

CERTIFICATE OF SURVEY AND ACCURACY

I, **DREW VAN DUINKERKEN** 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 THIS SURVEY WAS PERFORMED AT THE 95% CONFIDENCE LEVEL TO MEET THE FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO THE CLASS A HORIZONTAL AND CLASS C VERTICAL WHERE APPLICABLE; THAT THE ORIGINAL DATA WAS OBTAINED BETWEEN THE DATES OF **12/19/19 - 4/1/20**; 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 BASED ON NAVD 88; THAT THE GPS PORTION OF THIS PROJECT WAS TO PERFORM A GRID TIE TO THE NC STATE PLANE COORDINATE SYSTEM AND INFORMATION USED IS SHOWN & NOTED HEREON; 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.

GPS METADATA

SEE SURVEY CONTROL MAP FOR EW SOLUTIONS, LLC BY KEE MAPPING & SURVEYING, PA (LICENSE # C-3039); SIGNED, SEALED AND DATED ON NOVEMBER 10TH, 2017 BY NOLAN R. CARMACK, NC PLS (LICENSE #5076).

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 23RD DAY OF APRIL, 2020, A.D.

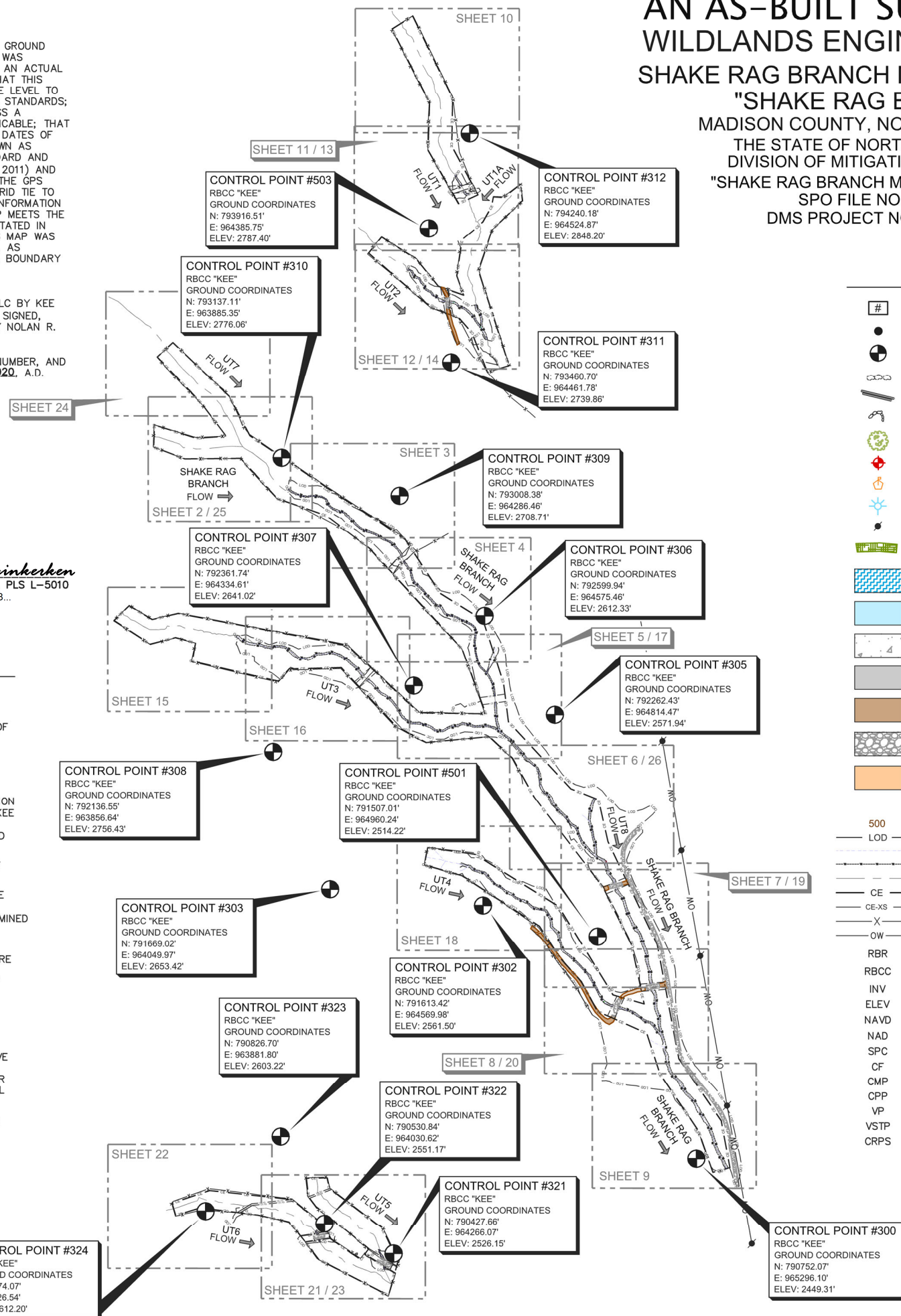
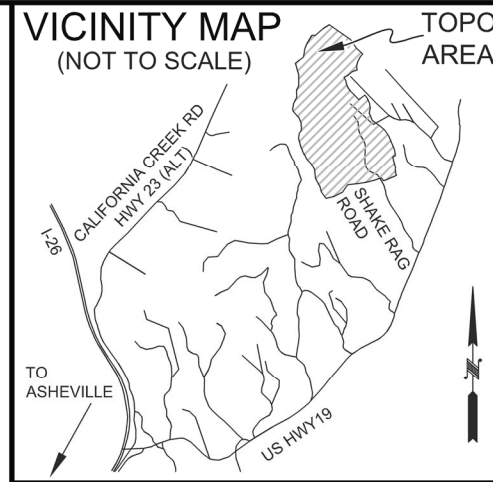
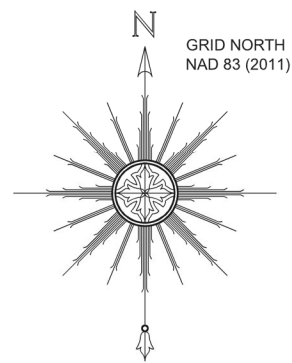


DocuSigned by:
Drew V. Duinkerken
DREW VAN DUINKERKEN, PLS L-5010
56DF6592ABFF4B8...

SURVEYOR'S NOTES

- ALL DISTANCES AND COORDINATES ARE GROUND MEASUREMENTS IN US SURVEY FEET UNLESS OTHERWISE NOTED.
- PROPERTY SUBJECT TO ALL EASEMENTS, RIGHT OF WAYS AND RESTRICTIONS THAT ARE RECORDED, UNRECORDED, WRITTEN AND UNWRITTEN.
- CONSERVATION EASEMENT BOUNDARIES SHOWN HEREON WERE TAKEN FROM PLATS OF SURVEY ENTITLED: "CONSERVATION EASEMENT FOR THE STATE OF NORTH CAROLINA, DIVISION OF MITIGATION SERVICES, SHAKE RAG BRANCH", PREPARED BY KEE MAPPING & SURVEYING, DATED MARCH 26, 2019 AND RECORDED IN PLAT BOOK 8, PAGES 931 AND 932 OF THE MADISON COUNTY REGISTRY.
- MADISON COUNTY GIS WEBSITE USED TO IDENTIFY ADJOINING PROPERTY OWNERS.
- BY GRAPHIC DETERMINATION, NO PORTION OF THE SUBJECT PROPERTY APPEARS TO LIE WITHIN A SPECIAL FLOOD HAZARD AREA (SFHA) AS DETERMINED BY THE F.E.M.A. MAP# 3700976900J DATED 6/2/2009.
- STATE PLANE COORDINATES AND ELEVATIONS WERE DERIVED FROM THE CONTROL & EXISTING CONDITIONS TOPOGRAPHIC SURVEY PREPARED BY KEE MAPPING & SURVEYING. THE HORIZONTAL DATUM IS NAD 83 (2011) AND THE VERTICAL DATUM IS NAVD(88). ALL COORDINATES SHOWN HEREON ARE GROUND MEASUREMENTS IN US SURVEY FEET.
- UTILITIES WERE LOCATED BASED ON VISIBLE ABOVE GROUND STRUCTURES, THEREFORE THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE OR MAY BE PRESENT AND NOT SHOWN HEREON. CALL 1-800-632-4949 BEFORE DIGGING.
- STATIONING FOR PLAN AND PROFILES ARE BASED OFF OF DESIGN CENTERLINES PROVIDED BY WILDLANDS ENGINEERING, INC
- CONTOUR INTERVAL: 1 FOOT
VERTICAL DATUM: NAVD 88
- AREA OF LIMITS OF DISTURBANCE: 12.65 ACRES

AN AS-BUILT SURVEY FOR: WILDLANDS ENGINEERING, INC SHAKE RAG BRANCH MITIGATION SITE "SHAKE RAG BRANCH" MADISON COUNTY, NORTH CAROLINA THE STATE OF NORTH CAROLINA, DIVISION OF MITIGATION SERVICES "SHAKE RAG BRANCH MITIGATION SITE" SPO FILE NO. 57-T DMS PROJECT NO. 100018



LEGEND

- # STRUCTURE NUMBER
- 1/2" RBR (CROSS-SECTION REBAR)
- ⊕ 5/8" RBR W/ "KEE CONTROL" CAP SET IN CONCRETE
- BOULDER SILL
- LUNKER LOG
- ROCK DROP W/ VSTP
- DECIDUOUS TREE (AS NOTED)
- GAUGE (AS NOTED)
- PHOTO POINT
- SPRINGHEAD
- UTILITY POLE
- BRUSH TOE
- RIFFLE
- POOL/WATER
- GRAVEL
- ASPHALT
- SOIL ROAD
- RIP RAP / ROCK
- BEDROCK
- 500 MINOR CONTOUR
- LOD MAJOR CONTOUR
- LIMITS OF DISTURBANCE
- THALWEG
- TOP OF BANK
- DESIGN CENTERLINE
- CE CONSERVATION EASEMENT
- CE-XS INTERNAL CROSSING
- X FENCE
- OW OVERHEAD WIRE
- RBR REBAR
- RBCC 5/8" REBAR W/ CAP IN CONCRETE
- INV INVERT
- ELEV ELEVATION
- NAVD NORTH AMERICAN VERTICAL DATUM
- NAD NORTH AMERICAN DATUM
- SPC STATE PLANE COORDINATES
- CF COMBINED FACTOR
- CMP CORRUGATED METAL PIPE
- CPP CORRUGATED PLASTIC PIPE
- VP VEGETATION PLOT
- VSTP VEGETATED STONE TOE PROTECTION
- CRPS CASCADE RIFFLE POOL SEQUENCE

SHEET #	SHEET TITLE
1	COVER SHEET- "SHAKE RAG BRANCH MITIGATION SITE - SHAKE RAG BRANCH"
2	STREAM DATA: "SHAKE RAG BRANCH - REACH 1, REACH 2; BEGIN SHAKE RAG BRANCH - REACH 3"
3	STREAM DATA: "SHAKE RAG BRANCH - REACH 3"
4	STREAM DATA: "SHAKE RAG BRANCH - REACH 3"
5	STREAM DATA: "SHAKE RAG BRANCH - REACH 3"
6	STREAM DATA: "END SHAKE RAG BRANCH - REACH 3; SHAKE RAG BRANCH - REACH 4; BEGIN SHAKE RAG BRANCH - REACH 5"
7	STREAM DATA: "SHAKE RAG BRANCH - REACH 5"
8	STREAM DATA: "SHAKE RAG BRANCH - REACH 5"
9	STREAM DATA: "END SHAKE RAG BRANCH - REACH 5"
10	STREAM DATA: "UT1 - REACH 1"
11	STREAM DATA: "UT1 - REACH 1; UT1A"
12	STREAM DATA: "END UT1 - REACH 1; BEGIN UT1 - REACH 2; END UT1"
13	STREAM DATA: "BEGIN UT2 - REACH 1"
14	STREAM DATA: "END UT2 - REACH 1; BEGIN UT2 - REACH 2; END UT2"
15	STREAM DATA: "BEGIN UT5 - REACH 1; END UT3 - REACH 1; BEGIN UT3 - REACH 2"
16	STREAM DATA: "UT3 - REACH 2"
17	STREAM DATA: "END UT3"
18	STREAM DATA: "BEGIN UT4"
19	STREAM DATA: "UT4"
20	STREAM DATA: "END UT4"
21	STREAM DATA: "UT5"
22	STREAM DATA: "BEGIN UT6"
23	STREAM DATA: "END UT6"
24	STREAM DATA: "BEGIN UT7"
25	STREAM DATA: "END UT7"
26	STREAM DATA: "UT8"
27	STREAM DATA: "CROSS SECTIONS 1-6"
28	STREAM DATA: "CROSS SECTIONS 7-13"
29	STREAM DATA: "LONGITUDINAL PROFILE: SHAKE RAG"
30	STREAM DATA: "LONGITUDINAL PROFILE: SHAKE RAG"
31	STREAM DATA: "LONGITUDINAL PROFILE: SHAKE RAG"
32	STREAM DATA: "LONGITUDINAL PROFILES: SHAKE RAG"
33	STREAM DATA: "LONGITUDINAL PROFILES: SHAKE RAG & UT1"
34	STREAM DATA: "LONGITUDINAL PROFILE: UT2"
35	STREAM DATA: "LONGITUDINAL PROFILE: UT3"
36	STREAM DATA: "LONGITUDINAL PROFILE: UT3"
37	STREAM DATA: "LONGITUDINAL PROFILE: UT3"
38	STREAM DATA: "LONGITUDINAL PROFILE: UT4"
39	STREAM DATA: "LONGITUDINAL PROFILES: UT4 & UT8"

THIS MAP IS NOT FOR RECORDATION, SALES, OR CONVEYANCES AND DOES NOT COMPLY WITH G.S. 47-30 MAPPING REQUIREMENTS.

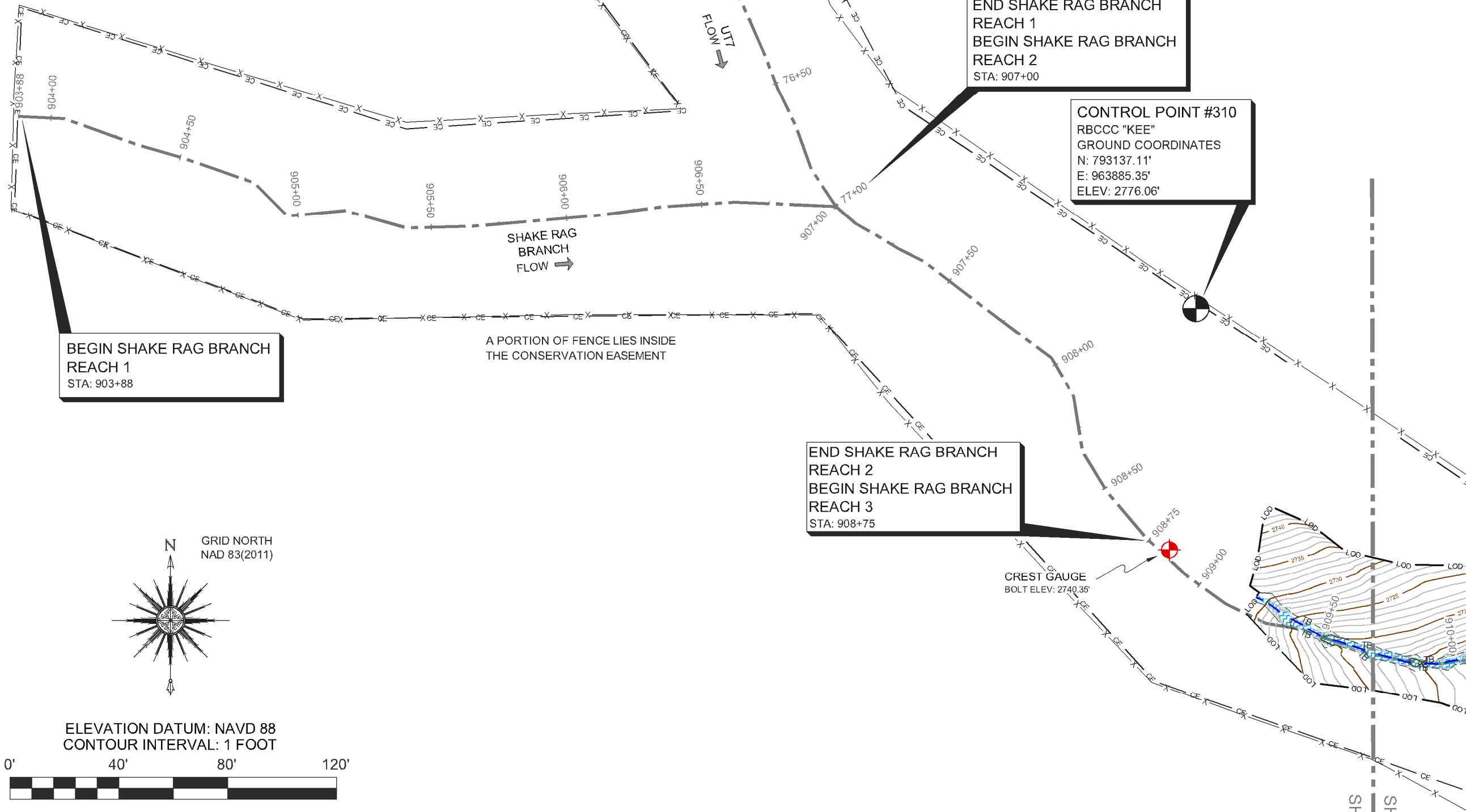


SHEET SIZE: 11"X 17" (HALF SIZE)

SHEET:
1 OF 39

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SHEET 24
SHEET 2 / 25

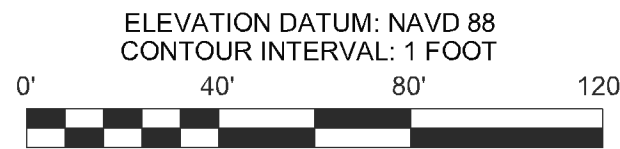
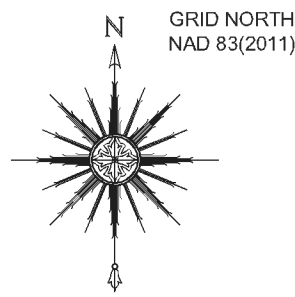


INTERSECTION
 END UT7
 STA: 77+00
 END SHAKE RAG BRANCH
 REACH 1
 BEGIN SHAKE RAG BRANCH
 REACH 2
 STA: 907+00

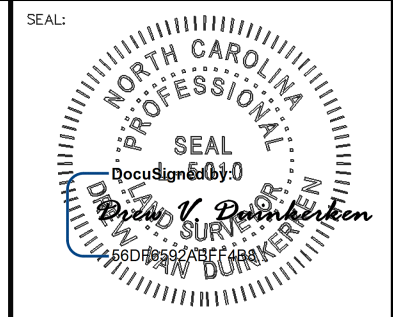
CONTROL POINT #310
 RBCCC "KEE"
 GROUND COORDINATES
 N: 793137.11'
 E: 963885.35'
 ELEV: 2776.06'

**BEGIN SHAKE RAG BRANCH
 REACH 1**
 STA: 903+88

**END SHAKE RAG BRANCH
 REACH 2**
**BEGIN SHAKE RAG BRANCH
 REACH 3**
 STA: 908+75



ONE INCH = TWENTY FEET (FULL SIZE)
 ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
 NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH**

SHEET TITLE:
 SHAKE RAG BRANCH -
 REACH 1, REACH 2
 BEGIN SHAKE RAG BRANCH -
 REACH 3

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

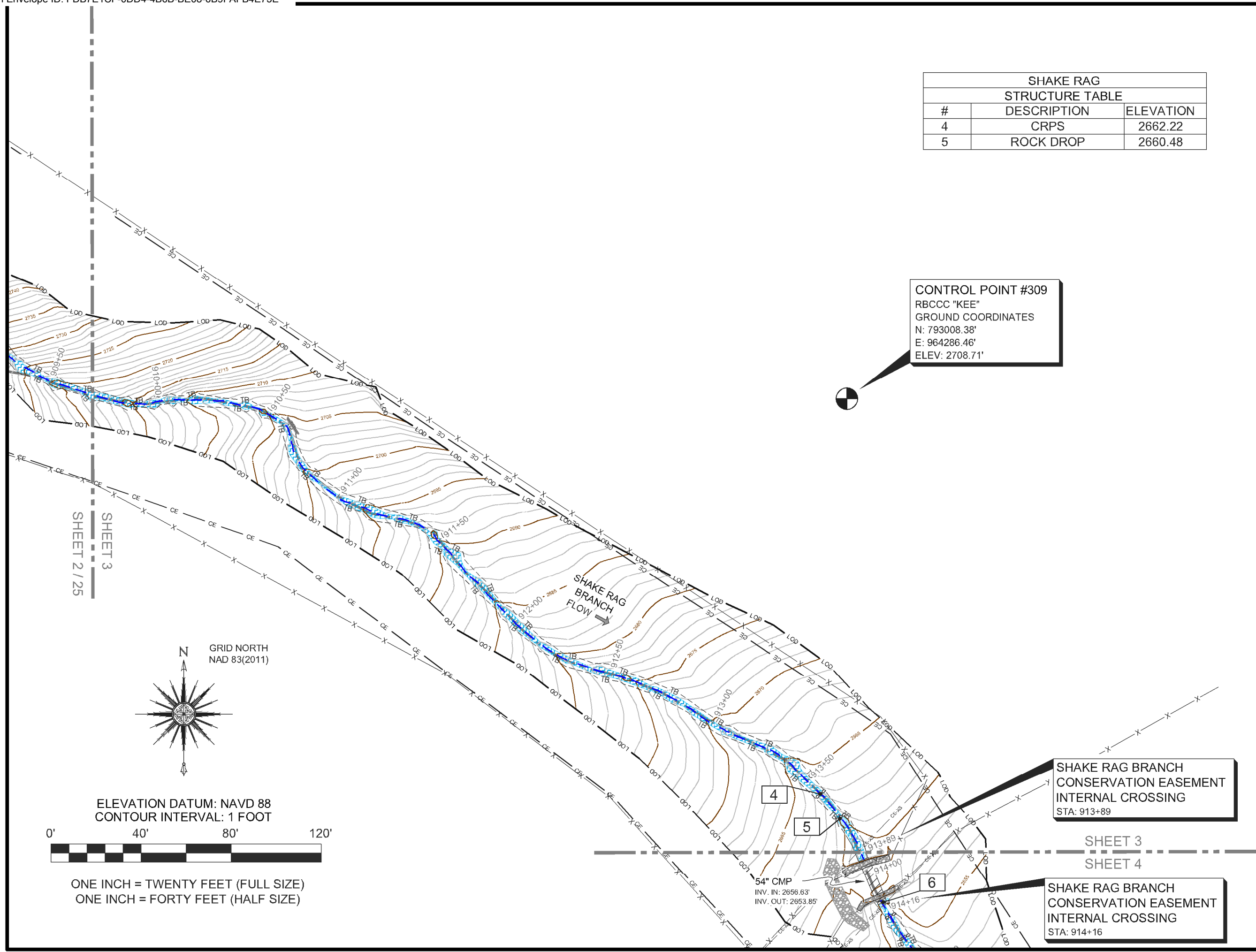
SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:
2 OF 39



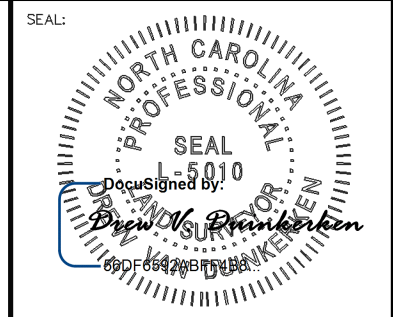
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SHEET 3
 SHEET 2 / 25



SHAKE RAG		
STRUCTURE TABLE		
#	DESCRIPTION	ELEVATION
4	CRPS	2662.22
5	ROCK DROP	2660.48

CONTROL POINT #309
 RBCCC "KEE"
 GROUND COORDINATES
 N: 793008.38'
 E: 964286.46'
 ELEV: 2708.71'



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
 NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 SHAKE RAG BRANCH - REACH 3

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

SHEET:
3 OF **39**



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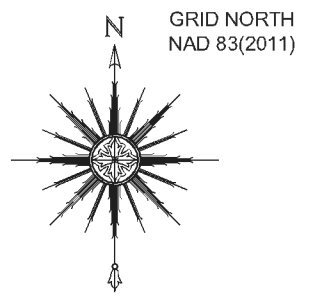
SHAKE RAG BRANCH
 CONSERVATION EASEMENT
 INTERNAL CROSSING
 STA: 913+89

SHAKE RAG BRANCH
 CONSERVATION EASEMENT
 INTERNAL CROSSING
 STA: 914+16

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

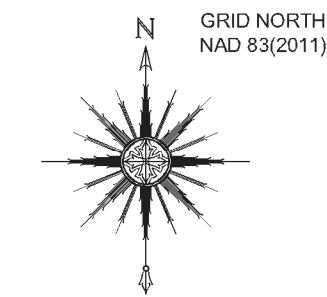
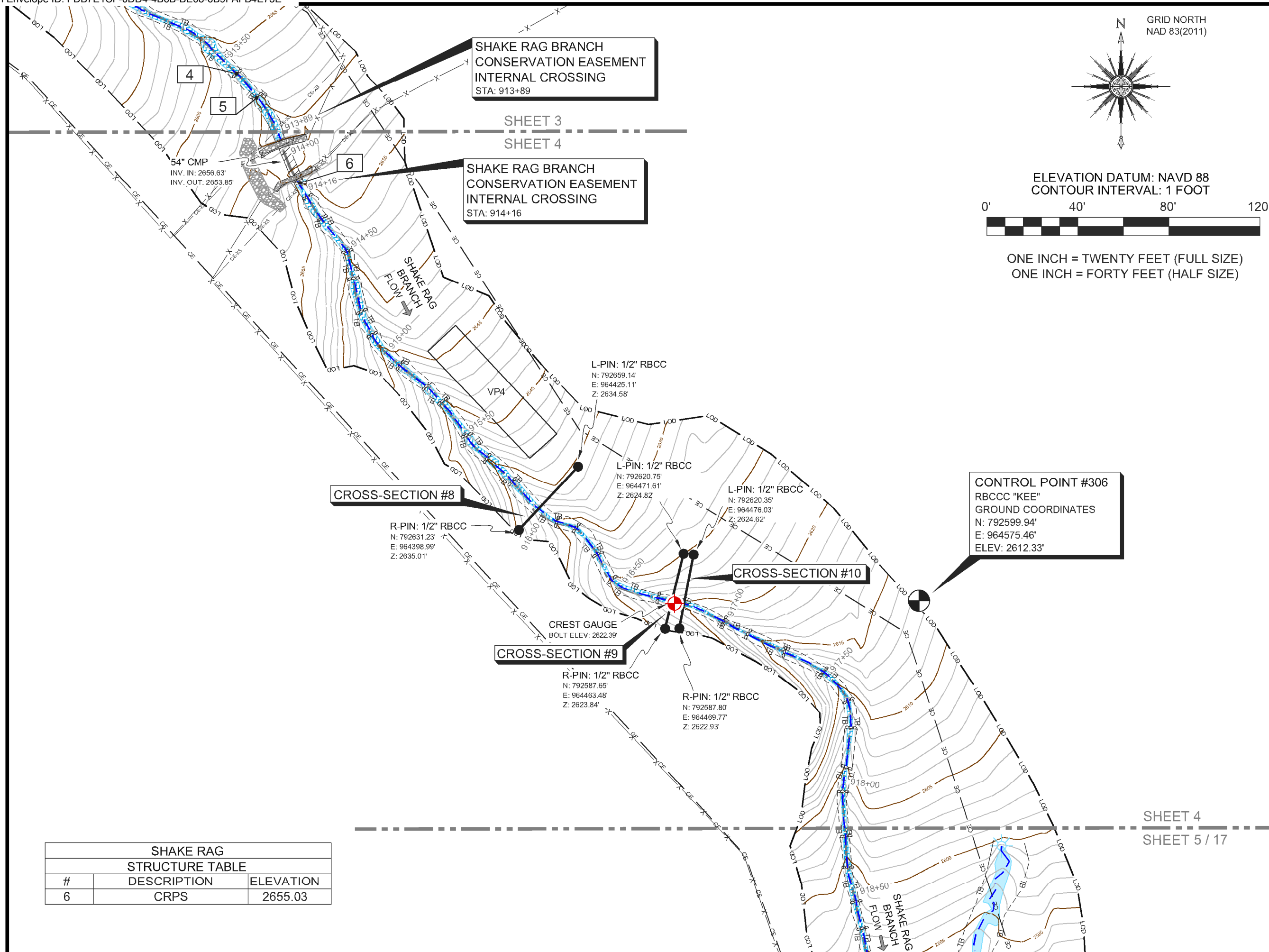
0' 40' 80' 120'

ONE INCH = TWENTY FEET (FULL SIZE)
 ONE INCH = FORTY FEET (HALF SIZE)



SHEET 3
 SHEET 2 / 25

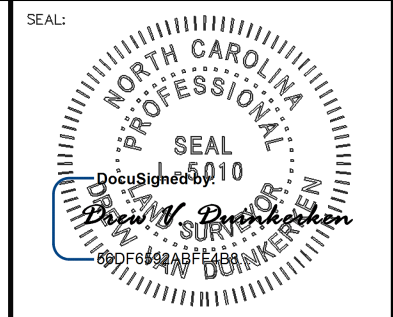
SHEET 3
 SHEET 4



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

0' 40' 80' 120'

ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
SHAKE RAG BRANCH - REACH 3

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE:
AS SHOWN

SURVEY DATES:
12/19/19 - 04/01/20

JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:
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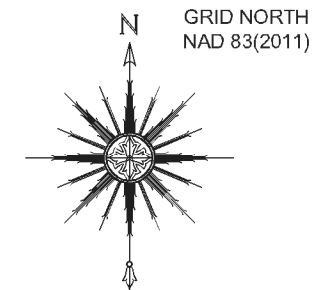
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#	DESCRIPTION	ELEVATION
6	CRPS	2655.03

SHEET 4
SHEET 5 / 17

SHAKE RAG STRUCTURE TABLE		
#	DESCRIPTION	ELEVATION
7	CRPS	2585.83
8	ROCK DROP	2584.00
9	ROCK DROP	2582.39
10	ROCK DROP	2579.91

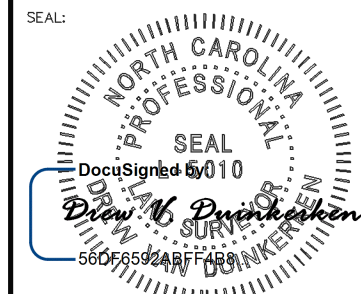
SHEET 4
SHEET 5 / 17



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
SHAKE RAG BRANCH - REACH 3

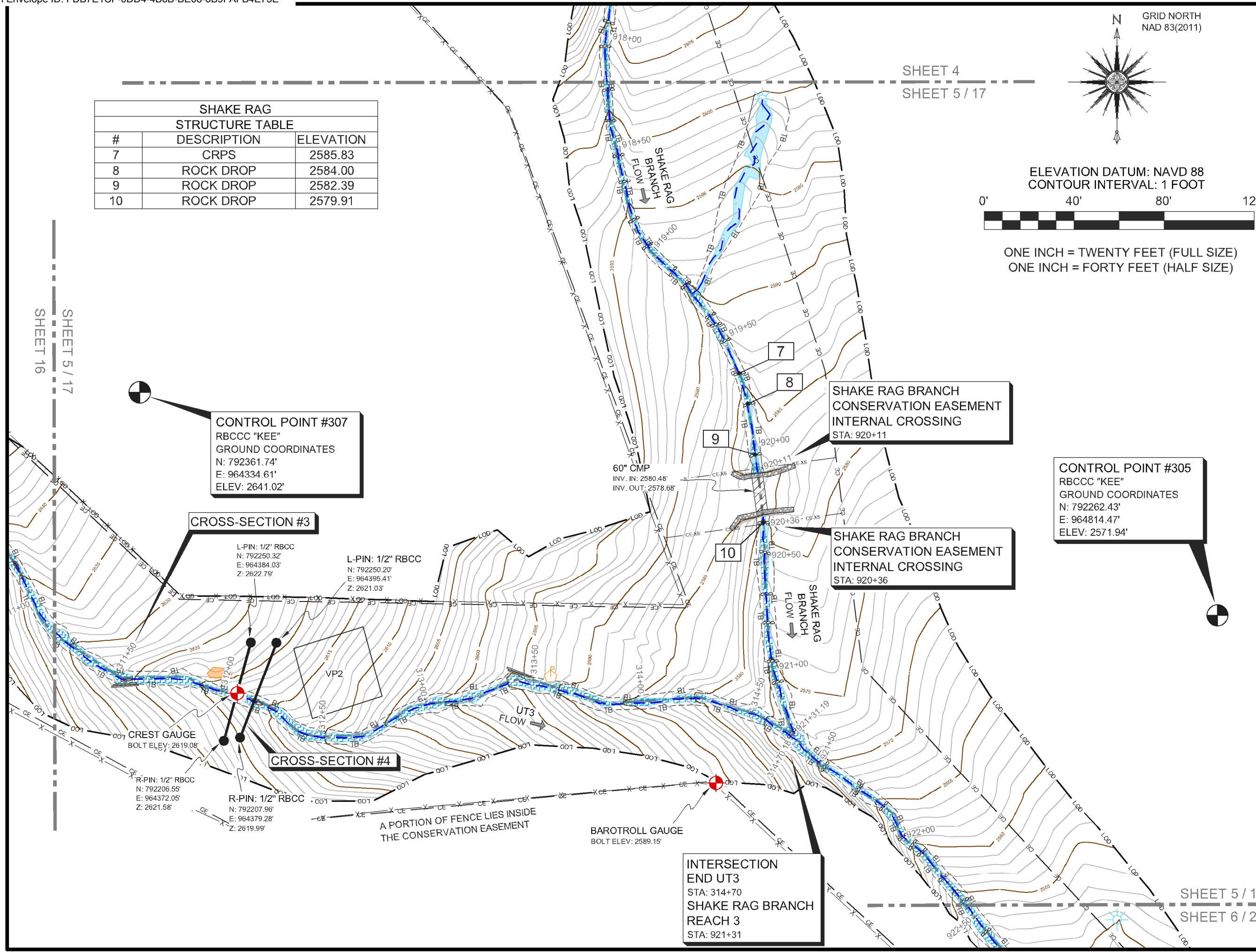
TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:
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CONTROL POINT #307
RBCC "KEE"
GROUND COORDINATES
N: 792361.74'
E: 964334.61'
ELEV: 2641.02'

CROSS-SECTION #3

L-PIN: 1/2" RBCC
N: 792250.32'
E: 964384.03'
Z: 2622.79'

L-PIN: 1/2" RBCC
N: 792250.20'
E: 964395.41'
Z: 2621.03'

CREST GAUGE
BOLT ELEV: 2619.08'

CROSS-SECTION #4

R-PIN: 1/2" RBCC
N: 792206.55'
E: 964372.05'
Z: 2621.58'

R-PIN: 1/2" RBCC
N: 792207.96'
E: 964379.28'
Z: 2619.99'

A PORTION OF FENCE LIES INSIDE
THE CONSERVATION EASEMENT

BAROTROLL GAUGE
BOLT ELEV: 2589.15'

**INTERSECTION
END UT3**
STA: 314+70
SHAKE RAG BRANCH
REACH 3
STA: 921+31

**SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING**
STA: 920+11

**SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING**
STA: 920+36

CONTROL POINT #305
RBCC "KEE"
GROUND COORDINATES
N: 792262.43'
E: 964814.47'
ELEV: 2571.94'

SHEET 5 / 17
SHEET 6 / 26

SHEET 5 / 17
SHEET 6 / 26

SHAKE RAG STRUCTURE TABLE		
#	DESCRIPTION	ELEVATION
11	ROCK DROP	2533.74
12	ROCK DROP	2532.51
13	ROCK DROP	2530.31
14	ROCK DROP	2529.53
15	ROCK DROP	2523.36
16	ROCK DROP	2522.73
17	ROCK DROP	2514.47
18	ROCK DROP	2512.91
19	ROCK DROP	2512.10
20	ROCK DROP W/ VSTP	2511.80

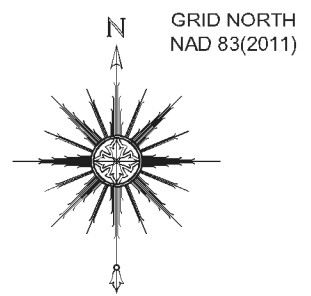
END SHAKE RAG BRANCH
REACH 3
BEGIN SHAKE RAG BRANCH
REACH 4
STA: 923+18

BEGIN UT8
STA: 800+00

CROSS-SECTION #11

CROSS-SECTION #7

INTERSECTION
END UT8
STA: 802+06
END SHAKE RAG BRANCH
REACH 4
BEGIN SHAKE RAG BRANCH
REACH 5
STA: 927+03

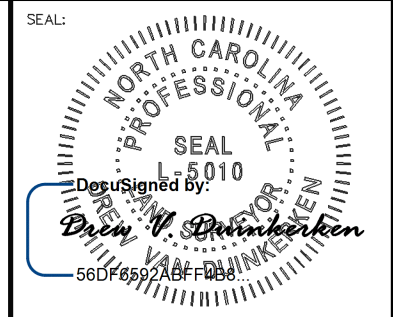


GRID NORTH
NAD 83(2011)

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



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NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
END SHAKE RAG BRANCH - REACH 3
SHAKE RAG BRANCH - REACH 4
BEGIN SHAKE RAG BRANCH - REACH 5

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

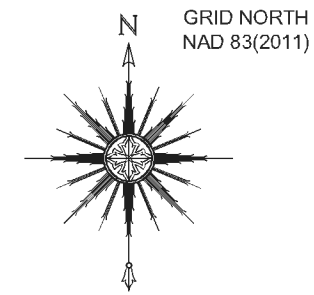
#	DATE	REVISIONS

SHEET:
6 OF **39**

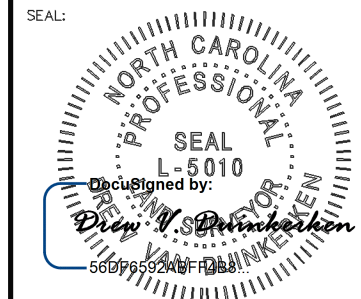


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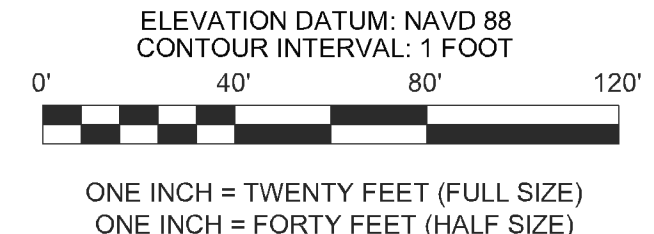
SHEET 6 / 26
SHEET 7 / 19



GRID NORTH
NAD 83(2011)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH**

SHEET TITLE:
SHAKE RAG BRANCH - REACH 5

SHAKE RAG STRUCTURE TABLE		
21	ROCK DROP	2510.37
22	ROCK DROP	2509.51
23	ROCK DROP	2508.06
24	ROCK DROP W/ VSTP	2505.53
25	ROCK DROP	2504.10
26	ROCK DROP	2503.69
27	ROCK DROP	2502.40
28	ROCK DROP	2500.91
29	ROCK DROP	2499.78
30	ROCK DROP	2497.69
31	ROCK DROP	2496.96
32	ROCK DROP	2496.14
33	ROCK DROP	2494.45
34	ROCK DROP	2493.58
35	ROCK DROP	2492.47
36	ROCK DROP W/ VSTP	2489.92
37	ROCK DROP	2488.88
38	ROCK DROP	2487.78
39	ROCK DROP	2486.24
40	ROCK DROP	2484.49

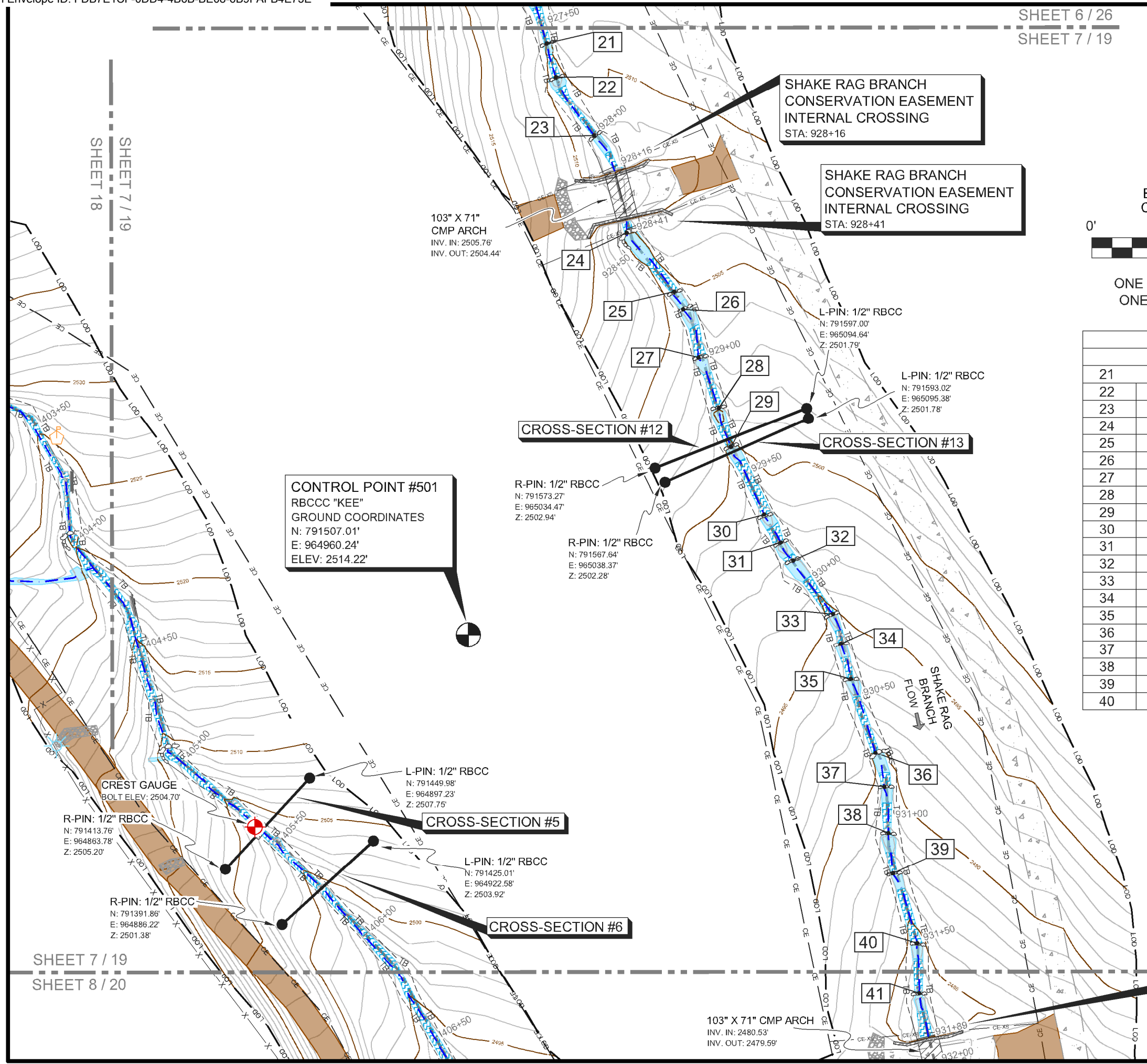
TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:
7 OF **39**



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SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 928+16

SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 928+41

CONTROL POINT #501
RBCCC "KEE"
GROUND COORDINATES
N: 791507.01'
E: 964960.24'
ELEV: 2514.22'

CROSS-SECTION #12

CROSS-SECTION #13

CROSS-SECTION #5

CROSS-SECTION #6

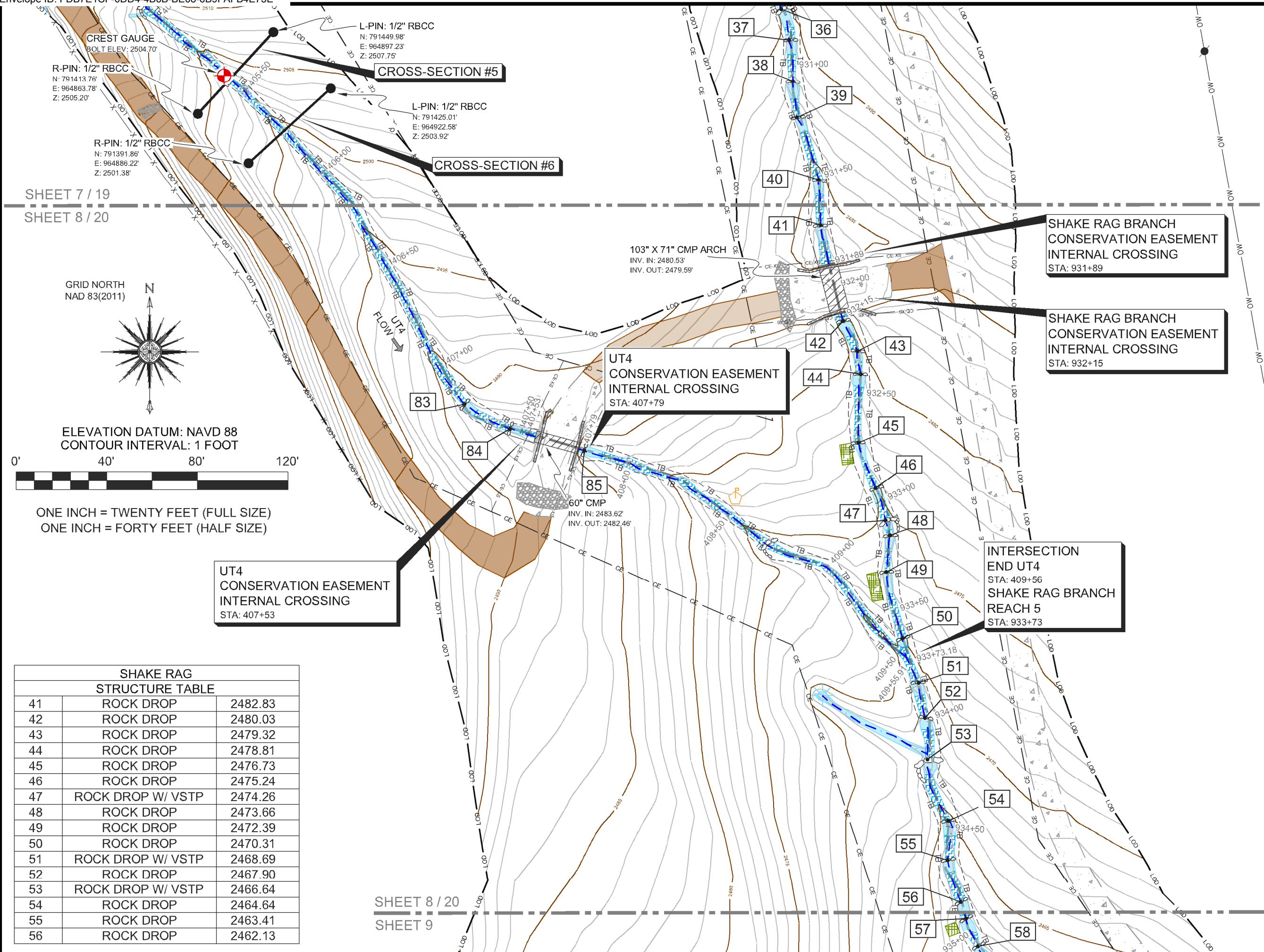
SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 931+89

103" X 71" CMP ARCH
INV. IN: 2480.53'
INV. OUT: 2479.59'

103" X 71" CMP ARCH
INV. IN: 2505.76'
INV. OUT: 2504.44'

SHEET 7 / 19
SHEET 18

SHEET 7 / 19
SHEET 8 / 20



SEAL:

DocuSigned by:
Drew W. Brinkman
56079592ABFB88

PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
SHAKE RAG BRANCH - REACH 5

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

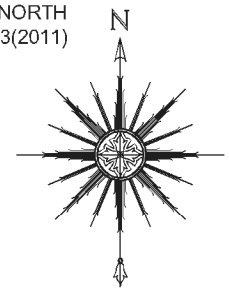
SHEET:
8 OF **39**



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SHEET 7 / 19
SHEET 8 / 20

GRID NORTH
NAD 83(2011)



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)

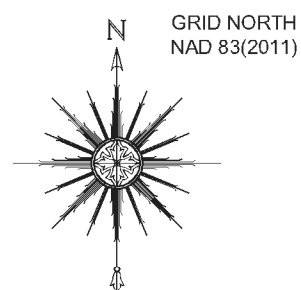
SHAKE RAG STRUCTURE TABLE		
41	ROCK DROP	2482.83
42	ROCK DROP	2480.03
43	ROCK DROP	2479.32
44	ROCK DROP	2478.81
45	ROCK DROP	2476.73
46	ROCK DROP	2475.24
47	ROCK DROP W/ VSTP	2474.26
48	ROCK DROP	2473.66
49	ROCK DROP	2472.39
50	ROCK DROP	2470.31
51	ROCK DROP W/ VSTP	2468.69
52	ROCK DROP	2467.90
53	ROCK DROP W/ VSTP	2466.64
54	ROCK DROP	2464.64
55	ROCK DROP	2463.41
56	ROCK DROP	2462.13

SHEET 8 / 20
SHEET 9

SHEET 8 / 20

SHEET 9

SHAKE RAG STRUCTURE TABLE		
57	ROCK DROP	2461.73
58	ROCK DROP	2460.66
59	ROCK DROP	2459.84
60	ROCK DROP	2457.66
61	ROCK DROP	2456.12
62	ROCK DROP	2453.08
63	ROCK DROP	2452.22
64	ROCK DROP	2450.10
65	ROCK DROP	2449.12
66	ROCK DROP	2447.80
67	ROCK DROP	2446.61
68	ROCK DROP	2444.75
69	ROCK DROP	2443.28
70	ROCK DROP	2442.12
71	ROCK DROP	2441.15
72	ROCK DROP	2439.26
73	ROCK DROP	2438.54
74	ROCK DROP	2437.59
75	ROCK DROP	2436.20
76	ROCK DROP	2435.21



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

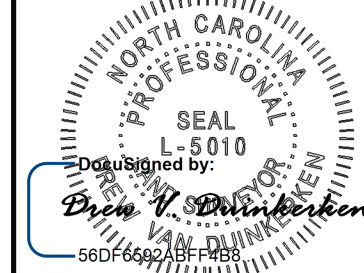


ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)

CONTROL POINT #300
RBCC "KEE"
GROUND COORDINATES
N: 790752.07'
E: 965296.10'
ELEV: 2449.31'

END SHAKE RAG BRANCH
REACH 5
STA: 938+88

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
END SHAKE RAG BRANCH - REACH 5

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN
SURVEY DATES: 12/19/19 - 04/01/20

JOB: #190881-AB
SHEET SIZE: 11" X 17" (HALF SIZE)

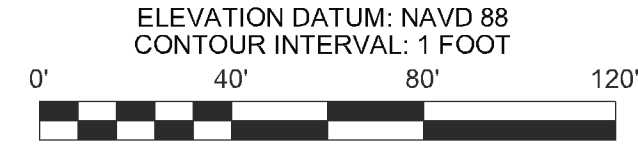
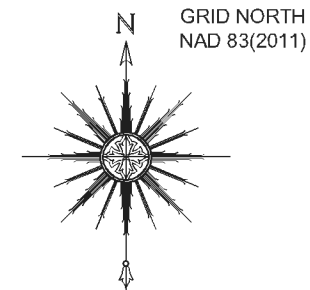
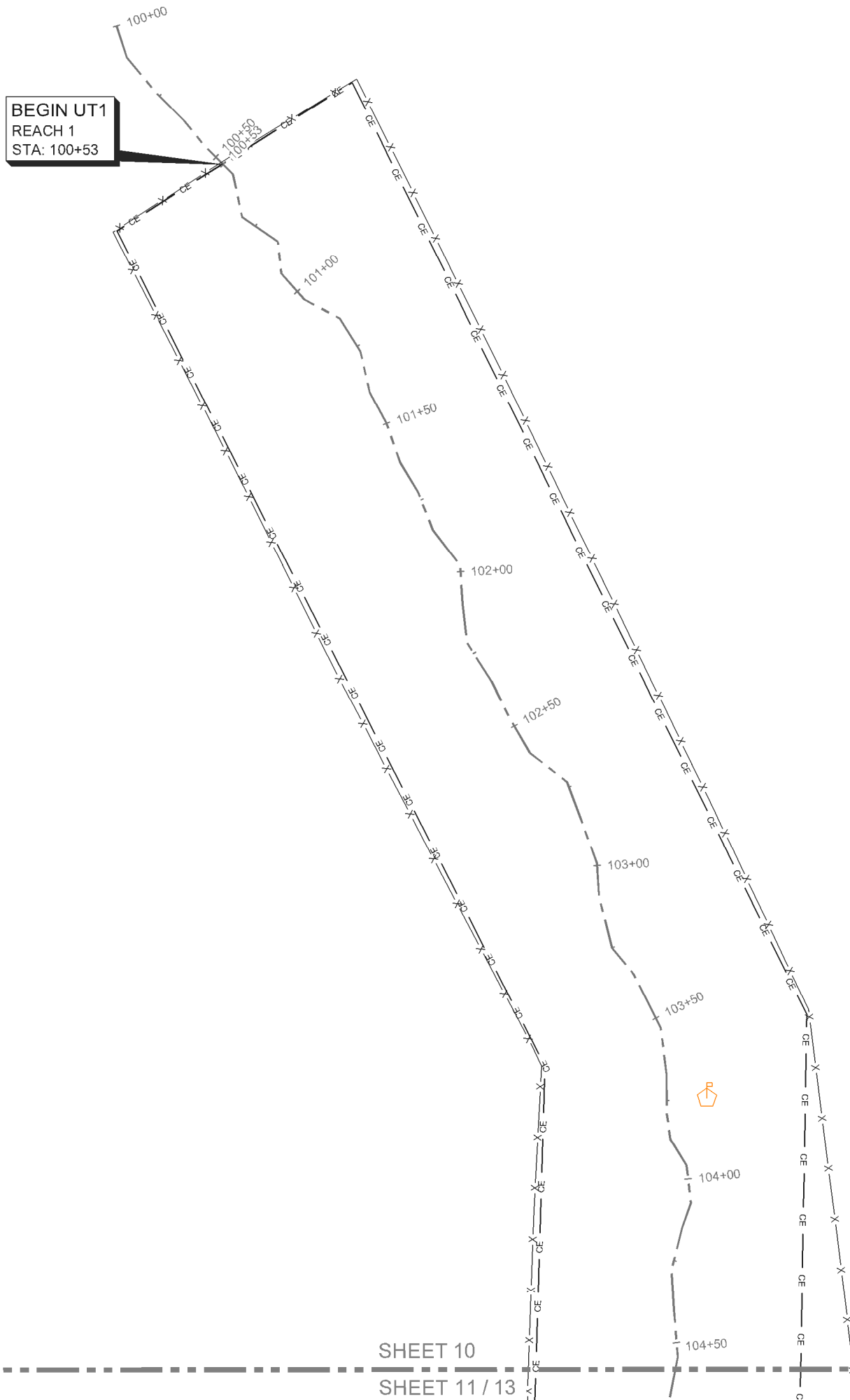
#	DATE	REVISIONS

SHEET:

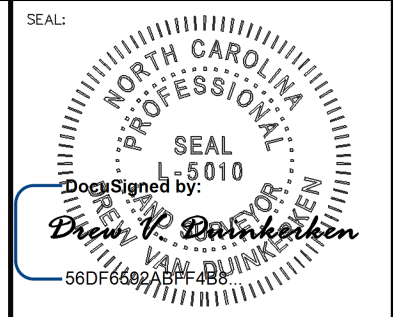
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ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH**

SHEET TITLE:
BEGIN UT1 - REACH 1

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP,AC,HW,NH,DD, CG,PD,JB,NMH,JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

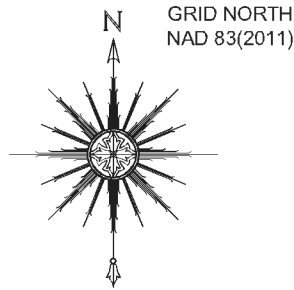
SHEET:
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SHEET 10
SHEET 11 / 13

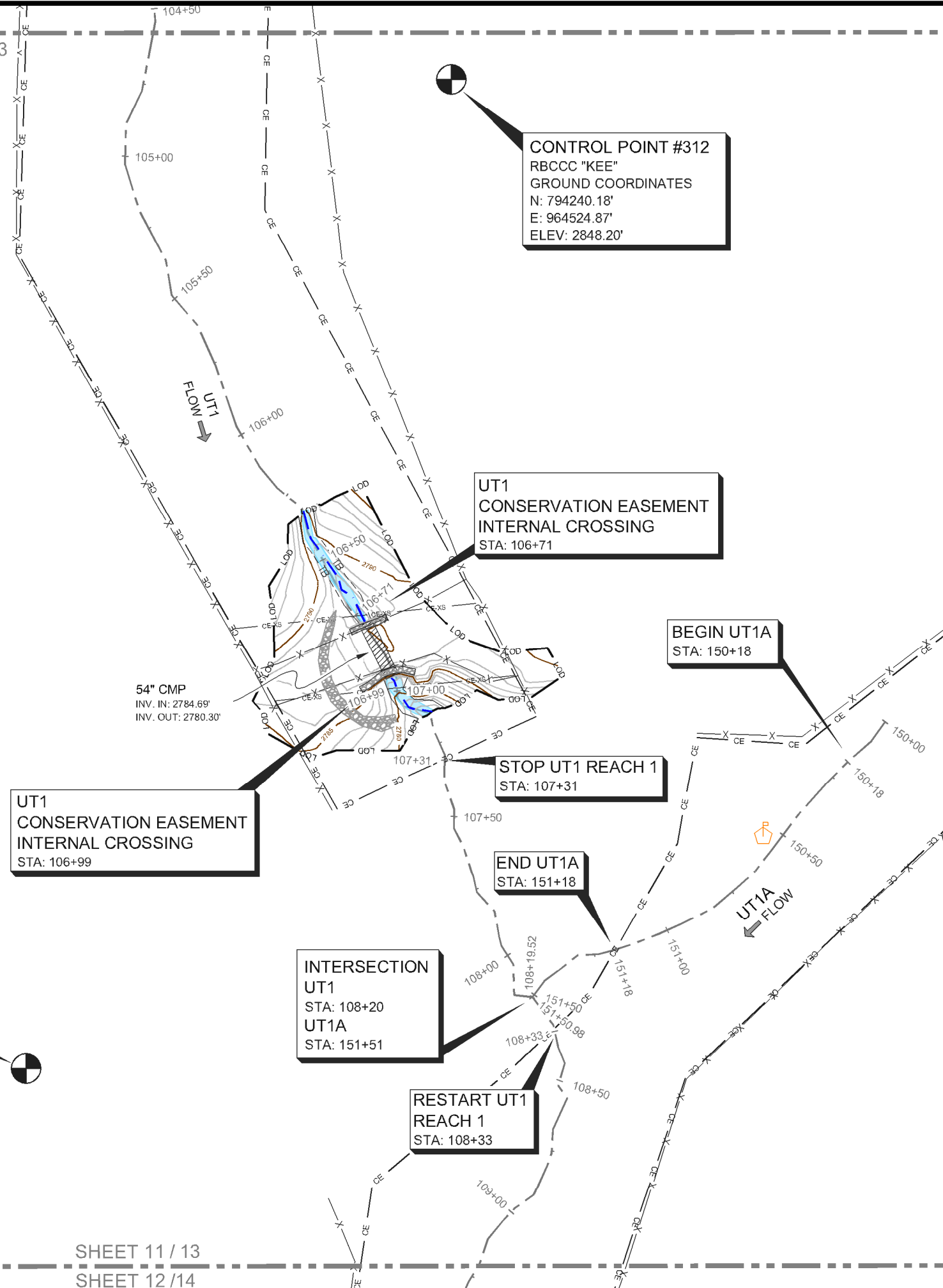
SHEET 10
SHEET 11 / 13



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



CONTROL POINT #312
RBCCC "KEE"
GROUND COORDINATES
N: 794240.18'
E: 964524.87'
ELEV: 2848.20'

UT1 CONSERVATION EASEMENT INTERNAL CROSSING
STA: 106+99

UT1 CONSERVATION EASEMENT INTERNAL CROSSING
STA: 106+71

BEGIN UT1A
STA: 150+18

STOP UT1 REACH 1
STA: 107+31

END UT1A
STA: 151+18

INTERSECTION
UT1
STA: 108+20
UT1A
STA: 151+51

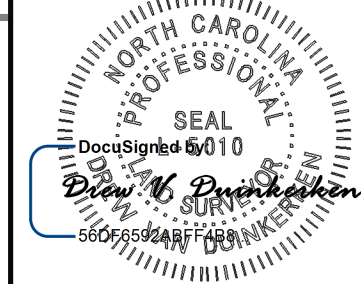
RESTART UT1 REACH 1
STA: 108+33

CONTROL POINT #503
RBCCC "KEE"
GROUND COORDINATES
N: 793916.51'
E: 964385.75'
ELEV: 2787.40'

BEGIN UT2 REACH 1
STA: 200+86

SHEET 11 / 13
SHEET 12 / 14

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
UT1 - REACH 1
UT1A

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

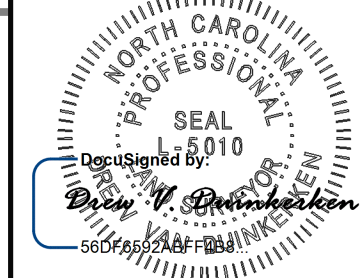
SHEET:

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SEAL:



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NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH**

SHEET TITLE:
END UT1 - REACH 1
BEGIN UT1 - REACH 2
END UT1

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

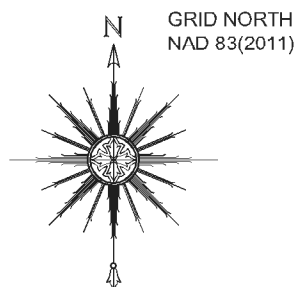
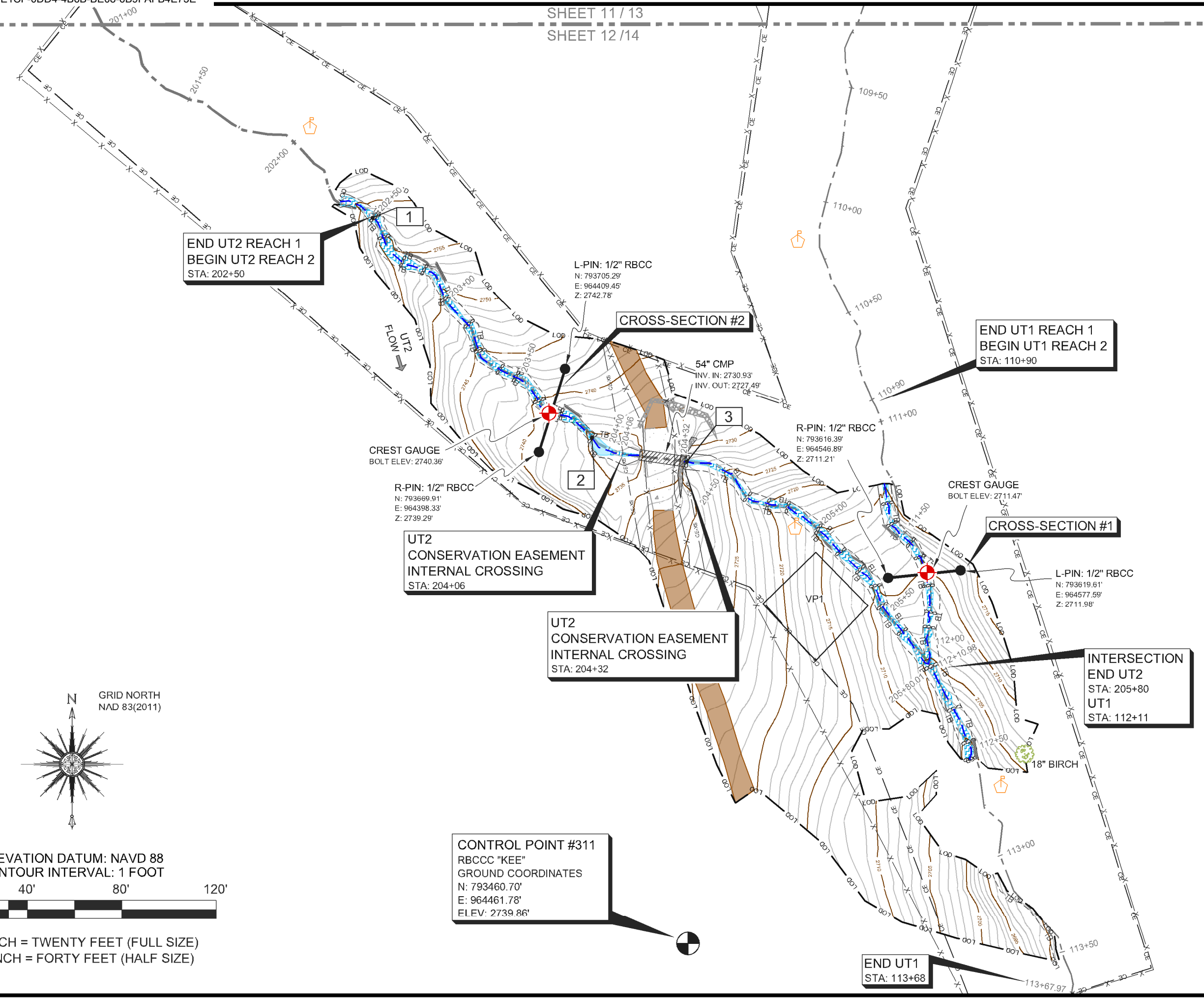
SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:

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GRID NORTH
NAD 83(2011)

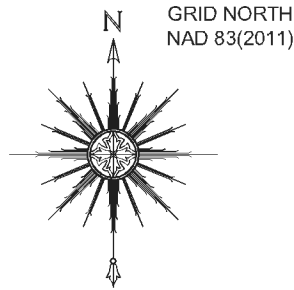
ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)

CONTROL POINT #311
RBCCC "KEE"
GROUND COORDINATES
N: 793460.70'
E: 964461.78'
ELEV: 2739.86'

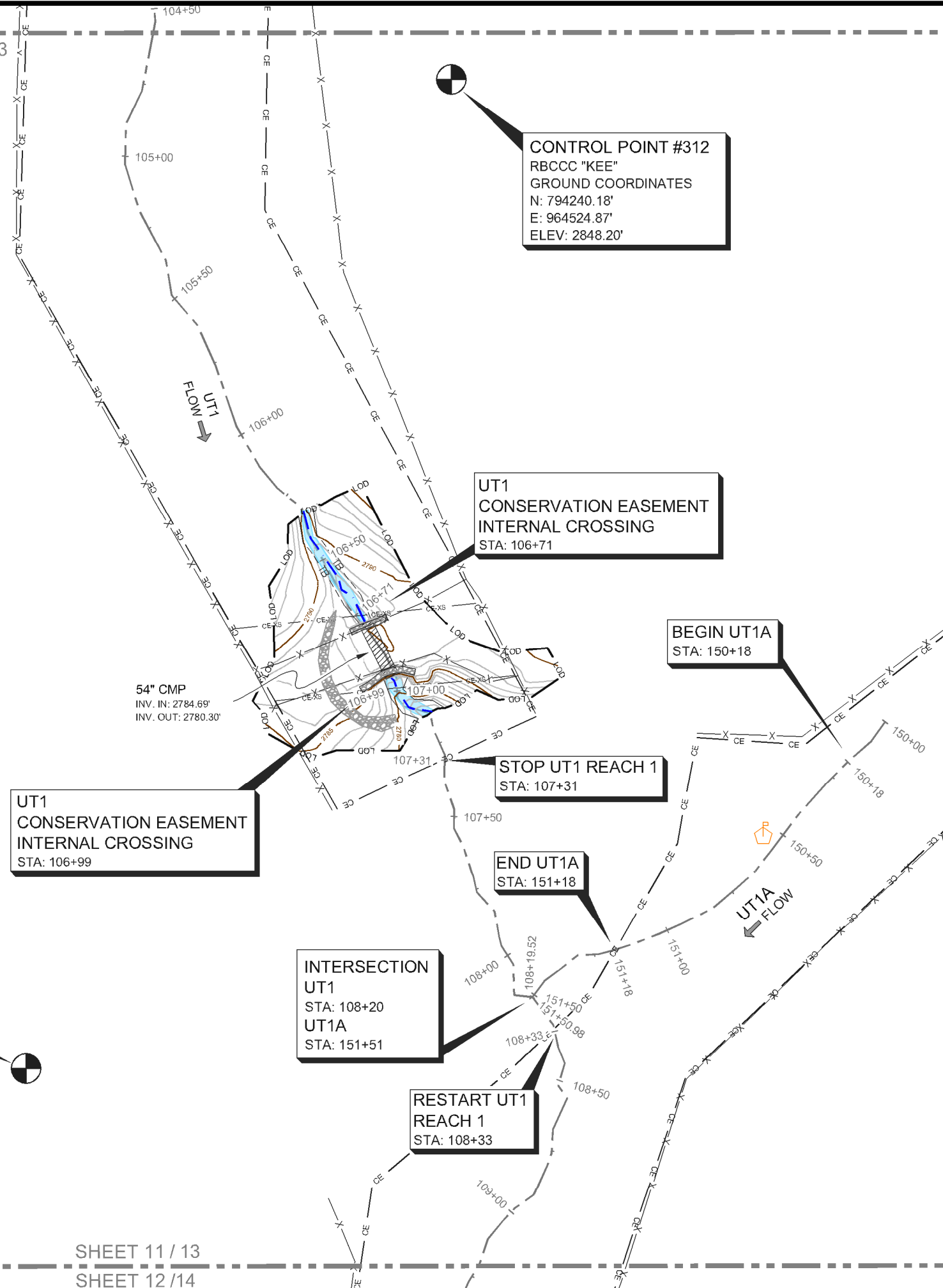
SHEET 10
SHEET 11 / 13



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



CONTROL POINT #312
RBCCC "KEE"
GROUND COORDINATES
N: 794240.18'
E: 964524.87'
ELEV: 2848.20'

UT1 CONSERVATION EASEMENT INTERNAL CROSSING
STA: 106+99

UT1 CONSERVATION EASEMENT INTERNAL CROSSING
STA: 106+71

BEGIN UT1A
STA: 150+18

STOP UT1 REACH 1
STA: 107+31

END UT1A
STA: 151+18

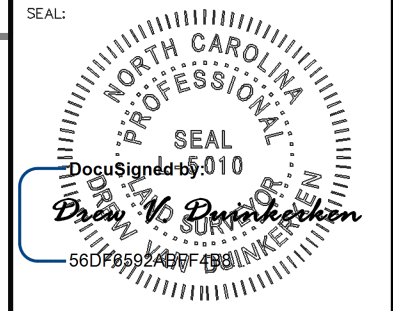
INTERSECTION
UT1
STA: 108+20
UT1A
STA: 151+51

RESTART UT1 REACH 1
STA: 108+33

CONTROL POINT #503
RBCCC "KEE"
GROUND COORDINATES
N: 793916.51'
E: 964385.75'
ELEV: 2787.40'

BEGIN UT2 REACH 1
STA: 200+86

SHEET 11 / 13
SHEET 12 / 14



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH MITIGATION SITE - SHAKE RAG BRANCH

SHEET TITLE:
BEGIN UT2 - REACH 1

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

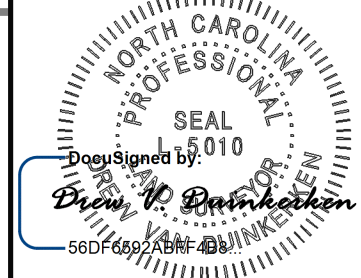
#	DATE	REVISIONS

SHEET:
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SEAL:



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NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH**

SHEET TITLE:

END UT2 - REACH 1
BEGIN UT2 - REACH 2
END UT2

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN
SURVEY DATES: 12/19/19 - 04/01/20

JOB: #190881-AB
SHEET SIZE: 11" X 17" (HALF SIZE)

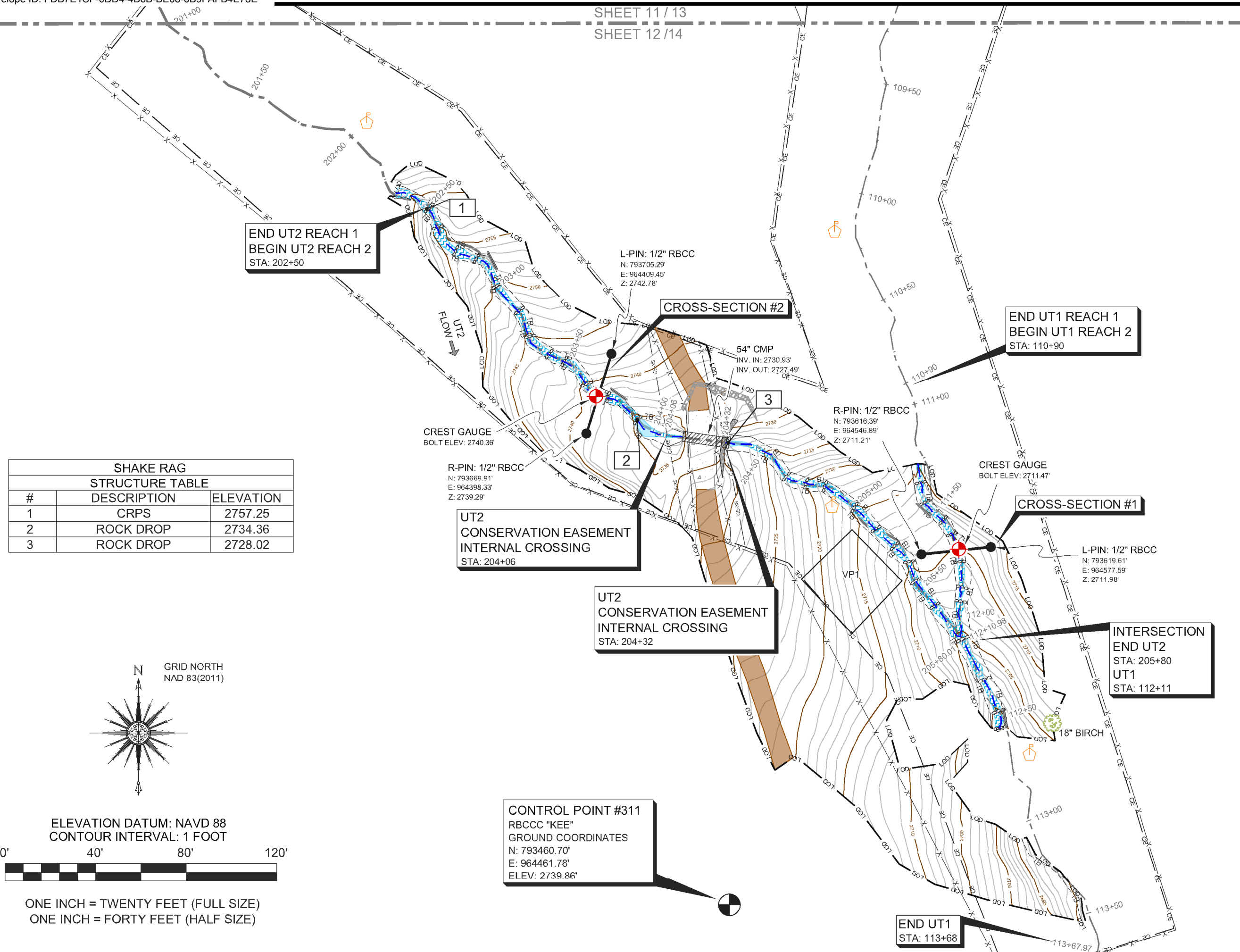
#	DATE	REVISIONS

SHEET:

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END UT2 REACH 1
BEGIN UT2 REACH 2
STA: 202+50

L-PIN: 1/2" RBCC
N: 793705.29'
E: 964409.45'
Z: 2742.78'

CROSS-SECTION #2

54" CMP
INV. IN: 2730.93'
INV. OUT: 2727.49'

END UT1 REACH 1
BEGIN UT1 REACH 2
STA: 110+90

R-PIN: 1/2" RBCC
N: 793616.39'
E: 964546.89'
Z: 2711.21'

CREST GAUGE
BOLT ELEV: 2740.36'

R-PIN: 1/2" RBCC
N: 793669.91'
E: 964398.33'
Z: 2739.29'

UT2
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 204+06

UT2
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 204+32

CROSS-SECTION #1

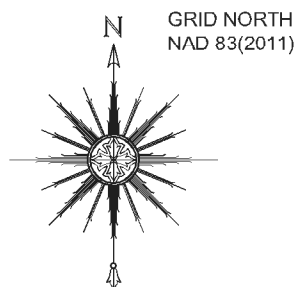
L-PIN: 1/2" RBCC
N: 793619.61'
E: 964577.59'
Z: 2711.98'

INTERSECTION
END UT2
STA: 205+80
UT1
STA: 112+11

END UT1
STA: 113+68

CONTROL POINT #311
RBCCC "KEE"
GROUND COORDINATES
N: 793460.70'
E: 964461.78'
ELEV: 2739.86'

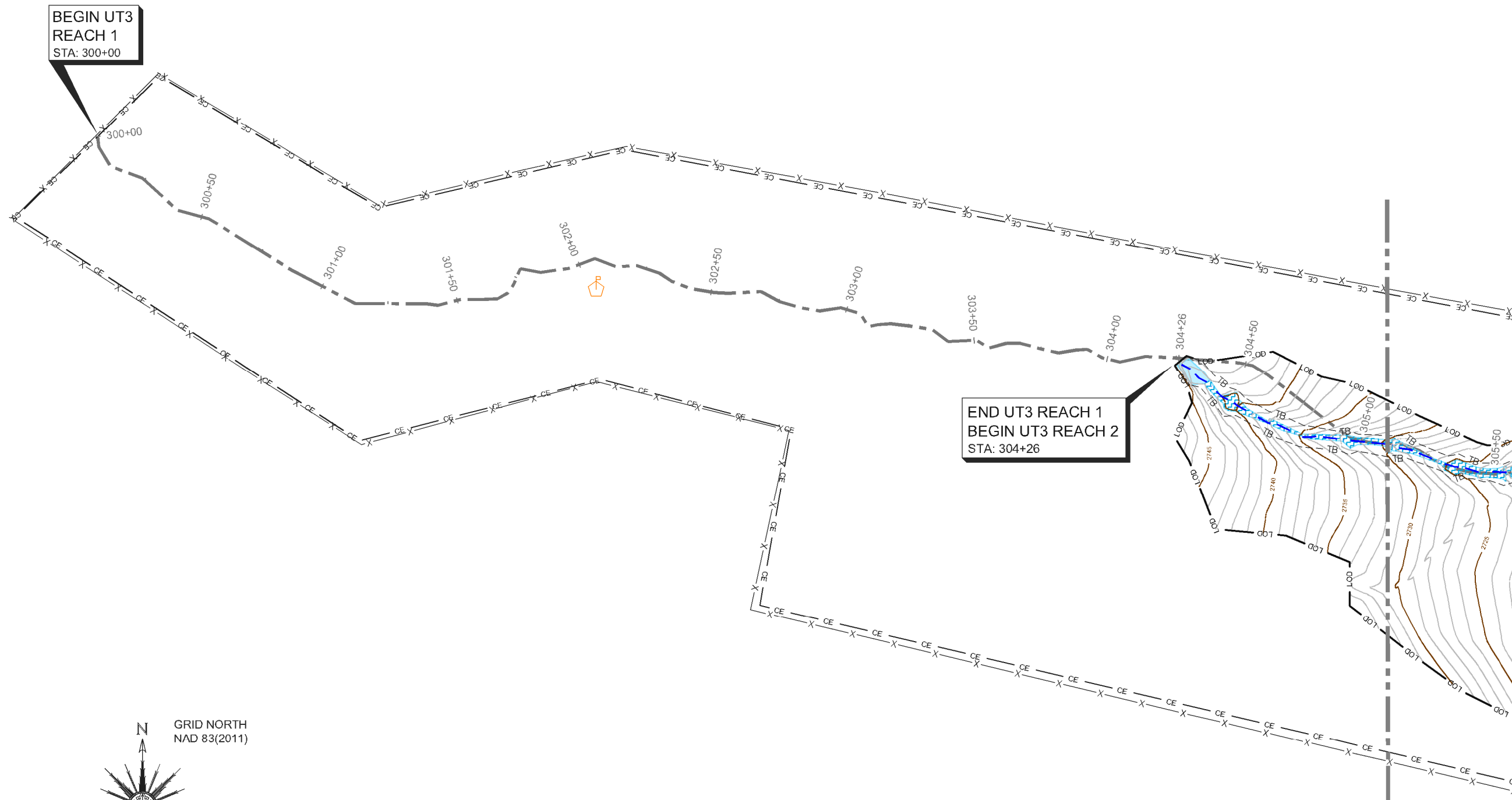
SHAKE RAG STRUCTURE TABLE		
#	DESCRIPTION	ELEVATION
1	CRPS	2757.25
2	ROCK DROP	2734.36
3	ROCK DROP	2728.02



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

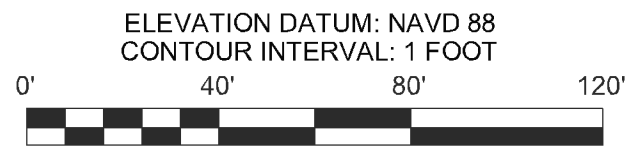
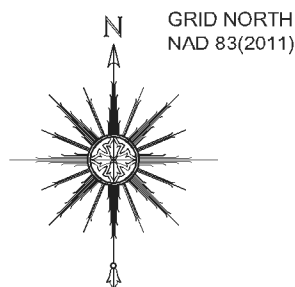


ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



BEGIN UT3
REACH 1
STA: 300+00

END UT3 REACH 1
BEGIN UT3 REACH 2
STA: 304+26



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)

SEAL:

DocuSigned by:
Drew W. Dinkelman
56DF0592A8FFB381

PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
BEGIN UT5 - REACH 1
END UT 3 - REACH 1
BEGIN UT3 - REACH 2

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

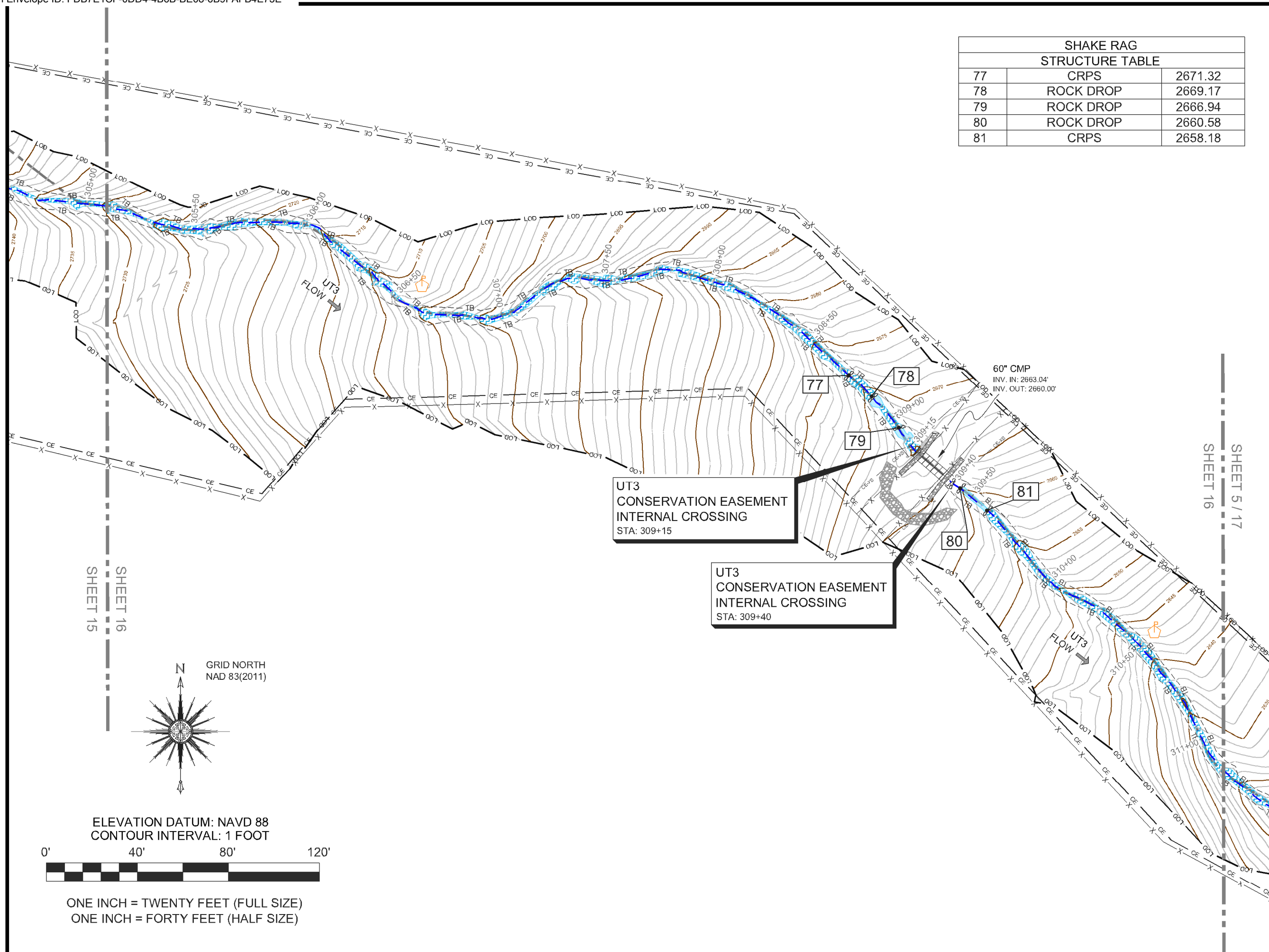
#	DATE	REVISIONS

SHEET:
15 OF **39**



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SHEET 15
SHEET 16



SHAKE RAG STRUCTURE TABLE		
77	CRPS	2671.32
78	ROCK DROP	2669.17
79	ROCK DROP	2666.94
80	ROCK DROP	2660.58
81	CRPS	2658.18

SEAL:

DocuSigned by:
Drew W. Dinkelman
56DF6592ABF4B1

PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
UT3 - REACH 2

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

SHEET:
16 OF **39**

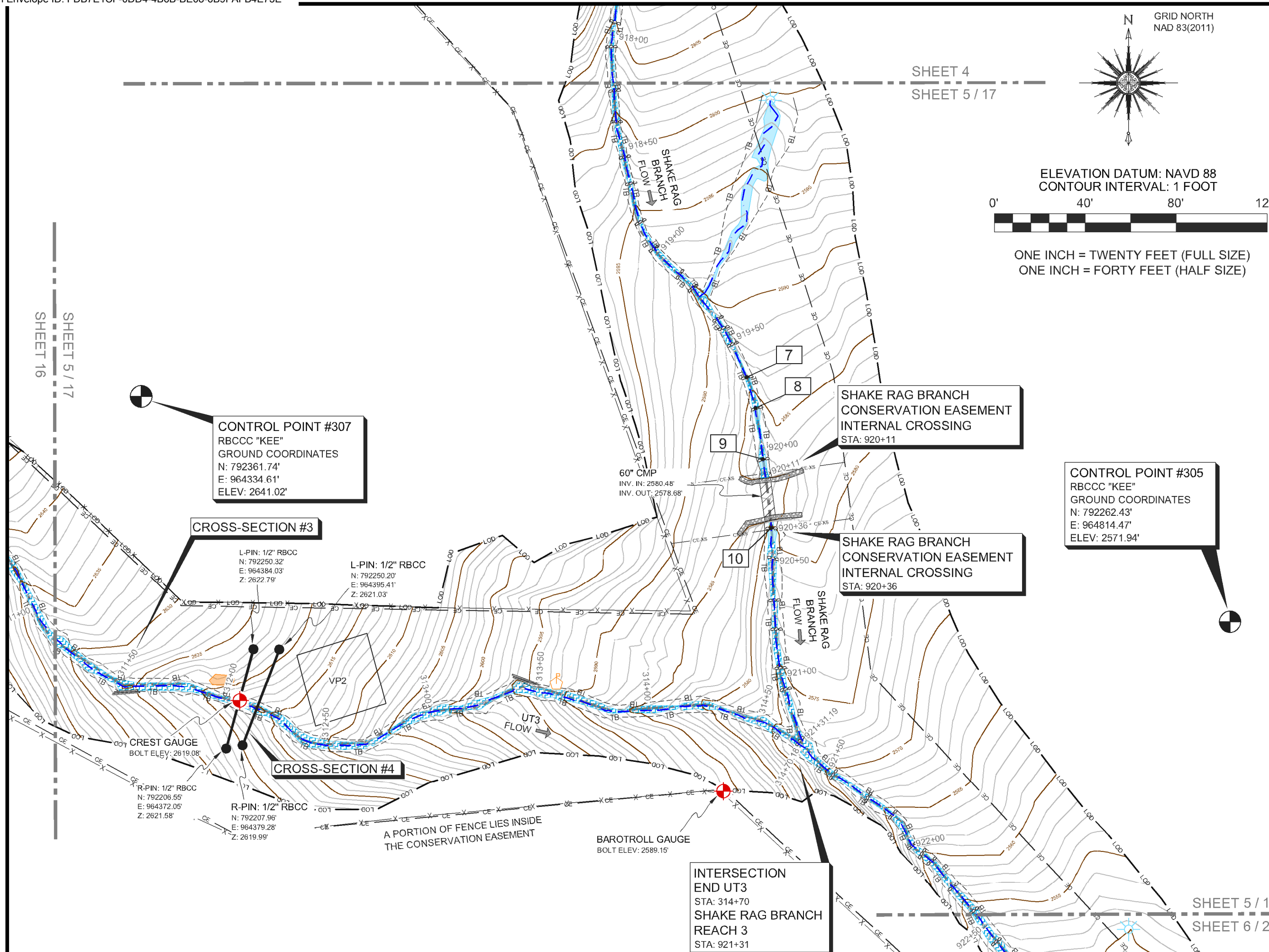
Kee
MAPPING & SURVEYING

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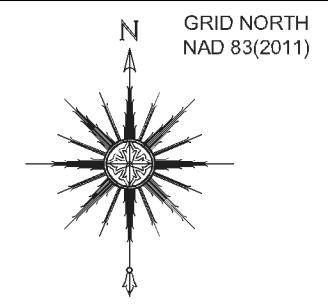
GRID NORTH
NAD 83(2011)

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



SHEET 4
SHEET 5 / 17



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)

CONTROL POINT #307
RBCC "KEE"
GROUND COORDINATES
N: 792361.74'
E: 964334.61'
ELEV: 2641.02'

CROSS-SECTION #3

L-PIN: 1/2" RBCC
N: 792250.32'
E: 964384.03'
Z: 2622.79'

L-PIN: 1/2" RBCC
N: 792250.20'
E: 964395.41'
Z: 2621.03'

CREST GAUGE
BOLT ELEV: 2619.08'

R-PIN: 1/2" RBCC
N: 792206.55'
E: 964372.05'
Z: 2621.58'

R-PIN: 1/2" RBCC
N: 792207.96'
E: 964379.28'
Z: 2619.99'

CROSS-SECTION #4

A PORTION OF FENCE LIES INSIDE
THE CONSERVATION EASEMENT

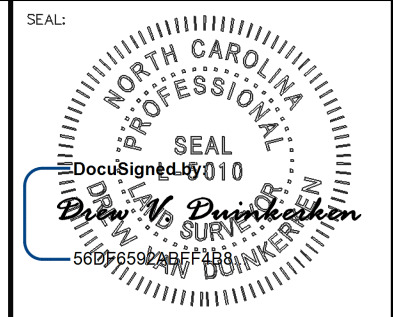
BAROTROLL GAUGE
BOLT ELEV: 2589.15'

**SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING**
STA: 920+11

**SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING**
STA: 920+36

CONTROL POINT #305
RBCC "KEE"
GROUND COORDINATES
N: 792262.43'
E: 964814.47'
ELEV: 2571.94'

**INTERSECTION
END UT3**
STA: 314+70
SHAKE RAG BRANCH
REACH 3
STA: 921+31



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH**

SHEET TITLE:
END UT3

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

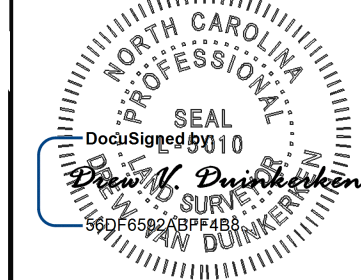
SHEET:
17 OF **39**



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SHEET 5 / 17
SHEET 6 / 26

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
BEGIN UT4

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

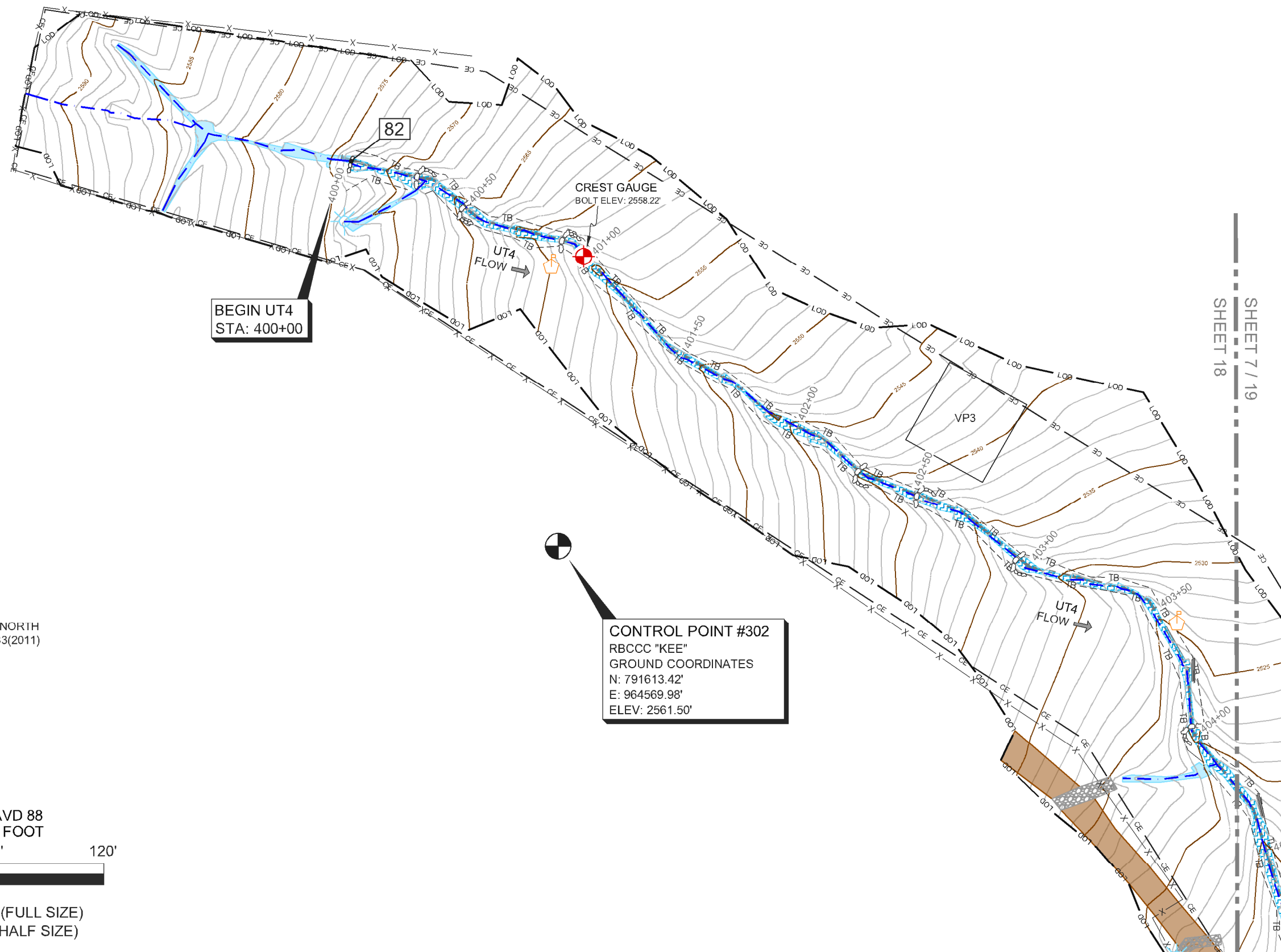
SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

SHEET:
18 OF **39**

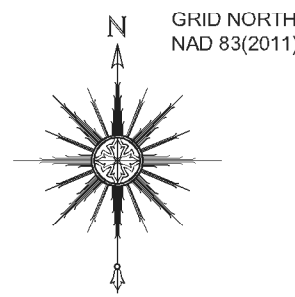


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BEGIN UT4
STA: 400+00

CONTROL POINT #302
RBCCC "KEE"
GROUND COORDINATES
N: 791613.42'
E: 964569.98'
ELEV: 2561.50'

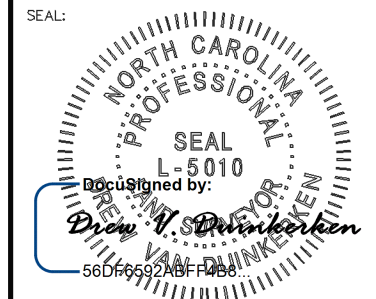
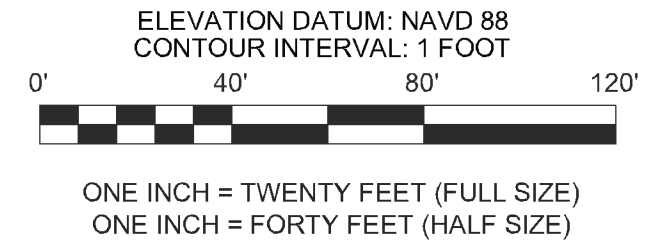
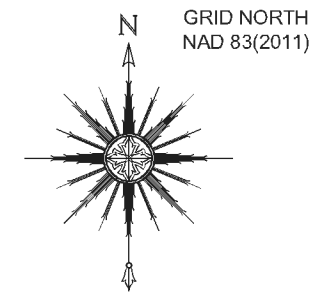


ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)

SHEET 7 / 19
SHEET 18



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH**

SHEET TITLE:
UT4

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

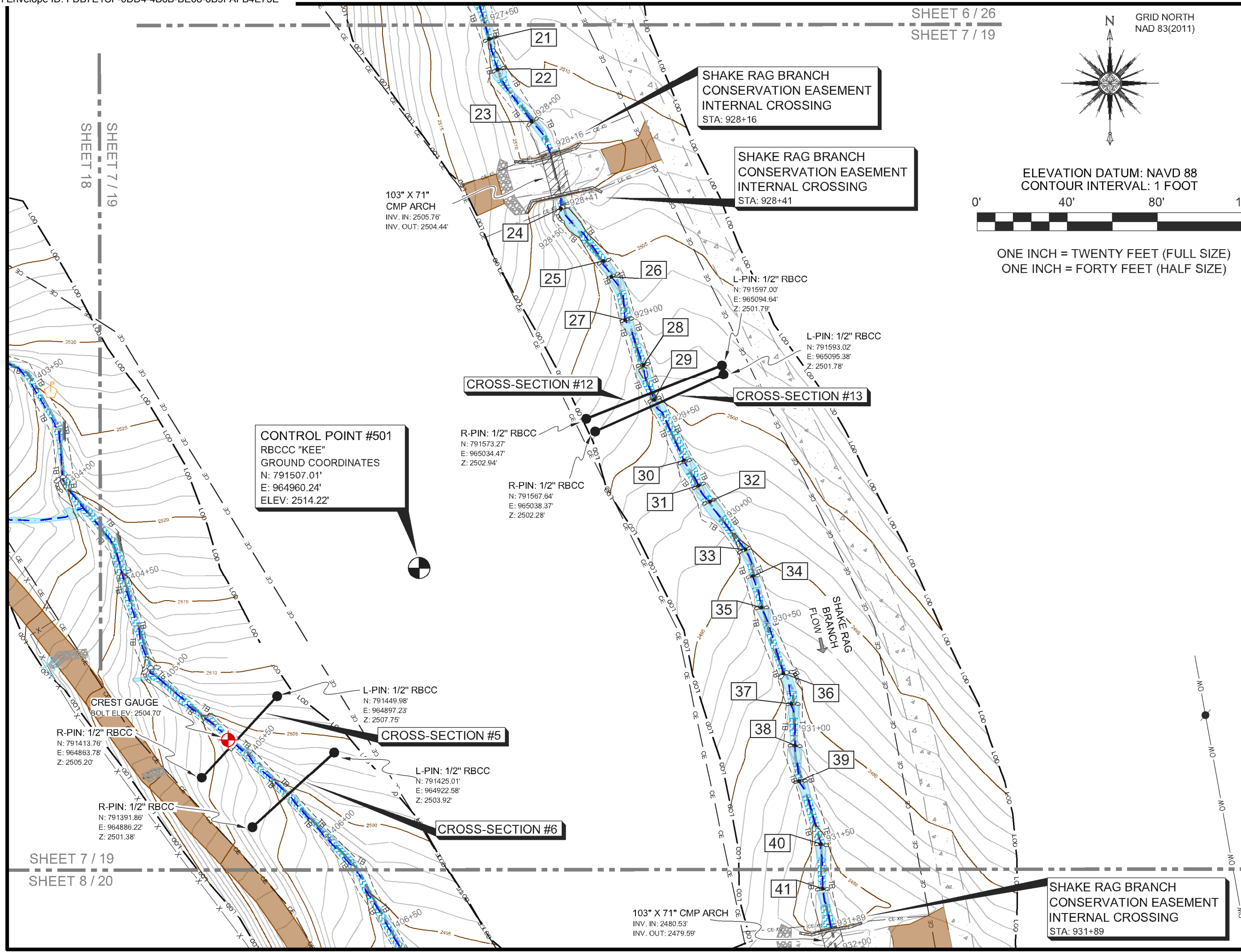
SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:

19 OF 39



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SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 928+16

SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 928+41

CONTROL POINT #501
RBCCC "KEE"
GROUND COORDINATES
N: 791507.01'
E: 964960.24'
ELEV: 2514.22'

R-PIN: 1/2" RBCC
N: 791573.27'
E: 965034.47'
Z: 2502.94'

R-PIN: 1/2" RBCC
N: 791567.64'
E: 965038.37'
Z: 2502.28'

L-PIN: 1/2" RBCC
N: 791597.00'
E: 965094.64'
Z: 2501.79'

L-PIN: 1/2" RBCC
N: 791593.02'
E: 965095.38'
Z: 2501.78'

L-PIN: 1/2" RBCC
N: 791449.98'
E: 964897.23'
Z: 2507.75'

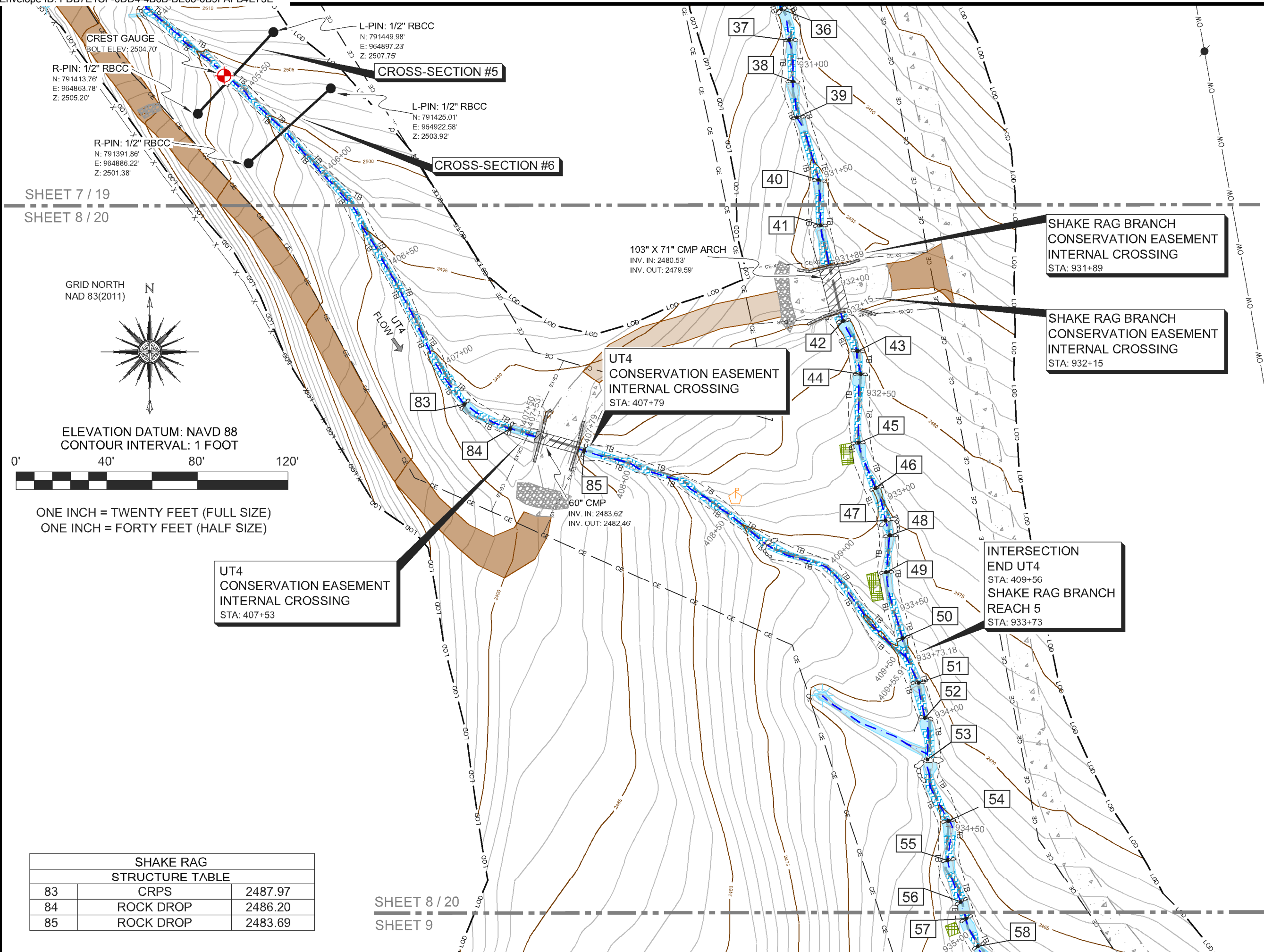
L-PIN: 1/2" RBCC
N: 791425.01'
E: 964922.58'
Z: 2503.92'

R-PIN: 1/2" RBCC
N: 791413.76'
E: 964863.78'
Z: 2505.20'

R-PIN: 1/2" RBCC
N: 791391.86'
E: 964886.22'
Z: 2501.38'

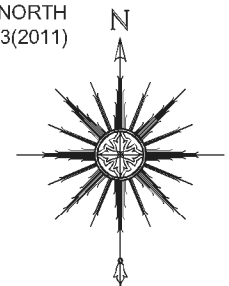
103" X 71" CMP ARCH
INV. IN: 2480.53'
INV. OUT: 2479.59'

SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 931+89



SHEET 7 / 19
SHEET 8 / 20

GRID NORTH
NAD 83(2011)



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)

UT4
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 407+53

UT4
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 407+79

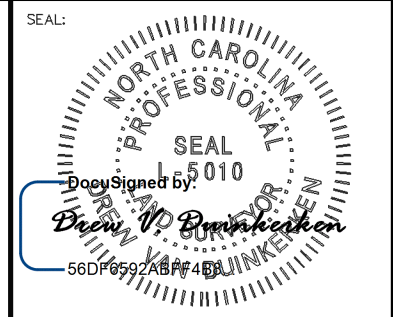
SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 931+89

SHAKE RAG BRANCH
CONSERVATION EASEMENT
INTERNAL CROSSING
STA: 932+15

INTERSECTION
END UT4
STA: 409+56
SHAKE RAG BRANCH
REACH 5
STA: 933+73

SHAKE RAG STRUCTURE TABLE		
83	CRPS	2487.97
84	ROCK DROP	2486.20
85	ROCK DROP	2483.69

SHEET 8 / 20
SHEET 9



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
END UT4

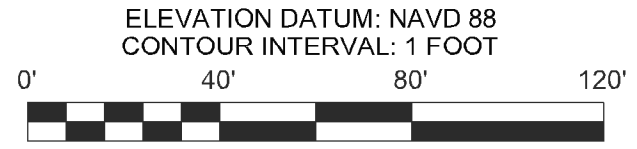
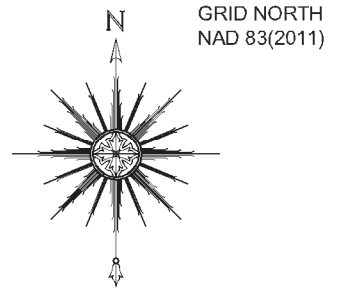
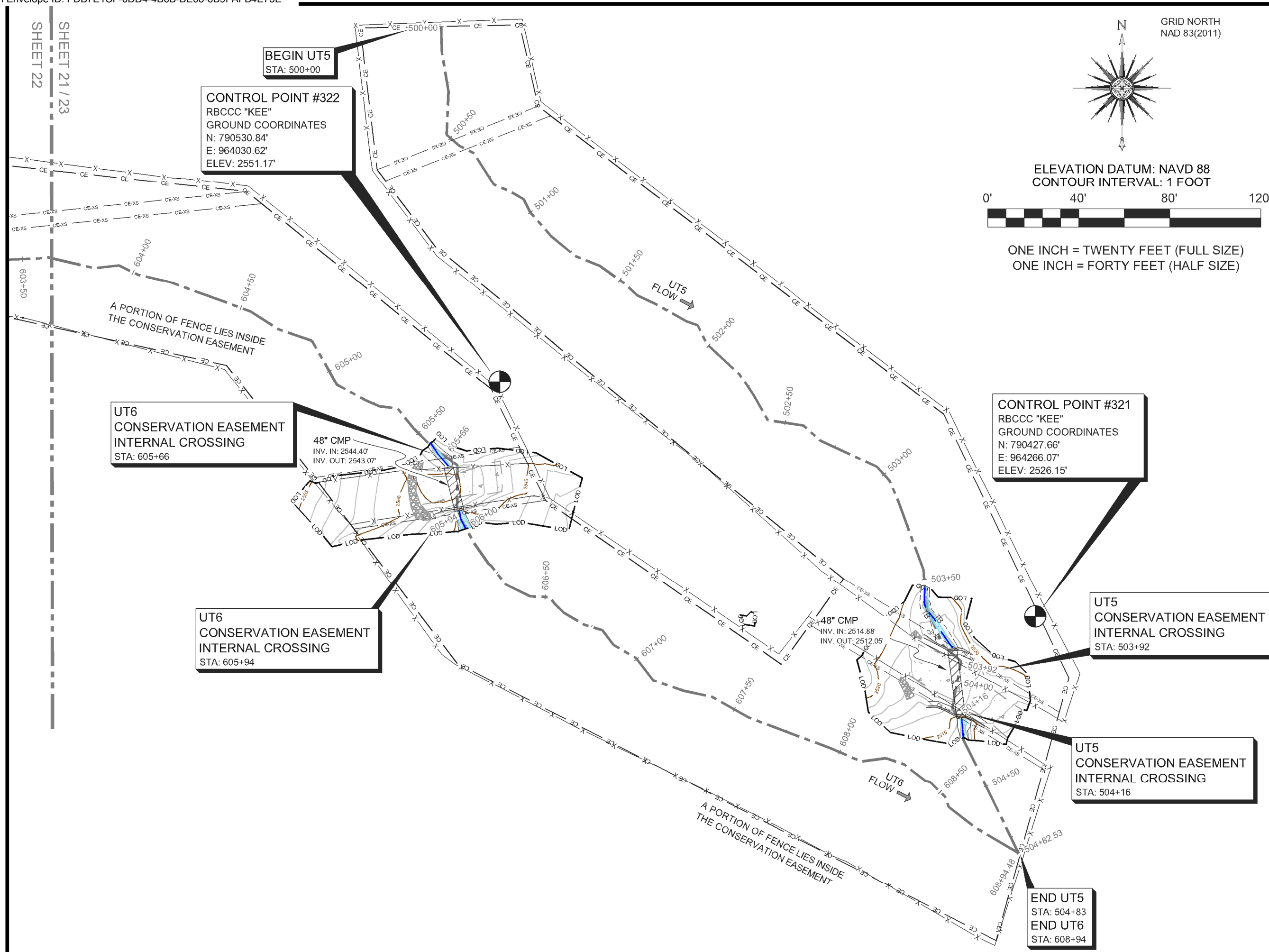
TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

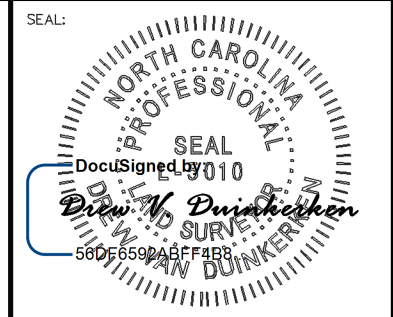
SHEET:
20 OF **39**



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ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
UT5

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

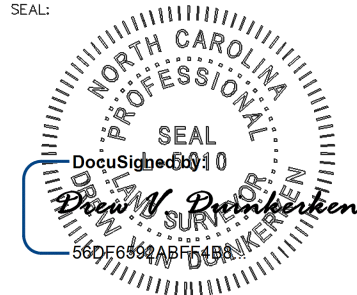
SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:
21 OF **39**



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NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
BEGIN UT6

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP,AC,HW,NH,DD, CG,PD,JB,NMH,JEM

SCALE:
AS SHOWN

SURVEY DATES:
12/19/19 - 04/01/20

JOB:
#190881-AB

SHEET SIZE:
11" X 17" (HALF SIZE)

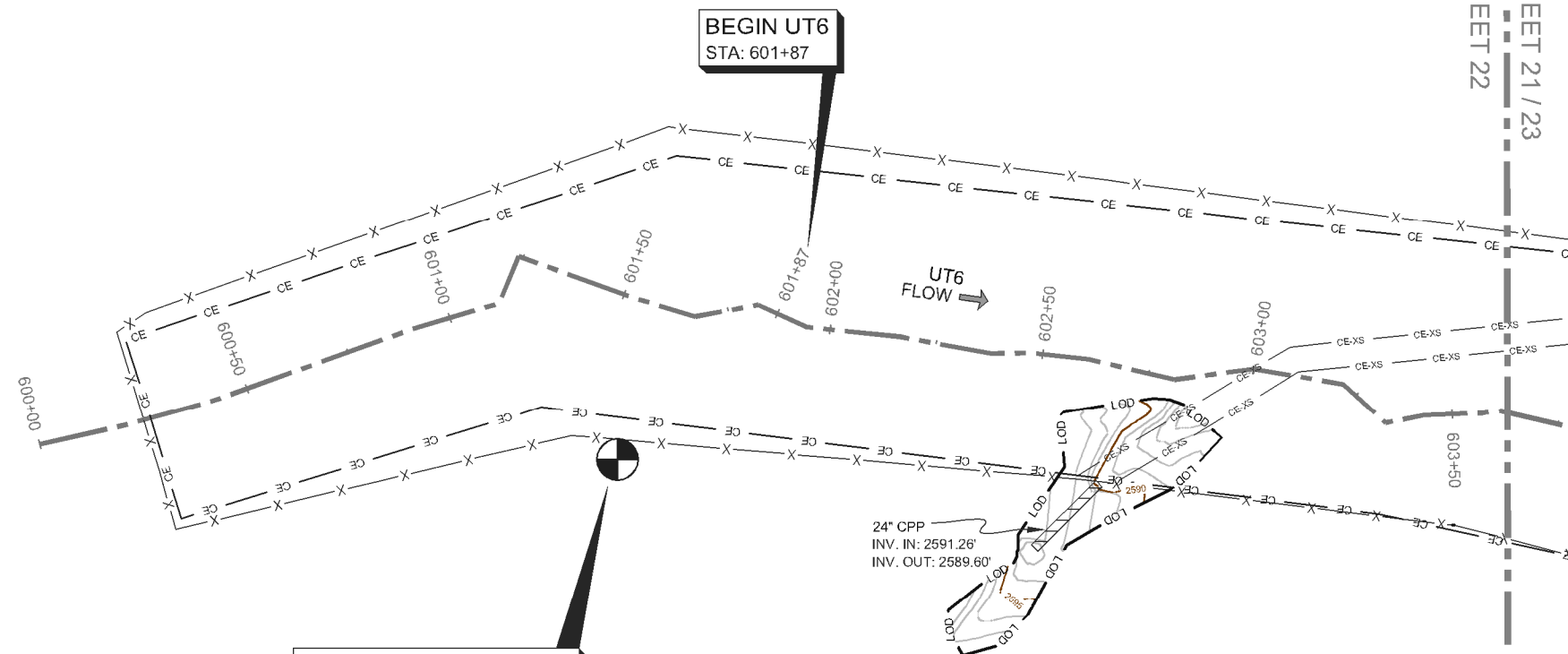
#	DATE	REVISIONS

SHEET:

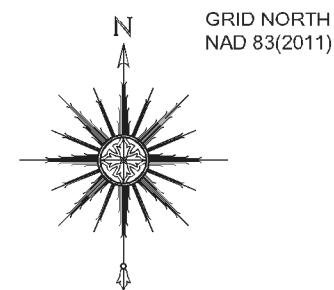
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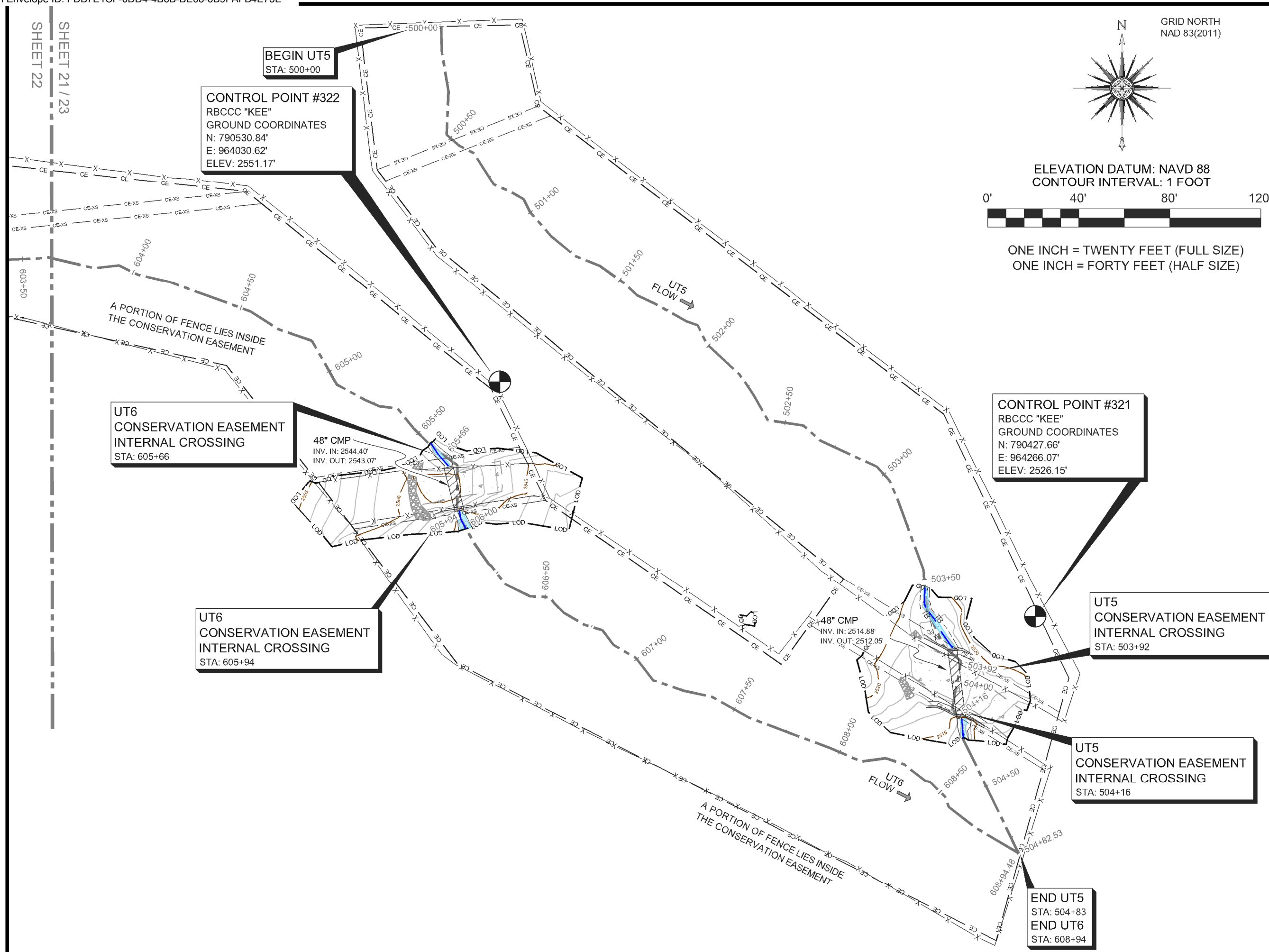
CONTROL POINT #324
RBCCC "KEE"
GROUND COORDINATES
N: 790574.07'
E: 963626.54'
ELEV: 2612.20'



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



BEGIN UT5
STA: 500+00

CONTROL POINT #322
RBCCC "KEE"
GROUND COORDINATES
N: 790530.84'
E: 964030.62'
ELEV: 2551.17'

UT6 CONSERVATION EASEMENT INTERNAL CROSSING
STA: 605+66

UT6 CONSERVATION EASEMENT INTERNAL CROSSING
STA: 605+94

48" CMP
INV. IN: 2544.40'
INV. OUT: 2543.07'

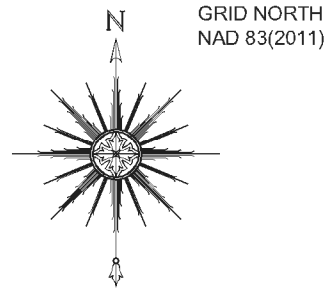
48" CMP
INV. IN: 2514.88'
INV. OUT: 2512.05'

CONTROL POINT #321
RBCCC "KEE"
GROUND COORDINATES
N: 790427.66'
E: 964266.07'
ELEV: 2526.15'

UT5 CONSERVATION EASEMENT INTERNAL CROSSING
STA: 503+92

UT5 CONSERVATION EASEMENT INTERNAL CROSSING
STA: 504+16

END UT5
STA: 504+83
END UT6
STA: 608+94

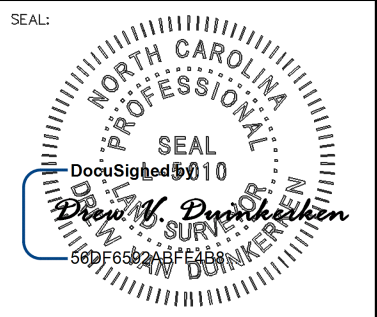


GRID NORTH
NAD 83(2011)

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH**

SHEET TITLE:
END UT6

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

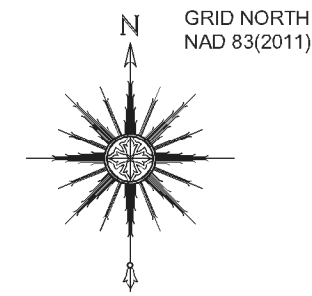
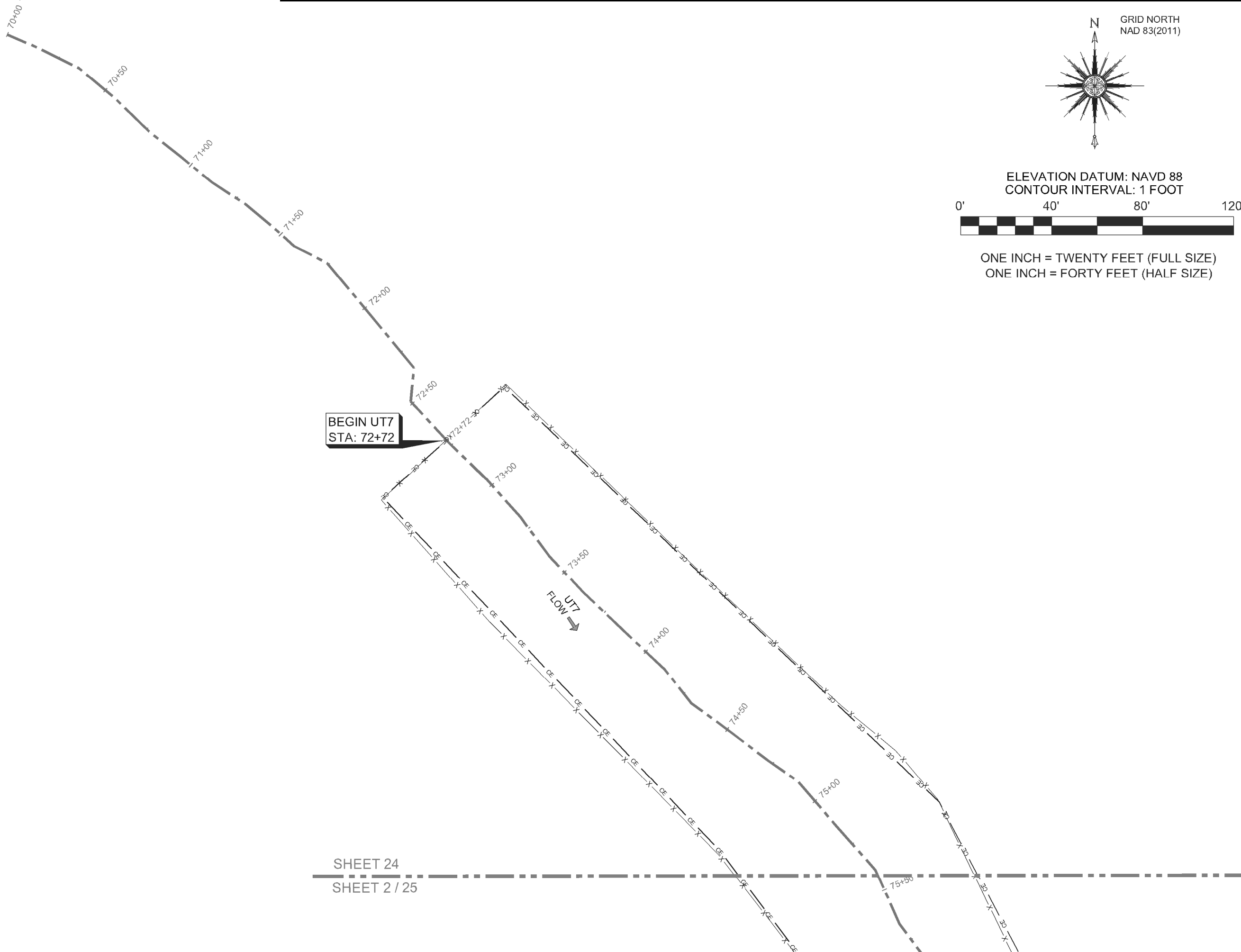
SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

SHEET:
23 OF 39



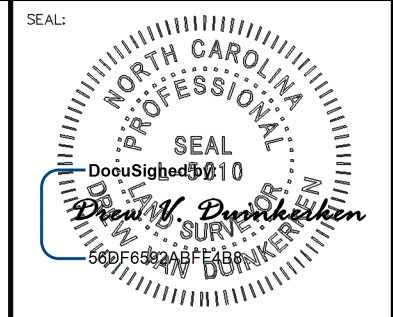
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ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

0' 40' 80' 120'

ONE INCH = TWENTY FEET (FULL SIZE)
 ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 BEGIN UT7

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP,AC,HW,NH,DD, CG,PD,JB,NMH,JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

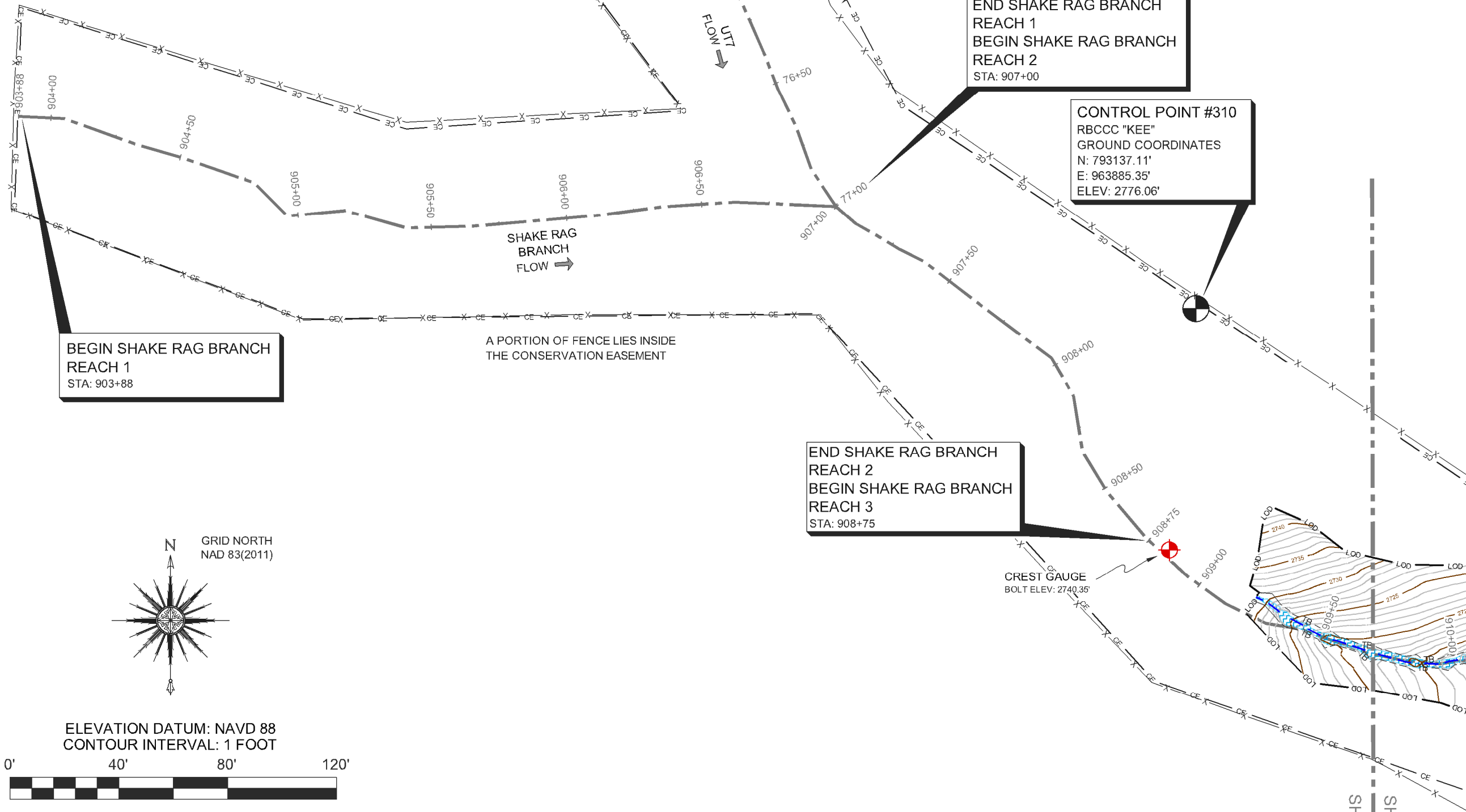
SHEET:
 24 OF 39



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SHEET 24
 SHEET 2 / 25

SHEET 24
SHEET 2 / 25

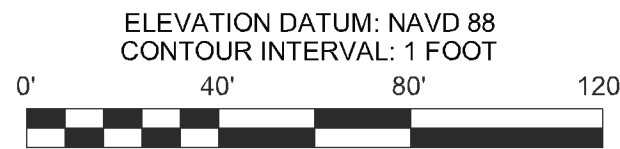
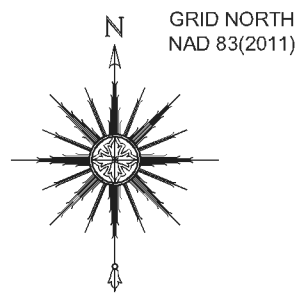


INTERSECTION
END UT7
STA: 77+00
END SHAKE RAG BRANCH
REACH 1
BEGIN SHAKE RAG BRANCH
REACH 2
STA: 907+00

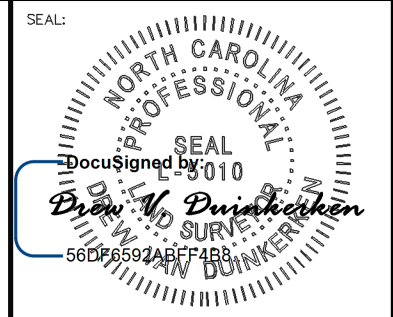
CONTROL POINT #310
RBCCC "KEE"
GROUND COORDINATES
N: 793137.11'
E: 963885.35'
ELEV: 2776.06'

**BEGIN SHAKE RAG BRANCH
REACH 1**
STA: 903+88

**END SHAKE RAG BRANCH
REACH 2**
**BEGIN SHAKE RAG BRANCH
REACH 3**
STA: 908+75



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT
ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
**SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH**

SHEET TITLE:
END UT7

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:
25 OF 39



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SHEET 3
SHEET 2 / 25

SHEET 5 / 17
SHEET 6 / 26

END SHAKE RAG BRANCH
REACH 3
BEGIN SHAKE RAG BRANCH
REACH 4
STA: 923+18

BEGIN UT8
STA: 800+00

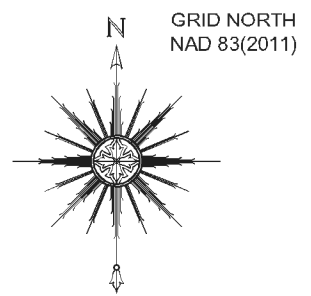
CROSS-SECTION #11

CREST GAUGE
BOLT ELEV: 2522.18'

CROSS-SECTION #7

INTERSECTION
END UT8
STA: 802+06
END SHAKE RAG BRANCH
REACH 4
BEGIN SHAKE RAG BRANCH
REACH 5
STA: 927+03

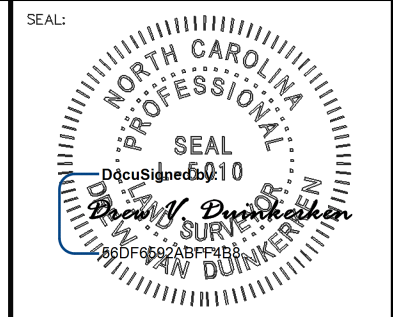
SHAKE RAG STRUCTURE TABLE		
86	ROCK DROP	2529.07
87	ROCK DROP	2528.63
88	ROCK DROP	2528.27
89	ROCK DROP	2527.67
90	ROCK DROP	2526.95
91	ROCK DROP	2525.27
92	ROCK DROP	2524.31
93	ROCK DROP	2522.69
94	ROCK DROP	2521.36
95	ROCK DROP	2520.86
96	ROCK DROP	2519.40
97	ROCK DROP	2518.35
98	ROCK DROP	2517.18
99	ROCK DROP	2516.70
100	ROCK DROP	2515.29
101	ROCK DROP	2514.65



ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT



ONE INCH = TWENTY FEET (FULL SIZE)
ONE INCH = FORTY FEET (HALF SIZE)



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
UT8

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

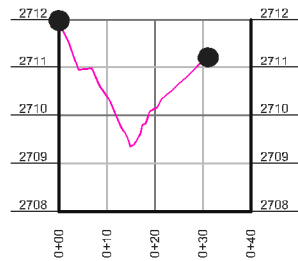
SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:
26 OF **39**

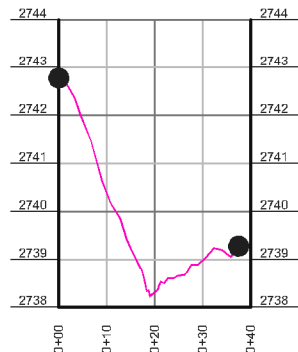


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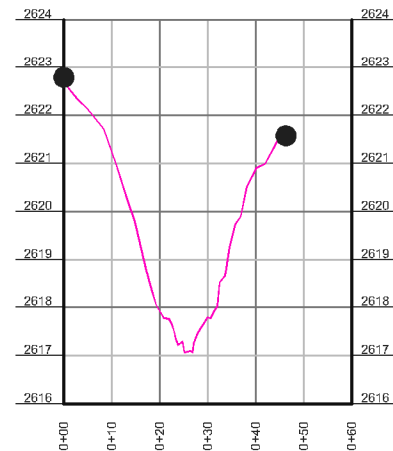
SHEET 6 / 26
SHEET 7 / 19



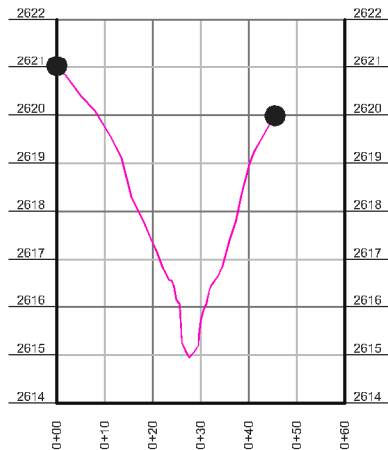
CROSS-SECTION #1-UT1
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



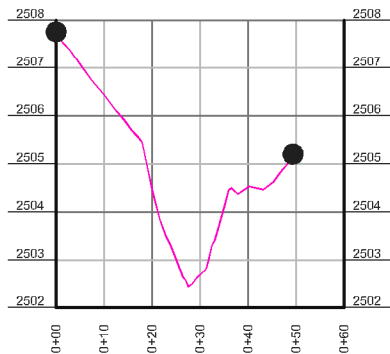
CROSS-SECTION #2 - UT2
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



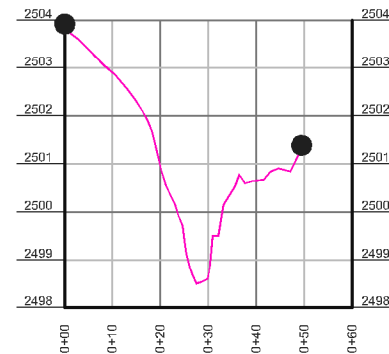
CROSS-SECTION #3 - UT3
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



CROSS-SECTION #4 - UT3
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



CROSS-SECTION #5 - UT4
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

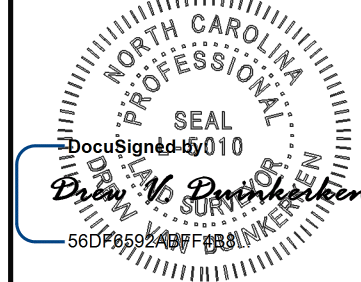


CROSS-SECTION #6 - UT4
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

● CROSS-SECTION REBAR

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 CROSS SECTIONS 1-6

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP,AC,HW,NH,DD, CG,PD,JB,NMH,JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

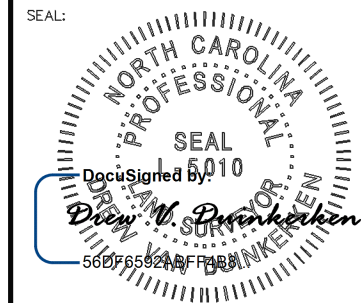
SHEET:

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SEAL:



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NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
CROSS SECTIONS 7-13

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

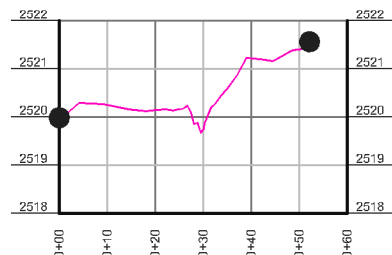
#	DATE	REVISIONS

SHEET:

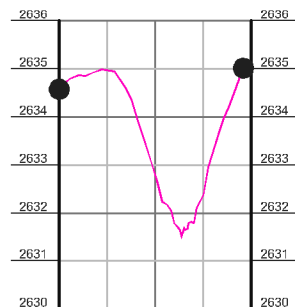
28 OF 39



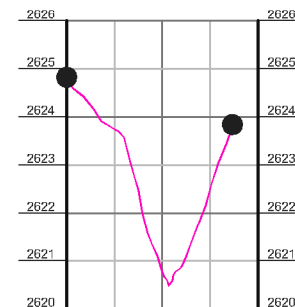
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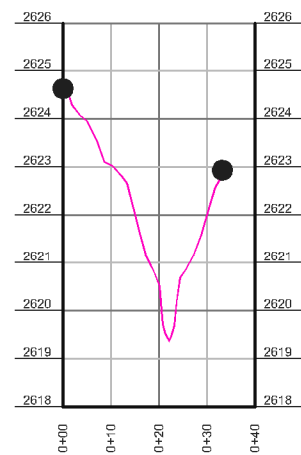
CROSS-SECTION #7 - UT8
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



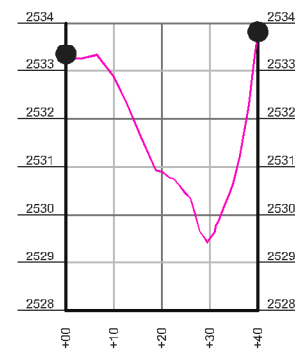
**CROSS-SECTION #8 -
SHAKE RAG BRANCH**
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



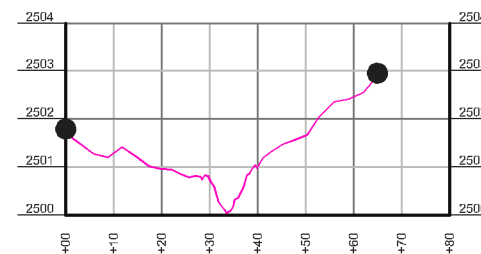
**CROSS-SECTION #9 -
SHAKE RAG BRANCH**
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



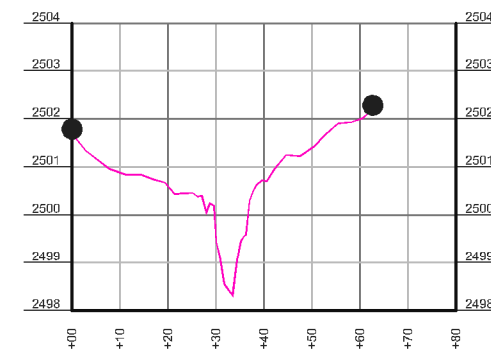
**CROSS-SECTION #10 -
SHAKE RAG BRANCH**
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



**CROSS-SECTION #11 -
SHAKE RAG BRANCH**
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



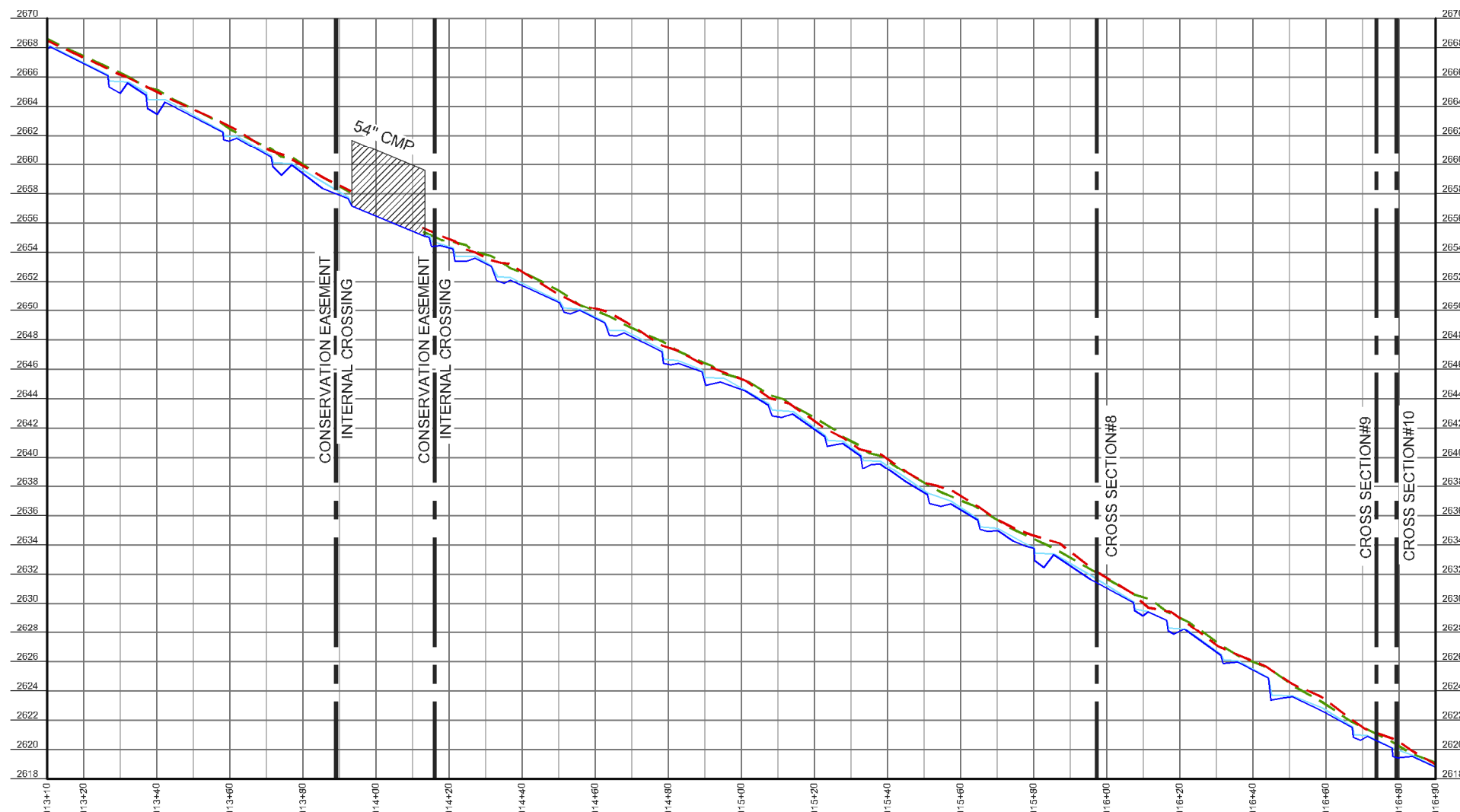
CROSS-SECTION #12 - SHAKE RAG BRANCH
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



CROSS-SECTION #13 - SHAKE RAG BRANCH
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

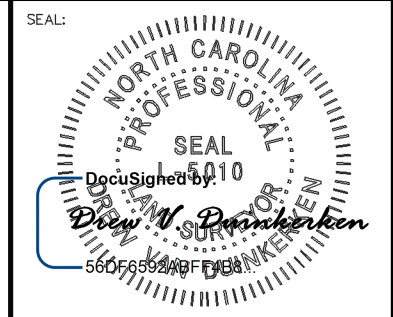
● CROSS-SECTION REBAR



LONGITUDINAL PROFILE - SHAKE RAG
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
 NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILE - SHAKE RAG

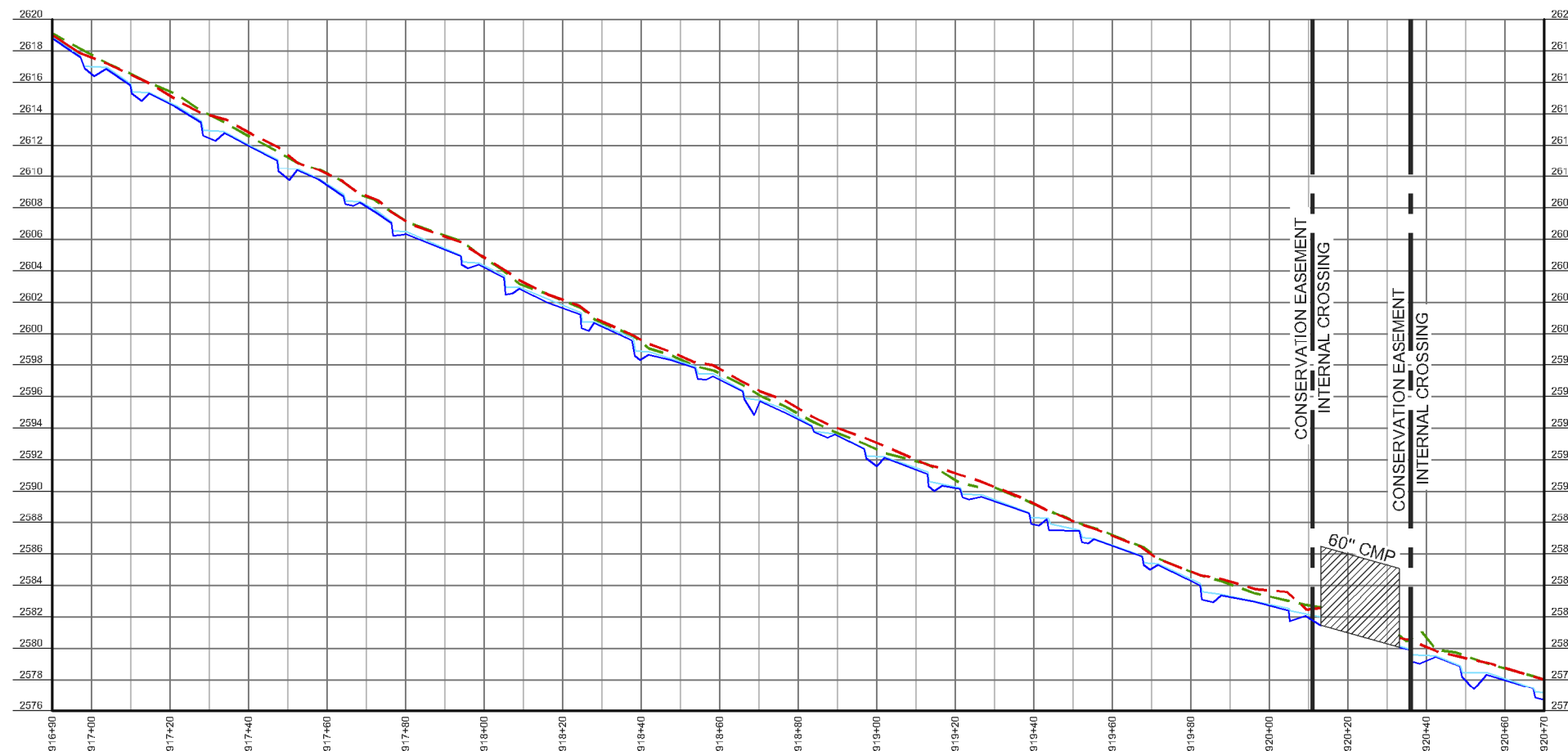
TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20	
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)	
#	DATE	REVISIONS

SHEET:
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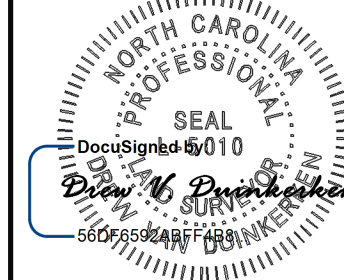


LONGITUDINAL PROFILE - SHAKE RAG
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- - - WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILE - SHAKE RAG

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN
 SURVEY DATES: 12/19/19 - 04/01/20

JOB: #190881-AB
 SHEET SIZE: 11" X 17" (HALF SIZE)

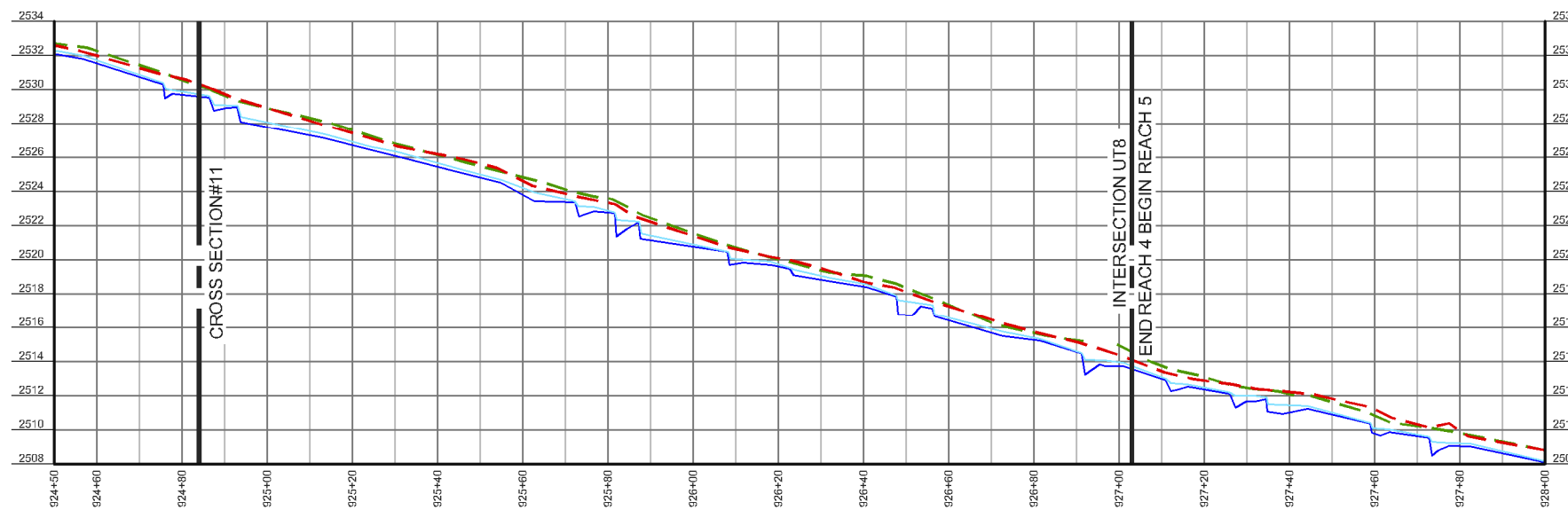
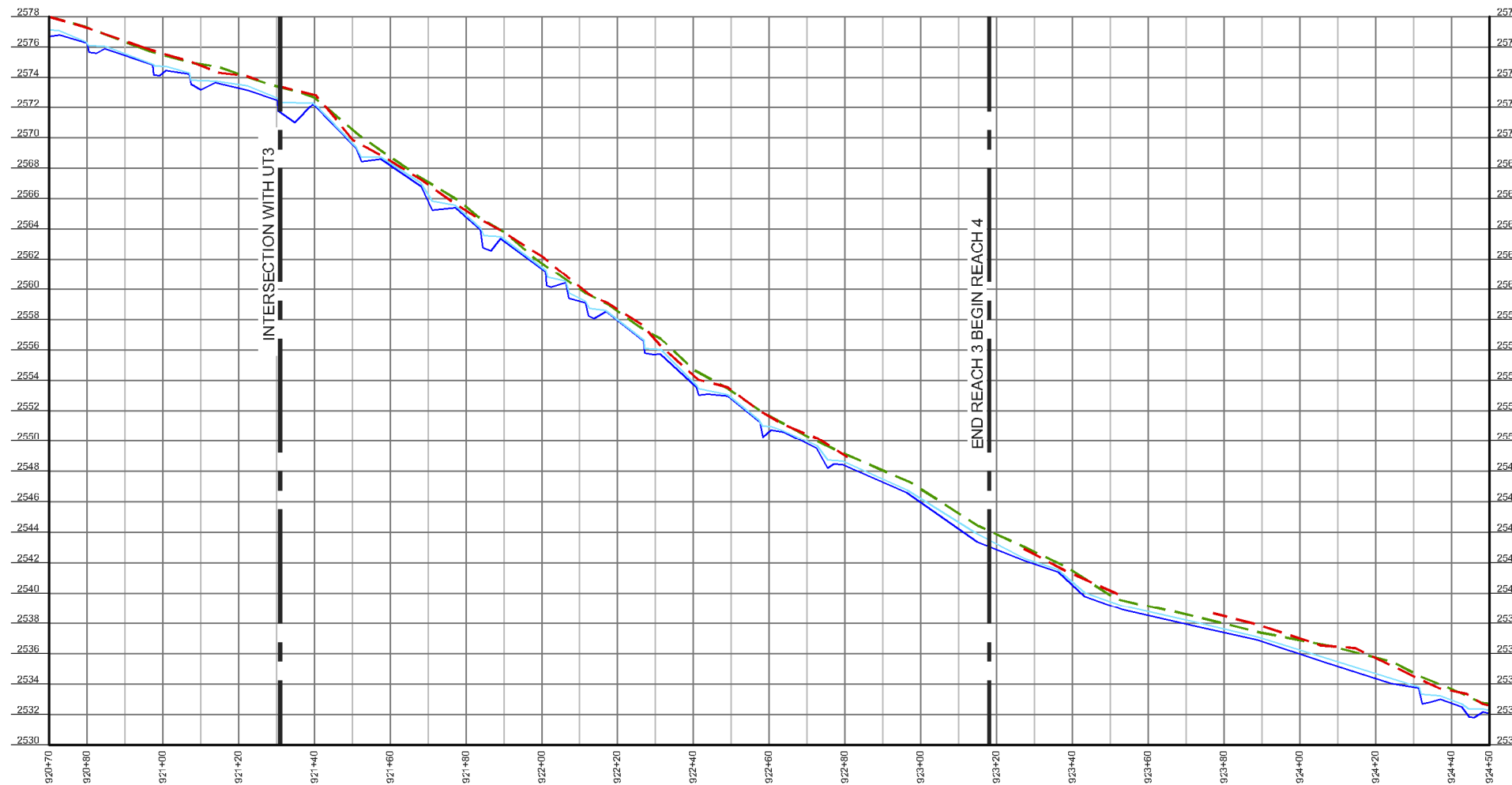
#	DATE	REVISIONS

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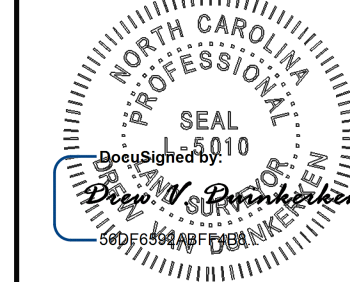


LONGITUDINAL PROFILE - SHAKE RAG
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- - - WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILE - SHAKE RAG

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

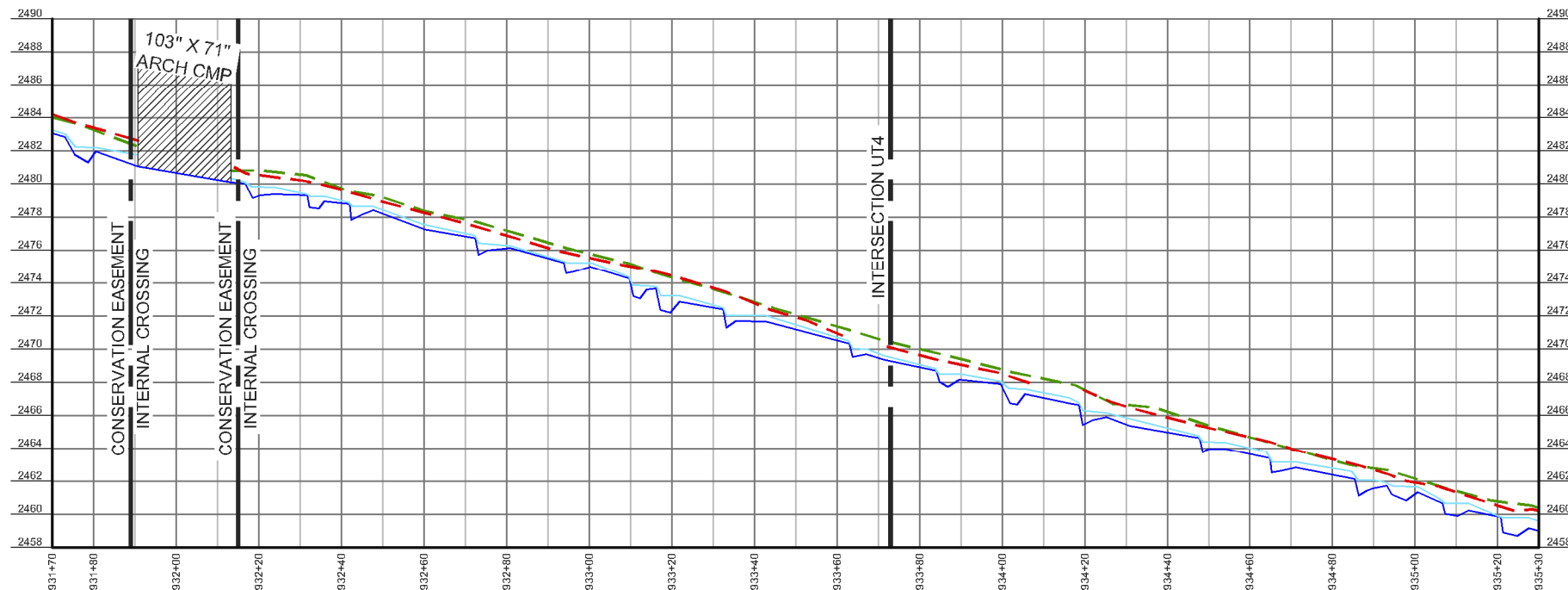
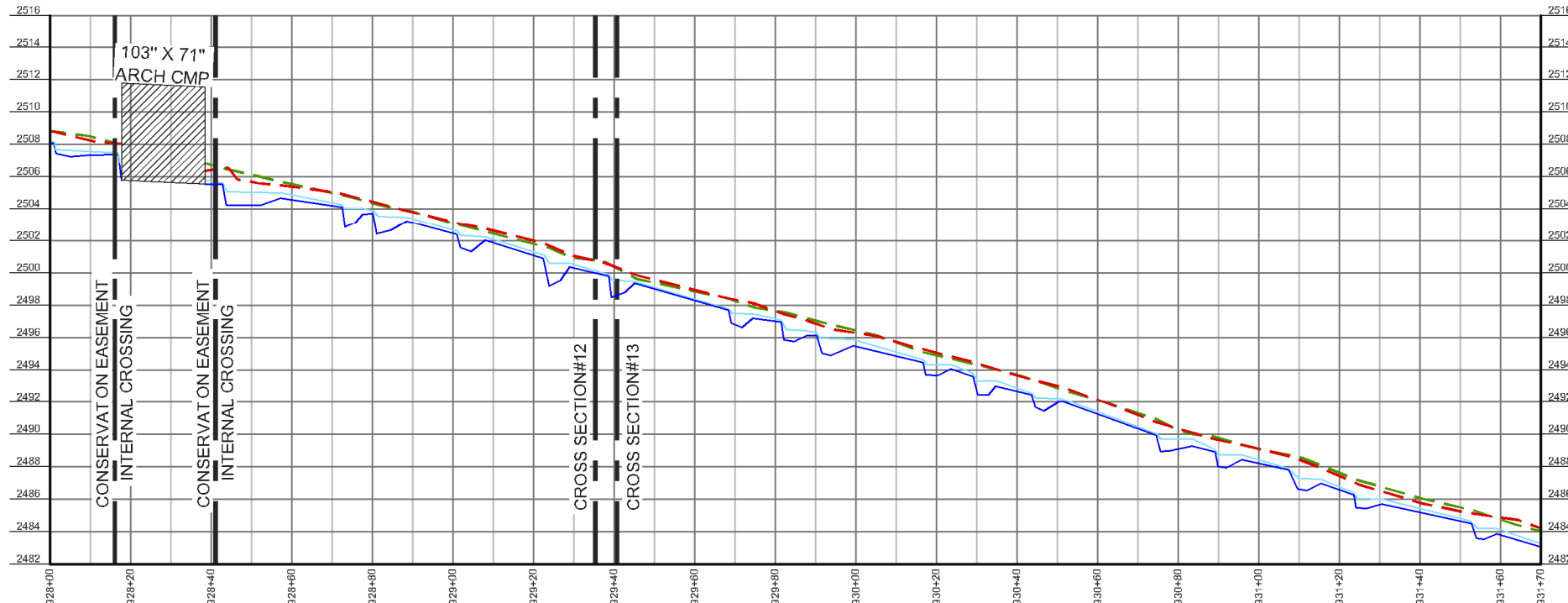
#	DATE	REVISIONS

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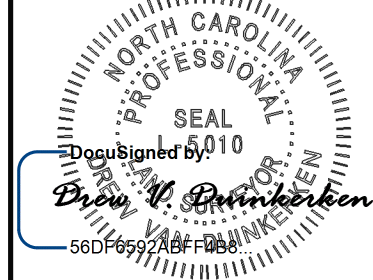


LONGITUDINAL PROFILE - SHAKE RAG
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILES:
 SHAKE RAG

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE:
 AS SHOWN

SURVEY DATES:
 12/19/19 - 04/01/20

JOB:
 #190881-AB

SHEET SIZE:
 11" X 17" (HALF SIZE)

DATE REVISIONS

DATE REVISIONS

DATE REVISIONS

DATE REVISIONS

DATE REVISIONS

DATE REVISIONS

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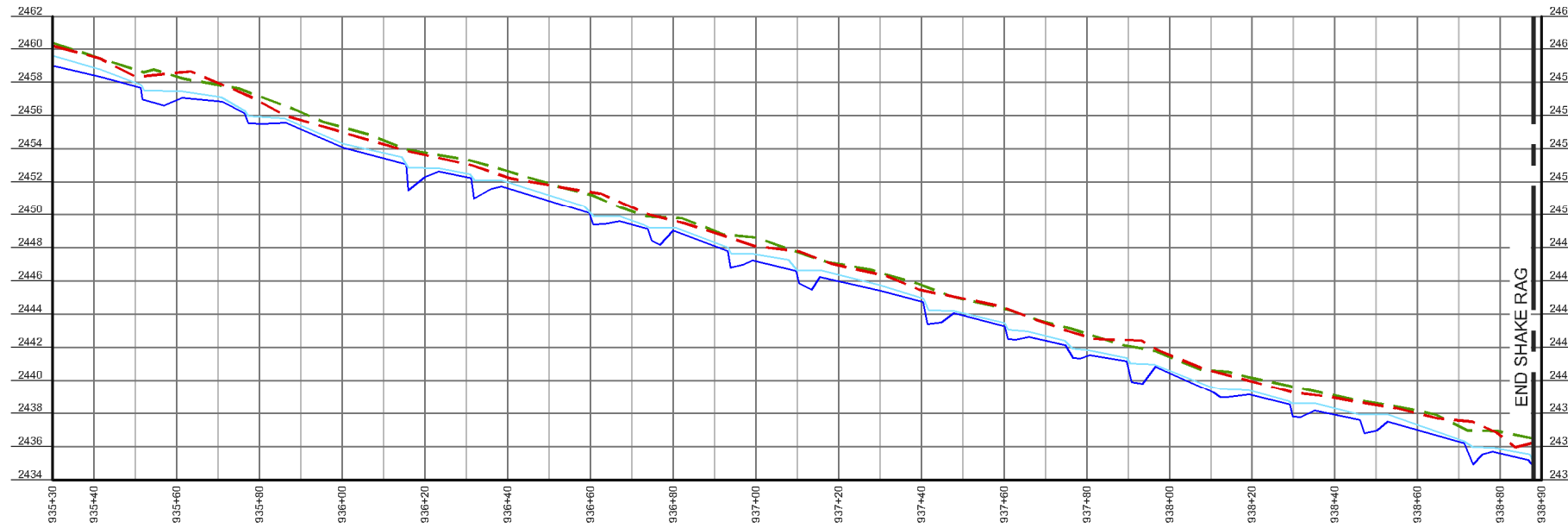
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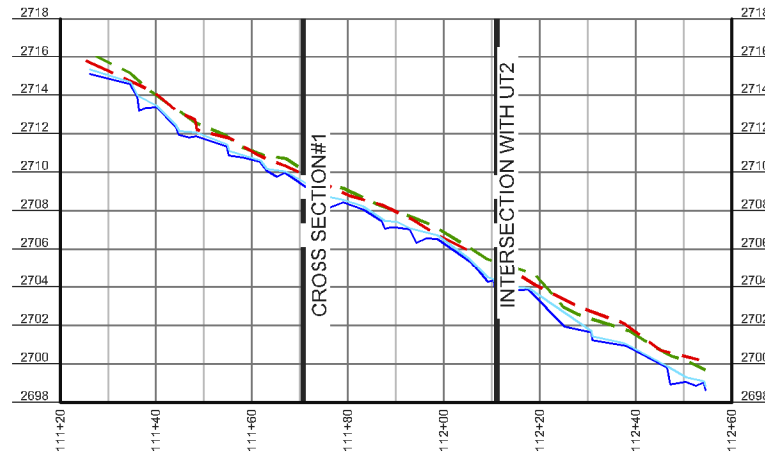
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LONGITUDINAL PROFILE - SHAKE RAG
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

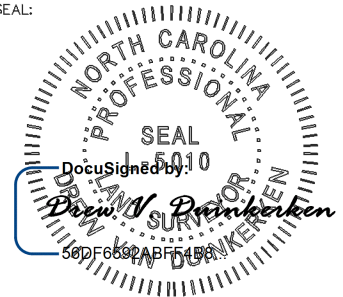


LONGITUDINAL PROFILE - UT1
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILES:
 SHAKE RAG & UT1

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN SURVEY DATES: 12/19/19 - 04/01/20

JOB: #190881-AB SHEET SIZE: 11" X 17" (HALF SIZE)

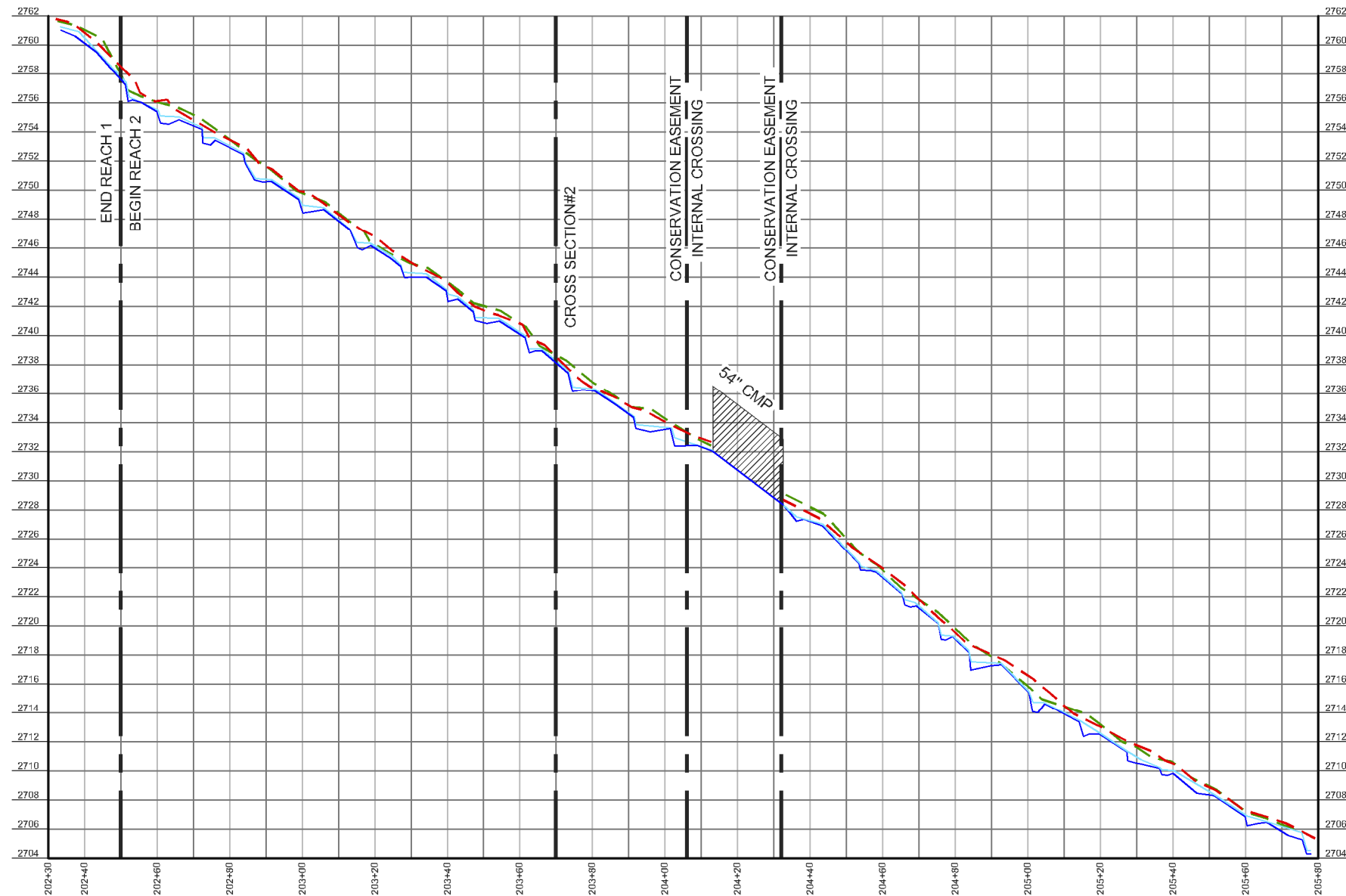
#	DATE	REVISIONS

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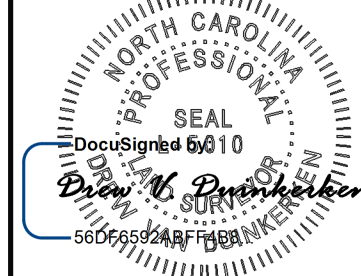


LONGITUDINAL PROFILE - UT2
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- - - WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILE:
 UT2

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE:
 AS SHOWN

SURVEY DATES:
 12/19/19 - 04/01/20

JOB:
 #190881-AB

SHEET SIZE:
 11" X 17" (HALF SIZE)

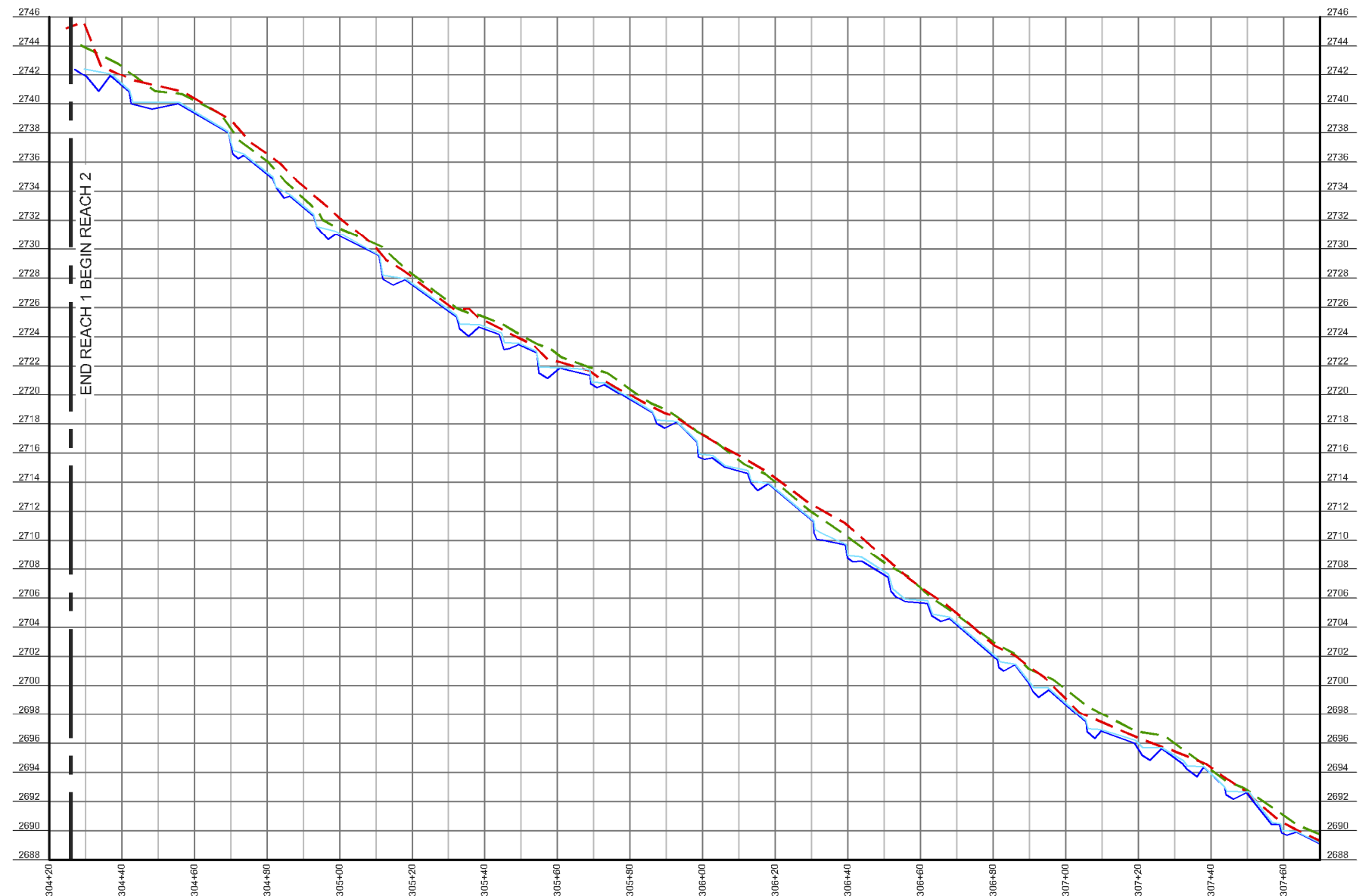
#	DATE	REVISIONS

SHEET:

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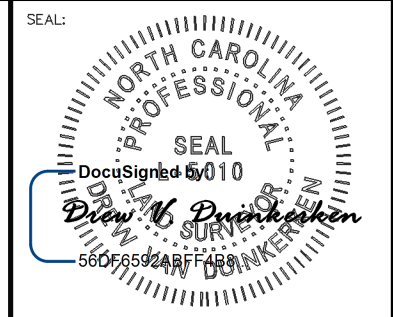


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LONGITUDINAL PROFILE - UT3
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND	
	THALWEG
	WATER SURFACE
	RIGHT TOP OF BANK
	LEFT TOP OF BANK



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
 NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILE:
 UT3

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

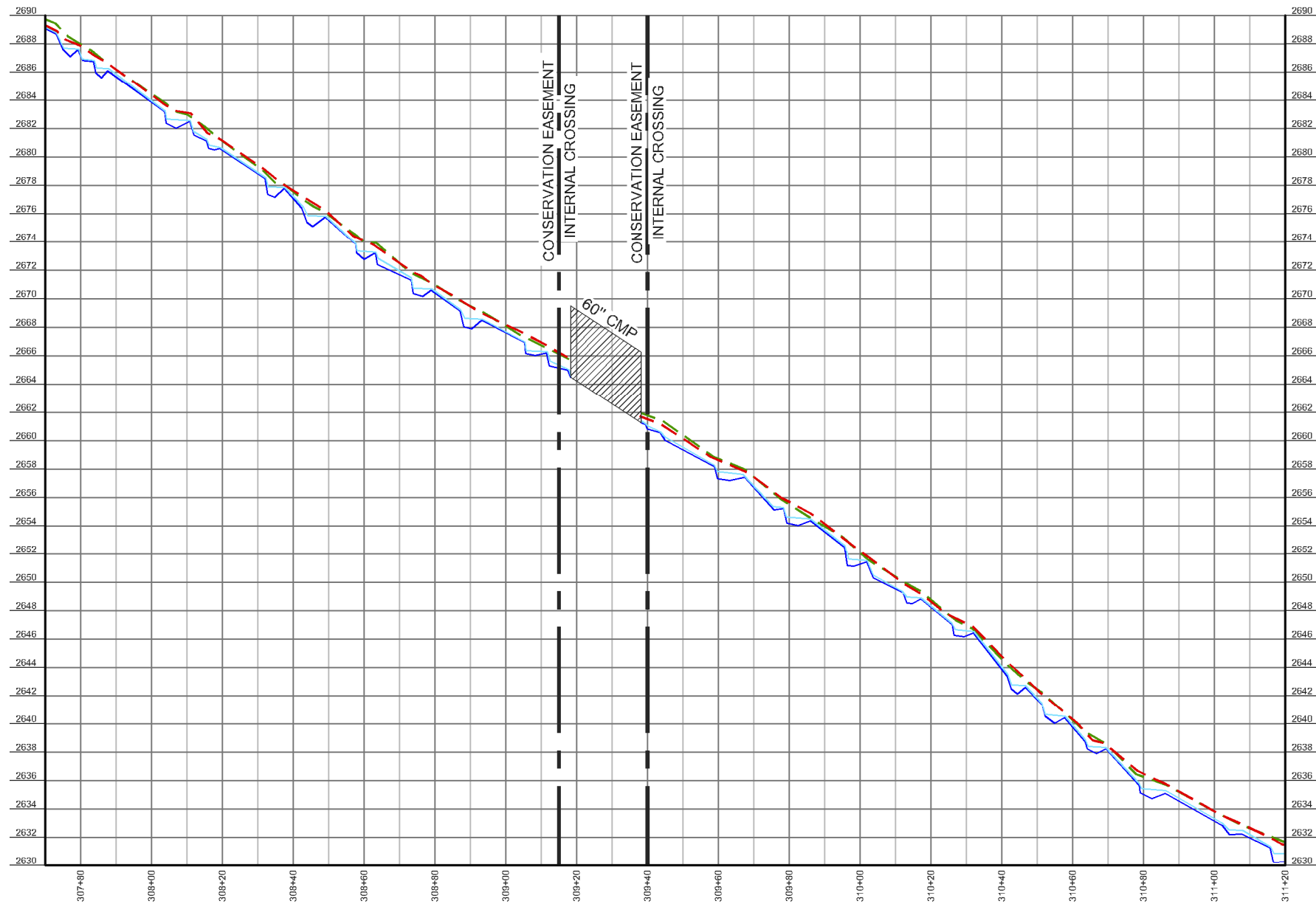
SCALE: AS SHOWN	SURVEY DATES: 12/19/19 - 04/01/20
JOB: #190881-AB	SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

SHEET:
35 OF **39**



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 Asheville, NC 28802
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 License # C-3039

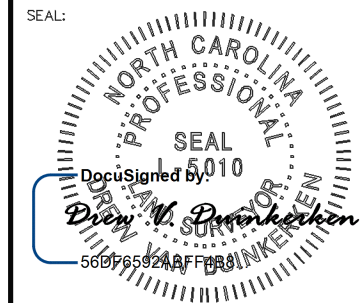


LONGITUDINAL PROFILE - UT3
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- - - WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILE:
 UT3

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE:
 AS SHOWN

SURVEY DATES:
 12/19/19 - 04/01/20

JOB:
 #190881-AB

SHEET SIZE:
 11" X 17" (HALF SIZE)

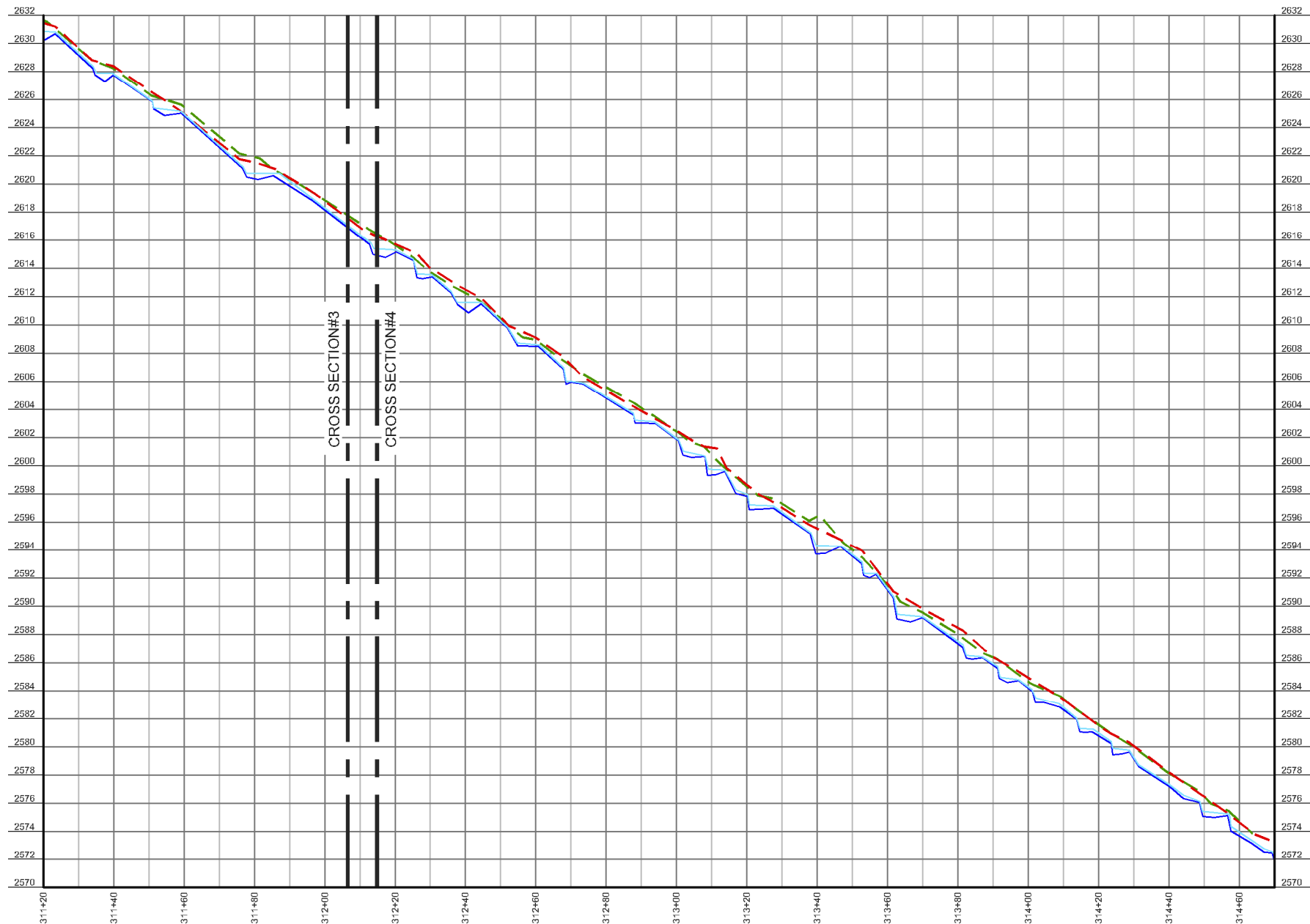
#	DATE	REVISIONS

SHEET:

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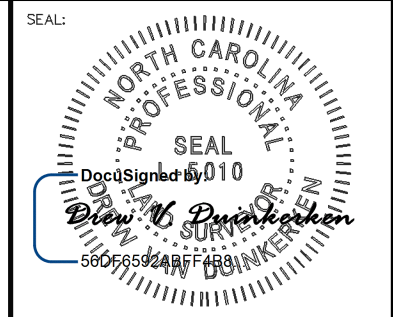
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LONGITUDINAL PROFILE - UT3
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- - - WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION
 NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILE:
 UT3

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN
 SURVEY DATES: 12/19/19 - 04/01/20
 JOB: #190881-AB
 SHEET SIZE: 11" X 17" (HALF SIZE)

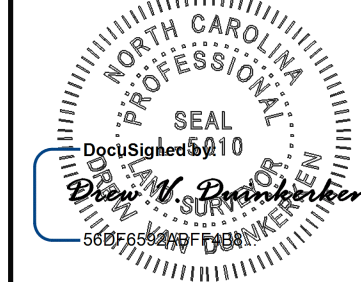
#	DATE	REVISIONS

SHEET:
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SEAL:



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NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
DMS PROJECT NO. 100018

PROJECT:
SHAKE RAG BRANCH
MITIGATION SITE -
SHAKE RAG BRANCH

SHEET TITLE:
LONGITUDINAL PROFILE:
UT4

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE:
AS SHOWN

SURVEY DATES:
12/19/19 - 04/01/20

JOB:
#190881-AB

SHEET SIZE:
11" X 17" (HALF SIZE)

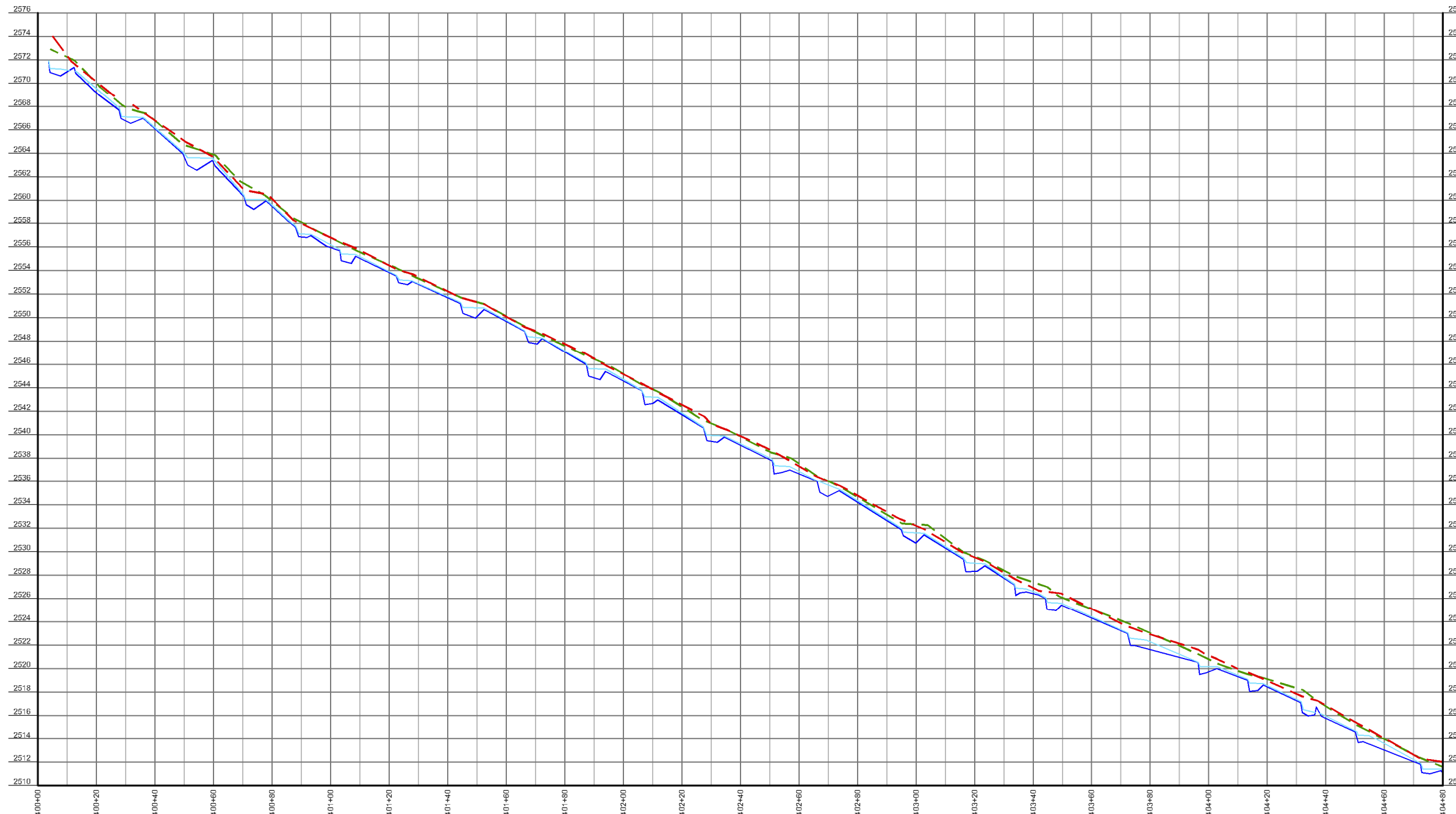
#	DATE	REVISIONS

SHEET:

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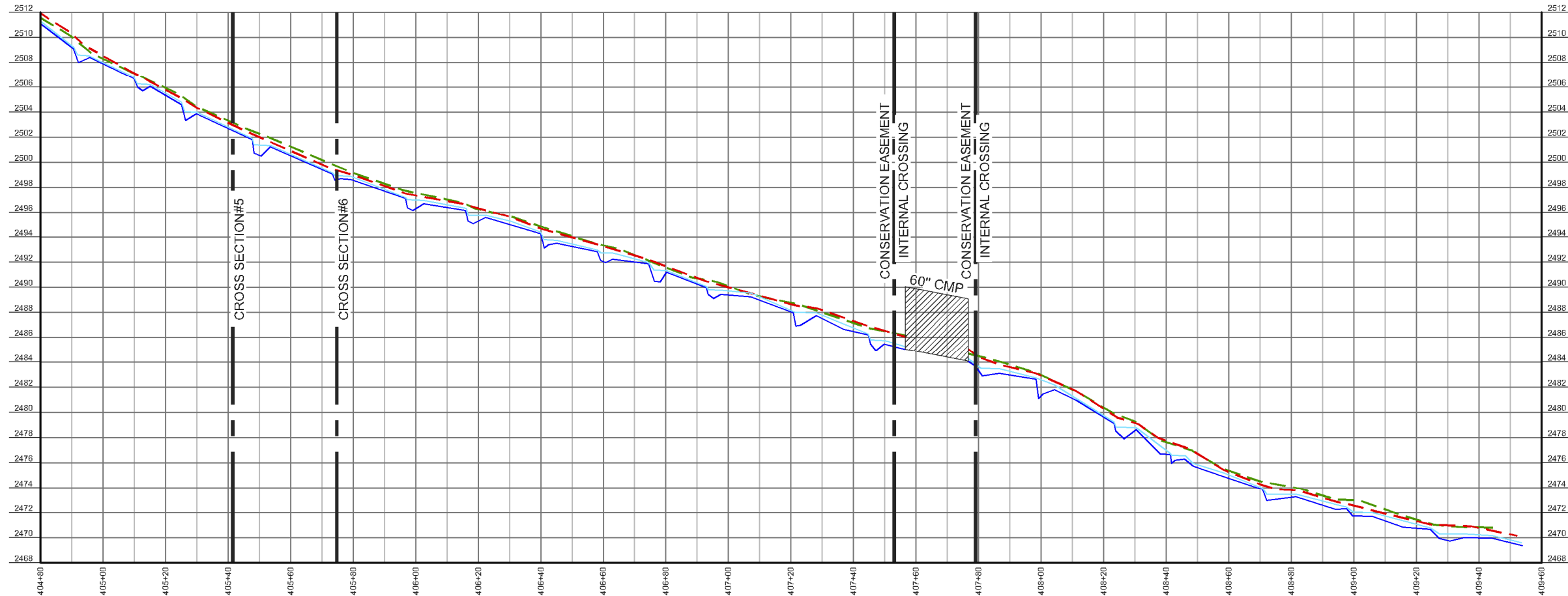
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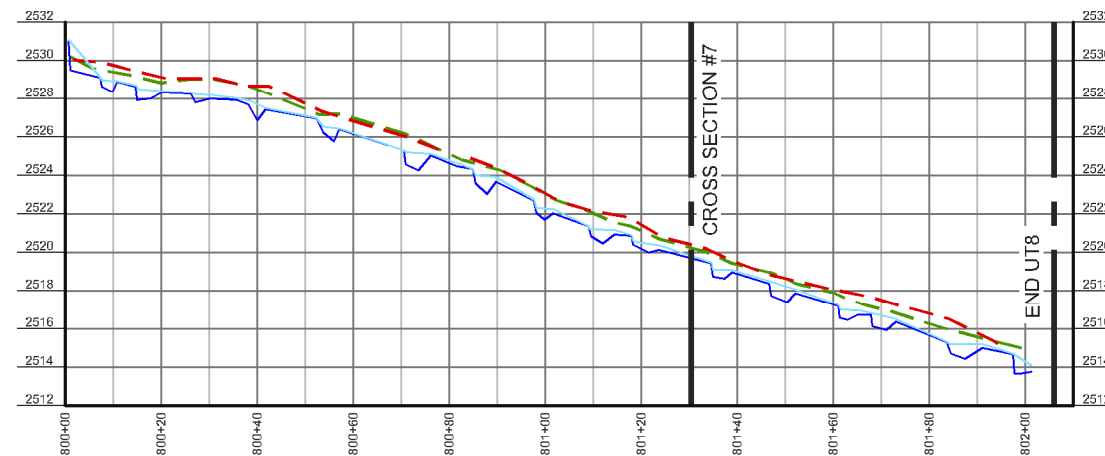
LONGITUDINAL PROFILE - UT4
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- WATER SURFACE
- - - RIGHT TOP OF BANK
- - - LEFT TOP OF BANK



LONGITUDINAL PROFILE - UT4
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

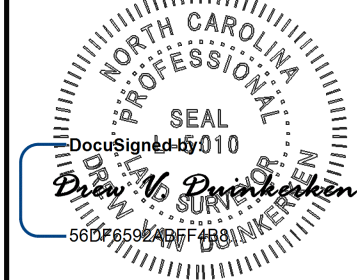


LONGITUDINAL PROFILE - UT8
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

LEGEND

- THALWEG
- WATER SURFACE
- RIGHT TOP OF BANK
- LEFT TOP OF BANK

SEAL:



PLEASE REFER TO THE COVERSHEET FOR THE STATEMENT OF CERTIFICATION

NOTE: SEE SHEET 1 FOR SURVEYOR'S NOTES & LEGEND

ELEVATION DATUM: NAVD 88
 CONTOUR INTERVAL: 1 FOOT

AN AS-BUILT SURVEY FOR:
 WILDLANDS ENGINEERING, INC.

SPO FILE NO. 57-T
 DMS PROJECT NO. 100018

PROJECT:
 SHAKE RAG BRANCH
 MITIGATION SITE -
 SHAKE RAG BRANCH

SHEET TITLE:
 LONGITUDINAL PROFILES:
 UT4 & UT8

TOWNSHIP: BEECH GLEN	COUNTY: MADISON	STATE: NORTH CAROLINA
DRAWN BY: NH, AB	CHECKED BY: DD	SURVEY BY: KP, AC, HW, NH, DD, CG, PD, JB, NMH, JEM

SCALE: AS SHOWN
 SURVEY DATES: 12/19/19 - 04/01/20

JOB: #190881-AB
 SHEET SIZE: 11" X 17" (HALF SIZE)

#	DATE	REVISIONS

SHEET:

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