

PROPOSED WALKING TRAIL ~ PROFILE AT SEYMOUR ELEMENTARY SCHOOL #185 Hartford Avenue East Granby, Connecticut April 7, 2022

R. R. HILTBRAND ENGINEERS and SURVEYORS, LLC

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Site Description

The project site is the located at Seymour Elementary School, #185 Hartford Avenue (a.k.a. Conn. Rte. 189) in East Granby, Connecticut. The total area of the property is approximately 14.6 acres. The site consists mostly of grass meadow and wooded slope in which the lower wooded area is flood plain. The remainder of the property is developed area to include the Seymour Elementary School and the adjacent parking areas.

<u>Narrative</u>

The proposed project is to install a four (4) feet wide hiking trail used to educate students about nature, especially about native plant species as well as trees, shrubs, and wildlife. It will provide contiguous access the East Granby Land Trust Property through a small walking bridge, which is located across a small watercourse at the westerly limit of the Town of East Granby's property.

The trail will commence at the westerly limit of the grassed athletic field and will proceed into the existing wooded area, down the wooded slope and enter the wooded flood plain area at the toe of the embankment.

The proposed trail within the wooded flood plain area will either match existing grade or provide a small cut area. The cut volume provided by the proposed grading associated with the hiking trail grading will provide a net increase in flood storage volume of 110 cubic yards.

A grass-lined drainage swale is proposed at the top of the existing embankment to reduce the amount of run-off onto the proposed hiking trail, and to limit the amount of clearing and disturbance required to achieve the required access. In an effort to reduce erosion and maintain the integrity of the hiking trail we have specified the TrueGrid Permeable Paving System. The recycled plastic grid is installed on a compacted subgrade, staked in place to prevent movement, and filled with ¾-inch crushed stone. This will reduce the potential run-off during rain events, promote infiltration and groundwater recharge.

Sediment and Erosion Control sequencing and measures will be accomplished in three phases.

Phase I: Clearing of trees to provide access.

hase II: Installation of erosion and sedimentation control measures with

Phase III: Permanent site stabilization.

Erosion Control Goals:

Site-specific erosion and sedimentation control goals are to designed to prevent adversely impacting the existing wetlands/watercourses, the surrounding properties, the existing flood plain area located at the westerly portion of the property.

Design Criteria:

1. 2002 Connecticut Guidelines for Erosion and Sediment Control, Conn. DEP Bulletin 34.

Permits and Application Information:

a. Review/Approval from the Town of East Granby Inland Wetlands & Watercourses Commission.

Document and Support Information:

- a. Field topographic survey completed by Aeschliman Land Surveying, P.C. Registered Professional Land Surveyors.
- b. Civil-Site Engineering design prepared by R.R. Hiltbrand Engineers & Surveyors, L.L.C.

Conservation Practices:

- a. Keep land disturbances to a minimum to accommodate the proposed hiking
- trail construction.b. Preservation of existing surface drainage patterns.
- c. Direct runoff from disturbed areas to perimeter controls. Utilize undisturbed vegetated buffers to reduce the potential for concentrated flows and increase settling and filtering of sediments.
- d. Install erosion and sedimentation control measures as shown on the plan entitled, Proposed Walking Trail at Seymour Elementary School.
- e. Implement a maintenance program for inspection and repair/maintenance of erosion and sedimentation control measures (See E & S Control measures

Construction Sequence

Pre-Construction Tasks:

- 1. Call Before You Dig 1-800-922-4455.
- 2. Hold a pre-construction meeting with Contractor, Design Engineer, and the appropriate representatives from the Town of East Granby and the East Granby Land Trust to discuss project phasing, installation of erosion control measures, and maintenance.

Phase I:

- 1. Surveyor shall flag the limit of clearing as shown on the Site Plan
- 2. Install perimeter erosion and sedimentation control measures as shown on
- Notify representative from the Town of East Granby for site review prior to further construction.

Phase II:

- 1. Remove trees, stump, and grub areas as required.
- 2. Strip topsoil in areas where grading is required.
- 3. Stabilize areas immediately upon completion of grading (See Note #3 within Phase III below).
- 4. Install the hiking trail as shown on the Site Plan.
- 5. Grade embankments as shown on Site Plan.
- 6. Install waterbars/rip-rap outfalls at designated areas.

Phase III:

- 1. Grade, loam, seed, and mulch embankments in each area of the hiking trail completed to minimize potential erosion. (See Site Plan for mulching requirements, which vary throughout the site).
- 2. Grade, loam, seed, and mulch the remainder of the embankments for final stabilization.
- 3. Maintain all erosion & sedimentation control measures until the site is stabilized with a permanent vegetative cover.
- 4. Add erosion & sedimentation control measures per the Design Engineer and/or the Town of Granby staff.
- 5. Remove erosion controls upon final stabilization.

NOTE: DETAILS FOR EROSION & SEDIMENTATION CONTROL MEASURES ARE LOCATED IN THIS PLAN SET.

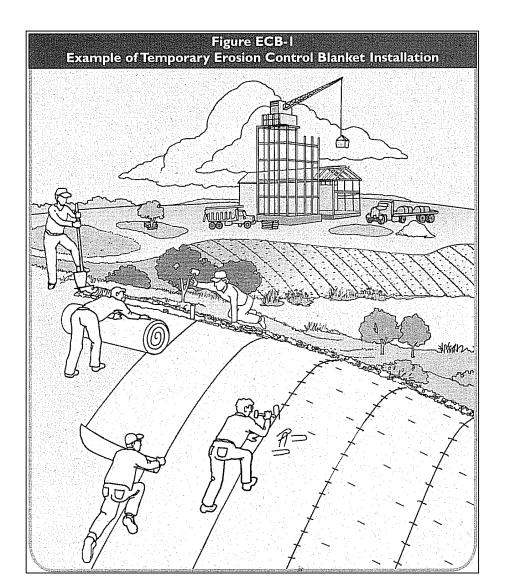
Recommended inspection and maintenance of the erosion & sedimentation control measures shall be as follows:

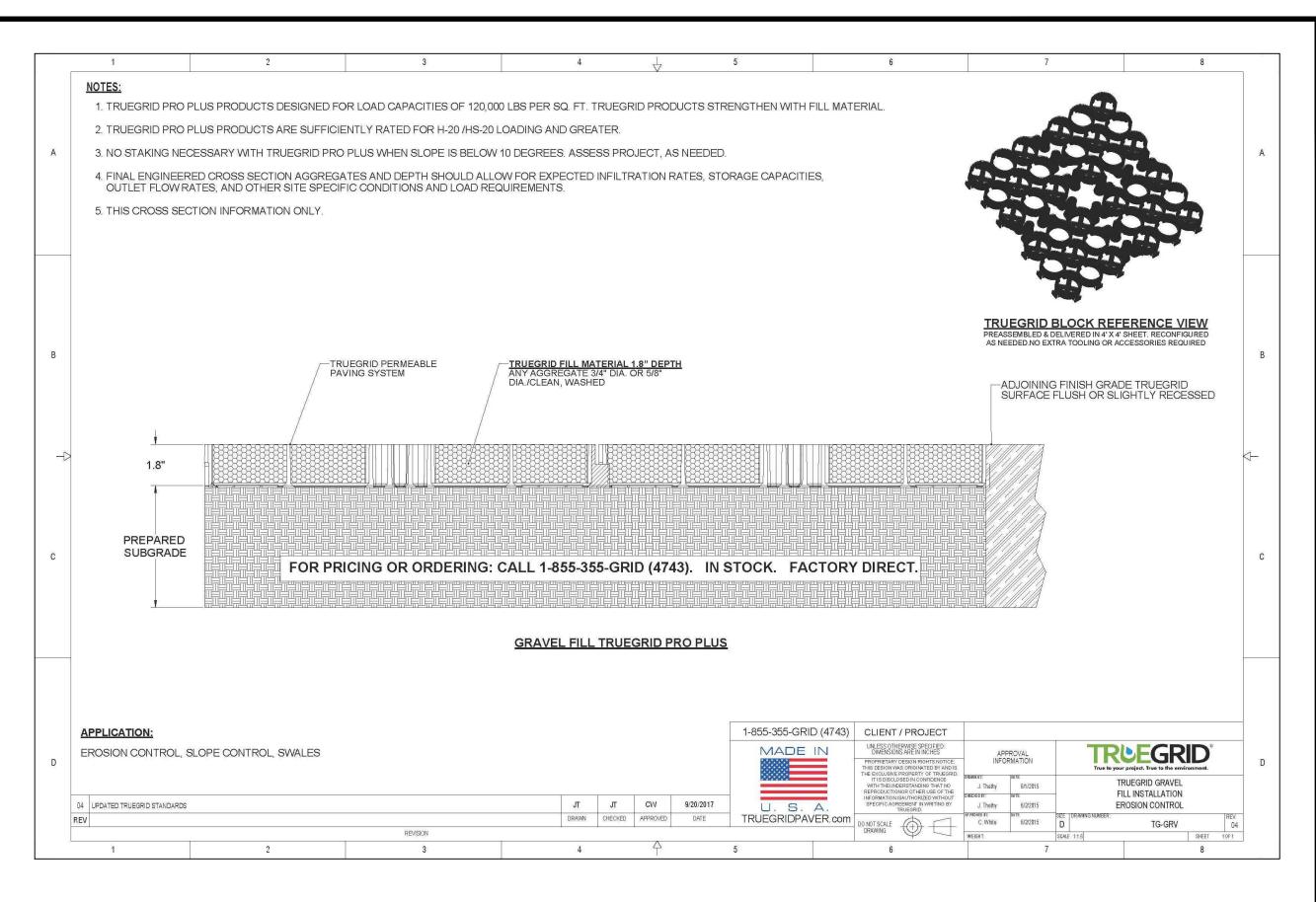
- 1. Inspect daily and within 24 hours of a major storm event (0.5 inch of rainfall or greater).
- 2. Remove accumulated sediment if it interferes with the functioning of the erosion & sedimentation control measures.
- 3. Contractor shall install additional erosion & sedimentation controls as required by the Town of East Granby staff and/or the Design Engineer.

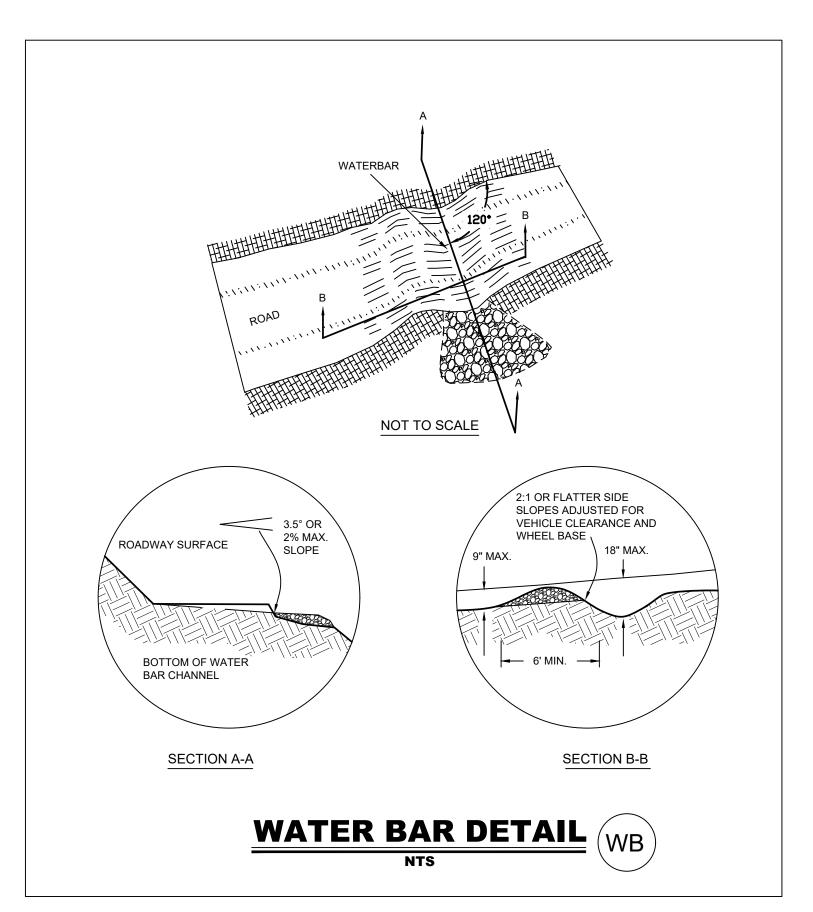
NORTH AMERICAN GREEN S-75 ERDSIDN CONTROL MAT 1 FOOT 3.0 FEET 3.1 SLOPE 3.1 SLOPE 3.1 SLOPE 3.1 SLOPE 3.2 SLOPE 3.3 SLOPE 3.4 SLOPE 3.5 STABILIZE CHANNEL IN ACCORDANCE WITH PERMANENT SEEDING METHODS CROWN VETCH (WITH INNOCULANT) 0.75 lbs/1000 S.F. 1.25 lbs/1000 S.F.

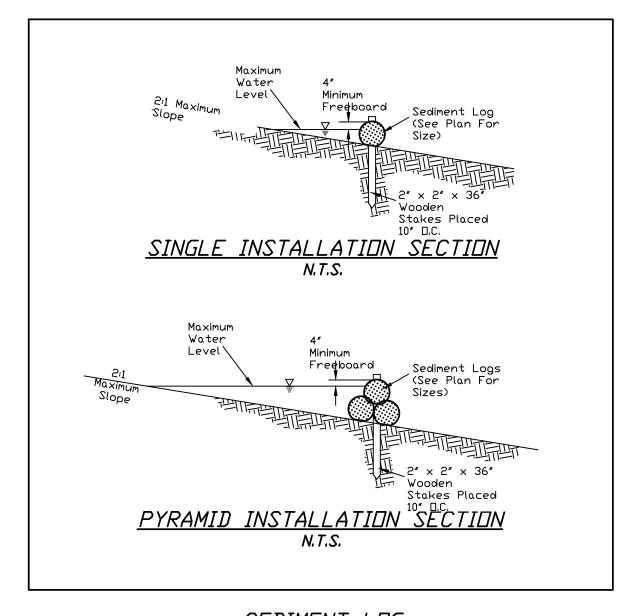
PERMANENT LINED GRASS CHANNEL

N.T.S.

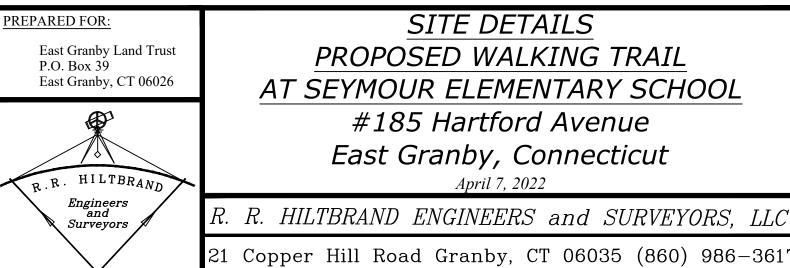








SEDIMENT LOG N.T.S.



DESIGN REFERENCE:

SEDIMENT & EROSION CONTROL BASED ON 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL D.E.P. BULLETIN 34 BY THE

CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION

Erosion & Sediment Controls and Stabilization Practices

a. Temporary seeding. b. Mulching. c. Stone Rip-rap.

Off Site Vehicle Tracking

Stabilized construction entrances will be installed at all proposed entrances. Installation, Maintenance and Inspection Procedures of Erosion & Sediment Controls

These are the general inspection and maintenance practices that will be used to

A. General-

implement the plan.

- The smallest practical portion of the site will be denuded at one time

 All erosion control measures will be inspected at least once a week and following storm event of 0.25 inches or greater:

- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of the report.

- A maintenance inspection report will be made after each inspection.

- The contractor's site superintendent will be responsible for inspections, maintenanc D. Temporary Grass Coverand repair activities, and completing the inspection and maintenance report.

R.R. Hiltbrand Engineers & Surveyors shall inspect the site on a periodic basis to assure compliance with the plani

B. Filters -

1. Straw/ hav bales

a. Sheet Flow Applications

1. Bales shall be placed in a single row , lengthwise on the contour, with the ends of the adjacent bales tightly abutting one another.

2. All bales shall be either wire bound or string tied. Bales shall be installed so that the bindings are oriented around the sides rather than along the tops and bottoms of the bales to prevent deterioration

3. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a Temporary seedings shall be periodically inspected. At a minimum, 95% of the minimum depth of (4) inches. After the bales are staked and chinked, the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built-up to (4) inches against the uphill side of the barrier. Ideally, bales should be placed ten (10) feet away from the toe of slope.

4. Each bale shall be securely anchored by at least two (2) stakes or rebar. Permanent Grass Cover driven through the bale. The first stake in each bale shall be driven toward the previously loid bala to force the bale shall be driven toward the previously loid bala to force the bale shall be driven. toward the previously laid bale to force the bales together. Stakes and rebars shall be driven deep enough into the ground to securely anchor

5. The gaps between bales shall be chinked (filled by wedging) with straw/hay to prevent water from escaping between the bales.

a. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or Redtop (Streeker, Common) éthylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements.

Physical Property Test Requirements

Filtering Efficiency ASTM 5.41 75% minimum

Grab Tensile Strength ASTM D4632 100lbs. Elongation & Failure ASTM D4632 15%

Puncture Strength ASTM 4833 50 lbs.

Flow Rate ASTM D4491 0.2gal./ft2/min.

Ultra-Violet Radiation Stability % ASTM D4355 70% after 500 hours of exposure

b. The height of a silt fence shall not exceed thirty (30) inches above grade.

d. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location and driven securely into the ground (min. of 12 inches).

e. A trench shall be excavated approximately six (6) inches wide and six (6) inches deep along the line of posts and upslope from the barrier.

f. When 'standard strength' filter fabric is used, a wire mesh support fence shall be $ar{\ }$ fastened securely to the upslope side of the posts using heavy duty wire staples at least one inch long, tie wires or hog rings. The wire shall extend no more than 30 inches above the original ground surface.

g. The 'standard strength' filter fabric shall be stapled or wired to the fence, and 1. Specifications eight (8) inches of the fabric shall be extended into the trench. The fabric shall nŏt extend more than 30 inches above the original ground surface.

h. When 'extra strength' filter fabric and closer post spacing are used, the wire b. Aggregate thickness: Not less than six (6) inches. mesh support fence may be eliminated. In such a case the filter fabric is stapled or wired directly to the posts with all other provisions of item 'g' applying.

i. The trench shall be backfilled and the soil compacted over the filter fabric.

j. Silt fences shall be removed when they have served their useful purpose, but not before the upslope areas have been permanently stabilized.

Sequence of Installation

Sediment barriers shall be installed prior to any soil disturbance of the contributing

drainage area above them. Maintenance

a. Straw/ hay bale barrier and silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the ends, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.

b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.

c. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately (1/3) the height of the barrier.

d. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared

C. Mulching

1 Timing

n order for mulch to be effective, it must be in place prior to major storm events here are two (2) types of standards which shall be used to assure this.

a. Apply mulch prior to any storm event.

During construction, sheet runoff from the site will be filtered through hay bale barriethsisated applicable when working within 100 feet of wetlands. It will be silt fences. All storm drain inlets shall be provided with barrier filters. Stone rip-rap stated as the outlets of drainage pipe in which erosive velocities are encountered. National Weather Service in Massachusetts (508- 822- 0634), to have adequate warning of significant storms.

b. Required mulching within a specified time period.

The time period can range from 14 to 21 days of inactivity on an area, the length of time varying with site conditions. Professional judgment shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time

2. Guidelines for winter mulch application.

additional mulch shall be immediately applied.

anyWhen mulch is applied to provide protection over winter (past the growing season) it shall be at a rate of 6000 lb. of hay or straw per acre. A tackifier may be added to the mulch.

. Maintenance

1. Seedbed Preparation

Apply fertilizer_at the rate of 300 lb, / acre of 10-10-10. Apply limestone (équivalent to 50% calcium plus magnesium oxide) at a rate of (1) tons/ acre.

a. Utilize annual rye grass at a rate of 40 lb./ acre.

b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed

c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

soil surface shall be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

Apply fertilizer at the rate of 300 lb. / acre of 10-10-10. Apply limestone

(équivalent to 50% calcium plus magnesium oxide) at a rate o'f' (1) tons/ acre. Sq. Ft. a. Utilize Creeping Red Fescue (Pennlawn, Wintergreen)

Tall Fescue (Kentucky 31 or Smooth Bromegrass (Saratoga, Lincolb)

b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.

c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

F. Storm Drain Inlet Protection

1. Straw Bale Inlet Structure

a. Bales shall be either wire bound or string tied with the bindings oriented around the sides rather than over and under the bales.

c. The filter fabric shall be purchased in a continuous roll cut to the length of the b. Bales shall be placed lengthwise in a single row surrounding the inlet, with the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be ends of adjacent bales pressed together.

spliced together only at the support posts, with a min. six (6) inch overlap, and

c. The filter barrier shall be entrenched and backfilled. A trench shall be excavated around the inlet the width of a bale to a minimum depth of four (4) inches. After the bales are staked, the excavated soil shall be backfilled and compacted against the filter barrier.

d. Each bale shall be securely anchored and held in place by at least two (2) stakes or rebars driven through the bale.

e. Loose straw shall be wedged between bales to prevent water from entering

F. Stabilized Construction Entrance

a. Aggregate Size: Use two (2) inch stone. (Gradation Shall Be D.D.T. No. 3)

c. Width: Ten (10) foot minimum, but not less than the full width of points where ingress or egress occurs.

d. Length: As required, but not less than one hundred (50) feet.

e. Geotextile: To be placed over the entire area to be covered with aggregate. Piping of surface water under entrance(s) shall be provided as reguired.

. Criteria for Geotextile: The fabrics shall be Trevia Spunbound 1135, 6000x, or equal.

2. Maintenance

The entrance(s) shall be maintained in a condition which will prevent tracking of sediment onto the public right-of-way. When washing is required, it shall be completed on an area stabilized with aggregate which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditchės or waterways.

Timing of Controls/ Measures

As indicated in the sequence of Major Activities the hay bales and silt fences shall be installed prior to commencing any clearing, demolition or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Area(s) where construction activity temporarily ceases for more than twenty one (21) days will be stabilized with a temporary seed and mulch within fourteen (14) days of the last disturbance. Dnce construction activity ceases permanently in an area, silt fencés and hay bale barriers will be removed once permanént measures are established.

Waste Disposal

A. Waste Materials

All waste materials will be collected and stored in securely lidded receptacles. All trash and construction debris from the site will be deposited into a dumpster. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal by the superintendent.

B. Hazardous Waste

All hazardous waste materials will be disposed of in the manner specified by local or state regulation or by the manufacturer. Site personnel will be instructed in the practices by the superintendent.

C. Sanitary Waste

All sanitary waste will be collected from the portable units a minimum of once per week by a licensed sanitary waste management contractor.

Spill Prevention

A. Material Management Practices

The following are the materials management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances during construction to storm water runoff:

Good Housekeeping:

construction project:

The following good housekeeping practices will be followed on site during the

-An effort will be made to store only sufficient amounts of products to do the job. -All materials stored on site will be stored in a neat, orderly manner in their proper (original if possible) containers and, if possible, under a roof or other enclosure. -Manufacturer's recommendations for proper use and disposal will be followed.

-Substances will not be mixed with one another unless recommended by the manufacturer.

-When ever possible all of a product will be used up before disposing of the

-The site superintendent will inspect daily to ensure proper use and disposal of

Hazardous Products:

products:

The following practices will be used to reduce the risks associated with hazardous

-Products will be kept in their original containers unless they are not re-sealable -Driginal labels and product safety data will be retained for important product

-Surplus product that must be disposed of will be discarded according to the manufacturer's recommended methods of disposal.

B. Product Specific Practices

The following product specific practices will be followed on site: Petroleum Products:

All on site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt based substances used on site will be applied according to the manufacturer's recommendations.

Fertilizers:

Fertilizers used will be applied only in the minimum amounts directed by the specifications. Ince applied, fertilizer will be worked into the soil to limit exposure to storm water Storage will be in a covered shed or enclosed trailers. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills. Paints

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be disposed of properly according to manufacturer's instructions or state and local regulations.

Concrete Trucks: Concrete trucks will discharge and wash out surplus concrete or drum wash water in a contained area on site...

C. Spill Control Practices

In addition to good housekeeping and material management practices discussed in the previous section the following practices will be followed for spill prevention and

-Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.

-Materials and equipment necessary for spill cleanup will be kept in the material storage area on site. Equipment and materials will include but not limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust and plastic or metal trash containers specifically for this purpose.

-All spills will be cleaned up immediately after discovery.

-The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent in jury from contact with a hazardous substance. -Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size.

-The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to cleanup the spill if it recurs. A description of the spill, its cause, and the cleanup measures will be included.

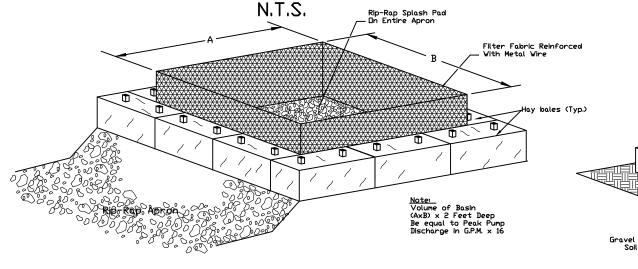
-The site superintendent responsible for day to day operations will be the spill prevention and cleanup coordinator.

The General Contractor(s) and/or Project Dwner(s) are assigned the responsibility for implementing this erosion and sediment control plan. This responsibility includes the installation and maintenance of control measures, informing all parties engaged on the construction site of the requirements and objectives of the plan, notifying the Planning and Zoning office of any transfer of this responsibility, and for conveying a copy of the Sediment & Erosion Control Plan if the title to the land is transferred.

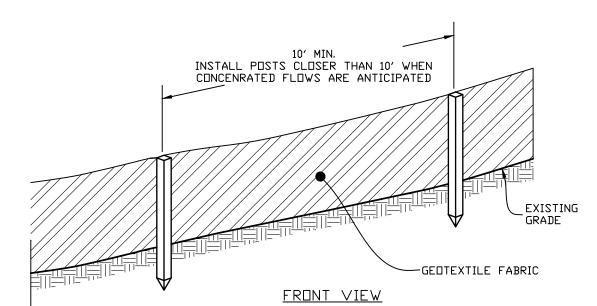
Contingency Erosion Plan Should unforeseen erosion or sedimentation problems arise, the design engineer of record. (R.R. Hiltbrand Engineers & Surveyors) and the local enforcement agent shall be notified immediately. An inspection of the affected area(s) shall be promptly performed. A remedial action plan shall be formulated with the local enforcement agent's approval. The site contractor shall then implement the recommended course of action which has been determined by both the

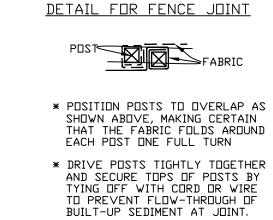
TEMPORARY SEDIMENT BASIN FOR **DEWATERING DISCHARGE**

engineer and local enforcement agent



HAYBALE INLET PROTECTION Gravel or Compacted





SILT FENCE

INSTALL SUB-BASE OF FREE DRAINING BACKFILL OR ROAD STABILIZATION GEDTEXTILE AS NECESSARY ON UNSUITABLE SOILS. STRIPPED GROUNDLINE _(REMO∨E TOPSOIL AND CRUSHED STONE ENTRANCE; ORGANICS PRIOR TO GRADATION SHALL BE D.O.T. NO. 3 CRUSHED STONE PLACEMENT **CONSTRUCTION ENTRANCE n.t.s.**

1. THE GEDTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES, OF THE '2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL' SUPPORTING POST AT LEAST 42" LONG, 1.5" SQUARE HARDWOOD STAKE> OR STEEL POST MAX. FENCE HEIGHT 30" BACKFILLED AREA TO REMAIN -UNDISTURBED DOWN

2. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 30 INCHES ABOVE GRADE 3. POSTS SHALL BE SPACED A MAXIMUM OF (10) FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MIN. 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL BE AS THE MANUFACTURER 4. A TRENCH SHALL BE EXCAVATED APPROX.. (6) INCHES WIDE BY (6) INCHES DEEP ALONG THE LINE OF THE POSTS AND UPSLOPE FROM THE BARRIER IN ACCORDANCE WITH RECOMMENDATIONS. 5. THE FABRIC SHALL NOT EXTEND MORE THAN (30) INCHES ABOVE THE ORIGINAL GROUND SURFACE, AND WILL EXTEND A MINIMUM OF (8) INCHES INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. THE TRENCH SHALL BE BACKFILLED AND SOIL COMPACTED OVER THE FILTER FABRIC. FILTER BARRIERS SHALL BE REMOVED WHEN THE HAVE SERVED THEIR USEFUL PURPOSE. BUT NOT BEFORE THE UPHILL SURFACE HAS BEEN PERMANENTLY STABILIZED. 8. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL, AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

SIDE VIEW

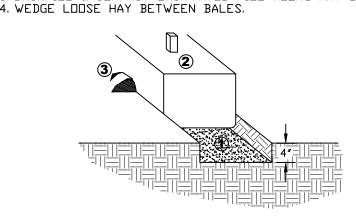
9. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. 10. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. 11. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED, SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND

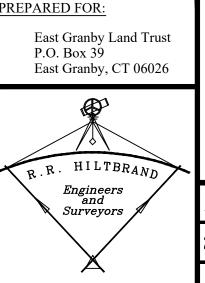
PLACEMENT and CONSTRUCTION

N.T.S.

OF HAY BALE BARRIER

1. EXCAVATE TRENCH 4" AND PLACE FILL UP-SLOPE OF TRENCH. PLACE HAYBALE & STAKE FIRST STAKE AT ANGLE TOWARDS 2. FIRST HAYBALE, STAKES ARE 18" MIN. INTO GROUND. 3. BACKFILL & COMPACT EXCAVATED FILL ALONG HAY BALE.





EROSION & SEDIMENTATION CONTROL DETAILS SHEET PROPOSED WALKING TRAIL AT SEYMOUR ELEMENTARY SCHOOL #185 Hartford Avenue East Granby, Connecticut April 7, 2022

R. HILTBRAND ENGINEERS and SURVEYORS, LLC

21 Copper Hill Road Granby, CT 06035 (860) 986-361