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PROJECT: U-5841

TIP #

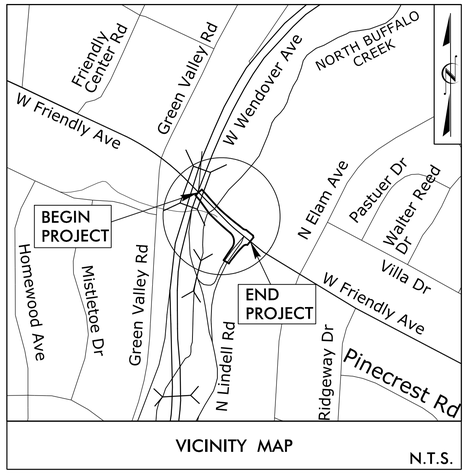
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5841	EC-1	11

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50232.1.1		PE
50232.2.1		ROW
50232.2.2		UTIL
50232.3.1		CONSTRUCTION

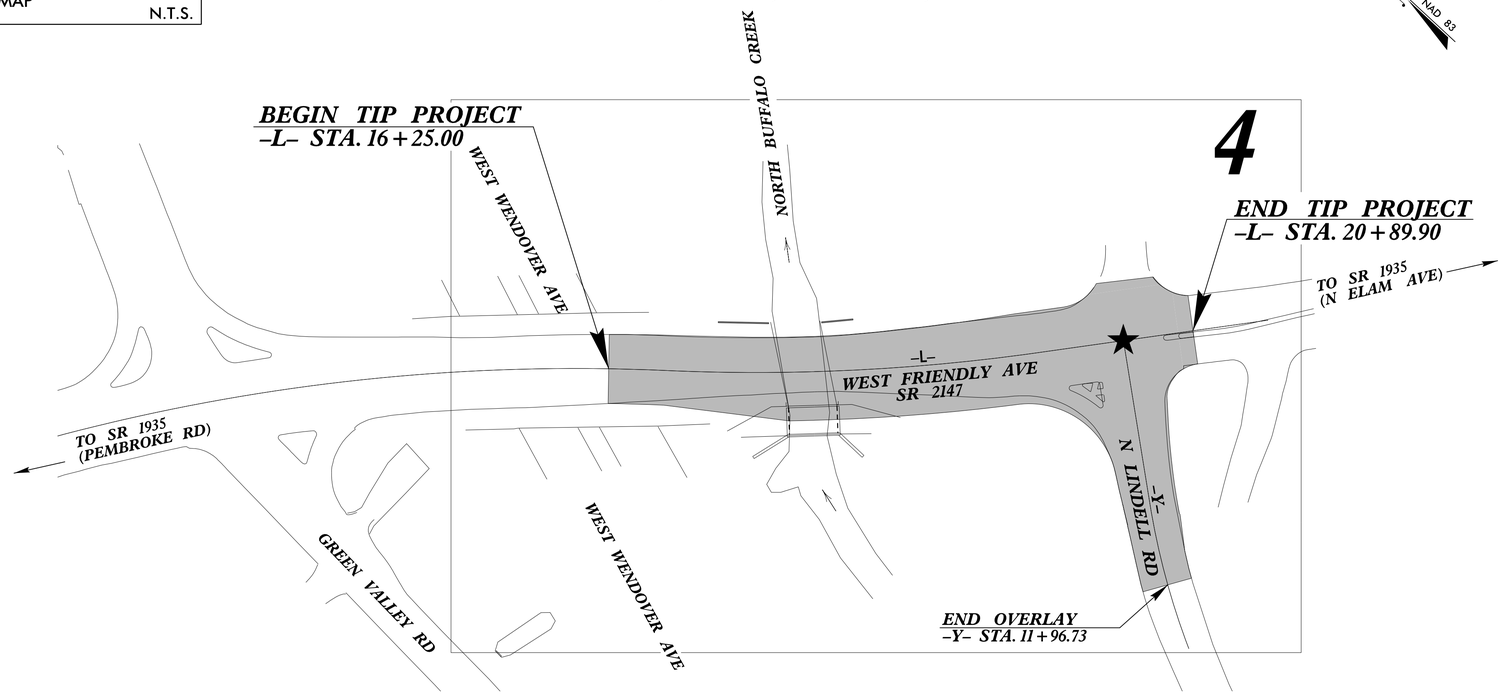


VICINITY MAP N.T.S.



LOCATION: SR 2147 WEST FRIENDLY AVENUE FROM EAST OF GREEN VALLEY RD TO NORTH LINDELL RD IN GREENSBORO

TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE



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.

GRAPHIC SCALE

20 10 0 20 40
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES.

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

Prepared In the Office of:

STV ENGINEERS, INC.
2151 HAWKINS STREET, SUITE 1400
CHARLOTTE, NC 28203

Designed by:

GRACE SULLIVAN ***4909***
NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

9/5/2026
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jsullivan

PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-1A

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

EROSION & SEDIMENT CONTROL LEGEND

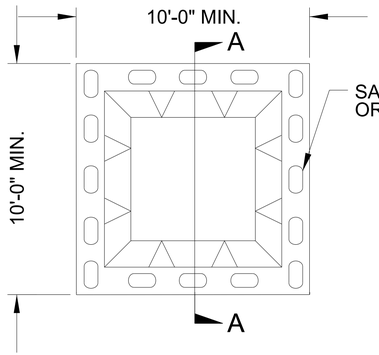
Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
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	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	—EW—EW—EW—
1636.03	Coir Fiber Wattle Barrier	—CFW—CFW—CFW—

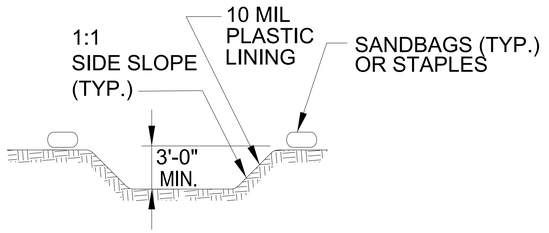
PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-2

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ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A



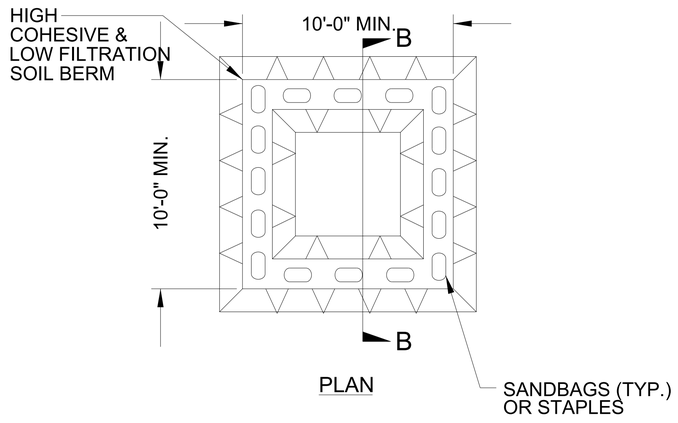
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

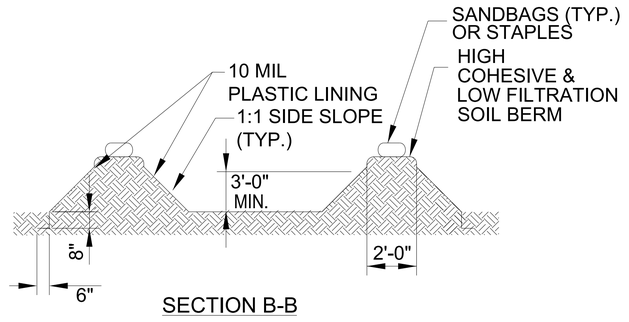
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



PLAN



SECTION B-B



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

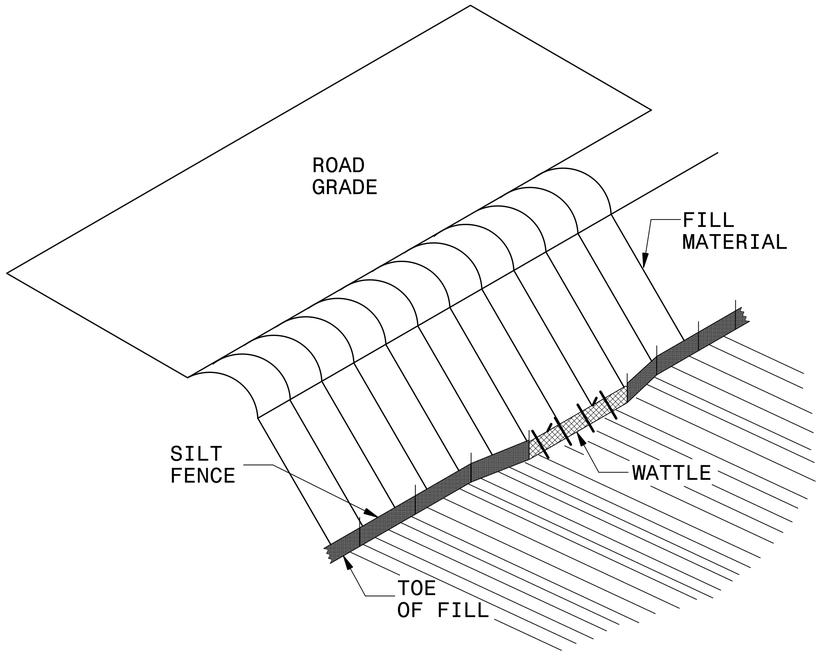
ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

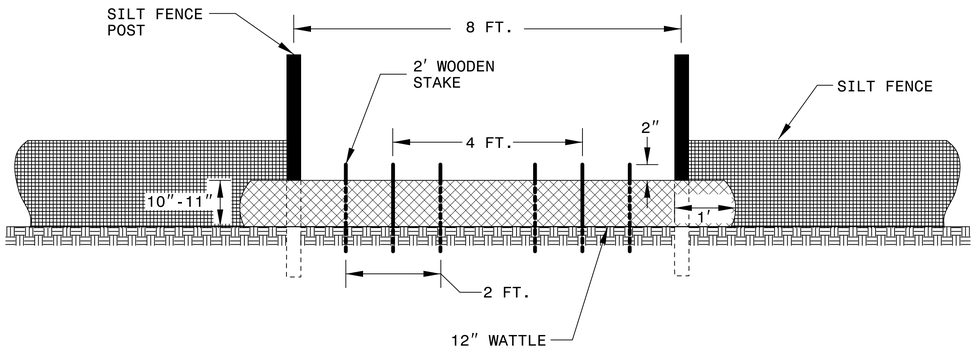
PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-2A

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SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

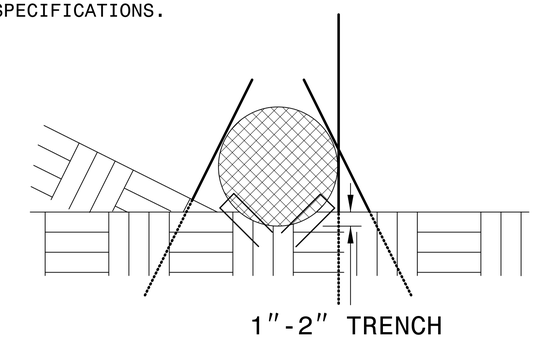
PROVIDE STAPLES MADE OF 11 GUAGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6" IN LENGTH.

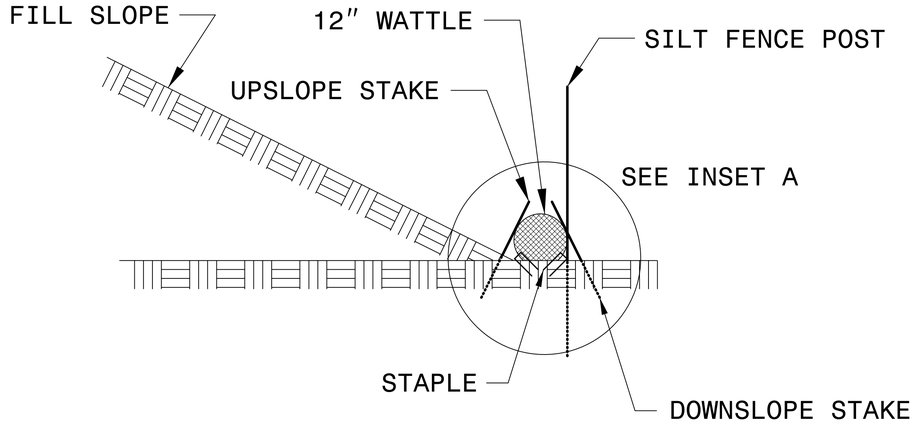
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-3

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
				SUBTOTAL	
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					6250
				TOTAL	6250
				SAY	6250

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
				SUBTOTAL	
MISCELLANEOUS PSRM TO BE INSTALLED AS DIRECTED BY THE ENGINEER					
				TOTAL	
				SAY	

PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-3A

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NC License Number F-0991

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 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-4/CONST 4

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NC License Number F-0991

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

BEGIN TIP PROJECT U-5841
-L- STA. 16+25.00

END TIP PROJECT
-L- STA. 20+89.90

END RESURFACING
-Y- STA. 11+96.73

-L-
WEST FRIENDLY AVE

WENDOVER AVE.

N LINDELL RD
-Y-

NORTH BUFFALO CREEK

CONE MEMORIAL HOSPITAL
DB 3755 PG. 938
PB 95 PG. 69

SUNSET WOODS
TOWNHOMES ASSOCIATION
DB 3391 PG. 382
PB 74 PG. 40

-L- POT Sta. 20+34.19
-Y- POT Sta. 10+00.00

PT Sta. 19+65.78

POT Sta. 21+50.00

PC Sta. 11+30.50

NA 2011

0.83% RDWY GRD.
1.90% RDWY GRD.
SAG 16+89.23

PC Sta. 16+10.00

RETAIN
REMOVE
TBJB W/MH
CB
15" RCP-IV
15" CSP w/2 ELBOWS
PROP. CONC. ARCH CULVERT EXTENSION
STA. 17+87.00
23' X 18.5' SKEW = 79°
RETAIN EXIST. CONC. ARCH CULVERT
CONC. SIDEWALK
GREU TL-2
CFW
CAT-1
J-HOOK
JB W/MH
24" RCP
18" RCP
30" C&G
33' PAVED ACCESS ROAD
PAVED PARKING LOT
HEDGES
WOODS
EXISTING R/W
6-INCH DIP
8-INCH DIP
20 INCH RCCP
36" DIP

NOTE:
ADD J-HOOK AT END OF EACH SILT FENCE SECTIONS TO PREVENT RUNOFF BYPASS

NOTE:
USE SPECIAL STILLING BASIN (SILT BAG) FOR ALL TRENCH DEWATERING ACTIVITIES

NOTE:
UTILIZE FABRIC INSERT INLET PROTECTION IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C IN AREAS WHERE WATER MAY POND ON ROADS OPEN TO TRAFFIC OR AS DIRECTED.

NOTE:
ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

9/5/2026
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SUNWOOD

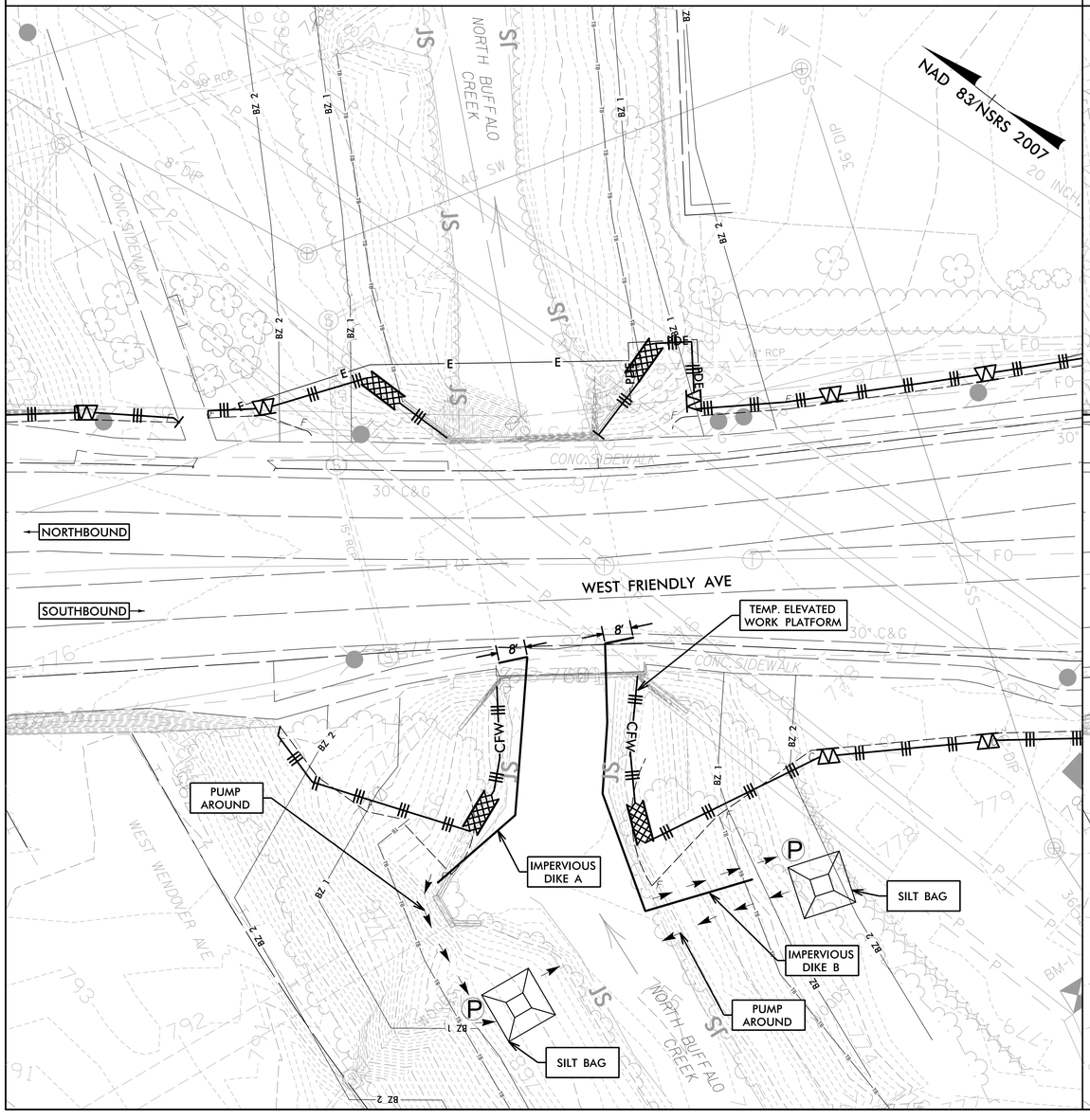
PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-4A/CONST 4

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CULVERT CONSTRUCTION SEQUENCE STA. 17+87 –L–

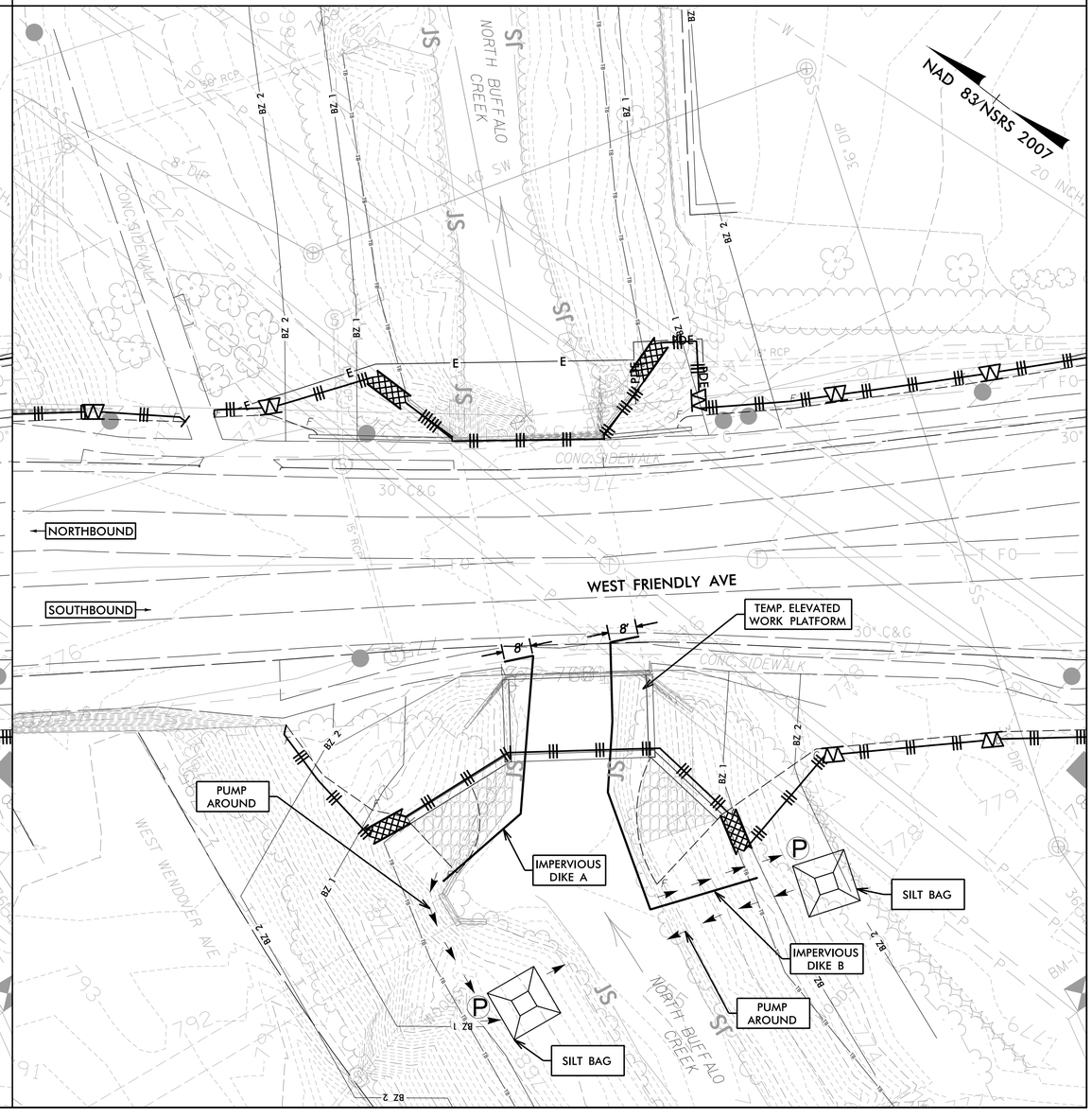
PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. INSTALL IMPERVIOUS DIKES A AND B TO MAINTAIN FLOW THROUGH PORTION OF EXISTING CULVERT. BUILD DIKES UP TO AN ELEVATION OF 766.5' TO CONTAIN THE 10–YEAR STORM EVENT.
3. EXCAVATE ANY ACCUMULATED SILT AND DEWATER PROPOSED CULVERT CONSTRUCTION AREA. UTILIZE SILT BAGS FOR ALL DEWATERING OPERATIONS SO THAT NO FLOW FROM THE CONSTRUCTION AREA SHALL ENTER THE CHANNEL WITHOUT PRIOR TREATMENT.



PHASE II

4. MAINTAIN EXISTING PUMP–AROUND OPERATION AND CONTINUE DEWATERING AS NEEDED TO KEEP WORK AREA DRY DURING CONSTRUCTION.
5. CONSTRUCT BOTH FOOTINGS AND WINGWALLS.
6. COMPLETE CHANNEL EXCAVATION AND RIP RAP EMBANKMENTS WITHIN CONSTRUCTION AREA.



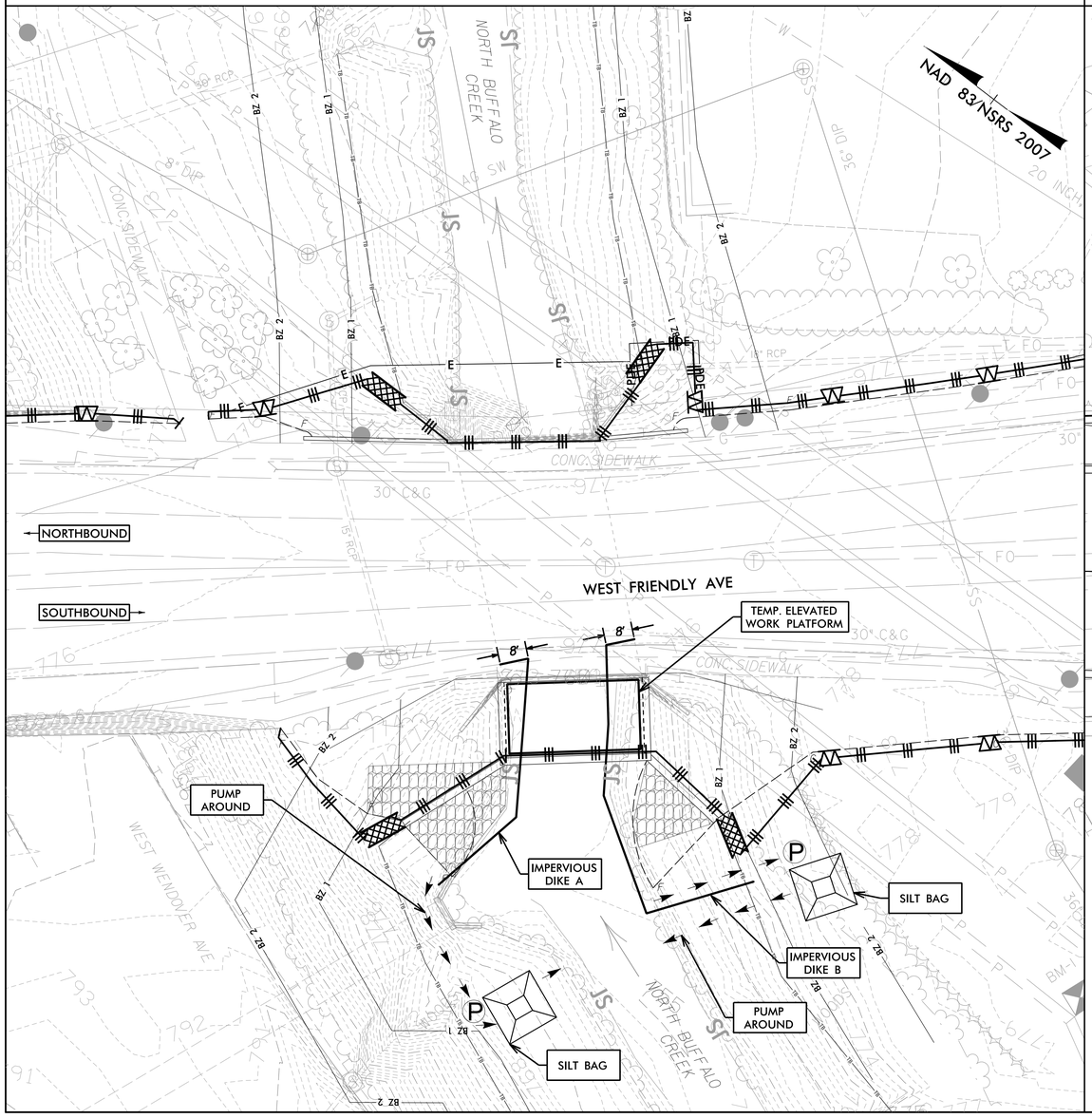
PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-4B/CONST 4

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Charlotte, NC 28203
NC License Number F-0991

CULVERT CONSTRUCTION SEQUENCE STA. 17+87 –L–

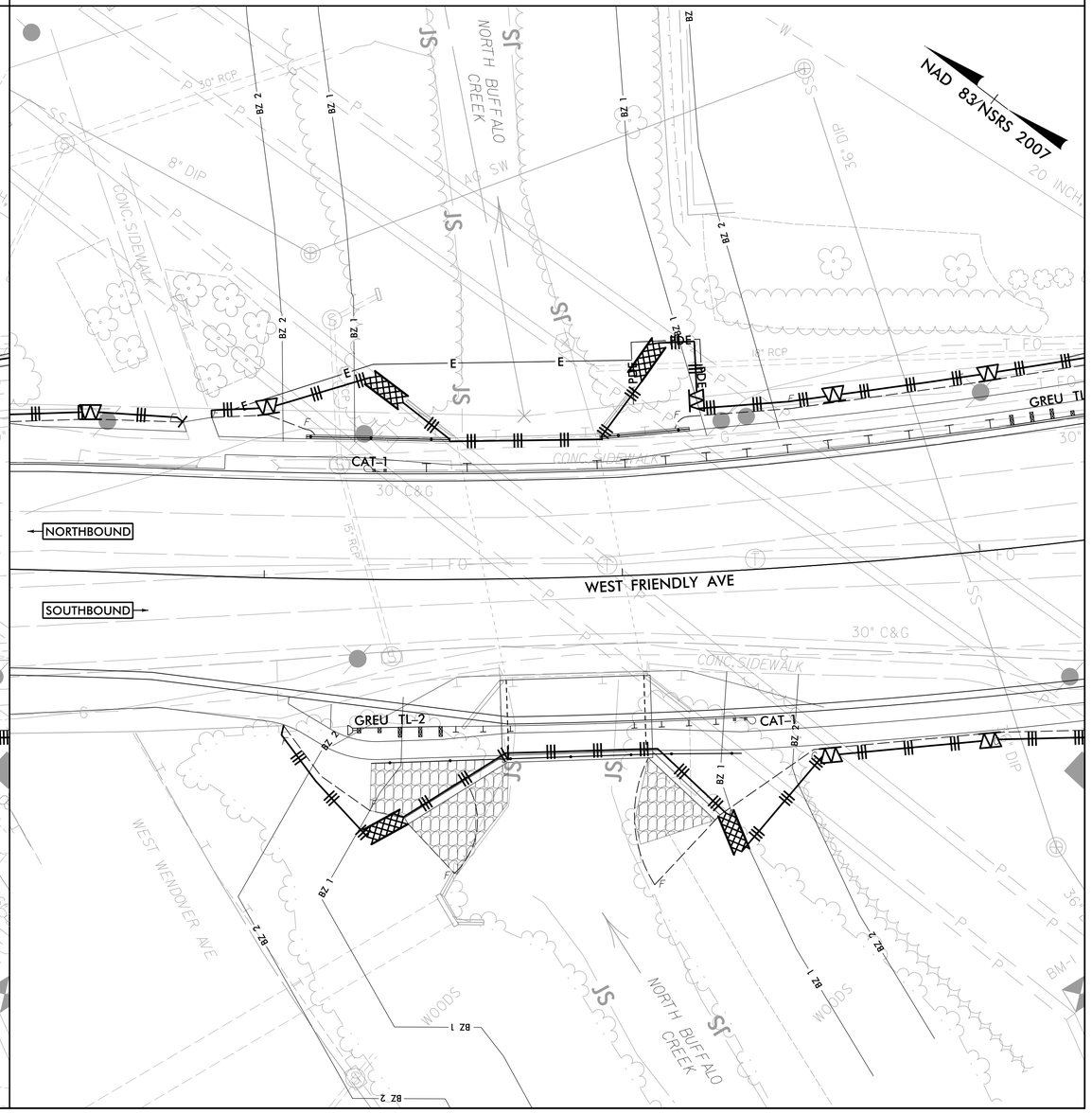
PHASE III

7. MAINTAIN EXISTING PUMP–AROUND OPERATION AND CONTINUE DEWATERING AS NEEDED TO KEEP WORK AREA DRY DURING CONSTRUCTION.
8. INSTALL TEMPORARY ELEVATED WORK PLATFORM ABOVE STREAM AND IMPERVIOUS DIKES. MOVE TEMPORARY ELEVATED WORK PLATFORM AS NECESSARY AS FORMWORK INSTALLATION PROGRESSES.
9. POUR CONCRETE WITHIN FORMWORK FOR CULVERT ARCH; DO NOT ALLOW CONCRETE TO ENTER STREAM.
10. REMOVE FORMWORK AND TEMPORARY ELEVATED PLATFORM.



PHASE IV

11. REMOVE IMPERVIOUS DIKES A AND B.
12. REMOVE ANY REMAINING SPECIAL STILLING BASINS AND STABILIZE DISTURBED AREA.
13. COMPLETE PROPOSED ROADWAY WIDENING AND STABILIZE SLOPES WITH SEEDING AND MATTING.



PROJECT REFERENCE NO.	SHEET NO.
U-5841	EC-5/CONST 4

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FINAL PHASE EROSION CONTROL FOR CONSTRUCTION SHEET 4

Place Matting for Erosion Control on Slope as Work Allows.
–L– 16+85 LT to –L– 17+52 LT
–L– 17+94 LT to –L– 18+50 LT
–L– 17+05 RT to –L– 17+68 RT
–L– 18+06 RT to –L– 18+50 RT

BEGIN TIP PROJECT U-5841
–L– STA. 16+25.00

PRC Sta. 16+70.00

SAG 16+89.23

0.83% RDWY GRD.

1.50% RDWY GRD.

END TIP PROJECT
–L– STA. 20+89.90

POT Sta. 21+50.00

PT Sta. 19+65.78

–L– POT Sta. 20+34.19
–Y– POT Sta. 10+00.00

PC Sta. 11+30.50

END RESURFACING
–Y– STA. 11+96.73

WEST FRIENDLY AVENUE
VARIABLE PAVED ROADWAY
S 50° 55' 45.1" E

WENDOVER AVE.

N LINDELL RD
S 37° 52' 50.0" W

RETAIN EXIST. CONC. ARCH CULVERT

PROP. CONC. ARCH CULVERT EXTENSION
STA 17+87.00
21' X 18.5', SKEW = 79°

GREU TL-2

CAT-1

15" CSP w/2 ELBOWS

MOSES H CONE MEMORIAL HOSPITAL
DB 3755 PG 938
PB 95 PG 69

SUNSET WOODS TOWNHOMES ASSOCIATION
DB 3391PG 382
PB 74 PG 40

NA 2011

NOTE:
ADD J-HOOK AT END OF EACH SILT FENCE SECTIONS TO PREVENT RUNOFF BYPASS

NOTE:
USE SPECIAL STILLING BASIN (SILT BAG) FOR ALL TRENCH DEWATERING ACTIVITIES

NOTE:
UTILIZE FABRIC INSERT INLET PROTECTION IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C IN AREAS WHERE WATER MAY POND ON ROADS OPEN TO TRAFFIC OR AS DIRECTED.

NOTE:
ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

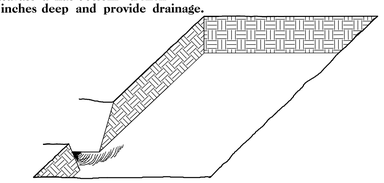
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STVJVD

PLANTING DETAILS

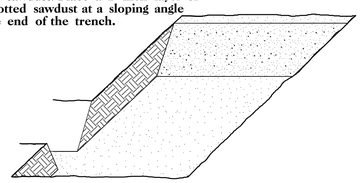
SEEDLING / LINER 3AREROOT PLANTING DETAIL

HEALING IN

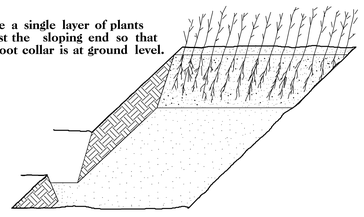
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



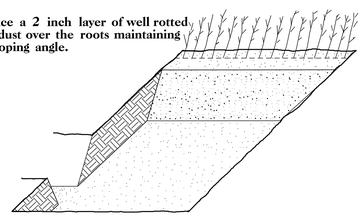
3. 3ackfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

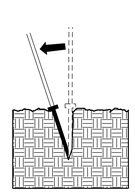


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

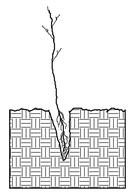


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

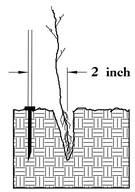
DI33LE PLANTING METHOD
USING THE K3C PLANTING 3AR



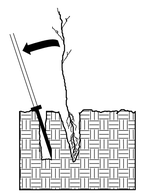
1. Insert planting bar as shown and pull handle toward planter.



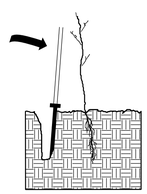
2. Remove planting bar and place seedling at correct depth.



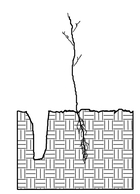
3. Insert planting bar 2 inches toward planter from seedling.



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 3AG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



K3C PLANTING 3AR
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.

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5841	RF-1	11
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50232			

REFORESTATION

☐ TREE REFORESTATION SHALL 3E 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 3R
25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in 3R
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in 3R
25% 3ETULA NIGRA	RIVER 3IRCH	12 in – 18 in 3R

REFORESTATION DETAIL SHEET

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