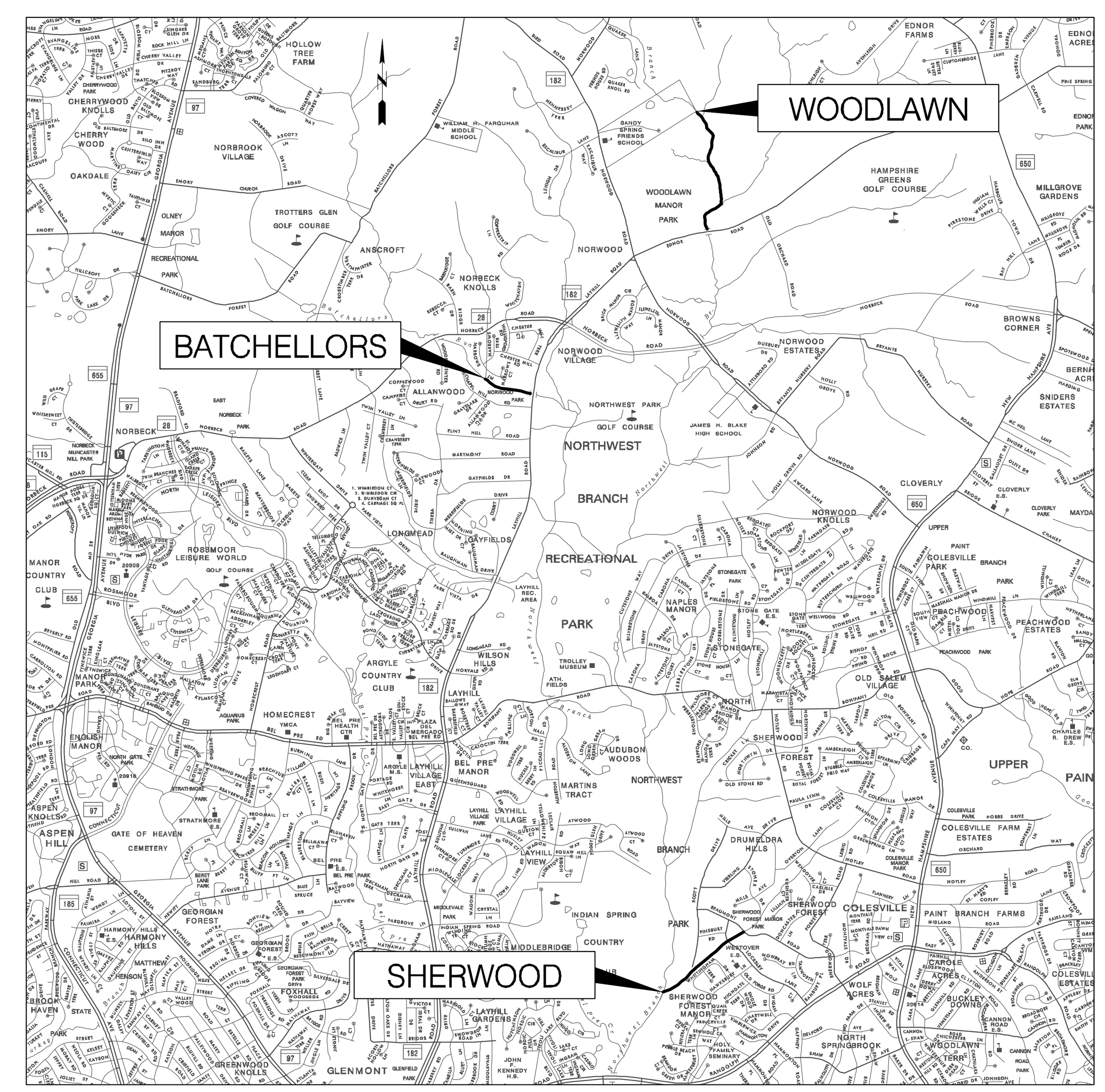
US Army Corps
of Engineers

Baltimore District
Baltimore, Maryland

NORTHWEST BRANCH SECTION 206 STREAM RESTORATION
PACKAGE NUMBER 2

W912DR-07-D-0008
TASK ORDER NO. 19

Batchellors Run I and II, Sherwood and Woodlawn Sites



MONTGOMERY COUNTY

SCALE: 1" = 4000'

4000 0 4000 8000 feet

85% SUBMITTAL

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MDE # 11-SF-XXXX
EROSION AND SEDIMENT CONTROL REGULATIONS WILL
BE STRICTLY ENFORCED DURING CONSTRUCTION

BY: bpalmer

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.

APPROVED:

A/E PRINCIPLE

SEAL:

STATE OF MARYLAND
DAVID W. WALLACE
NO. 10803
REGISTERED
PROFESSIONAL ENGINEER

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10803, EXPIRATION DATE: 2/13/2012"

US Army Corps
of Engineers
Baltimore District

RK&K
9302 LEE HIGHWAY, SUITE 425
HUNTERS BRANCH 2
FAIRFAX, VA
(P) 703 246-0028
(F) 703 246-0123

MARK	DESCRIPTION	DATE	APPR

Date: 10/04/11
Design file no.
Drawing code: GN-1
Dwg scale: AS SHOWN

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

W912DR-07-D-0008
Task Order No. 19

COVER SHEET

Sheet Number:
1 OF 72

PLOTTED: Wednesday, October 05, 2011 AT 01:32 PM
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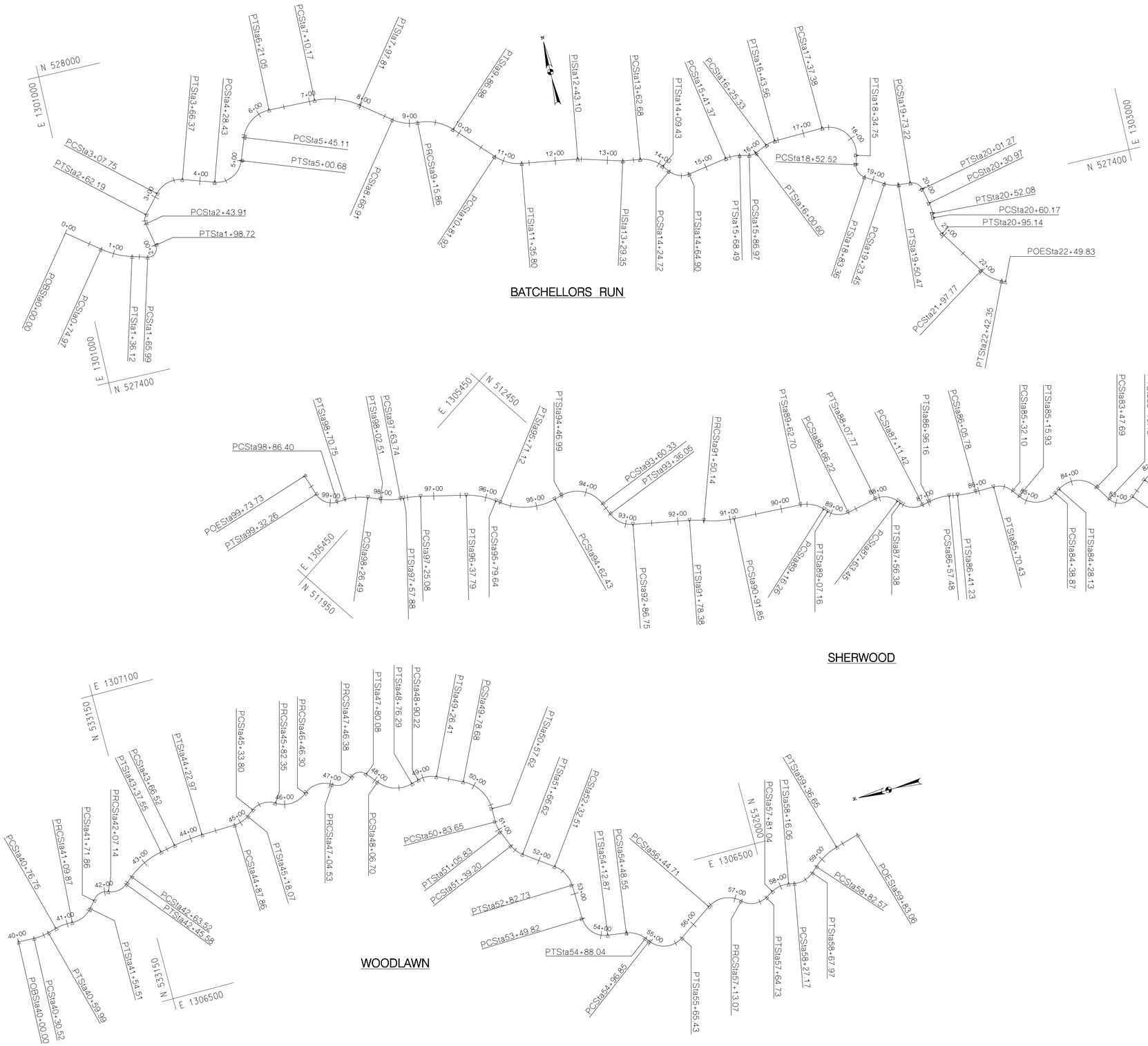

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MARK	DESCRIPTION	DATE	APPR

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

W912DR-07-D-0008
Task Order No. 19

Designed by: DWB	Drawn by: DEA	Reviewed by: TMH	Submitted by: CVK
Checked by: SPB			
Date: 10/4/2011	Design file no.	Drawing code: GN-2	Dwg scale: 1"=100'

GEOMETRY

Sheet Number:
2 OF 72

BY: bpalmer

PLOTTED: Wednesday, October 05, 2011 AT 01:38 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pGE-0001_nwbr.dgn

BASELINE OF STREAM - BATCHELLORS RUN

DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS
POB	0+00.00	527,697.70	1,300,983.20		CC		527,779.20	1,301,413.98	61.00	PC	14+24.72	527,555.59	1,302,134.25		PT	18+83.36	527,461.60	1,302,496.01	
PC	0+74.97	527,652.40	1,301,042.93		PT	6+21.05	527,840.19	1,301,414.95		PI	14+47.05	527,537.98	1,302,147.97		PC	19+23.45	527,440.73	1,302,530.24	
PI	1+05.92	527,633.70	1,301,067.59		PT	6+21.05	527,840.19	1,301,414.95		CC		527,578.33	1,302,163.44	37.00	PI	19+37.23	527,433.55	1,302,542.01	
CC		527,779.88	1,301,139.62	160.00	PI	7+55.48	527,838.05	1,301,549.36		PT	14+64.90	527,541.91	1,302,169.96		CC		527,488.54	1,302,559.40	56.00
PT	1+36.12	527,625.54	1,301,097.45		CC		527,698.79	1,301,501.83	140.00	PC	15+41.37	527,555.37	1,302,245.23		PT	19+50.47	527,432.66	1,302,555.76	
PC	1+65.99	527,617.66	1,301,126.26		PT	7+97.81	527,810.92	1,301,585.65		PI	15+55.09	527,557.79	1,302,258.74		PC	19+73.22	527,431.18	1,302,578.45	
PI	1+92.20	527,610.76	1,301,151.54		PC	8+66.91	527,769.55	1,301,641.00		CC		527,484.50	1,302,257.91	72.00	PI	19+89.52	527,430.12	1,302,594.72	
CC		527,633.10	1,301,130.48	16.00	PI	8+92.18	527,754.42	1,301,661.24		PT	15+68.49	527,555.07	1,302,272.18		CC		527,409.22	1,302,577.02	22.00
PT	1+98.72	527,636.40	1,301,146.14		CC		527,833.62	1,301,688.90	80.00	PC	15+86.97	527,551.40	1,302,290.30		PT	20+01.27	527,414.25	1,302,598.44	
PC	2+43.91	527,680.62	1,301,136.82		PRC	9+15.86	527,753.66	1,301,686.49		PI	15+94.02	527,550.01	1,302,297.21		PC	20+30.97	527,385.34	1,302,605.22	
PI	2+53.74	527,690.24	1,301,134.79		PI	9+53.30	527,752.54	1,301,723.92		CC		527,572.96	1,302,294.66	22.00	PI	20+41.59	527,375.00	1,302,607.65	
CC		527,684.74	1,301,156.39	20.00	CC		527,661.70	1,301,683.73	92.00	PT	16+00.60	527,552.88	1,302,303.64		CC		527,367.30	1,302,528.31	79.00
PT	2+62.19	527,697.73	1,301,141.17		PT	9+86.98	527,725.60	1,301,749.92		PC	16+25.33	527,562.96	1,302,326.21		PT	20+52.08	527,364.38	1,302,607.26	
PC	3+07.75	527,732.38	1,301,170.75		PC	10+81.92	527,657.29	1,301,815.86		PI	16+34.55	527,566.72	1,302,334.63		PC	20+60.17	527,356.31	1,302,606.96	
PI	3+40.96	527,757.64	1,301,192.31		PI	11+09.87	527,637.18	1,301,835.27		CC		527,519.13	1,302,345.78	48.00	PI	20+78.25	527,338.24	1,302,606.29	
CC		527,699.92	1,301,208.78	50.00	CC		527,714.24	1,301,874.86	82.00	PT	16+43.56	527,567.09	1,302,343.85		CC		527,354.24	1,302,662.92	56.00
PT	3+66.37	527,747.57	1,301,223.94		PT	11+35.80	527,633.12	1,301,862.93		PC	17+37.38	527,570.87	1,302,437.59		PT	20+95.14	527,323.19	1,302,616.32	
PC	4+28.43	527,728.75	1,301,283.09		PI	12+43.10	527,617.51	1,301,969.10		PI	18+08.03	527,573.71	1,302,508.19		PC	21+97.77	527,237.78	1,302,673.22	
PI	4+73.88	527,714.97	1,301,326.39		PI	13+29.35	527,594.60	1,302,052.25		CC		527,518.91	1,302,439.69	52.00	PI	22+20.69	527,218.71	1,302,685.93	
CC		527,773.53	1,301,297.34	47.00	PC	13+62.68	527,590.28	1,302,085.29		PT	18+34.75	527,505.46	1,302,489.92		CC		527,281.03	1,302,738.13	78.00
PT	5+00.68	527,757.78	1,301,341.62		PI	13+87.32	527,587.09	1,302,109.72		PC	18+52.52	527,488.30	1,302,485.32		PT	22+42.35	527,209.54	1,302,706.93	
PC	5+45.11	527,799.64	1,301,356.51		CC		527,530.79	1,302,077.52	60.00	PI	18+70.48	527,470.95	1,302,480.68		POE	22+49.83	527,206.55	1,302,713.79	
PI	5+88.89	527,840.89	1,301,371.18		PT	14+09.43	527,567.65	1,302,124.86		CC		527,482.09	1,302,508.51	24.00					

BASELINE OF STREAM - SHERWOOD

DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS
POB	76+50.00	513,443.28	1,306,927.15		PI	83+99.63	513,080.27	1,306,417.66		PT	88+08.57	512,782.28	1,306,167.25		CC		512,415.57	1,305,594.73	120.00
PC	77+17.46	513,413.84	1,306,866.46		CC		513,028.46	1,306,467.80	50.00	PC	88+66.99	512,728.16	1,306,145.27		PT	95+71.89	512,302.10	1,305,633.80	
PI	77+45.87	513,401.45	1,306,840.89		PT	84+28.13	513,028.33	1,306,417.80		PI	88+89.45	512,707.34	1,306,136.82		PC	95+80.41	512,299.33	1,305,625.75	
CC		513,341.86	1,306,901.36	80.00	PC	84+38.87	513,017.59	1,306,417.83		CC		512,743.21	1,306,108.21	40.00	PI	96+09.91	512,289.73	1,305,597.85	
PT	77+72.05	513,375.71	1,306,828.88		PI	84+87.41	512,969.05	1,306,417.97		PT	89+07.93	512,703.73	1,306,114.65		CC		512,166.96	1,305,671.32	140.00
PC	78+79.19	513,278.63	1,306,783.55		CC		513,017.46	1,306,367.83	50.00	PC	89+17.03	512,702.26	1,306,105.66		PT	96+38.56	512,269.68	1,305,576.20	
PI	79+19.59	513,242.02	1,306,766.46		PT	85+15.93	512,967.48	1,306,369.45		PI	89+41.25	512,698.36	1,306,081.76		PC	97+25.85	512,210.38	1,305,512.16	
CC		513,295.55	1,306,747.31	40.00	PC	85+32.10	512,966.96	1,306,353.28		CC		512,643.04	1,306,115.32	60.00	PI	97+42.29	512,199.21	1,305,500.10	
PT	79+42.42	513,259.47	1,306,730.03		PI	85+55.52	512,966.20	1,306,329.88		PT	89+63.07	512,678.97	1,306,067.26		CC		512,063.63	1,305,648.04	200.00
PC	79+97.22	513,283.15	1,306,680.60		CC		512,926.98	1,306,354.58	40.00	PC	90+92.62	512,575.20	1,305,989.70		PT	97+58.65	512,186.22	1,305,490.02	
PI	80+41.94	513,302.47	1,306,640.27		PT	85+74.47	512,945.43	1,306,319.08		PI	91+21.97	512,551.69	1,305,972.12		PC	97+64.51	512,181.59	1,305,486.43	
CC		513,251.59	1,306,665.48	35.00	PC	86+01.52	512,921.42	1,306,306.61		CC		512,694.93	1,305,829.50	200.00	PI	97+84.06	512,166.14	1,305,474.44	
PT	80+60.69	513,258.68	1,306,631.21		PI	86+15.80	512,908.76	1,306,300.03		PRC	91+50.91	512,534.22	1,305,948.54		CC		512,255.15	1,305,391.62	120.00
PC	80+69.41	513,250.15	1,306,629.44		CC		512,958.31	1,306,235.62	80.00	PI	91+64.67	512,526.02	1,305,937.48		PT	98+03.28	512,155.30	1,305,458.17	
PI	80+92.06	513,227.97	1,306,624.84		PT	86+29.77	512,899.15	1,306,289.47		CC		512,393.59	1,306,052.70	175.00	PC	98+27.26	512,142.00	1,305,438.22	
CC		513,258.26	1,306,590.27	40.00	PC	86+50.71	512,885.06	1,306,273.99		PT	91+78.38	512,516.20	1,305,927.83		PI	98+49.76	512,129.52	1,305,419.50	
PT	81+10.62	513,220.50	1,306,603.46		PI	86+74.21	512,869.23	1,306,256.61		PC	92+86.75	512,438.88	1,305,851.91		CC		512,058.79	1,305,493.68	100.00
PC	81+51.19	513,207.12	1,306,565.17		CC		512,811.10	1,306,341.30	100.00	PI	93+14.11	512,419.36	1,305,832.74		PT	98+71.52	512,110.22	1,305,407.92	
PI	81+94.72	513,192.76	1,306,524.07		PT	86+96.88	512,847.32	1,306,248.09		CC		512,473.91	1,305,816.23	50.00	PC	98+87.17	512,096.80	1,305,399.87	
CC		513,155.20	1,306,583.31	55.00	PC	87+12.19	512,833.05	1,306,242.55		PT	93+36.82	512,424.98	1,305,805.96		PI	99+14.06	512,073.74	1,305,386.04	
PT	82+24.84	513,149.46	1,306,528.61		PI	87+37.38	512,809.57	1,306,233.42		PC	93+61.10	512,429.97	1,305,782.20		CC		512,114.80	1,305,369.86	35.00
PC	82+64.11	513,110.40	1,306,532.71		CC		512,847.54	1,306,205.26	40.00	PI	94+13.96	512,440.82	1,305,730.47		PT	99+33.03	512,081.16	1,305,360.19	
PI	82+98.63	513,076.07	1,306,536.31		PT	87+57.15	512,807.66	1,306,208.30		CC		512,371.25	1,305,769.87	60.00	POE	99+74.50	512,092.62	1,305,320.34	
CC		513,107.27	1,306,502.87	30.00	PC	87+64.21	512,807.12	1,306,201.27		PT	94+47.76	512,390.88	1,305,713.17						
PT	83+15.43	513,077.29	1,306,501.81		PI	87+88.99	512,805.23	1,306,176.57		PC	94+63.20	512,376.30	1,305,708.12						
PC	83+47.69	513,078.43	1,306,469.57		CC		512,767.24	1,306,204.31	40.00	PI	95+21.59	512,321.12	1,305,689.01						

BASELINE OF STREAM - WOODLAWN

DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS	DESCRIPTION	STATION	NORTHING	EASTING	RADIUS
POB	40+00.00	533,407.63	1,306,681.06		PT	44+22.97	533,015.82	1,306,788.73		PI	49+09.15	532,571.44	1,306,788.62		PT	54+88.04	532,247.80	1,306,378.92	
PC	40+30.52	533,377.13	1,306,679.98		PC	44+87.86	532,950.96	1,306,790.68		CC		532,576.07	1,306,735.36	50.00	PC	54+96.85	532,242.50	1,306,371.88	
PI	40+45.36	533,362.30	1,306,679.45		PI	45+03.44	532,935.39	1,306,791.15		PT	49+26.41	532,554.38	1,306,780.41		PI	55+39.79	532,216.70	1,306,337.56	
CC		533,373.59	1,306,779.91	100.00	CC		532,952.46	1,306,840.65	50.00	PC	49+78.68	532,507.28	1,306,757.74		CC		532,206.54	1,306,398.93	45.00
PT	40+59.99	533,347.95	1,306,683.26		PT	45+18.07	532,922.84	1,306,800.38		PI	50+22.94	532,467.40	1,306,738.55		PT	55+65.43	532,181.21	1,306,361.73	
PC	40+76.75	533,331.75	1,306,687.56		PC	45+33.80	532,910.16	1,306,809.70		CC		532,537.64	1,306,694.67	70.00	PC	56+44.71	532,115.68	1,306,406.36	
PI	40+93.46	533,315.59	1,306,691.84		PI	45+61.57	532,887.79	1,306,826.15		PT	50+57.62	532,467.64	1,306,694.29		PI	56+85.44	532,082.02	1,306,429.29	
CC		533,306.10	1,306,590.90	100.00	CC		532,886.46	1,306,777.48	40.00	PC	50+83.65	532,467.78	1,306,668.26		CC		532,087.54	1,306,365.03	50.00
PRC	41+09.87	533,298.92	1,306,690.64		PRC	45+82.35	532,864.56	1,306,810.94		PI	50+94.89	532,467.84	1,306,657.02		PRC	57+13.07	532,052.75	1,306,400.95	
PI	41+33.95	533,274.90	1,306,688.91		PI	46+19.54	532,833.45	1,306,790.58		CC		532,412.78	1,306,667.96	55.00	PI	57+43.21	532,031.10	1,306,379.99	
CC		533,295.48	1,306,738.52	48.00	CC		532,837.17	1,306,852.78	50.00	PT	51+05.83	532,463.48	1,306,646.65		CC		532,024.93	1,306,429.69	40.00
PT	41+54.51	533,259.16	1,306,707.13		PRC	46+46.30	532,804.99	1,306,814.51		PC	51+39.20	532,450.55	1,306,615.89		PT	57+64.73	532,004.98	1,306,395.02	
PC	41+71.86	533,247.81	1,306,720.26		PI	46+80.30	532,778.97	1,306,836.40		PI	51+53.26	532,445.10	1,306,602.92		PC	57+81.04	531,990.84	1,306,403.15	
PI	41+93.16	533,236.27	1,306,738.16		CC		532,776.02	1,306,780.07	45.00	CC		532,404.46	1,306,635.26	50.00	PI	57+99.30	531,975.01	1,306,412.26	
CC		533,226.80	1,306,706.71	25.00	PRC	47+04.53	532,750.81	1,306,817.34		PT	51+66.62	532,433.69	1,306,594.70		CC		531,965.90	1,306,359.82	50.00
PRC	42+07.14	533,216.76	1,306,729.61		PI	47+29.67	532,729.98	1,306,803.25		PC	52+32.51	532,380.23	1,306,556.18		PT	58+16.06	531,957.04	1,306,409.02	
PI	42+28.56	533,197.15	1,306,721.01		CC		532,733.99	1,306,842.19	30.00	PI	52+59.52	532,358.31	1,306,540.39		PC	58+27.17	531,946.11	1,306,407.06	
CC		533,202.71	1,306,761.66	35.00	PRC	47+46.38	532,712.47	1,306,821.29		CC		532,412.38	1,306,511.56	55.00	PI	58+49.09	531,924.53	1,306,403.17	
PT	42+45.58	533,180.57	1,306,734.55		PI	47+68.80	532,696.85	1,306,837.38		PT	52+82.73	532,357.41	1,306,513.39		CC		531,938.13	1,306,451.34	45.00
PC	42+63.52	533,166.67	1,306,745.90		CC		532,698.12	1,306,807.36	20.00	PC	53+49.82	532,355.18	1,306,446.34		PT	58+67.97	531,908.17	1,306,417.76	
PI	43+01.30	533,137.40	1,306,769.80		PT	47+80.08	532,682.65	1,306,820.03		PI	53+87.77	532,353.92	1,306,408.41		PC	58+82.57	531,897.28	1,306,427.48	
CC		533,071.79	1,306,629.73	150.00	PC	48+06.70	532,665.78	1,306,799.43		CC		532,310.21	1,306,447.84	45.00	PI	59+10.08	531,876.75	1,306,445.80	
PT	43+37.55	533,100.31	1,306,776.99		PI	48+46.00	532,640.89	1,306,769.02		PT	54+12.87	532,316.32	1,306,403.26		CC		531,817.39	1,306,337.94	120.00
PC	43+66.52	533,071.87	1,306,782.50		CC		532,619.36	1,306,837.44	60.00	PC	54+48.55	532,280.97	1,306,398.41		PT	59+36.65	531,850.29	1,306,453.34	
PI	43+94.81	533,044.10	1,306,787.88		PT	48+76.29	532,603.06	1,306,779.69		PI	54+69.39	532,260.32	1,306,395.58		POE	59+83.06	531,805.66	1,306,466.07	
CC		533,005.31	1,306,438.89	350.00	PC	48+90.22	532,589.65	1,306,783.48		CC		532,287.76	1,306,348.87	50.00					

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Date: 10/4/2011
Designed by: DWB
Drawn by: DEA
Checked by: SPB
Reviewed by: TMH
Submitted by: CVK
Design file no.
Drawing code: GN-3
Dwg scale:

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

W912DR-07-D-0008
Task Order No. 19

GEOMETRY TABLES

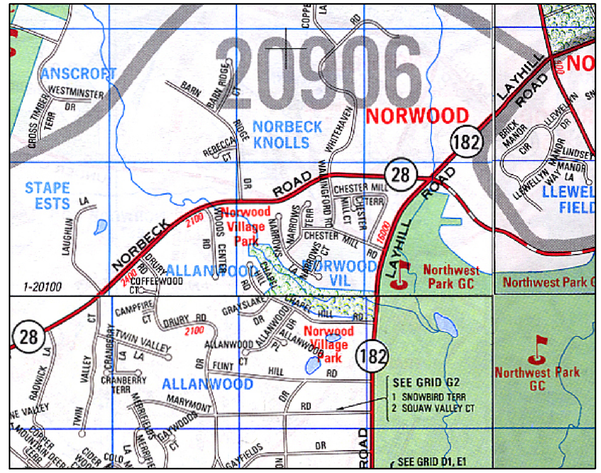
Sheet Number:
3 OF 72

BY: bpalmer

PLOTTED: Wednesday, October 05, 2011 AT 01:41 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\caddd\dgn\pGE-0002_nwbr.dgn

KEY MAP

200 0 200 400 Feet
SCALE: 1"=200'



VICINITY MAP

SEQUENCE OF CONSTRUCTION

1. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION AT (410) 537-3510 FOR THE REQUIRED PRE-CONSTRUCTION MEETING AT LEAST SEVEN DAYS BEFORE COMMENCING LAND DISTURBING ACTIVITIES.
2. INSTALL TREE PROTECTION FENCING AS SHOWN ON THE PLAN.
3. COMPLETE TREE REMOVAL AND SELECTIVE TRIMMING AS SHOWN ON THE PLAN OR AS DIRECTED BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
4. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO AN APPROVED MDE SEDIMENT CONTROL DEVICE.

PHASE B-1 (UPSTREAM OF LAYHILL ROAD)

5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO INSTALL PERIMETER EROSION AND SEDIMENT CONTROL DEVICES.
6. INSTALL STABILIZED CONSTRUCTION ENTRANCES FROM CHAPEL HILL ROAD AND LAYHILL ROAD AND BUILD THE ASSOCIATED TEMPORARY ACCESS ROAD. STABILIZE AT THE END OF EACH WORK DAY. FOR THE ACCESS ROAD WITHIN A WETLAND, PLACE TIMBER MATS TO MINIMIZE IMPACTS.
7. INSTALL SILT FENCE AS DESIGNATED ON THE PLANS.
8. CLEAR AND GRUB REMAINING WORK AREA ABOVE LAYHILL ROAD. ANY DISTURBANCE CAUSED BY THIS PROCESS SHALL BE STABILIZED BY THE END OF THE DAY.
9. INSTALL PUMP-AROUND FLOW DIVERSION AND DEWATER THE CONSTRUCTION ZONE THROUGH THE APPROVED DEWATERING DEVICE. THE CONTRACTOR SHALL STAGE THE LIMITS OF THE PUMP-AROUND FLOW DIVERSION TO DEWATER ONLY THAT SECTION SCHEDULED FOR THAT DAY'S WORK. AT THE END OF EACH WORK DAY THE WORK AREA SHALL BE STABILIZED, THE PUMP-AROUND PRACTICE REMOVED, AND THE FLOW RESTORED TO THE CHANNEL. WORK SHALL BE COMPLETED ONLY DURING FORECASTED PERIODS OF DRY WEATHER.
10. CONSTRUCT STREAM IMPROVEMENTS ABOVE LAYHILL ROAD BEGINNING UPSTREAM TO DOWNSTREAM. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO MINIMIZE UNNECESSARY DISTURBANCE. FOR THE STREAM IMPROVEMENTS, ONLY THAT AMOUNT OF WORK SHALL BE COMPLETED THAT CAN BE STABILIZED BY THE END OF THE DAY.
11. ONCE ALL STREAM WORK UPSTREAM OF LAYHILL ROAD HAS BEEN COMPLETED AND PERMANENTLY STABILIZED, REMOVE THE ASSOCIATED ACCESS ROAD, SILT FENCE AND STABILIZED CONSTRUCTION ENTRANCES. PERMANENTLY STABILIZE ALL AREAS DISTURBED BY THIS PROCESS IN ACCORDANCE WITH THE PLANS.

PHASE B-2 (DOWNSTREAM OF LAYHILL ROAD)

12. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO INSTALL PERIMETER EROSION AND SEDIMENT CONTROL DEVICES.
13. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND ASSOCIATED ACCESS ROAD FOR WORK AREA DOWNSTREAM OF LAYHILL ROAD. STABILIZE AT THE END OF EACH WORK DAY.
14. CLEAR AND GRUB REMAINING WORK AREA ABOVE LAYHILL ROAD. ANY DISTURBANCE CAUSED BY THIS PROCESS SHALL BE STABILIZED BY THE END OF THE DAY.
15. INSTALL PUMP-AROUND FLOW DIVERSION AND DEWATER THE CONSTRUCTION ZONE THROUGH THE APPROVED DEWATERING DEVICE. THE CONTRACTOR SHALL STAGE THE LIMITS OF THE PUMP-AROUND FLOW DIVERSION TO DEWATER ONLY THAT SECTION SCHEDULED FOR THAT DAY'S WORK. AT THE END OF EACH WORK DAY THE WORK AREA SHALL BE STABILIZED, THE PUMP-AROUND PRACTICE REMOVED, AND THE FLOW RESTORED TO THE CHANNEL. WORK SHALL BE COMPLETED ONLY DURING FORECASTED PERIODS OF DRY WEATHER.
16. CONTINUE STREAM IMPROVEMENTS DOWNSTREAM OF LAYHILL ROAD WORKING FROM DOWNSTREAM TO UPSTREAM. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN THE CHANNEL.
17. WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING MAINTENANCE OF STREAMFLOW DEVICES, ACCESS ROAD, AND STABILIZED CONSTRUCTION ENTRANCE. STABILIZE ALL AREAS DISTURBED DURING THIS PROCESS.

SITE INFORMATION - BATCHELLORS	
A. TOTAL AREA OF FACILITY (Base, Campus, Park, Etc.)	27.3 Acres
B. TOTAL AREA OF PROJECT SITE	27.3Acres
C. AREA DISTURBED	4.71 Acres
D. AREA TO BE ROOFED OR PAVED	0.00 Acres
E. TOTAL CUT	9,748 CY
F. TOTAL FILL	2,654 CY
G. OFF-SITE WASTE/BORROW AREA LOCATION	TBD

FOR COMBINED SITE INFORMATION REFER TO DRAWING GN-10

NOTES:

1. STOCKPILE AREA SHALL BE LOCATED AT AN MDE APPROVED OFF-SITE LOCATION.
2. MAINTENANCE OF TRAFFIC IS THE RESPONSIBILITY OF THE CONTRACTOR.

LEGEND

WUS — WATERS OF THE U.S.	LIVE FASCINES
B — WETLAND BUFFER	ROCK J-HOOK VANE
WETLAND AREA	ROCK CROSS VANE
354 EXISTING CONTOURS	PROPOSED RIFFLE GRADE CONTROL
220 PROPOSED CONTOURS	PROP. BURIED LOG
S EXIST. SAN. SEWER MANHOLE	LOG CROSS VANE
SD EXIST. STORMDRAIN MANHOLE	LOG J-HOOK VANE
T-122 Tulip Poplar 34" EXISTING TREE >24" DBH	LOG MEANDER PROTECTION STRUCTURE
TREE TO BE REMOVED	

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: BR-1
Dwg scale: AS SHOWN
Designed by: SPB
Drawn by: DEA
Chkd by: REP
Reviewed by: TMH
Submitted by: CVK

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

W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II
COVER SHEET

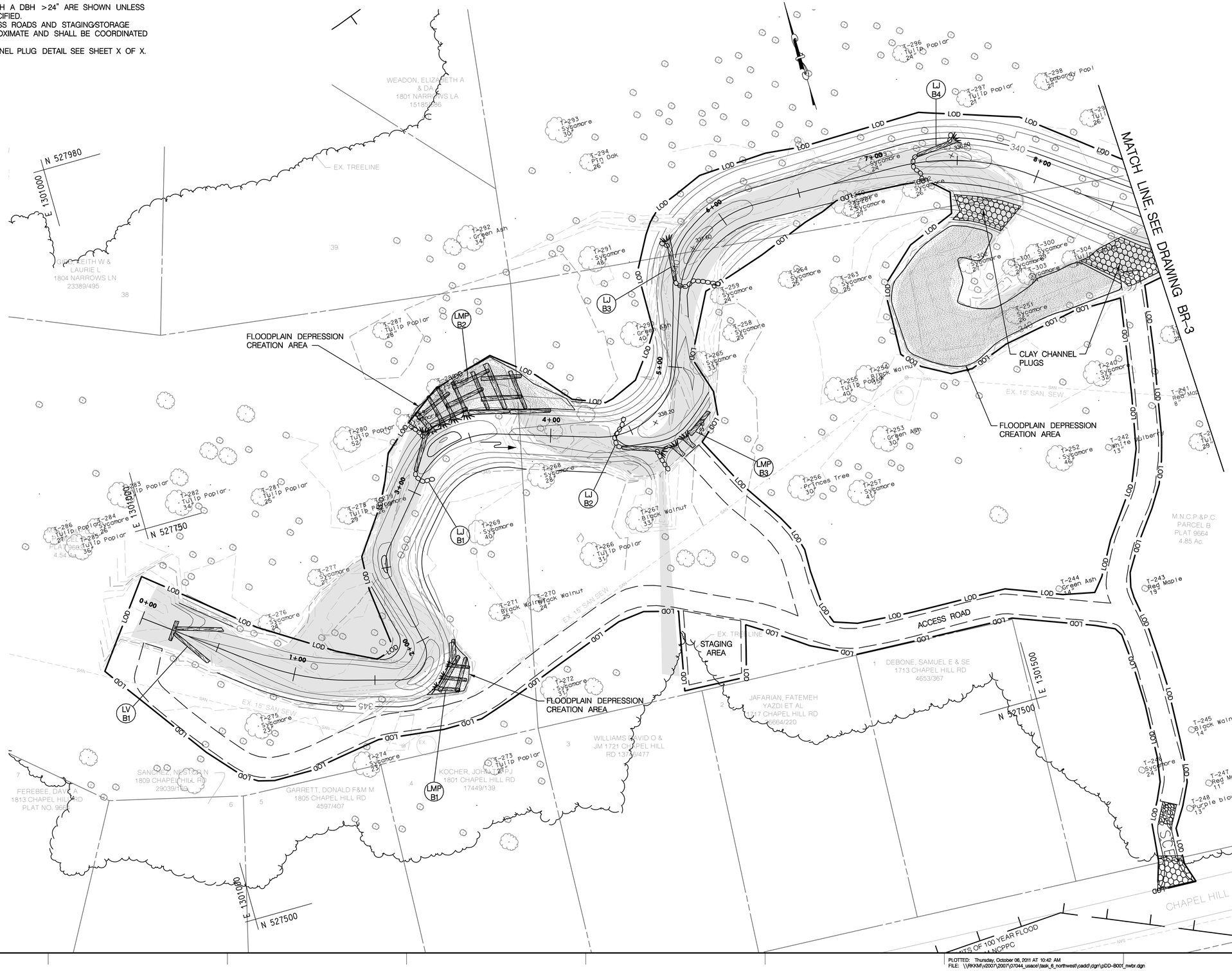
Sheet Number:
5 OF 72

BY: bpalmer

PLOTTED: Wednesday, October 05, 2011 AT 04:41 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\caddl\dgn\pGN-B000_nwbr.dgn

NOTES:

1. ONLY TREES WITH A DBH >24" ARE SHOWN UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING&STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.
3. FOR CLAY CHANNEL PLUG DETAIL SEE SHEET X OF X.



PLOTTED: Thursday, October 06, 2011 AT 10:42 AM
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BY: bpalmer

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: BR-2
Dwg scale: 1"=30'
Designed by: REP
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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

W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II SITE PLAN

Sheet Number:
6 OF 72

NOTES:

1. ONLY TREES WITH A DBH >24" ARE SHOWN UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING-STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC AND THE GOLF COURSE.
3. THE CONTRACTOR SHALL PROTECT ALL IRRIGATION LINES.

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: BR-3
Dwg scale: 1"=30'

Designed by: REP
Drawn by: DEA
Checked by: SPB
Reviewed by: TMH
Submitted by: CVK

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BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II
SITE PLAN

Sheet Number:
7 OF 72

PLOTTED: Thursday, October 06, 2011 AT 10:46 AM
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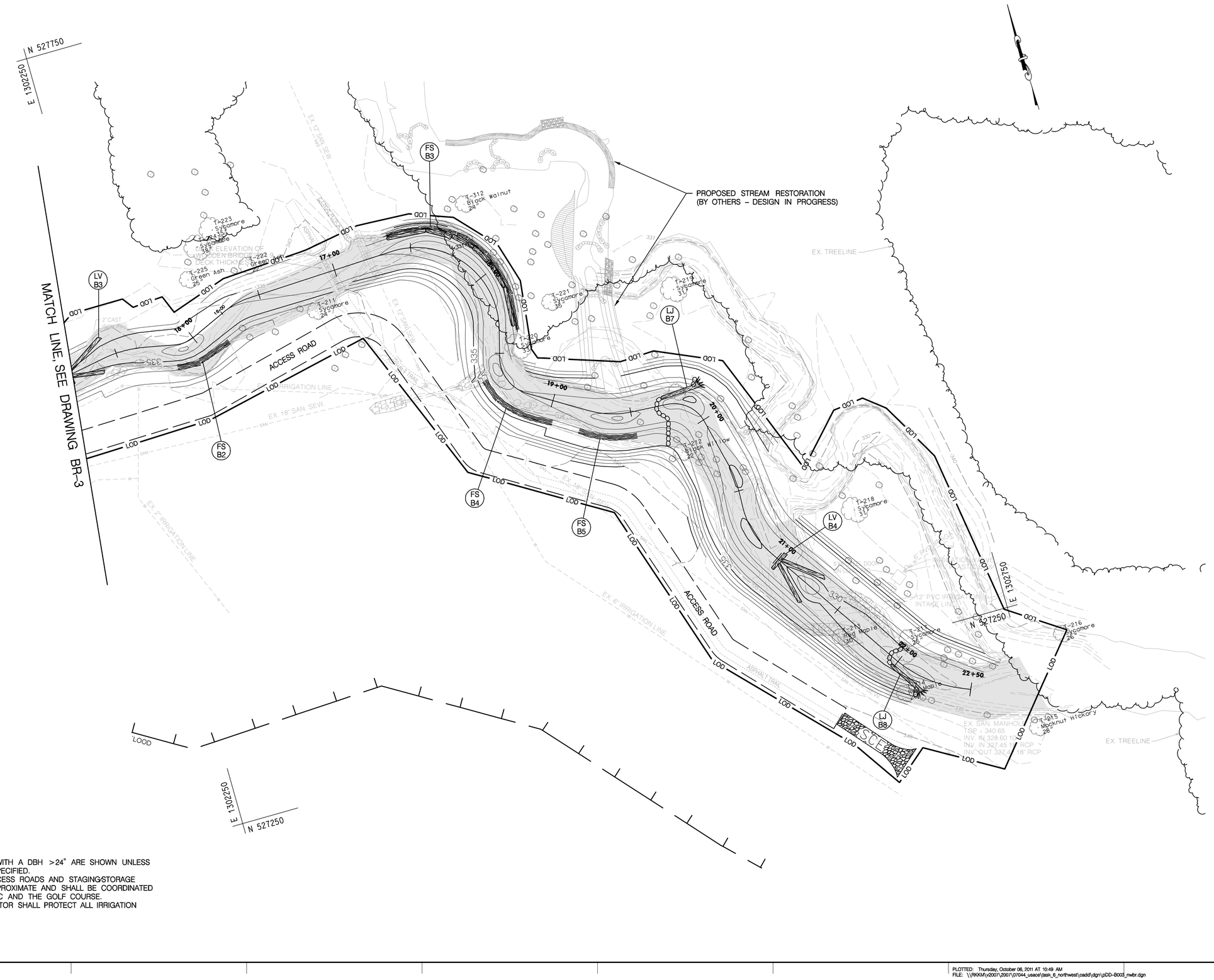
BR: bpalmer



NOTES:

1. ONLY TREES WITH A DBH >24" ARE SHOWN UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC AND THE GOLF COURSE.
3. THE CONTRACTOR SHALL PROTECT ALL IRRIGATION LINES.

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Designed by: REP	Date: 10/4/2011		
Dwn by: DEA	Ckd by: SPB	Design file no.	Drawing code: BR-4
Reviewed by: TMH			Dwg scale: 1"=30'
Submitted by: CVK			

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BALTIMORE, MARYLAND

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Task Order No. 19

BATCHELLORS RUN I & II
SITE PLAN

Sheet Number:
8 OF 72

BY: bpalmer

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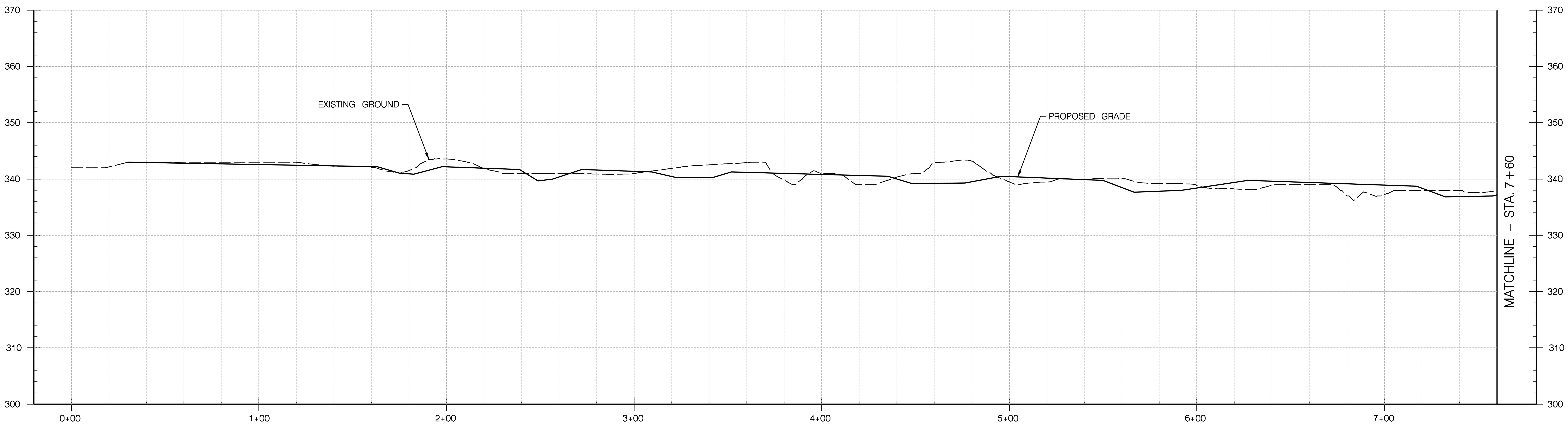
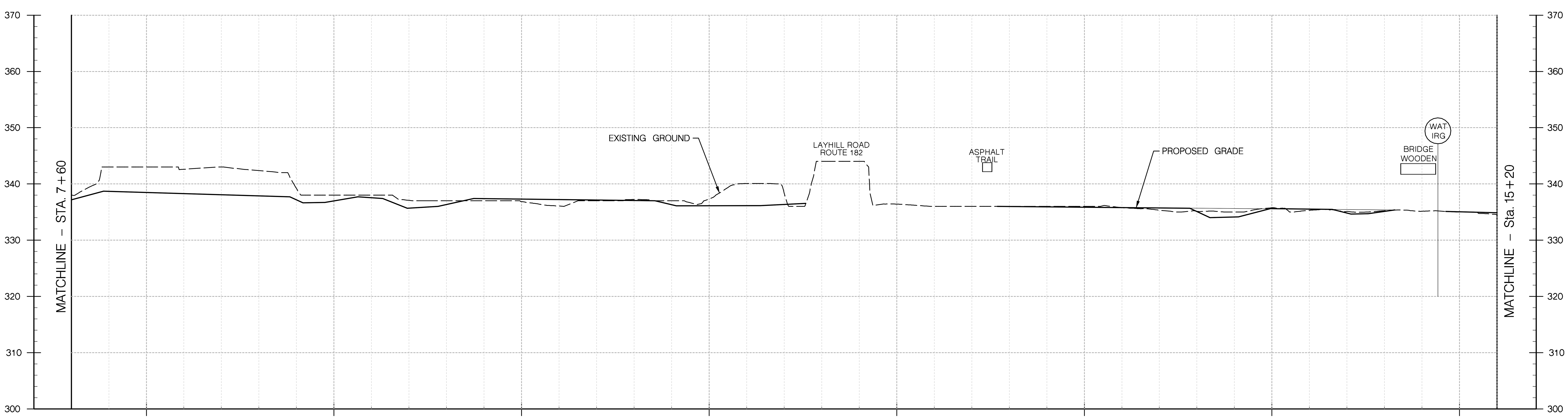


STREAM PROFILE – BATCHELLORS RUN

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)



STREAM PROFILE – BATCHELLORS RUN

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)

NOTE: VERTICAL STATIONING AND ADDITIONAL PROFILE DETAILS TO BE ADDED FOR NEXT SUBMISSION

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: BR-5
Dwg scale: AS SHOWN

Designed by: SBP
Dwn by: DEA
Ckd by: REP
Reviewed by: TMH
Submitted by: CVK

U.S. ARMY ENGINEER DIVISION
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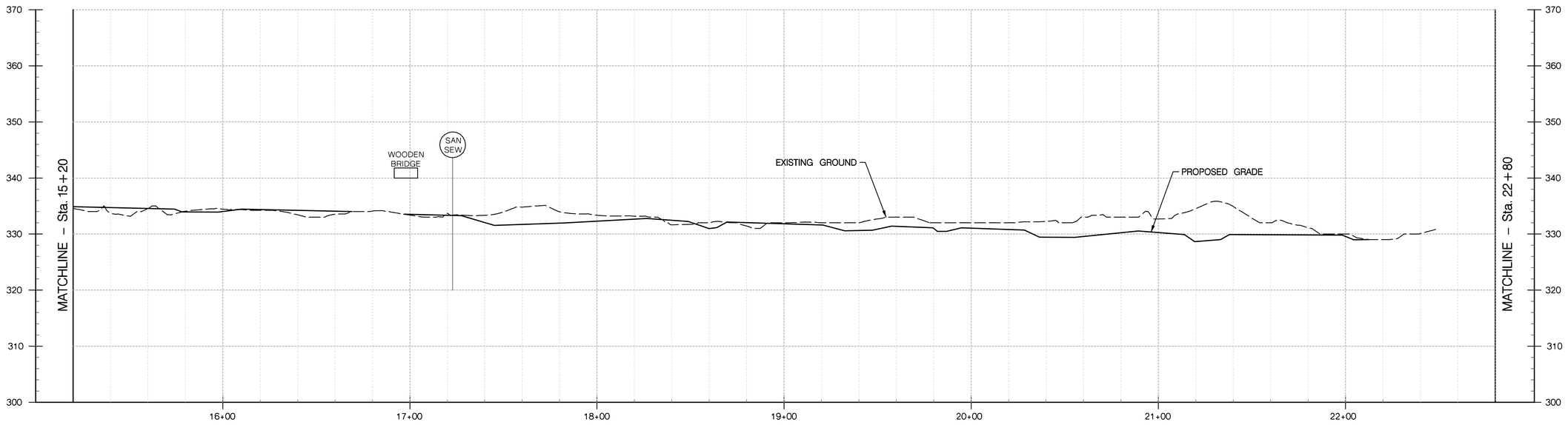
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II PROFILE

Sheet Number:
9 OF 72

PLOTTED: Thursday, October 06, 2011 AT 04:27 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pPR-0001_nwbr.dgn
BY: bpalmer



STREAM PROFILE – BATCHELLORS RUN

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)

NOTE: VERTICAL STATIONING AND ADDITIONAL PROFILE DETAILS TO BE ADDED FOR NEXT SUBMISSION

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Designed by: REP	Ckd by: SPB	Date: 10/4/2011	
Dwn by: DEA		Design file no:	
Reviewed by: TMH		Drawing code: BR-6	
Submitted by: CVK		Dwg scale: AS SHOWN	

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BATCHELLORS RUN I & II
PROFILE

Sheet Number:
10 OF 72

BY: bpalmer

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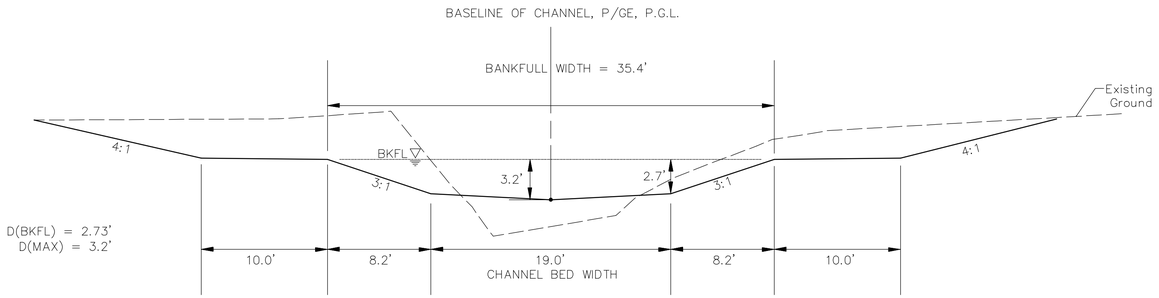
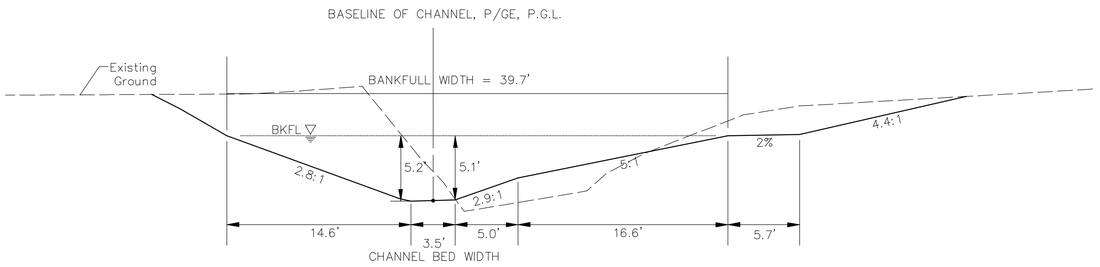
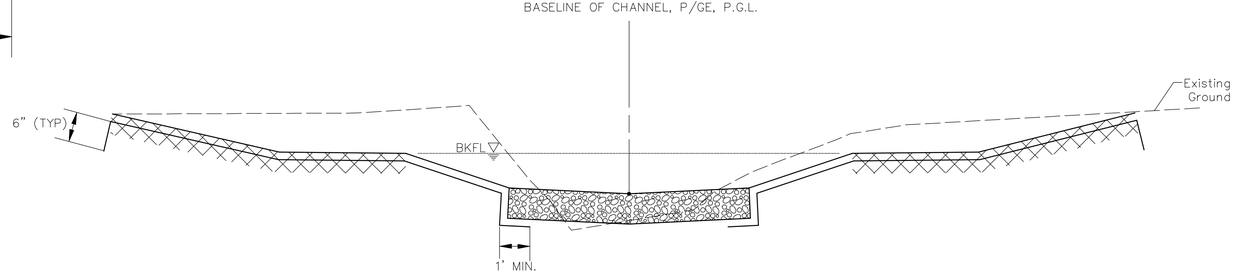


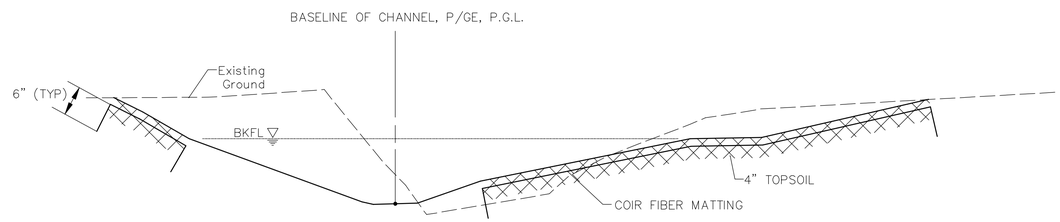
Batchellors Typical Section – Riffle



Batchellors Typical Section – Pool



Batchellors Stabilization Detail – Riffle



Batchellors Stabilization Detail – Pool

NOTES:

1. IN CASES WHERE AREA BEYOND THE BANKFULL CHANNEL ARE IN FILL, THE FILL SHALL BE PLACED AT 10:1 SLOPE.
2. SEE DETAIL SHEETS FOR ADDITIONAL CHANNEL STABILIZATION MEASURES.
3. SEE SPECIFICATIONS FOR DESCRIPTION OF MODIFIED COMMON BORROW.

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Task Order No. 19

Designed by: DWB
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK
Date: 10/4/2011
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Dwg scale: 1"=30'

BATCHELLORS RUN I & II TYPICAL SECTIONS

Sheet Number:
11 OF 72

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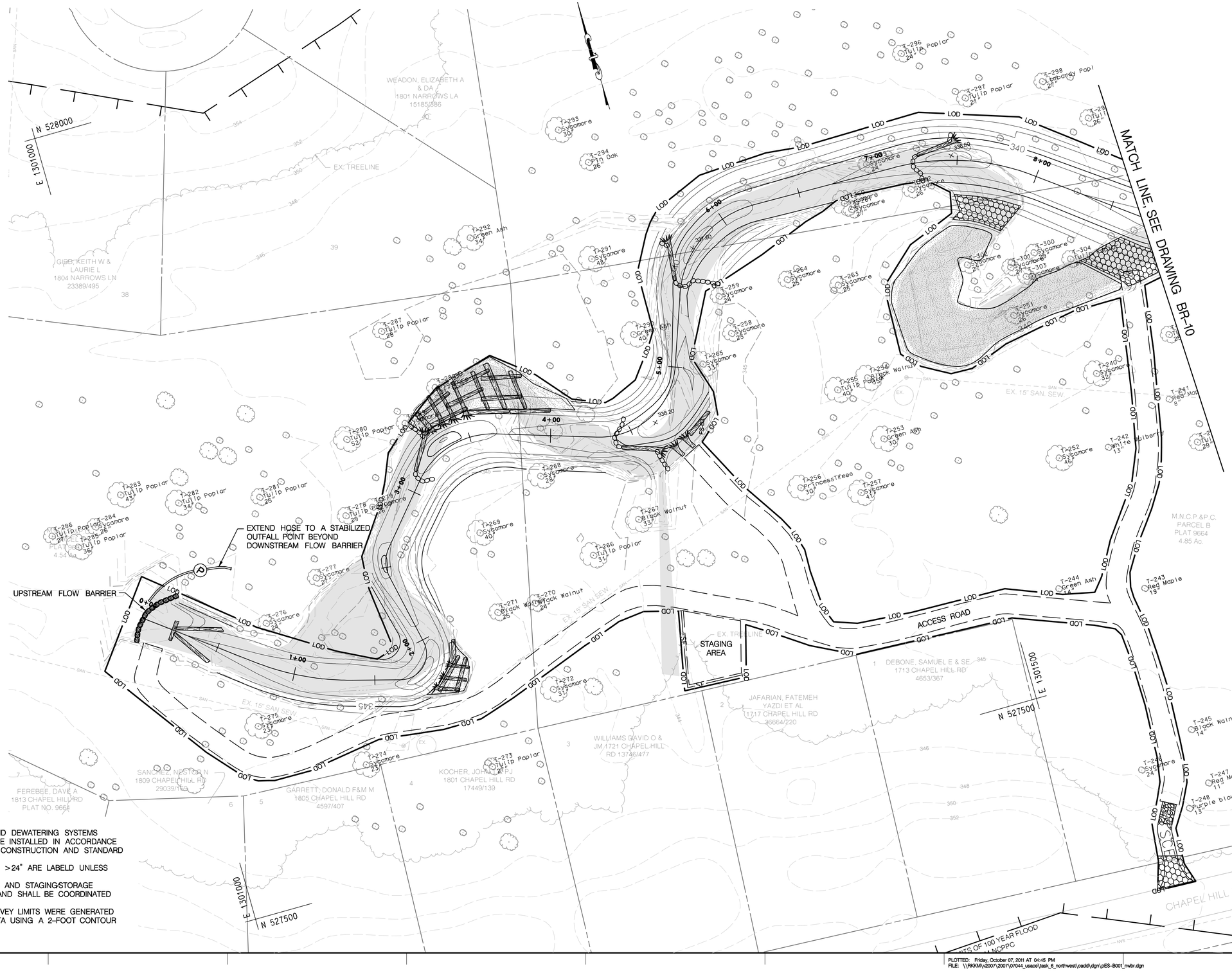
BY: bpalmer



NOTES:

1. ENTIRE PUMP-AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. ONLY TREES WITH A DBH >24" ARE LABELD UNLESS OTHERWISE SPECIFIED.
3. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.
4. CONTOURS BEYOND SURVEY LIMITS WERE GENERATED FROM COUNTY LIDAR DATA USING A 2-FOOT CONTOUR INTRVAL.

BY: bpalmer

PLOTTED: Friday, October 07, 2011 AT 04:45 PM
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Design file no.
Drawing code: BR-9
Dwg scale: 1"=30'
Designed by: REP
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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

W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II EROSION & SEDIMENT CONTROL PLAN

Sheet Number:
13 OF 72

NOTES:

1. ENTIRE PUMP–AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
3. LIMITS OF ACCESS ROADS AND STAGING-STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M–NCPPC.

US Army Corps of Engineers
Baltimore District

RK&K
9302 LEE HIGHWAY, SUITE 425
HUNTERS BRANCH 2
FAIRFAX, VA
(P) 703 246-0028
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MARK	DESCRIPTION	DATE	APPR

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

Designed by: REP
Drawn by: DEA
Checked by: SPB
Reviewed by: TMH
Submitted by: CVK
Date: 10/4/2011
Design file no.
Drawing code: BR-10
Dwg scale: 1"=30'

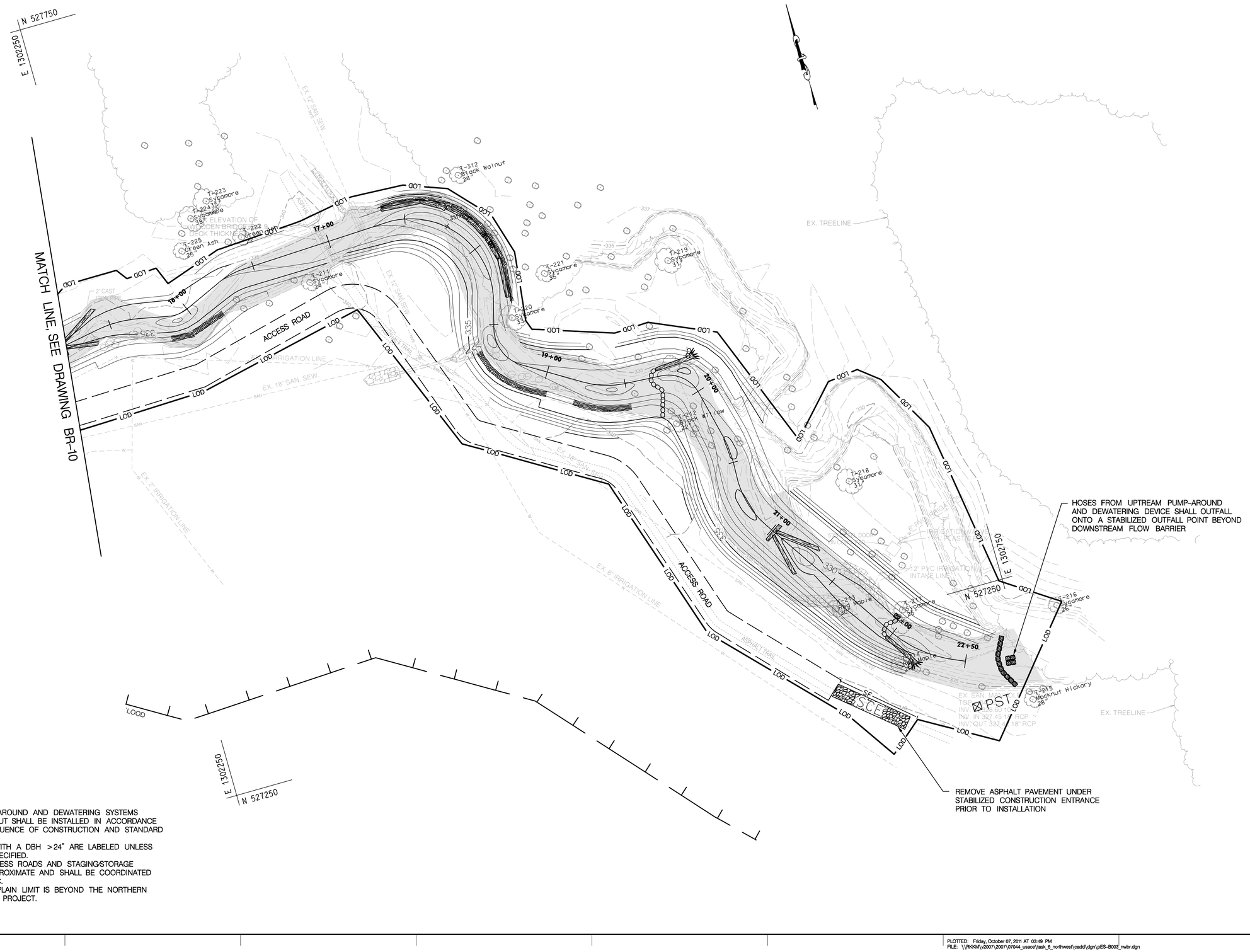
W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II EROSION & SEDIMENT CONTROL PLAN

Sheet Number:
14 OF 72

BY: bpalmer

PLOTTED: Friday, October 07, 2011 AT 04:43 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pES-B002_nwbr.dgn



NOTES:

1. ENTIRE PUMP-AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
3. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.
4. 100-YR FLOODPLAIN LIMIT IS BEYOND THE NORTHERN LIMITS OF THE PROJECT.

US Army Corps of Engineers
Baltimore District

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MARK	DESCRIPTION	DATE	APPR.

Date: 10/4/2011
Design file no.
Drawing code: BR-11
Dwg scale: 1"=30'
Designed by: REP
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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

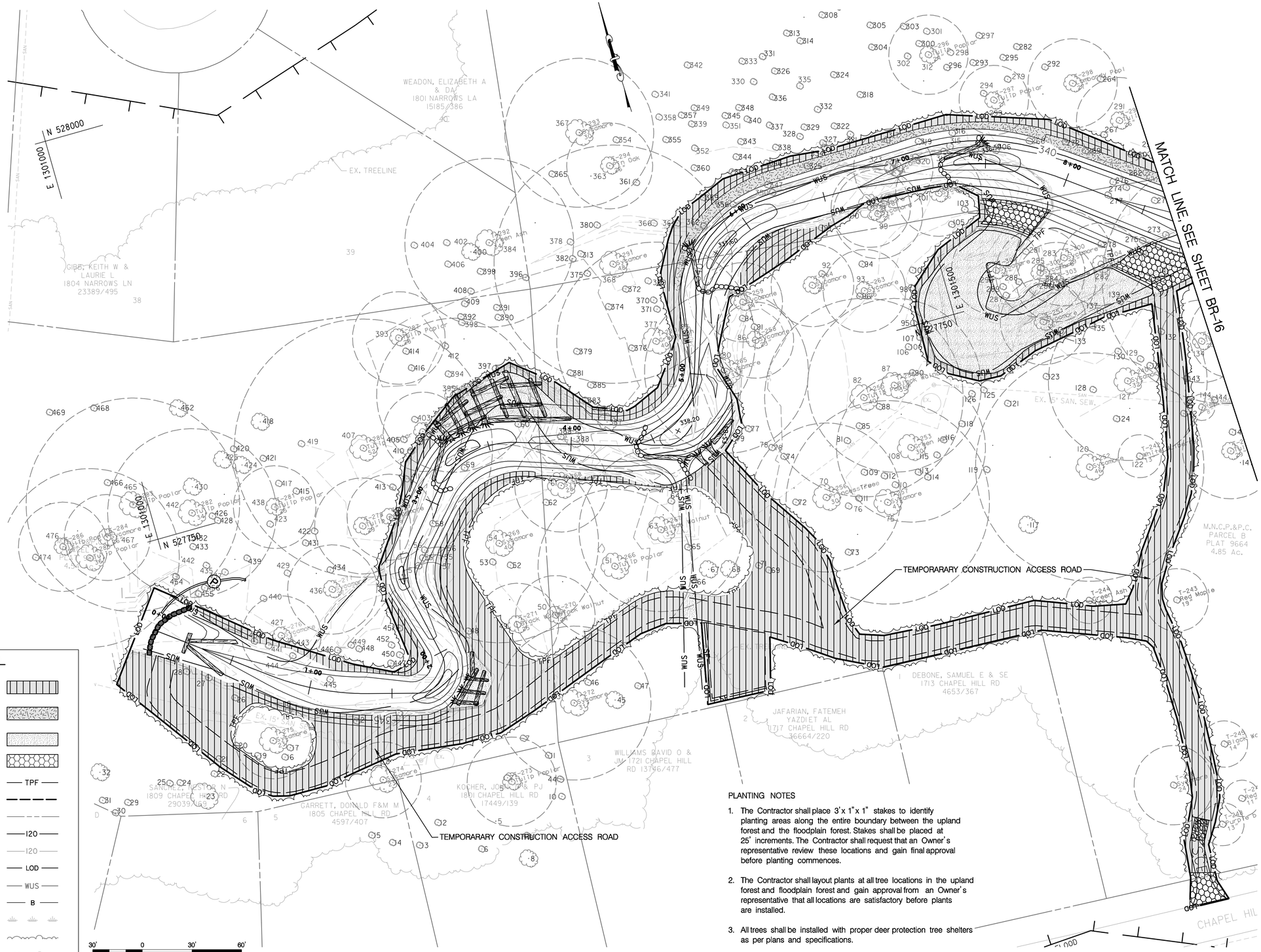
W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II EROSION AND SEDIMENT CONTROL PLAN

Sheet Number:
15 OF 72

BY: bpalmer

PLOTTED: Friday, October 07, 2011 AT 03:49 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pES-B003_nwbr.dgn



LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN FOREST
- NATIVE FLOODPLAIN SHRUB
- SOD
- TREE PROTECTION FENCE — TPF
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR — 120
- EXISTING CONTOUR — 120
- LIMIT OF DISTURBANCE — LOD
- WATERS OF THE US — WUS
- WETLAND BUFFER — B
- WETLANDS
- PROPOSED TREE LINE
- EXISTING TREE LINE

PLANTING NOTES

1. The Contractor shall place 3'x 1"x 1" stakes to identify planting areas along the entire boundary between the upland forest and the floodplain forest. Stakes shall be placed at 25' increments. The Contractor shall request that an Owner's representative review these locations and gain final approval before planting commences.
2. The Contractor shall layout plants at all tree locations in the upland forest and floodplain forest and gain approval from an Owner's representative that all locations are satisfactory before plants are installed.
3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.
4. See Sheet 22 for planting schedules.

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Designed by: WMM
Drawn by: DEA
Ckd by: REP
Design file no.:
Reviewed by: TMH
Drawing codes: BR-15
Dwg scale:
Submitted by: CVK

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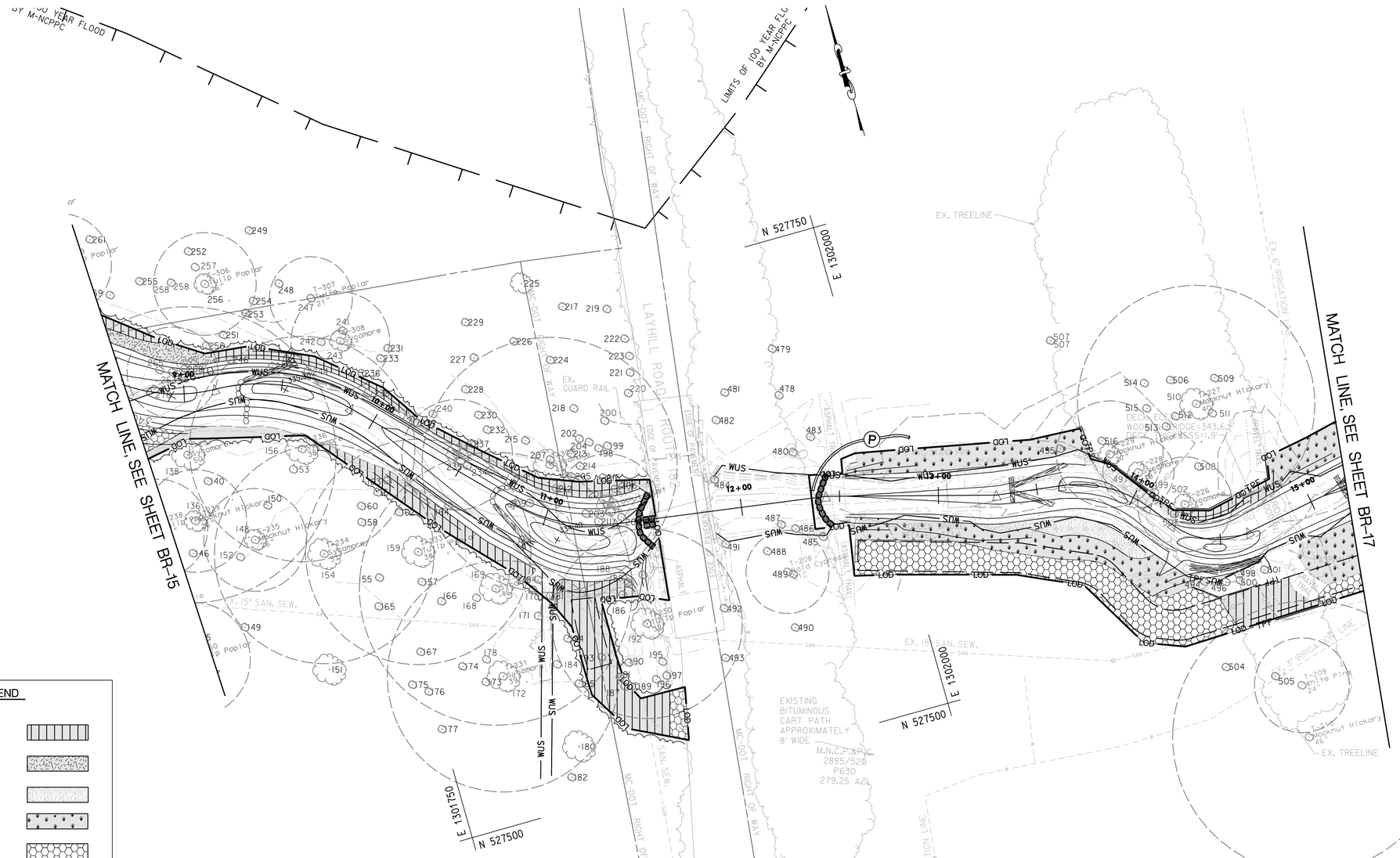
W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II
PLANTING PLAN

Sheet Number:
19 OF 72

BY: dwoolley

PLOTTED: Thursday, October 06, 2011 AT 02:56 PM
FILE: \\RKKM\v2007\2007\07044_USACE\Task_6_Northwest\CADD\dgn\pLD-B001_nwbr.dgn



LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN FOREST
- NATIVE FLOODPLAIN SHRUB
- UPLAND WILDFLOWER
- SOD
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR — 120 —
- EXISTING CONTOUR — 120 —
- LIMIT OF DISTURBANCE — LOD —
- WATERS OF THE US — WUS —
- WETLAND BUFFER — B —
- WETLANDS
- PROPOSED TREE LINE
- EXISTING TREE LINE

PLANTING NOTES

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3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.
4. See Sheet 22 for planting schedules.

30' 0 30' 60'
SCALE: 1" = 30'

BY: dwooley

PLOTTED: Thursday, October 06, 2011 AT 03:02 PM
FILE: \\RKKM\v2007\2007\07044_USACE\Task_6_Northwest\CADD\dgn\pLD-B002_nwbr.dgn

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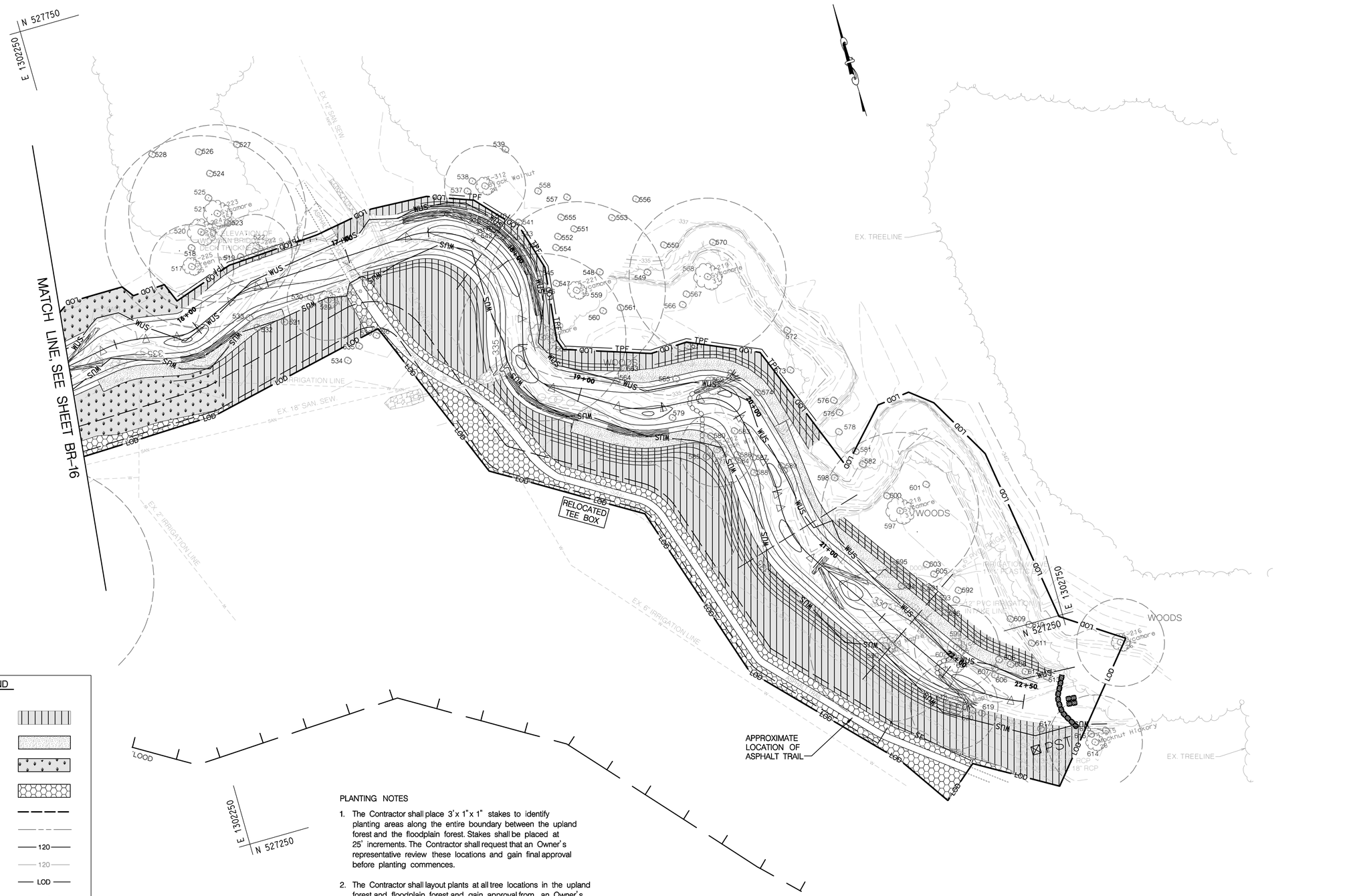
Designed by: WMM	Date: 10/4/2011
Dwn by: Ckd by: REP	Design file no.
Reviewed by: TMH	Drawing code: BR-16
Submitted by: CVK	Dwg scale: 1"=30'

W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II
PLANTING PLAN

Sheet Number:
20 OF 72



LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN SHRUB
- UPLAND WILDFLOWER
- SOD
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR (120)
- EXISTING CONTOUR (120)
- LIMIT OF DISTURBANCE (LOD)
- WATERS OF THE US (WUS)
- WETLAND BUFFER (B)
- WETLANDS
- PROPOSED TREE LINE
- EXISTING TREE LINE

PLANTING NOTES

1. The Contractor shall place 3'x 1"x 1" stakes to identify planting areas along the entire boundary between the upland forest and the floodplain forest. Stakes shall be placed at 25' increments. The Contractor shall request that an Owner's representative review these locations and gain final approval before planting commences.
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3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.
4. See Sheet 22 for planting schedules.

30' 0 30' 60'
SCALE: 1" = 30'

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Baltimore District

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
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Drawing code: BR-17
Dwg scale: 1"=30'
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Submitted by: CVK

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CORPS OF ENGINEERS
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

BATCHELLORS RUN I & II
PLANTING PLAN

Sheet Number:
21 OF 72

BY: bpalmer

PLOTTED: Monday, October 10, 2011 AT 08:37 AM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pLD-B003_nwbr.dgn

NATIVE FLOODPLAIN FOREST — Size (acres): 0.05

Overall Minimum Spacing-feet on center (OC)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	TYPE	Placement
15	200			**TREES**					
		20	2	*Acer rubrum*	Red Maple	FAC	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		15	1	*Liriodendron tulipifera*	Tulip Poplar	FACU	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		10	1	*Nyssa sylvatica*	Black Gum	FAC	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		20	2	*Platanus occidentalis*	American Sycamore	FACW	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		15	2	*Quercus palustris*	Pin Oak	FACW	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		20	2	*Betula nigra*	River Birch	FACW	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		100.0	**10**	**=total**					
7	300			**SHRUBS**					
		25	4	*Cornus amomum*	Silky Dogwood	FACW	18-24" ht.	Cont.	Clustered @ 7' OC
		25	4	*Lindera benzoin*	Spice Bush	FACW	18-24" ht.	Cont.	Clustered @ 7' OC
		30	5	*Viburnum prunifolium*	Blackhaw	FACU	18-24" ht.	Cont.	Clustered @ 7' OC
		20	2	*Viburnum dentatum*	Southern Arrowwood	FAC	18-24" ht.	Cont.	Clustered @ 7' OC
		100.0	**15**	**=total**					
NA	20			**NATIVE PERMANENT SEED**					
		34	0.34	*Andropogon gerardii*	Big Bluestem	FAC	Seed	NA	Lb. of P.L.S. 76%
		33	0.33	*Elymus canadensis*	Canada Wild Rye	FAC	Seed	NA	Lb. of P.L.S. 76%
		33	0.33	*Panicum clandestimum*	Deer Tongue	FAC	Seed	NA	Lb. of P.L.S. 76%
		100.0	**1.00**	**=total**					

• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL NOTES

NATIVE UPLAND FOREST — Size (acres): 1.39

Overall Minimum Spacing-feet on center (OC)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	TYPE	Placement
15	200			**TREES**					
		20	56	*Acer rubrum*	Red Maple	FAC	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		15	41	*Liriodendron tulipifera*	Tulip Poplar	FACU	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		10	28	*Nyssa sylvatica*	Black Gum	FAC	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		20	56	*Platanus occidentalis*	American Sycamore	FACW	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		15	41	*Quercus palustris*	Pin Oak	FACW	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		20	56	*Quercus rubra*	Northern Red Oak	FACU	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		100.0	**278**	**=total**					
10	300			**SHRUBS**					
		25	104	*Cornus amomum*	Silky Dogwood	FACW	18-24" ht.	Cont.	Clustered @ 7' OC
		25	104	*Lindera benzoin*	Spicebush	FACW-	18-24" ht.	Cont.	Clustered @ 7' OC
		20	84	*Viburnum acerifolium*	Mapleleaf viburnum	UPL	18-24" ht.	Cont.	Clustered @ 7' OC
		30	125	*Viburnum dentatum*	Southern Arrowwood	FAC	18-24" ht.	Cont.	Clustered @ 7' OC
		100.0	**417**	**=total**					
NA	20			**NATIVE PERMANENT SEED**					
		33.3	9.3	*Andropogon gerardii*	Big Bluestem	FAC	Seed	NA	Lb. of P.L.S. 76%
		33.3	9.3	*Elymus canadensis*	Canada Wild Rye	FAC	Seed	NA	Lb. of P.L.S. 76%
		33.4	9.3	*Panicum clandestimum*	Deer Tongue	FAC	Seed	NA	Lb. of P.L.S. 76%
		100.0	**27.9**	**=total**					

• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL NOTES

NATIVE FLOODPLAIN SHRUB — Size (acres): 0.28

Overall Minimum Spacing-feet on center (OC)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	TYPE	Placement
	436								
		33	41	*Clethra alnifolia*	Sweet Pepperbush	FAC+	18-24" ht.	Cont.	Clustered @ 6' OC
		33	41	*Cornus amomum*	Silky Dogwood	FACW	18-24" ht.	Cont.	Clustered @ 8' OC
		34	40	*Ilex verticillata*	Winterberry	FACW+	18-24" ht.	Cont.	Clustered @ 8' OC
		100.0	**122**	**=total**					
NA	40			**NATIVE SEED**					
		30	3.3	*Andropogon gerardii*	Big Bluestem	FAC	SEED	NA	LB. of P.L.S. 76%
		40	4.5	*Elymus virginicus*	Virginia Wild Rye	FACW	SEED	NA	LB. of P.L.S. 76%
		30	3.4	*Panicum clandestimum*	Deer Tongue	FACW	SEED	NA	LB. of P.L.S. 76%
		100.0	**11.2**	**=total**					

• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL NOTES

UPLAND WILDFLOWER SEED — Size (acres): 0.18

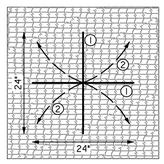
Overall Minimum Spacing-feet on center (OC)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	ECOTYPE	Placement
NA	30			**SEED**					
		2	0.11	*Asclepias tuberosa*	Butterfly Milkweed	NI	SEED	NA	LB. of P.L.S. 76%
		10	0.54	*Chamaecrista fasciculata*	Partridge Pea	FACU	SEED	PA	LB. of P.L.S. 76%
		15	0.81	*Elymus riparius*	Riverbank Wild Rye	FACW	SEED	PA	LB. of P.L.S. 76%
		3	0.16	*Monarda fistulosa*	Wild Bergamot	UPL	SEED	NA	LB. of P.L.S. 76%
		6	0.32	*Rudbeckia hirta*	Black Eyed Susan	FACU-	SEED	CP NC	LB. of P.L.S. 76%
		25	1.35	*Schizachyrium scoparium*	Little Bluestem	FACU-	SEED	E. U.S.	LB. of P.L.S. 76%
		6	0.32	*Senna hebecarpa*	Wild Senna	FAC	SEED	VA & WV	LB. of P.L.S. 76%
		5	0.28	*Senna marilandica*	Maryland Senna	FAC+	SEED	NA	LB. of P.L.S. 76%
		10	0.54	*Sorghastrum nutans*	Indiangrass	UPL	SEED	PA	LB. of P.L.S. 76%
		3	0.16	*Tradescantia virginiana*	Virginia Spiderwort	FACU	SEED	SE PA/ N VA	LB. of P.L.S. 76%
		15	0.81	*Tridens flavus*	Purple Top	FACU	SEED	SE VA	LB. of P.L.S. 76%
		100.0	**5.40**	**=total**					

Seed Mix equivalent to ERNMX-172

SOD	SIZE (ACRES): 0.24	SIZE (SF): 10,565

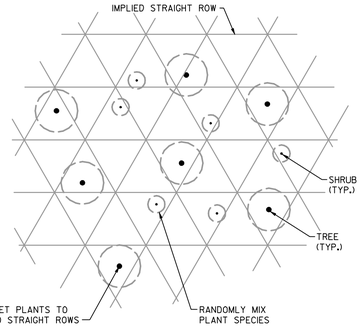
GENERAL NOTES

1. The landscaping shown on sheets 19-21 must be planted in accordance with the latest edition of Landscape Specification Guidelines, developed by the MD-DC-VA Chapter of the Landscape Contractors Association.
2. All plants must meet the standards of the latest edition of American Standard for Nursery Stock sponsored by the Association of American Nurserymen.
3. Plant type substitutions are permitted with verbal or written approval from the Planning and Code Administration.
4. All trees are to be located a minimum distance of 5 feet from all utility boxes, 5 feet from a storm drain inlet or manhole, 10 feet from a fire hydrant, 15 feet from public street lights, 5 feet from driveway aprons, 20 feet from any traffic control sign and at least 30 feet from any intersection.
5. Shrubs to be planted in groups of 7-10 plants.
6. Soil conditions must be tested, verified and adjusted by the landscape contractor to ensure that appropriate soil composition and PH levels are suitable for plant materials specified for that specific location.
7. Any planting within a forest retention area, as designated on the forest conservation plan and shown on this plan, must be carried out in such a way as to avoid any adverse impact to the roots of existing trees.
8. All plant material will be reinspected for survival by the Planning and Code Administration one year following installation. A 10 percent maintenance bond will be retained during this time period.
9. Plant installation shall include a 2 year maintenance period.

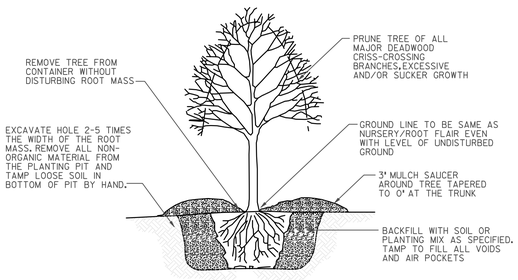


① Make cut with sharp knife through Coir Fiber Matting - Solid line in diagram
② Pin back Coir Fiber with 4 staples - dashed line in diagram
③ Install plant through pinned back Coir Fiber. Install plant at proper grade to ground plane
④ Remove 4 staples
⑤ For tree installations, install tree stakes through Coir Matting
⑥ Install deer protection
⑦ Place 4 staples in each of four cut sections. Re-anchor Coir Matting to ground

TREE & SHRUB INSTALLATION THROUGH COIR FIBER MATTING
N.T.S.

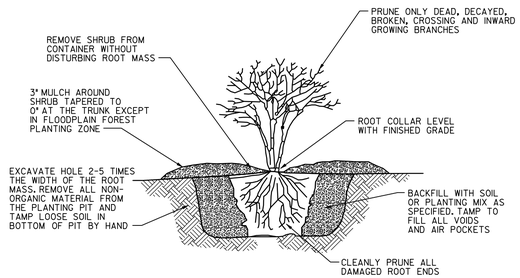


NATURALIZED PLANT SPACING
N.T.S.

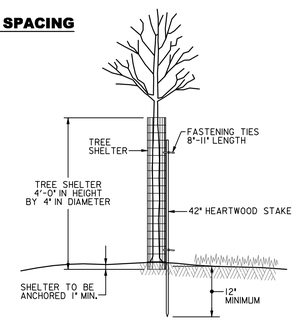


NOTES:
1. If surrounding soil is compacted as determinded by the engineer, an area up to 5 times the diameter of the root mass shall be excavated or rototilled to a 1'depth.
2. Do not damage or cut leader.

TREE PLANTING - CONTAINER GROWN
N.T.S.



SHRUB PLANTING - CONTAINER
N.T.S.



TREE SHELTER DETAIL
N.T.S.

NOTES:
1. UP TO 2" OF SOIL CAN BE MOUNTED AROUND THE OUTSIDE OF TREE SHELTER.
2. REFER TO TREE SHELTER SPECIFICATION FOR ADDITIONAL INFORMATION.

US Army Corps of Engineers
Baltimore District

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APPR	DATE	DESCRIPTION	MARK

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

W912DR-07-D-0008
Task Order No. 19

Designed by: WMM | Dwn by: DEA | Ckd by: REP | Reviewed by: TMH | Submitted by: CVK
Date: 10/4/2011 | Design file no. | Drawing code: BR-18 | Dwg scale: N.T.S.

BATCHELLORS RUN I& II PLANTING SCHEDULES & PLANTING DETAILS

Sheet Number:
22 OF 72

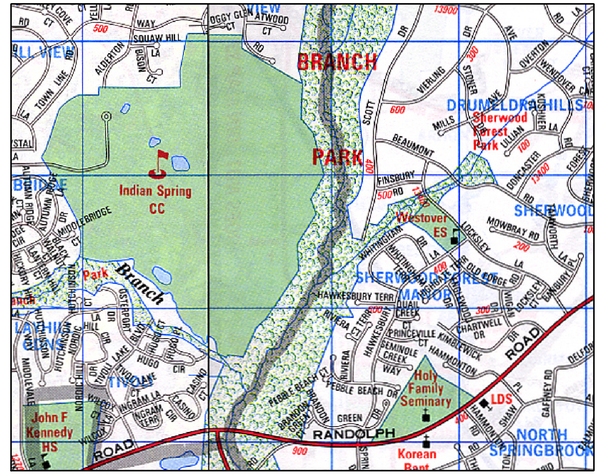
BY: dwoolley

PLOTTED: Thursday, October 06, 2011 AT 03:05 PM
FILE: \\RKKM\v2007\2007\07044_USACE\Task_6_Northwest\CADD\dgn\pLD-B004_nwbr.dgn

KEY MAP

200 0 200 400 Feet

SCALE: 1" = 200'



VICINITY MAP

SITE INFORMATION - SHERWOOD	
A. TOTAL AREA OF FACILITY (Base, Campus, Park, Etc.)	10.55 Acres
B. TOTAL AREA OF PROJECT SITE	10.55 Acres
C. AREA DISTURBED	3.75 Acres
D. AREA TO BE ROOFED OR PAVED	0.00 Acres
E. TOTAL CUT	1,678 CY
F. TOTAL FILL	1,203 CY
G. OFF-SITE WASTE/BORROW AREA LOCATION	TBD

FOR COMBINED SITE INFORMATION REFER TO DRAWING GN-10

NOTES:

1. STOCKPILE AREA SHALL BE LOCATED AT AN MDE APPROVED OFF-SITE LOCATION.
2. MAINTENANCE OF TRAFFIC IS THE RESPONSIBILITY OF THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

1. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION AT (410) 537-3510 FOR THE REQUIRED PRE-CONSTRUCTION MEETING AT LEAST SEVEN DAYS BEFORE COMMENCING LAND DISTURBING ACTIVITIES.
2. INSTALL TREE PROTECTION FENCING AS SHOWN ON THE PLAN.
3. COMPLETE TREE REMOVAL AND SELECTIVE TRIMMING AS SHOWN ON THE PLAN OR AS DIRECTED BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
4. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO AN APPROVED MDE SEDIMENT CONTROL DEVICE.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO INSTALL PERIMETER EROSION AND SEDIMENT CONTROL DEVICES.
6. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND BUILD THE ASSOCIATED TEMPORARY ACCESS ROAD. STABILIZE AT THE END OF EACH WORK DAY. FOR THE ACCESS ROAD WITHIN A WETLAND, PLACE TIMBER MATS TO MINIMIZE IMPACTS.
7. INSTALL SILT FENCE AS DESIGNATED ON THE PLANS.
8. CLEAR AND GRUB REMAINING WORK AREA. ANY DISTURBANCE CAUSED BY THIS PROCESS SHALL BE STABILIZED BY THE END OF THE DAY.
9. INSTALL PUMP-AROUND FLOW DIVERSION AND DEWATER THE CONSTRUCTION ZONE THROUGH THE APPROVED DEWATERING DEVICE. THE CONTRACTOR SHALL STAGE THE LIMITS OF THE PUMP-AROUND FLOW DIVERSION TO DEWATER ONLY THAT SECTION SCHEDULED FOR THAT DAY'S WORK. AT THE END OF EACH WORK DAY, THE WORK AREA SHALL BE STABILIZED, THE PUMP-AROUND PRACTICE REMOVED, AND THE FLOW RESTORED TO THE CHANNEL. WORK SHALL BE COMPLETED ONLY DURING FORECASTED PERIODS OF DRY WEATHER.
10. CONSTRUCT STREAM IMPROVEMENTS BEGINNING UPSTREAM TO DOWNSTREAM. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO MINIMIZE UNNECESSARY DISTURBANCE. FOR THE STREAM IMPROVEMENTS, ONLY THAT AMOUNT OF WORK SHALL BE COMPLETED THAT CAN BE STABILIZED BY THE END OF THE DAY.
11. ONCE ALL STREAM WORK HAS BEEN COMPLETED AND PERMANENTLY STABILIZED, AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING MAINTENANCE OF STREAMFLOW DEVICES, ACCESS ROAD, AND EROSION AND SEDIMENT CONTROL DEVICES. STABILIZE ALL AREAS DISTURBED DURING THIS PROCESS.

LEGEND

WUS — WATERS OF THE U.S.	LIVE FASCINES
B — WETLAND BUFFER	ROCK J-HOOK VANE
WETLAND AREA	ROCK CROSS VANE
354' EXISTING CONTOURS	PROPOSED RIFFLE GRADE CONTROL
220 PROPOSED CONTOURS	PROP. BURIED LOG
S EXIST. SAN. SEWER MANHOLE	LOG CROSS VANE
SD EXIST. STORMDRAIN MANHOLE	LOG J-HOOK VANE
T-122 Tulip Poplar 34" EXISTING TREE >24" DBH	LOG MEANDER PROTECTION STRUCTURE
TREE TO BE REMOVED	

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: SH-1
Dwg scale: AS SHOWN
Designed by: REP
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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

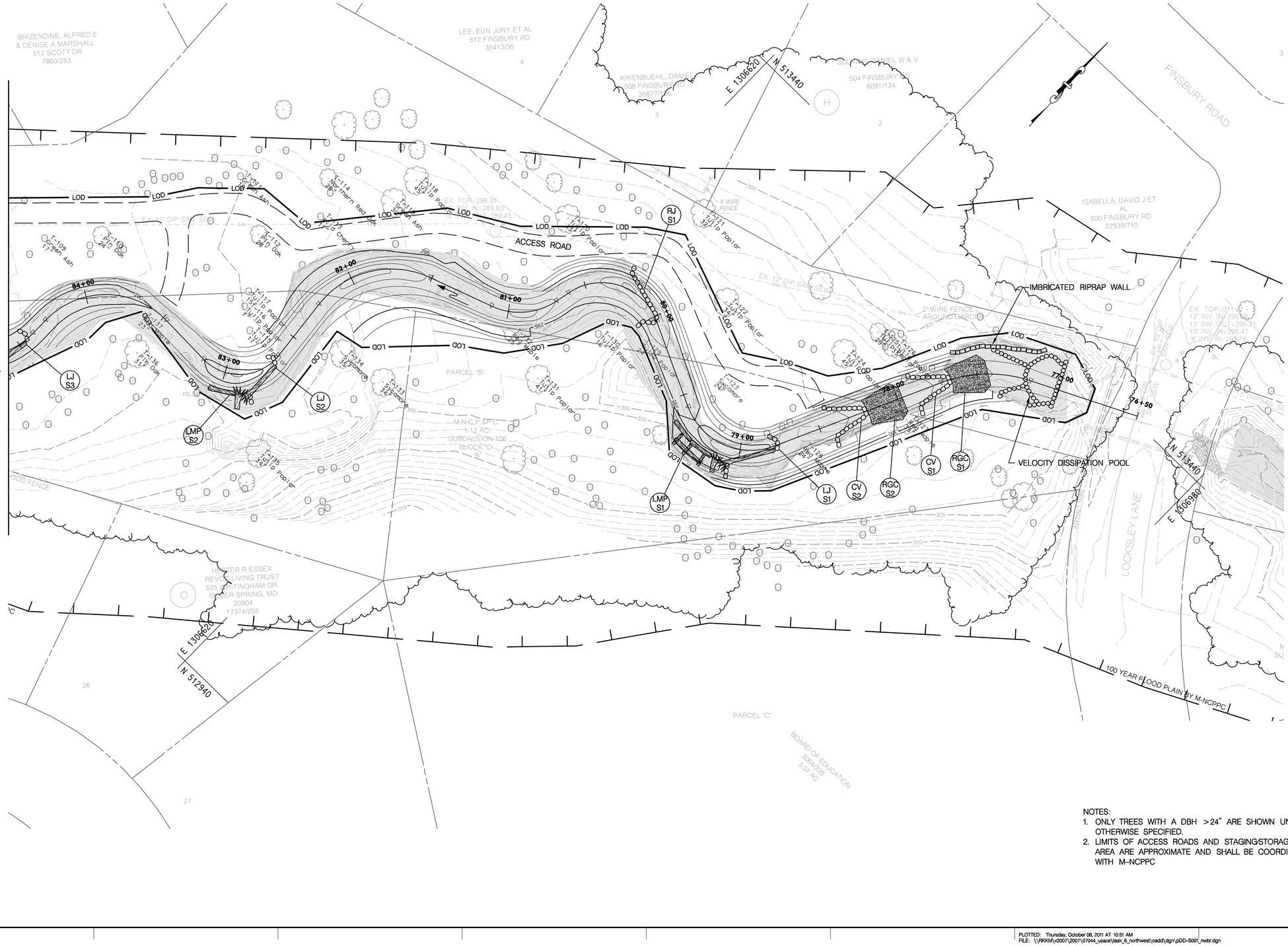
W912DR-07-D-0008
Task Order No. 19

SHERWOOD COVER SHEET

Sheet Number:
23 OF 72

BY: bpalmer

PLOTTED: Friday, October 07, 2011 AT 10:16 AM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pGN-S000_nwbr.dgn



NOTES:
1. ONLY TREES WITH A DBH >24" ARE SHOWN UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING-STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC

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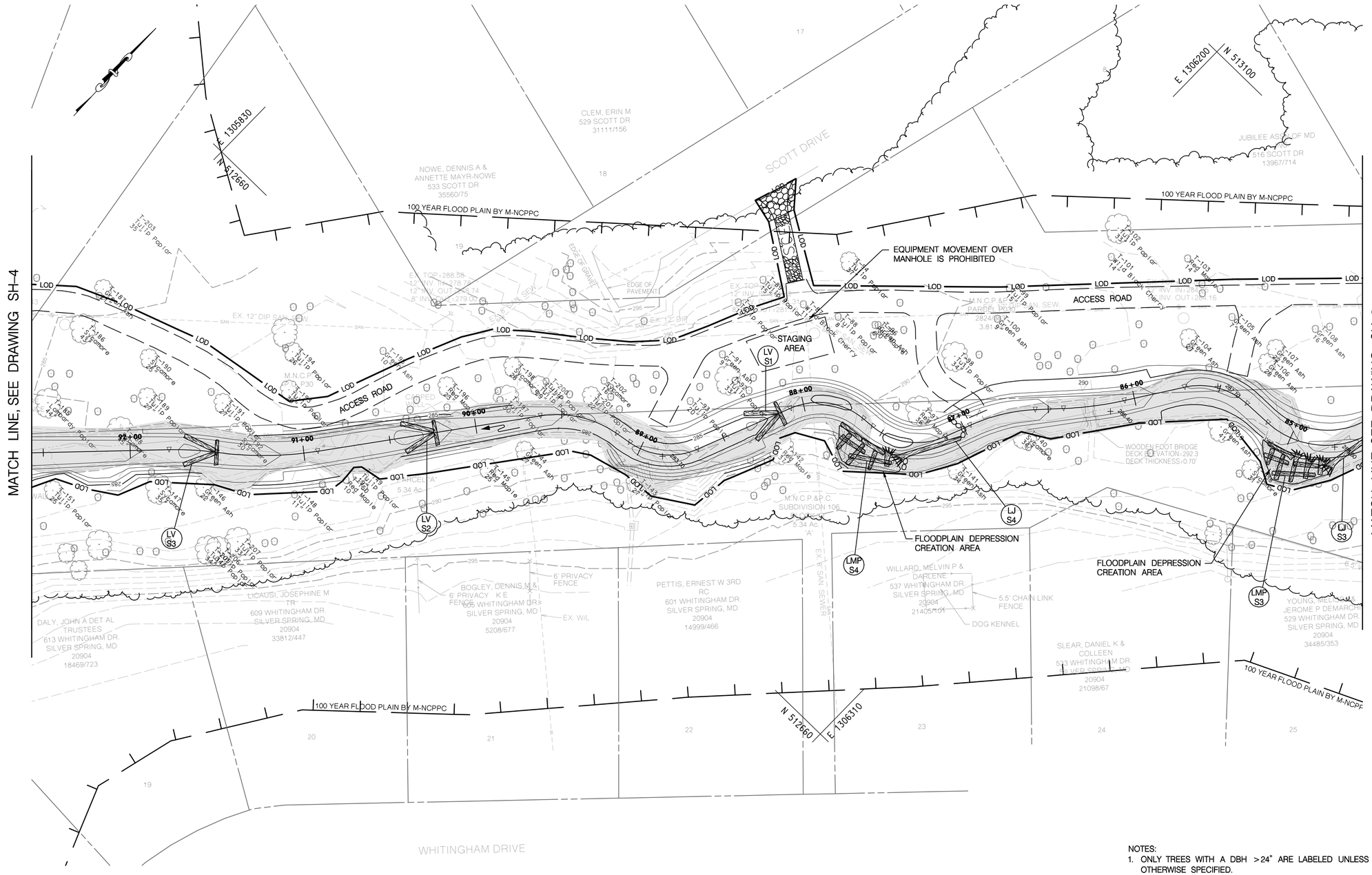
W912DR-07-D-0008
Task Order No. 19

Designed by: REP
Drawn by: DEA
Checked by: SPB
Reviewed by: TMH
Submitted by: CVK
Date: 10/4/2011
Design file no.
Drawing code: SH-2
Dwg scale: 1"=30'

SHERWOOD SITE PLAN

Sheet Number:
24 OF 72

PLOTTED: Thursday, October 06, 2011 AT 10:51 AM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pDD-S001_nwbr.dgn
BY: tpalmer



NOTES:
1. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: SH-3
Dwg scale: 1"=30'
Designed by: REP
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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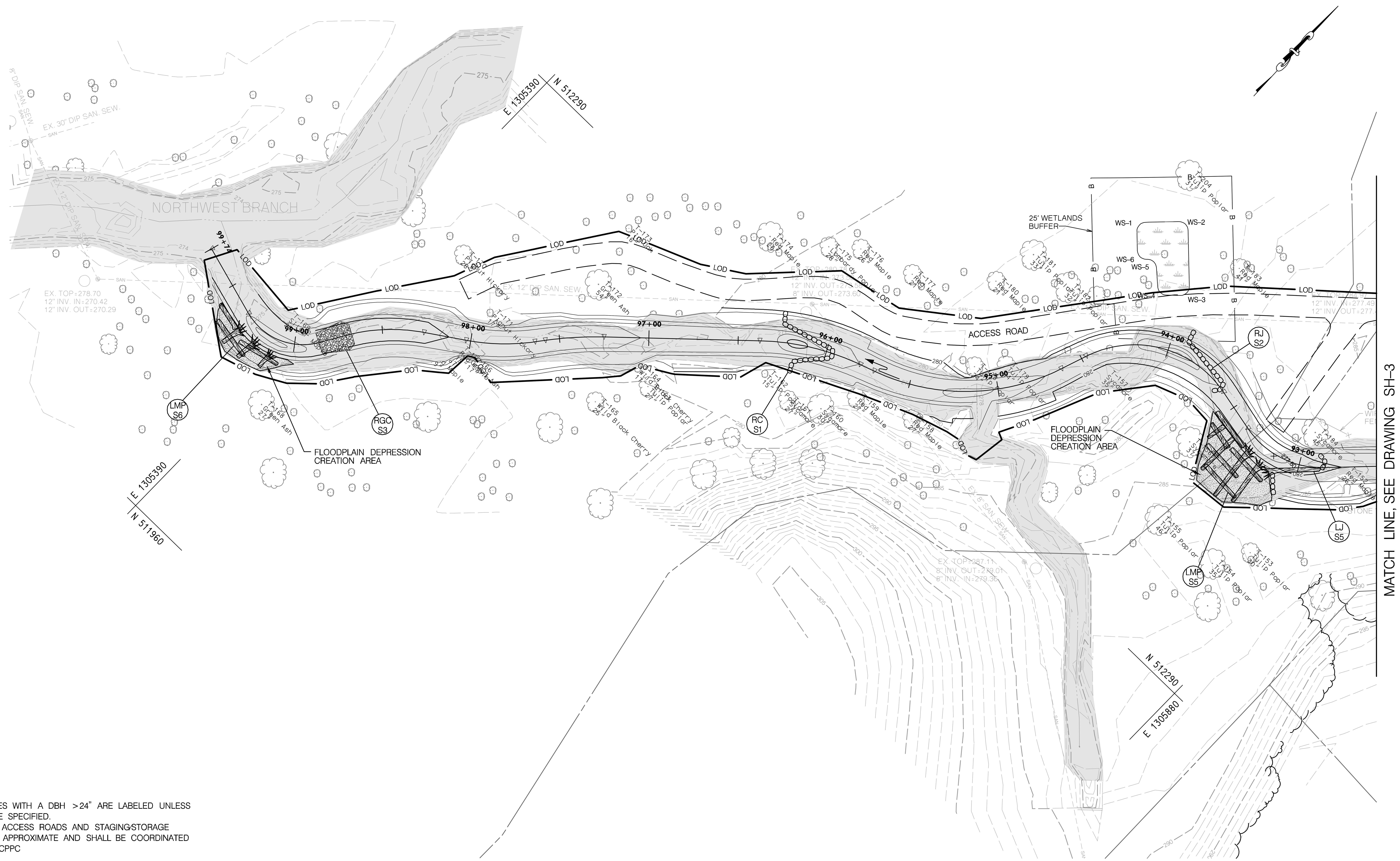
CORPS OF ENGINEERS
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

SHERWOOD SITE PLAN

Sheet Number:
25 OF 72

PLOTTED: Thursday, October 06, 2011 AT 11:18 AM
FILE: \\RKKM\y2007\2007\07044_usace\task_6_northwest\cadd\dgn\pDD-S002_rwbr.dgn
BY: bpalmer



NOTES:

1. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M–NCPPC

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CORPS OF ENGINEERS
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

Designed by: REP		Date: 10/4/2011
Dwn by: DEA	Ckd by: SPB	Design file no.
Reviewed by: TMH		Drawing code: SH-4
Submitted by: CVK		Dwg scale: 1"=30'

SHERWOOD SITE PLAN

PLOTTED: Thursday, October 06, 2011 AT 11:16 AM
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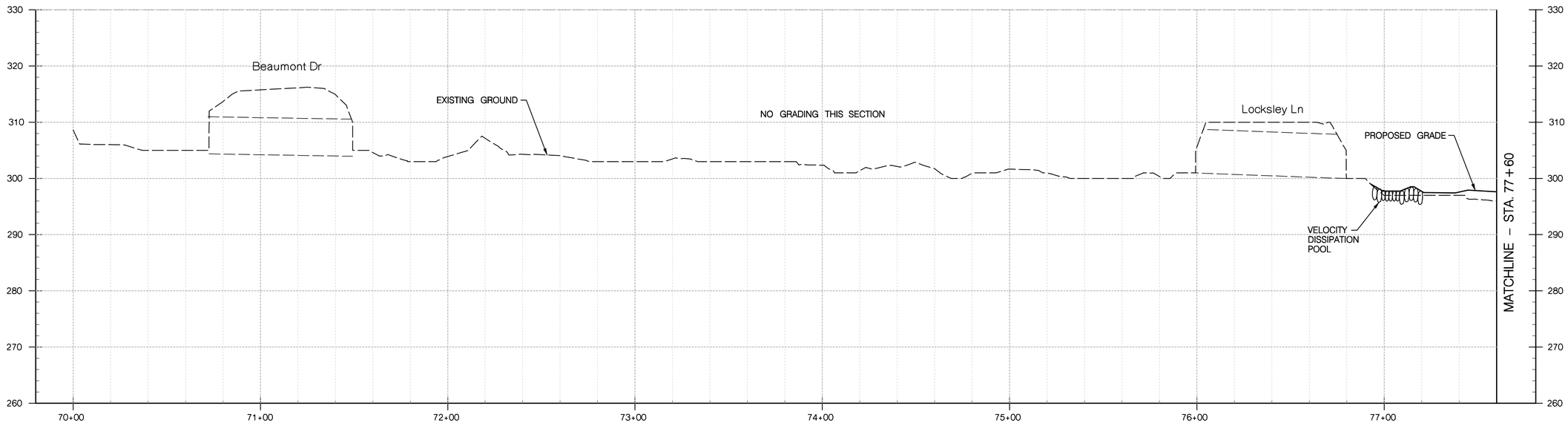
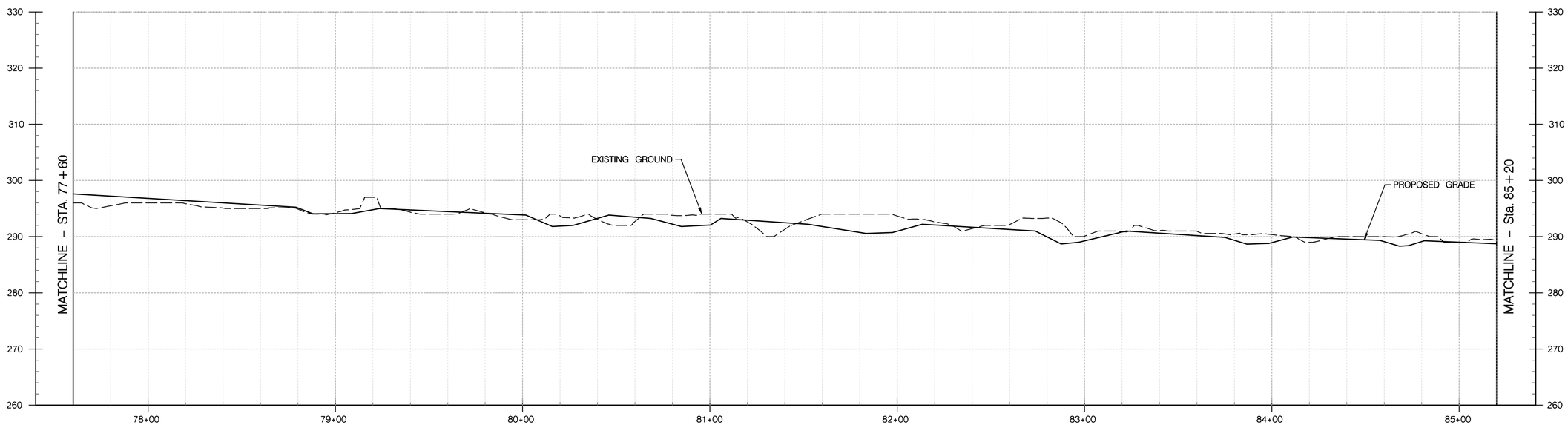
BY: bpalmer



STREAM PROFILE – SHERWOOD

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)



STREAM PROFILE – SHERWOOD

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)

NOTE: VERTICAL STATIONING AND ADDITIONAL PROFILE DETAILS TO BE ADDED FOR NEXT SUBMISSION

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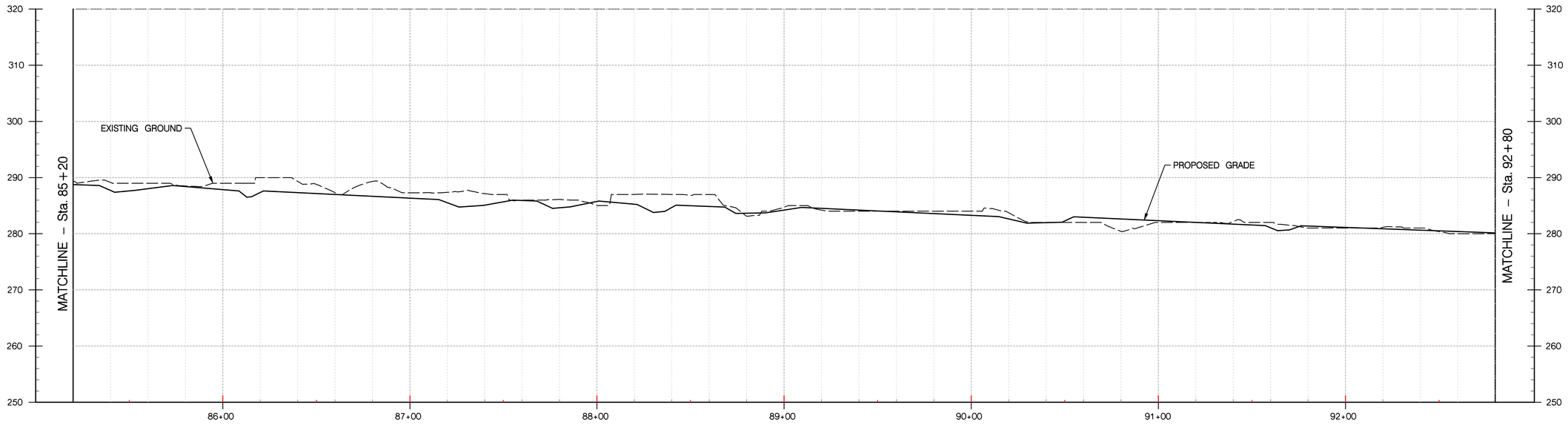
Dwn by: DEA	Reviewed by: TMH	Design file no:	Drawing code: SH-5
U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS BALTIMORE, MARYLAND	W912DR-07-D-0008 Task Order No. 19	Submitted by: CVK	Dwg scale: AS SHOWN

SHERWOOD PROFILE

Sheet Number:
27 OF 72

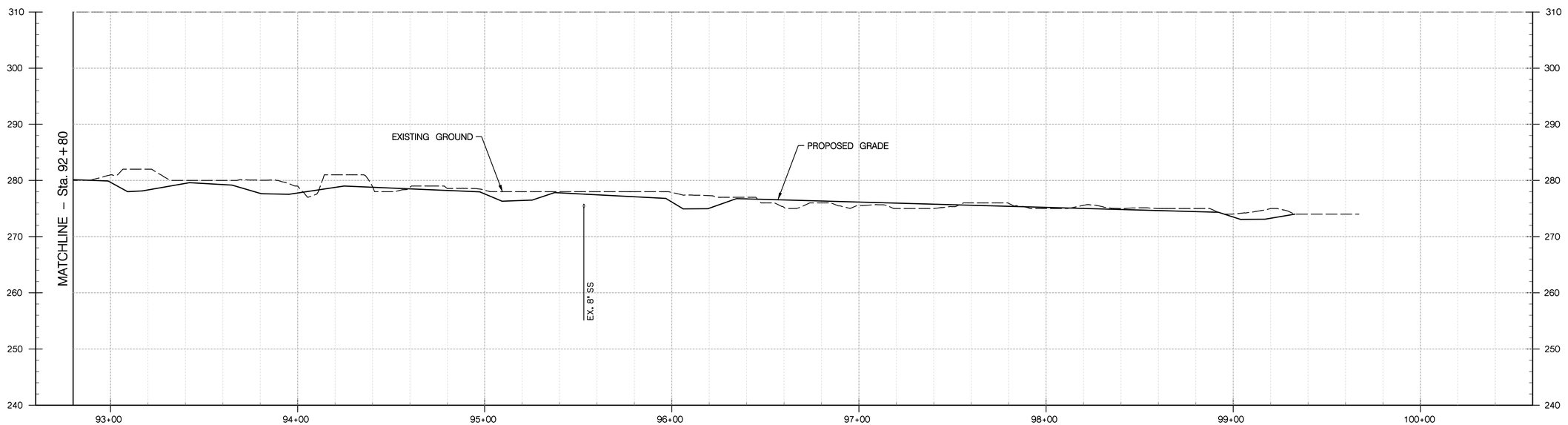
BY: bpalmer

PLOTTED: Thursday, October 06, 2011 AT 04:30 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\caddd\dgn\pPR-S001_nwbr.dgn



STREAM PROFILE – SHERWOOD

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)



STREAM PROFILE – SHERWOOD

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)

NOTE: VERTICAL STATIONING AND ADDITIONAL PROFILE DETAILS TO BE ADDED FOR NEXT SUBMISSION

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Designed by: REP	Ckd by: SPB	Date: 10/4/2011	
Dwn by: DEA		Design file no:	
Reviewed by: TMH		Drawing code: SH-6	
Submitted by: CVK		Dwg scale: AS SHOWN	

U.S. ARMY ENGINEER DIVISION
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BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

SHERWOOD PROFILE

Sheet Number:
28 OF 72

BY: bpalmer

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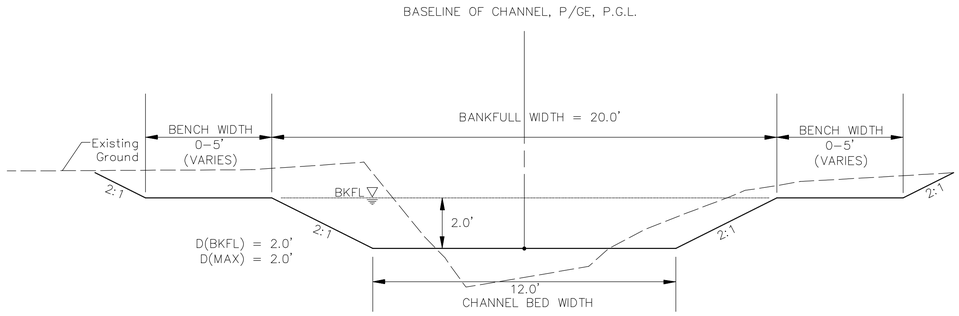
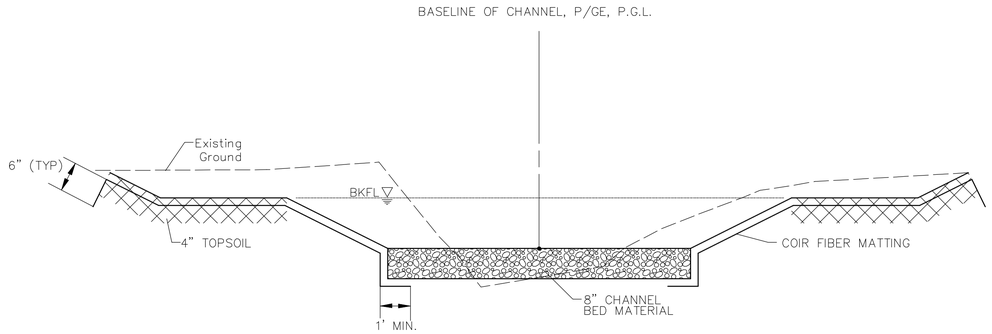
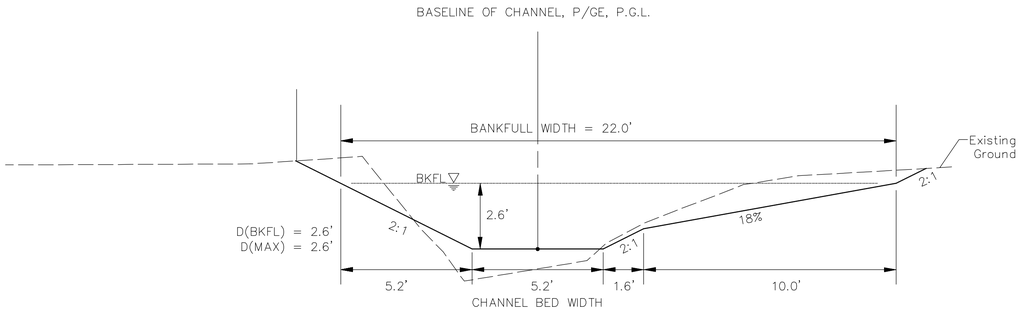


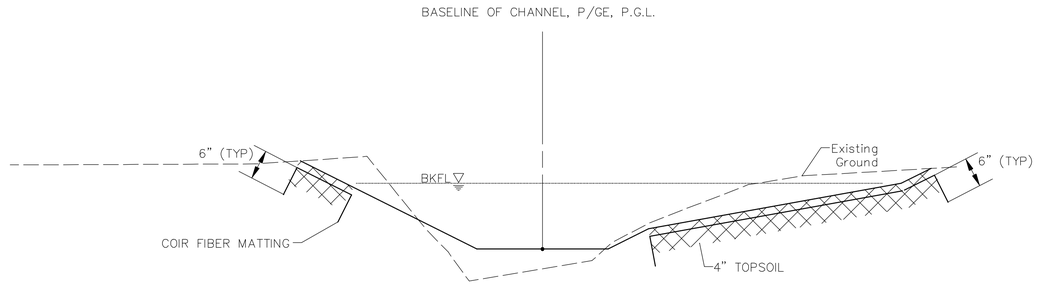
Sherwood Typical Section – Riffle



Sherwood Stabilization Detail – Riffle



Sherwood Typical Section – Pool



Sherwood Stabilization Detail – Pool

NOTES:

1. IN CASES WHERE AREA BEYOND THE BANKFULL CHANNEL ARE IN FILL, THE FILL SHALL BE PLACED AT 10:1 SLOPE.
2. SEE DETAIL SHEETS FOR ADDITIONAL CHANNEL STABILIZATION MEASURES.
3. SEE SPECIFICATIONS FOR DESCRIPTION OF MODIFIED COMMON BORROW.

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Task Order No. 19

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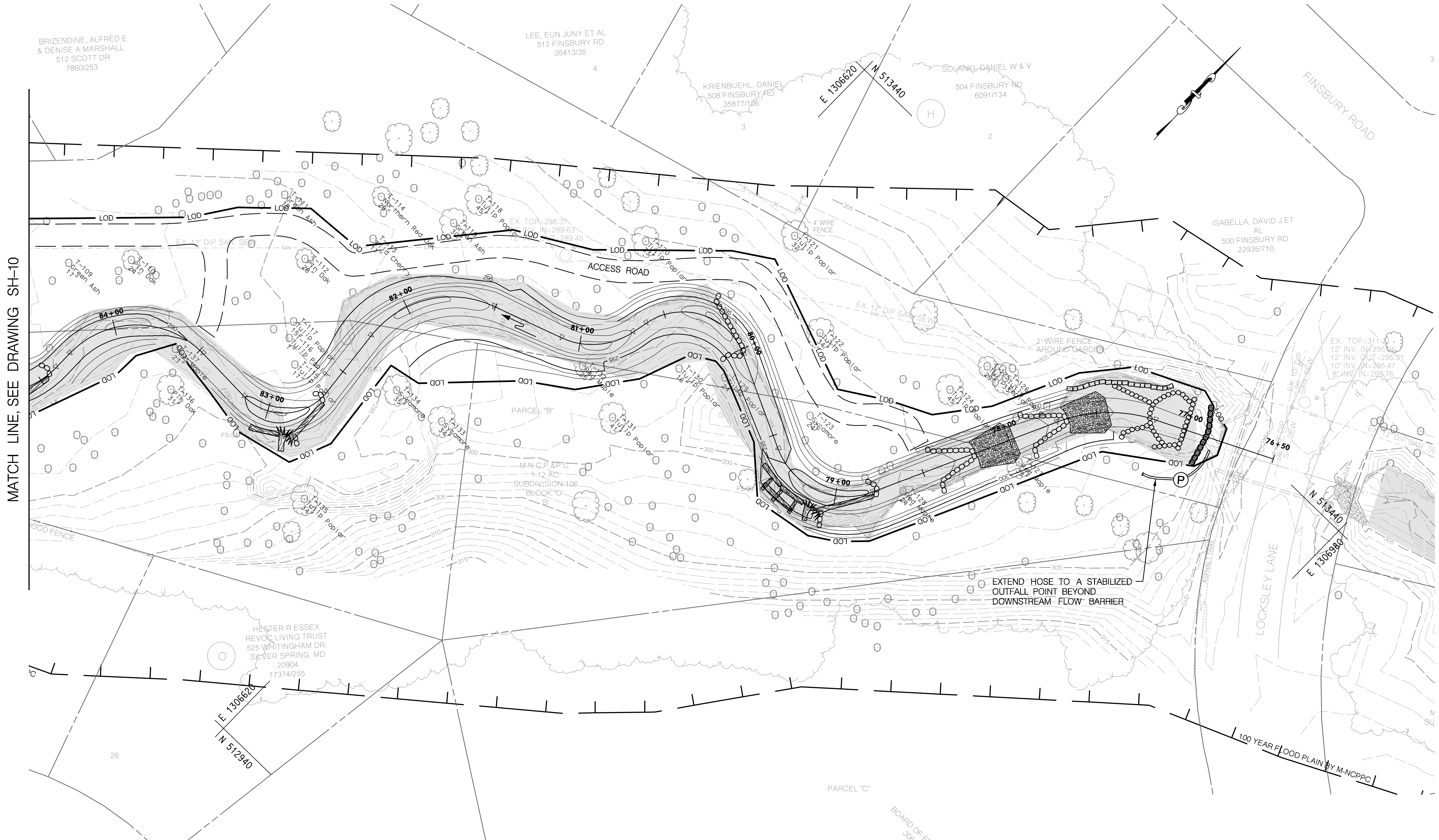
Cecil by: SPB
Reviewed by: TMH
Submitted by: CVK
Date: 10/4/2011
Design file no.
Drawing code: SH-7
Dwg scale: 1"=30'

SHERWOOD TYPICAL SECTION

Sheet Number:
29 OF 72

PLOTTED: Thursday, October 06, 2011 AT 04:40 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pTS-S001_nwbr.dgn
BY: tpalmer



NOTES:

1. ENTIRE PUMP-AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
3. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.

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MARK	DESCRIPTION	DATE	APPR

Designed by: REP	Date: 10/4/2011	
Dwn by: DEA	Ckd by: SPB	Design file no.
Reviewed by: TMH		Drawing code: SH-09
Submitted by: CVK		Dwg scale: 1"=30'

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CORPS OF ENGINEERS
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

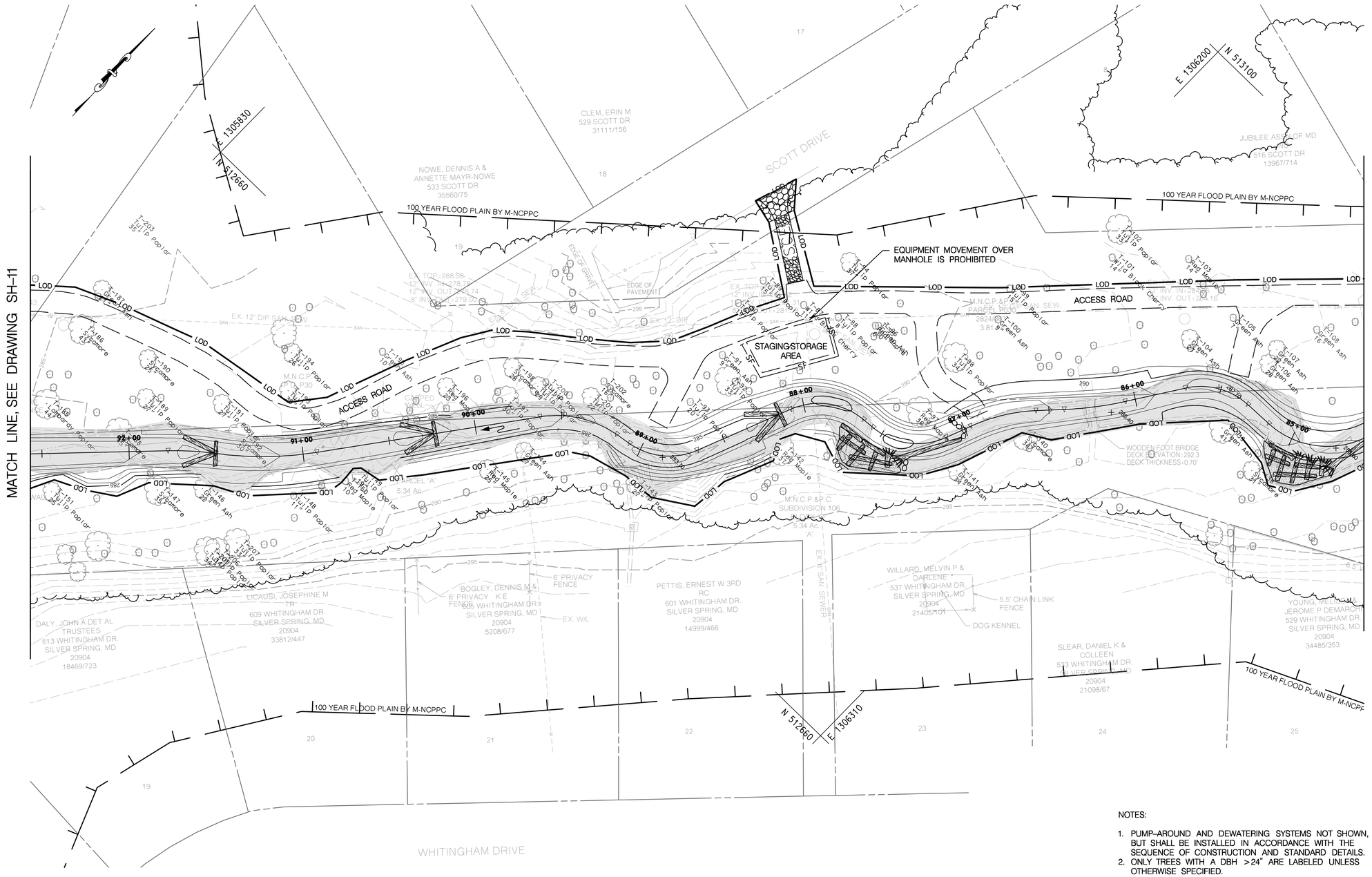
SHERWOOD EROSION & SEDIMENT CONTROL PLAN

Sheet Number:

31 OF 72

PLOTTED: Friday, October 07, 2011 AT 04:47 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pES-S001_nwbr.dgn

BY: bpalmer



NOTES:

1. PUMP-AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
3. LIMITS OF ACCESS ROADS AND STAGING-STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: SH-10
Dwg scale: 1"=30'
Designed by: REP
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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CORPS OF ENGINEERS
BALTIMORE, MARYLAND

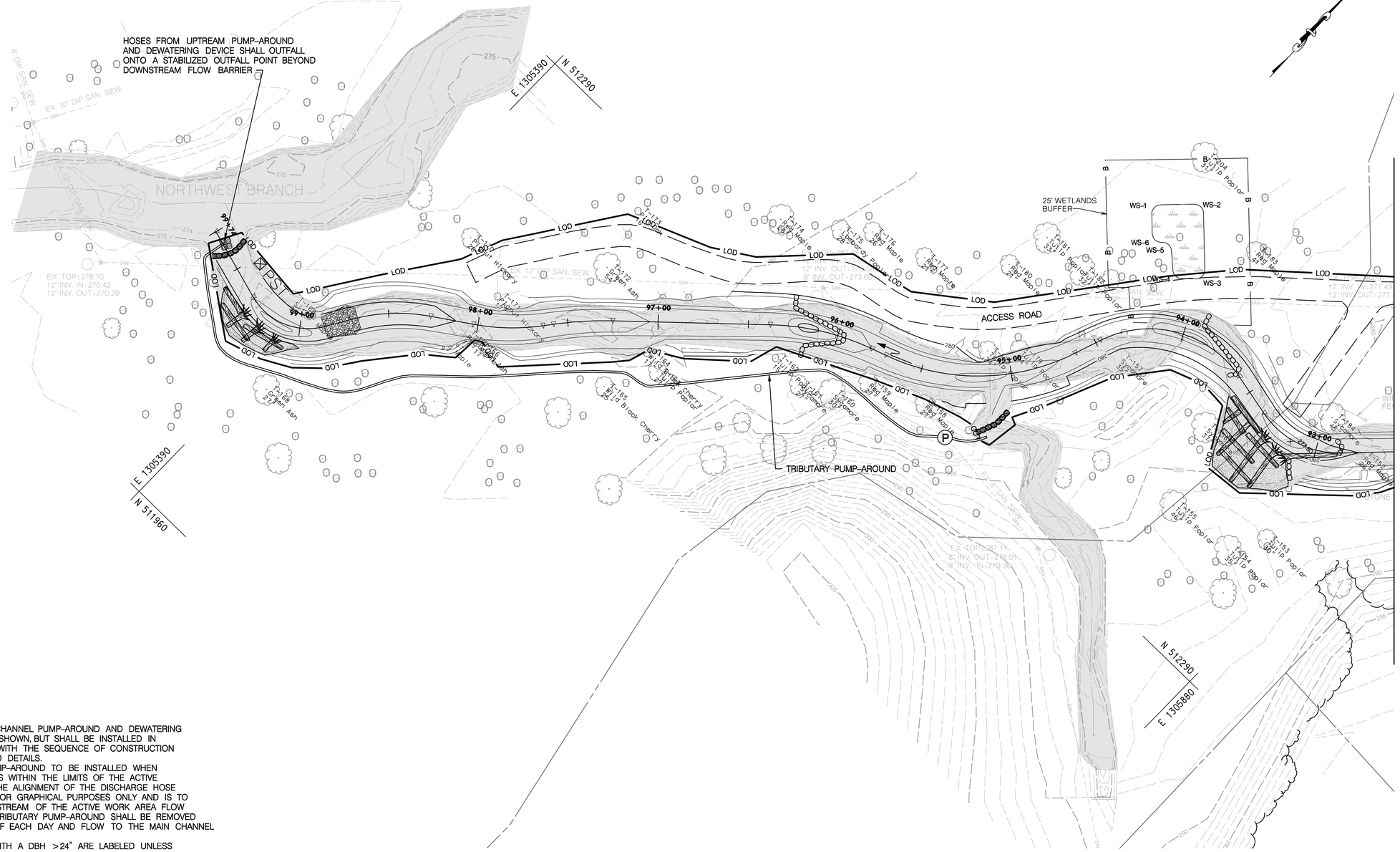
W912DR-07-D-0008
Task Order No. 19

SHERWOOD EROSION & SEDIMENT CONTROL PLAN

Sheet Number:
32 OF 72

BY: bpalmer

PLOTTED: Friday, October 07, 2011 AT 04:48 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pES-S002_nwbr.dgn



NOTES:

1. ENTIRE MAIN CHANNEL PUMP-AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. TRIBUTARY PUMP-AROUND TO BE INSTALLED WHEN CONFLUENCE IS WITHIN THE LIMITS OF THE ACTIVE WORK ZONE. THE ALIGNMENT OF THE DISCHARGE HOSE IS INCLUDED FOR GRAPHICAL PURPOSES ONLY AND IS TO OUTLET DOWNSTREAM OF THE ACTIVE WORK AREA FLOW BARRIER. THE TRIBUTARY PUMP-AROUND SHALL BE REMOVED AT THE END OF EACH DAY AND FLOW TO THE MAIN CHANNEL RESTORED.
3. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
4. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.
5. ENTIRE AREA SHOWN IS WITHIN THE 100-YR FLOODPLAIN LIMIT.

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CORPS OF ENGINEERS
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

Designed by: REP
Drawn by: DEA
Chkd by: SPB
Reviewed by: TMH
Submitted by: CVK

Date: 10/4/2011
Design file no.
Drawing code: SH-11
Dwg scale: 1"=30'

SHERWOOD EROSION & SEDIMENT CONTROL PLAN

Sheet Number:

33 OF 72

PLOTTED: Friday, October 07, 2011 AT 03:47 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pES-S003_nwbr.dgn
BY: bpalmer

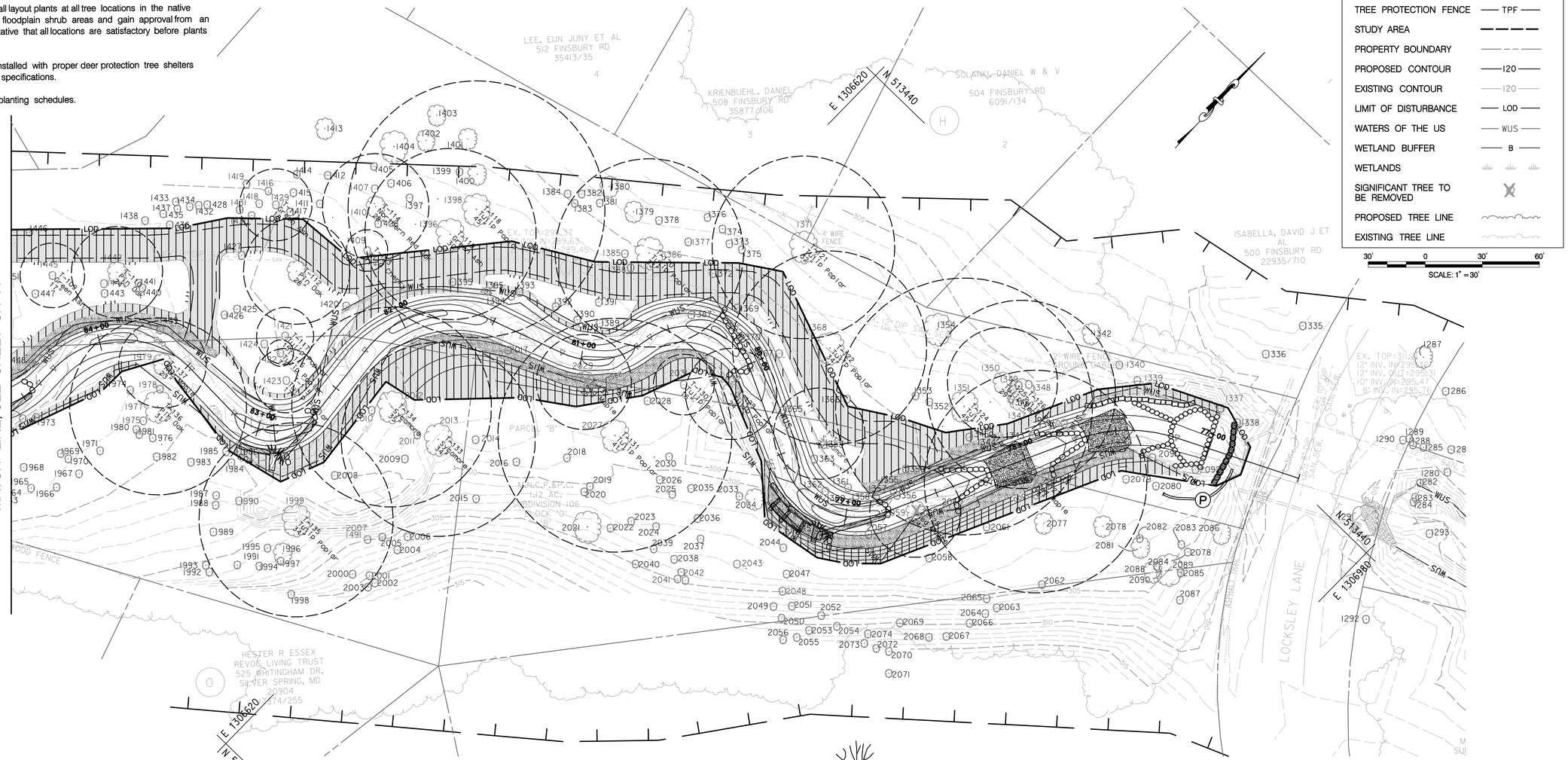
PLANTING NOTES

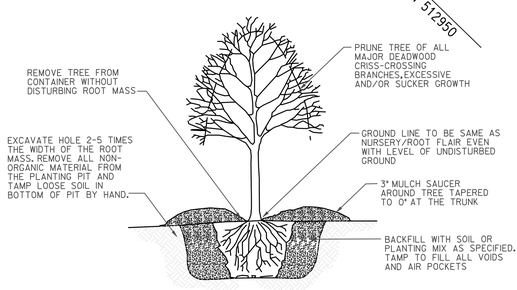
1. The Contractor shall place 3'x 1"x 1" stakes to identify planting areas along the entire boundary between the upland forest and the floodplain forest. Stakes shall be placed at 25' increments. The Contractor shall request that an Owner's representative review these locations and gain final approval before planting commences.

2. The Contractor shall layout plants at all tree locations in the native upland forest and floodplain shrub areas and gain approval from an Owner's representative that all locations are satisfactory before plants are installed.

3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.

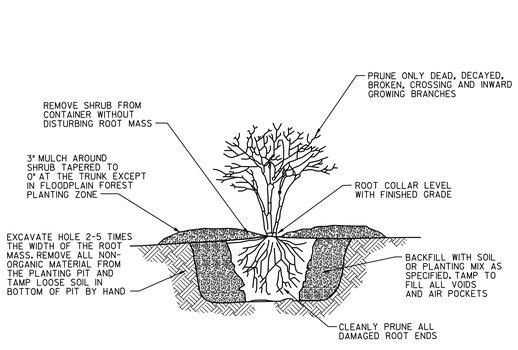
4. See Sheet 39 for planting schedules.



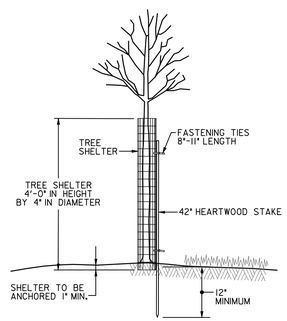


NOTES:
1. If surrounding soil is compacted as determinded by the engineer, an area up to 5 times the diameter of the root mass shall be excavated or rototilled to a 1'depth.
2. Do not damage or cut leader.

TREE PLANTING - CONTAINER GROWN
N.T.S.

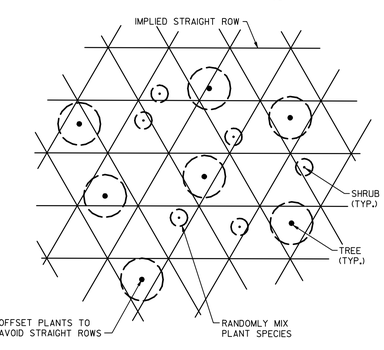


SHRUB PLANTING - CONTAINER
N.T.S.

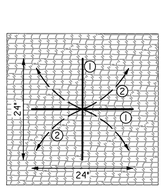


TREE SHELTER DETAIL
N.T.S.

NOTES:
1. UP TO 2" OF SOIL CAN BE MOUNTED AROUND THE OUTSIDE OF TREE SHELTER.
2. REFER TO TREE SHELTER SPECIFICATION FOR ADDITIONAL INFORMATION.



NATURALIZED PLANT SPACING
N.T.S.



1. Make cut with sharp knife through Coir Fiber Mattin Solid line in diagram
2. Pin back Coir Fiber with 4 staples - dashed line in dia
3. Install plant through pinned back Coir Fiber. Install plan at proper grade to ground plane
4. Remove 4 staples
5. For tree Installations, Install tree stakes through Coi
6. Install deer protection
7. Place 4 staples in each of four cut sections. Re-anch Coir Matting to ground

TREE & SHRUB INSTALLATION THROUGH COIR FIBER MATTING
N.T.S.

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.:
Drawing code: SH-16
Dwg scale: 1"=30'
Designed by: WMM
Drawn by: DEA
Checked by: REP
Reviewed by: TMH
Submitted by: CVK

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CORPS OF ENGINEERS
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

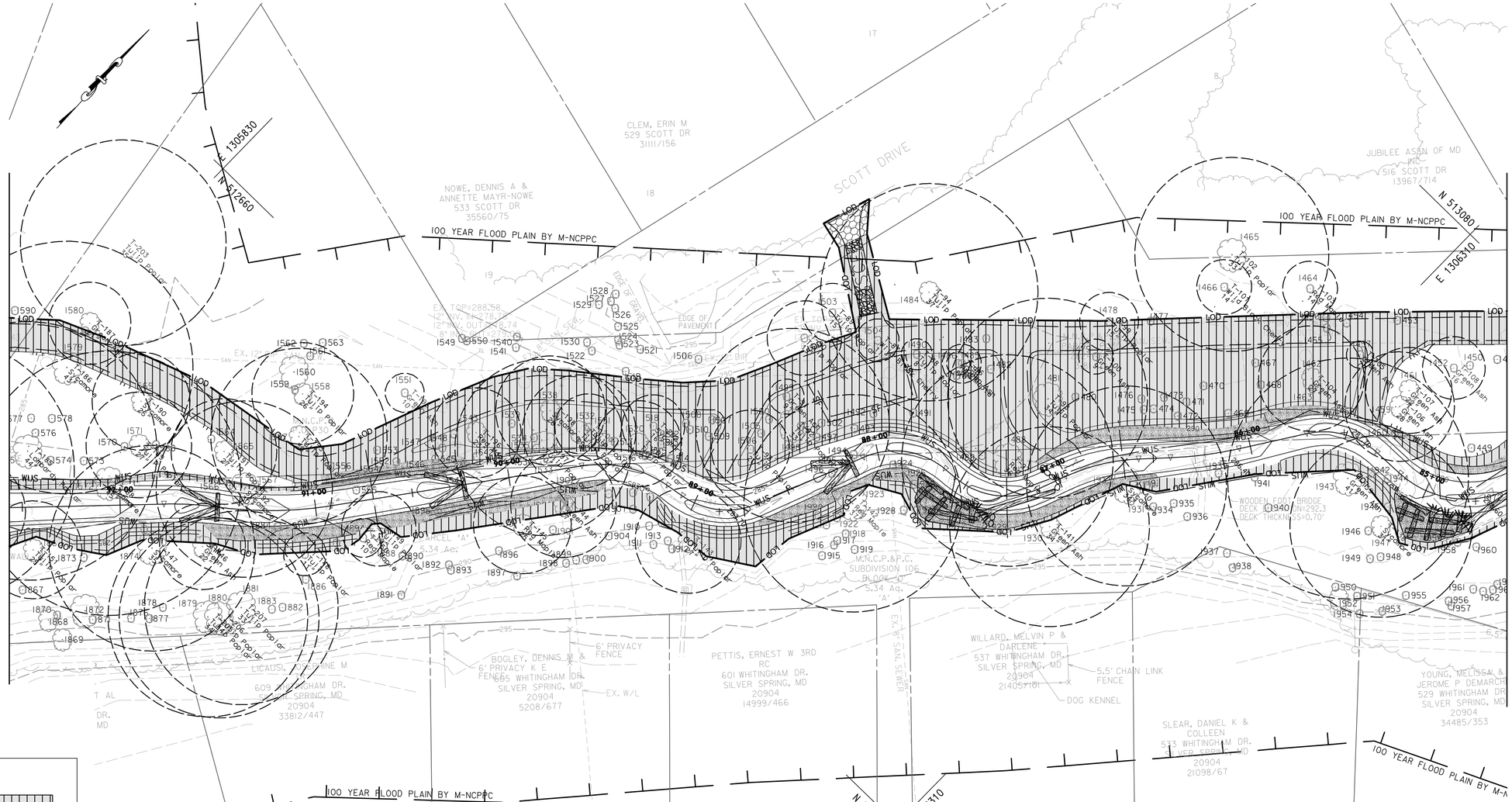
SHERWOOD
PLANTING PLAN &
PLANTING DETAILS

Sheet Number:
37 OF 72

PLOTTED: Thursday, October 06, 2011 AT 03:31 PM
FILE: \\RKKM\v2007\2007\07044_USACE\Task_6_Northwest\CADD\dgn\pLD-S001_nwbr.dgn

MATCH LINE, SEE SHEET SH-15

MATCH LINE, SEE SHEET SH-17



LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN SHRUB
- TREE PROTECTION FENCE — TPF
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR — 120
- EXISTING CONTOUR — 120
- LIMIT OF DISTURBANCE — LOD
- WATERS OF THE US — WUS
- WETLAND BUFFER — B
- WETLANDS
- PROPOSED TREE LINE
- EXISTING TREE LINE

PLANTING NOTES

1. The Contractor shall place 3'x 1"x 1" stakes to identify planting areas along the entire boundary between the floodplain shrub and the floodplain forest. Stakes shall be placed at 25' increments. The Contractor shall request that an Owner's representative review these locations and gain final approval before planting commences.
2. The Contractor shall layout plants at all tree locations in the native upland forest and floodplain shrub areas and gain approval from an Owner's representative that all locations are satisfactory before plants are installed.
3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.
4. See Sheet 39 for planting schedules.

30' 0 30' 60'

SCALE: 1" = 30'

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.:
Drawing code: SH-17
Dwg scale: 1"=30'
Designed by: WMM
Drawn by: DEA
Ckd by: REP
Reviewed by: TMH
Submitted by: CVK

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

W912DR-07-D-0008
Task Order No. 19

SHERWOOD PLANTING PLAN

Sheet Number:
38 OF 72

PLOTTED: Friday, October 07, 2011 AT 05:57 AM
FILE: \\RKKM\v2007\2007\07044_USACE\Task_6_Northwest\CADD\dgn\pLD-S002_nwbr.dgn
BY: dwooley

NATIVE FLOODPLAIN SHRUB

Size (acres): 0.33

Overall Minimum Spacing (feet center)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
10	436			**SHRUBS**					
		33	48	*Clethra alnifolia*	Sweet Pepperbush	FAC+	24-36" ht.	Cont.	Clustered @ 8' OC
		33	48	*Cornus amomum*	Silky Dogwood	FACW	24-36" ht.	Cont.	Clustered @ 8' OC
		34	48	*Ilex verticillata*	Winterberry	FACW+	24-36" ht.	Cont.	Clustered @ 8' OC
		100.0	**84**	**=total**					
NA	40		lbs.	**NATIVE PERMANENT SEED***					
		34	4.4	*Andropogon gerardii*	Big Bluestem	FAC	Seed	NA	Lb. of P.L.S. 76%
		33	4.4	*Panicum clandestinum*	Deer Tongue	FACW	Seed	NA	Lb. of P.L.S. 76%
		33	4.4	*Elymus virginicus*	Virginia Wild Rye	FACW-	Seed	NA	Lb. of P.L.S. 76%
		100.0	**13.2**	**=total**					

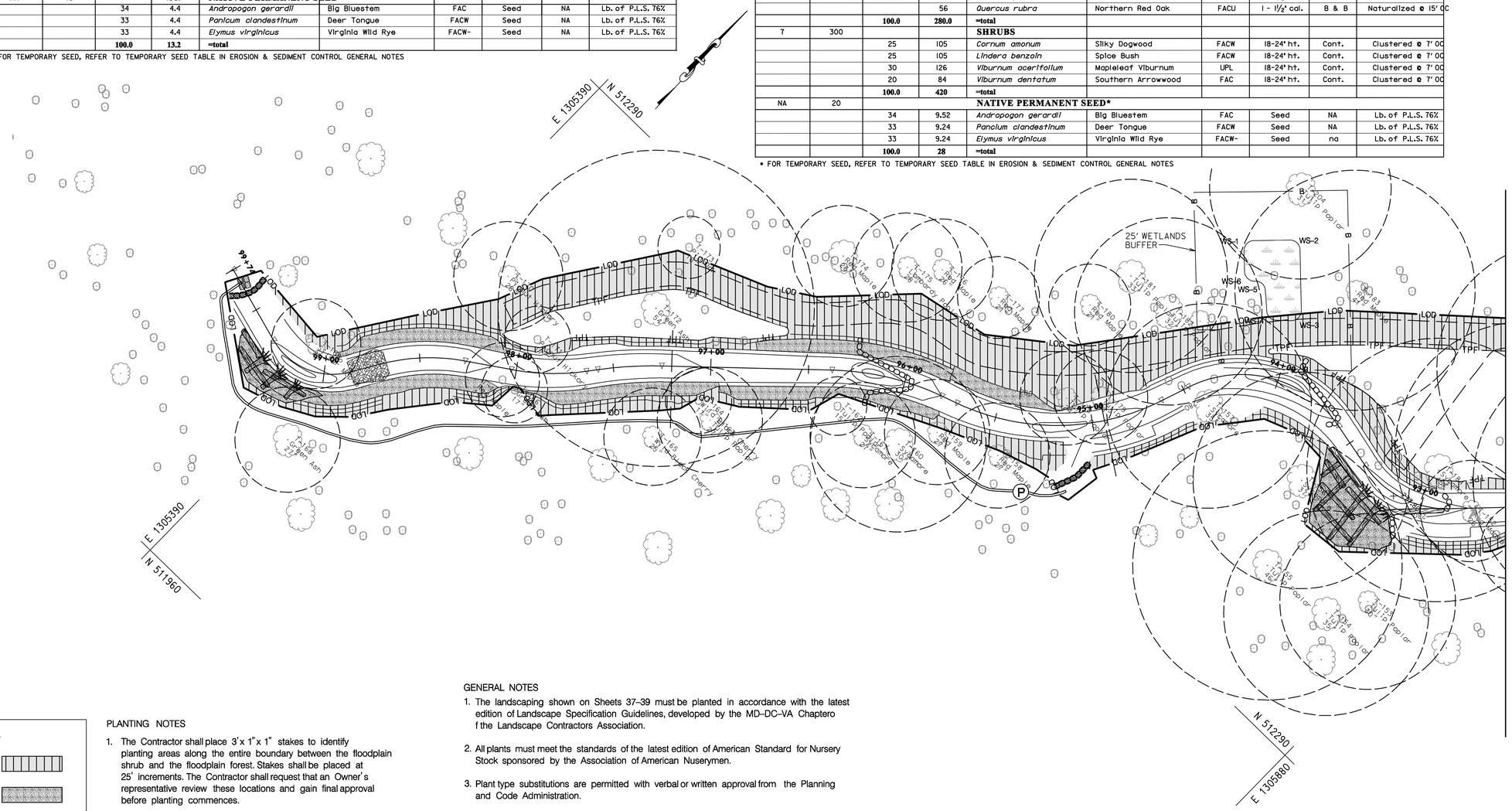
• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL GENERAL NOTES

NATIVE UPLAND FOREST

Size (acres): 6.95

Overall Minimum Spacing (feet center)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
15	200			**TREES**					
			56	*Acer rubrum*	Red Maple	FAC	1 - 1½" cal.	B & B	Naturalized @ 15' OC
			42	*Liriodendron tulipifera*	Tulip Poplar	FACU	1 - 1½" cal.	B & B	Naturalized @ 15' OC
			28	*Nyssa sylvatica*	Black Gum	FAC	1 - 1½" cal.	B & B	Naturalized @ 15' OC
			56	*Platanus occidentalis*	American Sycamore	FACW	1 - 1½" cal.	B & B	Naturalized @ 15' OC
			42	*Quercus palustris*	Pin Oak	FACW	1 - 1½" cal.	B & B	Naturalized @ 15' OC
			56	*Quercus rubra*	Northern Red Oak	FACU	1 - 1½" cal.	B & B	Naturalized @ 15' OC
		100.0	**280.0**	**=total**					
7	300			**SHRUBS**					
		25	105	*Cornum amonum*	Silky Dogwood	FACW	18-24" ht.	Cont.	Clustered @ 7' OC
		25	105	*Lindera benzoin*	Spice Bush	FACW	18-24" ht.	Cont.	Clustered @ 7' OC
		30	126	*Viburnum acerifolium*	Mapleleaf Viburnum	UPL	18-24" ht.	Cont.	Clustered @ 7' OC
		20	84	*Viburnum dentatum*	Southern Arrowwood	FAC	18-24" ht.	Cont.	Clustered @ 7' OC
		100.0	**420**	**=total**					
NA	20			**NATIVE PERMANENT SEED***					
		34	9.52	*Andropogon gerardii*	Big Bluestem	FAC	Seed	NA	Lb. of P.L.S. 76%
		33	9.24	*Panclum clandestinum*	Deer Tongue	FACW	Seed	NA	Lb. of P.L.S. 76%
		33	9.24	*Elymus virginicus*	Virginia Wild Rye	FACW-	Seed	na	Lb. of P.L.S. 76%
		100.0	**28**	**=total**					

• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL GENERAL NOTES



LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN SHRUB
- TREE PROTECTION FENCE — TPF
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR — 120
- EXISTING CONTOUR — 120
- LIMIT OF DISTURBANCE — LOD
- WATERS OF THE US — WUS
- WETLAND BUFFER — B
- WETLANDS
- PROPOSED TREE LINE
- EXISTING TREE LINE

PLANTING NOTES

1. The Contractor shall place 3'x 1"x 1" stakes to identify planting areas along the entire boundary between the floodplain shrub and the floodplain forest. Stakes shall be placed at 25' increments. The Contractor shall request that an Owner's representative review these locations and gain final approval before planting commences.
2. The Contractor shall layout plants at all tree locations in the native upland forest and floodplain shrub areas and gain approval from an Owner's representative that all locations are satisfactory before plants are installed.
3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.

GENERAL NOTES

1. The landscaping shown on Sheets 37–39 must be planted in accordance with the latest edition of Landscape Specification Guidelines, developed by the MD–DC–VA Chaptero f the Landscape Contractors Association.
2. All plants must meet the standards of the latest edition of American Standard for Nursery Stock sponsored by the Association of American Nuserymen.
3. Plant type substitutions are permitted with verbal or written approval from the Planning and Code Administration.
4. All tress are to be located a minimum distance of 5 feet from all utility boxes, 5 feet from a strom drain inlet or manhole, 10 feet from a fire hydrant, 15 feet from public street lights, 5 feet from driveway aprons, 20 feet from any traffic control sign and at least 30 feet from any intersection.
5. Shrubs to be planted in groups of 7–10 plants.
6. Soil conditions must be tested, verified and adjusted by the landscape contractor to ensure that appropriate soil composition and PH levels are suitable for plant materials specified for that specific location.
7. Any planting within a forest retention area, as designated on the forest conservation plan and shown on this plan, must be carried out in such a way as to avoid any adverse impact to the roots of existing tress.
8. All plant material will be reinspected for survival by the Planning and Code Adminstration one year following installation. A 10 percent maintenance bond will be retained during this time period.
9. Planting installation shall include a 2 year maintenance period.

30' 0 30' 60'

SCALE: 1" = 30'

BY: dwooley

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Designed by: WMM
Dwn by: DEA | Ckd by: REP
Reviewed by: TMH
Submitted by: CVK

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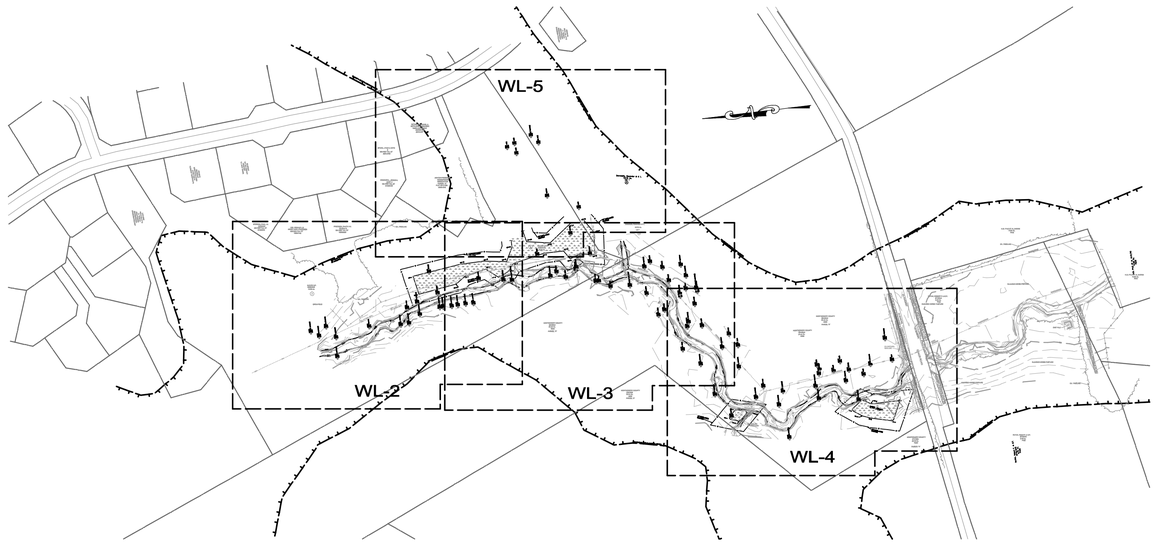
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

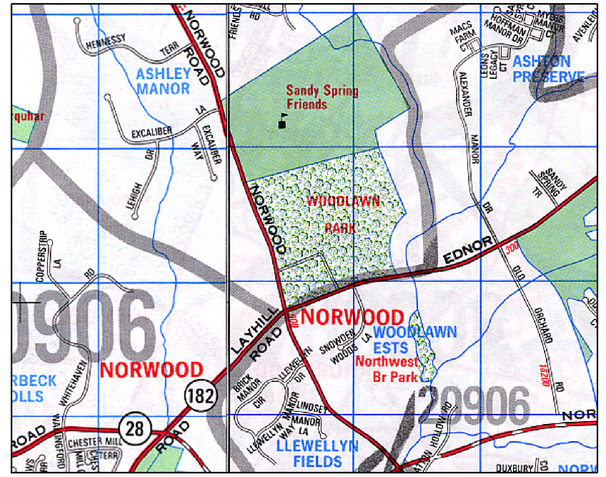
SHERWOOD PLANTING PLAN & PLANTING SCHEDULES

Sheet Number:
39 OF 72



KEY MAP

200 0 200 400 Feet
SCALE: 1"=200'



VICINITY MAP

SEQUENCE OF CONSTRUCTION

1. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION AT (410) 537-3510 FOR THE REQUIRED PRE-CONSTRUCTION MEETING AT LEAST SEVEN DAYS BEFORE COMMENCING LAND DISTURBING ACTIVITIES.
2. INSTALL TREE PROTECTION FENCING AS SHOWN ON THE PLAN.
3. COMPLETE TREE REMOVAL AND SELECTIVE TRIMMING AS SHOWN ON THE PLAN OR AS DIRECTED BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
4. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO AN APPROVED MDE SEDIMENT CONTROL DEVICE.

PHASE W-1 (STA. 40+00 TO STA. 49+00)

5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO INSTALL PERIMETER EROSION AND SEDIMENT CONTROL DEVICES.
6. INSTALL STABILIZED CONSTRUCTION ENTRANCE OFF ALEXANDER MANOR DRIVE AND BUILD THE ASSOCIATED TEMPORARY ACCESS ROAD. STABILIZE AT THE END OF EACH WORK DAY. FOR THE ACCESS ROAD WITHIN A WETLAND, PLACE TIMBER MATS TO MINIMIZE IMPACTS.
7. INSTALL SILT FENCE AS DESIGNATED ON THE PLANS.
8. CLEAR AND GRUB REMAINING WORK AREA ABOVE STA. 49+00. ANY DISTURBANCE CAUSED BY THIS PROCESS SHALL BE STABILIZED BY THE END OF THE DAY.
9. INSTALL PUMP-AROUND FLOW DIVERSION AND DEWATER THE CONSTRUCTION ZONE THROUGH THE APPROVED DEWATERING DEVICE. THE CONTRACTOR SHALL STAGE THE LIMITS OF THE PUMP-AROUND FLOW DIVERSION TO DEWATER ONLY THAT SECTION SCHEDULED FOR THAT DAY'S WORK. AT THE END OF EACH WORK DAY THE WORK AREA SHALL BE STABILIZED, THE PUMP-AROUND PRACTICE REMOVED, AND THE FLOW RESTORED TO THE CHANNEL. WORK SHALL BE COMPLETED ONLY DURING FORECASTED PERIODS OF DRY WEATHER.
10. CONSTRUCT PHASE W-1 STREAM IMPROVEMENTS BEGINNING UPSTREAM TO DOWNSTREAM. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO MINIMIZE UNNECESSARY DISTURBANCE. FOR THE STREAM IMPROVEMENTS, ONLY THAT AMOUNT OF WORK SHALL BE COMPLETED THAT CAN BE STABILIZED BY THE END OF THE DAY.
11. ONCE ALL PHASE W-1 STREAM WORK HAS BEEN COMPLETED AND PERMANENTLY STABILIZED, REMOVE THE ASSOCIATED ACCESS ROAD, SILT FENCE AND STABILIZED CONSTRUCTION ENTRANCES. PERMANENTLY STABILIZE ALL AREAS DISTURBED BY THIS PROCESS IN ACCORDANCE WITH THE PLANS.

PHASE W-2 (STA. 49+00 TO STA. 59+83)

12. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO INSTALL PERIMETER EROSION AND SEDIMENT CONTROL DEVICES.
13. INSTALL EDNOR ROAD STABILIZED CONSTRUCTION ENTRANCE AND ASSOCIATED ACCESS ROAD FOR WORK AREA DOWNSTREAM OF STA 49+00. STABILIZE AT THE END OF EACH WORK DAY.
14. CLEAR AND GRUB REMAINING WORK AREA BELOW STA. 49+00. ANY DISTURBANCE CAUSED BY THIS PROCESS SHALL BE STABILIZED BY THE END OF THE DAY.
15. INSTALL PUMP-AROUND FLOW DIVERSION AND DEWATER THE CONSTRUCTION ZONE THROUGH THE APPROVED DEWATERING DEVICE. THE CONTRACTOR SHALL STAGE THE LIMITS OF THE PUMP-AROUND FLOW DIVERSION TO DEWATER ONLY THAT SECTION SCHEDULED FOR THAT DAY'S WORK. AT THE END OF EACH WORK DAY, THE WORK AREA SHALL BE STABILIZED, THE PUMP-AROUND PRACTICE REMOVED, AND THE FLOW RESTORED TO THE CHANNEL. WORK SHALL BE COMPLETED ONLY DURING FORECASTED PERIODS OF DRY WEATHER.
16. CONTINUE STREAM IMPROVEMENTS DOWNSTREAM OF STA. 49+00 WORKING FROM DOWNSTREAM TO UPSTREAM. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN THE CHANNEL.
17. WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING MAINTENANCE OF STREAMFLOW DEVICES, ACCESS ROAD, AND EROSION AND SEDIMENT CONTROL DEVICES. STABILIZE ALL AREAS DISTURBED DURING THIS PROCESS.

SITE INFORMATION - WOODLAWN	
A. TOTAL AREA OF FACILITY (Base, Campus, Park, Etc.)	18.24 Acres
B. TOTAL AREA OF PROJECT SITE	18.24 Acres
C. AREA DISTURBED	2.97 Acres
D. AREA TO BE ROOFED OR PAVED	0.00 Acres
E. TOTAL CUT	917 CY
F. TOTAL FILL	1,237 CY
G. OFF-SITE WASTE/BORROW AREA LOCATION	TBD

FOR COMBINED SITE INFORMATION REFER TO DRAWING GN-10

NOTES:

1. STOCKPILE AREA SHALL BE LOCATED AT AN MDE APPROVED OFF-SITE LOCATION.
2. MAINTENANCE OF TRAFFIC IS THE RESPONSIBILITY OF THE CONTRACTOR.

LEGEND

WUS — WATERS OF THE U.S.	LIVE FASCINES
B — WETLAND BUFFER	ROCK J-HOOK VANE
WETLAND AREA	ROCK CROSS VANE
354 EXISTING CONTOURS	PROPOSED RIFFLE GRADE CONTROL
220 PROPOSED CONTOURS	PROP. BURIED LOG
S EXIST. SAN. SEWER MANHOLE	LOG CROSS VANE
SD EXIST. STORMDRAIN MANHOLE	LOG J-HOOK VANE
T-122 Tulip Poplar 34" EXISTING TREE >24" DBH	LOG MEANDER PROTECTION STRUCTURE
TREE TO BE REMOVED	

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Design file no.
Drawing code: WL-1
Dwg scale: AS SHOWN
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Drawn by: Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

WOODLAWN COVER SHEET

Sheet Number:
40 OF 72

BY: bpalmer

PLOTTED: Monday, October 10, 2011 AT 07:43 AM
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NOTES:
1. ONLY TREES WITH A DBH >24" ARE LABELD UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC

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Dwn by: DEA	Ckd by: SPB	Design file no.
Reviewed by: TMH	Drawing code: WL-2	
Submitted by: CVK	Dwg scale: 1"=30'	

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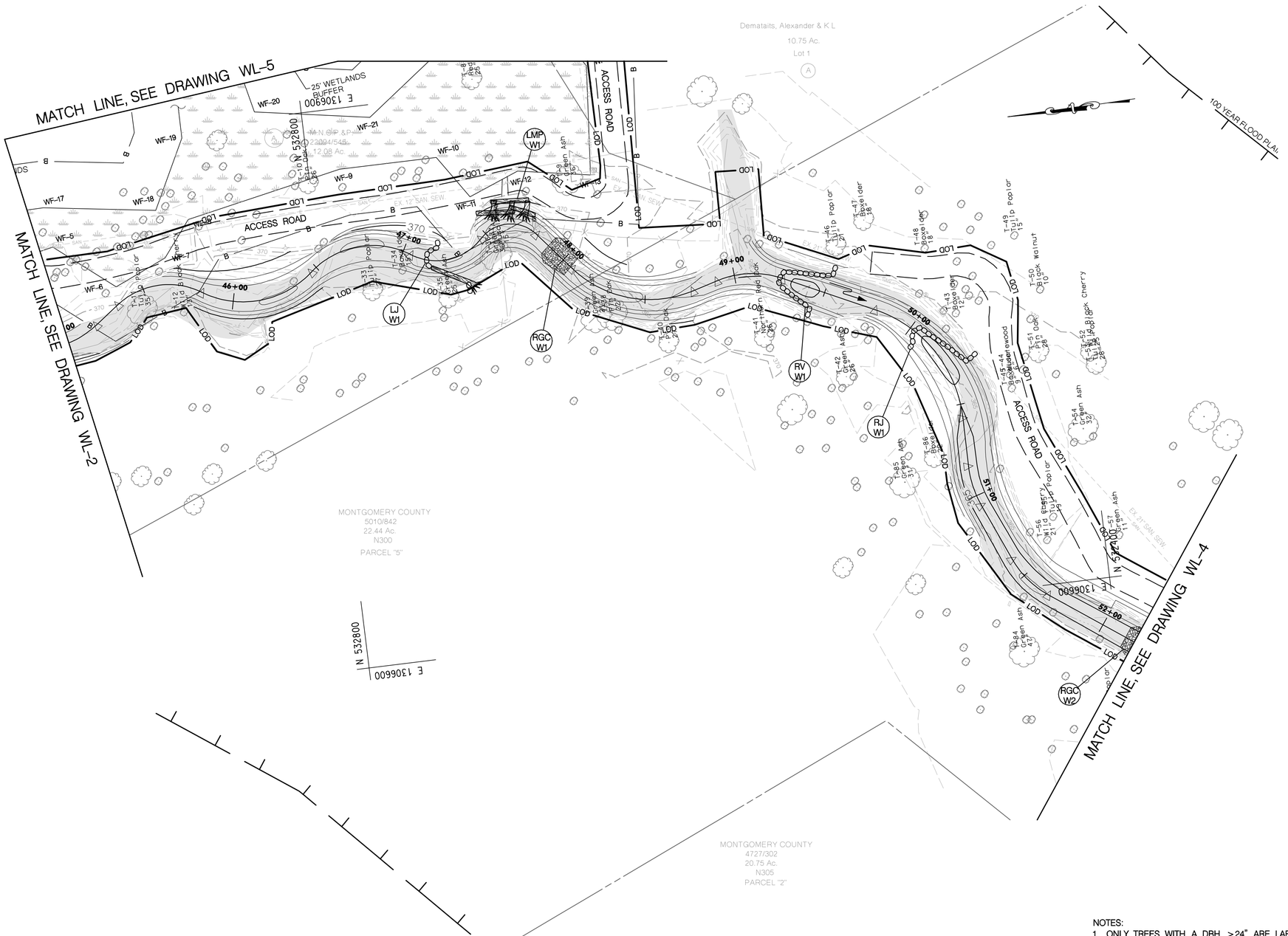
Task Order No. 19

WOODLAWN SITE PLAN

Sheet Number:
41 OF 72

BY: bpalmer



NOTES:
1. ONLY TREES WITH A DBH >24" ARE LABELD UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING-STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC

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Chkd by: SPB
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Submitted by: CVK

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Dwg scale: 1"=30'

WOODLAWN SITE PLAN

Sheet Number:
42 OF 72

BY: bpalmer

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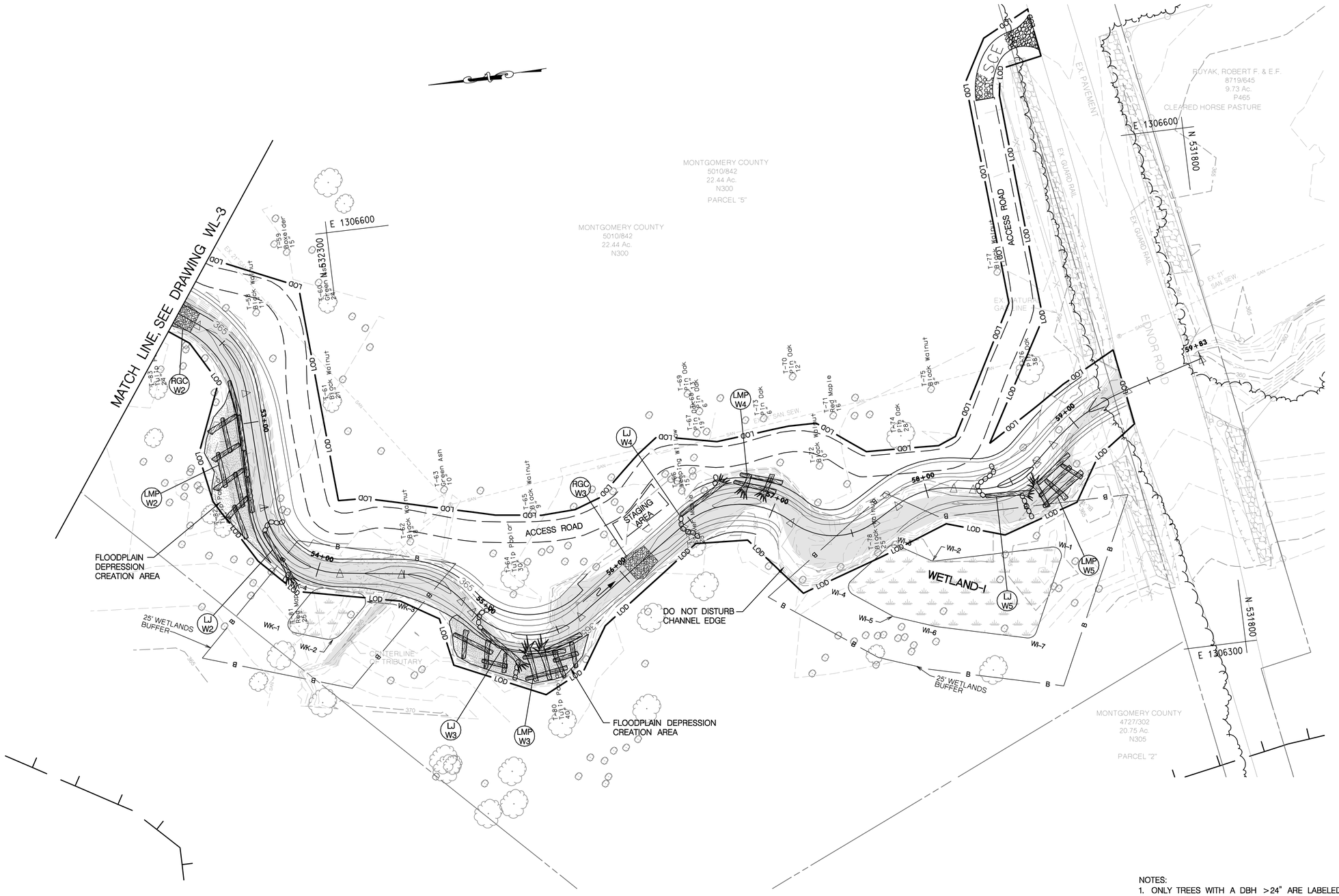

NOTES:
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Reviewed by: TMH
Submitted by: CVK

Date: 10/4/2011
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Drawing code: WL-4
Dwg scale: 1"=30'

WOODLAWN SITE PLAN

Sheet Number:
43 OF 72

BY: bpalmer

PLOTTED: Thursday, October 06, 2011 AT 11:25 AM
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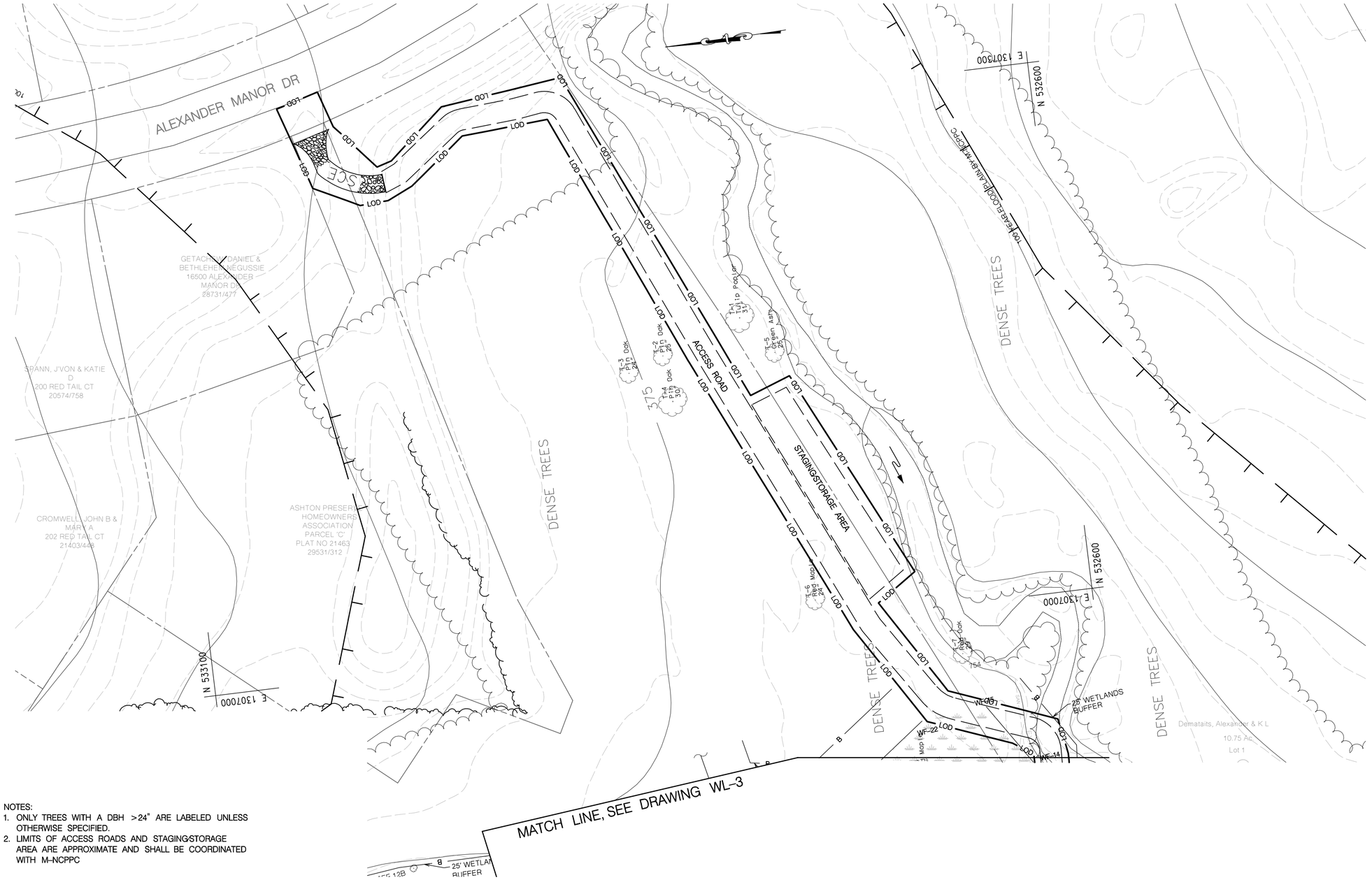

NOTES:
1. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC

NOTE: TOPOGRAPHY FROM COUNTY 200' SCALE MAPPING WITH 2-FOOT CONTOUR INTERVAL

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Reviewed by: TMH
Submitted by: CVK

Date: 10/4/2011
Design file no.
Drawing code: WL-5
Dwg scale: 1"=30'

WOODLAWN SITE PLAN

Sheet Number:
44 OF 72

BY: bpalmer

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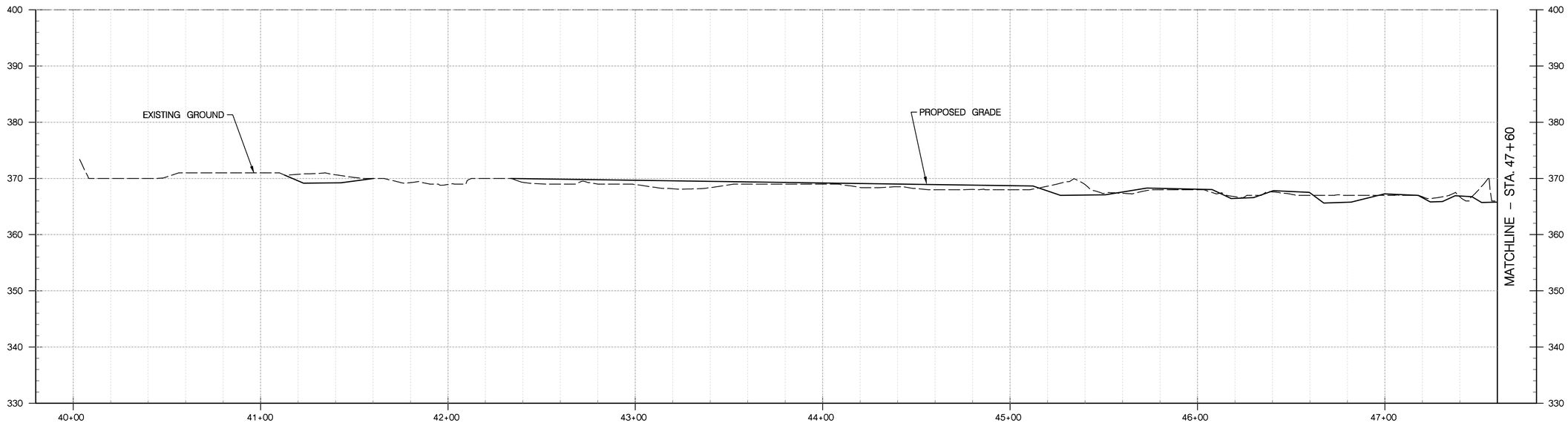
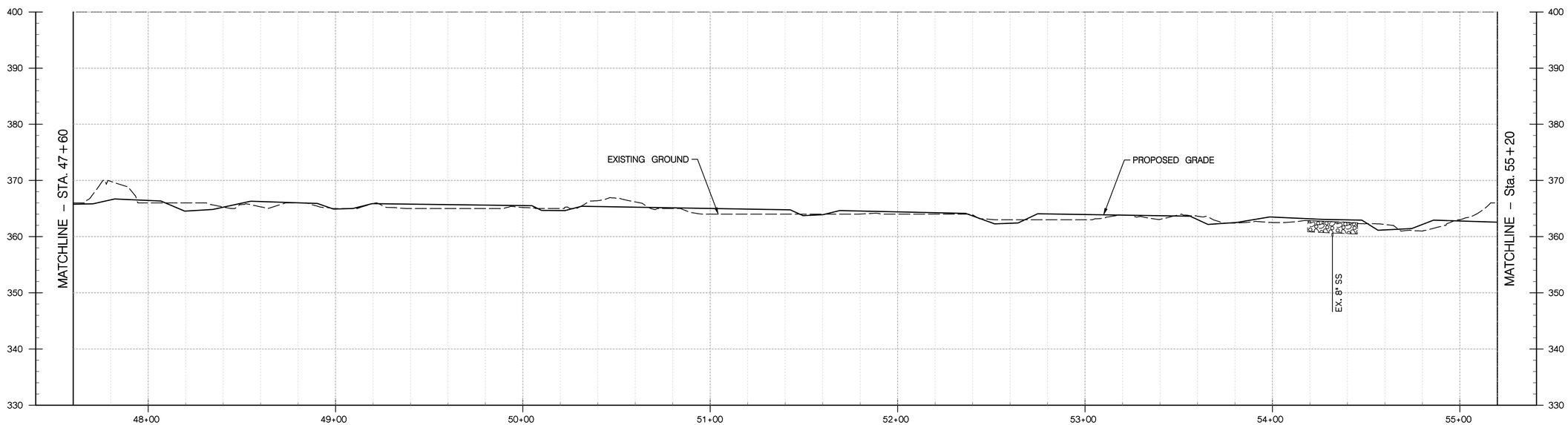


STREAM PROFILE – WOODLAWN

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)



STREAM PROFILE – WOODLAWN

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)

NOTE: VERTICAL STATIONING AND ADDITIONAL PROFILE DETAILS TO BE ADDED FOR NEXT SUBMISSION

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Submitted by: CVK		Dwg scale: AS SHOWN	

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W912DR-07-D-0008
Task Order No. 19

WOODLAWN PROFILE

Sheet Number:
45 OF 72

BY: bpalmer

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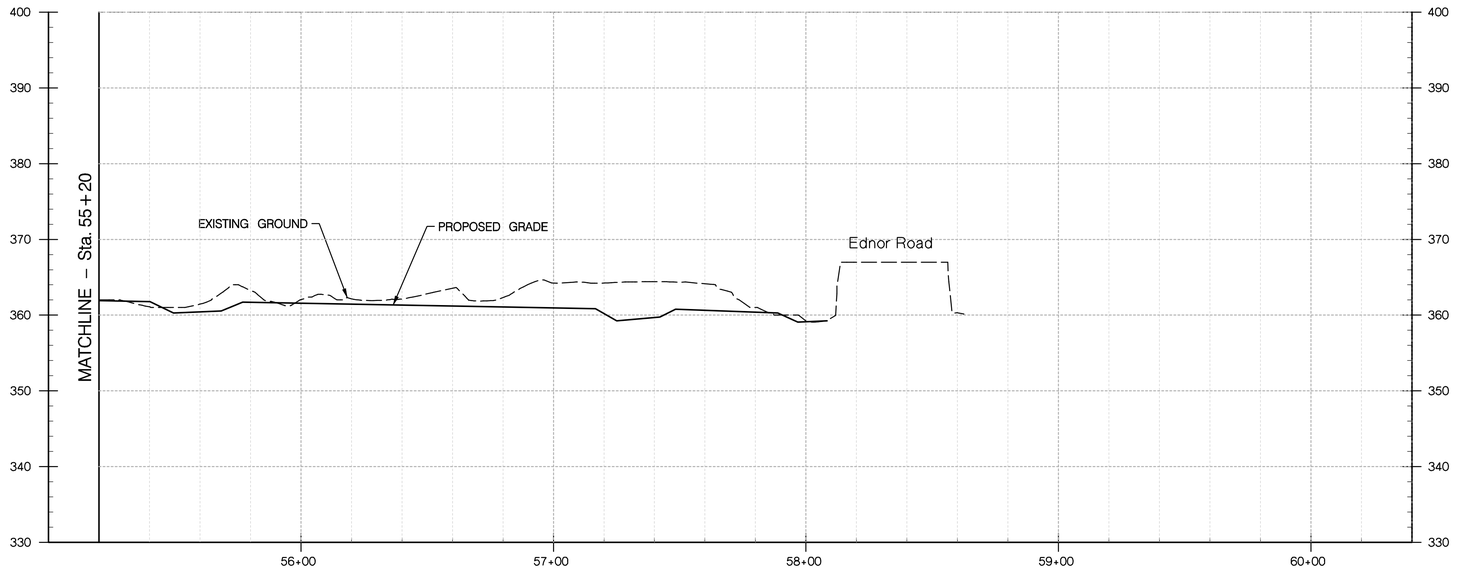

STREAM PROFILE – WOODLAWN

SCALE: 1" = 10' (VERT.)
1" = 30' (HORIZ.)

NOTE: VERTICAL STATIONING AND ADDITIONAL PROFILE DETAILS TO BE ADDED FOR NEXT SUBMISSION

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Reviewed by: TMH
Submitted by: CVK

Date: 10/4/2011
Design file no.:
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WOODLAWN PROFILE

Sheet Number:
46 OF 72

BY: bpalmer

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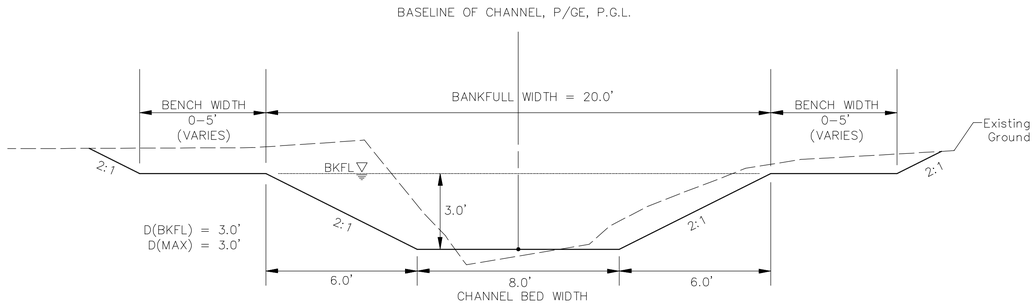
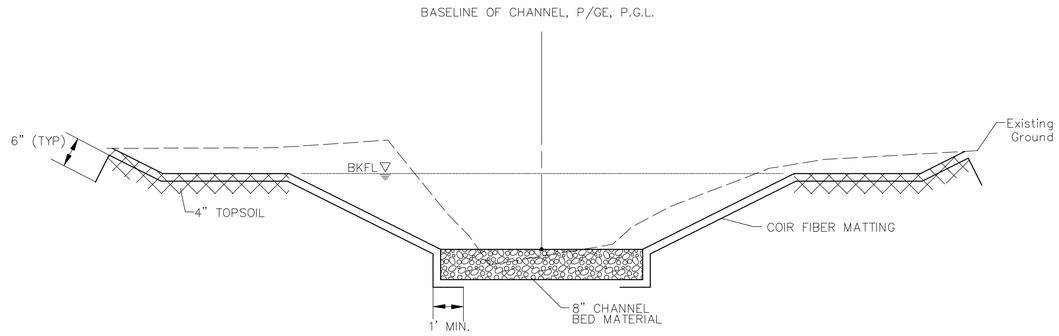
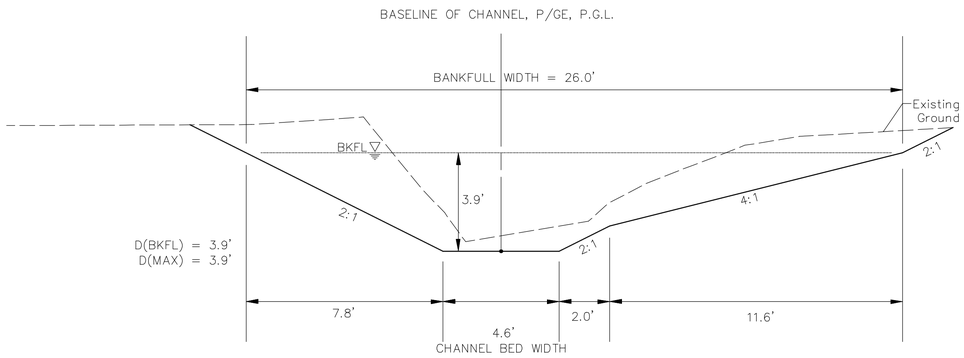


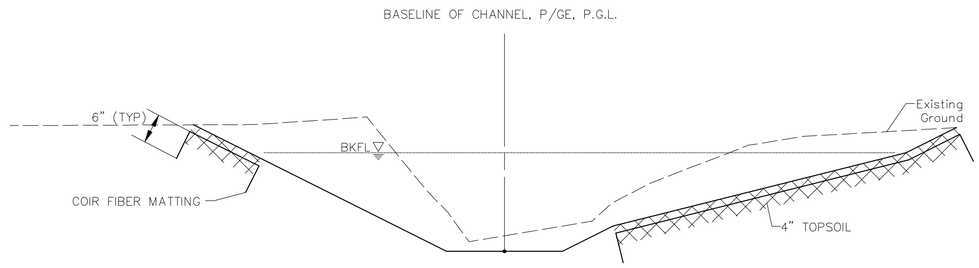
Woodlawn Typical Section – Riffle



Woodlawn Stabilization Detail – Riffle



Woodlawn Typical Section – Pool



Woodlawn Stabilization Detail – Pool

NOTES:

1. IN CASES WHERE AREA BEYOND THE BANKFULL CHANNEL ARE IN FILL, THE FILL SHALL BE PLACED AT 10:1 SLOPE.
2. SEE DETAIL SHEETS FOR ADDITIONAL CHANNEL STABILIZATION MEASURES.
3. SEE SPECIFICATIONS FOR DESCRIPTION OF MODIFIED COMMON BORROW.

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: WL-8
Dwg scale: 1"=30'

Designed by: REP
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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

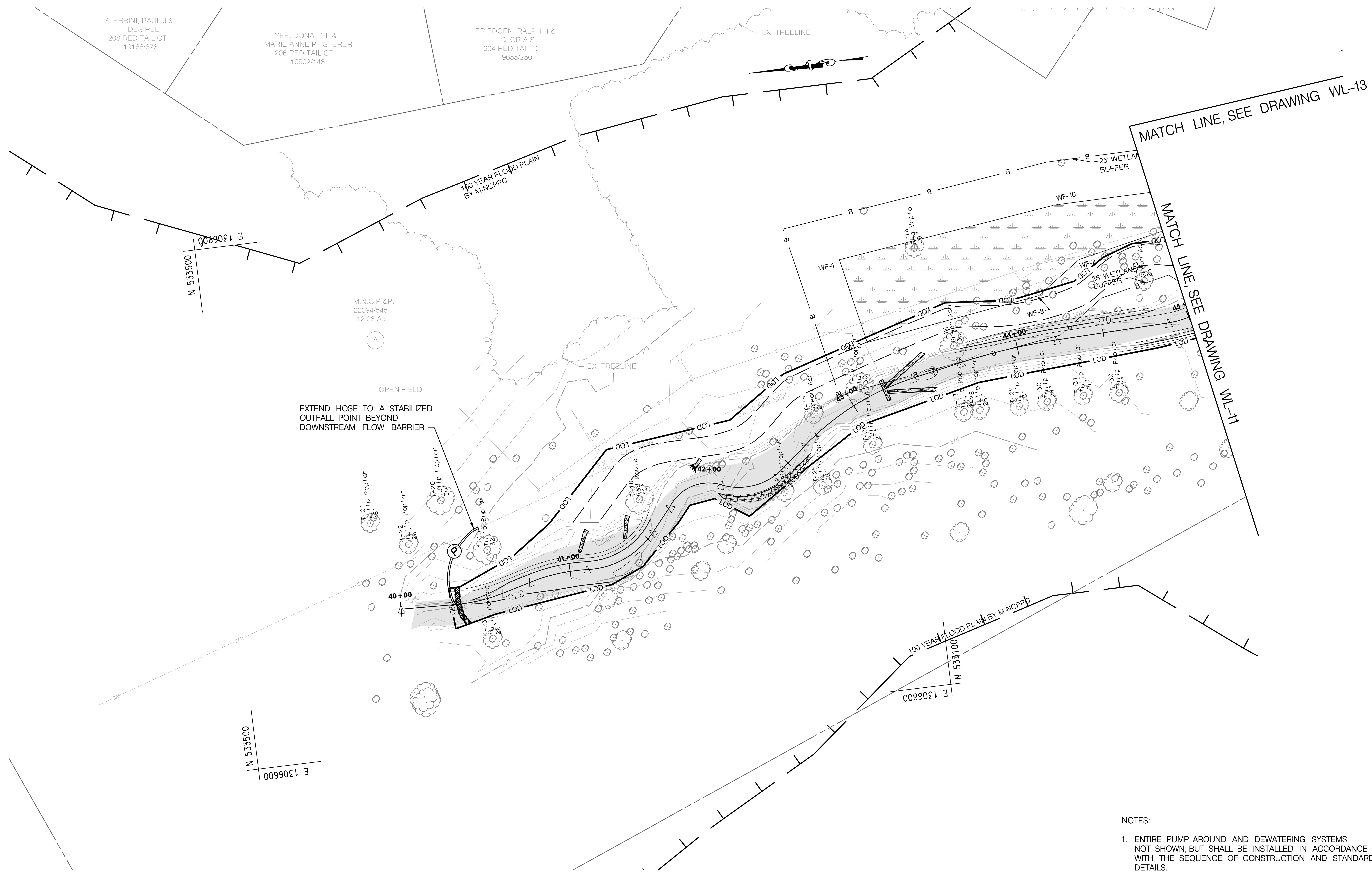
W912DR-07-D-0008
Task Order No. 19

WOODLAWN TYPICAL SECTIONS

Sheet Number:
47 OF 72

BY: bpalmer

PLOTTED: Thursday, October 06, 2011 AT 04:42 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pTS-W001_nwbr.dgn



NOTES:

1. ENTIRE PUMP-AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
3. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.

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Task Order No. 19

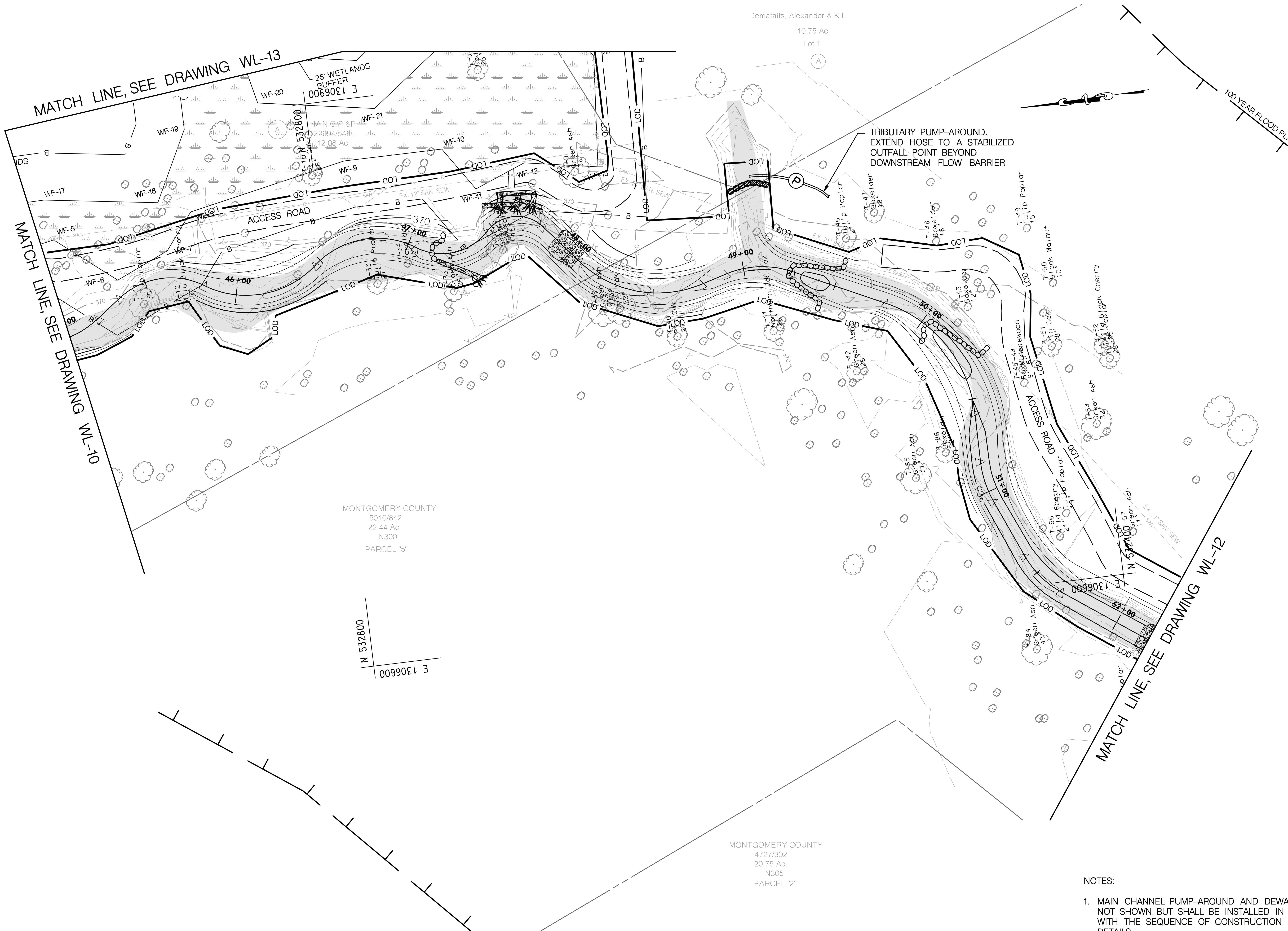
Designed by: REP
Dwn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK
Date: 10/4/2011
Design file no.
Drawing code: WL-10
Dwg scale: 1"=30'

WOODLAWN EROSION & SEDIMENT CONTROL PLAN

Sheet Number: 49 OF 72

PLOTTED: Friday, October 07, 2011 AT 03:56 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pES-W001_nwbr.dgn

BY: bpalmer



NOTES:

1. MAIN CHANNEL PUMP-AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. TRIBUTARY PUMP-AROUND TO BE INSTALLED WHEN CONFLUENCE IS WITHIN THE LIMITS OF THE ACTIVE WORK ZONE. THE TRIBUTARY PUMP-AROUND SHALL BE REMOVED AT THE END OF EACH DAY AND FLOW TO THE MAIN CHANNEL RESTORED.
3. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
4. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.

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Task Order No. 19

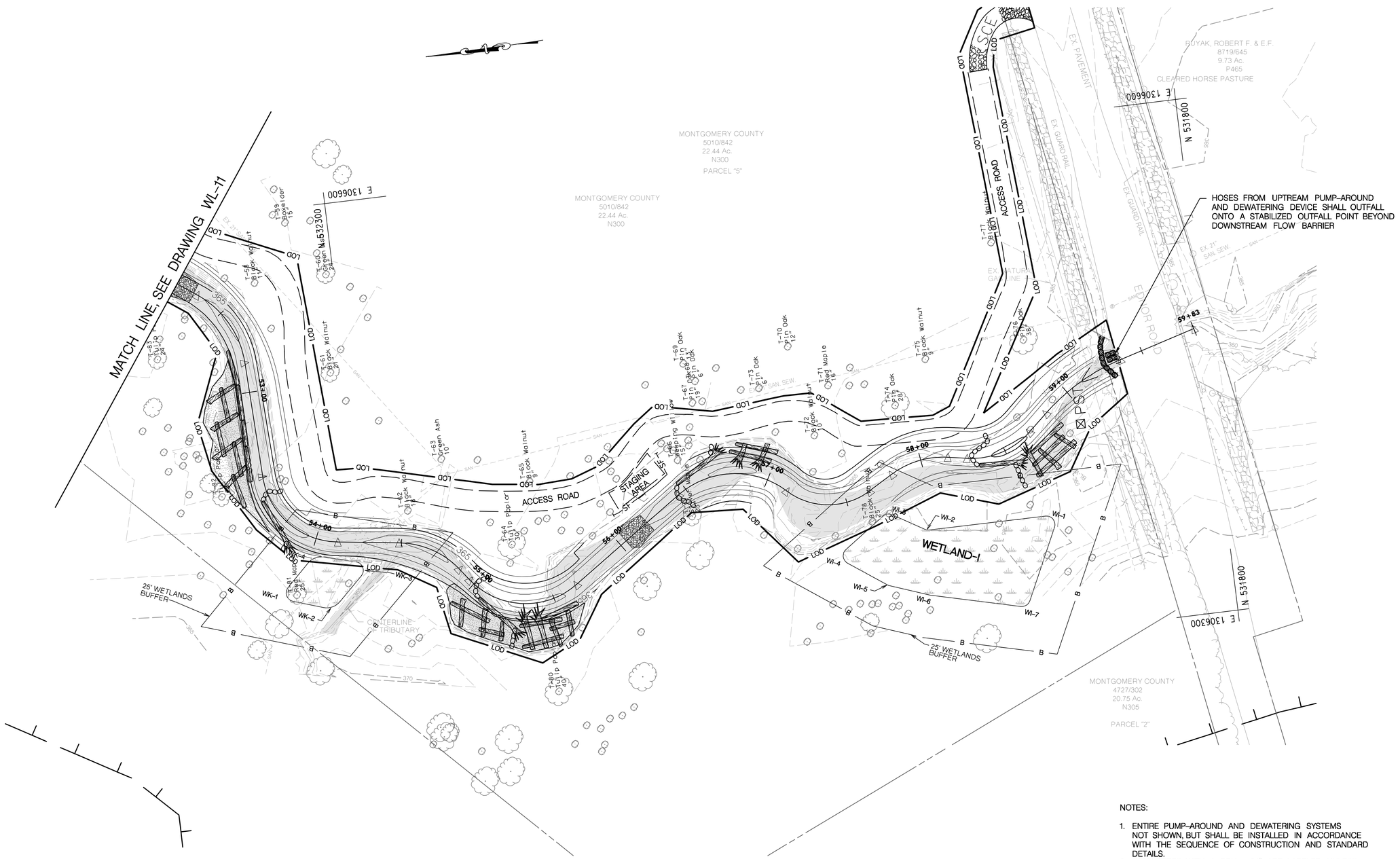
Designed by: WEM	Date: 10/4/2011	
Dwn by: DEA	Ckd by: BEB	Design file no.
Reviewed by: TMH	Drawing code: WL-11	
Submitted by: CVK	Dwg scale: 1"=30'	

WOODLAWN EROSION & SEDIMENT CONTROL PLAN

Sheet Number:
50 OF 72

PLOTTED: Friday, October 07, 2011 AT 04:11 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pES-W002_nwbr.dgn

BY: lpalmer



NOTES:

1. ENTIRE PUMP-AROUND AND DEWATERING SYSTEMS NOT SHOWN, BUT SHALL BE INSTALLED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND STANDARD DETAILS.
2. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
3. LIMITS OF ACCESS ROADS AND STAGING-STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M-NCPPC.
4. 100-YR FLOODPLAIN LIMIT EXTENDS BEYOND THE EASTERN LIMITS OF THE PROJECT.

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Designed by: REP
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Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

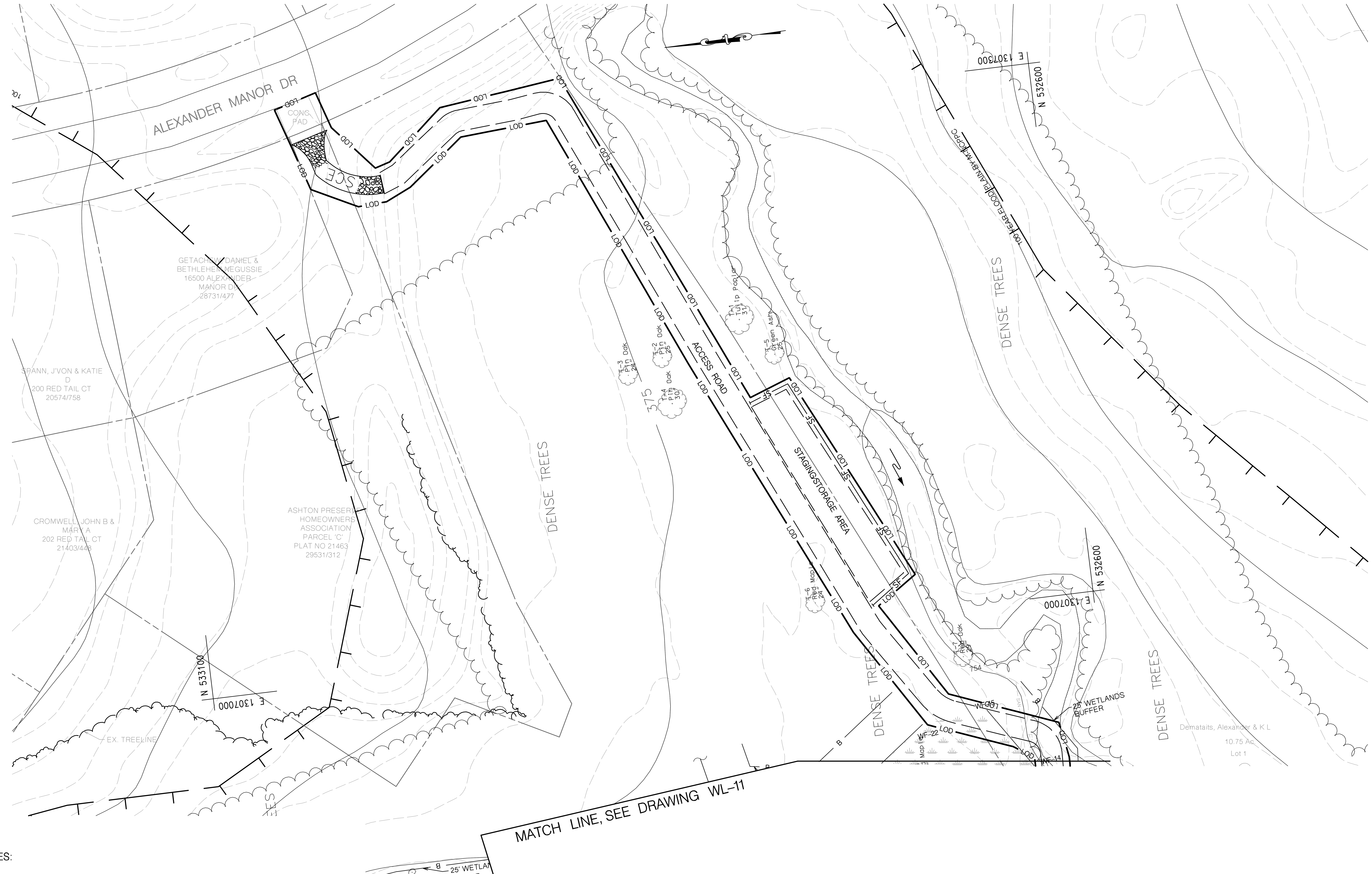
Date: 10/4/2011
Design file no.
Drawing code: WL-12
Dwg scale: 1"=30'

WOODLAWN EROSION & SEDIMENT CONTROL PLAN

Sheet Number:
51 OF 72

BY: bpalmer

PLOTTED: Friday, October 07, 2011 AT 04:19 PM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pES-W003_nwbr.dgn



NOTES:

1. ONLY TREES WITH A DBH >24" ARE LABELED UNLESS OTHERWISE SPECIFIED.
2. LIMITS OF ACCESS ROADS AND STAGING/STORAGE AREA ARE APPROXIMATE AND SHALL BE COORDINATED WITH M–NCPPC.
3. TOPOGRAPHY FROM COUNTY 200' SCALE MAPPING WITH 2–FOOT CONTOUR INTERVAL

BY: bpalmer

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Date: 10/4/2011
Design file no.
Drawing code: WL-13
Dwg scale: 1"=30'
Designed by: REP
Dwn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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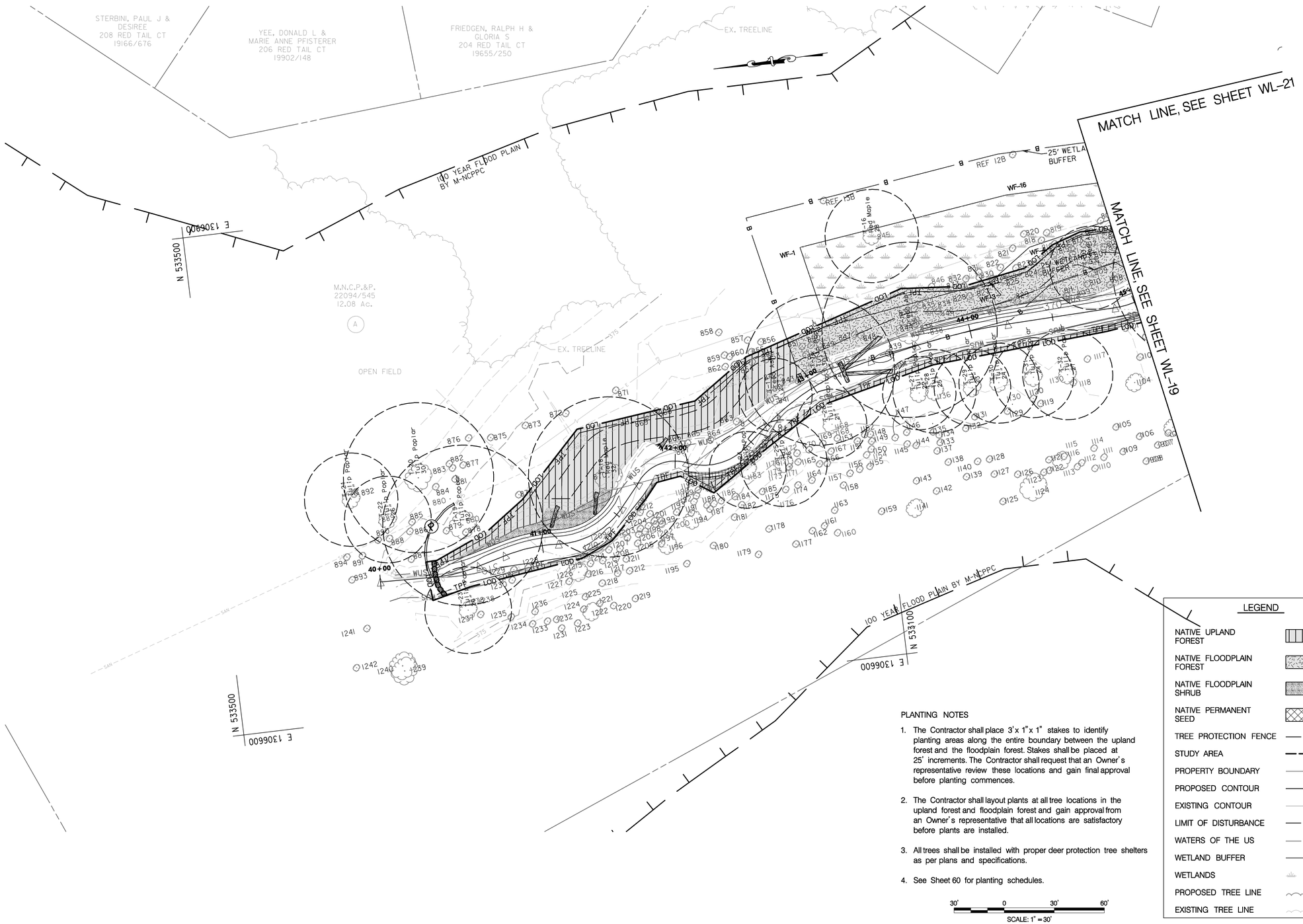
W912DR-07-D-0008
Task Order No. 19

WOODLAWN EROSION & SEDIMENT CONTROL PLAN

Sheet Number: 44 OF 72



PLANTING NOTES

1. The Contractor shall place 3'x 1"x 1" stakes to identify planting areas along the entire boundary between the upland forest and the floodplain forest. Stakes shall be placed at 25' increments. The Contractor shall request that an Owner's representative review these locations and gain final approval before planting commences.
2. The Contractor shall layout plants at all tree locations in the upland forest and floodplain forest and gain approval from an Owner's representative that all locations are satisfactory before plants are installed.
3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.
4. See Sheet 60 for planting schedules.

30' 0 30' 60'

SCALE: 1" = 30'

LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN FOREST
- NATIVE FLOODPLAIN SHRUB
- NATIVE PERMANENT SEED
- TREE PROTECTION FENCE — TPF
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR — 120
- EXISTING CONTOUR — 120
- LIMIT OF DISTURBANCE — LOD
- WATERS OF THE US — WUS
- WETLAND BUFFER — B
- WETLANDS
- PROPOSED TREE LINE
- EXISTING TREE LINE

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Ckd by: REP
Reviewed by: TMH
Submitted by: CVK
Date: 10/4/2011
Design file no.
Drawing code: WL-19
Dwg scale: 1"=30'

W912DR-07-D-0008
Task Order No. 19

WOODLAWN PLANTING PLAN

Sheet Number:
57 OF 72

BY: dwooley

PLOTTED: Thursday, October 06, 2011 AT 03:36 PM
FILE: \\RKKM\v2007\2007\07044_USACE\Task_6_Northwest\CADD\dgn\pLD-W001_nwbr.dgn

LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN FOREST
- NATIVE FLOODPLAIN SHRUB
- TREE PROTECTION FENCE — TPF
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR — 120
- EXISTING CONTOUR — 120
- LIMIT OF DISTURBANCE — LOD
- WATERS OF THE US — WUS
- WETLAND BUFFER — B
- WETLANDS
- PROPOSED TREE LINE
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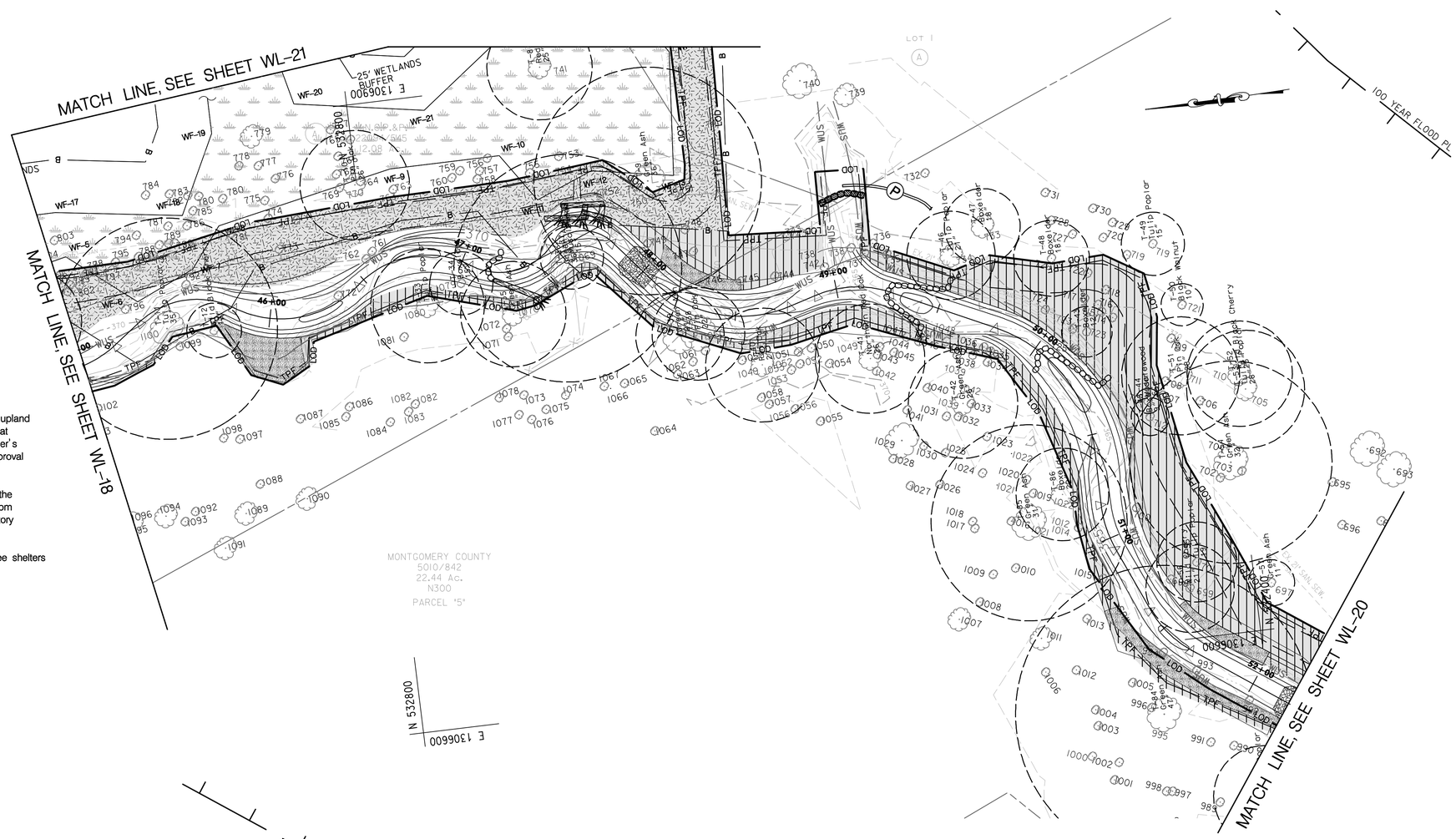
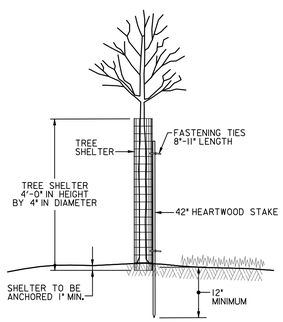
3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.
4. See Sheet 60 for planting schedules.

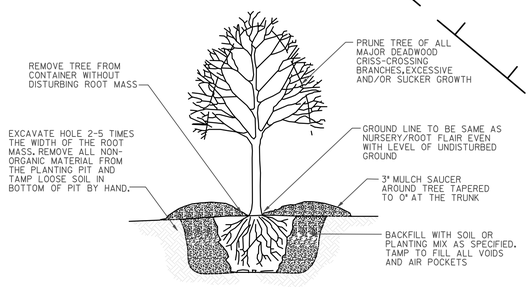
30' 0 30' 60'
SCALE: 1" = 30'





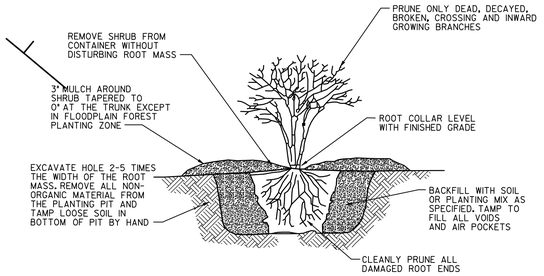
TREE SHELTER DETAIL
N.T.S.

NOTES:
1. UP TO 2" OF SOIL CAN BE MOUNTED AROUND THE OUTSIDE OF TREE SHELTER.
2. REFER TO TREE SHELTER SPECIFICATION FOR ADDITIONAL INFORMATION.

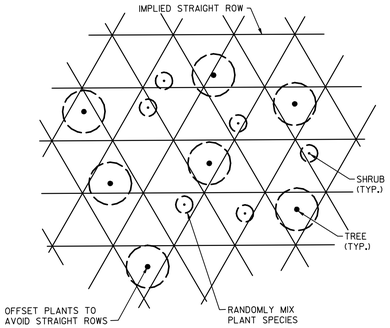


NOTES:
1. If surrounding soil is compacted as determinded by the engineer, an area up to 5 times the diameter of the root mass shall be excavated or rototilled to a 1'depth.
2. Do not damage or cut leader.

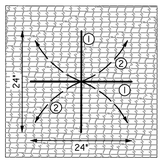
TREE PLANTING - CONTAINER GROWN
N.T.S.



SHRUB PLANTING - CONTAINER
N.T.S.



NATURALIZED PLANT SPACING
N.T.S.



1. Make cut with sharp knife through Coir Fiber Mattir Solid line in diagram
2. Pin back Coir Fiber with 4 staples - dashed line in dia
3. Install plant through pinned back Coir Fiber. Install plar at proper grade to ground plane
4. Remove 4 staples
5. For tree installations, install tree stakes through Coi
6. Install deer protection
7. Place 4 staples in each of four cut sections. Re-anch Coir Matting to ground

TREE & SHRUB INSTALLATION THROUGH COIR FIBER MATTING
N.T.S.

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BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

Designed by: WMM	Dwn by: DEA	Chkd by: REP
Reviewed by: TMH	Submitted by: CVK	

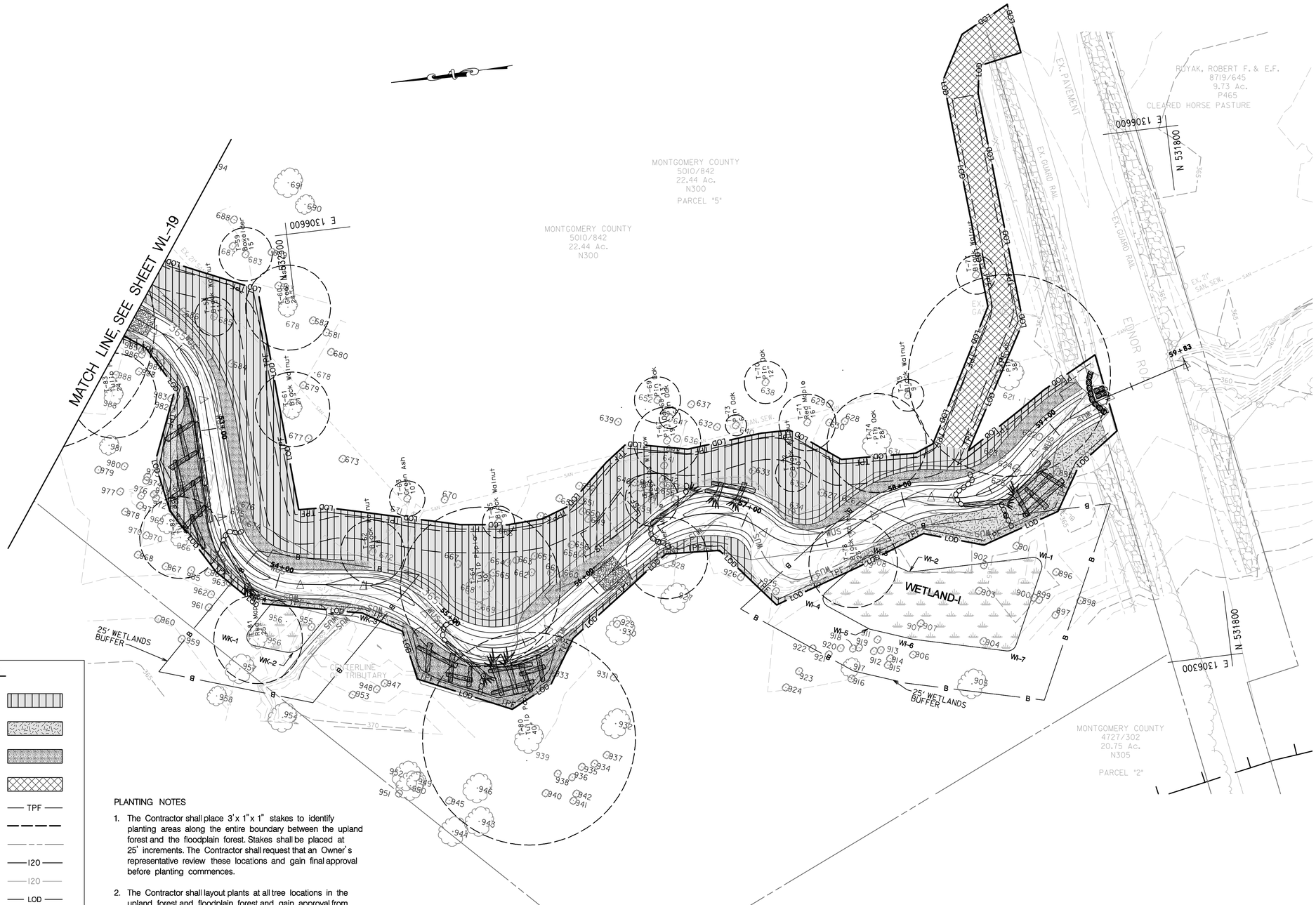
Date: 10/4/2011
Design file no.
Drawing code: WL-20
Dwg scale: 1"=30'

WOODLAWN PLANTING PLAN & PLANTING DETAILS

Sheet Number:
58 OF 72

BY: dwooley

PLOTTED: Thursday, October 06, 2011 AT 03:40 PM
FILE: \\RKKM\v2007\2007\07044_USACE\Task_6_Northwest\CADD\dgn\pLD-W002_nwbr.dgn



LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN FOREST
- NATIVE FLOODPLAIN SHRUB
- NATIVE PERMANENT SEED
- TREE PROTECTION FENCE — TPF
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR — 120
- EXISTING CONTOUR — 120
- LIMIT OF DISTURBANCE — LOD
- WATERS OF THE US — WUS
- WETLAND BUFFER — B
- WETLANDS
- PROPOSED TREE LINE
- EXISTING TREE LINE

PLANTING NOTES

1. The Contractor shall place 3'x 1"x 1" stakes to identify planting areas along the entire boundary between the upland forest and the floodplain forest. Stakes shall be placed at 25' increments. The Contractor shall request that an Owner's representative review these locations and gain final approval before planting commences.
2. The Contractor shall layout plants at all tree locations in the upland forest and floodplain forest and gain approval from an Owner's representative that all locations are satisfactory before plants are installed.
3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.
4. See Sheet 60 for planting schedules.

30' 0 30' 60'
SCALE: 1" = 30'

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W912DR-07-D-0008
Task Order No. 19

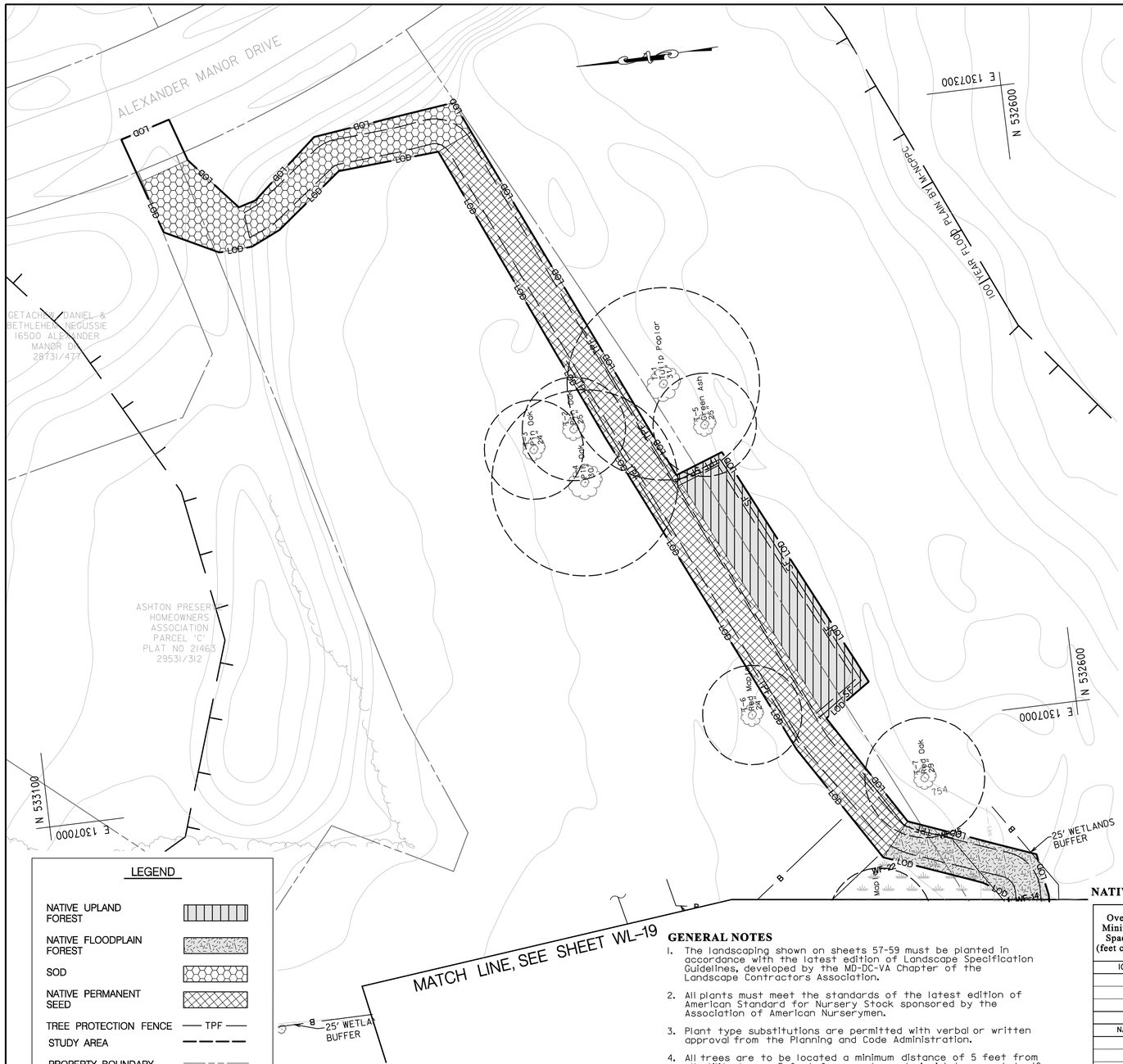
Designed by: WAM
Drn by: DEA
Ckd by: REP
Reviewed by: TMH
Submitted by: CVK
Date: 10/4/2011
Design file no.
Drawing code: WL-21
Dwg scale: 1"=30'

WOODLAWN PLANTING PLAN

Sheet Number:
59 OF 72

BY: dwooley

PLOTTED: Thursday, October 06, 2011 AT 03:42 PM
FILE: \\RKKM\v2007\2007\07044_USACE\Task_6_Northwest\CADD\dgn\pLD-W003_nwbr.dgn



LEGEND

- NATIVE UPLAND FOREST
- NATIVE FLOODPLAIN FOREST
- SOD
- NATIVE PERMANENT SEED
- TREE PROTECTION FENCE — TPF
- STUDY AREA
- PROPERTY BOUNDARY
- PROPOSED CONTOUR — 120
- EXISTING CONTOUR — 120
- LIMIT OF DISTURBANCE — LOD
- WATERS OF THE US — WUS
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PLANTING NOTES

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2. The Contractor shall layout plants at all tree locations in the upland forest and floodplain forest and gain approval from an Owner's representative that all locations are satisfactory before plants are installed.
3. All trees shall be installed with proper deer protection tree shelters as per plans and specifications.

GENERAL NOTES

1. The landscaping shown on sheets 57-59 must be planted in accordance with the latest edition of Landscape Specification Guidelines, developed by the MD-DC-VA Chapter of the Landscape Contractors Association.
2. All plants must meet the standards of the latest edition of American Standard for Nursery Stock sponsored by the Association of American Nurserymen.
3. Plant type substitutions are permitted with verbal or written approval from the Planning and Code Administration.
4. All trees are to be located a minimum distance of 5 feet from all utility boxes, 5 feet from a storm drain inlet or manhole, 10 feet from a fire hydrant, 15 feet from public street lights, 5 feet from driveway aprons, 20 feet from any traffic control sign and at least 30 feet from any intersection.
5. Shrubs to be planted in groups of 7-10 plants.
6. Soil conditions must be tested, verified and adjusted by the landscape contractor to ensure that appropriate soil composition and PH levels are suitable for plant materials specified for that specific location.
7. Any planting within a forest retention area, as designated on the forest conservation plan and shown on this plan, must be carried out in such a way as to avoid any adverse impact to the roots of existing trees.
8. All plant material will be reinspected for survival by the Planning and Code Administration one year following installation. A 10 percent maintenance bond will be retained during this time period.
9. Plant installation shall include a 2 year maintenance period.

NATIVE FLOODPLAIN FOREST — Size (acres): 0.28

Overall Minimum Spacing-feet on center (OC)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	TYPE	Placement
15	200			**TREES**					
		15	8	*Acer rubrum*	Red Maple	FAC	1 - 1 1/2" cal.	Cont.	Naturalized @ 15' OC
		20	11	*Betula nigra*	River Birch	FAC	1 - 1 1/2" cal.	Cont.	Naturalized @ 15' OC
		10	6	*Nyssa sylvatica*	Black Gum	FAC	1 - 1 1/2" cal.	Cont.	Naturalized @ 15' OC
		20	11	*Platanus occidentalis*	American Sycamore	FACW	1 - 1 1/2" cal.	Cont.	Naturalized @ 15' OC
		20	11	*Quercus palustris*	Pin Oak	FACW	1 - 1 1/2" cal.	Cont.	Naturalized @ 15' OC
		15	9	*Quercus phellos*	Willow Oak	FAC	1 - 1 1/2" cal.	Cont.	Naturalized @ 15' OC
		100.0	**56**	**=total**					
10	300			**SHRUBS**					
		20	17	*Alnus serrulata*	Smooth alder	OBL	18-24"	Cont.	Clustered @ 7' OC
		20	17	*Cephalanthus occidentalis*	Buttonbush	OBL	18-24"	Cont.	Clustered @ 7' OC
		20	17	*Clethra alnifolia*	Sweet Pepperbush	FAC	18-24"	Cont.	Clustered @ 7' OC
		10	8	*Cornus amomum*	Silky Dogwood	FACW	18-24"	Cont.	Clustered @ 7' OC
		10	8	*Ilex verticillata*	Winterberry	FACW	18-24"	Cont.	Clustered @ 7' OC
		20	17	*Salix sericea*	Silky willow	OBL	18-24"	Cont.	Clustered @ 7' OC
		100.0	**84**	**=total**					
NA	20		lbs.	**NATIVE SEED**					
		35	1.96	*Andropogon gerardii*	Big Bluestem	FAC	SEED	NA	LB. of P.L.S. 76%
		20	1.12	*Elymus riparius*	Riverbank Wild Rye	FACW	SEED	NA	LB. of P.L.S. 76%
		4	0.22	*Eupatorium fistulosum*	Joe-Pye Weed	FACW	SEED	NA	LB. of P.L.S. 76%
		15	0.84	*Panicum virgatum*	Switchgrass	FAC	SEED	NA	LB. of P.L.S. 76%
		10	0.56	*Scirpus cyperinus*	Wool Grass	FACW	SEED	NA	LB. of P.L.S. 76%
		12	0.68	*Tripsacum dactyloides*	Eastern Gama Grass	FACW	SEED	NA	LB. of P.L.S. 76%
		4	0.22	*Vernonia noveboracensis*	New York Ironweed	FACW	SEED	NA	LB. of P.L.S. 76%
		100.0	**5.60**	**=total**					

• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL NOTES

NATIVE UPLAND FOREST — Size (acres): 6.95

Overall Minimum Spacing-feet on center (OC)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	TYPE	Placement
15	200			**TREES**					
		20	278	*Acer rubrum*	Red Maple	FAC	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		15	208	*Liriodendron tulipifera*	Tulip Poplar	FACU	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		10	139	*Nyssa sylvatica*	Black Gum	FAC	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		20	278	*Platanus occidentalis*	American Sycamore	FACW	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		15	209	*Quercus palustris*	Pin Oak	FACW	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		20	278	*Quercus rubra*	Northern Red Oak	FACU	1 - 1 1/2" cal.	B&B	Naturalized @ 15' OC
		100.0	**1390**	**=total**					
10	300			**SHRUBS**					
		25	521	*Cornus amomum*	Silky Dogwood	FACW	18-24"	Cont.	Clustered @ 7' OC
		25	522	*Lindera benzoin*	Spicebush	FACW	18-24"	Cont.	Clustered @ 7' OC
		30	625	*Viburnum acerifolium*	Mapleleaf viburnum	UPL	18-24"	Cont.	Clustered @ 7' OC
		20	417	*Viburnum dentatum*	Southern Arrowwood	FAC	18-24"	Cont.	Clustered @ 7' OC
		100.0	**2085**	**=total**					
NA	20			**NATIVE PERMANENT SEED**					
		33.3	46.33	*Andropogon gerardii*	Big Bluestem	FAC	Seed	NA	Lb. of P.L.S. 76%
		33.3	46.33	*Elymus canadensis*	Canada Wild Rye	FACW	Seed	NA	Lb. of P.L.S. 76%
		33.4	46.34	*Panicum clandestinum*	Deer Tongue	FACW	Seed	NA	Lb. of P.L.S. 76%
		100.0	**139.00**	**=total**					

• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL NOTES

NATIVE FLOODPLAIN SHRUB — Size (acres): 0.20

Overall Minimum Spacing (feet center)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
10	436			**SHRUBS**					
		33	29	*Clethra alnifolia*	Sweet Pepperbush	FAC+	24-36' ht.	Cont.	Clustered @ 8' OC
		33	29	*Cornus amomum*	Silky Dogwood	FACW	24-36' ht.	Cont.	Clustered @ 8' OC
		34	30	*Ilex verticillata*	Winterberry	FACW+	24-36' ht.	Cont.	Clustered @ 8' OC
		100.0	**88**	**=total**					
NA	40			**NATIVE PERMANENT SEED***					
		34	1.33	*Andropogon gerardii*	Big Bluestem	FAC	Seed	NA	Lb. of P.L.S. 76%
		33	1.33	*Panicum clandestinum*	Deer Tongue	FACW	Seed	NA	Lb. of P.L.S. 76%
		33	1.34	*Elymus virginicus*	Virginia Wild Rye	FACW-	Seed	NA	Lb. of P.L.S. 76%
		100.0	**4.00**	**=total**					

• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL NOTES

NATIVE PERMANENT SEED — Size (acres): 0.38

Overall Minimum Spacing (feet center)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
NA	20			**NATIVE PERMANENT SEED***					
		50	3.8	*Elymus canadensis*	Canada Wild Rye	FACW	Seed	NA	Lb. of P.L.S. 76%
		50	3.8	*Panicum clandestinum*	Deer Tongue	FACW	Seed	NA	Lb. of P.L.S. 76%
		100.0	**7.6**	**=total**					

• FOR TEMPORARY SEED, REFER TO TEMPORARY SEED TABLE IN EROSION & SEDIMENT CONTROL NOTES

30' 0 30' 60'

SCALE: 1" = 30'

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APPR | DATE | DESCRIPTION | MARK

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CORPS OF ENGINEERS
BALTIMORE, MARYLAND

Designed by: WMM | Date: 10/4/2011
Dwn by: DEA | Ckd by: REP | Design file no.
Reviewed by: TMH | Drawing code: WL-22
Submitted by: CVK | Dwg scale: 1"=30'

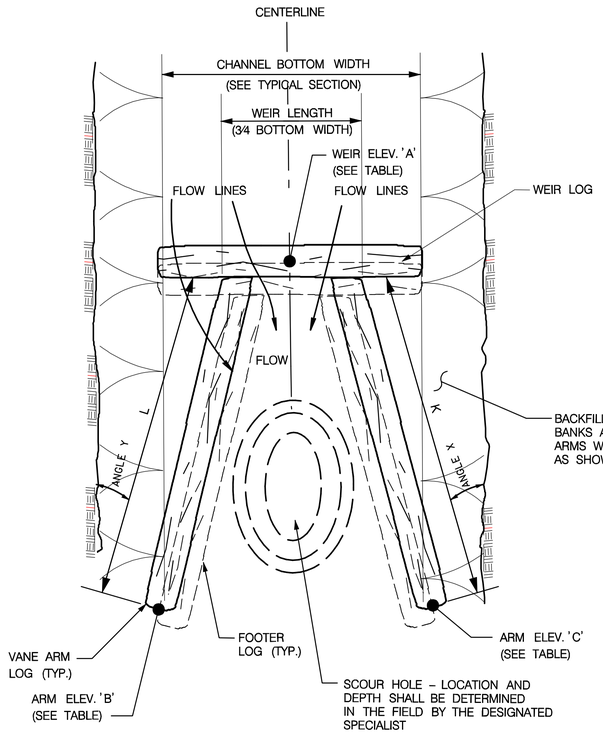
W912DR-07-D-0008
Task Order No. 19

WOODLAWN PLANTING PLAN & PLANTING SCHEDULES

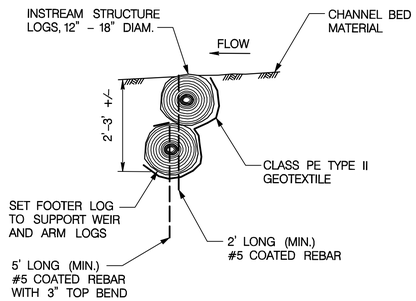
Sheet Number: 60 OF 72

BY: dwoolley

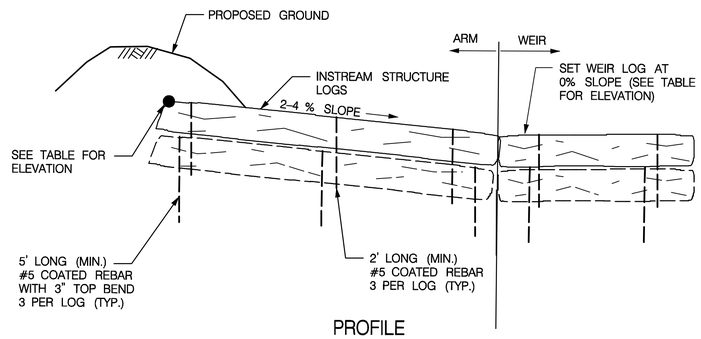
PLOTTED: Friday, October 07, 2011 AT 09:51 AM
FILE: \\RKKMV\2007\2007.07044_USACE\Task_6_Northwest\CADD\dgn\pLD-W004_nwbr.dgn



PLAN VIEW



SECTION



PROFILE

(ALONG CENTERLINE OF STRUCTURE)

LOG VANE STRUCTURE

NOT TO SCALE

BUILDING INSTRUCTIONS FOR LOG VANE STRUCTURES

1. CUT A TRENCH FOR THE WEIR AND ARM FOOTER LOGS, FROM OUTWARD LIMIT OF THE STRUCTURE, EXTENDING INTO THE STREAM AT THE ANGLE SPECIFIED IN THE LOG VANE STRUCTURE TABLE OR AS DETERMINED BY THE DESIGNATED SPECIALIST IN THE FIELD (REFER TO THE DETAIL). THE DIMENSIONS OF THE TRENCH (WIDTH AND DEPTH) SHALL ACCOMMODATE THE DIMENSIONS OF THE LOGS AND PROVIDE THE NECESSARY TOP ELEVATIONS AND ARM SLOPES.
2. FOOTER LOGS SHALL BE PLACED IN THE EXCAVATED TRENCH SUCH THAT THEY WILL BE SPACED ONE THIRD (1/3) THE DIAMETER OF THE LOGS DOWNSTREAM OF THE PROPOSED LOCATION OF THE TOP LOGS, WHICH WILL ALLOW THE ARM LOGS TO INTERLOCK WITH THE FOOTER LOGS. ADDITIONAL FOOTER LOGS MAY BE REQUIRED TO PROVIDE A STABLE FOUNDATION FOR THE TOP LOGS. SECURE FOOTER LOGS WITH REBAR.
3. ARM AND WEIR LOGS SHALL BE PLACED ON TOP OF THE FOOTER LOGS SUCH THAT THEY ARE SKEWED UPSTREAM OF THE FOOTER LOGS. THE LOGS SHALL BE PLACED SUCH THAT THERE ARE NO GAPS BETWEEN THE LOGS. FASTEN THE TOPS LOGS TO THE FOOTER LOGS WITH REBAR.
4. PLACE GEOTEXTILE AND BACKFILL THE STRUCTURE WITH SALVAGED BED MATERIAL OR ALTERNATIVE MATERIAL APPROVED BY THE DESIGNATED SPECIALIST.
5. EXCAVATE A SCOUR POOL DOWNSTREAM OF THE STRUCTURE AS DIRECTED BY THE DESIGNATED SPECIALIST.
6. THE DESIGNATED SPECIALIST RESERVES THE RIGHT TO ADJUST THE LOCATION /ANGLE, OR ELEVATION OF THE PROPOSED STRUCTURE.

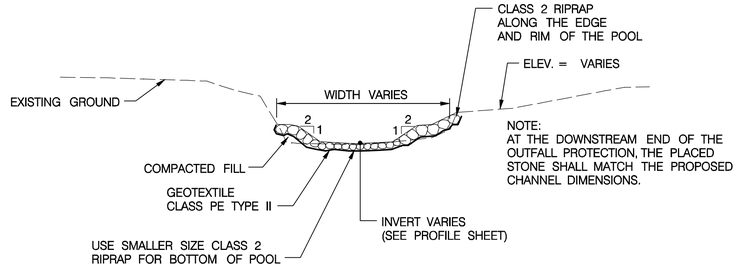
NOTES:

1. ALL LOGS ARE SUBJECT TO VISUAL INSPECTION BY THE DESIGNATED SPECIALIST
2. LOGS SHOWN ARE NOT TO SCALE

LOG VANE STRUCTURE TABLE

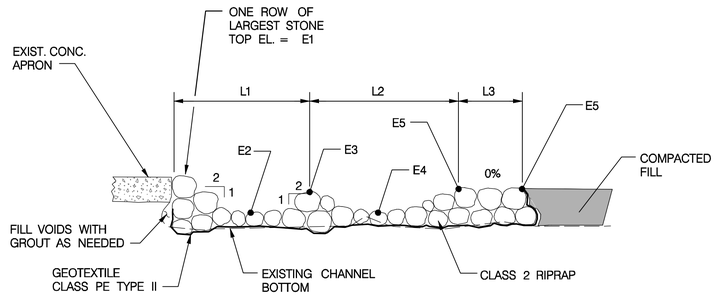
STRUCTURE TYPE/I.D.	STATION	ANGLE X	ANGLE Y	K	L	WEIR LENGTH	SCOUR HOLE DEPTH	LOG WEIR ELEV. A	ARM ELEV. B	ARM ELEV. C
LV-B1										
LV-B2										
LV-B3										
LV-B4										
LV-S1										
LV-S2										
LV-S3										
LV-W1										

NOTES:
1. ALL DIMENSIONS ARE APPROXIMATE AND MAY BE ADJUSTED BY THE DESIGNATED SPECIALIST
2. STATIONING POINT IS UPSTREAM EDGE OF WEIR STONE USING BASELINE OF CONSTRUCTION



CHANNEL SECTION THROUGH POOL

NOT TO SCALE



PROFILE SECTION

NOT TO SCALE

NOTE:
FILL VOIDS WITH
CLASS 1 RIPRAP

VELOCITY DISSIPATION POOL DETAIL

STA. 77+00 TO STA. 77+40

VELOCITY DISSIPATION POOL STRUCTURE TABLE								
REACH	L1	L2	L3	E1	E2	E3	E4	E5

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MARK	DESCRIPTION	DATE	APPR

Designed by: SBP | Date: 10/4/2011
Dwn by: DEA | Ckd by: REP | Design file no.
Reviewed by: TMH | Drawing code: GN-5
Submitted by: CVK | Dwg scale: AS SHOWN

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CORPS OF ENGINEERS
BALTIMORE, MARYLAND

W912DR-07-D-0008
Task Order No. 19

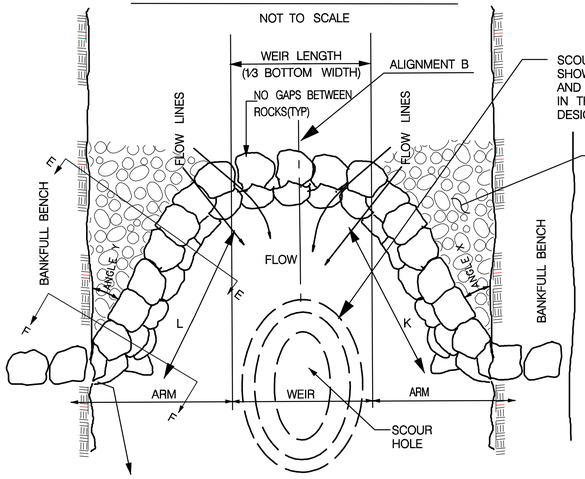
CONSTRUCTION DETAIL SHEET

Sheet Number:
61 OF 72

PLOTTED: Thursday, October 06, 2011 AT 08:37 AM
FILE: \\RKKM\v2007\2007\07044_usace\task_6_northwest\cadd\dgn\pDD-D001_nwbr.dgn
BY: bpalmer

CROSS VANE STRUCTURE

NOT TO SCALE



SCOUR HOLE LOCATION IS SHOWN ON THE PROFILE AND WILL BE CONFIRMED IN THE FIELD BY THE DESIGNATED SPECIALIST

BACKFILL AREA BETWEEN BANKS AND STRUCTURE ARMS WITH CHANNEL BED MATERIAL. THE MATERIAL SHALL BE PLACED AT A PARABOLIC SLOPE TOWARD THE STRUCTURE ARMS.

NOTES:

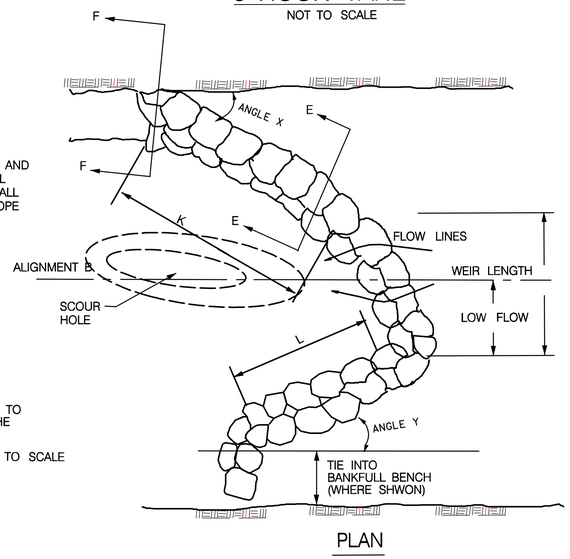
1. ALL ROCKS ARE SUBJECT TO VISUAL INSPECTION BY THE DESIGNATED SPECIALIST
2. ROCKS SHOWN ARE NOT TO SCALE

EXTEND TO SPECIFIED ELEVATION AS PER PLAN OR AS DIRECTED BY DESIGNATED SPECIALIST.

PLAN VIEW

J-HOOK VANE

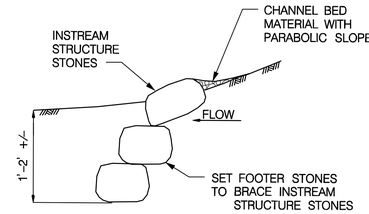
NOT TO SCALE



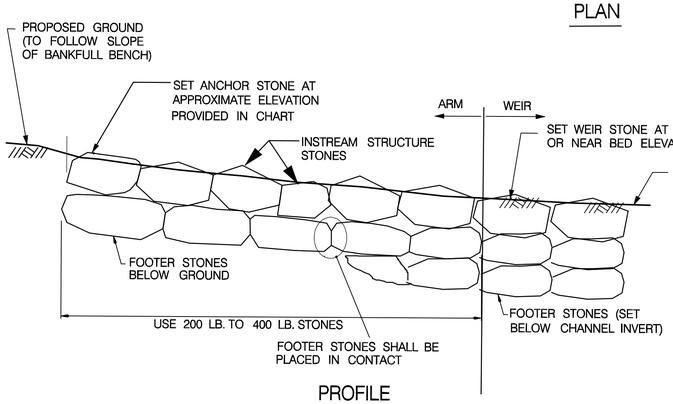
PLAN

BUILDING INSTRUCTIONS FOR INSTREAM STONE STRUCTURES

1. CUT A TRENCH FOR ONE OF THE ARMS OF THE STRUCTURE, FROM OUTWARD LIMIT OF THE STRUCTURE, EXTENDING INTO THE STREAM AT THE ANGLE SPECIFIED IN THE INSTREAM STRUCTURE TABLE OR AS DETERMINED BY THE DESIGNATED SPECIALIST IN THE FIELD (REFER TO THE DETAIL). THE DIMENSIONS OF THE TRENCH (WIDTH AND DEPTH) SHALL ACCOMMODATE THE DIMENSIONS OF THE STONES. EXCAVATION OF THE TRENCH SHALL BE CONDUCTED IN CONJUNCTION WITH THE PLACEMENT OF THE FOOTER AND THE ARM STONES (STONES WHICH ARE PLACED ON TOP OF THE FOOTERS STONES IN THE ARM AND WEIR PORTION OF THE STRUCTURE.)
2. FOOTER STONES SHALL BE PLACED IN THE EXCAVATED TRENCH SUCH THAT THEY ARE SPACED ONE THIRD (1/3) THE DIAMETER OF THE STONES, WHICH WILL ALLOW THE ARM STONES TO INTERLOCK WITH THE FOOTER STONE. ADDITIONAL FOOTER STONES MAY BE REQUIRED FOR PLACEMENT OF THE ARM STONE AT THE REQUIRED ELEVATION.
3. EXCAVATION OF THE TRENCH TO ACCOMMODATE THE DIMENSIONS OF THE STONES TO ALLOW FOR THE PLACEMENT OF THE NEXT SERIES OF ARM STONES, UNTIL THE REQUIRED LENGTH OF THE STRUCTURE IS ACHIEVED.
4. ARM STONES SHALL BE PLACED ON TOP OF THE FOOTER STONES SUCH THAT THEY ARE CONTIGUOUS, STAGGERED OVER THE ADJACENT FOOTER STONES, AND PLACED SKEWED UPSTREAM OF THE FOOTER STONES. THE ARM STONES SHALL BE POSITIONED SUCH THAT THEY SLOPE FIVE (5) TO TEN (10) PERCENT TOWARDS THE STREAM CHANNEL.
5. REPEAT STEPS FIVE (3) AND (4) UNTIL THE STRUCTURE ARM EXTENDS TO THE ELEVATION SPECIFIED. UPON ACHIEVING THE REQUIRED ARM LENGTH, PROCEED WITH THE FOLLOWING INSTRUCTIONS.
6. TO CONSTRUCT THE WEIR PORTION OF THE STRUCTURE, A TRENCH PERPENDICULAR TO THE STREAM CHANNEL SHALL BE EXCAVATED FROM THE END OF THE EXISTING ARM CHANNEL WARD TOWARD THE OPPOSITE CHANNEL BANK, EXTENDING APPROXIMATELY ONE THIRD (1/3) OF THE PROPOSED CHANNEL WIDTH (REFER TO DETAIL), THE EXACT LENGTH TO BE DETERMINED BY THE DESIGNATED SPECIALIST IN THE FIELD. THE TRENCH SHALL BE EXCAVATED TO A DEPTH WHICH WILL ACCOMMODATE THE FOOTER STONES. CONTINUOUS EXCAVATION OF THE TRENCH PROGRESSIVELY STREAM WARD, IN THE CONJUNCTION WITH THE PLACEMENT OF THE FOOTER AND THE WEIR STONES (STONES WHICH PLACED ON TOP OF THE FOOTERS IN THE WEIR PORTION OF THE STRUCTURE).
7. WEIR STONES SHALL BE PLACED ON TOP OF THE FOOTER STONES SUCH THAT THEY ARE CONTIGUOUS, STAGGERED OVER THE FOOTER STONES, PLACED SKEWED UPSTREAM OF THE FOOTER STONES, AND PLACED FLUSH WITH THE PROPOSED STREAM CHANNEL. THE TOP OF THE WEIR STONES SHALL BE PLACED FLUSH WITH THE PROPOSED STREAM INVERT.
8. UPON COMPLETING THE WEIR PORTION OF THE STRUCTURE A J-HOOK IS COMPLETE, REPEAT STEPS ONE (1) THROUGH EIGHT (8) TO COMPLETE A CROSS-VANE STRUCTURE.
9. EXCAVATE A SCOUR POOL DOWNSTREAM OF THE STRUCTURE AS DIRECTED BY THE DESIGNATED SPECIALIST.
10. THE DESIGNATED SPECIALIST RESERVES THE RIGHT TO ADJUST THE LOCATION / ANGLE, OR ELEVATION OF THE PROPOSED STRUCTURE.

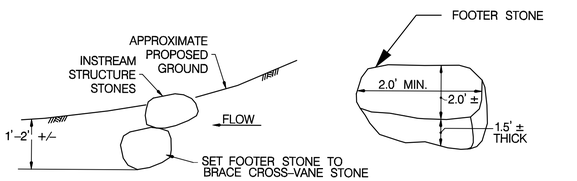


SECTION E-E



PROFILE

(ALONG CENTERLINE OF STRUCTURE)



NOTE: FOR TYPICAL SIZE OF FOOTER STONES USE 200 LB. TO 400 LB. STONES

SECTION F-F

INSTREAM STRUCTURE TABLE

STRUCTURE TYPE/I.D.	STATION	ANGLE X	ANGLE Y	K	L	WEIR LENGTH	SCOUR HOLE DEPTH	WEIR ROCK ELEVATION	TOP ROCK ELEV ARM K	TOP ROCK ELEV ARM L
RJ-S1										
RJ-S2										
CV-S1										
CV-S2										
CV-S3										
RJ-W1										
RV-W1										

NOTES:
1. ALL DIMENSIONS ARE APPROXIMATE AND MAY BE ADJUSTED BY THE DESIGNATED SPECIALIST
2. STATIONING POINT IS UPSTREAM EDGE OF WEIR STONE USING BASELINE OF CONSTRUCTION

CONSTRUCTION NOTES:

1. NOTIFY THE DESIGNATED SPECIALIST ONE WEEK PRIOR TO STARTING THE INSTREAM GRADING AND STONE STRUCTURES WORK. AN ACCURATE SCHEDULE SHALL BE SUBMITTED TO THE DESIGNATED SPECIALIST INDICATING THE DAYS TO BE DEDICATED BY THE CONTRACTOR TO PERFORM THE INSTREAM GRADING AND STONE STRUCTURE WORK. THE DESIGNATED SPECIALIST WILL BE AVAILABLE AT THE SITE DURING THESE DAYS.
2. SEE PROFILE FOR DEPTH OF SCOUR HOLE FOR ALL STRUCTURES.
3. FOOTER STONES SHALL EXTEND TO 2' BELOW THE SCOUR DEPTH SPECIFIED AT THE WEIR OF THE STRUCTURE.
4. ALL DIMENSIONS SHOWN HERE ARE APPROXIMATE AND SHALL BE INSTALLED AS DIRECTED BY DESIGNATED SPECIALIST.

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Baltimore District

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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: GN-6
Dwg scale: AS SHOWN
Designed by: SBP
Drawn by: DEA
Checked by: REP
Reviewed by: TMH
Submitted by: CVK

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

W912DR-07-D-0008
Task Order No. 19

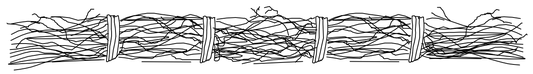
CONSTRUCTION DETAIL SHEET

Sheet Number:
62 OF 72

By: bpalmer

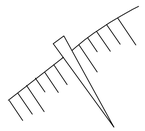
PLOTTED: Thursday, October 06, 2011 AT 08:35 AM
FILE: \\RKKM\c2007\2007\07044_usace\task_6_northwest\cadd\dgn\pDD-D002_nwbr.dgn

Maryland's Guidelines To Waterway Construction
DETAIL 2.5: LIVE FASCINES

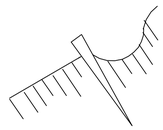


Preliminary Step – prepare fascine bundles as follows: cigar–shaped bundles of live, rootable brush and branches with butts alternating, 4 to 10–inch (10 to 25–cm) diameters, tied 12 to 18 inches (30 to 45 cm) on center

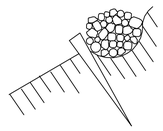
Construction Note: installation begins at the bottom of the slope and proceeds from Step 1 through Step 5
Adapted from Leiser (1983)



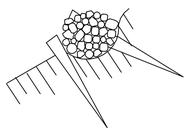
Step 1 – insert stakes on contour



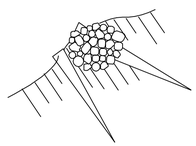
Step 2 – dig trench (1/2 bundle diameter in depth) above the stakes



Step 3 – place bundles in trench



Step 4 – add additional stakes through and below bundles



Step 5 – tamp soil into and along sides of bundle leaving the top 2 inches (5 cm) exposed to promote growth

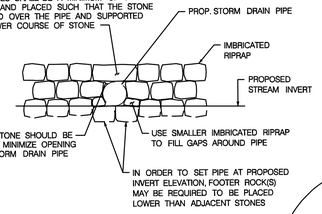
SLOPE PROTECTION AND STABILIZATION TECHNIQUES	*PAGE 2.5 - 3*	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

LIVE FASCINES TABLE

UNIT	STATION	LENGTH	ROWS
FS-S1			
FS-S2			
FS-S3			
FS-S4			
FS-S5			

STONE USED AS A LINTEL ABOVE PROPOSED OUTFALL PIPES SHALL BE A MINIMUM OF 4' IN LENGTH AND PLACED SUCH THAT THE STONE IS CENTERED OVER THE PIPE AND SUPPORTED BY THE LOWER COURSE OF STONE

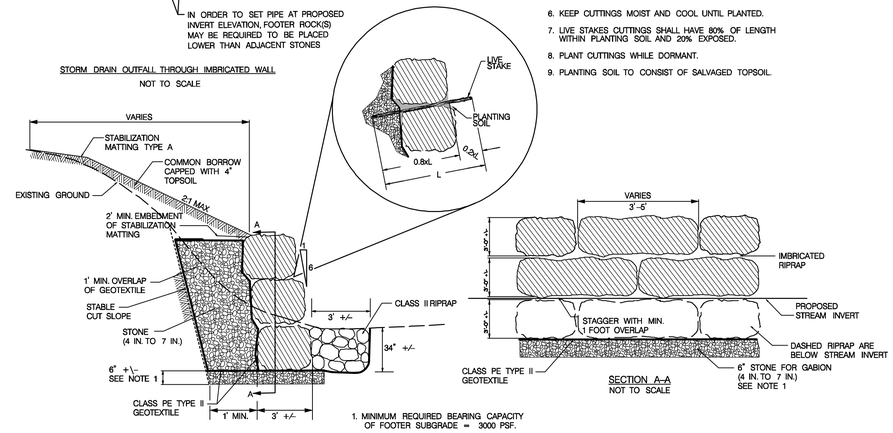
ADJACENT STONE SHOULD BE PLACED TO MINIMIZE OPENING AROUND STORM DRAIN PIPE



STORM DRAIN OUTFALL THROUGH IMBRICATED WALL
NOT TO SCALE

LIVE STAKES FOR IMBRICATED WALLS NOTES:

1. IMBRICATED WALL LIVE STAKES TO CONSIST OF 20 SILKY DOGWOOD AND 20 SILKY WILLOW CUTTINGS. LIVE STAKES TO BE 3' MIN. LENGTH AND ARE TO BE PLACED 10' ON–CENTER IN ALL LOCATIONS OF TWO–TIER IMBRICATED WALLS.
2. REFER TO SHEET 17 OF 17, LIVE STAKE DETAIL, FOR SIZE REQUIREMENTS AND REQUIRED CUTS.
3. REFER TO SHEET 16 OF 17 FOR LIVE STAKE – IMBRICATED WALL SCHEDULE.
4. PLACE LIVE STAKES INTO SPACES BETWEEN THE ROCKS. USE A STEEL ROD OR PROBE TO PREPARE PILOT HOLES.
5. PROVIDE PLANTING SOIL AND FIRM SOIL SO THAT LIVE STAKE CANNOT BE EASILY MOVED OR PULLED OUT.
6. KEEP CUTTINGS MOIST AND COOL UNTIL PLANTED.
7. LIVE STAKES CUTTINGS SHALL HAVE 80% OF LENGTH WITHIN PLANTING SOIL AND 20% EXPOSED.
8. PLANT CUTTINGS WHILE DORMANT.
9. PLANTING SOIL TO CONSIST OF SALVAGED TOPSOIL.

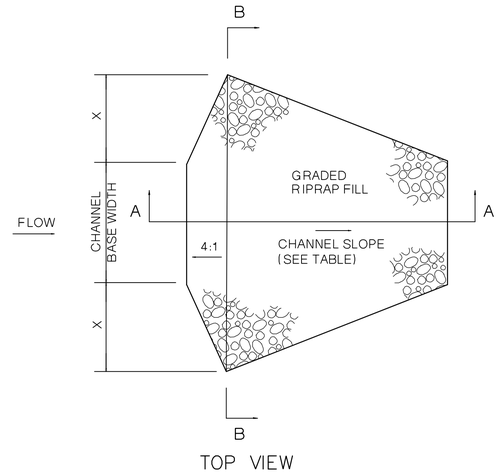


1. MINIMUM REQUIRED BEARING CAPACITY OF FOOTER SUBGRADE = 3000 PSF.

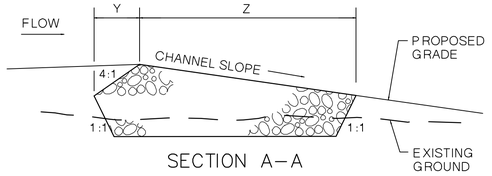
SECTION A–A
NOT TO SCALE

IMBRICATED RIPRAP WALL SECTION
NOT TO SCALE

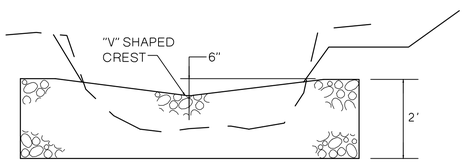
IMBRICATED RIPRAP WALL DETAILS
NOT TO SCALE



TOP VIEW



SECTION A–A



SECTION B–B

RIFFLE GRADE CONTROL STRUCTURE
N.T.S.

RIFFLE GRADE CONTROL STRUCTURE TABLE

STRUCTURE I.D.	STATION	CHANNEL SLOPE	DIMENSIONS (FT)		
			X	Y	Z
RGC-S1					
RGC-S2					
RGC-S3					
RGC-W1					
RGC-W2					
RGC-W3					

US Army Corps of Engineers
Baltimore District

RK&K
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MARK	DESCRIPTION	DATE	APPR

Date: 10/4/2011
Design file no.
Drawing code: GN-7
Dwg scale: AS SHOWN
Designed by: REP
Drawn by: DEA
Ckd by: SPB
Reviewed by: TMH
Submitted by: CVK

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

W912DR-07-D-0008
Task Order No. 19

CONSTRUCTION DETAIL SHEET

Sheet Number:
63 OF 72

BY: bpalmer

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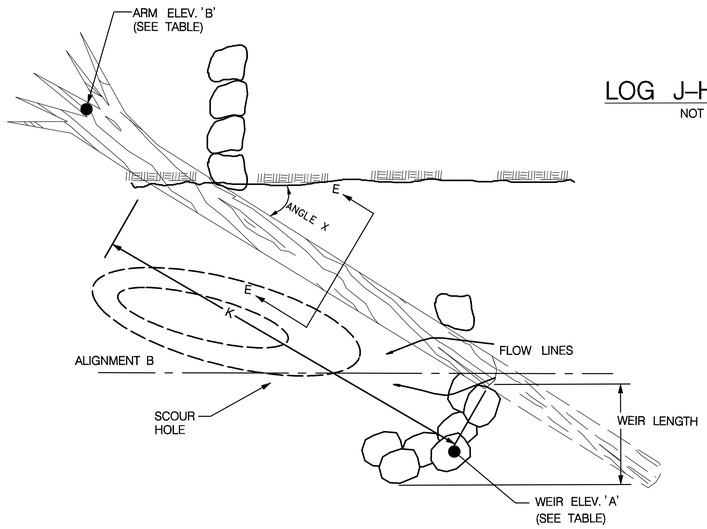
LOG J-HOOK VANE

NOT TO SCALE



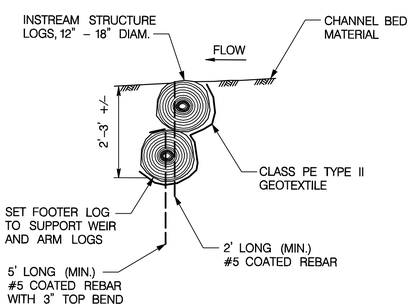
PLAN

1. CUT A TRENCH FOR THE STONE WEIR AND ARM FOOTER LOGS, FROM OUTWARD LIMIT OF THE STRUCTURE, EXTENDING INTO THE STREAM AT THE ANGLE SPECIFIED IN THE COMBO VANE STRUCTURE TABLE OR AS DETERMINED BY THE DESIGNATED SPECIALIST IN THE FIELD (REFER TO THE DETAIL). THE DIMENSIONS OF THE TRENCH (WIDTH AND DEPTH) SHALL ACCOMMODATE THE DIMENSIONS OF THE STONES/LOGS AND PROVIDE THE NECESSARY TOP ELEVATIONS AND ARM SLOPES.
2. FOOTER STONES/LOGS SHALL BE PLACED IN THE EXCAVATED TRENCH SUCH THAT THEY WILL BE SPACED ONE THIRD (1/3) THE DIAMETER OF THE STONES/LOGS DOWNSTREAM OF THE PROPOSED LOCATION OF THE TOP STONES/LOGS, WHICH WILL ALLOW THE ARM STONES/ LOGS TO INTERLOCK WITH THE FOOTER STONES/LOGS. ADDITIONAL FOOTER STONES/LOGS MAY BE REQUIRED TO PROVIDE A STABLE FOUNDATION FOR THE TOP STONES/LOGS. SECURE FOOTER LOGS WITH REBAR.
3. ARM LOGS AND WEIR STONES SHALL BE PLACED ON TOP OF THE FOOTER STONES/ LOGS SUCH THAT THEY ARE SKEWED UPSTREAM OF THE FOOTER STONES/LOGS. THE STONES/LOGS SHALL BE PLACED SUCH THAT THERE ARE NO GAPS BETWEEN THE LOGS. FASTEN THE TOPS LOGS TO THE FOOTER LOGS WITH REBAR.
4. PLACE GEOTEXTILE AND BACKFILL THE STRUCTURE WITH SALVAGED BED MATERIAL OR ALTERNATIVE MATERIAL APPROVED BY THE DESIGNATED SPECIALIST.
5. EXCAVATE A SCOUR POOL DOWNSTREAM OF THE STRUCTURE AS DIRECTED BY THE DESIGNATED SPECIALIST.
6. THE DESIGNATED SPECIALIST RESERVES THE RIGHT TO ADJUST THE LOCATION /ANGLE, OR ELEVATION OF THE PROPOSED STRUCTURE.

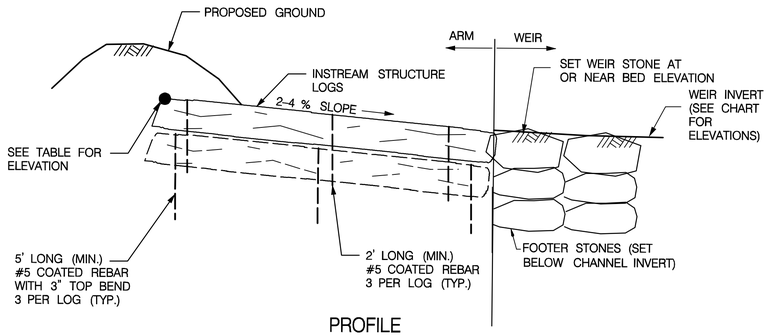
LOG J-HOOK VANE STRUCTURE TABLE

STRUCTURE TYPE/I.D.	STATION	ARM ANGLE X	ARM LENGTH K	WEIR LENGTH	SCOUR HOLE DEPTH	LOG WEIR ELEV. A	ARM ELEV. B
LJ-B1							
LJ-B2							
LJ-B3							
LJ-B4							
LJ-B5							
LJ-B6							
LJ-B7							
LJ-B8							
LJ-S1							
LJ-S2							
LJ-S3							
LJ-S4							
LJ-S5							
LJ-W1							
LJ-W2							
LJ-W3							
LJ-W4							
LJ-W5							

NOTES:
1. ALL DIMENSIONS ARE APPROXIMATE AND MAY BE ADJUSTED BY THE DESIGNATED SPECIALIST
2. STATIONING POINT IS UPSTREAM EDGE OF WEIR STONE USING BASELINE OF CONSTRUCTION



SECTION



PROFILE
(ALONG CENTERLINE OF STRUCTURE)

US Army Corps of Engineers
Baltimore District

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MARK	DESCRIPTION	DATE	APPR

Designed by: SBP	Dwn by: DEA	Ckd by: REP	Date: 10/4/2011
Reviewed by: TMH			Design file no.
Submitted by: CVK			Drawing code: GN-8
			Dwg scale: AS SHOWN

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

W912DR-07-D-0008
Task Order No. 19

CONSTRUCTION DETAIL SHEET

Sheet Number:
64 OF 72

BY: bpalmer

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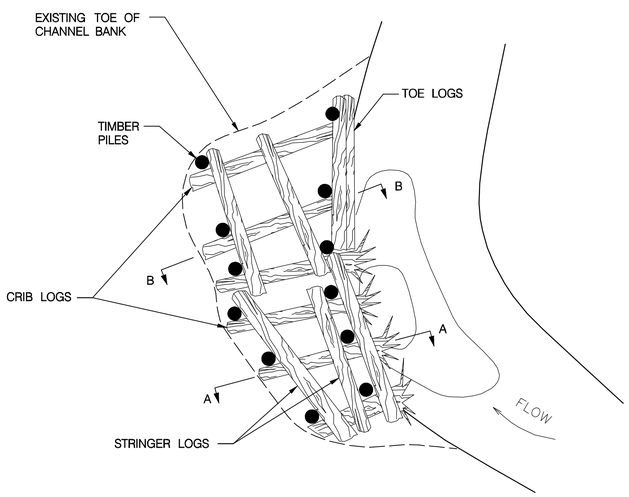
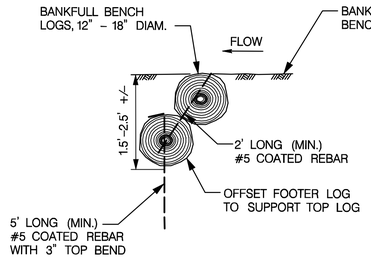
NOTE: ADDITIONAL DESIGN DETAILS OF LMP STRUCTURE TO BE PROVIDED NEXT SUBMISSION



NOTE: TOP CRIB LOGS NOT SHOWN



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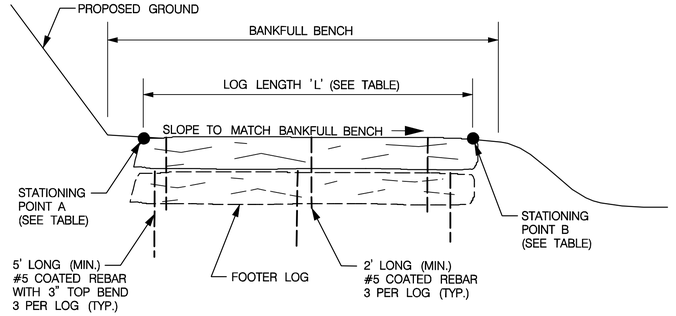


NOTE: LOGS SHALL BE HARVESTED FROM TREES REMOVED WITHIN THE LIMITS OF DISTURBANCE AND WHICH MEETS THE SIZE AND LENGTH REQUIREMENTS.

PROFILE

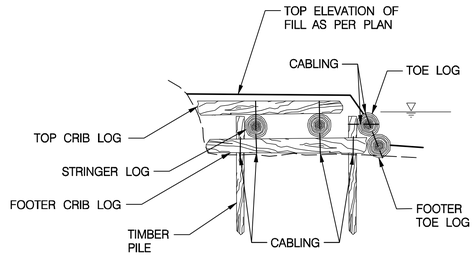
BANKFULL BENCH BURIED LOG STRUCTURE

NOT TO SCALE

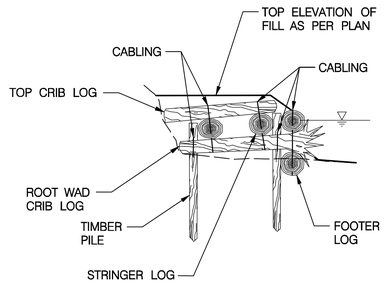
BURIED LOG STRUCTURE TABLE

STRUCTURE I.D.	POINT A STATION/OFFSET	POINT B STATION/OFFSET	LENGTH (L)
BL-W1			
BL-W2			

NOTE: STATION AND OFFSET BASED ON BASELINE OF CONSTRUCTION



SECTION B-B
LOG TOE CRIB WALL



SECTION A-A
ROOT WAD CRIB WALL

LOG MEANDER PROTECTION STRUCTURE

NOT TO SCALE

US Army Corps of Engineers
Baltimore District

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MARK	DESCRIPTION	DATE	APPR

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

W912DR-07-D-0008
Task Order No. 19

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65 OF 72

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STANDARD EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR SHALL NOTIFY THE ADMINISTRATION (WMA) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY THE ADMINISTRATION, SHALL BE REQUIRED TO HOLD A PRECONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF WMA.

2. THE CONTRACTOR MUST NOTIFY WMA IN WRITING AND BY TELEPHONE AT THE FOLLOWING POINTS:

A. THE REQUIRED PRE-CONSTRUCTION MEETING.

B. FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES.

C. DURING THE INSTALLATION OF SEDIMENT BASINS (TO BE CONVERTED INTO PERMANENT STORMWATER MANAGEMENT STRUCTURES) AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKLIST ON PLAN). NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION OF EACH STEP IS MANDATORY.

D. PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).

E. PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES.

F. PRIOR TO FINAL ACCEPTANCE.

3. THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE AND SHALL HAVE THEM INSPECTED AND APPROVED BY THE AGENCY INSPECTOR OR WMA INSPECTOR PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. MINOR SEDIMENT CONTROL DEVICE LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE FROM WMA INSPECTOR. THE CONTRACTOR SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR. THE CONTRACTOR MUST OBTAIN PRIOR AGENCY AND WMA APPROVAL FOR CHANGES TO THE SEDIMENT CONTROL PLAN AND/OR SEQUENCE OF CONSTRUCTION. .

4. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.

5. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR.

6. ALL SEDIMENT BASINS, TRAP EMBANKMENTS AND SLOPE, PERMITTED DIKES, SWALES AND ALL DISTURBED SLOPES STEEPER OR EQUAL TO 3:1 SHALL BE STABILIZED WITH SOD OR SEED AND ANCHORED STRAY MULCH, OR OTHER APPROVED STABILIZATION MEASURES, AS SOON AS POSSIBLE BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER ESTABLISHMENT. ALL AREAS DISTURBED OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST BE MINIMIZED. MAINTENANCE MUST BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT FOR STABILIZATION MAY BE REDUCED TO THREE (3) DAYS FOR SENSITIVE AREAS.)

7. THE CONTRACTOR SHALL APPLY SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS AND STOCKPILES WITHIN FOURTEEN (14) CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED IN THE AREA. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT MAY BE REDUCED TO SEVEN (7) DAYS FOR SENSITIVE AREAS.)

8. PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE AND HAVE PERMANENT STABILIZATION FOR ALL CONTRIBUTORY DISTURBED AREAS USING SOD OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE, BUT NOT LATER THAN FOURTEEN (14) CALENDAR DAYS AFTER ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, TEMPORARY SEED AND ANCHORED STRAW MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE APPLIED BY MARCH 15 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.

9. THE SITE'S APPROVAL LETTER. APPROVED EROSION AND SEDIMENT CONTROL PLANS, DAILY LOG BOOKS, AND TEST REPORTS SHALL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF WMA AND THE AGENCY RESPONSIBLE FOR PROJECT.

10. SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING PROTECTIVE DEVICES TO LOWER THE WATER DOWNSLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF A CUT OR FILL SLOPE UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED. AT WHICH TIME THEY MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE. PROTECTIVE METHODS MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.

11. PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITH SOD OR SEED WITH APPROVED EROSION CONTROL MATTING, RIP-RAP, OR BY OTHER APPROVED STABILIZATION MEASURES.

12. TEMPORARY SEDIMENT CONTROL DEVICES MAY BE REMOVED, WITH PERMISSION OF WMA INSPECTOR AND AGENCY INSPECTORS, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CONVERTED TO THE PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL.

13. NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 WILL BE PERMITTED IN LAWN MAINTENANCE AREAS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NON-MAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN WITH A LOW-MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATIVE STABILIZATION.

14. FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS TO PREVENT WATER FROM PONDING FOR MORE THAN TWENTY FOUR (24) HOURS AFTER THE END OF A RAINFALL EVENT. DRAINAGE COURSES AND SWALE FLOW AREAS MAY TAKE AS LONG AS FORTY-EIGHT (48) HOURS AFTER THE END OF A RAINFALL EVENT TO DRAIN. AREAS DESIGNED TO HAVE STANDING WATER SHALL NOT BE REQUIRED TO MEET THIS REQUIREMENT.

15. SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A FOUNDATION THAT EXISTS OR IS UNDER CONSTRUCTION, NO STRUCTURE MAY BE CONSTRUCTED WITHIN 20 FEET OF AN ACTIVE SEDIMENT TRAP OR BASIN.

16. THE WMA INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SAFETY OR SEDIMENT CONTROL MEASURES, IF DEEMED NECESSARY.

17. ALL TRAP DEPTH DIMENSIONS ARE RELATIVE TO THE OUTLET ELEVATION. ALL TRAPS MUST HAVE A STABLE OUTFALL. ALL TRAPS AND BASINS SHALL HAVE STABLE INFLOW POINTS.

18. VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO APPROPRIATE SPECIFICATIONS FOR TEMPORARY SEEDING. PERMANENT SEEDING, MULCHING SODDING, AND GROUND COVERS.

19. SEDIMENT SHALL BE REMOVED AND THE TRAP OR BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE QUARTER OF THE TOTAL DEPTH OF THE TRAP OR BASIN. TOTAL DEPTH SHALL BE MEASURED FROM THE TRAP OR BASIN BOTTOM TO THE CREST OF THE OUTLET.

20. SEDIMENT REMOVED FROM TRAPS (AND BASINS) SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN, WETLAND OR TREE-SAVE AREA. WHEN PUMPING SEDIMENT LADEN WATER, THE DISCHARGE MUST BE DIRECTED TO A SEDIMENT TRAPPING DEVICE PRIOR TO RELEASE FROM THE SITE. A SUMP PIT MAY BE USED IF SEDIMENT TRAPS THEMSELVES ARE BEING PUMPED OUT.

21. ALL WATER REMOVED FROM EXCAVATED AREAS (E.G. UTILITY TRENCHES) SHALL BE PASSED THROUGH AN APPROVED DEWATERING PRACTICE OR PUMPED TO A SEDIMENT TRAP OR BASIN PRIOR TO DISCHARGE FROM THE SITE (I.E. VIA FUNCTIONAL STORM DRAIN SYSTEM OR TO STABLE GROUND SURFACE).

22. SEDIMENT CONTROL FOR UTILITY CONSTRUCTION FOR AREAS OUTSIDE OF DESIGNED CONTROLS OR AS DIRECTED BY ENGINEER OR WMA INSPECTOR:

A. CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK.

B. EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.

C. TRENCHES FOR UTILITY INSTALLATION SHALL BE BACKFILLED, COMPACTED, AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAN CAN BE COMPLETED THE SAME DAY. UNLESS:

D. TEMPORARILY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY.

23. WHERE DEEMED APPROPRIATE BY THE ENGINEER OR INSPECTOR, SEDIMENT BASINS AND TRAPS MAY NEED TO BE SURROUNDED WITH AN APPROVED SAFETY FENCE. THE FENCE MUST CONFORM TO LOCAL ORDINANCES AND REGULATIONS. THE DEVELOPER OR OWNER SHALL CHECK WITH LOCAL BUILDING OFFICIALS ON APPLICABLE IS SAFETY REQUIREMENTS. WHERE SAFETY FENCE DEEMED APPROPRIATE AND LOCAL ORDINANCES DO NOT SPECIFY FENCING SIZES AND TYPES. THE FOLLOWING SHALL BE USED AS A MINIMUM STANDARD: THE SAFETY FENCE MUST BE MADE OF WELDED WIRE AND AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THAN 2 INCHES IN WIDTH AND 4 INCHES IN HEIGHT WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED AND IN GOOD CONDITION AT ALL TIMES.

24. OFF-SITE SPOIL OR BORROW AREAS ON STATE OR FEDERAL PROPERTY MUST HAVE PRIOR APPROVAL BY WMA AND OTHER APPLICABLE STATE, FEDERAL, AND LOCAL AGENCIES; OTHERWISE APPROVAL MUST BE GRANTED BY THE LOCAL AUTHORITIES. ALL WASTE AND BORROW AREAS OFF-SITE MUST BE PROTECTED BY SEDIMENT CONTROL MEASURES AND STABILIZED.

25. SITES WHERE INFILTRATION DEVICES ARE USED FOR THE CONTROL OF STORMWATER, EXTREME CARE MUST BE TAKEN TO PREVENT RUNOFF FROM UNSTABILIZED AREAS FROM ENTERING THE STRUCTURE DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES PLACED IN INFILTRATION AREAS MUST HAVE BOTTOM ELEVATIONS AT LEAST TWO (2) FEET HIGHER THAN THE FINISH GRADE BOTTOM ELEVATION OF THE INFILTRATION PRACTICE. WHEN CONVERTING A SEDIMENT TRAP TO AN INFILTRATION DEVICE. ALL ACCUMULATED SEDIMENT MUST BE REMOVED AND DISPOSED OF PRIOR TO FINAL GRADING OF INFILTRATION DEVICE.

26. WHEN A STORM DRAIN SYSTEM OUTFALL IS DIRECTED TO A SEDIMENT TRAP OR SEDIMENT BASIN AND THE SYSTEM IS TO BE USED FOR TEMPORARILY CONVEYING SEDIMENT LADEN WATER, ALL STORM DRAIN INLETS IN NON-SUMP AREAS SHALL HAVE TEMPORARY ASPHALT BERMS CONSTRUCTED AT THE TIME OF BASE PAVING TO DIRECT GUTTER FLOW INTO THE INLETS TO AVOID SURCHARGING AND OVERFLOW OF INLETS IN SUMP AREAS.

27. SITE INFORMATION:
A. TOTAL AREA OF FACILITY (BASE, CAMPUS, PARK, ETC.) - 53.3 ACRES
B. TOTAL AREA OF PROJECT SITE - 53.3 ACRES
C. AREA DISTURBED - 11.43 ACRES
D. AREA TO BE ROOFED OR PAVED - 0.0 ACRES
E. TOTAL CUT - 12,343 CUBIC YARDS
F. TOTAL FILL - 5,094 CUBIC YARDS
G. OFF-SITE WASTE/BORROW AREA LOCATION --TO BE DETERMINED

STANDARD STABILIZATION NOTE:

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1): AND FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

OWNER'S / DEVELOPER'S CERTIFICATION:

"I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION, AND OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

_____ _____
OWNER/DEVELOPER SIGNATURE DATE

_____
PRINTED NAME AND TITLE

_____
CARD NO.

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II INCLUDING SUPPLEMENTS, THE ENVIRONMENT ARTICLE SECTIONS 4-101 THROUGH 116 AND SECTIONS 4-201 AND 215, AND THE CODE OF MARYLAND REGULATIONS (COMAR) 26.17.01 AND COMAR 26.17.02 FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT, RESPECTIVELY.

_____ _____
DATE DESIGNER'S SIGNATURE

MD. REGISTRATION NO. _____ _____
P.E., R.L.S., OR R.A. (CIRCLE ONE) PRINTED NAME

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16493, EXPIRATION DATE: 5/13/2013"

SUPPLEMENTAL EROSION AND SEDIMENT CONTROL NOTES

1. STAGING AND STOCKPILING:
THE CONTRACTOR SHALL ESTABLISH STAGING AND STOCKPILE AREAS AT LOCATIONS APPROVED BY THE ENGINEER AND WMA INSPECTOR. THESE AREAS SHALL BE ESTABLISHED SUCH THAT WETLAND, WETLAND BUFFERS, FORESTED AREAS, AND OTHER ENVIRONMENTALLY SENSITIVE AREAS ARE NOT IMPACTED. EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILT FENCE SHALL BE INSTALLED DOWNGRADE OF THE STAGING AND STOCKPILING AREAS AS DIRECTED BY THE ENGINEER AND WITH THE APPROVAL OF THE MDE INSPECTOR.

2. STABILIZED CONSTRUCTION ENTRANCE LOCATIONS:
THE LOCATIONS OF STABILIZED CONSTRUCTION ENTRANCES ON THE PLANS ARE RECOMMENDED AND HAVE BEEN APPROVED BY MDE. THE CONTRACTOR MAY DETERMINE OTHER LOCATIONS FOR INGRESS/EGRESS TO THE CONSTRUCTION SITE WITH THE APPROVAL OF THE ENGINEER AND WMA INSPECTOR.

3. STORM DRAIN AND DITCH CONSTRUCTION:
STORM DRAIN SYSTEMS AND PERMANENT DITCHES/SWALES SHALL BE CONSTRUCTED FROM DOWNSTREAM TO UPSTREAM UNLESS OTHERWISE NOTED ON THE PLANS OR APPROVED BY THE ENGINEER.

4. COORDINATION WITH MAINTENANCE OF TRAFFIC PLAN:
THE SEDIMENT AND EROSION CONTROL SEQUENCES SHALL BE COORDINATED WITH THE MAINTENANCE OF TRAFFIC PLANS TO MAINTAIN CONTINUITY OF THE PRACTICES DURING ALL PHASES OF THE PROPOSED WORK. CONCURRENT CONSTRUCTION WITHIN THE VARIOUS PHASES MAY BE UNDERTAKEN IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC PLAN. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING CONCURRENT WORK. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON COMPLETION OF THEIR INTENDED FUNCTION. PERMANENT STABILIZATION OF CONTRIBUTORY DRAINAGE AREA AND PRIOR APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR. SEDIMENT AND EROSION CONTROL MEASURES NECESSARY FOR SUBSEQUENT PHASE OF THE WORK SHALL BE MAINTAINED AS REQUIRED BY THE STANDARDS AND SPECIFICATIONS.

5. DEWATERING:
ANY EFFLUENT FROM DEWATERING FOUNDATIONS, TRENCHES AND OTHER DISTURBED AREAS MUST BE TREATED BY AN APPROVED SEDIMENT CONTROL DEVICE BEFORE BEING DISCHARGED.

6. SEQUENCE OF CONSTRUCTION:
THE SEQUENCE OF CONSTRUCTION INCLUDED IN THESE PLANS IS APPROVED BY THE MDE. THIS SEQUENCE OF CONSTRUCTION MAY BE MODIFIED BY THE CONTRACTOR. HOWEVER, THE CONTRACTOR MUST OBTAIN MDE APPROVAL FOR ANY MODIFICATIONS PRIOR TO IMPLEMENTING A REVISED SEQUENCE OF CONSTRUCTION IN THE FIELD.

7. END OF DAY STABILIZATION:
ONLY THAT AMOUNT OF WORK SHALL BE COMPLETED THAT CAN BE STABILIZED BY THE END OF THE DAY. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO MINIMIZE UNNECESSARY DISTURBANCE. USE TEMPORARY STABILIZATION MEASURES, AS NEEDED, TO ENSURE END OF THE DAY STABILIZATION. TEMPORARY MEASURES TO PREVENT SEDIMENT-LADEN RUNOFF FROM ENTERING THE CHANNEL MAY INCLUDE, BUT NOT LIMITED TO, STRAW MULCH, SILT FENCE, IMPERVIOUS SHEETING, ETC., AND SHALL BE APPROVED BY THE CONTRACTING OFFICER'S REPRESENTATIVE AND MDE INSPECTOR. IF TEMPORARY STABILIZATION MEASURES ARE WASHED AWAY OR OTHERWISE RENDERED INEFFECTIVE, THEY ARE TO BE REPLACED OR REPAIRED THE NEXT DAY.

8. STABILIZATION DURING CHANNEL FORMATION:
THE CONSTRUCTION OF THE IN-STREAM STRUCTURES AND BANKFULL BENCH IS AN INTEGRAL PART OF STABILIZING THE CHANNEL DURING EXCAVATION AND FILL OPERATIONS WITHIN THE CHANNEL. ACCORDINGLY, THE IN-STREAM STRUCTURES AND PLACEMENT OF BENCH MATERIAL SHOULD OCCUR AT THE SAME TIME AS CHANNEL EXCAVATION. BENCHES IN FILL SHOULD BE BUILT FROM COURSE MATERIALS HARVESTED FROM THE CHANNEL.

SEQUENCE OF CONSTRUCTION

FOR SEQUENCE OF CONTRUCTION SEE SITE SPECIFIC SEQUENCE ON DRAWINGS

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

W912DR-07-D-0008
Task Order No. 19

EROSION & SEDIMENT CONTROL GENERAL NOTES

Sheet Number:
66 OF 72

BY: bpalmer

PLOTTED: Friday, October 07, 2011 AT 01:15 PM
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STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

(1994 MARYLAND DEPARTMENT OF THE ENVIRONMENT)

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. SITE PREPARATION

i. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.

II. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.

III. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

i. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF THE DISTRICT OF COLUMBIA OR A CERTIFIED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

ii. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTEE OF THE PRODUCER.

iii. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98 - 100% WILL PASS THROUGH A #20 MESH SIEVE.

iv. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 - 5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDBED PREPARATION

i. TEMPORARY SEEDING
   a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3" TO 5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

   b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

   c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 - 5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

ii. PERMANENT SEEDING

   a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:

      1. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.

      2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).

      3. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (> 30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE

      4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.

      5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

      6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 OF THE 1994 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL STANDARD AND SPECIFICATION FOR TOPSOIL.

   b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 - 5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.

   c. APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.

   d. MIX SOIL AMENDMENTS INTO THE TOP 3- 5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

D. SEED SPECIFICATIONS

i. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

ii. INOCULANT - THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75-80 F. CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHOD OF SEEDING

i. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.:

   a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN; MAXIMUM OF 100 LBS. PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS): 200 LBS/AC; K2O (POTASSIUM): 200 LBS/AC.

   b. LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE, (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANYONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

   c. SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

ii. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

   a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING TABLES ON SHEET 12. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

   b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

iii. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

   a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST¼INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

   b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

i. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE OR OAT STRAW, EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED BY THE MARYLAND SEED LAW.

ii. WOOD CELLULOSE FIBER MULCH (WCFM)

   a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
   b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

   c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

   d. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

   e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.

   f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM., DIAMETER APPROXIMATELY 1 MM., PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

   NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

   i. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.

   ii. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS/ACRE.

   iii. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD:

   i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.

   ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

   iii. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS - SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY MANUFACTURER TO ACHOR MULCH.

   iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4' TO 15' FEET WIDE AND 300 TO 3,000 FEET LONG.

I. INCREMENTAL STABILIZATION - CUT SLOPES

i. ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.

ii. CONSTRUCTION SEQUENCE (REFER TO FIGURE 4 BELOW):

   a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.

   b. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.

   c. PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.

   d. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY. NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

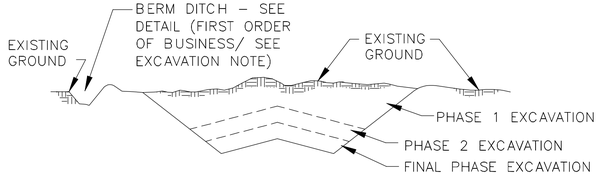

FIGURE 4 INCREMENTAL STABILIZATION – CUT

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Submitted by: CVK

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

W912DR-07-D-0008
Task Order No. 19

EROSION & SEDIMENT CONTROL GENERAL NOTES

Sheet Number:
67 OF 72

BY: bpalmer

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STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION (CONTINUED)

J. INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES

i. EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.

ii. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15'. OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.

iii. AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.

iv. CONSTRUCTION SEQUENCE: REFER TO FIGURE 5 (BELOW).

a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5. UNLESS OTHER METHODS ON THE PLANS ADDRESS THIS AREA.

b. PLACE PHASE 1 EMBANKMENT, DRESS AND STABILIZE.

c. PLACE PHASE 2 EMBANKMENT, DRESS AND STABILIZE.

d. PLACE FINAL PHASE EMBANKMENT, DRESS AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

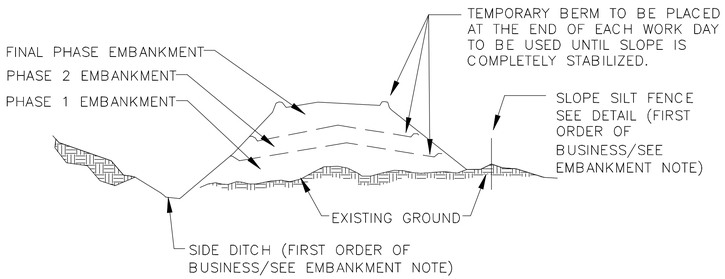

FIGURE 5 INCREMENTAL STABILIZATION – FILL

SECTION II - TEMPORARY SEEDING

VEGETATION - ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

A. SEED MIXTURES - TEMPORARY SEEDING

i. THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY ON SHEET 12, ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS.

ii. FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THE TABLE ON SHEET 12 SHALL BE FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING. (SEE TEMPORARY SEEDING SUMMARY ON SHEET 12)

SECTION III: PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES - PERMANENT SEEDING

i. APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 6 OF 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY ON SHEET 12, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLES ON SHEET 12. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342-CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD AND V TURFGRASS.

ii. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.

iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3½LBS/ 1000 SQ. FT. (150 LBS/AC), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING. (SEE PERMANENT SEEDING SUMMARY ON SHEET 12)

SECTION IV - SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

A. GENERAL SPECIFICATIONS

i. CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

ii. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF¾", PLUS OR MINUS¼", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

iii. STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.

iv. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

v. SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

i. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.

ii. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS, WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

iii. WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

iv. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

i. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.

ii. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

iii. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

SECTION V - TURFGRASS ESTABLISHMENT

AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. AREAS TO RECEIVE SEED SHALL BE TILLED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVELED AND RAKED TO PREPARE A PROPER SEEDBED. STONES AND DEBRIS OVER 1½INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDBED SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.

NOTE: CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY.

A. TURFGRASS MIXTURES

i. KENTUCKY BLUEGRASS - FULL SUN MIXTURE - FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS/1000 SQUARE FEET. A MINIMUM OF THREE BLUEGRASS CULTIVARS SHOULD BE CHOSEN RANGING FROM A MINIMUM OF 10% TO A MAXIMUM OF 35% OF THE MIXTURE BY WEIGHT.

ii. KENTUCKY BLUEGRASS/PERENNIAL RYE - FULL SUN MIXTURE - FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE/1000 SQUARE FEET. A MINIMUM OF 3 KENTUCKY BLUEGRASS CULTIVARS MUST BE CHOSEN, WITH EACH CULTIVAR RANGING FROM 10% TO 35% OF THE MIXTURE BY WEIGHT.

iii. TALL FESCUE/KENTUCKY BLUEGRASS - FULL SUN MIXTURE - FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95-100%, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0- 5%. SEEDING RATE: 5 TO 8 LBS/1,000 SF. ONE OR MORE CULTIVARS MAY BE BLENDED.

iv. KENTUCKY BLUEGRASS/FINE FESCUE - SHADE MIXTURE - FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30-40% AND CERTIFIED FINE FESCUE AND 60-70%. SEEDING RATE: 1 1/2- 3 LBS/1000 SQUARE FEET. A MINIMUM OF 3 KENTUCKY BLUEGRASS CULTIVARS MUST BE CHOSEN, WITH EACH CULTIVAR RANGING FROM A MINIMUM OF 10% TO A MAXIMUM OF 35% OF THE MIXTURE BY WEIGHT.

NOTE: TURFGRASS VARIETIES SHOULD BE SELECTED FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MIMEO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".

B. IDEAL TIMES OF SEEDING

WESTERN MD: MARCH 15-JUNE 1, AUGUST 1 - OCTOBER 15
(HARDINESS ZONES - 5b, 6a)
CENTRAL MD: MARCH 1 - MAY 15, AUGUST 15-OCTOBER 15
(HARDINESS ZONE -6b)
SOUTHERN MD, EASTERN SHORE: MARCH 1 - MAY 15, AUGUST 15 -OCTOBER 15
(HARDINESS ZONES - 7a, 7b)

C. IRRIGATION

IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2"-1" EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

D. REPAIRS AND MAINTENANCE

INSPECT ALL SEEDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

i. ONCE THE VEGETATION IS ESTABLISHED, THE SITE SHALL HAVE 95% GROUNDCOVER TO BE CONSIDERED ADEQUATELY STABILIZED.

ii. IF THE STAND PROVIDES LESS THAN 40% GROUND COVERAGE, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER, SEEDBED PREPARATION AND SEEDING RECOMMENDATIONS.

iii. IF THE STAND PROVIDES BETWEEN 40% AND 94% GROUND COVERAGE, OVERSEEDING AND FERTILIZING USING HALF OF THE RATES ORIGINALLY APPLIED MAY BE NECESSARY.

iv. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE 24. FOR LAWNS AND OTHER MEDIUM TO HIGH MAINTENANCE TURFGRASS AREAS, REFER TO THE UNIVERSITY OF MARYLAND PUBLICATION "LAWN CARE IN MARYLAND" BULLITIN NO. 171.

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

W912DR-07-D-0008
Task Order No. 19

EROSION & SEDIMENT CONTROL GENERAL NOTES

Sheet Number:
68 OF 72

BY: bpalmer

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SUPPLEMENTAL SYMBOLS

PORTABLE CONCRETE BARRIER DIVERSION

SANDBAG DIVERSION

SUPER DIVERSION FENCE — DF-1 / DF-2

TEMPORARY GABION OUTLET STRUCTURE — TGOS

ORANGE CONSTRUCTION FENCE — OCF

SHEETING

CURRENT MAINTENANCE OF TRAFFIC WORK AREA

CURRENT MAINTENANCE OF TRAFFIC ASPHALT WEDGING

ONGOING MAINTENANCE OF TRAFFIC WORK AREA

MAINTENANCE OF TRAFFIC STRUCTURE WORK AREA

PAVEMENT REMOVAL

WATERS OF THE U.S. — WUS

WETLANDS

WETLAND BUFFERS — B

100-YEAR FLOODPLAIN

SEDIMENT BASIN BAFFLES

STANDARD SYMBOLS

EARTH DIKE — A-2 / B-3

TEMPORARY SWALE — A-2 / B-3

PERIMETER DIKE/SWALE — PD/S-1

STONE CHECK DAM — CD

STONE OUTLET STRUCTURE — TSOS

SILT FENCE — SF

SUPER SILT FENCE — SSF

DIVERSION FENCE — DF

STRAW BALES — SB

STANDARD INLET PROTECTION — SIP

AT GRADE INLET PROTECTION — AGIP

CURB INLET PROTECTION — CIP

MEDIAN INLET PROTECTION — MIP

GABION INFLOW PROTECTION — GM

RIPRAP INFLOW PROTECTION — RRP

SUMP PIT — SP

REMOVABLE PUMPING STATION — RPS

PORTABLE SEDIMENT TANK — PST

STANDARD SYMBOLS

INTERCEPTOR BERM — IB

TEMPORARY BERM — TB / TB

PIPE SLOPE DRAIN — BSD-12

STABILIZED CONSTRUCTION ENTRANCE — SCE

SOIL STABILIZATION MATTING

PLACED RIPRAP DITCH

GABIONS

CONCRETE GUTTER

STONE OUTLET SEDIMENT TRAP — SOST

RIPRAP OUTLET SEDIMENT TRAP — ROST

STONE/RIPRAP OUTLET SEDIMENT TRAP — SROST

PIPE OUTLET SEDIMENT TRAP — POST

LIMIT OF DISTURBANCE — LOD

EXISTING CONTOURS — 100

INTERM CONTOURS — 100

PROPOSED CONTOURS — 100

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION (CONTINUED)

PERMANENT SEEDING SUMMARY

SEED MIXTURE (FOR HARDINESS ZONE 7A) (FROM TABLE 25)					FERTILIZER RATE (10-20-20)		
MIX	[1]SPECIES	APPLICATION RATE (LBS/ACRE)	SEEDING DATES	SEEDING DEPTHS	N	P 205	K20
	75% TALL FESCUE 10% CANADA BLUEGRASS 10% KENTUCKY BLUEGRASS 5% RED TOP	150	3/1 TO 5/15 8/15 TO 11/15	1"	90 LB/AC (2.0 LB/ 1000 SF)	175 LB/AC (4.0 LB/ 1000 SF)	175 LB/AC (4.0 LB/ 1000 SF)
7	83% TALL FESCUE 2% WEEPING LOVEGRASS 15% SERECIA LESPEDEZA	110 3 20	3/1 TO 11/15 5/16 TO 8/14 8/15 TO 11/15	1"			

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (FOR HARDINESS ZONE 7A) (FROM TABLE 26)					FERTILIZER RATE (10-10-10)	LIME RATE
MIX	SPECIES	APPLICATION RATE (LBS/ACRE)	SEEDING DATES	SEEDING DEPTHS		
N/A	RYE PLUS FOXTAIL MILLET	150	2/1 TO 11/30	1"	600 LB/AC (15 LB/1000 SF)	2 TONS / AC (100 LB / 1000 SF)

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS AND 100-YEAR FLOODPLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.

2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.

3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.

4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.

5. REPAIR AND MAINTAIN SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.

6. RECTIFY ANY NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.

7. ALL STABILIZATION IN THE NONTIDAL WETLANDS AND NONTIDAL WETLAND BUFFERS SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM), OATS (UNIOLA), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLAND AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.

8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.

9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM AS FOLLOWS: CLASS IV WATERS: IN-STREAM WORK MAY NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.

10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.

11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE OF THE ACTIVITY IS TO IMPOUND WATER.

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

W912DR-07-D-0008
Task Order No. 19

EROSION & SEDIMENT CONTROL GENERAL NOTES

Sheet Number:
69 OF 72

BY: bpalmer

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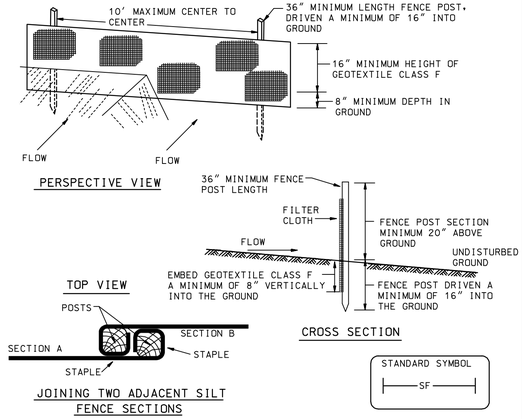
DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE

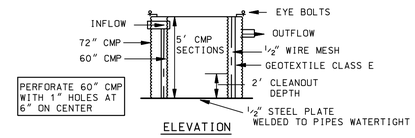
Silt Fence Design Criteria

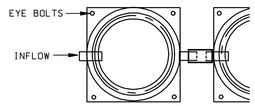
Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 21 – PORTABLE SEDIMENT TANK





STANDARD SYMBOL

PST

Construction Specifications

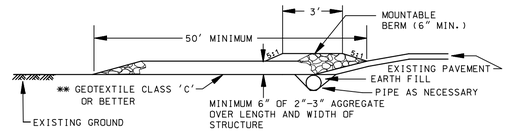
1. The following formula should be used in determining the storage volume of the sediment tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity.

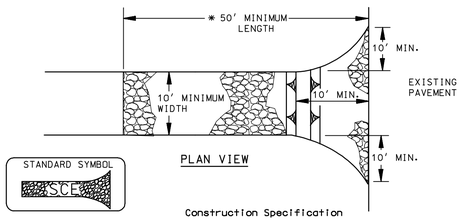
2. An example of a typical sediment tank is shown above. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.

3. Tanks may be connected in series.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D – 14 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE





STANDARD SYMBOL

SCE

Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

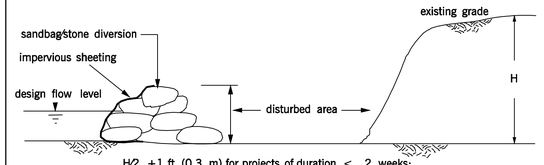
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

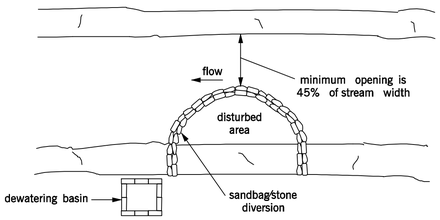
Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAG/STONE DIVERSION

TRANSVERSE SECTION VIEW



H/2 +1 ft. (0.3 m) for projects of duration < 2 weeks;
2-year flood elevation for projects of longer duration

PLAN VIEW



LOCATION	MIN. BARRIER HEIGHT (FT.)	2-YR DISCHARGE (CFS)
BATCHELLORS	3.5	586
SHERWOOD	3.5	310
WOODLAWN	3.0	685

SANDBAG /STONE DIVERSION	*REVISED NOVEMBER 2000 PAGE 1.5 – 3*	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

W912DR-07-D-0008
Task Order No. 19

EROSION & SEDIMENT CONTROL DETAILS

Sheet Number:
70 OF 72

BY: bpalmer

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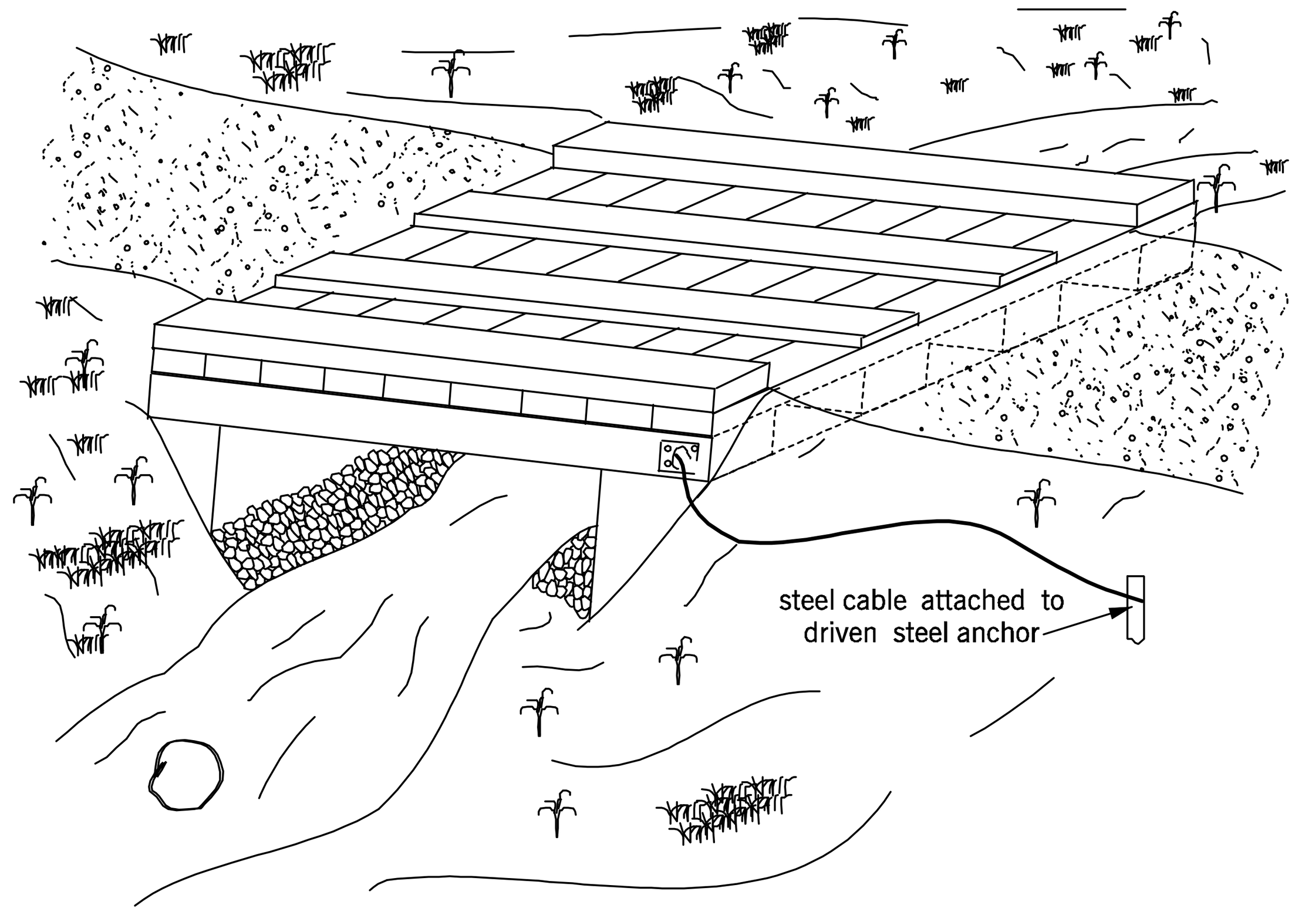
Maryland's Guidelines To Waterway Construction
DETAIL 4.8: TEMPORARY ACCESS BRIDGE

SKETCH



STREAM CROSSING	PAGE 4.8 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction
DETAIL 4.8: TEMPORARY ACCESS BRIDGE

DESCRIPTION

A temporary access bridge is a stream crossing made of wood, metal, or other materials designed to limit the amount of disturbance to the stream banks and bed.

EFFECTIVE USES & LIMITATIONS

Temporary access bridges are the preferred method of waterway crossing since they typically cause the least disturbance to the waterway bed and banks, pose the least chance for interference with fish migration, and can be quickly removed and reused.

MATERIAL SPECIFICATIONS

- Stringers: Stringers should either be logs, sawn timber, prestressed concrete beams, metal beams, or other approved materials.
- Deck Materials: Deck materials should be of sufficient strength to support the anticipated load.

CONSTRUCTION SEQUENCE

All erosion and sediment control devices, including stream diversions, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Dewatering basins should be built as needed and swales or ditches should be used to prevent surface drainage from entering the stream via the bridge crossing. (See the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control.) The proposed construction, maintenance, and removal sequence is as follows:

1. Abutments should be placed parallel to, and on, stable banks such that the structure is at or above bankfull depth to prevent the entrapment of floating materials and debris.

2. Temporary access bridges should be constructed to span the entire channel. If the bankfull channel width exceeds 8 feet (2.5 meters), then a footing, pier, or other bridge support may be constructed within the waterway. No support will be permitted within the channel for waterways less than 8 feet wide. One additional bridge support will be permitted for each additional 8-foot width of the channel.

3. All decking members should be placed perpendicularly to the stringers, butted tightly, and securely fastened to the stringers. Decking materials must be butted tightly to prevent any soil material tracked onto the bridge from falling into the waterway.

4. Although run planks are optional, they may be necessary to properly distribute loads. One run plank should be provided for each track of the equipment wheels and should be securely fastened to the length of the span.

5. Curbs or fenders may be installed along the outer sides of the deck to provide additional safety.

6. Bridges should be securely anchored at one end using steel cable or chain to prevent the bridge from floating downstream and possibly causing an obstruction to the flow. Anchoring at only one end will prevent channel obstruction in the event that flood waters float the bridge. Acceptable anchors are large trees, boulders, or driven steel anchors. Temporary stream crossing intended for minimum corridor disturbance

7. All areas disturbed during installation should be stabilized within 14 calendar days in accordance with a revegetation plan approved by the WMA.

8. Periodic inspection should be performed by the user to ensure that the bridge, streambed, and stream banks are maintained and not damaged.

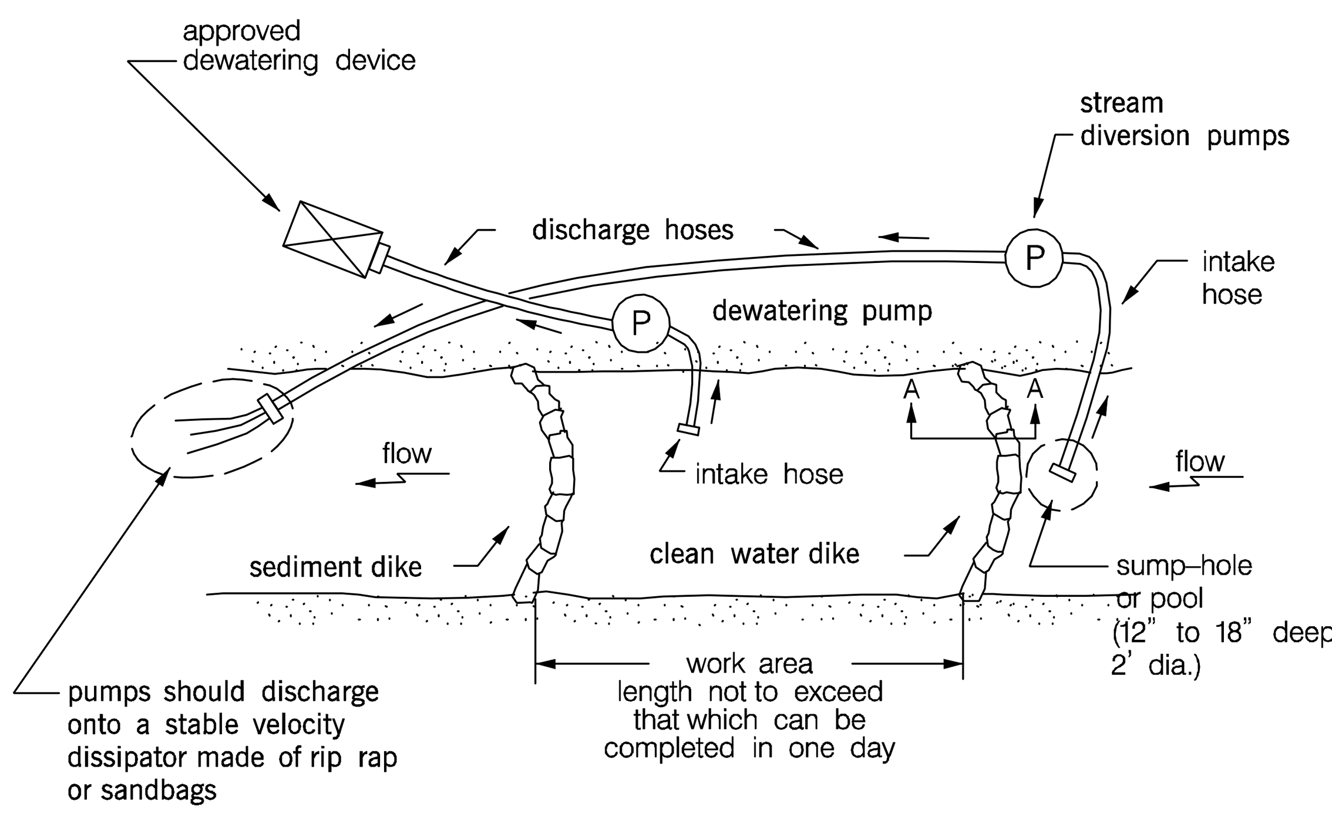
9. Maintenance should be performed as needed to ensure that the structure complies with all standards and specifications. This should include the removal of trapped sediment and debris which should then be disposed of and stabilized outside the floodplain.

10. When the temporary bridge is no longer needed, all structures including abutments and other bridging materials should be removed within 14 calendar days. In all cases, the bridge materials should be removed within 1 year of installation. Removal of the bridge and clean-up of the area, including protection and stabilization of disturbed stream banks, should be accomplished without the use of construction equipment in the waterway.

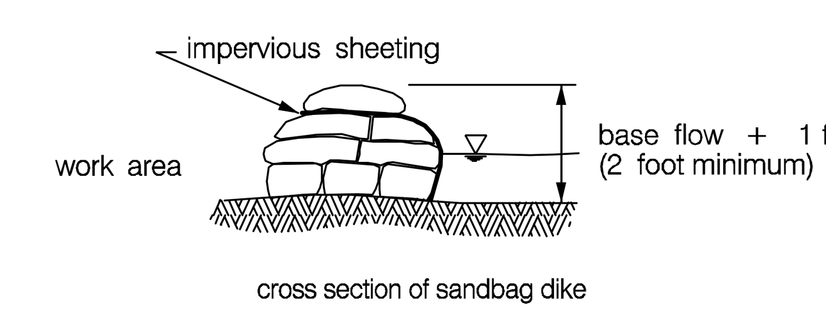
STREAM CROSSING	PAGE 4.8 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE

PLAN VIEW



SECTION A-A



TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.2 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guide to Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE

The work should consist of installing a temporary pump around and supporting measures to divert flow around instream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.

2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.

3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of Disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.

4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.

5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.

6. Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.

8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).

9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross- sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.

10. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.

11. A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.

12. If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.

13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.

14. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.2 - 1&2	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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MARK	DESCRIPTION	DATE	APPR

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

W912DR-07-D-0008
Task Order No. 19

Designed by: REP	Date: 10/4/2011		
Dwn by: DEA	Ckd by: SPB	Design file no.	
Reviewed by: TMH		Drawing code: GN-15	
Submitted by: CVK		Dwg scale: N.T.S.	

EROSION & SEDIMENT CONTROL DETAILS

Sheet Number: 71 OF 72

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BY: lpalmer