



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

October 29, 2018

Mr. James Lastinger
U.S Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest NC 27587

Subject: As-Built Report for Stream Mitigation Project U-2707, Forsyth County,
TIP Project No. U-2707, USACE Action ID: SAW-1998-20439,
NCDWR Project No. 2012-0470

Dear Mr. Lastinger,

Please find enclosed the As-Built Report for the subject stream mitigation project. The Division 9 Resident Engineer responsible for administering the contract has certified that the site was constructed according to the construction plan sheets, with any exceptions noted in this As-Built Report.

Elevation shots were taken during construction to ensure that the project was built in accordance with the design files. During initial survey it was noted that existing topographical elevations did not match the design file in certain areas. Adjustments were made to the stream profile after consultation with the resource agencies. These changes are noted in the attached as built plans.

Fencing was also adjusted after consultation with the resource agencies. Fencing was installed along a utility line easement along the northern portion of the site. This resulted in a loss of Type II Reforestation. Additional Type II Reforestation was completed along the southern portion of the stream to compensate for this loss. These areas are shown in the attached as built plans.

The following information has been included as part of the As-Built Report: 1) As-Built Plan Sheets, 2) Photo Point Locations, Permanent Cross-Section Locations and Vegetation Plot Maps, 3) Planting Plan and Restoration Detail Sheets. The sites will be monitored as described in the associated permit requirements.

If you should have any questions or require additional information, please contact Mr. Randy Griffin at (919) 707-6121. Thank you once again for your continued support and cooperation.

Sincerely,

DocuSigned by:

Phil Harris

8C1643F6874A457...

Philip S. Harris, III, P.E., CPM, Unit Head
Environmental Analysis Unit

Enclosures

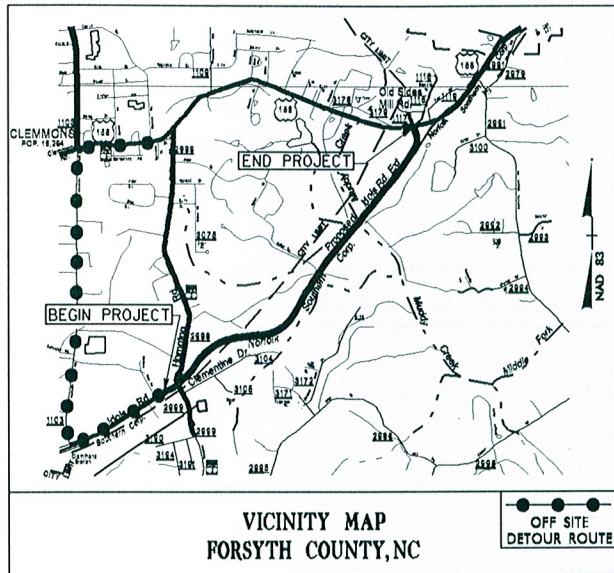
cc: Mr. Monte Matthews, USACE
Mr. Dave Wanucha, NCDWR
Ms. Amy Chapman, NCDWR
Ms. Marla Chambers NCWRC
Ms. Marella Buncick USFWS
Mr. Todd Bowers, USEPA
Mr. David Harris P.E., NCDOT- REU
Mr. Jordan Scott P.E., NCDOT-Div. 9 Resident Engineer
Ms. Amy Euliss, NCDOT-Div. 9 Environmental Officer
Mr. Randy Griffin, NCDOT-EAU

17-OCT-2018 14:33 S:\Engineering\U-2707\as-built\U2707_Rdy_tsh.dgn bmoore AL PDE4279573

TIP PROJECT: U-2707

CONTRACT: C203725

SEE SHEET 1-A FOR INDEX OF SHEETS
SEE SHEET 1-B FOR CONVENTIONAL SYMBOLS



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

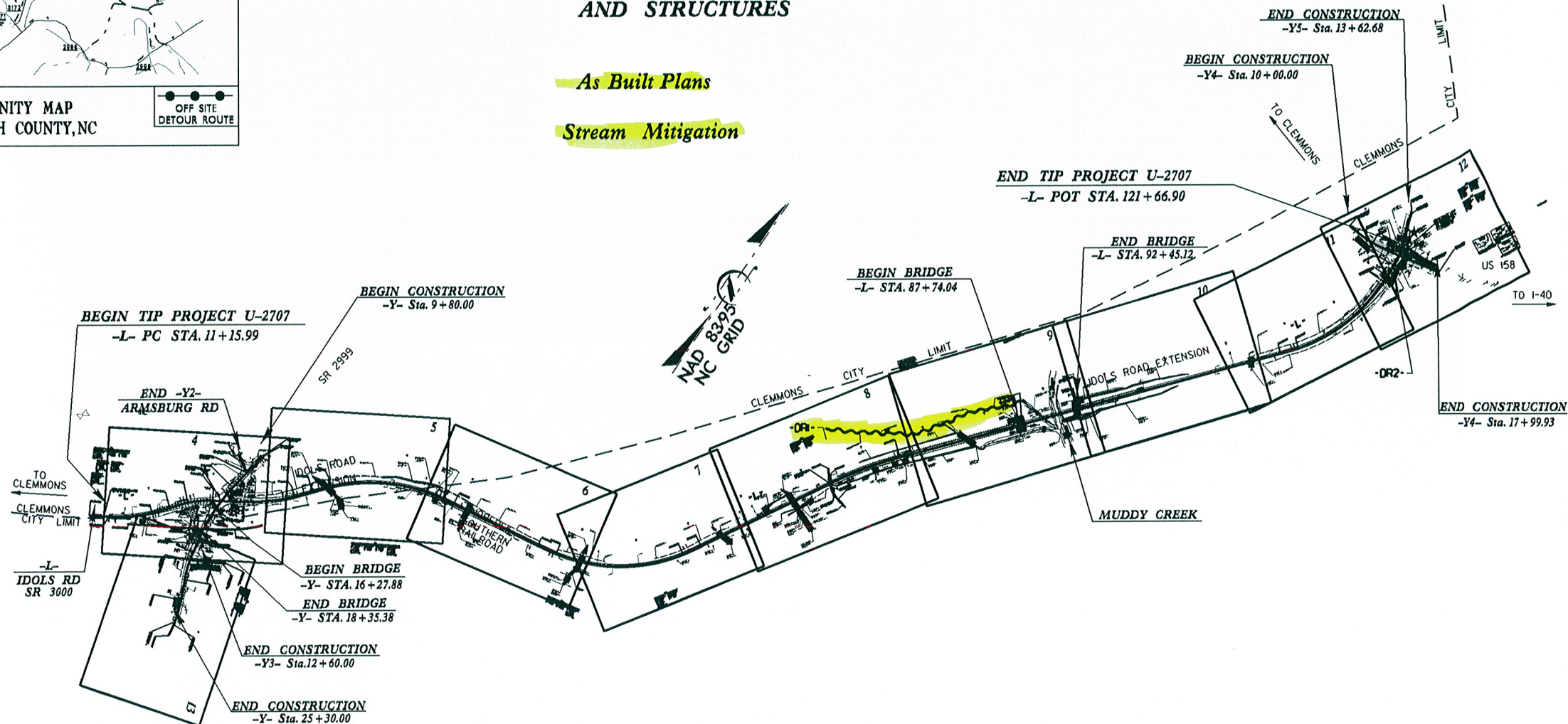
FORSYTH COUNTY

LOCATION: CLEMMONS - SR 3000 (IDOLS ROAD), FROM SR 2999
(HAMPTON ROAD) TO US 158 (CLEMMONS ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS,
AND STRUCTURES

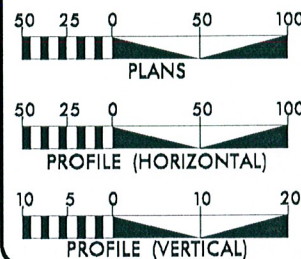
As Built Plans

Stream Mitigation



★ PROPOSED TRAFFIC SIGNAL

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 11,140
ADT 2036 = 17,840
K = 12 %
D = 60 %
T = 4 % *
V = 50 MPH
* TTST = 1% DUAL 3%
FUNC CLASS =
URBAN COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2707 = 2.004 MI
LENGTH STRUCTURE TIP PROJECT U-2707 = 0.089 MI
TOTAL LENGTH TIP PROJECT U-2707 = 2.093 MI

Prepared in the Office of:

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

PROJECT ENGINEER
ENGINEERING COORDINATION

HYDRAULICS ENGINEER

SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2707	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34845.1.1	STP-3000(1)	P.E.	
34845.2.2	STP-3000(1)	RW & UTIL.	
34845.3.3		CONST.	

REVISIONS

As Built Plans

MORPHOLOGICAL MEASUREMENTS TABLE

UT TO MUDDY CREEK
-R1- Sta. 0+00.00 to Sta. 9+20.00

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-1
RW SHEET NO.	HYDRAULICS ENGINEER

Variables	Existing Channel	Proposed Reach	USGS Station	Reference Reach
1.Stream type	C/E5	C5		CE 4/1
2.Drainage area	0.49 SQ MI (316 ACRES)	0.45 SQ MI (288 ACRES)		0.55 SQ MI (355 ACRES)
3.Bankfull width	Mean: 11.36 Range: 8.86-14.80	Mean: 12.00 Range:		Mean: 15.48 Range: 11.90-17.70
4.Bankfull mean depth	Mean: 0.72 Range: 0.58-0.85	Mean: 0.83 Range:		Mean: 1.29 Range: 1.23-1.41
5.Width/depth ratio	Mean: 15.56 Range: 13.65-17.48	Mean: 14.4 Range:		Mean: 12.97 Range: 11.42-14.37
6.Bankfull cross-sectional area	Mean: 10.77 Range: 5.93-14.00	Mean: 10.00 Range:		Mean: 21.33 Range: 20.00-22.70
7.Bankfull mean velocity	Mean: 5.38 Range:	Mean: 5.30 Range:		Mean: 2.90 Range:
8.Bankfull discharge,cfs	Mean: 53 Range:	Mean: 53 Range:		Mean: 58 Range:
9.Bankfull max depth	Mean: 1.60 Range: 0.96-2.37	Mean: 1.40 Range: 1.40-1.40		Mean: 1.94 Range: 1.60-2.12
10.Width of floodprone area	Mean: 118.67 Range: 48.69-180.00	Mean: >100.00 Range:		Mean: 171.25 Range: 162.00-186.00
11.Entrenchment ratio	Mean: 11.41 Range: 3.29-17.68	Mean: >2.2 Range:		Mean: 11.30 Range: 10.06-14.45
12.Meander length	Mean: 50.92 Range: 31.09-73.07	Mean: 95.10 Range: 80.10-102.00		Mean: 80.30 Range: 64.32-114.00
13.Ratio of meander length to bankfull width	Mean: 4.48 Range: 2.47-6.43	Mean: 7.93 Range: 6.68-8.50		Mean: 5.19 Range: 4.16-7.37
14.Radius of curvature	Mean: 22.22 Range: 10.01-32.89	Mean: 33.47 Range: 28.00-49.00		Mean: 18.44 Range: 11.73-25.30
15.Ratio of radius of curvature to bankfull width	Mean: 1.96 Range: 0.88-2.90	Mean: 2.79 Range: 2.33-4.08		Mean: 1.19 Range: 0.76-1.63
16.Belt width	Mean: 6.38 Range: 1.28-14.48	Mean: 21.91 Range: 11.52-41.14		Mean: 31.92 Range: 12.54-54.25
17.Meander width ratio	Mean: 0.56 Range: 0.11-1.27	Mean: 1.83 Range: 0.96-3.43		Mean: 2.06 Range: 0.81-3.51
18.Sinuosity (stream length/valley length)	Mean: 1.06 Range:	Mean: 1.12 Range:		Mean: 1.41 Range:
19.Valley slope	Mean: 0.00670 Range:	Mean: 0.00899 Range:		Mean: 0.01230 Range:
20.Average slope	Mean: 0.00632 Range:	Mean: 0.0080 Range: 0.0080-0.0080		Mean: 0.00872 Range:
21.Pool slope	Mean: 0.00606 Range: 0.00081-0.01136	Mean: 0.00194 Range: 0.00120-0.00200		Mean: 0.00221 Range: 0.00175-0.00267
22.Ratio of pool slope to average slope	Mean: 0.96 Range: 0.13-1.80	Mean: 0.24 Range: 0.15-0.25		Mean: 0.25 Range: 0.20-0.31
23.Maximum pool depth	Mean: 1.94 Range: 1.40-2.47	Mean: 1.83 Range: 1.83-1.83		Mean: 2.87 Range: 2.85-2.89
24.Ratio of pool depth to average bankfull depth	Mean: 2.71 Range: 1.95-3.45	Mean: 2.20 Range: 2.20-2.20		Mean: 2.22 Range: 2.21-2.23
25.Pool width	Mean: 11.69 Range: 9.16-14.22	Mean: 12.00 Range:		Mean: 16.30 Range: 12.60-20.00
26.Ratio of pool width to bankfull width	Mean: 1.03 Range: 0.81-1.25	Mean: 1.0 Range:		Mean: 1.05 Range: 0.81-1.29
27.Pool to pool spacing	Mean: 61.22 Range: 29.34-78.63	Mean: 53.50 Range: 39.00-62.00		Mean: 51.98 Range: 35.73-68.22
28.Ratio of pool to pool spacing to bankfull width	Mean: 5.39 Range: 2.58-6.92	Mean: 4.46 Range: 3.25-5.17		Mean: 3.36 Range: 2.31-4.41
29.Ratio of lowest bank height to bankfull height (or max bankfull depth)	Mean: N/A Range:	Mean: 1.0 Range:		Mean: 1.06 Range: 1.0-1.15

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-2
R/W SHEET NO.	HYDRAULICS ENGINEER

As Built Plans

MORPHOLOGICAL MEASUREMENTS TABLE

UT TO MUDDY CREEK
-R1- Sta. 9+20.00 to Sta. 18+00.00

Variables	Existing Channel	Proposed Reach	USGS Station	Reference Reach
1.Stream type	C/E5	C5		CE 4/I
2.Drainage area	0.49 SQ MI (316 ACRES)	0.49 SQ MI (316 ACRES)		0.55 SQ MI (355 ACRES)
3.Bankfull width	Mean: 11.36 Range: 8.86-14.80	Mean: 13.96 Range:		Mean: 15.48 Range: 11.90-17.70
4.Bankfull mean depth	Mean: 0.72 Range: 0.58-0.85	Mean: 1.07 Range:		Mean: 1.29 Range: 1.23-1.41
5.Width/depth ratio	Mean: 15.56 Range: 13.65-17.48	Mean: 13.00 Range:		Mean: 12.97 Range: 11.42-14.37
6.Bankfull cross-sectional area	Mean: 10.77 Range: 5.93-14.00	Mean: 15.00 Range:		Mean: 21.33 Range: 20.00-22.70
7.Bankfull mean velocity	Mean: 5.38 Range:	Mean: 3.53 Range:		Mean: 2.90 Range:
8.Bankfull discharge,cfs	Mean: 53 Range:	Mean: 53 Range:		Mean: 58 Range:
9.Bankfull max depth	Mean: 1.60 Range: 0.96-2.37	Mean: 1.75 Range: 1.61-1.76		Mean: 1.94 Range: 1.60-2.12
10.Width of floodprone area	Mean: 118.67 Range: 48.69-180.00	Mean: >100.00 Range:		Mean: 171.25 Range: 162.00-186.00
11.Entrenchment ratio	Mean: 11.41 Range: 3.29-17.68	Mean: >2.2 Range:		Mean: 11.30 Range: 10.06-14.45
12.Meander length	Mean: 50.92 Range: 31.09-73.07	Mean: 97.48 Range: 91.07-120.51		Mean: 80.30 Range: 64.32-114.00
13.Ratio of meander length to bankfull width	Mean: 4.48 Range: 2.47-6.43	Mean: 6.96 Range: 6.51-8.61		Mean: 5.19 Range: 4.16-7.37
14.Radius of curvature	Mean: 22.22 Range: 10.01-32.89	Mean: 33.88 Range: 28.00-49.00		Mean: 18.44 Range: 11.73-25.30
15.Ratio of radius of curvature to bankfull width	Mean: 1.96 Range: 0.88-2.90	Mean: 2.42 Range: 2.0-3.5		Mean: 1.19 Range: 0.76-1.63
16.Belt width	Mean: 6.38 Range: 1.28-14.48	Mean: 23.20 Range: 12.00-44.00		Mean: 31.92 Range: 12.54-54.25
17.Meander width ratio	Mean: 0.56 Range: 0.11-1.27	Mean: 1.66 Range: 0.86-3.14		Mean: 2.06 Range: 0.81-3.51
18.Sinuosity (stream length/valley length)	Mean: 1.06 Range:	Mean: 1.13 Range:		Mean: 1.41 Range:
19.Valley slope	Mean: 0.00670 Range:	Mean: 0.00498 Range:		Mean: 0.01230 Range:
20.Average slope	Mean: 0.00632 Range:	Mean: 0.0044 Range: 0.0044-0.0044		Mean: 0.00872 Range:
21.Pool slope	Mean: 0.00606 Range: 0.00081-0.01136	Mean: 0.00117 Range: 0.00110-0.00130		Mean: 0.00221 Range: 0.00175-0.00267
22.Ratio of pool slope to average slope	Mean: 0.96 Range: 0.13-1.80	Mean: 0.27 Range: 0.25-0.30		Mean: 0.25 Range: 0.20-0.31
23.Maximum pool depth	Mean: 1.94 Range: 1.40-2.47	Mean: 2.40 Range: 2.40-2.40		Mean: 2.87 Range: 2.85-2.89
24.Ratio of pool depth to average bankfull depth	Mean: 2.71 Range: 1.95-3.45	Mean: 2.40 Range: 2.40-2.40		Mean: 2.22 Range: 2.21-2.23
25.Pool width	Mean: 11.69 Range: 9.16-14.22	Mean: 14.00 Range:		Mean: 16.30 Range: 12.60-20.00
26.Ratio of pool width to bankfull width	Mean: 1.03 Range: 0.81-1.25	Mean: 1.0 Range:		Mean: 1.05 Range: 0.81-1.29
27.Pool to pool spacing	Mean: 61.22 Range: 29.34-78.63	Mean: 56.20 Range: 50.00-71.00		Mean: 51.98 Range: 35.73-68.22
28.Ratio of pool to pool spacing to bankfull width	Mean: 5.39 Range: 2.58-6.92	Mean: 4.01 Range: 3.57-5.07		Mean: 3.36 Range: 2.31-4.41
29.Ratio of lowest bank height to bankfull height (or max bankfull depth)	Mean: N/A Range: N/A	Mean: 1.0 Range:		Mean: 1.06 Range: 1.0-1.15

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REVISIONS

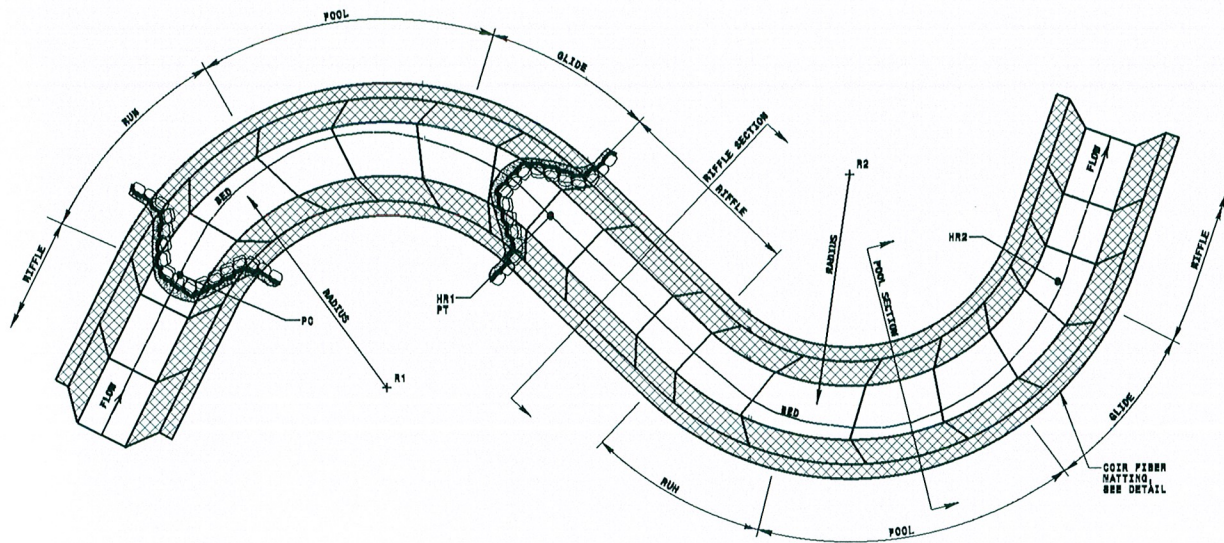
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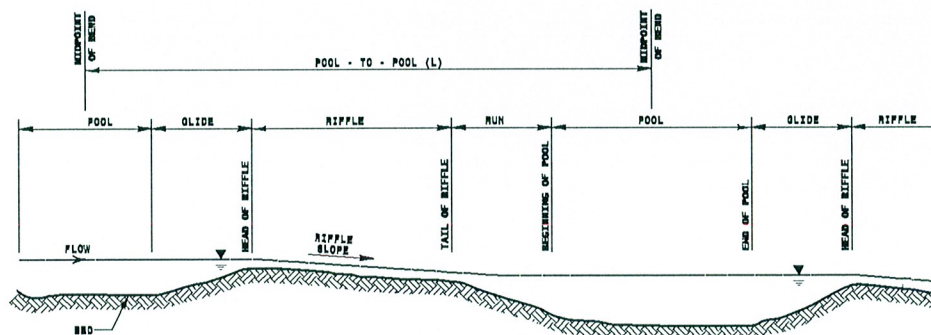
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As Built Plans

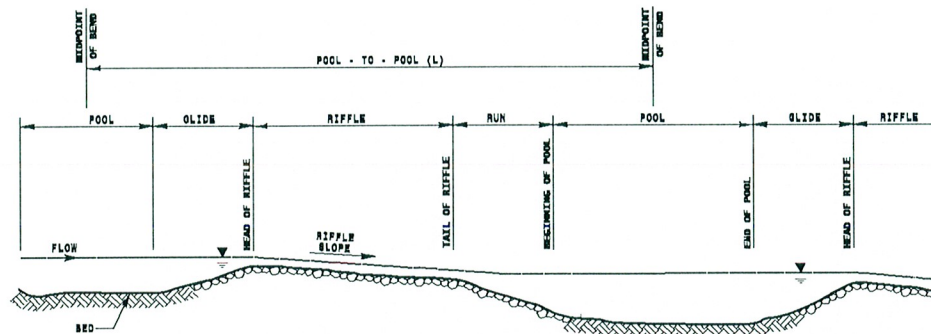
PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-5
R/W SHEET NO.	HYDRAULICS ENGINEER



TYPICAL PLAN

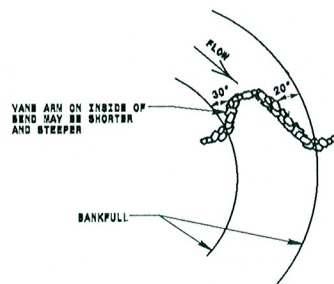


TYPICAL PROFILE

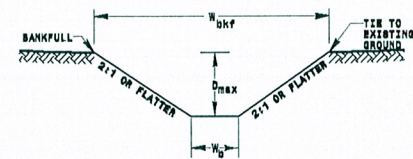


TYPICAL PROFILE FOR ARMORED RIFFLE SECTION

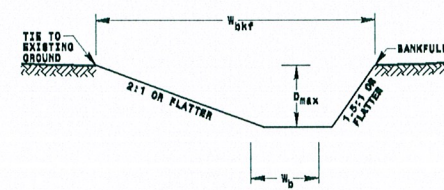
CHANNEL TYPICAL DETAIL
NOT TO SCALE



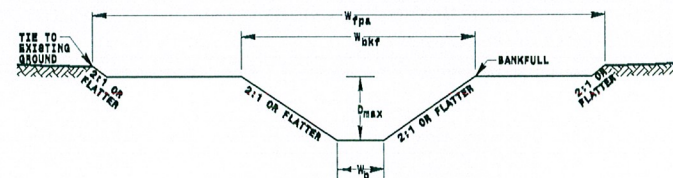
CROSS VANE CONSTRUCTION
IN MEANDER-BEND
PLAN VIEW



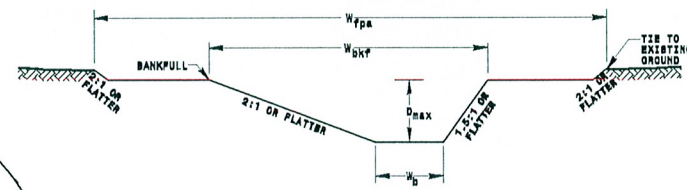
TYPICAL RIFFLE



TYPICAL POOL



TYPICAL RIFFLE WITH
BANKFULL BENCH



TYPICAL POOL WITH
BANKFULL BENCH

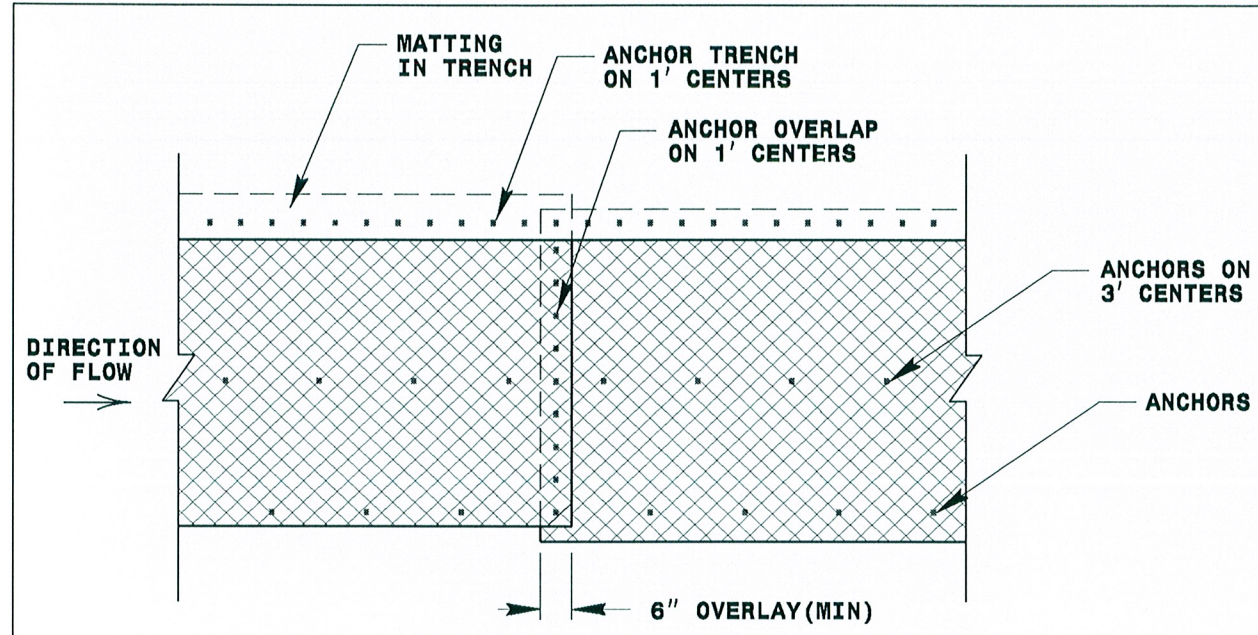
W_bkf = BANKFULL WIDTH
D_max = MAXIMUM DEPTH
W_b = BOTTOM WIDTH
W_fpa = FLOOD PRONE AREA WIDTH

CROSS-SECTION DIMENSIONS										
REACH R1	RIFFLE				POOL				Height/Depth Ratio	
	W _{bkf}	D _{max}	W _b	W _{fpa}	W _{bkf}	D _{max}	W _b	W _{fpa}		
	Sta. 0+00 - Sta. 9+20	12.0	1.40	2.40	>36	12.0	1.82	1.00		>36
	Sta. 9+20 - Sta. 18+00	14.0	1.78	3.00	>36	14.0	2.40	2.00		>36
REACH R2	RIFFLE				POOL				Height/Depth Ratio	
	W _{bkf}	D _{max}	W _b	W _{fpa}	W _{bkf}	D _{max}	W _b	W _{fpa}		
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

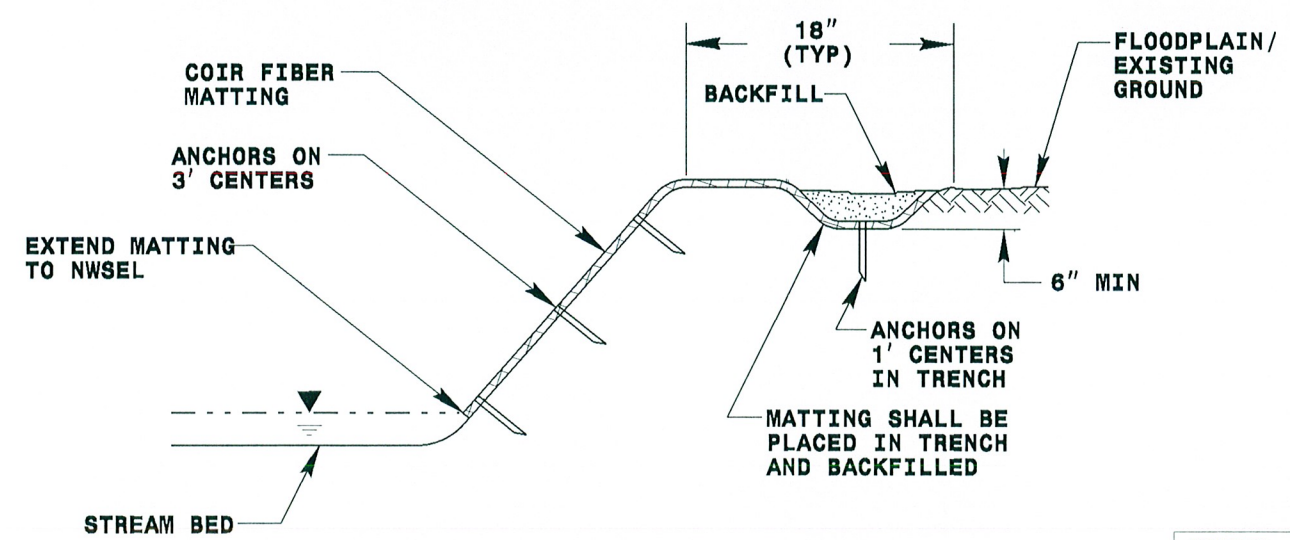
NOTES:
1. THE COORDINATES FOR EACH CENTER OF RADIUS (EX. "R1", "R2")
AND EACH HEAD OF RIFFLE (EX. "HR1", "HR2") ARE INDICATED
ON THE PLAN SHEETS.

As Built Plans

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-6
RW SHEET NO.	HYDRAULICS ENGINEER



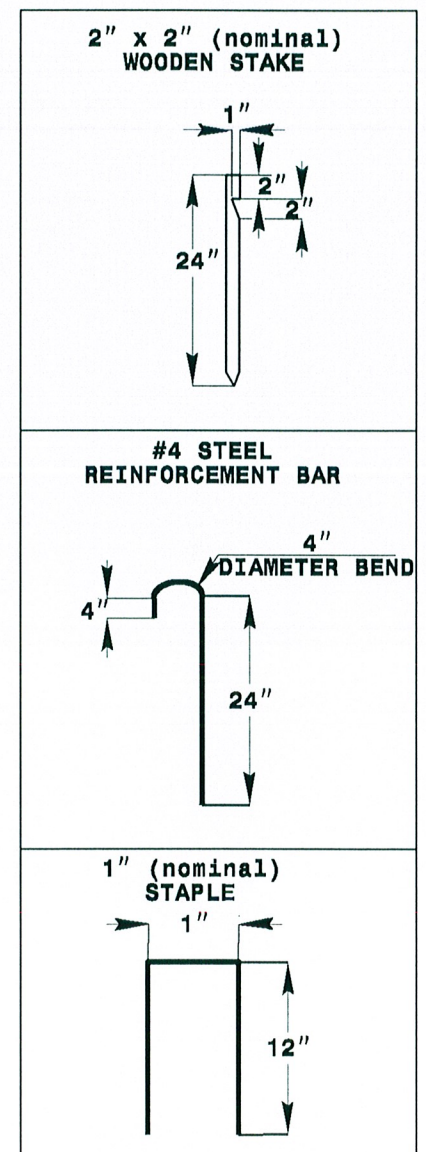
PLAN VIEW



TYPICAL CROSS SECTION

COIR FIBER MATTING DETAIL

NOT TO SCALE



ANCHOR OPTIONS

- NOTES:
1. IN AREAS TO BE MATTED, ALL SEEDING, SOIL AMENDMENTS, AND SOIL PREPARATION MUST BE COMPLETED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS PRIOR TO PLACEMENT OF COIR FIBER MATTING.
 2. REBAR OR STAPLES MAY BE USED IN PLACE OF WOODEN STAKES AS DIRECTED BY THE ENGINEER.

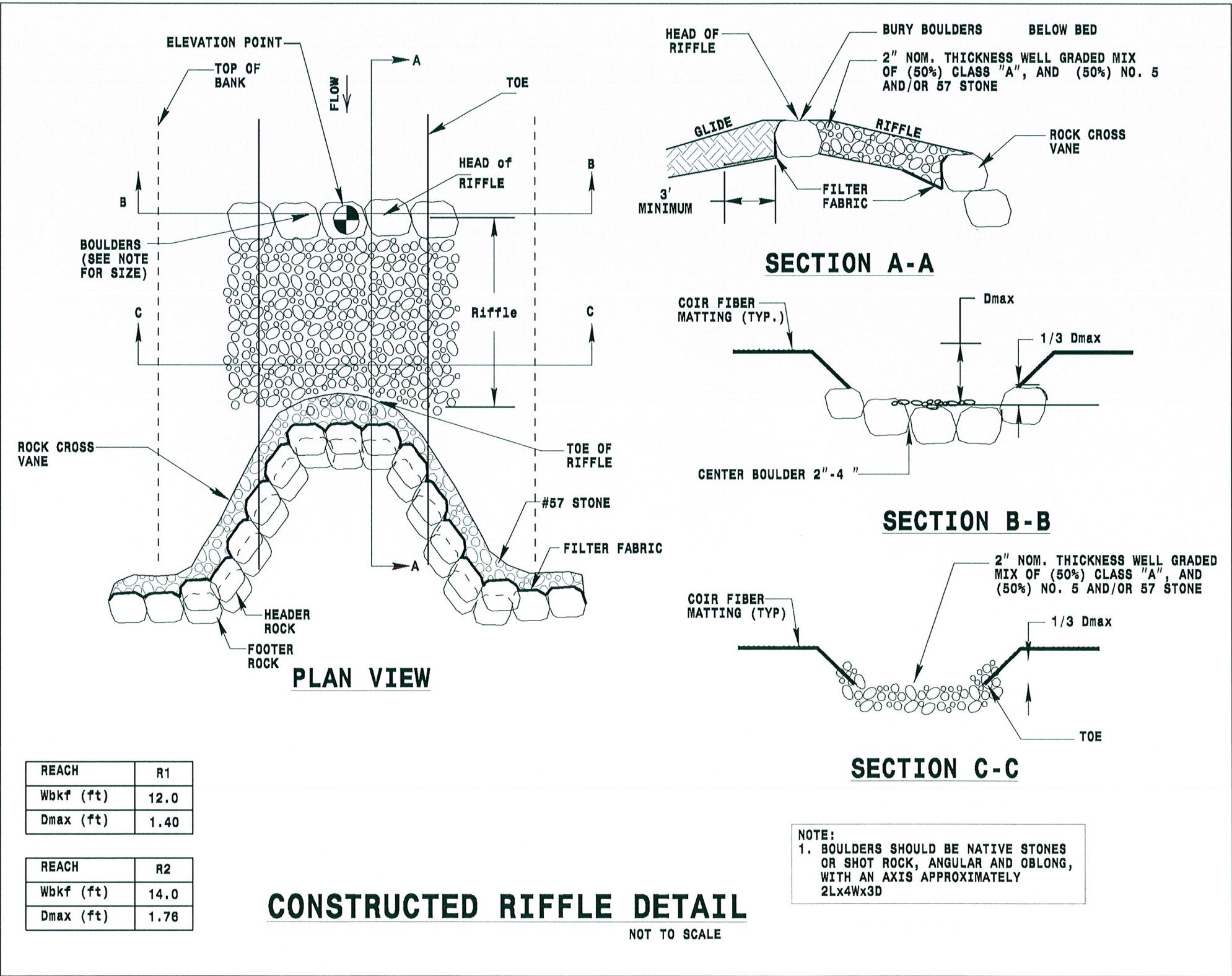
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PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-7
KW SHEET NO.	HYDRAULICS ENGINEER

As Built Plans

AS BUILT NOTE:
1. Constructed Riffles were added in each riffle section during repairs made in July-August 2017 after approval from resource agencies

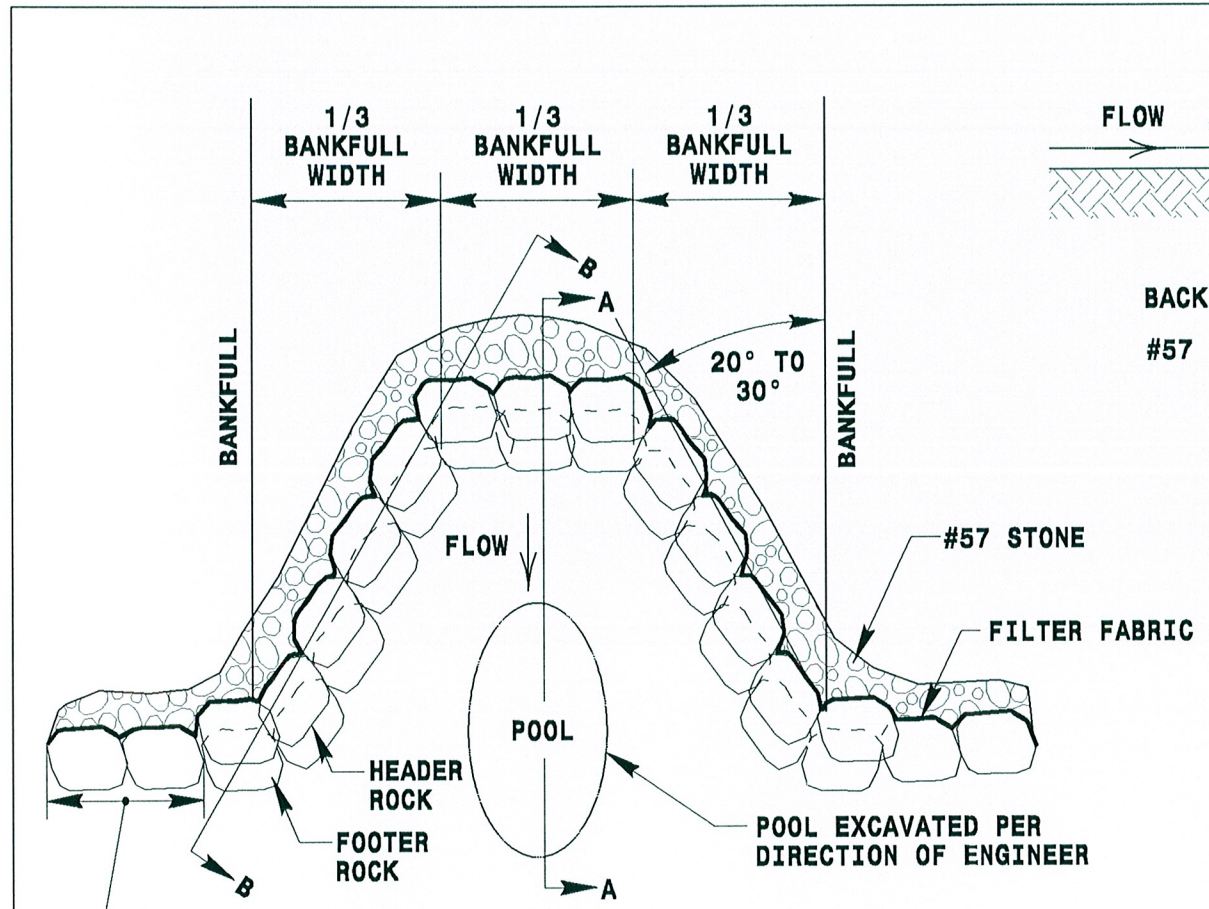


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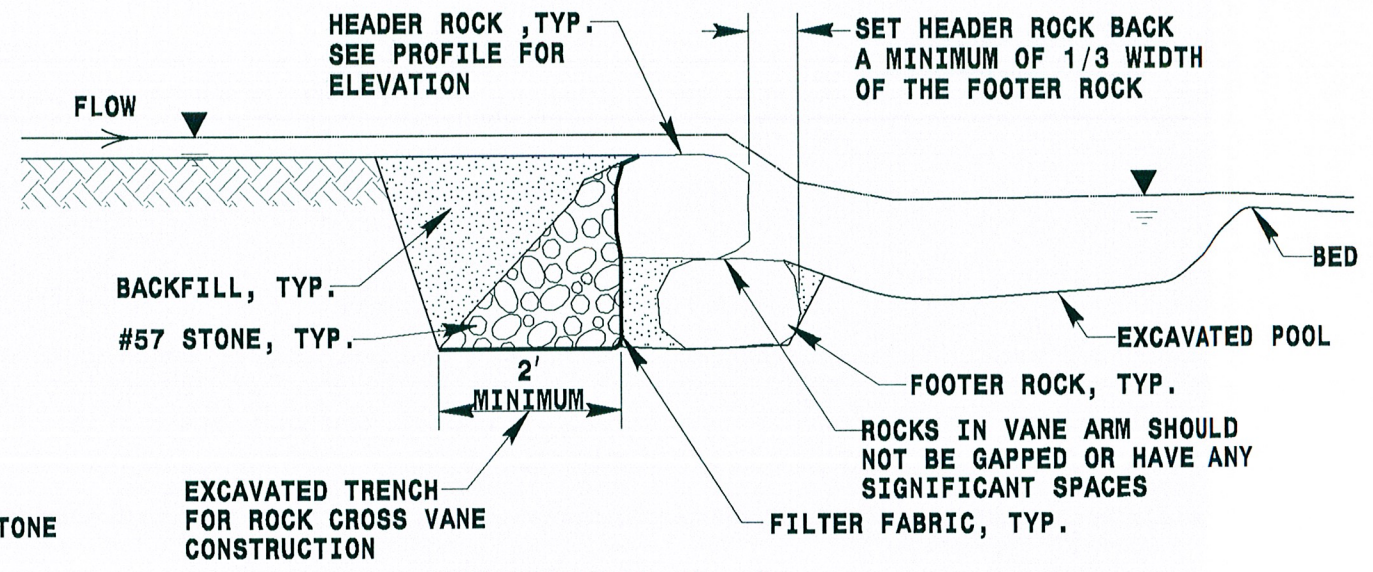
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As Built Plans

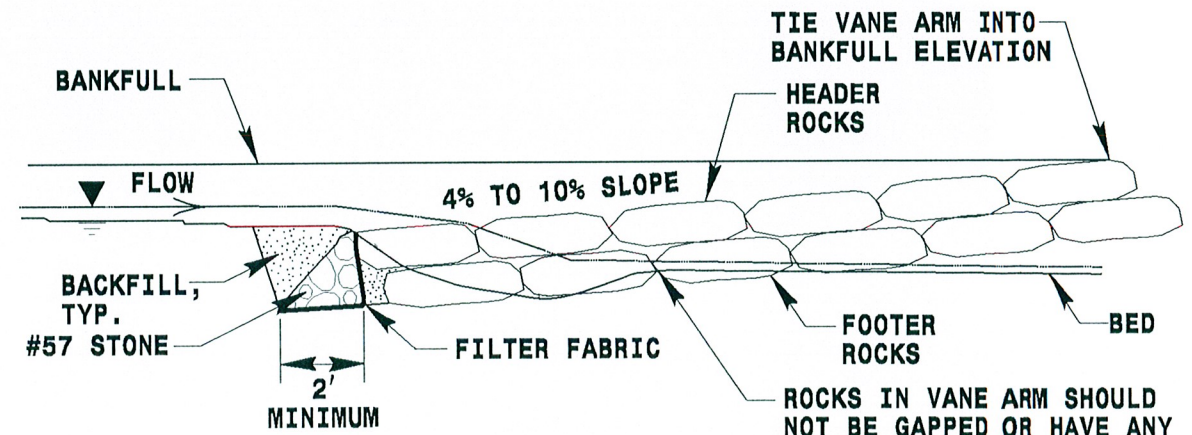


PLAN VIEW

BOULDER DIMENSIONS (FT)			
REACH	HEIGHT	LENGTH	WIDTH
R1	2	4	3
R2	2	4	3



SECTION A-A



SECTION B-B

- NOTES:**
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
 2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
 3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
 4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
 5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

ROCK CROSS VANE DETAIL

NOT TO SCALE

5/28/99

REVISIONS

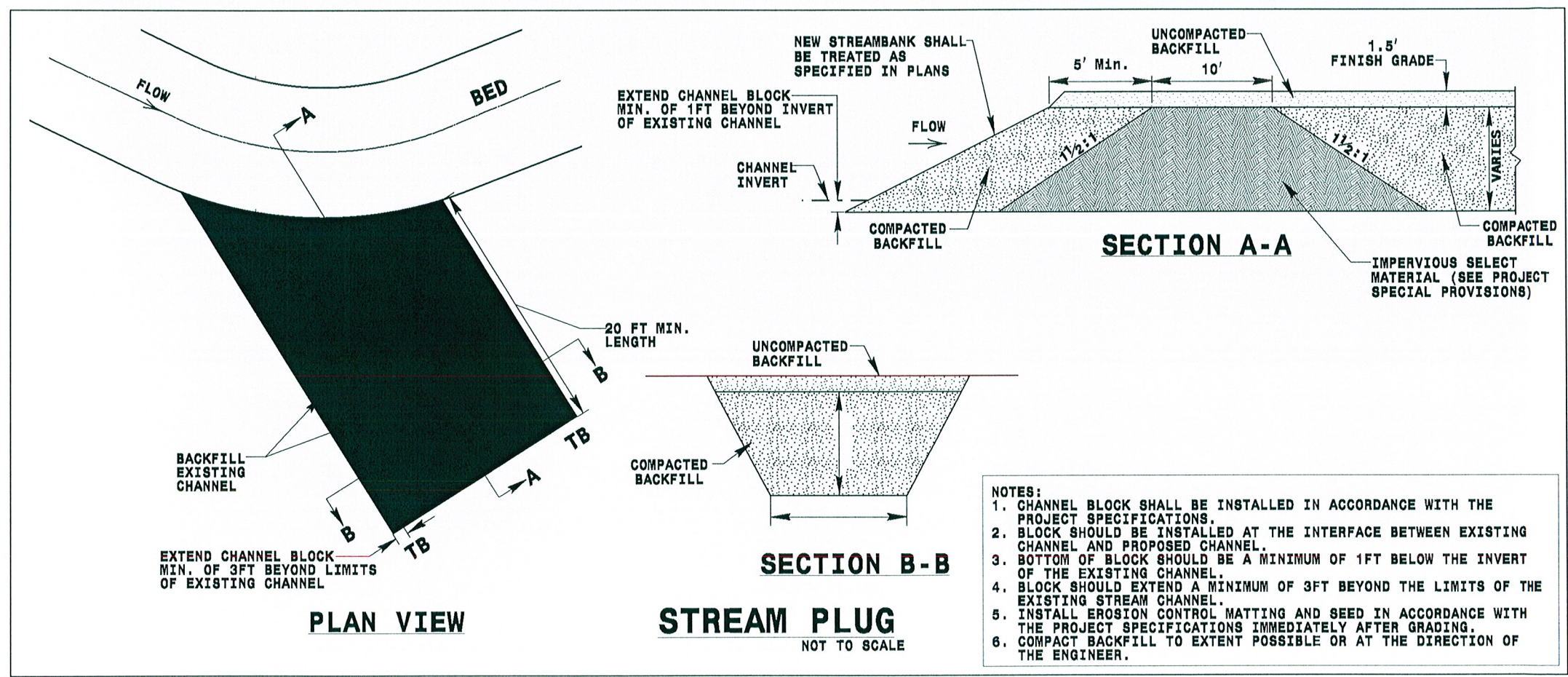
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-9
RW SHEET NO.	
	HYDRAULICS ENGINEER

As Built Plans

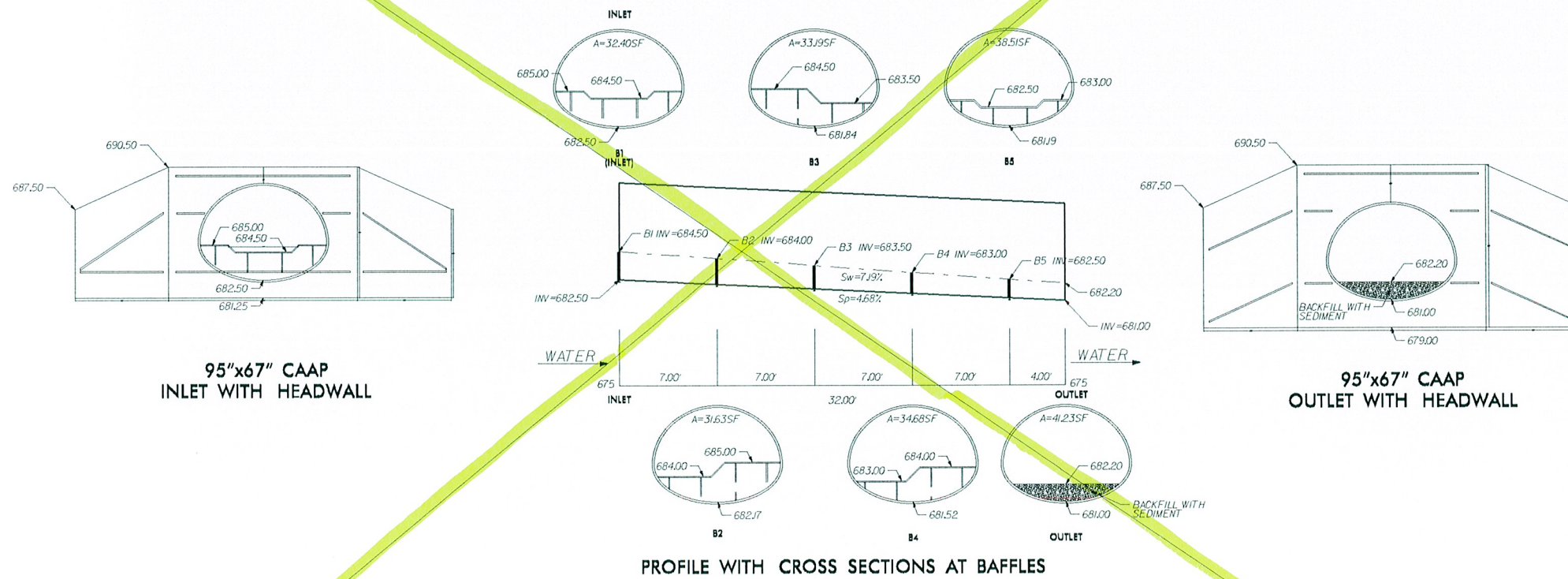


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PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-10
R/W SHEET NO.	HYDRAULICS ENGINEER

As Built Plans
Pipe Crossing was deleted from plans

95"x67" CAAP PLAN & PROFILE VIEW



PLAN VIEW

REVISIONS

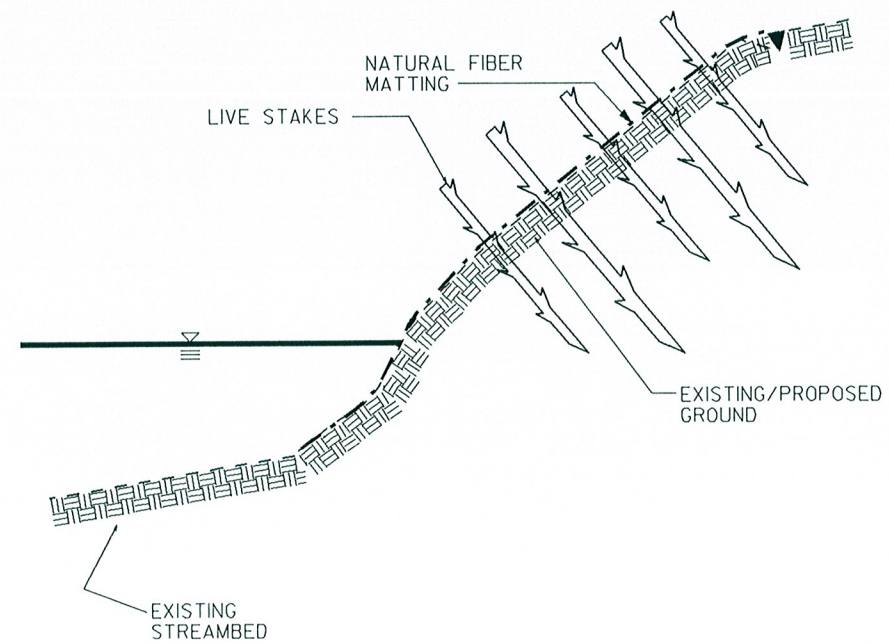
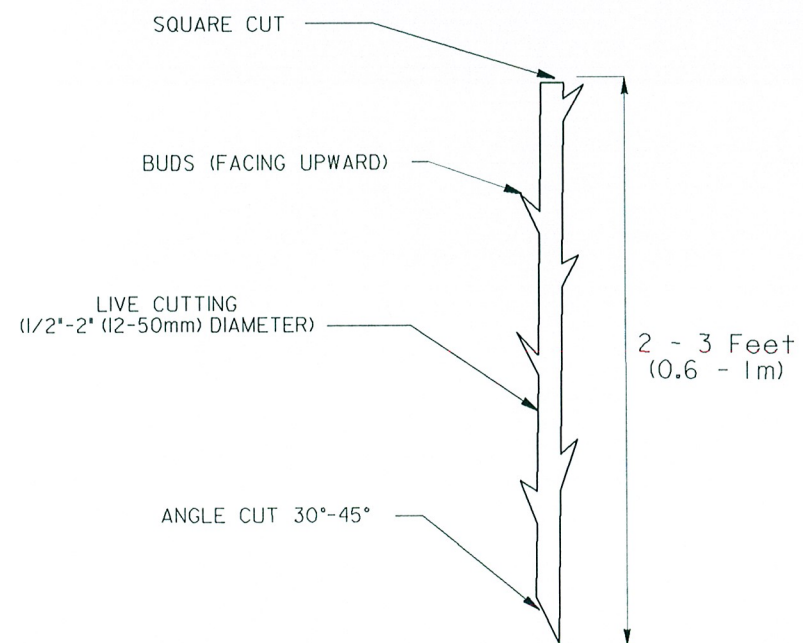
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As Built Plans

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-11
RAW SHEET NO.	HYDRAULICS ENGINEER

LIVE STAKE DETAIL

LIVE STAKE



BANK STABILIZATION WITH LIVE STAKES

- NOTE:
1. LIVE STAKES SHALL BE EVENLY SPACED 2' APART.
 2. LIVE STAKES SHALL BE DRIVEN UNTIL APPROXIMATELY $\frac{3}{4}$ OF LIVE STAKE IS WITHIN GROUND

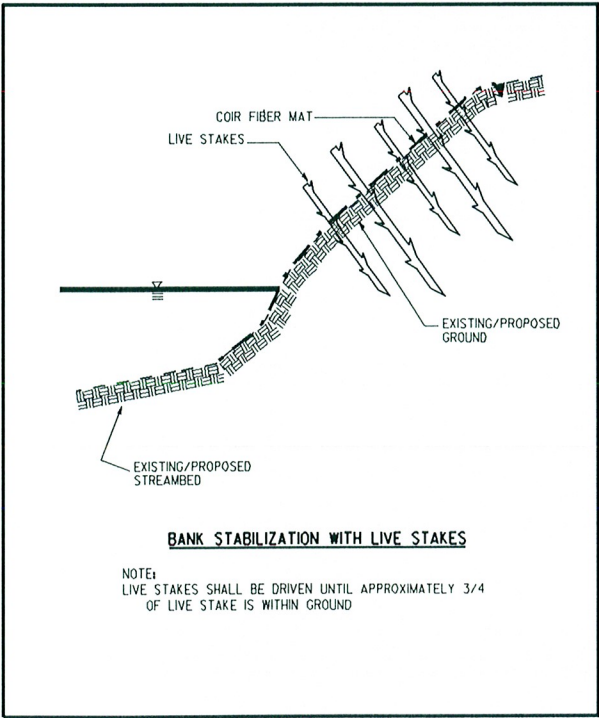
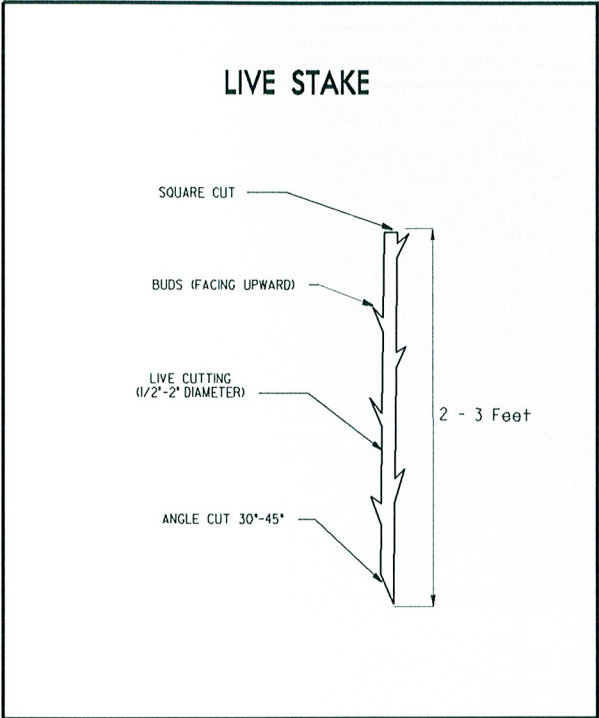
REVISIONS

5/28/99

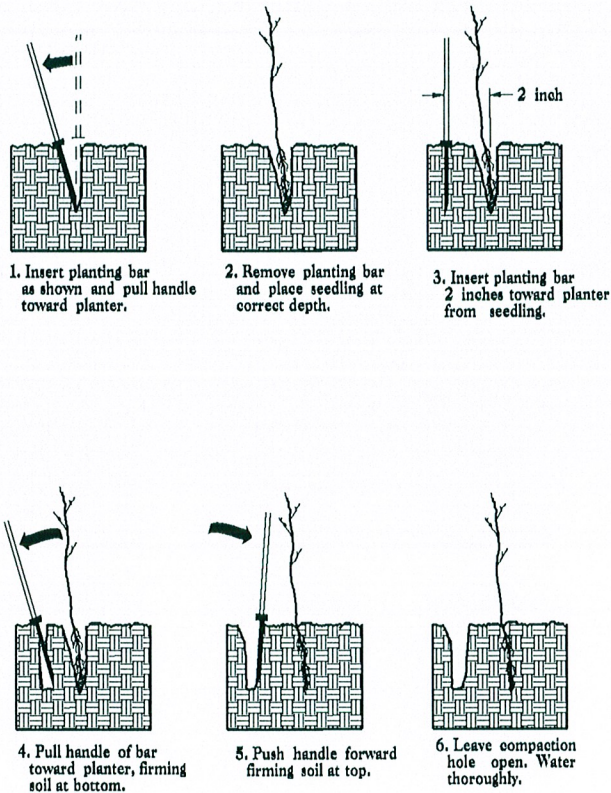
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jgiles

PLANTING DETAILS

LIVE STAKES PLANTING DETAIL



BAREROOT PLANTING DETAIL
DOUBLE PLANTING METHOD
USING THE K3C PLANTING BAR



PLANTING NOTES:

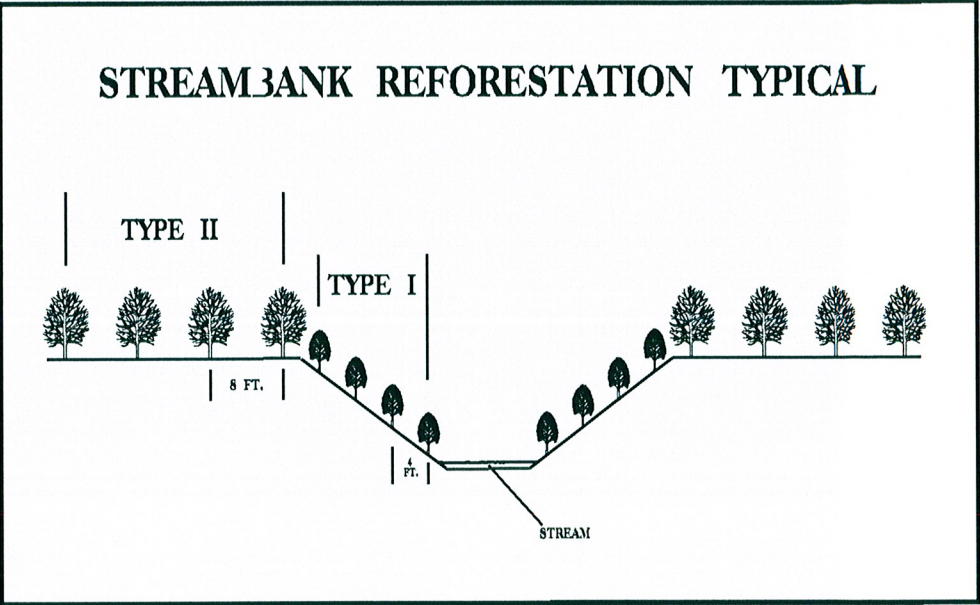
PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

K3C PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.



- TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.
- TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.
- NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"



STREAMBANK REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

TYPE 1

50% SALIX NIGRA	BLACK WILLOW	2 ft - 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft - 3 ft LIVE STAKES

TYPE 2

25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in 3R
25% QUERCUS PHELLOS	WILLOW OAK	12 in - 18 in 3R
25% QUERCUS MICHAUXII	SWAMP CHESTNUT OAK	12 in - 18 in 3R
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in 3R

- SEE PLAN SHEETS FOR AREAS TO BE PLANTED

STREAMBANK REFORESTATION

DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-12
R/W SHEET NO.	HYDRAULICS ENGINEER

ALIGNMENT DATA

REACH 1

Station	Curve/Tangent Number	Curve/Tangent Length (ft)	Chord/Tangent Bearing	Chord Length (ft)	Deka Angle	Radius (ft)
0+00.00	Point 45000					
	Point 45000 to PC R1-1	10.48	N 61° 41' 44.10" E			
0+10.48	Curve R1-1	21.11	N 74° 02' 24.49" E	20.95	24° 41' 20.78" (RT)	49.00
	PTR1-1 to PC R1-2	3.84	N 86° 23' 04.88" E			
0+35.43	Curve R1-2	42.82	N 51° 20' 15.67" E	40.20	70° 03' 38.42" (LT)	35.00
	PTR1-2 to PC R1-3	5.61	N 16° 17' 26.46" E			
0+83.86	Curve R1-3	48.84	N 61° 25' 29.75" E	43.94	90° 16' 06.57" (RT)	31.00
	PTR1-3 to PC R1-4	9.73	S 73° 26' 26.97" E			
1+42.42	Curve R1-4	54.40	N 62° 01' 43.35" E	49.09	89° 03' 39.37" (LT)	35.00
	PTR1-4 to PC R1-5	7.49	N 17° 29' 53.66" E			
2+04.32	Curve R1-5	44.23	N 59° 44' 12.89" E	40.33	84° 28' 38.45" (RT)	30.00
	PTR1-5 to PC R1-6	5.23	S 78° 01' 27.88" E			
2+53.79	Curve R1-6	46.76	N 60° 06' 55.79" E	42.71	83° 43' 12.66" (LT)	32.00
	PTR1-6 to PC R1-7	7.03	N 18° 15' 19.46" E			
3+07.57	Curve R1-7	47.16	N 56° 51' 09.79" E	43.67	77° 11' 40.66" (RT)	35.00
	PTR1-7 to PC R1-8	7.41	S 84° 32' 59.88" E			
3+62.14	Curve R1-8	52.42	N 54° 51' 46.39" E	48.14	81° 10' 27.46" (LT)	37.00
	PTR1-8 to PC R1-9	7.44	N 14° 16' 32.65" E			
4+22.00	Curve R1-9	50.33	N 63° 59' 44.48" E	44.25	99° 26' 23.64" (RT)	29.00
	PT R1-9 to PC R1-10	5.72	S 66° 17' 03.70" E			
4+78.05	Curve R1-10	49.84	N 62° 43' 03.65" E	43.52	101° 59' 45.29" (LT)	28.00
	PTR1-10 to PC R1-11	4.89	N 11° 43' 11.01" E			
5+32.78	Curve R1-11	52.74	N 50° 27' 47.72" E	48.82	77° 29' 13.42" (RT)	39.00
	PTR1-11 to PC R1-12	6.18	N 89° 12' 24.43" E			
5+91.70	Curve R1-12	39.46	N 51° 31' 45.40" E	36.67	75° 21' 18.07" (LT)	30.00
	PTR1-12 to PC R1-13	4.64	N 13° 51' 06.36" E			
6+35.80	Curve R1-13	47.52	N 60° 47' 33.87" E	42.38	93° 52' 55.01" (RT)	29.00
	PTR1-13 to PC R1-14	6.15	S 72° 15' 58.62" E			
6+89.48	Curve R1-14	59.25	N 60° 35' 07.59" E	52.78	94° 17' 47.57" (LT)	36.00
	PTR1-14 to PC R1-15	6.23	N 13° 26' 13.81" E			
7+54.95	Curve R1-15	34.19	N 48° 25' 14.01" E	32.11	69° 58' 00.40" (RT)	28.00
	PTR1-15 to PC R1-16	5.62	N 83° 24' 14.21" E			
7+94.77	Curve R1-16	45.15	N 41° 40' 42.92" E	41.26	83° 27' 02.58" (LT)	31.00
	PTR1-16 to PC R1-17	10.20	N 0° 02' 48.38" W			
8+50.12	Curve R1-17	49.30	N 40° 18' 30.95" E	45.33	80° 42' 38.65" (RT)	35.00
	PTR1-17 to PC R1-18	5.03	N 80° 39' 50.28" E			
9+04.46	Curve R1-18	51.70	N 31° 17' 40.66" E	45.54	98° 44' 19.23" (LT)	30.00
	PTR1-18 to PC R1-19	5.85	N 18° 04' 28.96" W			
9+62.01	Curve R1-19	49.02	N 30° 21' 01.43" E	43.39	96° 51' 00.77" (RT)	29.00
	PTR1-19 to PC R1-20	4.89	N 78° 46' 31.82" E			
10+15.92	Curve R1-20	53.31	N 38° 35' 21.06" E	49.04	80° 22' 21.52" (LT)	38.00
	PTR1-20 to PC R1-21	7.68	N 1° 35' 49.70" W			
10+76.91	Curve R1-21	39.93	N 39° 15' 33.94" E	36.63	81° 42' 47.28" (RT)	28.00
	PTR1-21 to PC R1-22	6.74	N 80° 06' 57.58" E			
11+23.58	Curve R1-22	52.12	N 28° 37' 28.08" E	45.39	102° 58' 59.00" (LT)	29.00
	PTR1-22 to PC R1-23	4.45	N 22° 52' 01.42" W			
11+80.16	Curve R1-23	56.65	N 27° 51' 09.41" E	49.54	101° 26' 21.65" (RT)	32.00
	PTR1-23 to PC R1-24	5.17	N 78° 34' 20.23" E			
12+41.98	Curve R1-24	43.64	N 36° 53' 51.67" E	39.89	83° 20' 57.13" (LT)	30.00
	PTR1-24 to PC R1-25	5.29	N 4° 46' 36.90" W			
12+90.92	Curve R1-25	51.80	N 36° 26' 53.31" E	47.45	82° 27' 00.41" (RT)	36.00
	PTR1-25 to PC R1-26	10.49	N 77° 40' 23.51" E			
13+53.21	Curve R1-26	39.24	N 41° 24' 49.79" E	36.67	72° 31' 07.44" (LT)	31.00

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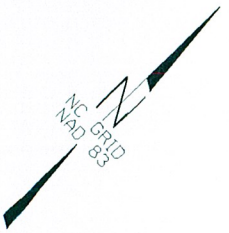
REVISIONS

Revised Profile Elevations Depicted Below
Elevations Were Adjusted from Sta. 4+72 to Sta. 8+98
Due to Errors in Existing Topographical Information

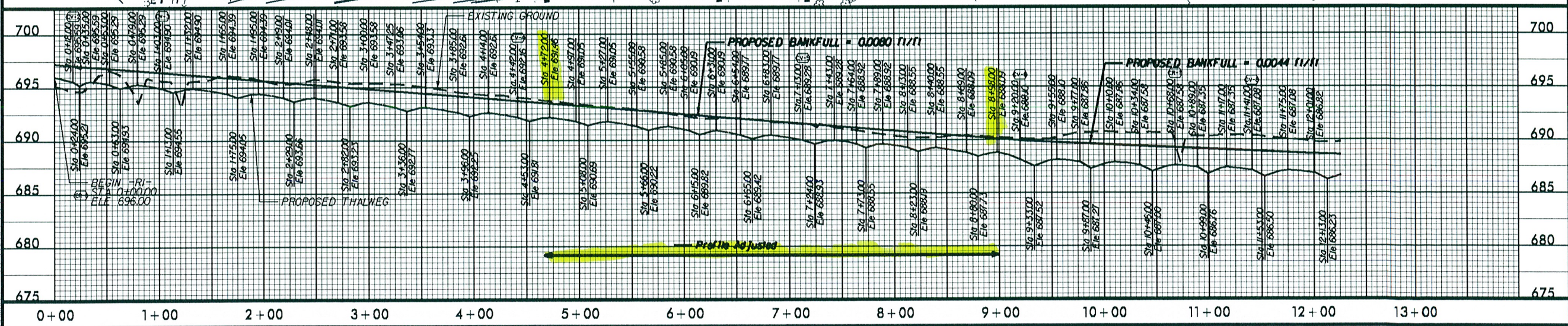
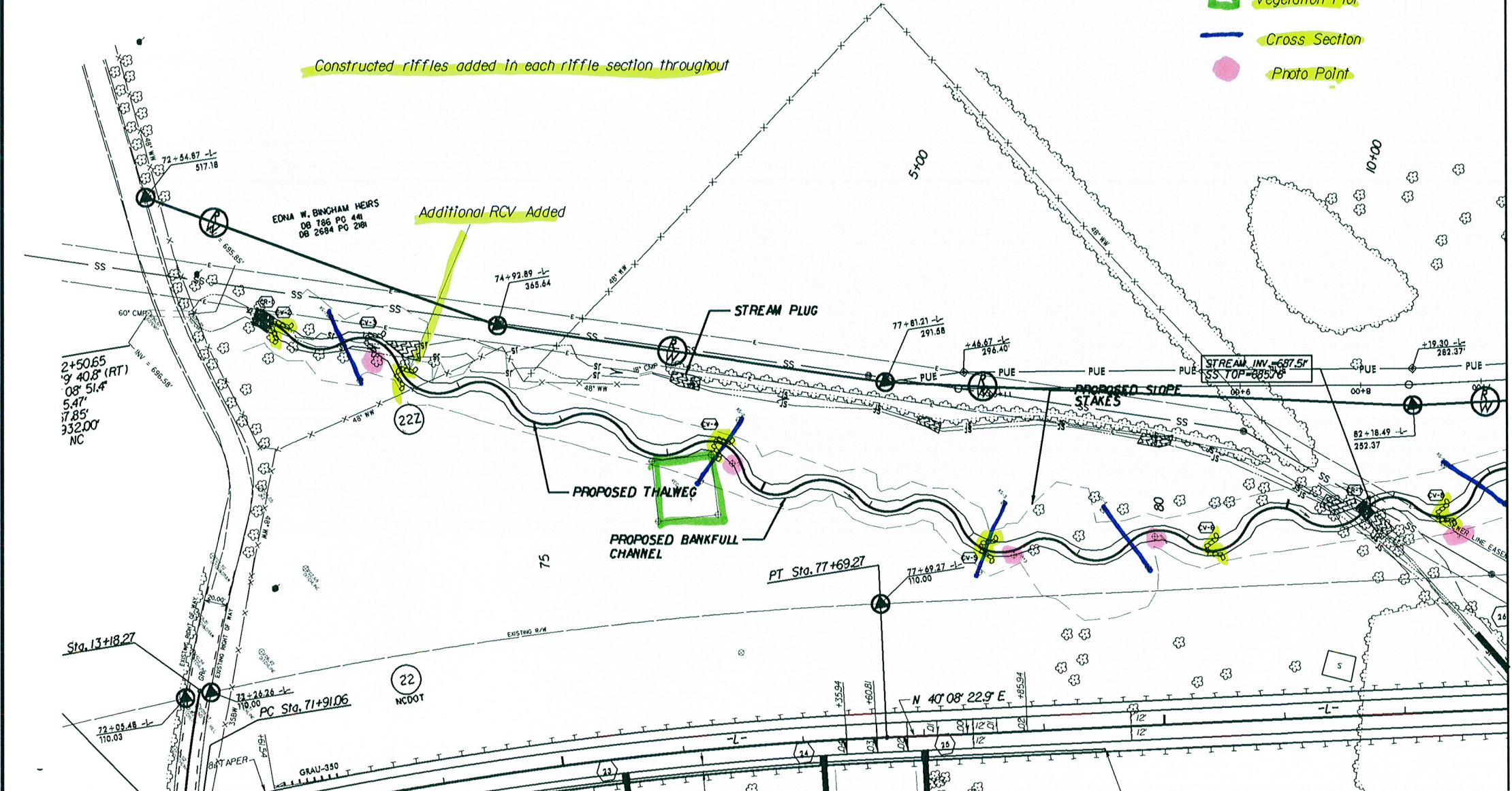
As Built Plans

- Vegetation Plot
- Cross Section
- Photo Point

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-14
R/W SHEET NO.	HYDRAULICS ENGINEER



MATCH TO SHEET NS-15
-RI- STA 12+15.00






5/28/99

REVISIONS

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MATCH TO SHEET NS-14
-R/- STA 12+15.00

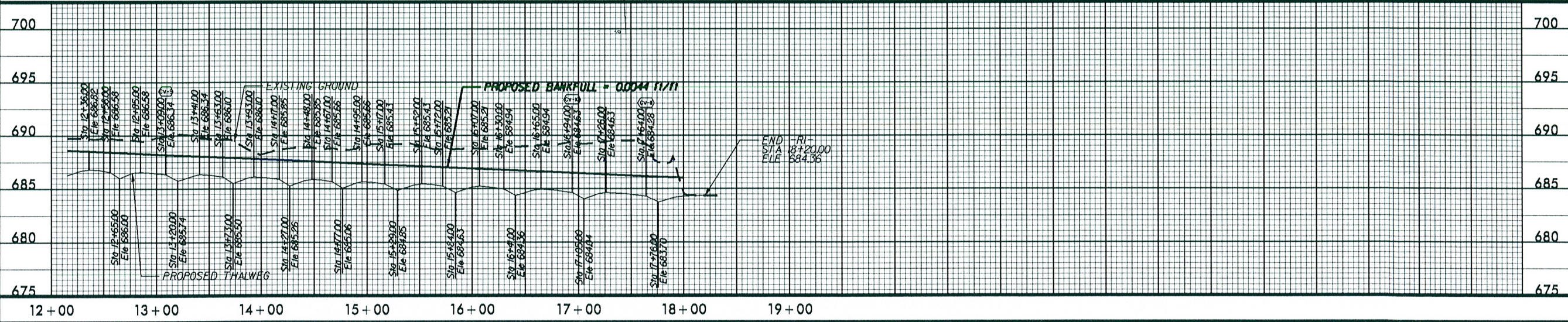
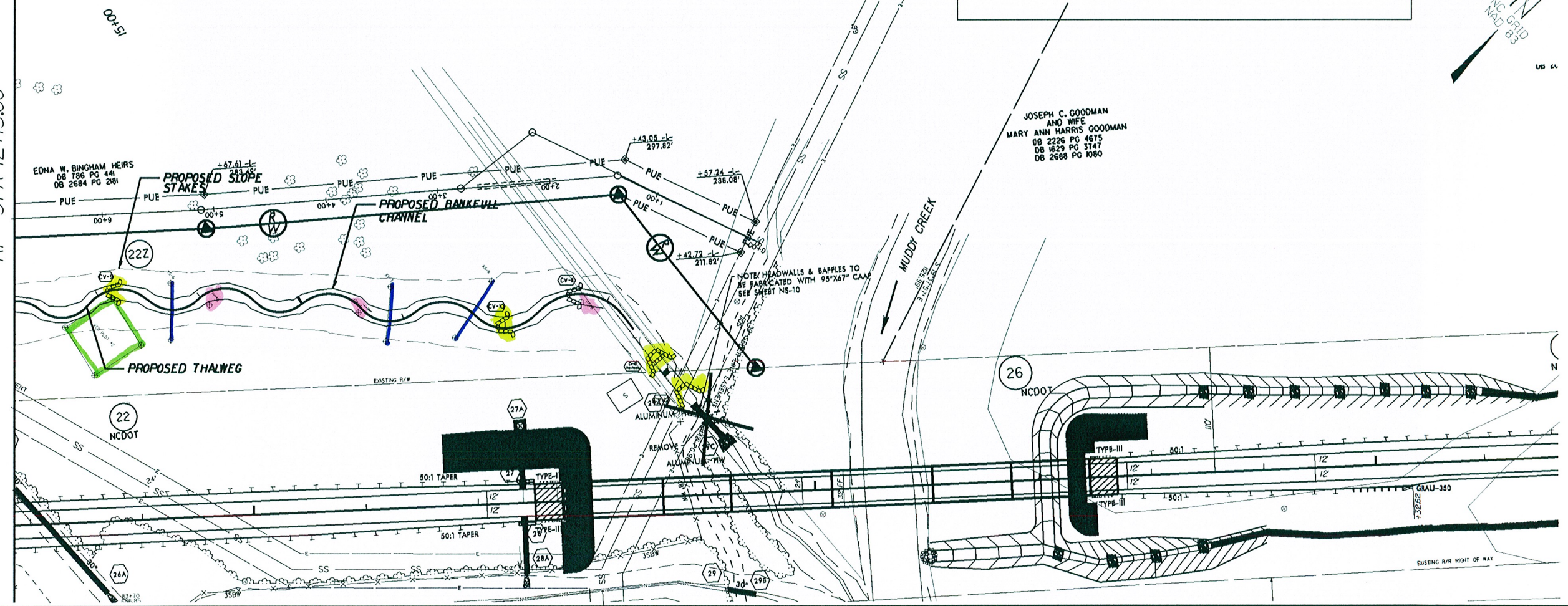
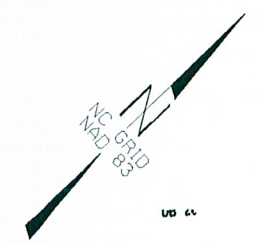
As Built Plans

-  Vegetation Plot
-  Cross Section
-  Photo Point

Proposed Aluminum Culvert Was Deleted
Due to Changed Field Conditions Since Original Design

CV-12 was shifted slightly upstream and built as an "A" Vane

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-15
RW SHEET NO.	HYDRAULICS ENGINEER



5/28/99

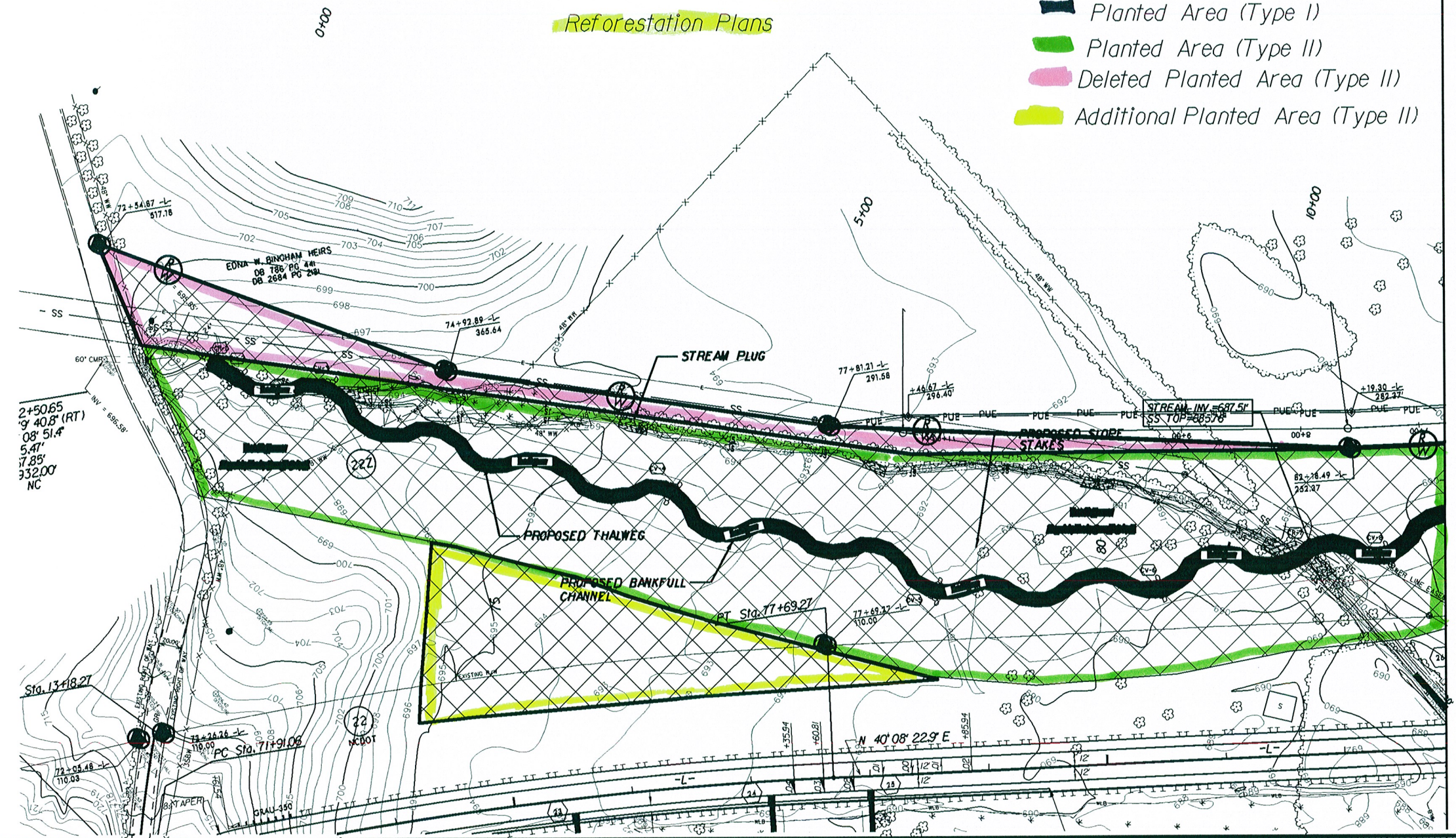
As Built Plans Reforestation Plans

- Planted Area (Type I)
- Planted Area (Type II)
- Deleted Planted Area (Type II)
- Additional Planted Area (Type II)

PROJECT REFERENCE NO.	SHEET NO.
U-2707	NS-16
RAW SHEET NO.	
	HYDRAULICS ENGINEER



MATCH TO SHEET NS-17
-RI- STA 12+5.00



REVISIONS

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EXISTING GROUND		PROPOSED BANKFULL = Q0080 11/11		PROPOSED BANKFULL = Q0044 11/11		
Sta 0+00.00	Elev 696.00	Sta 6+50.00	Elev 680.00	Sta 10+00.00	Elev 687.00	700
Sta 0+10.00	Elev 695.50	Sta 6+60.00	Elev 679.50	Sta 10+10.00	Elev 686.50	695
Sta 0+20.00	Elev 695.00	Sta 6+70.00	Elev 679.00	Sta 10+20.00	Elev 686.00	690
Sta 0+30.00	Elev 694.50	Sta 6+80.00	Elev 678.50	Sta 10+30.00	Elev 685.50	685
Sta 0+40.00	Elev 694.00	Sta 6+90.00	Elev 678.00	Sta 10+40.00	Elev 685.00	680
Sta 0+50.00	Elev 693.50	Sta 7+00.00	Elev 677.50	Sta 10+50.00	Elev 684.50	675
Sta 0+60.00	Elev 693.00	Sta 7+10.00	Elev 677.00	Sta 10+60.00	Elev 684.00	
Sta 0+70.00	Elev 692.50	Sta 7+20.00	Elev 676.50	Sta 10+70.00	Elev 683.50	
Sta 0+80.00	Elev 692.00	Sta 7+30.00	Elev 676.00	Sta 10+80.00	Elev 683.00	
Sta 0+90.00	Elev 691.50	Sta 7+40.00	Elev 675.50	Sta 10+90.00	Elev 682.50	
Sta 1+00.00	Elev 691.00	Sta 7+50.00	Elev 675.00	Sta 11+00.00	Elev 682.00	
Sta 1+10.00	Elev 690.50	Sta 7+60.00	Elev 674.50	Sta 11+10.00	Elev 681.50	
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Sta 1+30.00	Elev 689.50	Sta 7+80.00	Elev 673.50	Sta 11+30.00	Elev 680.50	
Sta 1+40.00	Elev 689.00	Sta 7+90.00	Elev 673.00	Sta 11+40.00	Elev 680.00	
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Sta 1+80.00	Elev 687.00	Sta 8+30.00	Elev 671.00	Sta 11+80.00	Elev 678.00	
Sta 1+90.00	Elev 686.50	Sta 8+40.00	Elev 670.50	Sta 11+90.00	Elev 677.50	
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Sta 2+10.00	Elev 685.50	Sta 8+60.00	Elev 669.50	Sta 12+10.00	Elev 676.50	
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Sta 12+80.00	Elev 632.00					
Sta 12+90.00	Elev 631.50					
Sta 13+00.00	Elev 631.00					

As Built Plans

Reforestation Plans

Planted Area (Type I)

Planted Area (Type II)

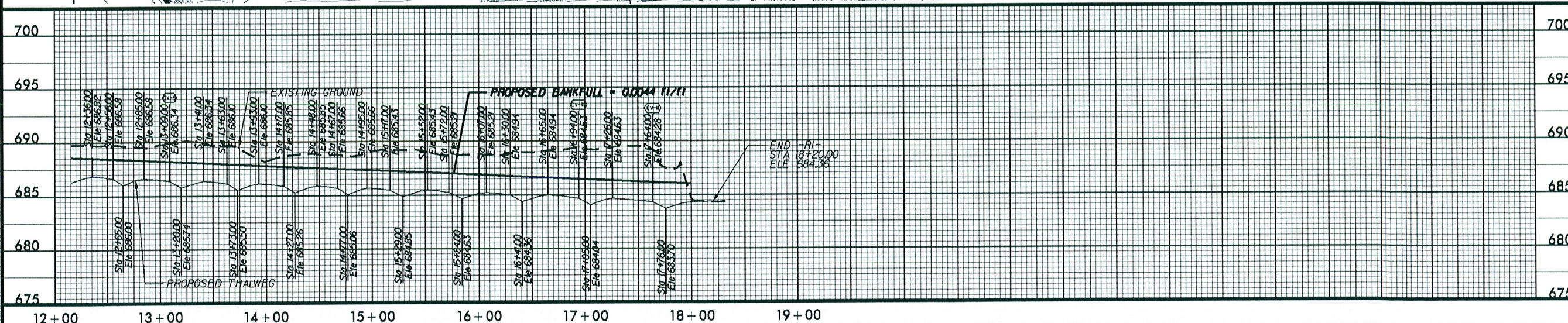
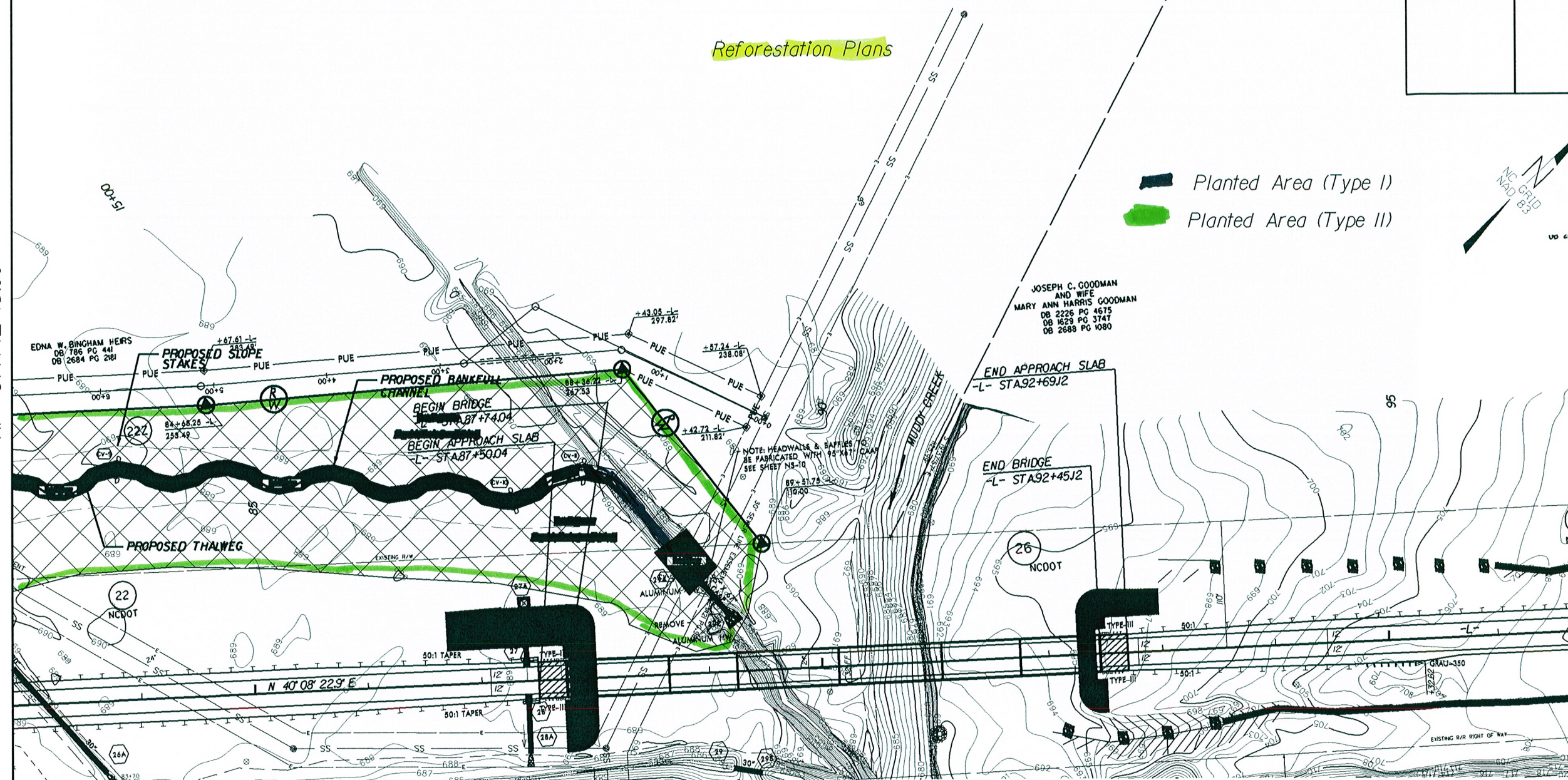
JOSEPH C. GOODMAN
AND WIFE
MARY ANN HARRIS GOODMAN
DB 2226 PG 4675
DB 1629 PG 3747
DB 2688 PG 1080

END APPROACH SLAB
-L- STA.92+69J2

END BRIDGE
-L- STA 92+45.2

MATCH TO SHEET NS-16
-R/- STA 12+15.00

PREVISIONS



7-OCT-2018 10:02
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