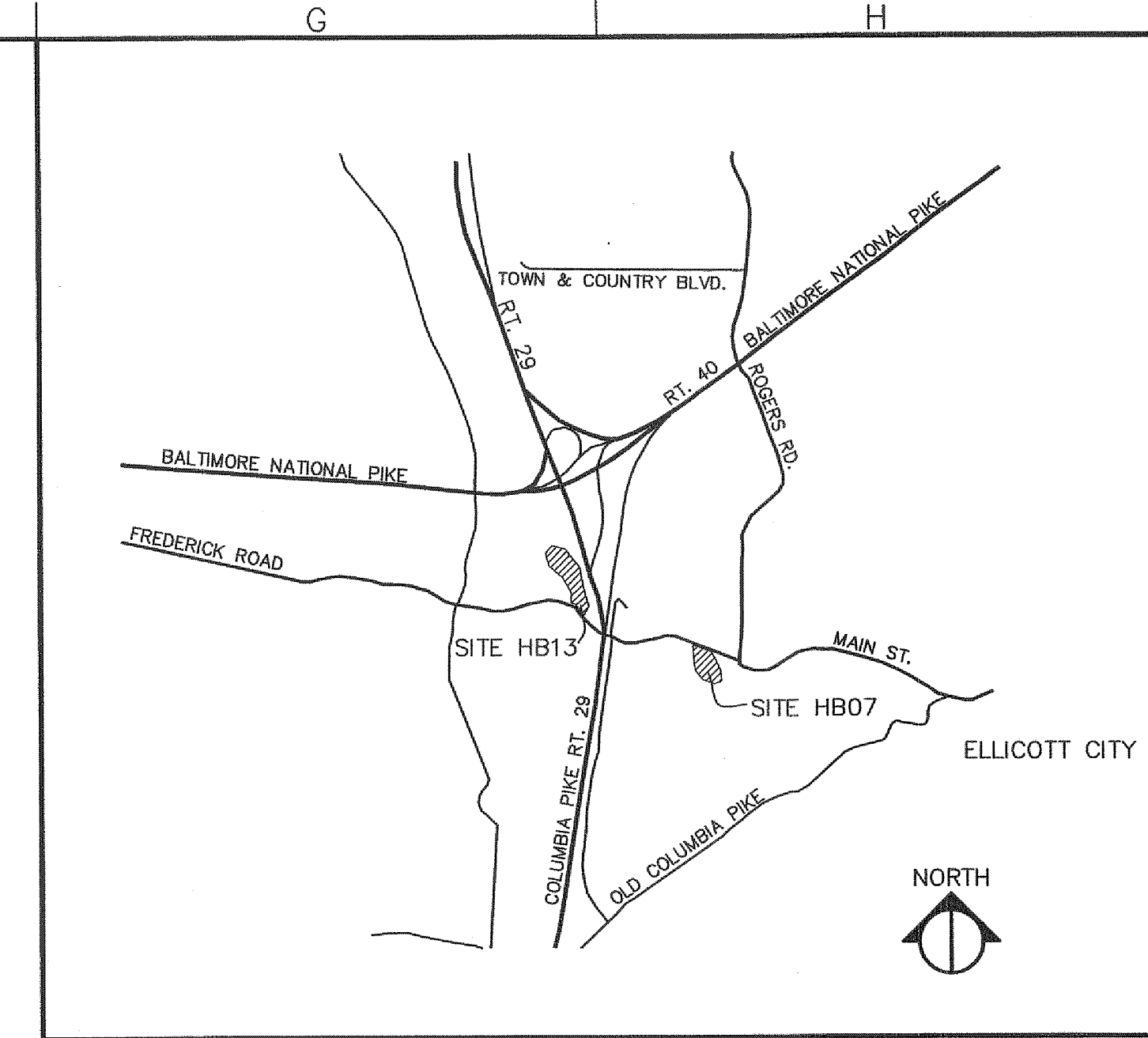


LOCATION MAP
Not to Scale

DEEP RUN AND TIBER-HUDSON WATERSHEDS

HOWARD COUNTY, MARYLAND

DESIGN/BUILD
ENVIRONMENTAL RESTORATION
SITES HB07 AND HB13
CONTRACT NO. DACW31-03-C-0022

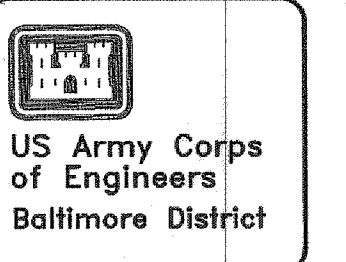


VICINITY MAP
Not to Scale

9/25/03

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APPROVED:
A/E PRINCIPLE
SEAL:



Date	Appr.	Mark	Description	Date	Appr.	Mark	Description

U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND	Designed by: DR, MS Dwn by: TC	Chd by: DB Reviewed by:	Date: SEPT. 2003 Design file no. Drawing Number: File name: Plot date: Plot scale:
B THE ENGINEERING GROUP, INC. 18 Commercial St. Salisbury, MD 21150 www.btegroup.com	Submitted by: Chief, Branch		

DEEP RUN AND
TIBER-HUDSON WATERSHEDS
STREAMBANK RESTORATION
90% DESIGN
COVER SHEET

Sheet
Number:
G-1
Plate: 1 OF 25



US Army Corps
of Engineers
Baltimore District

INDEX OF DRAWINGS

PLATE NO.	TITLE	FILE NAME	SHEET NO.
1	COVER SHEET	Cover.dwg	G-1
2	INDEX OF DRAWINGS	Index.dwg	G-2
3	EXISTING CONDITIONS SITE HB07	XCond HB07.dwg	V-1
4	EXISTING CONDITIONS SITE HB13	XCond HB13.dwg	V-2
5	SITE PREP & EROSION/SEDIMENT CONTROL PLAN SITE HB07	Plan HB07.dwg	C-1
6	SITE PREP & EROSION/SEDIMENT CONTROL PLAN SITE HB13	Plan HB13.dwg	C-2
7	GRADING PLAN SITE HB07	Plan HB07.dwg	C-3
8	GRADING PLAN SITE HB13	Plan HB13.dwg	C-4
9	TREATMENT PLAN SITE HB07	Plan HB07.dwg	C-5
10	TREATMENT PLAN SITE HB13	Plan HB13.dwg	C-6
11	PLANTING PLAN SITE HB07	Plan HB07.dwg	C-7
12	PLANTING PLAN SITE HB13	Plan HB13.dwg	C-8
13	CROSS SECTIONS 1-3 SITE HB07	XSect HB07.dwg	C-9
14	CROSS SECTION 4 SITE HB07	XSect HB07.dwg	C-10
15	CROSS SECTION 5 SITE HB07	XSect HB07.dwg	C-11
16	CROSS SECTION 5.1 SITE HB07	XSect HB07.dwg	C-12
17	CROSS SECTIONS 6 & 7 SITE HB07	XSect HB07.dwg	C-13
18	CROSS SECTIONS 1 & 2 SITE HB13	XSect HB13.dwg	C-14
19	CROSS SECTIONS 3 & 4 SITE HB13	XSect HB13.dwg	C-15
20	CROSS SECTIONS 5 & 6 SITE HB13	XSect HB13.dwg	C-16
21	CROSS SECTIONS 7-9 SITE HB13	XSect HB13.dwg	C-17
22	CONSTRUCTION DETAILS	Details.dwg	C-18
23	CONSTRUCTION DETAILS	Details.dwg	C-19
24	CONSTRUCTION DETAILS	Details.dwg	C-20
25	PLANTING DETAILS	Details.dwg	C-21

Date	Description	Date	Appr.	Mark

Designed by: DR, MS	Date: SEPR, 2003	Rev.	
Den by: JC	Cld by: JB	Design file no.	Drawing Number: P-2003-02-02
Reviewed by:	Submitted by: Chief, Branch	File name:	Plot scale:
U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND B THE ENGINEERING GROUP, INC. 18 Commerce Center Baltimore, MD 21201			

DEEP RUN AND
TIBER-HUDSON WATERSHEDS
STREAM RESTORATION
30% DESIGN
INDEX OF DRAWINGS

Sheet
Number:
G-2
Plate: 2 OF 25

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6
5
4
3
2
1

A B C D E F G H

Mark	Description	Date	Appr.

Designed by: DR, MS	Date: SEPR, 2003	Rev.
Drawn by: JB	Design file no.	
Reviewed by:	Drawing Number:	
Submitted by: Chief, Branch	File name:	
	Plot date:	
	Plot scale:	

U.S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS
BALTIMORE, MARYLAND

B ENGINEERING
18 Columbia Road
Salem, MA 01970
www.bde.usace.army.mil

DEEP RUN AND
TIBBER-HUDSON WATERSHEDS
STREAMBANK RESTORATION
90% DESIGN

EXISTING CONDITIONS
SITE HB07

Sheet Number:
V-1
Plate: 3 OF 25

- LEGEND**
- WATER METER
 - EX. SANITARY SEWER MANHOLE
 - EX. GAS VALVE
 - ☒ MAILBOX
 - △ FLY STATION
 - GUARD RAIL
 - > GUY WIRE
 - ☐ POWER POLE
 - (A) SANITARY STRUCTURE NUMBER
 - > STORM ENDWALL
 - △ TRAVERSE STATION
 - OH-E— OVERHEAD ELECTRIC LINES
 - (12" ○) TREE <TRUNK DIA. IN INCHES>

SANITARY AS-BUILT TABLE

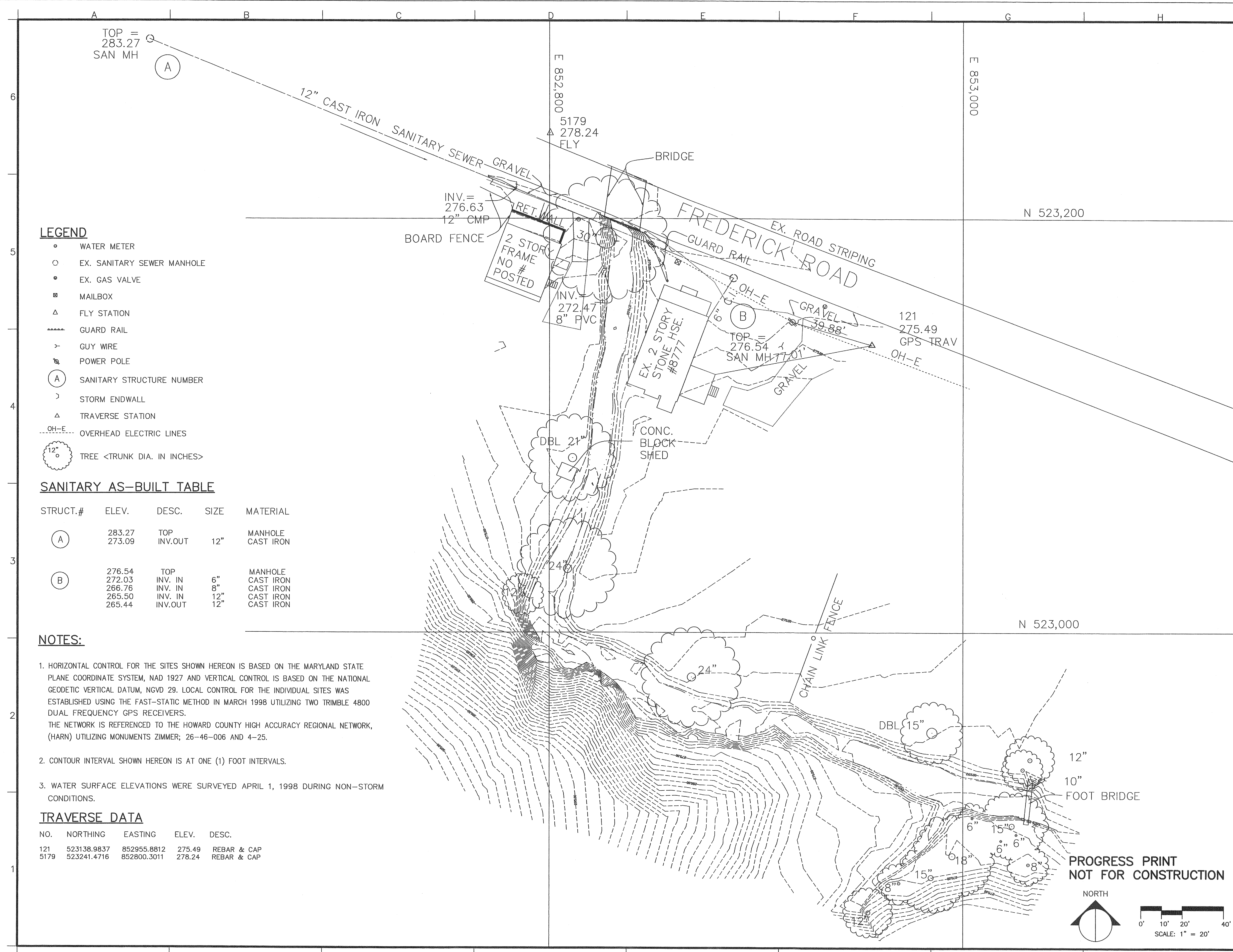
STRUCT.#	ELEV.	DESC.	SIZE	MATERIAL
(A)	283.27 273.09	TOP INV.OUT	12"	MANHOLE CAST IRON
(B)	276.54 272.03 266.76 265.50 265.44	TOP INV. IN INV. IN INV. IN INV.OUT	6" 8" 12" 12"	MANHOLE CAST IRON CAST IRON CAST IRON CAST IRON

NOTES:

1. HORIZONTAL CONTROL FOR THE SITES SHOWN HEREON IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM, NAD 1927 AND VERTICAL CONTROL IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM, NGVD 29. LOCAL CONTROL FOR THE INDIVIDUAL SITES WAS ESTABLISHED USING THE FAST-STATIC METHOD IN MARCH 1998 UTILIZING TWO TRIMBLE 4800 DUAL FREQUENCY GPS RECEIVERS. THE NETWORK IS REFERENCED TO THE HOWARD COUNTY HIGH ACCURACY REGIONAL NETWORK, (HARN) UTILIZING MONUMENTS ZIMMER; 26-46-006 AND 4-25.
2. CONTOUR INTERVAL SHOWN HEREON IS AT ONE (1) FOOT INTERVALS.
3. WATER SURFACE ELEVATIONS WERE SURVEYED APRIL 1, 1998 DURING NON-STORM CONDITIONS.

TRAVERSE DATA

NO.	NORTHING	EASTING	ELEV.	DESC.
121	523138.9837	852955.8812	275.49	REBAR & CAP
5179	523241.4716	852800.3011	278.24	REBAR & CAP



**PROGRESS PRINT
NOT FOR CONSTRUCTION**

NORTH

0' 10' 20' 40'

SCALE: 1" = 20'



LEGEND

- EX. SANITARY SEWER MANHOLE
- FLY STATION
- GUARD RAIL
- GUY WIRE
- LIGHT POLE
- POWER POLE
- SIGN
- SANITARY STRUCTURE NUMBER
- EX. SHRUB
- TRAVERSE STATION
- OVERHEAD ELECTRIC LINES
- TREE <TRUNK DIA. IN INCHES>

SANITARY AS-BUILT TABLE

STRUCT.#	ELEV.	DESC.	SIZE	MATERIAL	COMMENTS
(A)	312.64	TOP		MANHOLE	UNABLE TO OPEN
(B)	306.56	TOP		MANHOLE	FROM STRUCT C TO STRUCT A
	300.35	INV. IN	12"	TERRA COTTA	
(C)	300.31	INV. OUT	12"	TERRA COTTA	TO STRUCT B
	312.28	TOP		MANHOLE	
(C)	303.78	INV. OUT	12"	TERRA COTTA	TO STRUCT B

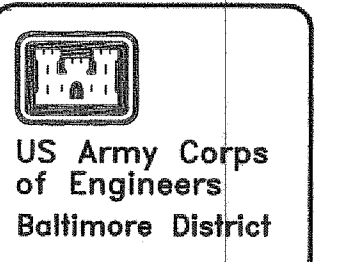
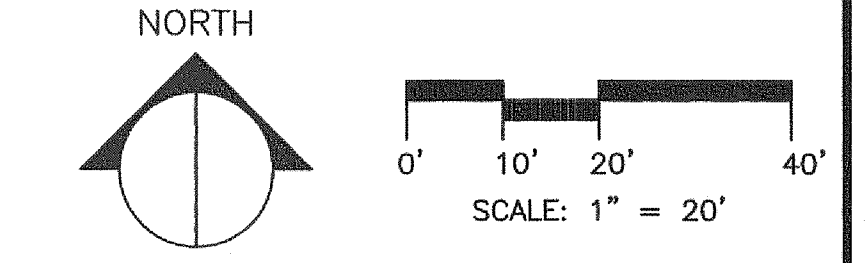
NOTES:

1. HORIZONTAL CONTROL FOR THE SITES SHOWN HEREON IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM, NAD 1927 AND VERTICAL CONTROL IS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM, NGVD 29. LOCAL CONTROL FOR THE INDIVIDUAL SITES WAS ESTABLISHED USING THE FAST-STATIC METHOD IN MARCH 1998 UTILIZING TWO TRIMBLE 4800 DUAL FREQUENCY GPS RECEIVERS. THE NETWORK IS REFERENCED TO THE HOWARD COUNTY HIGH ACCURACY REGIONAL NETWORK, (HARN) UTILIZING MONUMENTS ZIMMER; 26-46-006 AND 4-25.
2. CONTOUR INTERVAL SHOWN HEREON IS AT ONE (1) FOOT INTERVALS.
3. WATER SURFACE ELEVATIONS WERE SURVEYED APRIL 1, 1998 DURING NON-STORM CONDITIONS.

TRAVERSE DATA

NO.	NORTHING	EASTING	ELEV.	DESC.
111	523754.3464	851068.6511	308.67	REBAR & CAP
112	523979.5354	850954.3005	308.65	REBAR & CAP

**PROGRESS PRINT
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Rev.	Date	Description

U.S. ARMY ENGINEER DISTRICT BALTIMORE			<small>Rev. SEPR, 2003</small>		
CORPS OF ENGINEERS			<small>Design file no.</small>		
BALTIMORE, MARYLAND			<small>Drawing Number: F-202-22-01</small>		
THE ENGINEERING GROUP, INC. <small>18 Columbia Avenue Suites 101 & 102 Baltimore, MD 21202</small>			<small>Designed by: DR, MS</small>		<small>Checked by: DB</small>
			<small>Drawn by: TC</small>		<small>Reviewed by: [Signature]</small>
			<small>Submitted by: [Signature]</small>		<small>Chief, Branch</small>

DEEP RUN AND TIBBER-HUDSON WATERSHEDS STREAMBANK RESTORATION 90% DESIGN EXISTING CONDITIONS SITE HB13

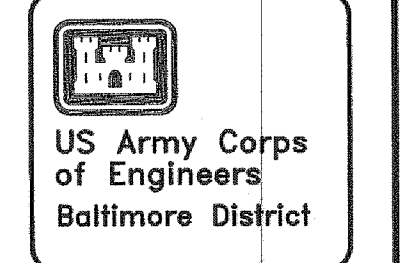
Sheet Number: **V-2**
Plate: 4 OF 25

LEGEND

- DIRECTION OF FLOW
- PLANT & SITE PROTECTION FENCE
- STATION POINTS
- THALWEG
- EXISTING VEGETATION
- EXISTING TREE OR LARGE SHRUB TO REMAIN (OR TO BE RELOCATED AS NOTED)
- EXISTING DECIDUOUS TREE TO BE REMOVED; TO BE IDENTIFIED IN FIELD BY COR
- REMOVE AND DISPOSE OF EXISTING VEGETATION, STRIP AND STOCKPILE LOAM.
- SILT FENCE WITH STRAW BALES
- SANDBAG DIKE
- DEWATERING BASIN

NOTES

- EXISTING SURVEY CONDITIONS ARE FROM A TOPOGRAPHIC SURVEY PREPARED BY WILLIAM H. GORDON ASSOCIATES, INC. SEE SHEETS V-1 AND V-2 FOR COMPLETE SURVEY INFORMATION.
- DEWATERING AND PIPING LOCATIONS TO BE APPROVED BY CONTRACTING OFFICER'S REPRESENTATIVE (COR) PRIOR TO CONSTRUCTION.
- STRIP AND STOCKPILE LOAM FROM ALL AREAS INDICATED ON PLAN AND CONFIRMED IN FIELD BY COR PRIOR TO CONSTRUCTION. REFER TO SPECIFICATIONS.
- STOCKPILE LOCATIONS SHOWN ON PLAN ARE APPROXIMATE ONLY. STOCKPILE LOCATIONS TO BE APPROVED BY PROPERTY OWNERS AND LOCATED IN FIELD BY COR.
- EXISTING TREES, SHRUBS, AND ORNAMENTAL PLANTINGS REQUIRING PROTECTION TO BE IDENTIFIED IN FIELD BY COR PRIOR TO CONSTRUCTION. REFER TO DETAIL 2/C-18. EXCAVATION WITHIN DRIP LINE OF TREES TO REMAIN SHALL BE DONE BY HAND.
- EXISTING TREES TO BE REMOVED TO BE IDENTIFIED IN FIELD BY COR PRIOR TO CONSTRUCTION.
- ANY AREA OUTSIDE THE SITE PROTECTION FENCE THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER. THE SITE PROTECTION FENCE SHALL INDICATE THE LIMIT OF DISTURBANCE UNLESS OTHERWISE APPROVED BY COR PRIOR TO DISTURBANCE.
- ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADS OR ABUTTING PROPERTY. SEE DETAIL 3/C-18.



Date	Appr.	Mark	Description

Rev.	Date	Description

Designed by: DR, MS
Date: SEPT. 2003
Drawn by: TC
Checked by: DB
Reviewed by: F-xxxx-xx-xx
Submitted by: F-xxxx-xx-xx
Chief, Branch

U.S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS
BALTIMORE, MARYLAND

B THE ENGINEERING GROUP, INC.
18 Commercial St.
Salem, MA 01970
www.theengineeringgroup.com

DEEP RUN AND TIBER-HUDSON WATERSHEDS
STREAMBANK RESTORATION
90% DESIGN
SITE PREP & EROSION/SEDIMENT CONTROL PLAN
SITE HB07

Sheet Number:
C-1
Plate: 5 OF 25

TOP = 283.27
SAN MH

12" CAST IRON SANITARY SEWER

E 852,800

5179
278.24
FLY

INV. = 276.63
12" CMP

2 STOR. FRAME NO # POSTED

INV. = 272.47
8" PVC

EX. 2 STORY STONE HSE. #8777

FREDERICK ROAD

TOP = 276.54
SAN MH TT-01

121
275.49
GPS TRAV

E 853,000

N 523,200

N 543,000

PLANT PROTECTION PLACE FENCE AS FAR FROM TRUNK AS POSSIBLE

DEWATERING BEGINS, APPROX.

EXISTING CHAIN LINK FENCE TO BE REMOVED & STORED PRIOR TO CONSTRUCTION. FENCE TO BE RESTORED TO ORIGINAL LOCATION UPON COMPLETION OF CONSTRUCTION.

REMOVE & DISPOSE OF EXISTING VEGETATION, STRIP & STOCKPILE LOAM.

SILT FENCE C-18 WITH STRAW BALES

TEMPORARY CONSTRUCTION ACCESS

SILT FENCE C-18 WITH STRAW BALES

DEWATERING BASIN, TYP.

DEWATERING BASIN, TYP.

PLANT & SITE PROTECTION FENCE, TYP.

PLANT PROTECTION PLACE FENCE AS FAR FROM TRUNK AS POSSIBLE

PLANT PROTECTION PLACE FENCE AS FAR FROM TRUNK AS POSSIBLE

SANDBAG DIKE, TYP.

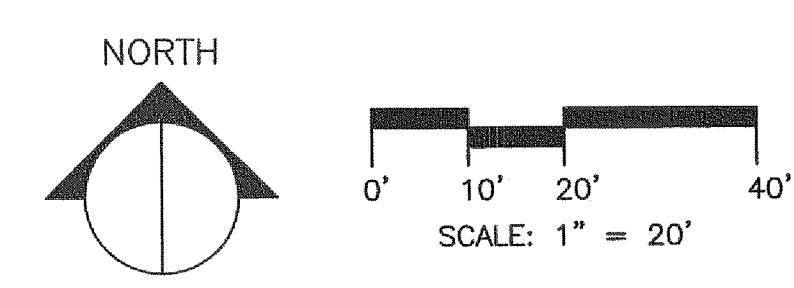
REMOVE & DISPOSE OF EXISTING VEGETATION, STRIP & STOCKPILE LOAM.

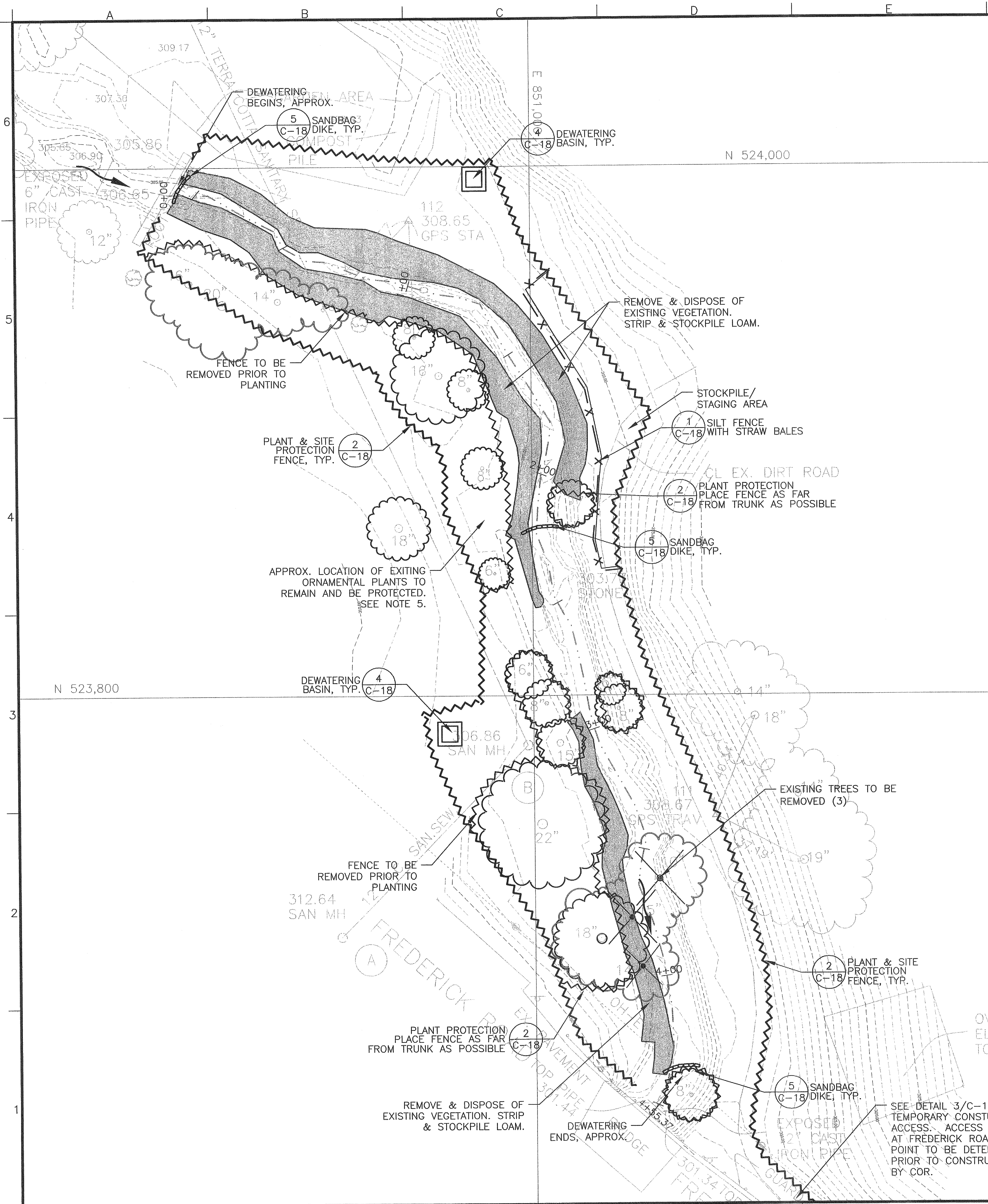
EXISTING SHRUB TO BE RELOCATED UNDER DIRECTION OF COR (SEE SPECS)

DEWATERING ENDS, APPROX.

SANDBAG DIKE, TYP.

PROGRESS PRINT NOT FOR CONSTRUCTION





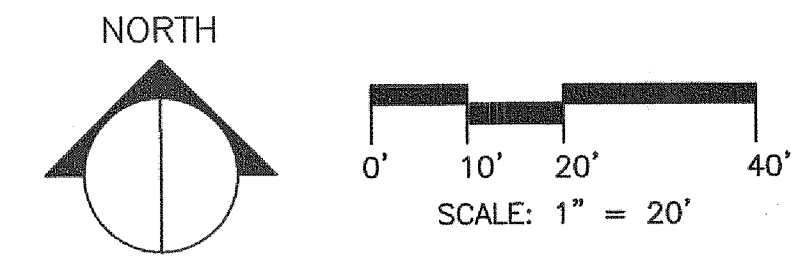
LEGEND

- DIRECTION OF FLOW
- PLANT & SITE PROTECTION FENCE
- 0+00 STATION POINTS
- THALWEG
- EXISTING VEGETATION
- EXISTING TREE OR LARGE SHRUB TO REMAIN (OR TO BE RELOCATED AS NOTED)
- EXISTING DECIDUOUS TREE TO BE REMOVED; TO BE IDENTIFIED IN FIELD BY COR
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NOTES

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8. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADS OR ABUTTING PROPERTY. SEE DETAIL 3/C-18.

PROGRESS PRINT
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US Army Corps of Engineers Baltimore District																																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">Rev.</th> <th style="width: 15%;">Date</th> <th style="width: 15%;">Description</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Rev.	Date	Description																									<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Designed by: DR, MS</td> <td style="width: 30%;">Checked by: DB</td> <td style="width: 40%;">Reviewed by: Chief, Branch</td> </tr> <tr> <td>Drawn by: TC</td> <td>Design file no:</td> <td>Submitted by: Chief, Branch</td> </tr> <tr> <td> </td> <td>Drawing Number: F-xxx-xx-xx</td> <td> </td> </tr> <tr> <td> </td> <td>File name: F-xxx-xx-xx</td> <td> </td> </tr> <tr> <td> </td> <td>Plot date: </td> <td> </td> </tr> <tr> <td> </td> <td>Plot scale: </td> <td> </td> </tr> </table>	Designed by: DR, MS	Checked by: DB	Reviewed by: Chief, Branch	Drawn by: TC	Design file no:	Submitted by: Chief, Branch		Drawing Number: F-xxx-xx-xx			File name: F-xxx-xx-xx			Plot date:			Plot scale:	
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DEEP RUN AND TIBER-HUDSON WATERSHEDS STREAMBANK RESTORATION 90% DESIGN SITE PREP & EROSION/SEDIMENT CONTROL PLAN SITE HB13																																														
Sheet Number: C-2 Plate: 6 OF 25																																														

LEGEND

- DIRECTION OF FLOW
- - - - - LIMIT OF DISTURBANCE
- ▼ SECTION LINE
- 0+00 STATION POINTS
- - - - - THALWEG

EXISTING CONDITIONS

- ☁ TREELINE
- TREE OR LARGE SHRUB
- - - - - CONTOUR

PROPOSED CONDITIONS

- MAJOR CONTOUR
- MINOR CONTOUR

NOTES

1. EXISTING SURVEY CONDITIONS ARE FROM A TOPOGRAPHIC SURVEY PREPARED BY WILLIAM H. GORDON ASSOCIATES, INC. SEE SHEETS V-1 AND V-2 FOR COMPLETE SURVEY INFORMATION.
2. PRIOR TO COMMENCING ANY EXCAVATION WORK, THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN ACCORDANCE WITH THE "DIG SAFE" NOTIFICATION PROCEDURES PROMOTED BY RESPECTIVE UTILITY COMPANIES. THE "DIG SAFE" TELEPHONE NUMBER FOR MARYLAND IS 1-800-441-8355.
3. REFER TO SHEETS C-9 - C-17 FOR TYPICAL CROSS SECTIONS OF GRADING, TOE PROTECTION AND BANK STABILIZATION TREATMENTS.
4. ALL SECTIONS ARE LOOKING DOWNSTREAM.
5. REFER TO SHEETS C-18 - C-21 FOR CONSTRUCTION DETAILS.
6. CONTRACTOR SHALL VERIFY ALL EXISTING GRADES IN THE FIELD AND SHALL REPORT ANY DISCREPANCIES BETWEEN EXISTING AND PROPOSED CONDITION TO THE CONTRACTING OFFICER'S REPRESENTATIVE (COR).
7. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
8. COMPACT SUBGRADE PRIOR TO ANY FINISH GRADING (SEE SPECS). REMOVE ALL SOFT SPOTS OBSERVED OR IDENTIFIED IN FIELD.
9. WHERE NEW EARTHWORK MEETS EXISTING PAVING OR EARTHWORK, SMOOTHLY BLEND GRADE OF EXISTING WITH NEW. PROVIDE VERTICAL CURVES OR ROUNDINGS AT TOP AND BOTTOM OF ALL SLOPES.
10. EXCAVATION REQUIRED WITHIN PROXIMITY OF UTILITY LINES AND WITHIN DRIP LINE OF TREES DESIGNATED TO REMAIN SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE UTILITY COMPANIES OR THE OWNER.
11. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADS OR ABUTTING PROPERTY.

TOP = 283.27
SAN MH



12" CAST IRON SANITARY SEWER

E 852,800

5179
△ 278.24
FLY

INV. = 276.63
12" CMP

2 STORY
FRAME
NO #
POSTED

SECTION 1,
SHEET C-9

INV. = 272.47
12" PVC

FREDERICK ROAD

E 853,000

N 523,200

SECTION 2,
SHEET C-9

1+00

SECTION 3,
SHEET C-9

2+00

SECTION 4,
SHEET C-10

2+00

SECTION 5,
SHEET C-11

2+00

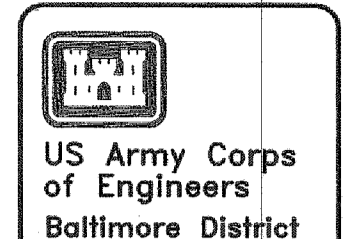
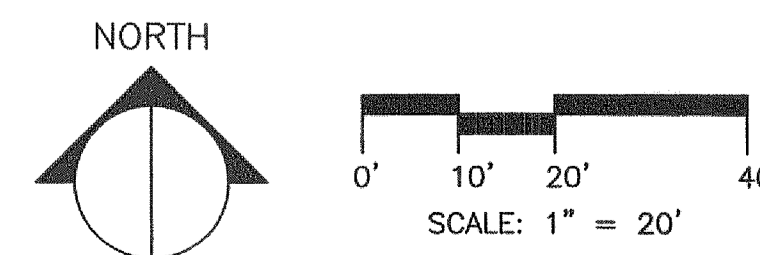
SECTION 5.1,
SHEET C-12

SECTION 6,
SHEET C-13

SECTION 7,
SHEET C-13

N 523,000

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Date	Appr.	Mark	Description

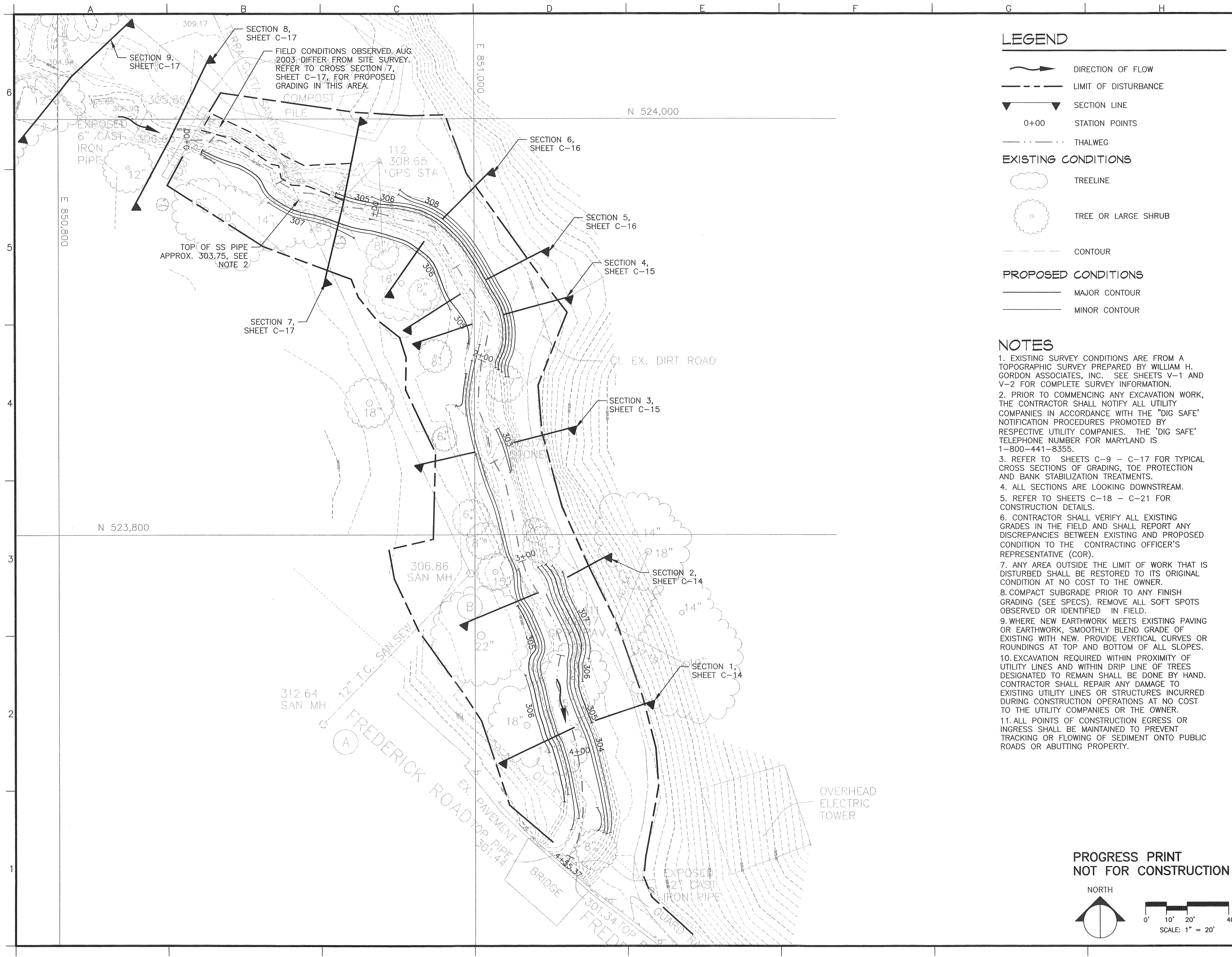
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Drawn by: DS	Plot scale: 1" = 20'	File name: 0300-0000	Plot scale: 1" = 20'	
Dos: SEPT, 2003	Design file no:	Drawing Number:	File name:	Plot scale:

U.S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS
BALTIMORE, MARYLAND

B THE ENGINEERING CORPORATION
18 Commercial St.
Salem, MA 01970

DEEP RUN AND
TIBER-HUDSON WATERSHEDS
STREAMBANK RESTORATION
90% DESIGN
GRADING PLAN
SITE HB07

Sheet Number:
C-3
Plate: 7 OF 25

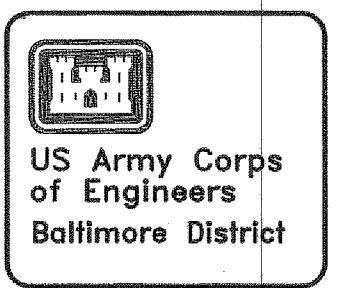


LEGEND

- DIRECTION OF FLOW
- LIMIT OF DISTURBANCE
- SECTION LINE
- STATION POINTS
- THALWEG
- EXISTING CONDITIONS**
- TREELINE
- TREE OR LARGE SHRUB
- CONTOUR
- PROPOSED CONDITIONS**
- MAJOR CONTOUR
- MINOR CONTOUR

NOTES

1. EXISTING SURVEY CONDITIONS ARE FROM A TOPOGRAPHIC SURVEY PREPARED BY WILLIAM H. GORDON ASSOCIATES, INC. SEE SHEETS V-1 AND V-2 FOR COMPLETE SURVEY INFORMATION.
2. PRIOR TO COMMENCING ANY EXCAVATION WORK, THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN ACCORDANCE WITH THE "DIG SAFE" NOTIFICATION PROCEDURES PROMOTED BY RESPECTIVE UTILITY COMPANIES. THE "DIG SAFE" TELEPHONE NUMBER FOR MARYLAND IS 1-800-441-8355.
3. REFER TO SHEETS C-9 - C-17 FOR TYPICAL CROSS SECTIONS OF GRADING, TOE PROTECTION AND BANK STABILIZATION TREATMENTS.
4. ALL SECTIONS ARE LOOKING DOWNSTREAM.
5. REFER TO SHEETS C-18 - C-21 FOR CONSTRUCTION DETAILS.
6. CONTRACTOR SHALL VERIFY ALL EXISTING GRADES IN THE FIELD AND SHALL REPORT ANY DISCREPANCIES BETWEEN EXISTING AND PROPOSED CONDITION TO THE CONTRACTING OFFICER'S REPRESENTATIVE (COR).
7. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
8. COMPACT SUBGRADE PRIOR TO ANY FINISH GRADING (SEE SPECS). REMOVE ALL SOFT SPOTS OBSERVED OR IDENTIFIED IN FIELD.
9. WHERE NEW EARTHWORK MEETS EXISTING PAVING OR EARTHWORK, SMOOTHLY BLEND GRADE OF EXISTING WITH NEW. PROVIDE VERTICAL CURVES OR ROUNDINGS AT TOP AND BOTTOM OF ALL SLOPES.
10. EXCAVATION REQUIRED WITHIN PROXIMITY OF UTILITY LINES AND WITHIN DRIP LINE OF TREES DESIGNATED TO REMAIN SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE UTILITY COMPANIES OR THE OWNER.
11. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADS OR ABUTTING PROPERTY.

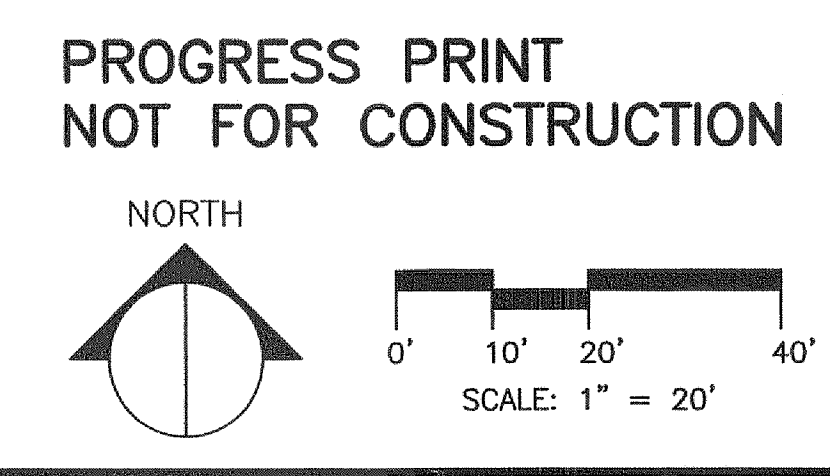


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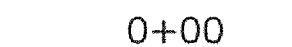
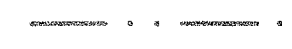
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Submitted by:	File name:	
Chief, Branch	Plot date:	
	Plot scale:	
U.S. ARMY ENGINEER DISTRICT, BALTIMORE		
CORPS OF ENGINEERS		
BALTIMORE, MARYLAND		
B THE ENGINEERING GROUP, INC.		
18 Commercial St.		
Salem, MA 01970		

DEEP RUN AND
TIBER-HUDSON WATERSHEDS
STREAMBANK RESTORATION
90% DESIGN
GRADING PLAN
SITE HBT3


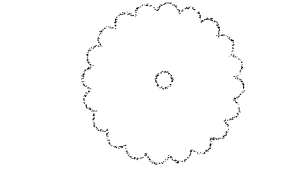
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C-4
Plate: 8 OF 25



LEGEND

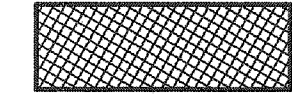
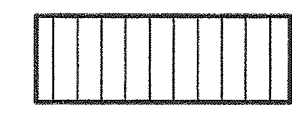
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-  LIMIT OF DISTURBANCE
-  SECTION LINE
-  STATION POINTS
-  THALWEG

EXISTING CONDITIONS



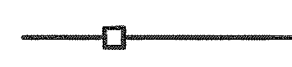
-  TREELINE
-  DECIDUOUS TREE

PROPOSED CONDITIONS

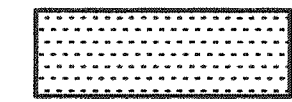

BANK STABILIZATION TREATMENT

-  VEGETATED COIR MATTRESS
-  LIVE STAKES W/ EROSION CONTROL FABRIC

TOE TREATMENT

-  SINGLE COIR FASCINE
-  SINGLE COIR FASCINE & STONE TRENCH
-  STONE TOE

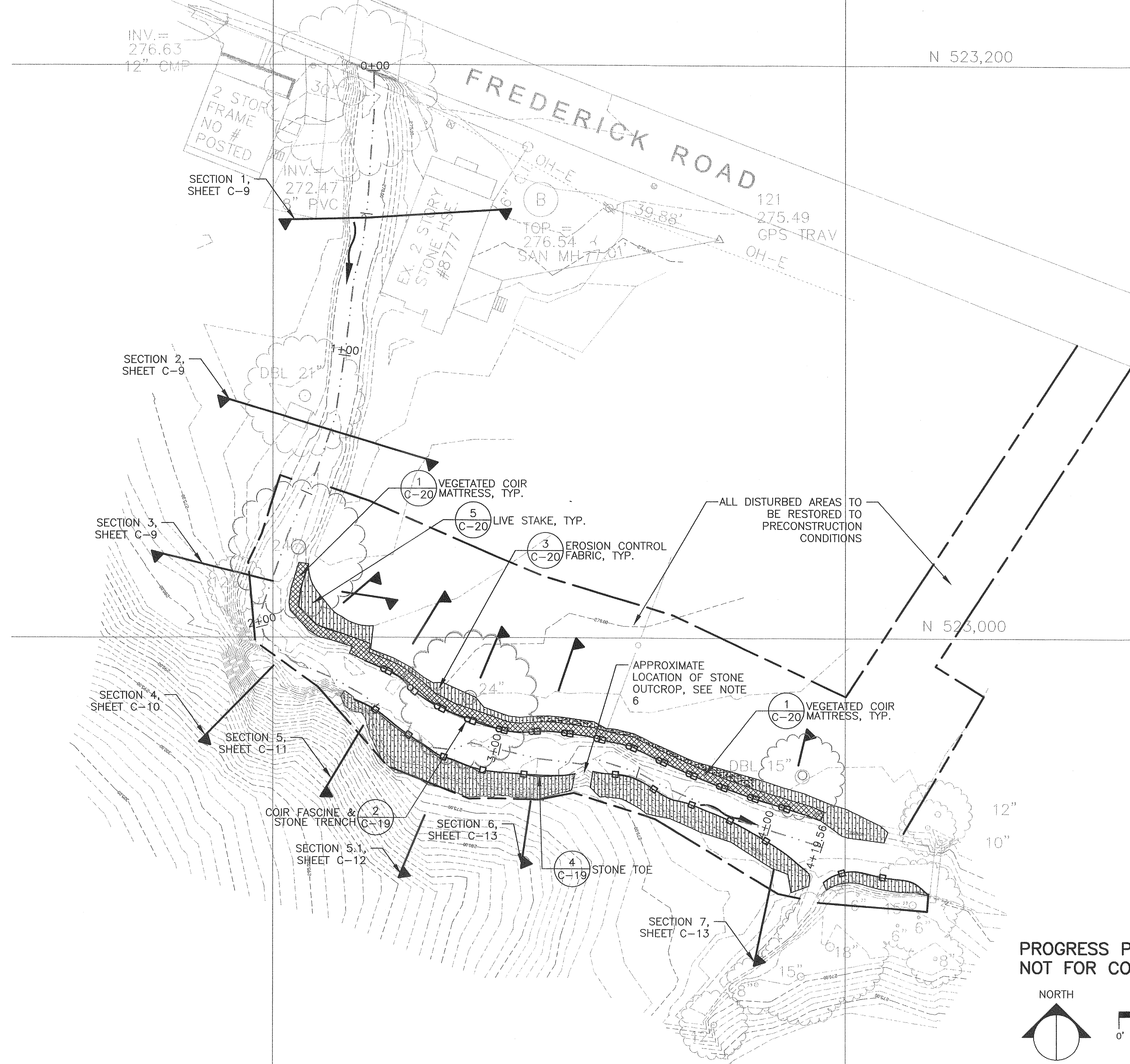
SEEDING MATRIX

-  TYPE 1 SEED MIX
-  TYPE 2 SEED MIX

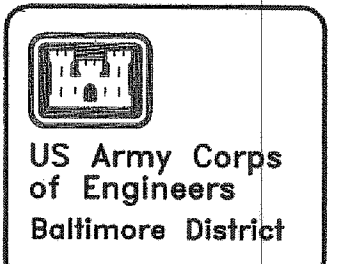
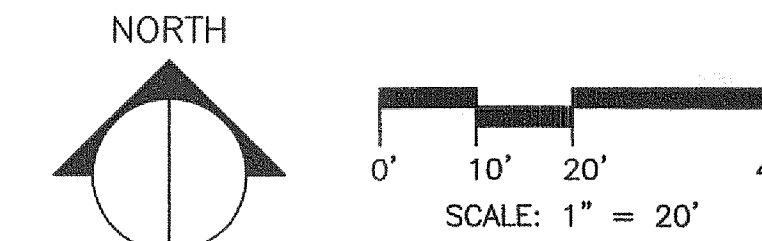
NOTES

1. TOP OF BANK LOCATIONS FOR TREATMENT TERMINATION ARE SHOWN FOR COSTING PURPOSES ONLY. TOP OF BANK TO BE MARKED IN FIELD BY CONTRACTING OFFICER'S REPRESENTATIVE (COR) PRIOR TO CONSTRUCTION.
2. REFER TO SHEETS C-9 - C-17 FOR TYPICAL CROSS SECTIONS OF TOE PROTECTION AND BANK STABILIZATION TREATMENTS.
3. ALL SECTIONS ARE LOOKING DOWNSTREAM.
4. REFER TO SHEET C-7 FOR PLANTING PLAN, PLANT SCHEDULE, AND GENERAL PLANTING NOTES.
5. REFER TO SHEETS C-18 - C-21 FOR CONSTRUCTION DETAILS.
6. WHERE EXISTING ROCK OUTCROPPINGS OR LARGE BOULDERS NOT SHOWN ON SURVEY OCCUR, TREATMENTS WILL BE MODIFIED IN FIELD AS DIRECTED BY COR.
7. EXISTING SURVEY CONDITIONS ARE FROM A TOPOGRAPHIC SURVEY PREPARED BY WILLIAM H. GORDON ASSOCIATES, INC. SEE SHEETS V-1 AND V-2 FOR COMPLETE SURVEY INFORMATION.

12" CAST IRON SANITARY SEWER



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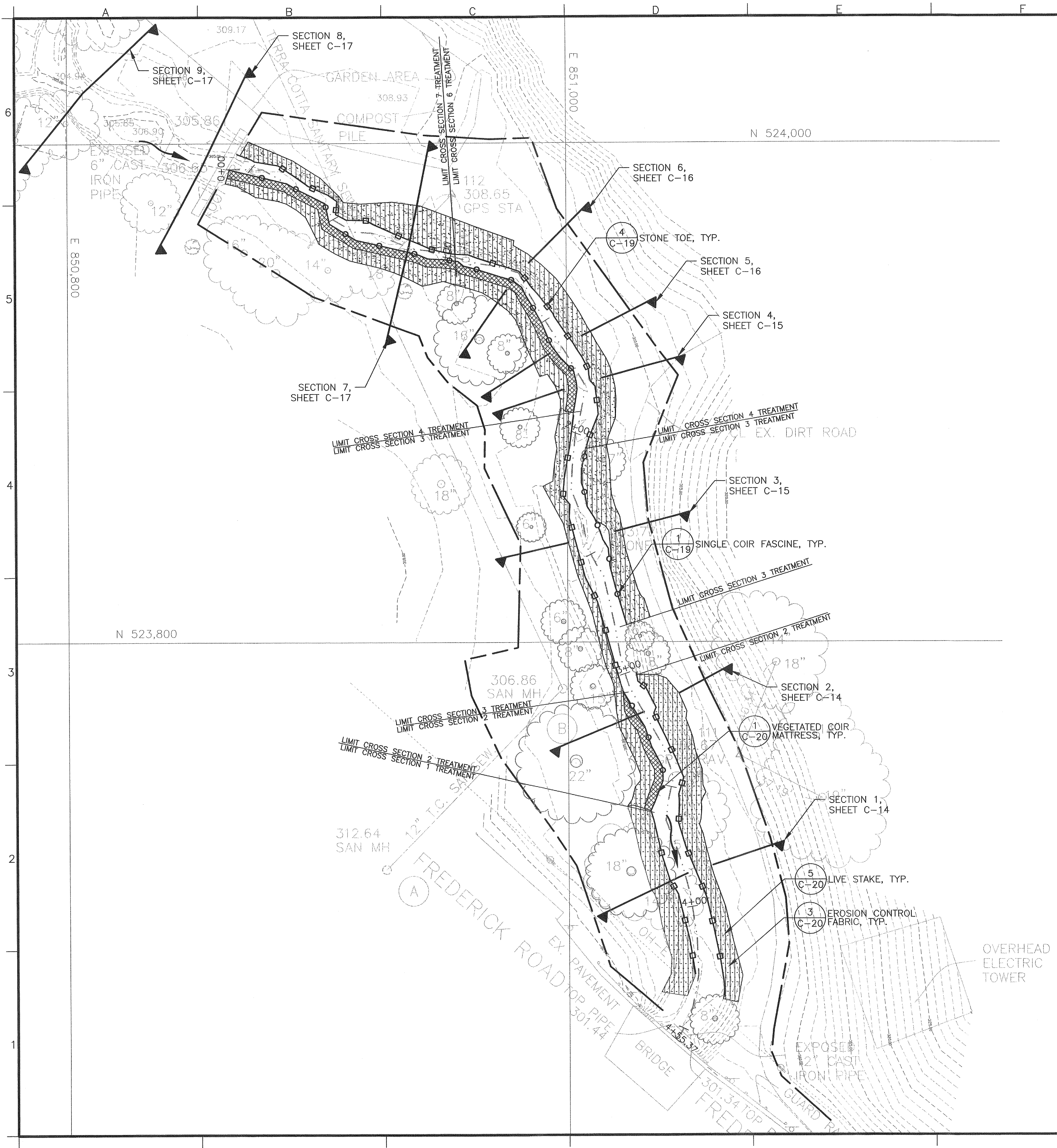
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Dwn by: TC	Submitted by: Chief, Branch	
Date: SEPT. 2003	Design file no.:	Plot scale:
Drawing Number: F-xxx-xx-xx	File name:	

U.S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS
BALTIMORE, MARYLAND

B THE ENGINEERING GROUP, INC.
18 Commercial St.
Salisbury, MD 21150
www.theengineeringgroup.com

DEEP RUN AND
TIBER-HUDSON WATERSHEDS
STREAMBANK RESTORATION
90% DESIGN
TREATMENT PLAN
SITE HB07

Sheet Number:
C-5
Plate: 9 OF 25



LEGEND

- DIRECTION OF FLOW
- LIMIT OF DISTURBANCE
- SECTION LINE
- STATION POINTS
- THALWEG

EXISTING CONDITIONS

- TREELINE
- DECIDUOUS TREE

PROPOSED CONDITIONS

BANK STABILIZATION TREATMENT

- VEGETATED COIR MATTRESS
- LIVE STAKES W/ EROSION CONTROL FABRIC

TOE TREATMENT

- SINGLE COIR FASCINE
- SINGLE COIR FASCINE & STONE TRENCH
- STONE TOE

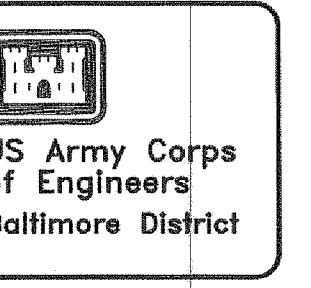
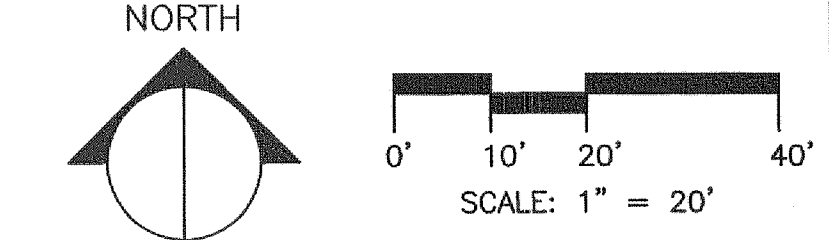
SEEDING MATRIX

- TYPE 1 SEED MIX
- TYPE 2 SEED MIX

NOTES

1. TOP OF BANK LOCATIONS FOR TREATMENT TERMINATION ARE SHOWN FOR COSTING PURPOSES ONLY. TOP OF BANK TO BE MARKED IN FIELD BY CONTRACTING OFFICER'S REPRESENTATIVE (COR) PRIOR TO CONSTRUCTION.
2. REFER TO SHEETS C-14 - C-17 FOR TYPICAL CROSS SECTIONS OF TOE PROTECTION AND BANK STABILIZATION TREATMENTS.
3. ALL SECTIONS ARE LOOKING DOWNSTREAM.
4. REFER TO SHEET C-8 FOR PLANTING PLAN, PLANT SCHEDULE, AND GENERAL PLANTING NOTES.
5. REFER TO SHEETS C-18 - C-21 FOR CONSTRUCTION DETAILS.
6. WHERE EXISTING ROCK OUTCROPPINGS OR LARGE BOULDERS NOT SHOWN ON SURVEY OCCUR, TREATMENTS WILL BE MODIFIED IN FIELD AS DIRECTED BY COR.
7. EXISTING SURVEY CONDITIONS ARE FROM A TOPOGRAPHIC SURVEY PREPARED BY WILLIAM H. GORDON ASSOCIATES, INC. SEE SHEETS V-1 AND V-2 FOR COMPLETE SURVEY INFORMATION.

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Date	Appr.	Mark	Description

Designed by: DR, MS	Date: SEPT. 2005	Rev.
Dwn by: TC	Design file no.	
Reviewed by: DB	Drawing Number: F-xxx-xx-xx	
Submitted by: Chief	File name: Plot date: Plot scale:	
U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND BIOENGINEERING GROUP, INC. <small>18 Commercial St. Salem, MA 01970</small>		

DEEP RUN AND TIBER-HUDSON WATERSHEDS STREAMBANK RESTORATION 90% DESIGN
TREATMENT PLAN SITE HB13

Sheet Number:
C-6
Plate: 10 OF 25

LEGEND

--- LIMIT OF DISTURBANCE

▽ SECTION LINE

EXISTING CONDITIONS

DECIDUOUS TREE TO REMAIN

PROPOSED CONDITIONS

RIPARIAN BUFFER W/ TYPE 1 SEED MIX

RIPARIAN BUFFER W/ TYPE 2 SEED MIX

CANOPY TREE

FLOWERING OR MULTITEM TREE

SAPLING WITH TREE SHELTER

SHRUBS

PERENNIALS

PLANTING NOTES

- IF DISCREPANCIES EXIST BETWEEN THE NUMBER OF PLANTS DRAWN ON THE PLANTING PLAN AND THE NUMBER OF PLANTS IN THE PLANT SCHEDULE, THE PLANTING PLAN SHALL GOVERN.
- ALL NEW PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
- ALL PLANT MATERIAL SHALL BE NURSERY GROWN. NO FIELD-COLLECTED SPECIMENS WILL BE ALLOWED.
- ALL NEW PLANTS SHALL BE BALLED AND BURLAPPED OR CONTAINER-GROWN, UNLESS OTHERWISE NOTED ON THE PLANT LIST.
- THE CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THE DRAWINGS.
- ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE ONLY AFTER WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT.
- ALL NEW PLANTS SHALL BE TAGGED AND APPROVED BY THE LANDSCAPE ARCHITECT AT THE NURSERY PRIOR TO DIGGING OR DELIVERY TO THE SITE.
- CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND SHALL REPORT ANY CONFLICTS TO THE LANDSCAPE ARCHITECT. NO TREES SHALL BE PLANTED CLOSER THAN TEN FEET (10') TO ANY UNDERGROUND WATER AND DRAINAGE LINES OR STRUCTURES.
- STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING PLANTING.
- NO TREES OR SHRUBS SHALL BE PLANTED BEFORE ACCEPTANCE OF FINAL GRADING BY LANDSCAPE ARCHITECT.
- ALL EXISTING TREES TO REMAIN SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. PROTECTION TECHNIQUES SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT.
- ALL AREAS TO BE SEEDED SHALL RECEIVE THREE INCHES (3") OF TOPSOIL, MEASURED AFTER COMPACTION, PRIOR TO SEEDING. PROVIDE EROSION CONTROL FABRIC ON ALL SLOPES GREATER THAN 3H:1V TO PREVENT LOSS OF SEED AND LOAM.
- PRUNE TREES IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DAMAGED, STOLEN, DEAD, DECLINING OR LOST MATERIAL UNTIL COMPLETION OF MAINTENANCE AND GUARANTEE PERIODS.

PLANT SCHEDULE

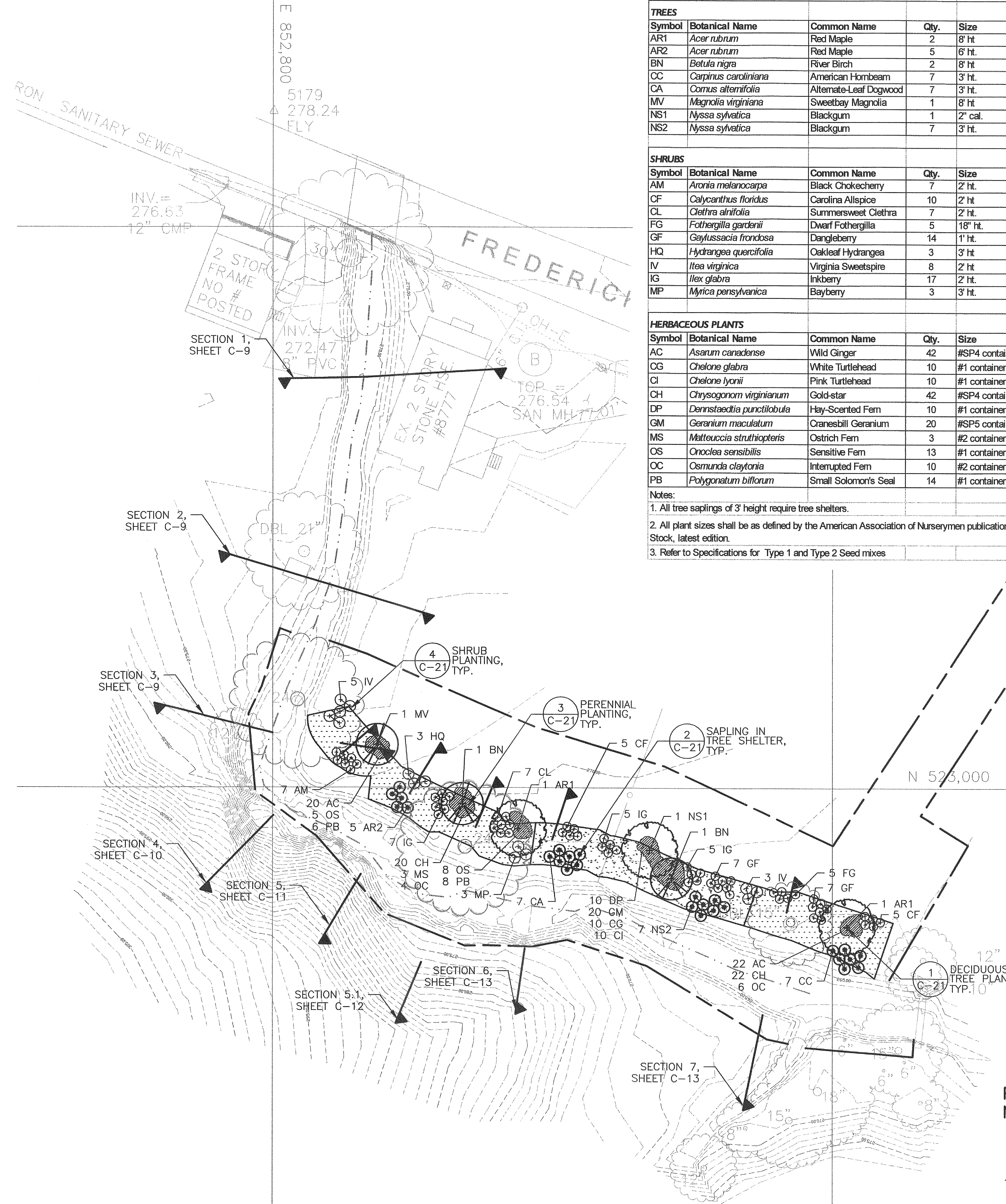
TREES					
Symbol	Botanical Name	Common Name	Qty.	Size	Comments
AR1	<i>Acer rubrum</i>	Red Maple	2	8' ht.	B&B, 3-5 stems, clamp
AR2	<i>Acer rubrum</i>	Red Maple	5	6' ht.	container, 4' o.c.
BN	<i>Betula nigra</i>	River Birch	2	8' ht.	B&B, 3-5 stems, clamp
CC	<i>Carpinus caroliniana</i>	American Hornbeam	7	3' ht.	container, 4' o.c.
CA	<i>Cornus alternifolia</i>	Alternate-Leaf Dogwood	7	3' ht.	container, 4' o.c.
MV	<i>Magnolia virginiana</i>	Sweetbay Magnolia	1	8' ht.	B&B, 3-5 stems, clamp
NS1	<i>Nyssa sylvatica</i>	Blackgum	1	2" cal.	B&B
NS2	<i>Nyssa sylvatica</i>	Blackgum	7	3' ht.	container, 4' o.c.

SHRUBS					
Symbol	Botanical Name	Common Name	Qty.	Size	Comments
AM	<i>Aronia melanocarpa</i>	Black Chokecherry	7	2' ht.	container, 3' o.c.
CF	<i>Calycanthus floridus</i>	Carolina Allspice	10	2' ht.	container, 3' o.c.
CL	<i>Clethra alnifolia</i>	Summersweet Clethra	7	2' ht.	container, 3' o.c.
FG	<i>Fothergilla gardenii</i>	Dwarf Fothergilla	5	18" ht.	container, 3' o.c.
GF	<i>Gaylussacia frondosa</i>	Dangleberry	14	1' ht.	container, 2' o.c.
HQ	<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea	3	3' ht.	container, 4' o.c.
IV	<i>Itea virginica</i>	Virginia Sweetspire	8	2' ht.	container, 4' o.c.
IG	<i>Ilex glabra</i>	Inkberry	17	2' ht.	container, 3' o.c.
MP	<i>Myrica pensylvanica</i>	Bayberry	3	3' ht.	container, 4' o.c.

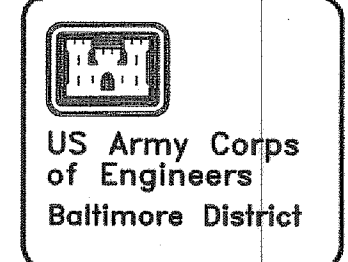
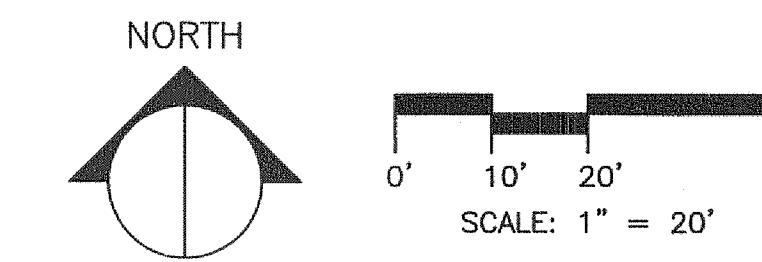
HERBACEOUS PLANTS					
Symbol	Botanical Name	Common Name	Qty.	Size	Comments
AC	<i>Asarum canadense</i>	Wild Ginger	42	#SP4 container	1' o.c. spacing
CG	<i>Chelone glabra</i>	White Turtlehead	10	#1 container	2' o.c. spacing
CI	<i>Chelone lyonii</i>	Pink Turtlehead	10	#1 container	2' o.c. spacing
CH	<i>Chrysogonum virginianum</i>	Gold-star	42	#SP4 container	1' o.c. spacing
DP	<i>Daristaedtia punctilobula</i>	Hay-Scented Fern	10	#1 container	2' o.c. spacing
GM	<i>Geranium maculatum</i>	Cranesbill Geranium	20	#SP5 container	18" o.c. spacing
MS	<i>Matteuccia struthiopteris</i>	Ostrich Fern	3	#2 container	3' o.c. spacing
OS	<i>Onoclea sensibilis</i>	Sensitive Fern	13	#1 container	2' o.c. spacing
OC	<i>Osmunda claytonia</i>	Interrupted Fern	10	#2 container	3' o.c. spacing
PB	<i>Polygonatum biflorum</i>	Small Solomon's Seal	14	#1 container	2' o.c. spacing

Notes:

- All tree saplings of 3' height require tree shelters.
- All plant sizes shall be as defined by the American Association of Nurserymen publication, American Standard for Nursery Stock, latest edition.
- Refer to Specifications for Type 1 and Type 2 Seed mixes



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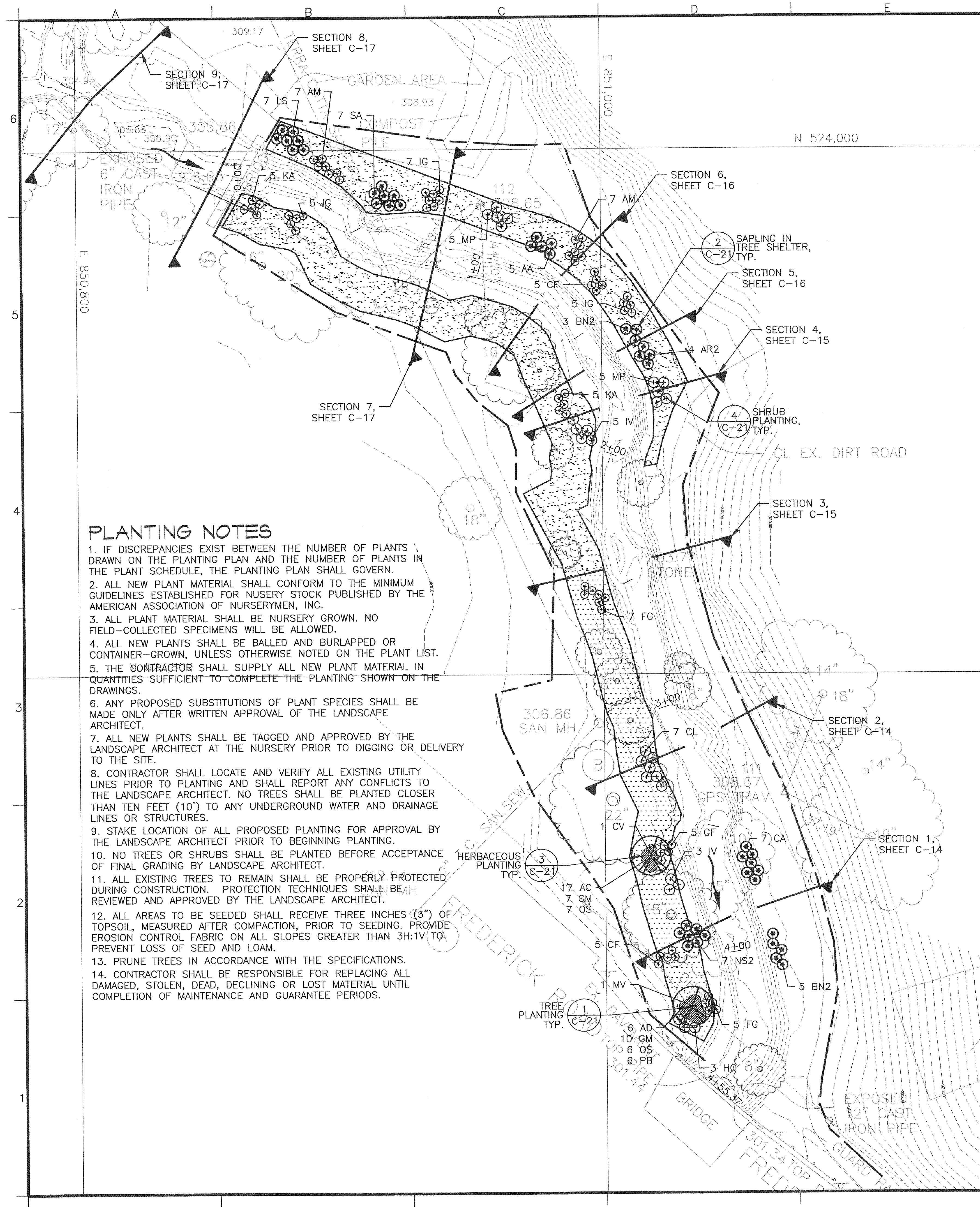


Rev.	Date	Description

Designed by: DR, MS	Checked by: DB	Reviewed by: DB	Submitted by: Chief
Drafting Number: F-300-30-00	Plot date: F-300-30-00	Plot scale: 1" = 20'	
U.S. ARMY ENGINEER DISTRICT, BALTIMORE	CORPS OF ENGINEERS BALTIMORE, MARYLAND	THE ENGINEERING GROUP, INC.	18 Commercial St., Salford, MA 01970

DEEP RUN AND TIBBER-HUDSON WATERSHEDS STREAMBANK RESTORATION 90% DESIGN
PLANTING PLAN
SITE HB07

Sheet Number:
C-7
Plate: 11 OF 25



PLANTING NOTES

1. IF DISCREPANCIES EXIST BETWEEN THE NUMBER OF PLANTS DRAWN ON THE PLANTING PLAN AND THE NUMBER OF PLANTS IN THE PLANT SCHEDULE, THE PLANTING PLAN SHALL GOVERN.
2. ALL NEW PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
3. ALL PLANT MATERIAL SHALL BE NURSERY GROWN. NO FIELD-COLLECTED SPECIMENS WILL BE ALLOWED.
4. ALL NEW PLANTS SHALL BE BALLED AND BURLAPPED OR CONTAINER-GROWN, UNLESS OTHERWISE NOTED ON THE PLANT LIST.
5. THE CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THE DRAWINGS.
6. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE ONLY AFTER WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT.
7. ALL NEW PLANTS SHALL BE TAGGED AND APPROVED BY THE LANDSCAPE ARCHITECT AT THE NURSERY PRIOR TO DIGGING OR DELIVERY TO THE SITE.
8. CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND SHALL REPORT ANY CONFLICTS TO THE LANDSCAPE ARCHITECT. NO TREES SHALL BE PLANTED CLOSER THAN TEN FEET (10') TO ANY UNDERGROUND WATER AND DRAINAGE LINES OR STRUCTURES.
9. STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING PLANTING.
10. NO TREES OR SHRUBS SHALL BE PLANTED BEFORE ACCEPTANCE OF FINAL GRADING BY LANDSCAPE ARCHITECT.
11. ALL EXISTING TREES TO REMAIN SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. PROTECTION TECHNIQUES SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT.
12. ALL AREAS TO BE SEEDED SHALL RECEIVE THREE INCHES (3") OF TOPSOIL, MEASURED AFTER COMPACTION, PRIOR TO SEEDING. PROVIDE EROSION CONTROL FABRIC ON ALL SLOPES GREATER THAN 3H:1V TO PREVENT LOSS OF SEED AND LOAM.
13. PRUNE TREES IN ACCORDANCE WITH THE SPECIFICATIONS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DAMAGED, STOLEN, DEAD, DECLINING OR LOST MATERIAL UNTIL COMPLETION OF MAINTENANCE AND GUARANTEE PERIODS.

LEGEND

--- LIMIT OF DISTURBANCE
 --- SECTION LINE

EXISTING CONDITIONS

○ DECIDUOUS TREE TO REMAIN

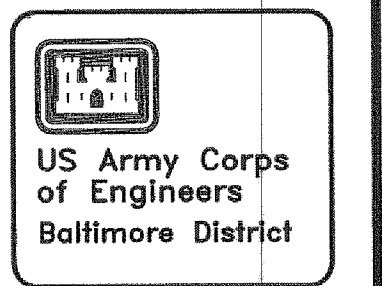
PROPOSED CONDITIONS

▨ RIPARIAN BUFFER W/ TYPE 1 SEED MIX
 ▩ RIPARIAN BUFFER W/ TYPE 2 SEED MIX
 ⊕ CANOPY TREE
 ⊗ FLOWERING OR MULTISTEM TREE
 ⊛ SAPLING WITH TREE SHELTER
 ⊙ SHRUBS
 ▨ PERENNIALS

PLANT SCHEDULE

TREES					
Symbol	Botanical Name	Common Name	Qty.	Size	Comments
AR1	<i>Acer rubrum</i>	Red Maple	8	8' ht	B&B, 3-5 stems, clump
AR2	<i>Acer rubrum</i>	Red Maple	4	6' ht.	container, 4' o.c.
AL	<i>Ainus rugosa</i>	Speckled Alder	3	3' ht.	container, 4' o.c.
AA	<i>Amelanchier arborea</i>	Downy Serviceberry	5	6' ht.	container, 4' o.c.
BN2	<i>Betula nigra</i>	River Birch	8	6' ht.	container, 4' o.c.
CC	<i>Carpinus caroliniana</i>	American Hornbeam	3	3' ht.	container, 4' o.c.
CA	<i>Cornus alternifolia</i>	Alternate-Leaf Dogwood	7	3' ht.	container, 4' o.c.
CV	<i>Crateagus viridis</i>	Green Hawthorne	1	2" cal.	B&B
LS	<i>Liquidambar styraciflua</i>	Sweetgum	7	3' ht.	container, 4' o.c.
MV	<i>Magnolia virginiana</i>	Sweetbay Magnolia	1	8' ht	B&B, 3-5 stems, clump
NS1	<i>Nyssa sylvatica</i>	Blackgum	7	2" cal.	B&B
NS2	<i>Nyssa sylvatica</i>	Blackgum	7	3' ht.	container, 4' o.c.
SA	<i>Sassafras albidum</i>	Sassafras	7	3' ht.	container, 4' o.c.
SHRUBS					
Symbol	Botanical Name	Common Name	Qty.	Size	Comments
AM	<i>Aronia melanocarpa</i>	Black Chokecherry	14	2' ht.	container, 3' o.c.
CF	<i>Calycanthus floridus</i>	Carolina Allspice	10	2' ht.	container, 3' o.c.
CL	<i>Clethra alnifolia</i>	Summersweet Clethra	7	2' ht.	container, 3' o.c.
FG	<i>Fothergilla gardenii</i>	Dwarf Fothergilla	12	18" ht.	container, 3' o.c.
GF	<i>Gaylussacia frondosa</i>	Dangleberry	5	1' ht.	container, 2' o.c.
HQ	<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea	3	3' ht.	container, 4' o.c.
IV	<i>Itea virginica</i>	Virginia Sweetspire	8	2' ht.	container, 4' o.c.
IG	<i>Ilex glabra</i>	Inkberry	17	2' ht.	container, 3' o.c.
KA	<i>Kalmia angustifolia</i>	Sheep Laurel	10	2' ht.	container, 3' o.c.
MP	<i>Myrica pensylvanica</i>	Bayberry	10	2' ht.	container, 4' o.c.
HERBACEOUS PLANTS					
Symbol	Botanical Name	Common Name	Qty.	Size	Comments
AC	<i>Asarum canadense</i>	Wild Ginger	17	#SP4 container	2' o.c. spacing
AD	<i>Aster divaricatus</i>	Woodland Aster	6	#1 container	2' o.c. spacing
GM	<i>Geranium maculatum</i>	Cranesbill Geranium	17	#SP5 container	18" o.c. spacing
OS	<i>Oncoclea sensibilis</i>	Sensitive Fern	13	#1 container	2' o.c. spacing
PB	<i>Polygonatum diflorum</i>	Solomon's Seal	6	#1 container	2' o.c. spacing

- Notes:**
1. All tree saplings of 3' height require tree shelters.
 2. All plant sizes shall be as defined by the American Association of Nurserymen publication, American Standard for Nursery Stock, latest edition.
 3. Refer to Specifications for Type 1 and Type 2 seed mixes.



Date	Rev.	Description	Mark	Date	Appr.

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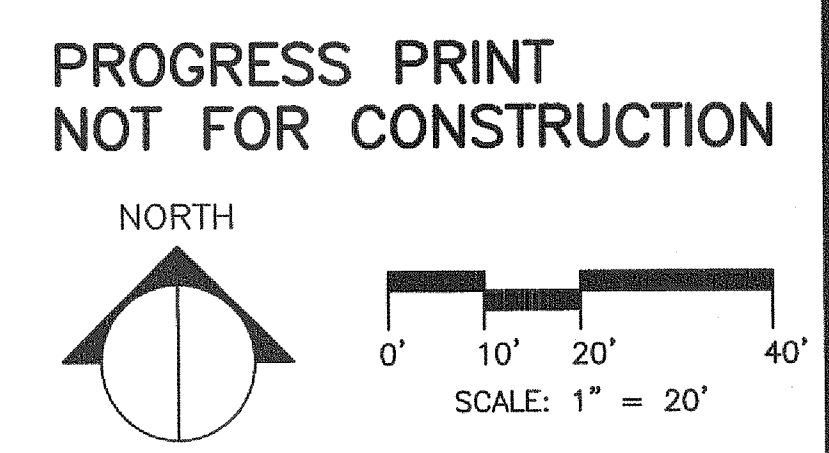
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 DRAWN BY: TC
 CHECKED BY: JB
 REVIEWED BY: [Signature]
 SUBMITTED BY: [Signature]

DATE: SEPT. 2003
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 FILE NAME: F-300-03-03
 PLOT SCALE:

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DEEP RUN AND TIBER-HUDSON WATERSHEDS STREAMBANK RESTORATION 90% DESIGN
 PLANTING PLAN
 SITE HB13

Sheet Number: C-8
 Plate: 12 OF 25



Rev.	Date	Description

Designed by: DR, MS	Drawn by: TC	Reviewed by: DB	Submitted by: Chief, Branch
Date: SEPT. 2003	Design file no.	Drawing Number: F-1000-00-00	File name: Proj. date: Proj. scale:

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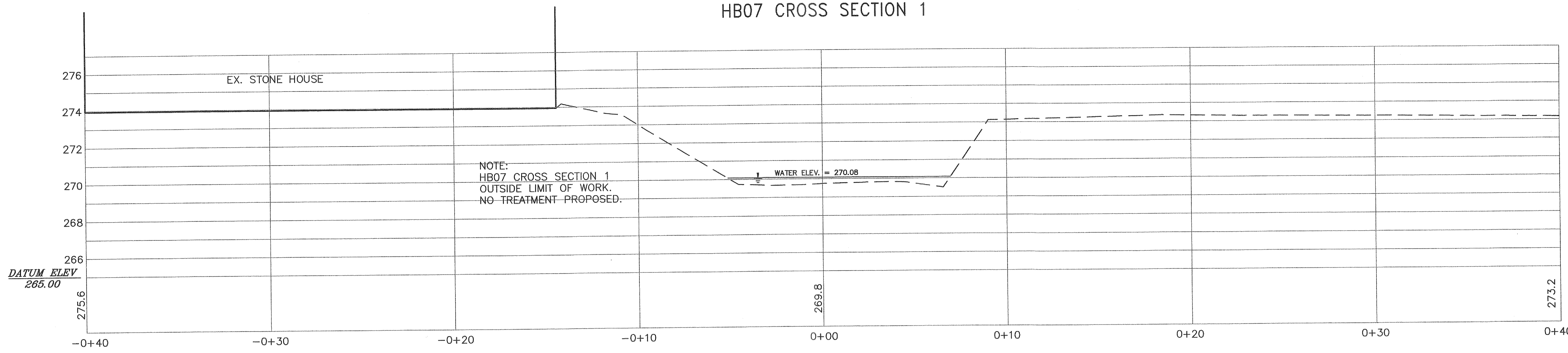
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18 Commercial St.
Salisbury, MD 21150

DEEP RUN AND TIBER-HUDSON WATERSHEDS STREAMBANK RESTORATION 90% DESIGN

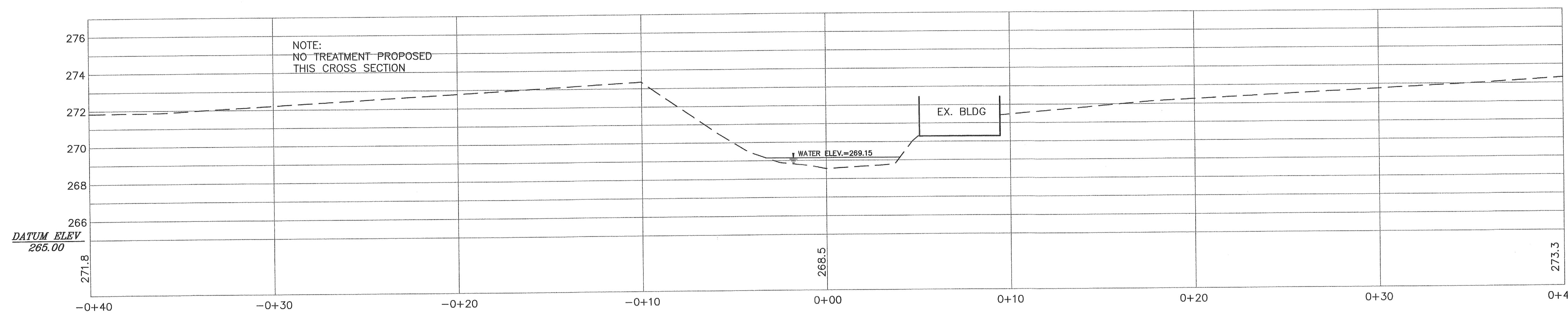
CROSS SECTIONS 1-3
SITE HB07

Sheet Number:
C-9
Plate: 13 OF 25

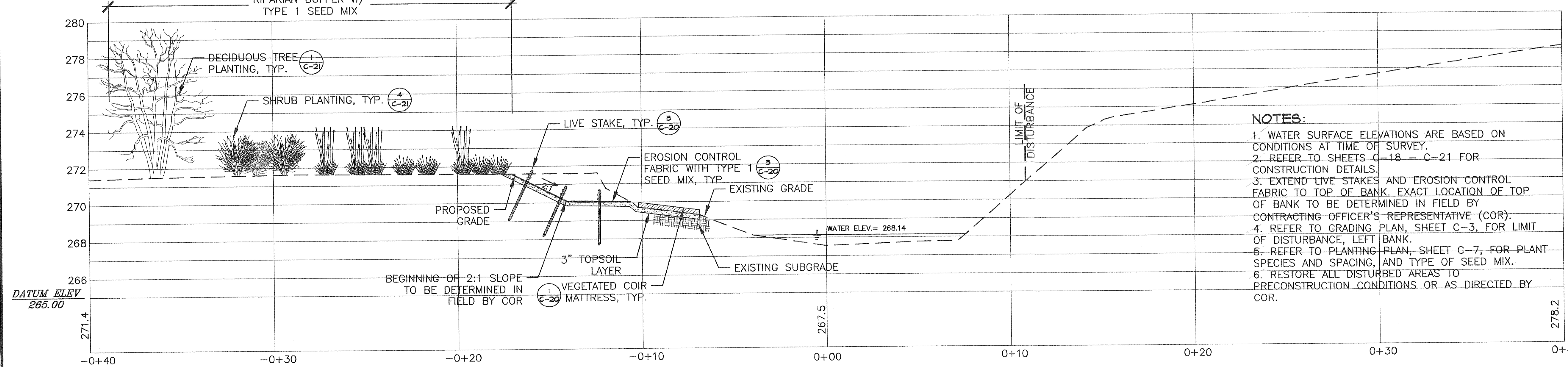
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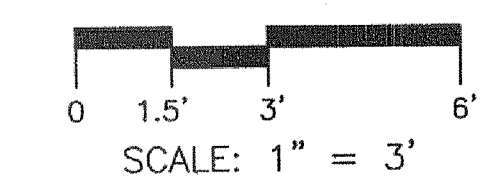
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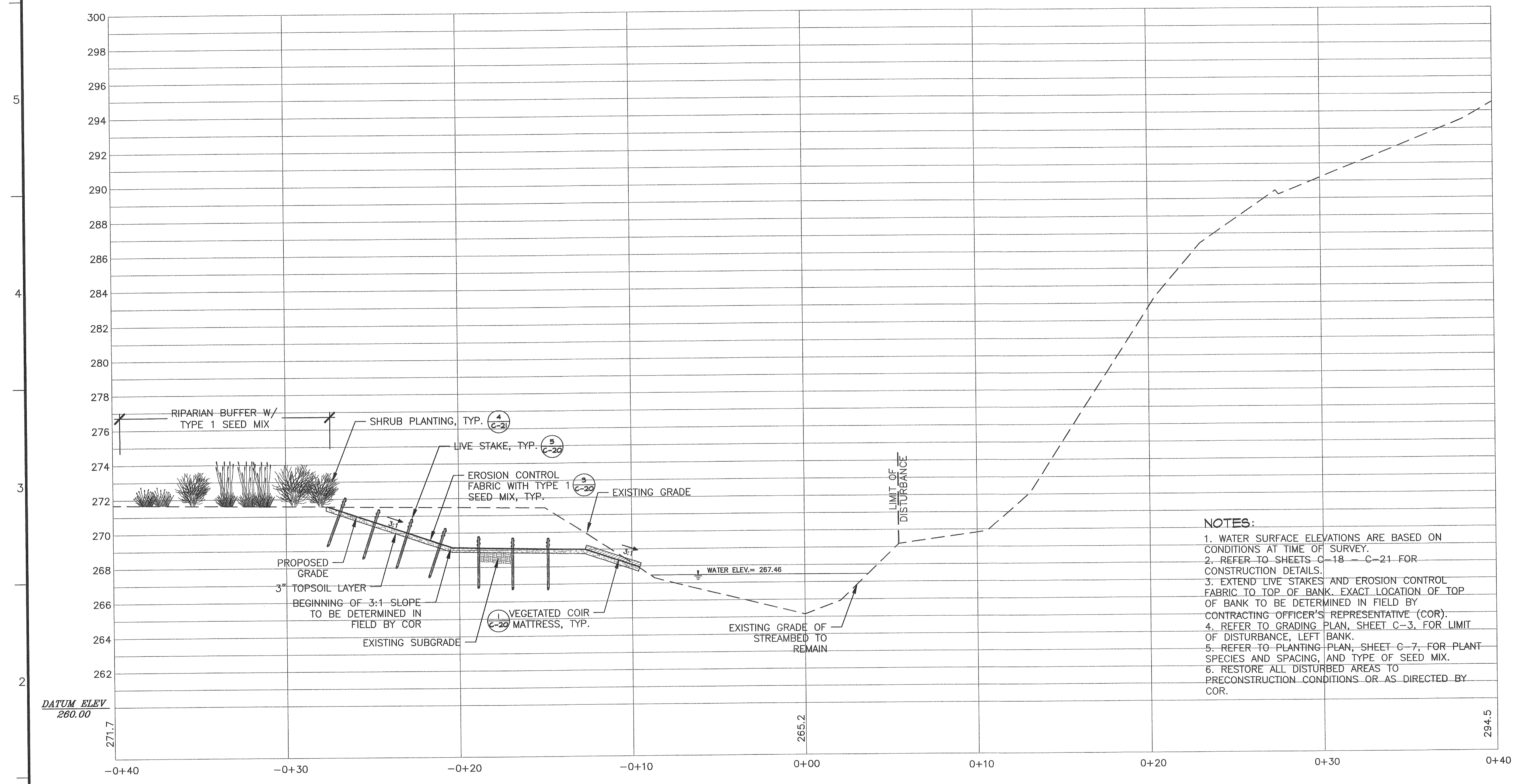
HB07 CROSS SECTION 3



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HB07 CROSS SECTION 4



- NOTES:**
1. WATER SURFACE ELEVATIONS ARE BASED ON CONDITIONS AT TIME OF SURVEY.
 2. REFER TO SHEETS C-18 - C-21 FOR CONSTRUCTION DETAILS.
 3. EXTEND LIVE STAKES AND EROSION CONTROL FABRIC TO TOP OF BANK. EXACT LOCATION OF TOP OF BANK TO BE DETERMINED IN FIELD BY CONTRACTING OFFICER'S REPRESENTATIVE (COR).
 4. REFER TO GRADING PLAN, SHEET C-3, FOR LIMIT OF DISTURBANCE, LEFT BANK.
 5. REFER TO PLANTING PLAN, SHEET C-7, FOR PLANT SPECIES AND SPACING, AND TYPE OF SEED MIX.
 6. RESTORE ALL DISTURBED AREAS TO PRECONSTRUCTION CONDITIONS OR AS DIRECTED BY COR.

Rev.	Description	Date	Appr.	Mark

Designed by: DR. MS	Date: SEPT. 2003	Rev.
Drawn by: TC	Design file no.	
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Submitted by: Chief, Branch	File name:	
	Plot date:	
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B
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ENGINEERING
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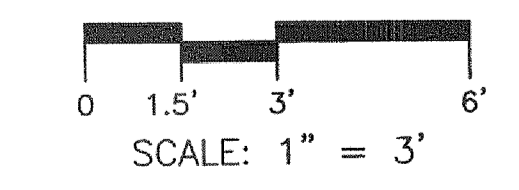
DEEP RUN AND
TIBBER-HUDSON WATERSHEDS
STREAMBANK RESTORATION
90% DESIGN

CROSS SECTION 4
SITE HB07

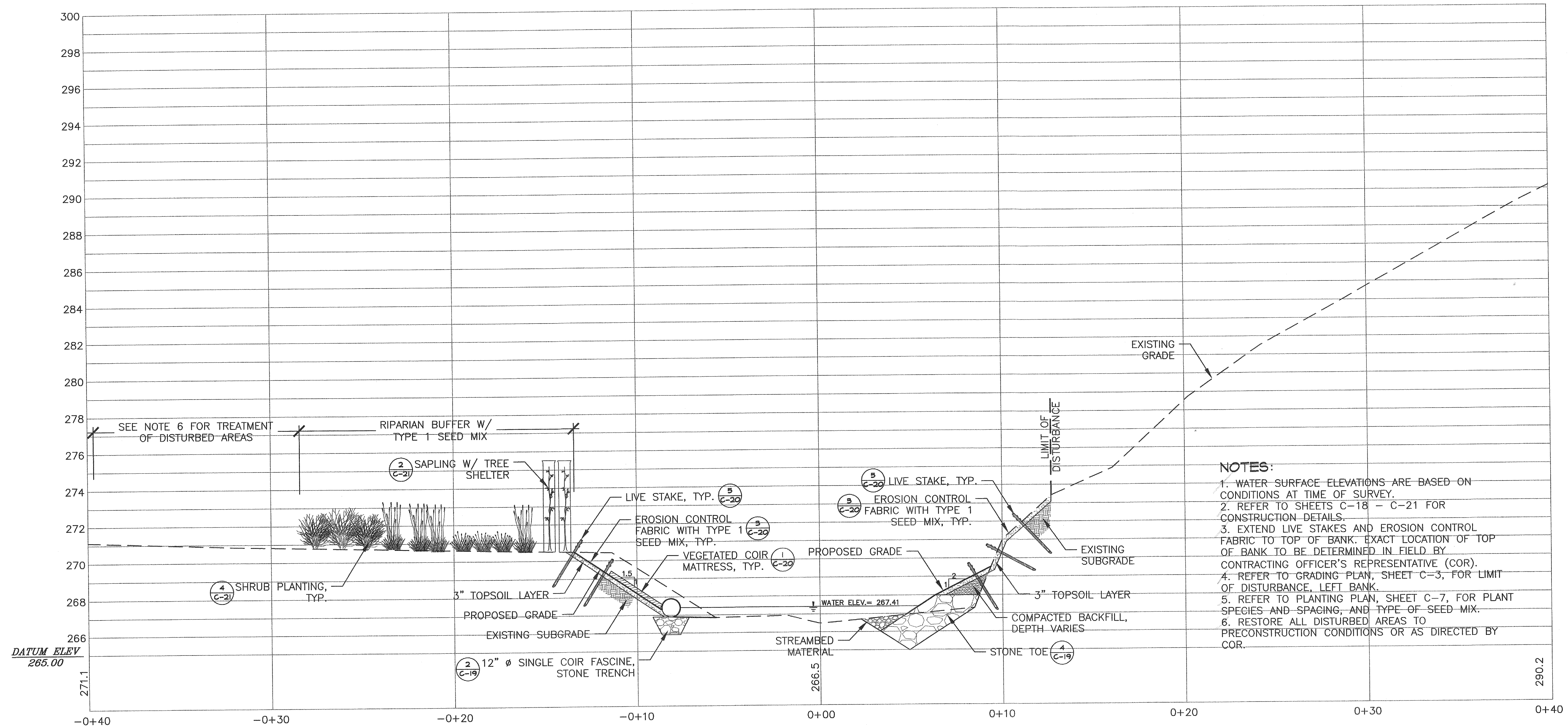
Sheet
Number:
C-10

Plate: 14 OF 25

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HB07 CROSS SECTION 5



- NOTES:**
1. WATER SURFACE ELEVATIONS ARE BASED ON CONDITIONS AT TIME OF SURVEY.
 2. REFER TO SHEETS C-18 - C-21 FOR CONSTRUCTION DETAILS.
 3. EXTEND LIVE STAKES AND EROSION CONTROL FABRIC TO TOP OF BANK. EXACT LOCATION OF TOP OF BANK TO BE DETERMINED IN FIELD BY CONTRACTING OFFICER'S REPRESENTATIVE (COR).
 4. REFER TO GRADING PLAN, SHEET C-3, FOR LIMIT OF DISTURBANCE, LEFT BANK.
 5. REFER TO PLANTING PLAN, SHEET C-7, FOR PLANT SPECIES AND SPACING, AND TYPE OF SEED MIX.
 6. RESTORE ALL DISTURBED AREAS TO PRECONSTRUCTION CONDITIONS OR AS DIRECTED BY COR.

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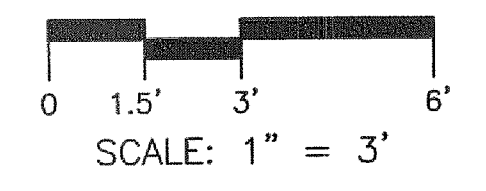
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Plot scale:

DEEP RUN AND
TIBBER-HUDSON WATERSHEDS
STREAMBANK RESTORATION
90% DESIGN

CROSS SECTION 5
SITE HB07

Sheet Number:
C-11
Plate: 15 OF 25

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HB07 CROSS SECTION 5.1

6

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1

NOTES:

1. WATER SURFACE ELEVATIONS ARE BASED ON CONDITIONS AT TIME OF SURVEY.
2. REFER TO SHEETS C-18 - C-21 FOR CONSTRUCTION DETAILS.
3. EXTEND LIVE STAKES AND EROSION CONTROL FABRIC TO TOP OF BANK. EXACT LOCATION OF TOP OF BANK TO BE DETERMINED IN FIELD BY CONTRACTING OFFICER'S REPRESENTATIVE (COR).
4. REFER TO GRADING PLAN, SHEET C-3, FOR LIMIT OF DISTURBANCE, LEFT BANK.
5. REFER TO PLANTING PLAN, SHEET C-7, FOR PLANT SPECIES AND SPACING, AND TYPE OF SEED MIX.
6. RESTORE ALL DISTURBED AREAS TO PRECONSTRUCTION CONDITIONS OR AS DIRECTED BY COR.

Date	Appr.	Mark	Description

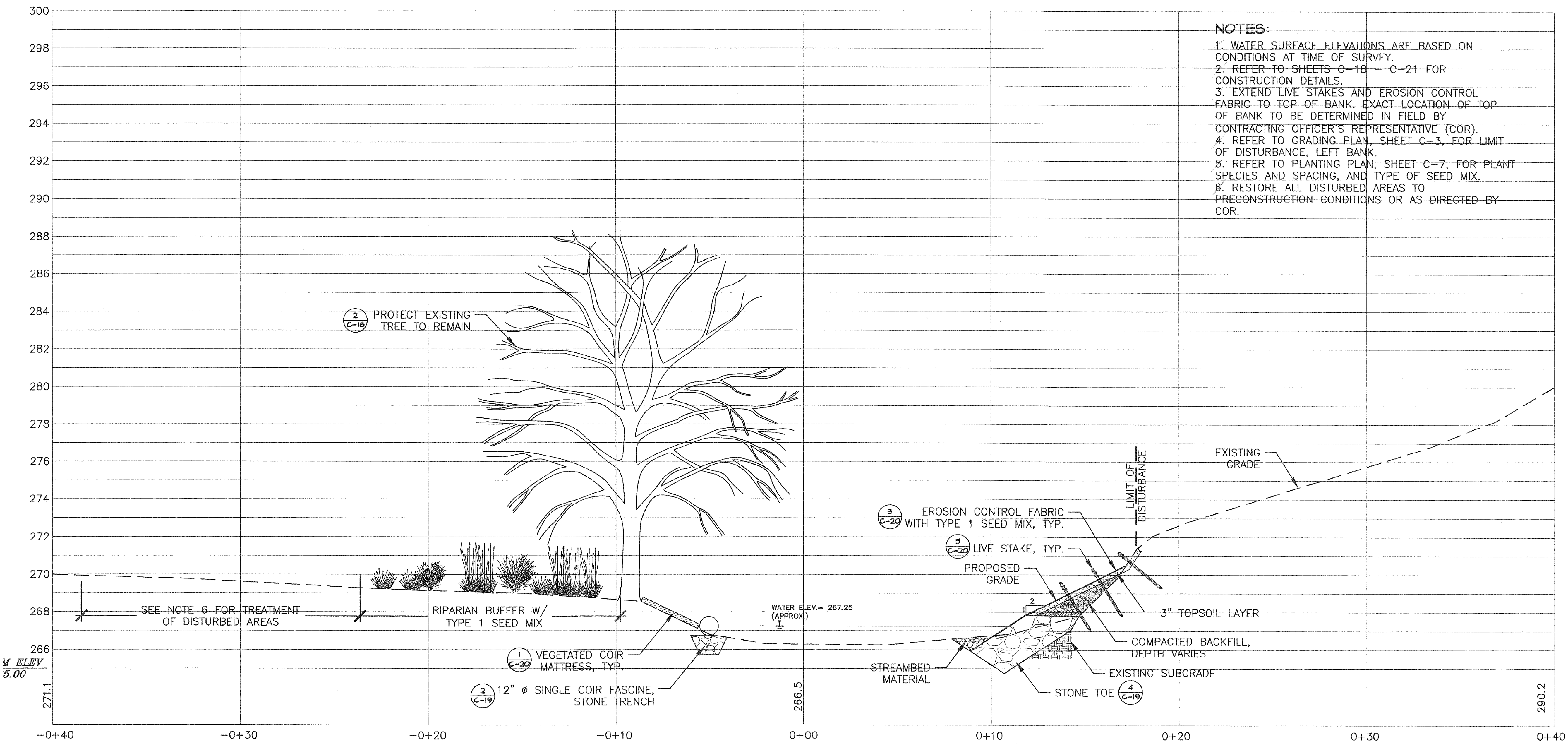
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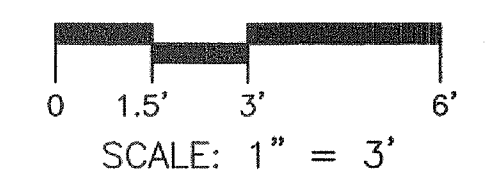
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18 Columbia Blvd.
Suites 300, 302, 304
Silver Spring, MD 20910

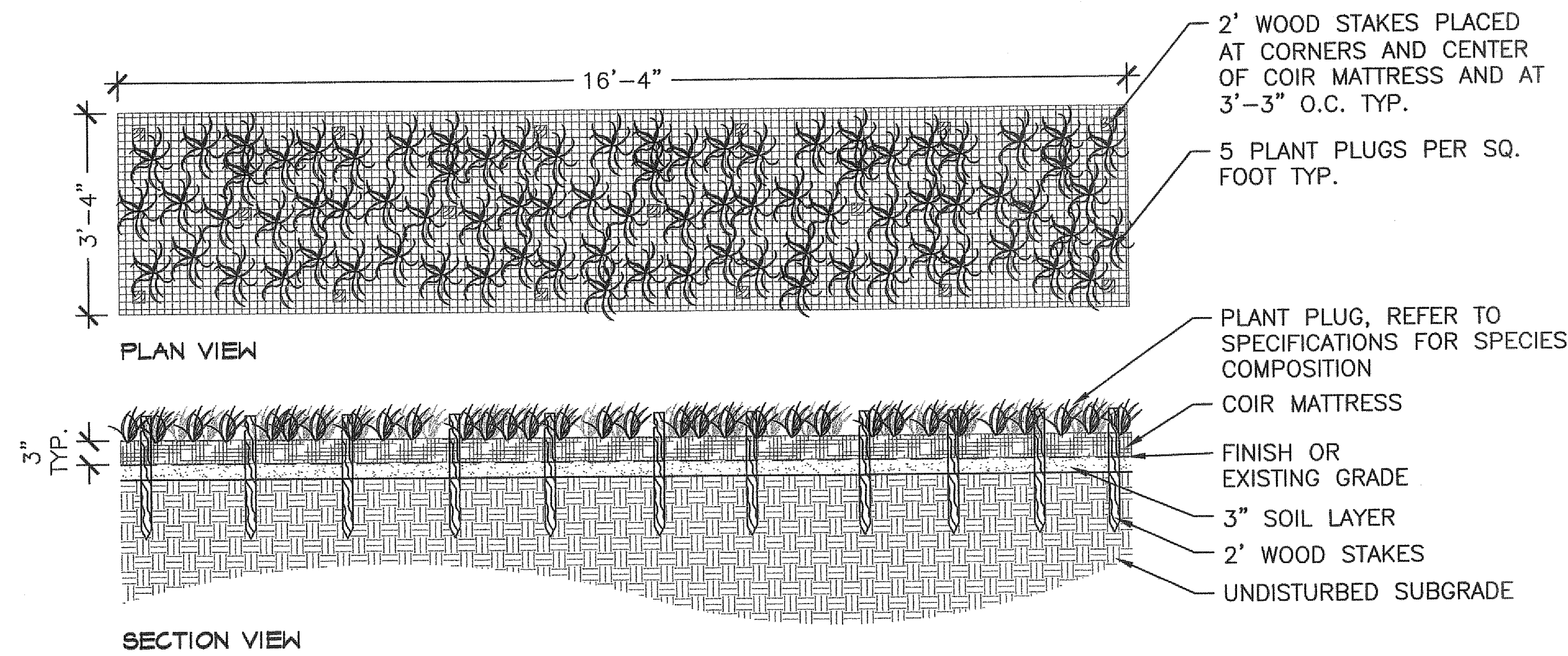
DEEP RUN AND TIBBER-LANKY STREAM RESTORATION
90% DESIGN
CROSS SECTION 5.1
SITE HB07

Sheet Number:
C-12
Plate: 16 OF 25

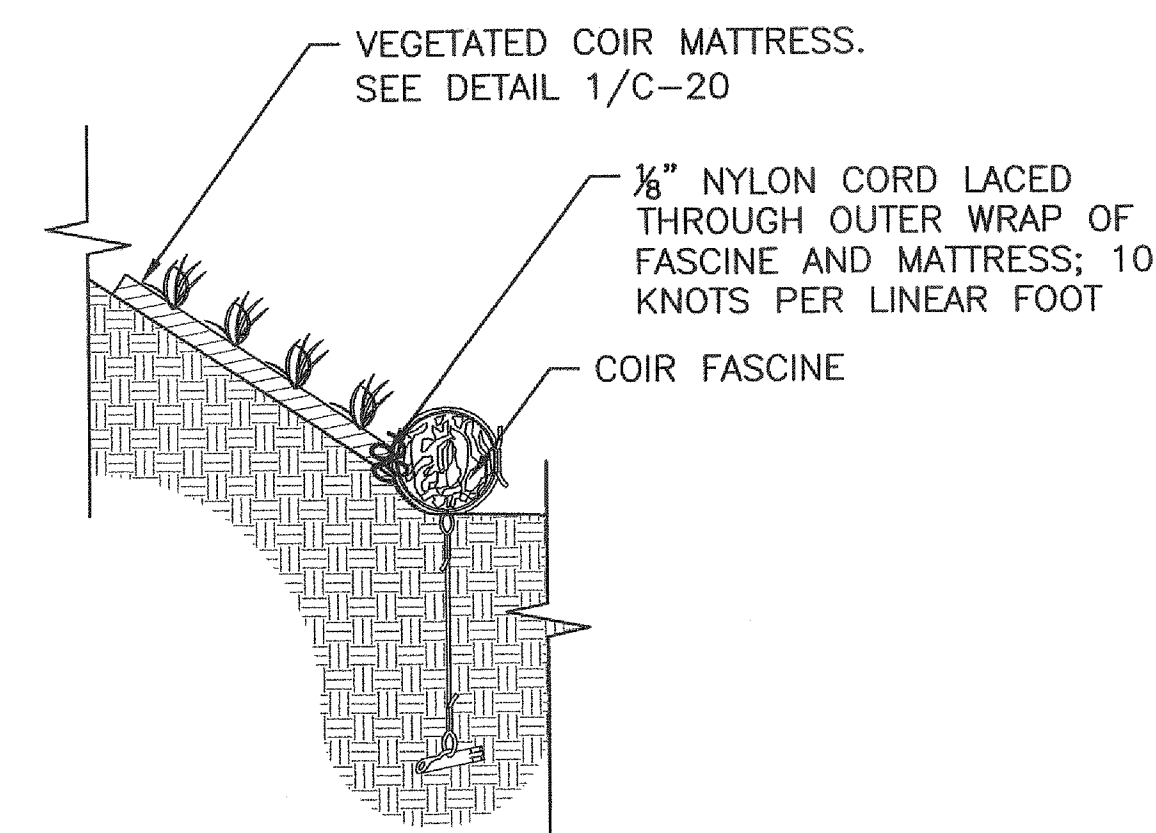


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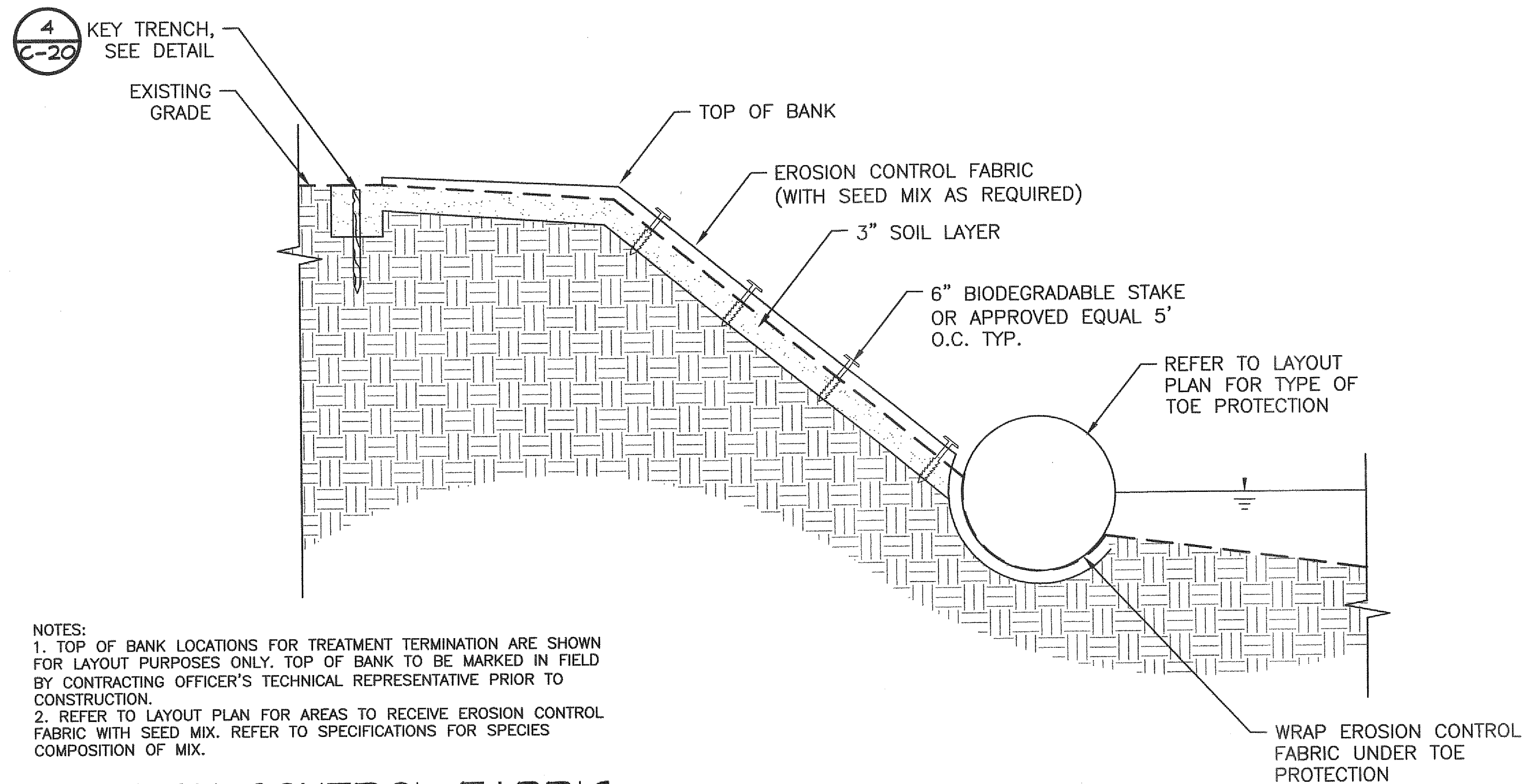




1 VEGETATED COIR MATTRESS
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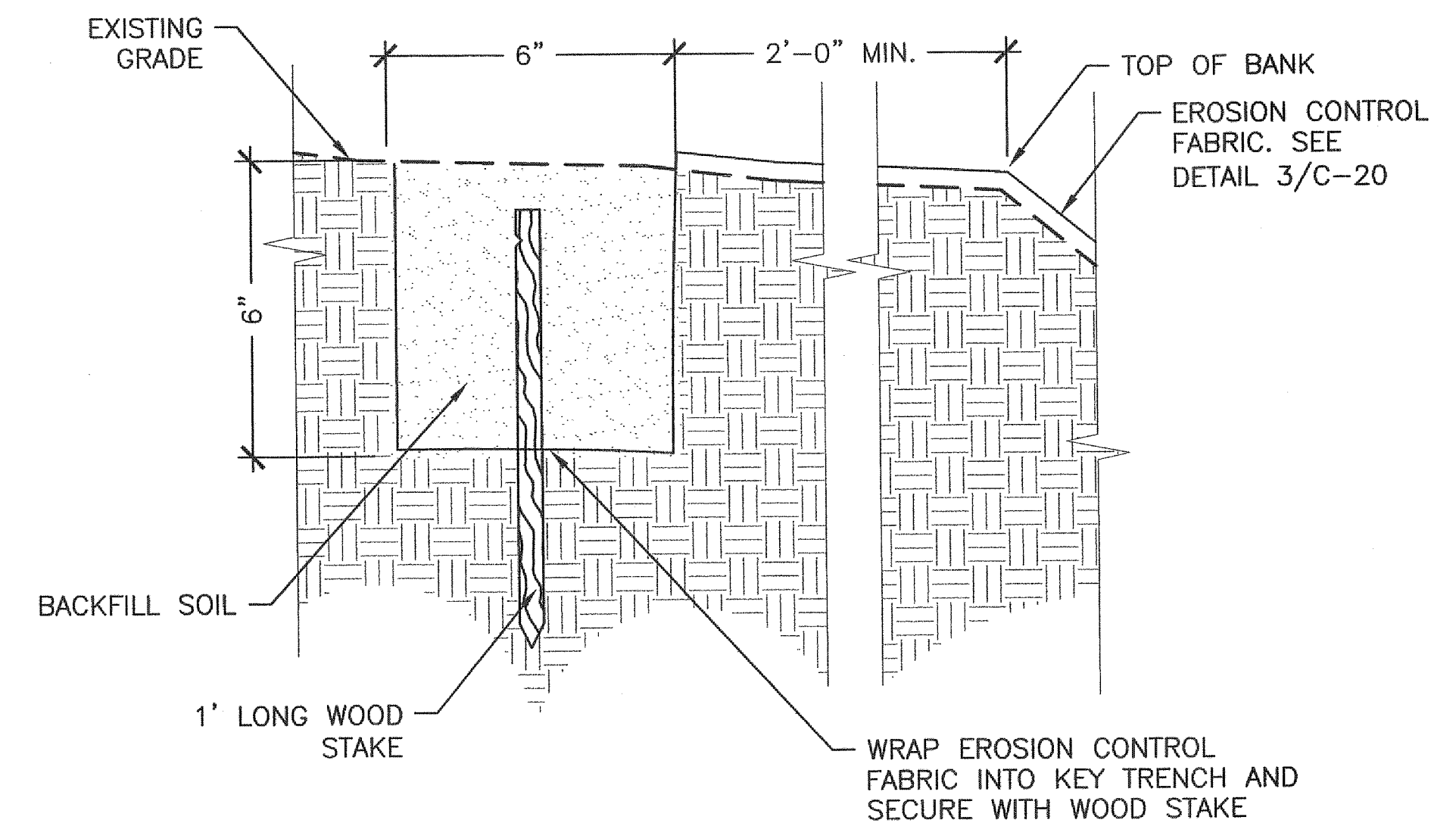


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C-20 NOT TO SCALE



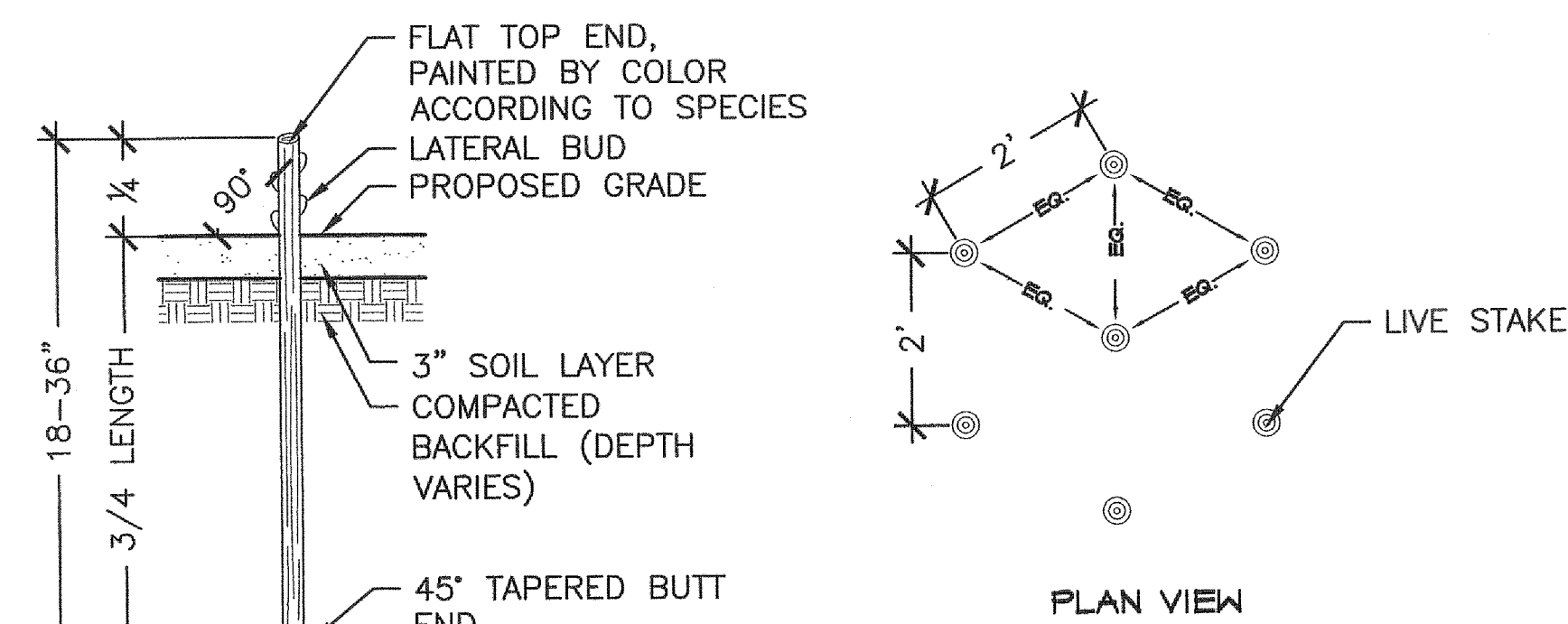
NOTES:
1. TOP OF BANK LOCATIONS FOR TREATMENT TERMINATION ARE SHOWN FOR LAYOUT PURPOSES ONLY. TOP OF BANK TO BE MARKED IN FIELD BY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. REFER TO LAYOUT PLAN FOR AREAS TO RECEIVE EROSION CONTROL FABRIC WITH SEED MIX. REFER TO SPECIFICATIONS FOR SPECIES COMPOSITION OF MIX.

3 EROSION CONTROL FABRIC
C-20 NOT TO SCALE



NOTE:
TOP OF BANK LOCATIONS FOR TREATMENT TERMINATION ARE SHOWN FOR LAYOUT PURPOSES ONLY. TOP OF BANK TO BE MARKED IN FIELD BY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE PRIOR TO CONSTRUCTION.

4 KEY TRENCH
C-20 NOT TO SCALE



5 LIVE STAKE
C-20 NOT TO SCALE

Date	Appr.	Description	Mark

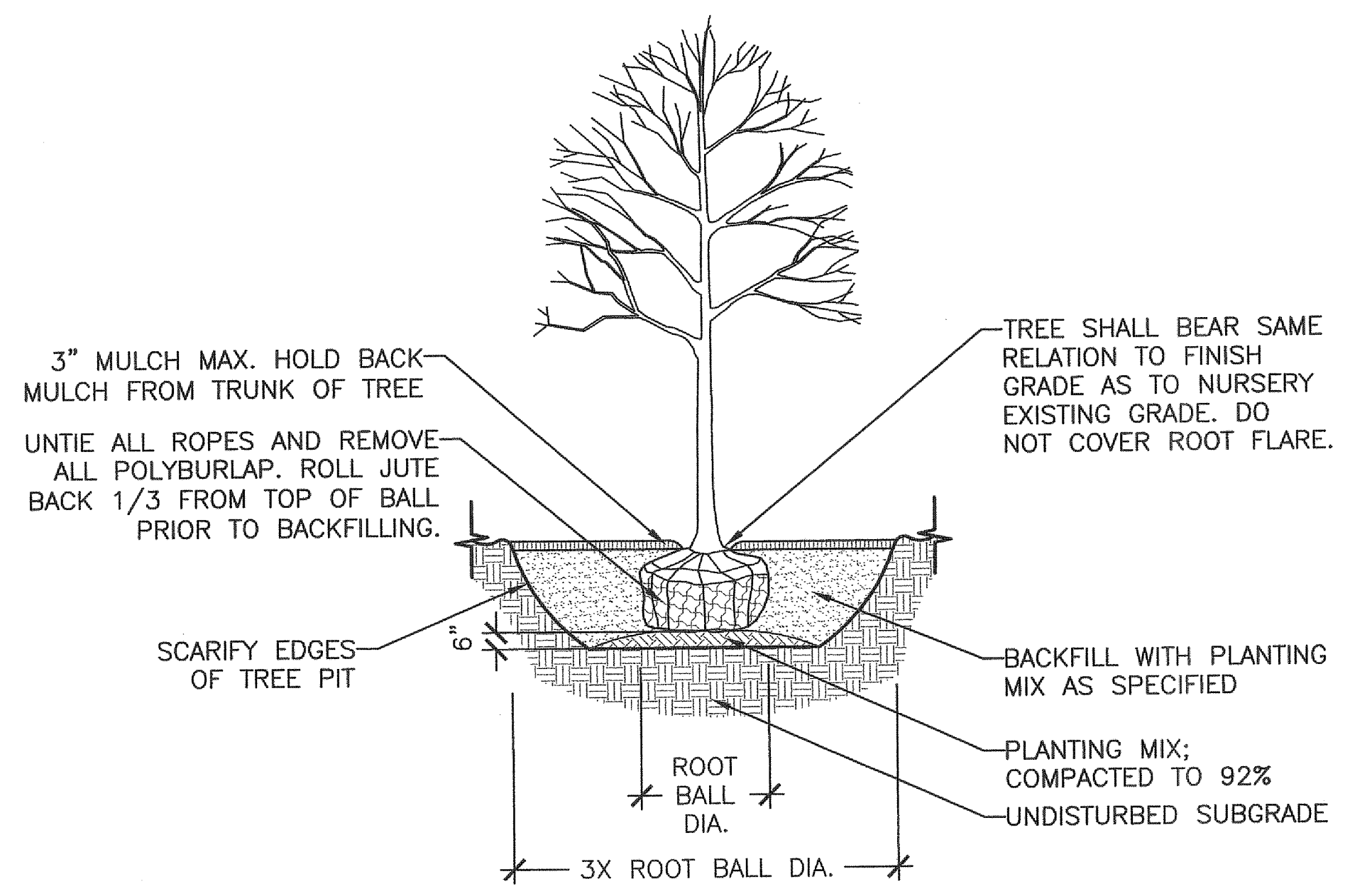
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Plot scale:	
Designed by: DR. MS	
Drawn by: DB	
Reviewed by:	
Submitted by:	
Chief, Branch	

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DEEP RUN AND TIBBER-HUDSON WATERSHEDS STREAMBANK RESTORATION 90% DESIGN
CONSTRUCTION DETAILS

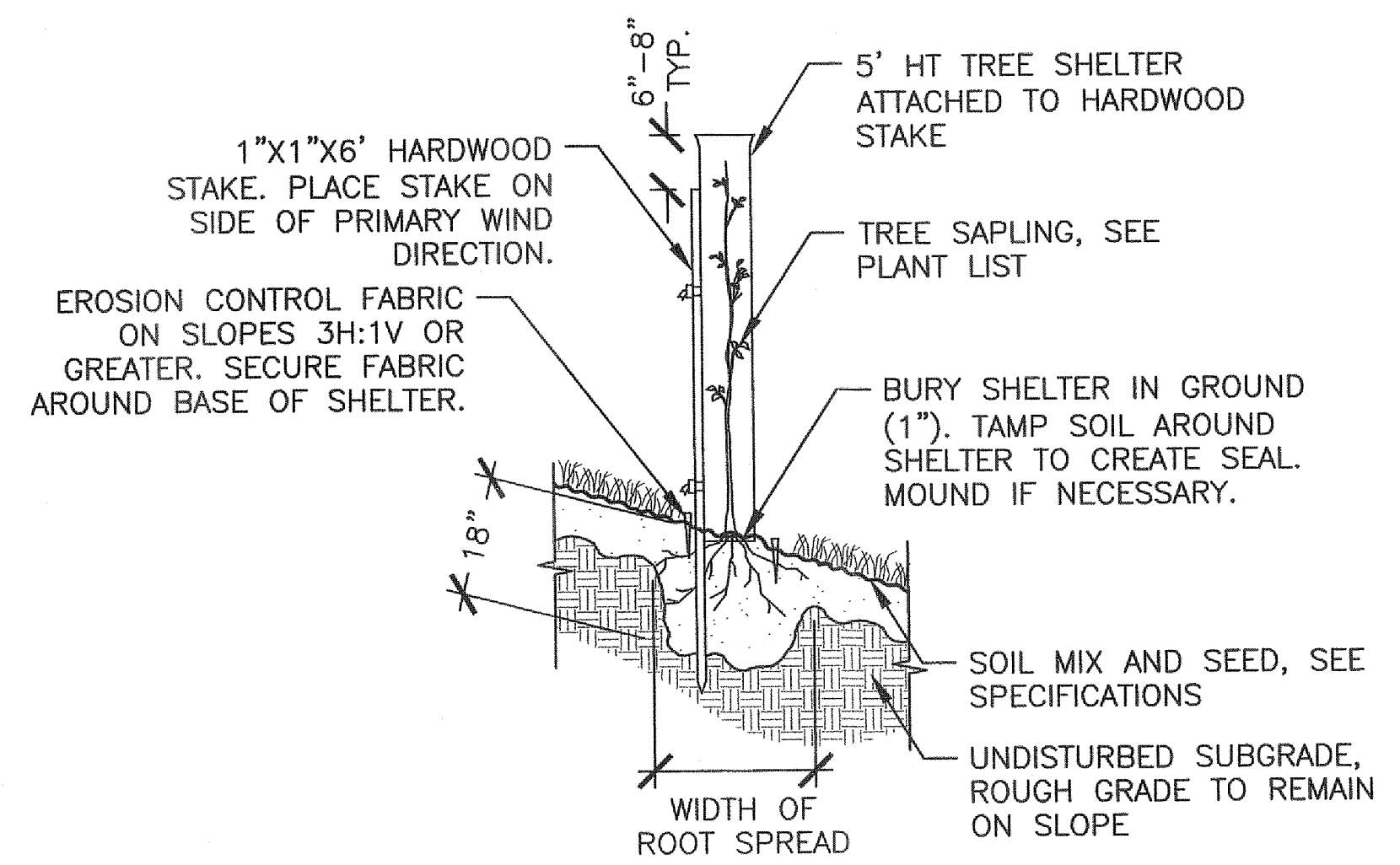
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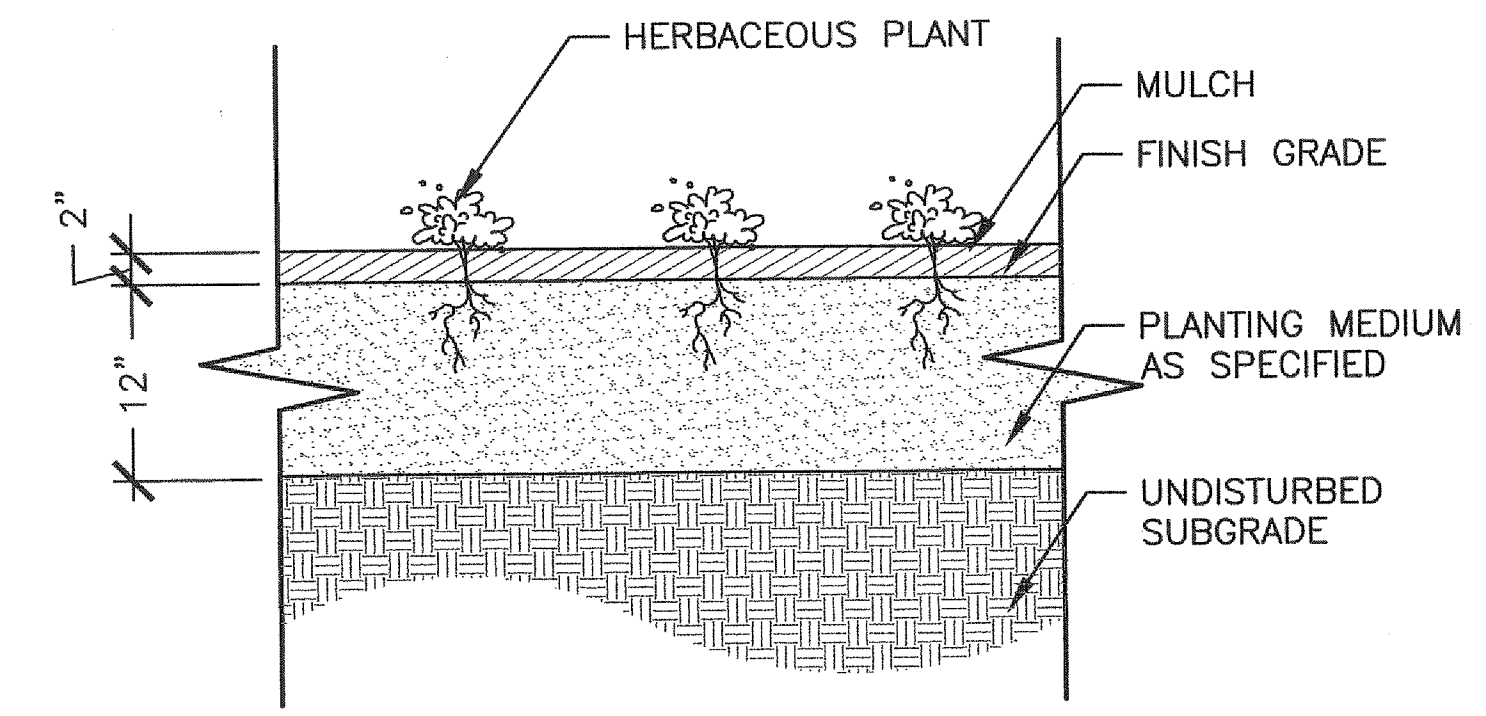
1. CLEANLY PRUNE ALL DAMAGED BRANCHES.
2. TREE SHALL HAVE STRAIGHT TRUNK AND BE PLUMB AFTER SETTLEMENT. CONTRACTOR SHALL ADJUST AS REQUIRED OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
3. ALL TREES SHALL BE FLOODED TWICE WITHIN 24 HOURS OF PLANTING.

1 DECIDUOUS TREE PLANTING
C-21 NOT TO SCALE



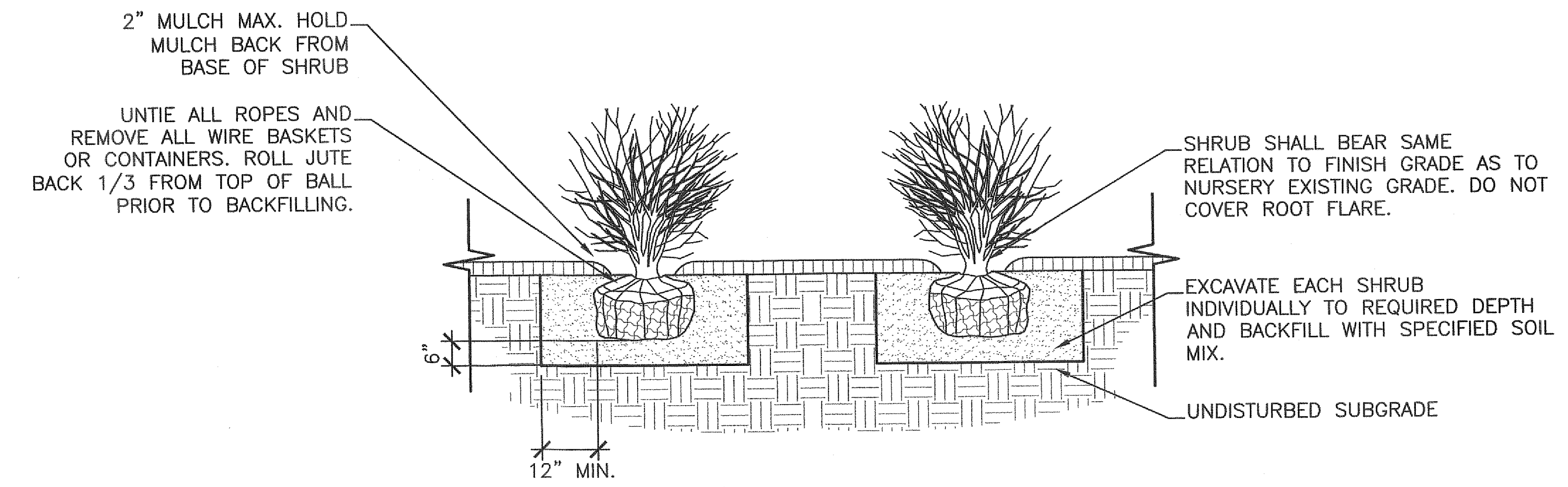
NOTE: RAKE OR HARROW SOIL SURFACE TO PRODUCE A ROUGH, GROOVED SURFACE

2 SAPLING IN TREE SHELTER
C-21 NOT TO SCALE



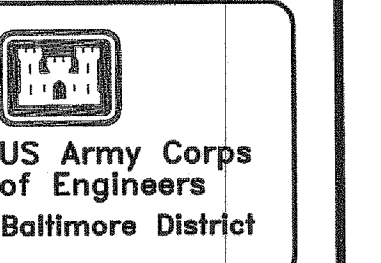
NOTE: REFER TO PLANT SCHEDULE FOR SPACING.

3 HERBACEOUS PLANTING
C-21 NOT TO SCALE



NOTES:
1. SPACING VARIES; REFER TO PLANT SCHEDULE, SHEET C-8

4 SHRUB PLANTING
C-21 NOT TO SCALE



Rev.	Date	Description	Mark

Designed by: DR. MS TC	Date: SEPT. 2003	Rev.	
		Design file no.	Design Number:
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		Plot Date:	Plot Scale:
Submitted by: Chief, Branch			

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PLANTING DETAILS

Sheet Number:
C-21
Plate: 25 OF 25

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