# BURLINGTON SOLAR ONE, LLC



<u>REVISIONS:</u> 10-30-20; Revised Panel Layout 02-10-21; First Design Submittal 04-07-21; Revised Landscaping 06-29-21; Revised Panel Layout and DEEP Comments 07-30-21; As per DEEP Comments

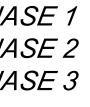
*Burlington Solar One, LLC Verogy VCP, LLC 150 Trumbull Street Hartford, Connecticut 06103* PREPARED FOR:

# Prospect Street Burlington, Connecticut

LIST OF DRAWINGS:

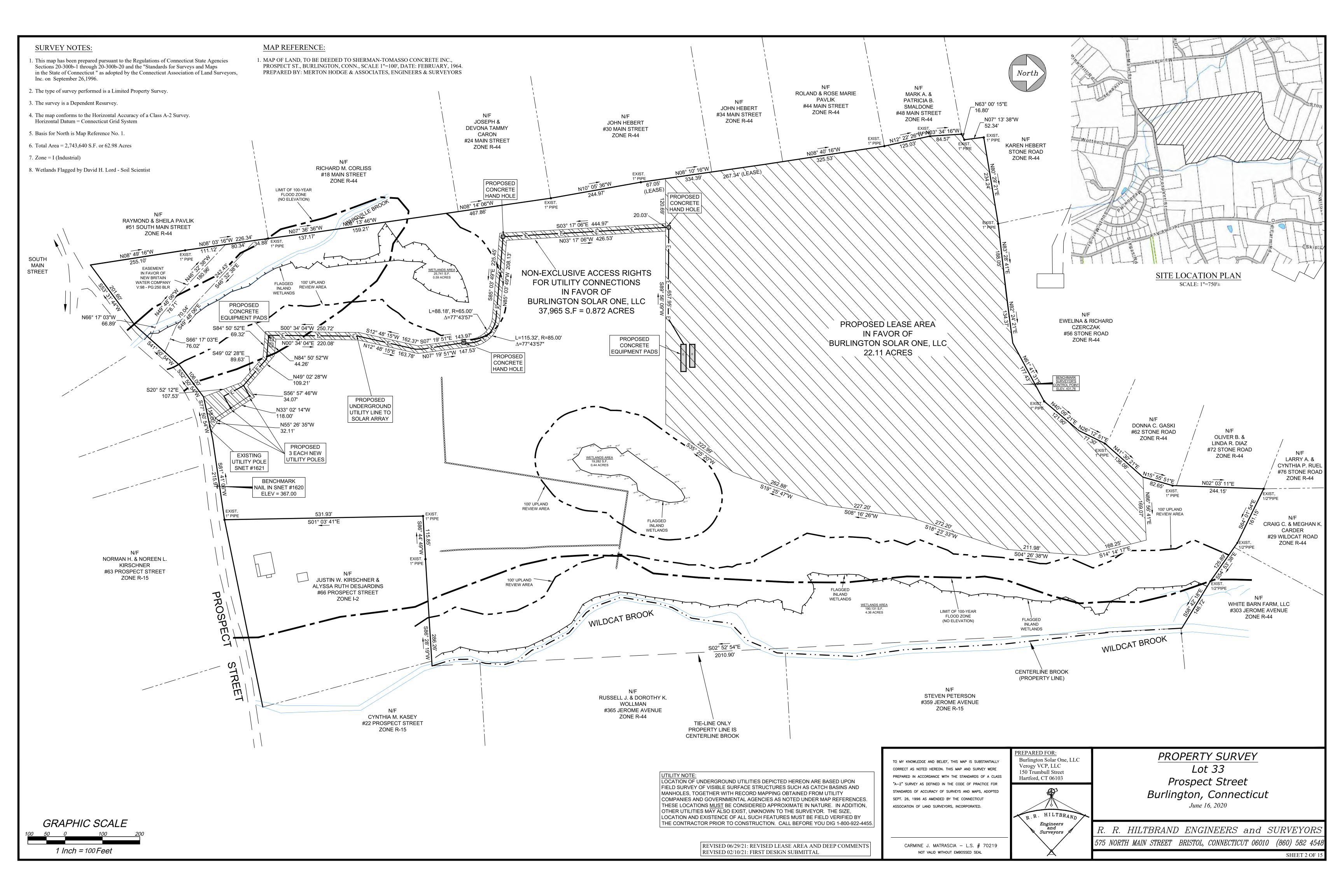
1	COVER SHEET
2	PROPERTY SURVEY
3	IMPROVEMENT LOCATION SURVEY
4	EROSION & SEDIMENTATION CONTROL PLAN - PHA
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14	PRE-DEVELOPED DRAINAGE MAP
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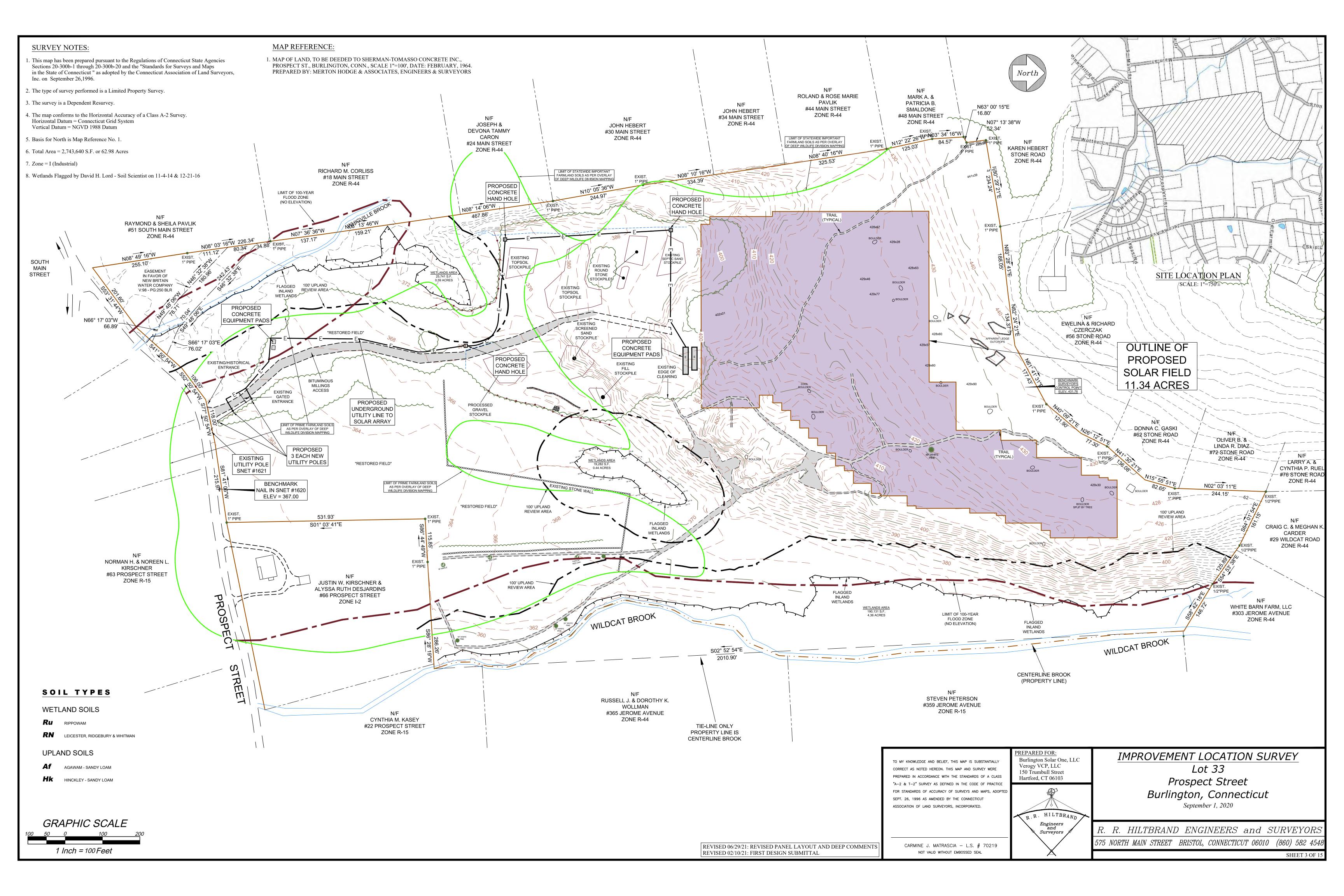


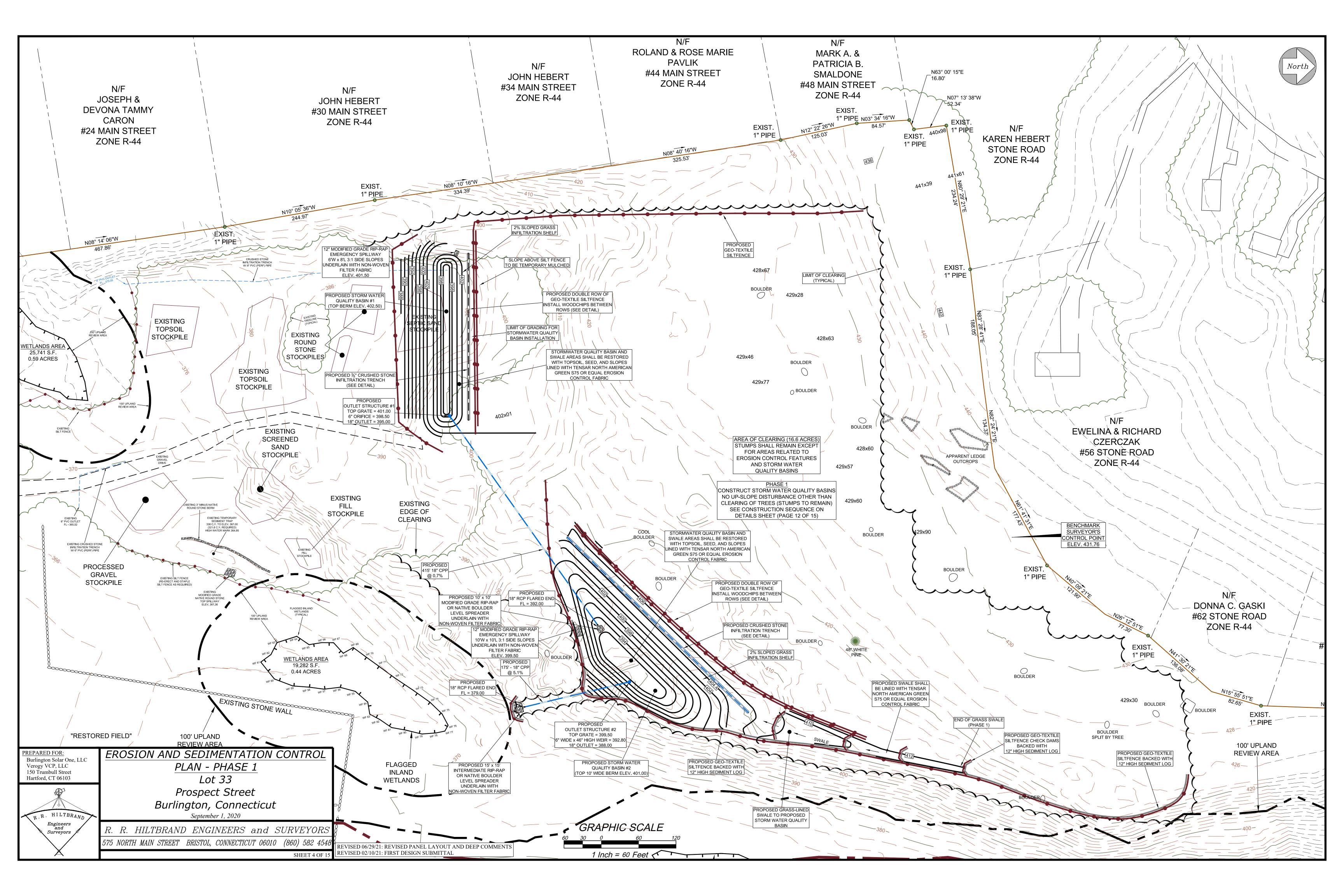


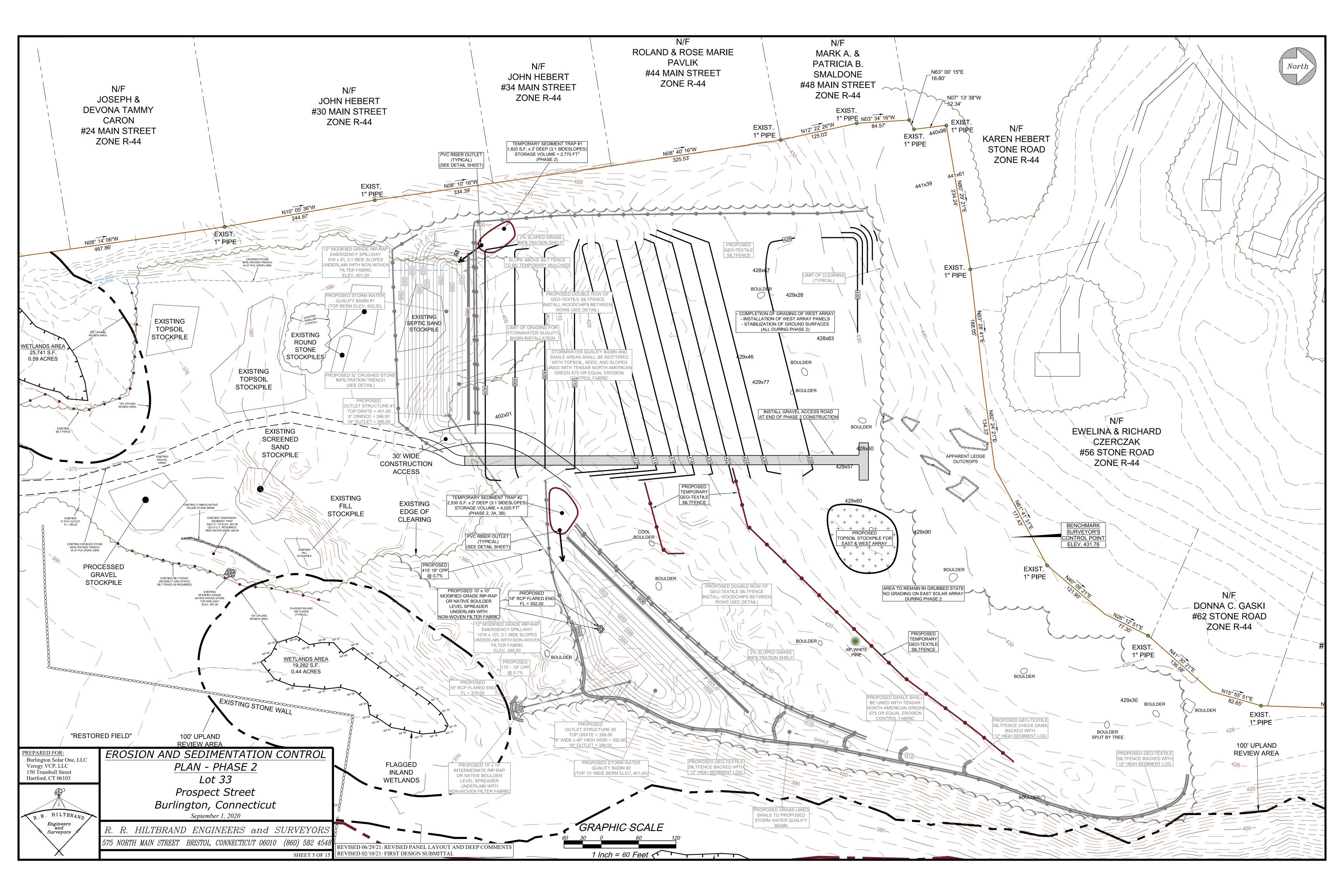


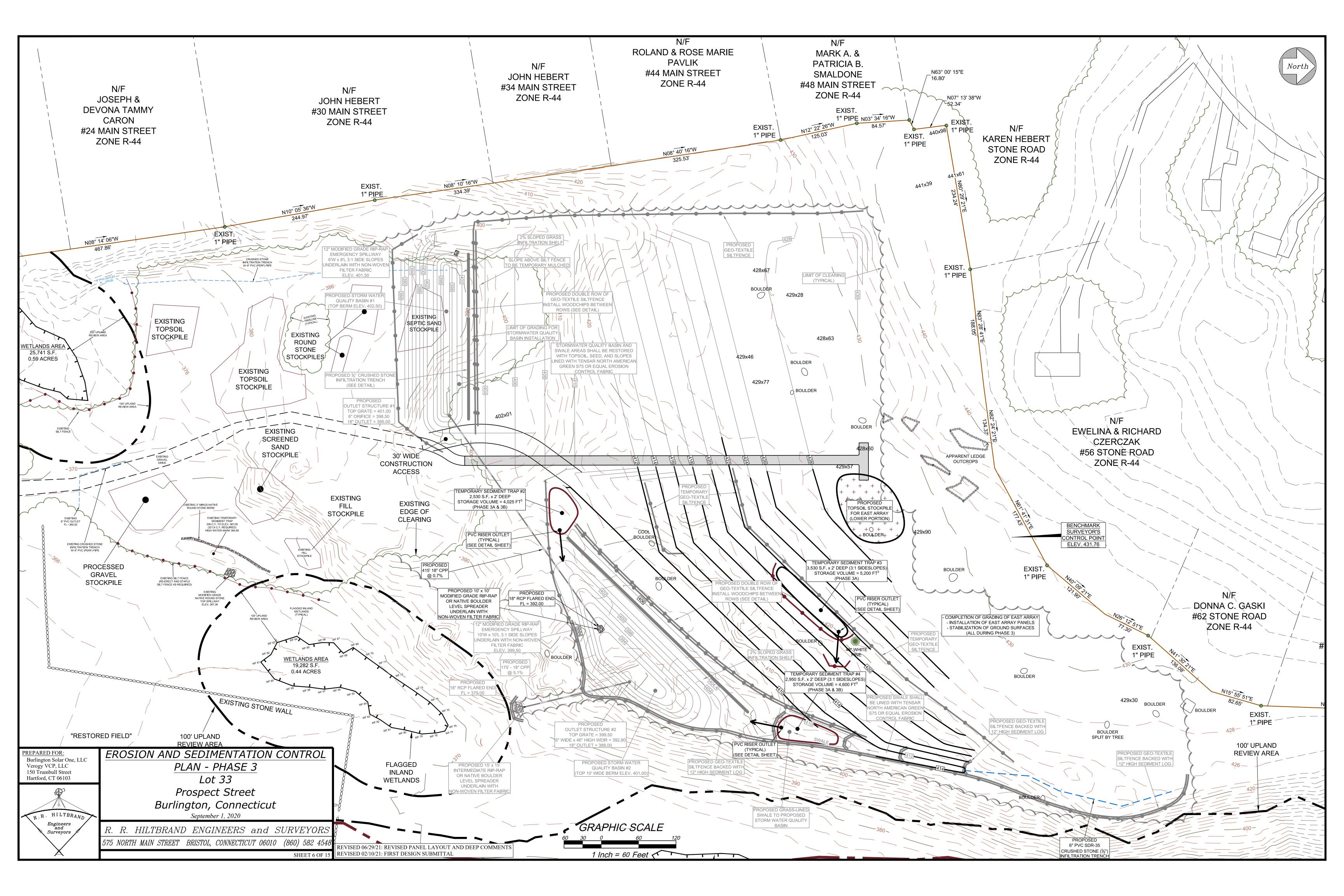
ENGINEER: R. R. Hiltbrand Engineers & Surveyors 575 North Main Street Bristol, Connecticut 06010

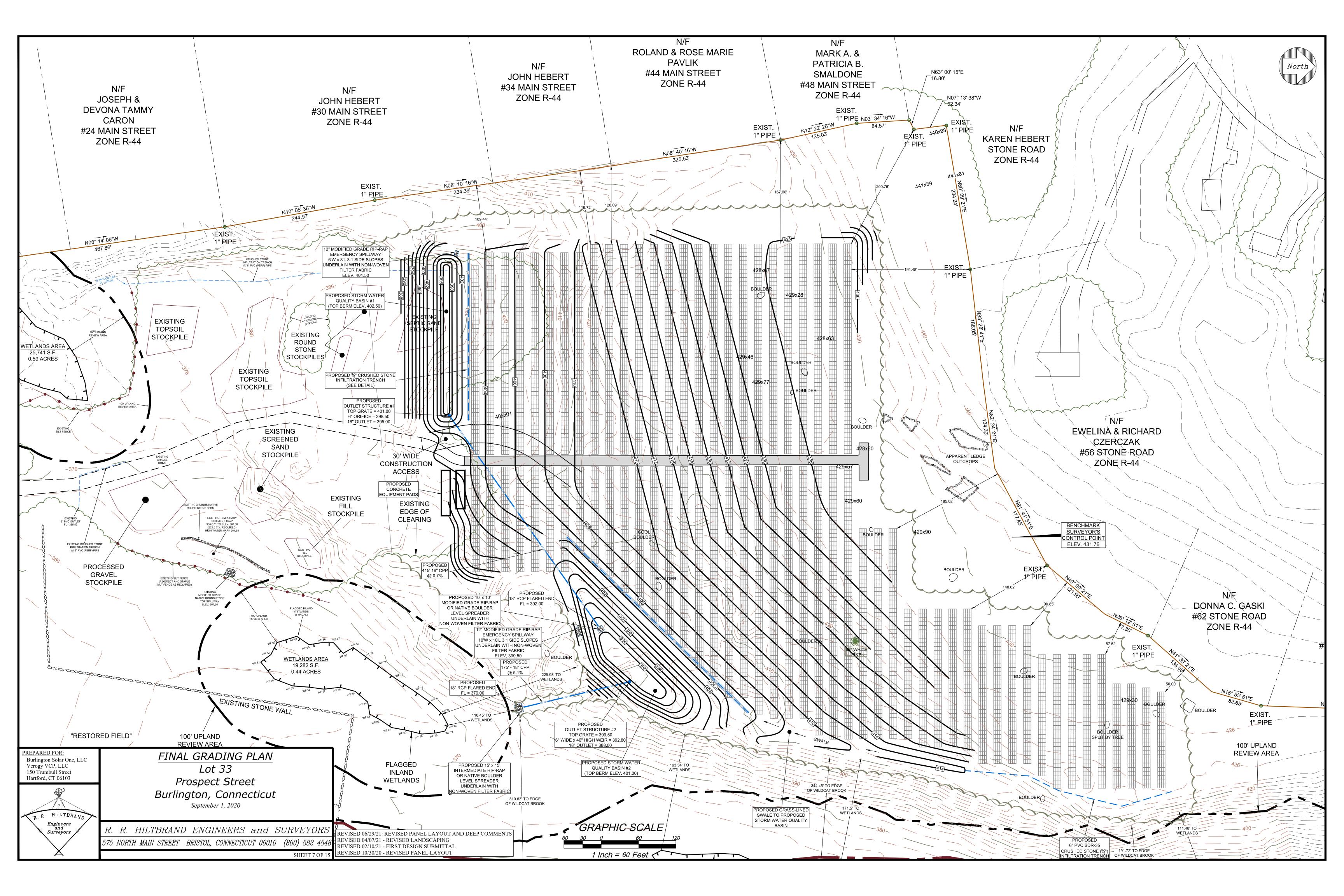


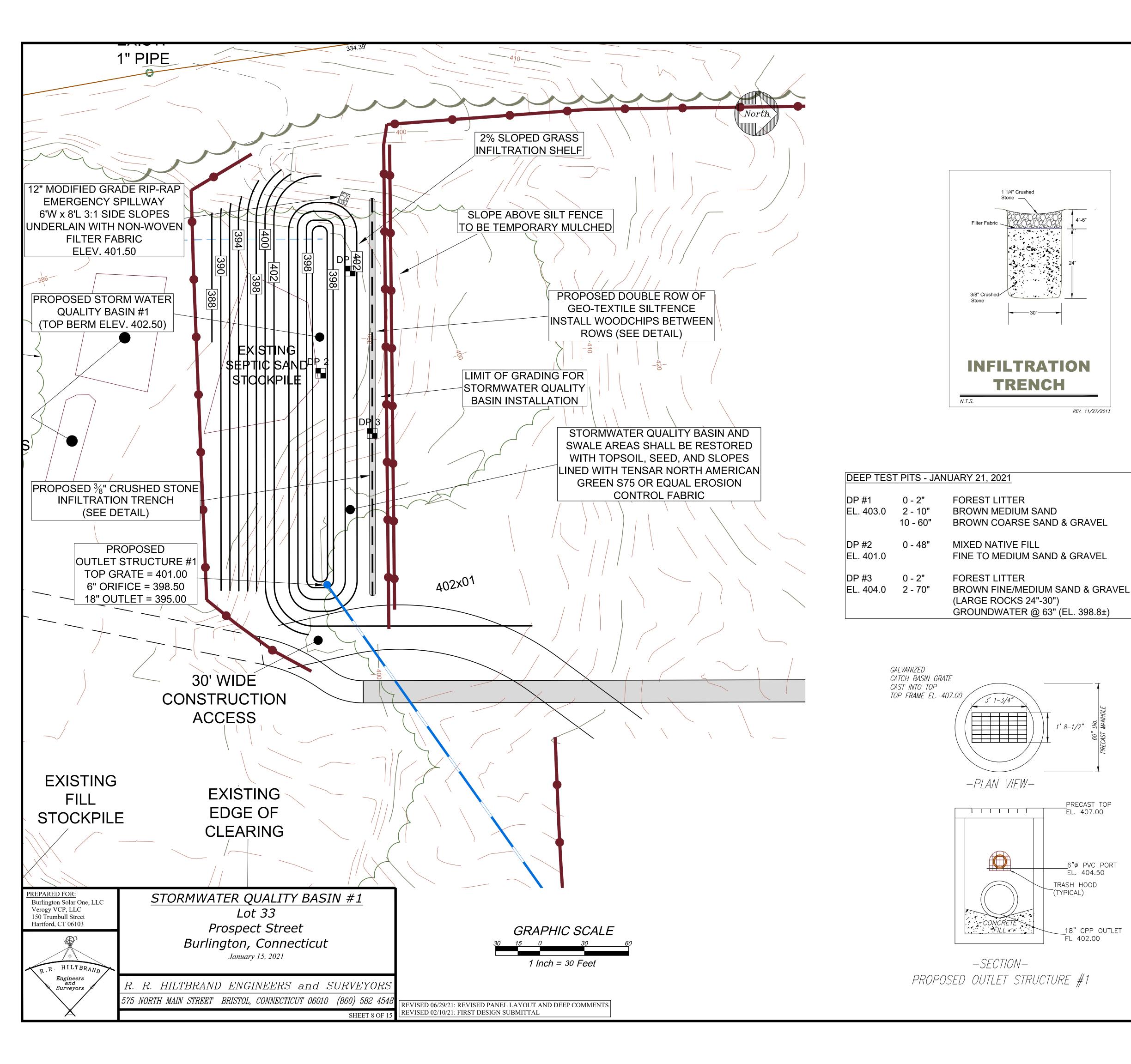












\*TRASH HOOD TO BE CONSTRUCTED OF #4 REBAR SPACED 4" ON CENTER **→**1-4**"→** STRUCTURE (PLAN VIEW) ANGLE IRON > LAG BOLTED TO STRUCTURE **→**1'-4<del>"→</del> REBAR HOOD TO BE WELDED TO ANGLE IRON (SIDE VIEW) (FRONT VIEW) TRASH HOOD

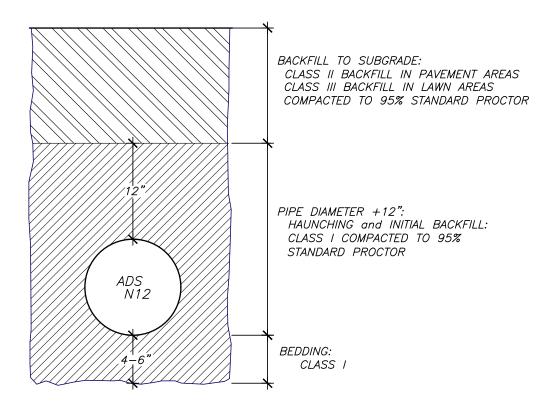
DETAIL <sub>N.T.S.</sub>

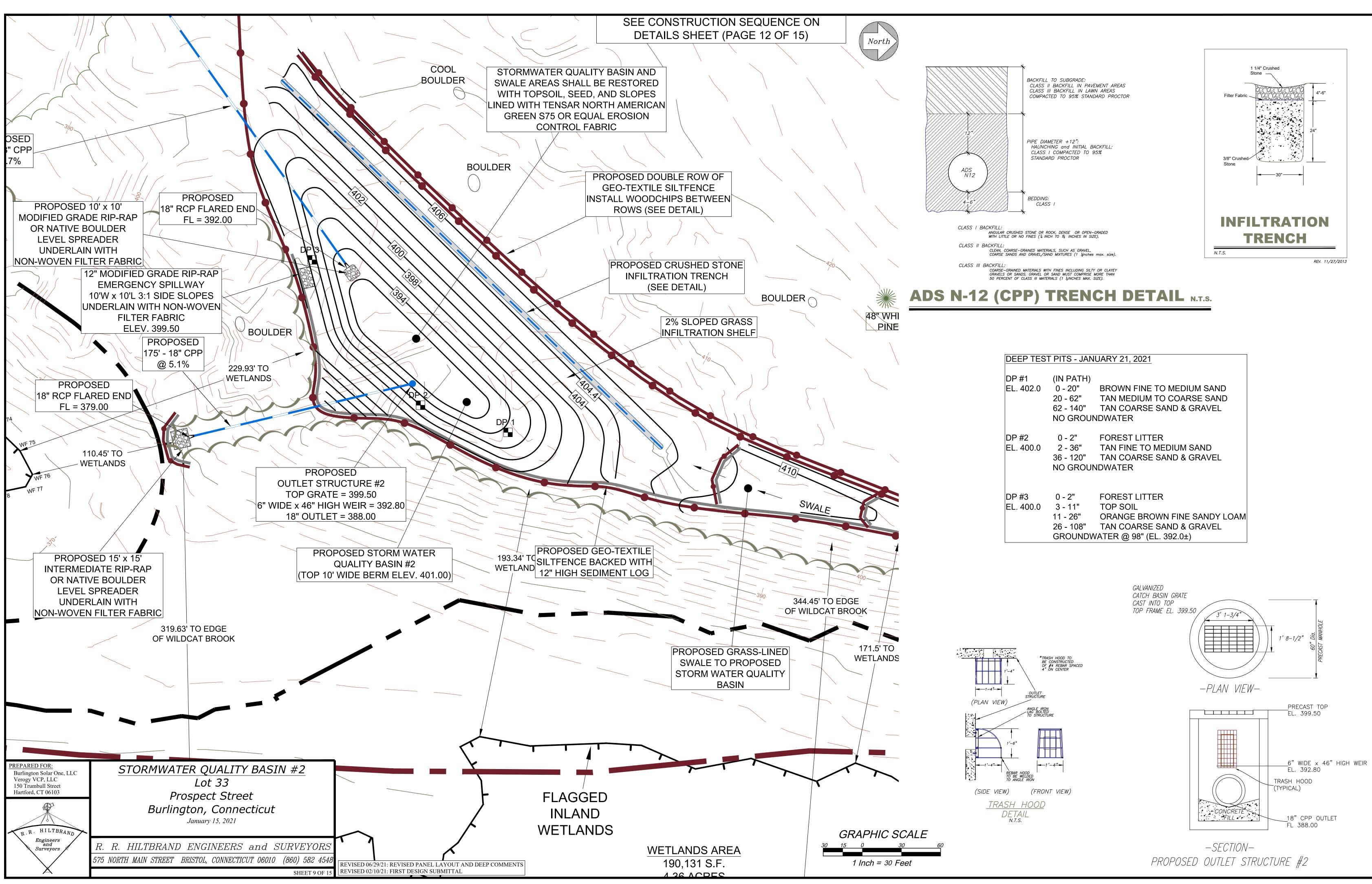
## ADS N-12 (CPP) TRENCH DETAIL N.T.S.

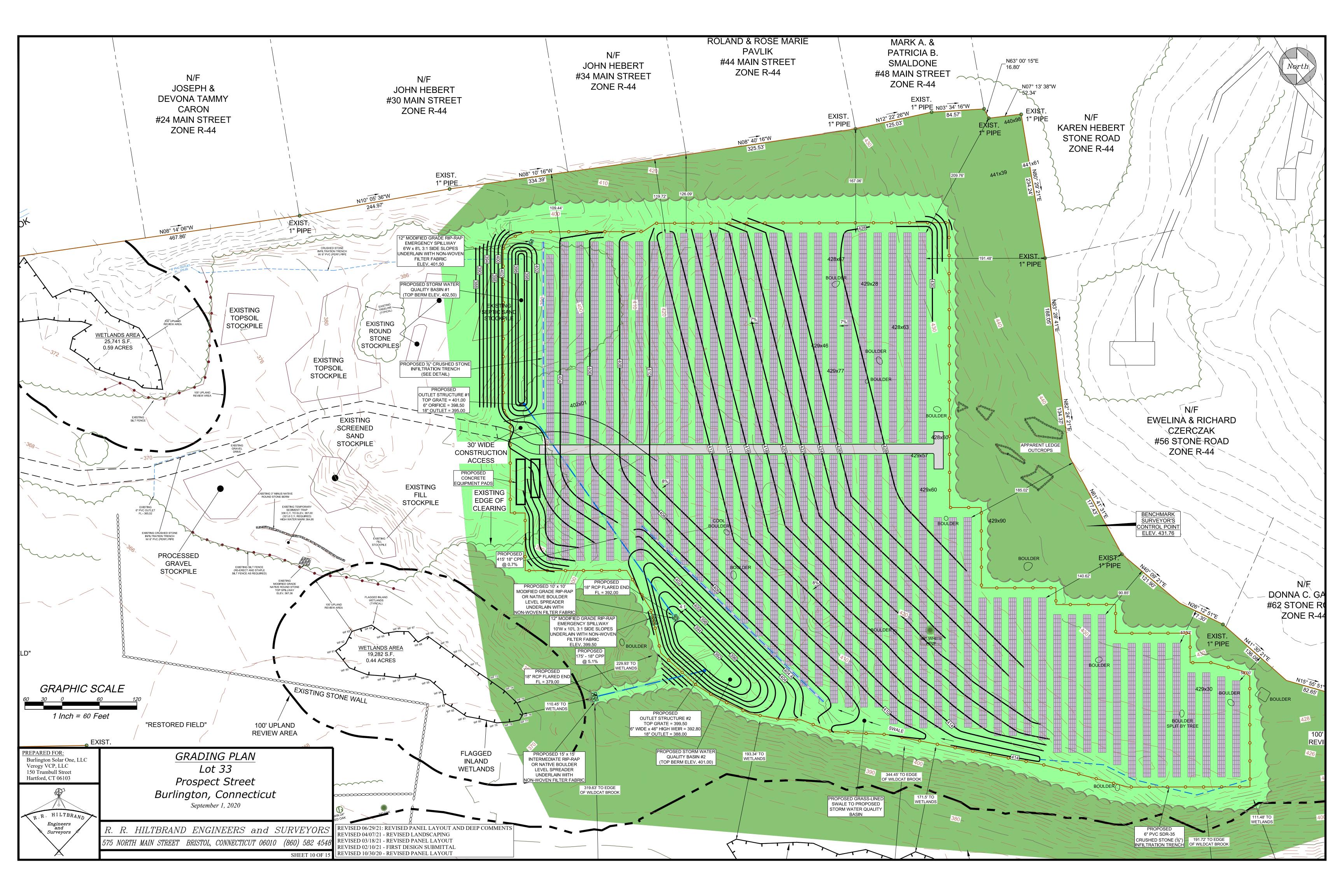
CLASS III BACKFILL: COARSE-GRAINED MATERIALS WITH FINES INCLUDING SILTY OR CLAYEY GRAVELS OR SANDS. GRAVEL OR SAND MUST COMPRISE MORE THAN 50 PERCENT OF CLASS III MATERIALS (1 ½INCHES MAX. SIZE).

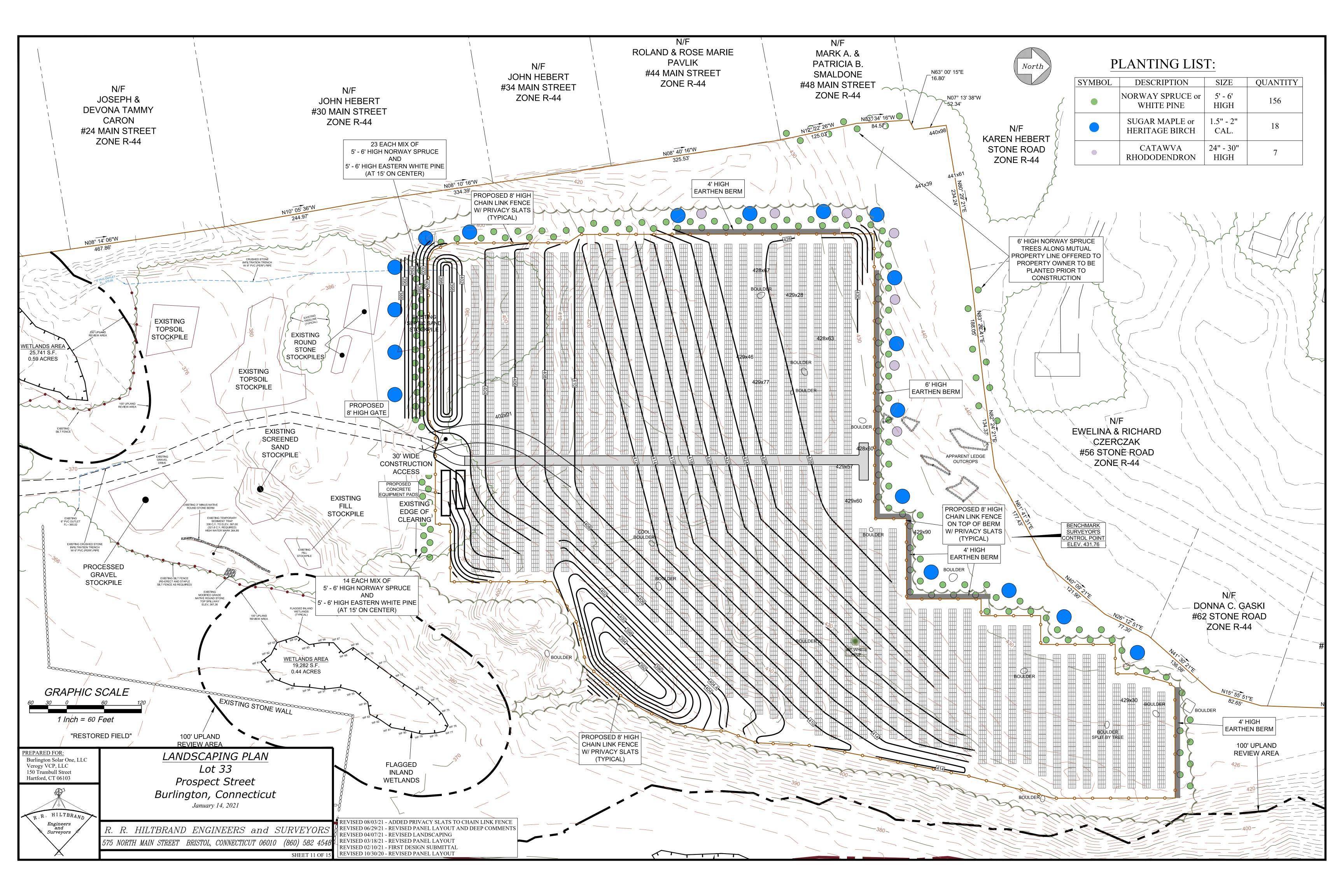
CLEAN, COARSE-GRAINED MATERIALS, SUCH AS GRAVEL, COARSE SANDS AND GRAVEL/SAND MIXTURES (1 ½nches max. size).

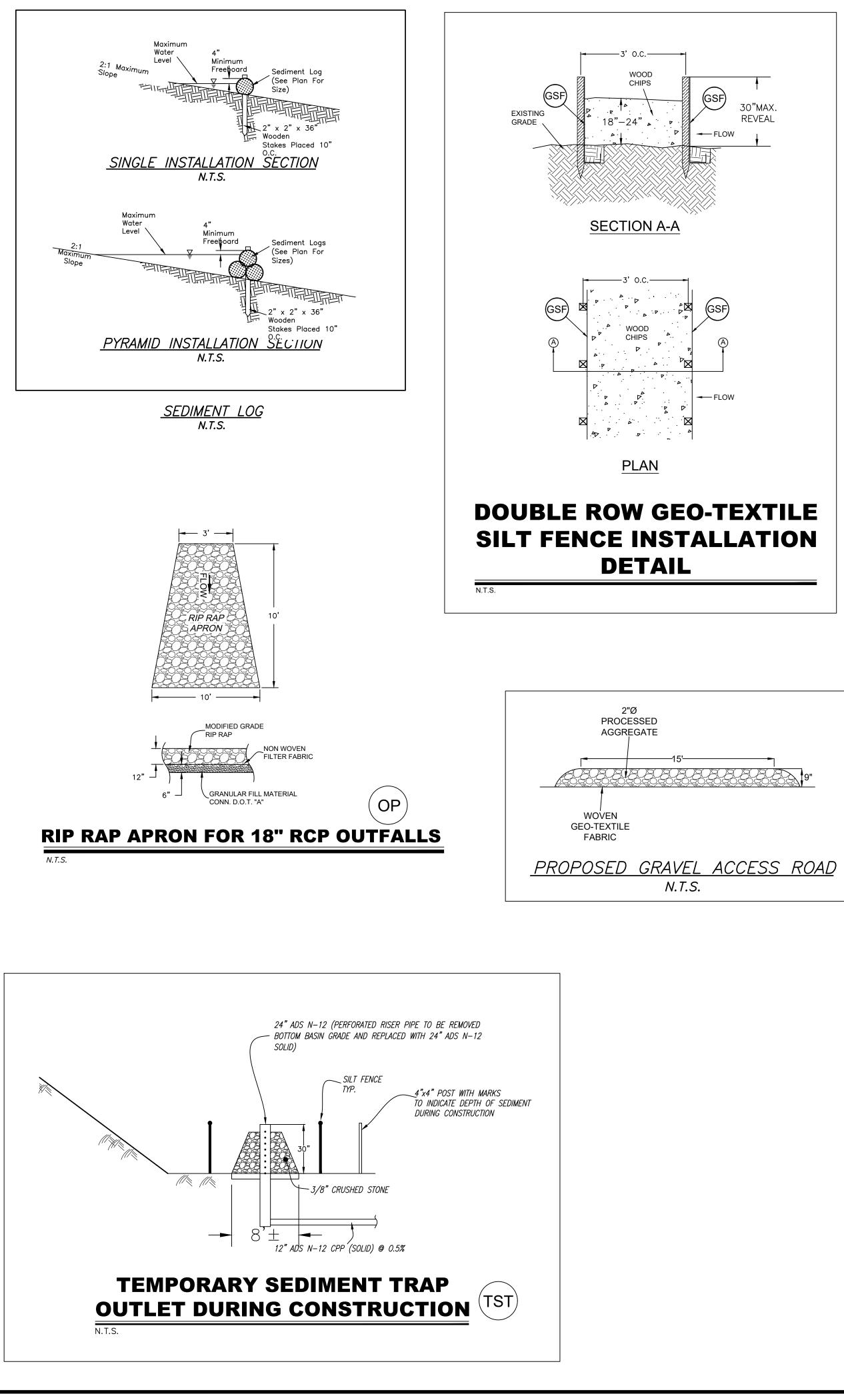
CLASS I BACKFILL: ANGULAR CRUSHED STONE OR ROCK, DENSE OR OPEN-GRADED WITH LITTLE OR NO FINES (½ INCH TO ½ INCHES IN SIZE). CLASS II BACKFILL:











TEMPORARY SEDIMENT TRAP SIZING (WEST ARRAY)

AREA = 6.3 ACRES DISTURBANCE TIMEFRAME - 6 MONTHS OR LESS FAILURE WILL NOT RESULT IN DAMAGE TO PROPERTY

(A) AVERAGE EROSION 50 TONS PER ACRE PER YEAR (DR) DELIVERY RATIO - 37% (TE) TRAP EFFICIENCY - 80%  $\Upsilon$  - 110 LBS PER FT<sup>3</sup>

VOLUME = <u>6.3 (50) (0.80) (2000 LBS/TON)</u> = 0.105 AcFt = 4,581 FT<sup>3</sup> (110) (43,560)

(2) SEDIMENT TRAPS COMBINED #1 &  $#2 = 6,795 \text{ FT}^3$ 

TEMPORARY SEDIMENT TRAP SIZING (EAST ARRAY)

AREA = 4.3 ACRES (NORTH) - 2.75 ACRES (SOUTH) DISTURBANCE TIMEFRAME - 3 MONTHS OR LESS FAILURE WILL NOT RESULT IN DAMAGE TO PROPERTY

(A) AVERAGE EROSION 50 TONS PER ACRE PER YEAR (DR) DELIVERY RATIO - 37% (TE) TRAP EFFICIENCY - 80%  $\dot{\mathbf{Y}}$  - 110 LBS PER FT<sup>3</sup>

VOLUME NORTH = 4<u>.3 (50) (0.80) (2000 LBS/TON)</u> = 0.072 AcFt = 3,127 FT<sup>3</sup>

(110) (43,560)

SEDIMENT TRAP  $#3 = 5,200 \text{ FT}^3$ 

VOLUME SOUTH = 2.75 (50) (0.80) (2000 LBS/TON) = 0.046 AcFt = 2,000 FT<sup>3</sup> (110)(43,560)

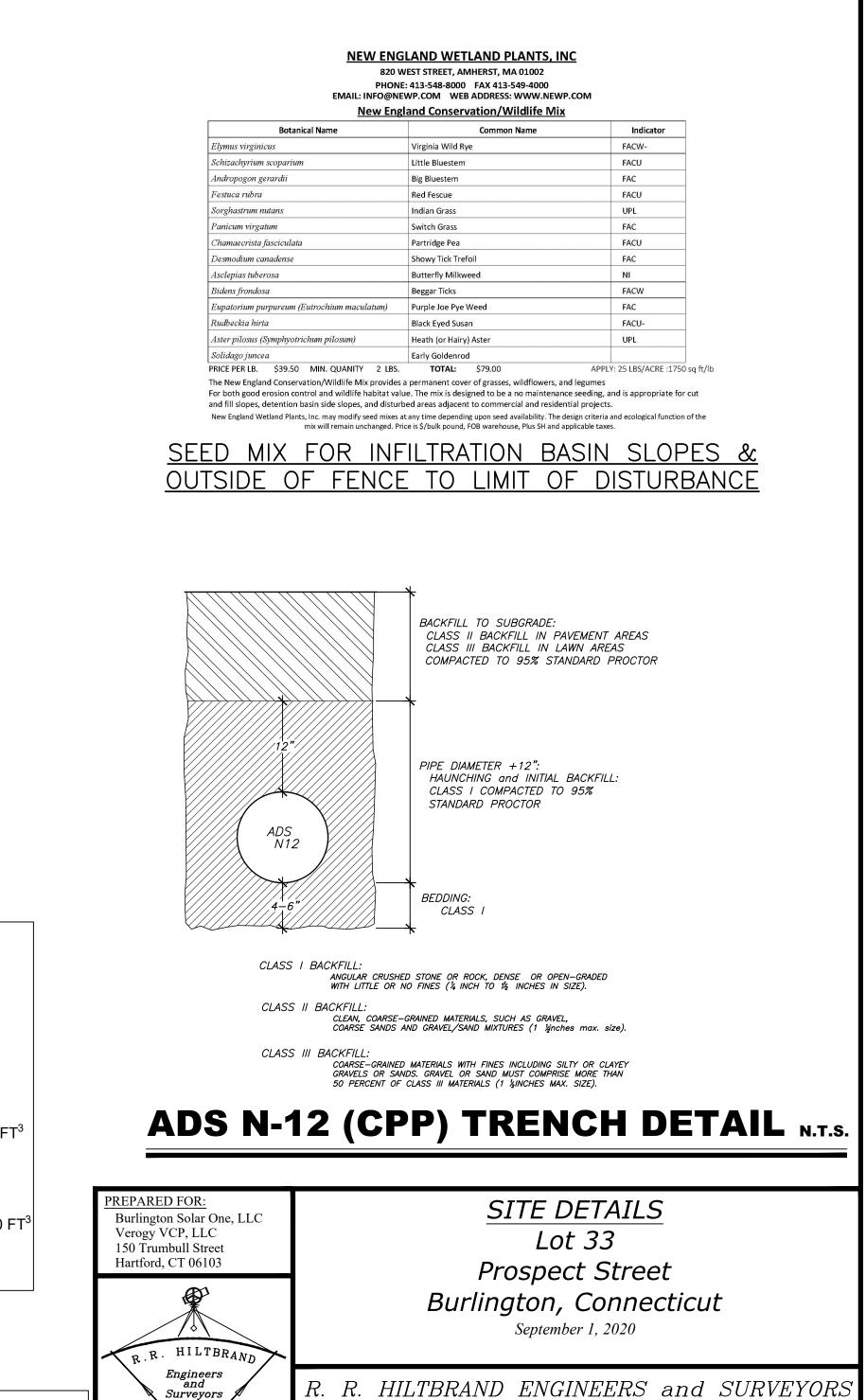
(2) SEDIMENT TRAPS COMBINED #2 & #4 =  $8,625 \text{ FT}^3$ 

REVISED 07/30/21 - AS PER DEEP COMMENTS REVISED 06/29/21 - REVISED PANEL LAYOUT AND DEEP COMMENTS REVISED 02/10/21 - FIRST DESIGN SUBMITTAL REVISED 10/30/20 - REVISED PANEL LAYOUT

#### **NEW ENGLAND WETLAND PLANTS, INC** 820 WEST STREET, AMHERST, MA 01002

Botanical Name	Common Name	Indicator
Elymus riparius	Riverbank Wild Rye	FACW
Schizachyrium scoparium	Little Bluestem	FACU
Festuca rubra	Red Fescue	FACU
Andropogon gerardii	Big Bluestem	FAC
Panicum virgatum	Switch Grass	FAC
Vernonia noveboracensis	New York Ironweed	FACW+
Agrostis perennans	Upland Bentgrass	FACU
Bidens frondosa	Beggar Ticks	FACW
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL
Eupatorium perfoliatum	Boneset	FACW
Aster novae-angliae (Symphyotrichum novae-anglia	New England Aster	FACW-
Scirpus cyperinus	Wool Grass	FACW
Juncus effusus	Soft Rush	FACW+
wildflowers designed to colonize generally moist, recer surface. It is an appropriate seed mix for ecologically se native vegetation. This mix is particularly appropriate fr can tolerate infrequent inundation, but not constant fl seeder. After sowing, lightly rake, roll or cultipack to in	TOTAL: \$111.00 APPL Detention Basins and Moist Sites contains a selection of in the disturbed sites where quick growth of vegetation is constitive restorations that require stabilization as well as or detention basins that do not hold standing water. Ma ooding. The mix may be applied by hand, by mechanical sure good seed-to-soil contact. Best results are obtained ag requires an increase in the application rate. A light mu	lesired to stabilize the soil long-term establishment of ny of the plants in this mix spreader, or by hydro- with a Spring or late

## SEED MIX FOR BOTTOM OF INFILTRATION BASINS



575 NORTH MAIN STREET BRISTOL, CONNECTICUT 06010 (860) 582 4546

SHEET 12 OF 1

#### 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.

#### :. Stone Rip-rap.

During construction, sheet runoff from the site will be filtered through hay bale barriers and silt fences. All storm drain inlets shall be provided with barrier filters. Stone rip-rap shall be provided at the outlets of drainage pipe in which erosive velocities are encountered.

Off Site Vehicle Tracking

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

#### A. General-

These are the general inspection and maintenance practices that will be used to 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 any 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.
- Built up sediment will be removed from the silt fence or hav bale barriers when it has reached one third the height of the of the fence or barrier.
- A maintenance inspection report will be made after each inspection.

The contractor's site superintendent will be responsible for inspections, maintenance and 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 plan. B. Filters

1. Straw/ hay 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 minimum depth of (4) inches. After the bales are staked and chinked, the excavate'd soil sh'all 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 rebars driven through the bale. The first staké in each 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 the bales
- 5. The gaps between bales shall be chinked (filled by wedging) with straw/hay to prevent water from escaping between the bales.

#### 2. Silt Fence

a. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or 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.
- c. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be spliced together only at the support posts, with a min. six (6) inch overlap, and s'ecurely sealed.
- 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.
- When 'standard strength' filter fabric is used, a wire mesh support fence shall be 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 eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 30 inches above the original ground surface.
- n. When 'extra strength' filter fabric and closer post spacing are used, the wire 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.
- The trench shall be backfilled and the soil compacted over the filter fabric.

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 replace'd promptly.
- . Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately (1/3) the height of the barrier.
- I. 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 seedded.

#### C. Mulching

1. Timing

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

- a. Apply mulch prior to any storm event.
- This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the 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 restriction.

2. Guidelines for winter mulch application.

When 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.

3. Maintenance

All mulches must be inspected periodically, in particular after rain storms, to check for erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

#### D. Temporary Grass Cover

1. Seedbed Preparation

Apply fertilizer at the rate of 300 lb. / acre of 10-10-10. Apply limestone (equivalent to 50% calcium plus magnesium oxide) at a rate of (1) tons/ acre. 2. Seeding

- 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.
- 3. Maintenance

Temporary seedings shall be periodically inspected. At a minimum, 95% of the 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. ).

#### E. Permanent Grass Cover

1. Seedbed Preparation

Apply fertilizer at the rate of 300 lb. / acre of 10-10-10. Apply limestone (equivalent to 50% calcium plus magnesium oxide) at a rate of (1) tons/ acre. 2. Seeding

- a. Utilize Creeping Red Fescue (Pennlawn, Wintergreen) .45 Redtop (Streeker, Common) Tall Fescue (Kentucky 31 or Smooth Bromegrass (Saratoga, Lincoln) .45
- 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.
- b. Bales shall be placed lengthwise in a single row surrounding the inlet, with the ends of adjacent bales pressed together
- 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 between bales.
- F. Stabilized Construction Entrance
- 1. Specifications
- a. Aggregate Size: Use two (2) inch stone. (Gradation Shall Be D.O.T. No. 3)
- b. Aggregate thickness: Not less than six (6) inches.
- 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 required.
- f. Criteria for Geotextile: The fabrics shall be Trevia Spunbound 1135, Mirafi 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, ditches 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. Once construction activity ceases permanently in an area, silt fences and hay bale barriers will be removed once permanent 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:

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

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

-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 container.

#### Hazardous Products:

materials.

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

-Products will be kept in their original containers unless they are not re-sealable -Original 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. Once 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 cleanup:

-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 injury 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.

#### Contingency Erosion Plan

