

CONSTRUCTION SPECIFICATIONS

INDEX

SECTION 02105 – MOBILIZATION: POST-RECLAMATION SEEDING & REPAIR PROJECTS

PART 1 - GENERAL

- 1.1 DESCRIPTION
- 1.2 QUALITY ASSURANCE
- 1.3 JOB CONDITIONS
- 1.4 SUBMITTALS

PART 2 - PRODUCTS

- 2.1 MATERIALS

PART 3 - EXECUTION

- 3.1 SURFACE CONDITIONS
- 3.2 PROTECTION
- 3.3 LAY-DOWN AREA
- 3.4 EXISTING FENCES
- 3.5 CLEAN-UP AND REPAIRS

PART 4 – MEASUREMENT AND PAYMENT

- 4.1 PRO-RATA SHARE AND CALCULATION OF PAYMENT
- 4.2 WORK ITEM DESCRIPTION
- 4.3 SUMMARY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included

Work under this SECTION covers requirements for materials, tools, equipment, and services necessary to complete the site preparation and site cleanup work for this project. The work shall include, but is not necessarily limited to, completion of the following work:

1. Mobilization.
2. Protection of existing utilities, fences, vegetation, and facilities to remain undisturbed.
3. Reestablishing any access to site to acceptable condition.
4. Demobilization.

1.2 QUALITY ASSURANCE

- A. Contractor shall use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this SECTION.
- B. In addition to complying with requirements of governmental agencies having jurisdiction, Contractor shall comply with the directives of Division.
- C. Applicable Standard: Iowa State University (ISU) Extension Service Publication PM-909, "Preventing Construction Damage to Trees".
- D. Contractor shall comply with most guidelines to protect the Indiana Bat as provided by the Division or in the Appendix.

1.3 JOB CONDITIONS

- A. The Plans do not necessarily show all objects existing on the site that could impact work to be completed on this project.
- B. The locations of utility mains, structures, and service connections are not shown on the plans. The verification of existence and the exact location determination of utility mains, structures, and service connections shall be the responsibility of Contractor.
- C. Contractor shall not perform any work on or cause any damage to existing CRP land, wetlands, or any other jurisdictional lands adjacent to the seeding area. These areas are under the jurisdiction of other authorities. If damage does occur to these areas, Contractor shall restore them to an acceptable condition at no cost to Division.
- D. Contractor shall not perform excavation work under the drip line of trees encountered on site that are to remain. Contractor may request that certain trees within the Project Limits shown on the Plans remain in place. If permission is granted, Contractor shall protect these tree(s) from damage.
- E. Materials to be handled under this Contract, especially when or where repairs are specified, include spoil, gob, and coal refuse which may be toxic and/or acidic in nature.
- F. Unless indicated otherwise in the Contract Documents, removed, salvaged or demolished materials shall be considered to be the property of Contractor. Contractor-salvaged materials and demolished materials shall be completely removed from the job site. Any items indicated in the Contract

Documents to be salvaged to the landowner, such as existing fencing, shall be stored on site at a location approved by Division.

- H. Contractor shall conduct all work in a manner which shall minimize, to the greatest practical extent, inconvenience to the public, and which shall result in a final product which leaves the site in an equal or better condition than prior to construction.

1.4 SUBMITTALS

- A. Contractor shall provide to Division a description and the location of any alternative off-site disposal area to be used other than a licensed landfill.
- B. Contractor shall submit a Construction Progress Schedule as specified in SECTION 3-23 CONSTRUCTION SCHEDULE of the General Conditions (*Document N*).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide materials, not specifically described but required for proper completion of the work of this SECTION, as selected by Contractor subject to the approval of Division.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. In company with Division personnel, visit the site to verify the location(s) of repairs, if required, and/or location(s) of subgrade preparation, condition of soil surface, and required seeding area(s).
- B. All trees outside the Project Limits shown on the Plans shall remain undisturbed.

3.2 PROTECTION

- A. Contractor shall be responsible for locating and protecting all utilities prior to initiating work. If damage does occur to any existing utilities, Contractor shall restore them in a manner acceptable to the utility provider and Division at no cost to the Division.
- B. Contractor shall protect existing vegetation as discussed below.
 - 1. Protect tops, trunks, and roots of existing trees and/or shrubs, indicated or implied to remain, from damage during all operations. Box, fence around, or otherwise protect trees before adjacent work is started. Do not permit heavy equipment or stockpiles within branch spread. Trim or prune to obtain working space in lieu of complete removal whenever possible. Conform to good horticultural practices. Preserve natural shape and character. Refer to ISU Publication PM-909, "Preventing Construction Damage to Trees".
 - 2. Damaged trees shall be repaired or replaced to the satisfaction of Division. Repair may include, but not be limited to, trimming, pruning, and application of pruning paint. Repair shall be completed within seventy-two (72) hours of occurrence of damage. Remove existing vegetation when damage occurs if survival is doubtful.
 - 3. Adjacent areas to the site with established vegetation shall be protected. If access through established vegetation is required, Contractor shall coordinate his access with Division and restore the damaged areas as directed by Division.

- C. Contractor shall provide protection for persons and property as discussed below.
 - 1. Barricade open depressions and holes occurring as part of this work.
 - 2. Protect structures, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout, burning of landscape waste, equipment vibration, and other hazards created by operations under this SECTION.
- D. Contractor shall use means necessary to prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.
- E. Contractor shall always maintain access to the site.

3.3 LAY-DOWN AREA

- A. If Contractor would like a laydown area to store equipment or supplies, the location should be coordinated with the Division in consultation with the landowner.

3.4 EXISTING FENCES

- A. Any existing fences within the project limits shall be protected. If these fences are damaged, the Contractor shall repair them at no cost to Division. Fences can be removed for access as needed if location is approved by Division. After work is completed, the removed fence shall be repaired or a replacement fence of the same material type or better shall be replaced at the same location at no cost to Division.

3.5 CLEAN-UP AND REPAIRS

- A. Contractor shall remove equipment, project materials, and wastes such as oil drippings, stones, gravel, packaging containers, etc., from the site and dispose of wastes at an approved off-site location.
- C. All disturbed areas outside the Project Limits, such as entrance and haul roads and lay down areas, shall be returned to their original condition by Contractor and as approved by the Division.
- D. The materials, equipment, and labor for cleanup and repairs are at no cost to Division.

PART 4 - MEASUREMENT AND PAYMENT

4.1 PRO-RATA SHARE AND CALCULATION OF PAYMENT

The construction cost of all work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for the work items described below. The unit price for each of these items shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work actually constructed, measured as described herein, shall constitute full payment to Contractor for performance of the work included in this SECTION.

4.2 WORK ITEM DESCRIPTION

Measurement and payment for each work item in this SECTION shall be in accordance with the following:

Mobilization: Payment for the cost of mobilization and demobilization and other work incidental thereto shall be included in the lump sum price set forth for "Mobilization." The lump sum price set forth in Contractor's Proposal and Schedule of Prices shall include full compensation for mobilization; for preparatory

work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to and through the site; for establishment of facilities necessary for work on the project; for repairing the AML project sign, if specified; for demobilization, and cleanup and repairs; for all other work or operations which must be performed or costs incurred when beginning or performing work on the project including bonding, insurance, obtaining permits, filing affidavits, paying fees, etc. See General Conditions (*Document N*) Item 6-01 and any permits included in an appendix to the specifications.

The amount which Contractor will receive payment for, in accordance with the following schedule, will be limited to five percent (5%) of the total Contract amount. Should the Contractor's bid for this item exceed five percent (5%) of the Contract amount, the amount over five percent (5%) will not be paid until the Contract is finalized.

Basis of Payment: Partial payment of the lump sum amount bid for Mobilization, not exceeding five percent (5%), will be made in accordance with the following schedule:

1. Upon Contract execution, ten percent (10%) of this pay item will be paid if the resulting payment is at least one hundred dollars (\$100) after retainage is withheld
2. When five percent (5%) or more of the original Contract amount is earned, an additional twenty percent (20%) of this pay item will be paid.
3. When ten percent (10%) or more of the original Contract amount is earned, an additional twenty percent (20%) of this pay item will be paid.
4. When fifty percent (50%) or more of the original Contract amount is earned, the remaining balance of this pay item will be paid up to a maximum equal to five percent (5%) of the total Contract amount.
5. Nothing herein shall be construed to limit or preclude partial payments for other items as provided for by the Contract.

4.3 SUMMARY

Proposal Bid Items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Mobilization	Lump Sum

END OF SECTION 02105

INDEX

SECTION 02420 – SUBGRADE PREPARATION: SEEDING & REPAIR PROJECTS

PART 1 - GENERAL

- 1.1 DESCRIPTION
- 1.2 QUALITY ASSURANCE
- 1.3 DELIVERY, HANDLING, AND STORAGE
- 1.4 SUBMITTALS
- 1.5 SITE DISTURBANCES
- 1.6 DEFINITIONS

PART 2 - PRODUCTS

- 2.1 AGRICULTURAL LIME – ACID AREAS
- 2.2 MULCH – ACID AREAS

PART 3 - EXECUTION

- 3.1 ACID AREAS
- 3.2 TEMPORARY SEDIMENT CONTROL (TSC) REMOVAL
- 3.3 RILL REPAIR
- 3.4 GULLY REPAIR
- 3.5 ROCK RIFFLE REPAIR
- 3.6 MOWING
- 3.7 ROCK PICKUP

PART 4 – MEASUREMENT AND PAYMENT

- 4.1 PRO-RATA SHARE AND CALCULATION OF PAYMENT
- 4.2 WORK ITEM DESCRIPTION
- 4.3 SUMMARY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This site was reclaimed in the recent past and seeded, but specific areas identified on the plans require repair due to excessive erosion and/or a poor stand of permanent vegetation care shall be taken to avoid excessive disturbance of the surrounding land surfaces which do not require repair. The purpose of this section is to improve soil pH and prepare the identified repair areas for re-seeding.
- B. Work under this SECTION covers requirements for materials, tools, equipment and services necessary to complete the seed bed preparation prior to permanent for this project. The work shall include, but is not necessarily limited to, completion of the following work:
 - 1. Agricultural Lime and mulch application in acid areas;
 - 2. Removal of temporary sediment controls;
 - 2. Disking for minor rilled areas;
 - 3. Repair of deep gullies;
 - 4. Repair of Rock Riffles; and
 - 5. Mowing.

1.2 QUALITY ASSURANCE

- A. Contractor shall use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with specified requirements and methods needed for proper performance of work of this SECTION.
- B. Contractor shall use equipment adequate in size, capacity, and numbers to accomplish work in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, Contractor shall comply with directives of Division.

1.3 DELIVERY, HANDLING, AND STORAGE

- A. Storage of materials on job site must be approved in writing by Division.
- B. Materials approved for storage on site which are being degraded due to storage must be removed and replaced at no additional cost to Division.
- C. Deliver packaged materials to site in supplier's original unopened containers; each container to bear certification as specified.
- D. Store packaged materials off ground and protect from moisture.

1.4 SUBMITTALS

- A. Agricultural lime
Contractor shall submit vendor's certified analysis for ECCE (Effective Calcium Carbonate Equivalent) in minimum pounds of ECCE per ton of material, fineness factor of agricultural lime, and supplier's name and location.
- B. Weight Tickets
Contractor shall submit weight tickets and/or shipping tickets of all materials delivered to the site for the work in this SECTION to Division for payment purposes.

1.5 SITE DISTURBANCES

- A. Contractor shall take precautions to ensure that equipment and vehicles do not unnecessarily disturb or damage existing grading or other site improvements. Any areas identified by Division as becoming excessively disturbed shall be repaired at Contractor's expense.

1.6 DEFINITIONS

- A. *Acid Areas:* Areas which exhibit low soil pH and support very little, if any, desirable vegetation. Acid areas may include erosional features like rills and gullies as defined in B.1 and B.2 below. Repair of Acid areas is discussed in Part 3.1.
- B. *Gullies:* Unless otherwise determined by Engineer or Division, gullies are generally defined as erosional features which are deeper than six inches (6") and wider than four inches (4"). Unless otherwise indicated on the Plans, gully repair is usually one of two types defined as follows:
 - 1. **Type 1 gully repair** is the most common situation where very little, if any, vegetation is present on the soil surface on either side of the gully. Soil tests indicate the soil pH is to low to support vegetation. This type of repair is requires Contractor to close the gully by grading in adjacent soil material followed by addition of lime mulch as discussed in the treatment of acid areas.
 - 2. **Type 2 gully repair** is a less common situation where a moderate to healthy stand of vegetation is present on either side of the gully. Soil tests and visual evidence indicate that soil pH is suitable for supporting vegetation. Type 2 repair requires Contractor to temporarily displace the top twelve inches of treated soil before filling the gully with adjacent acidic soil material underlying the treated soil. This type of gully repair must be performed within the specified width indicated on the Plans in order to minimize damage to surrounding areas which do not require repair.
- C. *Rills:* Unless otherwise determined by Engineer or Division, rills are generally defined as minor erosional features which are no deeper than four to six inches (4'-6") and no wider than two to four inches (2"-4").
- D. *Temporary Sediment Controls (TSC):* Are removeable management practices or commercially available products left in place following the original reclamation project. Temporary sediment controls were left in place at the direction of the Engineer or Division for the purpose of controlling sediment until vegetation was established. Temporary Sediment Controls include, but are not limited to: silt fence, fabric checks, filter or compost socks, straw wattles, wattle fences and/or similar materials.

PART 2 - PRODUCTS

2.1 AGRICULTURAL LIME – ACID AREAS

- A. Agricultural lime shall be ground calcitic limestone conforming to the current requirements of the Iowa Department of Agriculture and Land Stewardship. The liming material shall contain calcium in the carbonate, oxide or hydroxide form, or a combination thereof. The lime shall have a minimum fineness factor of fifty-five percent (55%) as provided in IAC 21—43.31 and shall contain at least one-thousand (1000) pounds ECCE per ton of bulk lime applied.
- B. If lime containing not less than one-thousand (1000) pounds ECCE per ton is not locally available, Contractor may submit a proposal for use of equivalent material based upon the minimum pounds required of ECCE per acre.
- C. Lime sludge salvaged from water treatment plants or other industrial operations can be used for agricultural lime if it can be uniformly distributed over the site. Moisture content and ECCE tests results shall be provided to Division to determine application rates. Moisture tests will be taken by the Division during placement and application rates will be adjusted as appropriate.

2.2 MULCH – ACID AREAS

- A. Mulch materials shall consist of oats, rye, hay, grass cut from native grasses or other plants approved in writing by Division.
- B. Mulch shall be of air-dry mulch that has been properly cured and harvested. Mulch harvested after a killing frost or during dormant periods will not be acceptable. Mulch shall not be rotted, brittle, moldy, caked or otherwise degraded.
- C. Mulch shall be free of noxious weeds as published by the local County Weed Commissioner and other weeds deemed undesirable by Division, such as foxtail, etc.
- D. Each load of mulch shall be subject to inspection and acceptance by Division prior to unloading.

PART 3 - EXECUTION

3.1 ACID AREAS

- A. The specified amount of lime in the Supplemental Specifications and five (5) tons per acre of mulch shall be thoroughly incorporated into the upper twelve inches (12") of soil in areas as indicated on the plans and as specified or directed by the Division.
- B. To properly break up soil compaction and hard pans, ripping may be required in conjunction with disking. Provide additional ripping at the direction of Engineer or Division. These areas shall not be permanently seeded until the neutralization period has occurred, which could take up to three (3) months depending upon weather conditions. If acid areas are treated in the fall of the year, overwintering may be required. Identified areas will receive permanent seeding after the neutralization period is complete.

3.2 TEMPORARY SEDIMENT CONTROLS (TSC) REMOVAL

- A. Contractor shall review the site conditions and determine the overall quantity and type of temporary sediment control measures on site that are to be removed. Any practices to remain in place are noted as such on the site plan.
- B. All removed materials are to be disposed of off-site in an approved manner. Organic matter, such as mulch or straw in filter socks, should be distributed on site.

- C. Any accumulated sediment is to be distributed evenly in the nearby area in such a manner as to fill any rills and not create areas for water to accumulate.

3.3 RILL REPAIR

- A. Areas where rilling has occurred shall be lightly disked along the contour prior to seeding. Care shall be exercised to make sure moisture conditions will allow minor disking to fill the rills. Disking shall not be performed during periods of excessive moisture.
- B. If additional rilling re-occurs due to an elapsed period of time between the light disking and seeding, this rilling will be repaired by Contractor at no additional cost to Division.
- C. The methods and equipment to be used must meet the approval of Division.

3.4 GULLY REPAIR

- A. Areas containing gullies shall be repaired by performing light to moderate grading with an appropriately-sized bulldozer, motor grader or other approved machinery.
- B. Refer to the plans to determine whether Type 1 or Type 2 Gulley repair is required.
 - 1. Type 1 Gulley Repairs:
 - i. Restrict work to within the width specified on the plans, if any
 - ii. Fill the gulley with adjacent acidic soil and soften edges of the gulley=
 - iii. Proceed with treatment of the acid area as discussed above
 - iv. Once the soil is sufficiently neutralized proceed with seedbed preparation.
 - 2. Type 2 Gulley Repairs:
 - i. Restrict work to within the width specified on the plans
 - ii. Displace top twelve inches (12") of existing desirable soil to the edges of the specified work area.
 - iii. Fill in the gulley with the underlying acidic soil
 - iv. Respread the treated topsoil displaced in the first step.
 - v. Proceed with seedbed preparation
- C. In all Gulley repair situations:
 - 1. Follow alignment of the existing gulley and preserve tributary swales and ridges to the extent practicable
 - 2. Avoid channel straightening unless it is specifically approved by the Engineer or Division
 - 3. Provide a smooth grade that transitions from a steeper slope near the head to a flatter slope near the outlet of the channel
 - 4. Avoid creating nick points where flatter flowline slopes transition into steeper ones when traveling downhill. Creation of nick points is only permissible with the addition of rock riffles when specifically approved by Engineer or Division.
 - 5. At specific intervals, provide disk furrows perpendicular to the flow to reduce risk of re-gullyng during soil neutralization
 - 6. Consolidate and lightly compact loose soil
 - 7. Trim and verify grade after subgrade preparation immediately prior to seedbed preparation.

3.5 ROCK RIFFLE REPAIR

- A. The work of Rock Riffle Repair may be done in conjunction with gulley repair and it must be complete prior to the repair of acid areas.
- B. Deepen rock riffles where necessary to maintain stormwater flow across the riffle. Use of an excavator will be required
- C. Close gullies which are observed around existing riffles.
- D. Accommodate extra riprap ONLY if it will be added per direction of Engineer. Over-excavate areas as necessary to accommodate additional riprap.
- E. To the extent practicable, segregate existing coarse revetment six (6) inches and larger from the finer soil and smaller stones. Temporarily set aside the segregated existing revetment for later reuse in the restored rock riffle.
- F. Re-define upstream channel banks and using nearby site soils and construct wing dikes on either side of the rock riffle at least two feet higher than the channel bottom this extra step is required to direct runoff across the riffle.
- G. Refer to drawings on the plans for further details.

3.6 MOWING

- A. Where required on the Plans, Contractor shall complete at least one mowing of the site prior to seeding. If stipulated on the plans, one mowing conducted a period of time after emergence may be required for native plant seedings.
- B. Mowing shall be performed with a bat wing or flail-type mower set at a height of no more than six (6) inches. Mowing shall not to be done with a sickle bar mower or mower- conditioner.
- C. The mowing should be performed in such a way or with such equipment so that residue is shredded into fragments no longer than six (6) inches without leaving clumps or windrows that interfere with later seed placement.
- D. The condition of the site after mowing and prior to seed placement shall be approved by the Division. If there are any delays that allow vegetative growth to occur after the initial mowing, and if, in the judgement of the Division, said vegetative growth is deemed to interfere with seed placement, the Contractor shall be required to perform additional mowings at no additional cost to the Division.

3.6 ROCK PICKUP

Dispose of rocks and other objects which are six (6) inches or greater in diameter prior to seeding. These obstructions will become apparent during seedbed preparation. These materials shall be disposed of as discussed in the supplemental specifications or in an approved location. Unless otherwise provided in contract documents, rock pickup is incidental to seed bed preparation as provided in SECTION 02720.

PART 4 – MEASUREMENT AND PAYMENT

4.1 PRO-RATA SHARE AND CALCULATION OF PAYMENT

Construction cost of all work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in Proposal and Schedule of Prices (*Document C*) for work items described below. Unit price for each of these several items shall include its pro rata share of overhead so that sum of products obtained by multiplying unit prices so set forth by amount of work actually constructed, measured as described herein, shall constitute full payment to Contractor for performance of work included in this SECTION.

4.2 WORK ITEM DESCRIPTION

Measurement and payment for each work item in this SECTION shall be in accordance with following:

- A. *Agricultural Lime, Acid Areas:* Contractor's unit price for agricultural lime applied to acid areas shall represent full payment for furnishing, delivery, and application of agricultural lime in accordance with specifications. Submittals required under Item 1.4 *Submittals* of this SECTION shall accompany each shipment of agricultural lime for payment.

Measurement for payment purposes shall be actual number of tons of ECCE, based on a dry unit weight, applied by Contractor in complying with requirements of this SECTION. The cost for incorporation of the agricultural lime shall be incidental to *Mulch, Acid Areas*.

- B. *Mulch, Acid Areas:* Contractor's unit price for this mulch shall represent full payment for all materials, application, mixing, plowing, disking, and all incidental work pertaining to incorporating the mulch with agricultural lime as a part of the lime-mulch application.

Division will determine in acres, to the nearest one-tenth (1/10) acre, the actual area in which the mulch application has been completed. Delivery receipts showing certified weight prior to placement will be used to confirm required tons per acre incorporation of mulch.

- C. *Temporary Sediment Control (TSC) Removal:* Contractor shall provide a lump sum cost to remove the identified temporary sediment control practices from the prior contract on the site. This lump sum cost includes all necessary equipment and personnel to remove the items and properly distribute any accumulated settlement. In addition, the removed items shall be removed from the site and disposed of in an approved manner.

- D. *Rill Repair:* Rilled areas identified by Division shall be repaired prior to permanent seeding. Contractor will provide the necessary equipment and personnel to prepare these areas for permanent seeding. The Contractor will be paid at the bid hourly rate for the amount of time approved by Division.

- E. *Gully Repair:* Gullied areas identified by Division, regardless of type, shall be repaired prior to permanent seeding. Contractor will provide the necessary equipment and personnel to prepare these areas for permanent seeding. The Contractor will be paid at the bid unit price per lineal foot approved by Division.

- F. *Mowing:* Contractor shall submit a price to complete required mowing of all seeded areas of the site. More than one mowing may be required at no additional cost to the Division pursuant to Part 3.6 of this SECTION. The price for mowing shall include costs for all equipment and personnel needed to complete this work.

4.3 SUMMARY

Proposal bid items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Agricultural Lime, Acid Areas	Ton (ECCE)
Mulch, Acid Areas	Acre
Temporary Sediment Control (TSC) Removal	Lump Sum
Rill Repair	Acre
Gulley Repair	Lineal foot
Mowing	Acre

END OF SECTION 02420

INDEX

SECTION 02720 – PERMANENT SEEDING: POST-RECLAMATION SEEDING & REPAIR PROJECTS

PART 1 - GENERAL

- 1.1 DESCRIPTION
- 1.2 QUALITY ASSURANCE
- 1.3 JOB CONDITIONS
- 1.4 SUBMITTALS
- 1.5 DELIVERY, STORAGE, AND HANDLING
- 1.6 SITE DISTURBANCES

PART 2 - PRODUCTS

- 2.1 AGRICULTURAL LIME
- 2.2 FERTILIZER
- 2.3 MULCH
- 2.4 SEED

PART 3 - EXECUTION

- 3.1 TIMING
- 3.2 TESTING – FERTILITY
- 3.3 SEEDBED PREPARATION
- 3.4 LIMING AND FERTILIZING
- 3.5 SEEDING MAINTENANCE
- 3.6 MULCHING
- 3.7 MAINTENANCE CONTRACT CLOSE OUT PROCEDURES
- 3.8 MINIMUM REQUIREMENTS FOR ACCEPTANCE
- 3.9 CONTRACT CLOSE OUT PROCEDURES

PART 4 - MEASUREMENT AND PAYMENT

- 4.1 PRO-RATA SHARE AND CALCULATION OF PAYMENT
- 4.2 WORK ITEM DESCRIPTION
- 4.3 SUMMARY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This site has been reclaimed in the recent past and seeded with an interim seeding mix and the seedbed preparation should be completed as provided in SECTION 02420. The purpose of this SECTION is to apply fertilizer, and seed. The seed mix will vary based upon the intended use and is reflected in the Supplemental Specifications/Scope of Work provided.
- B. Work under this SECTION covers requirements for materials, tools, equipment and services necessary to complete the seeding of all areas as indicated on the plans. Work related to SECTION 02420 should be completed first. The work shall include, but is not necessarily limited to, completion of the following work:
 - 1. Application of lime and fertilizer;
 - 2. Placement of Permanent Seeding.

1.2 QUALITY ASSURANCE

- A. Qualifications of Workers: Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this SECTION.
- B. All seed shall meet or exceed requirements contained in specifications of this SECTION and Federal, State and County laws requiring inspection for plant disease and insect control and shall be labeled and certified in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and Iowa State laws. All seed must be dated for test and be from the last season prior to date of delivery.
- C. Lime Materials shall be a Standard Ground Agricultural Limestone which meets current requirements of the Iowa Department of Agriculture and Land Stewardship as prescribed under the Iowa Agricultural Limestone Act.
- D. Fertilizer shall be a commercial grade fertilizer and shall meet standards for grade and quality as per the requirements of the Iowa Department of Agriculture and Land Stewardship.
- E. Inoculants used for treating legume seed shall be pure culture of nitrogen-fixing bacteria prepared specifically for the legumes specified in PART 2 PRODUCTS of this SECTION. Inoculant containers must be clearly marked by the manufacturer for each specified species and have an expiration date.
- F. Division reserves the right, at any time, to sample all materials for testing to determine compliance with the requirements of this SECTION.

1.3 JOB CONDITIONS

- A. Areas to be seeded include all project areas as indicated on the site plan and any other seeded areas that get disturbed to access the site.
- B. Seeding shall be performed only during the seasons specified. The planting operation shall not be performed during times of drought, excessive moisture, or other unfavorable climatic conditions.

- C. Prior to the work of this SECTION, items of work listed in SECTION 02420 along with any other designated repairs should be completed.
- D. Some acid areas may have been treated with lime and mulch and should not be seeded with the permanent seed mix until after the neutralization period has been completed.

1.4 SUBMITTALS

- A. Certificates and Receipts
 - 1. Certification shall be submitted to Division that all seed to be used is in compliance with the following:
 - a. The Federal Seed Act.
 - b. Iowa Department of Agriculture & Land Stewardship regulations.
 - c. Species type and pounds of pure live seed (PLS) certification.
 - d. Date and results at germination and purity tests.
 - e. Test date to determine the percentages of germination and purity have been completed within a nine (9) month period, exclusive of the calendar month in which the test was completed.
 - f. The seed analysis on the label shall be mechanically printed.
 - 2. Suppliers certification of Effective Calcium Carbonate Equivalent (ECCE) content per ton of material must be submitted to and approved by Division prior to initial applications and subsequently as requested by Division. Necessary information shall include:
 - a. Name and location of supplier.
 - b. ECCE determination.
 - c. Receipts stating weight of material on each truck which arrives on site.
 - 3. Fertilizer delivered in bulk shall be accompanied by the suppliers' certification of analysis and weight for each shipment made to the job site. Fertilizer delivered in individual containers shall be sealed and clearly marked for analysis and weight.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle materials in accordance with the General Conditions and the Special Conditions.
- B. Storage of all materials on the job site must be approved in writing in advance by Division.
- C. Any materials approved for storage on site which, in the opinion of Division, are being degraded due to storage must be removed and replaced at no additional cost to Division.
- D. Use all means necessary to protect materials from the elements during delivery, handling and storage.
- E. Deliver packaged materials (seed, etc.) to site in supplier's original unopened containers; each container to bear certification as specified. Pure live seed (PLS) certification shall be attached to all seed containers and all documentation shall be provided to Division.
- F. At no time shall seed materials be stored outside of the specified planting periods.

- G. Store packaged materials off the ground and protect from moisture. Moisture damaged materials are unacceptable. Wet, moldy or otherwise damaged seed is unacceptable.

1.6 SITE DISTURBANCES

- A. Take precautions to ensure that equipment and vehicles do not unnecessarily disturb or damage existing grading, other site improvements, or adjacent areas to the work.
- B. Repair any damage and return site and adjacent areas disturbed by Contractor's operations to original condition at no cost to Division.

PART 2 - PRODUCTS

2.1 AGRICULTURAL LIME

- A. Agricultural lime shall be ground calcitic limestone conforming to the current requirements of the Iowa Department of Agriculture and Land Stewardship. The lime shall have a minimum fineness of fifty five percent (55%) and shall contain at least 1000 pounds ECCE per bulk ton of lime to be applied.
- B. If lime containing at least 1000 pounds ECCE per bulk ton is not locally available, Contractor may submit a proposal for use of equivalent material based upon the minimum pounds required of ECCE per acre.
- C. Lime sludge salvaged from water treatment plants or other industrial operations shall not be approved as a substitute for agricultural lime for this portion of the project.

2.2 FERTILIZER

- A. Inorganic fertilizer shall be a standard commercial product which, when applied at the proper rate, shall supply the quantity of total nitrogen (N), available phosphoric acid (P), and soluble potassium (K) as specified herein.
- B. Inorganic fertilizer shall be a commercial balanced fertilizer, uniform in composition, liquid or dry and free flowing. Fertilizer may be delivered bulk from the supplier or in its original unopened containers. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

2.3 MULCH

- A. Mulch materials shall consist of wheat, oats, rye, hay, grass cut from native grasses or other plants approved in writing by Division. Corn stubble is not an acceptable type of mulch for this application.
- B. Mulch shall be of air-dry straw that has been properly cured and harvested. Mulch harvested after a killing frost or during dormant periods will not be acceptable. Mulch shall not be rotted, brittle, moldy, caked or otherwise degraded.
- C. Mulch shall be free of noxious weeds as published by the local County Weed Commissioner and other weeds deemed undesirable by Engineer, such as foxtail, etc.
- D. Each load of mulch shall be subject to inspection and acceptance by Engineer prior to unloading.
- E. At least fifty percent (50%) of the salvage weight of each mulch bale shall contain mulch with a length of ten (10) inches or greater. This requirement shall apply to all mulch intended for crimping into the sown seedbed.

2.5 SEED

- A. Seed delivered to the job site shall be labeled according to the U.S. Department of Agriculture Federal Seed Act and shall be furnished in containers with tags showing seed mixture, purity, germination, weed content, name of seller, and date on which seed was tested.
- B. Moldy seed or seed that has been damaged in storage shall not be used. Seed that is more than one growing season in age shall not be used.
- C. Seed that is more than one growing season in age shall not be used unless acceptable cold storage can be proven. If acceptable cold storage is documented, seed may only be used if a twelve-month germination and viability test is performed.
- D. Seed Mixture: Seed mixtures shall consist of the number of varieties and proportions of pure live seed (PLS) thereof as specified in the plans. The percentage of pure live seed and the bulk application rate of seed mixture shall be determined using equations 1 and 2 as follows:

Equation 1:

$$\text{Percent Pure Live Seed (\%PLS)} = \left\{ \frac{\% \text{ purity}}{100} \times \left(\frac{\% \text{ germination (a)}}{100} + \frac{\% \text{ hard seed}}{100} \right) \right\} \times 100$$

Equation 2:

$$\text{Actual Bulk Seed Applied per Acre} \left(\frac{\text{Bulk Lb.}}{\text{Acre}} \right) = \frac{\text{Req'd Lb. PLS per acre}}{\left(\frac{\% \text{ PLS}}{100} \right)}$$

- (a) TZ tests may be used instead of a germination test provided TZ tests report the percentage of viable seeds observed in a representative sample

E. Species Substitution

Substitutions of select plant species may be made subject to approval of the Division as discussed below.

- 1. The Contractor shall provide documentation that a particular species was sought from a variety of suppliers before concluding that species is unavailable.
- 2. If after an exhaustive search was performed, and a particular species is determined to be unavailable, a substitution that exhibits a bloom period similar to the species it replaces shall be proposed. A legume should be substituted for a legume, a forb for a forb and a grass for a grass. Obligate (OBL) species should be substituted for obligate species, and facultative (FAC) for facultative. Preference shall be given to species native to Iowa and/or the upper Midwest of the United States.
- 3. The seed application rate of the proposed substitution(s) shall provide seed coverage at least equal to the seed coverage provided with the specified rate of the species it replaces.
- 4. The list of possible substitutions may be extensive, and availability may vary over time; therefore, any substitutions should be proposed and approved no sooner than sixty (60) days prior to the anticipated seeding date.

PART 3 - EXECUTION

3.1 TIMING

- A. Seed should be applied within one (1) week after lime and fertilizer has been applied and within the specified seeding dates.
- B. Contract shall monitor weather and may need to delay placement of lime, fertilizer or seed so that these items are not washed away prior to mulch placement.

3.2 TESTING – FERTILITY

- A. Contractor shall collect samples of finish grades as specified below for testing provided all of the initial preparations are completed. Engineer **must** be present when samples are collected to prepare a sampling location plan. The samples shall be submitted to laboratory to determine lime and fertilizer recommendations. Payment for these soil tests will be the responsibility of Contractor.
 - 1. Engineer and Contractor shall collect composite samples of not less than ten (10) well-distributed individual soil cores from any contiguous area of ten (10) acres or less. Cores shall be three-quarter (3/4) inch to one (1) inch diameter to a depth of approximately six (6) to eight (8) inches. Areas having observable differences in material types or surface conditions (soil types) shall be handled as different composite samples, even if less than (10) ten acres.
 - 2. Contractor shall combine soil cores to form composite samples for each (10) ten acres of contiguous area and/or observable different soil types by mixing well and placing in sample bag(s) to be sent to laboratory. (e.g. If total area is 30 acres and has two distinctly different soil types of 15 acres each, then there should be four (4) composite samples containing ten (10) soil cores each – two (2) composite samples from each soil type.)
- B. Deliver each composite soil sample to the approved soil testing laboratory. Deliver samples for testing six (6) to eight (8) weeks prior to the beginning of the specified planting period. A shorter lead time may be possible depending on the laboratory. Test each composite sample for:
 - 1. pH
 - 2. Buffer pH (Buffer Index)
 - 3. CEC (Cation Exchange Capacity)
 - 4. Phosphorus - Bray I (P₁ weak Bray) with recommendations
 - 5. Exchangeable Potassium with recommendations
 - 6. Nitrate Nitrogen with recommendations
- C. Recommendations from the lab shall include rates for applying lime, nitrogen, phosphorus, and potassium for the appropriate grass mix (pastureland) for each area.
- D. Submit test results and laboratory recommendation to Engineer and Division for review at least one (1) week prior to scheduled date for application of lime and/or fertilizer.
- E. Soil test results and laboratory recommendations shall be used by Engineer and Division to determine the amounts of lime and fertilizer to be applied for various areas. Engineer's and Division's final rates shall govern and these rates may be more or less than those recommended by the laboratory.
- F. Cost of all services required from the testing laboratory for fertility shall be the responsibility of Contractor.

3.3 SEEDBED PREPARATION

- A. Dispose of any growth, rocks, or other obstructions which might interfere with tilling, seeding, or later maintenance operations. Dispose of clods, rocks and other objects which are six (6) inches or greater in diameter. These obstructions can become exposed during any of the disking operations described below and shall be removed.
- B. Till all areas to be seeded by disking or other approved method to thoroughly loosen and pulverize the soil to a depth of six (6) inches. This may require multiple passes of the disk or other approved equipment. This entire operation shall be considered the **first disking**. Lime and fertilizer shall not be incorporated during the first disking operation. If cover material has been placed over lime-treated spoil, care shall be taken to not disk in manner and depth that causes the acid material to be mixed into the cover material.
- C. After application of lime and fertilizer (see Item 3.4 *Liming and Fertilizing* below), re-disk the site to a depth of three (3) inches. Multiple passes may be required. This entire operation shall be considered the **second disking** operation.
- D. Harrow the site until the condition of the seedbed is suitable for seeding. The harrow shall be set to achieve the desired result. This may require manually resetting the teeth to a greater depth, weighting the harrow, removing extension arms on either side of the main frame, a combination of the above, or other modifications. In lieu of harrowing, or if the harrow is not producing the desired result, re-disk the area until the condition of the seedbed is suitable for seeding. This entire operation shall be considered the **third disking** operation.
- E. After the third disking operation, and prior to seed application, firm the seedbed with a cultipacker or similar piece of equipment. Cultipacking shall continue until such time as a finely pulverized and firmly compacted seedbed is obtained and accepted by Engineer. The seedbed shall be cultipacked again following completion of seeding to ensure adequate seed-soil contact.
- F. Maintain the seedbed until seeded and mulched to provide a smooth area with no rills or eroded areas. Repair and restore prepared seedbed if it becomes eroded or otherwise disturbed.
- G. Throughout seedbed preparation activities, disking, harrowing and other operations may expose rocks, boulders, rubbish, debris, etc. During and/or upon completion of each disking and harrowing operation, and prior to continuing with the next operation, pick up all rocks, debris, rubbish, etc., remove or bury all boulders, and pick up all rocks that hinder seedbed preparation or will impede seeding the site or mechanical mowing of the reclaimed site. Dispose of rocks and boulders in locations as approved by Engineer. Dispose of debris, rubbish, etc. by burying on site or hauling to an approved landfill.
- H. Contractor shall not perform seedbed preparation when ground conditions are unsuitable due to excessive moisture, snow, frost, or frozen ground, as determined by Engineer or Division.

3.4 LIMING AND FERTILIZING

- A. Agricultural lime, nitrogen (N), phosphorus (P), and potassium (K) shall be applied to all areas to be seeded, and shall be incorporated by disking into the top three (3) inches of the prepared seedbed.
- B. Lime and fertilizer shall be incorporated separately or simultaneously, depending upon the timing of product delivery and application.
 - 1. **Lime:** The lime shall be applied and incorporated no less than one (1) week prior to seeding. Once applied, it shall be incorporated within a period of time which will avoid losses due to wind or rain.
 - 2. **Fertilizer:** The fertilizer must be applied and incorporated no more than one (1) week prior to seeding. Once applied, it too shall be incorporated within a period of time which will avoid losses

due to wind or rain.

3. If lime and/or fertilizer is applied but not yet incorporated, and Engineer or Division believes significant loss of lime and/or fertilizer has occurred due to bad weather, Engineer or Division may then require Contractor to reapply lime, fertilizer, or both, as applicable, at the rates and in the areas of the site so directed by Engineer and Division, at no additional cost to Division.
 4. Incorporation of lime and fertilizer, whether done separately or simultaneously, shall be considered the second disking operation (see Item 3.3 SEEDBED PREPARATION, D above). Once the lime and fertilizer have both been applied and incorporated, continue seedbed preparation as described in 3.3 SEEDBED PREPARATION.
- C. The application rate of agricultural limestone shall be based upon results of soil test conducted in Item 3.2 TESTING - FERTILITY in this SECTION. For bidding purposes, it is estimated that the rate provided on the plans or in the Supplemental Specification shall be applied.
- D. Nitrogen (N), Phosphorus (P) and Potassium (K) fertilizer shall be applied to permanent cover seeding at a rate determined by the results of the soil testing in Item 3.2 TESTING - FERTILITY, in this SECTION. For bidding purposes, the rates provided on the plans or in the Supplemental Specification shall be applied.

3.5 SEEDING

- A. All permanent seeding shall be completed within the seeding season dates shown below unless otherwise specified in the Supplemental Specifications or permitted by the Division.

Spring	April 1 - May 30
Fall	August 15 - September 15 ⁽¹⁾
Dormant	November 15 to Hard Frost ⁽²⁾

⁽¹⁾ Native Seed Mixes shall NOT be seeded during the Fall season

⁽²⁾ Dormant seeding for the permanent seeding mix may begin once observed soil temperatures are below 50 degrees Fahrenheit (50°F) for at least four (4) consecutive days

- B. If Contractor foresees that seeding cannot be completed within the specified seeding seasons, he shall submit a written request for a seeding date extension to Division. All seeding completed outside of approved seeding dates is at Contractor's risk. Any repairs and reseeded that becomes necessary as a result of work completed outside the approved dates shall be completed by Contractor at no cost to Division.
- C. General Requirements:
1. As weather and site conditions permit, within the specified seeding season, seed site areas as shown on the Plans and all other disturbed areas.
 2. When conditions are such that less than satisfactory results are likely to be obtained by reason of drought, excessive moisture, snow, or frozen soil, seeding work shall be halted and resumed only when conditions are favorable or when approved alternative or corrective measures and procedures have been affected.
 3. Proceed with seeding work as rapidly as portions of the site become available within seasonal limitations. In any event, seeding shall be accomplished before the prepared seedbed becomes eroded, crusted over, or dried out and shall not be conducted when the ground is frozen or snow covered. Should seeding not be accomplished prior to the prepared seedbed becoming eroded, crusted over, or dried out, or the ground becomes snow covered or frozen, Division shall require Contractor to rework the seedbed as necessary prior to seeding at no cost to Division.

4. Schedule permanent seeding such that mulching of seeded areas takes place no later than forty-eight (48) hours after seeding partial areas. The time period between seeding and mulching shall be shortened if it appears adverse weather conditions could either cause damage to the seeded area or delay the timely application of mulch. If, prior to mulching, the seeded area is damaged by adverse weather, or success of the seeding is in doubt due to Contractor's failure to apply mulch in a timely manner, the seedbed or the area so affected shall be re-prepared and the area reseeded, all at no cost to Division. Reapplication of lime, fertilizer, or both may also be required depending on Division's opinion of the severity of damage due to weather or, in the case of fertilizer, on the time lapse between initial fertilizer application and reseeding. Reapplication of lime and/or fertilizer, if required by Division, shall also be done at no cost to Division.

D. Seeding Placement:

1. Seed all areas to be seeded with the appropriate seed mix as shown on the Plans. Seed shall be applied at the rates provided in the Supplemental Specifications or in the plan sheets. Apply seed along the contour using a grassland or rangeland drill especially manufactured for native plant species. The machines shall be set for the specified seeding rates. The spacing of the rows shall not exceed six (6) inches. The drill shall be equipped with a depth band to limit the maximum depth of seed placement. Native seeding drills with double disc openers are preferable, but other configurations may be acceptable. The drill shall be designed to handle native seeds and be capable of seeding into existing live or dead vegetation, but the native seeding drill should not include no-till coulters. The seeding equipment shall be subject to inspection and acceptance by Engineer or Division. Drill seeding shall be accomplished with rows set no more than eight (8) inches apart. Overlap each successive seeding pass at least one (1) row width to ensure complete coverage. Upon a show of green, non-acidic bare areas will be reseeded at no additional cost to Division.
2. Embed the seed at a depth recommended for the species. Seeding depth for native seed mixes shall not be greater than one-fourth of one inch (1/4").
3. Broadcasting by centrifugal-type or hydroseeder broadcasters, or by hand may be allowed in areas inaccessible to drills or other equipment with Division approval. Where possible, the seed must be covered with soil to a depth recommended for the species.
4. Upon completion of the seeding operation, cultipack the seedbed to provide a positive seed-to-soil contact. If the drill seeder is equipped with an approved cultipacker or press wheels, separate operations shall not be necessary in these areas. All areas where seed is placed using a centrifugal type or hand seeding shall be cultipacked. The type of cultipacker/seeder to be used shall be subject to acceptance by Division.

E. Seed Mix Verification:

1. Each bag or package of seed mix shall include a tag or label affixed to it which or indicates the seed mix or species contained within it. Adhesive labels, where available, are preferable. If tags or labels are sewn onto the bags, the seam SHALL NOT obscure the printing. Information on the tag or label shall conform to the requirements of 1.4 A of this SECTION.
2. Neatly remove the tag or label from each bag Care shall be taken to avoid mutilating the tag or label during removal. Tags or labels shall not be "ripped" or torn from the bag or package. Tags or labels that become torn into shall be taped by contractor. Mutilated tags or labels shall not be acceptable.
3. Provide all tags or labels to the Engineer for verification that the specified seed mix with any approved substitutions was applied at the approved rates.

4. In the event Contractor cannot provide tags or labels in acceptable condition to the Engineer, Contractor shall provide a complete master mix tag from his supplier, which demonstrates the appropriate amount of pure live seed was shipped to the site. The master tag shall indicate the project name and show the information on it must conform to the requirement of 1.4 A of this SECTION.
5. Engineer shall perform the verification using the germination and purity information shown on the tags, labels or master tag provided by Contractor. After the applied seed mix is verified, Engineer shall provide all seed tags or labels to the Division.

3.6 MULCHING

- A. Conventional Seeding Mulch shall be applied immediately to all areas prior to native seeding area except for those areas receiving temporary seed mix, erosion control mat, or hydromulch.

3.7 MAINTENANCE

- A. Protection of Seeding:
 1. Vehicular traffic on areas seeded shall be restricted to travel necessary to establish seeding and other travel approved by Division.
- B. Reconditioning Existing Areas:
 1. Contractors equipment, project materials, and wastes such as oil drippings, stones, gravel, packaging containers, etc., shall be removed from the site or disposed of in a manner approved by Division.
 2. All disturbed areas outside the project limits, such as entrance and haul roads, shall be reconditioned and planted to the satisfaction of the Division.

3.8 MINIMUM REQUIREMENTS FOR ACCEPTANCE

- A. Ninety (90) days following evidence of plant growth or green-up, Division, Engineer, and Contractor shall inspect and evaluate the seeded areas for acceptance based on the criteria listed below.
- B. The plant growth shall provide a minimum of seventy-five (75%) cover over the seeded area. Areas failing to meet this cover density shall be interseeded or reseeded and mulched as required by Engineer and Division, at no cost to Division.
- C. A majority of native plants species included in the seed mixture should be present in the vegetation stand growing on site. Division acknowledges that some native species will not be observed for two to three growing seasons.
- D. Areas of suspected hot spots shall be soil tested by Engineer or Division to determine if the failure of the seeding to meet acceptance criteria is due to low pH conditions. Engineer and/or Division may require Contractor to lime, fertilize, seed, and mulch these areas. Any additional work required in confirmed hot spot areas shall be paid for by Division at the appropriate bid item cost for each work item.
- E. Following repair of defects, unaccepted areas, and reseeded of hot spot areas, the repaired areas will again be inspected ninety (90) days after evidence of plant growth or greenup. These areas shall be evaluated using the criteria listed in this Section.
- F. In the event that in either the original seeding, repair seeding, or reseeded of hot spots it is found that the work, materials, or seedbed preparation failed to meet the quality or application rates

specified, additional work shall be required at no cost to Division.

3.9 CONTRACT CLOSE OUT PROCEDURES

- A. Contractor and Division will visit the site and make note of any items remaining to be completed or repaired that will be included on a punch list developed by Division and provided to Contractor.
- B. Contractor shall notify Division when all punch list items are completed. Division will verify completeness and provide written notice to the Contractor of acceptance. If additional work still remains, Contractor will be notified and be required to perform additional work until such items are approved by Division.
- C. The Final Pay Application and Retainage Payment Application shall be prepared by Division and signed by all parties after completion of the punch list.
- D. Division will prepare official notice of completion, conditional upon greenup inspection to occur ninety (90) days after evidence of plant growth. The date of completion in this notice establishes the start date of the one (1) year guarantee period.
- E. Division will process the Final Pay Application and publish the Notice of Completion.
- F. Provided no claims are made against the retainage within a period of 30 days from the published date of the Notice of Completion, Division will process the Retainage Payment Application.
- G. The Contractor and Division shall jointly perform a site green up inspection as outlined in Paragraph 3.5 above. If any additional work is required based on this green up inspection, Contractor shall complete this work as soon as possible. A follow up green up inspection shall occur as jointly agreed up by Division and Contractor after all additional required work is completed. If Contractor refuses to complete any requested work at any time prior to Division's acceptance of established vegetation, Division will contact the Bonding Company.
- H. Final Project Acceptance will be provided in writing by Division to Contractor once green up inspection allows for acceptance of established vegetation as outlined in General Conditions- Document N, Section 5-10.

PART 4 - MEASUREMENT AND PAYMENT

4.1 PRO-RATA SHARE AND CALCULATION OF PAYMENT

The construction cost of all work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for the work items described below. The unit price for each of these several items shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work actually constructed, measured as described herein, shall constitute full payment to Contractor for performance of the work included in this SECTION.

4.2 WORK ITEM DESCRIPTION

Measurement and payment for each work item in this SECTION shall be in accordance with the following:

- A. *Agricultural Limestone, Seeding*: Contractor's unit price for agricultural limestone used in permanent seeding work shall represent full payment for the furnishing, delivery, and application per these specifications. The actual application rate will vary pending the recommendation of soil tests conducted in SECTION 02420. The cost for the incorporation of ag lime is incidental to *Seedbed Preparation* as discussed below. Measurement for payment purposes shall be the actual number of tons of effective calcium carbonate equivalence (ECCE) applied by Contractor in complying with

requirements of this SECTION. Weight tickets must accompany each shipment of agricultural lime and shall form the basis for measurement and payment.

- B. *Nitrogen (N), Phosphorous (P), and Potassium (K)*: Payment for all fertilizer furnished, delivered, and applied into the seedbed(s), per requirements of this SECTION, shall be made in accordance with Contractor's unit prices. The actual application rates for Phosphorous (P) and Potassium (K) will vary pending results of soil tests conducted SECTION 02420. The cost for the incorporation of the fertilizer materials is incidental to *Seedbed Preparation* as discussed below.

Measurement for payment purposes shall be the actual weight to the nearest pound of each of the fertilizer components described.

- C. *Seedbed Preparation*: Contractor's bid unit prices for seedbed preparation shall represent full payment for the preparation of specified areas for permanent seeding in accordance with requirements of this SECTION. Said unit price shall include the furnishing of all required, labor, fuel, equipment and any other necessities to perform rock pickup, tillage, and incorporation of ag lime and fertilizer materials as specified herein.
- D. *Seeding*: Contractor's unit prices for permanent seeding shall represent full payment for the planting of all permanent seeded areas in accordance with requirements of this SECTION. Said unit price shall include the furnishing of all seed materials, inoculants, and planting of seeds, including all required labor, equipment and any required reseeding to complete all permanent seeding as specified herein.

Measurement for payment purposes shall be the area seeded in acres, rounded to the nearest one-tenth (1/10) acre. The plan quantities will be used for payment in accordance with 7-01 MEASUREMENT (Document N). The Contractor can also provide field measurements to the Division to determine the number of acres seeded. Division will determine in acres, to the nearest one-tenth (1/10) acre, the actual area that seeding has been performed, based on Contractor's field measurements. Seeded areas outside the Project Limits will not be measured for payment. Payment for seeding shall be made only after all submittals have been approved as required under this SECTION.

In the event that the Contractor's cost of seed material increases ten percent (10%) or more from the time Contractor submitted the bid to the time the seed is purchased, the Division agrees to reimburse Contractor for the additional cost of the seed material provided Contractor requests the cost adjustment and demonstrates the cost difference. Differences in the seed cost shall be demonstrated as follows:

1. Contractor shall submit a request for a seed cost adjustment in writing on his company letterhead summarizing the cost difference, and
2. Contractor shall furnish a price quote from his seed supplier that is dated on or prior to the date Contractor's bid was received and opened by Division, and
3. Contractor shall furnish a current price quote from his seed supplier that is dated no more than seven days prior to Contractor's written request for a seed price adjustment, and
4. Both price quotes shall be mechanically printed and provided on seed supplier's letterhead, and
5. No text on either price quote shall show evidence of mutilation, smearing, overwriting, or other forms of tampering. In no event shall handwritten markings on price quotes be considered acceptable or valid.

If seeding is performed by Contractor's subcontractor, price quotes shall be provided by the subcontractor's seed supplier.

If Contractor requests a seed cost adjustment but is unable to provide the appropriate documentation as specified above, Division shall deny the seed cost adjustment request, and the Contractor's original unit price for seeding shall apply.

4.3 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
Seedbed Preparation	Acre
Permanent Seeding	Acre

END OF SECTION 02720