TIP PROJECT: U-5776

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

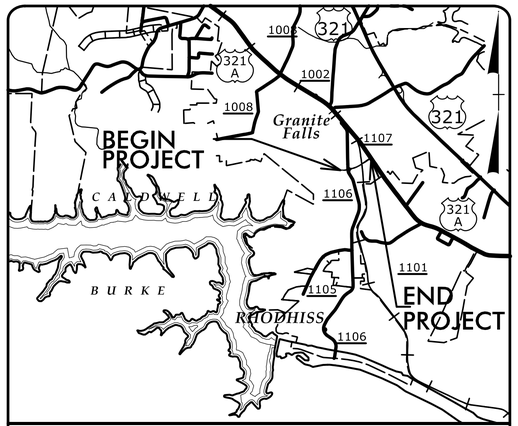
CALDWELL COUNTY

LOCATION: REALIGNMENT OF INTERSECTION OF SR 1106 (DUKE ST) AND US 321 A (S MAIN ST)

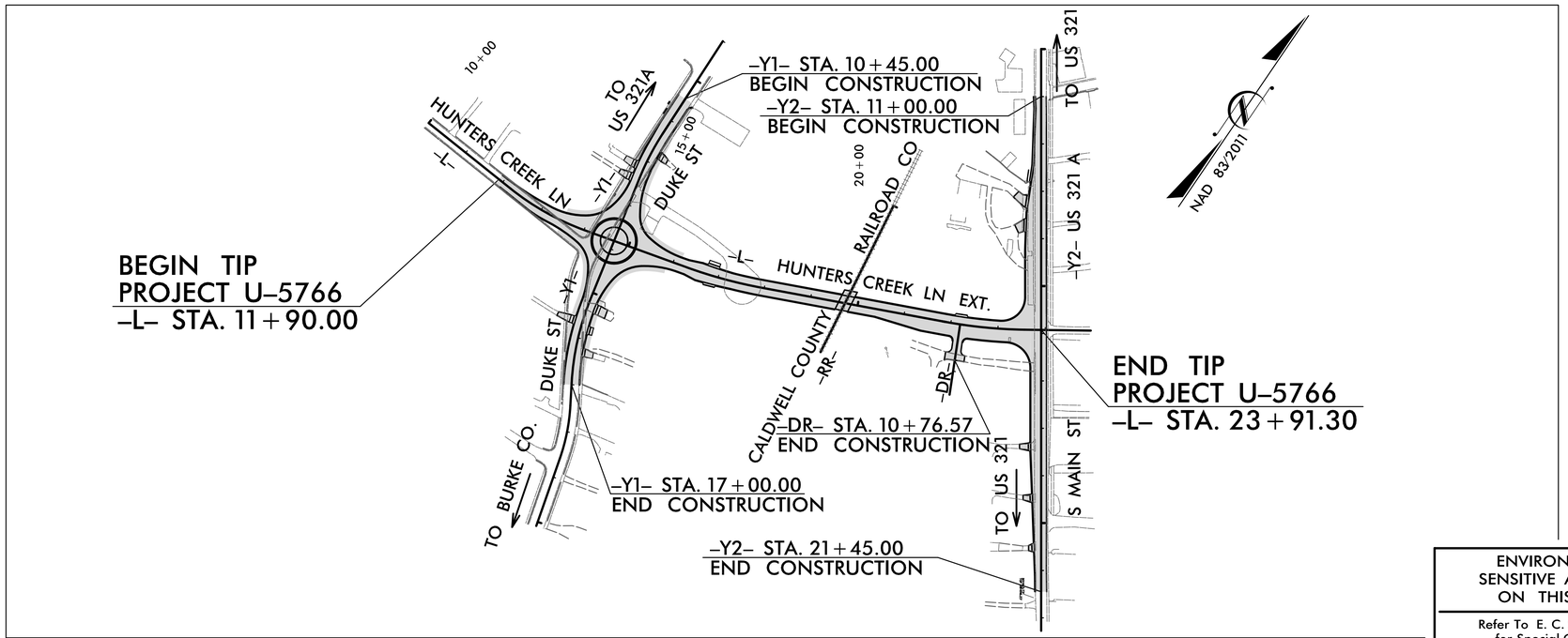
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB AND GUTTER, AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5776	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50187.1.1	N/A	PE
50187.2.1	N/A	R/W, UTIL.
50187.3.1	N/A	CONST.



VICINITY MAP



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SB
	Tiered Skimmer Basin	SB
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. _____ Begin
to Sta. _____ End
Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

25 0 50

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

TGS ENGINEERS

804-C N. LAFAYETTE ST.
SHELBY, NC 28150

2018 STANDARD SPECIFICATIONS

Designed by:

ANDREW H. COCHRANE, PE ***3015***

NAME *LEVEL III CERTIFICATION NO.*

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

JEREMY GOODWIN, PE, CPESC, CPSWQ

Roadway Standard Drawings

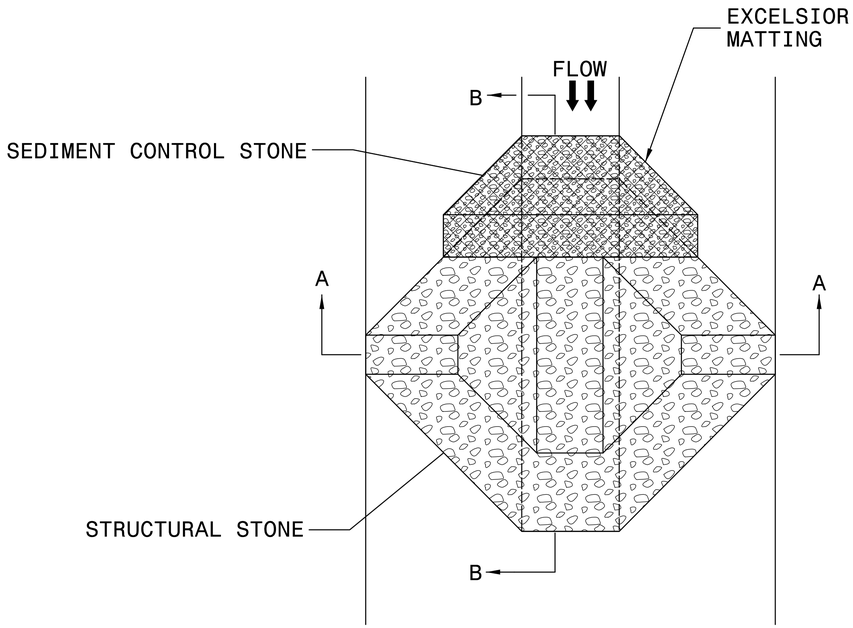
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

6/14/2018
DT\U-5776\Drainage\Erosion Control\U-5776_EC_dsn_TSH.dgn
Jeremy Lyon

PROJECT REFERENCE NO.	SHEET NO.
U-5776	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN

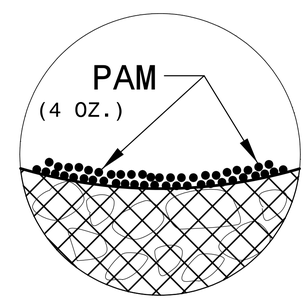
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

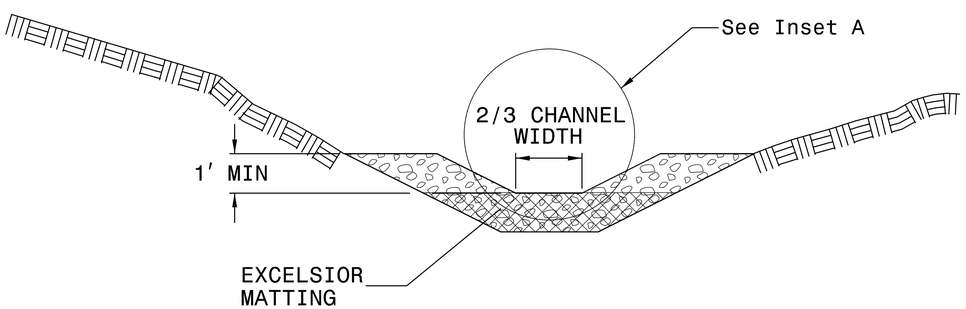
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

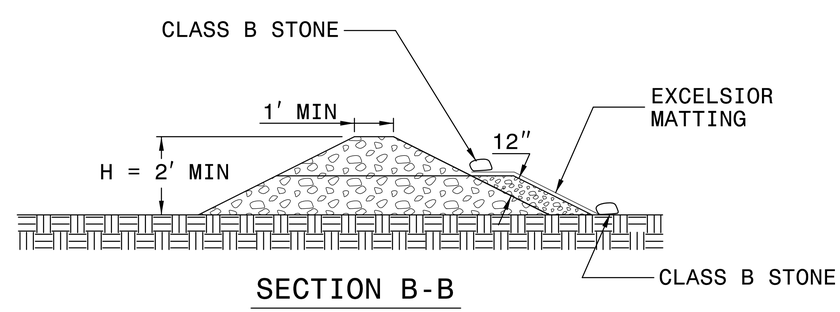
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-5776	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
U-5776	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2011

BEGIN CONSTRUCTION
-Y1- STA. 10+45.00

BEGIN PROJECT U-5776
-L- STA. 11+90.00

NOTE: CONTRACTOR IS RESPONSIBLE FOR THE RELOCATION OF ALL MAILBOXES ON THE PROJECT.

BEGIN CONSTRUCTION
-Y2- STA. 11+00.00

END PROJECT U-5776
-L- STA. 23+91.30

END CONSTRUCTION
-Y1- STA. 17+00.00

END CONSTRUCTION
-DR- STA. 10+76.57

END CONSTRUCTION
-L- STA. 23+58.30

END CONSTRUCTION
-Y2- STA. 21+45.00

MATCHLINE STA. -Y2- STA. 20+85.00 SEE THIS SHEET

MATCHLINE STA. -Y2- 20+85.00 SEE INSET 'A'

INSET 'A'

1	DAVID H. JUSTICE JEAN M. JUSTICE
2	HARVEST COMPANY, LLC
3	RONALD EVANS TURNER
4	ZACK EDWARDS
5	STEVE WAYNE CANNON
6	SCOTT A. COOK EMILY B. COOK

FABRIC INSERT INLET PROTECTION DEVICE LOW FLOW

TIE INTO EXIST. 15" RCP

PROP. 12' TURNOUT

TIE TO EXIST +14.68, 16.68'RT

REMOVE 159 LF

PROP. 16' DRIVE

REMOVE BLK WALL

PROP. 5' STEP & WALK

PROP. 2'-6' C&G

+79.12 TIE TO EXIST.

RELOCATE FENCE (BY OWNERS)

REMOVE BRICK SIGN

DO NOT DISTURB SIGN

-L-POT 14+67.32= -Y1-POT 13+81.53

PROP. 16' DRIVE

REMOVE BUILDING

PROP. 24' APRON

30" WELDED STEEL PIPE, 0.500" THICK, GRADE B IN SOIL

SEE DETAIL A (SHEET 2D-1)

SEE DETAIL B (SHEET 2D-1)

SEE DETAIL C (SHEET 2D-1)

Energy Dissipator Basin

PROP. 20' DRIVE

PROP. 16' DRIVE

TIE TO EXIST +68.96, 15.33'LT

TIE INTO EXIST. 24" RCP

-Y1-PT 16+95.96

-Y1-PC 17+43.93

-Y1-PT 18+58.61

-Y1-POT 20+08.92

-L-POT 19+72.85= -RR-POT-12+29.72

BEGIN RR CROSSING +59.33

END RR CROSSING +86.37

-RR-POT 13+44.90

-DR-POT 11+50.00

-L-POT 23+91.30= -Y2-POT 15+92.43

-Y2-POT 23+50.00

PROP. RAILROAD CROSSING AND SIGNAL (BY RAILROAD CONTRACTOR)

PROP. 8"X12" CURB 12+55 TO 12+82

+80.37 BEGIN C&G

PROP. 26' DRIVE

PROP. 2'-6' C&G

PROP. 24' DRIVE APRON

-L-POC 22+20.00 = -DR-POT 10+00.00

PLACE DETECTABLE WARNING DOMES AND TIE TO EXIT WALK

-L-POT 24+95.89

COLLAR & EXTEND EXIST. 18" RCP. TIE INTO 2GI. FILL IN EXIST. HOLE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

-L- CURVE DATA

PI Sta 13+11.81	PI Sta 17+13.50	PI Sta 22+71.64
Δ = 18° 44' 59.8" (LT)	Δ = 9° 26' 41.3" (LT)	Δ = 9° 42' 59.0" (LT)
D = 10° 25' 02.7"	D = 5° 43' 46.5"	D = 5° 43' 46.5"
L = 179.99'	L = 164.84'	L = 169.58'
T = 90.81'	T = 82.61'	T = 85.00'
R = 550.00'	R = 1,000.00'	R = 1,000.00'
SE = SEE PLAN	SE = NC	SE = NC

-Y1- CURVE DATA

PI Sta 11+85.81	PI Sta 16+06.30	PI Sta 18+01.65
Δ = 10° 55' 45.8" (LT)	Δ = 18° 51' 04.3" (LT)	Δ = 16° 01' 34.0" (RT)
D = 10° 25' 02.7"	D = 10° 25' 02.7"	D = 13° 58' 28.5"
L = 104.91'	L = 180.96'	L = 114.68'
T = 52.62'	T = 91.30'	T = 57.72'
R = 550.00'	R = 550.00'	R = 410.00'
SE = 03	SE = 04	SE = EXIST.
DS = 25 MPH	DS = 40 MPH	DS = 40 MPH

PROJECT REFERENCE NO.	SHEET NO.
U-5776	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/2011

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-Y1- STA. 10+45.00

BEGIN PROJECT U-5776
-L- STA. 11+90.00

NOTE: CONTRACTOR IS RESPONSIBLE FOR THE RELOCATION OF ALL MAILBOXES ON THE PROJECT.

BEGIN CONSTRUCTION
-Y2- STA. 11+00.00

Place Matting for Erosion Control on Slope as Work Allows. -L- Sta. 20+00 to 22+50 LT

Place Matting for Erosion Control on Slope as Work Allows. -L- Sta. 20+00 to 22+50 RT

END CONSTRUCTION
-Y1- STA. 17+00.00

END CONSTRUCTION
-DR- STA. 10+76.57

END CONSTRUCTION
-Y2- STA. 21+45.00

END PROJECT U-5776
-L- STA. 23+91.30

END CONSTRUCTION
-L- STA. 23+58.30

MATCHLINE STA. -Y2- STA. 20+85.00 SEE THIS SHEET

INSET 'A'

MATCHLINE STA. -Y2- 20+85.00 SEE INSET 'A'

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T = 52.62'	T = 91.30'	T = 57.72'
R = 550.00'	R = 550.00'	R = 410.00'
SE = 03	SE = 04	SE = EXIST.
DS = 25 MPH	DS = 40 MPH	

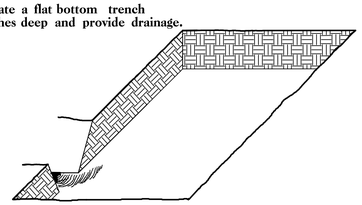
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5776	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

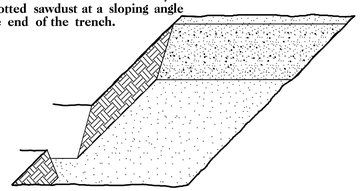
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

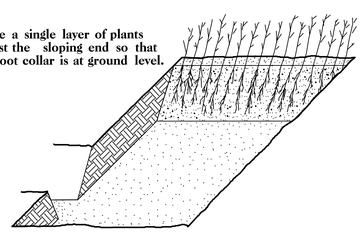
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



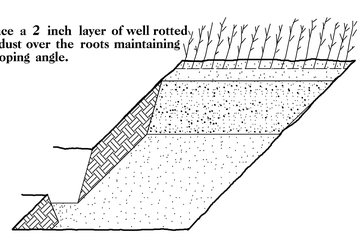
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

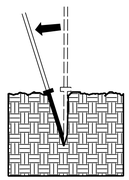


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

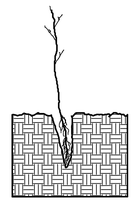


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

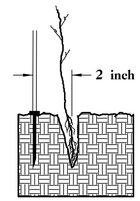
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



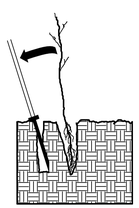
1. Insert planting bar as shown and pull handle toward planter.



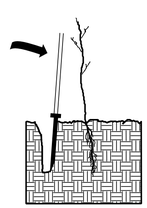
2. Remove planting bar and place seedling at correct depth.



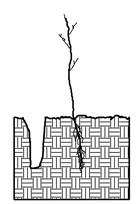
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

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.

KBC 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.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

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

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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