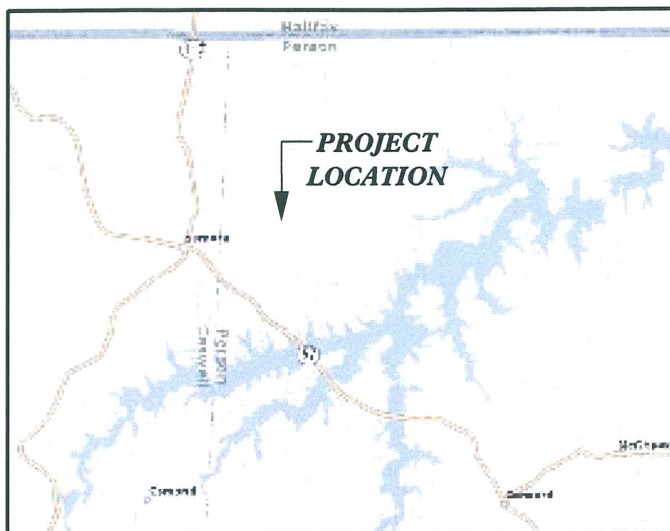


KCI JOB# : 12054725-01

CONTRACT #: D06002

STATE OF NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

STATE	CONTRACT NUMBER	SHEET NO.	TOTAL SHEETS
N.C.	D06002	1	35



VICINITY MAP
NOT TO SCALE

PERSON COUNTY

LOCATION: CANE CREEK TRIBUTARY SITE
UNNAMED TRIBUTARIES TO CANE CREEK
SEMORA, NORTH CAROLINA

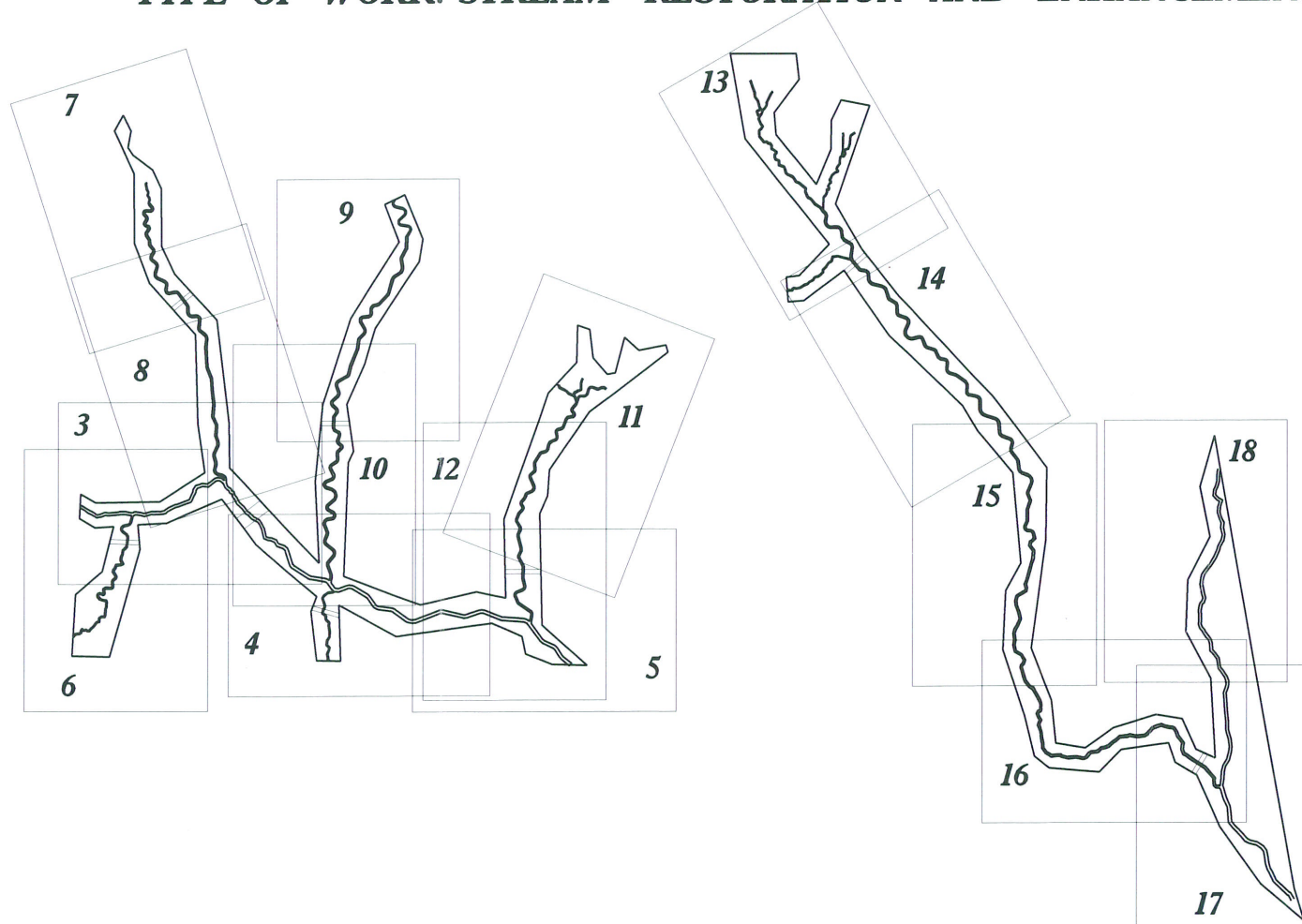
TYPE OF WORK: STREAM RESTORATION AND ENHANCEMENT

DIRECTIONS TO SITE

TO REACH THE SITE FROM RALEIGH, PROCEED WEST ON US-70 UNTIL IT MERGES WITH I-85/US-15 SOUTH. CONTINUE ON I-85 FOR APPROXIMATELY 1.5 MILES AND THEN TAKE EXIT 176B FOR DUKE ST/US-501 BYPASS. TAKE A RIGHT OFF OF THE EXIT AND TRAVEL ON US-501 FOR 27.5 MILES. WITHIN THE TOWN OF ROXBORO, TURN LEFT ONTO COURT ST/US-158 WEST. FOLLOW US-158 WEST 0.4 MILE AND TURN RIGHT ONTO NC-57, CONTINUING NORTHWEST FOR ANOTHER 12.3 MILES. ONCE WITHIN THE SMALL COMMUNITY OF SEMORA, TURN RIGHT ONTO NC-119 AND DRIVE NORTH 0.5 MILE. TURN RIGHT ONTO CUNNINGHAM ROAD AND CONTINUE EAST FOR 0.85 MILE. THE SITE WILL BE ACCESSIBLE BY A METAL GATE ON THE RIGHT.

INDEX OF SHEETS

- 1 TITLE SHEET
- 2 AS-BUILT LEGEND
- 3 THRU 18 AS-BUILT SITE PLAN
- 19 THRU 34 MONITORING PLAN VIEW
- 35 AS-BUILT PLANTING PLAN



AS-BUILT PLAN
MAY 2009

GRAPHIC SCALE



PROJECT DATA

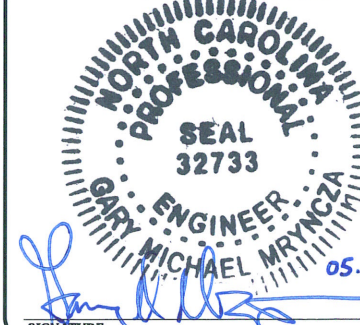
STREAM RESTORATION LENGTH = 9,709 FEET
 STREAM ENHANCEMENT I LENGTH = 5,497 FEET
 STREAM ENHANCEMENT II LENGTH = 2,867 FEET
 STREAM PRESERVATION LENGTH = 986 FEET
 CONSTRUCTION COMPLETED: DECEMBER 2008

Prepared In the Office of:



GARY M. MRYNCZA, PE
PROJECT ENGINEER
 ADAM SPILLER / KRISTIN KNIGHT-MENG
NATURAL CHANNEL DESIGN

PROJECT ENGINEER



Prepared for:

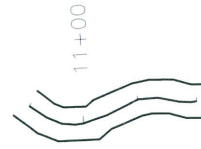


GUY PEARCE
CONTRACT ADMINISTRATOR

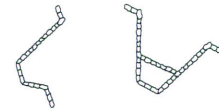
PROJECT LEGEND

STREAM RESTORATION

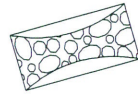
As-Built Thalweg,
Stationing, and Top of Bank



As-Built Cross Vane



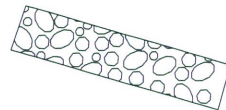
As-Built Riffle Grade
Control/Constructed Riffle



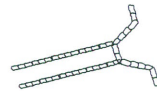
As-Built Stone Toe Protection



As-Built Ford Crossing



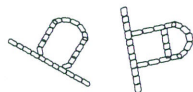
As-Built Channel Constrictor



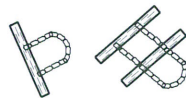
As-Built Drainage Stabilization



As-Built Boulder Step Pools



As-Built Log Step Pools



As-Built Seep Stabilization



Bedrock



TOPOGRAPHY

Minor Contour Line



Major Contour Line



MONITORING

Cross-Section



Photo Point



Vegetation Plots



Longitudinal Profile

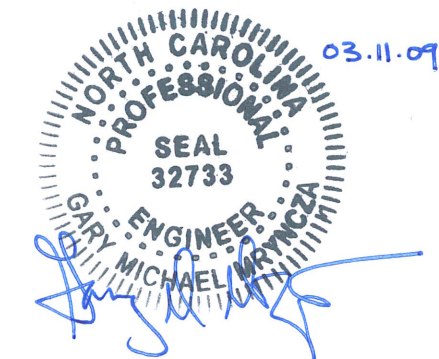


Stream Gauge



AS-BUILT NOTE:

THE AS-BUILT SITE PLAN (SHEETS 3-18) DEPICTS THE AS-BUILT CONDITIONS. ANY DEVIATIONS FROM THE DESIGN PLANS ARE SPECIFICALLY CALLED OUT WITH NOTES. IF THERE ARE NOT ASSOCIATED NOTES WITH A SPECIFIC SECTION THEN THAT SECTION WAS BUILT AS DESIGNED.



SYMBOL	DESCRIPTION	DATE	APPROVED
A	SUBMITTED WITH MITIGATION PLAN	MAR 2009	

--	--	--	--

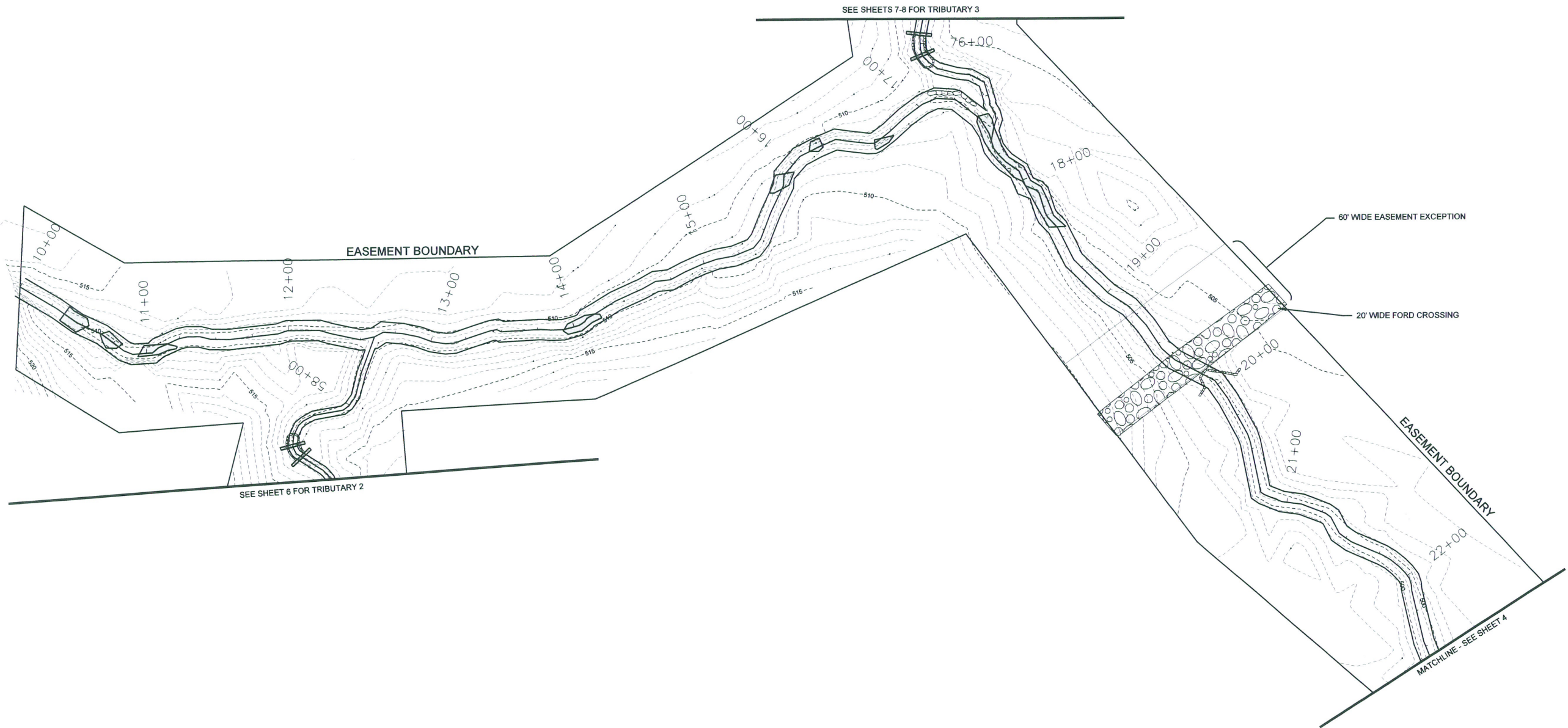
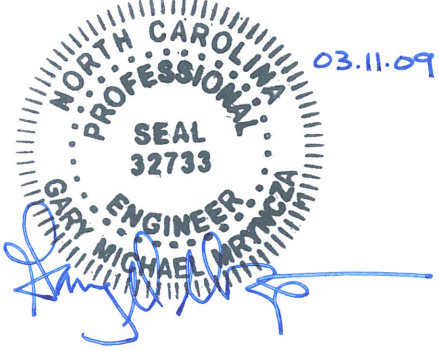
KCI
TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS

4601 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

CANE CREEK
STREAM RESTORATION PROJECT
SEMORA, PERSON COUNTY, NORTH CAROLINA

DATE: MAR 2009
SCALE: N.T.S.

AS-BUILT
LEGEND



NO.	REVISIONS	DATE	APPROVED
1	ISSUED FOR PERMITS	03.11.09	
2			
3			
4			
5			

A	SUBMITTED WITH MITIGATION PLAN
---	--------------------------------

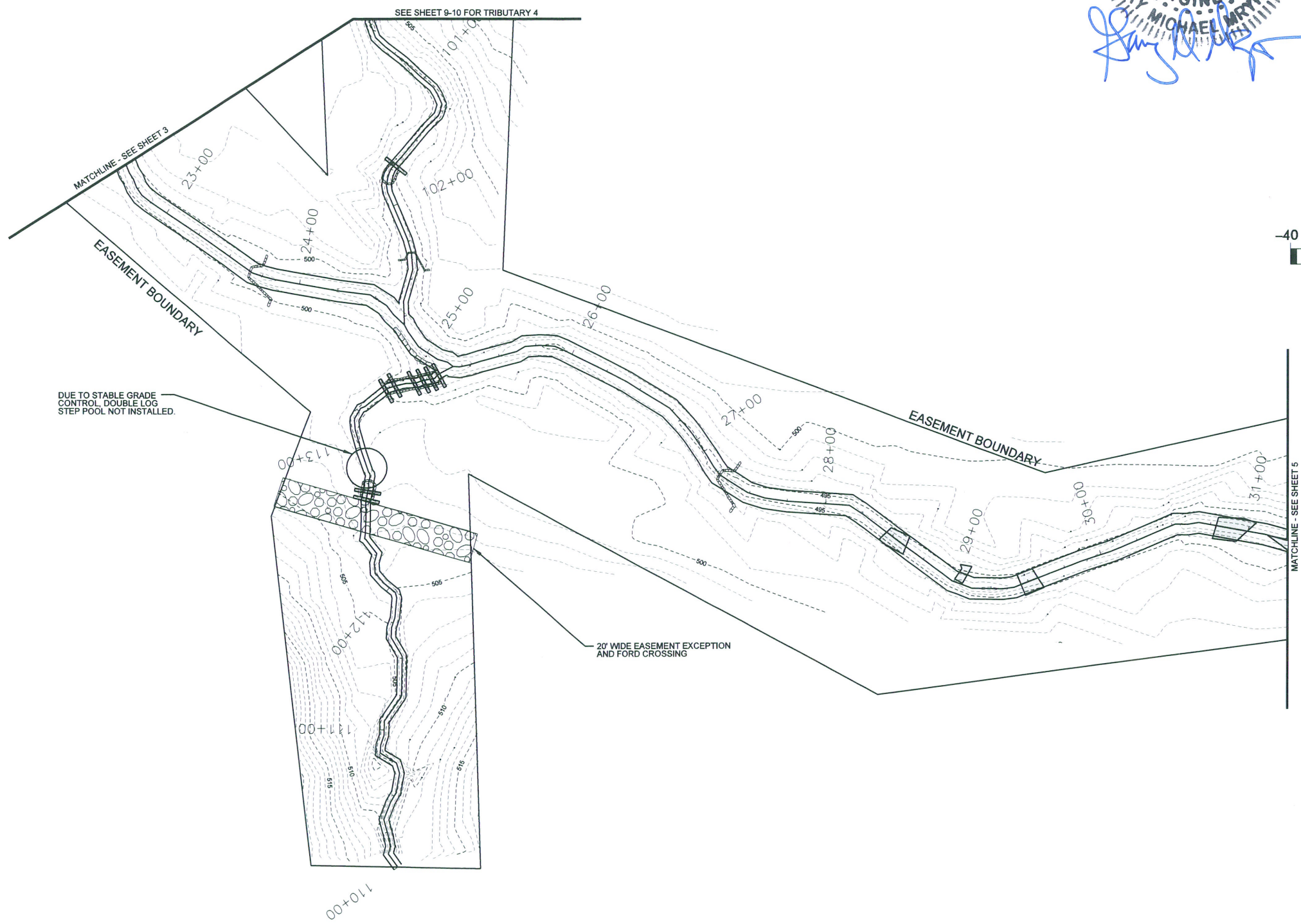
KCI TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 460 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T1-1, T1-2, T1-3: STATION 10+00 TO STATION 22+57

DATE: MAR 2009
 SCALE: 1"=80'

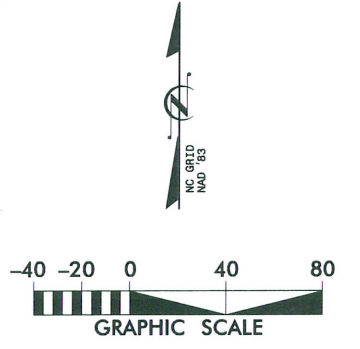
**AS-BUILT
 SITE PLAN**

SHEET 3 OF 35



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 GARY ENGINEER
 MICHAEL MRYNCZA

03.11.09



SYMBOL	DESCRIPTION	DATE	APPROVED

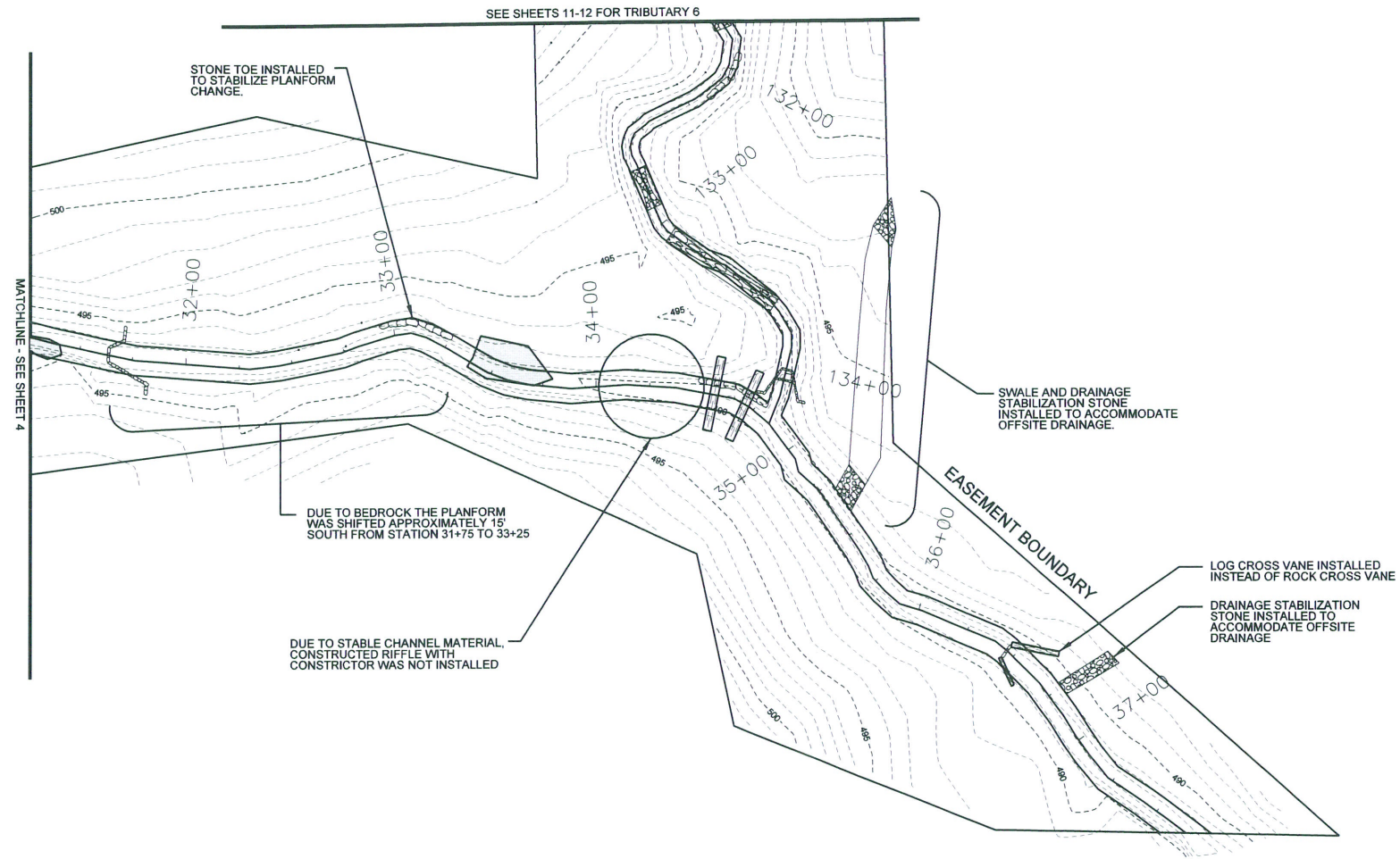
SUBMITTED WITH MITIGATION PLAN

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T1-3, T1-4: STATION 22+57 TO STATION 31+26

DATE: MAR 2009
SCALE: 1"=80'

AS-BUILT
SITE PLAN

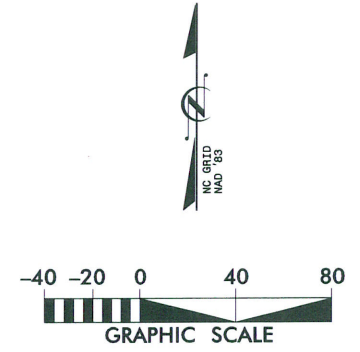


03.11.09

NORTH CAROLINA PROFESSIONAL SEAL 32733

GARY ENGINEER
MICHAEL MRYNGCZA

[Signature]



NO.	SYMBOL	DESCRIPTION	DATE	APPROVED
A		SUBMITTED WITH MITIGATION PLAN	MAR 2009	

KCI TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS

460 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

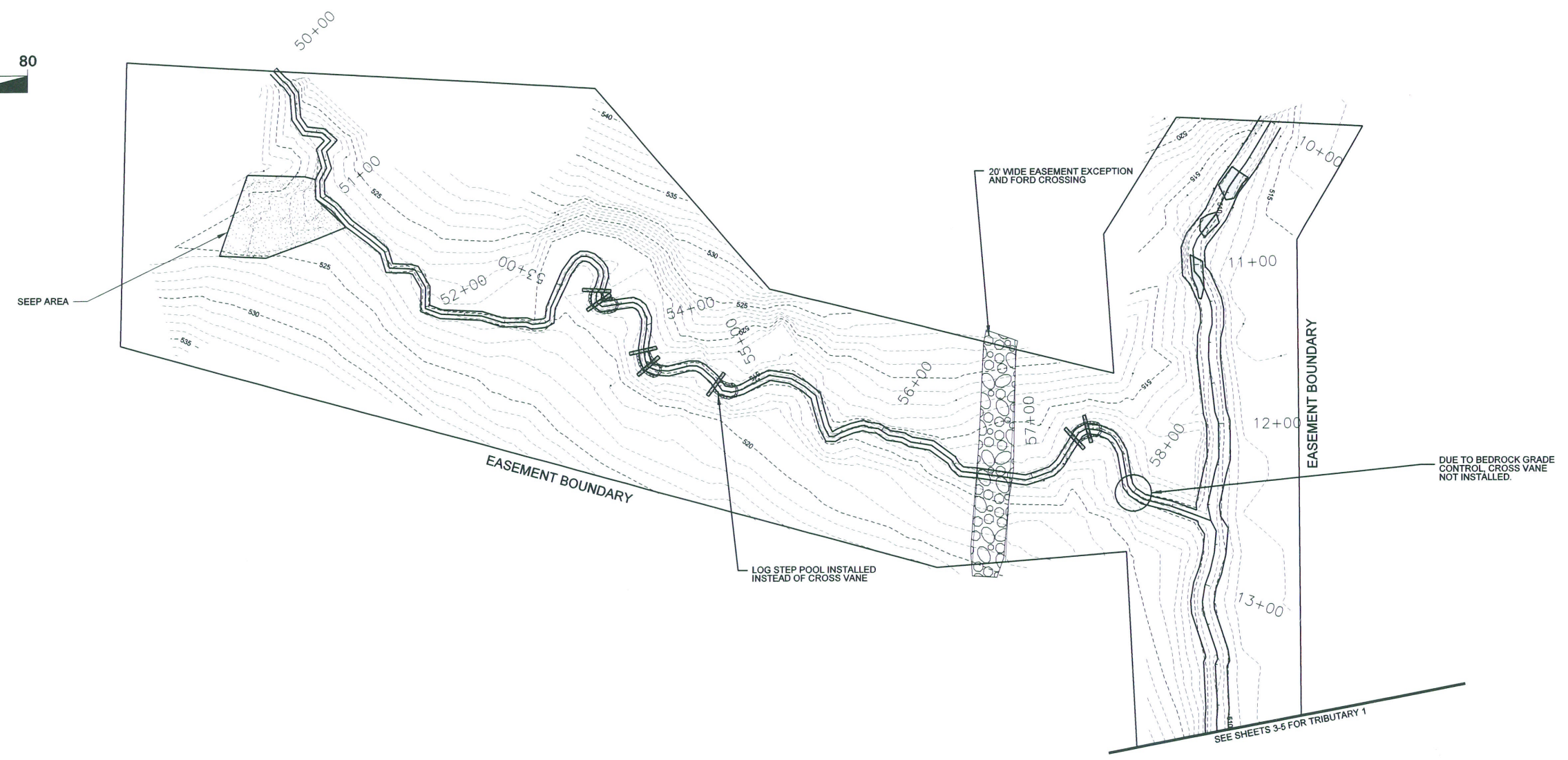
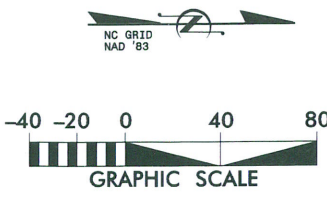
**CANE CREEK
STREAM RESTORATION PROJECT**

SEMORA, PERSON COUNTY, NORTH CAROLINA

T1-4, T1-5, STATION 31+26 TO STATION 37+67

DATE: MAR 2009
SCALE: 1"=80'

**AS-BUILT
SITE PLAN**



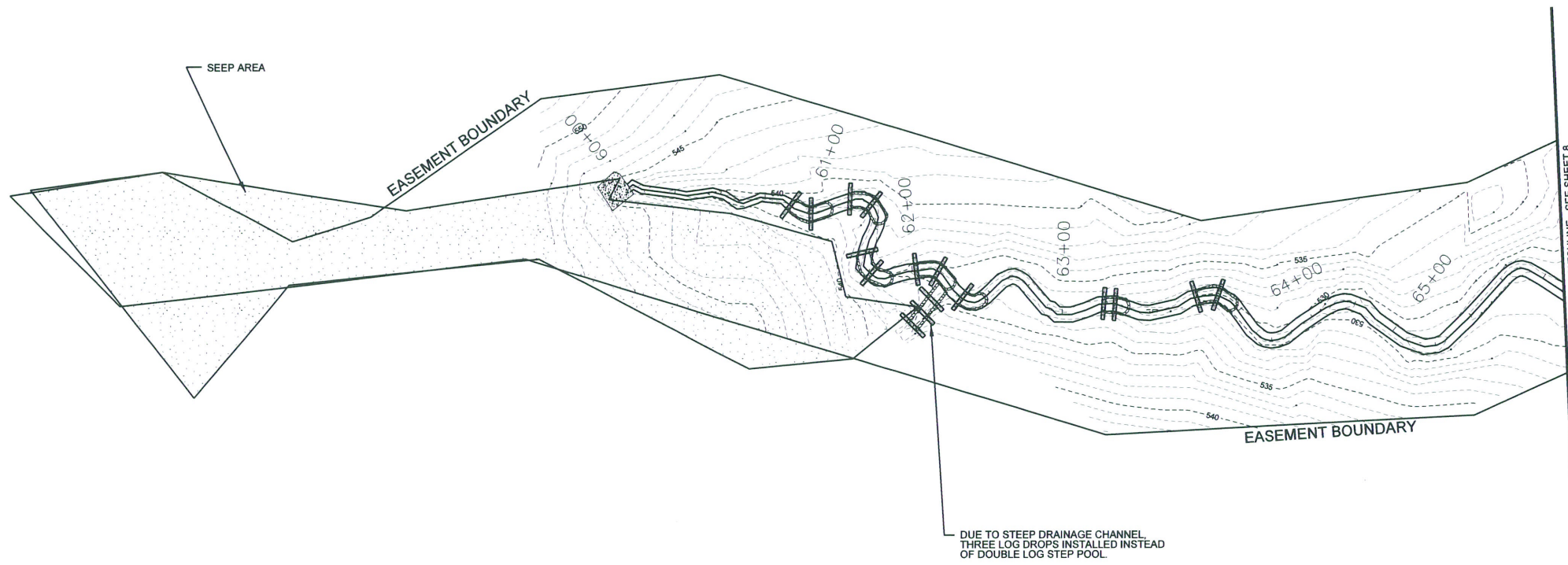
NO.	DATE	DESCRIPTION	BY	APPROVED
1	MAR 2009	SUBMITTED WITH MITIGATION PLAN		

REVISIONS

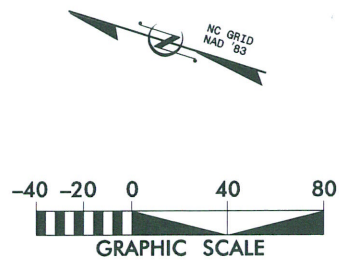
**CANE CREEK
STREAM RESTORATION PROJECT**
SEMORA, PERSON COUNTY, NORTH CAROLINA
T2-1, T2-2, T2-3, T2-4: STATION 50+00 TO STATION 58+50

DATE: MAR 2009
SCALE: 1"=80'

AS-BUILT
SITE PLAN



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 GARY ENGINEER
 GARY MICHAEL MONTANA
 03.11.09
Gary Michael Montana



SYMBOL	DESCRIPTION	DATE	APPROVED

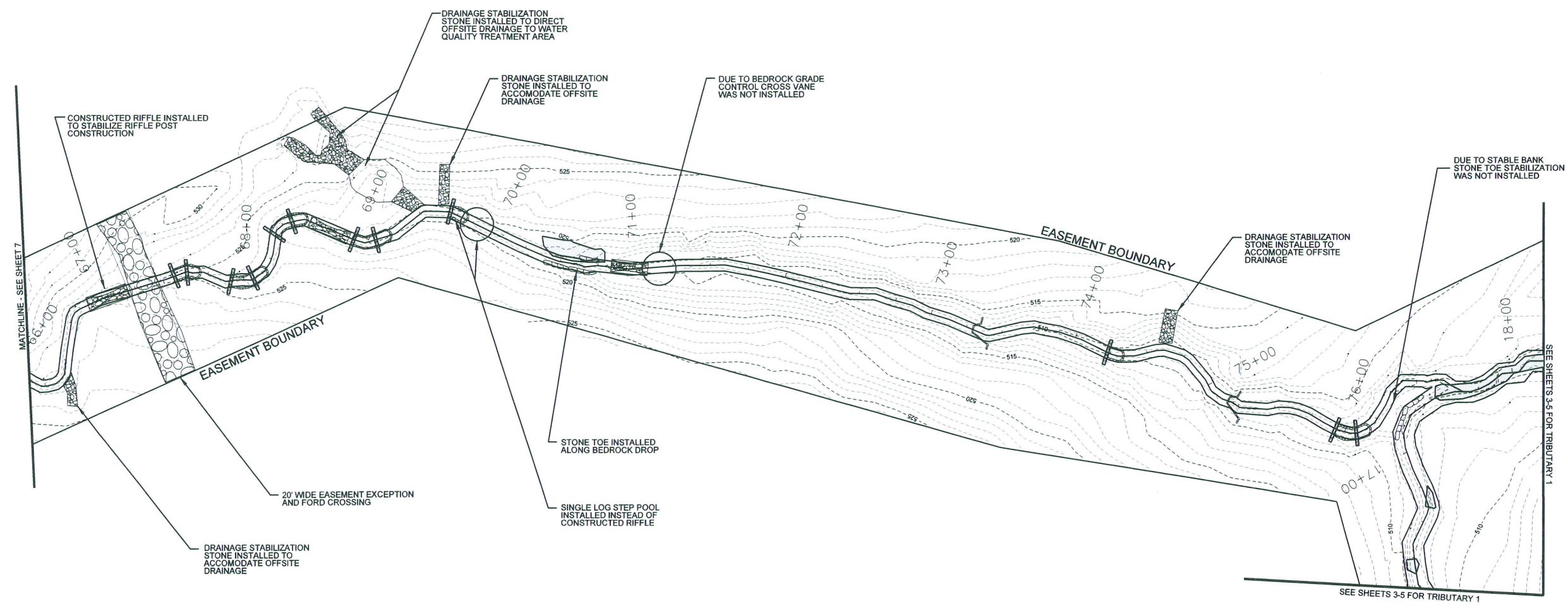
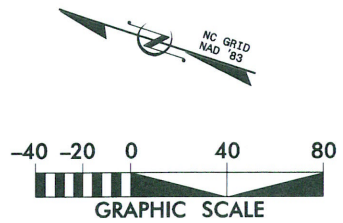
A SUBMITTED WITH MITIGATION PLAN
 MAR 2009

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T3-1, T3-2: STATION 60+00 TO STATION 66+13

DATE: MAR 2009
 SCALE: 1"=80'

**AS-BUILT
 SITE PLAN**



MAR 2009			
SUBMITTED WITH MITIGATION PLAN			
A			
SYMBOL		DESCRIPTION	
DATE		APPROVED	
		REVISIONS	



KCI
TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS
4600 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
STREAM RESTORATION PROJECT**
SEMORA, PERSON COUNTY, NORTH CAROLINA
T3-2: STATION 66+13 TO STATION 76+98

DATE: MAR 2009
SCALE: 1"=80'

**AS-BUILT
SITE PLAN**

SHEET 8 OF 35



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 GARY MICHAEL MYNCAZ
Gary Myncaz

03.11.09

NO.	DATE	DESCRIPTION	APPROVED

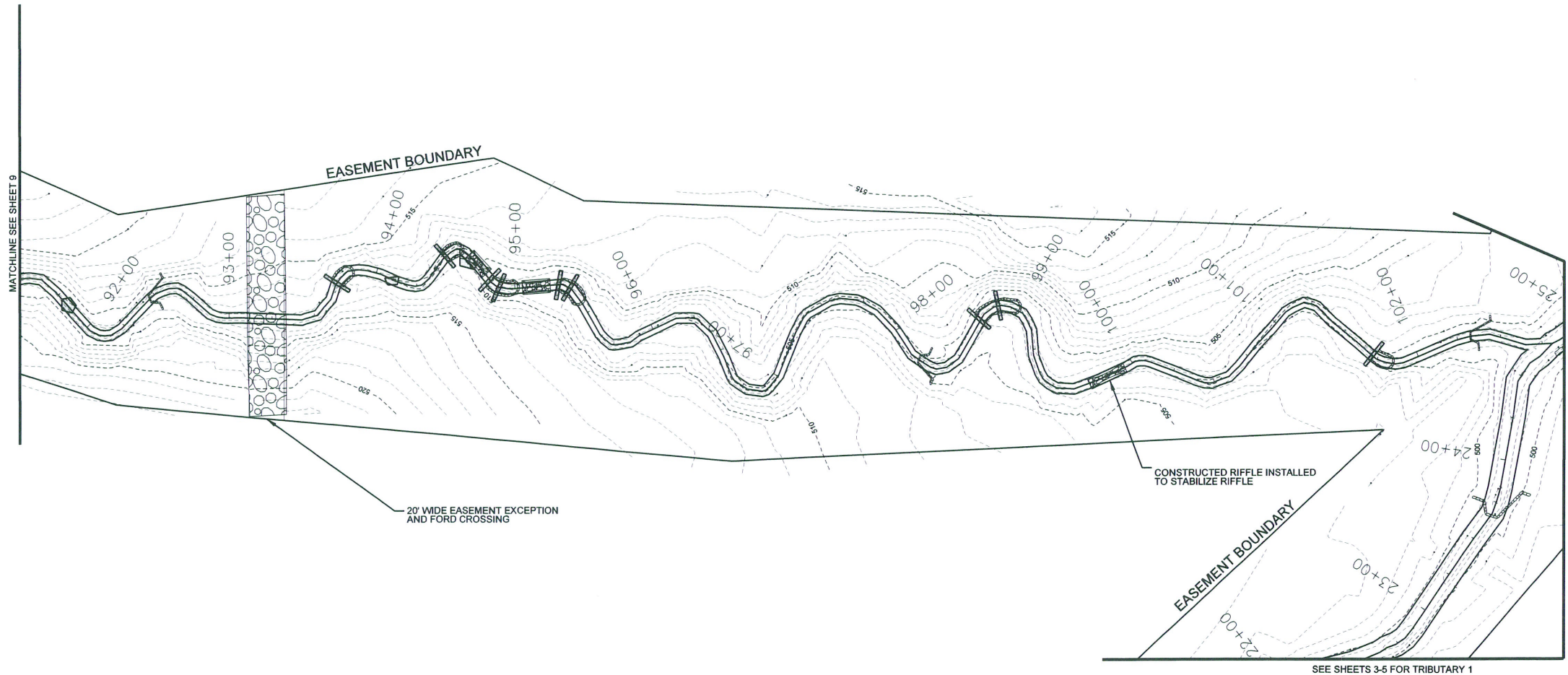
NO.	DATE	DESCRIPTION	APPROVED

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 460 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T4-1, T4-2: STATION 80+00 TO STATION 91+49

DATE: MAR 2009
 SCALE: 1"=80'

**AS-BUILT
 SITE PLAN**



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 GARY MICHAEL MYNCA
Gary Mynca
 03.11.09

SYMBOL	DESCRIPTION	DATE	APPROVED
A	SUBMITTED WITH MITIGATION PLAN	MAR 2009	

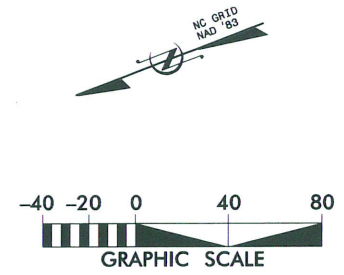
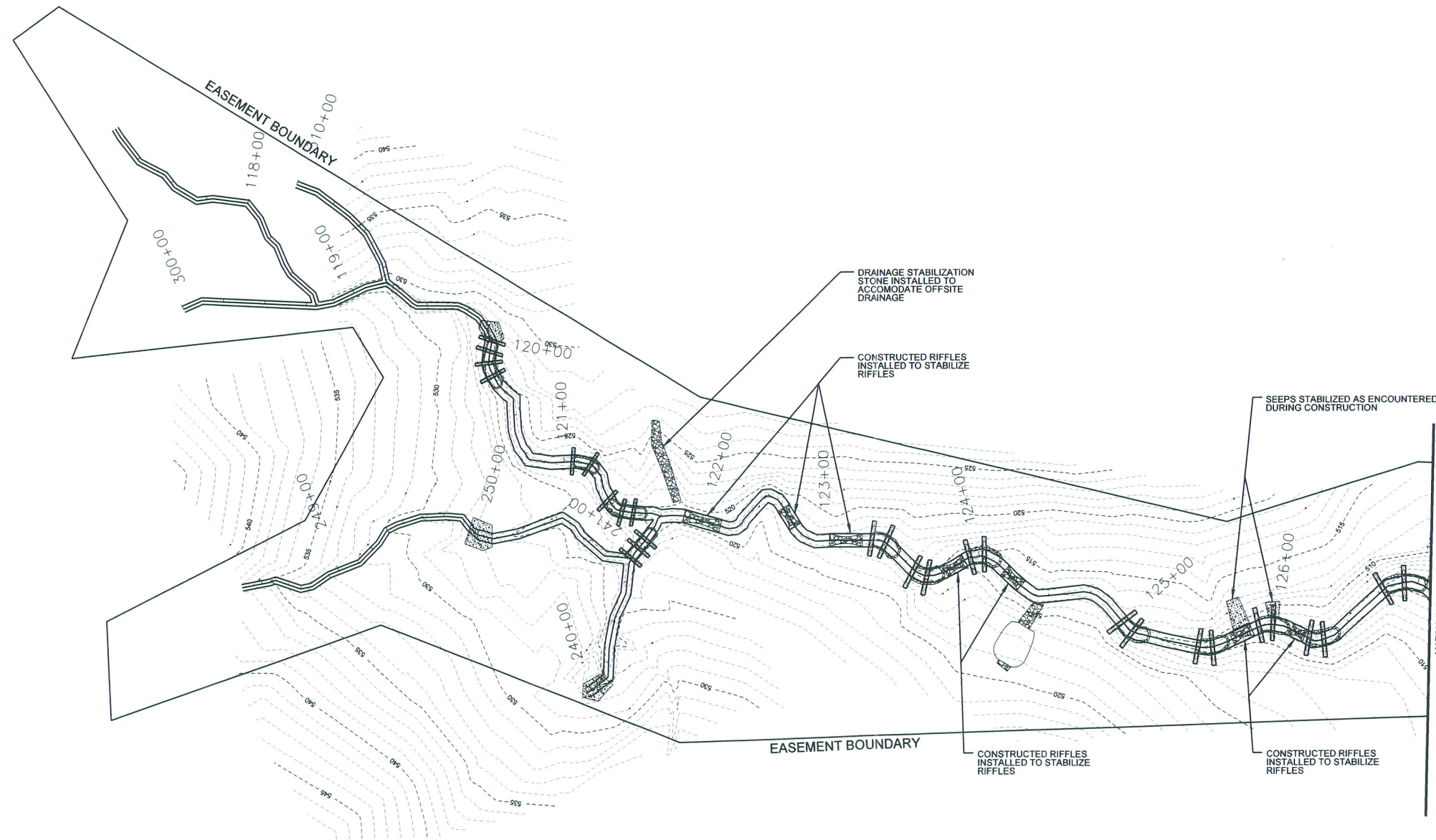
KCI
TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS


4600 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T4-2: STATION 91+49 TO STATION 102+81

DATE: MAR 2009
SCALE: 1"=80'

AS-BUILT
SITE PLAN




 SEAL
 32733
 ENGINEER
 MICHAEL MYNCA
 05.07.09

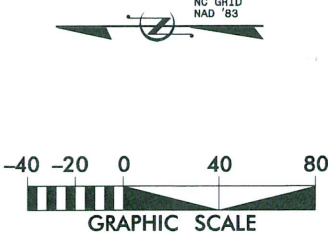
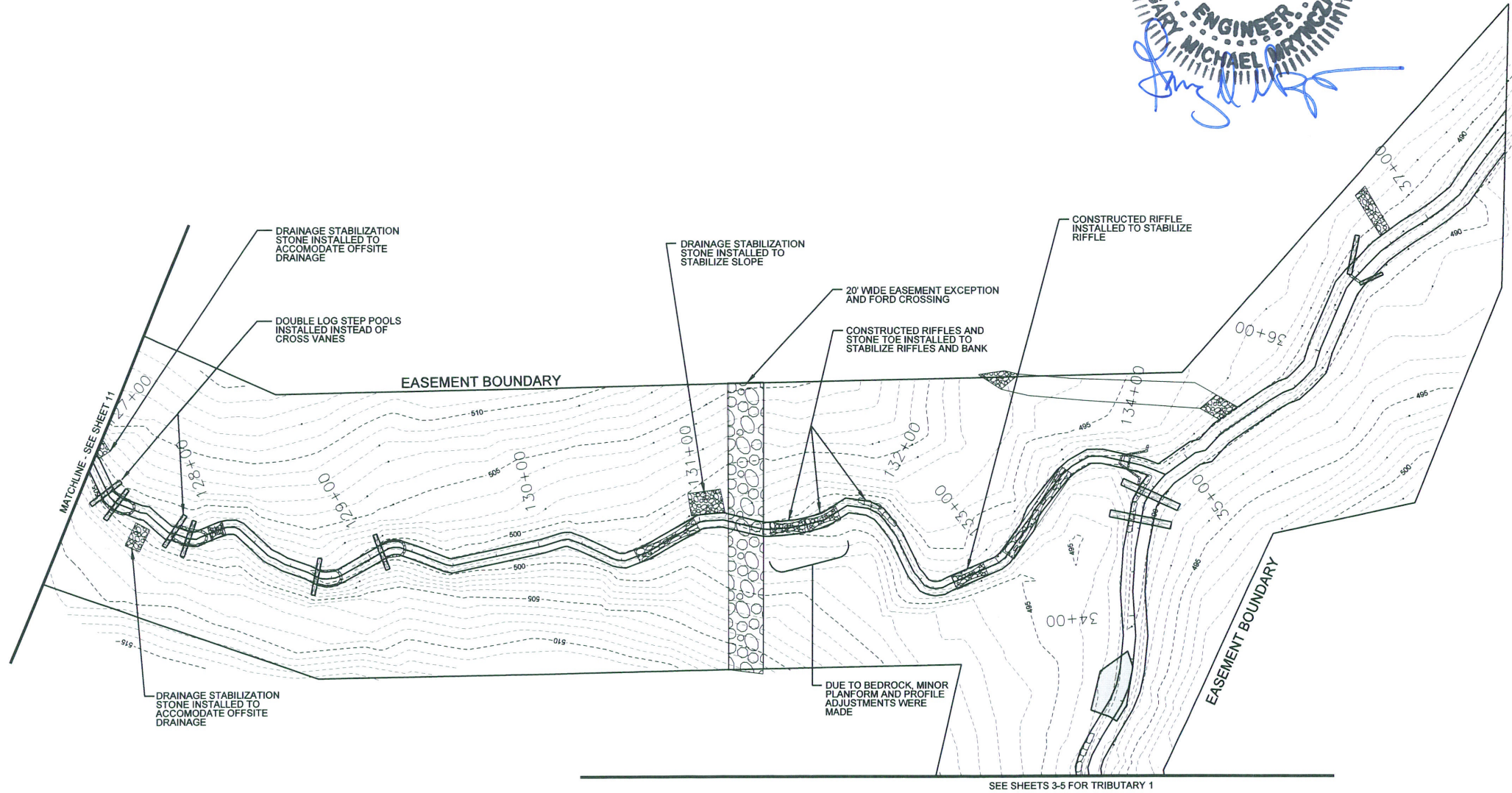
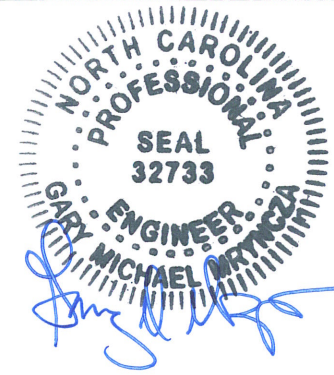
A. SUBMITTED WITH MITIGATION PLAN		REVISIONS	
SYN.	DESCRIPTION	DATE	APPROVED



KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T6A, T6B, T6B-1, T6C-1, T6C-2, T6C-3, T6AB, T6C, T6C-300+00
 TO 300+80, STA 310+00 TO 310+82, STA 240+00 TO 241+21,
 STA 248+38 TO 251+04, AND STA 117+02 TO 127+10

DATE: MAR 2009
 SCALE: 1"=80'
**AS-BUILT
 SITE PLAN**
 SHEET 11 OF 35



DATE	MAR 2009	APPROVED	
DESCRIPTION		DATE	
SUBMITTED WITH MITIGATION PLAN			SYN.
A			

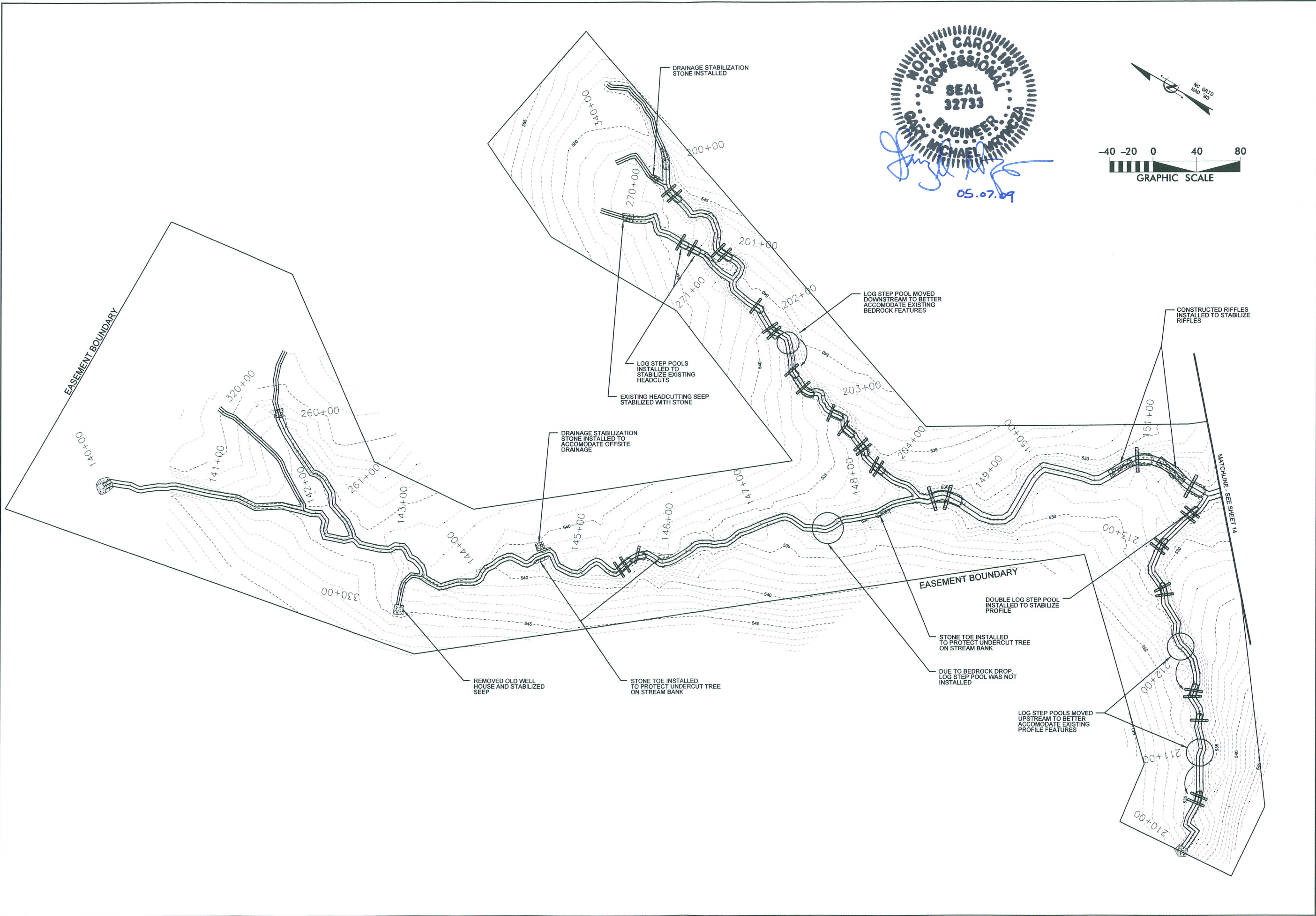

KCI TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

CANE CREEK
STREAM RESTORATION PROJECT
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T6: STATION 127+10 TO STATION 134+25


DATE: MAR 2009
SCALE: 1"=80'

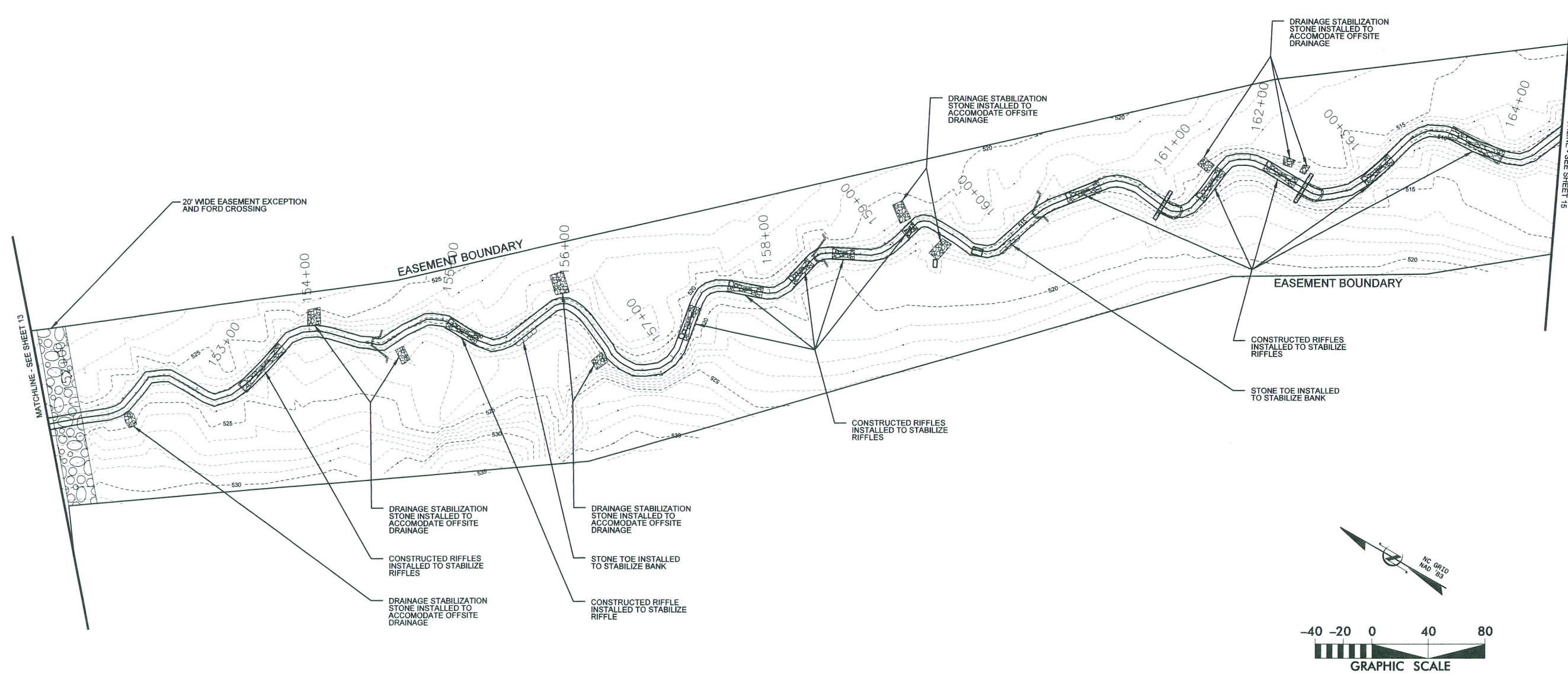
AS-BUILT SITE PLAN

REVISIONS




MAR 2009		APPROVED	
A SUBMITTED WITH MITIGATION PLAN		DATE	
SYN.	DESCRIPTION	DATE	APPROVED
REVISIONS			
KCI TECHNOLOGIES ENGINEERS • PLANNERS • SCIENTISTS 4601 SIX FORKS ROAD RALEIGH, NORTH CAROLINA 27609			
CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA T7A, T7A-1, T7B, T7C, T7-1, T7-2, T7-3, T8, T8A, T8A-1, T8-1, T8B, T9, STA 260+00 TO 261+36, STA 140+00 TO 151+57, STA 270+00 TO 271+23, STA 200+00 TO 204+38, AND STA 210+00 TO 213+68			
DATE: MAR 2009			
SCALE: 1"=60'			
AS-BUILT SITE PLAN			
SHEET 13 OF 35			

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 03.11.09
 GARY ENGINEER
 MICHAEL MYNCA




SYMBOL	DESCRIPTION	DATE	APPROVED
A	SUBMITTED WITH MITIGATION PLAN		

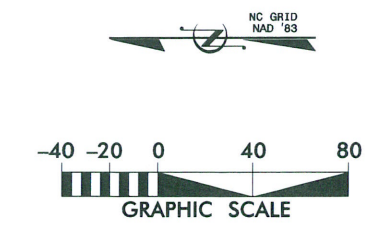
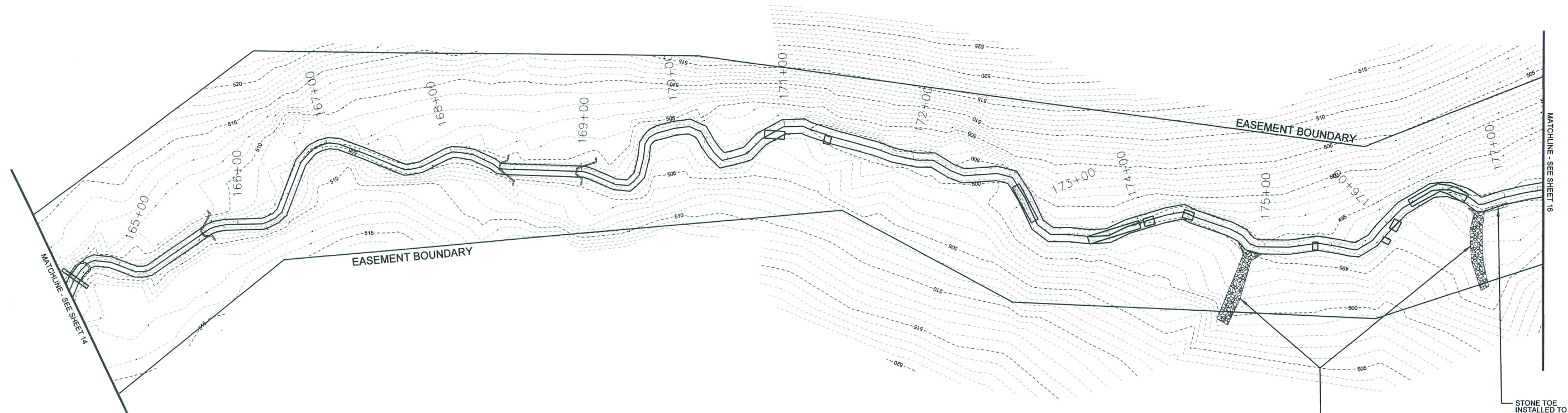

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

CANE CREEK
STREAM RESTORATION PROJECT
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T7-3: STATION 151+57 TO STATION 164+50

DATE: MAR 2009
 SCALE: 1"=80'

AS-BUILT
SITE PLAN

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 GARY ENGINEER
 MICHAEL MRYNCA
 03.11.09



NO.	DATE	DESCRIPTION	BY	CHKD

A SUBMITTED WITH MITIGATION PLAN
 MAR 2009

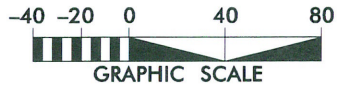
KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T7-3, T7-4; STATION 16+50 TO STATION 177+29

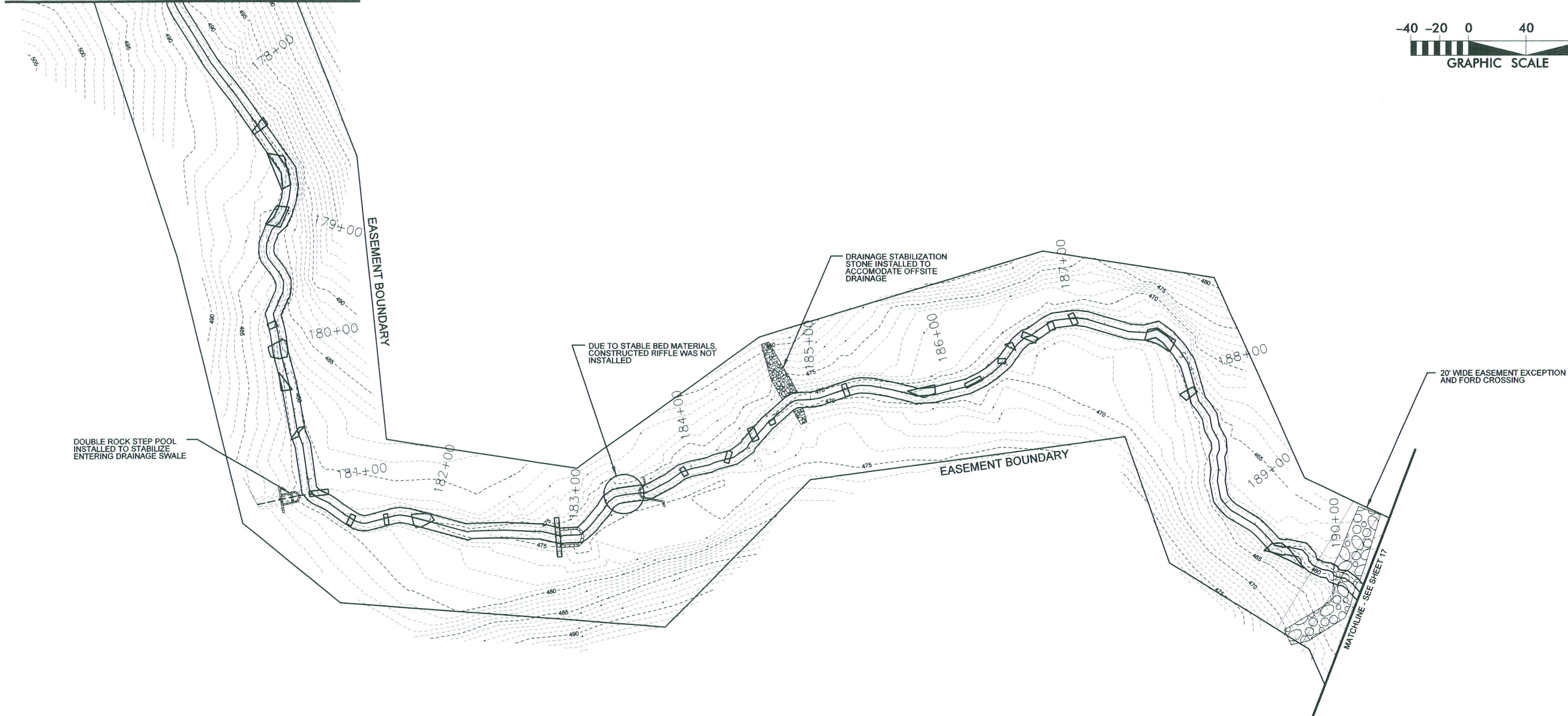
DATE: MAR 2009
 SCALE: 1"=80'

**AS-BUILT
 SITE PLAN**

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 03.11.09
 ENGINEER
 GARY MICHAEL MRYNCZA




MATCHLINE - SEE SHEET 15



MATCHLINE - SEE SHEET 17

SUBMITTED WITH MITIGATION PLAN		MAR 2009	
SYMBOL	DESCRIPTION	DATE	APPROVED

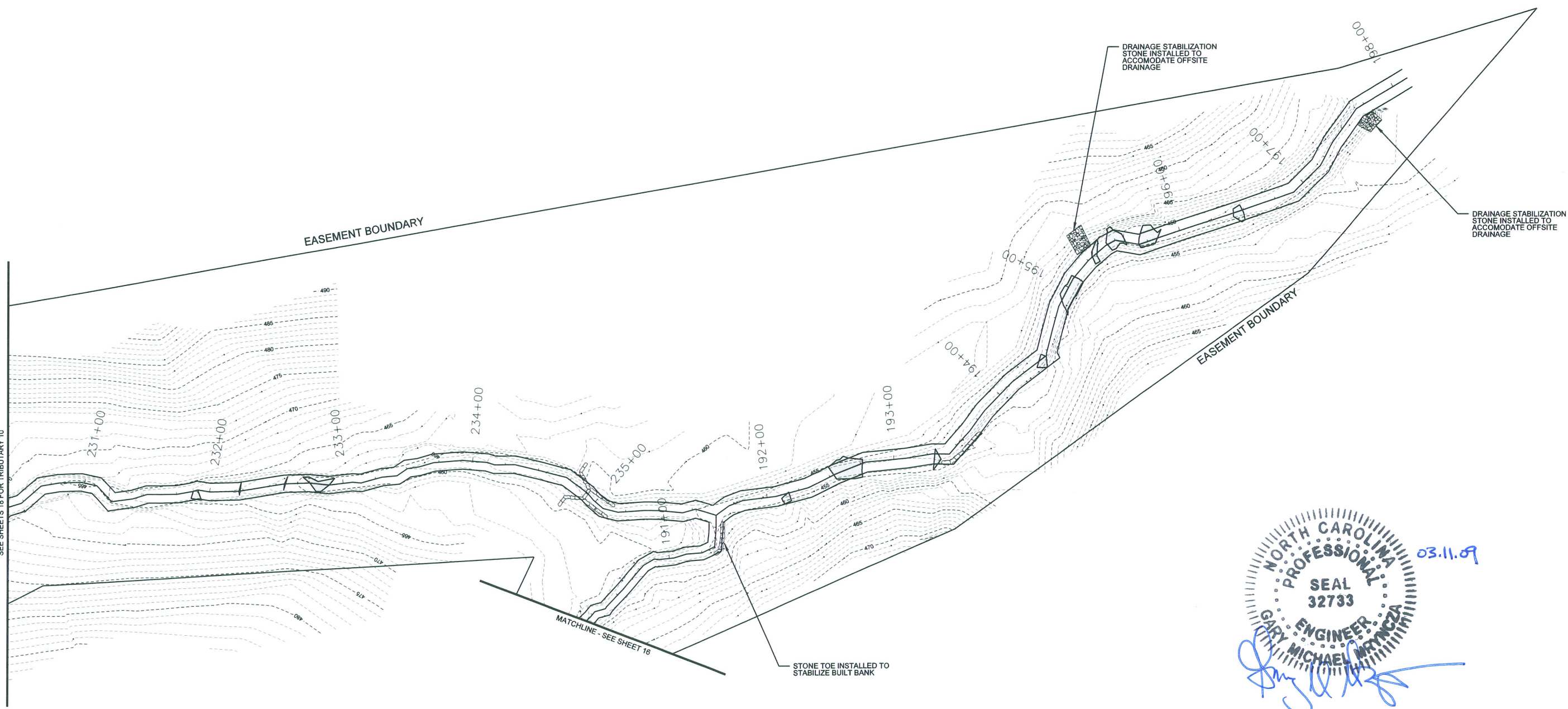

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 460 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T7-4, T7-5, T7-6: STATION 177+29 TO STATION 190+18

DATE: MAR 2009
SCALE: 1"=80'

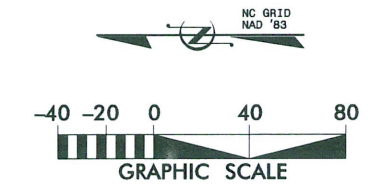
AS-BUILT
SITE PLAN

SEE SHEETS 18 FOR TRIBUTARY 10



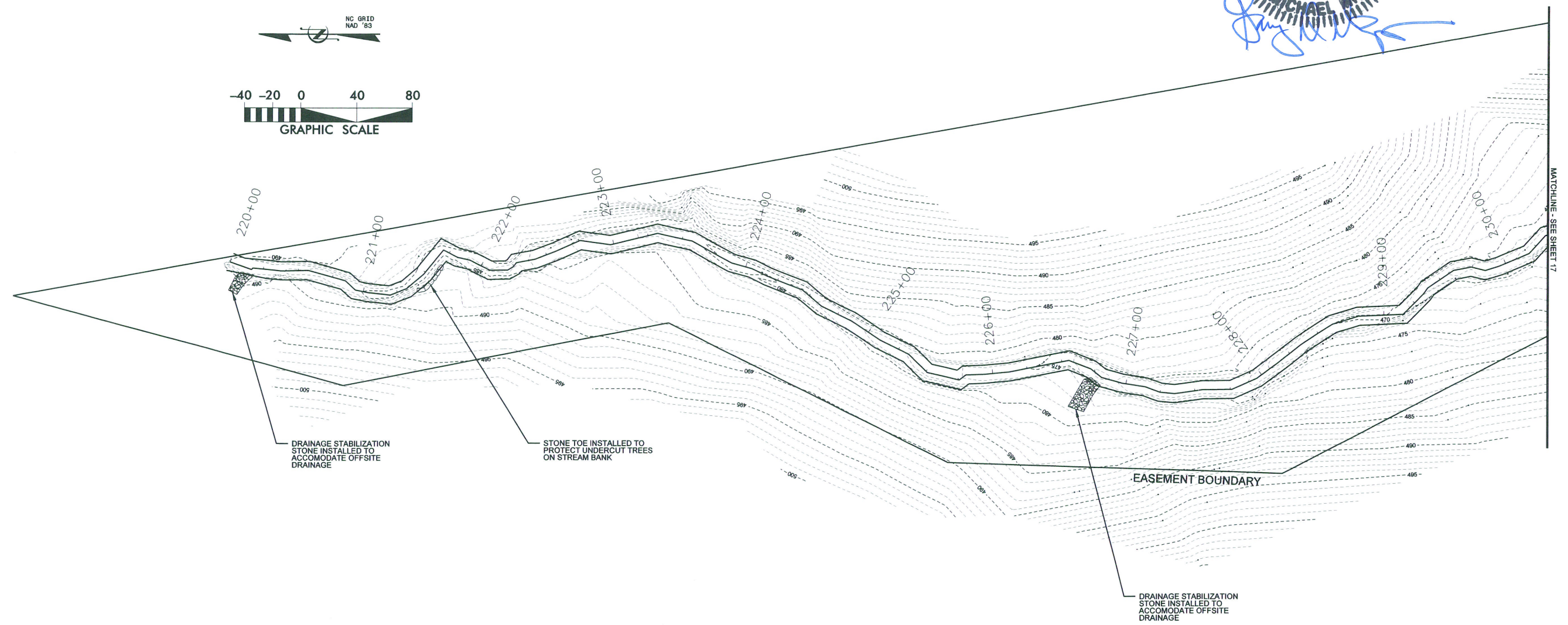
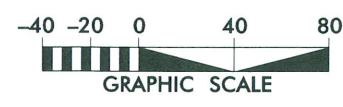
03.11.09

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 GARY MICHAEL WYNGCZA



MAR 2009			
SUBMITTED WITH MITIGATION PLAN			
SYMBOL		DESCRIPTION	
DATE		APPROVED	
REVISIONS			
<p>KCI TECHNOLOGIES ENGINEERS • PLANNERS • SCIENTISTS 460 SIX FORKS ROAD RALEIGH, NORTH CAROLINA 27609</p>			
<p>CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA T7-6, T7-7, AND T10: STA 190+18 TO 198+13 AND STA 230+37 TO 235+91</p>			
<p>DATE: MAR 2009 SCALE: 1"=80'</p>			
<p>AS-BUILT SITE PLAN</p>			
<p>SHEET 17 OF 35</p>			

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 GARY MICHAEL MYNICKA
 ENGINEER
 03.11.09



A		DATE	APPROVED
SUBMITTED WITH MITIGATION PLAN		MAR 2009	
SYM.	DESCRIPTION	DATE	
REVISIONS			

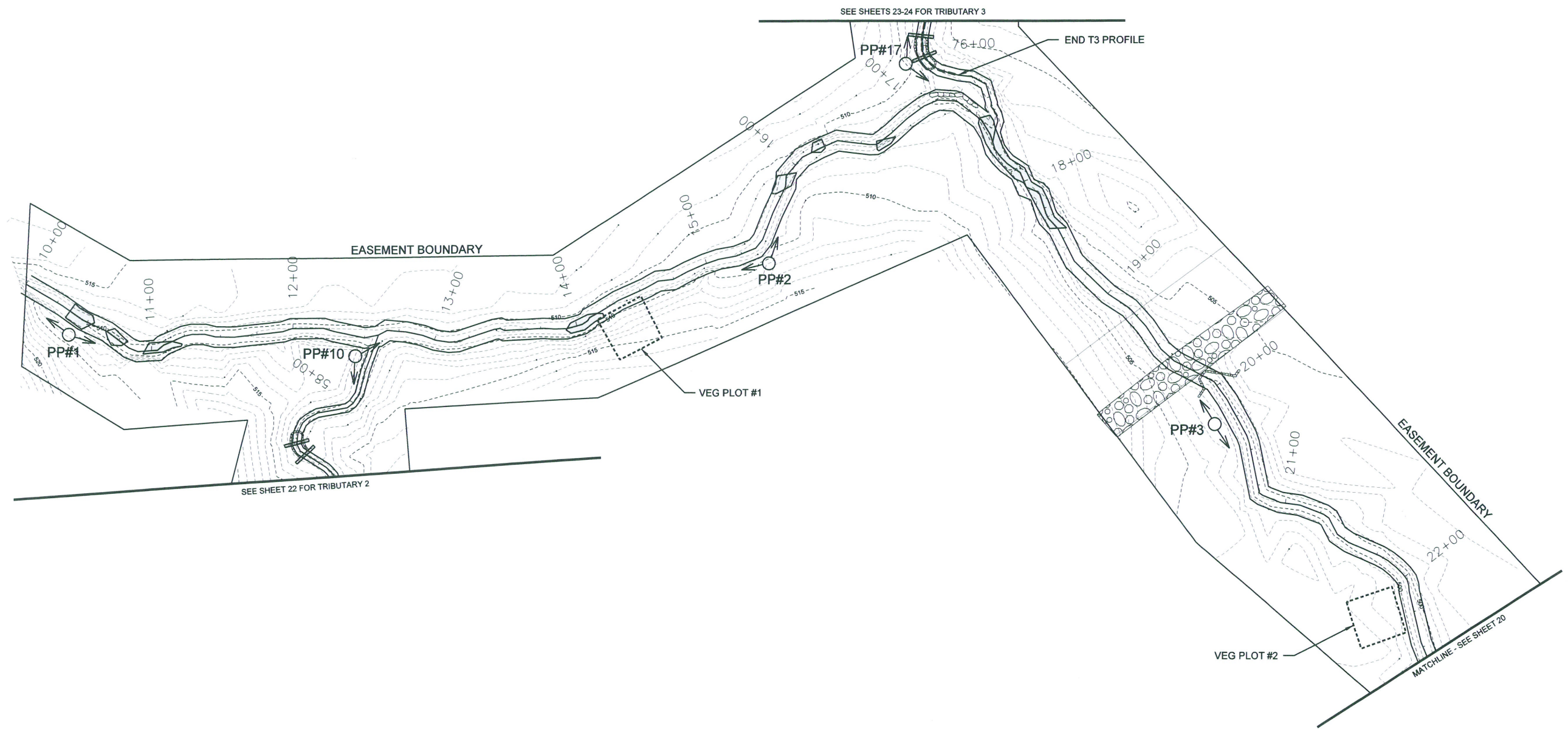
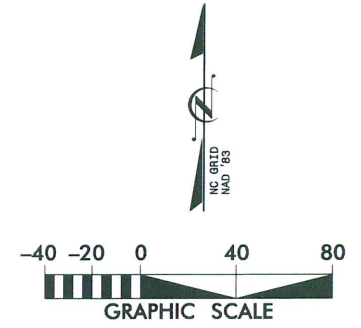
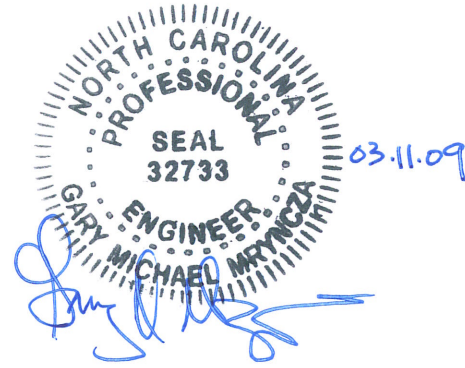
MATCHLINE - SEE SHEET 17


KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T10: STATION 220+00 TO STATION 230+37

DATE: MAR 2009
SCALE: 1"=80'

AS-BUILT
SITE PLAN



NO.	DATE	DESCRIPTION	BY	APP'D

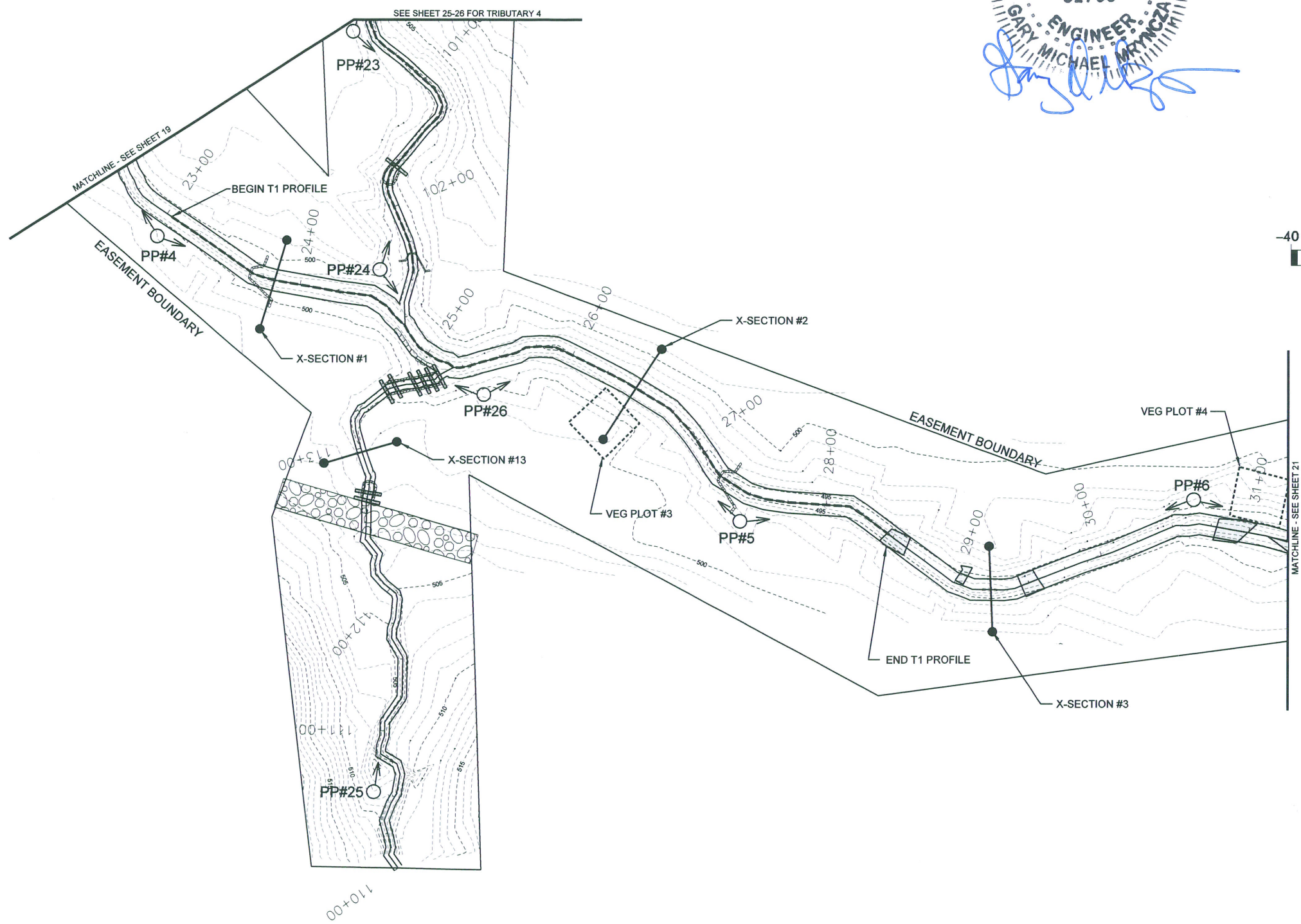
DATE: MAR 2009
 SCALE: 1"=80'

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T1-1, T1-2, T1-3: STATION 10+00 TO STATION 22+57

DATE: MAR 2009
 SCALE: 1"=80'

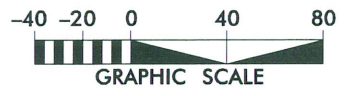
**MONITORING
 PLAN VIEW**



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 GARY MICHAEL MRYNCZA

03.11.09

[Signature]



NO.	DATE	DESCRIPTION	BY	APP'D

SUBMITTED WITH MITIGATION PLAN
 A

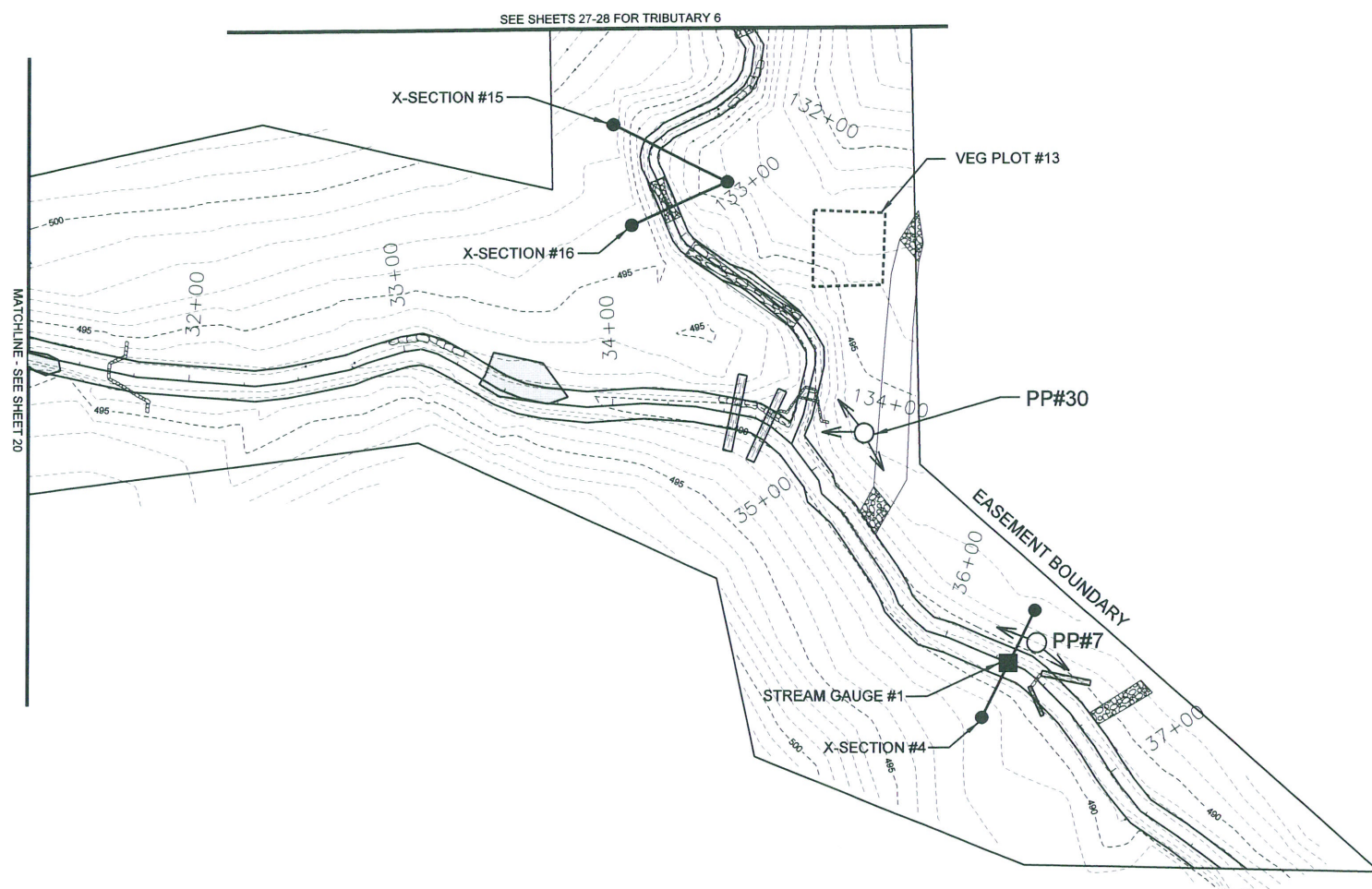

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS

4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

CANE CREEK
STREAM RESTORATION PROJECT
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T1-3, T1-4: STATION 22+57 TO STATION 31+26

DATE: MAR 2009
 SCALE: 1"=80'

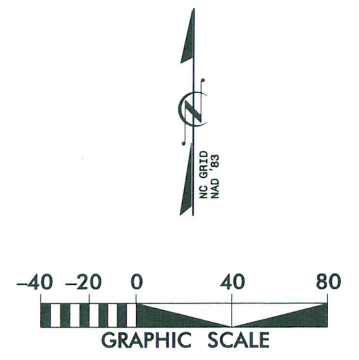
MONITORING
PLAN VIEW



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 GARY MICHAEL MYNCA
 ENGINEER

03.11.09


[Signature]

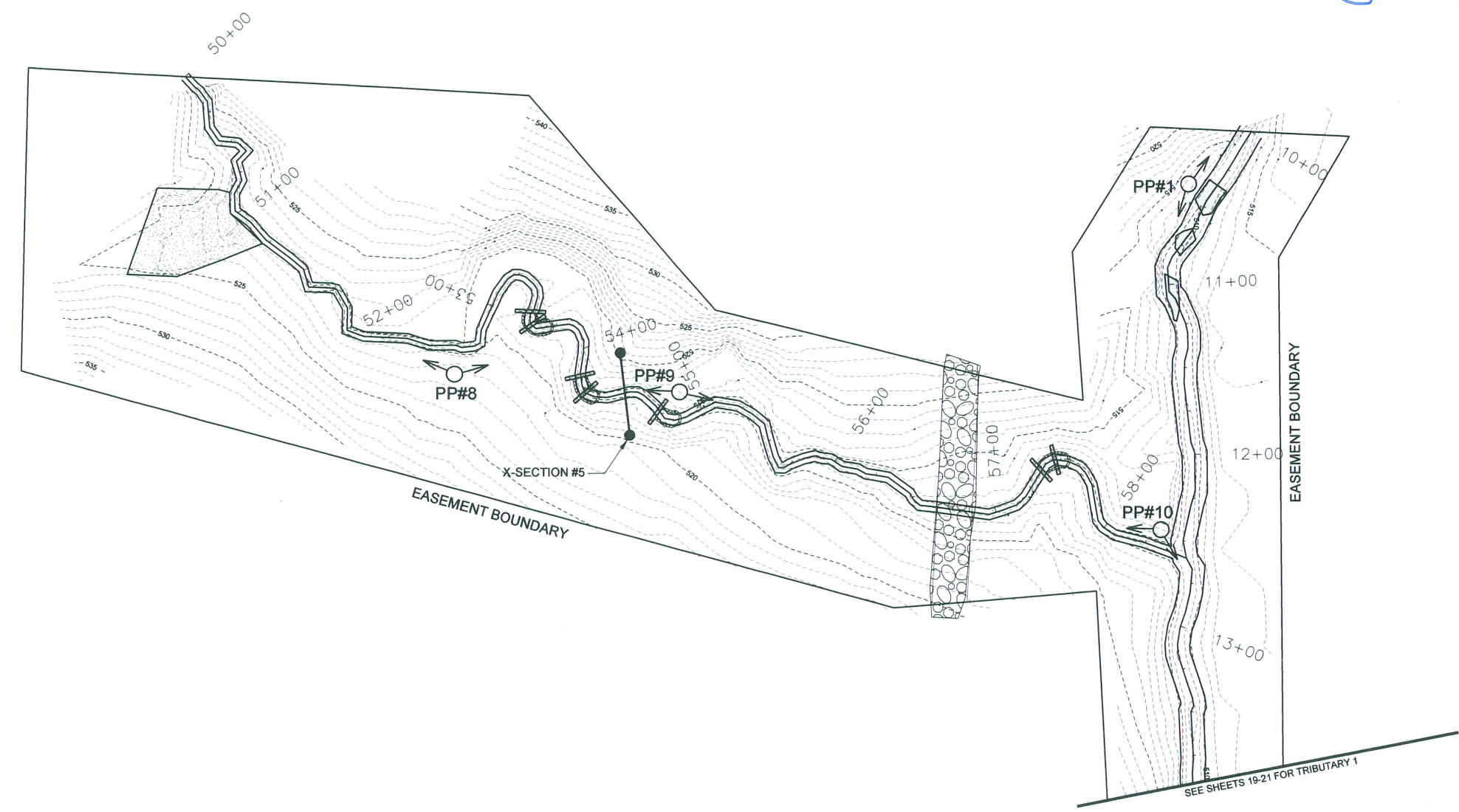
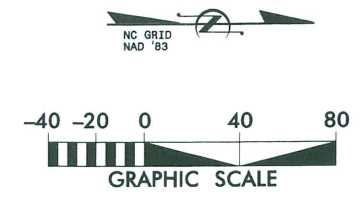


A	SUBMITTED WITH MITIGATION PLAN	MAR 2009	DATE	APPROVED	REVISIONS	
SYM.	DESCRIPTION	DATE	DATE	DATE		
KCI TECHNOLOGIES ENGINEERS • PLANNERS • SCIENTISTS						
CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA T1-4, T1-5: STATION 31+26 TO STATION 37+67						
DATE: MAR 2009						
SCALE: 1"=80'						
MONITORING PLAN VIEW						
SHEET 21 OF 35						

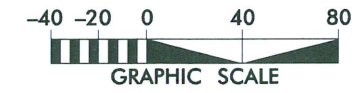
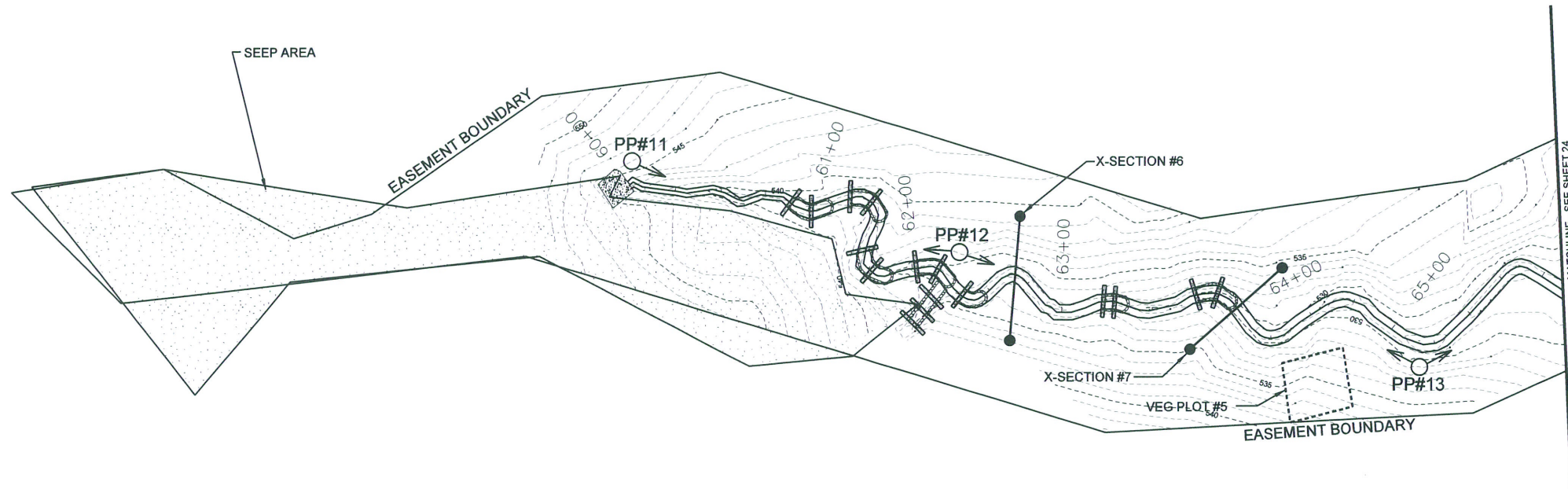
NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 GARY MICHAEL MRYNICA

03.11.09





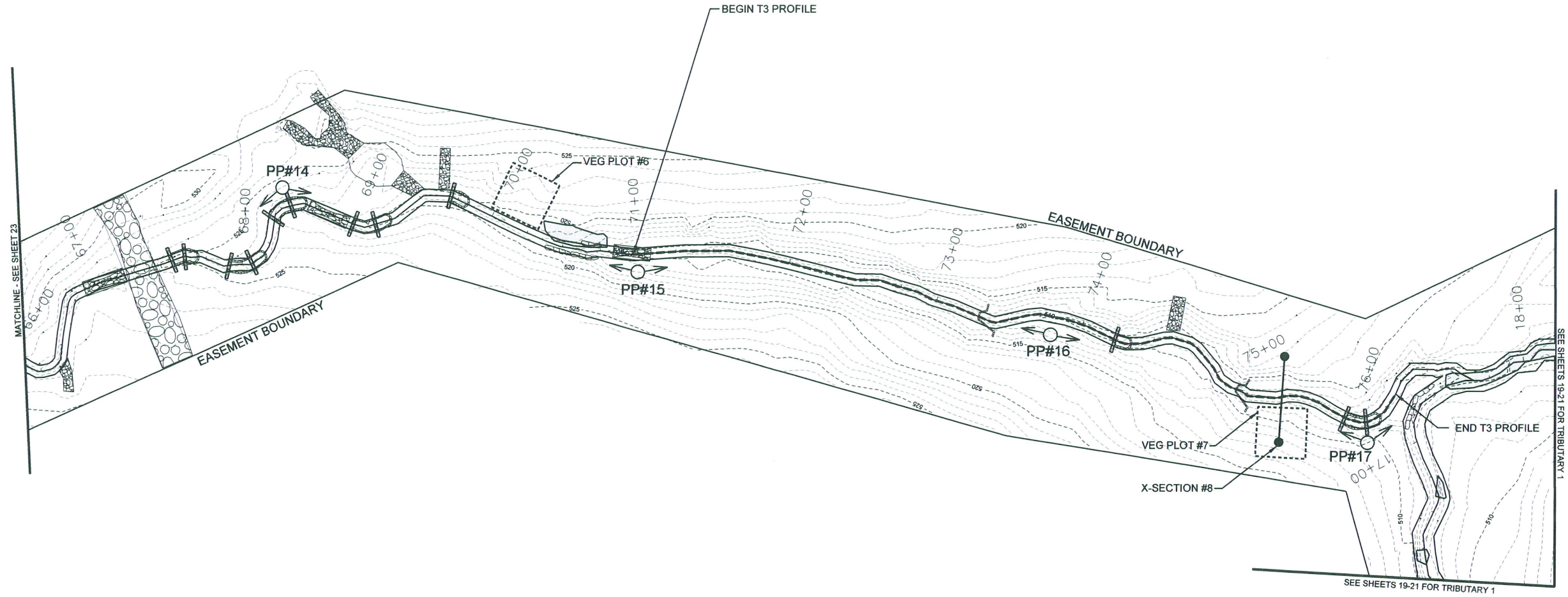
	MAR 2009				
A	SUBMITTED WITH MITIGATION PLAN				
				DATE	APPROVED
				SYMBOL	DESCRIPTION
					REVISIONS
 KCI TECHNOLOGIES ENGINEERS • PLANNERS • SCIENTISTS 4601 SIX FORKS ROAD RALEIGH, NORTH CAROLINA 27609					
CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA T2-1, T2-2, T2-3, T2-4; STATION 50+00 TO STATION 58+50					
DATE: MAR 2009					
SCALE: 1"=80'					
MONITORING PLAN VIEW					
SHEET 22 OF 35					



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 GARY MICHAEL MRYNCZA

03.11.09

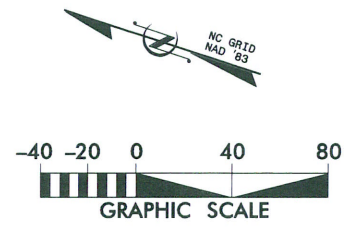
DATE: MAR 2009					
SCALE: 1"=80'					
MONITORING PLAN VIEW					
SHEET 23 OF 35					
KCI TECHNOLOGIES ENGINEERS • PLANNERS • SCIENTISTS 4601 SIX FORKS ROAD RALEIGH, NORTH CAROLINA 27609					
CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA T3-1, T3-2: STATION 60+00 TO STATION 66+13					
A	SUBMITTED WITH MITIGATION PLAN	SYMBOL	DESCRIPTION	DATE	APPROVED
REVISIONS					



03.11.09

NORTH CAROLINA PROFESSIONAL SEAL 32733

GARY MICHAEL MRYNCAZ ENGINEER



DATE	MAR 2009
SYN.	
DESCRIPTION	
DATE	
APPROVED	

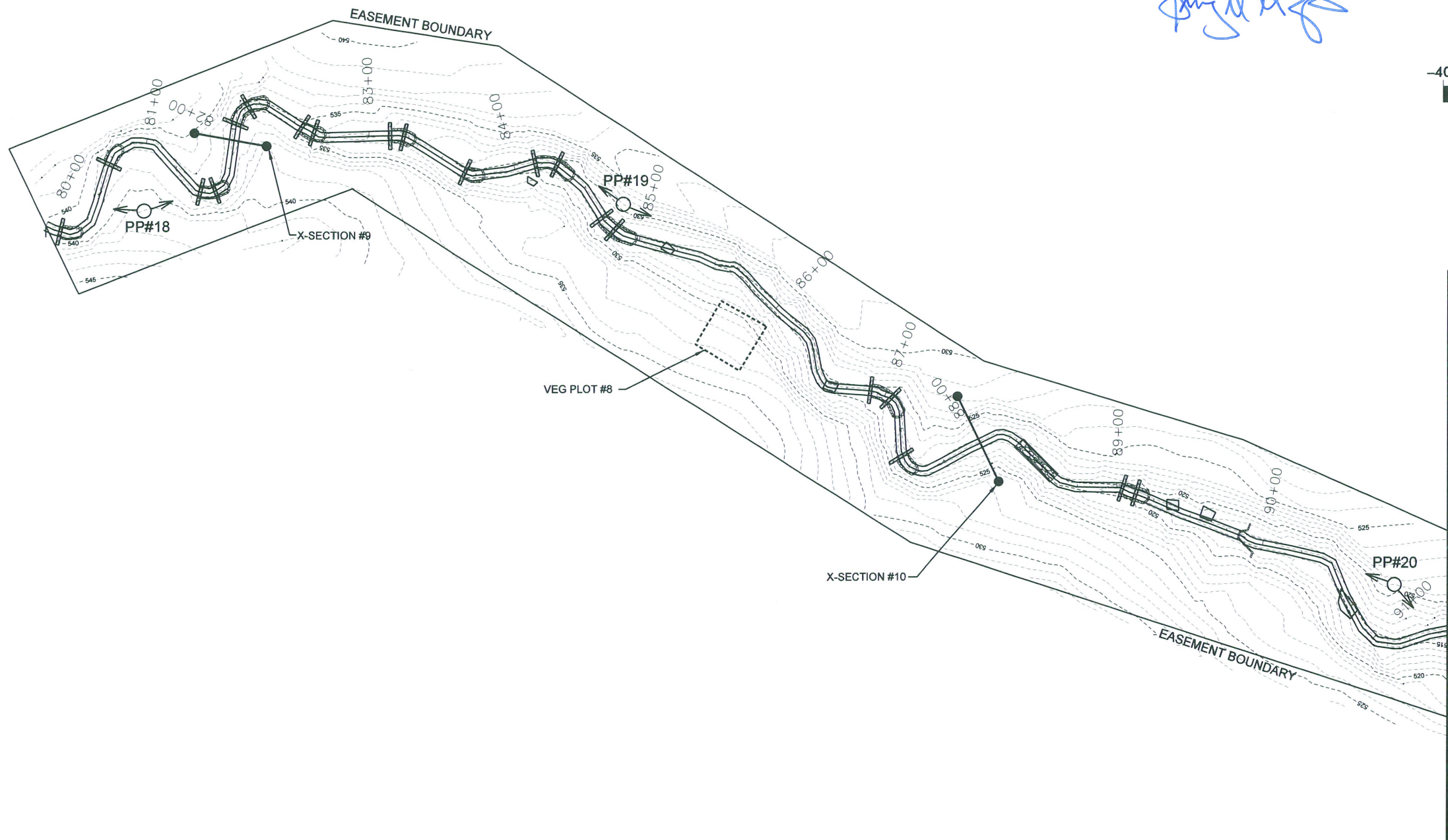
A SUBMITTED WITH MITIGATION PLAN

KCI TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

CANE CREEK STREAM RESTORATION PROJECT
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T3-2: STATION 66+13 TO STATION 76+98

DATE: MAR 2009
 SCALE: 1"=80'

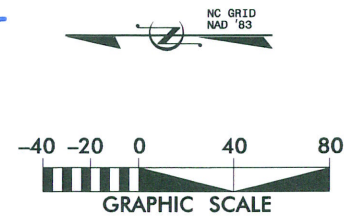
MONITORING PLAN VIEW



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 GARY MICHAEL MRYNCZA

03.11.09

[Signature]



NO.	DATE	DESCRIPTION	BY	APP'D

A SUBMITTED WITH MITIGATION PLAN
 MAR 2009


KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609


**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T4-1, T4-2: STATION 80+00 TO STATION 91+49

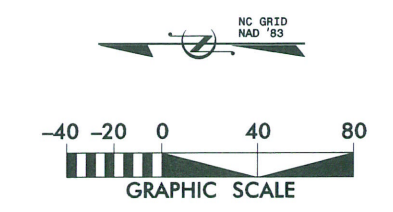
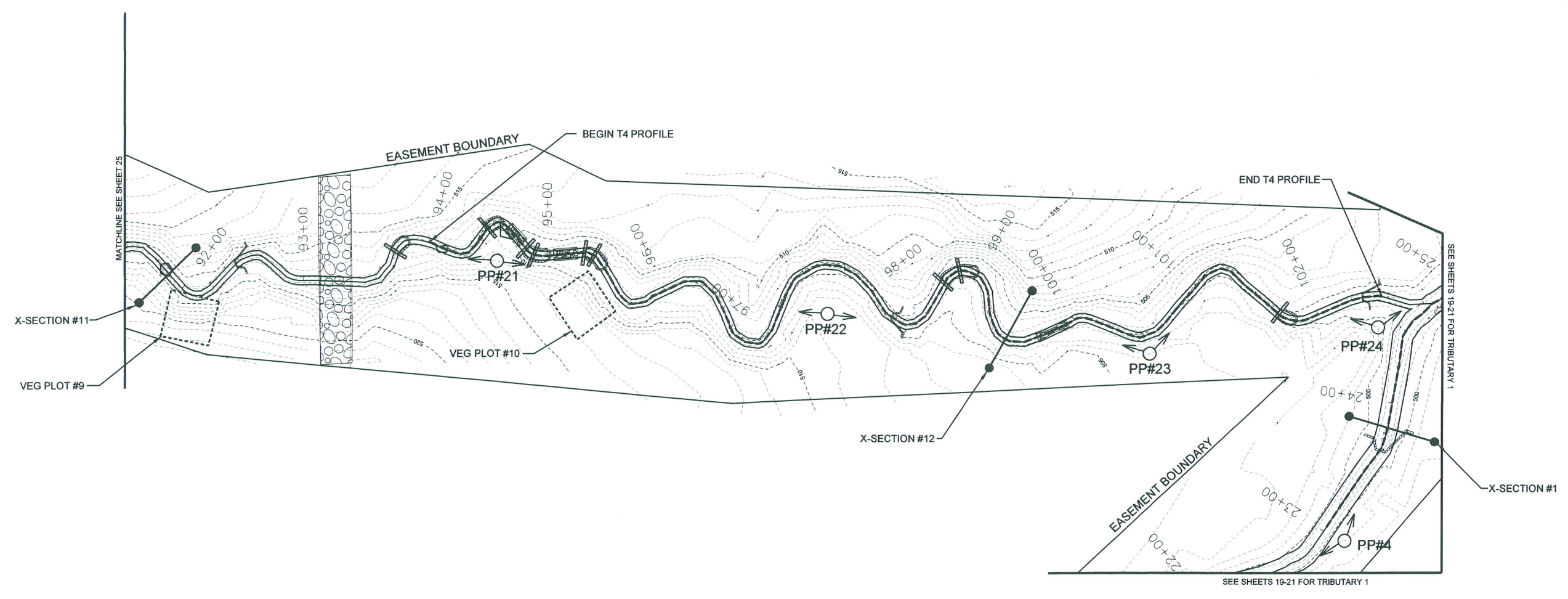
DATE: MAR 2009
 SCALE: 1"=80'


**MONITORING
 PLAN VIEW**

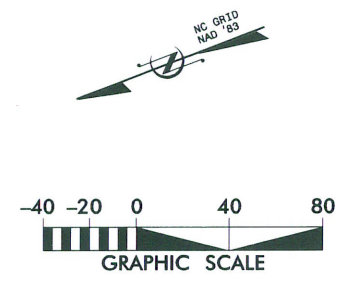
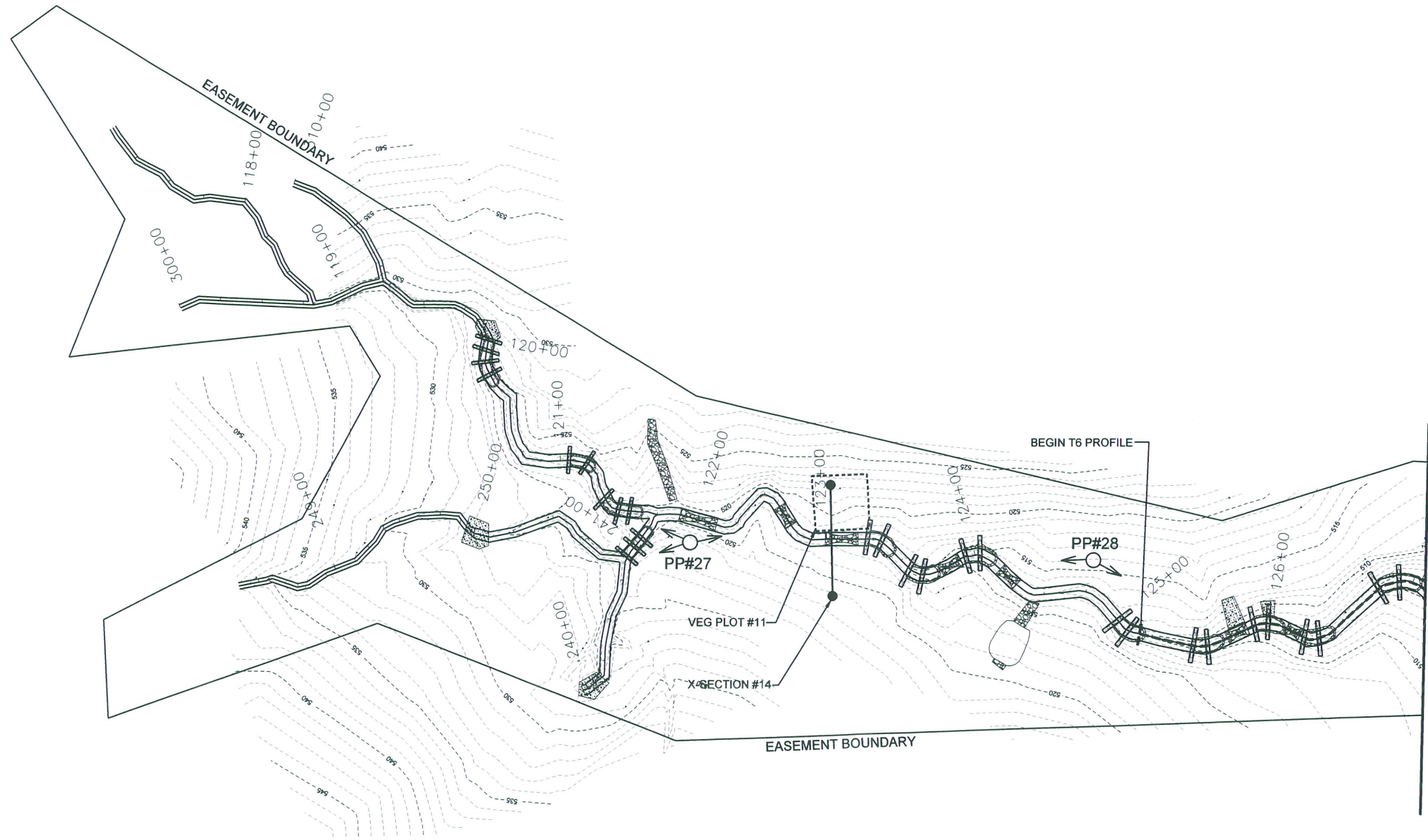
NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 GARY MICHAEL MRYNCA

03.11.09



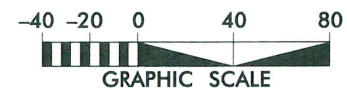
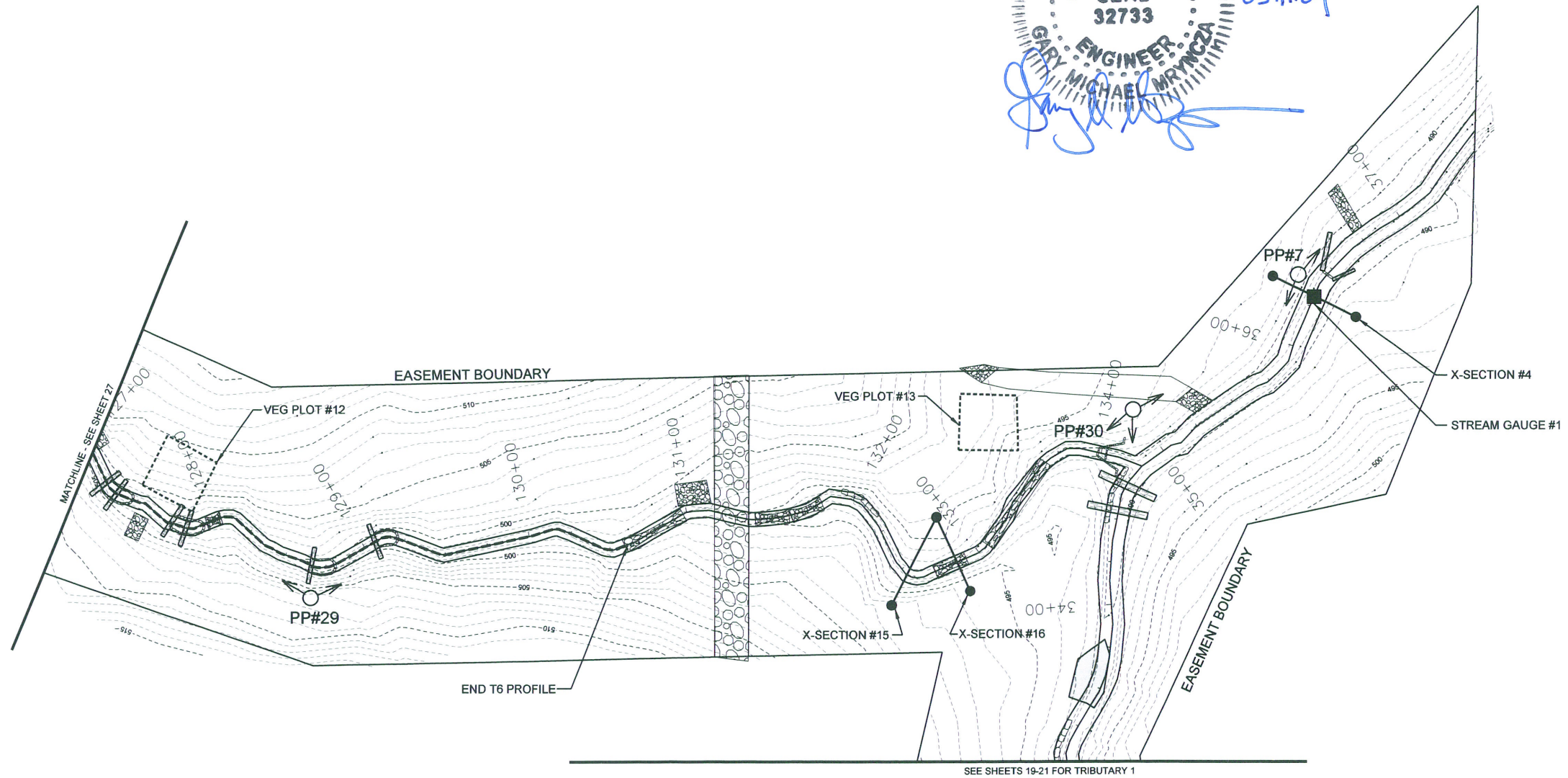


MAR 2009					
A	SUBMITTED WITH MITIGATION PLAN	SYMBOL	DESCRIPTION	DATE	APPROVED
REVISIONS					
 ENGINEERS • PLANNERS • SCIENTISTS 460 SIX FORKS ROAD RALEIGH, NORTH CAROLINA 27609					
CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA T4-2: STATION 91+49 TO STATION 102+81					
DATE: MAR 2009					
SCALE: 1"=80'					
MONITORING PLAN VIEW					
SHEET 26 OF 35					



GARY MICHAEL MRYNCZA
 ENGINEER
 05.07.09

A. SUBMITTED WITH MITIGATION PLAN							
MAR 2009							
 ENGINEERS • PLANNERS • SCIENTISTS 4601 SIX FORKS ROAD RALEIGH, NORTH CAROLINA 27609							
CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA T6A, T6B, T6B-1, T6C-1, T6C-2, T6C-3, T6AB, T6C, T6-STA 300+00 TO 300+80, STA 310+00 TO 310+82, STA 240+00 TO 241+21, STA 248+38 TO 251+04, AND STA 117+02 TO 127+10							
DATE: MAR 2009							
SCALE: 1"=80'							
MONITORING PLAN VIEW							
SHEET 27 OF 35							
REVISIONS							



NO.	SYMBOL	DESCRIPTION	DATE	APPROVED
1		REVISIONS		

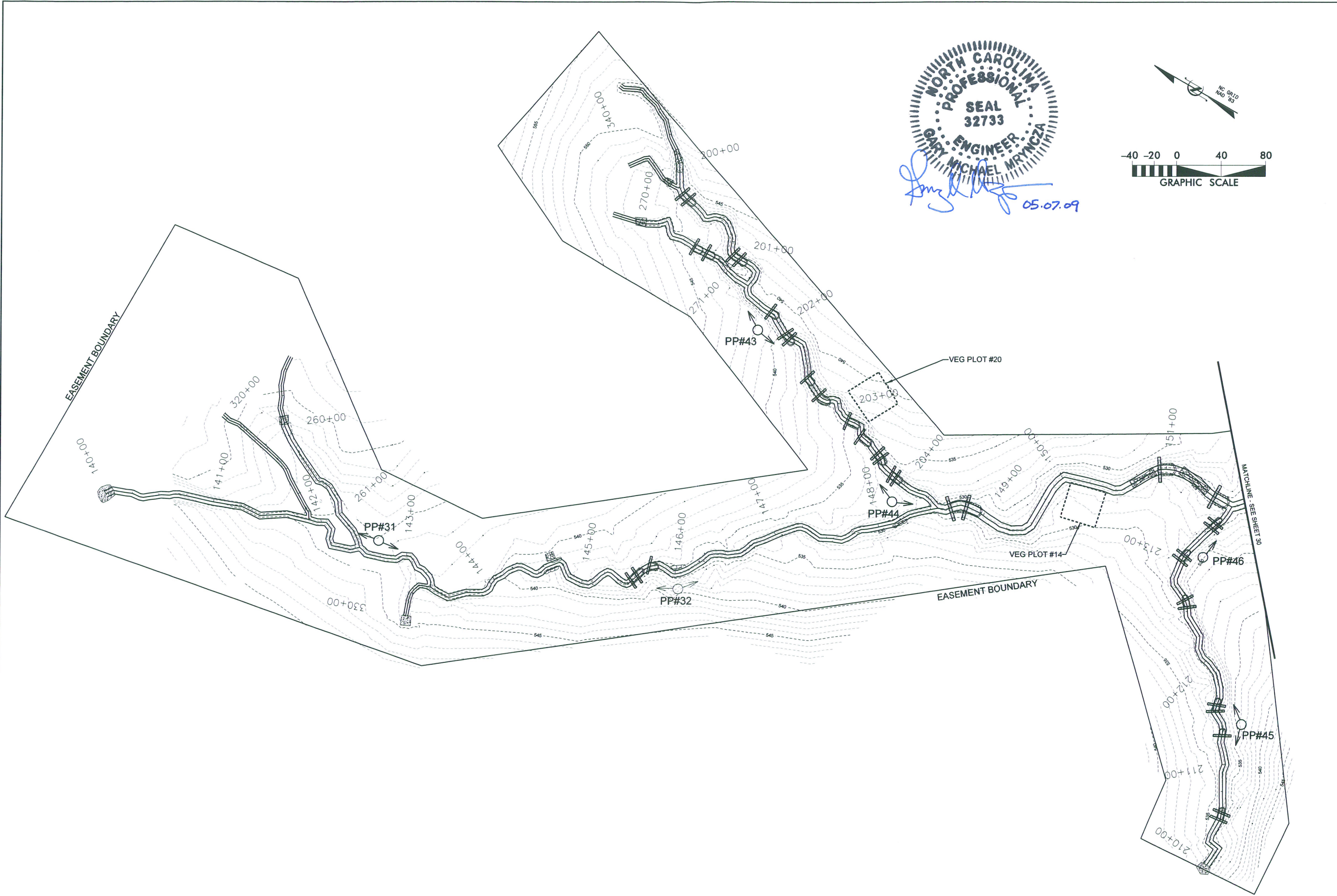
DATE: MAR 2009
 SCALE: 1"=80'

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T6: STATION 127+10 TO STATION 134+25

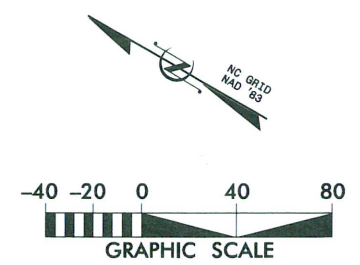
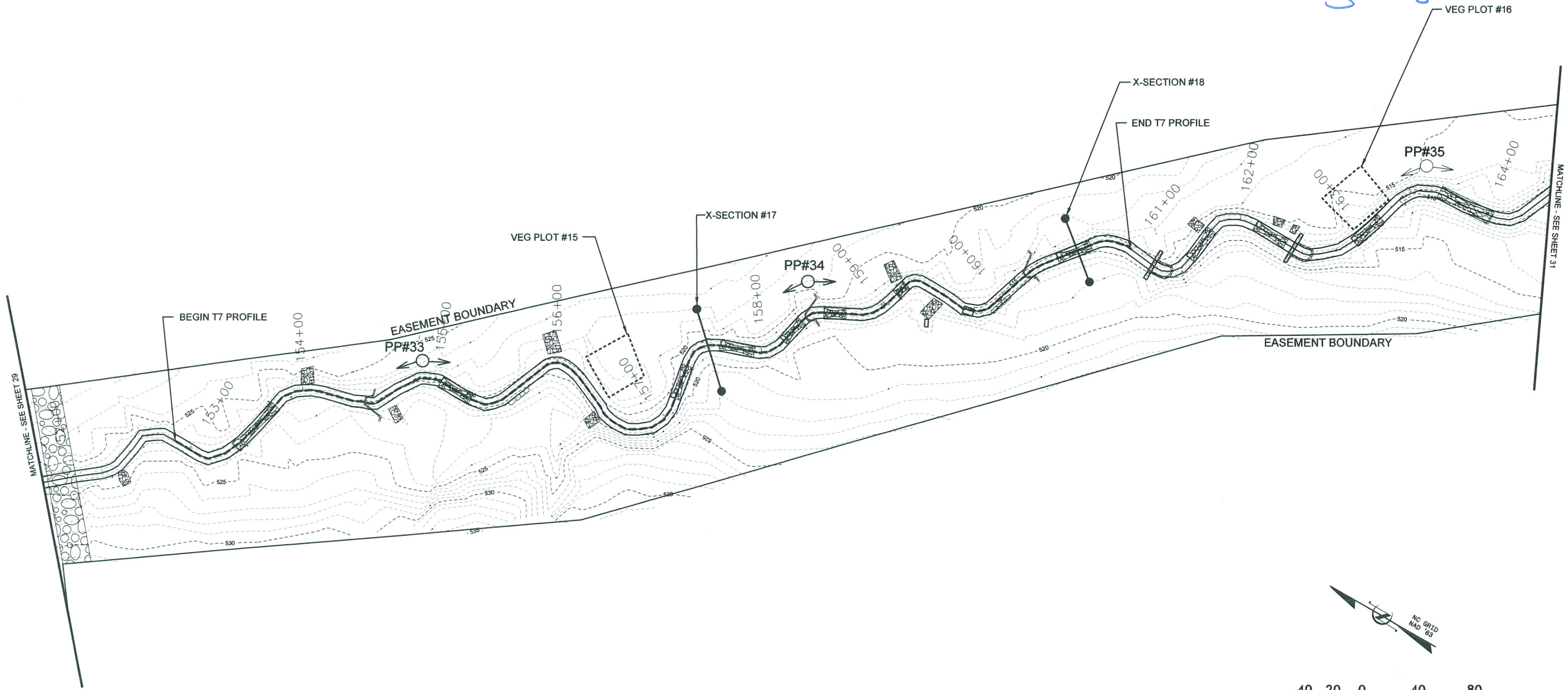
DATE: MAR 2009
 SCALE: 1"=80'

**MONITORING
 PLAN VIEW**



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 GARY ENGINEER
 MICHAEL MRYNCZA
Gary Mryncza 05.07.09

MONITORING PLAN VIEW SHEET 29 OF 35	DATE: MAR 2009 SCALE: 1"=80'
CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA T7A, T7A-1, T7B, T7C, T7-1, T7-2, T7-3, T8, T8A, T8A-1, T8-1, T8B, T8, STA 260+00 TO 261+36, STA 140+00 TO 151+57, STA 270+00 TO 271+23, STA 200+00 TO 204+38, AND STA 210+00 TO 213+68	
 KCI TECHNOLOGIES ENGINEERS • PLANNERS • SCIENTISTS 4601 SIX FORKS ROAD RALEIGH, NORTH CAROLINA 27609	
A SUBMITTED WITH MITIGATION PLAN	
MAR 2009	APPROVED
DATE	REVISIONS



NO.	DATE	DESCRIPTION	BY	APPROVED

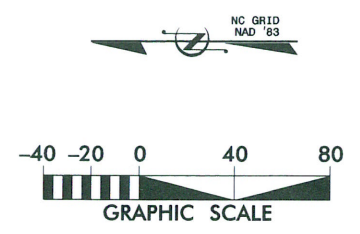
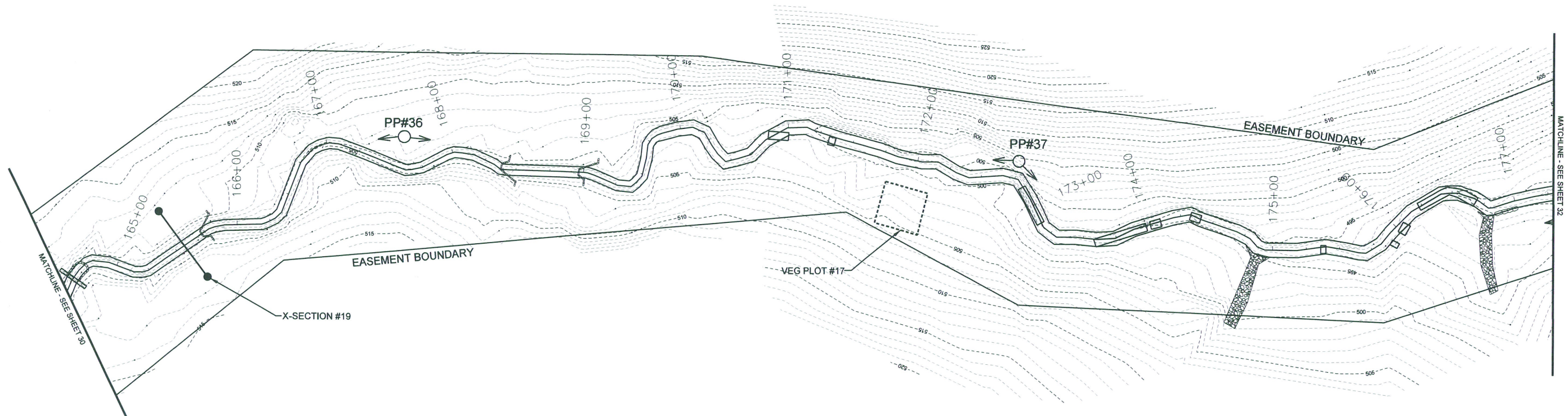
A SUBMITTED WITH MITIGATION PLAN
 MAR 2009

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

CANE CREEK
STREAM RESTORATION PROJECT
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T7-3: STATION 151+57 TO STATION 164+50

DATE: MAR 2009
 SCALE: 1"=80'

MONITORING
PLAN VIEW



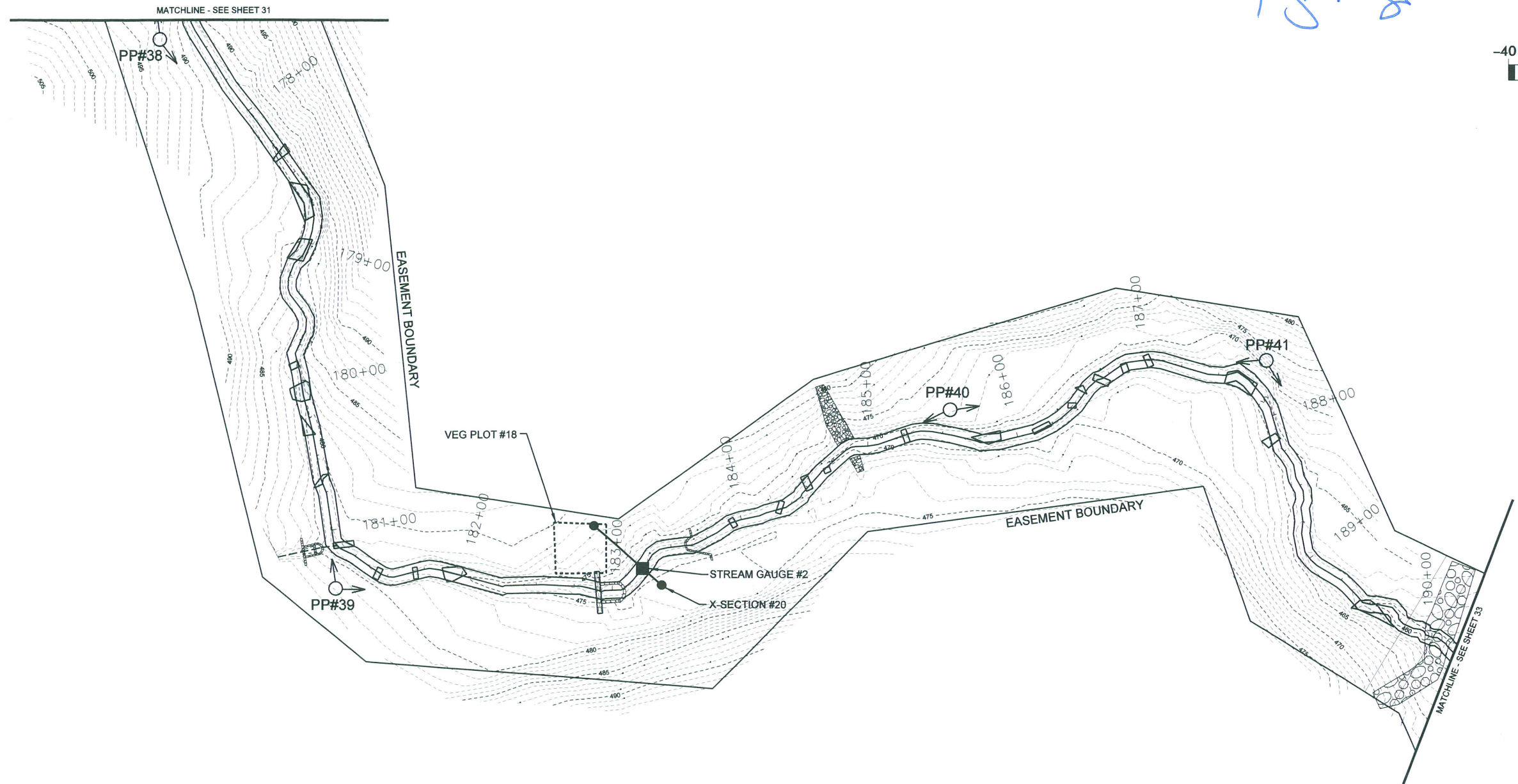
SUBMITTED WITH MITIGATION PLAN		REVISIONS	
NO.	DATE	SYMBOL	DESCRIPTION
1	MAR 2009		

DATE: MAR 2009
SCALE: 1"=80'

KCI TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS
4601 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

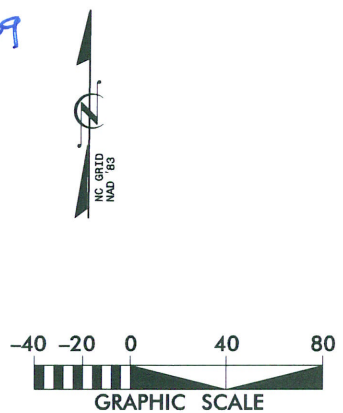
**CANE CREEK
STREAM RESTORATION PROJECT**
SEMORA, PERSON COUNTY, NORTH CAROLINA
T7-3, T7-4: STATION 16+50 TO STATION 177+29

DATE: MAR 2009
SCALE: 1"=80'
**MONITORING
PLAN VIEW**
SHEET 31 OF 35



NORTH CAROLINA
 PROFESSIONAL
 SEAL
 32733
 ENGINEER
 MICHAEL MRYNCZA

03.11.09



SUBMITTED WITH MITIGATION PLAN	REVISIONS
MAR 2009	DATE
	DESCRIPTION
	DATE
	APPROVED

KCI
TECHNOLOGIES

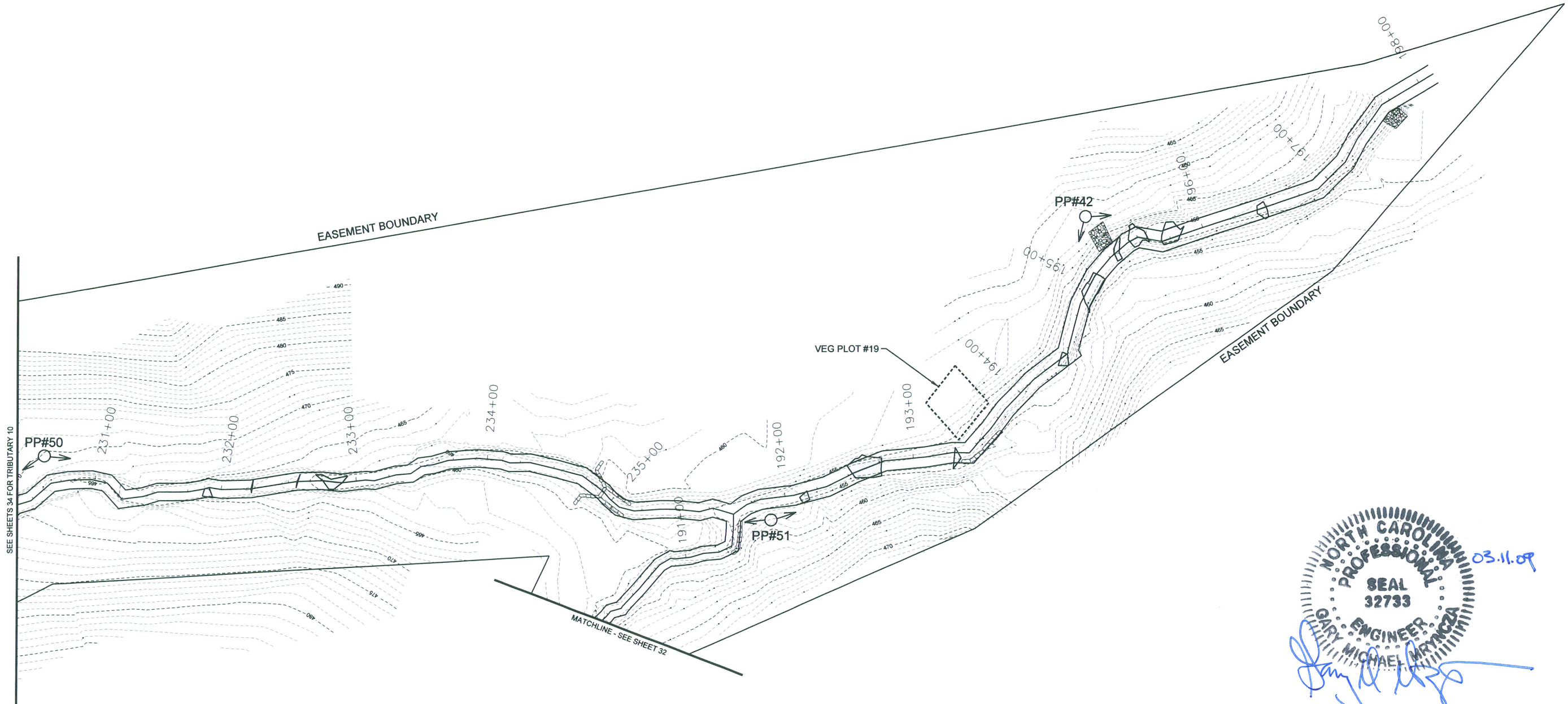
ENGINEERS • PLANNERS • SCIENTISTS

460 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T7-4, T7-5, T7-6: STATION 177+29 TO STATION 190+18

DATE: MAR 2009
 SCALE: 1"=80'

MONITORING
 PLAN VIEW



SEE SHEETS 34 FOR TRIBUTARY 10

EASEMENT BOUNDARY

EASEMENT BOUNDARY

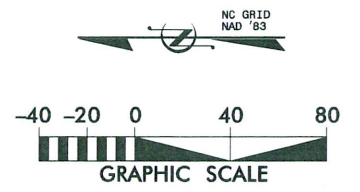
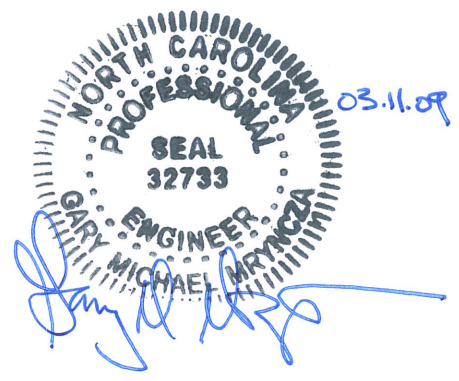
VEG PLOT #19

PP#50

PP#51

PP#42

MATCHLINE - SEE SHEET 32



NO.	DATE	DESCRIPTION	BY	APP'D
1	MAR 2009	SUBMITTED WITH MITIGATION PLAN		

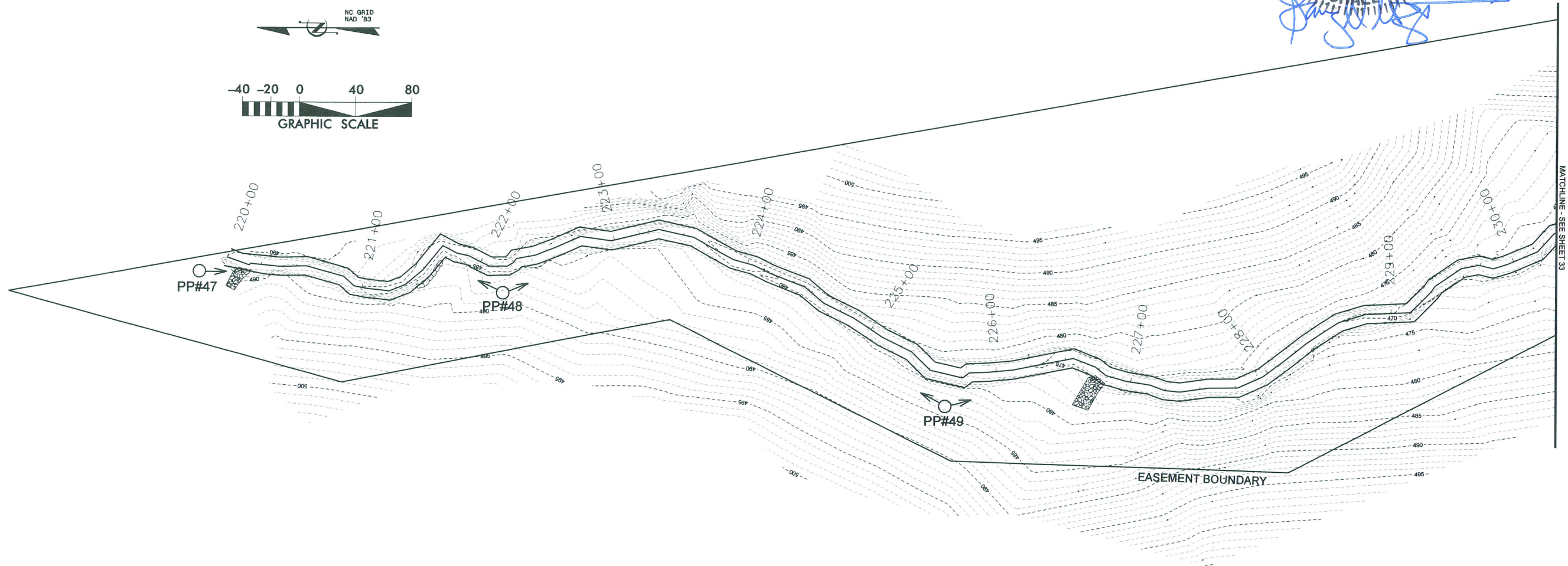
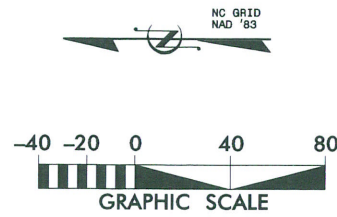
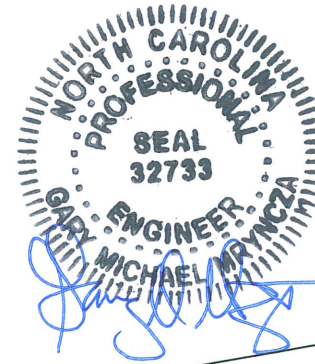
REVISIONS

KCI
 TECHNOLOGIES
 ENGINEERS • PLANNERS • SCIENTISTS
 4601 SIX FORKS ROAD
 RALEIGH, NORTH CAROLINA 27609

**CANE CREEK
 STREAM RESTORATION PROJECT**
 SEMORA, PERSON COUNTY, NORTH CAROLINA
 T7-6, T7-7, AND T10: STA 190+18 TO 198+13
 AND STA 230+37 TO 235+91

DATE: MAR 2009
 SCALE: 1"=80'

MONITORING
 PLAN VIEW



**CANE CREEK
STREAM RESTORATION PROJECT**
SEMORA, PERSON COUNTY, NORTH CAROLINA
T10: STATION 220+00 TO STATION 230+37

DATE: MAR 2009
SCALE: 1"=80'

MONITORING
PLAN VIEW

SHEET 34 OF 35

A SUBMITTED WITH MITIGATION PLAN

REVISIONS

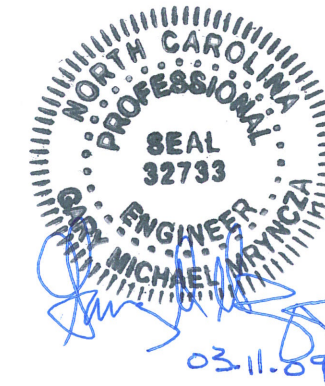
NO.	DATE	DESCRIPTION

MAR 2009

APPROVED

AS-BUILT PLANTING PLAN AND SPECIES COMPOSITION

THERE ARE TWO DISTINCT PLANTING ZONES ON THE RESTORATION SITE. THE FIRST IS THE STREAM ZONE, WHICH OCCURS FROM THE BOTTOM OF THE BANK TO THE TOP OF THE BANK WITHIN THE LIMITS OF THE RESTORED BANKFULL CHANNEL. THE SECOND PLANTING ZONE IS THE RIPARIAN BUFFER, WHICH STARTS AT THE TOP OF THE BANK OF THE BANKFULL CHANNEL AND CONTINUES TO THE CONSERVATION EASEMENT BOUNDARY. THIS ZONE CONSISTS OF A GRADATION FROM A PIEDMONT ALLUVIAL FOREST COMMUNITY TYPE CLOSE TO THE STREAM TO A MESIC MIXED HARDWOOD FOREST COMMUNITY TYPE AS THE ELEVATION INCREASES WITHIN THE CONSERVATION EASEMENT. THE LIVE STAKES WERE INSTALLED ON THREE FOOT CENTERS AND THE RIPARIAN BUFFER WAS PLANTED AT A DENSITY OF 680 STEMS PER ACRE. THE SPECIES PLANTED IN EACH ZONE ARE DESCRIBED BELOW, WITH THE RIPARIAN BUFFER SPECIES DIVIDED BY COMMUNITY TYPE IN WHICH THEY WOULD COMMONLY OCCUR. AREAS OF THE SITE THAT WERE NOT CLEARED WERE NOT PLANTED.



STREAM ZONE = 3.9 ACRES

LIVE STAKES: 1.5' TO 2' LENGTHS, 1/2" TO 2" DIAMETER
3' CENTER SPACING, RANDOM SPECIES PLACEMENT

COMMON NAME	SCIENTIFIC NAME
BLACK WILLOW	SALIX NIGRA
SILKY WILLOW	SALIX SERICEA
SILKY DOGWOOD	CORNUS AMOMUM
ELDERBERRY	SAMBUCUS CANADENSIS

NOTE: NO SINGLE LIVE STAKING SPECIES COMPOSES MORE THAN 40% OF THE TOTAL NUMBER OF LIVE STAKES INSTALLED

RIPARIAN BUFFER PLANTING ZONE = 29.0 ACRES

12" - 18" BARE ROOT MATERIAL
680 STEMS/ACRE (8' X 8' SPACING), RANDOM SPECIES PLACEMENT

PIEDMONT ALLUVIAL FOREST COMMUNITY

COMMON NAME	SCIENTIFIC NAME
GREEN ASH	FRAXINUS PENNSYLVANICA
BEAUTYBERRY	CALLICARPA AMERICANA
SYCAMORE	PLATANUS OCCIDENTALIS
RIVER BIRCH	BETULA NIGRA
SWAMP CHESTNUT OAK	QUERCUS MICHAUXII
WILLOW OAK	QUERCUS PHELLOS
PERSIMMON	DIOSPYROS VIRGINIANA
SILKY DOGWOOD	CORNUS AMOMUM
SWAMP BLACKGUM	NYSSA BIFLORA
YELLOW POPLAR	LIRIODENDRON TULIPIFERA

MESIC MIXED HARDWOOD FOREST COMMUNITY

COMMON NAME	SCIENTIFIC NAME
PERSIMMON	DIOSPYROS VIRGINIANA
SHAGBARK HICKORY	CARYA OVATA
S. RED OAK	QUERCUS FALCATA
BLACK WALNUT	JUGLANS NIGRA
PAWPAW	ASIMINA TRILOBA
TULIP POPLAR	LIRIODENDRON TULIPIFERA

SUBMITTED WITH MITIGATION PLAN		REVISIONS	
A		DATE	APPROVED
 ENGINEERS • PLANNERS • SCIENTISTS 460 SIX FORKS ROAD RALEIGH, NORTH CAROLINA 27609			
CANE CREEK STREAM RESTORATION PROJECT SEMORA, PERSON COUNTY, NORTH CAROLINA			
DATE: MAR 2009			
SCALE: 1"=80'			
AS-BUILT PLANTING PLAN			
SHEET 35 OF 35			