STATE	BAKER PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
NC	167680	1	18

NORTH CAROLINA
DIVISION OF MITIGATION SERVICES

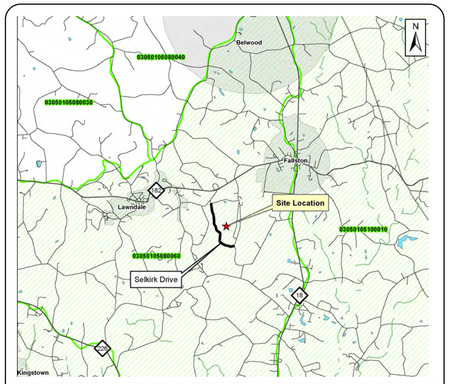
CLEVELAND COUNTY

LOCATION: FROM LAWNDALE, TAKE NC–182 1.9 MILES EAST TO FALL STREET ON LEFT, GO .28 MILES TO SELKIRK ROAD ON LEFT, TRAVEL .87 MILES SOUTH AND SITE IS EAST OF SELKIRK ROAD AT CULVERT.

TYPE OF WORK: RECORD DRAWINGS

UT to MAGNESS CREEK

PROJECT: 167680



VICINITY MAP

INDEX OF SHEETS

NCDMS ID NO. 100081

GRAPHIC SCALES

20 0 20 40
PLANS

20 0 20 40
PROFILE (HORIZONTAL)

5 0 5 10
PROFILE (VERTICAL)

AS–BUILT MITIGATION SUMMARY

STREAM: REACH	STREAM RESTORATION (Ft.)	STREAM ENHANCEMENT I (Ft.)	RATIO	CREDIT
1A	2,257.03	0	1:1	2,257.03
1B	943.72	0	1:1	943.72
UT2	0	289.34	1.5:1	192.89
		TOTAL STREAM CREDITS		3,393.64

WETLAND: APPROACH	AREA (Ac.)	RATIO	CREDIT
RESTORATION BY RE–ESTABLISHMENT	1.817	1:1	1.817
RESTORATION BY REHABILITATION	0.035	1.5:1	0.023
TOTAL WETLAND CREDITS			1.840

PREPARED FOR THE OFFICE OF:

NCDEQ – NC DMS
217 WEST JONES STREET, SUITE 3000A
RALEIGH, NC 27603

CONTACT: PAUL WIESNER
PROJECT MANAGER

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
8000 Regency Parkway, Suite 600
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

LETTING DATE:

KATHLEEN M. MCKEITHAN, PE
PROJECT ENGINEER

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

6/12/2023

DocuSigned by:
Kathleen M McKeithan
24E8ADEA181473...
P.E.
SIGNATURE:

2/26/03

STREAM CONVENTIONAL SYMBOLS
SUPERCEDES SHEET 1-B

- ROCK J-HOOK
- GRADE CONTROL ROCK J-HOOK
- ROCK VANE
- OUTLET PROTECTION
- ROCK CROSS VANE
- ROCK DOUBLE DROP ROCK CROSS VANE
- SINGLE WING DEFLECTOR
- DOUBLE WING DEFLECTOR
- TEMPORARY SILT CHECK
- ROOT WAD
- LOG J-HOOK
- GRADE CONTROL LOG J-HOOK
- LOG VANE
- LOG STEP
- LOG CROSS VANE
- LOG AND ROCK STEP POOL
- BOULDER STEP
- CONSTRUCTED RIFFLE
- BOULDER CLUSTER
- ROCK STEP POOL
- JURISDICTIONAL WETLAND BOUNDARY (WLB)
- SAFETY FENCE (S)
- TAPE FENCE (TF)
- 100 YEAR FLOOD PLAIN (FP)
- CONSERVATION EASEMENT (CE)
- EXISTING MAJOR CONTOUR (435)
- EXISTING MINOR CONTOUR
- LIMITS OF DISTURBANCE
- PROPERTY LINE
- FOOT BRIDGE
- TEMPORARY STREAM CROSSING
- PERMANENT STREAM CROSSING
- CHANNEL PLUG
- CHANNEL FILL
- BRUSH TOE WITH MATTING AND DOUBLE LIVE STAKES
- GEOLIFT WITH BRUSH TOE
- GEOLIFT WITH LIVE BRUSH, LOGS, AND ROOT WADS
- NON-CREDITED JURISDICTIONAL WETLANDS
- WETLAND RE-ESTABLISHMENT
- WETLAND ENHANCEMENT
- TRANSPLANTED VEGETATION
- TREE REMOVAL
- TREE PROTECTION
- MONITORING WELL
- RAIN GAUGE
- CREST GAUGE
- IN STREAM FLOW GAUGE

**NOTE: ALL ITEMS ABOVE MAY NOT BE USED ON THIS PROJECT

STANDARD SPECIFICATIONS

NORTH CAROLINA
EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL
MARCH 2009 (REV 2013)

- 6.06 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- 6.24 RIPARIAN AREA SEEDING
- 6.60 TEMPORARY SEDIMENT TRAP
- 6.62 TEMPORARY SILT FENCE
- 6.63 TEMPORARY ROCK DAM
- 6.70 TEMPORARY STREAM CROSSING

PROJECT REFERENCE NO.	SHEET NO.
167680	1-A

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen M McKeithan 247E840F4181473...

APPROVED BY:

6/12/2023

DATE:

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License #: F-1084

NCDMS ID NO. 100081

GENERAL NOTES

1. THE CONTRACTOR IS REQUIRED TO INSTALL IN-STREAM STRUCTURES USING A TRACK HOE WITH A HYDRAULIC THUMB OF SUFFICIENT SIZE TO PLACE BOULDERS (4'x3'x2'), LOGS AND ROOTWADS.
2. WORK IS BEING PERFORMED AS AN ENVIRONMENTAL RESTORATION PLAN. THE CONTRACTOR SHOULD MAKE ALL REASONABLE EFFORTS TO REDUCE SEDIMENT LOSS AND MINIMIZE DISTURBANCE OF THE SITE WHILE PERFORMING THE CONSTRUCTION WORK.
3. CONSTRUCTION IS SCHEDULED FOR THE SUMMER OF 2021.
4. CONTRACTOR SHOULD CALL NORTH CAROLINA "ONE-CALL" BEFORE EXCAVATION STARTS. (1-800-632-4949)
5. BOULDER SIZES FOR IN-STREAM STRUCTURES SHALL BE A MINIMUM OF 4'x3'x2' AND CAN BE CHANGED PER DIRECTION OF THE ENGINEER.
6. ALL ON-SITE ALLUVIUM SHALL BE HARVESTED AND STOCKPILED PRIOR TO FILLING ABANDONED CHANNELS.
7. TOPSOIL SHALL BE EXCAVATED TO A DEPTH OF 8" AND STOCKPILED SEPARATELY FROM UNDERCUT SOIL. 6" OF TOPSOIL SHALL BE PLACED ON ALL BANKFULL BENCHES AND AS DIRECTED BY THE ENGINEER.
8. ALL DISTURBED EMBANKMENTS SHALL BE MATTED WITH COIR FIBER MATTING OR AS DIRECTED BY THE ENGINEER.
9. ALL STREAM BANKS SHALL BE LIVE STAKED.
10. UNLESS THE ALIGNMENT IS BEING ALTERED, THE EXISTING CHANNEL DIMENSIONS ARE TO REMAIN UNLESS OTHERWISE NOTED.
11. CONTRACTOR WILL ENSURE THAT FENCING IS INSTALLED ON OR OUTSIDE THE CONSERVATION EASEMENT AS SHOWN ON THE PLANS BUT NO MORE THAN 1' OUTSIDE.
12. WHERE PROPOSED FENCE CROSSES EXISTING STREAMS, THE CONTRACTOR SHALL UTILIZE A SECTION OF BREAK AWAY FENCE, A FLOOD GATE, OR ELECTRIFIED CHAINS AS DIRECTED BY THE ENGINEER.

VEGETATION SELECTION

Proposed Bare-Root and Live Stake Species
UT to Magness Creek Mitigation Project - NCDMS Project No. 100081

Botanical Name	Common Name	% Planted by Species	Wetland Tolerance
All Buffer Plantings at 680 stems/acre using 8' X 8' spacing			
General Riparian Zone – Overstory/Canopy Species			
Liriodendron tulipifera	Tulip Poplar	15%	FACU
Betula nigra	River Birch	15%	FACW
Platanus occidentalis	Sycamore	15%	FACW
Quercus phellos	Willow Oak	10%	FAC
Celtis laevigata	Sugarberry	10%	FACW
Quercus nigra	Water Oak	5%	FAC
Fraxinus pennsylvanica	Green Ash	5%	FACW
Diospyros virginiana	Persimmon	5%	FAC
Ulmus americana	American Elm	5%	FACW
General Riparian Zone – Understory/Shrub Species			
Carpinus caroliniana	American Hornbeam	~~5%~~ 7.5%	FAC
Lindera benzoin	Spicebush	2.5%	FAC
Asimina triloba	Pawpaw	~~2.5%~~ 5%	FAC
~~*Magnolia tripetala*~~	~~Umbrella Tree~~	~~2.5%~~	~~FACU~~
~~*Halesia carolina*~~	~~Carolina Silverbell~~	~~2.5%~~	~~FAC~~

REDLINED SPECIES UNAVAILABLE

Wetland Zone – Overstory/Canopy Species			
Betula nigra	River Birch	15%	FACW
Platanus occidentalis	Sycamore	15%	FACW
Quercus michauxii	Swamp Chestnut Oak	15%	FACW
Quercus palustris	Pin Oak	10%	FACW
Quercus phellos	Willow Oak	10%	FAC
Nyssa sylvatica	Blackgum	5%	FAC
Acer negundo	Box Elder	5%	FAC
Fraxinus pennsylvanica	Green Ash	5%	FACW
Ulmus americana	American Elm	5%	FACW
Wetland Zone – Understory/Shrub Species			
Alnus serrulata	Tag Alder	5%	OBL
Ilex verticillata	Winterberry	2.5%	FACW
Cephalanthus occidentalis	Buttonbush	2.5%	OBL
Cornus amomum	Silky Dogwood	2.5%	FACW
Aronia arbutifolia	Red Chokeberry	2.5%	FACW
Streambank Live Stake Plantings			
Salix sericea	Silky Willow	25%	OBL
Sambucus canadensis	Elderberry	20%	FACW
Cephalanthus occidentalis	Buttonbush	10%	OBL
Cornus amomum	Silky Dogwood	20%	FACW
Salix nigra	Black Willow	25%	OBL

Proposed Permanent Seed Mixture
UT to Magness Creek Mitigation Project – NCDMS Project No. 100081

Botanical Name	Common Name	% Planted by Species	Density (lbs/ac)	Wetland Tolerance
Agrostis perennans	Autumn Bentgrass	10%	1.5	FACW
Elymus virginicus	Virginia Wildrye	15%	2.25	FACW
Panicum virgatum	Switchgrass	15%	2.25	FAC
Tripsacum dactyloides	Eastern Gamma Grass	5%	0.75	FACW
Polygonum pennsylvanicum	Pennsylvania Smartweed	5%	0.75	FACW
Schizachyrium scoparium	Little Blue Stem	5%	0.75	FACU
Juncus effusus	Soft Rush	5%	0.75	FACW
Bidens frondosa (or aristosa)	Beggars Tick	5%	0.75	FACW
Coreopsis lanceolata	Lance-Leaved Tick Seed	10%	1.5	FACU
Dichanthelium clandestinum	Tioga Deer Tongue	10%	1.5	FAC
Andropogon gerardii	Big Blue Stem	5%	0.75	FAC
Sorghastrum nutans	Indian Grass	5%	0.75	FACU
Monarda punctata	Spotted Beebalm	5%	0.75	FACU
	Total	**100%**	**15**	

Note: Final species selection may change due to refinement of site conditions or to availability at the time of planting. If species substitution is required, the planting Contractor will submit a revised planting list to Baker for approval prior to the procurement of plant stock.

6/6/2023
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PROJECT REFERENCE NO.	SHEET NO.
167680	1-B
NCDMS ID NO. 100081	

DocuSigned by: Kathleen M McKeithan 247E840F4484473...

APPROVED BY:

6/12/2023

DATE:

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

4/21/2023
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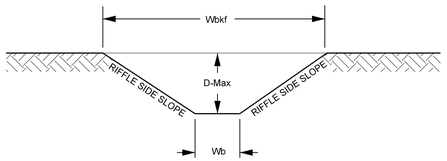
mcrabtree

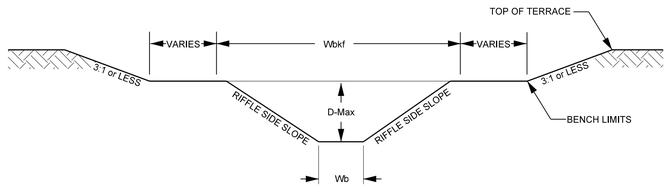
revised 02/02/00

2/26/03

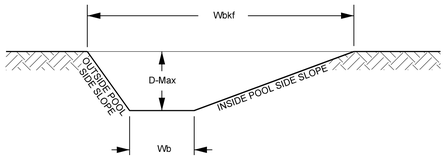
TYPICAL RIFFLE, POOL, AND BANKFULL BENCH CROSS SECTIONS



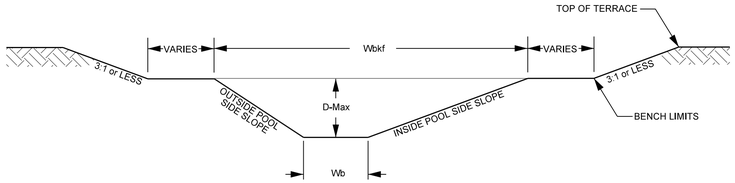
RIFFLE



RIFFLE WITH BANKFULL BENCH



POOL



POOL WITH BANKFULL BENCH

	UT to MAGNESS REACH 1A 11+02.17 to 33+53.65		UT to MAGNESS REACH 1B 33+79.06 to 43+06.86		UT2	
	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL
WIDTH OF BANKFULL (Wbkf)	12.5	18.0	14.5	20.0	6.3	8.0
AVERAGE DEPTH	0.9	1.4	1.0	1.8	0.5	0.9
MAXIMUM DETPH (Dmax)	1.2	2.5	1.3	3.0	0.6	1.3
WIDTH TO DEPTH RATIO (bkf W/D)	14.2	13.1	15.2	11.3	12.5	9.1
BANKFULL AREA (Abkf)	11.0	24.7	13.8	35.3	2.7	7.0
BOTTOM WIDTH (Wb)	8.3	1.8	10.0	3.5	4.2	2.8
RIFFLE SIDE SLOPE (X:1)	2.0	N/A	2.0	N/A	2.0	N/A
INSIDE POOL SIDE SLOPE	N/A	4.0	N/A	4.0	N/A	2.0
OUTSIDE POOL SIDE SLOPE	N/A	1.5	N/A	1.5	N/A	2.0

PROJECT REFERENCE NO.	SHEET NO.
167680	2

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen M McKeithan 247E84DF4181473...

APPROVED BY:

6/12/2023

DATE:

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Phone: 919.463.5488
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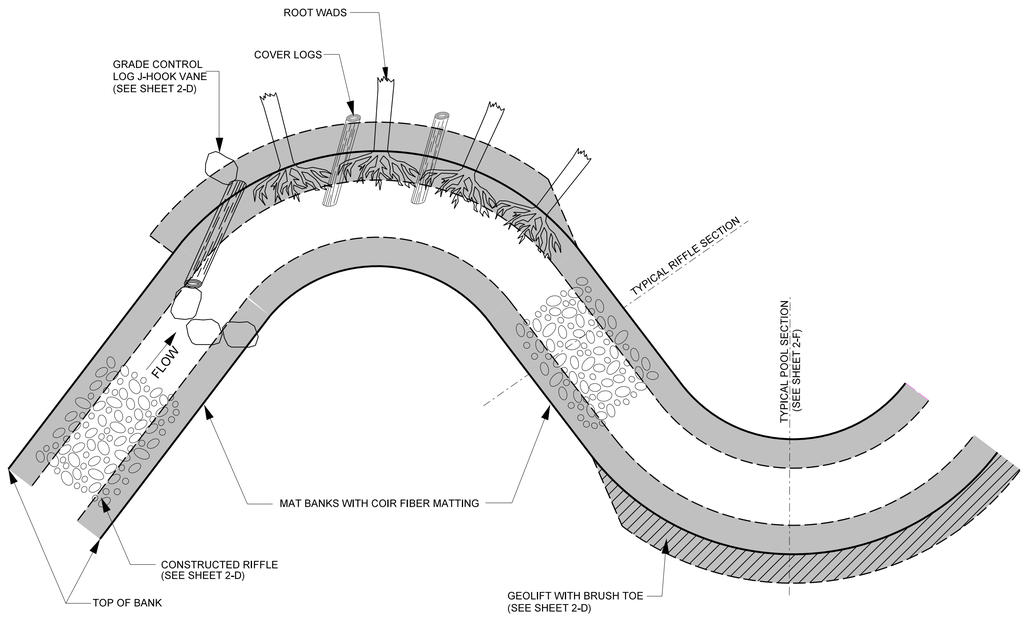
License #: F-1084

NCDMS ID NO. 100081

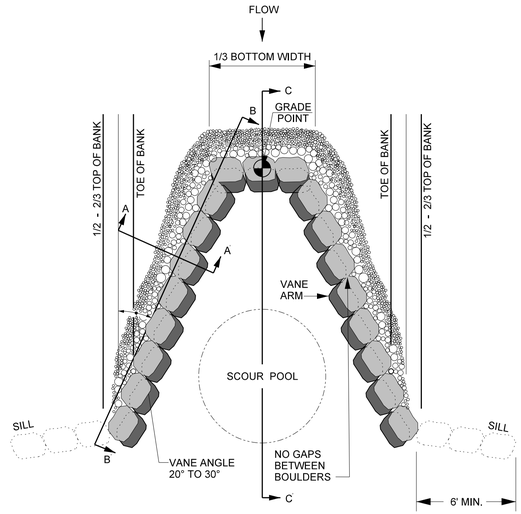
TYPICAL STRUCTURE PLACEMENT



STRUCTURE NOTES:

1. GENERALLY CONSTRUCTED RIFFLES, ROOT WADS, LOG VANES AND COIR FIBER MATTING WILL BE INSTALLED IN THE LOCATION AND SEQUENCE AS SHOWN.
2. ANY CHANGES TO NUMBER OR LOCATION OF STRUCTURES DURING CONSTRUCTION MUST BE APPROVED BY THE DESIGN ENGINEER.
3. COIR FIBER MATTING TO BE INSTALLED ON ALL RESTORED STREAMBANKS, FLOODPLAIN BENCHING, AND TERRACE SLOPES AS DESCRIBED IN THE TECHNICAL SPECIFICATIONS.
4. ROOTWADS MAY BE REPLACED WITH GEOLIFT.

ROCK CROSS VANE

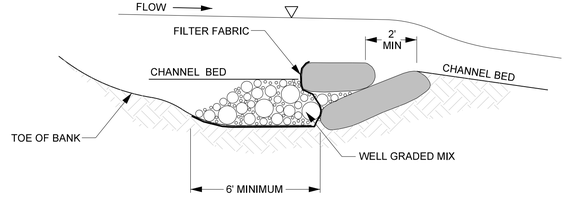


PLAN VIEW

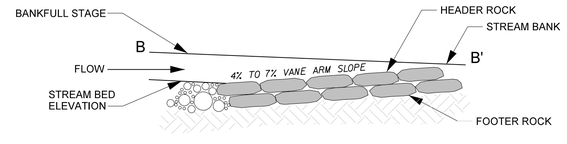
REACH	VANE LENGTH	BOULDER SIZE
REACH 1A	11.3'	2'x3'x4'
REACH 1B	14.0'	2'x3'x4'
UT2	N/A	N/A

NOTES FOR ALL VANE STRUCTURES:

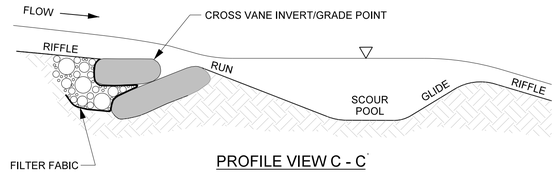
1. INSTALL FILTER FABRIC FOR DRAINAGE BEGINNING AT THE MIDDLE OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF SIX FEET.
2. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS AND PLACE FILL ON UPSTREAM SIDE OF VANE ARM, BETWEEN THE ARM AND STREAMBANK.
3. CONSTRUCT ANGLE AND SLOPE SPECIFICATIONS AS SHOWN.
4. BACKFILL VANE ARMS AND INVERT WITH A WELL GRADED MIX OF CLASS B, A, AND #57 STONE.
5. ON-SITE ALLUVIUM SHALL BE INCORPORATED INTO THE STONE BACKFILL WHERE AVAILABLE.
6. BOULDER SILL MUST BE A MINIMUM OF 6'.
7. BOULDERS FOR REACH 1A AND REACH 1B MUST BE AT LEAST 2'x3'x4"; WHILE BOULDERS FOR UT2 SHOULD BE 1'x2'x3'.



SECTION A - A'



PROFILE VIEW B - B'
VANE ARM



PROFILE VIEW C - C'

4/21/2023
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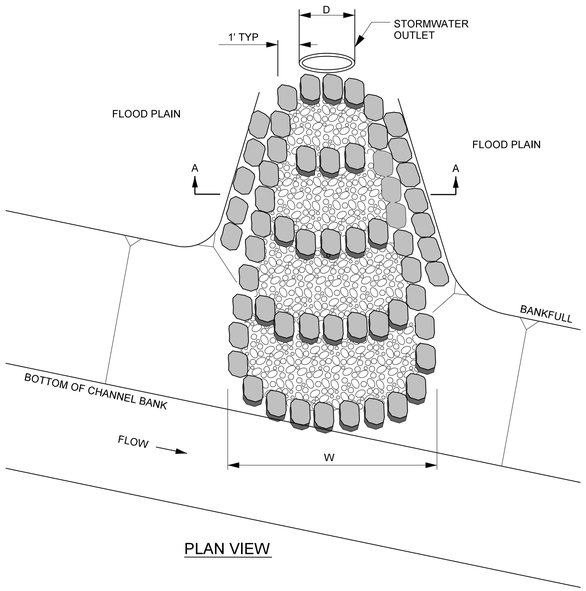
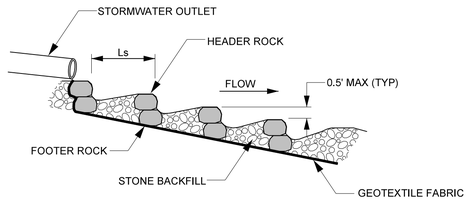
2/26/03

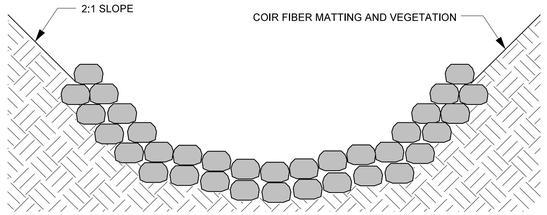
OUTLET PROTECTION



PLAN VIEW

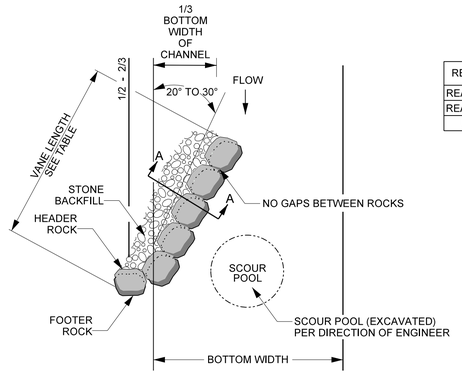


PROFILE VIEW



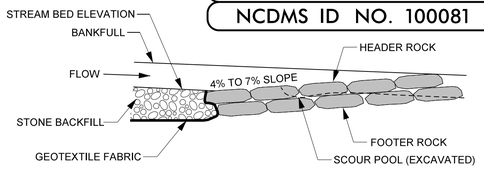
CROSS SECTION A - A

ROCK VANE



PLAN VIEW

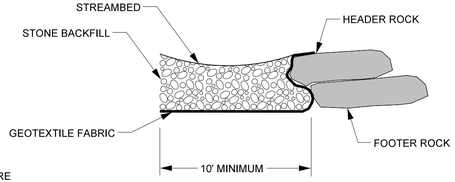
REACH	VANE LENGTH	BOULDER SIZE
REACH 1A	11.3'	2'x3'x4'
REACH 1B	14.0'	2'x3'x4'
UT2	N/A	N/A



PROFILE VIEW

NOTES FOR ALL VANE STRUCTURES:

1. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS.
2. START AT BANK AND PLACE FOOTER ROCKS FIRST AND THEN HEADER (TOP) ROCK.
3. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
4. AN EXTRA ROCK CAN BE PLACED IN SCOUR POOL FOR HABITAT IMPROVEMENT.
5. USE HAND PLACED STONE TO FILL GAPS ON UPSTREAM SIDE OF HEADER AND FOOTER ROCKS.
6. INSTALL GEOTEXTILE FABRIC BEGINNING AT THE TOP OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF SIX FEET.
7. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION 2"-4" BELOW THE THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE. FILL SHOULD BE CONCAVE BEHIND THE VANE ARM TO ALLOW POOLING OF FLOW.
8. START SLOPE AT 2/3 TO 3/4 TIMES THE BANKFULL STAGE.
9. ALL REACHES, BOULDER SIZE 1' x 2' x 3' TO 2' x 2' x 4'.



SECTION A - A

PROJECT REFERENCE NO.	SHEET NO.
167680	2A

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen M McKeithan 247E840DF4181473

APPROVED BY:

6/12/2023

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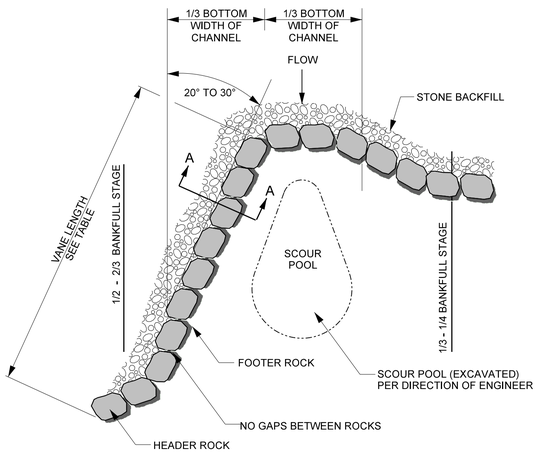
License #: F-1084

NCDMS ID NO. 100081

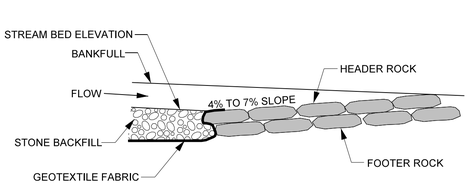
GRADE CONTROL ROCK J-HOOK VANE



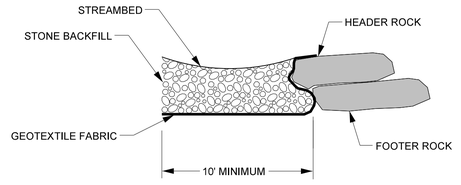
PLAN VIEW

NOTES FOR ALL VANE STRUCTURES:

1. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS.
2. START AT BANK AND PLACE FOOTER ROCKS FIRST AND THEN HEADER (TOP) ROCK.
3. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
4. AN EXTRA ROCK CAN BE PLACED IN SCOUR POOL FOR HABITAT IMPROVEMENT.
5. USE HAND PLACED STONE TO FILL GAPS ON UPSTREAM SIDE OF HEADER AND FOOTER ROCKS.
6. INSTALL GEOTEXTILE FABRIC BEGINNING AT THE TOP OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF SIX FEET.
7. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION 2"-4" BELOW THE THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE. FILL SHOULD BE CONCAVE BEHIND THE VANE ARM TO ALLOW POOLING OF FLOW.
8. START SLOPE AT THE BANKFULL ELEVATION.
9. REACH 1A AND 1B, BOULDER SIZE 2' x 3' x 4'.



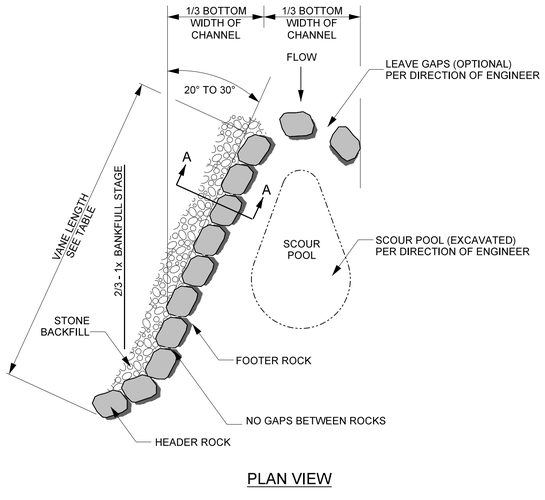
PROFILE VIEW



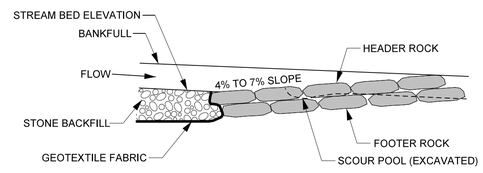
SECTION A - A

REACH	VANE LENGTH	BOULDER SIZE
REACH 1A	11.3'	2'x3'x4'
REACH 1B	14.0'	2'x3'x4'
UT2	N/A	N/A

ROCK J-HOOK VANE

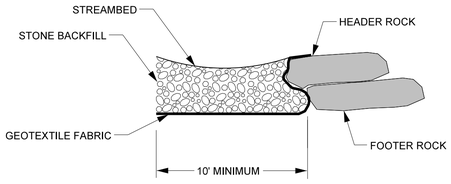


PLAN VIEW



PROFILE VIEW

REACH	VANE LENGTH	BOULDER SIZE
REACH 1A	11.3'	2'x3'x4'
REACH 1B	14.0'	2'x3'x4'
UT2	N/A	N/A



SECTION A - A

NOTES FOR ALL VANE STRUCTURES:

1. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS.
2. START AT BANK AND PLACE FOOTER ROCKS FIRST AND THEN HEADER (TOP) ROCK.
3. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
4. AN EXTRA ROCK CAN BE PLACED IN SCOUR POOL FOR HABITAT IMPROVEMENT.
5. USE HAND PLACED STONE TO FILL GAPS ON UPSTREAM SIDE OF HEADER AND FOOTER ROCKS.
6. INSTALL GEOTEXTILE FABRIC BEGINNING AT THE TOP OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF SIX FEET.
7. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION 2"-4" BELOW THE THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE. FILL SHOULD BE CONCAVE BEHIND THE VANE ARM TO ALLOW POOLING OF FLOW.
8. START SLOPE AT THE BANKFULL ELEVATION.
9. REACH 1A AND 1B, BOULDER SIZE 2' x 3' x 4'.

4/2/2023
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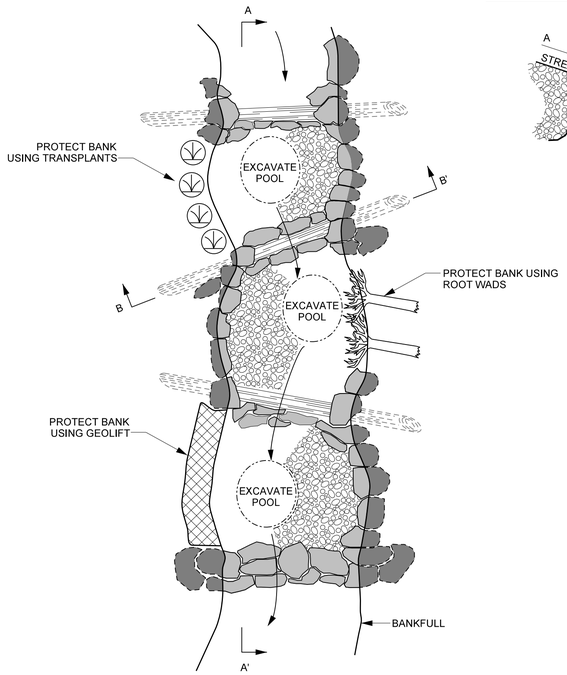
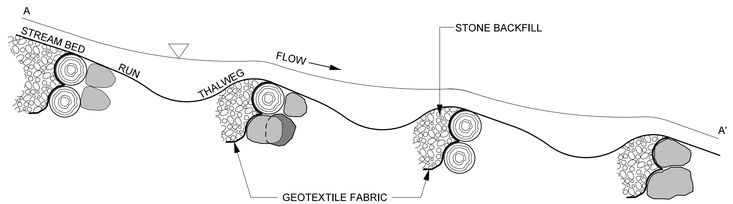
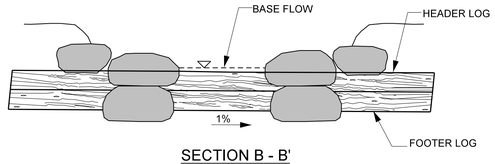
LOG AND ROCK STEP / POOL



PLAN VIEW



SECTION A - A'



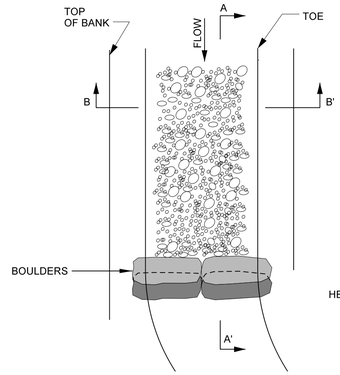
SECTION B - B'

REACH	BOULDER SIZE
REACH 1A	2'x3'x4'
REACH 1B	2'x3'x4'
UT2	1'x2'x3'

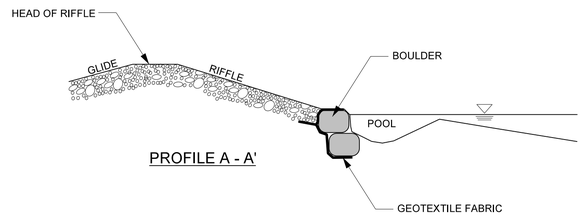
NOTES:

1. LOGS SHOULD BE AT LEAST 10" IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED AND EXTENDING INTO THE BANK 5' ON EACH SIDE.
2. SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOG.
3. GEOTEXTILE FABRIC SHOULD BE NAILED TO THE LOG BELOW THE BACKFILL.
4. BOULDERS SHOULD BE PLACED ON TOP OF HEADER LOG FOR ANCHORING.
5. TRANSPLANTS CAN BE USED INSTEAD OF BOUDERS, PER DIRECTION OF ENGINEER.
6. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION OF THE TOP OF THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE.

BOULDER STEP



PLAN VIEW



PROFILE A - A'

NOTES:

1. FOOTERS SHALL BE INSTALLED SUCH THAT 1/4 TO 1/3 OF THE LENGTH IS DOWNSTREAM OF THE HEADER.
2. SOIL SHALL BE WELL COMPACTED AROUND BURIED PORTION OF FOOTERS WITH THE BUCKET OF EXCAVATOR.
3. INSTALL NON-WOVEN FILTER FABRIC UNDERNEATH FOOTER BOULDERS.
4. UNDERCUT THE RIFFLE ELEVATION 12 INCHES TO ALLOW FOR A LAYER OF STONE.
5. INSTALL EROSION CONTROL MATTING ALONG COMPLETED BANKS SUCH THAT THE EROSION CONTROL MATTING AT THE TOE OF THE BANK EXTENDS DOWN TO THE UNDERCUT ELEVATION.
6. FILL TRENCH WITH GRADED MIX OF CLASS A, CLASS B, AND #57 STONE TO THE BED ELEVATION OF THE CHANNEL.
7. BOULDER STEPS MUST BE EXTENDED TO A MINIMUM OF 2' INTO THE BANK. USE SILL BOULDERS IF NECESSARY.
8. THALWEG AND STEP INVERT WILL BE CONCAVE AND SHAPED PER DIRECTION OF THE DESIGNER.

REACH	BOULDER SIZE
REACH 1A	2'x3'x4'
REACH 1B	2'x3'x4'
UT2	1'x2'x3'

PROJECT REFERENCE NO.	SHEET NO.
167680	2B

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen M McKeithan 247E840F4181473...

APPROVED BY:

6/12/2023

DATE:

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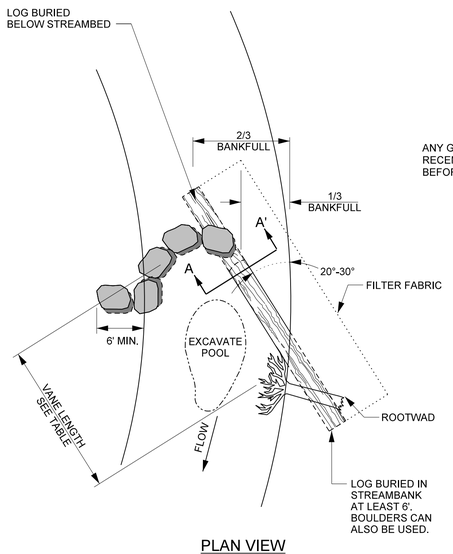
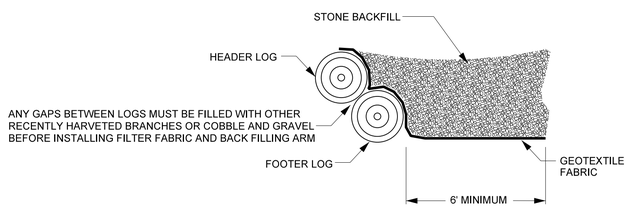
License #: F-1084

NCDMS ID NO. 100081

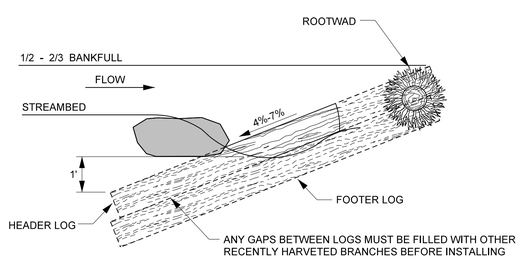
GRADE CONTROL LOG J-HOOK VANE



PLAN VIEW



SECTION A - A'



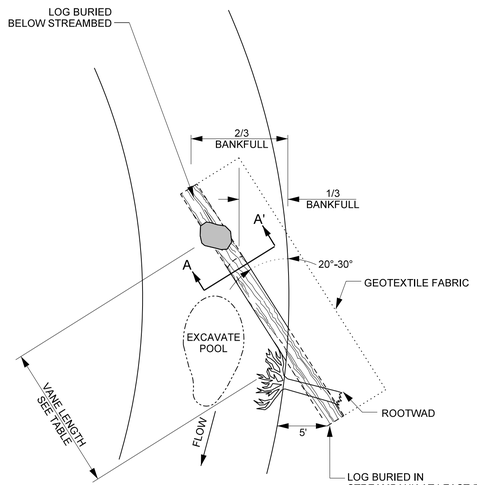
PROFILE VIEW

NOTES:

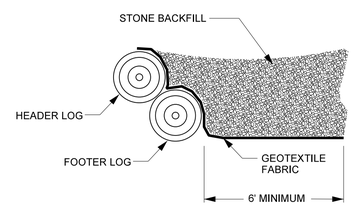
1. LOGS SHOULD BE AT LEAST 10" IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, RECENTLY HARVESTED, AND FOOTERED.
2. BOULDERS MUST BE OF SUFFICIENT SIZE TO ANCHOR LOGS.
3. SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOG.
4. ROOTWADS SHOULD BE PLACED BENEATH THE HEADER LOG AND PLACED SO THAT IT LOCKS THE HEADER LOG INTO THE BANK, SEE ROOTWAD DETAIL.
5. BOULDERS SHOULD BE PLACED ON TOP OF HEADER LOG FOR ACHORING.
6. HEADER BOULDERS TO BE PLACED 0.5 TO 0.75 FEET APART.
7. FILTER FABRIC SHOULD BE NAILED TO THE LOG BELOW THE BACKFILL.
8. TRANSPLANTS OR BOULDERS CAN BE USED INSTEAD OF ROOWADS, PER DIRECTION OF ENGINEER.
9. BOULDER SILL MUST BE A MINIMUM OF 6'.
10. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION OF THE TOP OF THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE.

REACH	VANE LENGTH	BOULDER SIZE
REACH 1A	11.3'	2'x3'x4'
REACH 1B	14.0'	2'x3'x4'
UT2	N/A	N/A

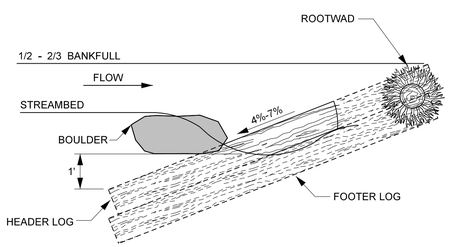
LOG VANE



PLAN VIEW



SECTION A - A'



PROFILE VIEW

NOTES:

1. LOGS SHOULD BE AT LEAST 10" IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED.
2. BOULDERS MUST BE OF SUFFICIENT SIZE TO ANCHOR LOGS.
3. SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOGS.
4. ROOTWADS SHOULD BE PLACED BENEATH THE HEADER LOG AND PLACED SO THAT IT LOCKS THE HEADER LOG INTO THE BANK, SEE ROOTWAD DETAIL.
5. BOULDER SHOULD BE PLACED ON TOP OF HEADER LOG FOR ANCHORING.
6. GEOTEXTILE FABRIC SHOULD BE NAILED TO THE LOG BELOW THE BACKFILL.
7. TRANSPLANTS CAN BE USED INSTEAD OF ROOTWADS, PER DIRECTION OF ENGINEER.
8. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION OF THE TOP OF THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE.

REACH	VANE LENGTH	BOULDER SIZE
REACH 1A	11.3'	2'x3'x4'
REACH 1B	14.0'	2'x3'x4'
UT2	N/A	N/A

4/21/2023
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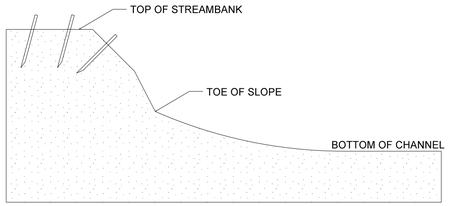
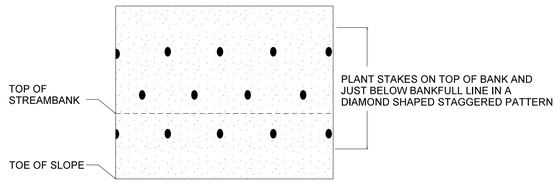
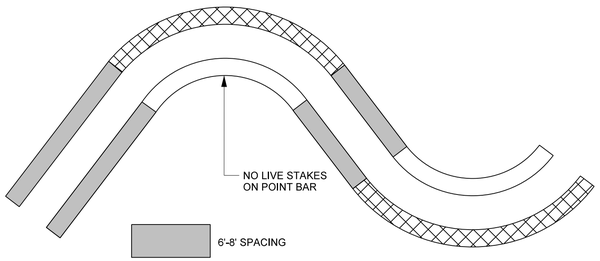
LIVE STAKING



CROSS SECTION VIEW



PLAN VIEW



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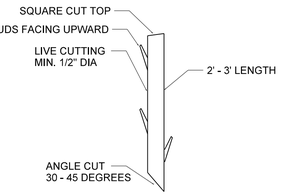
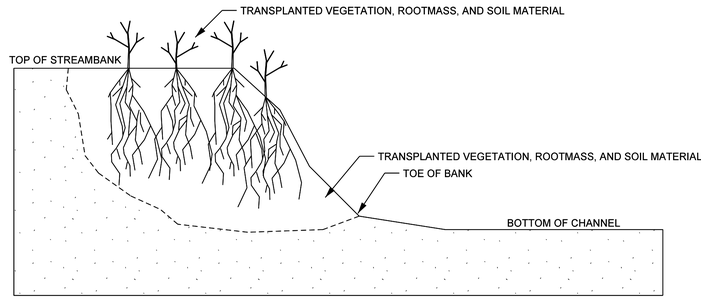


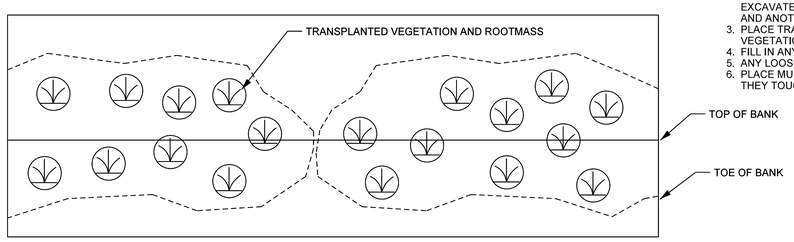
LIVE STAKE DETAIL

NOTES:
1. STAKES SHOULD BE CUT AND INSTALLED ON THE SAME DAY.
2. DO NOT INSTALL STAKES THAT HAVE BEEN SPLIT.
3. STAKES MUST BE INSTALLED WITH BUDS POINTING UPWARDS.
4. STAKES SHOULD BE INSTALLED PERPENDICULAR TO BANK.
5. STAKES SHOULD BE 1/2 TO 2 INCHES IN DIAMETER AND 2 TO 3 FT LONG.
6. STAKES SHOULD BE INSTALLED LEAVING 1/5 OF STAKE ABOVE GROUND.
7. DOUBLE THE LIVE STAKES IN MEANDER BENDS THAT HAVE A BRUSH TOE AND BANKS ARE MATTED.

TRANSPLANTED VEGETATION



CROSS SECTION VIEW



PLAN VIEW

NOTES:
1. EXCAVATE A HOLE IN THE BANK TO BE STABILIZED THAT WILL ACCOMMODATE THE SIZE OF TRANSPLANT TO BE PLACED. BEGIN EXCAVATION AT THE TOE OF THE BANK.
2. EXCAVATE TRANSPLANT USING A FRONT END LOADER. EXCAVATE THE ENTIRE ROOT MASS AND AS MUCH ADDITIONAL SOIL MATERIAL AS POSSIBLE. IF ENTIRE ROOT MASS CAN NOT BE EXCAVATE IN ONE BUCKET LOAD, THE TRANSPLANT IS TOO LARGE AND ANOTHER SHOULD BE SELECTED.
3. PLACE TRANSPLANT IN THE BANK TO BE STABILIZED SO THAT VEGETATION IS ORIENTATED VERTICALLY.
4. FILL IN ANY HOLES AROUND THE TRANSPLANT AND COMPACT.
5. ANY LOOSE SOIL LEFT IN THE STREAM SHOULD BE REMOVED.
6. PLACE MULTIPLE TRANSPLANTS CLOSE TOGETHER SUCH THAT THEY TOUCH.

PROJECT REFERENCE NO.	SHEET NO.
167680	2C

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen M McKeithan 247E84DFE4161473

APPROVED BY:

6/12/2023

DATE:

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Phone: 919.463.5488
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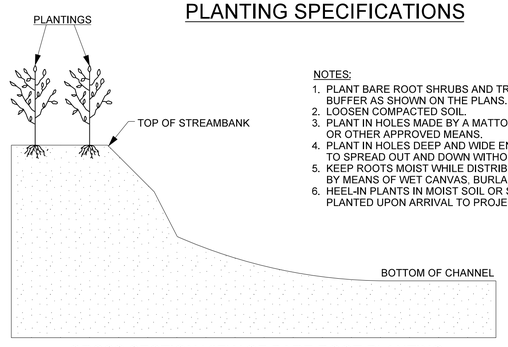
License #: F-1084

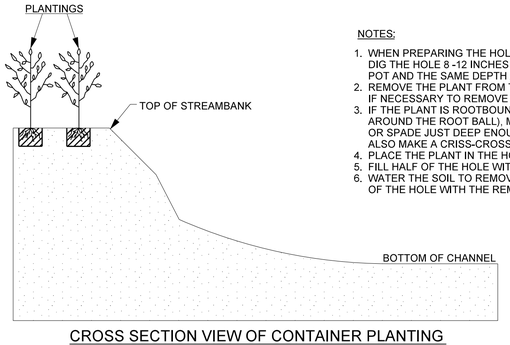
NCDMS ID NO. 100081

PLANTING SPECIFICATIONS



CROSS SECTION VIEW OF BARE ROOT PLANTING

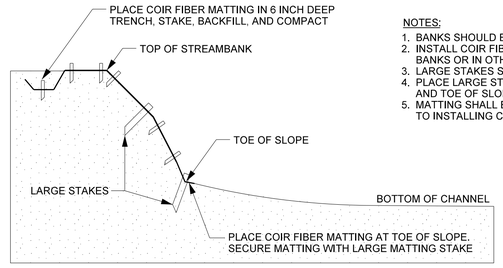
NOTES:
1. PLANT BARE ROOT SHRUBS AND TREES TO THE WIDTH OF THE BUFFER AS SHOWN ON THE PLANS.
2. LOOSEN COMPACTED SOIL.
3. PLANT IN HOLES MADE BY A MATTOCK, DIBBLE, PLANTING BAR, OR OTHER APPROVED MEANS.
4. PLANT IN HOLES DEEP AND WIDE ENOUGH TO ALLOW THE ROOTS TO SPREAD OUT AND DOWN WITHOUT J-ROOTING.
5. KEEP ROOTS MOIST WHILE DISTRIBUTING OR WAITING TO PLANT BY MEANS OF WET CANVAS, BURLAP, OR STRAW.
6. HEEL-IN PLANTS IN MOIST SOIL OR SAWDUST IF NOT PROMPTLY PLANTED UPON ARRIVAL TO PROJECT SITE.



CROSS SECTION VIEW OF CONTAINER PLANTING

NOTES:
1. WHEN PREPARING THE HOLE FOR A POTTED PLANT OR SHRUB DIG THE HOLE 8 -12 INCHES LARGER THAN THE DIAMETER OF THE POT AND THE SAME DEPTH AS THE POT.
2. REMOVE THE PLANT FROM THE POT. LAY THE PLANT ON ITS SIDE IF NECESSARY TO REMOVE THE POT.
3. IF THE PLANT IS ROOTBOUND (ROOTS GROWING IN A SPIRAL AROUND THE ROOT BALL), MAKE VERTICAL CUTS WITH A KNIFE OR SPADE JUST DEEP ENOUGH TO CUT THE NET OF ROOTS. ALSO MAKE A CRISS-CROSS CUT ACROSS THE BOTTOM OF THE BALL.
4. PLACE THE PLANT IN THE HOLE.
5. FILL HALF OF THE HOLE WITH SOIL (SAME SOIL REMOVED FOR BACKFILL).
6. WATER THE SOIL TO REMOVE AIR POCKETS AND FILL THE REST OF THE HOLE WITH THE REMAINING SOIL.

COIR FIBER MATTING

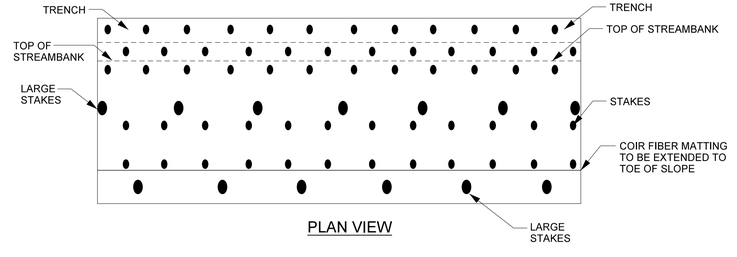


CROSS SECTION VIEW

NOTES:
1. BANKS SHOULD BE SEEDED PRIOR TO PLACEMENT OF MATTING.
2. INSTALL COIR FIBER MATTING PER SPECIFICATIONS ALONG STREAM BANKS OR IN OTHERS LOCATIONS SPECIFIED BY ENGINEER.
3. LARGE STAKES SHOULD NOT BE SPACED FURTHER THAN 36" APART.
4. PLACE LARGE STAKES ALONG ALL SEAMS, IN THE CENTER OF BANK, AND TOE OF SLOPE.
5. MATTING SHALL BE PLACED ON BANKS, STAKED, AND TRENCHED PRIOR TO INSTALLING CONSTRUCTED RIFFLE MATERIAL.

TYPICAL LARGE MATTING STAKE

LEG LENGTH	17.00 IN (43.18 CM) (TAPERED TO POINT)
WIDTH	1.5 IN (3.81 CM)
THICKNESS	1.5 IN (3.81 CM)



PLAN VIEW

TYPICAL SMALL MATTING STAKE

LEG LENGTH	11.00 IN (27.94 CM)
HEAD WIDTH	1.25 IN (3.18 CM)
HEAD THICKNESS	0.40 IN (1.02 CM)
LEG WIDTH	0.60 IN (1.52 CM) (TAPERED TO POINT)
LEG THICKNESS	0.40 IN (1.02 CM)
TOTAL LENGTH	12.00 IN (30.48 CM)

4/21/2023
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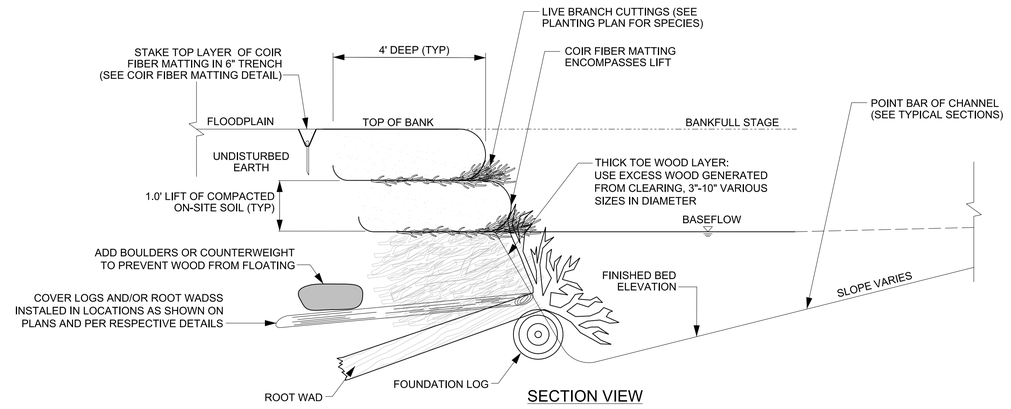
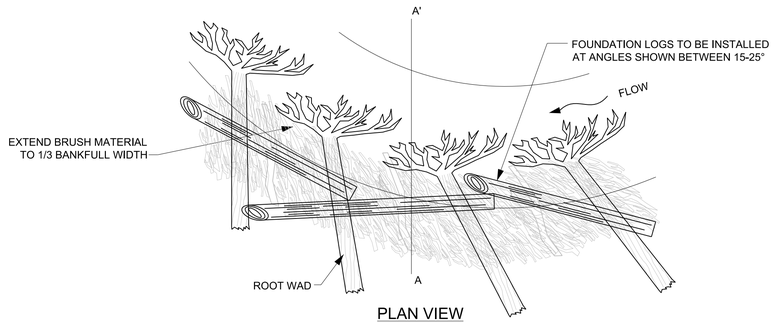
mcspadden

2/26/03

GEOLIFT WITH LIVE BRUSH, LOGS AND ROOT WADS



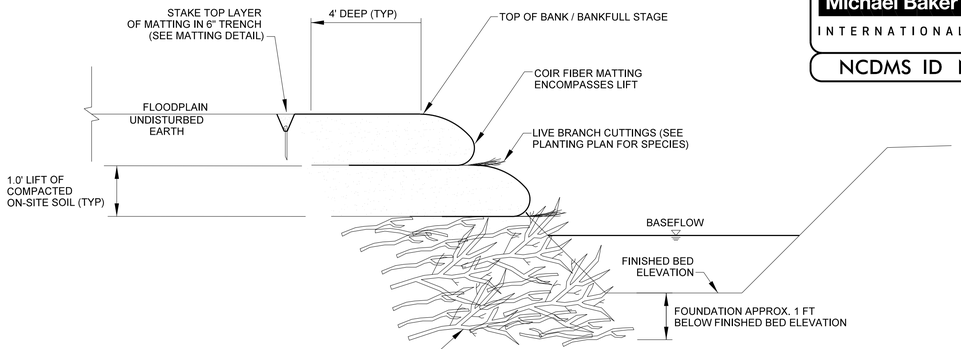
SECTION VIEW



PLAN VIEW

GEOLIFT WITH BRUSH TOE

NOTES:
1. LIVE BRANCH CUTTINGS SHALL BE THE SAME SPECIES AS THE LIVE STAKES AND SHALL BE INSTALLED DURING VEGETATION DORMANCY.
2. LIVE BRANCH CUTTINGS SHALL BE INSTALLED AT A DENSITY OF 20-30 CUTTINGS PER LINEAR FOOT AND A MAXIMUM DIAMETER OF 2.5 INCHES.
3. NUMBER OF SOIL LIFTS MAY VARY. IN GENERAL LIFTS SHALL EXTEND TO THE TOP OF BANK OR BANKFULL STAGE.



NOTES:
1. WHEN GEOLIFTS ARE BUILT ABOVE ROOT WAD CLUSTER, USE LARGE STONE BACKFILL BEHIND ROOT MASS TO BUILT FOUNDATION.
2. CLASS I STONE MAY BE USED AT THE DIRECTION OF THE ENGINEER TO BUILD THE FOUNDATION IN LIEU OF BRUSH MATERIAL.

PROJECT REFERENCE NO.	SHEET NO.
167680	2D

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen M McKeithan 247E84DF4161473...

APPROVED BY:

6/12/2023

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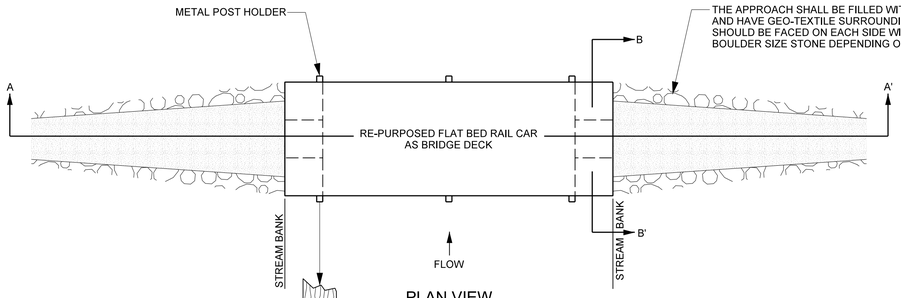
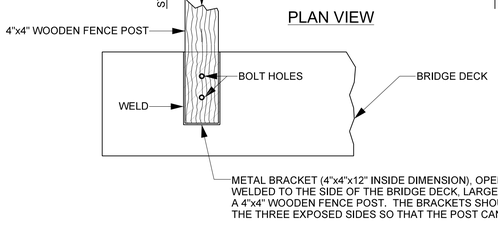
License #: F-1084

NCDMS ID NO. 100081

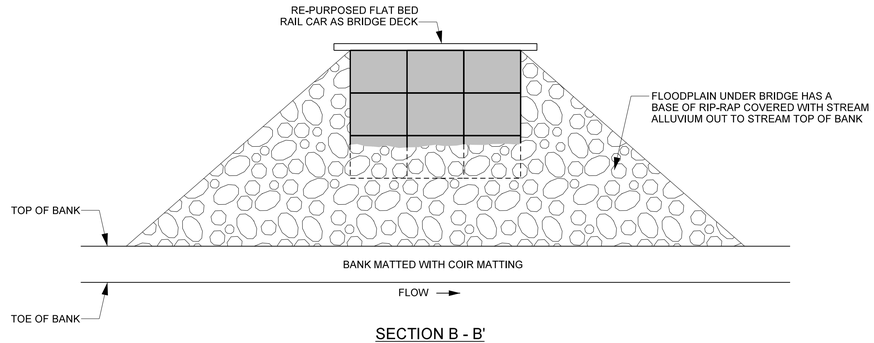
FLAT BED RAIL CAR BRIDGE APPLICATION



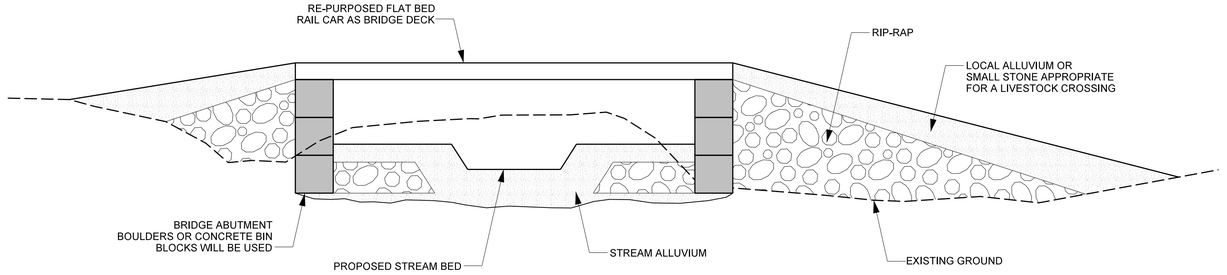
PLAN VIEW



NOTES:
1. GENERALLY, CONSTRUCTION SHOULD BE FROM THE CENTER OF THE CHANNEL OUT TO THE BRIDGE SUPPORTING STRUCTURE AND APPROACHES.
2. THE STREAM CHANNEL THROUGH THE BRIDGE OPENING SHOULD BE CONSTRUCTED AND THE BANKS MATTED BEFORE THE STONE IS PLACED FOR STABILIZING THE CROSSING OR BLOCKS/BOULDERS ARE PLACED TO SUPPORT THE BRIDGE DECK.
3. ABUTMENTS SHOULD BE CONSTRUCTED FROM THE CONCRETE BIN BLOCKS OR LARGE BOULDERS (ENGINEER APPROVED).
4. BLOCKS OR BOULDERS SHOULD EXTEND BELOW SCOUR DEPTH. FOOTERS SHALL BE AT LEAST 2' BELOW THE EXISTING BED.
5. GEO-TEXTILE FABRIC SHALL BE PLACED BETWEEN SURFACE STONE AND SOIL USED IN THE BRIDGE APPROACHES.
6. BOULDERS AND OTHER STONE SHALL BE BACKFILLED AND COMPACTED. VOID SPACE BETWEEN FABRIC AND STONE SURFACE MATERIAL SHALL BE MINIMIZED.
7. GEO-TEXTILE FABRIC SHOULD BE PLACED BEHIND BOULDERS/STONE, BURIED BELOW STONE DEPTH AND EXTENDED INTO THE BANK.
8. THE CUBE FENCE POST HOLDERS SHOULD BE ATTACHED BY WELDING PRIOR TO PLACING THE DECK IN PLACE.



SECTION B - B'



SECTION A - A'

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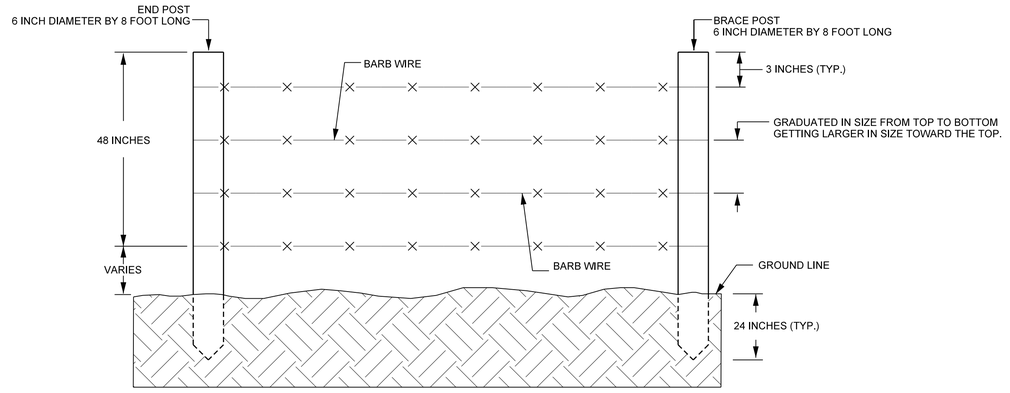
mcbrady

2/26/03

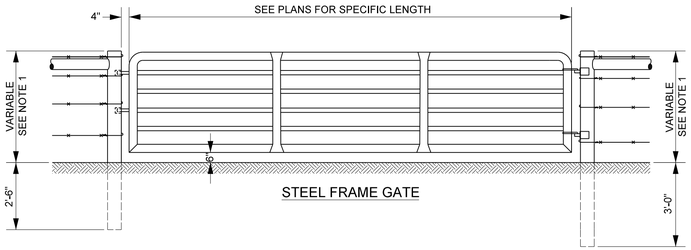
BARB WIRE FIELD FENCE



NOTE:

1. END POSTS SHALL BE INSTALLED AT A SPACING OF 10-15 FEET.

STEEL GATES

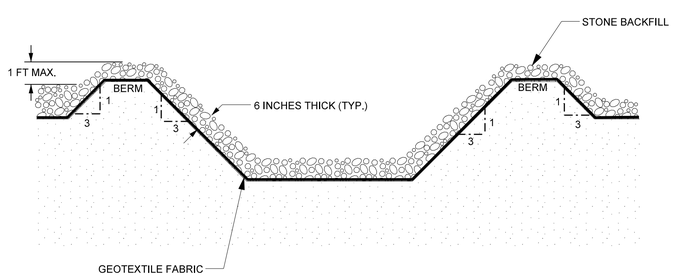


STEEL FRAME GATE

NOTES:

1. POST HEIGHT DIMENSION SHALL BE THE SAME AS REQUIRED FOR THE ADJACENT FENCE.
2. CONSTRUCT AN END OR STRESS PANEL, AS REQUIRED IN THE SPECIFICATION, ON EACH SIDE OF GATE.
3. HINGES AND LOCKS SHALL BE INSTALLED AS SPECIFIED BY GATE MANUFACTURER.

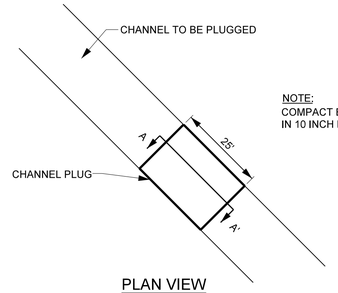
FORD STREAM CROSSING



NOTES:

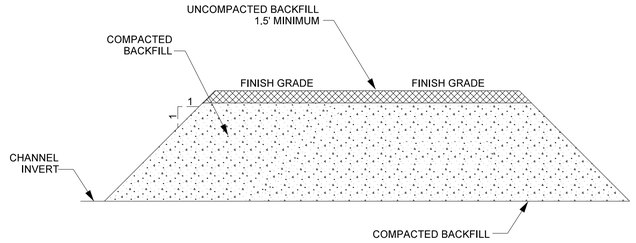
1. CONSTRUCT STREAM CROSSING WHEN FLOW IS LOW.
2. HAVE ALL NECESSARY MATERIALS AND EQUIPMENT ON-SITE BEFORE WORK BEGINS.
3. MINIMIZE CLEARING AND EXCAVATION OF STREAMBANKS. DO NOT EXCAVATE CHANNEL BOTTOM. COMPLETE ONE SIDE BEFORE STARTING ON THE OTHER SIDE.
4. INSTALL STREAM CROSSING AT RIGHT ANGLE TO THE FLOW.
5. GRADE SLOPES TO A 3:1 SLOPE. TRANSPLANT SOD FROM ORIGINAL STREAMBANK ONTO SIDE SLOPES.
6. MAINTAIN CROSSING SO THAT RUNOFF IN THE CONSTRUCTION ROAD DOES NOT ENTER EXISTING CHANNEL.
7. A STABILIZED PAD OF STONE BACKFILL, 6 INCHES THICK, LINED WITH GEOTEXTILE FABRIC SHALL BE USED OVER THE BERM AND ACCESS SLOPES.
8. WIDTH OF THE CROSSING SHALL BE SUFFICIENT TO ACCOMMODATE THE LARGEST VEHICLE CROSSING THE CHANNEL.
9. CONTRACTOR SHALL DETERMINE AN APPROPRIATE RAMP ANGLE ACCORDING TO EQUIPMENT UTILIZED.

CHANNEL PLUG



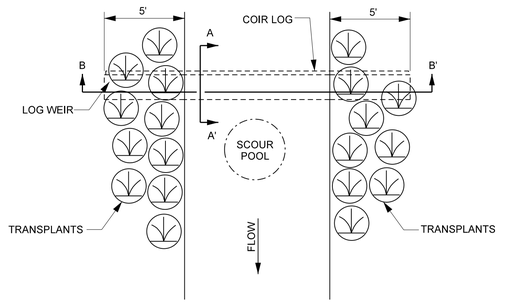
PLAN VIEW

NOTE:
COMPACT BACKFILL USING ON-SITE HEAVY EQUIPMENT IN 10 INCH LIFTS.

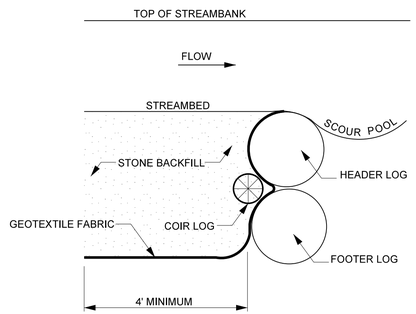


SECTION A - A'

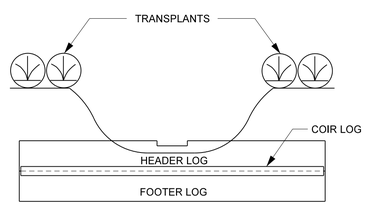
LOG STEP



PLAN VIEW



SECTION A - A'



CROSS SECTION VIEW B - B'

NOTES:

1. LOGS SHOULD BE AT LEAST 10 INCHES IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED.
2. TOP OF HEADER LOG SHOULD BE SET AT SAME ELEVATION AS THE STREAMBED.
3. DIAMETER OF COIR LOG SHOULD BE APPROXIMATELY 1/2 DIAMETER OF LOGS.
4. USE GEOTEXTILE FABRIC WITH COIR LOGS TO SEAL GAPS BETWEEN LOGS.
5. PLACE TRANSPLANTS ALONG BANKS TO PROTECT AGAINST BANK EROSION.
6. THE HEADER LOG SHOULD BE NOTCHED 2 - 3 INCHES DEEP IN THE CENTER AND FOR 20 - 30% OF THE CHANNEL WIDTH.

PROJECT REFERENCE NO.	SHEET NO.
167680	2E

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

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NCDMS ID NO. 100081

4/21/2023
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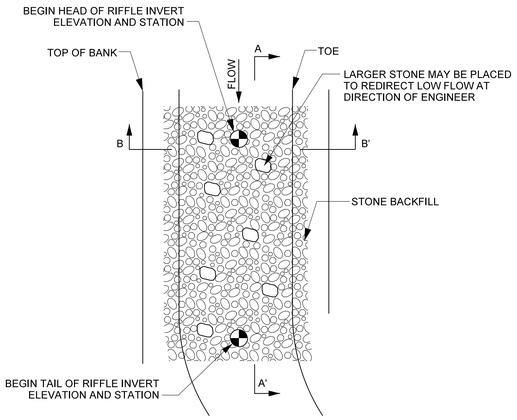
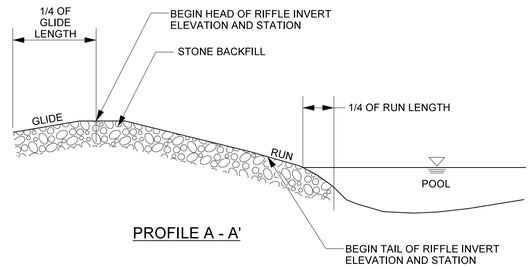
2/26/03

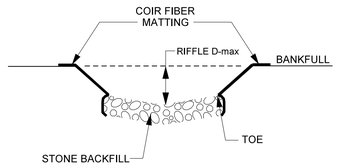
CONSTRUCTED RIFFLE



PLAN VIEW



PROFILE A - A'



SECTION B - B'

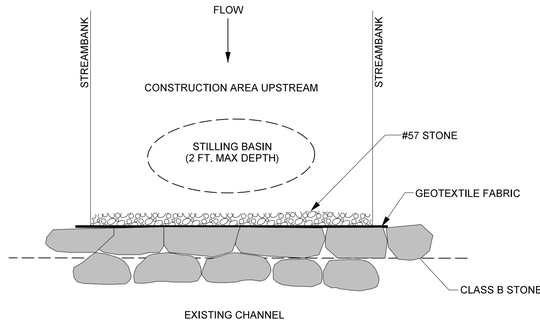
NOTES: STONE CONSTRUCTED RIFFLE

1. UNDERCUT CHANNEL BED ELEVATION AS NEEDED TO ALLOW FOR LAYERS OF STONE TO ACHIEVE FINAL GRADE.
2. INSTALL COIR FIBER MATTING ALONG COMPLETED BANKS SUCH THAT THE EROSION CONTROL MATTING AT THE TOE OF THE BANK EXTENDS DOWN TO THE UNDERCUT ELEVATION.
3. INSTALL STONE BACKFILL, COMPACTED TO GRADE.
4. FINAL CHANNEL BED SHAPE SHOULD BE ROUNDED, SMOOTH, AND CONCAVE, WITH THE ELEVATION OF THE BED 0.2 FT DEEPER IN THE CENTER THAN AT THE EDGES.
5. STONE BACKFILL SHALL CONSIST OF 5% CLASS I, 10% CLASS B, 50% CLASS A, 20% ABC, AND 15% ON-SITE ALLUVIUM.
6. CONSTRUCTED RIFFLES SHALL BE 12" THICK.
7. BOULDERS FOR REACH 1A AND 1B MUST BE AT LEAST 2' x 3' x 4'; WHILE BOULDERS FOR UT2 SHOULD BE 1' x 2' x 3'.
8. SATURATED WOODY DEBRIS THAT IS EXISTING WITHIN THE CHANNEL CAN BE RELOCATED INTO THE NEW RIFFLE AREAS.

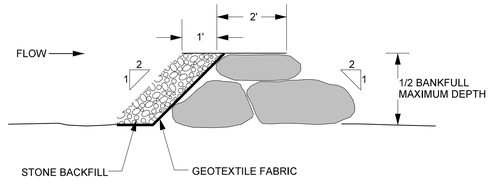
NOTES: NATURAL ALLUVIUM RIFFLE

1. STOCK PILE NATURAL ALLUVIUM RIFFLE FROM SECTIONS OF CHANNEL THAT ARE BEING ABONDONED AND FILLED.
2. APPLY NATURAL ALLUVIUM BED MATERIAL IN THOSE RIFFLES WHERE STONE IS NOT INDICATED.
3. ANY WATER LOGGED WOODY MATERIAL COLLECTED SHOULD BE INSTALLED WITH BED MATERIAL.

ROCK DAM



PLAN VIEW



CROSS SECTION

NOTES:
CLEAN OUT STILLING BASIN OF TRAPPED SEDIMENT PRIOR TO REMOVAL.

PROJECT REFERENCE NO.	SHEET NO.
167680	2F

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

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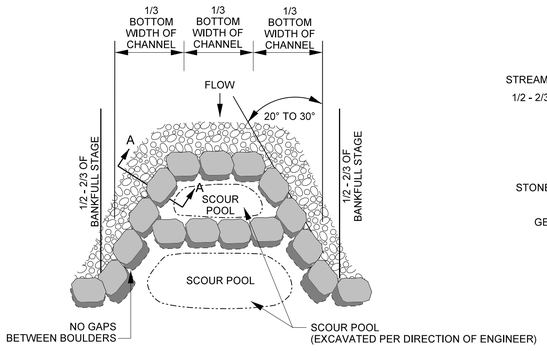
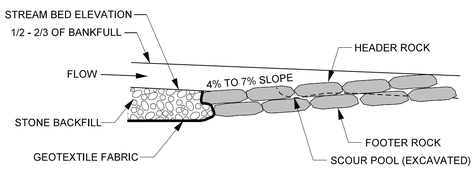
NCDMS ID NO. 100081

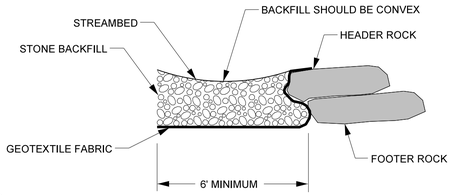
ROCK DOUBLE DROP CROSS VANE



PLAN VIEW



PROFILE VIEW

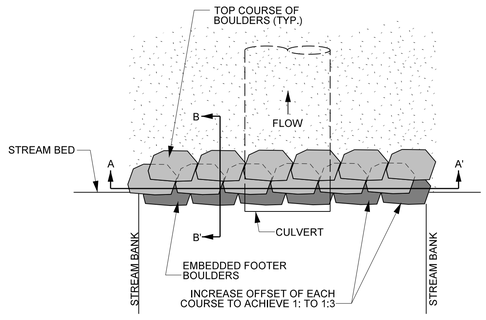


SECTION A - A

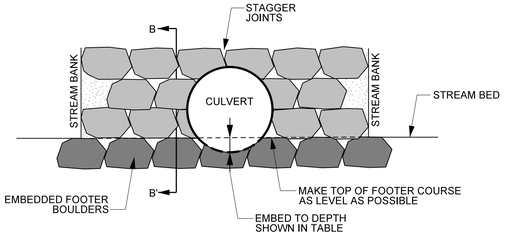
NOTES FOR ALL VANE STRUCTURES:

1. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS.
2. START AT BANK AND PLACE FOOTER ROCKS FIRST AND THEN HEADER (TOP) ROCK.
3. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
4. AN EXTRA ROCK CAN BE PLACED IN SCOUR POOL FOR HABITAT IMPROVEMENT.
5. USE HAND PLACED STONE TO FILL GAPS ON UPSTREAM SIDE OF HEADER AND FOOTER ROCKS.
6. INSTALL GEOTEXTILE FABRIC BEGINNING AT THE TOP OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF SIX FEET.
7. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION 2"-4" BELOW THE THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE. FILL SHOULD BE CONCAVE BEHIND THE VANE ARM TO ALLOW POOLING OF FLOW.
8. START SLOPE AT 3/4 THE BANKFULL ELEVATION.
9. ALL REACHES, BOULDER SIZE 2' x 2' x 4'.

BOULDER HEADWALL / ENDWALL



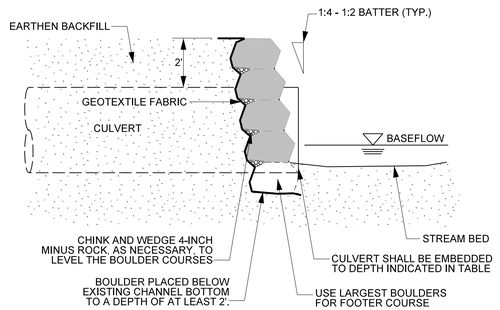
PLAN VIEW



SECTION A - A'

NOTES:

1. BOULDERS SHALL BE TOUCHING SO THAT VOID SPACE IS MINIMIZED.
2. BOULDERS SHOULD EXTEND BELOW SCOUR DEPTH. FOOTER BOULDERS SHALL BE AT LEAST 2' BELOW THE EXISTING BED
3. GEOTEXTILE MATTING SHOULD BE PLACED BETWEEN BOULDERS AND SOIL.
4. BOULDERS SHOULD BE BACKFILLED AND COMPACTED. VOID SPACE BETWEEN FABRIC AND BOULDER OR ROCK FILL MATERIAL, SHOULD BE MINIMIZED.
5. BOULDERS SHOULD NOT BE HIGHER THAN THE TOP OF CROSSING ELEVATION.
6. FILTER FABRIC SHOULD BE PLACED BEHIND BOULDERS, BURIED BELOW BOULDER DEPTH, AND EXTEND INTO THE BANK.



SECTION B - B'

2/26/03

AS-BUILT LEGEND

- PROPOSED DESIGN
- AS-BUILT SURVEY BY KEE MAPPING & SURVEYING 10/10/22
- RED LINE VARIATIONS FROM ORIGINAL DESIGN SUBMITTED WITH THE MITIGATION PLAN
- WETLAND RE-ESTABLISHMENT
- WETLAND REHABILITATION
- FILL EXISTING CHANNEL
- CHANNEL PLUG

NAD 83

PIN: 2641-72-1337

FENCE LINE ENCROACHES CONSERVATION EASEMENT

FENCE ENCROACHMENT CORRECTED BY CONTRACTOR

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-53-8722
DB: 1168 PG: 30 (PARCEL 2)
PB: 7 PG: 46 (PORTION OF TRACT 9)

DORCAS S. ROSS
PIN: 2641-64-7567
PORTION OF DB: 11-I PG: 423

FENCE LINE ENCROACHMENT

ELECTRIC FENCE REMOVED

AS-BUILT TOP OF BANK (TYP.)

BRUSH TOE WITH LIVE STAKES (TYP.)

CONSTRUCTED RIFFLE (TYP.)

GEOLIFT WITH LIVE BRUSH (TYP.)

BEGIN UT to MAGNESS
REACH 1A STA. 11+02.65

VP1

MCW1

X-1

X-2

12+00

13+00

14+00

15+00

MATCH LINE – SEE SHEET 4

A DIVERSION OF OVERLAND FLOW WAS ADDED IN THIS AREA OUTSIDE OF THE EASEMENT WITH LANDOWNER AGREEMENT.

GENE W. SCHENCK, SR. (LIFE ESTATE)
WARREN SCHENCK
PIN: 2641-64-4323
DB: 1405 PG: 314 &
DB: 1592 PG: 70

LOG VANE (TYP.)

GRADE CONTROL ROCK J-HOOK VANE (TYP.)

AS-BUILT THALWEG (TYP.)

BRUSH TOE WITH MATTING AND DOUBLE LIVE STAKES (TYP.)

GEOLIFT WITH BRUSH TOE (TYP.)

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-53-8722
DB: 1168 PG: 30 (PARCEL 2)
PB: 7 PG: 46 (PORTION OF TRACT 9)

FENCE ENCROACHMENT CORRECTED BY CONTRACTOR

12' GATE INSTALLED IN PLACE OF 4' GATE

FENCE LINE ENCROACHES CONSERVATION EASEMENT

24" POPLAR · DOUBLE MAPLE · 36" POPLAR · 18" POPLAR · 20" OAK · 18" MAPLE · 15" CHERRY · 18" DECIDUOUS TREE · 24" MAPLE · DOUBLE MAPLE

BAKER PROJECT REFERENCE NO.	SHEET NO.
167680	3

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M McKEITHAN

DocuSigned by: Kathleen M McKeithan 347E84DFE181473...

APPROVED BY:

6/12/2023

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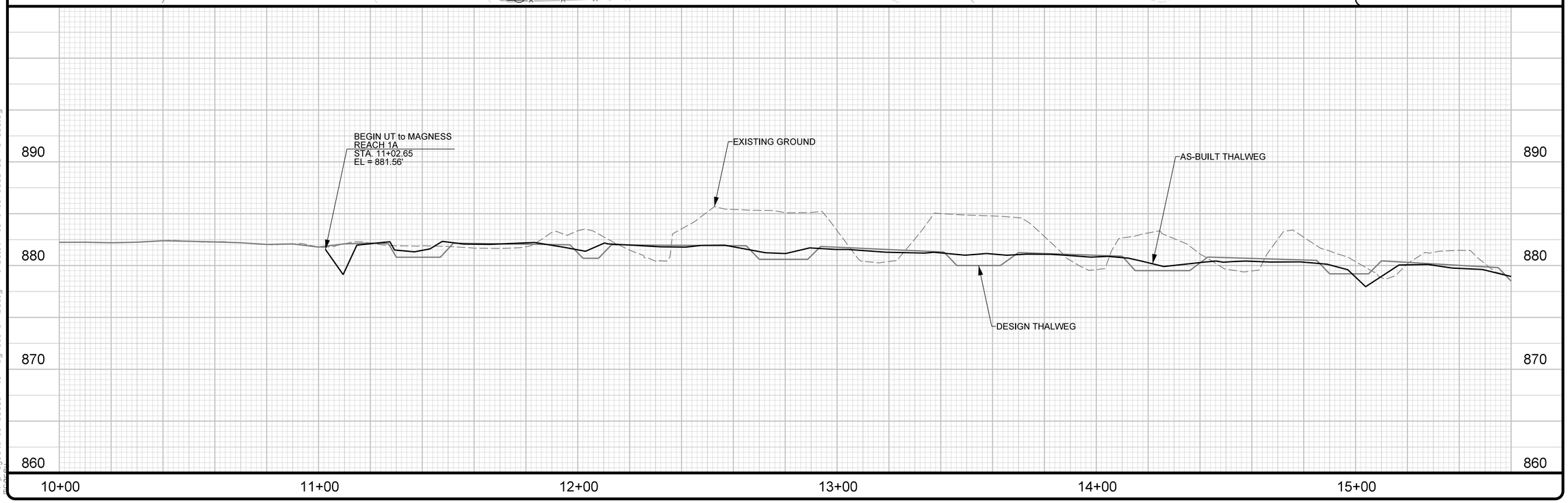
License #: F-1084

NCDMS ID NO. 100081

UT TO MAGNESS CREEK RECORD DRAWING PLAN & PROFILE VIEW

20 0 20 40
SCALE (FT)



6/6/2023
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mcgeehee

2/26/03

APPARENT GAP BETWEEN THE ROBERT & KAY YARBORO PROPERTIES AND THE PROPERTY OF CEDAR LAKE FARM, LLC AS DESCRIBED IN DB: 1587 PG: 1352 (TRACT 4)

NAD 83

GIS PARCEL LINE (NOT SURVEYED)

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-52-8927
DB: 1168 PG: 30 (PARCEL 1, TRACT 10)
PB: 7 PG: 46 (TRACT 10)

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-53-8722
DB: 1168 PG: 30
(PARCEL 2)
PB: 7 PG: 46
(PORTION OF TRACT 9)

AS-BUILT THALWEG (TYP.)

AS-BUILT TOP OF BANK (TYP.)

GEOLIFT WITH BRUSH TOE (TYP.)

BEDROCK INCORPORATED AS DROP STRUCTURES.

CONSTRUCTED RIFFLE (TYP.)

BRUSH TOE WITH LIVE STAKES (TYP.)

GEOLIFT WITH LIVE BRUSH (TYP.)

STREAM SHIFTED WEST DUE TO BEDROCK ALL ALONG THE LEFT BANK THAT PREVENTED GRADING TO THE PLANNED PROFILE ELEVATION.

MATCH LINE – SEE SHEET 3

MATCH LINE – SEE SHEET 5

16+00 17+00 18+00 19+00 20+00 21+00

CG1 VP2 RVP1 MCW 2 X-2 X-3

BAKER PROJECT REFERENCE NO.	SHEET NO.
167680	4

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M McKEITHAN

DocuSigned by: Kathleen M McKeithan 247E840F4181472...

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- WETLAND RE-ESTABLISHMENT
- WETLAND REHABILITATION
- FILL EXISTING CHANNEL
- CHANNEL PLUG

AS-BUILT LEGEND

- PROPOSED DESIGN
- AS-BUILT SURVEY BY KEE MAPPING & SURVEYING 10/10/22
- RED LINE VARIATIONS FROM ORIGINAL DESIGN SUBMITTED WITH THE MITIGATION PLAN

UT TO MAGNESS CREEK RECORD DRAWING PLAN & PROFILE VIEW

20 0 20 40
SCALE (FT)

AS-BUILT THALWEG

DESIGN THALWEG

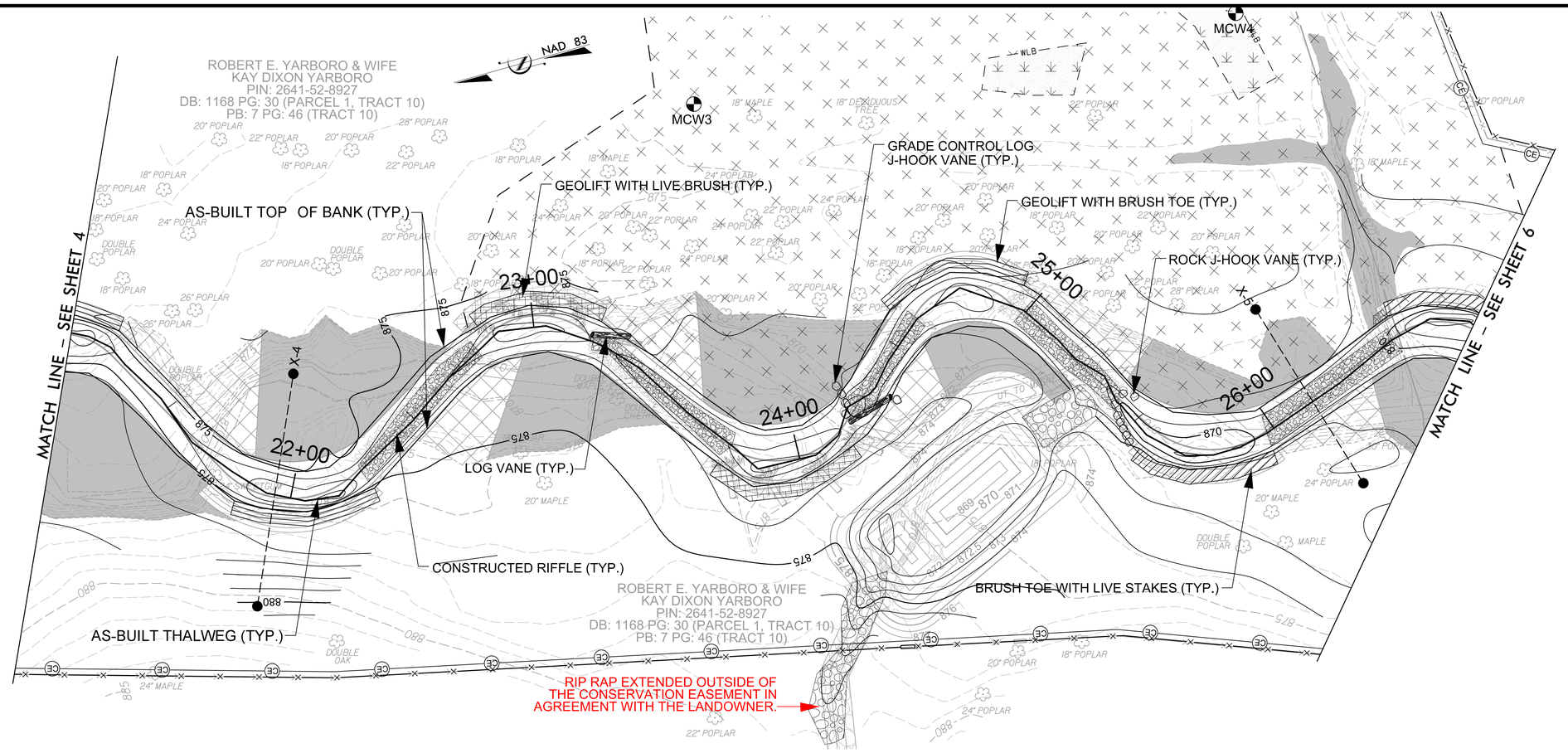
EXISTING GROUND

890 880 870 860

16+00 17+00 18+00 19+00 20+00 21+00

6/12/2023
K:\Projects\167680_UT to Magness Cr\Design\As-Built\Plans\167680_ASB-PSH_04.dgn
mcrain

2/26/03



BAKER PROJECT REFERENCE NO.	SHEET NO.
167680	5

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M. McKEITHAN

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License #: F-1084

NCDMS ID NO. 100081

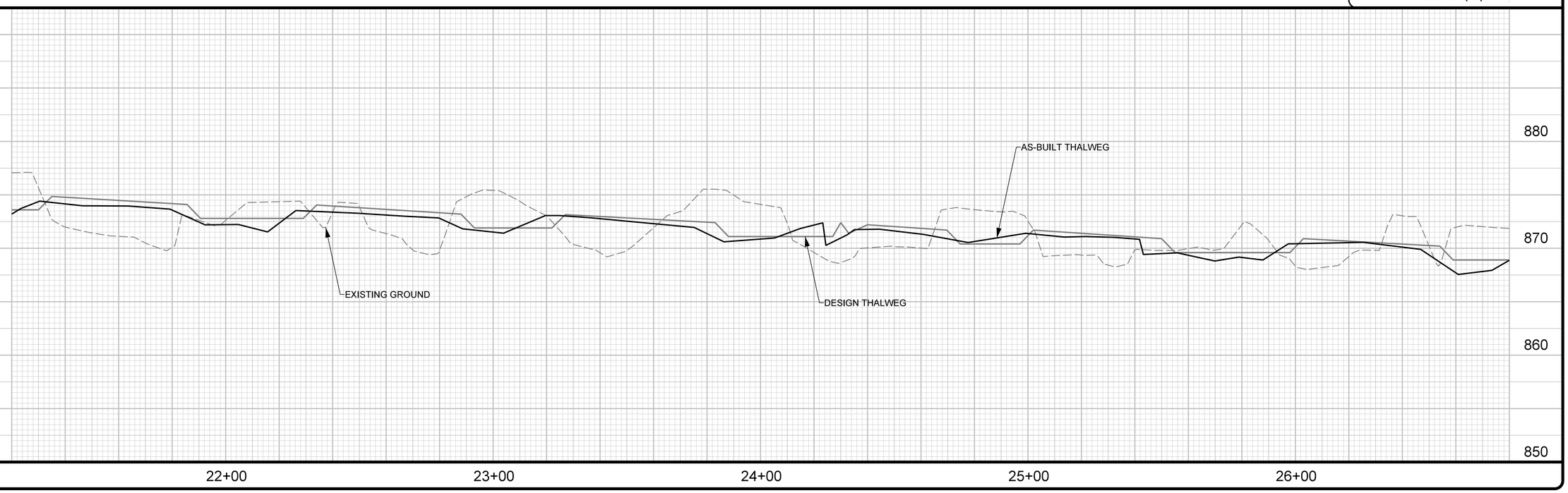
- WETLAND RE-ESTABLISHMENT
- WETLAND REHABILITATION
- FILL EXISTING CHANNEL
- CHANNEL PLUG

AS-BUILT LEGEND

- PROPOSED DESIGN
- AS-BUILT SURVEY BY KEE MAPPING & SURVEYING 10/10/22
- RED LINE VARIATIONS FROM ORIGINAL DESIGN SUBMITTED WITH THE MITIGATION PLAN

UT TO MAGNESS CREEK RECORD DRAWING PLAN & PROFILE VIEW

20 0 20 40
SCALE (FT)



6/6/2023
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mcgee

2/26/03

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

FENCE LINE ENCROACHES CONSERVATION EASEMENT

FENCE ENCROACHMENT CORRECTED BY CONTRACTOR

GEOLIFT WITH LIVE BRUSH (TYP.)

CONSTRUCTED RIFFLE (TYP.)

BRUSH TOE WITH LIVE STAKES (TYP.)

BOULDER STEP (TYP.)

MATCH LINE – SEE SHEET 5

MATCH LINE – SEE SHEET 7

VP3

VP4

27+00

28+00

29+00

30+00

31+00

32+00

LOG AND ROCK STEP- POOL (TYP.)

GEOLIFT WITH BRUSH TOE (TYP.)

LOG STEP (TYP.)

AS-BUILT TOP OF BANK (TYP.)

AS-BUILT THALWEG (TYP.)

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

AS-BUILT LEGEND

- PROPOSED DESIGN
- AS-BUILT SURVEY BY KEE MAPPING & SURVEYING 10/10/22
- RED LINE VARIATIONS FROM ORIGINAL DESIGN SUBMITTED WITH THE MITIGATION PLAN

- WETLAND RE-ESTABLISHMENT
- WETLAND REHABILITATION
- FILL EXISTING CHANNEL
- CHANNEL PLUG

BAKER PROJECT REFERENCE NO.	SHEET NO.
167680	6

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M. MCKEITHAN

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NCDMS ID NO. 100081

NAD 83

UT TO MAGNESS CREEK RECORD DRAWING PLAN & PROFILE VIEW

20 0 20 40
SCALE (FT)

880
870
860
850
840

AS-BUILT THALWEG

DESIGN THALWEG

EXISTING GROUND

27+00 28+00 29+00 30+00 31+00 32+00

6/6/2023
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mcrain

2/26/03

FENCE ENCROACHMENT CORRECTED BY CONTRACTOR

FENCE LINE ENCROACHES CONSERVATION EASEMENT

END UT to MAGNESS
REACH 1A STA. 33+59.68

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

ROCK VANE (TYP.)

LOG STEP (TYP.)

PERMANENT STREAM CROSSING
ADDED WOVEN WIRE AT CROSSING.

AS-BUILT TOP OF BANK (TYP.)

BRUSH TOE WITH LIVE STAKES (TYP.)

LOG VANE (TYP.)

CONSTRUCTED RIFFLE (TYP.)

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

33+00 34+00 35+00 36+00 37+00 38+00

X-8 X-9 X-10

MATCH LINE – SEE SHEET 7

MATCH LINE – SEE SHEET 10

MATCH LINE – SEE SHEET 8

VP5

GEOLIFT WITH BRUSH TOE (TYP.)

GEOLIFT WITH LIVE BRUSH (TYP.)

LOG AND ROCK STEP- POOL (TYP.)

AS-BUILT THALWEG (TYP.)

FILL EXISTING CHANNEL

CHANNEL PLUG

WETLAND RE-ESTABLISHMENT

WETLAND REHABILITATION

AS-BUILT LEGEND

PROPOSED DESIGN

AS-BUILT SURVEY BY KEE MAPPING & SURVEYING 10/10/22

RED LINE VARIATIONS FROM ORIGINAL DESIGN SUBMITTED WITH THE MITIGATION PLAN

BEGIN UT to MAGNESS
REACH 1B STA. 33+90.21

FENCE LINE ENCROACHES

FENCE ENCROACHMENT CORRECTED WITH MODIFICATION OF CONSERVATION EASEMENT LINE.

3 - 12' GATES INSTALLED AT NEW LOCATION

2 - 4' GATES AND 12' GATE NOT INSTALLED AT THIS LOCATION

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

CONTROL POINT
5/8" RBCC (303)
GROUND COORDINATES
N: 611887.74'
E: 1246151.64'
ELEV: 861.98'

NAD 83

BAKER PROJECT REFERENCE NO.	SHEET NO.
167680	7

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M McKEITHAN

DocuSigned by: Kathleen M McKeithan 247E84DEF181473

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License #: F-1084

NCDMS ID NO. 100081

UT TO MAGNESS CREEK RECORD DRAWING PLAN & PROFILE VIEW

20 0 20 40
SCALE (FT)

870
860
850
840

END UT to MAGNESS
REACH 1A
STA. 33+51.77
EL = 859.67'

BEGIN UT to MAGNESS
REACH 1B
STA. 33+81.98
EL = 859.09'

AS-BUILT THALWEG

DESIGN THALWEG

EXISTING GROUND

33+00 34+00 35+00 36+00 37+00 38+00

6/6/2023
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mcarey

2/26/03

MATCH LINE – SEE SHEET 10

MATCH LINE – SEE SHEET 7

MATCH LINE – SEE SHEET 9

LOG AND ROCK STEP-POOL (TYP.)

BOULDER TOE (TYP.)

AS-BUILT THALWEG (TYP.)

AS-BUILT TOP OF BANK (TYP.)

LOG VANE (TYP.)

ROCK CROSS VANE (TYP.)

VP6

BRUSH TOE WITH LIVE STAKES (TYP.)

GRADE CONTROL LOG J-HOOK VANE (TYP.)

END UT 2
STA. 13+06.72

RVP2

CONSTRUCTED RIFFLE (TYP.)

GEOLIFT WITH BRUSH TOE (TYP.)

GEOLIFT WITH LIVE BRUSH (TYP.)

4' GATE NOT INSTALLED

CONTROL POINT
5/8" RBCC (301)
GROUND COORDINATES
N: 611332.86'
E: 1245883.14'
ELEV: 859.26'

NAD 83

ROBERT E. YARBORO & WIFE KAY DIXON YARBORO
PIN: 2641-60-0979
DB: 1105 PG: 2421 &
DB: 1810 PG: 2076

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

BAKER PROJECT REFERENCE NO.	SHEET NO.
167680	8

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M McKEITHAN

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License #: F-1084

NCDMS ID NO. 100081

AS-BUILT LEGEND

- PROPOSED DESIGN
- AS-BUILT SURVEY BY KEE MAPPING & SURVEYING 10/10/22
- RED LINE VARIATIONS FROM ORIGINAL DESIGN SUBMITTED WITH THE MITIGATION PLAN

- WETLAND RE-ESTABLISHMENT
- NON-CREDITED JURISDICTIONAL WETLANDS
- WETLAND REHABILITATION
- FILL EXISTING CHANNEL
- CHANNEL PLUG

UT TO MAGNESS CREEK RECORD DRAWING PLAN & PROFILE VIEW

20 0 20 40
SCALE (FT)

EXISTING GROUND

AS-BUILT THALWEG

DESIGN THALWEG

860 850 840 830

38+00 39+00 40+00 41+00 42+00 43+00

6/6/2023
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mcarey

2/26/03

NAD 83

2 - 12' GATES INSTALLED

PERMANENT GRAVEL FORD STREAM CROSSING

MATCH LINE – SEE SHEET 8

AS-BUILT TOP OF BANK (TYP.)

FENCE CONTINUES TO EXISTING ELECTRIC FENCE

FENCE REMOVED

RIP RAP ADDED TO DRAINAGE DITCH

END UT to MAGNESS
REACH 1B STA. 43+33.93

AS-BUILT THALWEG (TYP.)

SFHA (ZONE AE) PER F.I.R.M. MAP NO. 3710264100J

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-60-0979
DB: 1105 PG: 2421 &
DB: 1810 PG: 2076

DUKE ENERGY UTILITY EASEMENT

SELKIRK DRIVE (SR 1803) (AS DRAFTED FROM AERIAL)

UT TO MAGNESS CREEK

5' x 7' ELLIPTICAL CMP
INV IN 847.10'
INV OUT 846.45'

30" CMP
INV IN 851.56'
INV OUT 849.56'

JAMES FREDRICK BEAM & WIFE MARGARET O. BEAM,
PORTION OF DB: 1047 PG: 54 (TRACT NO. 1)
HEIRS OF RUTH S. BEAM
PORTION OF DB: 1047 PG: 58 (TRACT NO. 1) & ESTATE FILE: 09E-629
CAROLINE BROWN REYNOLDS
PORTION OF DB: 1047 PG: 62 (TRACT NO. 1), DB: 1329 PG: 2007 (TRACT NO. 1) &
DB: 1643 PG: 1879 (TRACT NO. 1)
DAVID CONRAD BEAM & WIFE REBECCA P. BEAM
DB: 1047 PG: 66 (TRACT NO. 1)
PIN: 2641-60-7498

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

SFHA (ZONE AE) PER F.I.R.M. MAP NO. 3710264100J

FILL EXISTING CHANNEL

CHANNEL PLUG

BAKER PROJECT REFERENCE NO.	SHEET NO.
167680	9

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M McKEITHAN

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License #: F-1084

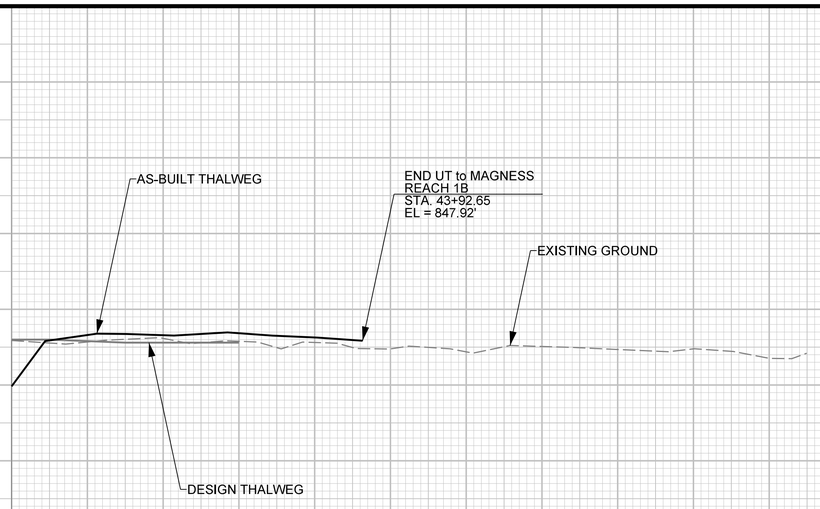
NCDMS ID NO. 100081

AS-BUILT LEGEND

- PROPOSED DESIGN
- AS-BUILT SURVEY BY KEE MAPPING & SURVEYING 10/10/22
- RED LINE VARIATIONS FROM ORIGINAL DESIGN SUBMITTED WITH THE MITIGATION PLAN

UT TO MAGNESS CREEK RECORD DRAWING PLAN & PROFILE VIEW

20 0 20 40
SCALE (FT)



6/6/2023
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mcgee

2/26/03

NAD 83

GIS PARCEL LINE (NOT SURVEYED)

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-60-0979
DB: 1105 PG: 2421 &
DB: 1810 PG: 2076

ROY P. SHARPE & WIFE
DRUSILLA D. SHARPE
PIN: 2641-71-0003
DB: 1632 PG: 190

CEDAR LAKE FARM, LLC
PIN: 2641-72-1337
DB: 1587 PG: 1352 (TRACT 4)

ROBERT E. YARBORO & WIFE
KAY DIXON YARBORO
PIN: 2641-41-9802
DB: 16-D PG: 143 & DB: 1069 PG: 439
PB: 7 PG: 46 (TRACT 11)

CONTROL POINT
NCGS MONUMENT (302)
GROUND COORDINATES
N: 611569.06'
E: 1246122.01'
ELEV: 860.26'

REMOVED SOIL PILE

GEOLIFT WITH LIVE BRUSH (TYP.)

BRUSH TOE WITH
LIVE STAKES (TYP.)

BEGIN UT 2
STA. 10+17.38

11+00

12+00

LOG VANE (TYP.)

FG1

AS-BUILT THALWEG (TYP.)

LOG STEP (TYP.)

AS-BUILT
TOP OF BANK (TYP.)

MATCH LINE – SEE SHEET 8

MATCH LINE – SEE SHEET 7

ELECTRIC FENCE
BARBED WIRE FENCE
DOUBLE ELECTRIC FENCE

AS-BUILT LEGEND

- PROPOSED DESIGN
- AS-BUILT SURVEY BY KEE MAPPING & SURVEYING 10/10/22
- RED LINE VARIATIONS FROM ORIGINAL DESIGN SUBMITTED WITH THE MITIGATION PLAN

FILL EXISTING CHANNEL

CHANNEL PLUG

BAKER PROJECT REFERENCE NO.	SHEET NO.
167680	10

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M. McKEITHAN

DocuSigned by: Kathleen M McKeithan 247E840F4184472

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UT TO MAGNESS CREEK RECORD DRAWING PLAN & PROFILE VIEW

20 0 20 40
SCALE (FT)

870
860
850
840

BEGIN UT2
STA. 10+17.38
EL = 858.45'

DESIGN THALWEG

EXISTING GROUND

END UT2
STA. 13+11.35
EL = 854.01'

AS-BUILT THALWEG

10+00 11+00 12+00 13+00 14+00

6/6/2023
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mcarey