

EROSION AND SEDIMENT CONTROL PLAN

WIND COLEBROOK SOUTH COLEBROOK, CONNECTICUT

Prepared for:



BNE Energy
29 South Main Street
Town Center, Suite 200
West Hartford, CT 06107

by:

CIVIL 1
43 Sherman Hill Road
Suite D-101
Woodbury, CT 06798



AUGUST 2011

TABLE OF CONTENTS

1.0	PROJECT INTRODUCTION.....	1-1
1.1	SITE SUMMARY	1-1
1.1.1	Existing Conditions	1-1
1.1.2	Project Description	1-1
1.1.3	Site Specific Concerns	1-1
1.1.4	Construction Schedule.....	1-1
1.2	PROJECT OWNER AND OPERATOR.....	1-2
1.3	SOILS, SLOPES, VEGETATION, AND CURRENT DRAINAGE PATTERNS.....	1-2
1.3.1	Soil type(s)	1-2
1.3.2	Slopes	1-2
1.3.3	Drainage Patterns	1-2
1.3.4	Vegetation	1-2
1.4	SITE FEATURES AND SENSITIVE AREAS TO BE PROTECTED.....	1-3
1.4.1	Receiving Waters and TMDL Applicability	1-3
1.4.2	Wetlands.....	1-3
2.0	CONSTRUCTION ACTIVITIES	2-1
2.1	DESCRIPTION OF CONSTRUCTION ACTIVITY	2-1
2.2	CONSTRUCTION SITE ESTIMATES	2-1
3.0	BEST MANAGEMENT PRACTICES.....	3-1
3.1	STRUCTURAL CONTROL PRACTICES	3-1
3.2	TEMPORARY EROSION CONTROL PRACTICES	3-1
3.2.1	Sediment Fence (GSF)	3-1
3.2.2	Hay Bale Barrier (HB)	3-2
3.2.3	Stone Check Dam (SCD)	3-2
3.2.4	Water Bars (WB).....	3-2
3.2.5	Temporary Diversion (TD)	3-2
3.2.6	Temporary Fill Berm (TFB).....	3-3
3.2.7	Temporary Sediment Trap (TST).....	3-3
3.2.8	Construction Entrance (CE)	3-3
3.2.9	Temporary Erosion Control Blankets (ECB)	3-3
3.3	SOIL STABILIZATION PRACTICES	3-4
3.4	MAINTENANCE AND INSPECTIONS	3-4
3.5	FINAL STABILIZATION	3-4
3.5.1	Seeding	3-4
3.5.2	Fertilizer	3-4
3.5.3	Mulching	3-5
3.5.4	Topsoiling.....	3-5
3.5.5	Temporary Control Removal	3-5

4.0 APPENDICES 4-1

APPENDICES

Appendix A	Maps and Drawings
Appendix B	Inspection and Maintenance Records
Appendix C	Supporting Calculations

Contact Information / Responsible Parties:

Permittee(s):

BNE Energy
29 South Main Street
Town Center, Suite 200
West Hartford, CT 06107
(800) 450-0503

Contractor Co-Permittee:

To be determined

Contractor Operator(s):

To be determined

Stormwater Manager and SWPPP Contact(s):

BNE Energy
29 South Main Street
Town Center Suite 200
West Hartford, CT 06107
(800) 450-0503

This SWPPP was prepared by:

Curtis Jones, P.E., LEED AP
CIVIL I
43 Sherman Hill Road
Suite D-101
Woodbury, CT 06798

**Section 1.0
PROJECT INTRODUCTION**

1.0 PROJECT INTRODUCTION

Project/Site Information:

Project/Site Name: Wind Colebrook South

Location: 17 & 29 Flagg Hill Road
Colebrook, Connecticut

Latitude/Longitude: Latitude: Longitude:
41° 57' 50" N 73° 08' 46" W

Method for determining latitude/longitude: Google Earth

1.1 SITE SUMMARY

1.1.1 Existing Conditions

The project is located at 17 & 29 Flagg Hill Road and consists of approximately 80 acres and is undeveloped with the exception of an existing house at 17 Flagg Hill Road. The Property is located along the Norfolk town line and approximately 600 feet from the Winsted/Winchester town line. Though the surrounding land uses are mixed, consisting of both commercial and residential development, the property is located in the R-2 residential zone. The Colebrook zoning regulations do not address wind turbine installations. The Property is abutted by the undeveloped land owned by the Nature Conservancy to the west, land owned by the Gun Club to the north and residential properties to the east and south. The site is currently accessed via Flagg Hill Road. This access point will be maintained throughout the construction process. Currently, there are no structural stormwater discharge points. All stormwater flows over land to discharge points off site.

1.1.2 Project Description

The Project consists of three GE 1.6MW wind turbines, associated ground equipment, the installation of an access driveway and an electrical connection. The installation of the turbines will require the construction of temporary equipment lay-down areas for the turbines, crane assembly area, access road and associated ground equipment including an electrical collector yard and associated utility infrastructure so that the turbines can be interconnected to the electrical grid. Following completion of the project, all temporary structures will be removed and the site returned to pre-construction conditions as far as practicable. The existing structure at 17 Flagg Hill Road will serve as a temporary construction office and in the future will serve as a permanent maintenance facility for the project. The existing well and septic system serving this structure will need to be relocated due to the construction of the access road to serve the project.

1.1.3 Site Specific Concerns

The terrain and existing topography of the project site is such that during construction special care will be required to ensure that all BMPs remain intact and are functional.

1.1.4 Construction Schedule

Currently specific dates for construction have not been determined but anticipate construction to begin in Late Fall 2011. Specific dates will be provided to reviewing officials.

1.2 PROJECT OWNER AND OPERATOR

The project owner and operator, BNE Energy, will be the responsible entity for completing the project. The address and telephone is:

BNE Energy
29 South Main Street
Town Center Suite 200
West Hartford, CT 06107
(800) 450-0503

1.3 SOILS, SLOPES, VEGETATION, AND CURRENT DRAINAGE PATTERNS

1.3.1 Soil type(s)

Based upon a review of typical geologic conditions and the National Soil Cooperative Survey, the soils have been classified as (1) Bice- Millsite complex soils slopes 3 to 45 percent slopes – very rocky; (2) Westminster- Millsite- Rock Outcrop complex 3 to 15 percent slopes; (3) Bice fine sandy loams ranging from 3 to 15 percent slopes – very stony; (4) Schroon fine sandy loams ranging from 2 to 15 percent slopes - very stony; (5) Shelburne fine sandy loam, 8 to 35 percent slopes – extremely stony; (6) Ashfield fine sandy loam, 8 to 15 percent slopes – very stony; (7) Wonsqueak mucky peat; and (8) Brayton-loonmeadow complex – extremely stony.

1.3.2 Slopes

The project site consists of varying slope conditions ranging from relatively flat conditions in the central portion of the site and moderately steep to steeper slopes in the extreme easterly and westerly portion of the site.

1.3.3 Drainage Patterns

Existing site topography is such that runoff migrates, typically via overland sheet flow, through the site to either the existing pond or to an existing ditch line along Flagg Hill Road. An unnamed perennial watercourse outlets from the pond in the vicinity of the southern Property boundary, flowing south.

1.3.4 Vegetation

The property is generally characterized by second growth and upland hardwood forest. Forested uplands in the eastern portion of the Property are dominated by deciduous pole timber (trees 4.0 to 11.9 inches diameter at breast height [DBH]) and small sawtimber size trees (12 to 15 inches DBH). While in the northwest and southwest corners of the property is characterized as red oak- northern hardwood forest.

1.4 SITE FEATURES AND SENSITIVE AREAS TO BE PROTECTED

***1.4.1 Receiving Waters and TMDL
Applicability***

There are currently no impaired waterways on the most current 303(d) listing of impaired waterways within the vicinity of the project site.

1.4.2 Wetlands

Wetlands soils within the property boundary have been identified and delineated. Mitigation and impacts are discussed in the environmental assessment completed by VHB, Inc.

Section 2.0
CONSTRUCTION ACTIVITIES

2.0 CONSTRUCTION ACTIVITIES

2.1 DESCRIPTION OF CONSTRUCTION ACTIVITY

Construction will typically consist of activities such as:

- Surveys to stake access roads, structural locations and limits of clearing
- Installation of sediment and erosion control devices
- Clearing of property necessary for construction
- Establishment of construction staging area
- Excavation and installation of access roads
- Excavation and installation of lay-down and equipment assembly areas
- Excavation and installation of foundations and erection of new structures
- Installation of conductors
- Restoration of site, including re-establishment of vegetative areas

2.2 CONSTRUCTION SITE ESTIMATES

The following are estimates of the construction site:

Property Area: +/- 80 acres

Area to be disturbed: 13.32 acres

Total estimated cut- 26, 850 cubic yards

Total estimated fill- 34,300 cubic yards

Fill to be brought on site- 7,450 cubic yards*

*Fill to be brought on site includes road gravel, asphalt and stone

Section 3.0
BEST MANAGEMENT PRACTICES

3.0 BEST MANAGEMENT PRACTICES

Soil erosion and sediment controls are measures that are used to reduce the amount of soil particles that are carried from a land area and deposited in receiving waters. This section provides a general description of the most appropriate control measures proposed for the Project. The permittee's construction contractor(s) and their subcontractors will be responsible for amending the erosion and sediment controls in the SWPPP for their portion(s) of the project as needed. Based on field conditions at the time of construction, the contractors or subcontractors may adjust the locations and types of BMPs so that erosion and sedimentation are controlled to the maximum extent practicable. However, in no case will modifications to the SWPPP result in any less stringent erosion and sedimentation control measures than specified herein.

3.1 STRUCTURAL CONTROL PRACTICES

Structural control practices divert flows from exposed soils, store water flow, or otherwise limit runoff from exposed areas of the site. Such practices may include silt fences, drainage swales, sediment traps, check dams, subsurface drains, rock outlet protection (rip-rap), reinforced soil retaining systems, and temporary or permanent sediment basins. Some of these practices may be used as both temporary and permanent control measures. Structural control practices should be placed in upland areas to the degree practicable to prevent erosion and reduce sedimentation in lower elevation areas. See Appendix A for additional information.

3.2 TEMPORARY EROSION CONTROL PRACTICES

Erosion and sediment control measures will be in place prior to the initiation of soil disturbing activities and will be maintained throughout construction. The contractor may need erosion control measures in other locations of the project as work progresses to keep sediment from leaving the construction site. These measures will be determined by the contractor in the field; if measures are changed in the field, the SWPPP must be modified accordingly. All temporary erosion controls will be removed after the protected area is finally stabilized. The minimum temporary erosion and sediment control practices that will be used for the Project are discussed in the following sections. See Appendix D for additional information.

3.2.1 *Sediment Fence (GSF)*

Sediment fence will retain sediment from small disturbed areas. Sediment fence will be placed along slopes as shown on the Erosion Control Plans and in accordance with the construction details. The contractor will use his best judgment to install additional sediment fence as necessary to prevent loss of sediment. Refer to section 5-11 of 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

Maintenance: Inspect the silt fence at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inches or greater to determine maintenance needs. When used for dewatering operations, inspect frequently before, during and after pumping operations. Remove the sediment deposits, or if room allows, install a second silt fence up slope from the existing fence when deposits reach approximately one half the height of the existing fence. Replace or repair within 24 hours of an observed failure. Refer to Connecticut Guidelines for Soil Erosion and

Sediment Control figure GF-5 for troubleshooting failures. Maintain silt fence until the contributing area is stabilized.

3.2.2 Hay Bale Barrier (HB)

Hay bale barriers will retain sediment from small disturbed areas. Hay bales will be placed along slopes as shown on the Erosion Control Plans and in accordance with the construction details. The contractor will use his best judgment to install additional hay bales as necessary to prevent loss of sediment. Refer to section 5-11 of 2002 Connecticut Guidelines for Soil and Sediment Control.

Maintenance: Inspect the hay bale barrier at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inches or greater to determine maintenance needs. When used for dewatering operations, inspect frequently before, during and after pumping operations. Remove the sediment deposits, or if room allows, install a secondary barrier up slope from the existing barrier when deposits reach approximately one half the height of the barrier. Replace or repair within 24 hours of an observed failure. Refer to Connecticut Guidelines for Soil Erosion and Sediment Control figure HB-5 for troubleshooting failures. Maintain hay bale barrier until the contributing area is stabilized.

3.2.3 Stone Check Dam (SCD)

Stone Check Dams Will be used to reduce velocity of concentrated flows, thus reducing erosion of the drainage way.

Maintenance: Inspect the stone check dam at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inches or greater to determine maintenance needs. Remove the sediment deposits when deposits reach approximately one half the height of the Check dam. Replace or repair within 24 hours of an observed failure. Maintain until the contributing area is stabilized.

3.2.4 Water Bars (WB)

The Water Bar is a non-engineered measure consisting of a channel with a supporting earthen ridge used on access and construction roads to intercept flows in the roadway that have a drainage area less than 1 acre and to force these flows off the roadway.

Maintenance: For water bars receiving drainage from disturbed areas, inspect and perform any repair work at the end of each day that the water bar is exposed to vehicular traffic and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater. For water bars receiving drainage from stable areas inspect and perform any repair work at the end of each day that the water bar is exposed to vehicular traffic or annually, whichever comes first. Immediately reshape and repair any observed damage to the water bar. If sediment deposits reach approximately one-half the height of the water bar, remove the accumulated sediments. When the water bars have served their usefulness they may be removed.

3.2.5 Temporary Diversion (TD)

Will be used to divert sediment laden runoff from a disturbed area to a sediment trapping facility.

Maintenance: When the temporary diversion is located within close proximity to on going construction activities, inspect the diversion at the end of each work day and immediately repair damage caused by construction equipment. Otherwise, inspect the temporary diversion and associated measures at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inches or greater to determine maintenance needs. Repair within 24 hours of an observed failure.

3.2.6 Temporary Fill Berm (TFB)

Will be used to divert runoff from unprotected fill slopes during construction to a stabilized outlet or sediment trapping facility.

Maintenance: Inspect the temporary fill berm and associated controls at the end of each work day to ensure the criteria for installing the measures have been met. Determine if repair or modification is needed. This measure is temporary and under most situations will be covered the next work day. Maintenance requirements should be minimal. The contractor should avoid placing other material over the berm and construction traffic should not be allowed to cross.

3.2.7 Temporary Sediment Trap (TST)

Will be used to detain sediment laden runoff from small disturbed areas long enough to allow the majority of sediment to settle out.

Maintenance: Inspect the temporary sediment trap and associated controls at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inches or greater to determine maintenance needs. Check the outlet to verify that it is structurally sound and has not been damaged by erosion or construction equipment. The height of the stone outlet should be maintained at least 1 foot below the crest of the embankment. When sediment has accumulated more than one quarter of the minimum wet storage volume, dewater and remove sediment as necessary to restore the trap to its original dimensions.

3.2.8 Construction Entrance (CE)

Will be used to reduce tracking of sediment off site to paved areas.

Maintenance: Maintain the entrance in a condition which will prevent tracking and washing of sediment onto paved surfaces. Provide periodic top dressing with additional stone or additional length as required. Immediately remove all sediment spilled, dropped, washed or tracked onto paved surfaces.

3.2.9 Temporary Erosion Control Blankets (ECB)

Will be used to provide temporary surface protection to disturbed soils to absorb raindrop impact and to reduce sheet and rill erosion until vegetation is established.

Maintenance: Inspect temporary erosion control blankets at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inches or greater to determine maintenance needs. Repair any dislodged or failed blankets immediately.

3.3 SOIL STABILIZATION PRACTICES

Soil stabilization involves covering disturbed soils with grass, mulch, straw, geotextiles, trees, vines, or shrubs. Stabilization practices for exposed disturbed soils are extremely important while conducting construction activities. Vegetative cover serves to reduce the erosion potential by absorbing the energy of raindrops, promoting infiltration in lieu of runoff, and reducing the velocity of runoff. Stabilization measures shall be initiated as soon as practicable, but no more than 14 days after construction activities have temporarily or permanently ceased on any portion of the site.

3.4 MAINTENANCE AND INSPECTIONS

All erosion and sediment control devices shall be installed pursuant to the specifications in the construction details and in accordance with the Connecticut General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities . They will be maintained so that they remain effective at all times.

Erosion and sediment control devices will be inspected by qualified personnel at least once every seven calendar days and within 24 hours of each 0.5-inch or greater rainfall event. During each inspection, the construction inspector will complete the Inspection and Maintenance Report Form located in the appendix. This form will be copied and used as necessary. Ineffective temporary erosion control measures will be repaired or replaced before the next storm event or as soon as practicable. The permittee will immediately install additional temporary erosion control devices in any area deemed in need of protection.

Following temporary or final stabilization, inspections must be conducted at least once a month. If construction has been halted due to frozen conditions, regular inspections are not mandatory until one month before the expected thaw. If vegetation establishment is not satisfactory, special steps to correct the problem will be implemented such as over seeding, mulching, sodding, or the use of erosion control blankets. Once a definable area of the construction site has been finally stabilized, no further inspection requirements apply to that area.

3.5 FINAL STABILIZATION

3.5.1 Seeding

The contractor will be responsible for labor, materials, tools, equipment, and other related items required for preparing ground, providing for sowing of seeds, fertilizing, mulching and top dressing, and other management practices required for erosion control and to achieve final stabilization. It will be the contractor's responsibility to make sure that the soil seedbed is not blown, washed, or otherwise removed from the site. The contractor will make repairs (including replacement of lost topsoil and mulch) to the seedbed preparation site in the event of heavy rain, wind, or other natural events that cause damage. When practicable, native plant species should be used for landscaping.

3.5.2 Fertilizer

Soil in areas of disturbance may need supplementation from fertilizer. Soil tests may be necessary to determine the most appropriate fertilizer for each location. Once applied, the fertilizer will be

worked into the soil to limit exposure to stormwater. Fertilizer spills will be cleaned up immediately and will not be applied along or in a waterway.

3.5.3 *Mulching*

Mulching will be used in conjunction with both temporary and permanent seeding practices to enhance success by providing erosion protection prior to the onset of vegetative growth. Mulches enhance plant establishment by moderating soil temperatures and conserving moisture. After seeding, straw or hay mulch will be applied at a rate of two to three tons per acre on the disturbed areas. Other forms of mulch will be applied at a rate designated by the Project Engineer. Mulch will not be applied in wetlands, on lawns, and areas where hydro-mulch is used. Mulch will be anchored immediately after placement on steep slopes and stream banks. Mulch will be held in place by a very thin covering of topsoil, small brush, pins, stakes, wire mesh, asphalt binder, or other adhesive material approved by the project engineer.

3.5.4 *Topsoiling*

Topsoil should be applied in areas where the subsoil or existing surface soil does not provide an adequate growth medium for the desired vegetation, where soil is too shallow to provide adequate rooting depth, or where the soil contains substances toxic to the desired vegetation. Topsoil shall be reasonably free from subsoil and stumps, roots, brush, stones, and clay lumps or similar objects.

3.5.5 *Temporary Control Removal*

Temporary erosion controls will be left in place until the Project site is stabilized with a uniform vegetative cover of 70 percent density of the native background vegetative cover on all unpaved areas. Following re-vegetation, the permittee will conduct periodic site visits to make sure that vegetation establishment is satisfactory. If sufficient vegetative cover has not been achieved, additional restoration measures will be implemented. Inspection results will be documented using the Inspection and Maintenance Report Form found in the appendix. All temporary soil erosion and sediment control measures will be removed and disposed of after final site stabilization is achieved and before submitting the Notice of Termination (NOT) to the CT DEP.

Section 4.0
EROSION CONTROL PLAN APPENDICES

4.0 SWPPP APPENDICES

Attach the following documentation to the SWPPP in the following appendices.

Appendix A – Maps and Drawings

- Erosion Control Plans
- Post Construction Grading Plans
- Erosion Control Narrative and Details

Appendix B – Inspection and Maintenance Records

- Inspection & Maintenance Log
- Inspection Report
- Maintenance Report

Appendix C – Supporting Calculations

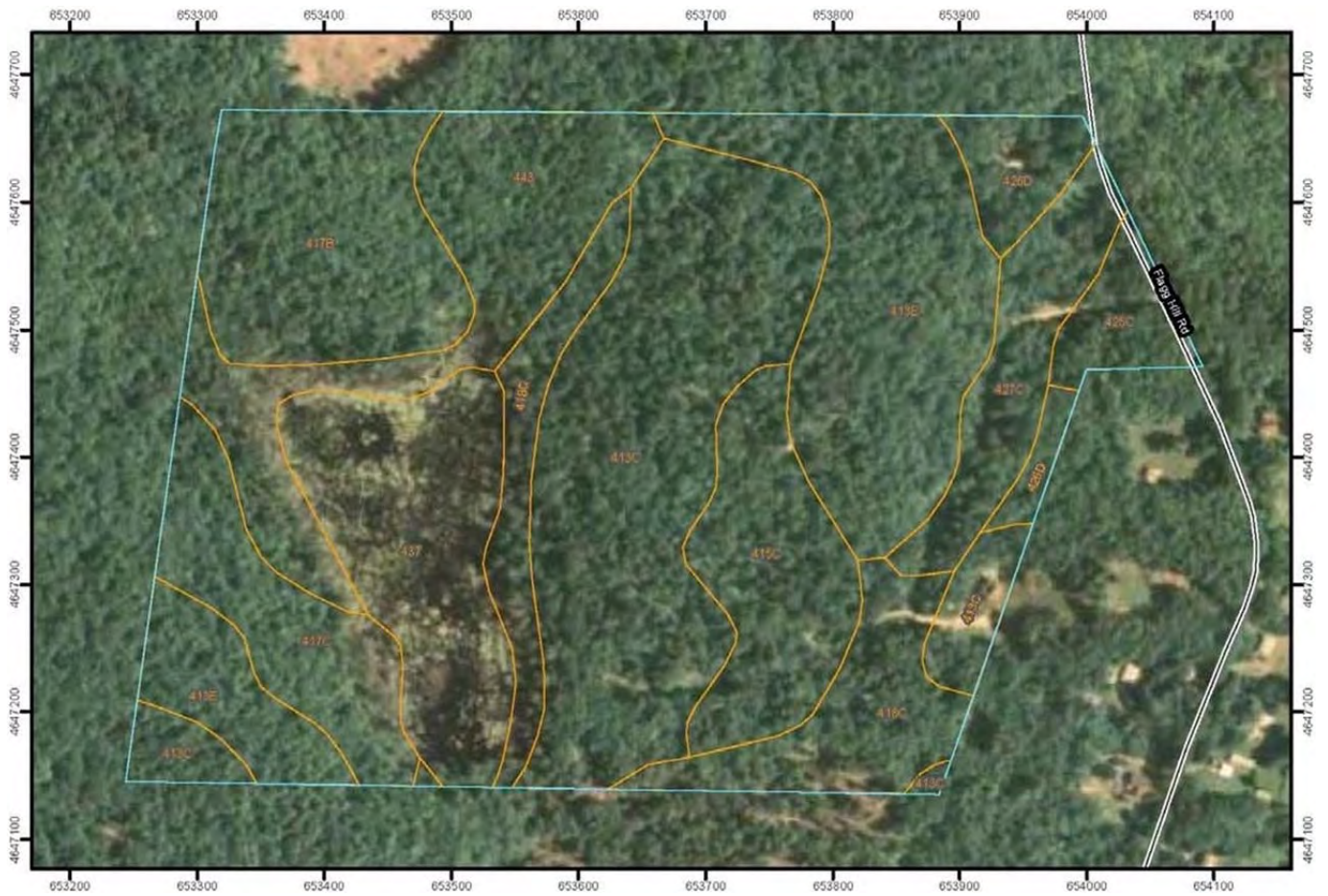
- Calculations for O and Temporary Sediment Traps

Appendix A
MAPS AND DRAWINGS

Erosion and Sediment Control Plan
Wind Colebrook South
Colebrook, Connecticut



Soils Map



Soil Map-State of Connecticut
(Wind Colebrook South)

MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)		Very Stony Spot
Soils		Soil Map Units		Wet Spot
SpecialPoint Features		Other		Other
	Blowout	SpecialLine Features		Gully
	Borrow Pit		Short Steep Slope	
	Clay Spot		Other	
	Closed Depression	PoliticalFeatures		Cities
	GravelPit	WaterFeatures		Oceans
	Gravelly Spot		Streams and Canals	
	Landfill	Transportation		Rails
	Lava Flow		Interstate Highways	
	Marsh or swamp		US Routes	
	Mine or Quarry		Major Roads	
	Miscellaneous Water		LocalRoads	
	PerennialWater			
	Rock Outcrop			
	Saline Spot			
	Sandy Spot			
	Severely Eroded Spot			
	Sinkhole			
	Slide or Slip			
	Sodic Spot			
	SpoilArea			
	Stony Spot			

MAP INFORMATION

Map Scale: 1:4,700 if printed on A size (8.5" x 11") sheet.

The soilsurveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

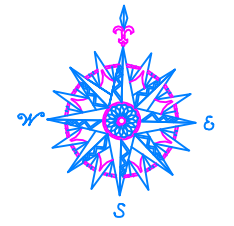
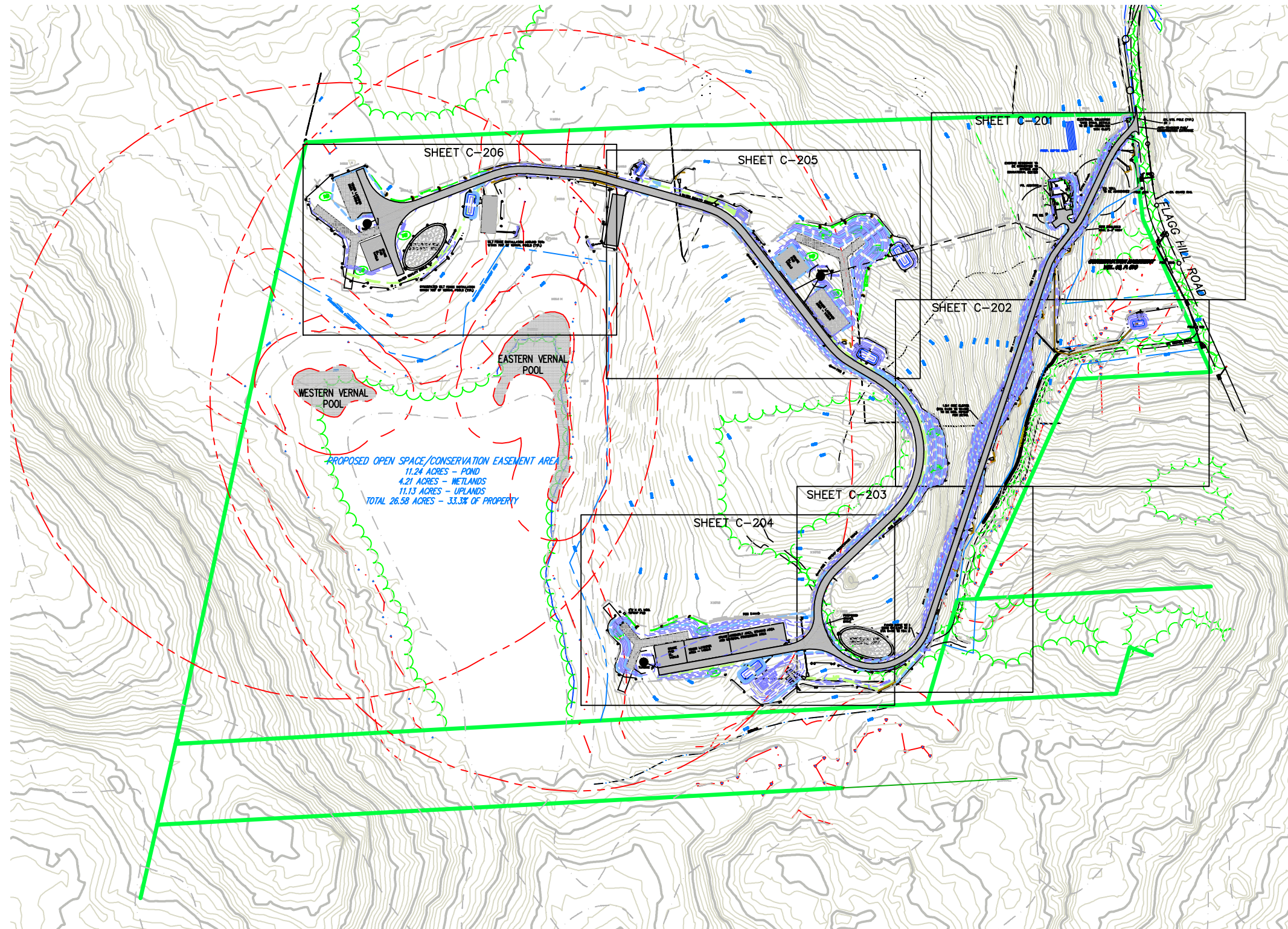
Soil Survey Area: State of Connecticut
Survey Area Data: Version 7, Dec 3, 2009

Date(s) aerial images were photographed: 8/14/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

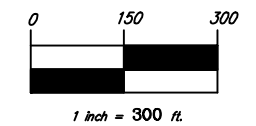
Map Unit Legend

State of Connecticut(CT600)			
Map Unit Symbol	Map Unit Name	Acres In AOI	Percent of AOI
413C	Bice-Millsite complex.3 to 15percent slopes. very rocky	20.1	22.0%
413E	Bice-Millsite complex, 15 to 45 percent slopes, very rocky	14.5	15.8%
415C	Westminster-Millsite-Rock outcrop complex.3 to 15 percent slopes	6.4	7.0%
4178	Bice fine sandy loam, 3 to 8 percent slopes, very stony	8.9	9.7%
417C	Bice fine sandy loam,8 to 15 percent slopes, very stony	5.5	6.0%
418C	Schroon fine sandy loam.2 to 15 percent slopes, very stony	8.3	9.0%
425C	Shelburne fine sandy loam.8 to 15 percent slopes, very stony	2.0	2.2%
4260	Shelburne fine sandy loam. 15 to 35 percent slopes. extremely stony	2.6	2.9%
427C	Ashfield fine sandy loam,8 to 15 percent slopes, very stony	4.6	5.0%
437	Wonsqueak mucky peat	9.1	9.9%
443	Brayton-loonmeadow complex, extremely stony	9.5	10.4%
Totals for Area of Interest		91.8	100.0%



NO.	REVISION	DATE

Previous Editions Obsolete



BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

EROSION CONTROL PLAN

WIND COLEBROOK SOUTH
 FLAG HILL ROAD



CONVERSION PROFESSIONAL PARK, SUITE D-481
 45 STEPHAN HILL ROAD
 WOODBRURY, CT 06798
 (203) 366-9778

DESIGN BY	APPROVED BY
DATE	DATE
PROJ. NO.	SCALE
CLIENT FILE NO.	

C200

LEGEND

- TD →
- PCS →

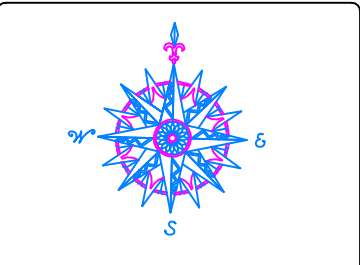
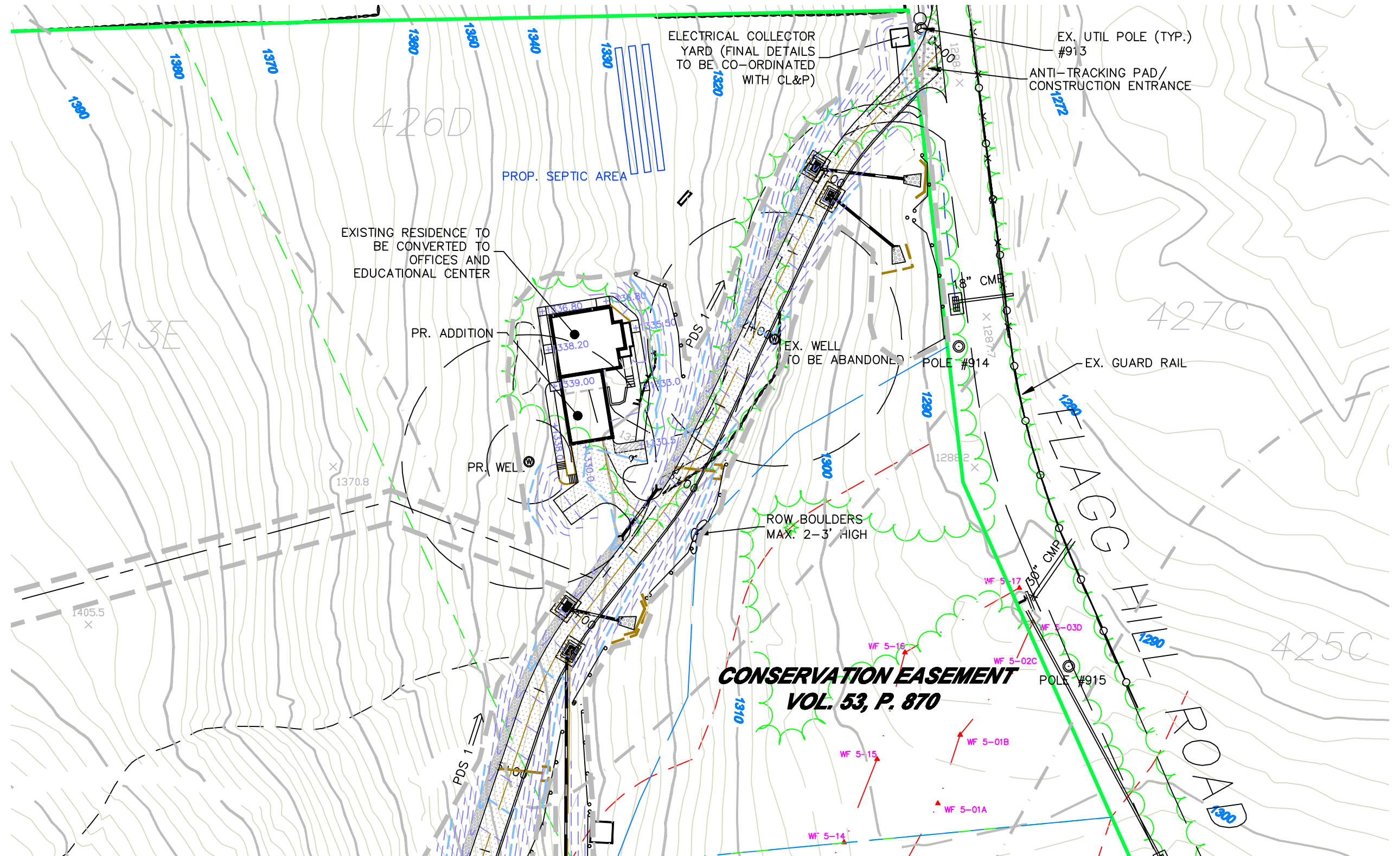
- COMPACTED EARTH
- LIMITS OF CLEARING
- TEMP. WATER DIVERSION SWALE
- PERM. RIPRAP DIVERSION/CONVEYANCE
- DRY WATER QUALITY SWALE
- SOIL TYPE BOUNDARY
- STAKED HAY BALES
- SILT FENCE

- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED STORM DRAINAGE
- EDGE OF WATER
- WETLANDS/WATERCOURSE BOUNDARY
- 100' WETLANDS REVIEW AREA
- EXISTING ROADWAY
- PROPOSED ACCESS DRIVE



- BALED FILTER
- TEMPORARY SOIL STOCKPILE
- TEMPORARY SEDIMENT TRAP
- TEMPORARY SEEDING
- EROSION CONTROL BLANKET
- STONE CHECK DAM
- WATER BAR WITH STAKED HAYBALES

- 2' X 2' STONE INFILTRATION TRENCH
- VERNAL POOL AREA
- 100' VERNAL POOL SETBACK
- 750' VERNAL POOL SETBACK



NO.	REVISION	DATE

Previous Editions Obsolete



1 inch = 60 ft.

BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

EROSION CONTROL PLAN
 ACCESS DRIVE STA.
 0+00 TO 5+50

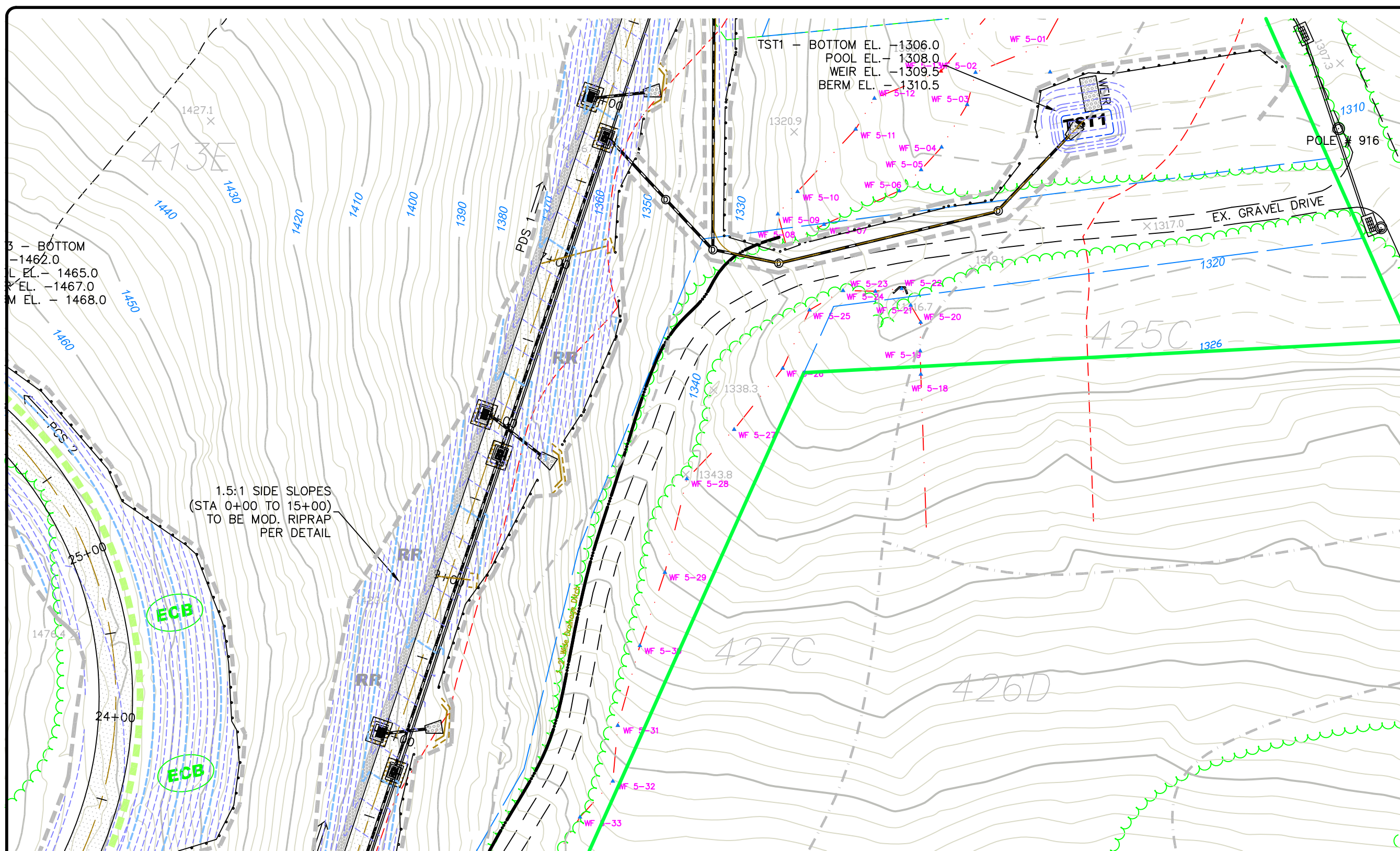
WIND COLEBROOK SOUTH
 FLAGG HILL ROAD

CONSERVATION EASEMENT
VOL. 53, P. 870

LEGEND			
	COMPACTED EARTH		PROPERTY LINE
	LIMITS OF CLEARING		EXISTING CONTOUR
	TEMP. WATER DIVERSION SWALE		PROPOSED CONTOUR
	PERM. RIPRAP DIVERSION/CONVEYANCE		PROPOSED STORM DRAINAGE
	DRY WATER QUALITY SWALE		EDGE OF WATER
	SOIL TYPE BOUNDARY		WETLANDS/WATERCOURSE BOUNDARY
	STAKED HAY BALES		100' WETLANDS REVIEW AREA
	SILT FENCE		EXISTING ROADWAY
			PROPOSED ACCESS DRIVE
			BALED FILTER
			TEMPORARY SOIL STOCKPILE
			TEMPORARY SEDIMENT TRAP
			TEMPORARY SEEDING
			EROSION CONTROL BLANKET
			STONE CHECK DAM
			WATER BAR WITH STAKED HAYBALES

CIVIL C1
 CORNERSTONE PROFESSIONAL PARK, SUITE D-484
 48 SHERMAN HILL ROAD
 WOODBURY CT 06897-0778

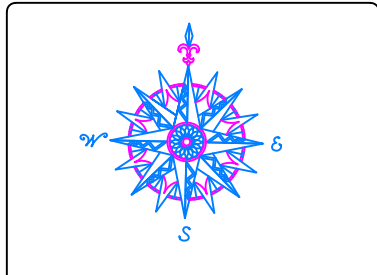
DESIGNED BY	APPROVED BY
DATE: 1" = 60'	
DATE: 28 AUG 11	
PROJECT NO: 3008	
CADD FILE NAME: 3008	
DRAWING FILE:	
C201	



TST1 - BOTTOM EL. -1306.0
 POOL EL. -1308.0
 WEIR EL. -1309.5
 BERM EL. -1310.5

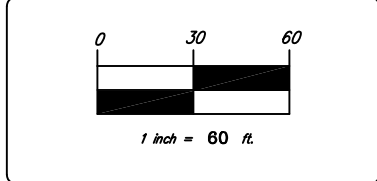
3 - BOTTOM
 -1462.0
 L EL. -1465.0
 R EL. -1467.0
 M EL. -1468.0

1.5:1 SIDE SLOPES
 (STA 0+00 TO 15+00)
 TO BE MOD. RIPRAP
 PER DETAIL



NO.	REVISION	DATE

Previous Editions Obsolete



BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

EROSION CONTROL PLAN
 ACCESS DRIVE STA.
 5+50 TO 10+50

WIND COLEBROOK SOUTH
 FLAGG HILL ROAD
 COLEBROOK CONNECTICUT

LEGEND	
	COMPACTED EARTH
	LIMITS OF CLEARING
	TEMP. WATER DIVERSION SWALE
	PERM. RIPRAP DIVERSION/CONVEYANCE
	DRY WATER QUALITY SWALE
	SOIL TYPE BOUNDARY
	STAKED HAY BALES
	SILT FENCE
	PROPERTY LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED STORM DRAINAGE
	EDGE OF WATER
	WETLANDS/WATERCOURSE BOUNDARY
	100' WETLANDS REVIEW AREA
	EXISTING ROADWAY
	PROPOSED ACCESS DRIVE
	BALED FILTER
	TEMPORARY SOIL STOCKPILE
	TEMPORARY SEDIMENT TRAP
	TEMPORARY SEEDING
	EROSION CONTROL BLANKET
	STONE CHECK DAM
	WATER BAR WITH STAKED HAYBALES

TST

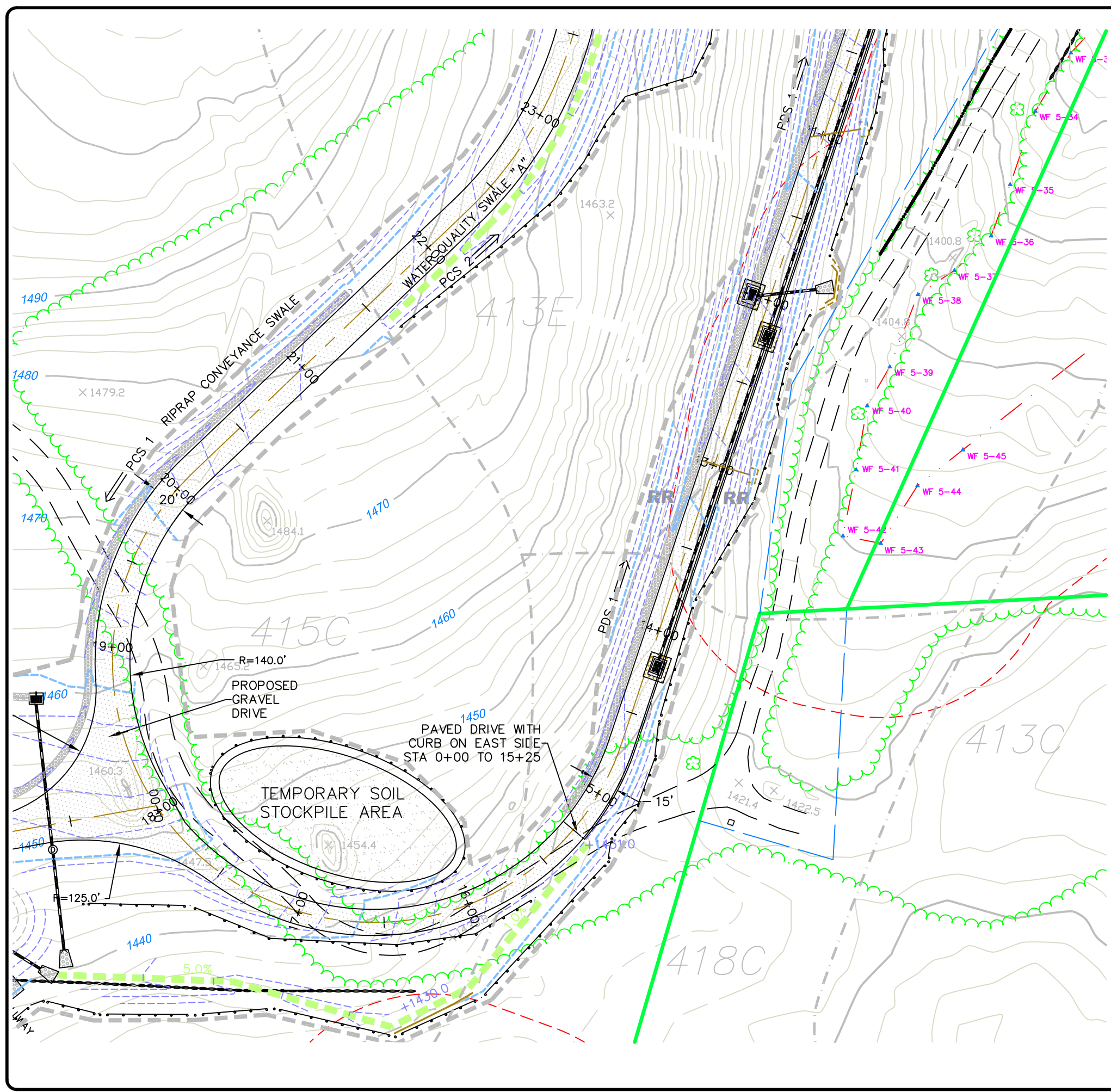
TS

ECB

CIVIL C1

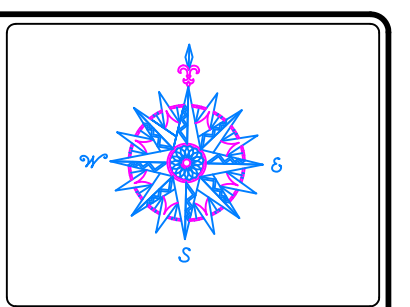
CORNERSTONE PROFESSIONAL PARK, SUITE D-101
 43 SHERMAN HILL ROAD
 WOODBURY (203) 266-0778 CONNECTICUT

DATE: 26 AUG 11
 PROJ. NO.: 3092
 CADD FILE NAME: 3092
 DRAWING NO.: **C202**



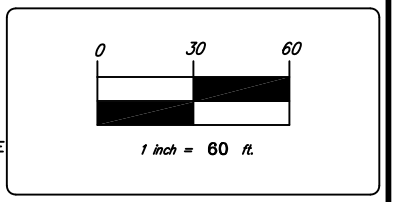
LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED STORM DRAINAGE
- EDGE OF WATER
- WETLANDS/WATERCOURSE BOUNDARY
- 100' WETLANDS REVIEW AREA
- EXISTING ROADWAY
- PROPOSED ACCESS DRIVE
- COMPACTED EARTH
- LIMITS OF CLEARING
- TEMP. WATER DIVERSION SWALE
- PERM. RIPRAP DIVERSION/CONVEYANCE
- DRY WATER QUALITY SWALE
- SOIL TYPE BOUNDARY
- STAKED HAY BALES
- SILT FENCE
- BALED FILTER
- TEMPORARY SOIL STOCKPILE
- TEMPORARY SEDIMENT TRAP
- TEMPORARY SEEDING
- EROSION CONTROL BLANKET
- STONE CHECK DAM
- WATER BAR WITH STAKED HAYBALES
- 2' X 2' STONE INFILTRATION TRENCH



NO.	REVISION	DATE

Previous Editions Obsolete



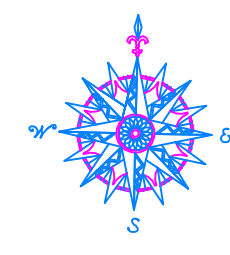
BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

EROSION CONTROL PLAN
 ACCESS DRIVE STA.
 10+50 TO 23+50

WIND COLEBROOK SOUTH
 FLAGG HILL ROAD
 COLEBROOK CONNECTICUT

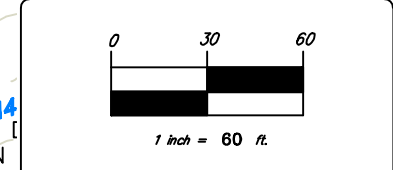
CORNERSTONE PROFESSIONAL PARK, SUITE D-101
 43 SHERMAN HILL ROAD
 WOODBURY (203) 266-0778 CONNECTICUT

DESIGNER: BB	APPROVER: CJ
SCALE: 1" = 60'	
DATE: 26 AUG 11	
PROJ. NO.: 3092	
CHOP FILE NAME: 3092	
DRAWING NO.: C203	



NO.	REVISION	DATE

Previous Editions Obsolete



BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

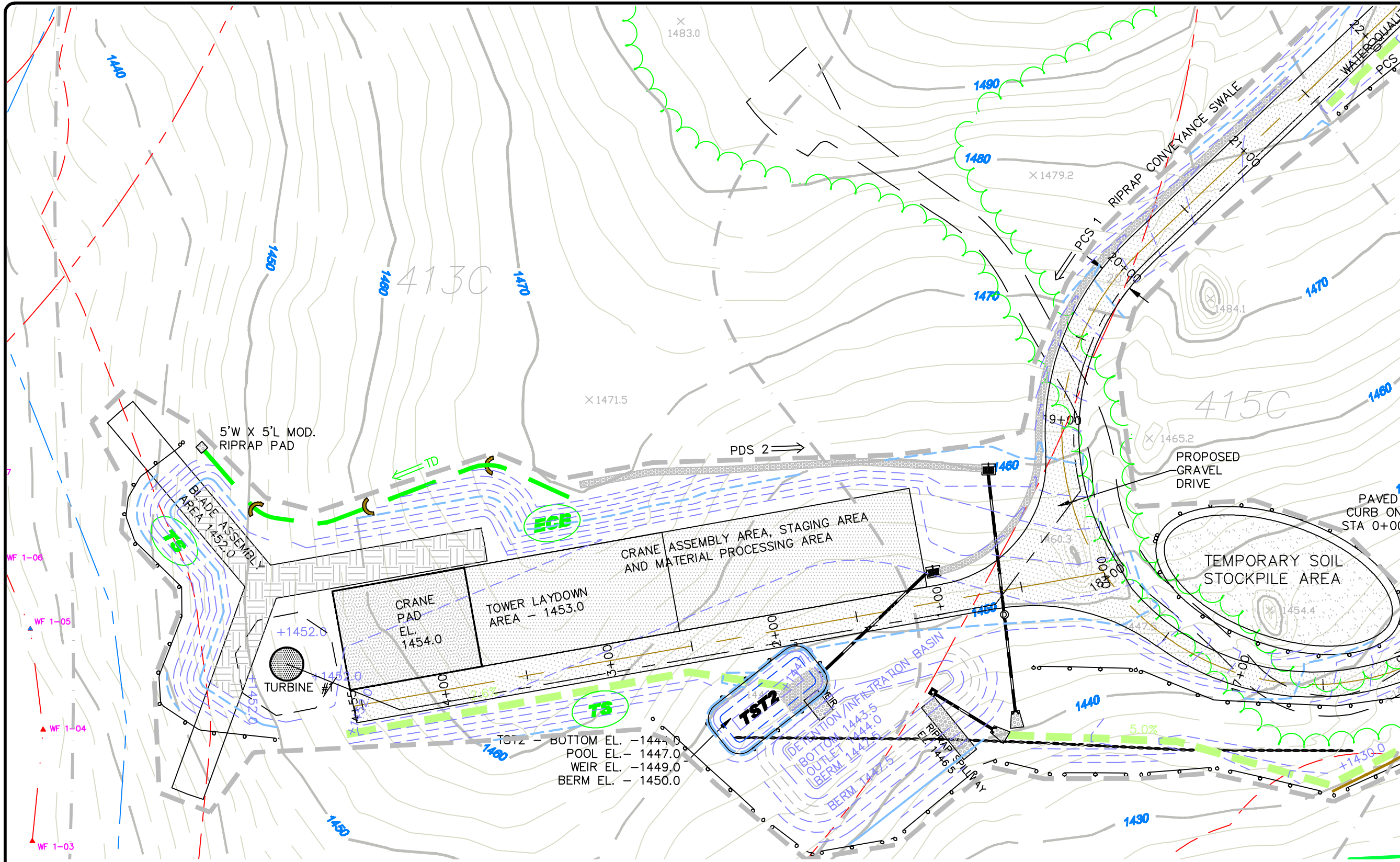
EROSION CONTROL PLAN
TURBINE ONE LOCATION
AND ACCESS DRIVE STA.
0+00 TO 4+55

WIND COLEBROOK SOUTH
 FLAGG HILL ROAD
 COLEBROOK CONNECTICUT

Civil C1

CONVERSE PROFESSIONAL PARK, SUITE D-921
 43 BISHOP HILL ROAD
 WOODBRURY CT 06798

DATE: 20 AUG 11
 SCALE: 1" = 60'
 DRAWING NO: C204

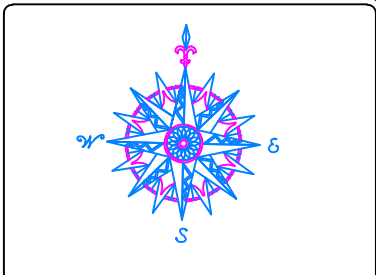
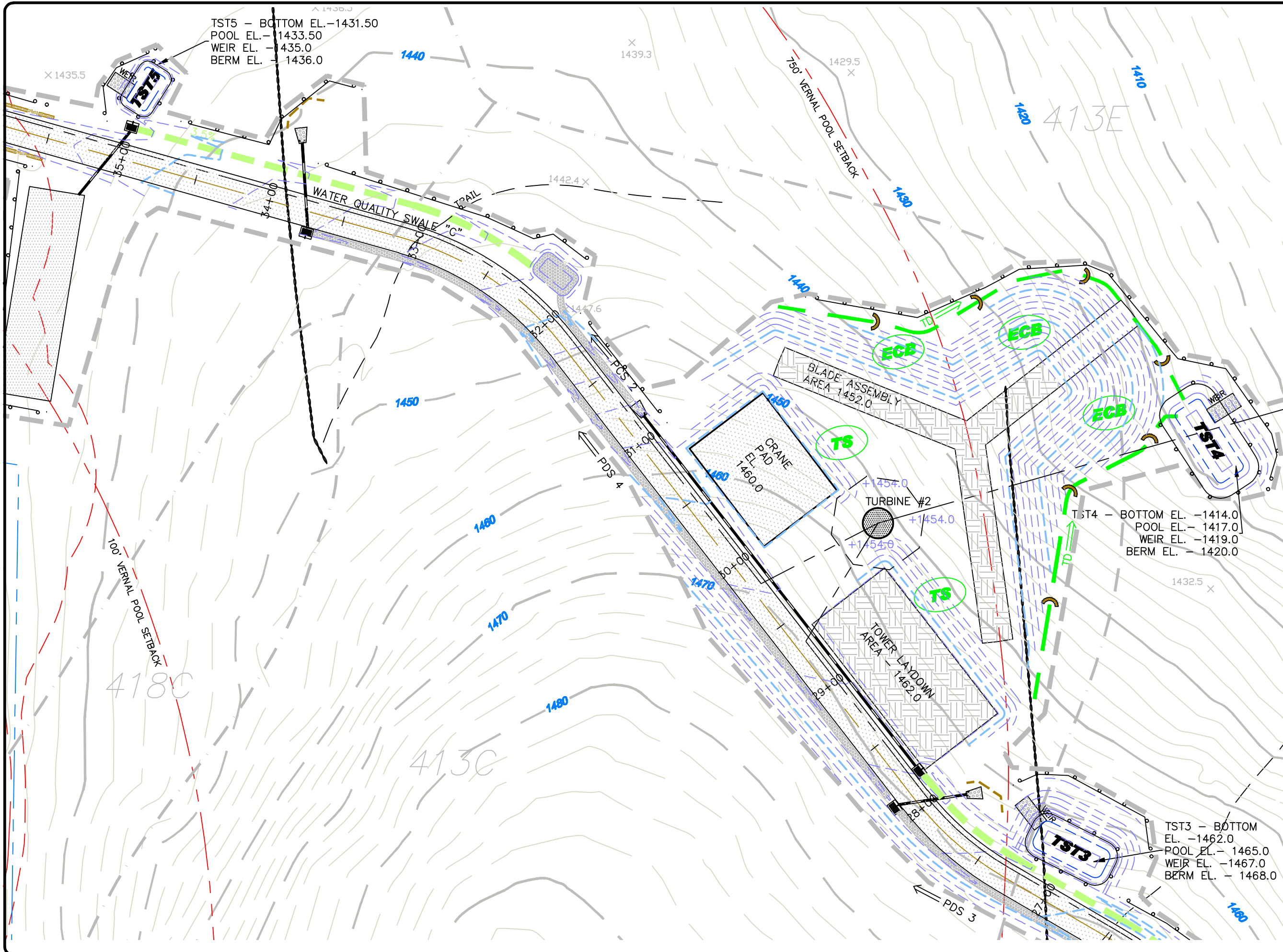


- WF 1-06
- WF 1-05
- WF 1-04
- WF 1-03

LEGEND

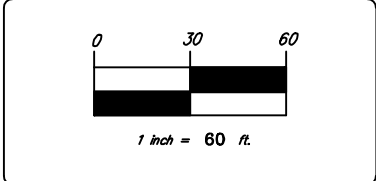
- | | | |
|--|--|--|
| COMPACTED EARTH
LIMITS OF CLEARING
TEMP. WATER DIVERSION SWALE
PERM. RIPRAP DIVERSION/CONVEYANCE
DRY WATER QUALITY SWALE
SOIL TYPE BOUNDARY
STAKED HAY BALES
SILT FENCE | PROPERTY LINE
EXISTING CONTOUR
PROPOSED CONTOUR
PROPOSED STORM DRAINAGE
EDGE OF WATER
WETLANDS/WATERCOURSE BOUNDARY
100' WETLANDS REVIEW AREA
EXISTING ROADWAY
PROPOSED ACCESS DRIVE | BALED FILTER
TEMPORARY SOIL STOCKPILE
TEMPORARY SEDIMENT TRAP
TEMPORARY SEEDING
EROSION CONTROL BLANKET
STONE CHECK DAM
WATER BAR WITH STAKED HAYBALES |
|--|--|--|

- TST
- TS
- ECB



NO.	REVISION	DATE

Previous Editions Obsolete



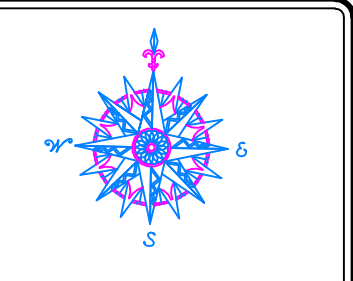
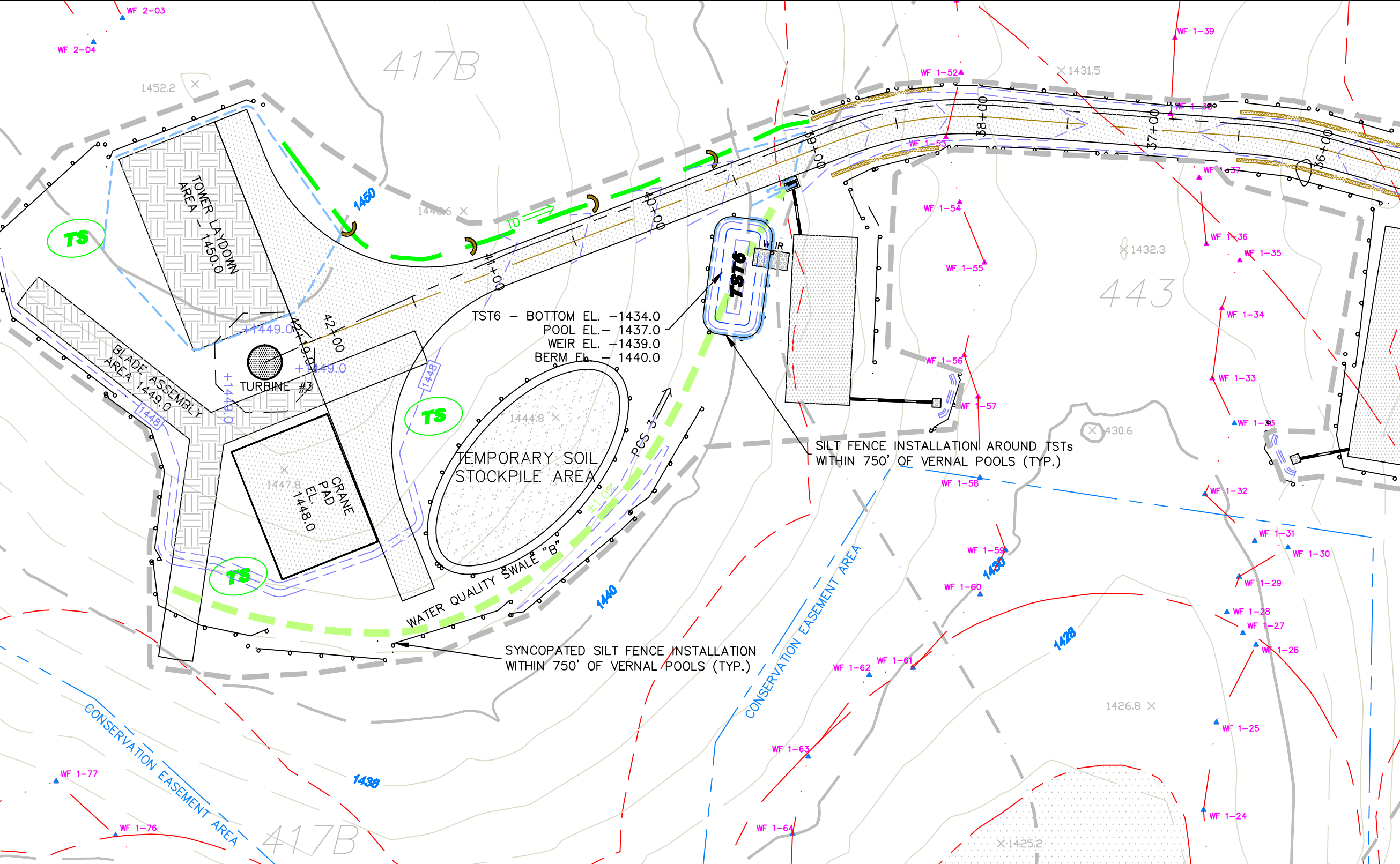
BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

EROSION CONTROL PLAN
TURBINE TWO LOCATION
AND ACCESS DRIVE STA.
26+50 TO 35+50

WIND COLEBROOK
SOUTH
 FLAGG HILL ROAD

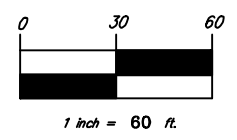


SCALE: 1" = 60'	DATE: 20 AUG 11
DRAWN BY: [Name]	CHECKED BY: [Name]
APPROVED BY: [Signature]	DATE: 20 AUG 11
C205	



NO.	REVISION	DATE

Previous Editions Obsolete



BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

EROSION CONTROL PLAN
TURBINE THREE LOCATION
AND ACCESS DRIVE STA.
35+50 TO 42+19

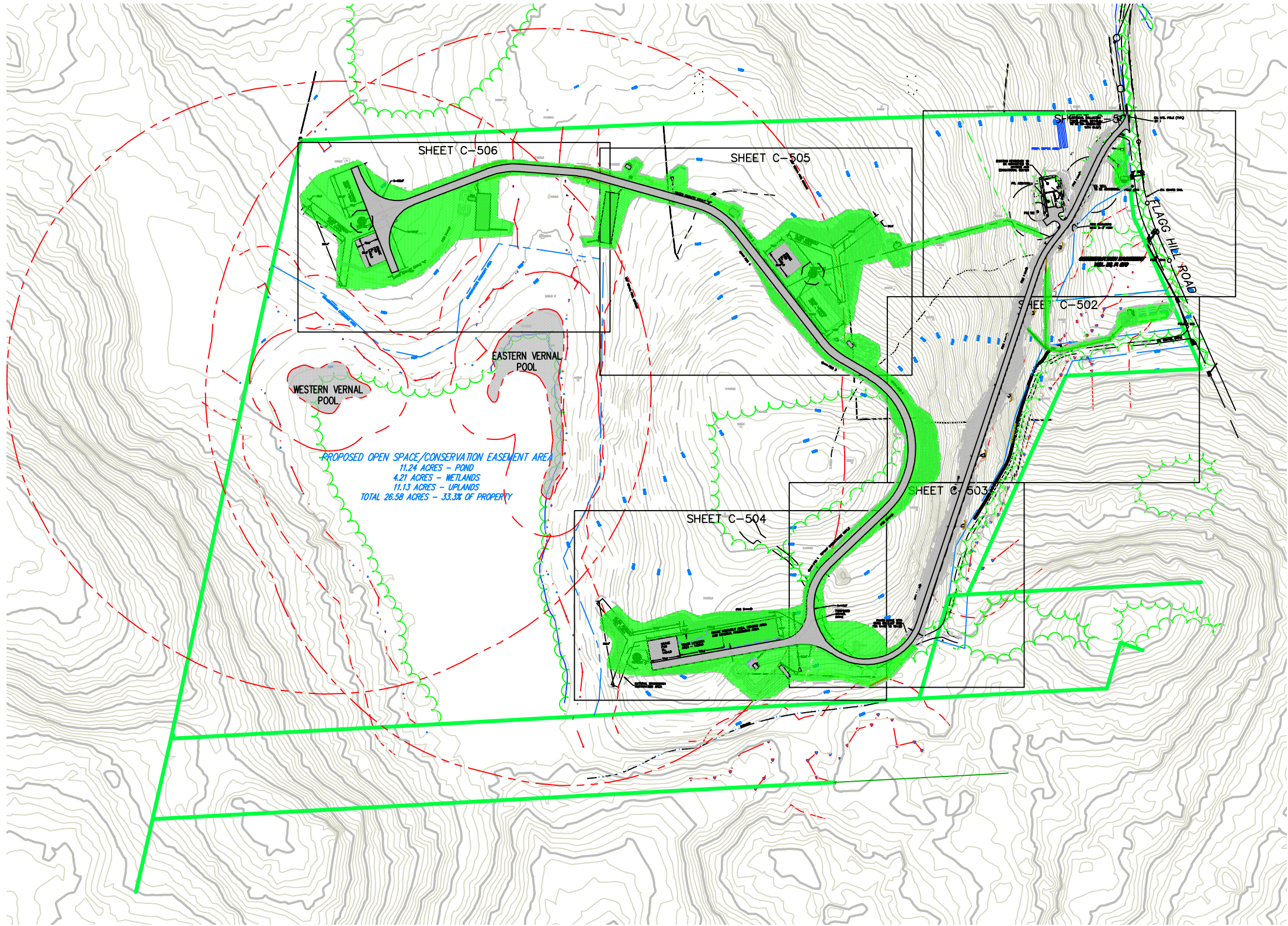
WIND COLEBROOK SOUTH
 FLAGG HILL ROAD



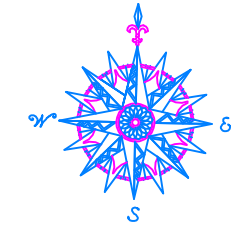
CORNERSTONE PROFESSIONAL PARK, SUITE D-902
 43 BISHOPIAN HILL ROAD
 WEST HARTFORD, CT 06107
 (860) 298-0778

DRAWN BY: [Blank] APPROVED BY: [Blank]
 SCALE: 1" = 60'
 DATE: 28 AUG 11
 PROJ. NO.: 0909
 COND. FILE NAME: 0909
 DRAWING NO.: **C206**

LEGEND	
	COMPACTED EARTH
	LIMITS OF CLEARING
	TEMP. WATER DIVERSION SWALE
	PERM. RIPRAP DIVERSION/CONVEYANCE
	DRY WATER QUALITY SWALE
	SOIL TYPE BOUNDARY
	STAKED HAY BALES
	SILT FENCE
	PROPERTY LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED STORM DRAINAGE
	EDGE OF WATER
	WETLANDS/WATERCOURSE BOUNDARY
	100' WETLANDS REVIEW AREA
	EXISTING ROADWAY
	PROPOSED ACCESS DRIVE
	BALED FILTER
	TEMPORARY SOIL STOCKPILE
	TEMPORARY SEDIMENT TRAP
	TEMPORARY SEEDING
	EROSION CONTROL BLANKET
	STONE CHECK DAM
	WATER BAR WITH STAKED HAYBALES
	2' X 2' STONE INFILTRATION TRENCH
	VERNAL POOL AREA
	100' VERNAL POOL SETBACK
	750' VERNAL POOL SETBACK

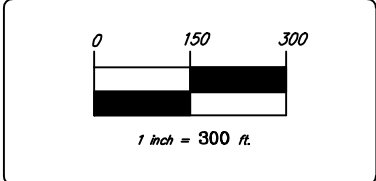


WESTERN VERNAL POOL
 EASTERN VERNAL POOL
 PROPOSED OPEN SPACE/CONSERVATION EASEMENT AREA
 11.24 ACRES - POND
 4.21 ACRES - WETLANDS
 11.13 ACRES - UPLANDS
 TOTAL 26.58 ACRES - 33.3% OF PROPERTY



NO.	REVISION	DATE

Previous Editions Obsolete



BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

**POST CONSTRUCTION
 GRADING PLAN**

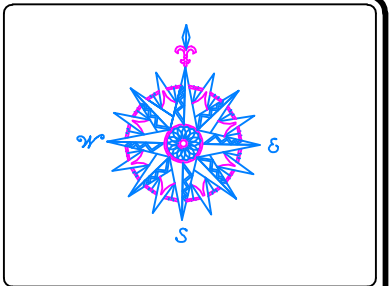
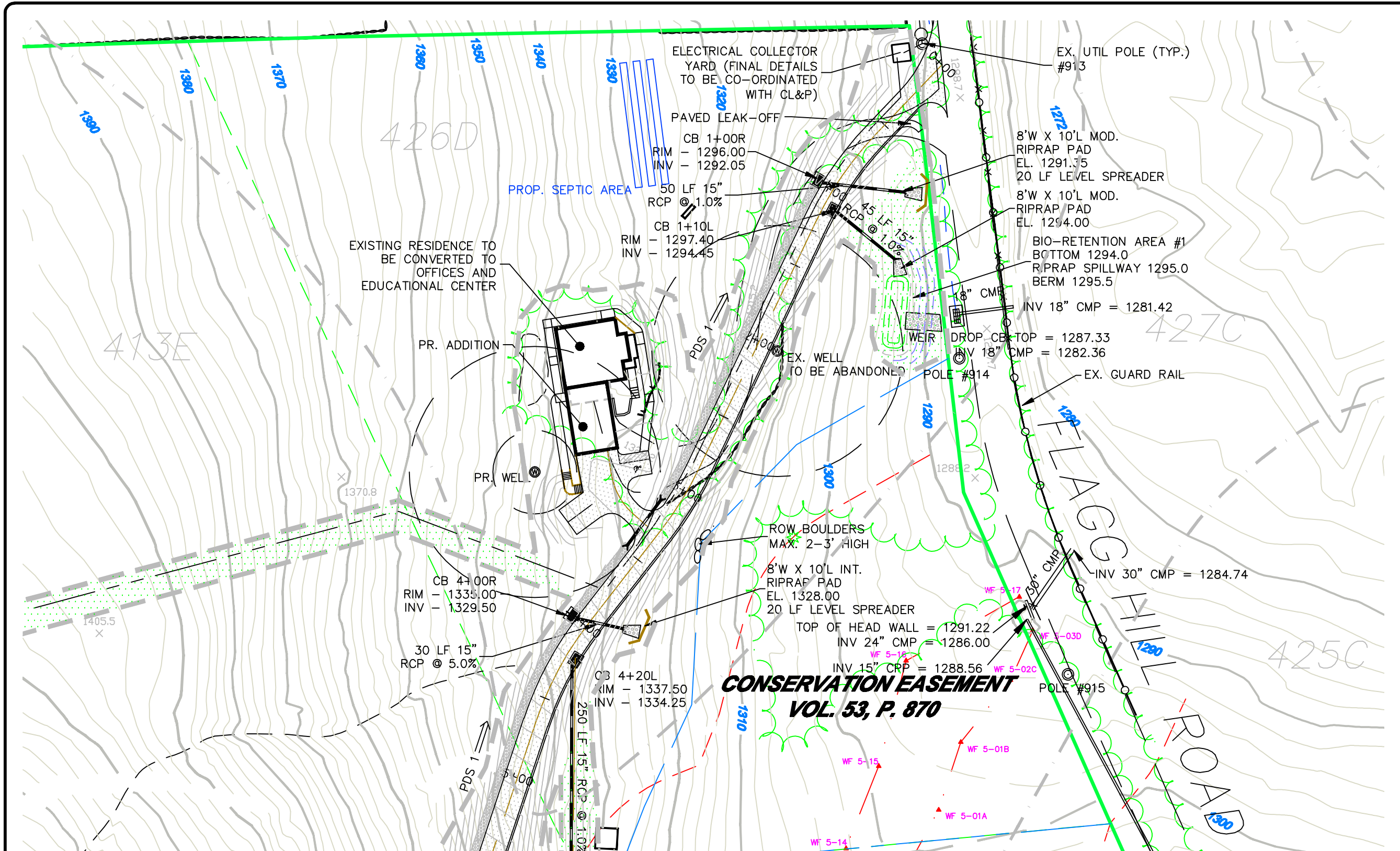
**WIND COLEBROOK
 SOUTH**
 FLAGG HILL ROAD

CORNERSTONE PROFESSIONAL PARK, SUITE D-401
 43 BISHOPMAN HILL ROAD
 WINDYBURY, CT 06108-5778

LEGEND

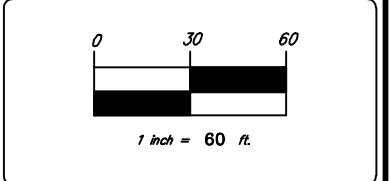
- | | | | |
|--|--|--|---|
| | PROPERTY LINE | | PROPOSED ACCESS DRIVE |
| | EXISTING CONTOUR | | PERM. RIPRAP DIVERSION/CONVEYANCE SWALE |
| | CONTOUR FROM CONSTRUCTION GRADING TO REMAIN | | SOIL TYPE BOUNDARY |
| | CONTOUR FROM CONSTRUCTION GRADING TO BE MODIFIED | | PROPOSED UPLAND MEADOW RESTORATION AREA |
| | PROPOSED CONTOUR | | DRY WATER QUALITY SWALE |
| | PROPOSED STORM DRAINAGE | | VERNAL POOL AREA |
| | EDGE OF WATER | | 100' VERNAL POOL SETBACK |
| | WETLANDS/WATERCOURSE BOUNDARY | | 750' VERNAL POOL SETBACK |
| | 100' WETLANDS REVIEW AREA | | |
| | EXISTING ROADWAY | | |

DRAWN BY: APPROVED BY:
 SCALE: 1" = 300'
 DATE: 20 AUG 11
 PROJ. NO.: 3000
 CHD. FILE NAME: 3000
 DRAWING NO.: **C500**



NO.	REVISION	DATE

Previous Editions Obsolete



BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

**POST CONSTRUCTION
 GRADING PLAN
 ACCESS DRIVE STA.
 0+00 TO 5+50**

**WIND COLEBROOK
 SOUTH
 FLAGG HILL ROAD**

CIVIL C1

CORNERSTONE PROFESSIONAL PARK, SUITE D-202
 43 BISHOPMAN HILL ROAD
 WOODBRURY CONNECTICUT 06798

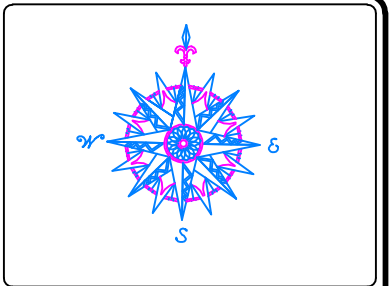
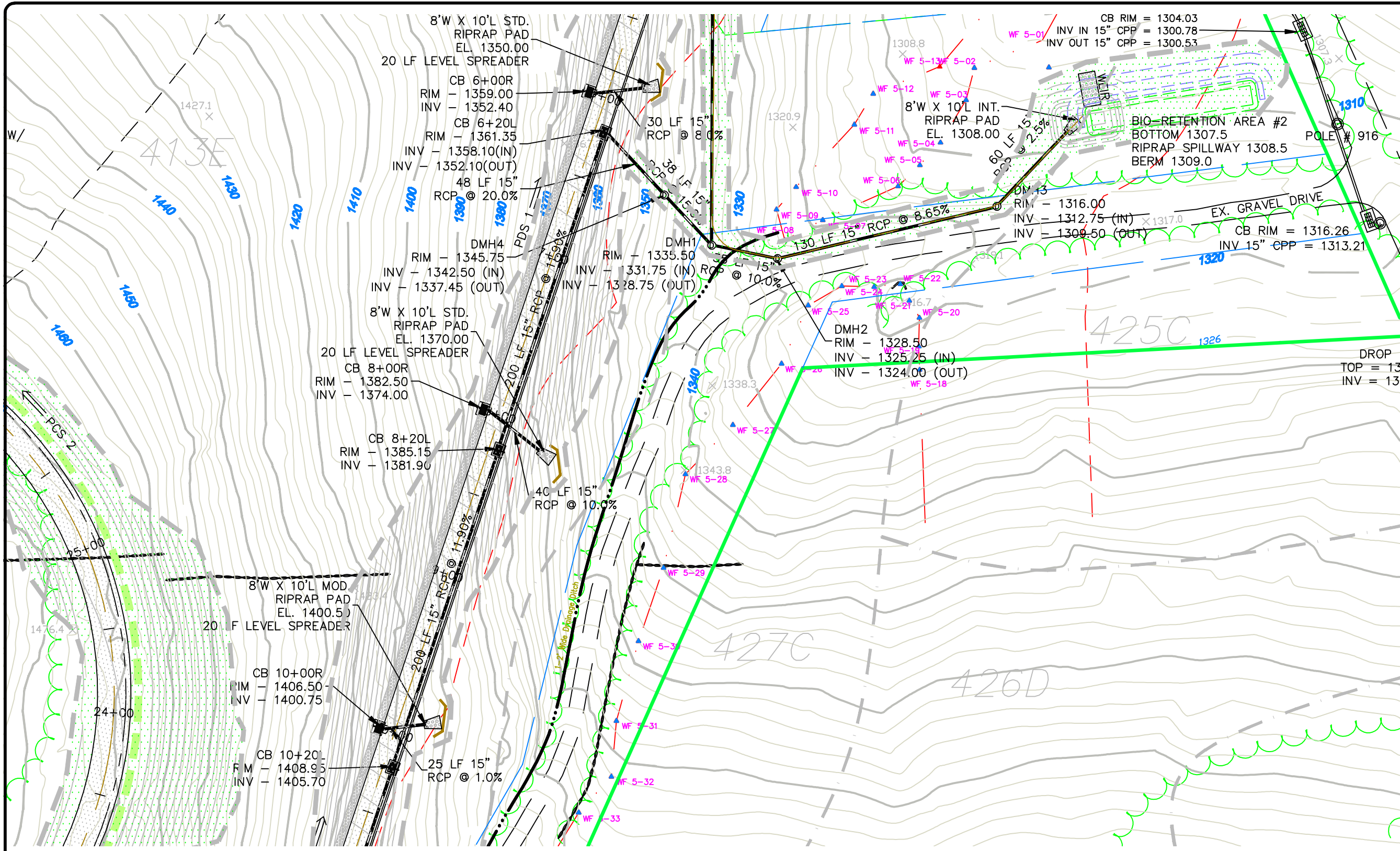
C501

DRAWN BY: APPROVED BY:
 SCALE: 1" = 60'
 DATE: 20 AUG 11
 PROJ. NO.: 3000
 CADD FILE NAME: 3000
 DRAWING NO.:

LEGEND

	PROPERTY LINE
	EXISTING CONTOUR
	CONTOUR FROM CONSTRUCTION GRADING TO REMAIN
	CONTOUR FROM CONSTRUCTION GRADING TO BE MODIFIED
	PROPOSED CONTOUR
	PROPOSED STORM DRAINAGE
	EDGE OF WATER
	WETLANDS/WATERCOURSE BOUNDARY
	100' WETLANDS REVIEW AREA

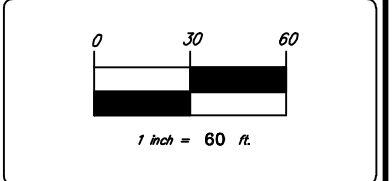
	EXISTING ROADWAY
	PROPOSED ACCESS DRIVE
	PERM. RIPRAP DIVERSION/CONVEYANCE SWALE
	SOIL TYPE BOUNDARY
	PROPOSED UPLAND MEADOW RESTORATION AREA
	DRY WATER QUALITY SWALE



NO.	REVISION	DATE

Previous Editions Obsolete

DROP
 TOP = 13
 INV = 13



BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

**POST CONSTRUCTION
 GRADING PLAN
 ACCESS DRIVE STA.
 5+50 TO 10+50**

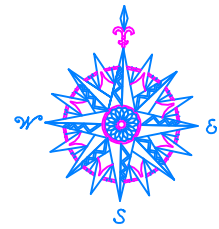
**WIND COLEBROOK
 SOUTH
 FLAGG HILL ROAD**



DRAWN BY: SCALE: 1" = 60' DATE: 20 AUG 11 PROJ. NO.: 3000 CADD FILE NAME: 3000 DRAWING NO.: C502	APPROVED BY:
--	------------------------------

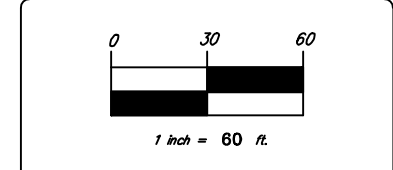
LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- CONTOUR FROM CONSTRUCTION GRADING TO REMAIN
- CONTOUR FROM CONSTRUCTION GRADING TO BE MODIFIED
- PROPOSED CONTOUR
- PROPOSED STORM DRAINAGE
- EDGE OF WATER
- WETLANDS/WATERCOURSE BOUNDARY
- 100' WETLANDS REVIEW AREA
- EXISTING ROADWAY
- PROPOSED ACCESS DRIVE
- PERM. RIPRAP DIVERSION/CONVEYANCE SWALE
- SOIL TYPE BOUNDARY
- PROPOSED UPLAND MEADOW RESTORATION AREA
- DRY WATER QUALITY SWALE



NO.	REVISION	DATE

Previous Editions Obsolete



BNE ENERGY, INC.
29 SOUTH MAIN STREET
TOWN CENTER SUITE 200
WEST HARTFORD, CT 06107

POST CONSTRUCTION
GRADING PLAN
ACCESS DRIVE STA.
10+50 TO 23+50

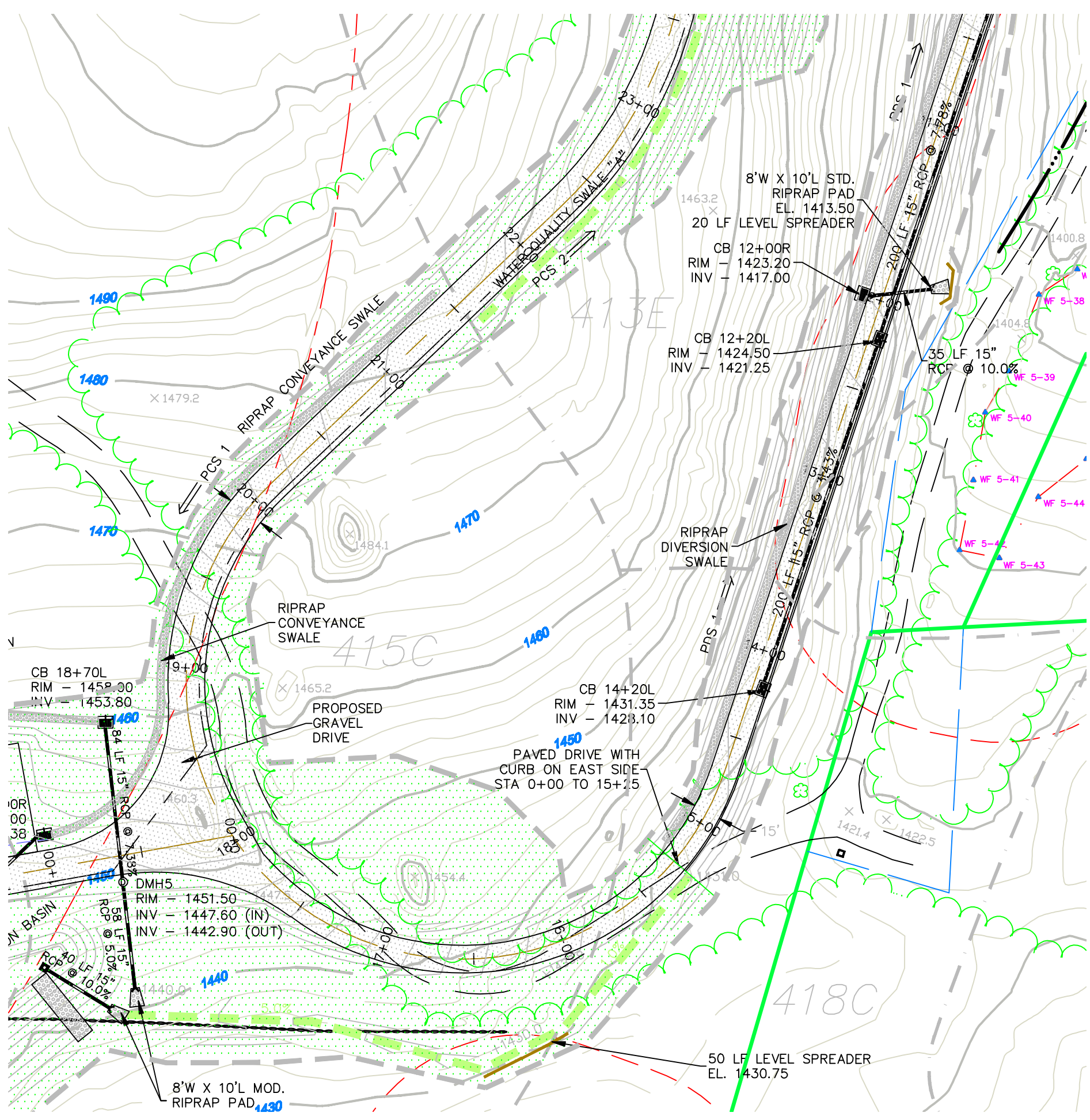
WIND COLEBROOK
SOUTH
FLAGG HILL ROAD

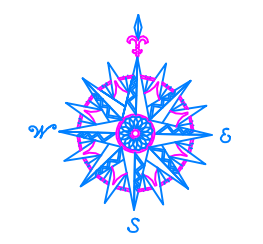


DRAWN BY:	APPROVED BY:
SCALE: 1" = 60'	DATE: 20 AUG 11
PROJECT NO.: 5009	CADD FILE NAME: 5009
DRAWING NO.: C503	

LEGEND

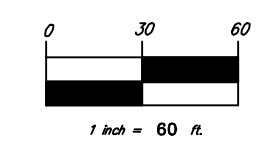
- PROPERTY LINE
- EXISTING CONTOUR
- CONTOUR FROM CONSTRUCTION GRADING TO REMAIN
- CONTOUR FROM CONSTRUCTION GRADING TO BE MODIFIED
- PROPOSED CONTOUR
- PROPOSED STORM DRAINAGE
- EDGE OF WATER
- WETLANDS/WATERCOURSE BOUNDARY
- 100' WETLANDS REVIEW AREA
- EXISTING ROADWAY
- PROPOSED ACCESS DRIVE
- PERM. RIPRAP DIVERSION/CONVEYANCE SWALE
- SOIL TYPE BOUNDARY
- PROPOSED UPLAND MEADOW RESTORATION AREA
- DRY WATER QUALITY SWALE
- VERNAL POOL AREA





NO.	REVISION	DATE

Previous Editions Obsolete



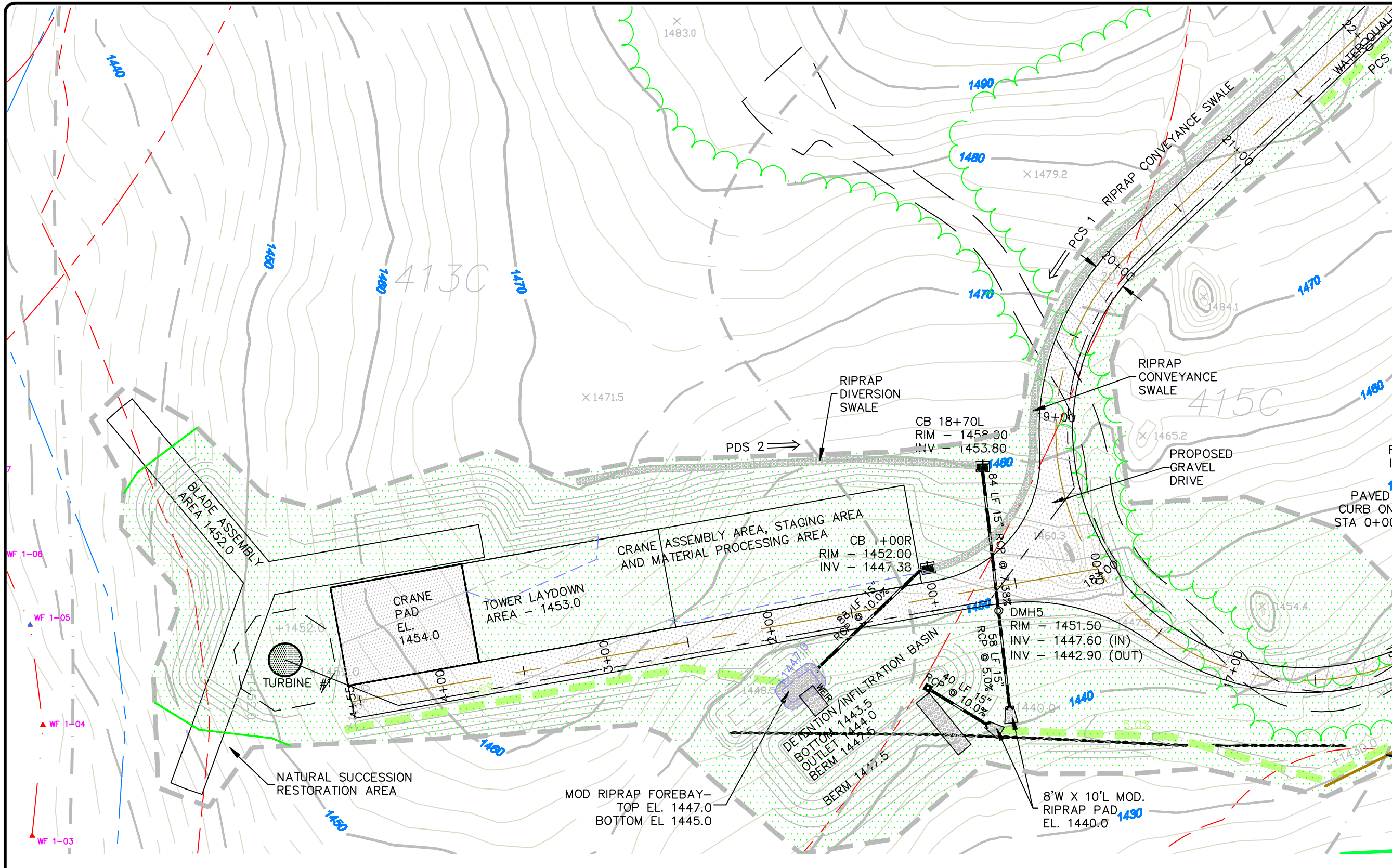
BNE ENERGY, INC.
29 SOUTH MAIN STREET
TOWN CENTER SUITE 200
WEST HARTFORD, CT 06107

POST CONSTRUCTION
GRADING PLAN
TURBINE ONE AND
ACCESS DRIVE STA.
0+00 TO 4+55

WIND COLEBROOK
SOUTH
FLAGG HILL ROAD

CIVIL 1
 CORNERSTONE PROFESSIONAL PARS, SUITE D-501
 43 BISHOPMAN HILL ROAD
 WOODBURY CONNECTICUT 06897
 (203) 268-9778

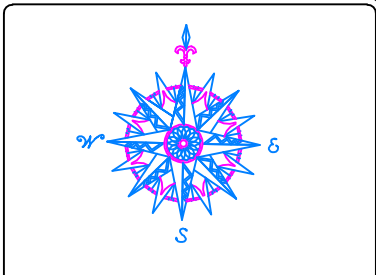
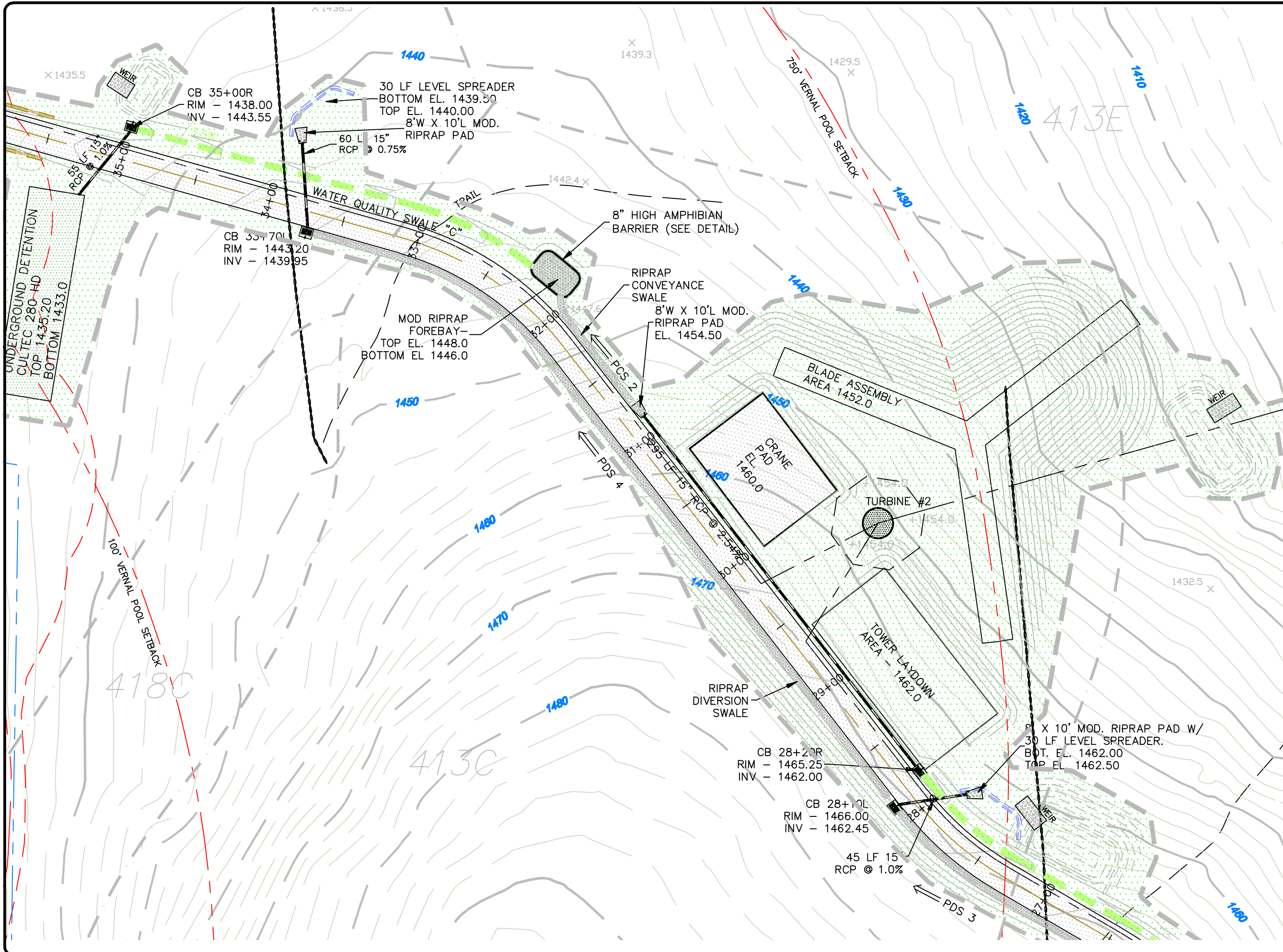
DRAWN BY: GG	APPROVED BY: CG
SCALE: 1" = 60'	
DATE: 20 AUG 11	
PROJECT NO.: 5000	
CADD FILE NAME: 5000	
DRAWING NO.: C504	



- WF 1-06
- WF 1-05
- WF 1-04
- WF 1-03

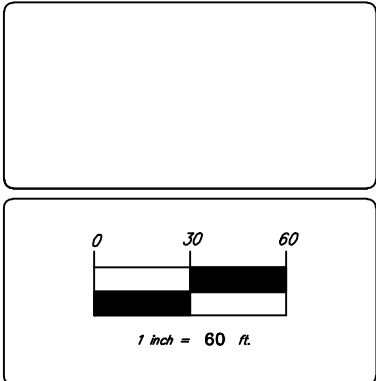
LEGEND

- | | | | |
|--|--|--|---|
| | PROPERTY LINE | | PROPOSED UPLAND MEADOW RESTORATION AREA |
| | EXISTING CONTOUR | | DRY WATER QUALITY SWALE |
| | CONTOUR FROM CONSTRUCTION GRADING TO REMAIN | | SOIL TYPE BOUNDARY |
| | CONTOUR FROM CONSTRUCTION GRADING TO BE MODIFIED | | PROPOSED STORM DRAINAGE |
| | PROPOSED CONTOUR | | EDGE OF WATER |
| | PROPOSED STORM DRAINAGE | | WETLANDS/WATERCOURSE BOUNDARY |
| | EDGE OF WATER | | 100' WETLANDS REVIEW AREA |
| | WETLANDS/WATERCOURSE BOUNDARY | | EXISTING ROADWAY |
| | 100' WETLANDS REVIEW AREA | | PROPOSED ACCESS DRIVE |
| | | | PERM. RIPRAP DIVERSION/CONVEYANCE SWALE |
| | | | SOIL TYPE BOUNDARY |
| | | | PROPOSED UPLAND MEADOW RESTORATION AREA |
| | | | DRY WATER QUALITY SWALE |



NO.	REVISION	DATE

Previous Editions Obsolete



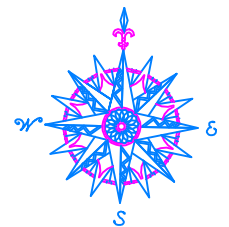
BNE ENERGY, INC.
 29 SOUTH MAIN STREET
 TOWN CENTER SUITE 200
 WEST HARTFORD, CT 06107

**POST CONSTRUCTION
 GRADING PLAN
 TURBINE TWO AND
 ACCESS DRIVE STA.
 26+50 TO 35+50**

**WIND COLEBROOK
 SOUTH
 FLAGG HILL ROAD**



<small>DRAWN BY</small>	<small>APPROVED BY</small>
<small>SCALE</small> 1" = 60'	
<small>DATE</small> 20 AUG 11	
<small>PROJ. NO.</small> 3000	
<small>CAD FILE NAME</small> 3000	
<small>DRAWING NO.</small>	C505



NO.	REVISION	DATE



BNE ENERGY, INC.
29 SOUTH MAIN STREET
TOWN CENTER SUITE 200
WEST HARTFORD, CT 06107

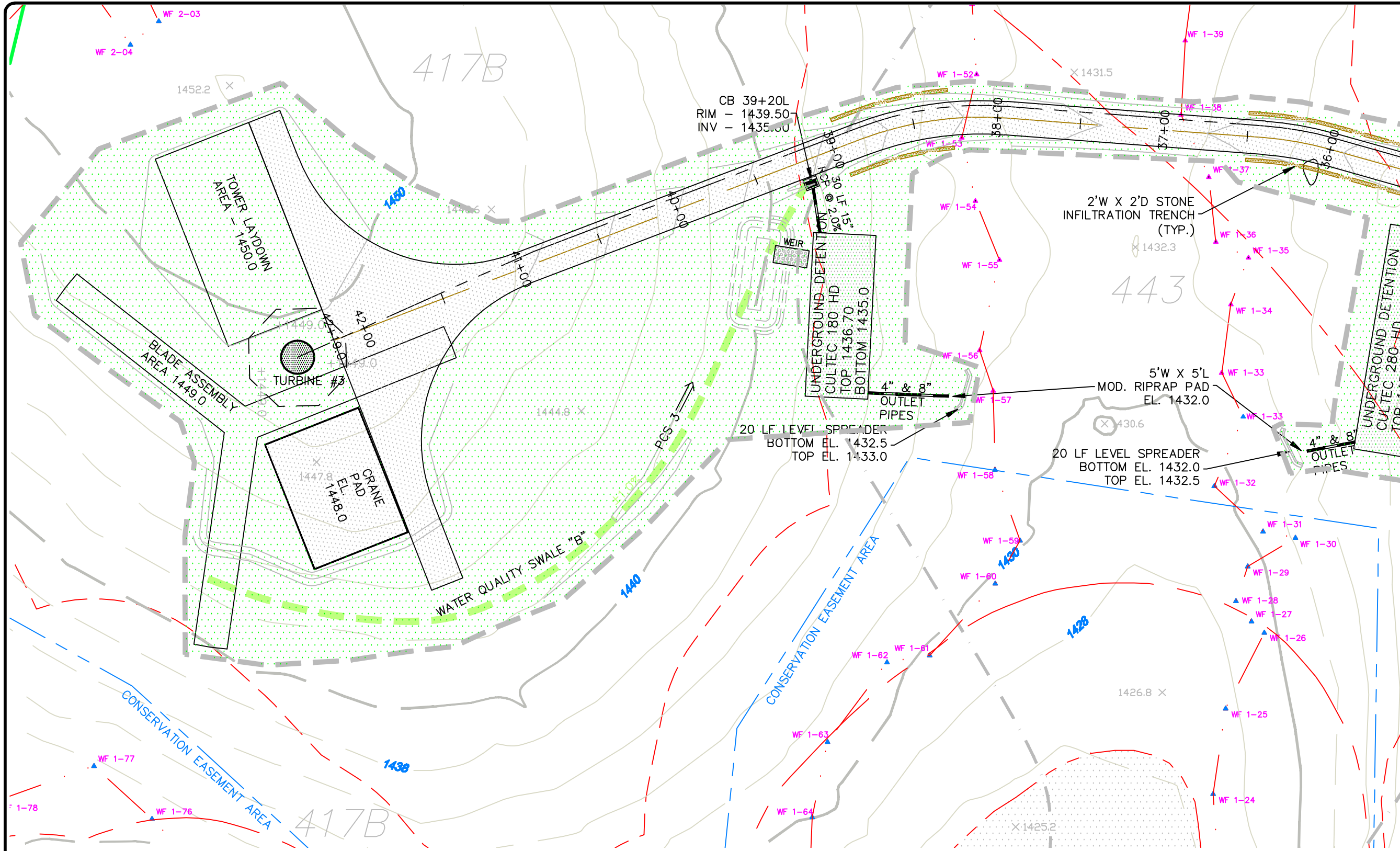
**POST CONSTRUCTION
GRADING PLAN
TURBINE THREE AND
ACCESS DRIVE STA.
35+50 TO 42+19**

**WIND COLEBROOK
SOUTH
FLAGG HILL ROAD**

Civil
CORNERSTONE PROFESSIONAL PARK, SUITE D-202
43 BISHOP HILL ROAD
WEST HARTFORD, CT 06107
TEL: 860-298-9779 FAX: 860-298-9778

Civil C1
CORNERSTONE PROFESSIONAL PARK, SUITE D-202
43 BISHOP HILL ROAD
WEST HARTFORD, CT 06107
TEL: 860-298-9779 FAX: 860-298-9778

DRAWN BY: [Signature]
SCALE: 1" = 60'
DATE: 20 AUG 11
PROJECT NO.: 5009
CHECK FILE NAME: 5009
DRAWING NO.: **C506**



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- CONTOUR FROM CONSTRUCTION GRADING TO REMAIN
- CONTOUR FROM CONSTRUCTION GRADING TO BE MODIFIED
- PROPOSED CONTOUR
- PROPOSED STORM DRAINAGE
- EDGE OF WATER
- WETLANDS/WATERCOURSE BOUNDARY
- 100' WETLANDS REVIEW AREA
- EXISTING ROADWAY
- PROPOSED ACCESS DRIVE
- PERM. RIPRAP DIVERSION/CONVEYANCE SWALE
- SOIL TYPE BOUNDARY
- PROPOSED UPLAND MEADOW RESTORATION AREA
- DRY WATER QUALITY SWALE

- VERNAL POOL AREA
- 100' VERNAL POOL SETBACK
- 750' VERNAL POOL SETBACK

417B

443

417B

CB 39+20L
RIM - 1439.50
INV - 1435.00

UNDERGROUND DETENTION
CULTEC 180 HD
TOP 1436.70
BOTTOM 1435.0

2'W X 2'D STONE
INFILTRATION TRENCH
(TYP.)

5'W X 5'L
MOD. RIPRAP PAD
EL. 1432.0

20 LF LEVEL SPREADER
BOTTOM EL. 1432.5
TOP EL. 1433.0

20 LF LEVEL SPREADER
BOTTOM EL. 1432.0
TOP EL. 1432.5

UNDERGROUND DETENTION
CULTEC 280 HD
TOP 1435.0

TOWER LAYDOWN
AREA - 1450.0

BLADE ASSEMBLY
AREA - 1449.0

CRANE
PAD
EL. 1448.0

WATER QUALITY SWALE "B"

CONSERVATION EASEMENT AREA

CONSERVATION EASEMENT AREA

WF 1-78

WF 1-76

WF 1-77

WF 1-64

WF 1-63

WF 1-62

WF 1-61

WF 1-60

WF 1-59

WF 1-58

WF 1-57

WF 1-56

WF 1-55

WF 1-54

WF 1-53

WF 1-52

WF 1-24

WF 1-25

WF 1-26

WF 1-27

WF 1-28

WF 1-29

WF 1-30

WF 1-31

WF 1-32

WF 1-33

WF 1-34

WF 1-35

WF 1-36

WF 1-37

WF 1-38

WF 1-39

1452.2

1450

1449.0

1449.0

1447.8

1448.0

1444.8

1440

1438

1428

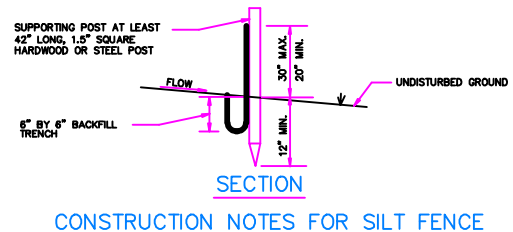
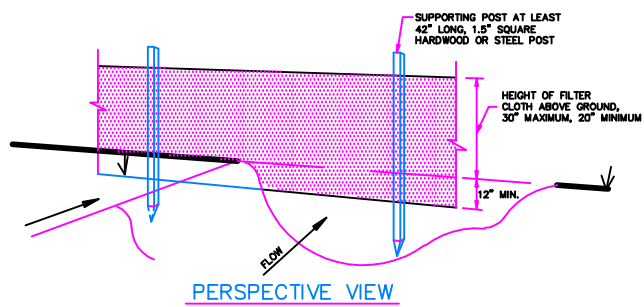
1426.8

1425.2

1431.5

1432.3

1430.6



1. EXCAVATE A TRENCH A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE ON THE UP SIDE OF THE FENCE LOCATION.

2. DRIVE SUPPORT POSTS ON THE DOWN SLOPE SIDE OF THE TRENCH TO A DEPTH OF AT LEAST 12 INCHES INTO ORIGINAL GROUND.

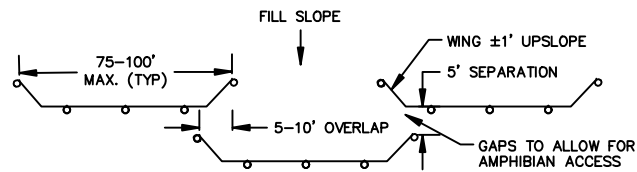
3. STAPLE OR SECURE THE GEOTEXTILE TO THE SUPPORT POSTS PER MANUFACTURER'S INSTRUCTIONS SUCH THAT AT LEAST 6 INCHES OF GEOTEXTILE LIES WITHIN THE TRENCH.

4. BACKFILL THE TRENCH WITH TAMPED SOIL OR AGGREGATE OVER THE GEOTEXTILE.

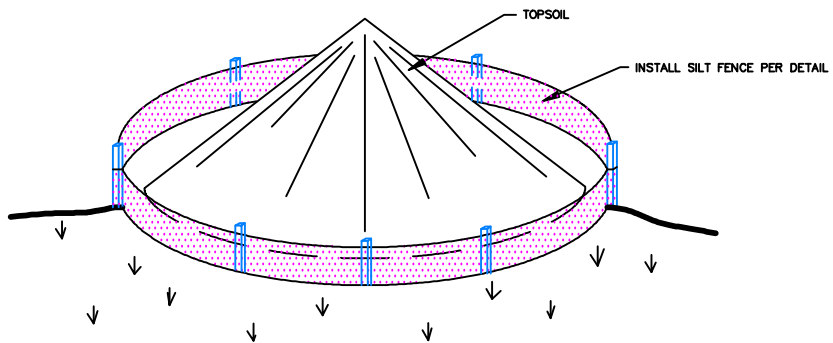
POSTS: 1.5" SQUARE HARDWOOD OR STEEL.

FILTER CLOTH: MIRAFI 100X, ENVROFENCE OR APPROVED EQUAL.

SILT FENCE DETAIL



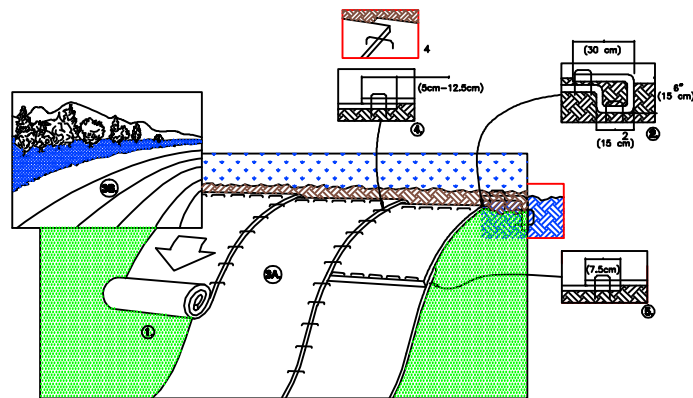
SYNCOPATED SILT FENCE INSTALLATION
FOR AREAS WITHIN 750' OF A VERNAL POOL



STOCKPILE MANAGEMENT PER 2002 CT GUIDELINES FOR E & S CONTROL:

- LOCATE STOCKPILE SO THAT NATURAL DRAINAGE IS NOT OBSTRUCTED.
- DIVERT RUNOFF WATER AWAY FROM OR AROUND THE STOCKPILE.
- INSTALL A GEOTEXTILE SILT FENCE OR HAY BALE BARRIER AROUND THE STOCKPILE AREA APPROXIMATELY 10 FEET FROM PROPOSED TOE OF THE SLOPE.
- THE SIDE SLOPES OF STOCKPILED MATERIAL SHOULD BE NO STEEPER THAN 2:1.
- STOCKPILES THAT ARE NOT TO BE USED WITHIN 30 DAYS NEED TO BE SEEDED AND MULCHED IMMEDIATELY AFTER FORMATION OF THE STOCKPILE.
- AFTER STOCKPILE HAS BEEN REMOVED, THE SITE SHOULD BE GRADED AND PERMANENTLY STABILIZED.

TEMPORARY TOPSOIL STOCKPILE



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.

5. CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE: **IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

EROSION CONTROL BLANKET

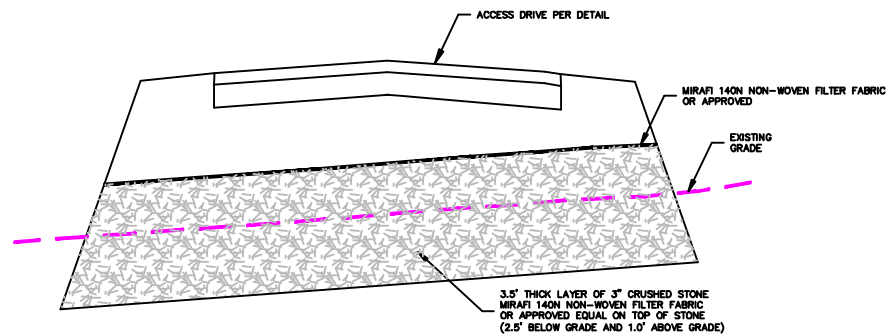
S150: Material:
Straw fiber matrix sewn between two photo-degradable nets.
Straw: 5 lbs/sq. yd.
Net: Temporary lightweight degradable (Both sides)

SC250 (North American Green): Material:
Straw & coconut fiber matrix sewn between three polypropylene nets.
Net: Permanent Turf Reinforcement, for maximum slopes up to 1.1:1.

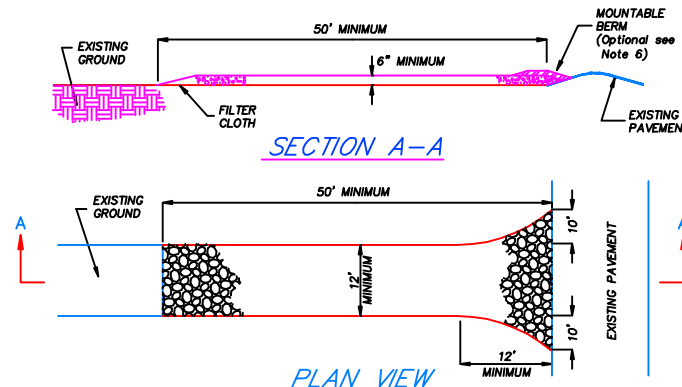
CRITICAL POINTS:
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
** HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS IN EXCESS OF 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

EROSION CONTROL BLANKET



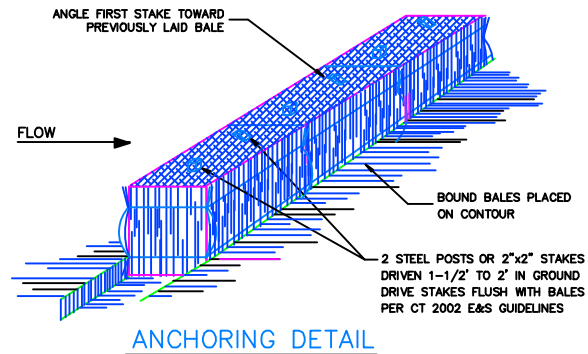
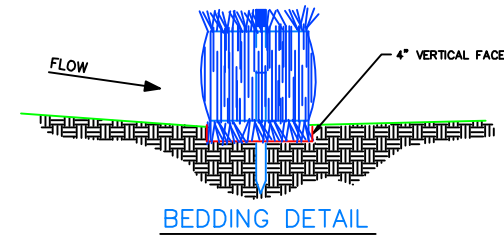
SEEPAGE ENVELOPE DETAIL



NOTES:

- STONE SIZE - USE 1" - 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET.
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24 FOOT MINIMUM IF SINGLE ENTRANCE TO SITE.
- FILTER CLOTH - TO BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DRIPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE



NOTES:

- BALES SHALL BE EITHER STRAW OR HAY.
- BALES SHALL BE PLACED AT THE TOE OF SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4 INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
- BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
- INSPECTION SHALL BE FREQUENT, AND REPAIR AND/OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED TO MAINTAIN EFFECTIVENESS OF INSTALLATION.
- BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

STAKED HAY BALE BARRIER

NO.	REVISION	DATE
Previous Editions Obsolete		

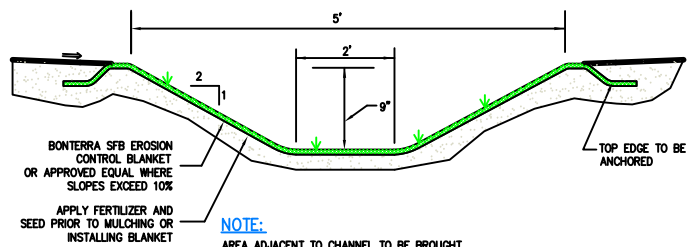
BNE ENERGY, INC.
29 SOUTH MAIN STREET
TOWN CENTER SUITE 200
WEST HARTFORD, CT 06107

WIND COLEBROOK SOUTH
FLAGG HILL ROAD

Civil C1
CORNERSTONE PROFESSIONAL PARK, SUITE D-502
43 SHEPARD HILL ROAD
WINDYBROOK, CONNECTICUT 06093-2885

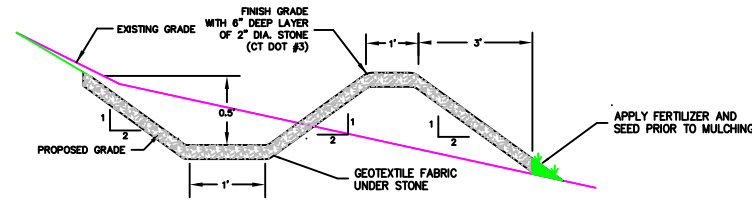
DATE: 20 AUG 11
DRAWN BY: N.T.S.
CHECKED BY: N.T.S.
DESIGNED BY: N.T.S.
SCALE: N.T.S.

C601



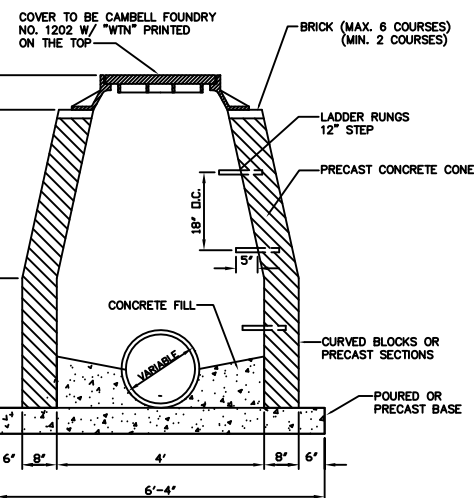
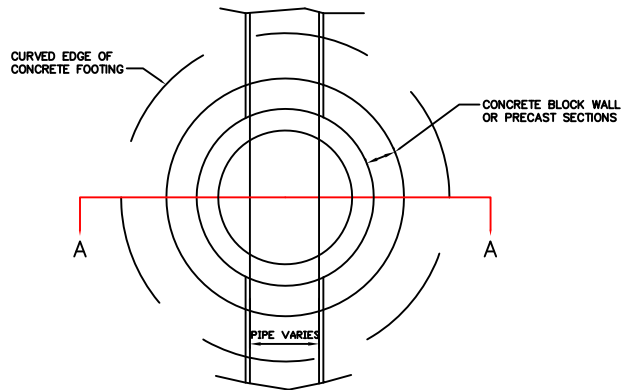
TEMPORARY DIVERSION SWALE

N.T.S.



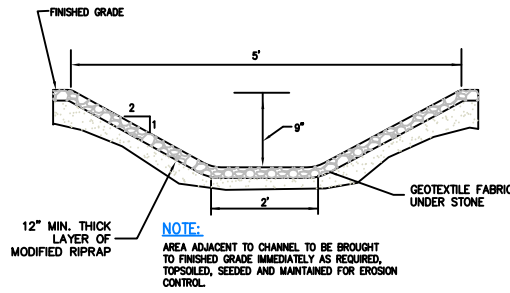
LEVEL SPREADER DETAIL

N.T.S.



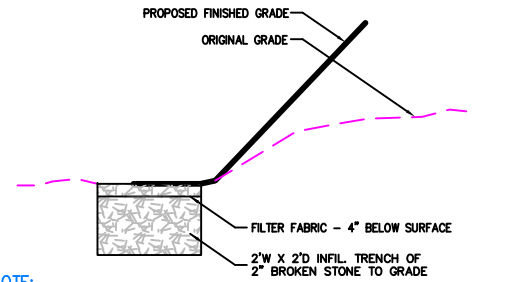
DRAINAGE MANHOLE

without sump



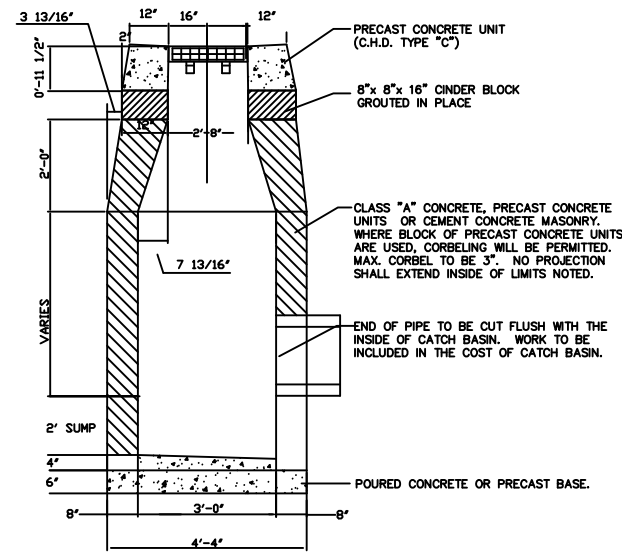
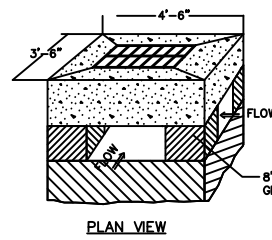
RIPRAP DIVERSION/CONVEYANCE SWALE

N.T.S.

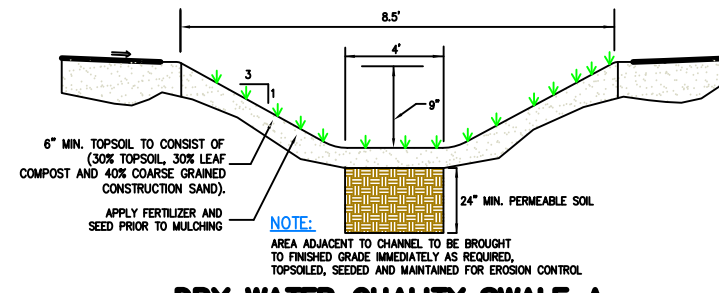


STONE INFILTRATION TRENCH

(N.T.S.)

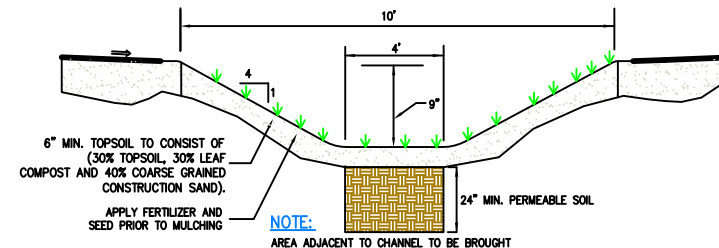


STANDARD TYPE "CL" CATCH BASIN



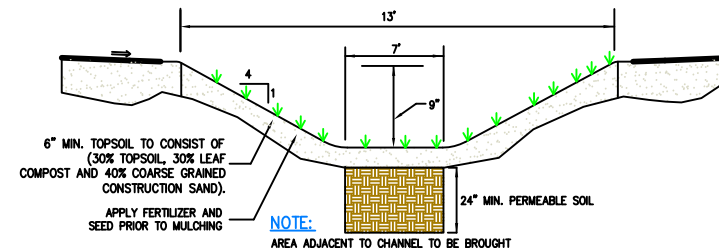
DRY WATER QUALITY SWALE A

N.T.S.



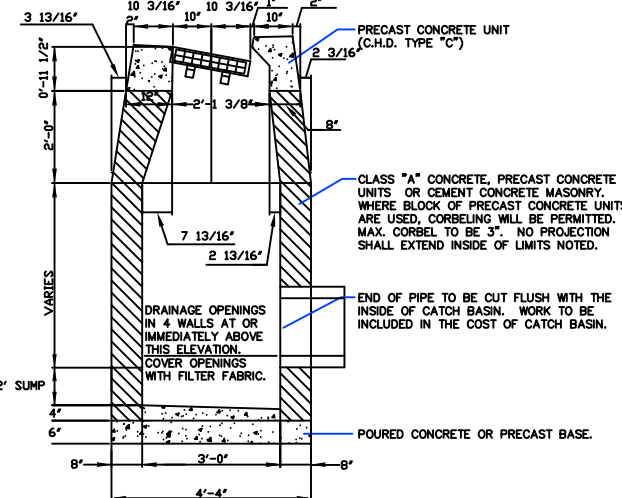
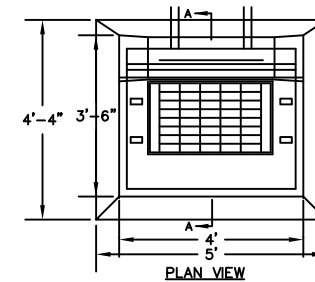
DRY WATER QUALITY SWALE B

N.T.S.



DRY WATER QUALITY SWALE C

N.T.S.



STANDARD TYPE "C" CATCH BASIN

NO.	REVISION	DATE

Previous Editions Obsolete

BNE ENERGY, INC.
29 SOUTH MAIN STREET
TOWN CENTER SUITE 200
WEST HARTFORD, CT 06107

DETAILS

WIND COLEBROOK SOUTH
FLAGG HILL ROAD

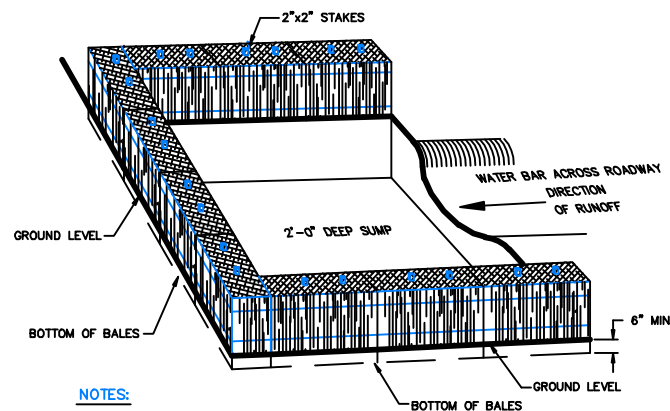
COLEBROOK CONNECTICUT

CIVIL C1

CORNERSTONE PROFESSIONAL PARK, SUITE D-101
43 SHERMAN HILL ROAD
WOODBURY (203) 266-0778 CONNECTICUT

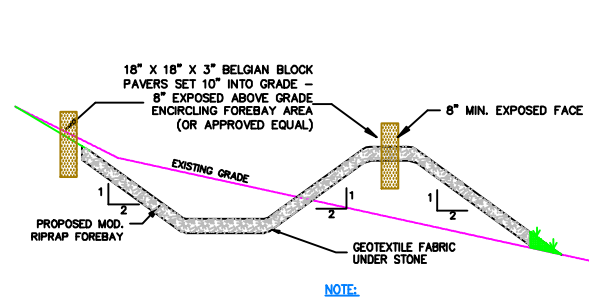
DESIGNER: BB
SCALE: N.T.S.
DATE: 26 AUG 11
PROJECT NO.: 3092
CADD FILE NAME: 3092
DRAWING NO.:

C602

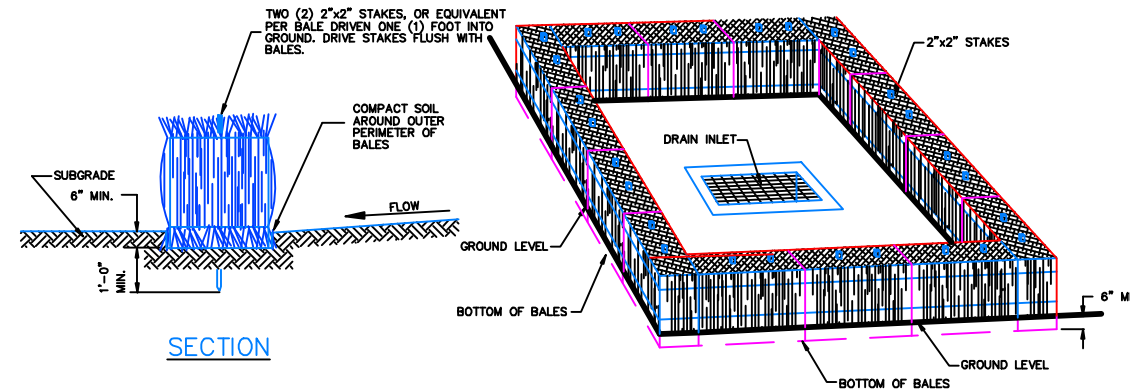


- NOTES:**
1. ALL BALES ARE TO BE TIGHTLY BUTTED TOGETHER.
 2. BALES SHALL BE EITHER STRAW OR HAY.
 3. PROVIDE FREQUENT INSPECTION AND MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AND REPLACE CLOGGED BALES TO RESTORE EFFECTIVENESS OF INSTALLATION.

WATER BAR WITH HAY BALE TRAP

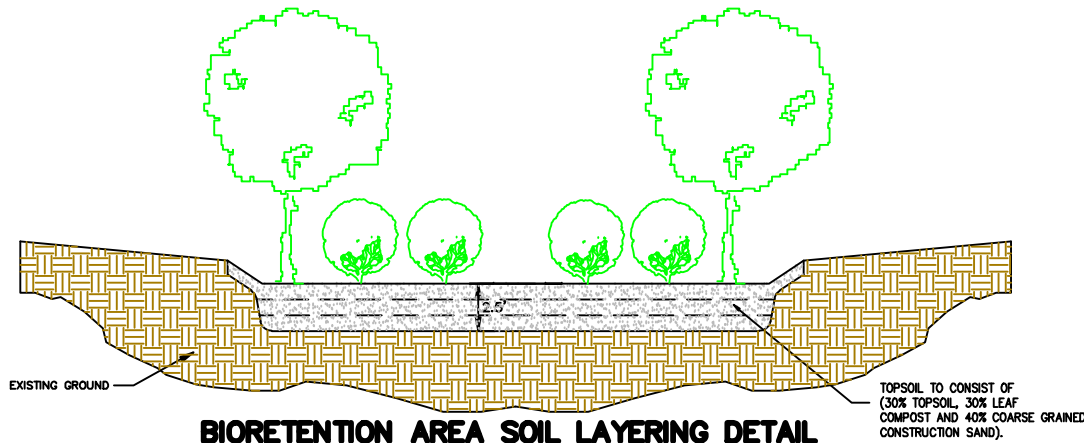


AMPHIBIAN BARRIER DETAIL
N.T.S.



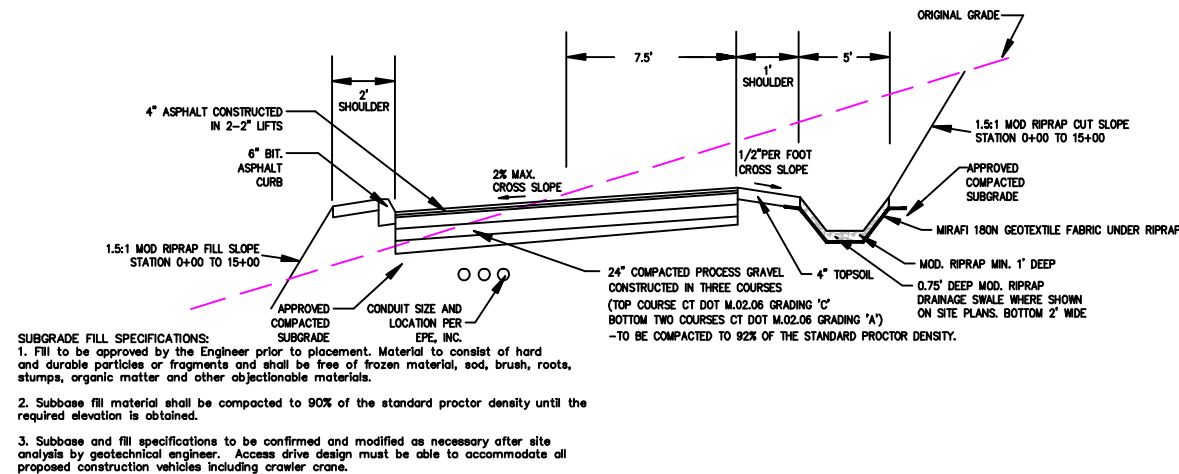
- NOTES:**
1. ALL BALES ARE TO BE TIGHTLY BUTTED TOGETHER.
 2. BALES SHALL BE EITHER STRAW OR HAY.
 3. PROVIDE FREQUENT INSPECTION AND MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AND REPLACE CLOGGED BALES TO RESTORE EFFECTIVENESS OF INSTALLATION.

BALED FILTER



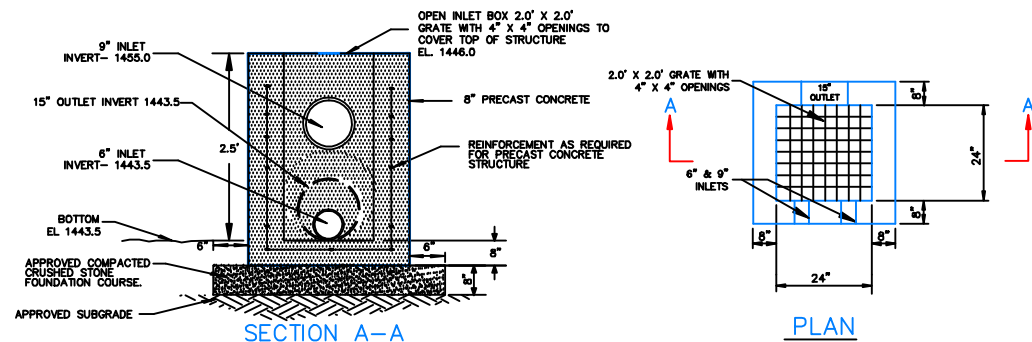
- NOTES:**
- EXCAVATE RAIN GARDEN AREAS TO PROPOSED INVERT DEPTHS AND SCARIFY EXISTING SOIL SURFACES, TAKING CARE NOT TO COMPACT THE IN-SITU MATERIALS
 - PLACE TOPSOIL IN 8"-12" LIFTS. DO NOT COMPACT
 - LIFTS MAY BE LIGHTLY WATERED TO ENCOURAGE NATURAL COMPACTION
 - OVERFILL OF TOPSOIL IS REQUIRED TO ACCOMMODATE NATURAL SETTLEMENT TO PROPER GRADE

BIORETENTION AREA SOIL LAYERING DETAIL
N.T.S.

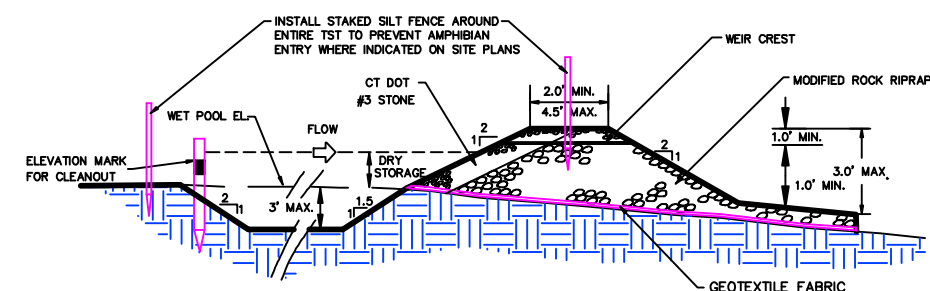


- SUBGRADE FILL SPECIFICATIONS:**
1. Fill to be approved by the Engineer prior to placement. Material to consist of hard and durable particles or fragments and shall be free of frozen material, sod, brush, roots, stumps, organic matter and other objectionable materials.
 2. Subbase fill material shall be compacted to 90% of the standard proctor density until the required elevation is obtained.
 3. Subbase and fill specifications to be confirmed and modified as necessary after site analysis by geotechnical engineer. Access drive design must be able to accommodate all proposed construction vehicles including crawler crane.

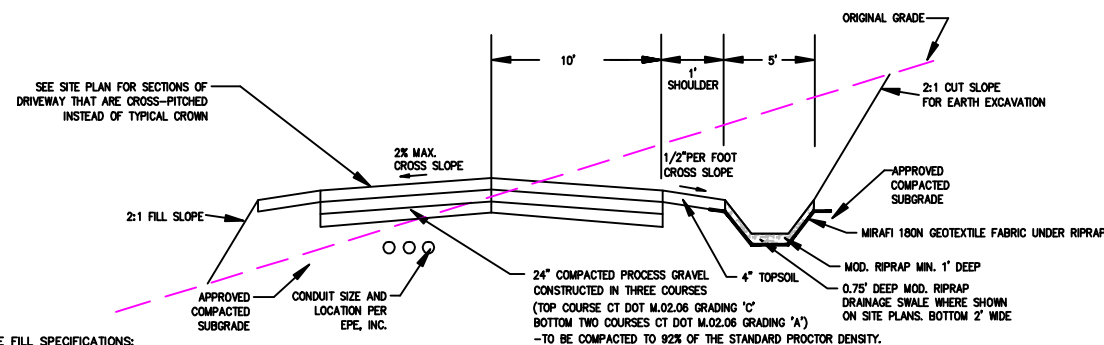
ACCESS DRIVE CROSS SECTION
PAVED AREAS
N.T.S.



DETENTION/INFILTRATION BASIN OUTLET CONTROL STRUCTURE
N.T.S.



TEMPORARY SEDIMENT TRAP OUTLET
N.T.S.



- SUBGRADE FILL SPECIFICATIONS:**
1. Fill to be approved by the Engineer prior to placement. Material to consist of hard and durable particles or fragments and shall be free of frozen material, sod, brush, roots, stumps, organic matter and other objectionable materials.
 2. Subbase fill material shall be compacted to 90% of the standard proctor density until the required elevation is obtained.
 3. Subbase and fill specifications to be confirmed and modified as necessary after site analysis by geotechnical engineer. Access drive design must be able to accommodate all proposed construction vehicles including crawler crane.

ACCESS DRIVE CROSS SECTION
UNPAVED AREAS
N.T.S.

NO.	REVISION	DATE

Previous Editions Obsolete

BNE ENERGY, INC.
29 SOUTH MAIN STREET
TOWN CENTER SUITE 200
WEST HARTFORD, CT 06107

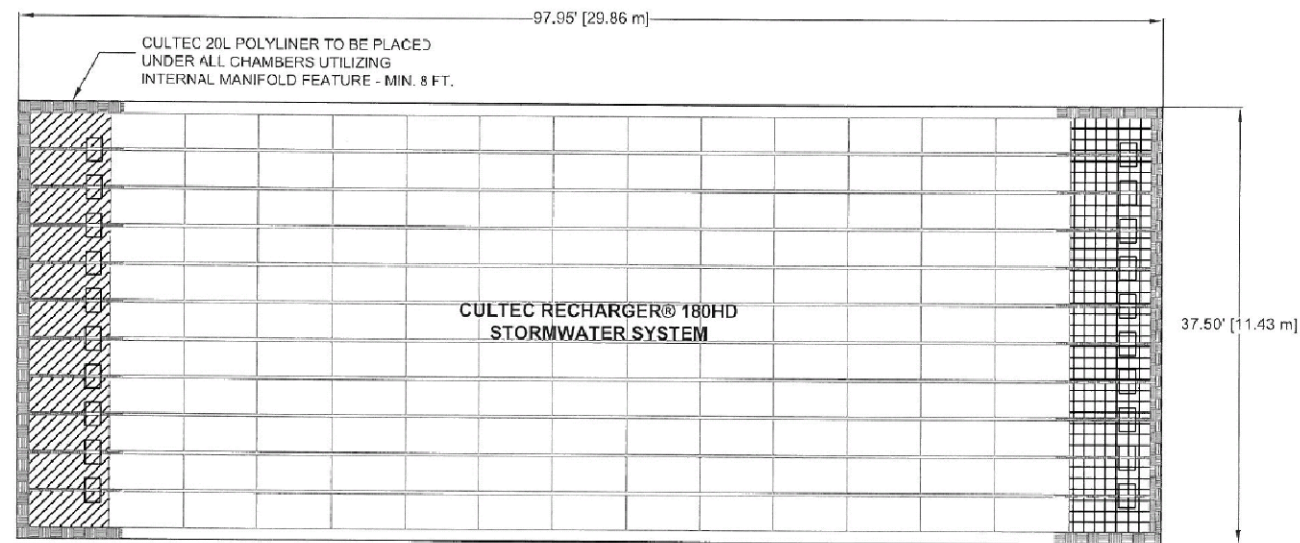
DETAILS

WIND COLEBROOK SOUTH
FLAGG HILL ROAD

Civil C1

CONVERSE PROFESSIONAL P.A.R.T., SUITE D-202
43 BISHOPMAN HILL ROAD
WEST HARTFORD, CT 06110
PHONE: 860-238-8778

DATE:	20 AUG 11
SCALE:	N.T.S.
DRAWN BY:	APPROVED BY:
CHECK FILE NAME:	3009
DRAWING NO.:	C603

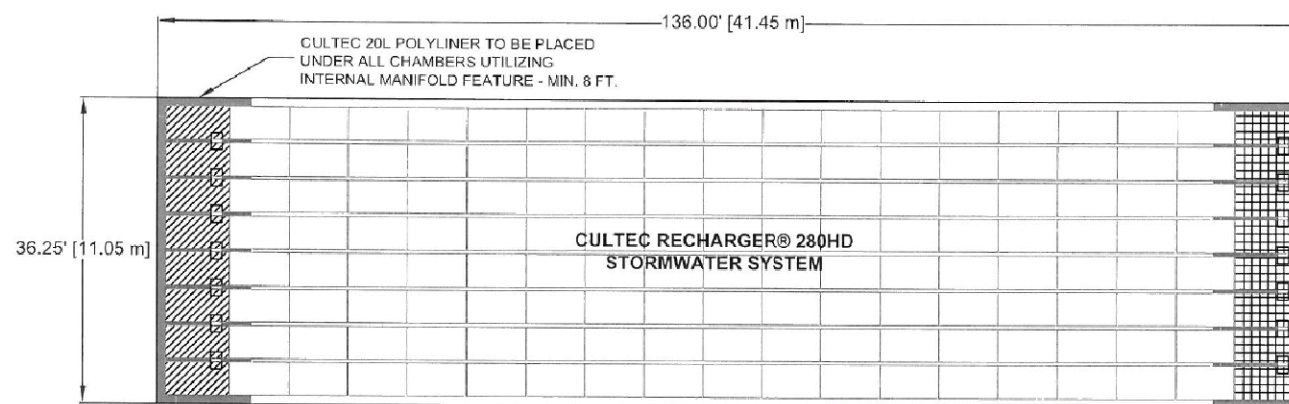


MATERIALS LIST		
RECHARGER 180SHD STARTER	11	PIECES
RECHARGER 180HD INTERMEDIATE	142	PIECES
RECHARGER 180EHD END	11	PIECES
H.V.LV FC-24 FEED CONNECTORS	20	PIECES
CULTEC NO. 410 FILTER FABRIC 7.5' x 30'	4	ROLLS
CULTEC NO. 20L POLYETHYLENE LINER	150	SQUARE FEET
1 1/2 - 2 INCH DIAMETER BROKEN STONE	234	CUBIC YARDS
VOLUME OF EXCAVATION	460	CUBIC YARDS

CULTEC RECHARGER® 180HD LEGEND

- RECHARGER 180SHD STARTER
- RECHARGER 180HD INTERMEDIATE
- RECHARGER 180EHD END
- H.V.LV FC-24 FEED CONNECTORS
- CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
STORAGE REQUIRED: 6,000 c.f.
STORAGE PROVIDED: 6,164 c.f.
**INSTALLED USING TYPICAL STONE REQUIREMENTS OF 6 INCHES ABOVE AND BELOW CHAMBERS AND A 1 FT. BORDER SURROUNDING*



MATERIALS LIST		
RECHARGER 280SHD STARTER	8	PIECES
RECHARGER 280HD INTERMEDIATE	126	PIECES
RECHARGER 280EHD END	8	PIECES
H.V.LV FC-24 FEED CONNECTORS	14	PIECES
CULTEC NO. 410 FILTER FABRIC 7.5' x 30'	5	ROLLS
CULTEC NO. 20L POLYETHYLENE LINER	145	SQUARE FEET
1 1/2 - 2 INCH DIAMETER BROKEN STONE	214	CUBIC YARDS
VOLUME OF EXCAVATION	108	CUBIC YARDS

CULTEC RECHARGER® 280HD LEGEND

- RECHARGER 280SHD STARTER
- RECHARGER 280HD INTERMEDIATE
- RECHARGER 280EHD END
- H.V.LV FC-24 FEED CONNECTORS
- CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
STORAGE REQUIRED: 10,000 c.f.
STORAGE PROVIDED: 10,240 c.f.
**INSTALLED USING TYPICAL STONE REQUIREMENTS OF 6 INCHES ABOVE AND BELOW CHAMBERS AND A 1 FT. BORDER SURROUNDING*

NO.	REVISION	DATE

Previous Editions Obsolete

BNE ENERGY, INC.
29 SOUTH MAIN STREET
TOWN CENTER SUITE 200
WEST HARTFORD, CT 06107

DETAILS
CULTEC DETENTION BEDS

WIND COLEBROOK SOUTH
 FLAGG HILL ROAD

COLEBROOK CONNECTICUT



CORNERSTONE PROFESSIONAL PARK, SUITE D-101
 43 SHERMAN HILL ROAD
 WOODBURY (203) 266-0778 CONNECTICUT

OWNER: BB	APPROVER: CJ
SCALE: N.T.S.	
DATE: 26 AUG 11	
PROJ. NO.: 3092	
CADD FILE NAME: 3092	
DRAWING NO.:	

C604

Appendix B
INSPECTION AND MAINTENANCE RECORDS

INSPECTOR CERTIFICATION

Project:	Wind Colebrook North
Project Location:	Winsted- Norfolk Road Colebrook North
Contractor:	
Address:	
Phone:	
Fax:	

CONSTRUCTION INSPECTION & MAINTENANCE LOG

Date	Activity	Description	(1) Report No.
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	
	<input type="checkbox"/> Inspection <input type="checkbox"/> Maintenance	By: _____	

CONSTRUCTION SITE INSPECTION REPORT

General Information			
Project Name:	Wind Colebrook North		
Location:	Winsted- Norfolk Road Colebrook, Connecticut		
CT DEP Tracking No.		(1) Report No.	
Date of Inspection:		Start / End Time:	
Inspector's Name(s):			
Inspector's Title(s):			
Inspector's Contact Information:			
Describe present phase of construction:			
Type of Inspection: <input type="checkbox"/> Regular <input type="checkbox"/> Pre-storm event <input type="checkbox"/> During storm event <input type="checkbox"/> Post-storm event			
Weather Information			
Has it rained since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, provide: Storm Start Date & Time: Storm Duration (hrs): Approximate Rainfall (in):			
Weather at time of this inspection?			
Discharge Information (A)			
Do you suspect that discharges may have occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Are there any discharges at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Describe location of any discharges from the site:			

SITE-SPECIFIC BMPs

(B)	BMP Description	BMP Installed and Operating Properly?	Corrective Action Needed	Date for corrective action / responsible party
1		<input type="checkbox"/> Yes <input type="checkbox"/> No		
2		<input type="checkbox"/> Yes <input type="checkbox"/> No		
3		<input type="checkbox"/> Yes <input type="checkbox"/> No		
4		<input type="checkbox"/> Yes <input type="checkbox"/> No		
5		<input type="checkbox"/> Yes <input type="checkbox"/> No		
6		<input type="checkbox"/> Yes <input type="checkbox"/> No		
7		<input type="checkbox"/> Yes <input type="checkbox"/> No		
8		<input type="checkbox"/> Yes <input type="checkbox"/> No		
9		<input type="checkbox"/> Yes <input type="checkbox"/> No		
10		<input type="checkbox"/> Yes <input type="checkbox"/> No		
11		<input type="checkbox"/> Yes <input type="checkbox"/> No		
12		<input type="checkbox"/> Yes <input type="checkbox"/> No		
13		<input type="checkbox"/> Yes <input type="checkbox"/> No		
14		<input type="checkbox"/> Yes <input type="checkbox"/> No		
15		<input type="checkbox"/> Yes <input type="checkbox"/> No		
16		<input type="checkbox"/> Yes <input type="checkbox"/> No		
17		<input type="checkbox"/> Yes <input type="checkbox"/> No		
18		<input type="checkbox"/> Yes <input type="checkbox"/> No		
19		<input type="checkbox"/> Yes <input type="checkbox"/> No		

OVERALL SITE ISSUES

(C)	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4	Are discharge points and receiving waters free of sediment deposits?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5	Are storm drain inlets properly protected?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6	Is there evidence of sediment being tracked into the street?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7	Is trash/litter from work areas collected and placed in covered dumpsters?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		

(C)	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
10	Are materials that are potential stormwater contaminants stored inside or under cover?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
12	(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
13	(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		

(C)	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person

GENERAL INSPECTION COMMENTS AND EXPLANATION

General Inspection Comments (D)
Is other descriptive information attached to this inspection report? <input type="checkbox"/> Yes <input type="checkbox"/> No

Plan Information (E)
Were all current plan BMP's in place at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No
Are additional BMP's required? <input type="checkbox"/> Yes <input type="checkbox"/> No
Does the plan need to be updated? <input type="checkbox"/> Yes <input type="checkbox"/> No
Explanation of additional BMP and Plan update requirements:

Certification statement:
 I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and in my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the

General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements.

Name: _____

(Please print)

Signature: _____

Title: _____ Date: _____

.

CONSTRUCTION SITE MAINTENANCE REPORT

General Information			
Project Name:	Wind Colebrook North		
Location:	Winsted- Norfolk Road Colebrook, Connecticut		
CT DEP Tracking No.:		(1) Report No.	
Date of Maintenance:		Start / End Time:	
Describe present phase of construction:			
Type of Maintenance: <input type="checkbox"/> Regular <input type="checkbox"/> Pre-storm event <input type="checkbox"/> Post-storm event <input type="checkbox"/> Plan Update			
Maintenance Information			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			

Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	

Certification statement:

I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and in my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements.

Name: _____

Signature: _____

Title: _____ Date: _____

Appendix C
SUPPORTING CALCULATIONS

**CALCULATIONS FOR
TEMPORARY SEDIMENT TRAPS
AND OUTLET PROTECTION**

Temporary Sediment Trap Calculations

TEMPORARY SEDIMENT TRAP SIZING
PER 2002 CT DEP E&S MANUAL
8-26-11

**TST 1 (MAIN ACCESS DRIVE- STATION 4+20 TO 15+25)- NEAR BIORETENTION
AREA#2**

Initial Storage Volume = 134 cubic yards per acre of drainage area

$V = 134 \text{ cubic yards} \times 0.40 \text{ acres} = 54 \text{ cubic yards}$

Half of Storage Volume will be wet and half dry = $54 / 2 = 27 \text{ cubic yards} = 729 \text{ cubic feet}$

$V_{\text{wet}} = 0.85 \times A_{\text{wet}} \times D_{\text{wet}}$

If trap is 2.0' deep: $729 \text{ cubic feet} = 0.85 \times A_{\text{wet}} \times 2.0'$

$A_{\text{wet}} \text{ required} = 429 \text{ square feet}$

Use dimension of 15' x 30' for Wet Surface Area = $A_{\text{wet}} = 450 \text{ square feet}$

$V_{\text{dry}} = (A_{\text{wet}} + A_{\text{dry}}) / 2 \times D_{\text{dry}}$

If dry area is 1.5' high, $A_{\text{dry}} = 21' \times 36' = 756 \text{ sf}$

$V_{\text{dry}} = (450 + 756) / 2 \times 1.5' = 905 \text{ cubic feet}$

Use dimension of 21' x 36' for Dry Surface Area

TST 2 (TURBINE 1):

Initial Storage Volume = 134 cubic yards per acre of drainage area

$V = 134 \text{ cubic yards} \times 1.82 \text{ acres} = 244 \text{ cubic yards}$

Half of Storage Volume will be wet and half dry = $244 / 2 = 122 \text{ cubic yards} = 3,294 \text{ cubic feet}$

$V_{\text{wet}} = 0.85 \times A_{\text{wet}} \times D_{\text{wet}}$

If trap is 3.0' deep: $3,294 \text{ cubic feet} = 0.85 \times A_{\text{wet}} \times 3.0'$

$A_{\text{wet}} \text{ required} = 1,292 \text{ square feet}$

Use dimension of 20' x 65' for Wet Surface Area = $A_{\text{wet}} = 1,300 \text{ square feet}$

$V_{\text{dry}} = (A_{\text{wet}} + A_{\text{dry}}) / 2 \times D_{\text{dry}}$

If dry area is 2.0' high, $A_{\text{dry}} = 28' \times 73' = 2,044 \text{ sf}$

$V_{\text{dry}} = (1,300 + 2,044) / 2 \times 2.0' = 3,344 \text{ cubic feet}$

Use dimension of 28' x 73' for Dry Surface Area

TST 3 (MAIN ACCESS DRIVE- STATION 27+00):

Initial Storage Volume = 134 cubic yards per acre of drainage area

$V = 134 \text{ cubic yards} \times 1.40 \text{ acres} = 188 \text{ cubic yards}$

Half of Storage Volume will be wet and half dry = $188/2 = 94 \text{ cubic yards} = 2,538 \text{ cubic feet}$

$V_{\text{wet}} = 0.85 \times A_{\text{wet}} \times D_{\text{wet}}$

If trap is 3.0' deep: $2,538 \text{ cubic feet} = 0.85 \times A_{\text{wet}} \times 3.0'$

A_{wet} required = 995 square feet

Use dimension of 20' x 50' for Wet Surface Area = $A_{\text{wet}} = 1,000 \text{ square feet}$

$V_{\text{dry}} = (A_{\text{wet}} + A_{\text{dry}})/2 \times D_{\text{dry}}$

If dry area is 2.0' high, $A_{\text{dry}} = 28' \times 58' = 1,624 \text{ sf}$

$V_{\text{dry}} = (1,000 + 1,624)/2 \times 2.0' = 2,624 \text{ cubic feet}$

Use dimension of 28' x 58' for Dry Surface Area

TST 4 (TURBINE 2):

Initial Storage Volume = 134 cubic yards per acre of drainage area

$V = 134 \text{ cubic yards} \times 1.55 \text{ acres} = 208 \text{ cubic yards}$

Half of Storage Volume will be wet and half dry = $208/2 = 104 \text{ cubic yards} = 2,808 \text{ cubic feet}$

$V_{\text{wet}} = 0.85 \times A_{\text{wet}} \times D_{\text{wet}}$

If trap is 3.0' deep: $2,808 \text{ cubic feet} = 0.85 \times A_{\text{wet}} \times 3.0'$

A_{wet} required = 1,101 square feet

Use dimension of 20' x 55' for Wet Surface Area = $A_{\text{wet}} = 1,100 \text{ square feet}$

$V_{\text{dry}} = (A_{\text{wet}} + A_{\text{dry}})/2 \times D_{\text{dry}}$

If dry area is 2.0' high, $A_{\text{dry}} = 28' \times 63' = 1,764 \text{ sf}$

$V_{\text{dry}} = (1,100 + 1,764)/2 \times 2.0' = 2,864 \text{ cubic feet}$

Use dimension of 28' x 63' for Dry Surface Area

TST 5 (MAIN ACCESS DRIVE- STATION 35+00):

Initial Storage Volume = 134 cubic yards per acre of drainage area

$V = 134 \text{ cubic yards} \times 0.35 \text{ acres} = 47 \text{ cubic yards}$

Half of Storage Volume will be wet and half dry = $47 / 2 = 24 \text{ cubic yards} = 648 \text{ cubic feet}$

$V_{\text{wet}} = 0.85 \times A_{\text{wet}} \times D_{\text{wet}}$

If trap is 2.0' deep: $648 \text{ cubic feet} = 0.85 \times A_{\text{wet}} \times 2.0'$

Awet required = 381 square feet

Use dimension of 15' x 26' for Wet Surface Area = $A_{\text{wet}} = 390 \text{ square feet}$

$V_{\text{dry}} = (A_{\text{wet}} + A_{\text{dry}}) / 2 \times D_{\text{dry}}$

If dry area is 1.5' high, $A_{\text{dry}} = 21' \times 32' = 672 \text{ sf}$

$V_{\text{dry}} = (390 + 672) / 2 \times 1.5' = 796.5 \text{ cubic feet}$

Use dimension of 21' x 32' for Dry Surface Area

TST 6 (MAIN ACCESS DRIVE - STATION 39+50):

Initial Storage Volume = 134 cubic yards per acre of drainage area

$V = 134 \text{ cubic yards} \times 1.45 \text{ acres} = 194.3 \text{ cubic yards}$

Half of Storage Volume will be wet and half dry = $194.3 / 2 = 97 \text{ cubic yards} = 2,619 \text{ cubic feet}$

$V_{\text{wet}} = 0.85 \times A_{\text{wet}} \times D_{\text{wet}}$

If trap is 3.0' deep: $2,619 \text{ cubic feet} = 0.85 \times A_{\text{wet}} \times 3.0'$

Awet required = 1,027 square feet

Use dimension of 20' x 55' for Wet Surface Area = $A_{\text{wet}} = 1,100 \text{ square feet}$

$V_{\text{dry}} = (A_{\text{wet}} + A_{\text{dry}}) / 2 \times D_{\text{dry}}$

If dry area is 2.0' high, $A_{\text{dry}} = 28' \times 63' = 1,764 \text{ sf}$

$V_{\text{dry}} = (1,100 + 1,764) / 2 \times 2.0' = 2,864 \text{ cubic feet}$

Use dimension of 28' x 63' for Dry Surface Area

Outlet Protection Calculations

OUTLET PROTECTION- OUTLET VELOCITY 14 feet/sec

DISCHARGE (cfs)	OUTLET PIPE DIAMETER OR SPAN (in)									
	12	15	18	24	30	36	42	48	54	60
0-5	10	10		USE						
6	12	11								
7		13	12							
8		14	13	12		MINIMUM				
9			14	13						
10			15	13						
11			16	14				LENGTH		
12				14						
14				16	14					
16				17	15	14			OUTLINED	
18				18	16	15				
20					17	15	14			
22		USE			18	16	15			
24						17	15	14		
26						17	16	15		
28						18	16	15		
30						19	17	16		
35						20	18	17	16	
40			PREFORMED				20	18	17	16
45							21	19	18	16
50							22	20	18	17
55								21	19	18
60								22	20	19
65								24	21	20
70					SCOUR			25	22	20
75								26	23	21
80									24	22
90									26	24
100									28	25
110										27
125							HOLE			29
130										30

**Table 8-6.1 - Length- La (feet)
Type A Riprap Apron**

Notes: 1. Bold face outlined boxes indicate minimum La to be used for a given pipe diameter or span.
2. Rounding and interpolating are acceptable.

W::: + O,Y. Lo_ C..I.!Lo) +- ((l):: -Z7::: -'
U.s;..e B')<. 1D' L PA.0

Worksheet
Worksheet for Circular Channel

C... US, -:: C-<t...-JE 12-_(
<:::;< 1+-00

Project Description	
Worksheet	Cross Culvert Stat •
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.013
Channel Slope	010000 ft/ft
Diameler	15.0 in
Discharge	3.20 cfs

Results	
Depth	0.62 ft
Flow Area	0.6 ft ²
Wetted Perime	1.96 ft
Top Width	0.00 ft
Critical Depth	0.72 ft
Percent Full	49.7 %
Critical Slope	0.006160 ft/ft
Velocity	5.25 ft/s
Velocity Head	0.43 ft
Specific Energ	1.05 ft
Froude Numbe	1.33
Maximum Disc	6.95 cfs
Discharge Full	6.46 cfs
Slope Full	0.002454 ft/ft
Flow Type)upercritical

6- CA::E: IV.-00 RIPRAP

Worksheet

Worksheet for Circular Channel

L(Z_077"::> Gt.A LV E 2-..J--(
-rr+- . <...|

Project Description	
Worksheet	Cross Culvert Sta •
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.013
Channel Slope	050000 ffft
Diameter	15.0 in
Discharge	3.20 cfs

Results	
Depth Flow	0.40 ft
Area Wetted	0.3 ft ²
Perime Top	1.50 ft
Width Critical	0.00 ft
Depth Percent	0.72 ft
Full Critical	32.0 %
Slope Velocity	0.006160 ft/ft
Velocity Head	9.46 ffts
Specific Energ-	1.39 ft
Froude Numbe	1.79 ft
Maximum Disc	3.10
Discharge Full	15.54 cfs
Slope Full	14.44 cfs
	0.002454 ft/ft
Flow Type	lupercritical

< -LA> £ ::L t; "T. {2- \ fY' A P

Worksheet Worksheet for Circular Channel

$$C \left(\frac{0.585}{s} \right) \left(\frac{CA}{b} \right)^{1.49} \left(\frac{R}{b} \right)^{4.75} \left(\frac{V}{C} \right)^{1.49} \left(\frac{b}{C} \right)^{0.149}$$

$$s = rA^{-1.49} \left(\frac{b}{C} \right)^{0.149} \left(\frac{V}{C} \right)^{1.49}$$

Project Description	
Worksheet	Cross Culvert Sta (
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.013
Channel Slope	0.00080000 ft/ft
Diameter	15.0 in
Discharge	3.20 cfs

Results	
Depth Flow	0.35 ft
Area Wetted	0.3 ft ²
Perime Top	1.40 ft
Width Critical	0.00 ft
Depth Percent Full	0.72 ft
Full	28.3 %
Critical Slope	0.006160 ft/ft
Velocity	11.19 ft/s
Velocity Head	1.95 ft
Specific Energy	2.30 ft
Froude Number	3.92
Maximum Disc	19.65 cfs
Discharge Full	18.27 cfs
Slope Full	0.002454 ft/ft
Flow Type	>supercritical

← USE STANDARD RIPRAP

Worksheet
Worksheet for Circular Channel

CROSS CULVERT STA. 8+00

Project Description	
Worksheet	Cross Culvert Sta I
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.013
Channel Slope	100000 ft/ft
Diameter	15.0 in
Discharge	3.20 cfs

Results	
Depth Flow	0.33 ft
Area Wetted	0.3 ft ²
Perime Top	1.36 ft
Width Critical	0.00 fl
Depth Percent	0.72 ft
Full Critical	26.8%
Slope Velocity	0.006160 ft/ft
Velocity Head	12.12 ft/s
	2.28 ft
Specific Energ	2.62 ft
Froude Numbe	4.38
Maximum Disc	21.97 crs
Discharge Full	20.43 crs
Slope Full	0.002454 ft/ft
Flow Type	;upercritical

--- <..ASF; s-.A[!..JI;!;....A\<-D cC-WTP

Worksheet Worksheet for Circular Channel

C... (2. 0SS c...t.A.L-'-(E \\
<.:Vfr. t 0 +-oo

Project Description	
Worksheet	Cross Culvert Sta 1
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	ChannelDepth

Input Data	
Mannings Coeffic	0.013
Channel Slope	010000 tv/l
Diameter	15.0 in
Discharge	3.20 cfs

Results	
Depth	0.62 ft
Flow Area	0.6 ft ²
Wetted Perime	1.96 ft
Top Width	0.00 ft
Critical Depth	0.72 ft
Percent Full	49.7 %
Critical Slope	0.006160 ft/ft
Velocity	5.25 ft/s
Velocity Head	0.43 ft
Specific Energy	1.05 ft
Froude Numbe	1.33
Maximum Disc	6.95 cfs
Discharge Full	6.46 cfs
Slope Full	0.002454 ft/ft
Flow Type	supercritical

← USE MODIFIED KIPRAV

**Worksheet
Worksheet for Circular Channel**

CROSS CULVERT STA. 1
STA. 1+200

Project Description	
Worksheet	Cross Culvert Sta 1
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.013
Channel Slope	100000 ft/ft
Diameter	15.0 in
Discharge	3.20 cfs

Results	
Depth	0.33 ft
Flow Area	0.3 rt ²
Wetted Perime	1.36 ft
Top Width	0.00 ft
Critical Depth	0.72 ft
Percent Full	26.8 %
Critical Slope	0.006160 ft/ft
Velocity	12.12 ft/s
Velocity Head	2.28 ft
Specific Energy	2.62 ft
Froude Numbe	4.38
Maximum Disc	21.97 cfs
Discharge Full	20.43 cfs
Slope Full	0.002454 ft/ft
Flow Type	upercritical

G-- LACIF- STANDARD RIPPAP

**Worksheet
Worksheet for Circular Channel**

C. iS \..!-oo L- CO
'bto,-z2TE. N\l c-c EA \

Project Description	
Worksheet	CB 1+00L
Flow Element	Circular Chann
Method	Mannings Forr
Solve For	Channel Deptr

Input Data	
Mannings Coeffic	0.013
Channel Slope	010000 ft/fl
Diameter	15.0 in
Discharge	0.65 cfs

Results	
Depth	0.27 ft
Flow Area	0.2 ft ²
Wetted Perime	1.20 fl
Top Width	0.00 fl
Critical Depth	0.31 fl
Percent Full	21.4 %
Critical Slope	0.005243 ft/ft
Velocity	3.37 ft/s ← USE MOD. RIPRAP
Velocity Head	0.18 ft
Specific Energ	0.44 ft
Froude Numbe	1.37
Maximum Disc	6.95 cfs
Discharge Full	6.46 cfs
Slope Full	0.000101 ft/fl
Flow Type	lupercritical

OUTLET PROTECTION- OUTLET VELOCITY 14 feet/sec

DISCHARGE (cfs)	OUTLET PIPE DIAMETER OR SPAN (in)										
	12	15	18	24	30	36	42	48	54	60	
0-5	10	10		USE							
6	12	11									
7		13	12								
8		14	13	12		MINIMUM					
9			14	13							
10			15	13							
11			16	14				LENGTH			
12				14							
14				16	14						
16				17	15	14				OUTLINED	
18				18	16	15					
20					17	15	14				
22		USE			18	16	15				
24						17	15	14			
26						17	16	15			
28						18	16	15			
30						19	17	16			
35						20	18	17	16		
40			PREFORMED				20	18	17	16	
45							21	19	18	16	
50							22	20	18	17	
55								21	19	18	
60								22	20	19	
65								24	21	20	
70					SCOUR			25	22	20	
75								26	23	21	
80									24	22	
90									26	24	
100									28	25	
110										27	
125							HOLE			29	
130										30	

Table 8-6.1 - Length- La (feet)

Type A Riprap Apron

- Notes: 1. Bold face outlined boxes indicate minimum La to be used for a given pipe diameter or span.
- 2. Rounding and interpolating are acceptable.

$$V >= \dots Sp + 0.1 \dots "SCI.'2s)O.Lfc1) = 7.7'>-.$$

$$IJ..st.; <6'LO >' tOL (2.1pp:A-p PA-0$$

OUTLET PROTECTION- OUTLET VELOCITY=::; 14 feet/sec

DISCHARGE (cfs)	OUTLET PIPE DIAMETER OR SPAN (in)										
	12	15	18	24	30	36	42	48	54	60	
0-5	10	10		USE							
6	12	11									
7		13	12								
8		14	13	12		MINIMUM					
9			14	13							
10			15	13							
11			16	14				LENGTH			
12				14							
14				16	14						
16				17	15	14			OUTLINED		
18				18	16	15					
20					17	15	14				
22		USE			18	16	15				
24						17	15	14			
26						17	16	15			
28						18	16	15			
30						19	17	16			
35						20	18	17	16		
40			PREFORMED					20	18	17	16
45							21	19	18	16	
50							22	20	18	17	
55								21	19	18	
60								22	20	19	
65								24	21	20	
70						SCOUR		25	22	20	
75								26	23	21	
80									24	22	
90									26	24	
100									28	25	
110										27	
125							HOLE			29	
130										30	

Table 8-6.1- Length -La (feet)

Type A Riprap Apron

- Notes: 1. Bold face outlined boxes indicate minimum La to be used for a given pipe diameter or span.
- 2. Rounding and interpolating are acceptable.

(:):):.. '\$.. \(' Ocl.. \ L-c_.. ";; 7, 7 .

L3-S£. '0 .L\) IO, L (2-tP(ZA-f PhO

Worksheet

Worksheet for Circular Channel

OMJ. \ | u- 'f-S\o'(C"C:-T-N-t \eN
A C- A- -#Z_

Project Description	
Worksheet	DMH1 TO Bioretention
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.013
Channel Slope	050000 ft/ft
Diameter	15.0 in
Discharge	2.21 cfs

Results	
Depth	0.33 ft
Flow Area	0.3 ft ²
Wetted Perime	1.35 ft
Top Width	0.00 ft
Critical Depth	0.59 ft
Percent Full	26.4 %
Critical Slope	0.005587 ft/ft
Velocity	8.51 ft/s
Velocity Head	1.13 ft
Specific Energ-	1.46 ft
Froude Numbe	3.09
Maximum Disc	15.54 cfs
Discharge Full	14.44 cfs
Slope Full	0.001171 ft/ft
Flow Type	supercritical

..... L-t.<G.

OUTLET PROTECTION- OUTLET VELOCITY 14 feet/sec

DISCHARGE (cfs)	OUTLET PIPE DIAMETER OR SPAN (in)										
	12	15	18	24	30	36	42	48	54	60	
0-5	10	10		USE							
6	12	11									
7		13	12								
8		14	13	12		MINIMUM					
9			14	13							
10			15	13							
11			16	14				LENGTH			
12				14							
14				16	14						
16				17	15	14			OUTLINED		
18				18	16	15					
20					17	15	14				
22		USE			18	16	15				
24						17	15	14			
26						17	16	15			
28						18	16	15			
30						19	17	16			
35						20	18	17	16		
40			PREFORMED				20	18	17	16	
45							21	19	18	16	
50							22	20	18	17	
55								21	19	18	
60								22	20	19	
65								24	21	20	
70					SCOUR			25	22	20	
75								26	23	21	
80									24	22	
90									26	24	
100									28	25	
110										27	
125							HOLE			29	
130										30	

Table 8-6.1 - Length-La (feet)

Type A Riprap Apron

- Notes: 1. Bold face outlined boxes indicate minimum La to be used for a given pipe diameter or span.
- 2. Rounding and interpolating are acceptable.

$$W = 3(S_p) + 0.4(L_a) = 7.75'$$

USE 8'W x 10'L RIPRAP PAD.

Worksheet Worksheet for Circular Channel

CS 18+70L TO OUTLET

Project Description	
Worksheet	CB 18+70 to OI
Flow Element	Circular Chanm
Method	Manning's Forr
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.013
Channel Slope	050000 ft/ft
Diameter	15.0 in
Discharge	1.59 cfs

Results	
Depth Flow	0.28 ft
Area Wetted	0.2 ft ²
Perime Top	1.23 ft
Width Critical	0.00 ft
Depth Percent Full	0.50 ft
Full	22.4 %
Critical Slope	0.005340 ft/ft
Velocity	7.74 ft/s
Velocity Head	0.93 ft
Specific Energy	1.21 ft
Froude Number	3.07
Maximum Discharge	15.54 cfs
Discharge Full	14.44 cfs
Slope Full	0.000606 ft/ft
Flow Type	>supercritical

∠ - 1A' -> E fV100I\,cE.G (2\p(Z..A-)\?

OUTLET PROTECTION- OUTLET VELOCITY 14 feet/sec

DISCHARGE (cfs)	OUTLET PIPE DIAMETER OR SPAN (in)									
	12	15	18	24	30	36	42	48	54	60
0-5	10	10		<i>USE</i>						
6	12	11								
7		13	12							
8		14	13	12		<i>MINIMUM</i>				
9			14	13						
10			15	13						
11			16	14				<i>LENGTH</i>		
12				14						
14				16	14					
16				17	15	14			<i>OUTLINED</i>	
18				18	16	15				
20					17	15	14			
22		<i>USE</i>			18	16	15			
24						17	15	14		
26						17	16	15		
28						18	16	15		
30						19	17	16		
35						20	18	17	16	
40			<i>PREFORMED</i>				20	18	17	16
45							21	19	18	16
50							22	20	18	17
55								21	19	18
60								22	20	19
65								24	21	20
70					<i>SCOUR</i>			25	22	20
75								26	23	21
80									24	22
90									26	24
100									28	25
110										27
125							<i>HOLE</i>			29
130										30

**Table 8-6.1 - Length - La (feet)
Type A Riprap Apron**

Notes: 1. Bold face outlined boxes indicate minimum La to be used for a given pipe diameter or span.
2. Rounding and interpolating are acceptable.

$$W = 5 > C < ; F) C : : . Y c _) c . 7 s'$$

$$L . - c - \$. 6 . \quad b \quad \backslash O' L \quad r'' 2 L P : 2 t \backslash P \quad p , q . p$$

Worksheet Worksheet for Circular Channel

CCS 2'±, 10L
OUTLET

Project Description	
Worksheet	CB 28+10L to O
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Manning's Coefficient	0.013
Channel Slope	0.010000 ft/ft
Diameter	15.0 in
Discharge	1.85 cfs

Results	
Depth Flow	0.46 ft
Area Wetted	0.4 ft ²
Perimeter Top	1.63 ft
Width Critical	0.00 ft
Depth Percent Full	0.54 ft
Full	36.6 %
Critical Slope	0.005424 ft/ft
Velocity	4.54 ft/s
Velocity Head	0.32 ft
Specific Energy	0.78 ft
Froude Number	1.38
Maximum Discharge	6.95 cfs
Discharge Full	6.46 cfs
Slope Full	0.000820 ft/ft
Flow Type	>supercritical

4- LAS, E v1Ac... t::l ..SD cC-t p.:1-'

OUTLET PROTECTION- OUTLET VELOCITY 14 feet/sec

DISCHARGE (cfs)	OUTLET PIPE DIAMETER OR SPAN (in)										
	12	15	18	24	30	36	42	48	54	60	
0-5	10	10		USE							
6	12	11									
7		13	12								
8		14	13	12		MINIMUM					
9			14	13							
10			15	13							
11			16	14				LENGTH			
12				14							
14				16	14						
16				17	15	14			OUTLINED		
18				18	16	15					
20					17	15	14				
22		USE			18	16	15				
24						17	15	14			
26						17	16	15			
28						18	16	15			
30						19	17	16			
35						20	18	17	16		
40		PREFORMED						20	18	17	16
45							21	19	18	16	
50							22	20	18	17	
55								21	19	18	
60								22	20	19	
65								24	21	20	
70					SCOUR				25	22	20
75								26	23	21	
80									24	22	
90									26	24	
100									28	25	
110										27	
125							HOLE			29	
130										30	

Table 8-6.1- Length- La (feet)

Type A Riprap Apron

- Notes: 1. Bold face outlined boxes indicate minimum La to be used for a given pipe diameter or span.
- 2. Rounding and interpolating are acceptable.

$$C..u= > Ls.e: > +- o.L- { C ::: r.7- ,$$

$$usf: 'Srw r- (6'L- (U.P fr? f"AD$$

Worksheet Worksheet for Circular Channel

Project Description	
Worksheet	CB 28+20R to O
Flow Element	Circular Channe
Method	Manning's Form'
Solve For	ChannelDepth

Input Data	
Mannings Coeffic	0.013
Channel Slope	025400 ft/ft
Diameter	15.0 in
Discharge	2.32 cfs

Results	
Depth	0.40 ft
Flow Area	0.3 ft ²
Wetted Perime	1.51 ft
Top Width	0.00 ft
Critical Depth	0.61 ft
Percent Full	32.3 %
Critical Slope	0.005642 ft/ft
Velocity	6.77 ft/s ← USE MODIFIED RUPRAP
Velocity Head	0.71 ft
Specific Energ-	1.12 ft
Froude Numbe	2.21
Maximum Disc	11.07 cfs
Discharge Full	10.29 cfs
Slope Full	0.001290 ft/ft
Flow Type	supercritical

CB 33+70L TO OUTLET

OUTLET PROTECTION- OUTLET VELOCITY 14 feet/sec

DISCHARGE (cfs)	OUTLET PIPE DIAMETER OR SPAN (in)										
	12	15	18	24	30	36	42	48	54	60	
0-5	10	10		USE							
6	12	11									
7		13	12								
8		14	13	12		MINIMUM					
9			14	13							
10			15	13							
11			16	14				LENGTH			
12				14							
14				16	14						
16				17	15	14			OUTLINED		
18				18	16	15					
20					17	15	14				
22		USE			18	16	15				
24						17	15	14			
26						17	16	15			
28						18	16	15			
30						19	17	16			
35						20	18	17	16		
40		PREFORMED						20	18	17	16
45							21	19	18	16	
50							22	20	18	17	
55								21	19	18	
60								22	20	19	
65								24	21	20	
70					SCOUR				25	22	20
75								26	23	21	
80									24	22	
90									26	24	
100									28	25	
110										27	
125							HOLE			29	
130										30	

Table 8-6.1- Length - La (feet)

Type A Riprap Apron

Notes: 1. Bold face outlined boxes indicate minimum La to be used for a given pipe diameter or span.

2. Rounding and interpolating are acceptable.

$$VJ = 3. (_s(?) t- O}--fLLc;,:) I.7 ,$$

$$Us::(5 C()W , c O, _ qZ-(fC.A p f'$$

Worksheet Worksheet for Circular Channel

CB 33+70L
TO OUTLET

Project Description	
Worksheet	CB 33+70L to O
Flow Element	Circular Channel
Method	Manning's Form1
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.013
Channel Slope	010000 ft/ft
Diameter	15.0 in
Discharge	1.35 cfs

Results	
Depth Flow	0.39 ft
Area Wetted	0.3 ft'
Perime Top	1.48 ft
Width Critical	0.00 ft
Depth Percent	0.46 ft
Full Critical	31.0 %
Slope Velocity	0.005272 ft/ft
Velocity Head	4.16 ft/s
Specific Energy	0.27 ft
Froude Numbe	0.66 ft
Maximum Disc	1.39
Discharge Full	6.95 cfs
Slope Full	6.46 cfs
Flow Type	0.000437 ft/ft
)upercritical	

$L - V < -'E .1 \backslash A . o O t \quad , G : C > . \pi - , r f - A : < = >$

