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Consultants

Legend

- WETLAND FLAG
- SHRUB WETLAND
- EXISTING MONITORING WELL
- EXISTING PIEZOMETER
- FORESTED WETLAND
- RIVERBANK (100')
- RIVERBANK (200')
- PERIMETER WETLAND (50')
- WET MEADOW
- PROPOSED WELL
- PRODUCTION WELL
- 2 1/2 INCH OBSERVATION WELL
- 1 INCH OBSERVATION WELL
- PIEZOMETER
- STREAM GAUGE
- AMPHIBIAN BREEDING POOL
- WETLAND MONITORING PLOT
- DRIFT FENCE
- ANTICIPATED AVERAGE AUGUST DRAW DOWN CONTOUR WITH CONTINUOUS PUMPING
- HAYSTACK/SILT FENCE/LIMIT OF DISTURBANCE
- LIMIT OF DISTURBANCE
- 200' RADIUS LINE

Notes

1. WETLAND BOUNDARIES DELINEATED BY STANTEC IN JUNE OF 2009.
2. WETLAND BOUNDARY FLAGS WERE LOCATED USING A TRIMBLE PRO SERIES GPS RECEIVER. EXPECTED ACCURACY IS WITHIN 1 TO 2 METERS.
3. STREAMS/RIVERS, APPROX. WET. BOUNDARIES AND ASSESSOR'S MAP PARCEL BOUNDARIES OBTAINED FROM RHODE ISLAND GIS DATABASE.
4. GRADING WILL BE REQUIRED TO BRING THE WELL ABOVE THE 100 YEAR FLOODPLAIN ELEVATION.

Revision	By	Appd.	YY.MM.DD
SITE DESIGN REVISION	jj	jj	2010.06.17
SITE DESIGN REVISION	jj	jj	2010.04.07
Revision	By	Appd.	YY.MM.DD
Issued	By	Appd.	YY.MM.DD

File Name: 11698C1-C3.dwg v.b.p d.h d.h 2010.07.06  
Dwn. Chkd. Dsgn. YY.MM.DD

Permit-Seal

JEFFREY A. FAULKNER  
No. 9072  
REGISTERED PROFESSIONAL ENGINEER  
CIVIL

Client/Project  
**HARRISVILLE FIRE DISTRICT**  
Well 7 Site Development  
Map 142, Lot 111  
35 Round Top Road  
Harrisville, Rhode Island

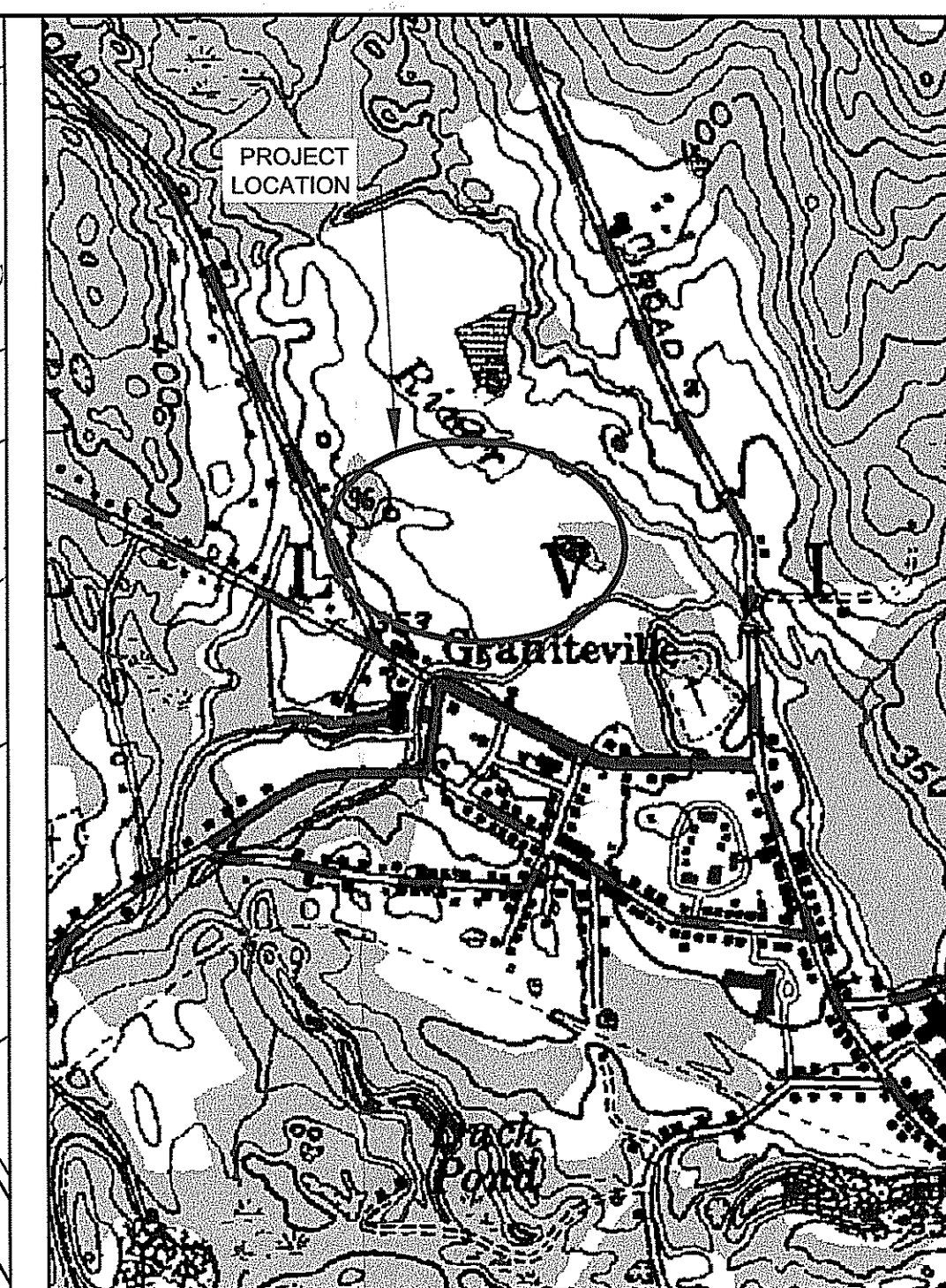
Environmental Management  
Aug - 2 2011  
Office of Water Resources

Title  
**WELL No. 7 SITE PLAN**  
TEMPORARY INTERMEDIATE  
DRAWDOWN CONDITION

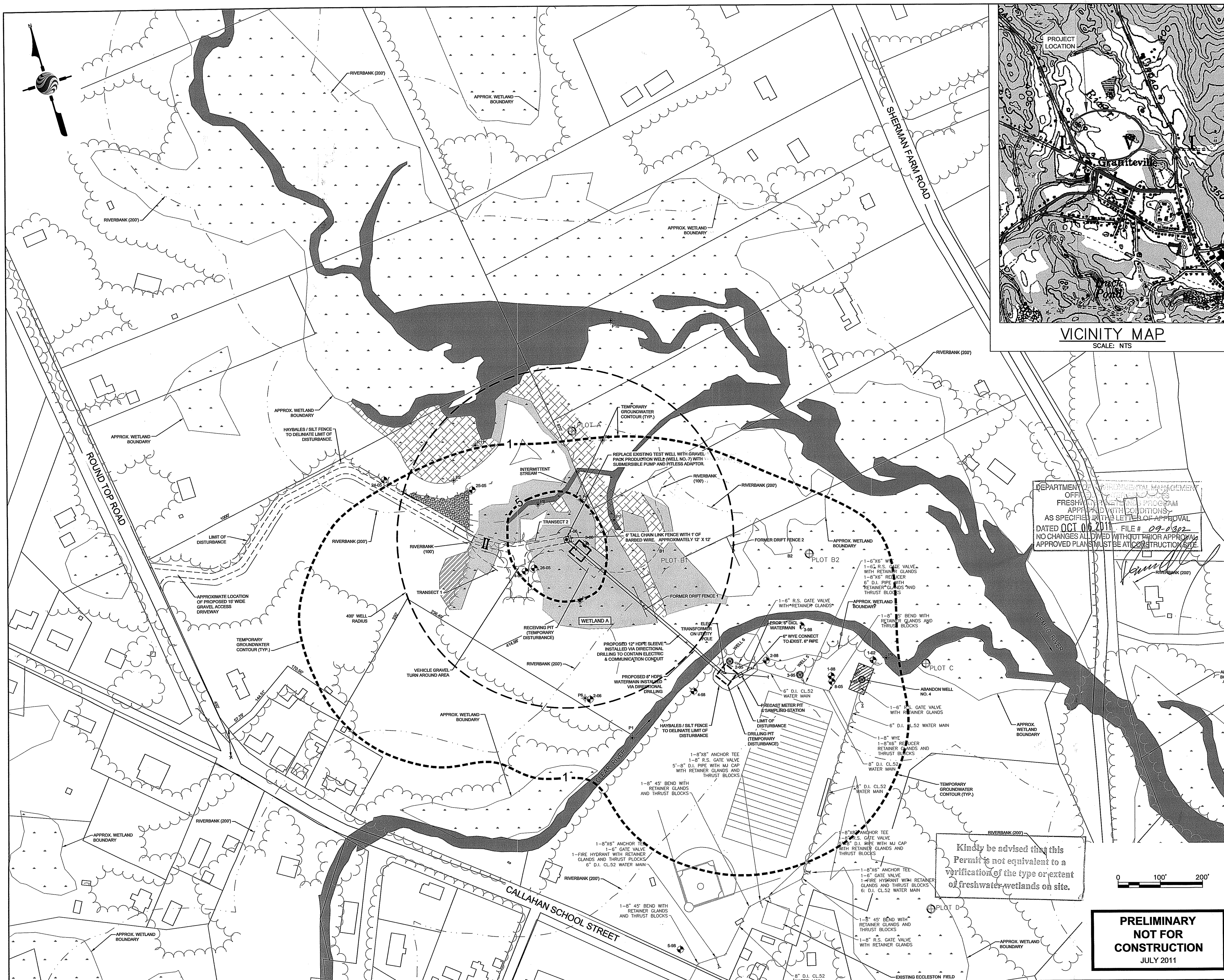
Project No.	Scale	
19511698	1" = 100'	
Drawing No.	Sheet	Revision

C1

1 of 4



VICINITY MAP  
SCALE: NTS



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 06 2011 FILE # 09-0302  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SIZE

Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

**PRELIMINARY**  
**NOT FOR**  
**CONSTRUCTION**  
JULY 2011

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**GENERAL NOTES AND SPECIFICATIONS FOR EROSION CONTROL**

- The contractor is responsible for water control during all phases of construction. No work shall be permitted in flowing water. Streams shall be temporarily dammed by use of sand bags or other suitable means. The diversion shall be accomplished by temporary culverts or by pumping. All diverted water shall be discharged to stone fill or other suitable energy dissipater surrounded by silt fence and hay bale dikes.
- This plan is to be used as a guideline only. Additional staked hay bales & silt fence, stone check dams, or other measures may be dictated by field conditions.
- The Contractor is responsible for complying with all local, state, and federal regulations.
- General Construction Sequence**
  - Delineate limits of disturbance with continuous construction fence or flagging.
  - Erect staked haybales and silt fence and/or stone check dams as shown on the plan and as may be further required in the field.
  - Install stone stabilized construction entrance at any point where traffic will be entering or leaving the construction site to or from a public right-of-way, street, alley, sidewalk, or parking area.
  - Stabilize work and staging areas as needed. Erect additional erosion control measures as required.
  - Install staked haybales and silt fence at down gradient limit of clearing. Clear and grub, disposing material at an on-site upland location.
  - Install reinforced silt fence or two rows of silt fence within 100 feet of all wetland or river front areas prior to disturbing soils.
  - Construct gravel access road and vehicle gravel turn around area.
  - Replace existing test well with new gravel pack production well and install chain link fence.
  - Install haybales and reinforced silt fence around receiving and drilling pit.
  - Excavate receiving and drilling pits and install proposed 12" HDPE sleeve and 8" HDPE sleeve beneath Wetland A and Clear River.
  - Construct precast meter pit & sampling station and install new 6" water line to connect to existing 6" water main.

- The receiving pit in Wetland A (north of the Clear River and south of the Nipmuc River) must be restored to existing grade and condition upon completion of work. The top 1" of soil must be excavated and temporarily stockpiled separately from all subsoil. The top 1" of soil and the subsoil must be placed separately on fabric and protected during construction.
  - Backfill of the receiving pit in Wetland A shall be accomplished by first replacing the subsoil to within 1" of the surrounding (undisturbed) soil surface. The protected 1" of topsoil shall then be placed over the pit to restore the area to pre-construction grade. The topsoil shall not be compacted.
  - Seed and mulch the surface of the receiving pit according to the Temporary Seed Mixture part of these specifications.
  - Mulch netting shall be applied per the manufacturer's specifications to the surface of the restored receiving pit.
- Install new utility pole and install electrical transformer and associated electrical services.
  - Backfill trenches daily, Patch pavement in a timely manner (weekly basis). Establish permanent cover in cross country areas by seeding and mulching, using erosion control blankets.
  - Stabilize and renovate all disturbed areas.
  - Establish permanent vegetation upon completion of final grading.
  - Remove stone check dams, staked haybales and silt fence, stabilized construction entrance and any other temporary erosion prevention and sediment control devices upon establishment of permanent stabilization.

- Temporary Stabilization:**  
All disturbed areas shall have temporary or permanent stabilization within 14 days of initial disturbance. After this time any disturbance shall be stabilized by the end of the day, with the following exceptions:
  - Stabilization is not required if work is to continue in the area in the next 24 hours and there is no precipitation forecast for the next 24 hours.
  - Stabilization is not required if the work is in a self-contained excavation with a depth of 2 feet or more.

- Temporary Stabilization Measures:**
- Hay or straw mulch with a thickness of at least 2 inches.
  - Soil tracking with tracked equipment. Should be limited to small areas with slopes less than 100 feet long (less than 50 feet with slopes steeper than 3:1)
  - A combination of the above.
  - Erosion control matting.
- Materials**
    - Mulch material: Select mulch material for erosion control that will best meet the site conditions from the following:
      - Straw - Shall be dry, and shall come from wheat or oats, free from weeds, twigs, and debris. Shall be free of rot, mold and weed seeds. Straw can be used on disturbed areas that will not be reworked for 7 to 30 days.
      - Hay - Shall be dry, and shall consist of mowed and properly cured grass or legume mowings, free from weeds, twigs, and debris. Shall be free of rot, mold and weed seeds. Hay can be used on disturbed areas that will not be reworked for 7 to 30 days.
      - Wood Chips - Shall be dry, free of soil and other foreign material.
      - Rolled Erosion Control Products (RECP) - Shall be dry, and shall be made of straw or hay, coconut and related fibers, wood excelsior, jute, polypropylene, nylon, or an approved combination of different materials.
    - Hay Bales: Securely tied baled hay at least 14 inches by 18 inches meeting requirements listed in 6.A.2 above.
    - Mulch Anchoring: When mulch must be held in place, the following mulch anchoring material shall be used:
      - Mulch Netting (Paper, twine, plastic, or plastic and wood fiber).
    - Fertilizer: Complete fertilizer 10-20-20 (Standard Product) - Class A  
10-10-10 (Standard Product) - Class B
    - Lime: Ground limestone containing not less than 95% total carbonates (calcium or magnesium).
    - Temporary Seed Mixture: (Not for wetland restoration) When it is impractical to establish permanent protective vegetation on disturbed earth by October 15, use "Conservation Mix" or the following seed mixture. Disturbed areas that will not be reworked for 30 days or more shall also receive temporary seed and mulch.

**Kind of Seed: LBS Per Acre**

Switchgrass (Blackwell or Shelter)	4.0
Big Bluestem (Niagra or KAW)	4.0
Little Bluestem (Camper or Blaze)	2.0
Sand Lovegrass (NE-27 or Blaze)	1.5
Birdsfoot Trefal (Viking)	2.0
<b>Total</b>	<b>13.5</b>

Apply seed mixture at 13.5 pounds per acre.

Inoculum specific to birdsfoot trefal must be used with this mixture. If seeding by hand, a sticking agent such as milk or cola shall be used to stick inoculum to the seed. If seeding with hydroseeder, use four (4) times the recommended amount of inoculum.

- Permanent Seed Mixture: (Not for Wetland Restoration):**
  - For Class A (Low) restoration of growth: Shall normally be used on loam areas. This seed shall conform to the following and shall be furnished on a pure live seed (PLS) basis.
 

Kind of Seed:	PLS Per Acre, LBS
Tall Fescue (Creeping)	21
Kentucky Bluegrass	21
Redtop	21
Perennial Ryegrass (Manhattan)	21
<b>Total</b>	<b>84</b>
  - For Class B (Field) restoration of growth: Shall normally be used for all slope work. This seed shall conform to the table below unless amended by the engineer to suit special local conditions encountered. This seed shall be furnished on a pure live seed (PLS) basis.
 

Kind of Seed:	PLS Per Acre, LBS
Tall Fescue (ALTA or K-31)	20
Perennial Ryegrass (Manhattan)	15
Red Fescue (Creeping)	5
Red Clover	5
Birdsfoot Trefal (Empire variety Preferred)	5
<b>Total</b>	<b>50</b>

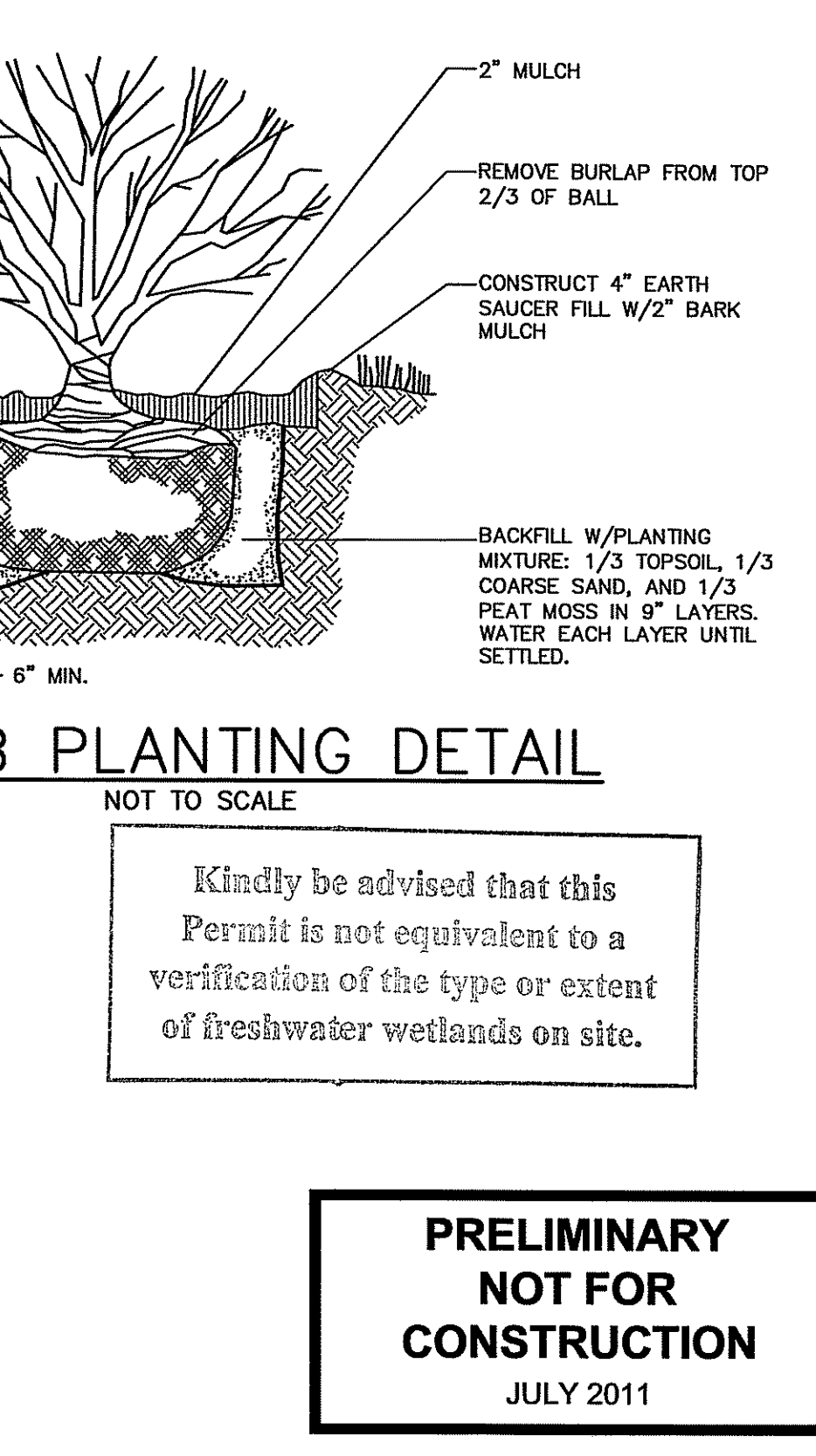
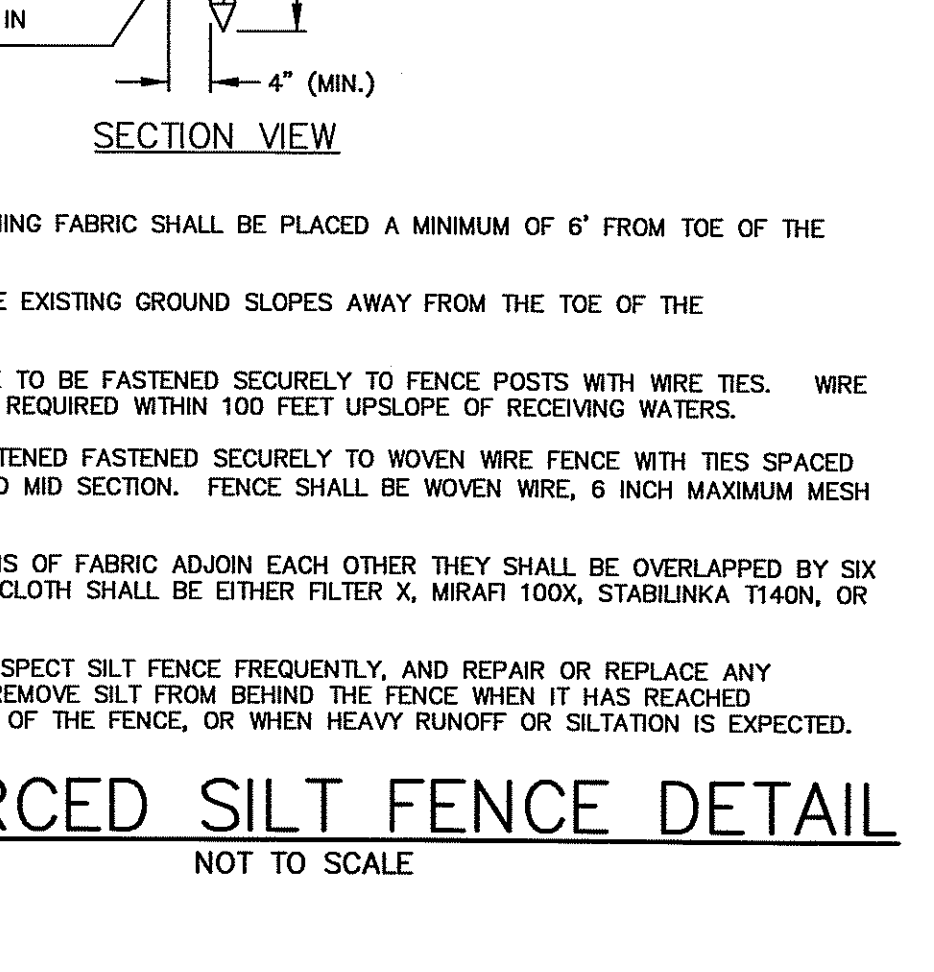
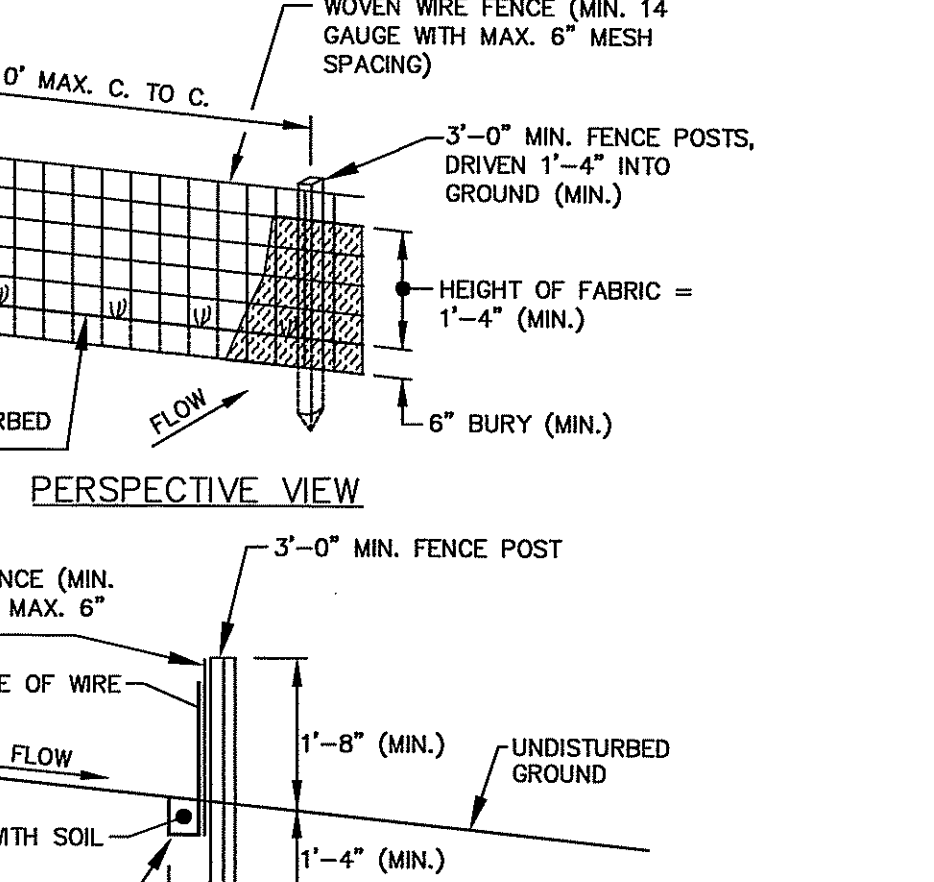
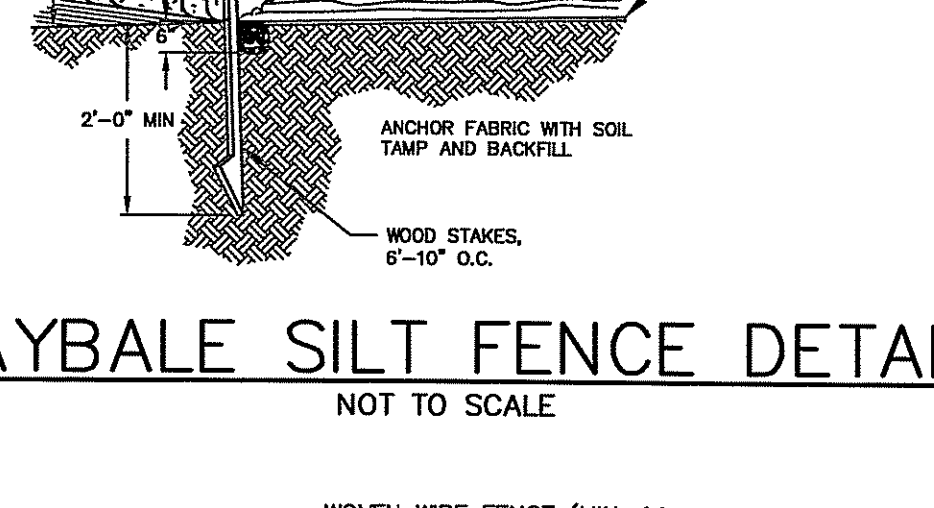
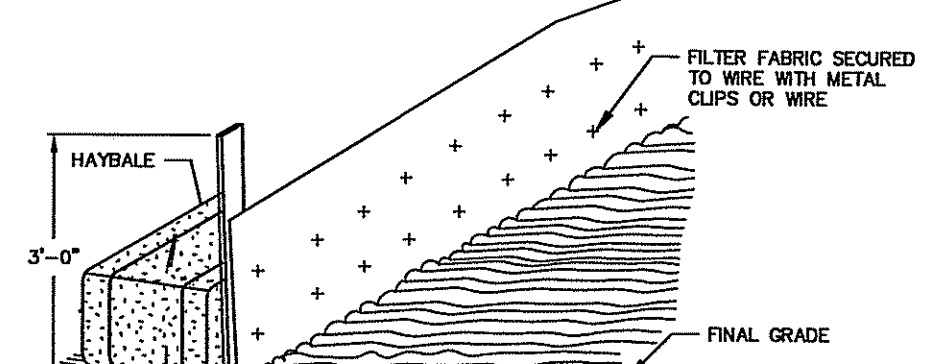
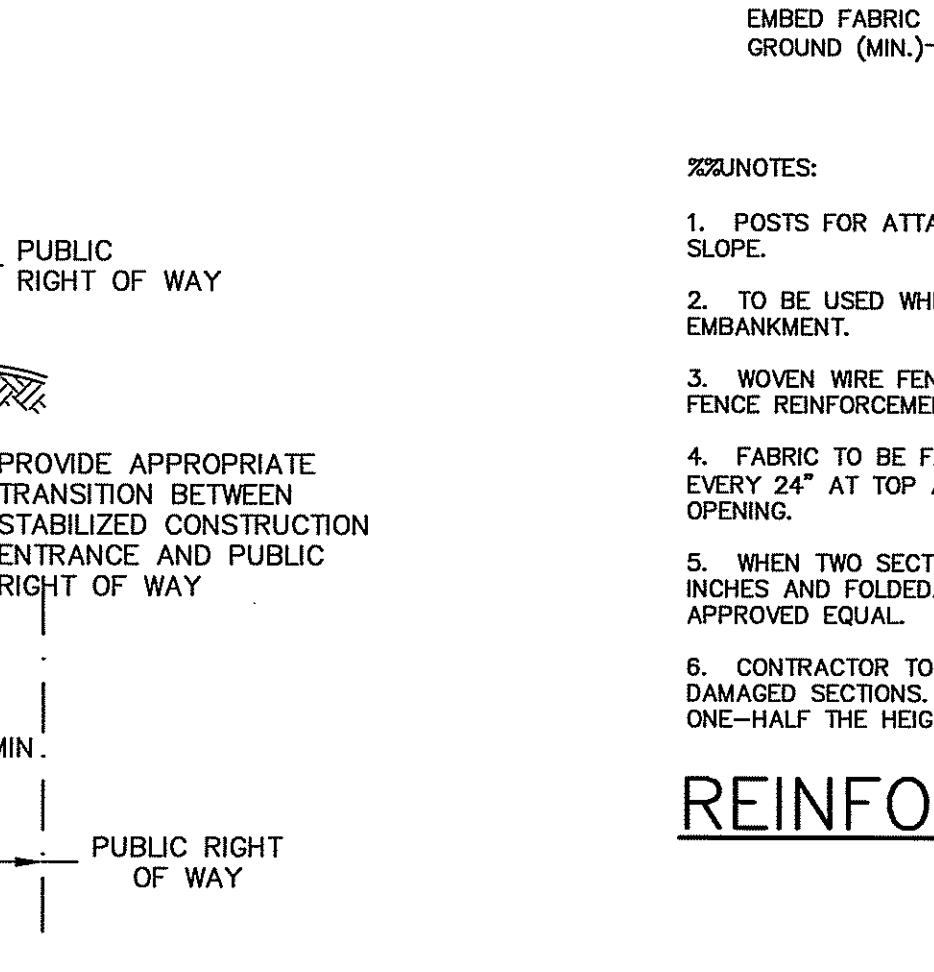
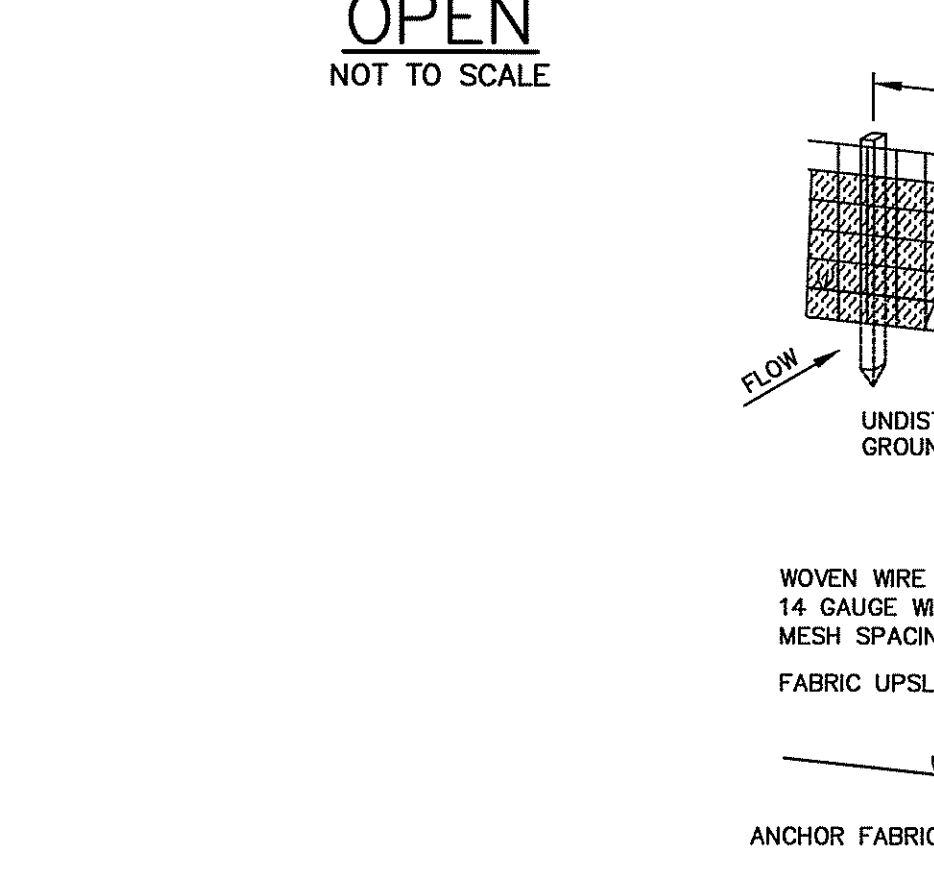
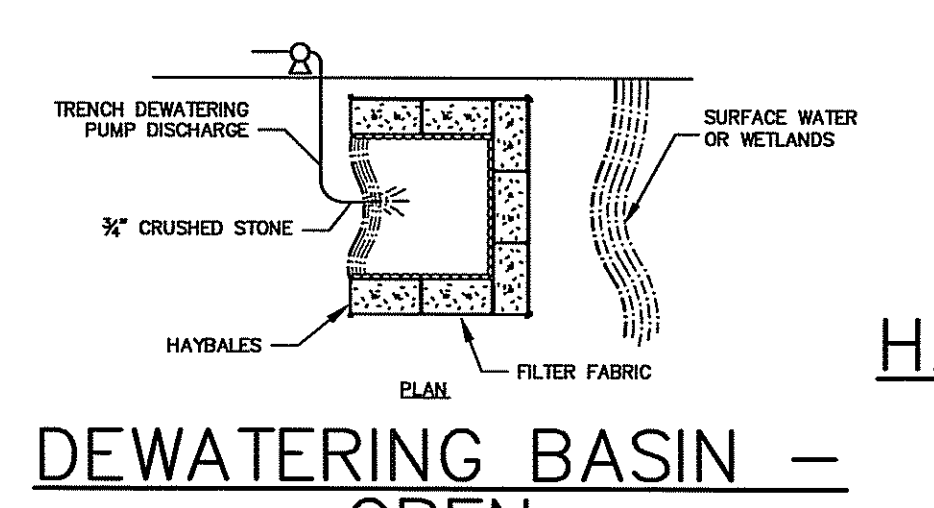
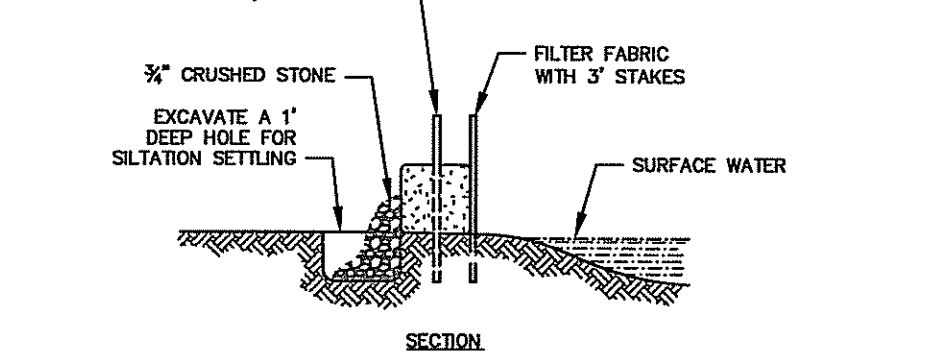
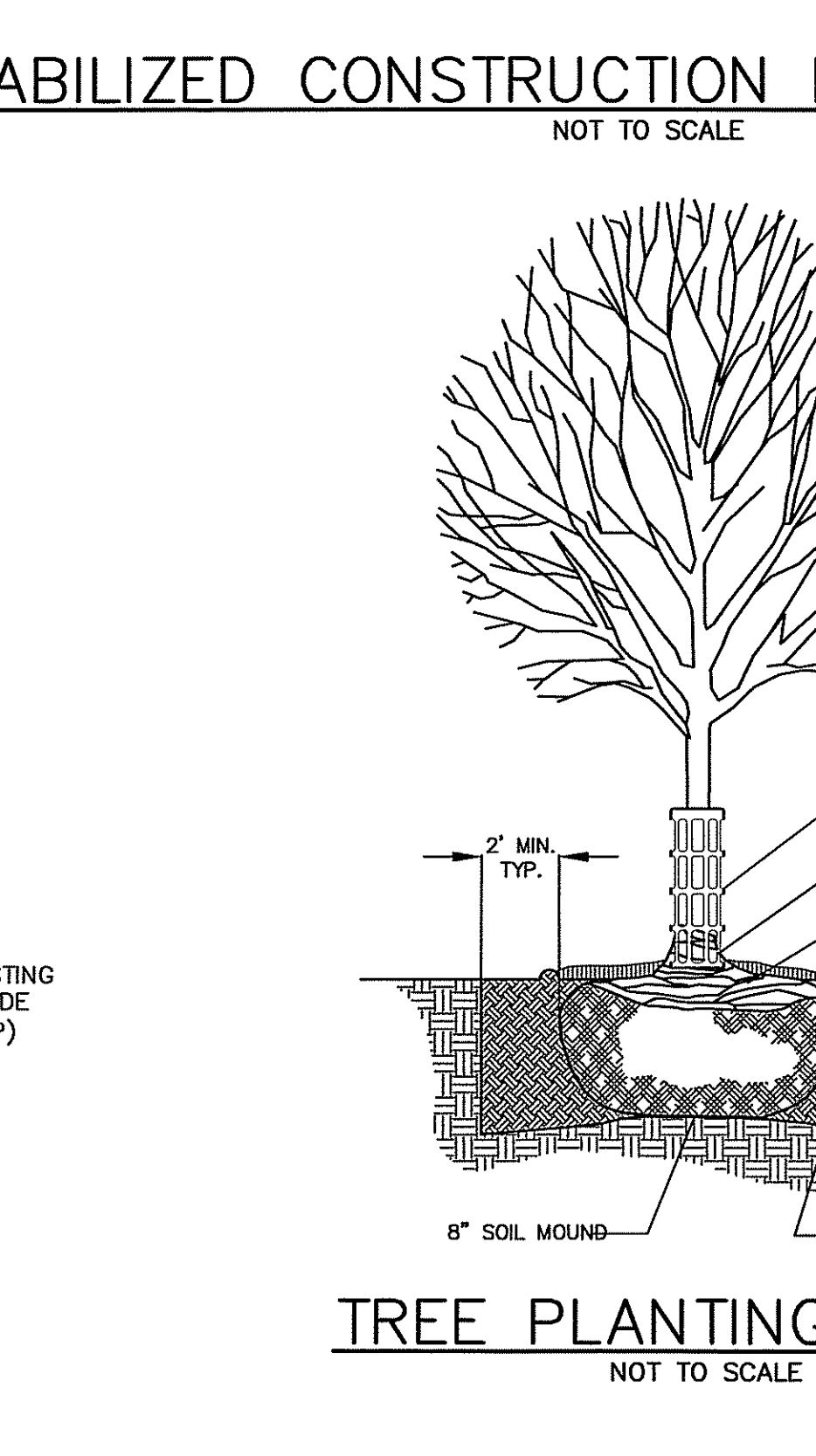
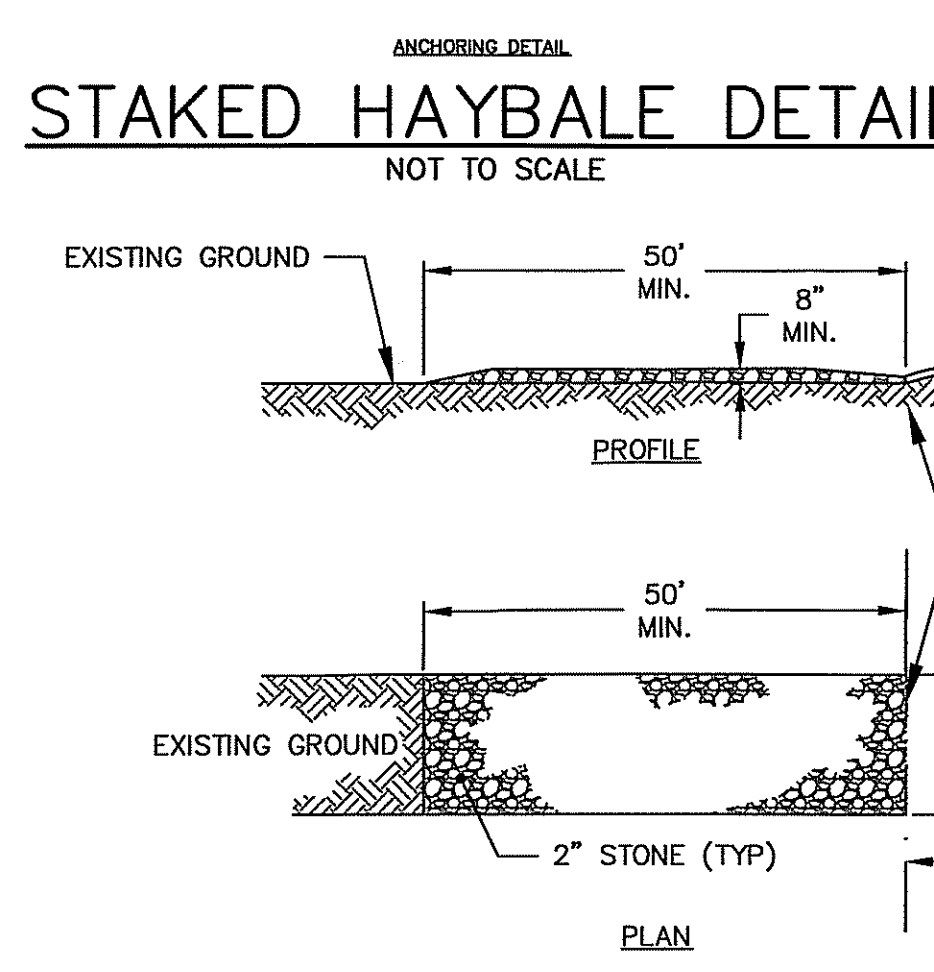
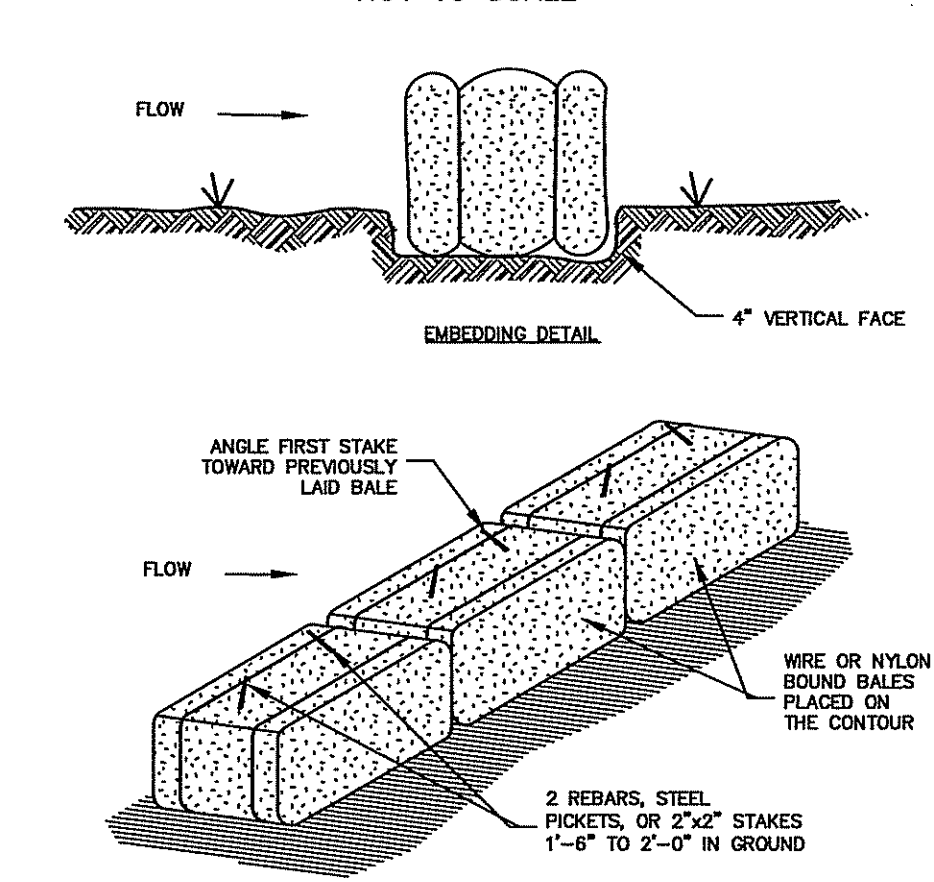
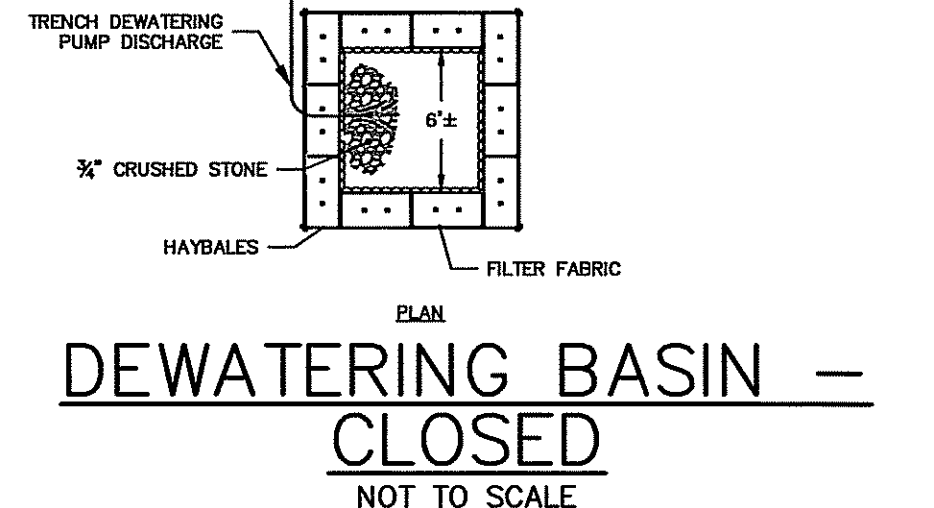
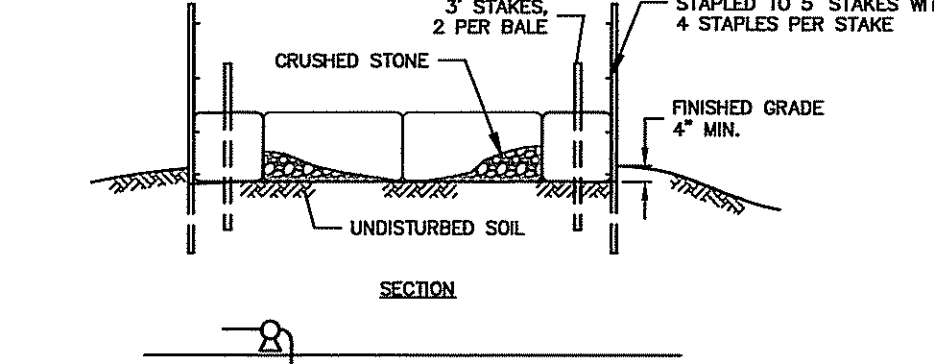
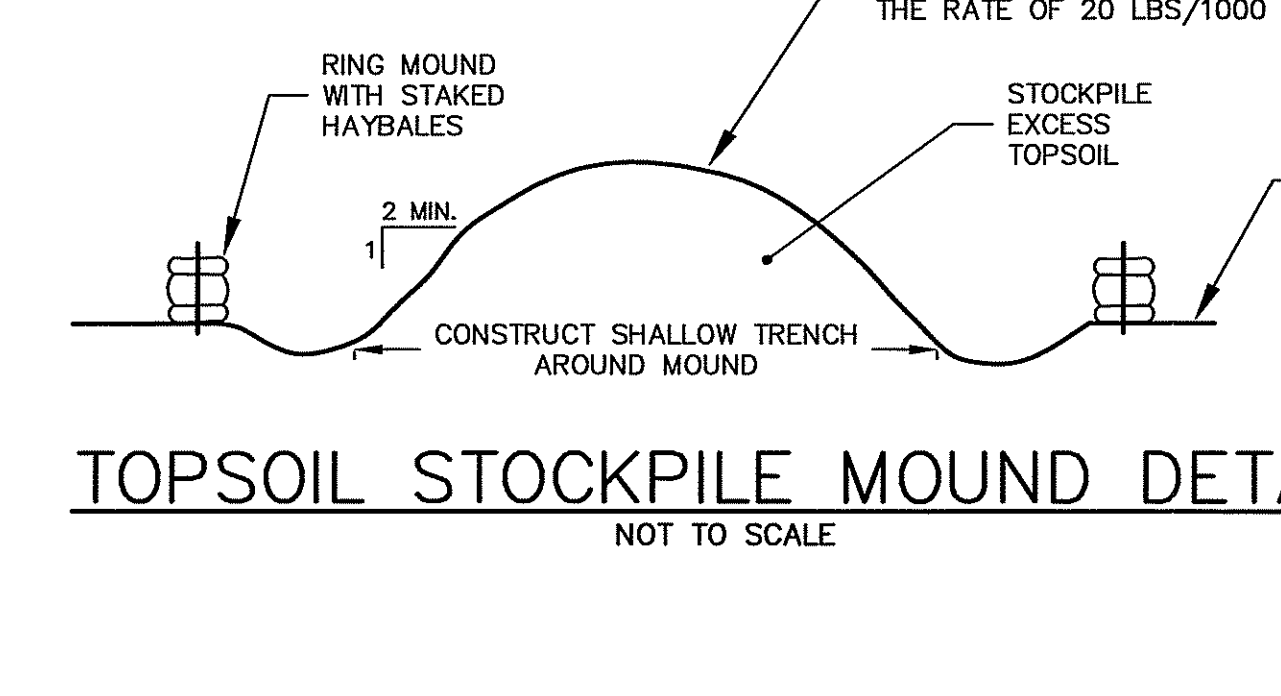
- Seeding and Mulching (Not for wetland restoration):**
  - All areas shall be seeded and mulched within 48 hours of final grading.
  - Soil samples may be sent to the county extension service for analysis to determine the proper seed mixture and fertilizer requirements.
  - The following procedures shall be followed for temporary seeding:
    - Apply lime at a rate of 75 to 100 pounds per 1000 square feet. Incorporate into top two inches of soil.
    - Apply fertilizer at a rate of 30 pounds per 1000 square feet. Mix thoroughly into the top two inches of soil.
    - Apply seed mixture at a rate of 2 pounds per 1000 square feet and additional 3-4 lbs. per 1000 square feet for sloped areas of 45% and greater evenly in two intersecting directions. Rake lightly.
    - Apply mulch material within 24 hours after seeding in accordance with the following:
      - Hay or Straw: Application rate - 90 pounds per 1000 square feet. Spread by hand or with machine. Anchor on slopes and where subject to blowing or slipping.
      - Wood Chips - Application rate - Two to six inches deep. Use for tree and shrub planting.
      - Hydraulic Mulch - Apply with hydraulic equipment. Application rate 1.0 to 1.5 tons per acre. Achieve ground coverage at 80 - 100%.
      - Rolled Erosion Control Products (RECP) - Maintain good contact between the RECP and the soil by walking the material down the slope. Overtop material and attach to soil as per manufacturer's recommendations.
    - Anchor mulch on all slopes exceeding 5% and other areas as required using the following method:
      - Mulch Netting: Spread over loose mulch and pin to the soil in accordance with the manufacturer's instructions.

- Maintenance of Erosion Control Structures:**
  - Repair all damages caused by soil erosion or construction equipment at or before the end of each working day.
  - Hay bales shall be replaced when they become clogged with soil particles or as directed by the owner/representative.
  - When the sediment accumulation reaches a depth of 12 inches behind the silt fence, the sediment shall be removed and disposed. Repair any sections of the fabric that tears, decomposes, or in any way becomes ineffective.
  - Stone check dams shall be replaced when they become clogged with soil particles or as directed by the owner/representative. Accumulated sediment shall be removed and the structure is to be checked for erosion piping or rock displacement, repair immediately.
  - Mulch will be inspected for movement of the mulch from erosion. Areas that have been washed out, or erosion has occurred will be repaired, reseeded, and netting installed. Hay or straw blow away will be replaced.
  - Any stone displacement will be repaired with appropriate stone sizes at Type I stone pads at outlets.
  - Stone stabilized staging areas will be inspected and the area will be top dressed with new stone if a significant amount of mud or sediment accumulates. The pad will be reshaped as needed and the staked hay bale and silt fence barrier will be maintained as necessary.
  - Erosion control blankets will be inspected and fabric checked for cracks, tears, or breaches in the fabric. Any areas that have eroded beneath the blanket shall be regraded and reseeded and additional stakes installed to ensure continuous contact between the blanket and the soil. Repair and/or replace sections of damaged fabric.
  - Areas receiving permanent seeding will be inspected for areas of failure and necessary repairs made and reseeded immediately.
  - Areas receiving temporary seeding will be checked within 6 weeks or after heavy rains and damaged areas will receive additional fertilizer, seed and mulch. Mulch will be held down with netting or erosion control blanket if necessary.
  - All measures shall be removed within 30 days of stabilization.

- Winter Erosion Control**
  - All erosion control features such as silt fence and hay bales must be in place prior to the ground freezing.
  - All disturbed areas of the site shall be seeded and mulched from October 15 to May 1 regardless of whether final grading has been finished. Work may continue through this period if the following winter erosion controls are implemented:
    - Oat seeds shall be substituted for any other temporary annual grass seeds.
    - All exposed earth shall be mulched with 6 inches of hay or straw. Slopes over 5% shall have an additional covering of erosion control blanket or its equivalent.

- The following maintenance items should be performed specifically for the various erosion control devices:
  - Diversion Dike:**
    - Minimum inspection frequency - Daily.
    - Remove any flow blockage caused by ice or sediment.
  - Mulch:**
    - Minimum inspection frequency - Daily.
    - Replace mulch on any area where original mulch cover has been lost.
  - Staked Hay Bale Dike:**
    - Minimum inspection frequency - Daily.
    - Remove layers of silt and soil from the upstream face whenever a noticeable accumulation has occurred. Replace hay bale dike should it become completely clogged. Show obvious signs of breakdown or become damaged in any other way. Install additional hay bale dikes downstream and upstream of existing hay bale dikes whenever it appears that the existing dikes are not performing adequately by themselves.
  - Silt Fence:**
    - Minimum inspection frequency - Daily.
    - Clean and remove any collected sediment before predicted thaws or rainy periods.
  - Stone Check Dam:**
    - Minimum inspection frequency - Daily.
    - Remove and replace clogged stone.

- Temporary Seed Mixture:** (Not for wetland restoration) When it is impractical to establish permanent protective vegetation on disturbed earth by October 15, use "Conservation Mix" or the following seed mixture. Disturbed areas that will not be reworked for 30 days or more shall also receive temporary seed and mulch.



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Consultants  
Legend

Notes

- POSTS FOR ATTACHING FABRIC SHALL BE PLACED A MINIMUM OF 6" FROM THE TOE OF THE SLOPE.
- TO BE USED WHERE EXISTING GROUND SLOPES AWAY FROM THE TOE OF THE EMBANKMENT.
- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. WIRE FENCE REINFORCEMENT REQUIRED WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.
- FABRIC TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6 INCH MAXIMUM MESH OPENING.
- WHEN TWO SECTIONS OF FABRIC ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUAL.
- CONTRACTOR TO INSPECT SILT FENCE FREQUENTLY, AND REPAIR OR REPLACE ANY DAMAGED SECTIONS. REMOVE SILT FROM BEHIND THE FENCE WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE FENCE, OR WHEN HEAVY RUNOFF OR SILTATION IS EXPECTED.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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	Dwn.	Chkd.	Dsgn.

Permit Seal  
**JEFFREY A. FAULKNER**  
No. 9072  
REGISTERED PROFESSIONAL ENGINEER  
CIVIL

Client/Project  
**HARRISVILLE FIRE DISTRICT  
Well 7 Site Development**

Map 142, Lot 111  
35 Round Top Road  
Harrisville, Rhode Island

Title  
**EROSION CONTROL DETAILS**

Project No. 195111698 Scale AS NOTED  
Drawing No. C4 Sheet 4 of 4 Revision 0

PRELIMINARY NOT FOR CONSTRUCTION JULY 2011