

SEDIMENTATION & EROSION CONTROL NOTES:

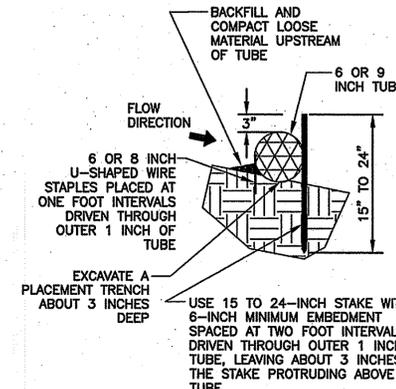
- SOIL AND EROSION CONTROLS SHALL BE PLACED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
- STRAW BALES AND SILT FENCE TO BE INSTALLED AS INDICATED ON THE DRAWINGS AND AS SPECIFIED BY THE SITE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING EROSION CONTROL MEASURES IN ORDER TO PREVENT OFF-SITE TRACKING OF EARTH, SEDIMENT AND DEBRIS.
- AREAS TO REMAIN UNSTABILIZED FOR A PERIOD OF MORE THAN 14 DAYS SHALL BE TEMPORARILY SEEDED AND BARK MULCHED.
- ALL DISTURBED AREAS NOT OCCUPIED BY PAVEMENT, SIDEWALK OR RIP RAP SHALL BE COVERED WITH 4" (MIN.) OF LOAM AND SEEDED.
- PERMANENT SEEDING SHALL OCCUR BETWEEN MARCH 1 AND JUNE 15, OR BETWEEN AUGUST 15 AND OCTOBER 15.
- SOILS TO BE STOCKPILED FOR A PERIOD OF MORE THAN 14 DAYS SHALL BE SURROUNDED BY EROSION CONTROL BARRIERS AND TEMPORARILY SEEDED AND MULCHED.
- TEMPORARY STORAGE OF MATERIALS ON-SITE IS TO BE LOCATED AS FAR FROM WETLAND AREAS AS FEASIBLE, AND AS DIRECTED BY THE ENGINEER. THERE IS TO BE NO LONG TERM STORAGE OF MATERIAL ON-SITE. MATERIAL NOT USED ON-SITE IS TO BE TRUCKED TO AN ACCEPTABLE OFF-SITE DISPOSAL LOCATION.
- EROSION CONTROL MEASURES SHALL BE INSPECTED EVERY (7) CALENDAR DAYS, AND WITHIN 24 HOURS FOLLOWING A RAINFALL EVENT OF GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD. ANY NECESSARY REPLACEMENT OR REPAIR SHALL BE PERFORMED PROMPTLY BY THE CONTRACTOR AT HIS/HER EXPENSE.
- DUST SHALL BE CONTROLLED AS NECESSARY THROUGH THE USE OF WATER, THE USE OF CALCIUM CHLORIDE FOR DUST CONTROL IS NOT ALLOWED, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

GENERAL GUIDELINES FOR SPACING OF TUBE TRENCHES FOR SLOPE INSTALLATIONS

SLOPE GRADIENT	TUBE INTERVAL
1H:1V	15 FEET
2H:1V	25 FEET
3H:1V	35 FEET
4H:1V	50 FEET

GENERAL GUIDELINES FOR SPACING OF TUBE TRENCHES FOR CHANNEL INSTALLATIONS

SLOPE GRADIENT	TUBE INTERVAL
2%	25 FEET

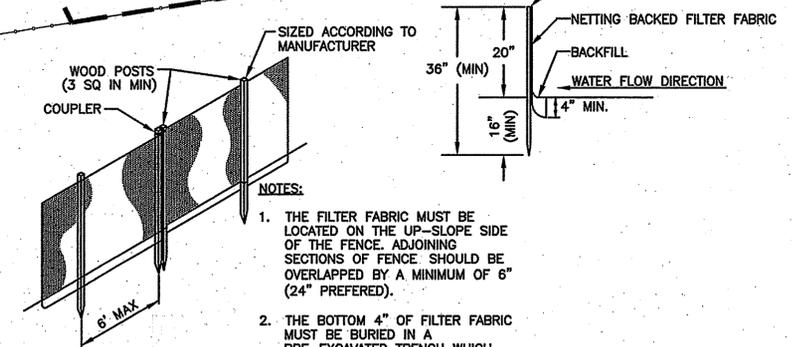
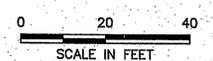
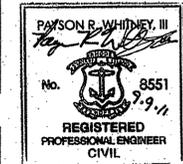


FLOC LOG (TERRA-TUBES™) DETAIL (EROSION CONTROL BARRIER-OPTION B)

N.T.S.

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

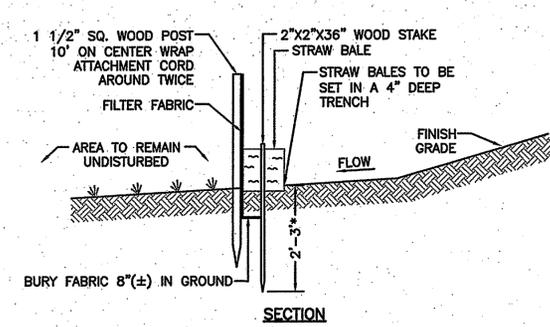
- #### NOTES
- OVERLAP ADJACENT ROLL ENDS BY A MINIMUM OF ONE FOOT AND REDUCE STAKING INTERVAL TO ONE FOOT WITHIN OVERLAP SECTION.
 - FOR CHANNEL APPLICATIONS, BOTH UPSTREAM AND DOWNSTREAM ANCHOR SHOULD BE AT ONE FOOT INTERVALS.



SILT FENCE DETAIL

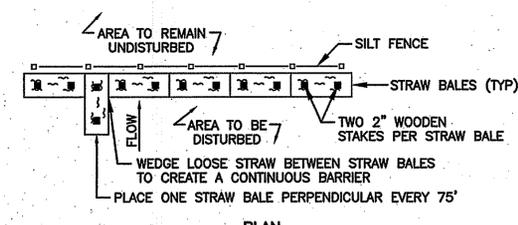
NOT TO SCALE

- #### NOTES:
- THE FILTER FABRIC MUST BE LOCATED ON THE UP-SLOPE SIDE OF THE FENCE. ADJOINING SECTIONS OF FENCE SHOULD BE OVERLAPPED BY A MINIMUM OF 6" (24" PREFERRED).
 - THE BOTTOM 4" OF FILTER FABRIC MUST BE BURIED IN A PRE-EXCAVATED TRENCH WHICH WILL BE BACKFILLED AND TAMPED FOR STABILITY.



SECTION

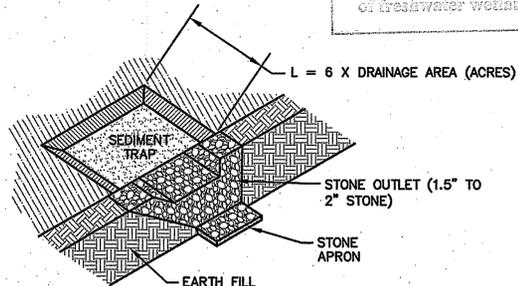
NOTE:
* = DEPTH TO BE 2' UNLESS POST IS TO BE SET IN PEAT; IN PEAT DRIVE BEYOND 2' DEPTH BY HAND TO REFUSAL OR 3' MAX.



PLAN

STRAW BALE AND SILT FENCE (EROSION CONTROL BARRIER - OPTION A)

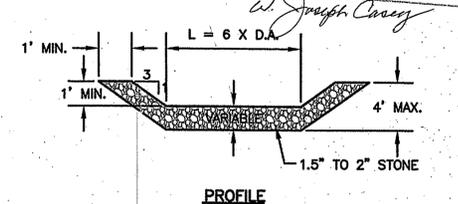
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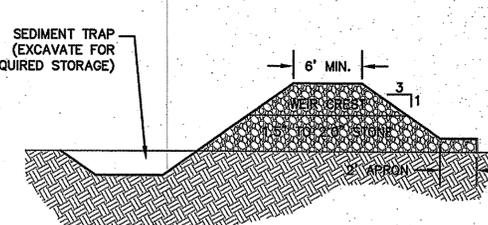
ISOMETRIC

NOTES:

- THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE SEDIMENT TRAP SHOULD BE LESS THAN 5 ACRES. THE TRAP MUST BE SIZED TO STORE 1-INCH OF RUNOFF FROM THE CONTRIBUTING AREA.
- SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS, WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
- THE STRUCTURE SHALL BE INSPECTED AT LEAST WEEKLY DURING CONSTRUCTION AND AFTER EACH RAINFALL. REPAIRS SHOULD BE MADE IMMEDIATELY IF NEEDED.
- THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTED DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
- ALL CUT SLOPES SHALL BE 3:1 OR FLATTER.



PROFILE



SECTION

TEMPORARY SEDIMENT TRAP (TO BE LOCATED BY CONTRACTOR AS NEEDED)

NOT TO SCALE

FOR PERMITTING PURPOSES ONLY

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED DEC 29 2011 FILE # 11-0175
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

W. Joseph Casey

No.	REVISION	DATE	APP BY

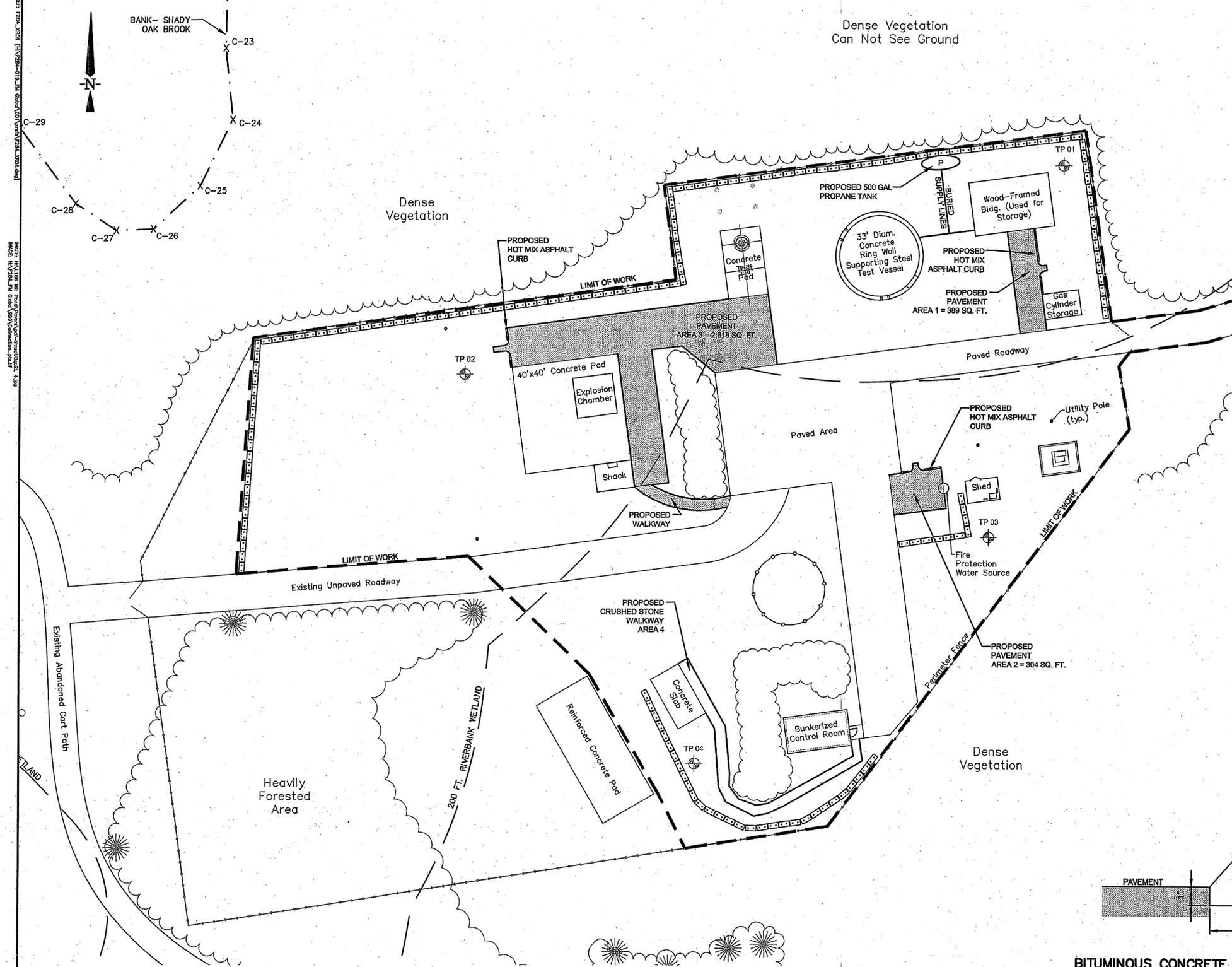
DRAWN BY: ELU CHECKED BY: PRW
DESIGNED BY: ELU APPROVED BY: PRW

FM Global Research Campus
743 Reynolds Road
West Glocester, Rhode Island

Environmental Management
Office of Water Resources
Remote Site
Construction Erosion &
Sedimentation Control Plan

PROJECT No.: F284-019 DRAWING No.
DATE OF ISSUE: September 9, 2011
SHEET No.: 2 of 4
SCALE: 1"=20'

EC-01

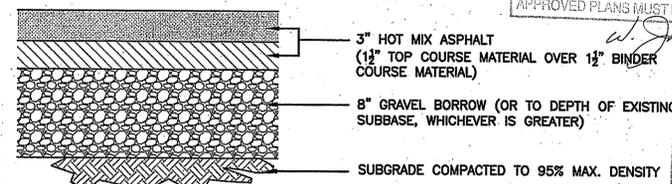
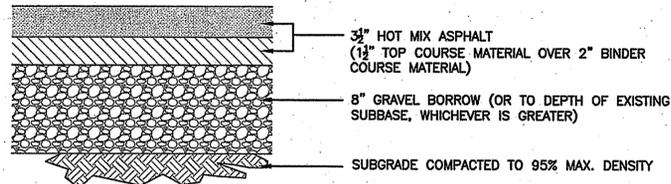
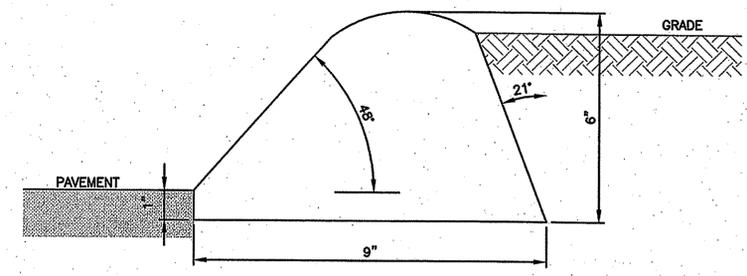
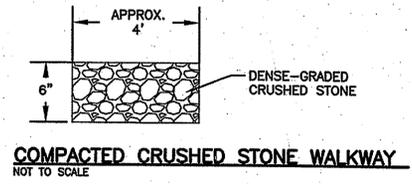
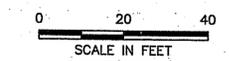
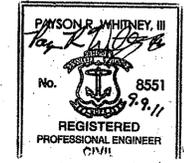


LEGEND

- WETLAND LINE
- FORESTED WETLAND
- WETLAND BUFFER
- MINOR CONTOURS
- MAJOR CONTOURS
- SPOT ELEVATIONS
- TREE LINE
- UTILITY POLE
- FENCE GATE
- EXISTING TREE
- LIMIT OF WORK
- EROSION CONTROL BARRIER
- SILT FENCE
- PROPOSED PAVEMENT

CONSTRUCTION NOTES:

1. LIMITS OF WORK HAVE BEEN SET ON THE DRAWINGS; HOWEVER, THESE MAY BE EXTENDED OR REDUCED AT THE DISCRETION OF THE ENGINEER TO MEET WITH FIELD CONDITIONS EXCEPT NEAR WETLAND RESOURCE AREAS.
2. THE CONTRACTOR SHALL, UNDER THE DIRECTION OF THE OWNER, ESTABLISH "CONSTRUCTION LIMITS" ON THE SITE BY ACCEPTABLE VISIBLE MARKERS. ALL WORK AND EQUIPMENT SHALL BE CONFINED TO WITHIN THESE LIMITS, UNLESS OTHERWISE SPECIFICALLY AUTHORIZED.
3. NO CHANGES ARE TO BE MADE UNLESS AUTHORIZED BY THE DESIGN ENGINEER AND APPLICANT/OWNER.
4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL SAFETY CODES, REGULATIONS, LEGAL REQUIREMENTS, PERMIT CONDITIONS, ETC.
5. THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALKS, STREETS, PAVEMENTS, HIGHWAY GUARDS, CURBING, EDGING, TREES AND PLANTINGS ON OR OFF THE PREMISES, AND SHALL REPAIR AND REPLACE OR OTHERWISE MAKE GOOD AT HIS/HER OWN EXPENSE AS DIRECTED BY THE ENGINEER ANY ITEMS DAMAGED AS A RESULT OF THE CONTRACTOR'S WORK.
6. THE CONTRACTOR SHALL REMOVE FROM THE PROJECT SITE ALL STUMPS, RUBBISH, MANMADE FEATURES AND DEBRIS FOUND THEREON. UNLESS OTHERWISE NOTED STORAGE OF SUCH MATERIALS ON THE PROJECT SITE WILL NOT BE PERMITTED. ALL MATERIALS TO BE REMOVED SHALL BE DISPOSED OR RECYCLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS. THE CONTRACTOR SHALL LEAVE THE PROJECT SITE IN SAFE AND CLEAN CONDITION UPON COMPLETION OF THE SITE WORK.
7. THE CONTRACTOR SHALL PROVIDE ADEQUATE BRACING AND SHORING OF ALL EXCAVATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING CODES AND REGULATIONS.
8. ALL SURFACES DISTURBED BY THIS WORK SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AS DETAILED OR AS SPECIFIED BY THE ENGINEER AND OWNER.
9. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO MINIMIZE DISTURBANCE OF EXISTING CONDITIONS AND OPERATIONS.
10. ALL NECESSARY FEES AND PERMITS SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.
11. WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT (INCLUDING DRIVEWAYS), SAW CUT EXISTING PAVEMENT AS SHOWN ON THE DETAILS. SAW CUTS SHALL BE SMOOTH AND STRAIGHT. WHERE NEW BITUMINOUS CONCRETE MEETS EXISTING BITUMINOUS CONCRETE SURFACES, SAW CUT EDGES ARE TO BE SEALED WITH BITUMEN AND BACKSANDS.



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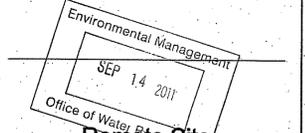
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No.	REVISION	DATE	APP BY
	DRAWN BY: ELU	CHECKED BY: PRW	
	DESIGNED BY: ELU	APPROVED BY: PRW	

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED DEC 29 2011 FILE # 11-0125
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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W. Joseph Casey

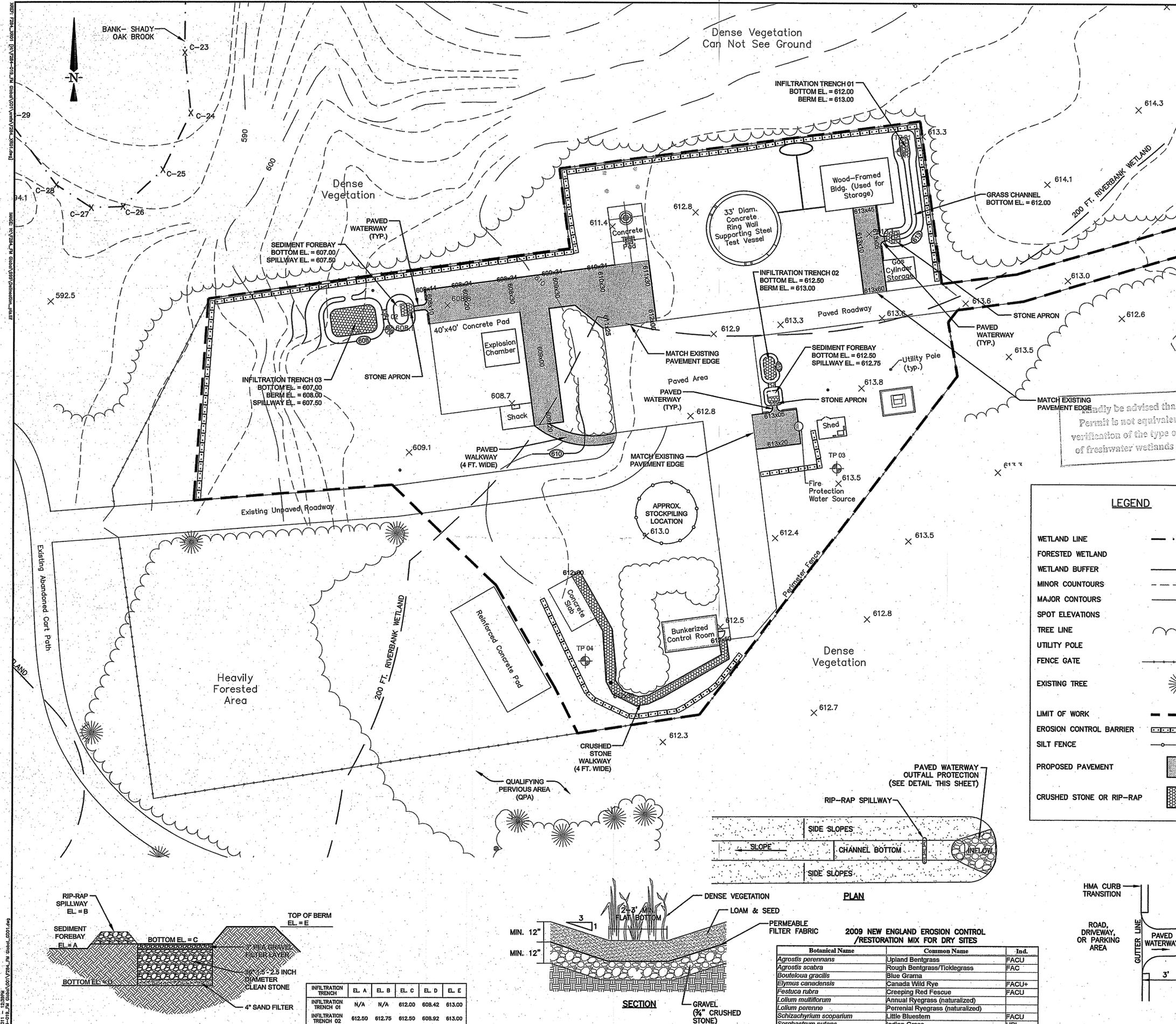
FM Global Research Campus
 743 Reynolds Road
 West Glocester, Rhode Island



Layout & Materials Plan

PROJECT No: F284-019 DRAWING No.
 DATE OF ISSUE: September 9, 2011
 SHEET No.: 3 of 4
 SCALE: 1"=20'

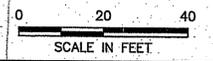
LM-01



- UTILITY NOTES:**
1. THE CONTRACTOR SHALL CALL "DIG SAFE" AT 1-888-344-7233 AND ALSO REQUEST OWNER INFORMATION ON UTILITY LOCATIONS AT LEAST 72 HOURS PRIOR TO EXCAVATION.
 2. CONTRACTOR SHALL NOTIFY ALL APPROPRIATE AGENCIES AND UTILITY COMPANIES, IN WRITING, 48 HOURS PRIOR TO ANY CONSTRUCTION WITHIN 10 FEET OF A UTILITY LINE.
 3. THE LOCATIONS OF UTILITIES SHOWN HEREON ARE THE RESULT OF SURFACE EVIDENCE AS LOCATED BY FIELD SURVEY, PLANS OF RECORD AND OTHER AVAILABLE SOURCES. THIS PLAN DOES NOT NECESSARILY DEPICT THE EXACT LOCATION OF THESE UTILITIES AND MAY NOT SHOW ALL OF THE UTILITIES WHICH EXIST WITHIN THE PREMISES SURVEYED. THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES SHALL BE CONSIDERED APPROXIMATE AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY UTILITY CONNECTIONS OR CROSSINGS OF PROPOSED OR EXISTING UTILITIES. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES RELATIVE TO THE LOCATIONS AND ELEVATIONS OF THESE LINES. THE CONTRACTOR IS RESPONSIBLE FOR HIS/HER OWN DETERMINATION AS TO THE TYPE AND LOCATION OF THE EXISTING UTILITIES AS MAY BE NECESSARY TO AVOID THEIR DAMAGE AND TO FACILITATE THE PROPOSED CONNECTION(S).
 4. ALL UTILITY CONNECTIONS ARE SUBJECT TO THE APPROVAL OF AND GRANTING OF PERMITS BY THE TOWN OF WEST GLOUCESTER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SEE THAT ALL PERMITS AND APPROVALS ARE OBTAINED.
 5. BEFORE STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAKING ALL NECESSARY ARRANGEMENTS AND FOR PERFORMING ANY NECESSARY WORK INVOLVED IN CONNECTION WITH THE DISCONTINUANCE OR JURISDICTION OF THE UTILITY COMPANIES, SUCH AS ELECTRICITY, TELEPHONE, WATER, AND ANY SYSTEM OR SYSTEMS WHICH WILL BE AFFECTED BY THE WORK TO BE PERFORMED UNDER THIS CONTRACT.
 6. CONSTRUCTION SHALL NOT INTERFERE WITH OR INTERRUPT UTILITIES WHICH ARE TO REMAIN IN OPERATION.
 7. THE CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN EXCAVATING NEAR AND BACKFILLING IN THE VICINITY OF EXISTING UTILITIES AND STRUCTURES, INCLUDING THE USE OF HAND EXCAVATION WHERE APPROPRIATE.
 8. ALL EXISTING PIPING AND STRUCTURES EXPOSED DURING EXCAVATION SHALL BE ADEQUATELY SUPPORTED, BRACED, OR OTHERWISE PROTECTED DURING CONSTRUCTION ACTIVITIES.
 9. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER AND OWNER FOR RESOLUTION OF THE CONFLICT.
 10. UNLESS OTHERWISE NOTED, A MINIMUM HORIZONTAL CLEARANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN WATER AND SEWER LINES.

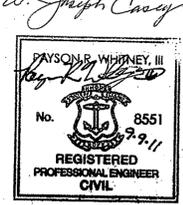
It is to be advised that this permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED DEC 29 2011 FILE # 11-1175
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LEGEND

WETLAND LINE	---
FORESTED WETLAND	~
WETLAND BUFFER	---
MINOR CONTOURS	- - - -
MAJOR CONTOURS	---
SPOT ELEVATIONS	X
TREE LINE	~
UTILITY POLE	.
FENCE GATE	---
EXISTING TREE	~
LIMIT OF WORK	---
EROSION CONTROL BARRIER	---
SILT FENCE	---
PROPOSED PAVEMENT	■
CRUSHED STONE OR RIP-RAP	■



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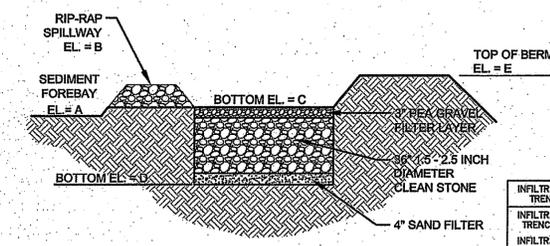
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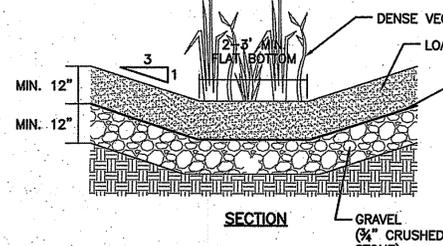
Environmental Management
Office of Water Resources
Remote Site
Grading & Drainage Plan

PROJECT No.: F284-019
DATE OF ISSUE: September 9, 2011
SHEET No.: 4 of 4
SCALE: 1"=20'

DRAWING No.
GD-01

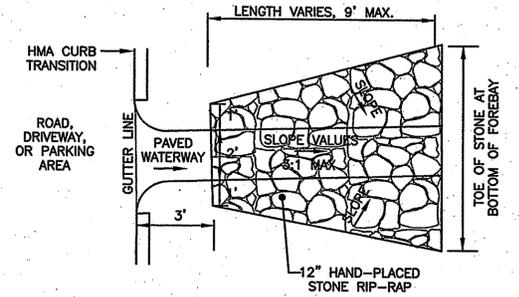


INFILTRATION TRENCH	EL. A	EL. B	EL. C	EL. D	EL. E
INFILTRATION TRENCH 01	N/A	N/A	612.00	608.42	613.00
INFILTRATION TRENCH 02	612.50	612.75	612.50	608.92	613.00
INFILTRATION TRENCH 03	607.00	607.50	606.00	602.42	608.00



2009 NEW ENGLAND EROSION CONTROL / RESTORATION MIX FOR DRY SITES

Botanical Name	Common Name	Ind.
<i>Agrostis perennans</i>	Upland Bentgrass	FACU
<i>Agrostis scabra</i>	Rough Bentgrass/Ticklegass	FAC
<i>Bouteloua gracilis</i>	Blue Grama	FACU+
<i>Elymus canadensis</i>	Canada Wild Rye	FACU+
<i>Festuca rubra</i>	Creeping Red Fescue	FACU
<i>Lolium multiflorum</i>	Annual Ryegrass (naturalized)	FACU
<i>Lolium perenne</i>	Perennial Ryegrass (naturalized)	FACU
<i>Schizachyrium scoparium</i>	Little Bluestem	FACU
<i>Sorghastrum nutans</i>	Indian Grass	UPL



INFILTRATION TRENCH DETAIL
NOT TO SCALE

GRASS CHANNEL DETAIL
NOT TO SCALE

PAVED WATERWAY OUTFALL PROTECTION DETAIL
NOT TO SCALE

DATE: Sep 09, 2011 11:32:09 AM
FILENAME: \\P284-019_P1.dwg
DRAWN BY: ELU
CHECKED BY: PRW
DESIGNED BY: ELU
APPROVED BY: PRW