

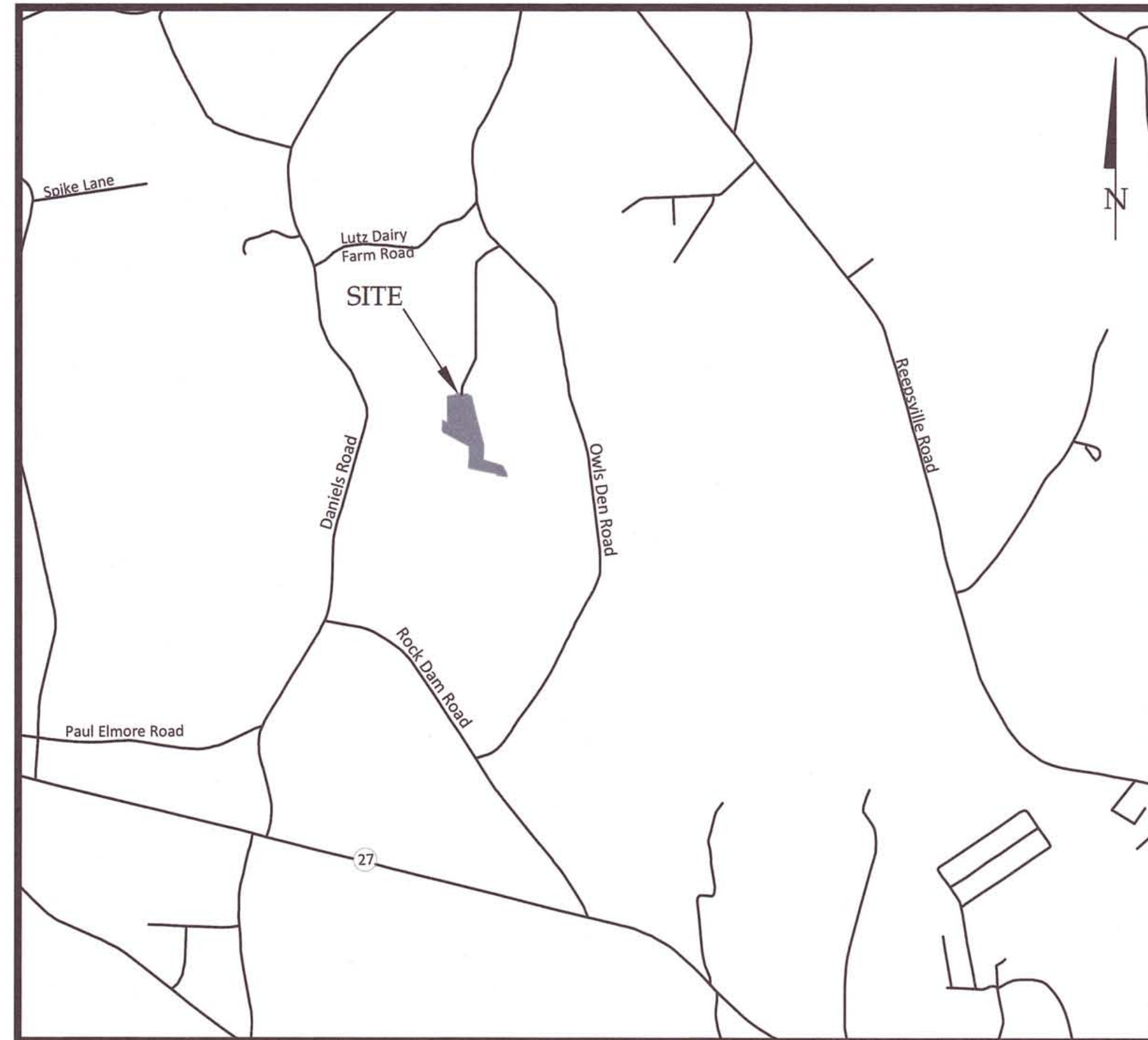
Owl's Den Mitigation Site Record Drawings

Catawba River Basin 03050103 Expanded Service Area

Lincoln County, North Carolina

for

NCDEQ - Division of Mitigation Services



Vicinity Map
Not to Scale



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**RECORD DRAWINGS
FEBRUARY 17, 2016**

**CERTIFICATE OF SURVEY
AND
ACCURACY**

I, PHILLIP B. KEE, CERTIFY THAT THE GROUND TOPOGRAPHIC SURVEY PORTION OF THIS PROJECT WAS COMPLETED UNDER MY DIRECT SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY DIRECT SUPERVISION, THAT THE RECORD DRAWINGS WERE PREPARED BY WILDLANDS ENGINEERING, INC FROM DIGITAL FILES PROVIDED BY KEE MAPPING AND SURVEYING, PA AS SHOWN ON AN AS-BUILT SURVEY FOR "THE STATE OF NC, DIVISION OF MITIGATION SERVICES", JOB #150798-AB, DATED SEPTEMBER 21ST, 2015; THAT THIS SURVEY WAS PERFORMED AT THE 95% CONFIDENCE LEVEL TO MEET THE FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC SURVEY TO THE ACCURACY OF CLASS A HORIZONTAL AND CLASS C VERTICAL WHERE APPLICABLE; THAT THE ORIGINAL DATA WAS OBTAIN BETWEEN THE DATES OF 07/20/15 - 08/17/15; THAT THE CONTOURS SHOWN AS BROKEN LINES MAY NOT MEET THE STATED STANDARD AND ALL COORDINATES ARE BASED ON NAD 83 (NSRS 2011) AND ALL ELEVATIONS ARE BASE ON NAVD 88; THAT THIS MAP MEETS THE SPECIFICATIONS FOR TOPOGRAPHIC SURVEYS AS STATED IN TITLE 21, CHAPTER 56, SECTION 1606; THAT THIS MAP WAS NOT PREPARED IN ACCORDANCE WITH G.S. 47-30, AS AMENDED AND DOES NOT REPRESENT AN OFFICIAL BOUNDARY SURVEY.

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS THE 18TH DAY OF FEBRUARY, 2016.

OFFICIAL SEAL



Phillip B. Kee
PHILLIP B. KEE, PLS L-4647

Sheet Index

Title Sheet	0.1
Project Overview	0.2
General Notes and Symbols	0.3
Stream Plan and Profile	2.1-2.6
Wetland Grading	3.1-3.5
Planting	4.1-4.5

Project Directory

Engineering:
Wildlands Engineering, Inc
License No. F-0831
1430 South Mint Street, Suite 104
Charlotte, NC 28203
Eric Neuhaus, PE
704-332-7754 x112

Surveying:
Kee Mapping and Survey
111 Central Avenue,
Asheville, NC 28801
Brad Kee, PLS
828-645-8275

Owner:
NCDEQ
Division of Mitigation Services
1652 Mail Service Center
Raleigh, North Carolina 27699-1652
Project Manager: Paul Wiesner

DMS Project ID: 95808

NCDEQ Contract No. 005150



Owl's Den Mitigation Site Record Drawings
Lincoln County, North Carolina

Title Sheet

Revisions:

Date:	February 17, 2016
Job Number:	015-02140
Project Engineer:	EPN
Drawn By:	RCY
Checked By:	KYG & ECR

0.1

Sheet

	Property Line
	Underground Electric Power
	Overhead Electric Power
	FEMA Floodplain
	Conservation Easement
	Design Minor Contour
	Design Minor Contour
	Design Bankfull
	Trees Saved During Construction
	Power Pole
	Power Pole Guy Wire
	Electrical Box (Transformer)
	Pump Station
	As-Built Thalweg Alignment
	As-Built Bankfull
	As-Built Major Contour
	As-Built Minor Contour

	Jurisdictional Wetland
	Farm Road and Gravel Parking
	Design Wetland Re-establishment
	Design Wetland Rehabilitation

	Design Angled Log Drop		As-Built Angled Log Drop
	Design Constructed Shallow		As-Built Constructed Shallow
	Design Woody Shallow		As-Built Woody Shallow
	Design Jazz Shallow		As-Built Jazz Shallow
	Design Brush Shallow		As-Built Brush Shallow
	Design Log Vane		As-Built Log Vane
	Design Transplanted Sod Mats		As-Built Transplanted Sod Mats
	Design Brush Toe		As-Built Brush Toe
	Design Lunker Log		As-Built Lunker Log

*Deviation from design shown in red.



Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina

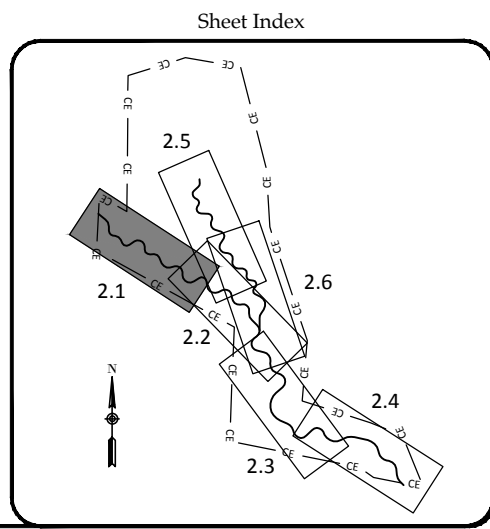
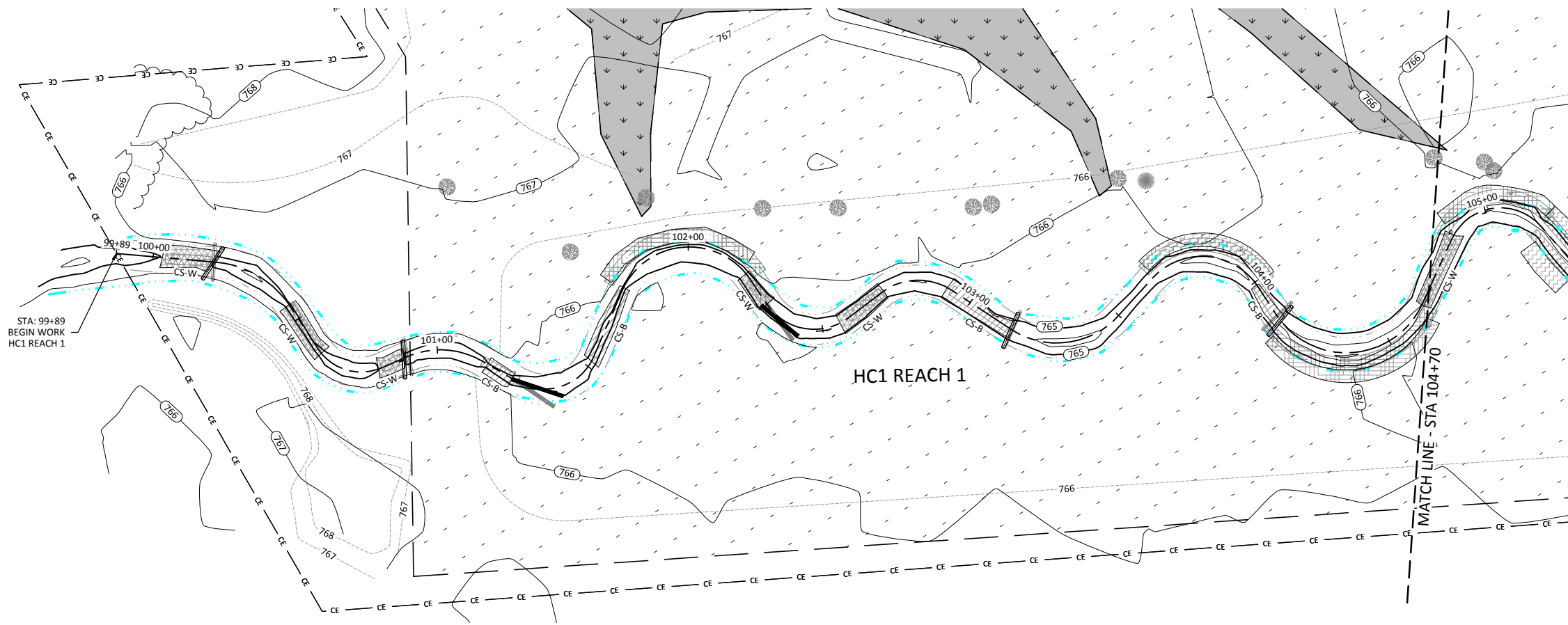
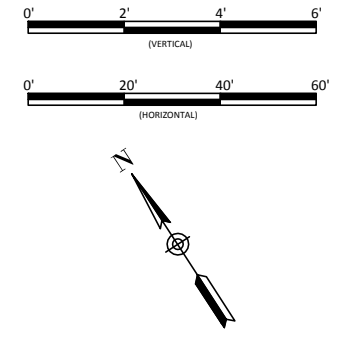
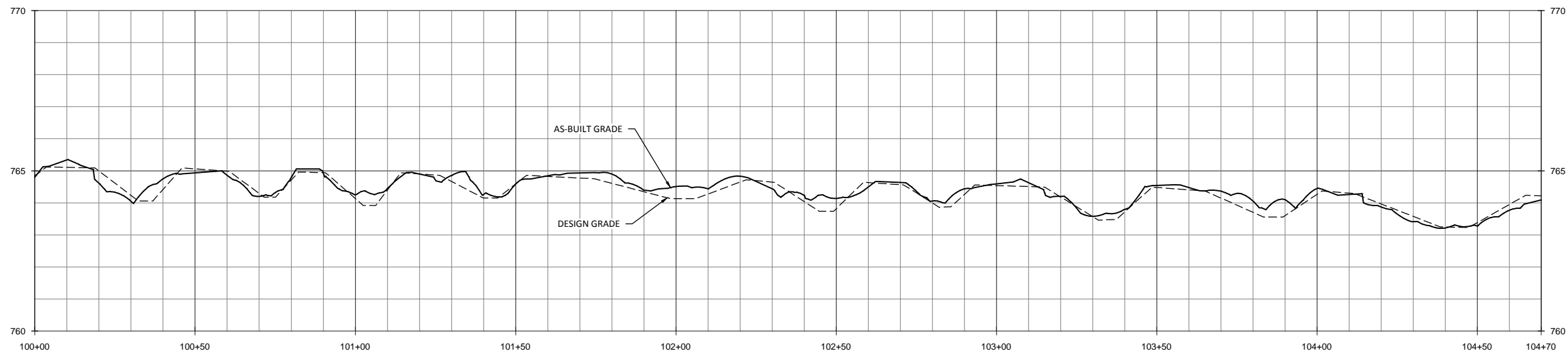
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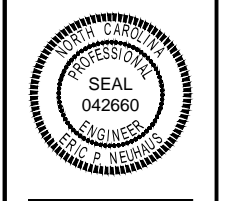
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Job Number:	005-02140
Project Engineer:	EPN
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Checked By:	KYG & EGR

0.3

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Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina
 HC1
 Stream Plan and Profile

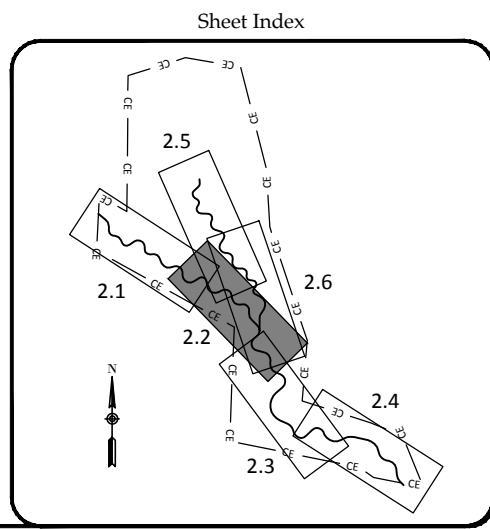
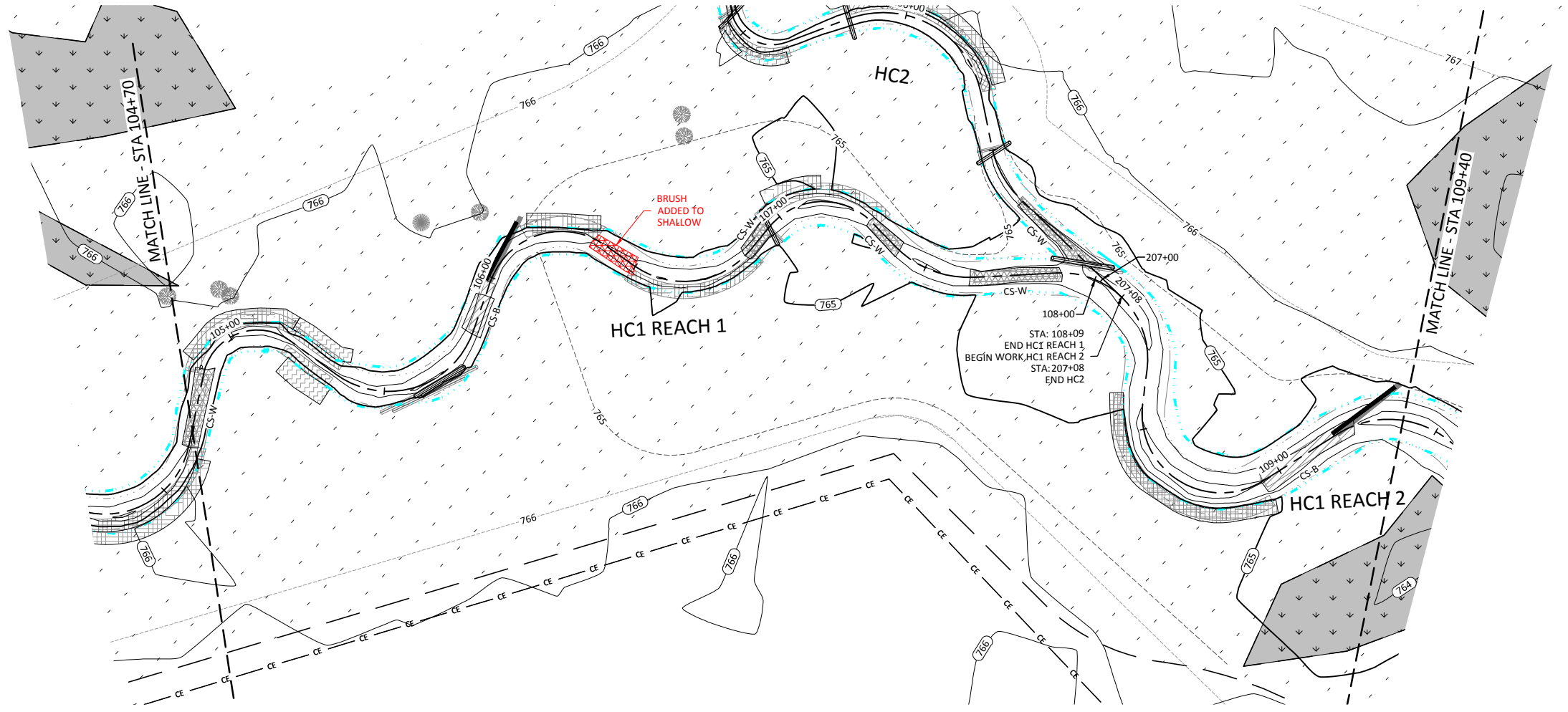
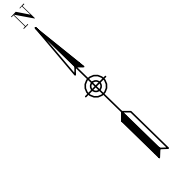
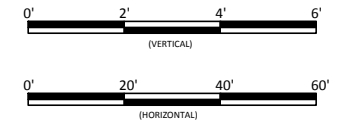
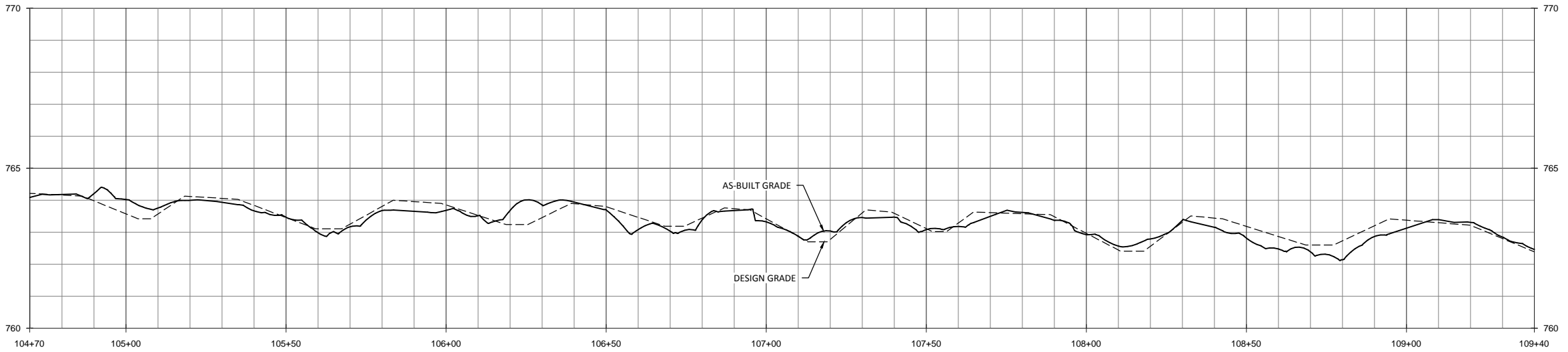
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Date: February 17, 2016
 Job Number: 005-02140
 Project Engineer: EPN
 Drawn By: RCP
 Checked By: KYG & EGR

2.1

Sheet

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Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina

HC1
 Stream Plan and Profile

Revisions:

Date: February 17, 2016
 Job Number: 005-02140
 Project Engineer: EPN
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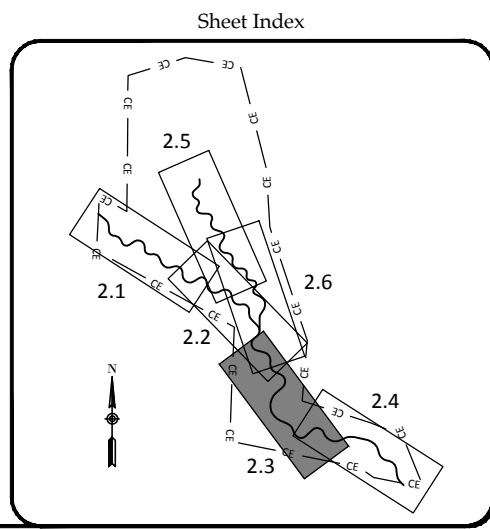
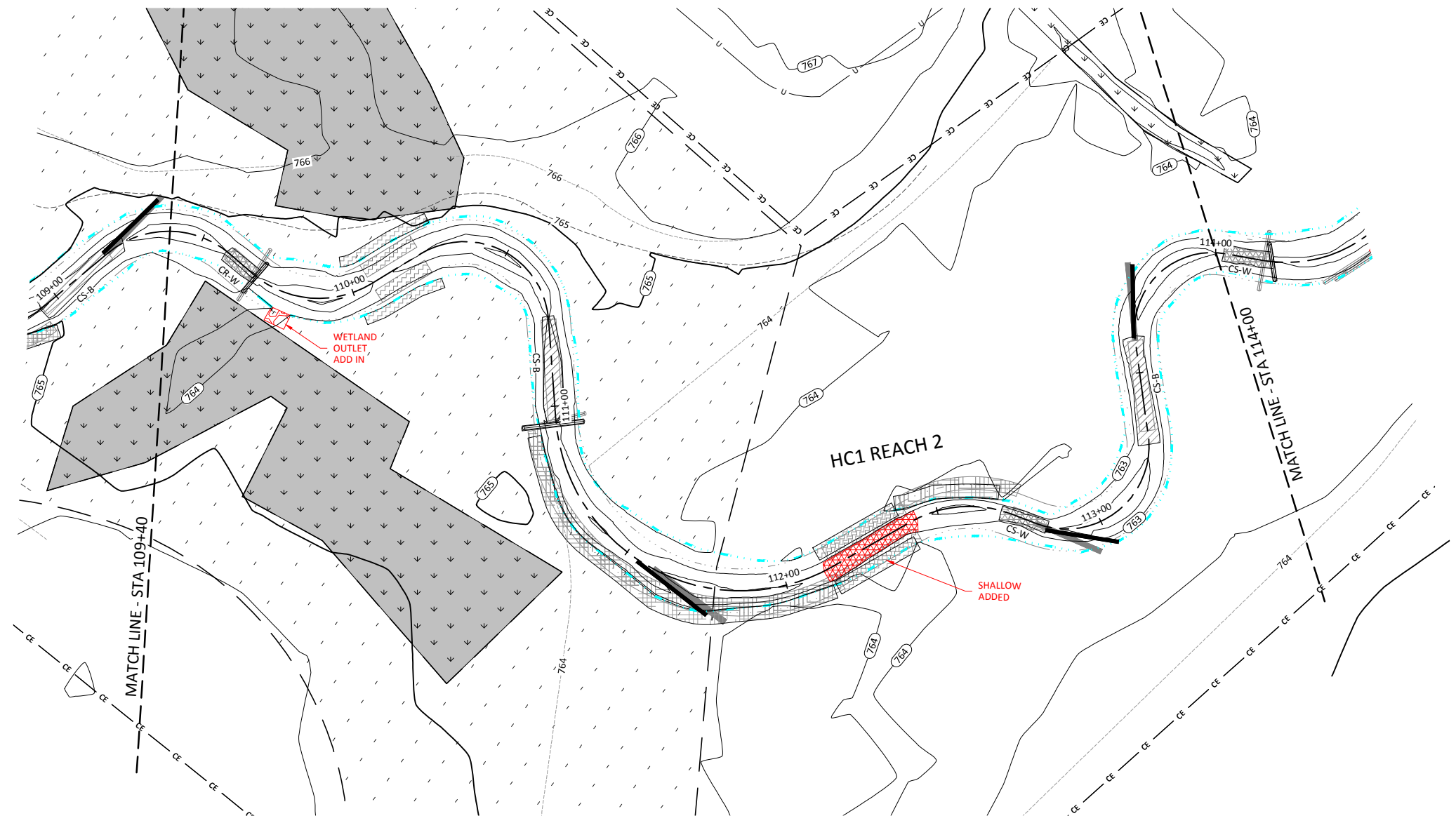
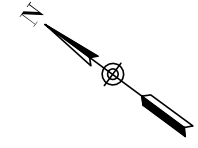
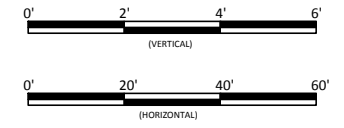
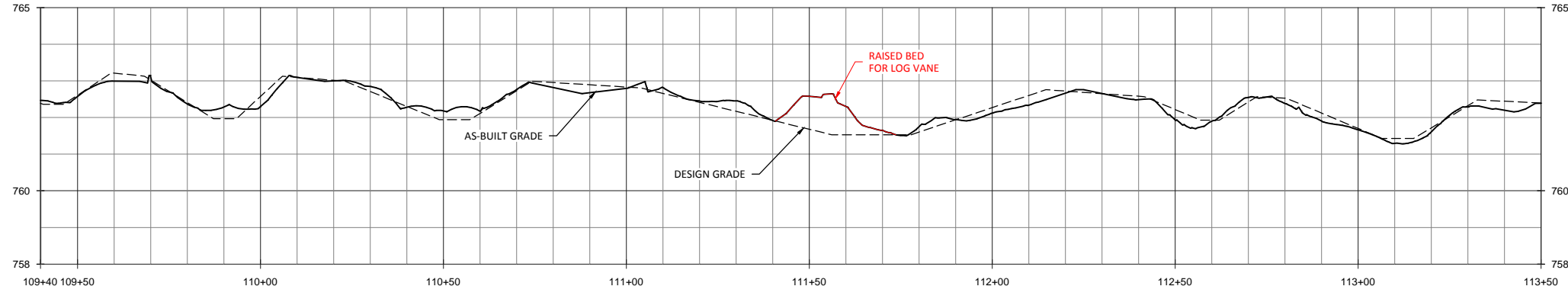
2.2

Sheet

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Owl's Den Mitigation Site Record Drawings
Lincoln County, North Carolina
 HC1
 Stream Plan and Profile

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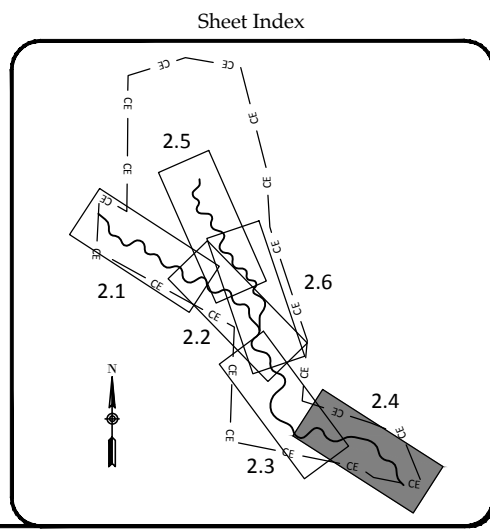
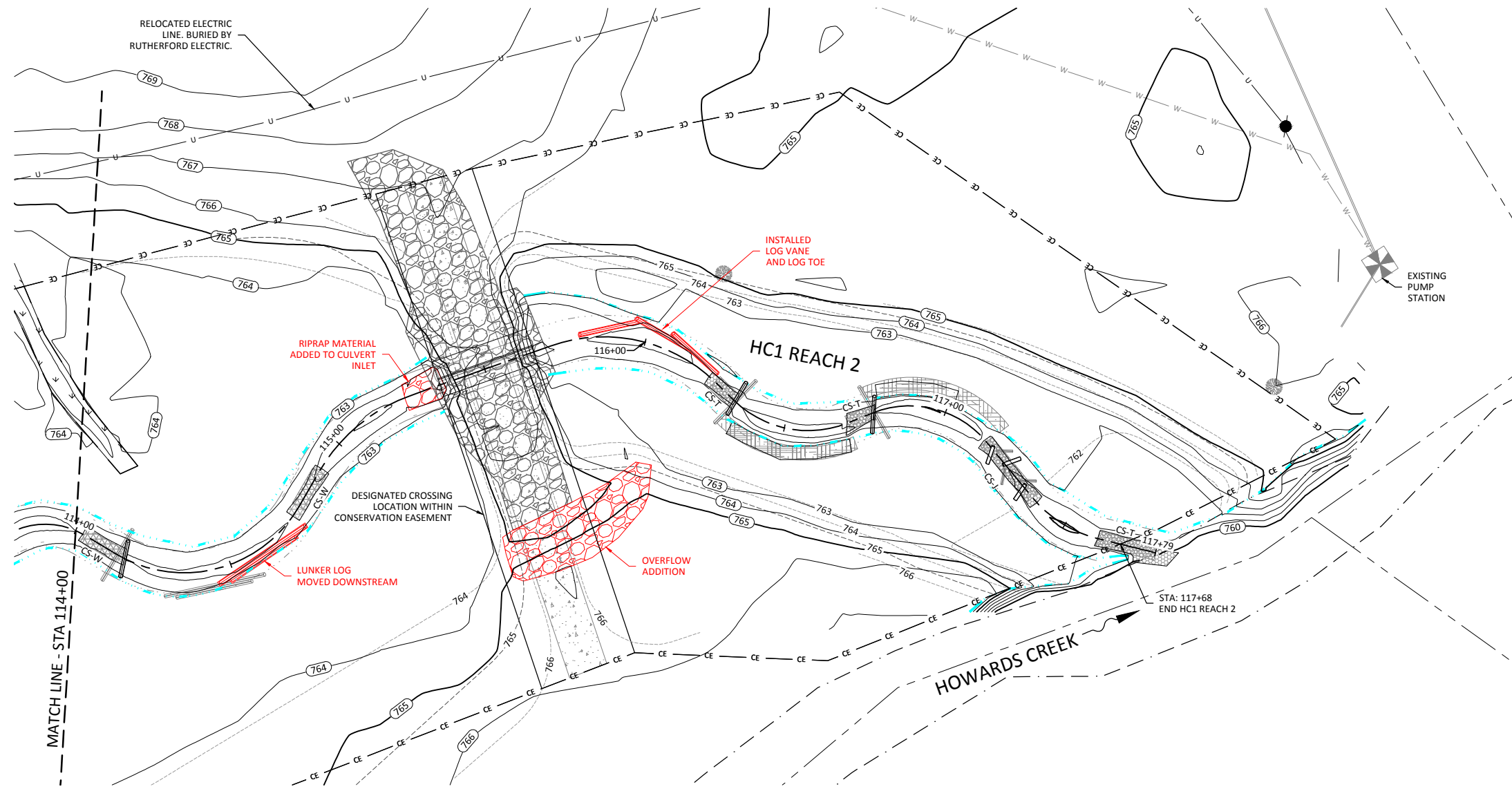
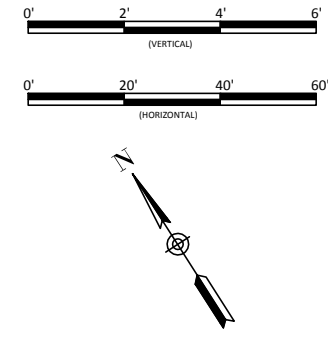
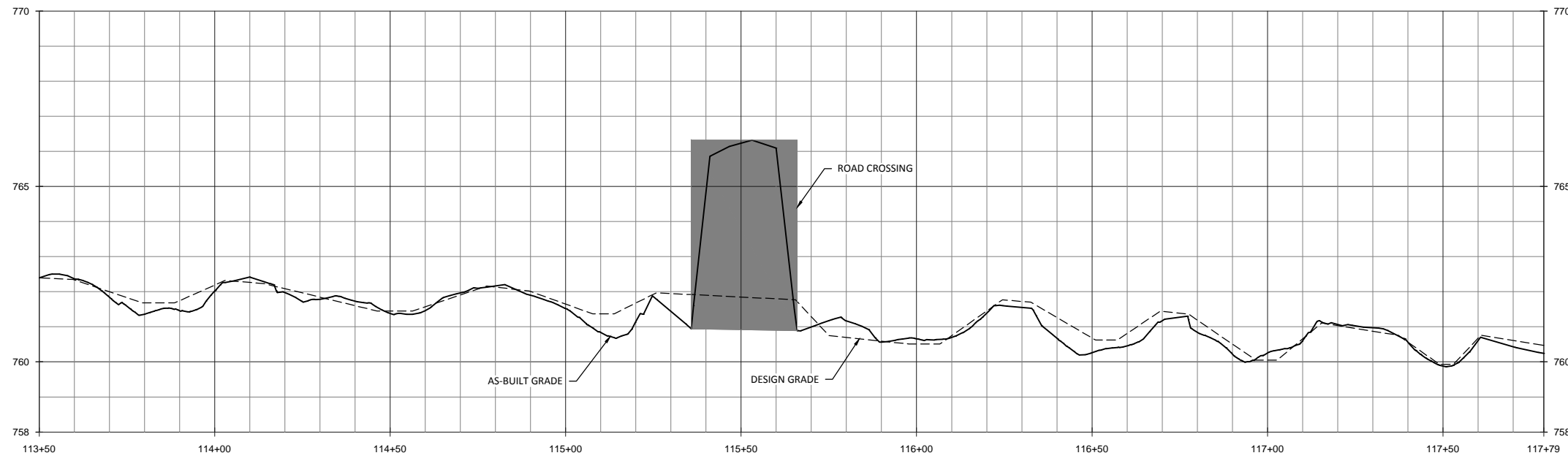


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 Checked By: KYG & EGR

2.3
 Sheet

February 17, 2016
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Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina
 HC1
 Stream Plan and Profile

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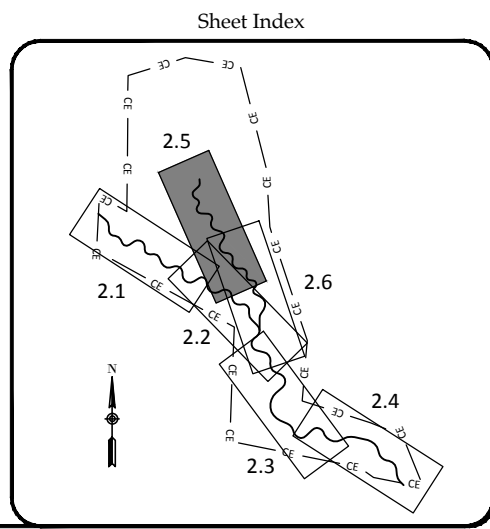
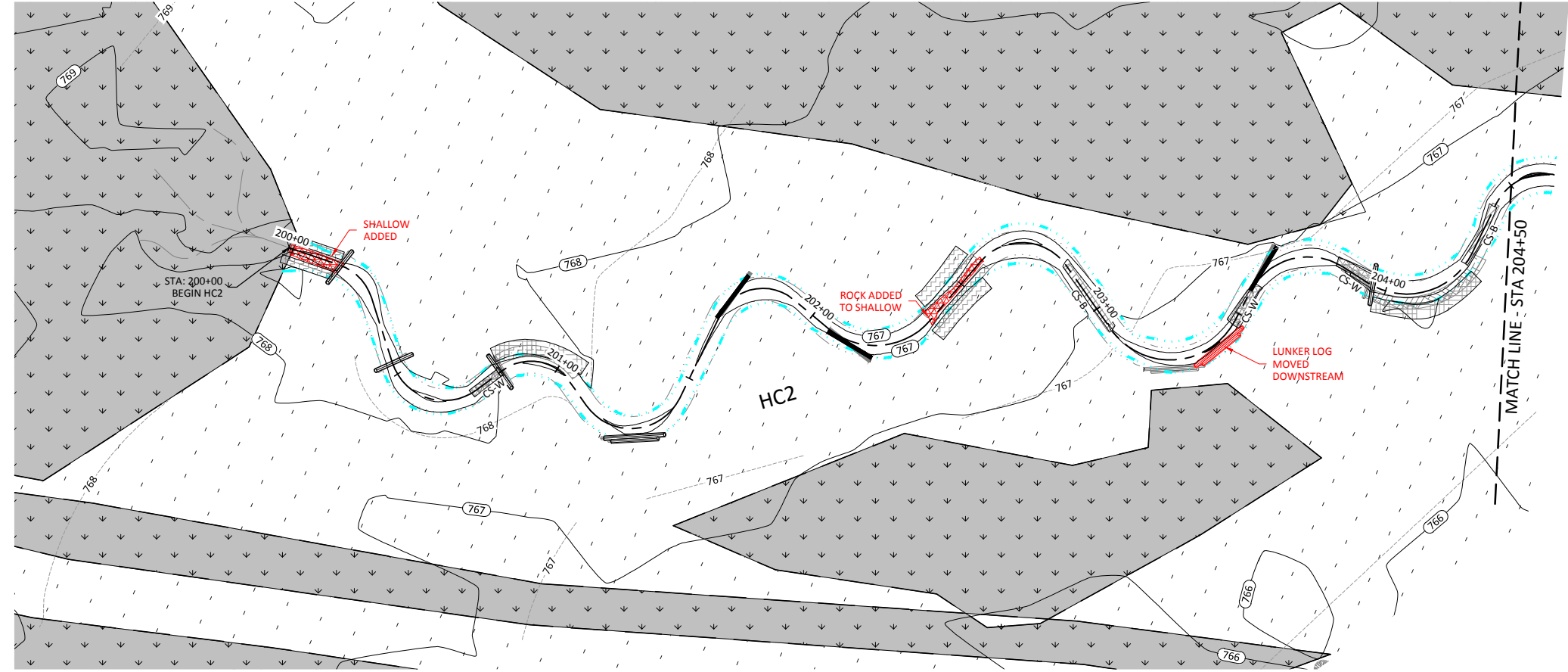
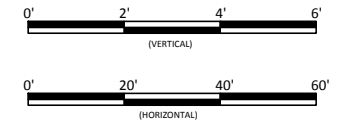
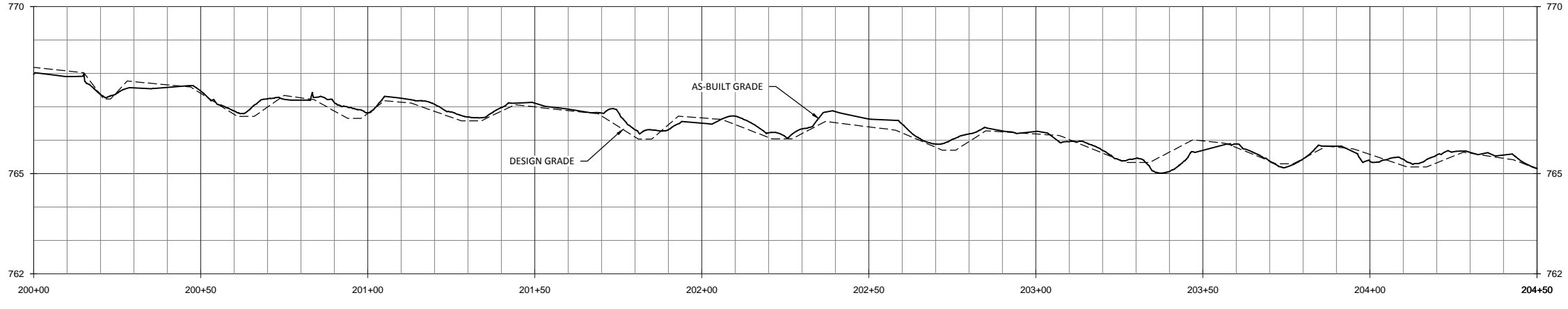


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2.4
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Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina
 HC2
 Stream Plan and Profile

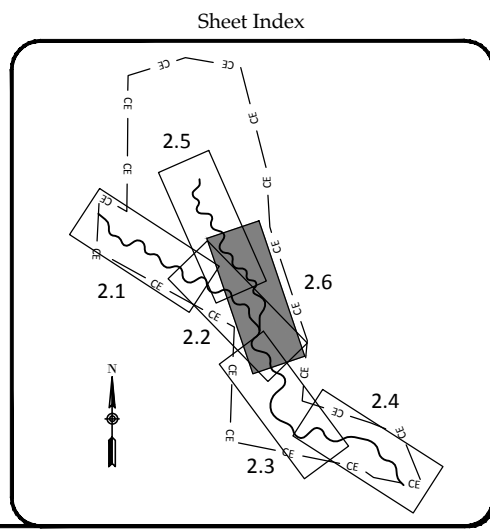
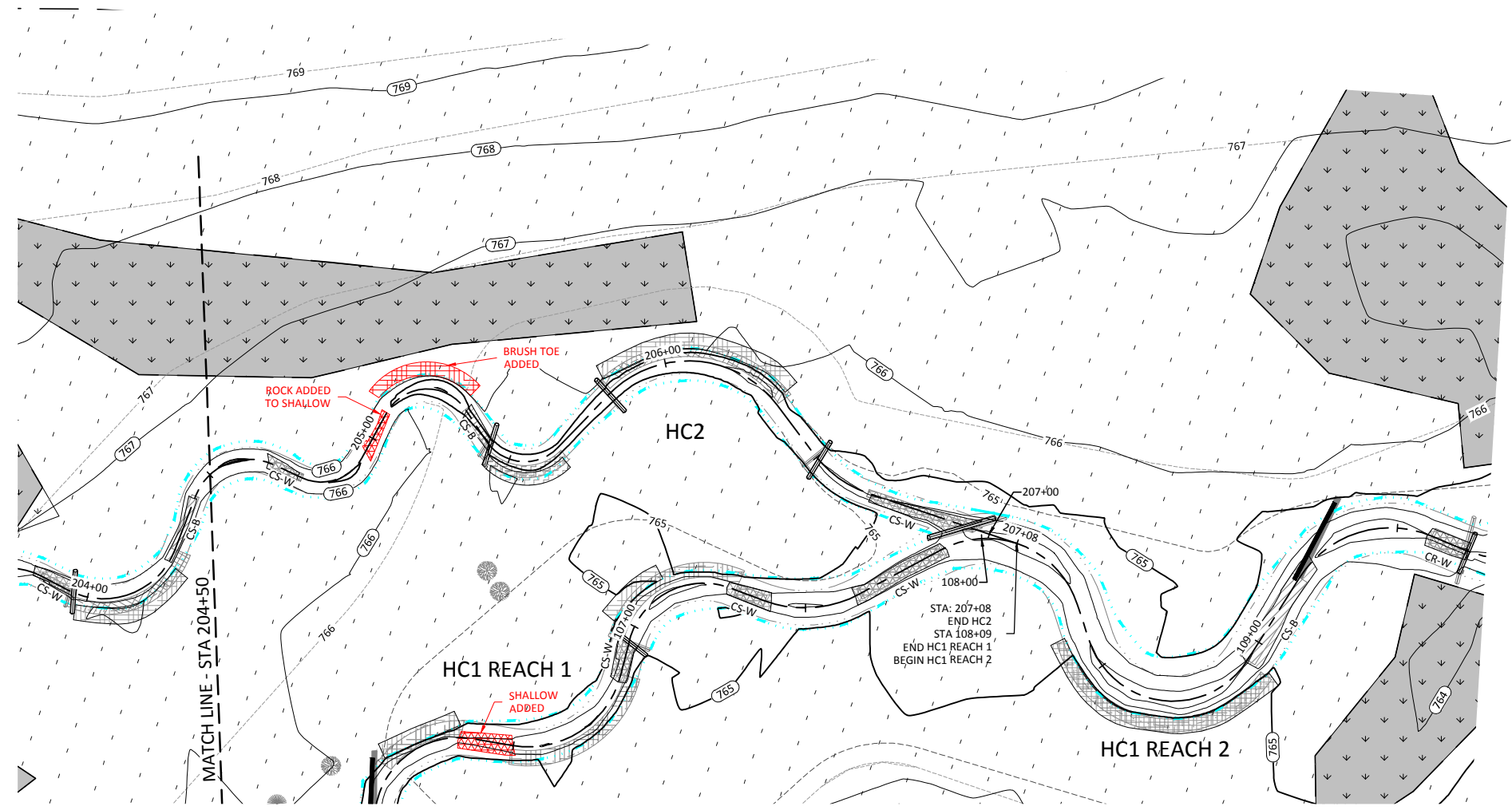
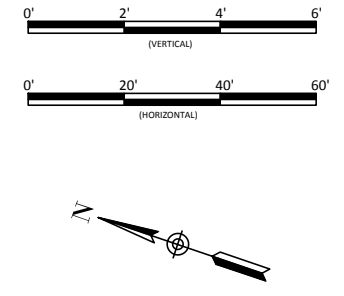
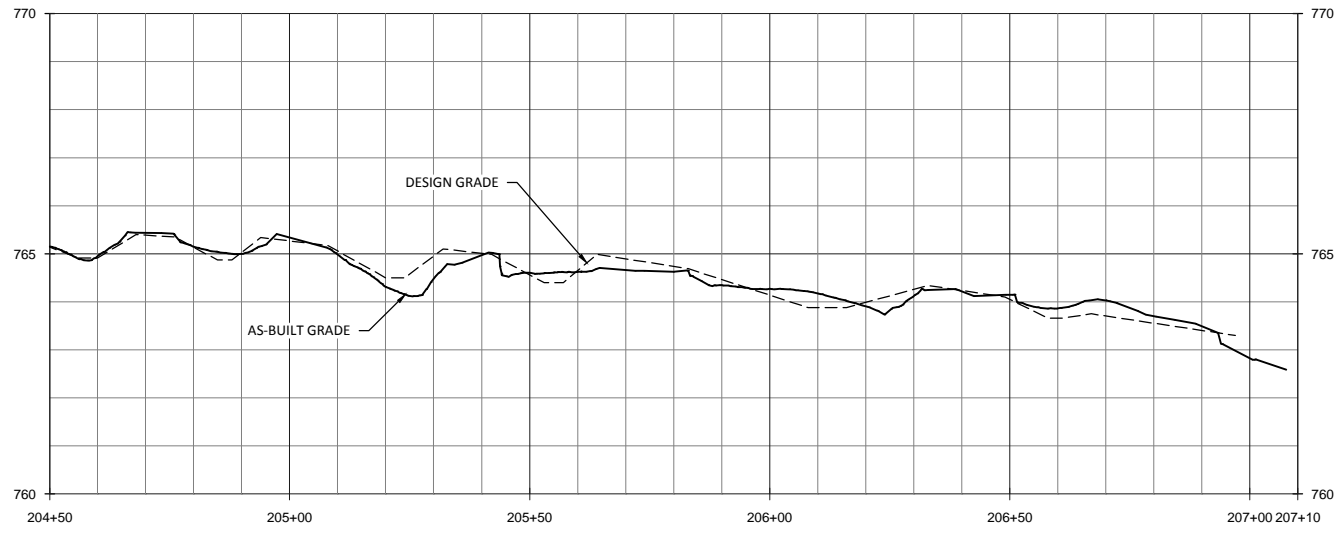


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Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina

HC2
 Stream Plan and Profile



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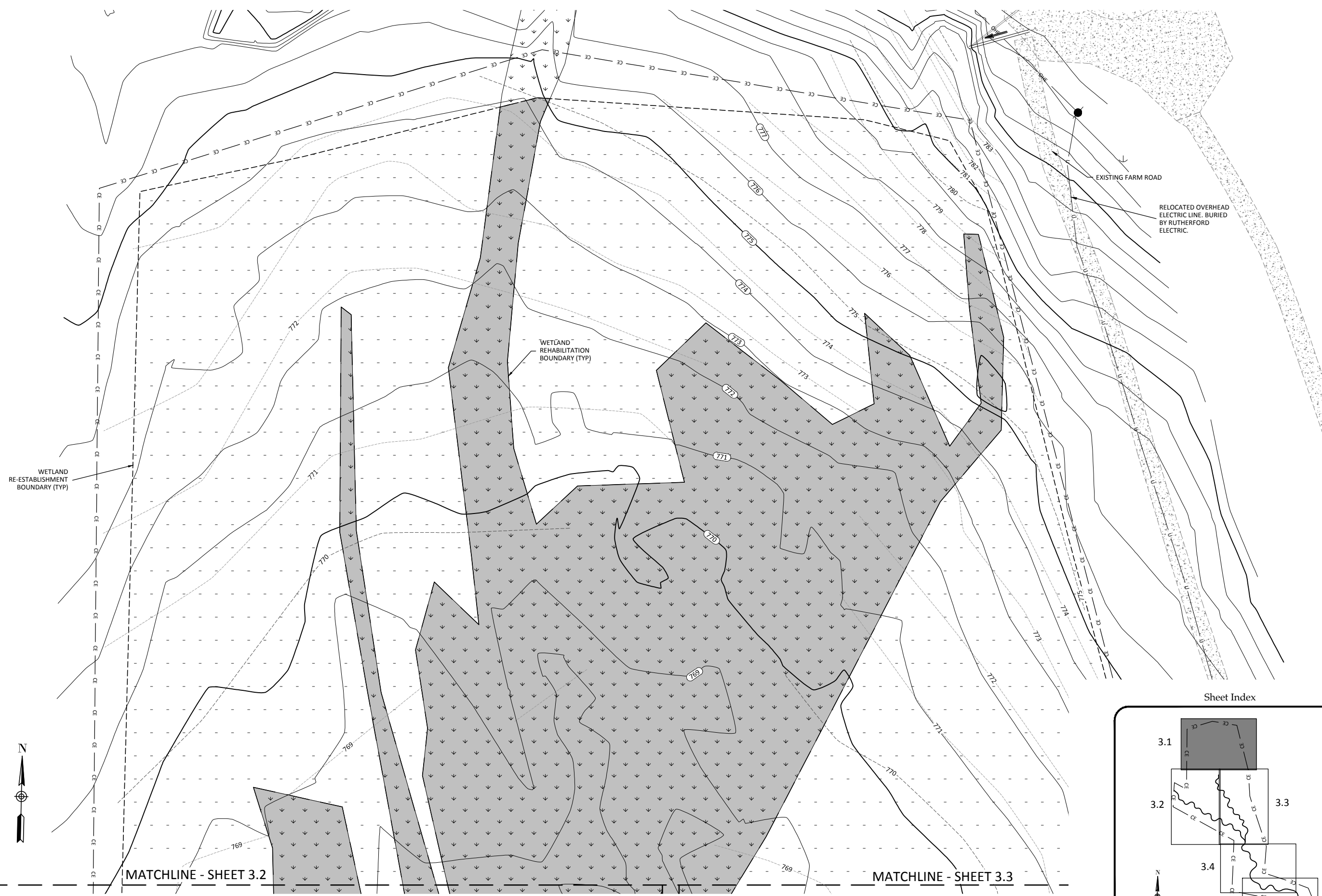
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2.6

Sheet

February 2, 2016
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EXISTING FARM ROAD
RELOCATED OVERHEAD
ELECTRIC LINE. BURIED
BY RUTHERFORD
ELECTRIC.

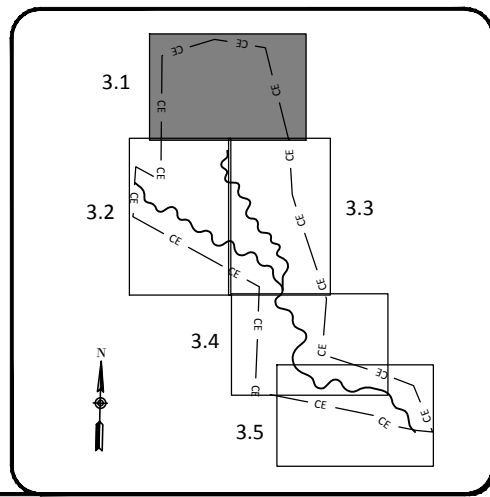
WETLAND
REHABILITATION
BOUNDARY (TYP)

WETLAND
RE-ESTABLISHMENT
BOUNDARY (TYP)

MATCHLINE - SHEET 3.2

MATCHLINE - SHEET 3.3

Sheet Index



Owl's Den Mitigation Site Record Drawings
Lincoln County, North Carolina

Wetland Grading

Date: February 2, 2016
Job Number: 005-02140
Project Engineer: EFN
Drawn By: RCP
Checked By: KYG

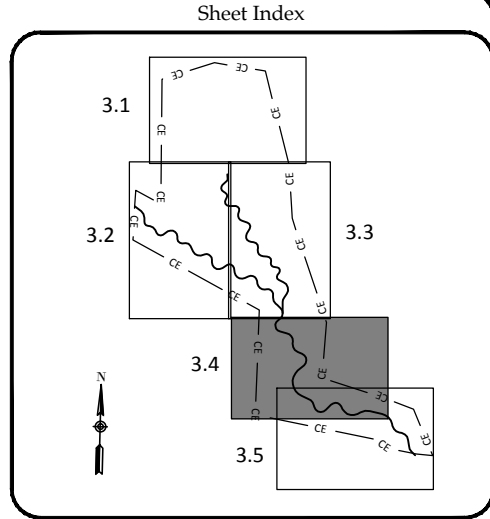
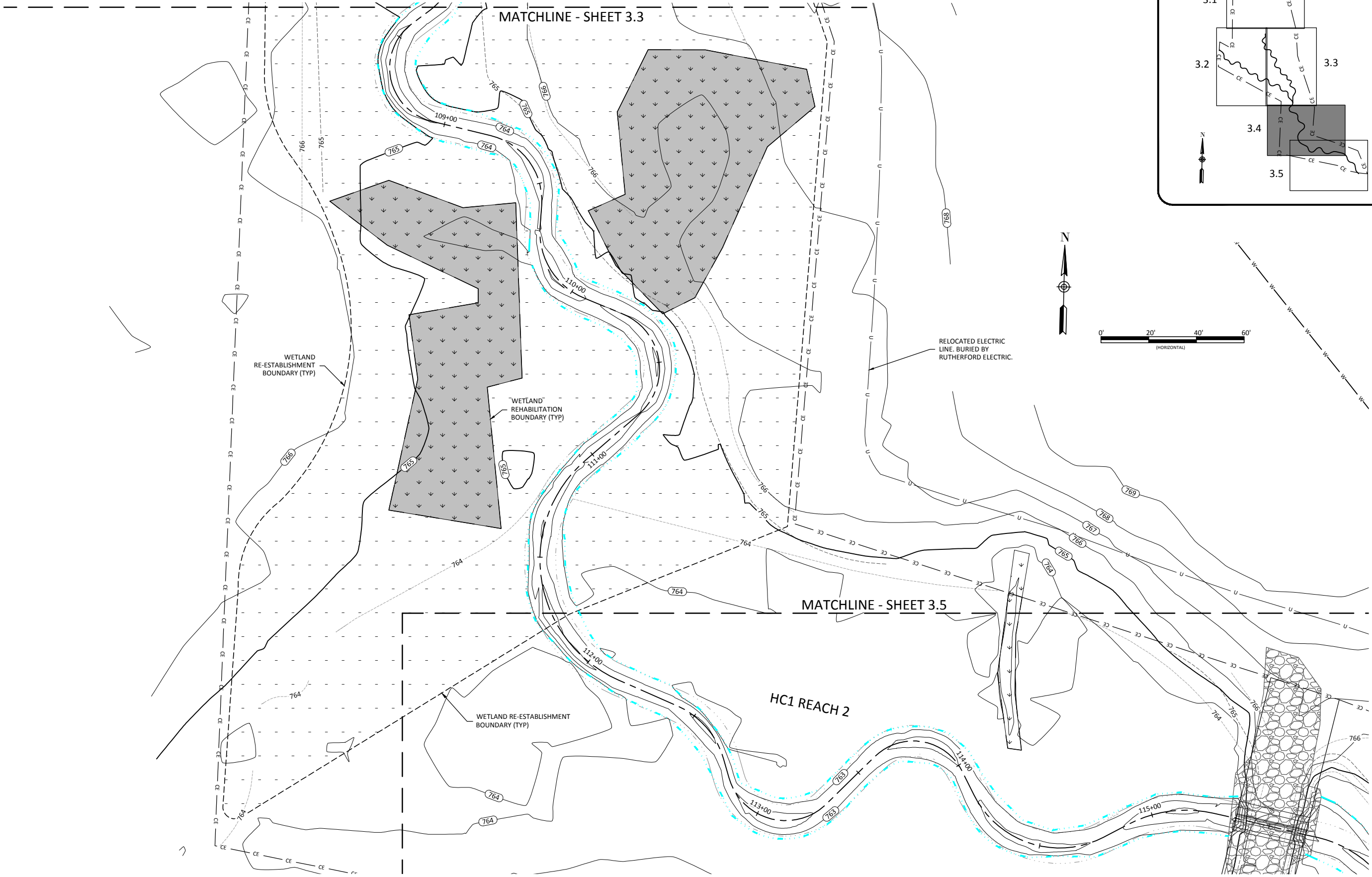
3.1

Sheet



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February 2, 2016
Job Number: 05-02140
Project Engineer: EFN
Drawn By: RCP
Checked By: KYG

Revisions:

Date: February 2, 2016
Job Number: 05-02140
Project Engineer: EFN
Drawn By: RCP
Checked By: KYG

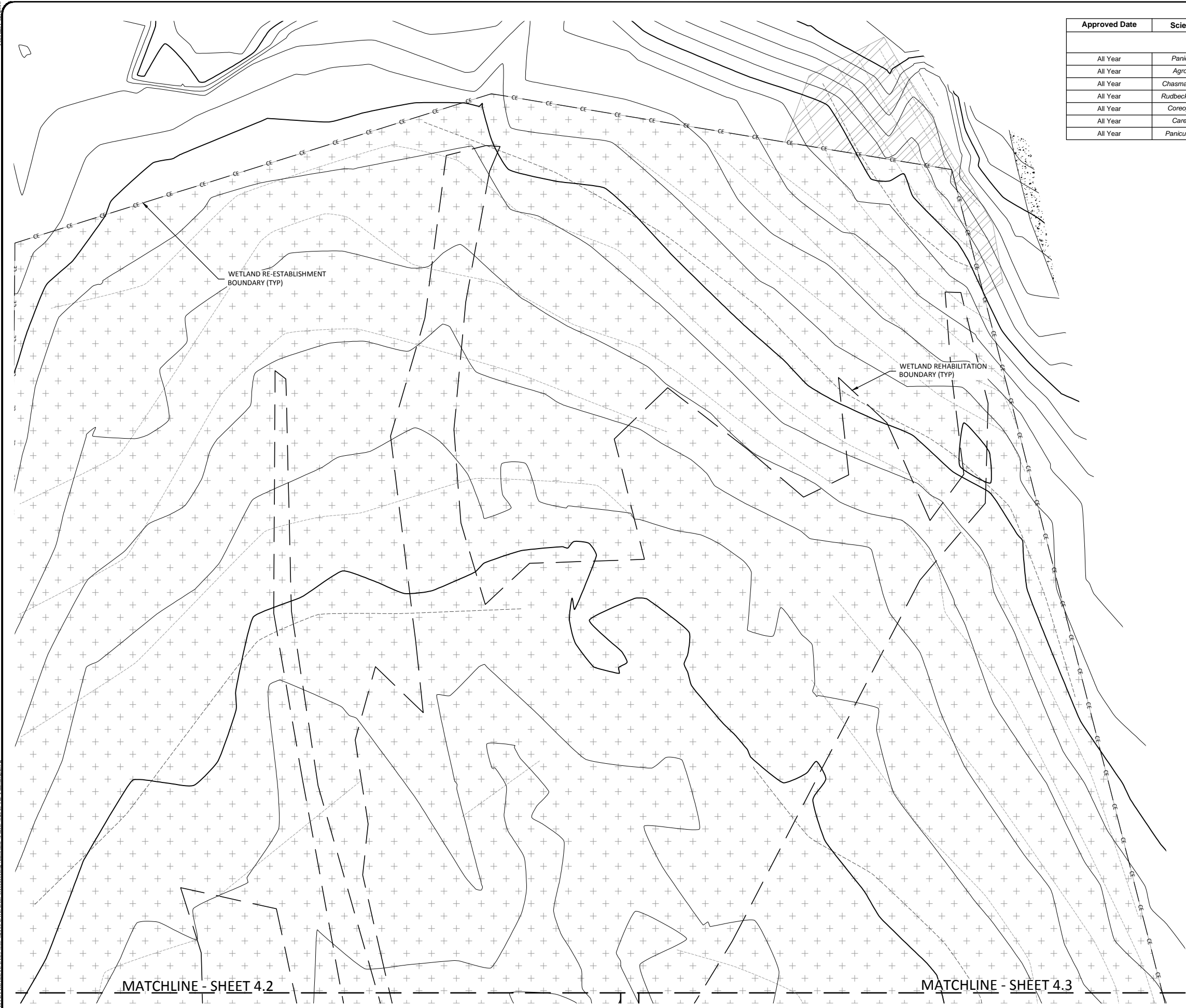
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PROFESSIONAL SEAL
042660
ENGINEER
ERIC WENIGS

Owl's Den Mitigation Site Record Drawings
Lincoln County, North Carolina
Wetland Grading

February 2, 2016
 T:\ACTIVE PROJECTS\INCOMING\0110\Owl's Den Mitigation\Baseline\Plan\4.1\4.1 Planting.dwg



Approved Date	Scientific Name	Stratum	Common Name	Density (lbs/acre)
Permanent Seeding				
Pure Live Seed (20 lbs/acre)				
All Year	<i>Panicum rigidulum</i>	Herb	Redtop Panicgrass	2
All Year	<i>Agrostis hyemalis</i>	Herb	Winter Bentgrass	4
All Year	<i>Chasmanthium latifolium</i>	Herb	River Oats	3
All Year	<i>Rudbeckia subtomentosa</i>	Herb	Blackeyed Susan	2
All Year	<i>Coreopsis lanceolata</i>	Herb	Lanceleaf Coreopsis	2
All Year	<i>Carex vulpinoidea</i>	Herb	Fox Sedge	3
All Year	<i>Panicum clandestinum</i>	Herb	Deertongue	4



Bare Root Planting		
Scientific Name	Common Name	%
<i>Platanus occidentalis</i>	Sycamore	20%
<i>Quercus phellos</i>	Willow Oak	15%
<i>Betula nigra</i>	River Birch	15%
<i>Fraxinus pennsylvanica</i>	Green Ash	25%
<i>Quercus michauxii</i>	Swamp Chestnut Oak	10%
<i>Acer rubrum</i>	Red Maple	5%
<i>Diospyros virginiana</i>	Persimmon	10%



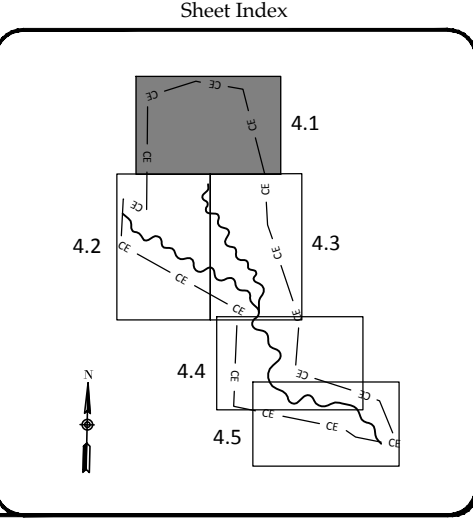
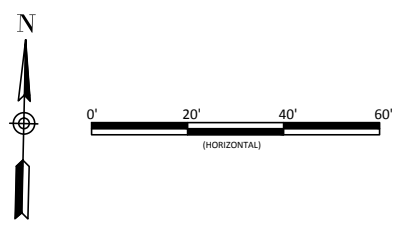
Stabilization Seeding		
Scientific Name	Common Name	lb/acre
<i>Schedonorus phoenix</i>	Tall Fescue	100

NOTE:
 "STABILIZATION SEEDING" IS FOR AREAS OF DISTURBANCE OUTSIDE CONSERVATION EASEMENT.

NOTE:
 GROUND STABILIZATION SHALL BE ESTABLISHED WITHIN 7 DAYS OF GRADING COMPLETION FOR SLOPES STEEPER THAN 4:1 AND WITHIN 14 DAYS FOR SLOPES 4:1 OR FLATTER. PERMANENT GROUND COVER SHALL BE ESTABLISHED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.



Live Stake		
Scientific Name	Common Name	%
<i>Salix sericea</i>	Silky Willow	30%
<i>Cornus amomum</i>	Silky Dogwood	30%
<i>Physocarpus opulifolius</i>	Ninebark	15%
<i>Sambucus canadensis</i>	Elderberry	15%
<i>Cephalanthus occidentalis</i>	Button Bush	10%



Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina

Planting

4.1

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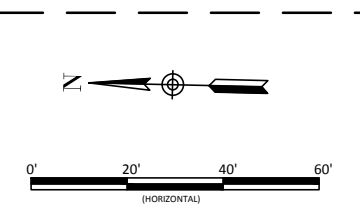
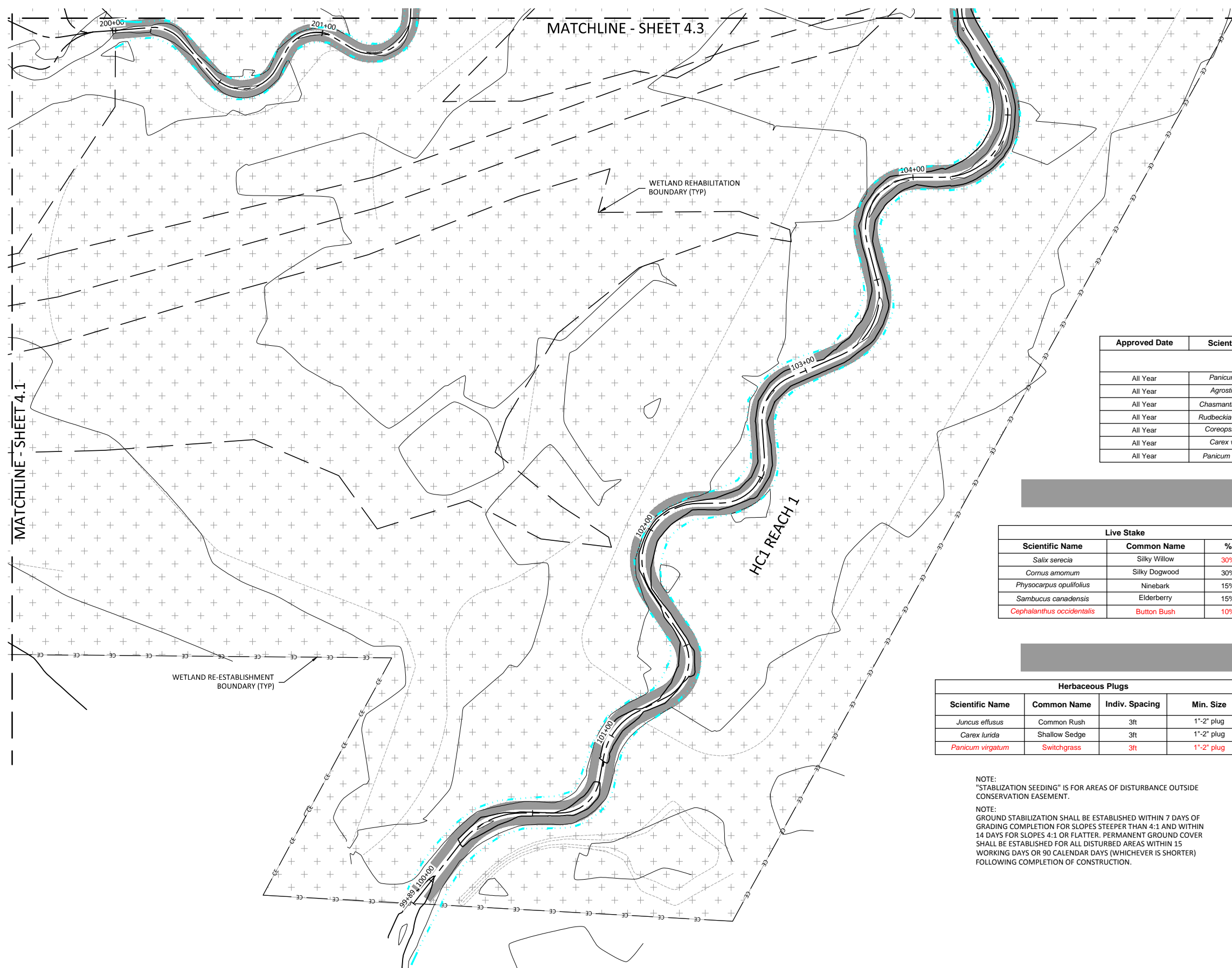


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Date: February 2, 2016
 Job Number: 005-02140
 Project Engineer: EFN
 Drawn By: RCP
 Checked By: KYG

Sheet

February 2, 2016
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Approved Date	Scientific Name	Stratum	Common Name	Density (lbs/acre)
Permanent Seeding				
Pure Live Seed (20 lbs/acre)				
All Year	<i>Panicum rigidulum</i>	Herb	Redtop Panicgrass	2
All Year	<i>Agrostis hyemalis</i>	Herb	Winter Bentgrass	4
All Year	<i>Chasmanthium latifolium</i>	Herb	River Oats	3
All Year	<i>Rudbeckia subtomentosa</i>	Herb	Blackeyed Susan	2
All Year	<i>Coreopsis lanceolata</i>	Herb	Lanceleaf Coreopsis	2
All Year	<i>Carex vulpinoidea</i>	Herb	Fox Sedge	3
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Live Stake		
Scientific Name	Common Name	%
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<i>Sambucus canadensis</i>	Elderberry	15%
<i>Cephalanthus occidentalis</i>	Button Bush	10%

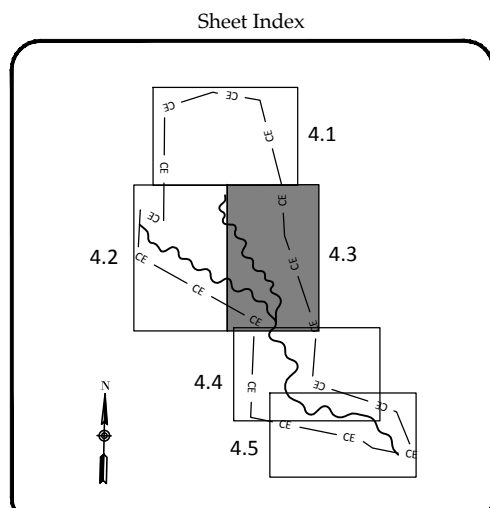
Bare Root Planting		
Scientific Name	Common Name	%
<i>Platanus occidentalis</i>	Sycamore	20%
<i>Quercus phellos</i>	Willow Oak	15%
<i>Betula nigra</i>	River Birch	15%
<i>Fraxinus pennsylvanica</i>	Green Ash	25%
<i>Quercus michauxii</i>	Swamp Chestnut Oak	10%
<i>Acer rubrum</i>	Red Maple	5%
<i>Diospyros virginiana</i>	Persimmon	10%

Herbaceous Plugs			
Scientific Name	Common Name	Indiv. Spacing	Min. Size
<i>Juncus effusus</i>	Common Rush	3ft	1'-2" plug
<i>Carex lurida</i>	Shallow Sedge	3ft	1'-2" plug
<i>Panicum virgatum</i>	Switchgrass	3ft	1'-2" plug

Stabilization Seeding		
Scientific Name	Common Name	lb/acre
<i>Schedonorus phoenix</i>	Tall Fescue	100

NOTE:
"STABILIZATION SEEDING" IS FOR AREAS OF DISTURBANCE OUTSIDE CONSERVATION EASEMENT.

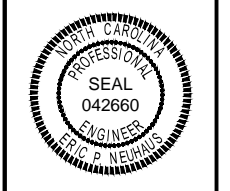
NOTE:
GROUND STABILIZATION SHALL BE ESTABLISHED WITHIN 7 DAYS OF GRADING COMPLETION FOR SLOPES STEEPER THAN 4:1 AND WITHIN 14 DAYS FOR SLOPES 4:1 OR FLATTER. PERMANENT GROUND COVER SHALL BE ESTABLISHED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.



Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina

Planting

WILDLANDS
 1430 S. Main Street, Suite 104
 Charlotte, NC 28203
 Tel: 704.332.7754
 Fax: 704.332.3306
 Firm License No. F-0831



Date: February 2, 2016
 Job Number: 05-02140
 Project Engineer: EPN
 Drawn By: RCP
 Checked By: KYG

4.2

Sheet

February 2, 2016
 D:\ACTIVE PROJECTS\INCO\05-0110\Owl's Den Mitigation\Baseline\Plants\4.1-4.5\Planting.dwg

Approved Date	Scientific Name	Stratum	Common Name	Density (lbs/acre)
Permanent Seeding Pure Live Seed (20 lbs/acre)				
All Year	<i>Panicum rigidulum</i>	Herb	Redtop Panicgrass	2
All Year	<i>Agrostis hyemalis</i>	Herb	Winter Bentgrass	4
All Year	<i>Chasmanthium latifolium</i>	Herb	River Oats	3
All Year	<i>Rudbeckia subtomentosa</i>	Herb	Blackeyed Susan	2
All Year	<i>Coreopsis lanceolata</i>	Herb	Lanceleaf Coreopsis	2
All Year	<i>Carex vulpinoidea</i>	Herb	Fox Sedge	3
All Year	<i>Panicum clandestinum</i>	Herb	Deertongue	4



Bare Root Planting		
Scientific Name	Common Name	%
<i>Platanus occidentalis</i>	Sycamore	20%
<i>Quercus phellos</i>	Willow Oak	15%
<i>Betula nigra</i>	River Birch	15%
<i>Fraxinus pennsylvanica</i>	Green Ash	25%
<i>Quercus michauxii</i>	Swamp Chestnut Oak	10%
<i>Acer rubrum</i>	Red Maple	5%
<i>Diospyros virginiana</i>	Persimmon	10%

Live Stake		
Scientific Name	Common Name	%
<i>Salix sericea</i>	Silky Willow	30%
<i>Cornus amomum</i>	Silky Dogwood	30%
<i>Physocarpus opulifolius</i>	Ninebark	15%
<i>Sambucus canadensis</i>	Elderberry	15%
<i>Cephalanthus occidentalis</i>	Button Bush	10%

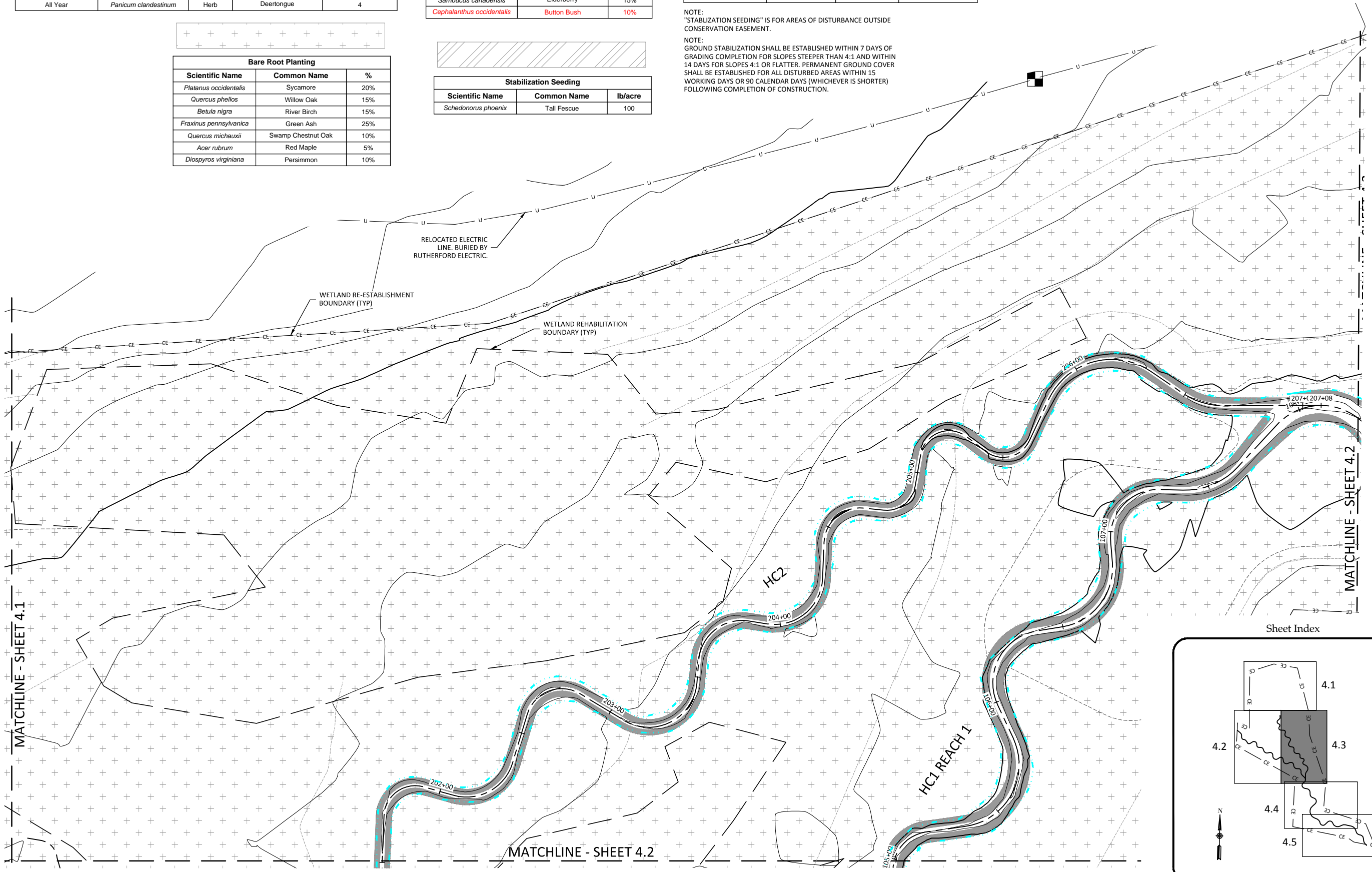
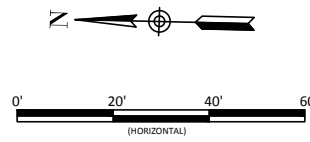


Stabilization Seeding		
Scientific Name	Common Name	lb/acre
<i>Schedonorus phoenix</i>	Tall Fescue	100

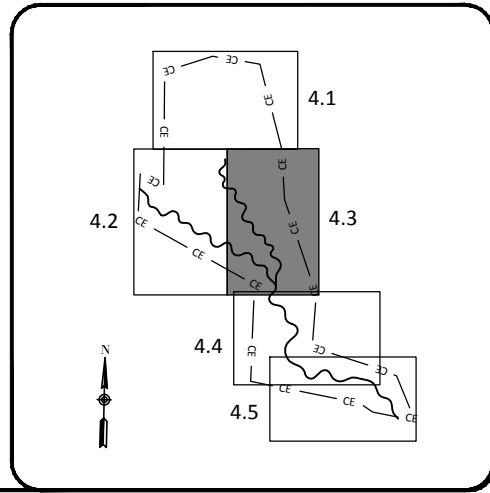
Herbaceous Plugs			
Scientific Name	Common Name	Indiv. Spacing	Min. Size
<i>Juncus effusus</i>	Common Rush	3ft	1'-2" plug
<i>Carex lurida</i>	Shallow Sedge	3ft	1'-2" plug
<i>Panicum virgatum</i>	Switchgrass	3ft	1'-2" plug

NOTE:
"STABILIZATION SEEDING" IS FOR AREAS OF DISTURBANCE OUTSIDE CONSERVATION EASEMENT.

NOTE:
GROUND STABILIZATION SHALL BE ESTABLISHED WITHIN 7 DAYS OF GRADING COMPLETION FOR SLOPES STEEPER THAN 4:1 AND WITHIN 14 DAYS FOR SLOPES 4:1 OR FLATTER. PERMANENT GROUND COVER SHALL BE ESTABLISHED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.



Sheet Index



Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina

Planting

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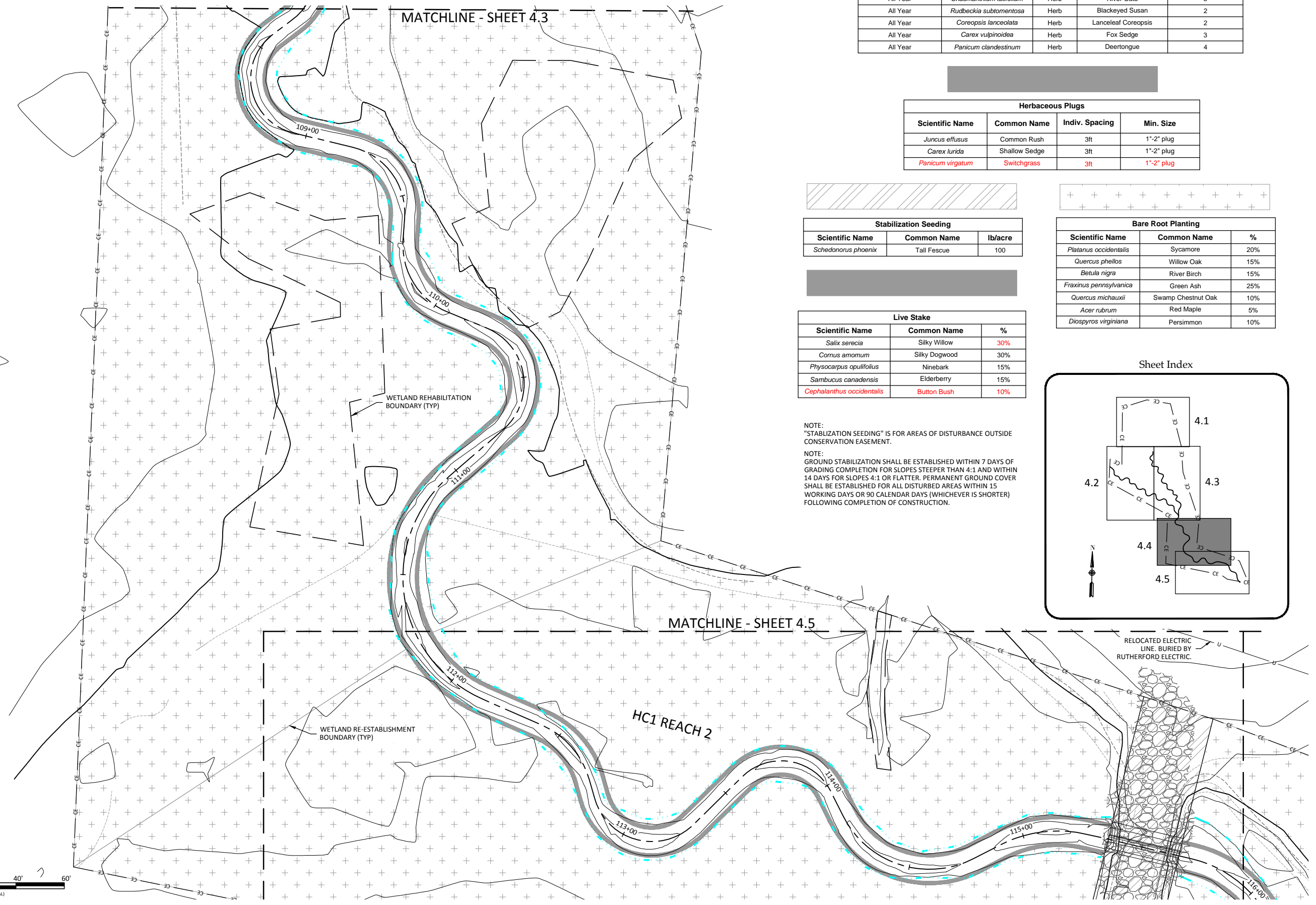


Revisions:	

Date: February 2, 2016
 Job Number: 05-02140
 Project Engineer: EFN
 Drawn By: RCP
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Sheet

February 2, 2016
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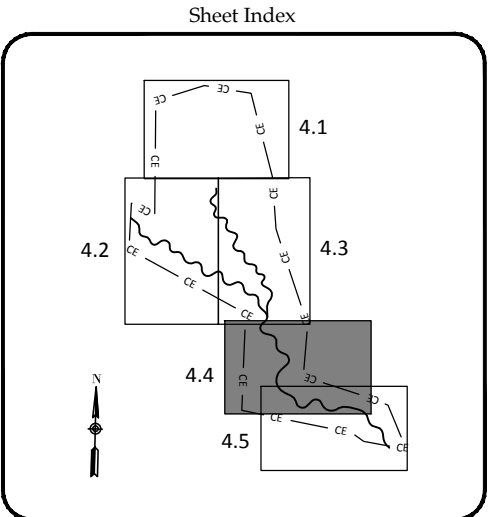
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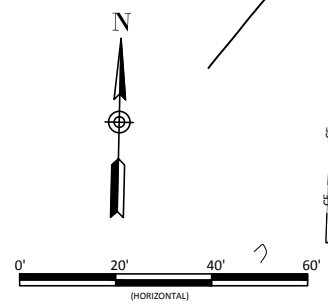
Live Stake		
Scientific Name	Common Name	%
<i>Salix sericea</i>	Silky Willow	30%
<i>Cornus amomum</i>	Silky Dogwood	30%
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<i>Sambucus canadensis</i>	Elderberry	15%
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Bare Root Planting		
Scientific Name	Common Name	%
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<i>Quercus phellos</i>	Willow Oak	15%
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Owl's Den Mitigation Site Record Drawings
 Lincoln County, North Carolina

Planting

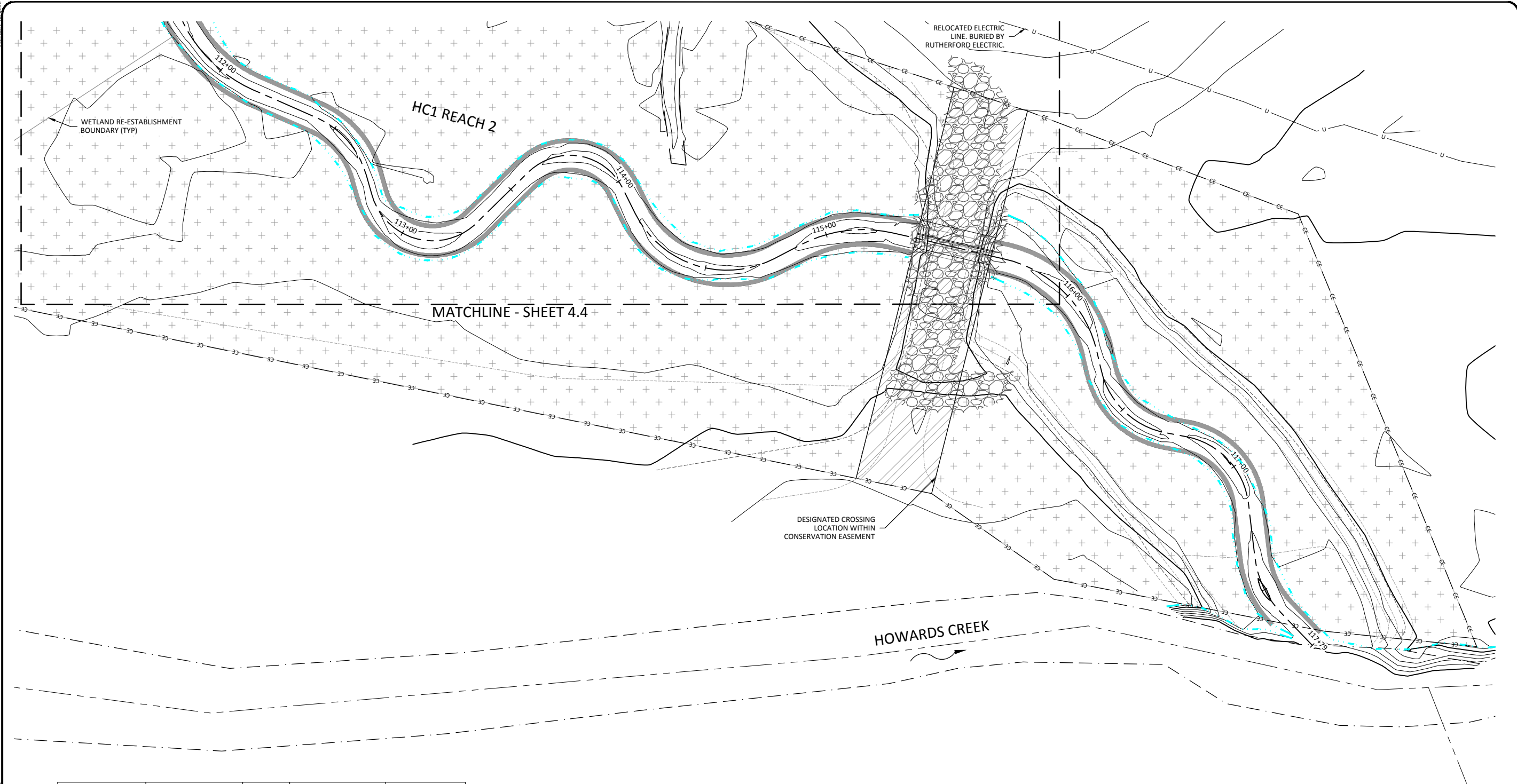
Revisions:	

Date: February 2, 2016
 Job Number: 05-02140
 Project Engineer: EFN
 Drawn By: RCP
 Checked By: KYG

4.4

Sheet

February 2, 2016
 PLANTING PLAN
 HOWARDS CREEK
 DEN MITIGATION
 PROJECTS
 INCORPORATING
 HOWARDS CREEK
 DEN MITIGATION
 PLANTING PLAN



Approved Date	Scientific Name	Stratum	Common Name	Density (lbs/acre)
Permanent Seeding Pure Live Seed (20 lbs/acre)				
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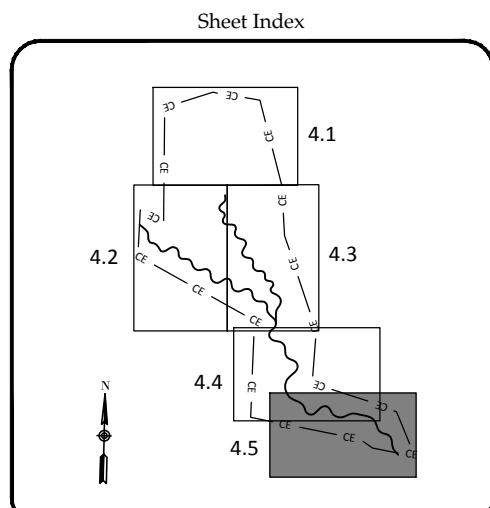
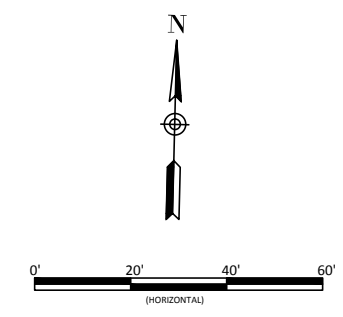
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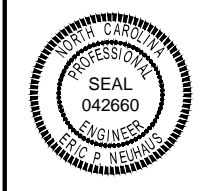
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 Lincoln County, North Carolina
 Planting



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Revisions	
No.	Description

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