) *Main Channel R1 Undercut and Replacement*: Contractor’s unit price for Main Channel R1 undercut and replacement shall constitute full payment for excavation of undercut material, stockpiling the material nearby, compaction of the undercut subgrade after the initial incorporation is complete, replacement of the undercut material after the initial incorporation is complete, and compaction of the undercut material after incorporation of fertilizer, mulch and lime into this material, and all other incidental work. Incorporation of the fertilizer, mulch, and lime shall be included in the cost of each of these items delivered to the site.

The Engineer will determine the actual Main Channel R1 undercut and replacement area in acres, to the nearest tenth (0.1) acre. Contractor shall provide field measurements as required to show the limits of the areas undercut and replaced. The total area for payment is only counted once.

- F. (Renumbered and Revised) *Summary*: Proposal bid items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Agricultural Lime, Subgrade	Ton (ECCE)
Mulch, Subgrade	Acre
Wetland and Main Channel R1 Fertilizer (Revised)	Pound
Wetland Undercut and Replacement	Acre
Main Channel R1 Undercut and Replacement (New)	Acre

SECTION 02500 – FENCING

1.1 DESCRIPTION

- A. No field gates are scheduled to be removed, replaced, or installed.

1.3 JOB CONDITIONS

- E. (New Paragraph) The Contractor shall minimize the length of fence disturbed within the Construction Limits as shown on the Plans. Where fence is identified on the Plans to be removed, the wire should be carefully cut, pulled up where necessary, rolled back, and salvaged to the landowner; the posts shall be removed and salvaged for reuse; and the fence re-installed to the approximate existing conditions upon completion. Where applicable, the wire shall be carefully removed from existing trees that are identified as being undisturbed. Care shall be taken to avoid disturbing existing fence when removing trees that are in close proximity to fence lines.
- F. (New Paragraph) The Contractor shall limit the time that disturbed fence along the west and north sides of the site is down. Disturbed fence along the west and north sides of the site shall be re-installed at the end of each work day.

2.2 POSTS AND BRACING

- A. Posts
 - 1. Metal posts shall be used to re-install single barbed wire with a woven wire bottom and four (4) strand barbed wire fence sections.

2.3 FENCING

- A. Woven Wire
 - 1. Plan requires re-installation of existing single strand barbed wire with woven wire on the bottom. The disturbed fence shall be re-installed to approximate existing conditions.
- B. Barbed Wire
 - 1. Plan requires re-installation of existing four (4) strand barbed wire fence. The disturbed fence shall be re-installed to approximate existing conditions.

3.2 MEASUREMENT AND PAYMENT

- A. *Field Fence*: Disturbed and replaced fencing as shown on the Plans and approved by the Engineer shall be paid for at the unit price per linear foot, rounded to the nearest foot.

SECTION 02700 – INTERIM SEEDING

2.4 SEED

- C. Seed Mixture – The Interim Seed mix for the reclaimed mined area and staging area (if needed), shall be as shown below. The appropriate seeding rate shall be determined by the time of year the reclaimed area is seeded.

Common Name	Scientific Name	Seed Rate (PLS/ac)
Spring (April 1-May 30)		
Oats	<i>avena sativa</i>	64
Alsike clover	<i>trifolium hybridum</i>	10
Fall (August 15-September 15)		
Winter wheat	<i>triticum aestivum</i>	45
Alsike clover	<i>trifolium hybridum</i>	10
Dormant (November 15-ground freeze)		
Winter wheat	<i>triticum aestivum</i>	60
Alsike clover	<i>trifolium hybridum</i>	15

3.3 SEEDBED PREPARATION

- B. During the **first disking** till areas along the compacted surface of Main Channel R1 to a maximum soil depth of three (3) inches.

3.4 LIMING AND FERTILIZING

- C. For bidding purposes, assume the application rate of agricultural limestone is 3 tons ECCE per acre.
- D. For bidding purposes, assume the following application rates:

Fertilizer	Rate (lbs/ac)
Nitrogen (N)	100
Phosphorous (P)	60
Potassium (K)	80

3.9 MEASUREMENT AND PAYMENT

- C. Above Waterline Seeding will not be completed under this Contract. Only Interim seeding is to be completed.
- E. *(Revised) Summary:* Proposal Bid Items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Agricultural Lime, Seeding	Ton (ECCE)
Nitrogen (N)	Pound
Phosphorus (P)	Pound
Potassium (K)	Pound
Interim Seeding	Acre
Mulch, Seeding	Acre
Wetland Seeding—Above Water Line	Acre

END OF SUPPLEMENTAL SPECIFICATION