

**SAN ANTONIO WATER SYSTEM
SANITARY SEWER SYSTEM CONSTRUCTION
Addendum No. 1
To
Plans and Specifications
For
Helotes Creek Erosion Repairs
Solicitation No. B-10-043-CM
SAWS Sewer Job No. 08-4515**

To Bidder of Record:

This addendum, applicable to the work designed above, is an amendment to the bidding documents and as such shall be a part of and included in the Contract. The original contract documents and any prior addenda remain in full force except as modified by the following which shall take precedence over any contrary provisions in prior documents.

1. CLARIFICATIONS

Question: Cynthia, I am writing to inquire about adding a product as an approved alternate to item 521 "flexterra hydromulching" I am attaching a link below to the product information. It has been tested and approved by TXDOT under the same conditions as flexterra. This means it is also approved by the City of san Antonio specification 554. Please call me with any questions.

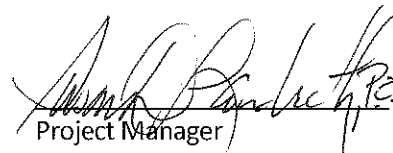
http://www.nagreen.com/assets/specification-sheets/HydraCX2_Supplemental.pdf

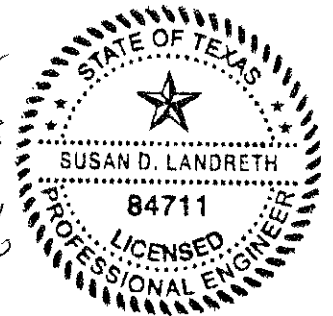
Answer: See attached amended Item 521 Hydromulching (Flexterra FGM)

Special Specification Item 540 – Temporary Erosion, Sedimentation and Water Pollution Prevention and Control is DELETED. Refer to City of San Antonio Standard Specification Item 540.

See attached amended Specification Item 541 and Specification Item 5160.

Each bidder is requested to acknowledge receipt of this Addendum No. 1 by his/her signature affixed hereto and to file same with and attached to his/her bid.


Project Manager
Vickrey & Associates, Inc.
9/13/10



_____ Date

_____ Signature of Bidder

END OF ADDENDUM

SPECIAL SPECIFICATION ITEM NO. 521

HYDROMULCHING

521.1 Description: *This item shall govern for preparing ground, providing for sowing of seeds, mulching with bonded fiber matrix seeding, and other management practices along and across such areas as are designated on the plans and in accordance with these specifications. All areas shall be covered with live grass before acceptance.*

521.2 Materials:

A. Seeds. All seed must meet the requirements of the Texas Seed Law including the labeling requirements for showing purity, germination, name and type of seed. Seed furnished shall be of the previous season's crop for the date of the project. Each variety of seed shall be furnished and delivered in separate bags or containers. A sample of each variety shall be furnished for analysis and testing when directed by the Engineer. The amount of seed planted per acre shall be of the type specified below and shall equal or exceed the following percentages for purity and germination or an equivalent amount of pure live seed.

- Common Name: Bermuda and Giant
Bermuda grass (hulled)
- Scientific Name: Cynodon Dactylon
- Purity: 95%
- Germination: 90%

Annual Rye grass will be free of Johnson grass, field bind weed, dodder seed, and free of other seed to the limits allowable under the Federal Seed Act and applicable State Seed Laws.

Annual Rye grass will be added into slurry between October 1 and March 15. No additional cost will be charged.

B. The bonded fiber matrix seeding requires no curing period and upon application forms an intimate bond with the soil surface to create a continuous, porous, absorbent and flexible erosion resistant blanket that allows for rapid germination and accelerated plant growth. Mulch fibers shall be free of abrasive or hard contaminants which would inhibit hydraulic pumping. The mulch fibers must maintain uniform suspension in water under agitation and shall blend with grass seed, fertilizer, and other additives to form homogeneous slurry. Upon application, the mulch material shall form a blotter-like mat covering the ground. This mat shall have the characteristics of water absorption and percolation and shall cover and bond grass seed in contact with the soil. The hydro mulch shall also conform to the following specifications:

1. Thermally Processed Wood Fibers 74.5% ± 3.5%

Addendum No. 1
Helotes Creek Erosion Repairs
Solicitation No. B-10-043-CM

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| 2. Proprietary Crosslinked Hydro-Colloid Tackifiers and Activators | 10% ± 1% |
| 3. Moisture Content | 10.5% ± 1.5% |

The hydromulch shall be packaged in units with a net weight of 50 lbs in a UV and weather resistant plastic film.

- C. Fertilizers.** Fertilizer shall have a chemical analysis of 15-15-15 with micronutrients and shall be water soluble (The figures in the analysis represent the percent of nitrogen, phosphoric acid and potash nutrients, respectively). Fifty percent or greater of the Nitrogen required shall be in the form of Nitrate Nitrogen (N03). The remaining Nitrogen required may be in the form urea Nitrogen (C0(NH2)2).

In the event it is necessary to substitute a fertilizer of a different analysis, it shall be a pelleted or granulated fertilizer with a lower concentration, but the total amount of nutrients furnished and applied per acre shall equal or exceed that specified for each nutrient.

The fertilizer shall be dry and in good physical condition. Fertilizer that is powdered or caked will be rejected.

- D. Tactifier and Binder.** Natural vegetable gum containing gelling and hardening agents that when mixed with water and properly cured, shall form an insoluble network.

- E. Water.** Shall be furnished by the contractor and shall be clean and free of substances harmful to the growth of vegetation.

- F. Herbicide.** Herbicide used shall be an easy to apply, effective in a short term, chemical agent to inhibit or destroy weed growth, while being harmless to seed and grass being implanted.

- G. Topsoil.** Topsoil shall conform to the provisions of Item 515, "Topsoil."

521.3 EQUIPMENT: Provide the machinery, tools and equipment necessary for proper prosecution of the work. All machinery, tools and equipment used shall be maintained in a satisfactory and workmanlike manner.

521.4 CONSTRUCTION:

- A. General.** Security of stored hydromulch materials will be the sole responsibility of the Contractor at no additional expense to the SAWS.

1. It is the contractor's responsibility to verify the location of all utility lines, electric cables, sprinkling systems and conduits so that the proper precautions must be taken not to disturb or damage any subsurface improvements. Should obstructions be found, the Contractor will promptly notify the Inspector. Any damage caused by the contractor shall be repaired by himself at no cost to the SAWS. Any such repairs shall be subject to approval by the Inspector.

Addendum No. 1
Helotes Creek Erosion Repairs
Solicitation No. B-10-043-CM

2. Contractor to submit manufacturer's product data and installation instructions. Include require substrate preparation, list of materials and application rate.
3. Manufacturer shall submit a letter of certification that the product meets or exceeds all physical property, endurance, performance and packaging requirements.
4. Deliver materials and products in UV and weather-resistant factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from damage, from weather, excessive temperatures and construction operations.

B. Preparation of Subsoil.

1. Inspect subsoil for the presence of objectionable materials, such as rocks (2 inches in diameter and larger), concrete waste, building debris, weeds, grass or other material that would be detrimental to the growth of grasses. Protect existing underground improvements from damage.
2. Cultivate to a depth of 3 inches in areas to receive hydromulch. If compaction is due to equipment, traffic or storage, cultivate to a depth of 6 inches, and apply herbicide as directed by manufacturer.
3. Remove any foreign or objectionable materials collected during cultivation.
4. Grade placement area to eliminate rough spots and low areas where ponding may occur. Assure positive drainage away from all buildings. Maintain smooth, uniform grades.
5. Hydromulch area and weed control shall consist of killing all weeds and maintaining a weed-free condition until completion of the project by applying herbicide as directed by the manufacturer.

C. Seeded Areas. The following construction sequences and procedures shall be observed:

1. The contractor shall notify the Inspector not less than 48 hours in advance of any seeding operation and shall not begin the work until areas prepared or designated for seeding have been approved.
2. Before placement of hydromulch, all areas shall be cultivated to a depth of 3 inches unless otherwise specified or ordered by the Engineer. Cultivation of the soil may be done by disc, spring tooth harrow, roto-tiler, or similar equipment. This operation shall be done at right angles to the natural flow of water on the slopes.
3. Strictly comply with Manufacturer's installation instructions and recommendations. Use approved hydro-spraying machines with fan-type nozzle (50-degree tip) whenever possible to achieve best soil coverage. Apply bonded fiber matrix seeding from opposing directions to assure 100% soil surface coverage.
4. The area shall then be rolled in two directions; the second shall be done at right angles to the first rolling.

Addendum No. 1
Helotes Creek Erosion Repairs
Solicitation No. B-10-043-CM

5. Rake the area to make it smooth and level. Add soil where necessary or as directed by the Inspector.
 6. Apply the fertilizer at the rate and mixture specified. The fertilizer shall be applied by an approved hand or mechanical method.
 7. Roll the area in one direction.
 8. Slurry to be sprayed evenly in two intersecting directions with a hydraulic seeder.
 9. Apply water as required to keep the mulch damp at all times throughout germination and initial growth period as determined by the Inspector.
 10. Upon completion, all excess material shall be removed and disposed of off the project site at contractor's expense.
- D. Slurry.** The slurry will be mixed and spread uniformly over the area at the following rate for both residential and commercial areas:
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| • Bonded fiber matrix seeding | 3,500 lb/acre |
| • Fertilizer | 400 lb/acre |
| • Bermuda | 1.5 lb/1,000 sq ft |
| • Annual Ryegrass (Oct. through March 15) | 20 lbs per 1,000 sq ft |
| • Water and binder shall be added according to manufacturer's recommendations. | |
- E. Mixing.** A mechanically agitated hydraulic application machine is recommended:
1. Fill tank to middle of agitator shaft or tank about 1/3 full of water. Turn on pump to wet or purge lines. Begin agitating. Keep adding water slowly while adding the bonded fiber matrix seeding at a steady rate.
 2. Consult application and loading charts to determine number of bags to be added. Contact Equipment manufacturer to confirm optimum mixing rates.
- F. Guarantee and Lawn Established Period.** The guarantee and lawn established period shall begin immediately after the completion of the planting and shall start with the Provisional Acceptance and end with the Final Acceptance.
1. **Provisional Acceptance.** Upon completion of hydromulching and written request of Contractor, the Inspector will inspect all the work for Provisional Acceptance.
 2. **Guarantee Period.** The guarantee period shall begin upon completion of the provisional acceptance. All plant materials shall be guaranteed by the Contractor for a period of thirty days (30) from the date of provisional acceptance, to be in good, healthy, and nourished condition. The exceptions are damages resulting from neglect by the property owner, abuse or damage by others, or unusual phenomena or incidents which are beyond the Contractor's control.

Addendum No. 1
Helotes Creek Erosion Repairs
Solicitation No. B-10-043-CM

During the lawn establishment period, it shall be the contractor's responsibility to ensure the continuing healthy growth. This care shall include labor, water and material necessary to keep the project in a presentable condition, including but not limit to removal of litter, mowing, trimming, removal of grass clippings, edging, fertilization, insecticide and fungicide applications, weed control, and repair and reseeding any and all damaged areas.

Water application shall be accomplished each week from March through October. An even application of one inch minimum of water shall be required over all lawn areas weekly. The rate and frequency of water application may be changed, as directed by the Inspector, depending on weather, and soil conditions.

3. **Replacement.** The Contractor shall replace, without cost to the SAWS, and as soon as weather conditions permit, all dead grassed areas not in a vigorous, thriving condition, as determined by the Inspector during and at the end of the guarantee period. Replacements shall be subject to all requirements stated in this specification. The Contractor shall make all necessary repairs to grades and grassed areas required because of grass replacement at no cost to the SAWS.
4. **Final Inspection and Acceptance.** At the end of the guarantee period and upon written request of the contractor, the Inspector will inspect all guaranteed work for final acceptance. The written request shall be submitted ten (10) days prior to the anticipated date of inspection.

Acceptance of hydromulching lawn as herein specified shall be based on a uniform stand of grass and a uniform grade at the time of final inspection. Area of two square feet or more that are bare or have a poor stand of grass and area not having a uniform grade for any cause before final inspection shall be regraded, rehydromulched and reseeded as specified at the Contractor's expense.

Upon completion by the Contractor of all repairs or renewals which may appear at that time to be necessary in the judgment of the Inspector, the final acceptance of the hydromulching will be issued.

521.5 MEASUREMENT: Measurement of acceptable "Hydromulching," complete in place, shall be made by the square yard and only for those areas designated on the plans, or for other areas directed by the Inspector. Fertilizers, seeds, herbicide and water will not be measured for payment.

521.6 PAYMENT: "Hydromulching," measured as provided above, will be paid for at the contract unit price bid per square yard, which price shall be full compensation for furnishing, hauling and placing all materials, for all fertilizer and water required and for all labor, tools, equipment and incidentals necessary to complete the work.

521.7 BID ITEM:

Item 521 - Hydromulching (Residential or Commercial) - per square yard

Addendum No. 1
Helotes Creek Erosion Repairs
Solicitation No. B-10-043-CM

SPECIAL SPECIFICATION ITEM NO. 541

STORMWATER FLOW MANAGEMENT

541.1 Description: This item shall govern for the management of stormwater flows during construction within the Helotes Creek banks. The Contractor and or their Subcontractor shall be responsible for the system which may include cofferdam, water diversion, fluid retention system or other system as may be appropriate to establish the work area within the Helotes Creek.

541.2 Procedure. The work area is within Helotes Creek or a flood prone area. The storm water flow management system shall be designed and submitted by the Contractor to the San Antonio Water System. Approval of the storm water flow management system by the San Antonio Water System and the Engineer shall be required prior to commencement of construction activities. The Contractor and/or their Subcontractor shall be responsible for installation, monitoring, maintenance and removal of the storm water flow management system. The Contractor and/or their Subcontractor shall field verify the project area conditions prior to installation of the system and protect the existing sanitary sewer main and water main. The project area shall be fully restored to original or plan condition upon removal of the storm water flow management system.

Current weather conditions have caused ponding in the project area. The Contractor and/or Subcontractor shall be responsible for dewatering the project area. Dewatering will need to be performed where applicable such that channel flows are not impacted. The Contractor shall be responsible for dewatering the project area as necessary during construction.

541.3 MEASUREMENT: Measurement for the work specified herein shall be by lump sum. Partial payment of the Lump Sum bid shall be in accordance with the following: When 50% of the project construction has been completed, inspected and accepted, then a partial payment of 50% of the line item shall be paid. The remaining portion of the line item shall be payable upon completion of work and removal of the system as specified.

541.4 BID ITEM:

Item 541 – Stormwater Flow Management – lump sum (L.S.)

Addendum No. 1
Helotes Creek Erosion Repairs
Solicitation No. B-10-043-CM

SPECIAL SPECIFICATION ITEM NO. 5160

SEEDING (RIPARIAN AND AQUATIC)

5160.1 Description. This item shall govern for the furnishing and seeding of acceptable Riparian and Aquatic Plants on the areas designated on the plans or as directed by the Engineer. All planting shall be completed as soon as practical to avoid erosion of topsoil and graded areas in advance of acceptance of the work.

5160.2 Materials. The presence of nut grass (*Cyperus rotundus*), Bermuda grass or other objectionable grass or weeds or other material, which might be detrimental to the development of turf, will be the cause for rejection. Seed furnished shall be of the previous season's crop of the project. Each variety of seed shall be furnished and delivered in separate bags or containers. A sample of each variety shall be furnished for analysis and testing if directed by the Engineer.

A. Seeding. All material provided shall comply with the Texas Seed Law including the labeling requirements for showing purity, germination, name and type of seed.

B. Fertilizer. A pelleted or granulated fertilizer shall be used with an analysis of 16-8-8. (The figures in the analysis represent the percent of nitrogen, phosphoric acid, and potash nutrients respectively.) At least 50% of the nitrogen component must be of a slow-release formulation such as urea-based and plastic resin-coated fertilizers. Ensure that fertilizer is in an acceptable condition for distribution in containers labeled with the analysis. Fertilizer is subject to testing by the Texas A&M Feed and Fertilizer Control Service in accordance with the Texas Fertilizer Law.

C. Water. Use water that is clean and free of industrial wastes and other substances harmful to the growth of vegetation.

5160.3 EQUIPMENT. Provide the machinery, tools and equipment necessary for proper prosecution of the work. All machinery, tools and equipment used shall be maintained in a satisfactory and workmanlike manner.

5160.4 CONSTRUCTION.

A. General. All seeding shall be of Riparian/Aquatic species as specified in Ord. No. 2006-11-30-1333, §2, 11-30-06 and shall be a Texas native plant. The Contractor shall submit labeling showing purity, germination, name and type of seed. The Contractor shall remove stones over 1" in any dimension and sticks, roots, rubbish and extraneous matter. The Contractor shall dampen dry soil prior to seeding.

Addendum No. 1
Helotes Creek Erosion Repairs
Solicitation No. B-10-043-CM

- B. Grading.** All designated areas shall be smoothed and shaped to conform to the cross-section provided. Any excess dirt from the operations shall be spread uniformly over adjacent areas or disposed of as directed by the Engineer so that the completed surfaces will present a smooth surface.
- C. Planting Season.** All planting shall be done between the average date of the last freeze in the spring and six weeks prior to the average date for the first freeze in the fall according to the U.S. Weather Bureau for the area.
- D. Seeding.** At locations shown on plans or where directed by the Engineer, seed shall be spread across the gabion mattresses. The fertilizer shall then be applied and thoroughly watered.
- E. Fertilizing.** The fertilizer shall be applied uniformly over the seeded areas and in the manner directed. The fertilizer shall be dry and in good physical condition. Fertilizer that is powdered or caked will be rejected. Distribution of fertilizer shall meet the approval of the Engineer. Unless otherwise indicated on the plans, fertilizer shall be applied uniformly at the average rate of 300 pounds per acre for all types of seed.
- F. Watering.** Seed and fertilizer shall be thoroughly watered immediately after spreading and subsequently at such intervals to promote growth or as directed by the Engineer. Initial watering should be used to wash any seeding or fertilizer through the gabion mattresses and to the soil underneath. Furnish and operate equipment to distribute water at a uniform and controllable rate. Ensure that watering does not erode soil or plantings. Apply water in the required quantity where shown on the plans or as directed by the Engineer.
- G. Sequence of Seed.** It is the intent of this specification that all seeding to be placed and watered twice a week, unless intervening rains make watering unnecessary. Watering shall be required to establish growth from planting until acceptance of the work. If the season is inappropriate, the Engineer may require that the seeding operations be advanced or retarded as may seem advisable.

5160.5 MEASUREMENT. Measurement of acceptable “Seeding,” complete in place, will be by the square yard. Fertilizer, mulch, and water will not be measured for payment.

5160.6 PAYMENT. “Seeding,” measured as provided above, will be paid for at the contract unit price bid per square yard, which price shall be full compensation for furnishing, hauling and placing all materials for all fertilizer and water required for all labor, tools, equipment and incidentals necessary to complete the work.

5160.7 BID ITEM.

Item 5160.1 Riparian/Aquatic Seeding – per square yard

5160.1-2