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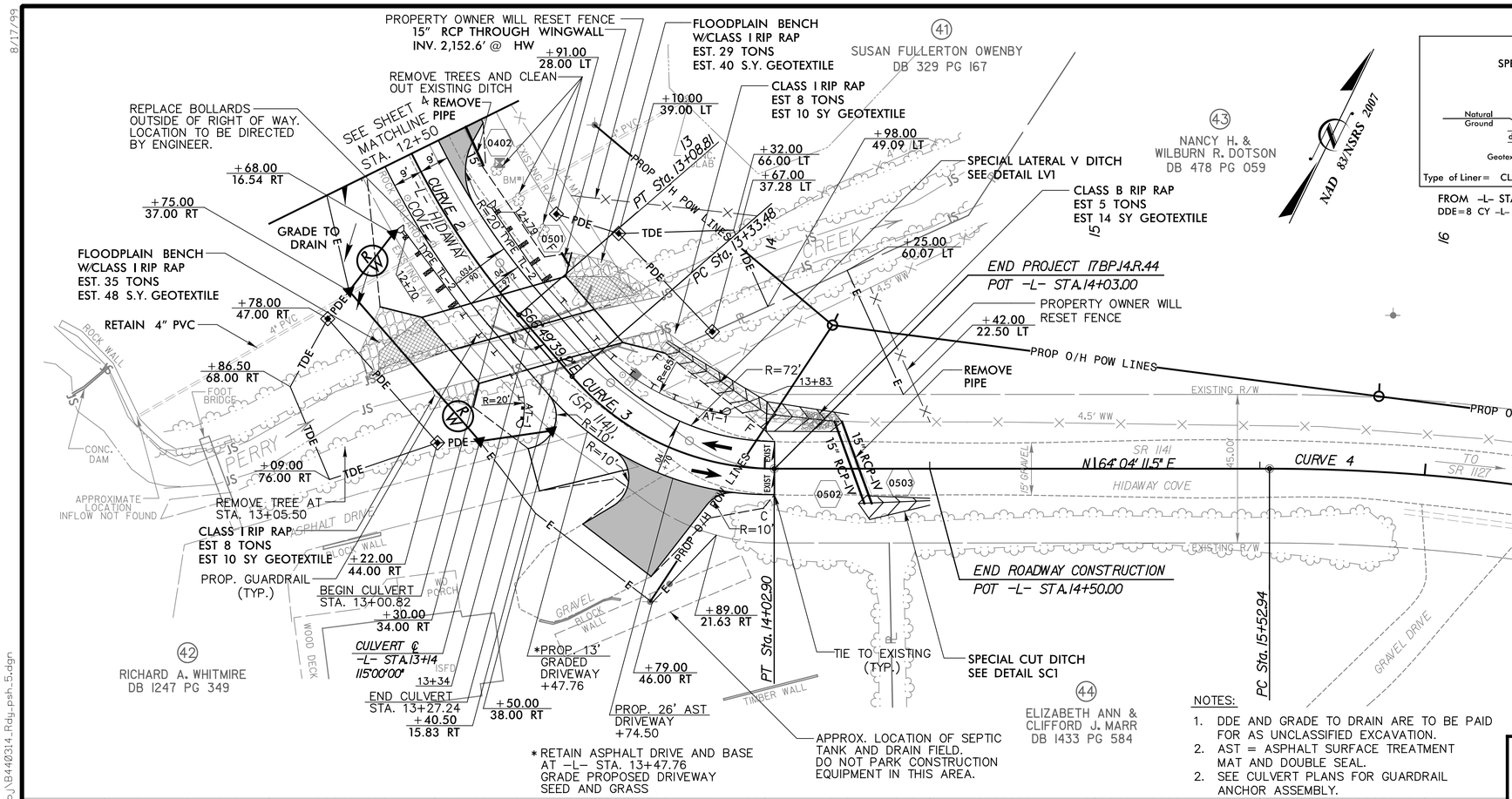
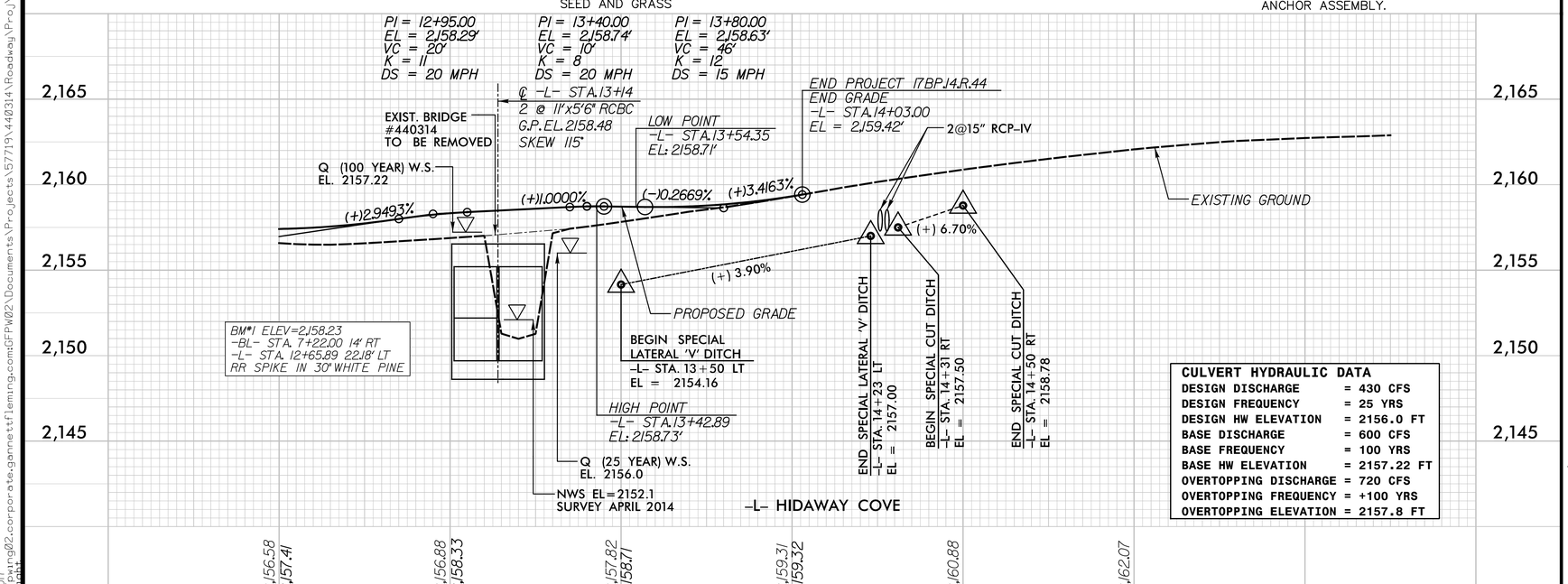


NOTES:

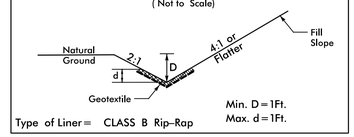
1. DDE AND GRADE TO DRAIN ARE TO BE PAID FOR AS UNCLASSIFIED EXCAVATION.
2. AST = ASPHALT SURFACE TREATMENT MAT AND DOUBLE SEAL.
2. SEE CULVERT PLANS FOR GUARDRAIL ANCHOR ASSEMBLY.



CULVERT HYDRAULIC DATA	
DESIGN DISCHARGE	= 430 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2156.0 FT
BASE DISCHARGE	= 600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2157.22 FT
OVERTOPPING DISCHARGE	= 720 CFS
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING ELEVATION	= 2157.8 FT

DETAIL LV1

SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM -L- STA. 13+50 LT TO STA. 14+23 LT
DDE = 8 CY -L- STA 14+00 LT TO 14+23 LT

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.44	5
HENDERSON COUNTY CULVERT #440314	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 041650	SEAL 21656
6/7/2017	6/13/2017

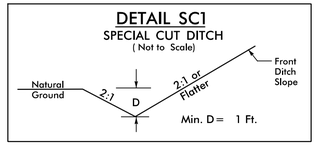
Plans Prepared By:

AMERICAN Engineering
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
NC Lic. No. C-3881

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL SC1

SPECIAL CUT DITCH
(Not to Scale)



FROM -L- STA. 14+31 RT TO STA. 14+50 RT
DDE = 4 CY

FOR CULVERT SEE SHEETS C-1 THRU C-10

-L- CURVE 2 DATA
PI Sta 12+43.70
Δ = 33° 25' 08.6" (LT)
D = 24° 54' 40.4"
L = 134.15'
T = 69.05'
R = 230.00'
DS = 20 MPH
e = 0.34

-L- CURVE 3 DATA
PI Sta 13+70.48
Δ = 49° 06' 09.3" (LT)
D = 70° 44' 07.9"
L = 69.42'
T = 37.00'
R = 81.00'
DS = 15 MPH
e = 0.40

-L- CURVE 4 DATA
PI Sta 16+02.95
Δ = 9° 55' 21.0" (RT)
D = 9° 56' 42.7"
L = 99.77'
T = 50.01'
R = 576.12'

DETAIL 1

(NOT TO SCALE)

SKEWED MULTI-BARREL CULVERT LOW FLOW CHANNEL, SILLS AND FLOOD PLAIN

*NOTES:

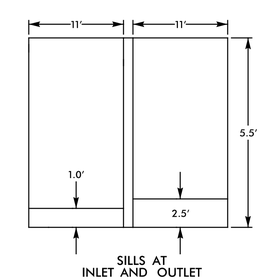
1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

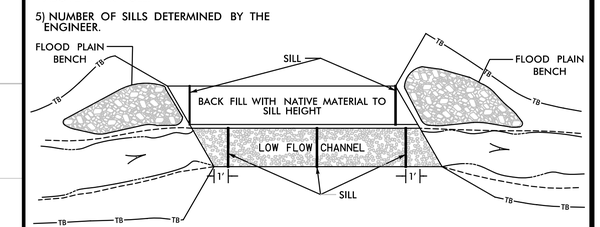
2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM.

4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.

5) NUMBER OF SILLS DETERMINED BY THE ENGINEER.





PLAN VIEW