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PROJECT SUMMARY

TOTAL LENGTH OF STREAM RESTORED: 2,500 LINEAR FEET
STREAM USE CLASS: III
STREAM CLOSURE PERIOD: October 1st - April 20th
LOAD REDUCTIONS AND IA CREDIT SUMMARY:

REACH	PROTOCOL	IA CREDIT	TSS REDUCTION	TN REDUCTION	TP REDUCTION
REACH 1	PROTOCOL 1	6.8 AC	43.3 TONS/YR	73.5 LBS/YR	12.6 LBS/YR
	PROTOCOL 2	0.3 AC	0 TONS/YR	17.9 LBS/YR	0 LBS/YR
	PROTOCOL 5	1.4 AC	8.9 TONS/YR	15.2 LBS/YR	2.6 LBS/YR
TOTAL	TOTAL	8.6 AC	52.2 TONS/YR	106.6 LBS/YR	15.2 LBS/YR

REACH	PROTOCOL	IA CREDIT	TSS REDUCTION	TN REDUCTION	TP REDUCTION
REACH 2	PROTOCOL 1	44.9 AC	283.3 TONS/YR	489.6 LBS/YR	82.6 LBS/YR
	PROTOCOL 2	1.0 AC	0 TONS/YR	53.1 LBS/YR	0 LBS/YR
TOTAL	TOTAL	45.8 AC	283.3 TONS/YR	542.7 LBS/YR	82.6 LBS/YR

REACH	PROTOCOL	IA CREDIT	TSS REDUCTION	TN REDUCTION	TP REDUCTION
TRIBUTARY	PROTOCOL 5	0.8 AC	5.1 TONS/YR	8.7 LBS/YR	1.5 LBS/YR
TOTAL	TOTAL	0.8 AC	5.1 TONS/YR	8.7 LBS/YR	1.5 LBS/YR

DEVELOPER'S/LANDOWNER'S CERTIFICATION

I/WE CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) WILL BE ACCOMPLISHED PURSUANT TO THESE PLANS. I/WE ALSO UNDERSTAND THAT IT IS MY/OUR RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND CERTIFIED. INCLDING THE SUBMITTAL OF "AS-BUILT" PLANS WITHIN 30 DAYS OF COMPLETION. BY A REGISTERED PROFESSIONAL ENGINEER.

SIGNED _____ DATE _____

PRINTED NAME _____

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME, OR UNDER MY SUPERVISION, AND MEETS THE MINIMUM STANDARDS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AND/OR THE UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION.

ENGINEER'S SIGNATURE _____ DATE _____

PRINTED NAME _____ MD PE REGISTRATION NO.

Owner:

HARFORD COUNTY
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR, MD 21014

Prepared By :

RK&K
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WOODLAND RUN STREAM RESTORATION

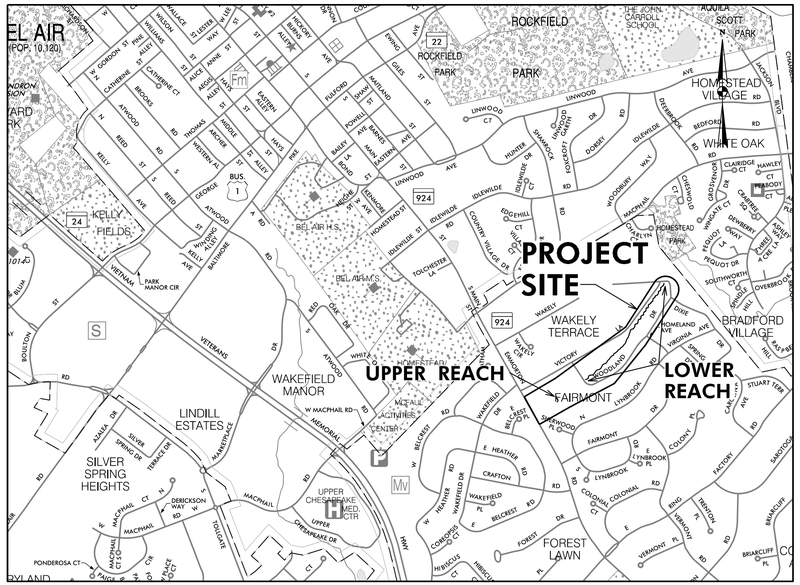
90% DESIGN DEVELOPMENT

DECEMBER 2023

BID NO. XXXXX

WATERSHED PROTECTION AND RESTORATION OFFICE

HARFORD COUNTY, MARYLAND



LOCATION MAP

SCALE 1" = 1,000'

GENERAL NOTES

1. SPECIFICATIONS: ALL WORK IS TO BE PERFORMED IN ACCORDANCE MARYLAND STATE HIGHWAY ADMINISTRATIONS STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2020 AND THE MOST RECENT REVISIONS THEREOF AND ADDITIONS THERETO.

2. UTILITIES: UTILITY LOCATIONS SHOWN ON THE PLANS ARE BASED ON LIMITED INFORMATION AVAILABLE. HOWEVER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF THIS INFORMATION. THE COST OF REPAIR OR REPLACEMENT OF ANY SUCH FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE BORNE BY HIM.

   CONTACT "MISS UTILITY" PHONE 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THERE SHOULD BE NO EXCAVATION UNTIL THE LOCATIONS OF UNDERGROUND UTILITIES HAVE BEEN DETERMINED.

3. STANDARD DETAILS: REFERENCE MADE TO STANDARDS ARE TAKEN FROM THE HARFORD COUNTY ROAD CODE "BOOK OF STANDARD DETAILS" AND FROM "THE MARYLAND STATE HIGHWAY ADMINISTRATION'S BOOK OF STANDARDS-HIGHWAY AND INCIDENTAL STRUCTURES", IT WILL BE THE CONTRACTOR'S RESPONSIBILITY THAT THE STANDARD DRAWINGS IN HIS POSSESSION ARE THE LATEST REVISED STANDARDS UP TO AND INCLUDING THE DATE OF THE ADVERTISEMENT OF THIS CONTRACT.

4. RIGHT-OF-WAY LINES: RIGHT-OF-WAY LINES SHOWN ON THESE PLANS DO NOT INCLUDE EASEMENTS. THEY ARE FOR ASSISTANCE IN INTERPRETING THE PLANS ONLY. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY ACQUISITION LINES. FOR OFFICIAL FEE RIGHT-OF-WAY AND EASEMENT INFORMATION, SEE THE APPROPRIATE RIGHT-OF-WAY PLATS.

5. SOIL CONSERVATION: THE CONTRACTOR SHALL NOT DISTURB THE EXISTING VEGETATION OUTSIDE THE LIMITS OF DISTURBANCE. STOCKPILING AND STAGING WILL NOT BE ALLOWED ON SITE. THE CONTRACTOR MUST SECURE AN OFF-SITE AREA AND ANY NECESSARY PERMITS. SOIL STABILIZATION WILL CONFORM TO 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. THE CONTRACTOR WILL OBTAIN APPROVAL OF THE HARFORD COUNTY SOIL CONSERVATION DISTRICT FOR HIS PLANS IN CONTROLLING SEDIMENT EROSION FOR THE BORROW AREA AND DISPOSING OF ANY WASTE EXCAVATION.

6. EXISTING MAILBOXES AND EXISTING SIGNS: ALL EXISTING MAILBOXES, SIGNS AND PAPER BOXES DISTURBED DURING CONSTRUCTION SHALL BE TEMPORARILY RESET IMMEDIATELY AND PERMANENTLY RESET AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.

7. SURVEYS:

   HORIZONTAL CONTROL - COORDINATES SHOWN ON THE PLANS ARE BASED ON NAD83(2011) PER LEICA SMARTNET US SURVEY FEET.

   VERTICAL CONTROL - ELEVATIONS SHOWN ON THE PLANS ARE BASED ON NAVD88 (GEOID12A) AS PER LEICA SMARTNET.

   ONLY THOSE CONTROL POINTS SHOWN ON THESE PLANS ARE TO BE USED FOR THE CONSTRUCTION OF THIS PROJECT.

FIELD VERIFICATION

I HEREBY CERTIFY THAT I COMPLETED A FIELD VERIFICATIN TO THE INFORMATION SHOWN ON THE PLANS ON JUNE 15, 2021 AND THAT THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS.

PRINTED NAME _____

SIGNED _____ DATE _____

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILILTY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

ENGINEER'S SIGNATURE _____ DATE _____

PRINTED NAME _____ MD PE REGISTRATION NO.

BILLING NO. XXXXXX

EG-SWMENG- XXXXXX-XXXX #XXXX

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. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

S/C PLAN # XXXXX

GP # XXXXX-XXXX

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN
STREAM RESTORATION

Drawn By : RMO'BEA	Scale : NOT TO SCALE
Designed By : RMO'BEA	Date : DECEMBER 2023
Reviewed By : DMH	Contract No.: XX-XXXX
Drawing No. GN-01 of GN-01	Sheet No. 01 of 37

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

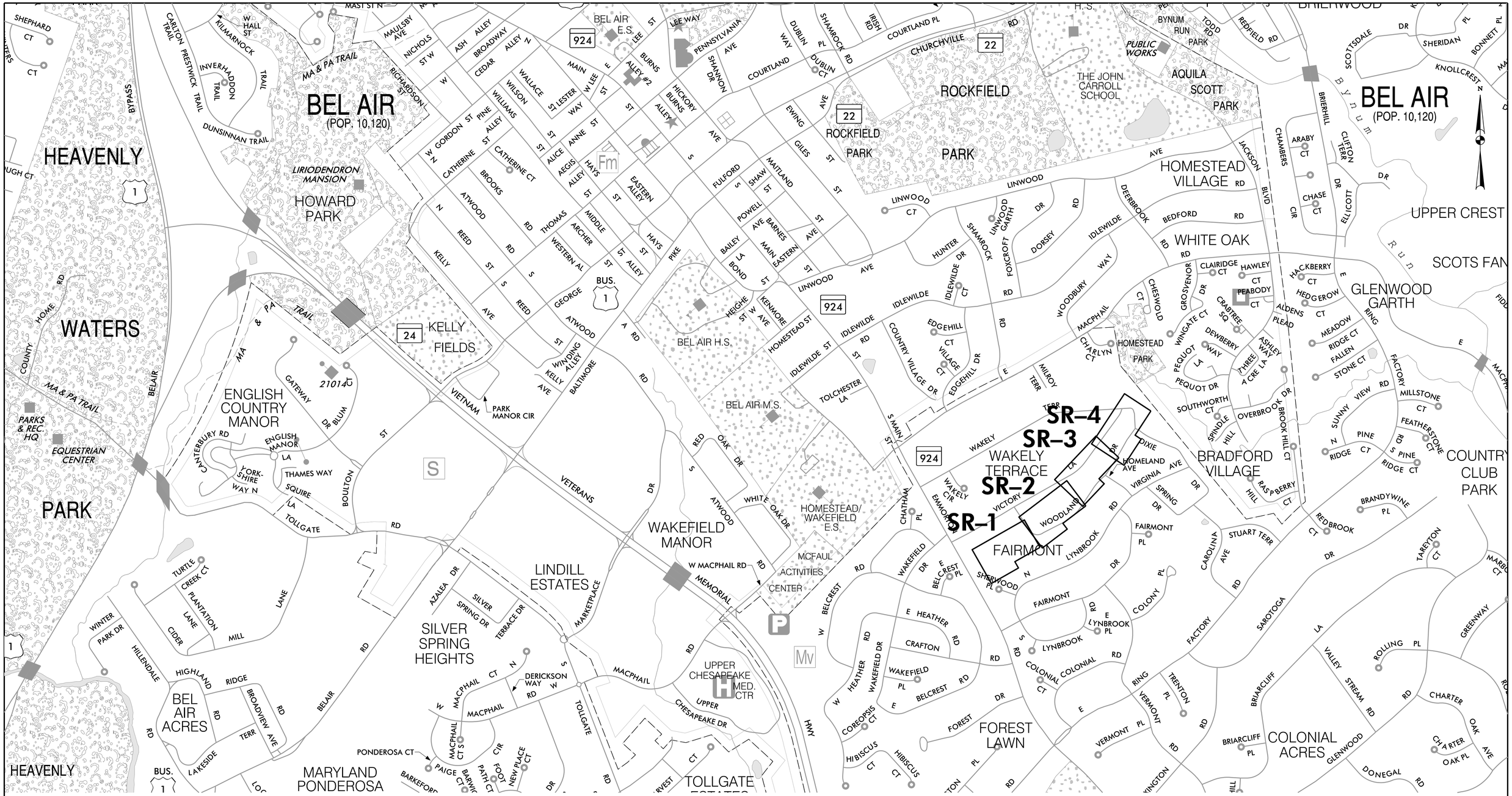
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HCG DWG ID No.:

SCALE: 1 inch

BY: nhoward -

PLOTTED: 6/12/2024
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\01_pGN-0000-Woodland.dgn



Revisions

NOT FOR CONSTRUCTION

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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. XXXXX. EXPIRATION DATE: XX/XX/XXXX.

SIGN AND SEAL

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

KEY SHEET

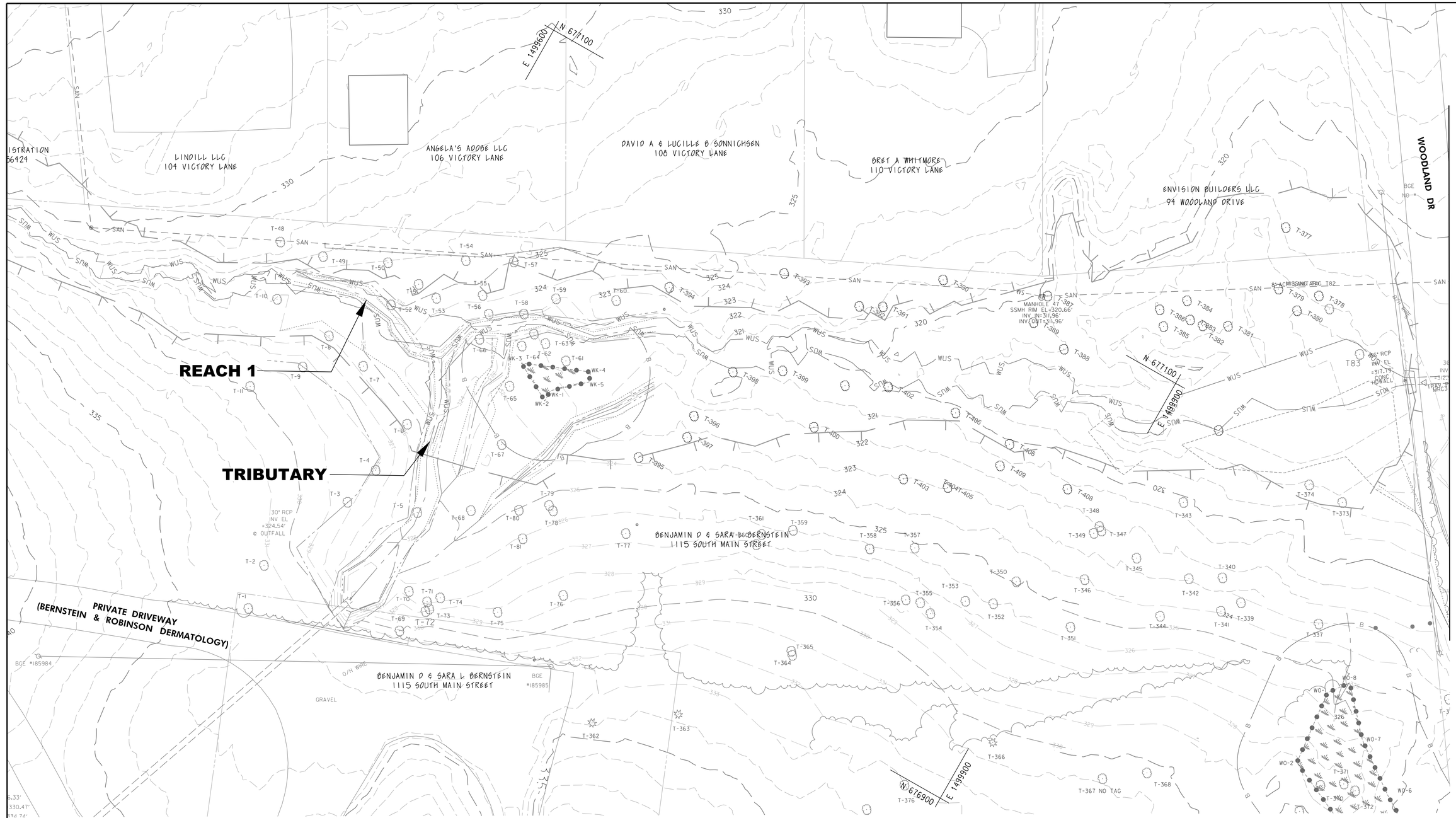
Drawn By :	RMO/BEA	Scale :	1" = 500'
Designed By :	RMO/BEA	Date :	OCTOBER 2023
Reviewed By :	DMH	Contract No.:	XX-XXXX
Drawing No.	KS-01 of KS-01	Sheet No.	2 of 34

SCALE: 1 inch

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:

BY: roaks –

PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\02_pKS-0000-Woodland.dgn



LEGEND

- SAN — EXISTING SANITARY SEWER
- ● ● ● WETLAND BOUNDARY
- B — 25 FT WETLAND BUFFER
- WUS — WATERS OF THE US
- EXISTING 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- 320 — EXISTING MAJOR CONTOUR
- 321 — EXISTING MINOR CONTOUR

20' 0 20' 40'

SCALE: 1" = 20'

Revisions

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EXISTING CONDITIONS PLAN

Drawn By :	MKT	Scale :	1" = 20'
Designed By :	SJF	Date :	OCTOBER 2023
Reviewed By :	KDG	Contract No.:	XX-XXXX
Drawing No.	EX-01 of EX-04	Sheet No.	3 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

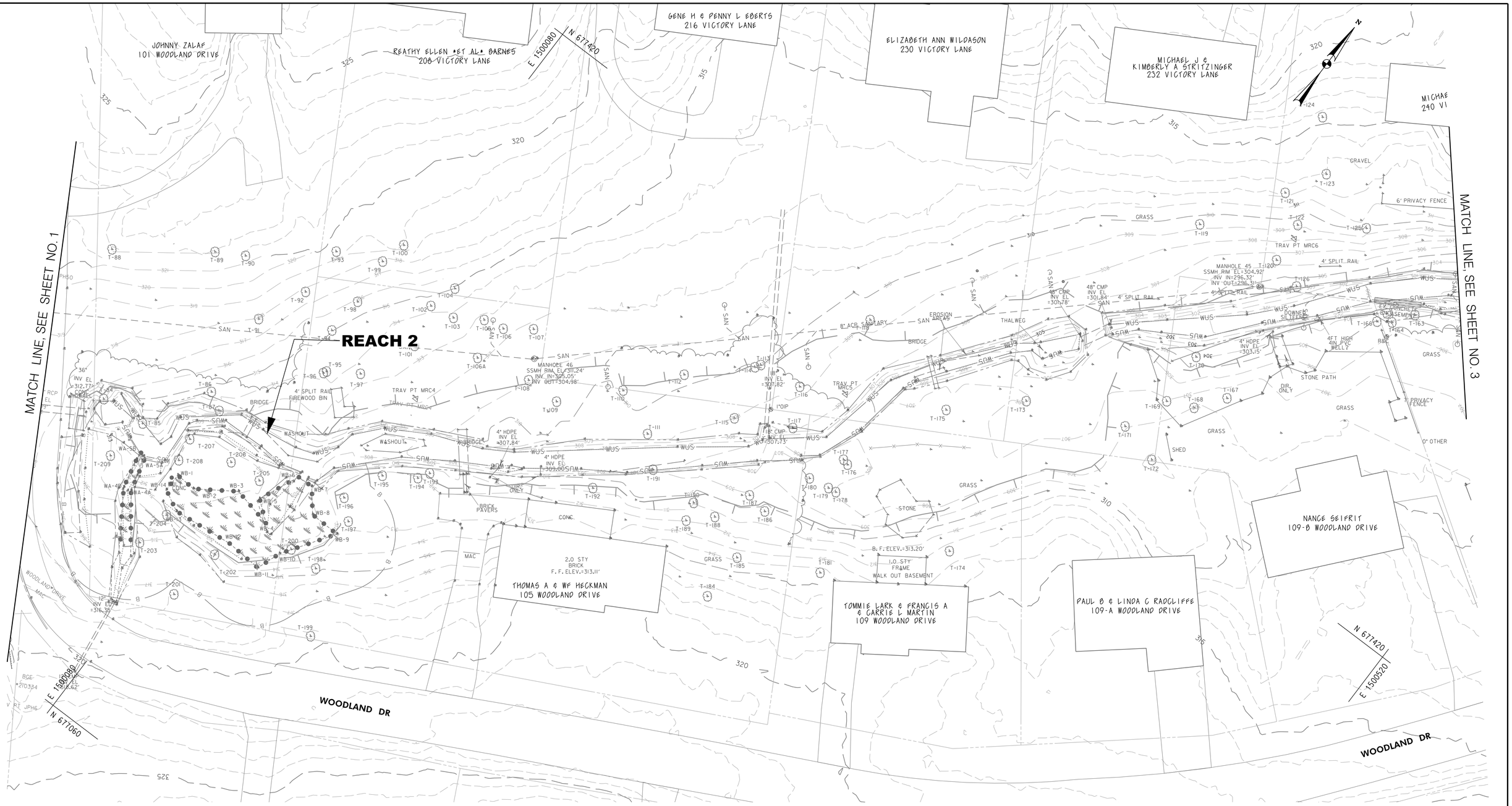
HCG BILLING ID No.:

HCG DWG ID No.:

SCALE: 1" = 20'

BY: nhoward -

PLOTTED: 10/11/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\03_pEX-0001-Woodland.dgn



LEGEND

- SAN — EXISTING SANITARY SEWER
- ● ● ● WETLAND BOUNDARY
- B 25 FT WETLAND BUFFER
- WUS — WATERS OF THE US
- EXISTING 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- 320 — EXISTING MAJOR CONTOUR
- 321 — EXISTING MINOR CONTOUR

20' 0 20' 40'
SCALE: 1" = 20'

Revisions

HARFORD COUNTY, MARYLAND

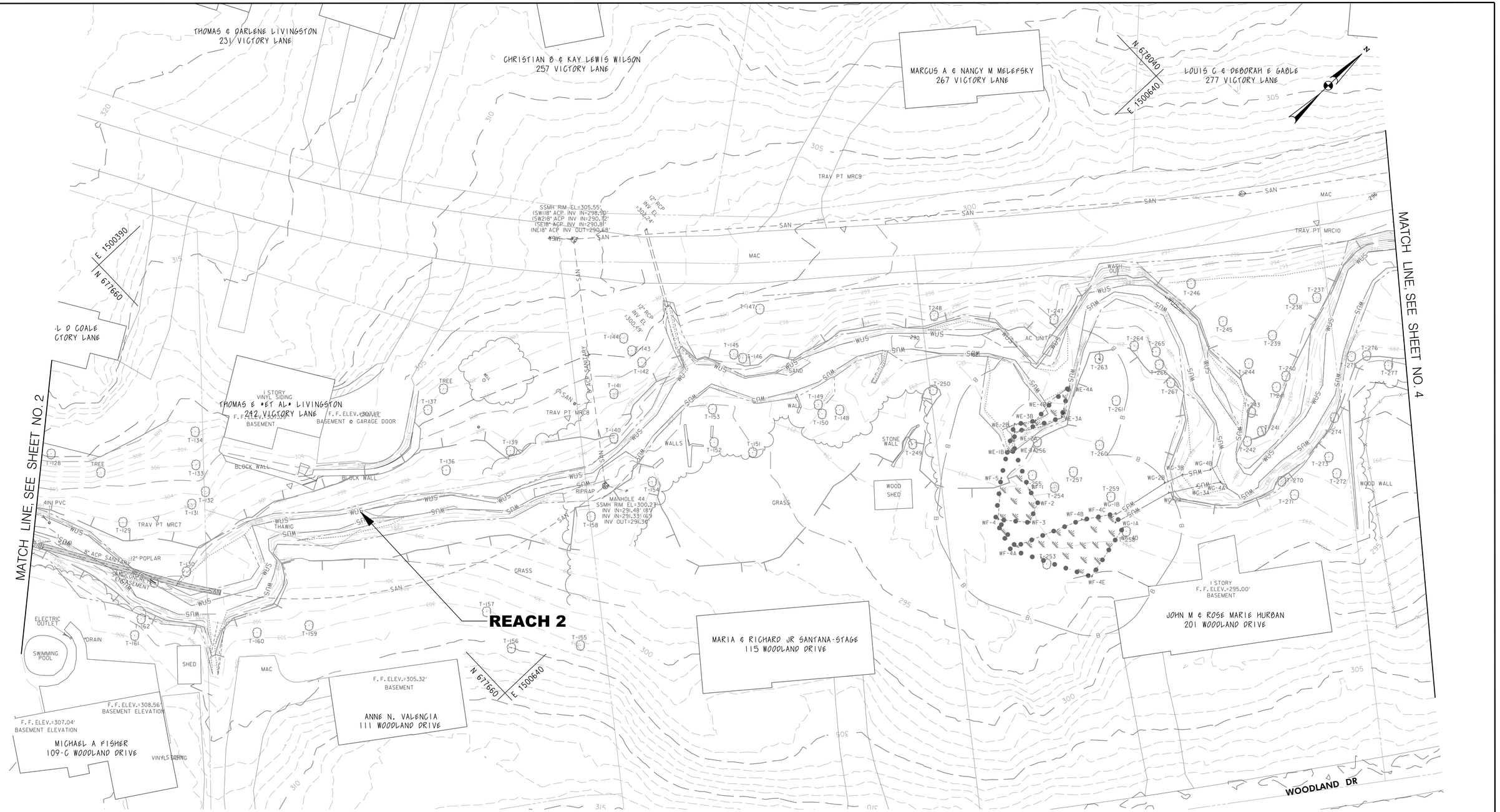
WOODLAND RUN STREAM RESTORATION

EXISTING CONDITIONS

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Drawn By :	MKT	Scale :	1" = 20'
Designed By :	SJF	Date :	OCTOBER 2023
Reviewed By :	KDG	Contract No.:	XX-XXXX
Drawing No.	EX-02 of EX-04	Sheet No.	4 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'
BY: nhoward –
PLOTTED: 10/16/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\04_pEX-0002-Woodland.dgn



LEGEND

- SAN — EXISTING SANITARY SEWER
- ● ● ● WETLAND BOUNDARY
- B 25 FT WETLAND BUFFER
- WUS — WATERS OF THE US
- EXISTING 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- 320 — EXISTING MAJOR CONTOUR
- 321 — EXISTING MINOR CONTOUR

20' 0 20' 40'
SCALE: 1" = 20'

Revisions

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

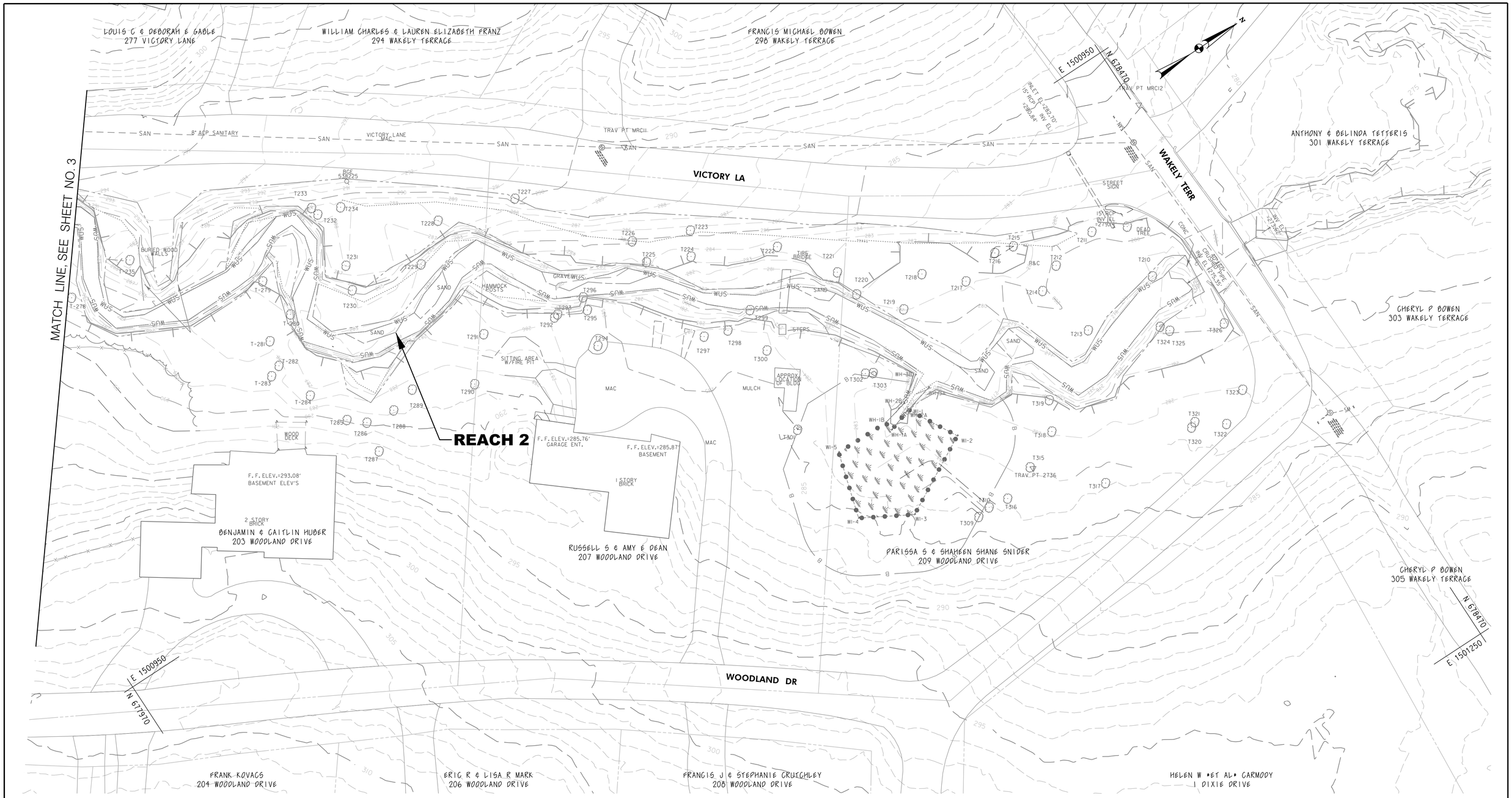
EXISTING CONDITIONS

Drawn By : MKT	Scale : 1" = 20'
Designed By : SJF	Date : OCTOBER 2023
Reviewed By : KDG	Contract No.: XX-XXXX
Drawing No. EX-03 of EX-04	Sheet No. 5 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1:20

BY: nhoward -

PLOTTED: 10/11/2023
FILE: \\ad.rkk.com\fs\CloudProjects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\05_pEX-0003-Woodland.dgn



LEGEND

- SAN — EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- B — 25 FT WETLAND BUFFER
- WUS — WATERS OF THE US
- EXISTING 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- 320 — EXISTING MAJOR CONTOUR
- 321 — EXISTING MINOR CONTOUR

SCALE: 1" = 20'

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EXISTING CONDITIONS

Drawn By : MKT	Scale : 1" = 20'
Designed By : SJF	Date : OCTOBER 2023
Reviewed By : KDG	Contract No.: XX-XXXX
Drawing No. EX-04 of EX-04	Sheet No. 6 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=20'
BY: nhoward –
PLOTTED: 10/16/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\06_pEX-0004-Woodland.dgn

Woodland Run Tree Inventory

Tree ID	Common Name	Scientific Name	DBH	Condition	Notes
T-1	Black cherry	*Prunus serotina*	14	Fair	Vines/Leaning
T-2	Black locust	*Robinia pseudoacacia*	16	Fair/poor	Dieback/thin crown
T-3	American beech	*Fagus grandifolia*	40	Good/fair	Poor branching structure
T-4	American beech	*Fagus grandifolia*	59	Fair/poor	Trunk rot/cavities/dieback
T-5	**Red maple**	***Acer rubrum***	**13**	**Fair**	**Poor branching structure/edge of bank**
T-6	Red maple	*Acer rubrum*	17	Fair	Dieback
T-7	Red maple	*Acer rubrum*	15	Good	Thin crown
T-8	Red maple	*Acer rubrum*	18	Good/fair	Bend
T-9	Black gum	*Nyssa sylvatica*	26	Fair/poor	Dieback
T-10	Red maple	*Acer rubrum*	24	Good/fair	Dieback
T-11	Tulip poplar	*Liriodendron tulipifera*	17	Fair	Bend/uneven crown
T-12	Tulip poplar	*Liriodendron tulipifera*	16	Good/fair	Thin crown
T-13	Tulip poplar	*Liriodendron tulipifera*	17	Fair	Unbalanced/thin crown
T-14	Tulip poplar	*Liriodendron tulipifera*	25	Good/fair	Unbalanced crown
T-15	Tulip poplar	*Liriodendron tulipifera*	15	Good/fair	Lean/dieback
T-16	Red maple	*Acer rubrum*	14	Fair/poor	Epicormic bud growth/dieback
T-18	Tulip poplar	*Liriodendron tulipifera*	19	Fair	Poor branching structure/split trunk
T-17	Tulip poplar	*Liriodendron tulipifera*	19	Fair	Poor branching structure/split trunk
T-19	Red maple	*Acer rubrum*	15	Good/fair	Dieback
T-20	Tulip poplar	*Liriodendron tulipifera*	23	Fair/poor	Dieback/irregular growth form/thin crown/trunk cavity
T-21	Tulip poplar	*Liriodendron tulipifera*	26	Fair	Lean/dieback/thin crown
T-22	Red maple	*Acer rubrum*	12	Fair	Poor branching structure/moderate dead wood
T-23	Tulip poplar	*Liriodendron tulipifera*	15	Fair	Bend/dieback/thin crown
T-24	Tulip poplar	*Liriodendron tulipifera*	24	Fair	Vines/poor branching structure
T-25	Tulip poplar	*Liriodendron tulipifera*	49	Poor	Missing trunk/bend/poor branching structure/vines
T-26	Red maple	*Acer rubrum*	22	Fair/poor	Vines/lean/dieback
T-27	Tulip poplar	*Liriodendron tulipifera*	13	Fair	Bend/vines
T-28	Black cherry	*Prunus serotina*	26	Fair/poor	Lean/vines/bend/trunk rot
T-29	Black cherry	*Prunus serotina*	27	Fair/poor	Vines/lean/broken branches
T-30	Black locust	*Robinia pseudoacacia*	17	Fair/poor	Lean/vines
T-31	Black locust	*Robinia pseudoacacia*	20	Fair/poor	Lean/vines
T-32	Tulip poplar	*Liriodendron tulipifera*	51	Good/fair	Lean/uneven crown
T-33	Black locust	*Robinia pseudoacacia*	28	Poor	Edge of bank/lean/vines/trunk cavities
T-34	Black locust	*Robinia pseudoacacia*	27	Poor	Edge of bank/lean/vines/trunk cavities
T-35	Black locust	*Robinia pseudoacacia*	18	Poor	Lean/trunk cavity/vinesn
T-36	Black cherry	*Prunus serotina*	12	Fair/poor	Lean/vines
T-37	Black gum	*Nyssa sylvatica*	33	Fair/poor	Vines/broken branches
T-38	Tulip poplar	*Liriodendron tulipifera*	23	Good	
T-39	Red maple	*Acer rubrum*	12	Fair	Trunk cavity
T-40	Tulip poplar	*Liriodendron tulipifera*	17	Fair	Vines/irregular growth form/bend
T-41	White pine	*Pinus strobus*	17	Fair	Lean/dieback
T-42	White pine	*Pinus strobus*	15	Fair	Lean/dieback
T-43	White pine	*Pinus strobus*	17	Fair	Lean/dieback
T-44	White pine	*Pinus strobus*	18	Fair/poor	Lean/dieback
T-45	White pine	*Pinus strobus*	19	Fair/poor	Lean/dieback
T-46	Red maple	*Acer rubrum*	23	Good/fair	Vines
T-47	Red maple	*Acer rubrum*	12	Fair	Vines/lean
T-48	American elm	*Ulmus americana*	14	Fair/poor	Lean/vines/dieback
T-49	White mulberry	*Morus alba*	20	Poor	Lean/dieback/poor structure/vines
T-50	White mulberry	*Morus alba*	16	Fair/Poor	Lean/vines
T-51	Silver maple	*Acer saccharinum*	20	Fair	Lean/vines
T-52	Red maple	*Acer rubrum*	30	Fair	Dieback
T-53	Tulip poplar	*Liriodendron tulipifera*	18	Fair	Bend/poor branch structure
T-54	Silver maple	*Acer saccharinum*	13	Fair	Lean/vines/bend
T-55	Tulip poplar	*Liriodendron tulipifera*	13	Fair	Bend/ thin crown
T-56	Tulip poplar	*Liriodendron tulipifera*	13	Fair	Bend/thin crown/edge of bank
T-57	Red maple	*Acer rubrum*	15	Fair	Double trunk above breast height/bend
T-58	Tulip poplar	*Liriodendron tulipifera*	16	Fair	Double trunk above breast height/dieback
T-59	Tulip poplar	*Liriodendron tulipifera*	12	Good/fair	Bend
T-60	Tulip poplar	*Liriodendron tulipifera*	19	Fair	Poor branching structure/dieback
T-61	Red maple	*Acer rubrum*	12	Fair	Double trunk/bend
T-62	Tulip poplar	*Liriodendron tulipifera*	17	Good/fair	Bend
T-63	Red maple	*Acer rubrum*	13	Good	Bank/vines
T-64	Red maple	*Acer rubrum*	15	Fair	Double trunk
T-65	Red maple	*Acer rubrum*	23	Fair	Codominant above breast height
T-66	Red maple	*Acer rubrum*	13	Fair	Bank/bend
T-67	Tulip poplar	*Liriodendron tulipifera*	18	Fair/poor	Vines/thin crown
T-68	Boxelder	*Acer negundo*	12	Fair/poor	Vines/dieback
T-69	Green ash	*Fraxinus pennsylvanica*	26	Fair	Vines/adjacent to parking lot
T-70	Tulip poplar	*Liriodendron tulipifera*	22	Fair/poor	Vines/thin crown
T-71	Tulip poplar	*Liriodendron tulipifera*	15	Poor	Little to no crown/vines
T-72	Red maple	*Acer rubrum*	12	Fair/poor	Lean/vines
T-73	Tulip poplar	*Liriodendron tulipifera*	19	Poor	No crown
T-74	Red maple	*Acer rubrum*	12	Fair/poor	Vines
T-75	Red maple	*Acer rubrum*	23	Fair/poor	Vines/trunk rot
T-76	Black cherry	*Prunus serotina*	23	Fair/poor	Vines
T-77	Black cherry	*Prunus serotina*	18	Fair/poor	Vines/bend
T-78	Black cherry	*Prunus serotina*	12	Fair/poor	Vines/lean
T-79	Black gum	*Nyssa sylvatica*	23	Poor	Almost dead/vines
T-80	Green ash	*Fraxinus pennsylvanica*	15	Fair/poor	Vines/bend
T-81	Tulip poplar	*Liriodendron tulipifera*	19	Fair/poor	Vines/lean
T-82	Black locust	*Robinia pseudoacacia*	17	Fair/poor	Lean/bend/vines
T-83	Red maple	*Acer rubrum*	16	Fair	Thin crown/bend
T-84	**Green ash**	***Fraxinus pennsylvanica***	**13**	**Fair**	**Bend/edge of bank**
T-85	Tulip poplar	*Liriodendron tulipifera*	27	Fair	Vines/edge of bank
T-86	**Tulip poplar**	***Liriodendron tulipifera***	**18**	**Fair**	**Vines**
T-87	American beech	*Fagus grandifolia*	12	Fair	Double trunk below dbh
T-88	Tulip poplar	*Liriodendron tulipifera*	25	Fair	Poor branching structure
T-89	Scarlet oak	*Quercus coccinea*	37	Fair	Dieback
T-90	Norway maple	*Acer platanoides*	15	Fair	Poor branching structure
T-91	Northern red oak	*Quercus rubra*	18	Fair	Dieback
T-92	Tulip poplar	*Liriodendron tulipifera*	26	Fair	Vines
T-93	Northern red oak	*Quercus rubra*	36	Fair	Lean/unbalanced crown
T-94	Tulip poplar	*Liriodendron tulipifera*	31	Fair/poor	Vines/little to no crown
T-95	**Red maple**	***Acer rubrum***	**19**	**Fair**	**Double trunk**
T-96	**Red maple**	***Acer rubrum***	**13**	**Fair**	**Double trunk**
T-97	**Silver maple**	***Acer saccharinum***	**12**	**Fair/poor**	**Vines/thin crown**
T-98	Red maple	*Acer rubrum*	12	Fair	Vines/dieback
T-99	Tulip poplar	*Liriodendron tulipifera*	26	Fair	Dieback
T-100	Tulip poplar	*Liriodendron tulipifera*	34	Fair	Poor branching structure/truck rot
T-101	Red maple	*Acer rubrum*	12	Good	Bend/lean
T-102	Norway maple	*Acer platanoides*	13	Fair	English ivy
T-103	Black locust	*Robinia pseudoacacia*	25	Fair	Missing limbs/bark/broken branches
T-104	White pine	*Pinus strobus*	15	Fair	Vines
T-105	Red maple	*Acer rubrum*	18	Good	Double trunk/lean
T-106	White pine	*Pinus strobus*	15	Good	Vines
T-106A	Green ash	*Fraxinus pennsylvanica*	12	Good	Lean
T-107	Tulip poplar	*Liriodendron tulipifera*	14	Fair	Lean/vines
T-108	**Red maple**	***Acer rubrum***	**28**	**Fair**	**Missing bark/broken branches**
T-109	**Green ash**	***Fraxinus pennsylvanica***	**17**	**Fair**	**Lean**
T-110	**Black locust**	***Robinia pseudoacacia***	**14**	**Fair**	**Bend/vines/lean**
T-111	**Pignut hickory**	***Carya glabra***	**14**	**Fair**	**Vines/broken branches**
T-112	**Green ash**	***Fraxinus pennsylvanica***	**16**	**Fair**	**Lean/vines**
T-113	**White pine**	***Pinus strobus***	**14**	**Good**	**Vines**
T-114	**Green ash**	***Fraxinus pennsylvanica***	**22**	**Fair**	**Vines/broken branches**
T-115	**Silver maple**	***Acer saccharinum***	**15**	**Fair**	**Lean/ivy**
T-116	**Northern red oak**	***Quercus rubra***	**26**	**Fair**	**Vines/dead branches**
T-117	**Tulip poplar**	***Liriodendron tulipifera***	**28**	**Fair**	**Vines**
T-118	**Red maple**	***Acer rubrum***	**14**	**Good**	
T-119	Southern magnolia	*Magnolia grandiflora*	25	Fair	Multiple trunks split below DBH, 24", 15", and 16"
T-120	Red maple	*Acer rubrum*	18	Fair	Unbalanced crown
T-121	Red maple	*Acer rubrum*	25	Fair	Vines
T-122	Hedge maple	*Acer campestre*	13	Good	Woodpecker damage
T-123	American chestnut	*Castanea dentata*	22	Fair	Vines
T-124	Black cherry	*Prunus serotina*	26	Poor	Vines/galls/dieback
T-125	Southern magnolia	*Magnolia grandiflora*	22	Fair	Lean/on slope
T-126	**Tulip poplar**	***Liriodendron tulipifera***	**15**	**Fair**	**Lean**
T-127	Red maple	*Acer rubrum*	22	Fair	Vines/exposed roots/broken branches/on slope
T-128	Catalpa	*Catalpa speciosa*	22	Fair	Lean/vines/on slope
T-129	**Tulip poplar**	***Liriodendron tulipifera***	**18**	**Good**	
T-130	**American sycamore**	***Platanus occidentalis***	**21**	**Fair**	**Lean/vines**
T-131	**Pignut hickory**	***Carya glabra***	**17**	**Fair**	**Vines**
T-132	Tulip poplar	*Liriodendron tulipifera*	35	Poor	Split trunk below DBH/vines/irregular trunk
T-133	American beech	*Fagus grandifolia*	29	Good	Vines
T-134	Catalpa	*Catalpa speciosa*	39	Poor	Lean/one sided crown/vines
T-135	Black oak	*Quercus velutina*	32	Fair	Lean/dead branches
T-136	**Sugar maple**	***Acer saccharum***	**16**	**Fair**	**Lean/pruned**
T-137	Red maple	*Acer rubrum*	30	Poor	Broken branches/poorly pruned/vines/galls
T-138	Weeping cherry	*Prunus pendula*	13	Fair	Lean/irregular trunk
T-139	**Tulip poplar**	***Liriodendron tulipifera***	**34**	**Fair**	**Vines/irregular trunk**
T-140	**Black willow**	***Salix nigra***	**14**	**Poor**	**Lean/water sprouts/vines**
T-141	**Black locust**	***Robinia pseudoacacia***	**15**	**Fair**	**Vines/lean**
T-142	**Red maple**	***Acer rubrum***	**14**	**Poor**	**Lean/vines/2nd leader dead**
T-143	**Tulip poplar**	***Liriodendron tulipifera***	**33**	**Fair**	**Vines**
T-144	**Black locust**	***Robinia pseudoacacia***	**13**	**Fair**	**Lean/vines**
T-145	**Tulip poplar**	***Liriodendron tulipifera***	**31**	**Poor**	**Lean/missing bark/vines**
T-146	**Tulip poplar**	***Liriodendron tulipifera***	**12**	**Fair**	**Unbalanced crown/growing into another**
T-147	**Red maple**	***Acer rubrum***	**14**	**Poor**	**Lean/vines/cavity**
T-148	**Red maple**	***Acer rubrum***	**16**	**Fair**	**Vines**
T149	**Tulip poplar**	***Liriodendron tulipifera***	**26**	**Poor**	**Leav/vines/dead crown**
T-150	**Tulip poplar**	***Liriodendron tulipifera***	**29**	**Poor**	**Vines/dieback**
T-151	Tulip poplar	*Liriodendron tulipifera*	28	Poor	Vines/cavity/partially dead crown
T-152	**Red maple**	***Acer rubrum***	**26**	**Poor**	**Vines/dead and broken branches**
T-153	**American beech**	***Fagus grandifolia***	**21**	**Fair**	**Broken branches/exposed roots**
T-154	Black walnut	*Juglans nigra*	16	Fair	Broken branches/lean/irregular trunk
T-155	Tulip poplar	*Liriodendron tulipifera*	13	Good	
T-156	Pignut hickory	*Carya glabra*	22	Good	Vines
T-157	Flowering dogwood	*Cornus florida*	12	Good	Measured below DBH/multi
T-158	Tulip poplar	*Liriodendron tulipifera*	16	Good	
T-159	Japanese maple	*Acer palmatum*	14	Good	
T-160	Buford holly	*Ilex cornuta*	12	Poor	Vines
T-161	Silver maple	*Acer saccharinum*	27	Fair	Unbalanced crown
T-162	**Silver maple**	***Acer saccharinum***	**30**	**Fair**	**Vines**
T-163	**American sycamore**	***Platanus occidentalis***	**17**	**Poor**	**Vines/lean/unbalanced crown**
T-164	**Black locust**	***Robinia pseudoacacia***	**15**	**Poor**	**Vines**
T-165	**Black locust**	***Robinia pseudoacacia***	**14**	**Poor**	**Lean/vines**
T-166	**Norway maple**	***Acer platanoides***	**12**	**Good**	**Vines**
T-167	American sycamore	*Platanus occidentalis*	19	Fair	Lean
T-168	Black locust	*Robinia pseudoacacia*	14	Fair	Lean
T-169	Black cherry	*Prunus serotina*	16	Fair	Galls/lichen
T-170	Black locust	*Robinia pseudoacacia*	15	Poor	Vines/dead branches
T-171	Tulip poplar	*Liriodendron tulipifera*	24	Fair	Vines
T-172	Black locust	*Robinia pseudoacacia*	14	Poor	Vines/lean/dead branches
T-173	**Persimmon**	***Diospyros virginiana***	**17**	**Good**	**Bark damage**
T-174	Red maple	*Acer rubrum*	20	Good	
T-175	**American beech**	***Fagus grandifolia***	**30**	**Good**	
T-176	White oak	*Quercus alba*	12	Good	
T-177	Red maple	*Acer rubrum*	18	Good	
T-178	Green ash	*Fraxinus pennsylvanica*	20	Fair	Lean/dead branches/pruned
T-179	Green ash	*Fraxinus pennsylvanica*	19	Fair	Lean/dead branches
T-180	Red maple	*Acer rubrum*	22	Fair	Lean
T-181	Red maple	*Acer rubrum*	19	Fair	2nd leader 14" DBH/broken branches/cavity
T-182	Tulip poplar	*Liriodendron tulipifera*	13	Good	Vines
T-183	Norway spruce	*Picea abies*	12	Good	Vines
T-184	Northern red oak	*Quercus rubra*	44	Fair	Vines/pruned branches/dead branches
T-185	White pine	*Pinus strobus*	12	Fair	Vines/dead branches
T-186	Silver maple	*Acer saccharinum*	13	Fair	Vines
T-187	Silver maple	*Acer saccharinum*	13	Fair	Vines
T-188	Mockernut hickory	*Carya tomentosa*	22	Good	Vines
T-189	Green ash	*Fraxinus pennsylvanica*	23	Fair	Pruned/lean
T-190	Green ash	*Fraxinus pennsylvanica*	22	Good	
T-191	**Black gum**	***Nyssa sylvatica***	**12**	**Poor**	**Exposed roots/bank**
T-192	Red maple	*Acer rubrum*	20	Fair	Lean/2nd leader 18 DBH
T-193	Persimmon	*Diospyros virginiana*	19	Fair	2nd leader 18 DBH/irregular trunk/lean/vines
T-194	Persimmon	*Diospyros virginiana*	20	Fair	Lean
T-195	Black cherry	*Prunus serotina*	13	Poor	Lean/dead branch
T-196	Tulip poplar	*Liriodendron tulipifera*	25	Good	
T-197	Silver maple	*Acer saccharinum*	15	Fair	Lean
T-198	Northern red oak	*Quercus rubra*	32	Good	Vines
T-199	White oak	*Quercus alba*	46	Fair	Vines
T-200	Red maple	*Acer rubrum*	16	Poor	Cavity/vines/2nd leader 12" DBH
T-201	American beech	*Fagus grandifolia*	12	Good	
T-202	Red maple	*Acer rubrum*	25	Fair	Vines/split below breast height/2nd leader 15" DBH
T-203	Northern red oak	*Quercus rubra*	25	Good	
T-204	Tulip poplar	*Liriodendron tulipifera*	20	Fair	Irregular trunk/galls/lean
T-205	Tulip poplar	*Liriodendron tulipifera*	28	Good	
T-206	Tulip poplar	*Liriodendron tulipifera*	14	Good	
T-207	Red maple	*Acer rubrum*	20	Poor	Exposed roots/lean/bank/galls
T-208	Tulip poplar	*Liriodendron tulipifera*	25	Fair	Exposed roots on bank
T-209	Red maple	*Acer rubrum*	35	Fair	Vines/small cavity
T-210	American beech	*Fagus grandifolia*	25	Fair	Lean/exposed roots/bank
T-211	Green ash	*Fraxinus pennsylvanica*	17	Good	
T-212	American beech	*Fagus grandifolia*	28	Fair	Lean
T-213	American beech	*Fagus grandifolia*	27	Fair	Vines/irregular trunk
T-214	Tulip poplar	*Liriodendron tulipifera*	35		Splits below breast height/2nd leader is 32" DBH
T-215	Tulip poplar	*Liriodendron tulipifera*	18	Fair	Lean/vines
T-216	Tulip poplar	*Liriodendron tulipifera*	20	Fair	Vines
T-217	Tulip poplar	*Liriodendron tulipifera*	20	Fair	Vines/galls
T-218	American beech	*Fagus grandifolia*	28	Good-fair	Exposed roots/dead branches
T-219	American beech	*Fagus grandifolia*	28	Good	
T-220	American beech	*Fagus grandifolia*	27	Fair	Exposed roots/edge of bank
T-221	Tulip poplar	*Liriodendron tulipifera*	21	Fair	Bark damage
T-222	Tulip poplar	*Liriodendron tulipifera*	33	Poor	Cavity/vines/dieback
T-223	American beech	*Fagus grandifolia*	29	Fair	Lean/missing branches
T224	Tulip poplar	*Liriodendron tulipifera*	28	Fair	Lean/roots exposed/dieback
T-225	American beech	*Fagus grandifolia*	19	Fair	Water sprouts/exposed roots/bank
T-226	Tulip poplar	*Liriodendron tulipifera*	20	Fair	Cavity/dieback
T-227	American beech	*Fagus grandifolia*	29	Fair	Galls
T-228	**Tulip poplar**	***Liriodendron tulipifera***	**14**	**Fair**	**Lean/exposed roots**
T-229	**American beech**	***Fagus grandifolia***	**36**	**Fair**	**Lean/exposed roots**
T-230	**Tulip poplar**	***Liriodendron tulipifera***	**21**	**Fair**	**Vines**
T-231	**Tulip poplar**	***Liriodendron tulipifera***	**33**	**Fair**	**Bark damage/rot**
T-232	**Red maple**	***Acer rubrum***	**13**	**Fair**	**Exposed roots/2nd leader 9" DBH**
T-233	**Red maple**	***Acer rubrum***	**15**	**Fair**	**Galls/vines/exposed roots**
T-234	**Tulip poplar**	***Liriodendron tulipifera***	**29**	**Fair**	**Vines/bark damage**
T-235	**Tulip poplar**	***Liriodendron tulipifera***	**26**	**Fair**	**Vines/galls**
T-236	Tulip poplar	*Liriodendron tulipifera*	24	Fair	Lean/vines/2nd leader 24" DBH
T-237	**Tulip poplar**	***Liriodendron tulipifera***	**29**	**Fair**	**Vines/exposed roots**
T-238	**Tulip poplar**	***Liriodendron tulipifera***	**16**	**Fair**	**Roots/lean**
T-239	**Tulip poplar**	***Liriodendron tulipifera***	**20**	**Fair**	**Lean/irregular trunk**
T-240	**Red maple**	***Acer rubrum***	**15**	**Good**	
T-241	**Tulip poplar**	***Liriodendron tulipifera***	**26**	**Fair**	**Lean/damaged bark**
T-242	**Red maple**	***Acer rubrum***	**14**	**Fair**	**Exposed roots/bank/dieback**
T-243	**American beech**	***Fagus grandifolia***	**13**	**Fair**	**Lean/exposed roots/bank/vines**
T-244	**Tulip poplar**	***Liriodendron tulipifera***	**19**	**Good**	
T-245	**Red maple**	***Acer rubrum***	**20**	**Good**	
T-246	**Red maple**	***Acer rubrum***	**21**	**Fair**	**Vines/2nd leader**
T-247	**American beech**	***Fagus grandifolia***	**36**	**Fair**	**Exposed roots/small trunk wound at base**
T-248	**American beech**	***Fagus grandifolia***	**15**	**Fair**	**Vines/exposed roots**
T-249	American beech	*Fagus grandifolia*	17	Fair	Vines/trunk wounds
T-250	**American beech**	***Fagus grandifolia***	**31**	**Fair**	**Trunk cavity/wounds/vines/dieback**
T-251	Bald cypress	*Taxodium distichum*	35	Good	Vines/flagged not tagged
T-252	Bald cypress	*Taxodium distichum*	12	Fair	Bend/dieback
T-253	Bald cypress	*Taxodium distichum*	17	Good	Vines/tree flagged not tagged
T-254	American beech	*Fagus grandifolia*	19	Fair	Lean/vines/damage at base
T-255	Green ash	*Fraxinus pennsylvanica*	17	Fair	Irregular trunk/lean
T-256	**Black cherry**	***Prunus serotina***	**14**	**Fair**	**Irregular trunk/lean**
T-257	Tulip poplar	*Liriodendron tulipifera*	18	Fair	Lean/thin crown/small crack at base
T-258	Red maple	*Acer rubrum*	16	Poor	Exposed roots/lean/galls
T-259	White oak	*Quercus alba*	25	Fair	Exposed roots/unbalanced crown/dieback
T-260	Tulip poplar	*Liriodendron tulipifera*	24	Good	
T-261	**Tulip poplar**	***Liriodendron tulipifera***	**18**	**Good**	
T-262	Green ash	*Fraxinus pennsylvanica*	13	Poor	Exposed roots/lean/irregular trunk/thin canopy
T-263	**Slippery elm**	***Ulmus rubra***	**17**	**Fair**	**Lean**
T-264	**Tulip poplar**	***Liriodendron tulipifera***	**15**	**Fair**	**Lean/thin canopy**
T-265	**Tulip poplar**	***Liriodendron tulipifera***	**16**	**Fair**	**Lean/thin canopy**
T-266	**Tulip poplar**	***Liriodendron tulipifera***	**13**	**Fair**	**Exposed roots/thin canopy**
T-267	**Tulip poplar**	***Liriodendron tulipifera***	**19**	**Fair**	**Exposed roots/thin canopy/lean**
T-268	American beech	*Fagus grandifolia*	24	Poor	Lean/cavity/vines/irregular trunk
T-269	Tulip poplar	*Liriodendron tulipifera*	13	Fair	Exposed roots/irregular roots/thin canopy
T-270	American beech	*Fagus grandifolia*	19	Fair	Exposed roots/dieback/unbalanced crown
T-271	Tulip poplar	*Liriodendron tulipifera*	32	Fair	Thin canopy/vines/dieback
T-272	American sycamore	*Platanus occidentalis*	19	Fair	Vines/broken branches/unbalanced crown
T-273	Red maple	*Acer rubrum*	23	Poor	Lean/trunk twisted/thin canopy
T-274	**American beech**	***Fagus grandifolia***	**19**	**Poor**	**Exposed roots/bank/vines/lean/unbalanced crown**
T-275	**Tulip poplar**	***Liriodendron tulipifera***	**21**	**Fair**	**Exposed roots/lean/bank/vines**
T-276	**Tulip poplar**	***Liriodendron tulipifera***	**15**	**Good**	
T-277	**Tulip poplar**	***Liriodendron tulipifera***	**12**	**Fair**	**Vines/thin canopy**
T-278	**Tulip poplar**	***Liriodendron tulipifera***	**16**	**Fair**	**Lean/thin canopy**
T-279	**American beech**	***Fagus grandifolia***	**22**	**Fair**	**Exposed roots/lean**
T-280	**Tulip poplar**	***Liriodendron tulipifera***	**18**	**Poor**	**Lean/thin crown/edge of bank/dieback**
T-281	**Tulip poplar**	***Liriodendron tulipifera***	**15**	**Fair**	**Thin crown**
T-282	**Tulip poplar**	***Liriodendron tulipifera***	**15**	**Fair**	**Vines**
T-283	**Tulip poplar**	***Liriodendron tulipifera***	**20**	**Fair**	**Lean/thin crown**
T-284	Tulip poplar	*Liriodendron tulipifera*	24	Fair	Lean/dieback
T-285	Tulip poplar	*Liriodendron tulipifera*	29	Fair	Vines/thin crown
T-286	Tulip poplar	*Liriodendron tulipifera*	26	Fair	Vines/thin crown
T-287	Tulip poplar	*Liriodendron tulipifera*	29	Fair	Vines/thin crown/dieback
T-288	Tulip poplar	*Liriodendron tulipifera*	15	Fair	Thin crown
T-289	Tulip poplar	*Liriodendron tulipifera*	23	Good	
T-290	Tulip poplar	*Liriodendron tulipifera*	13	Good	
T-291	American beech	*Fagus grandifolia*	28	Fair	Exposed roots/dieback
T-292	American beech	*Fagus grandifolia*	17	Fair	Lean/fused with white oak/pruned
T-293	White oak	*Quercus alba*	0	Fair	Exposed roots/bank/fused with beech/lean
T-294	American beech	*Fagus grandifolia*	21	Good	
T-295	White oak	*Quercus alba*	27	Fair	Lean/exposed roots/bank
T-296	American beech	*Fagus grandifolia*	19	Fair	Exposed roots/bank/vines
T-297	American beech	*Fagus grandifolia*	21	Fair	Dieback/vines
T-298	Tulip poplar	*Liriodendron tulipifera*	15	Fair	Lean/thin crown/exposed roots/bank
T-299	Red maple	*Acer rubrum*	16	Poor	Lean/exposed roots/irregular trunk/bank
T-300	Black gum	*Nyssa sylvatica*	13	Poor	Cavity/thin crown/lean/missing bark
T-301	Red maple	*Acer rubrum*	26	Fair	Vines/lean/dieback
T-302	Tulip poplar	*Liriodendron tulipifera*	26	Fair	Exposed roots/bark damage/lean/thin crown
T-303	Tulip poplar	*Liriodendron tulipifera*	23	Fair	Exposed roots/bark damage/lean/thin crown/dieback
T-304	White oak	*Quercus alba*	31	Good	Lean
T-305	Tulip poplar	*Liriodendron tulipifera*	25	Fair	Irregular trunk/thin crown
T-306	Red maple	*Acer rubrum*	21	Fair	Lean/water sprouts
T-307	Tulip poplar	*Liriodendron tulipifera*	29	Fair	Lean/dead branches/thin crown/bark damage
T-308	Black gum	*Nyssa sylvatica*	17	Fair	Bark damage/lean
T-309	Tulip poplar	*Liriodendron tulipifera*	29	Fair	Bark damage/thin crown
T-310	American beech	*Fagus grandifolia*	12	Good	
T-311	American beech	*Fagus grandifolia*	13	Good	
T-312	Black gum	*Nyssa sylvatica*	22	Fair	Missing bark/branch/irregular trunk/thin crown
T-313	Black gum	*Nyssa sylvatica*	12	Poor	Bark damage/crack in trunk/thin crown
T-314	White oak	*Quercus alba*	30	Fair	Exposed roots/bark damage
T-316	White oak	*Quercus alba*	22	Fair	Lean/bend
T-315	American beech	*Fagus grandifolia*	16	Good	
T-317	American beech	*Fagus grandifolia*	15	Fair	Irregular trunk/water sprouts
T-318	American beech	*Fagus grandifolia*	13	Fair	Exposed roots
T-319	Tulip poplar	*Liriodendron tulipifera*	32	Fair	Exposed roots/lean/thin crown/bank
T-320	White oak	*Quercus alba*	15	Good	Lean
T-321	American beech	*Fagus grandifolia*	15	Good	
T-322	White oak	*Quercus alba*	21	Fair	Lean/unbalanced crown
T-323	Pignut hickory	*Carya glabra*	18	Fair	Small trunk wound
T-324	Northern red oak	*Quercus rubra*	25	Fair	Dead branches/exposed roots/thin crown/bank
T-325	Tulip poplar	*Liriodendron tulipifera*	17	Fair	Lean/vines
T-326	Northern red oak	*Quercus rubra*	32	Poor	Large cavity/oozing/thin crown/dead leader/dieback
T-327	Tulip poplar	*Liriodendron tulipifera*	15	Fair	Vines/thin crown
T-328	Tulip poplar	*Liriodendron tulipifera*	15	Fair	Thin crown
T-329	Tulip poplar	*Liriodendron tulipifera*	20	Good	
T-330	Tulip poplar	*Liriodendron tulipifera*	18	Fair	Damaged bark/vines/thin
T-331	Tulip poplar	*Liriodendron tulipifera*	16	Good	Vines
T-332	Tulip poplar	*Liriodendron tulipifera*	16	Fair	Vines/thin crown
T-333	Tulip poplar	*Liriodendron tulipifera*	20	Fair	Thin crown
T-334	Northern red oak	*Quercus rubra*	22	Good	Curve in trunk
T-335	Tulip poplar	*Liriodendron tulipifera*	25	Fair	Damaged bark
T-336	White oak	*Quercus alba*	18	Good	

NOTE: ALL BOLD TREES ARE TO BE REMOVED

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SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

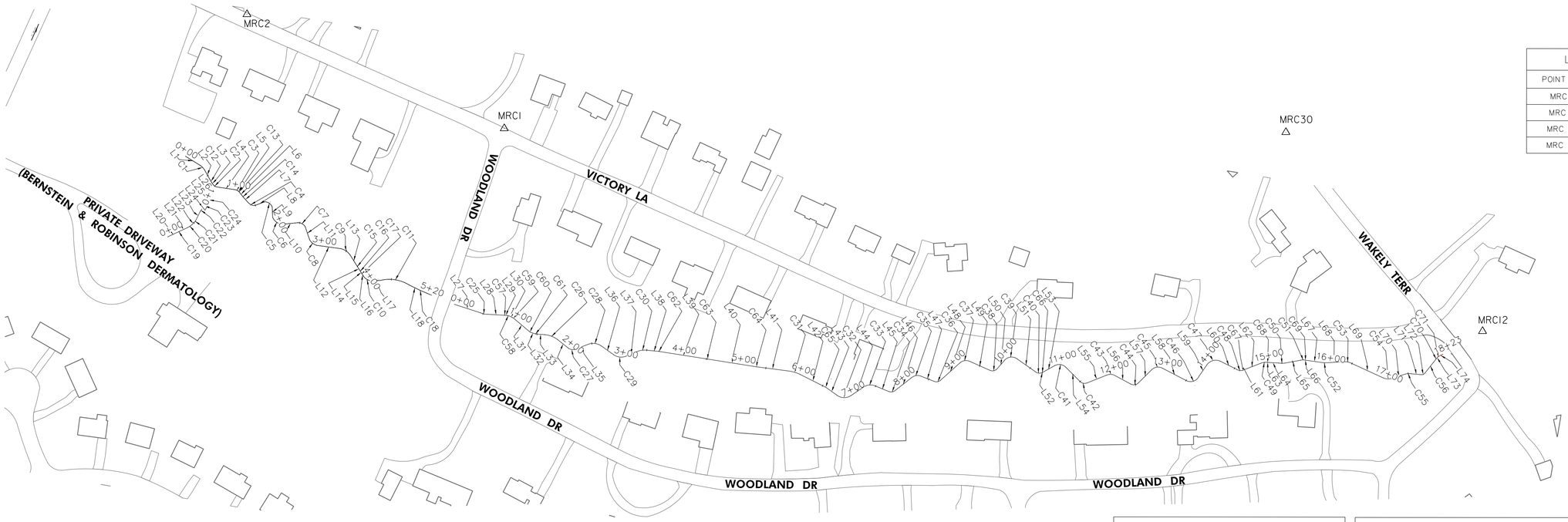
TREE INVENTORY

Drawn By : RMO/BEA
Designed By : RMO/BEA
Reviewed By : DMH
Drawing No. TI-01 of TI-01

Scale : NOT TO SCALE
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 7 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'
BY: roaks -

PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\07_pTI-0001-Woodland.dgn



LOCAL SURVEY CONTROL			
POINT NO.	NORTH	EAST	ELEV.
MRC 1	677,406.9986	1,499,826.0797	329.61
MRC 2	677,174.2908	1,499,420.4010	341.86
MRC 12	678,471.6830	1,500,977.9019	283.12
MRC 30	678,450.7515	1,500,599.0226	311.54

ALIGNMENT CURVE TABLE						
Curve #	RADIUS	LENGTH	CHORD LENGTH	ST EASTING	ST NORTHING	MO
C1	32.87	9.94	9.90	1499580.14	676964.7207	0.37
C2	10.00	8.33	8.09	1499617.84	676963.0435	0.86
C3	10.00	5.32	5.25	1499647.20	676987.7986	0.35
C4	15.37	12.73	12.37	1499676.14	676992.2256	1.30
C5	13.67	15.60	14.76	1499692.38	677015.6805	2.16
C6	18.64	22.36	21.04	1499720.46	677010.7224	3.25
C7	13.34	14.44	13.75	1499752.70	677039.2373	1.91
C8	20.00	15.19	14.83	1499787.14	677038.1048	1.43
C9	26.01	19.15	18.72	1499829.60	677071.1881	1.74
C10	17.78	16.53	15.94	1499888.84	677074.5054	1.89
C11	61.90	49.94	48.60	1499911.15	677093.2829	4.97
C12	64.02	4.69	4.69	1499609.65	676963.6037	0.04
C13	6.77	1.27	1.27	1499652.76	676990.5067	0.03
C14	6.77	0.36	0.36	1499663.69	676991.0656	0.00
C15	6.77	0.00	0.00	1499869.89	677075.8346	0.00
C16	6.77	0.03	0.03	1499878.98	677075.1910	0.00
C17	6.77	0.05	0.05	1499883.90	677074.8685	0.00
C18	6.77	0.36	0.36	1499963.81	677136.7244	0.00
C19	200.00	1.21	1.21	1499647.59	676870.3550	0.00
C20	29.38	9.71	9.67	1499650.74	676886.0646	0.40

ALIGNMENT CURVE TABLE						
Curve #	RADIUS	LENGTH	CHORD LENGTH	ST EASTING	ST NORTHING	MO
C21	16.97	5.82	5.79	1499650.49	676900.0976	0.25
C22	16.97	4.19	4.18	1499641.71	676919.3372	0.13
C23	16.97	0.86	0.86	1499638.59	676930.4835	0.01
C24	16.97	3.89	3.88	1499635.68	676940.7310	0.11
C25	27.98	11.91	11.82	1500052.94	677195.4030	0.63
C26	42.68	23.31	23.02	1500145.36	677260.1315	1.58
C27	11.94	12.37	11.83	1500186.53	677278.4357	1.57
C28	23.09	22.70	21.80	1500200.99	677308.9658	2.73
C29	21.43	21.89	20.95	1500239.89	677332.6676	2.74
C30	38.45	22.89	22.55	1500258.04	677365.3031	1.69
C31	57.95	20.16	20.05	1500433.71	677551.2786	0.87
C32	19.85	24.19	22.72	1500514.11	677592.3275	3.57
C33	20.16	21.67	20.64	1500528.72	677635.8947	2.84
C34	10.29	11.39	10.82	1500559.62	677665.3766	1.54
C35	15.18	16.72	15.89	1500563.29	677709.0982	2.24
C36	10.47	12.99	12.17	1500590.36	677735.8684	1.95
C37	15.18	17.35	16.42	1500590.95	677788.8042	2.41
C38	10.54	13.42	12.53	1500630.34	677821.4699	2.06
C39	15.18	22.96	20.83	1500631.28	677851.3982	4.14
C40	10.70	13.27	12.43	1500676.10	677880.8152	1.99

ALIGNMENT CURVE TABLE						
Curve #	RADIUS	LENGTH	CHORD LENGTH	ST EASTING	ST NORTHING	MO
C41	15.39	19.45	18.18	1500687.79	677913.4146	2.97
C42	10.54	12.95	12.15	1500733.43	677931.3692	1.93
C43	15.18	13.98	13.49	1500751.58	677973.1784	1.58
C44	10.54	14.06	13.04	1500787.26	677996.9197	2.26
C45	15.20	19.09	17.86	1500788.49	678039.6996	2.90
C46	15.43	25.83	22.92	1500836.55	678074.3656	5.10
C47	18.18	25.16	23.20	1500836.23	678117.6780	4.18
C48	10.67	10.60	10.17	1500872.01	678153.3889	1.29
C49	22.66	11.06	10.95	1500887.25	678191.9586	0.67
C50	37.58	11.94	11.89	1500903.88	678215.3107	0.47
C51	18.12	8.05	7.99	1500922.07	678247.7980	0.45
C52	12.00	2.38	2.38	1500948.12	678276.1934	0.06
C53	24.78	13.65	13.47	1500966.38	678303.8417	0.93
C54	20.71	17.13	16.64	1501027.01	678341.2225	1.75
C55	19.34	10.22	10.10	1501043.41	678374.1639	0.67
C56	7.02	6.64	6.40	1501060.00	678395.4287	0.77
C57	200.00	0.53	0.53	1500079.88	677225.2401	0.00
C58	11.11	4.53	4.50	1500082.42	677228.2931	0.23
C59	11.11	2.59	2.58	1500091.15	677233.7353	0.08
C60	11.11	4.21	4.18	1500125.35	677242.2660	0.20

ALIGNMENT CURVE TABLE						
Curve #	RADIUS	LENGTH	CHORD LENGTH	ST EASTING	ST NORTHING	MO
C61	11.11	2.80	2.79	1500134.22	677247.5632	0.09
C62	11.11	0.66	0.66	1500279.82	677396.4567	0.00
C63	11.11	0.01	0.01	1500338.17	677454.3960	0.00
C64	11.11	0.31	0.31	1500396.31	677512.0554	0.00
C65	11.11	1.66	1.66	1500491.19	677584.4887	0.03
C66	0.19	0.05	0.05	1500684.82	677889.7145	0.00
C67	0.01	0.01	0.01	1500878.83	678160.9316	0.00
C68	0.00	0.00	0.00	1500892.65	678201.4843	0.00
C69	0.00	0.00	0.00	1500926.69	678254.3093	0.00
C70	0.00	0.00	0.00	1501053.47	678430.7004	0.00
C71	0.00	0.00	0.00	1501052.35	678435.8746	0.00

BASELINE LINE TABLE			
LINE #	STATION	ST NORTHING	ST EASTING
L1	0+00.00	N67° 47' 13.56"E	1499553.3416
L2	0+38.88	S83° 05' 15.62"E	1499589.9530
L3	0+63.41	S87° 17' 18.69"E	1499614.3251
L4	0+75.27	N44° 57' 54.37"E	1499625.3915
L5	1+11.44	N76° 55' 25.67"E	1499651.8239
L6	1+13.67	N87° 41' 51.33"E	1499654.0153
L7	1+23.71	N84° 38' 08.78"E	1499664.0474
L8	1+48.59	N16° 19' 31.31"E	1499687.1588
L9	1+82.77	S55° 49' 10.73"E	1499706.4196
L10	2+22.10	N30° 09' 22.34"E	1499740.2602
L11	2+61.29	S72° 36' 10.96"E	1499765.1837
L12	2+99.49	N44° 02' 02.84"E	1499801.4329
L13	3+59.16	S85° 57' 08.07"E	1499847.2407
L14	3+81.87	S85° 57' 02.87"E	1499869.8923
L15	3+91.02	S86° 14' 44.96"E	1499879.0197
L16	3+95.96	S85° 47' 45.77"E	1499883.9513
L17	4+17.39	N33° 19' 14.44"E	1499903.2626
L18	4+81.68	N62° 10' 11.86"E	1499945.8878
L19	5+02.31	N59° 07' 54.11"E	1499964.1213
L20	0+00.00	N11° 02' 05.48"E	1499643.6840
L21	0+21.60	N11° 22' 54.45"E	1499647.8213
L22	0+46.12	N7° 33' 16.58"W	1499651.0673
L23	0+56.35	N27° 12' 55.62"W	1499648.7564
L24	0+75.96	N13° 03' 58.07"W	1499640.2663
L25	0+84.23	N15° 58' 01.20"W	1499638.3748

BASELINE LINE TABLE			
LINE #	STATION	ST NORTHING	ST EASTING
L26	0+97.91	N29° 05' 36.74"W	1499634.1945
L27	0+00.00	N54° 11' 16.22"E	1500015.8654
L28	0+57.62	N39° 38' 15.08"E	1500061.7153
L29	0+86.62	N39° 47' 21.41"E	1500080.2138
L30	0+94.59	N63° 07' 56.45"E	1500085.9334
L31	1+03.02	N76° 29' 07.38"E	1500093.5719
L32	1+39.92	N54° 46' 44.44"E	1500129.1661
L33	1+48.91	N40° 21' 32.43"E	1500136.2826
L34	1+86.25	N74° 42' 51.39"E	1500164.7874
L35	2+21.15	N15° 22' 21.13"E	1500194.8975
L36	2+66.86	N71° 41' 50.92"E	1500216.0104
L37	3+13.90	N13° 09' 38.99"E	1500254.0249
L38	3+54.42	N41° 48' 51.93"E	1500269.3866
L39	3+70.73	N45° 12' 41.38"E	1500280.2778
L40	4+52.30	N45° 14' 20.87"E	1500338.1690
L41	5+34.49	N43° 38' 12.28"E	1500396.5254
L42	6+08.54	N62° 52' 14.23"E	1500449.7831
L43	6+56.71	N71° 25' 03.97"E	1500492.7115
L44	7+03.49	N2° 03' 43.82"E	1500527.8036
L45	7+50.61	N58° 21' 24.84"E	1500539.9185
L46	7+85.14	N1° 42' 45.63"W	1500564.3042
L47	8+35.84	N57° 56' 07.59"E	1500570.3451
L48	8+72.45	N5° 32' 04.08"W	1500594.9930
L49	9+31.68	N60° 19' 53.55"E	1500598.5562
L50	9+81.68	N12° 36' 01.08"W	1500635.4127

BASELINE LINE TABLE			
LINE #	STATION	ST NORTHING	ST EASTING
L51	10+23.56	N71° 22' 46.07"E	1500641.9343
L52	10+72.89	N7° 51' 11.06"W	1500684.8248
L53	10+72.97	N7° 09' 28.17"E	1500684.8195
L54	11+16.26	N81° 08' 37.27"E	1500700.6563
L55	11+62.38	N14° 37' 42.73"E	1500742.7128
L56	12+11.47	N64° 24' 14.06"E	1500759.8865
L57	12+55.88	N8° 18' 04.13"W	1500793.0228
L58	13+06.38	N63° 45' 32.74"E	1500797.5006
L59	13+75.74	N19° 01' 06.80"W	1500843.6489
L60	14+23.67	N62° 53' 59.98"E	1500844.5458
L61	14+65.11	S76° 22' 14.96"E	1500878.8223
L62	14+65.13	N15° 10' 10.56"E	1500878.8371
L63	15+08.33	N46° 47' 25.91"W	1500892.6536
L64	15+08.34	N39° 04' 12.47"E	1500892.6528
L65	15+38.08	N25° 46' 40.24"E	1500910.9821
L66	15+71.63	S41° 57' 42.11"E	1500926.6837
L67	15+71.63	N44° 24' 22.96"E	1500926.6893
L68	16+04.65	N33° 02' 03.43"E	1500949.6120
L69	16+49.06	N60° 57' 22.11"E	1500976.2417
L70	17+24.26	N19° 16' 17.13"E	1501036.6403
L71	17+54.99	N41° 13' 02.93"E	1501048.8355
L72	17+78.58	N15° 36' 20.45"W	1501061.5940
L73	18+08.77	N12° 15' 40.03"W	1501053.4731
L74	18+14.07	N9° 36' 00.10"E	1501052.3487

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

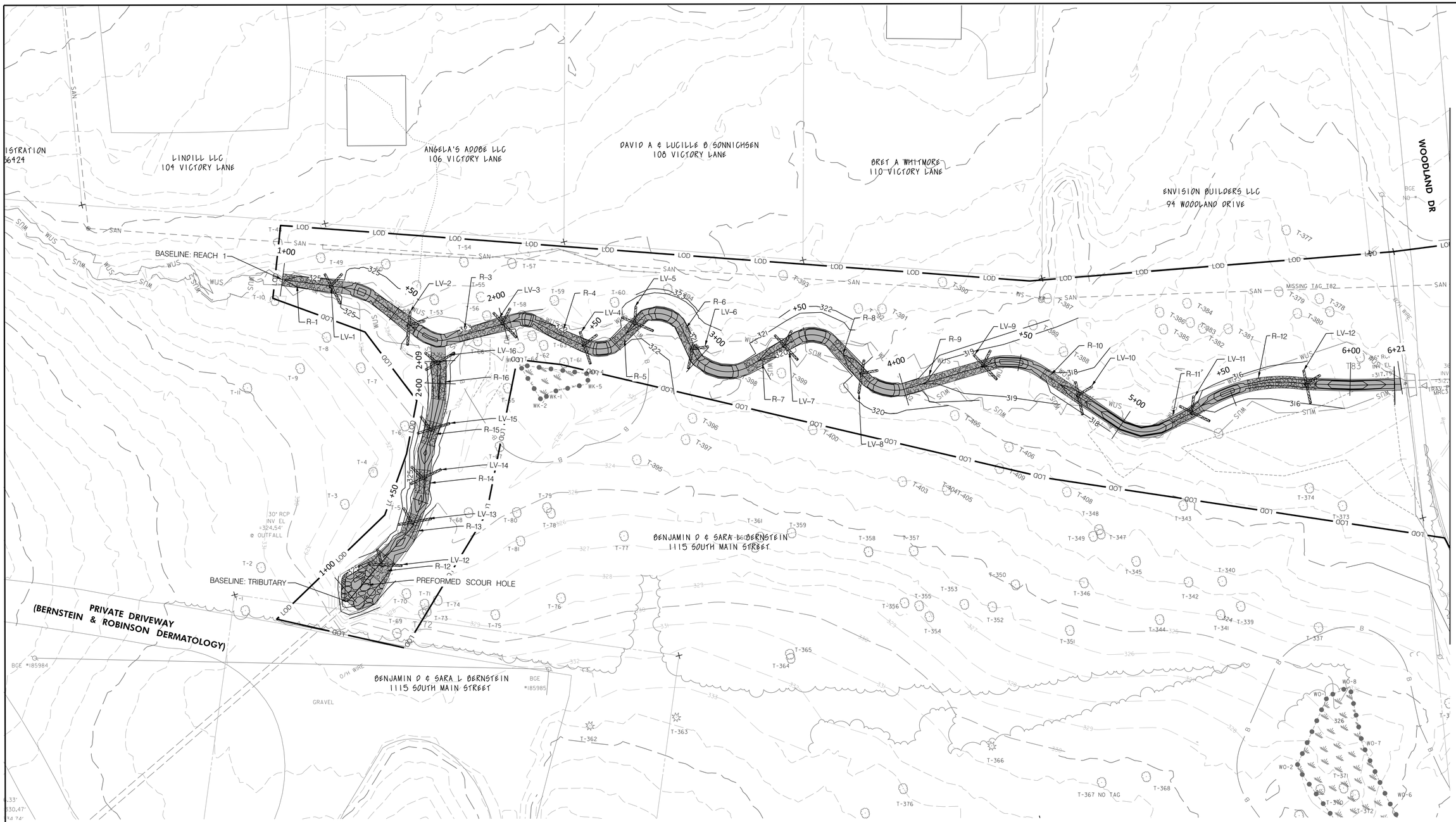
GEOMETRY SHEET

Drawn By : MKT
Designed By : SJF
Reviewed By : KDG
Scale : 1" = 100'
Date : OCTOBER 2023
Contract No.: XX-XXXX
Drawing No. GS-01 of GS-01
Sheet No. 8 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:

BY: nhoward –

PLOTTED: 10/16/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\08_pGS-P000_Woodland.dgn



MATCHLINE, SEE SR-02

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

LEGEND

- EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- 25 FT WETLAND BUFFER
- WATERS OF THE US
- PRELIMINARY 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- ACCESS ROAD
- WETLAND
- WOODY DEBRIS
- RIFFLE GRADE CONTROL MIX
- STONE TOE
- FLOODPLAIN LOG
- LOG VANE
- PROPOSED CHANNEL
- PROPOSED EXTRUDED CURB
- LIMIT OF DISTURBANCE
- RIPRAP

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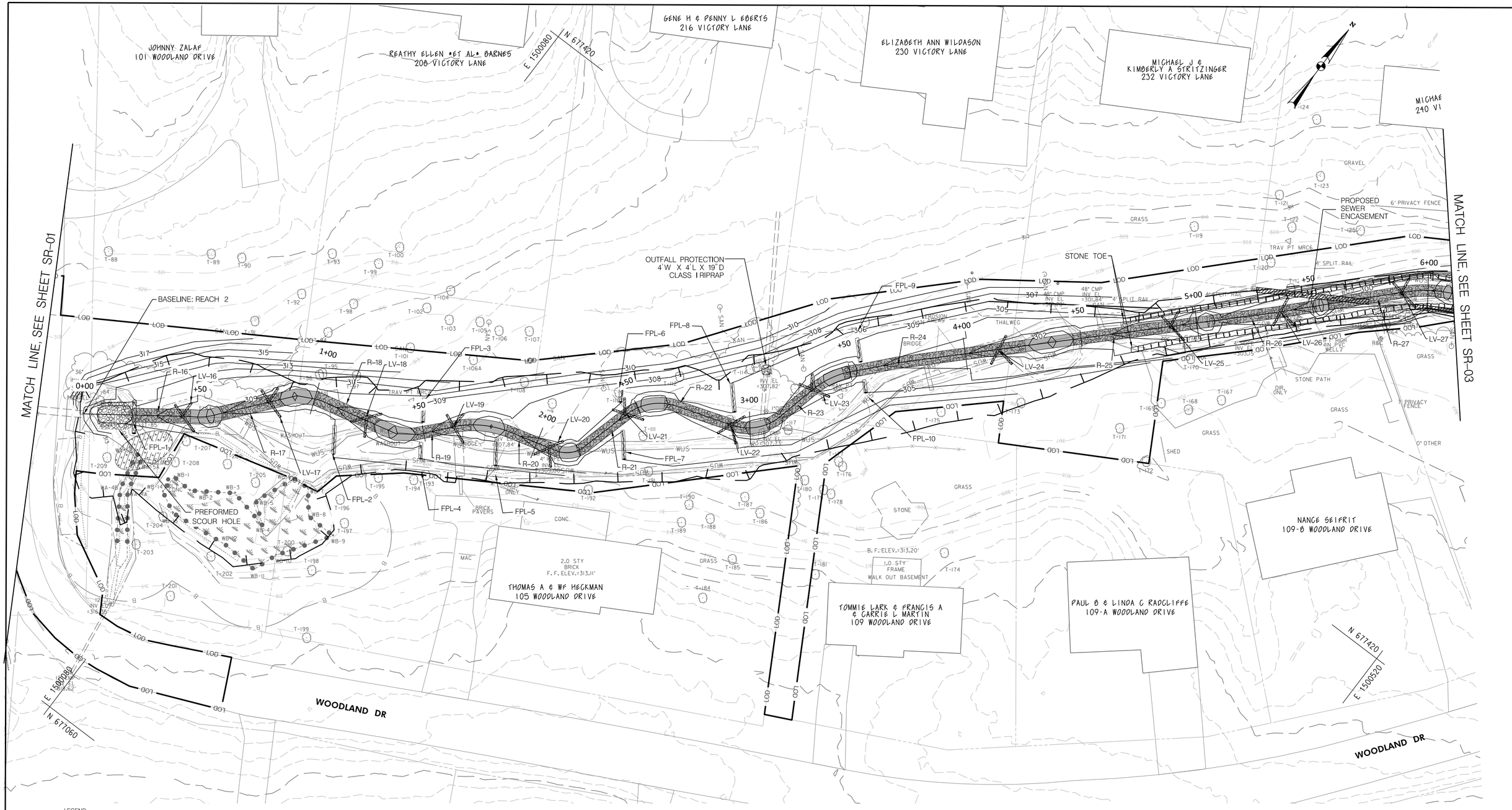
HARFORD COUNTY, MARYLAND

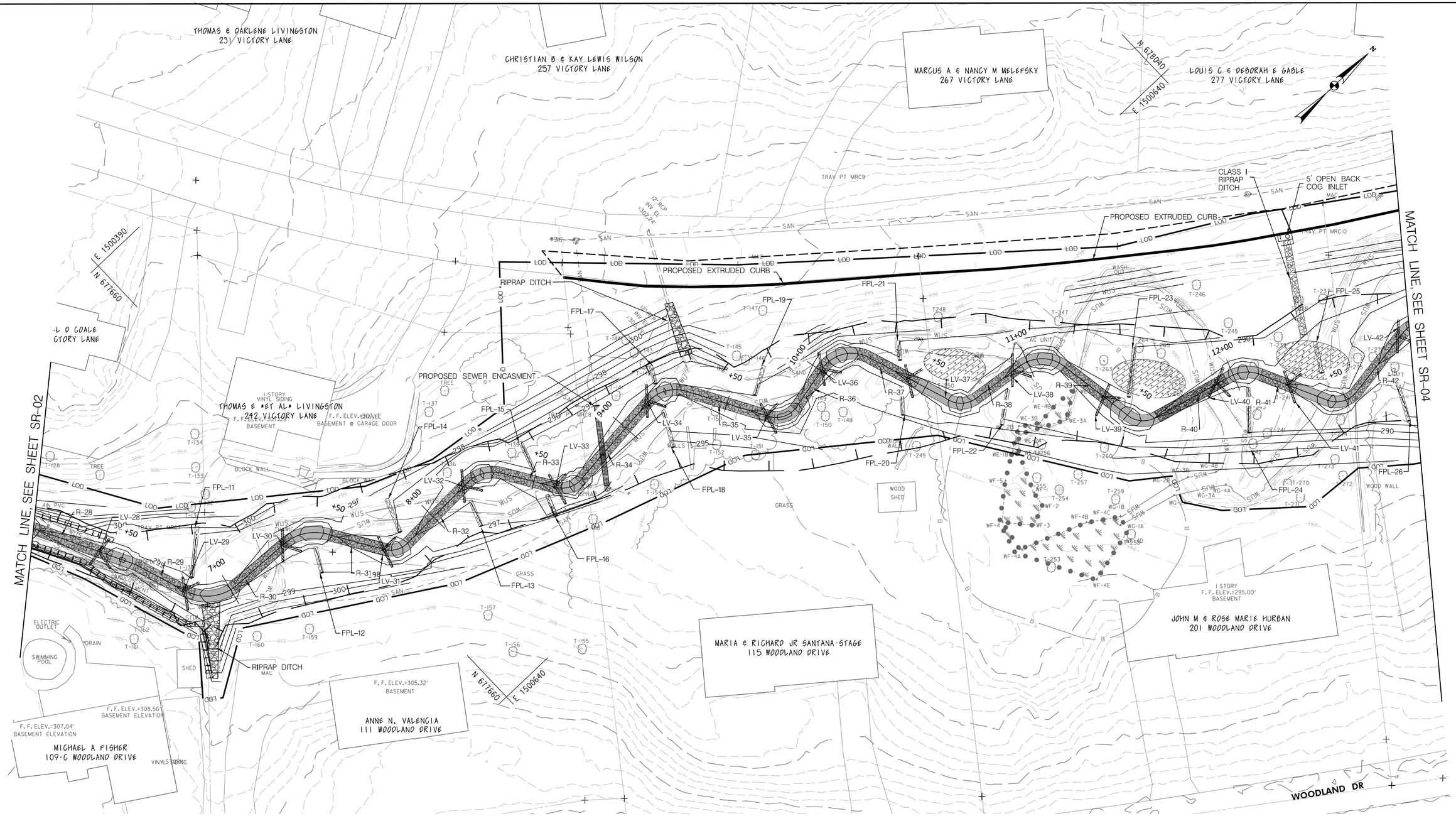
WOODLAND RUN STREAM RESTORATION

Drawn By : RMO/BEA/NAH	Scale : 1" = 20'
Designed By : RMO/BEA/NAH	Date : OCTOBER 2023
Reviewed By : DMH	Contract No.: XX-XXXX
Drawing No. SR-01 OF SR-04	Sheet No. 9 of 34

BY: nhoward

PLOTTED: 9/26/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\09_pSR-0001-Woodland.dgn


JOHNNY ZALAF
101 WOODLAND DRIVE
REATHY ELLEN ET AL BARNES
208 VICTORY LANE
E 1500080
N 677420
GENE H & PENNY L EBERTS
216 VICTORY LANE
ELIZABETH ANN WILDASON
230 VICTORY LANE
MICHAEL J & KIMBERLY A STRITZINGER
232 VICTORY LANE
MICHAE
240 VI
MATCH LINE, SEE SHEET SR-01
MATCH LINE, SEE SHEET SR-03
BASELINE: REACH 2
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1+00
2+00
3+00
4+00
5+00
6+00
OUTFALL PROTECTION
4'W X 4'L X 19"D
CLASS I RIPRAP
STONE TOE
PROPOSED
SEWER
ENCASEMENT
6' PRIVACY FENCE
4' SPLIT RAIL
TRAV PT MRC6
THALWEG
EROSION AREAS
R-24
BRIDGE
48" CMP
INV EL
=301.84'
INV EL
=307.82'
INV EL
=307.74'
INV EL
=303.15'
4" HIGH
SCH 40 PVC
WELL?
STONE PATH
DIR
ONLY
GRAVEL
GRASS
SHED
7' PRIVACY
FENCE
0' OTHER
PREFORMED
SCOUR HOLE
BRICK
PAVERS
CONC.
MAC
STONE
2.0 STY
BRICK
F. F. ELEV.=313.11'
THOMAS A & WF HECKMAN
105 WOODLAND DRIVE
B. F. ELEV.=313.20'
1.0 STY
FRAME
WALK OUT BASEMENT
TOMMIE LARK & FRANCIS A
& CARRIE L MARTIN
109 WOODLAND DRIVE
PAUL D & LINDA C RADCLIFFE
109-A WOODLAND DRIVE
NANCE SEIFRIT
109-B WOODLAND DRIVE
N 677420
E 1500520
E 1500080
N 677060
WOODLAND DR
WOODLAND DR
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WB-9
WB-10
WB-11
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WBP-38
WBP-39
WBP-40
WBP-41
WBP-42
WBP-43



LEGEND

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- ROW/PROPERTY BOUNDARY
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- STONE TOE
- FLOODPLAIN LOG
- LOG VANE
- PROPOSED CHANNEL
- PROPOSED EXTRUDED CURB
- LIMIT OF DISTURBANCE
- RIPRAP

20' 0 20' 40'
SCALE: 1" = 20'

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EG-SWMENG- XXXXXX-XXXX #XXXX

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HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

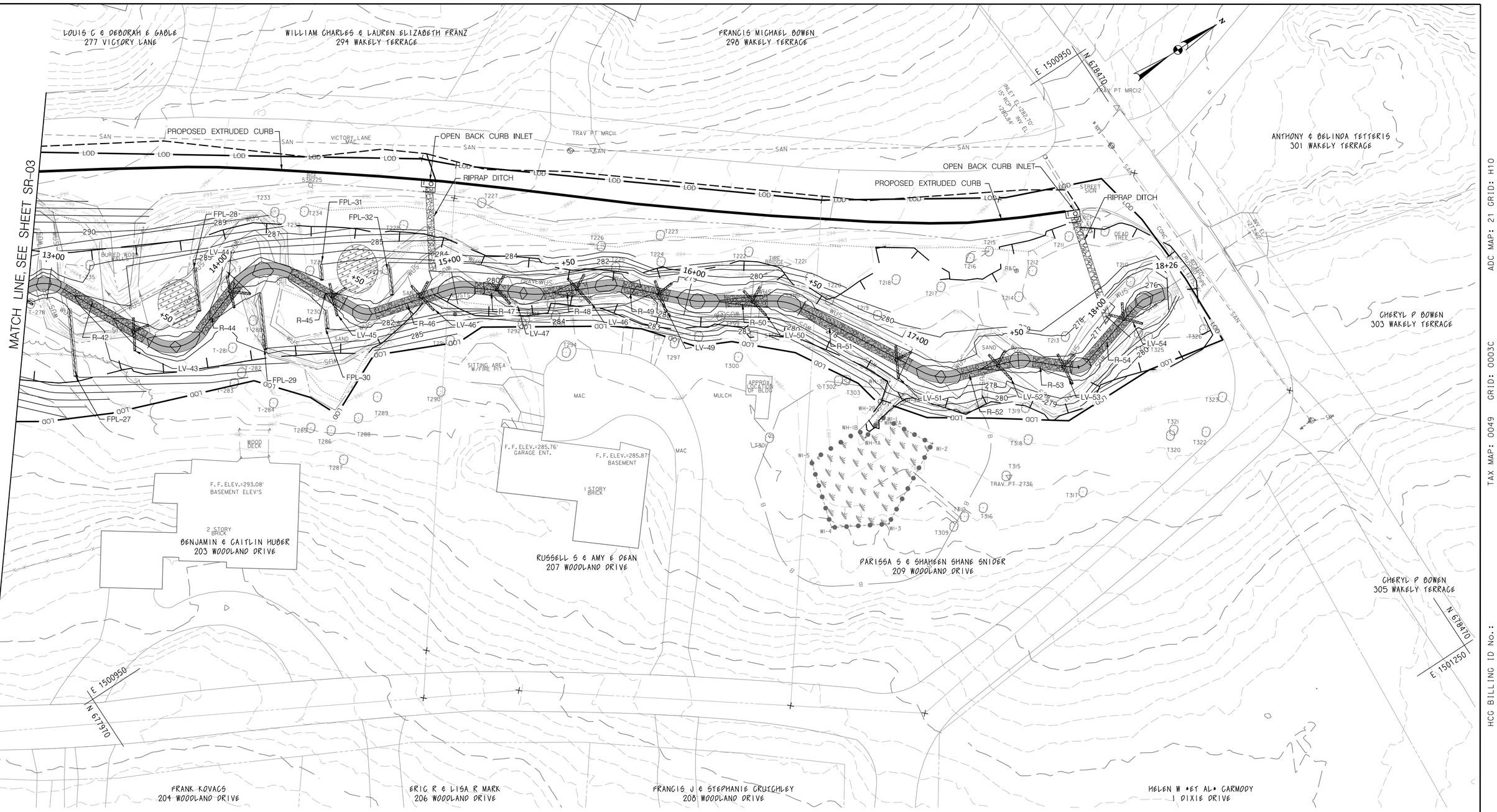
STREAM RESTORATION PLAN

Drawn By : RMO/BEA/NAH
Designed By : RMO/BEA/NAH
Reviewed By : DMH
Drawing No. SR-03 of SR-04

Scale : 1" = 20'
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 11 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1 inch

PLOTTED: 9/26/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\11_pSR-0003-Woodland.dgn
BY: nhoward



LEGEND

- EXISTING SANITARY SEWER
- WETLAND BOUNDARY
- 25 FT WETLAND BUFFER
- WATERS OF THE US
- PRELIMINARY 100 YEAR FLOODPLAIN
- ROW/PROPERTY BOUNDARY
- ACCESS ROAD
- WETLAND
- WOODY DEBRIS
- RIFFLE GRADE CONTROL MIX
- STONE TOE
- FLOODPLAIN LOG
- LOG VANE
- PROPOSED CHANNEL
- PROPOSED EXTRUDED CURB
- LIMIT OF DISTURBANCE
- RIPRAP

20' 0 20' 40'
SCALE: 1" = 20'

NOT FOR CONSTRUCTION

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BILLING NO. XXXXXX

EG-SWMENG- XXXXXX-XXXX #XXXX

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SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

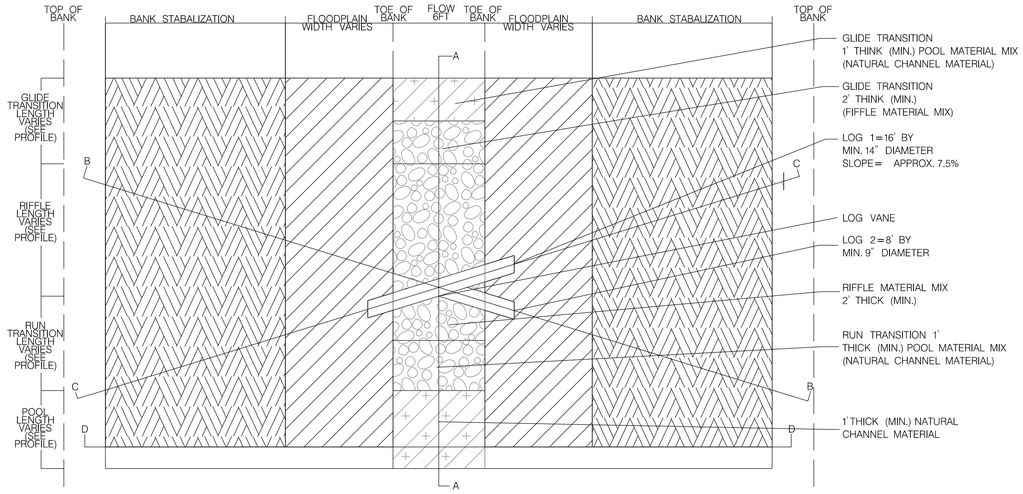
STREAM RESTORATION PLAN

Drawn By : RMO/BEA/NAH
Designed By : RMO/BEA/NAH
Reviewed By : DMH
Drawing No. SR-04 of SR-04

Scale : 1" = 20'
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 12 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 20'
BY: nhoward

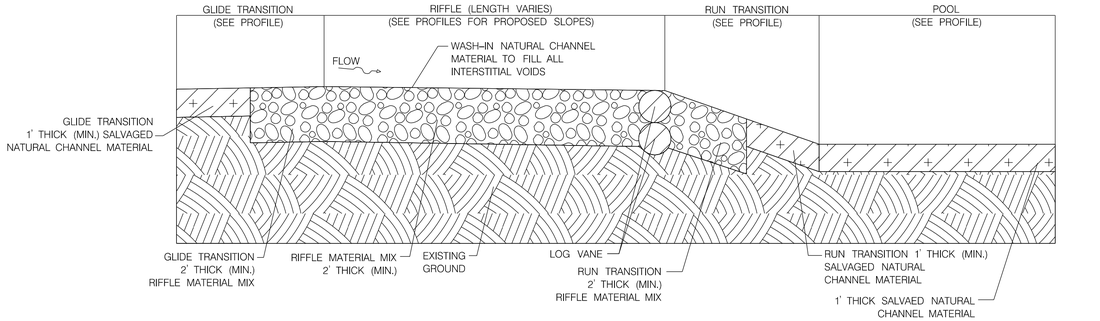
PLOTTED: 9/26/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\12_pSR-0004-Woodland.dgn



RIFFLE WITH LOG VANE – PLAN VIEW

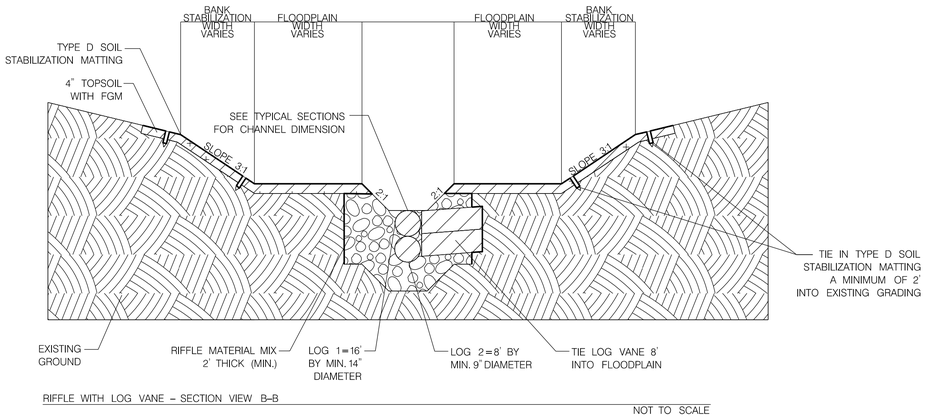
NOT TO SCALE

NOTES:
1. WASH NATURAL CHANNEL MATERIAL INTO RIFFLE MATERIAL MIX TO FILL ALL VOID SPACES.
2. SEE LANDSCAPE PLANS FOR PLANTING INFORMATION.
3. TIE LOGS INTO BANK AT DIRECTION OF ENGINEER.



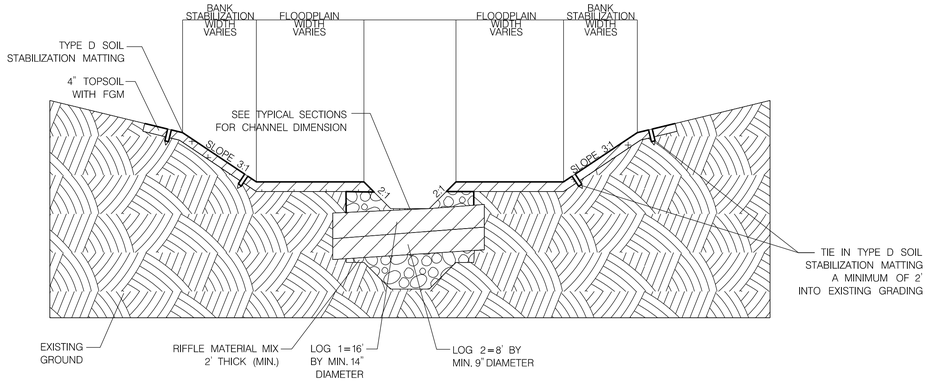
RIFFLE WITH LOG VANE – SECTION VIEW A–A

NOT TO SCALE



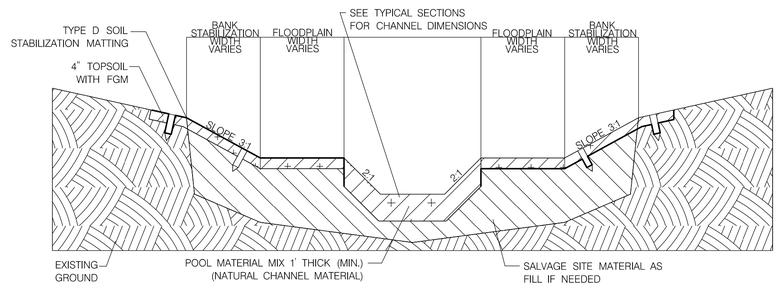
RIFFLE WITH LOG VANE – SECTION VIEW B–B

NOT TO SCALE



RIFFLE WITH LOG VANE – SECTION VIEW B–B

NOT TO SCALE



RIFFLE WITH LOG VANE – SECTION VIEW D–D

NOT TO SCALE

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Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

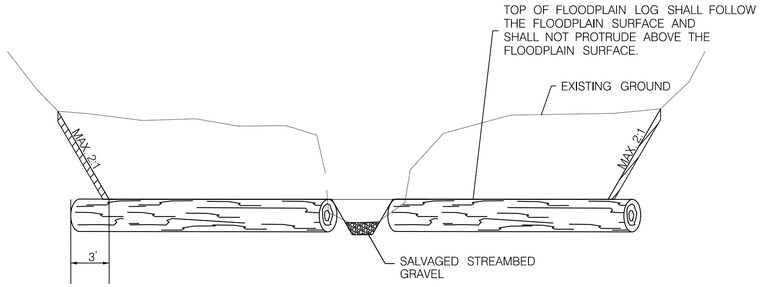
STREAM RESTORATION DETAILS

Drawn By : RMO/BEA
Designed By : RMO/BEA
Reviewed By : DMH
Drawing No. DE-01 of DE-04

Scale : NOT TO SCALE
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 13 of 34

ADC MAP: 21 GRID: H10
TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=2ft
BY: roaks –

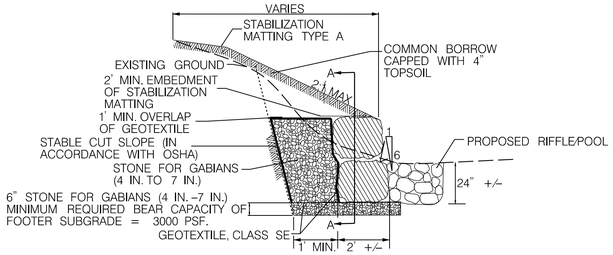
PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\13_pDE-0001-Woodland.dgn



FLOODPLAIN LOG PLACEMENT DETAIL

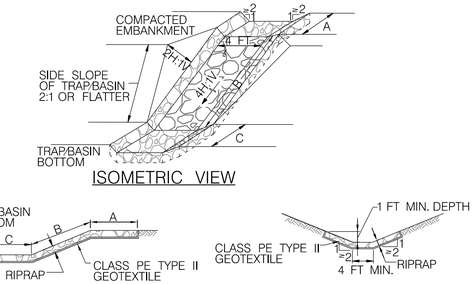
NOT TO SCALE

NOTE:
FOR LOG ANCHOR DETAIL, SEE F-ESD-10



STONE TOE SECTION

NOT TO SCALE

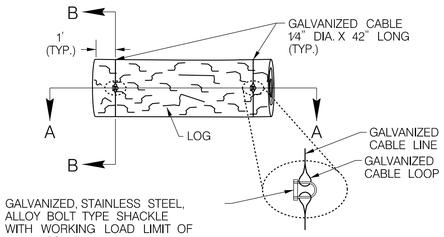


ISOMETRIC VIEW

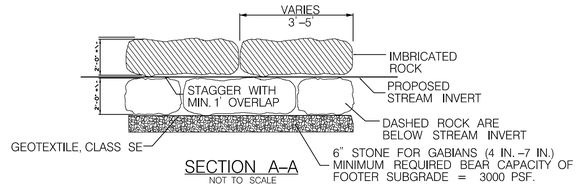
PROFILE ALONG CENTERLINE

CROSS SECTION

RIPRAP INFLOW PROTECTION



PLAN VIEW

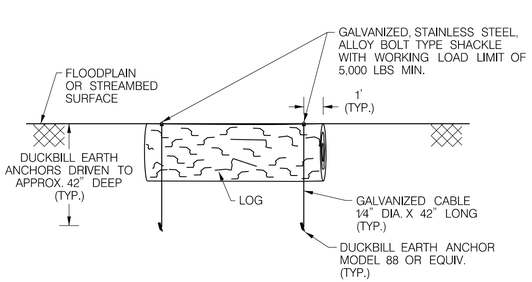


SECTION A-A

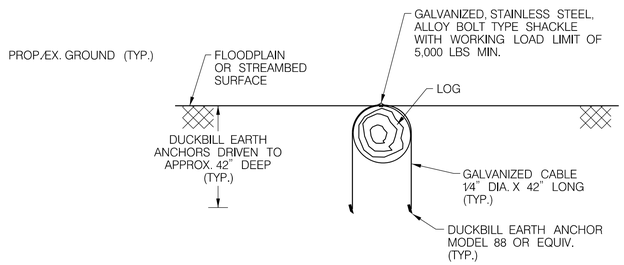
NOT TO SCALE

STONE TOE

NOT TO SCALE



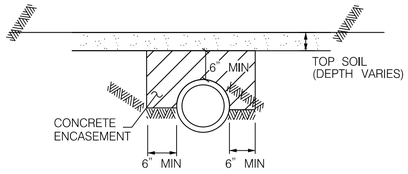
SECTION A-A



SECTION B-B

LOG ANCHOR DETAIL

NOT TO SCALE



SEWER ENCASEMENT DETAIL

NOT TO SCALE

NOTES

1. CONCRETE ENCASEMENT DEPTH TO MIDPOINT PIPE.
2. CONTRACTOR SHALL ONLY EXCAVATE TRENCH TO ELEVATION OF MID-POINT OF PIPE. LOWER HALF OF PIPE SHALL NOT BE EXPOSED AND SHALL REMAIN ON IN-SITE SOIL.

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EG-SWMENG- XXXXXX-XXXX #XXXX

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Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM RESTORATION DETAILS

Drawn By : RMO/BEA	Scale : NOT TO SCALE
Designed By : RMO/BEA	Date : OCTOBER 2023
Reviewed By : DMH	Contract No.: XX-XXXX
Drawing No. DE-02 of DE-04	Sheet No. 14 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

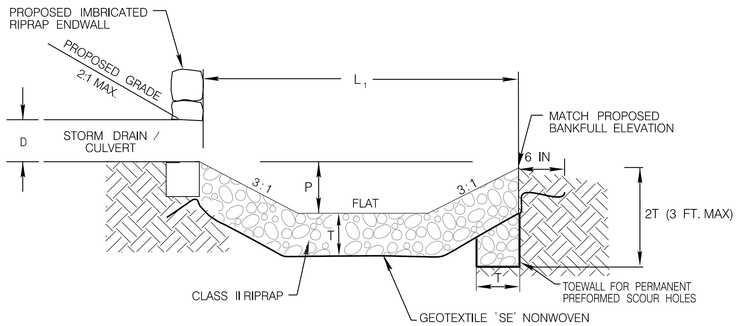
HCG BILLING ID No.:

HCG DWG ID No.:

SCALE: 1" = 1'-0"

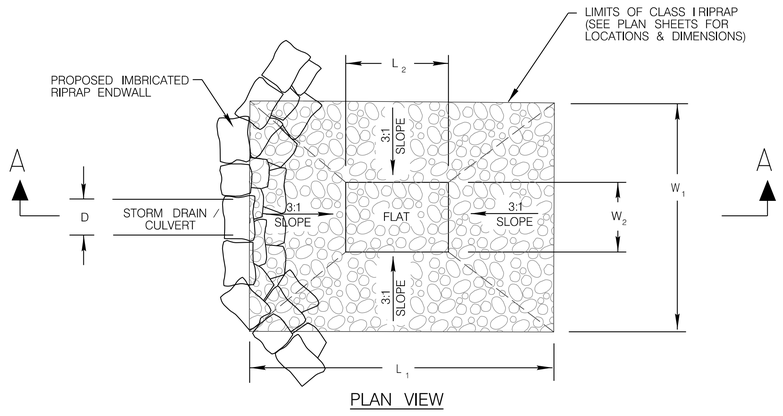
BY: roaks -

PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\14_pDE-0002-Woodland.dgn



*NOTE: T (STONE THICKNESS) = 2 X D50 (MEDIAN DIAMETER OF RIPRAP)

SECTION A–A



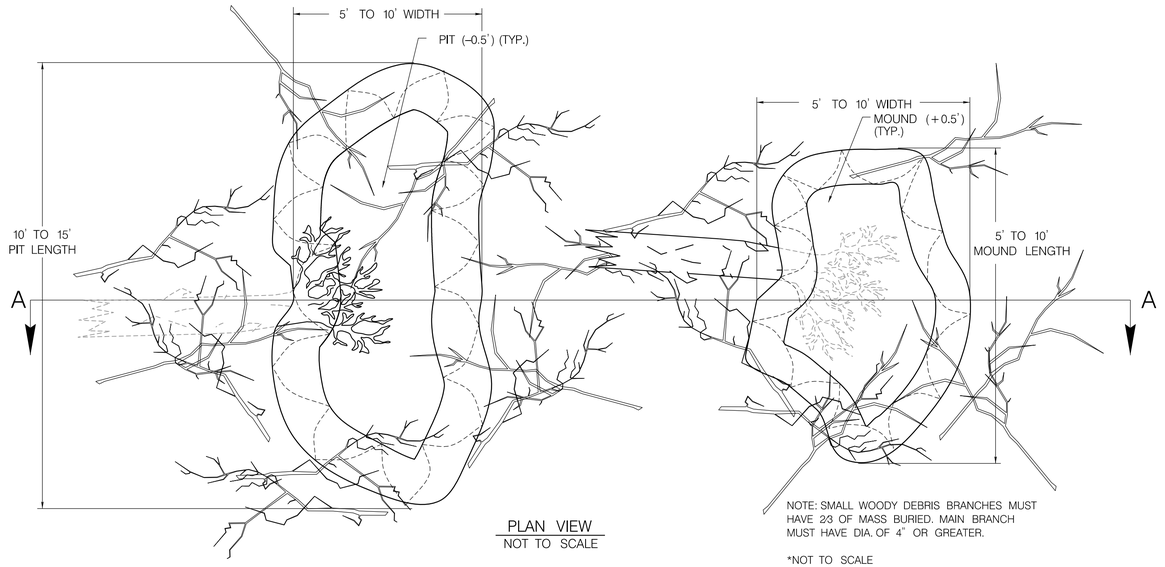
PLAN VIEW

PREFORMED SCOUR HOLE CONSTRUCTION DETAILS

NOT TO SCALE

PREFORMED SCOUR HOLE DIMENSION TABLE

D (IN.)	L_1 (FT.)	L_2 (FT.)	W_1 (FT.)	W_2 (FT.)	P (FT.)	D50 (IN.)	T (IN.)
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

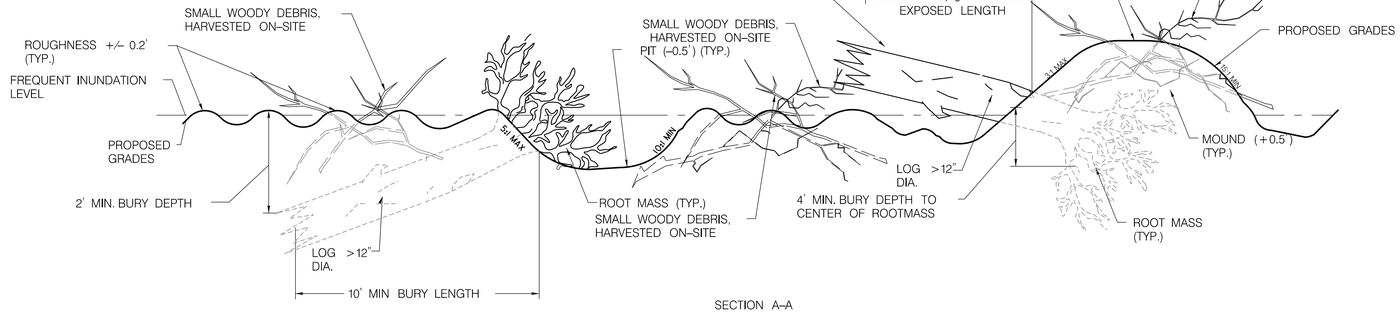


NOTE: SMALL WOODY DEBRIS BRANCHES MUST HAVE 2/3 OF MASS BURIED. MAIN BRANCH MUST HAVE DIA. OF 4" OR GREATER.

PLAN VIEW

NOT TO SCALE

*NOT TO SCALE



SECTION A–A

NOT TO SCALE

WOODY DEBRIS PLACEMENT DETAIL

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Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN
STREAM RESTORATION

STREAM RESTORATION DETAILS

Drawn By : RMO/BEA	Scale : NOT TO SCALE
Designed By : RMO/BEA	Date : OCTOBER 2023
Reviewed By : DMH	Contract No.: XX-XXXX
Drawing No. DE-03 of DE-04	Sheet No. 15 of 34

BY: roaks –

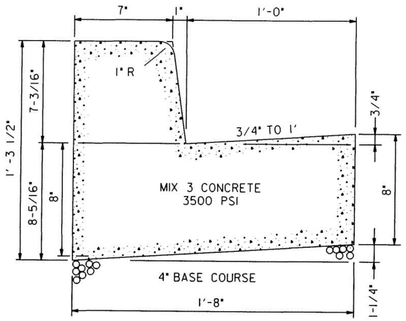
PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\15_pDE-0003-Woodland.dgn

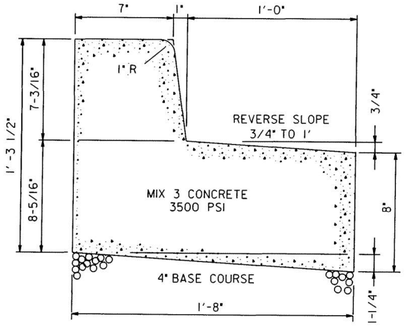
TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

SCALE: 1" = 1000'





AREA = 0.16± S.Y. 18.75 ± L.F./C.Y.

A BITUMINOUS SEAL SHALL BE PLACED AT ALL CURB JOINTS ALONG THE GUTTER PAN.

5-2-00
DIRECTOR OF PUBLIC WORKS DATE

4/12/00
DEP. DIRECTOR, PUBLIC WORKS DATE

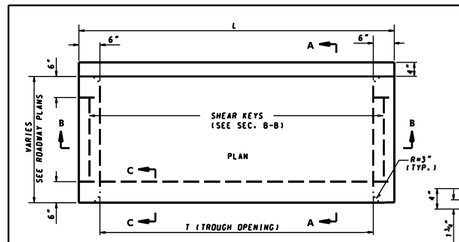
HARFORD COUNTY, MD
DEPARTMENT OF
PUBLIC WORKS

7" COMBINATION CURB AND GUTTER

ISSUED 5/2/00
REVISED 5/31/07
REVISED
PLATE S-1

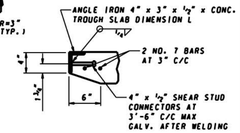
USER\DETAILS\SPEC\ROADCODE\STANDARD DETAILS\SHOULDER\S-1.DGN

S-1.DGN 02/13/2009 10:30:53 AM



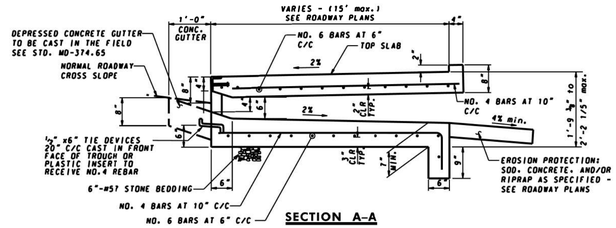
PRECAST CONCRETE TOP SLAB

SLAB TYPE	L	T
I	6'-0"	5'-0"
II	11'-0"	10'-0"

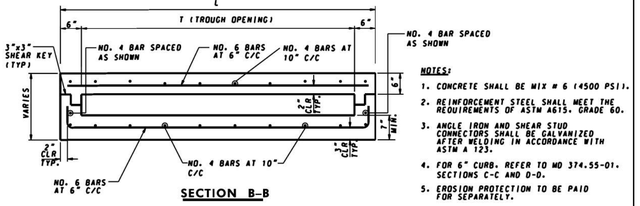


NOTE: FOR 6" CURB. SEE NOTE 4 BELOW.

SECTION C-C



SECTION A-A



SECTION B-B

NOTES:
1. CONCRETE SHALL BE MIX # 6 (4500 PSI).
2. REINFORCEMENT STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615, GRADE 60.
3. ANGLE IRON AND SHEAR STUD CONNECTORS SHALL BE GALVANIZED AFTER WELDING IN ACCORDANCE WITH ASTM A 123.
4. FOR 6" CURB. REFER TO MD 374.55-01. SECTIONS C-C AND D-D.
5. EROSION PROTECTION TO BE PAID FOR SEPARATELY.

SPECIFICATION 305	CATEGORY CODE ITEMS
APPROVED Kirk G. McCallum, DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT	

SHA	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
State Highway Administration	APPROVAL 12-19-01	APPROVAL 7-18-02
	REVISED 1-9-08	REVISED 11-26-07
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PRECAST OR CAST-IN-PLACE
COG /COS OPENING FOR 8" CURB
5' OR 10' ONLY

STANDARD NO. MD 374.68

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Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM RESTORATION DETAILS

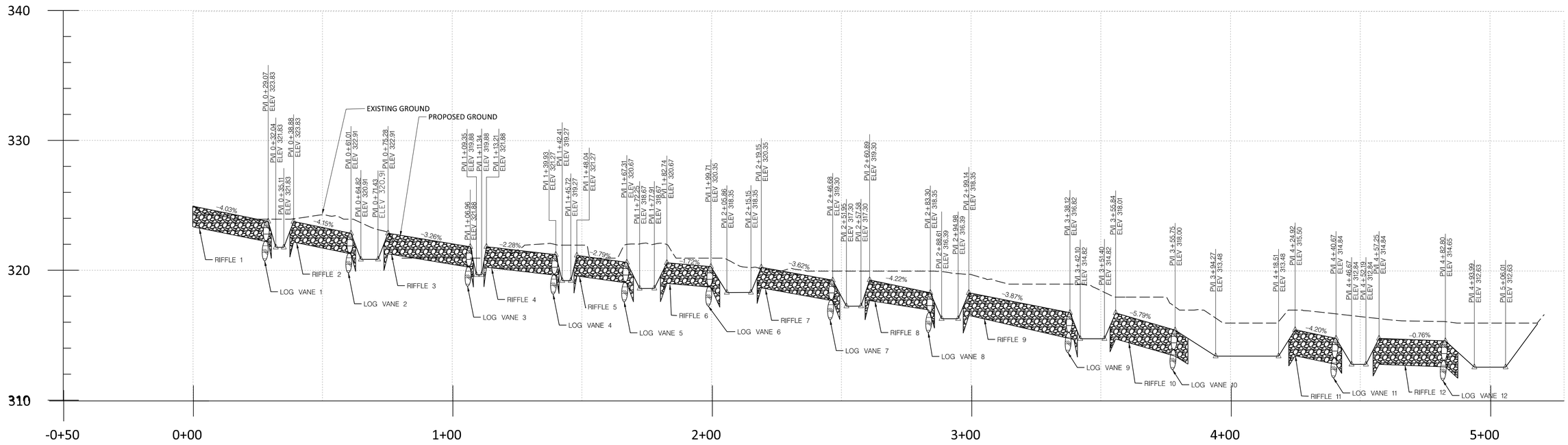
Drawn By : RMO/BEA
Designed By : RMO/BEA
Reviewed By : DMH
Drawing No. DE-04 of DE-04

Scale : NOT TO SCALE
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 16 of 34

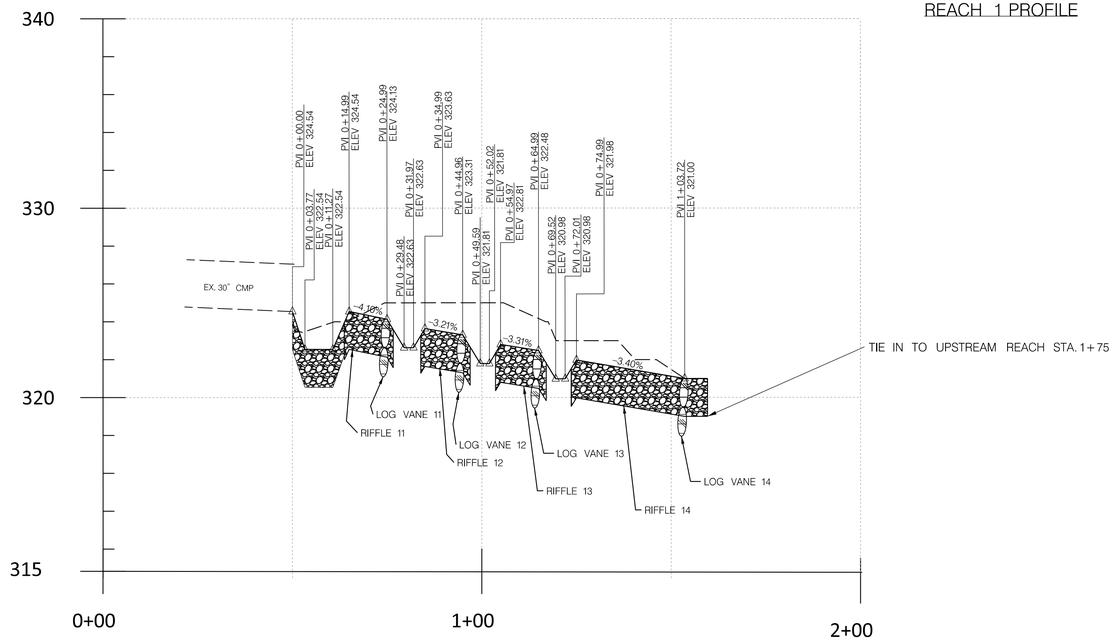
TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=1in

BY: roaks –

PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\16_pDE-0004-Woodland.dgn



REACH 1 PROFILE



REACH TRIBUTARY PROFILE

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EG-SWMENG- XXXXXX-XXXX #XXXX

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20' 0 20' 40'
PR-2 SCALE: 1" = 20'

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

STREAM PROFILE

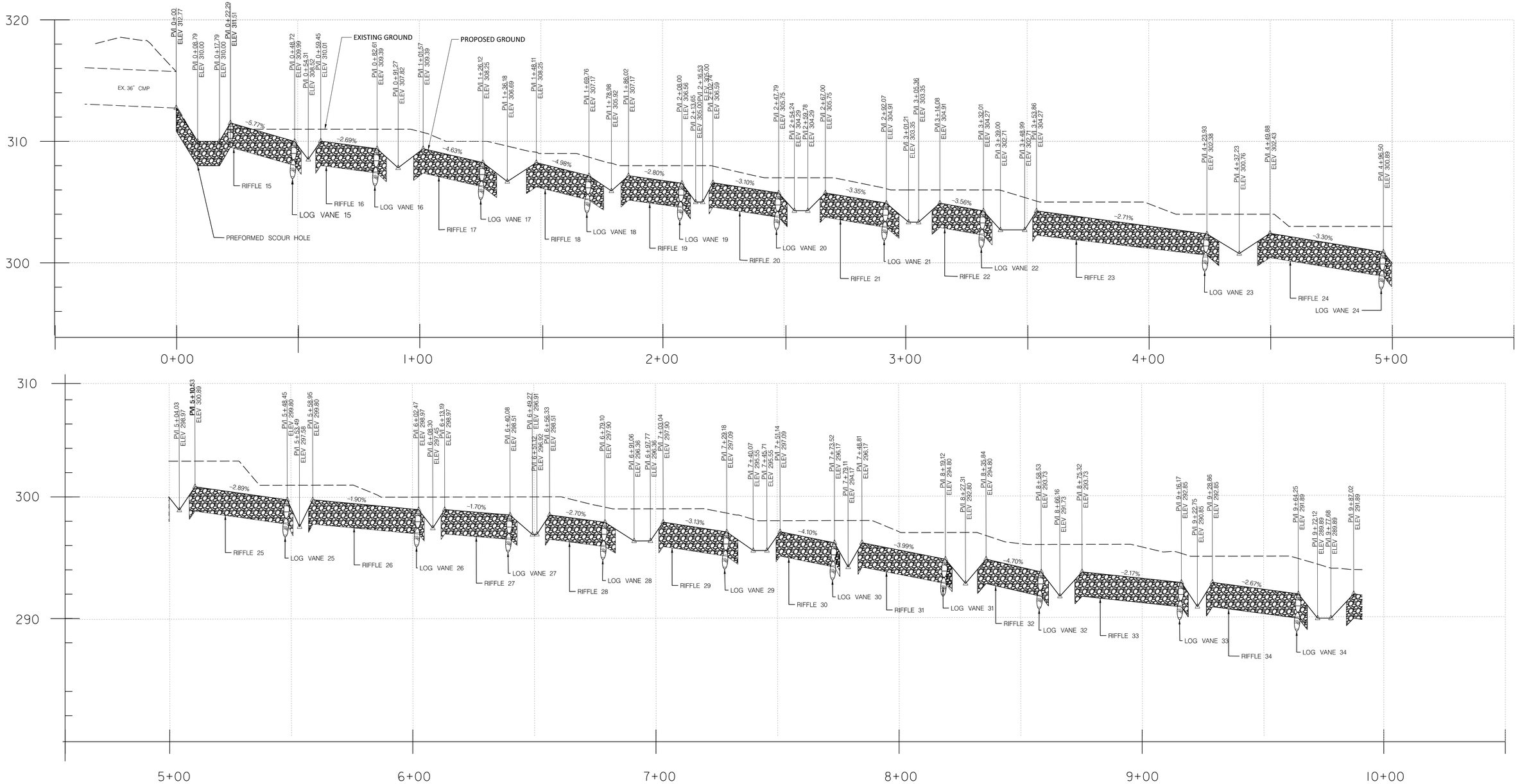
Drawn By : RMO/BEA/NAH
Designed By : RMO/BEA/NAH
Reviewed By : DMH

Scale : H: 1" = 20' V: 1" = 4'
Date : OCTOBER 2023
Contract No.: XX-XXXX

Drawing No. PR-01 of PR-03
Sheet No. 17 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 20'
BY: nhoward

PLOTTED: 9/26/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\17_pPR-0001-Woodland.dgn



REACH 2 PROFILE

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

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WOODLAND RUN STREAM RESTORATION

STREAM PROFILE

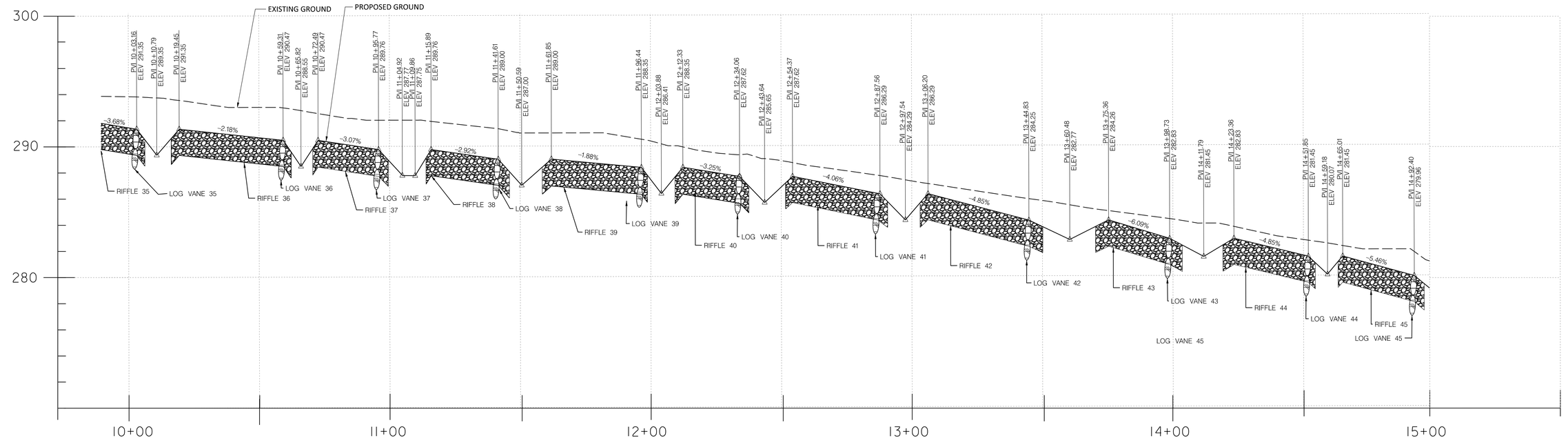
Drawn By : RMO/BEA/NAH
Designed By : RMO/BEA/NAH
Reviewed By : DMH
Drawing No. PR-02 of PR-03

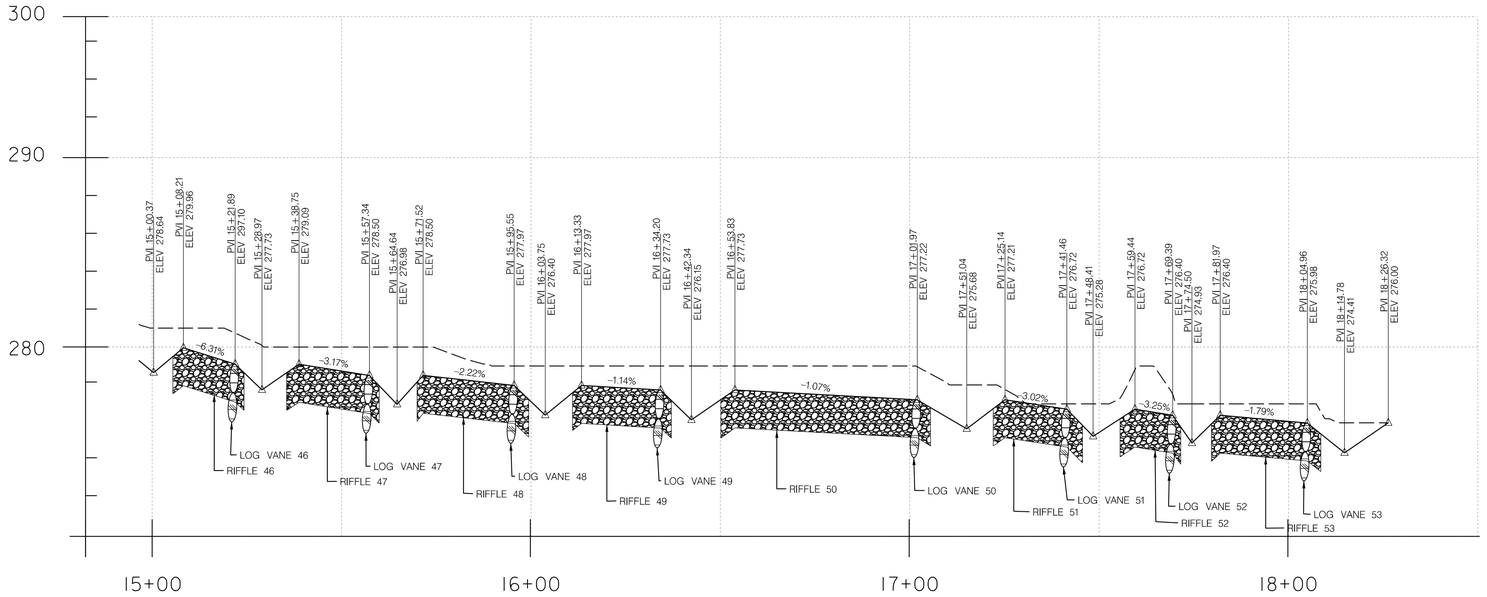
Scale : H: 1" = 20' V: 1" = 4'
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 18 of 34

TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
ADC MAP: 21 GRID: H10
HCG DWG ID No.:
SCALE: 1" = 1'-0"

BY: nhoward -

PLOTTED: 10/11/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\18_pPR-0002-Woodland.dgn





20' 0 20' 40'
SCALE: 1" = 20'

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BILLING NO. XXXXXX

EG-SWMENG- XXXXXX-XXXX #XXXX

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. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

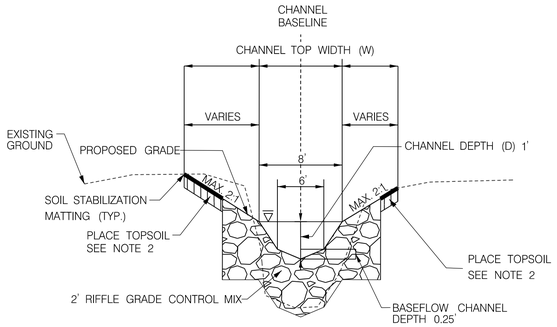
WOODLAND RUN STREAM RESTORATION

STREAM PROFILE

Drawn By : RMO/BEA/NAH
Designed By : RMO/BEA/NAH
Reviewed By : DMH
Drawing No. PR-03 of PR-03

Scale : H: 1" = 20' V: 1" = 4'
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 19 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 20'
BY: nhoward -
PLOTTED: 9/26/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\19_pPR-0003-Woodland.dgn

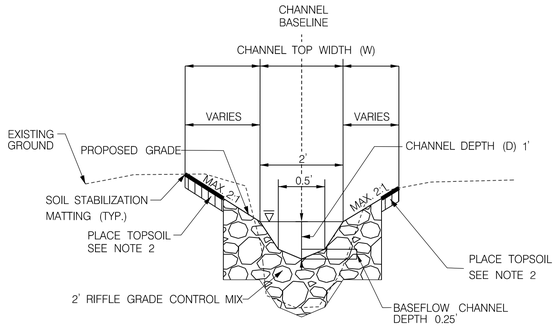


TYPICAL SECTION REACH 1 – RIFFLE

NOT TO SCALE

1. THE RIFFLE GRADE CONTROL STABILITY MIX SHALL BE PLACED SO IT SHINGLES IN A DOWNSTREAM DIRECTION, SMALL AND LARGE STONES MUST BE MIXED TO MINIMIZE VOID SPACE AND PROMOTE INTERLOCKING. NATURAL CHANNEL BED MATERIAL SHALL BE WASHED INTO THE MIX TO ENSURE ALL INTERSTITIAL VOIDS ARE FILLED AND SUBSURFACE FLOW IS ACHIEVED. DUMPING OF STONE WILL NOT BE PERMITTED.

2. PLACE 2" OF TOPSOIL ON SLOPES GREATER THAN 4:1. PLACE 4" OF TOPSOIL ON SLOPES LESS THAN 4:1.

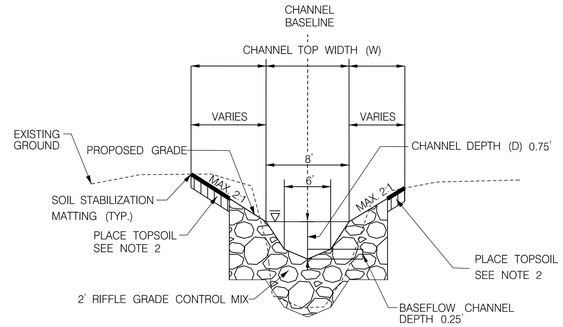


TYPICAL SECTION TRIBUTARY – RIFFLE

NOT TO SCALE

1. THE RIFFLE GRADE CONTROL STABILITY MIX SHALL BE PLACED SO IT SHINGLES IN A DOWNSTREAM DIRECTION, SMALL AND LARGE STONES MUST BE MIXED TO MINIMIZE VOID SPACE AND PROMOTE INTERLOCKING. NATURAL CHANNEL BED MATERIAL SHALL BE WASHED INTO THE MIX TO ENSURE ALL INTERSTITIAL VOIDS ARE FILLED AND SUBSURFACE FLOW IS ACHIEVED. DUMPING OF STONE WILL NOT BE PERMITTED.

2. PLACE 2" OF TOPSOIL ON SLOPES GREATER THAN 4:1. PLACE 4" OF TOPSOIL ON SLOPES LESS THAN 4:1.

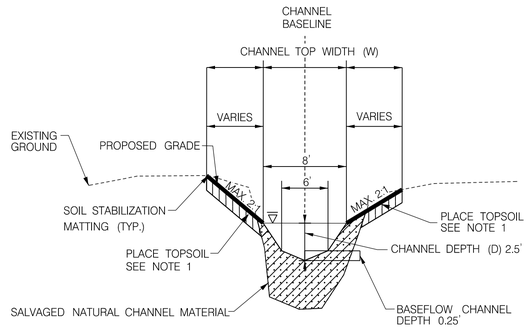


TYPICAL SECTION REACH 2 – RIFFLE

NOT TO SCALE

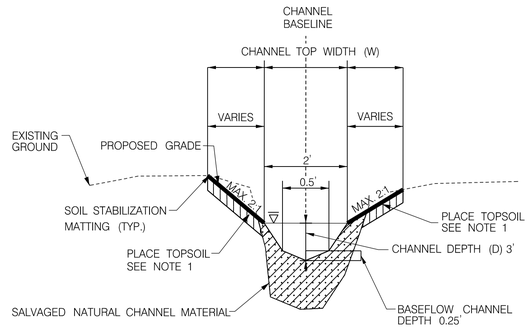
1. THE RIFFLE GRADE CONTROL STABILITY MIX SHALL BE PLACED SO IT SHINGLES IN A DOWNSTREAM DIRECTION, SMALL AND LARGE STONES MUST BE MIXED TO MINIMIZE VOID SPACE AND PROMOTE INTERLOCKING. NATURAL CHANNEL BED MATERIAL SHALL BE WASHED INTO THE MIX TO ENSURE ALL INTERSTITIAL VOIDS ARE FILLED AND SUBSURFACE FLOW IS ACHIEVED. DUMPING OF STONE WILL NOT BE PERMITTED.

2. PLACE 2" OF TOPSOIL ON SLOPES GREATER THAN 4:1. PLACE 4" OF TOPSOIL ON SLOPES LESS THAN 4:1.



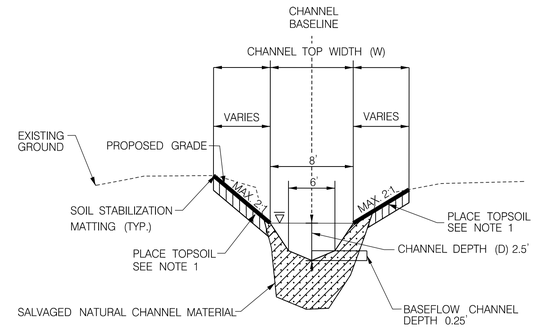
TYPICAL SECTION REACH 1 – POOL

NOT TO SCALE



TYPICAL SECTION TRIBUTARY – POOL

NOT TO SCALE



TYPICAL SECTION REACH 2 – POOL

NOT TO SCALE

1. PLACE 2" OF TOPSOIL ON SLOPES GREATER THAN 4:1. PLACE 4" OF TOPSOIL ON SLOPES LESS THAN 4:1.

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Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

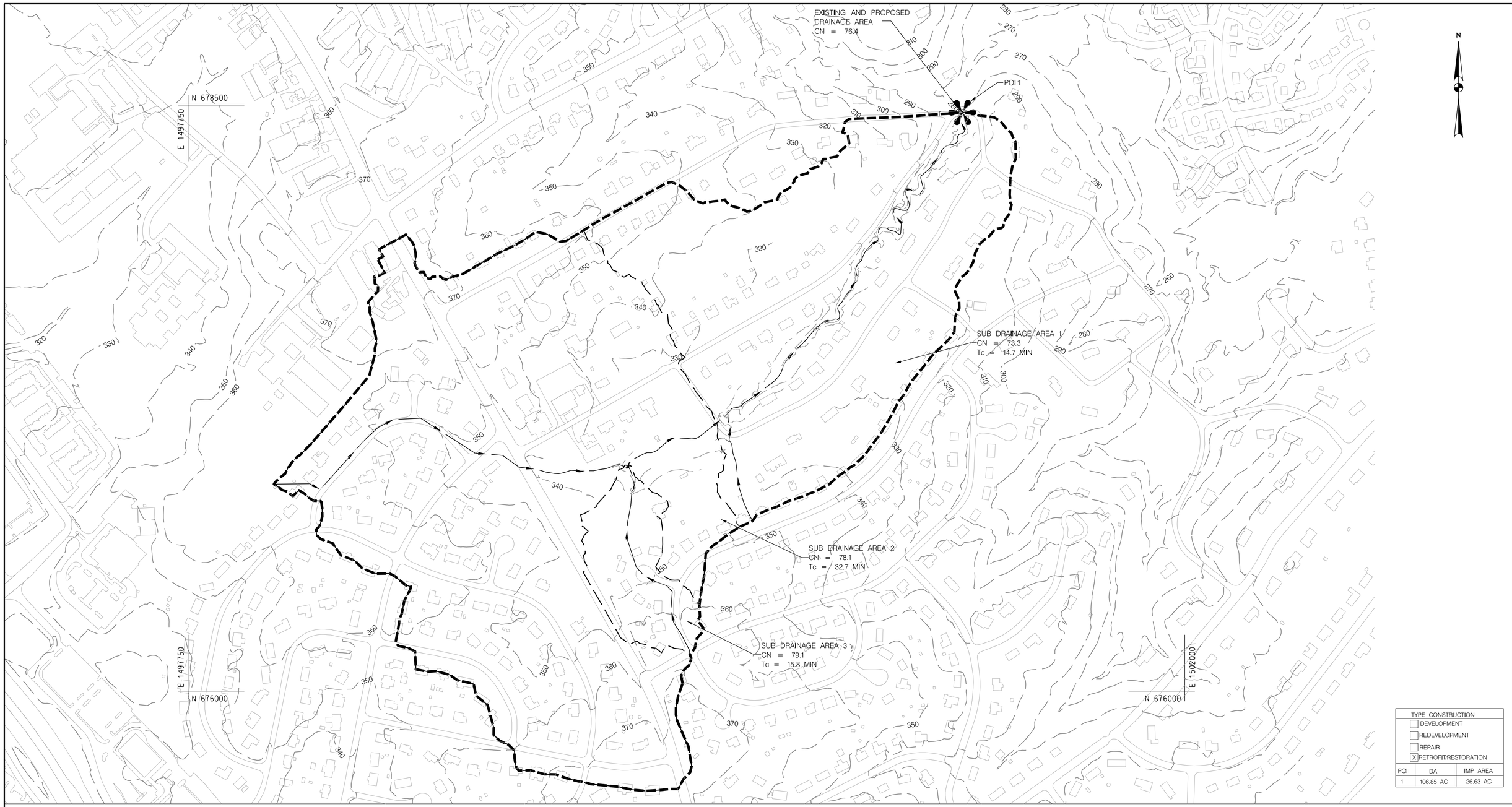
TYPICAL SECTIONS

Drawn By : RMO/BEA/NAH
Designed By : RMO/BEA/NAH
Reviewed By : DMH
Drawing No. TS-01 of TS-01

Scale : NOT TO SCALE
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 20 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 1'-0"
BY: nhoward –

PLOTTED: 7/13/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\20_pTS-0001-Woodland.dgn



TYPE CONSTRUCTION		
☐ DEVELOPMENT		
☐ REDEVELOPMENT		
☐ REPAIR		
☒ RETROFIT/RESTORATION		
POI	DA	IMP AREA
1	106.85 AC	26.63 AC

LEGEND

- DRAINAGE AREA
- SUB DRAINAGE AREA
- Tc PATH
- MAJOR CONTOUR
- BUILDING
- ROAD

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

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Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

DRAINAGE AREA MAP

Drawn By : RMO/BEA
Designed By : RMO/BEA
Reviewed By : DMH
Drawing No. DA-01 of DA-01

Scale : 1" = 200'
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 21 of 34

TAX MAP: 0049 GRID: 0003C
ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1"=200'

BY: roaks –
PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\23_pDA-0001-Woodland.dgn

SEQUENCE OF CONSTRUCTION

1. THE CONTRACTOR SHALL NOTIFY HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS DPW S/C INSPECTOR AT (410-638-3127 X2434) AT LEAST SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF HARFORD COUNTY.

2. LIMIT OF DISTURBANCE, ACCESS ROUTES, AND STAGING AREAS SHALL BE STAKED AND REVIEWED IN THE FIELD WITH THE ENGINEER PRIOR TO CONSTRUCTION TO ALLOW FOR ADJUSTMENTS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

3. TEMPORARY ORANGE CONSTRUCTION FENCE (TOCF) SHALL BE INSTALLED ALONG THE LIMITS OF DISTURBANCE (LOD) ONLY WHERE THE LOD IS ADJACENT TO ROADWAYS AND PEDESTRIAN TRAFFIC TO PROTECT WETLANDS, WATERWAYS AND ADJACENT PROPERTIES FROM ACCIDENTAL ENCROACHMENT AND IMPACT. APPROVAL BY THE ENGINEER IS REQUIRED IN ORDER TO INSTALL TOCF. INSTALL TOCF IMMEDIATELY AFTER CONSTRUCTION PHASE LOD STAKEOUT AND PRIOR TO THE INSTALLATION OF SEDIMENT AND EROSION CONTROLS.

4. CONTRACTOR TO INSTALL ALL TREE PROTECTION MEASURES PRIOR TO CLEARING AND GRUBBING (TREE PROTECTION FENCE (TPF) AND TREE PROECTION PLANKING (TPP)) - REFER TO THE EROSION AND SEDIMENT CONTROL PLANS (DWGS. ES-01-ES-04).

5. CLEAR AND GRUB FOR THE AREA REQUIRED FOR INSTALLATION OF THE STABILIZED CONSTRUCTION ENTRANCES (SCE), SILT FENCE (SF), SANDBAG DIVERSION (SD), DIRTY WATER PUMP (DWP), CLEAN WATER PUMP (CWP), OUTFALL PROECTION (OP), MULCH ACCESS ROAD (MAR), AND PERIMETER CONTROLS. CONTRACTOR TO SALVAGE AND STOCKPILE ALL SALVAGEABLE LOGS AND ROOTWARDS, DURING CLEARING AND GRUBBING. CONTRACTOR TO INSTALL ALL TREE PROTECTION MEASURES PRIOR TO CLEARING AND GRUBBING (TREE PROTECTION PLANKING (TPP))- REFER TO THE EROSION AND SEDIMENT CONTROL PLANS (DWGS. ES-01-ES-04).

6. INSTALL SCE, STAGING AND STOCKPILE AREA, MAR, SF & PERIMETER CONTROLS PRIOR TO ADDITIONAL CLEARING AND GRUBBING.

7. SANDBAG DIVERSION SHALL BE INSTALLED AT THE BEGINING OF EACH WORK DAY ONLY WITHIN THE CONTRUCTION AREA(S) BEING WORKED AND REMOVED AT THE COMPLETION OF EACH WORK DAY. THE EXACT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER.

8. OUTFALL PROTECTION, DIRTY WATER PUMPS AND CLEAN WATER PUMPS TO BE INSTALLED AT THE BEGINING OF EACH WORK DAY AND REMOVED DAILY. NO IN-STREAM WORK ALLOWED DURING RUNOFF PRODUCING PRECIPITATION EVENTS THAT EXCEEDS PUMPING CAPACITY. THE EXACT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER.

9. THE ACCESS ROAD, STOCKPILE AREAS, OUTFALL PROECTION AND SANDBAG DIVERSION WILL BE REMOVED AT THE COMPLETION OF EACH CONSTRUCTION PHASE AND IN CONJUNCTION WITH THE FLOODPLAIN GRADING UNLESS OTHERWISE NOTED OR AT THE IN-FIELD DIRECTION OF THE ENGINEER.

10. THE WORK IS DIVIDED INTO SEVEN (7) CONSTRUCTION AREAS AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.

11. BEGIN WORK IN ACCORDANCE WITH THE INDIVIDUAL SEQUENCES FOR EACH CONSTRUCTION AREA.

12. CONTINGENT SANDY SALVAGED SITE MATERIAL, SALVAGED SOIL AND NATURAL CHANNEL MATERIAL SHALL BE HARVESTED, SALVAGED, AND STOCKPILED DURING THE PHASE IN WHICH IT IS LOCATED ON THE PLANS, UTILIZING AN APPROVED SANDBAG DIVERSION AND DIRTY WATER PUMP PRACTICE.

13. THE ACCESS ROADS, STOCKPILE AREAS, CLEAN WATER PUMPS, OUTFALL PROECTION, DIRTY WATER PUMPS AND SANDBAG DIVERSIONS WITHIN EACH PHASE SHALL BE REMOVED UPON COMPLETION OF EACH PHASE UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER. REUSE SANDBAG DIVERSION AT EACH PHASE.

14. UPON COMPLETION OF ALL PHASES INSTALL PERMANENT PLANTINGS PER THE LANDSCAPE SCHEDULE AND PLANS. COMPLETE SAME DAY STABILIZATION FOR ANY DISTURBANCE.

15. UPON APPROVAL OF THE INSPECTOR, REMOVE REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND STABILIZE ANY AREAS DISTURBED BY THEIR REMOVAL.

CONSTRUCTION NOTES

1. BEFORE MATERIAL CAN LEAVE THE SITE, ALL OFF-SITE STOCKPILING MUST BE APPROVED BY THE HARFORD COUNTY SOIL CONSERVATION DISTRICT.

2. WHEN THE SANDBAG DIVERSIONS AND DIRTY WATER PUMPS ARE USED, THE LOCATION OF THE HOSES AND FILTER BAGS MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS.

3. AT THE END OF EACH WORK DAY THE CONTRACTOR SHALL STABILIZE ANY DISTURBED AREA NOT DIRECTED TO AN EROSION AND SEDIMENT CONTROL DEVICE AND AS NOTED NEEDING SAME DAY STABILIZATION.

4. PUMP AROUND PRACTICES, INCLUDING NECESSARY SANDBAGS, SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO BEGINNING INSTREAM ACTIVITIES EACH DAY. AT THE END OF EACH WORK DAY, THE SANDBAG DIVERSION SHALL BE REMOVED TO RE-ESTABLISH BASEFLOW AND PROVIDE A FLOW PATH DURING STORM FLOWS FOR ALL TIMES WHEN THE PUMP AROUND IS NOT ACTIVE.

5. THERE SHALL BE NO HERBICIDE, FERTILIZER, OR LYME TREATMENTS.

6. STOCKPILE SHALL HAVE A MAXIMUM HEIGHT OF 20' AND A SIDE SLOPE NOT GREATER THAN 2:1. ALL STAGING AND STOCKPULE AREAS HAVE SILT FENCE ON DOWNSTREAM SIDE AS INDICATED ON PLANS.

STREAM CONSTRUCTION AREA 1:
DWG. ES-01
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TEMPORARY ORANGE CONSTRUCTION FENCE, MULCH ACCESS ROAD, TREE PROTECTION PLANKING, SILT FENCE AND STAGING AND STOCKPILE AREA AS INDICATED ON PLANS. CONTRACTOR MAY PLACE TEMPORARY GRADING FOR COMPLETION OF ACCESS ROAD WITHIN THE LOD.

2. INSTALL SANDBAG DIVERSION (SB-1, SB-2), CLEAN WATER PUMP (CWP-1), DIRTY WATER PUMP (DW-1), FILTER BAG (FB-1), DIVERSION HOSE, AND OUTFALL PROECTION (OP-1). SEE DWG. ES-01 FOR APPROXIMATE LOCATIONS. CONTRACTOR TO HAND PLACE SB-1 AND SB-2.

3. PRIOR TO ANY INSTREAM OR BANK WORK, PUMP AROUND THE WORK AREA BEHIND UPSTREAM SANDBAG DIVERSION USING CLEAN WATER PUMP AND DEWATER ANY SITTING WATER BETWEEN THE TWO SANDBAG DIVERSIONS USING DIRTY WATER PUMP AND FILTER BAG (SEE CONSTRUCTION NOTE 5).

4. COMPLETE STREAMWORK WORKING FROM DOWNSTREAM TO UPSTREAM. DO NOT DISTURB MORE THAN CAN BE BROUGHT TO FINISHED GRADE AND STABILIZED IN A DAY.

5. PLACE PERMANENT AND TEMPORARY SEED AS INDICATED PRIOR TO THE PLACEMENT OF ANY STABILIZATION MATTING OR MULCH.

6. PERMANENTLY STABILIZE THE WORK AREA WITH TYPE D SOIL STABILIZATION MATTING AND TEMPORARY MULCH AS SHOWN ON PLANS. TEMPORARILY STABILZE STREAM CHANNEL WITH ROCK AT THE END OF EACH DAY. CONTRACTOR TO PLACE STRAW MULCH UNDER TEMPORARY MATTING AND ALL NON STREAMBED DISTURBED AREAS.

7. CONSTRUCTION TO BE COORDINATED SO THAT ANY BANK GRADING IN THE ACCESS ROAD LOCATION IS COMPLETED CONCURRENT WITH THE REMOVAL OF ACCESS ROAD WITHIN CONSTRUCTION AREA 1.

8. AFTER CONSTRUCTION IS COMPLETE AND AREAS HAVE BEEN STABILIZED, REMOVE EROSION AND SEDIMENT CONTROLS WITH THE APPROVAL OF THE HARFORD COUNTY SCD INSPECTOR AND STABILIZE THE AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.

STREAM CONSTRUCTION AREA 2:
STREAM BASELINE STA. 0+00 TO STA. 2+85 (DWG. ES-02)
1. TEMPORARY ORANGE CONSTRUCTION FENCE AND TREE PROTECTION PLANKING, AS INDICATED ON PLANS.

2. INSTALL SANDBAG DIVERSION (SB-3, SB-4), CLEAN WATER PUMP (CWP-2), DIRTY WATER PUMP (DW-2), FILTER BAG (FB-2), DIVERSION HOSE, AND OUTFALL PROECTION (OP-2). SEE DWG. ES-02 FOR APPROXIMATE LOCATIONS. CONTRACTOR TO HAND PLACE SB-3 AND SB-4.

3. PRIOR TO ANY INSTREAM OR BANK WORK, PUMP AROUND THE WORK AREA BEHIND UPSTREAM SANDBAG DIVERSION USING CLEAN WATER PUMP AND DEWATER ANY SITTING WATER BETWEEN THE TWO SANDBAG DIVERSIONS USING DIRTY WATER PUMP AND FILTER BAG (SEE CONSTRUCTION NOTE 4).

4. COMPLETE STREAMWORK FROM STA. 0+00 TO STA. 2+85 (STREAM BASELINE) WORKING FROM UPSTREAM TO DOWNSTREAM. DO NOT DISTURB MORE THAN CAN BE BROUGHT TO FINISHED GRADE AND STABILIZED IN A DAY.

5. PLACE PERMANENT AND TEMPORARY SEED AS INDICATED PRIOR TO THE PLACEMENT OF ANY STABILIZATION MATTING OR MULCH.

6. PERMANENTLY STABILIZE THE WORK AREA WITH TYPE D SOIL STABILIZATION MATTING AND TEMPORARY MULCH AS SHOWN ON PLANS. TEMPORARILY STABILZE STREAM CHANNEL WITH ROCK AT THE END OF EACH DAY. CONTRACTOR TO PLACE STRAW MULCH UNDER TEMPORARY MATTING AND ALL NON STREAMBED DISTURBED AREAS.

7. AFTER CONSTRUCTION IS COMPLETE AND AREAS HAVE BEEN STABILIZED, REMOVE EROSION AND SEDIMENT CONTROLS WITH THE APPROVAL OF THE HARFORD COUNTY SCD INSPECTOR AND STABILIZE THE AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.

STREAM CONSTRUCTION AREA 3:
STREAM BASELINE STA. 2+85 TO STA. 4+55 (DWG. ES-02)
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TEMPORARY ORANGE CONSTRUCTION FENCE, MULCH ACCESS ROAD, TREE PROTECTION PLANKING, SILT FENCE AND STAGING AND STOCKPILE AREA AS INDICATED ON PLANS. CONTRACTOR MAY PLACE TEMPORARY GRADING FOR COMPLETION OF ACCESS ROAD WITHIN THE LOD.

2. INSTALL SANDBAG DIVERSION (SB-5), CLEAN WATER PUMP (CWP-3), DIRTY WATER PUMP (DW-3), FILTER BAG (FB-3), DIVERSION HOSE, AND OUTFALL PROECTION (OP-3). SEE DWG. ES-02 FOR APPROXIMATE LOCATIONS. CONTRACTOR TO HAND PLACE SB-5.

3. PRIOR TO ANY INSTREAM OR BANK WORK, PUMP AROUND THE WORK AREA BEHIND UPSTREAM SANDBAG DIVERSION USING CLEAN WATER PUMP AND DEWATER ANY SITTING WATER BETWEEN THE TWO SANDBAG DIVERSIONS USING DIRTY WATER PUMP AND FILTER BAG (SEE CONSTRUCTION NOTE 4).

4. COMPLETE STREAMWORK FROM STA 2+85 TO STA. 4+55 WORKING FROM UPSTREAM TO DOWNSTREAM. DO NOT DISTURB MORE THAN CAN BE BROUGHT TO FINISHED GRADE AND STABILIZED IN A DAY.

5. PLACE PERMANENT AND TEMPORARY SEED AS INDICATED PRIOR TO THE PLACEMENT OF ANY STABILIZATION MATTING OR MULCH.

6. PERMANENTLY STABILIZE THE WORK AREA WITH TYPE D SOIL STABILIZATION MATTING AND TEMPORARY MULCH AS SHOWN ON PLANS. TEMPORARILY STABILZE STREAM CHANNEL WITH ROCK AT THE END OF EACH DAY. CONTRACTOR TO PLACE STRAW MULCH UNDER TEMPORARY MATTING AND ALL NON STREAMBED DISTURBED AREAS.

7. AFTER CONSTRUCTION IS COMPLETE AND AREAS HAVE BEEN STABILIZED, REMOVE EROSION AND SEDIMENT CONTROLS WITH THE APPROVAL OF THE HARFORD COUNTY SCD INSPECTOR AND STABILIZE THE AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.

STREAM CONSTRUCTION AREA 4:
STREAM BASELINE STA. 4+55 TO STA. 7+05 (DWG. ES-02 AND DWG. ES-03)
1. INSTALL TEMPORARY ORANGE CONSTRUCTION FENCE AND TREE PROTECTION PLANKING, AS INDICATED ON PLANS.

2. INSTALL SANDBAG DIVERSION (SB-6), CLEAN WATER PUMP (CWP-4), DIRTY WATER PUMP (DW-4), FILTER BAG (FB-4), DIVERSION HOSE, AND OUTFALL PROECTION (OP-4). SEE DWG. ES-02 AND ES-03 FOR APPROXIMATE LOCATIONS. CONTRACTOR TO HAND PLACE SB-6.

3. PRIOR TO ANY INSTREAM OR BANK WORK, PUMP AROUND THE WORK AREA BEHIND UPSTREAM SANDBAG DIVERSION USING CLEAN WATER PUMP AND DEWATER ANY SITTING WATER BETWEEN THE TWO SANDBAG DIVERSIONS USING DIRTY WATER PUMP AND FILTER BAG (SEE CONSTRUCTION NOTE 4).

4. COMPLETE STREAMWORK FROM STA 4+55 TO STA. 7+05 WORKING FROM DOWNSTREAM TO UPSTREAM. DO NOT DISTURB MORE THAN CAN BE BROUGHT TO FINISHED GRADE AND STABILIZED IN A DAY.

5. PLACE PERMANENT AND TEMPORARY SEED AS INDICATED PRIOR TO THE PLACEMENT OF ANY STABILIZATION MATTING OR MULCH.

6. PERMANENTLY STABILIZE THE WORK AREA WITH TYPE D SOIL STABILIZATION MATTING AND TEMPORARY MULCH AS SHOWN ON PLANS. TEMPORARILY STABILZE STREAM CHANNEL WITH ROCK AT THE END OF EACH DAY. CONTRACTOR TO PLACE STRAW MULCH UNDER TEMPORARY MATTING AND ALL NON STREAMBED DISTURBED AREAS.

7. AFTER CONSTRUCTION IS COMPLETE AND AREAS HAVE BEEN STABILIZED, REMOVE EROSION AND SEDIMENT CONTROLS WITH THE APPROVAL OF THE HARFORD COUNTY SCD INSPECTOR AND STABILIZE THE AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.

STREAM CONSTRUCTION AREA 5:
STREAM BASELINE STA. 7+05 to STA. 11+70 (DWG. ES-03)
1. INSTALL TEMPORARY ORANGE CONSTRUCTION FENCE AND TREE PROTECTION PLANKING, FENCE AS INDICATED ON PLANS.

2. INSTALL SANDBAG DIVERSION (SB-7), CLEAN WATER PUMP (CWP-5), DIRTY WATER PUMP (DW-5), FILTER BAG (FB-5), DIVERSION HOSE, AND OUTFALL PROECTION (OP-5). SEE DWG. ES-03 FOR APPROXIMATE LOCATIONS. CONTRACTOR TO HAND PLACE SB-7.

3. PRIOR TO ANY INSTREAM OR BANK WORK, PUMP AROUND THE WORK AREA BEHIND UPSTREAM SANDBAG DIVERSION USING CLEAN WATER PUMP AND DEWATER ANY SITTING WATER BETWEEN THE TWO SANDBAG DIVERSIONS USING DIRTY WATER PUMP AND FILTER BAG (SEE CONSTRUCTION NOTE 4).

4. COMPLETE STREAMWORK FROM STA 7+05 TO STA. 11+70 WORKING FROM UPSTREAM TO DOWNSTREAM. DO NOT DISTURB MORE THAN CAN BE BROUGHT TO FINISHED GRADE AND STABILIZED IN A DAY.

5. PLACE PERMANENT AND TEMPORARY SEED AS INDICATED PRIOR TO THE PLACEMENT OF ANY STABILIZATION MATTING OR MULCH.

6. PERMANENTLY STABILIZE THE WORK AREA WITH TYPE D SOIL STABILIZATION MATTING AND TEMPORARY MULCH AS SHOWN ON PLANS. TEMPORARILY STABILZE STREAM CHANNEL WITH ROCK AT THE END OF EACH DAY. CONTRACTOR TO PLACE STRAW MULCH UNDER TEMPORARY MATTING AND ALL NON STREAMBED DISTURBED AREAS.

7. AFTER CONSTRUCTION IS COMPLETE AND AREAS HAVE BEEN STABILIZED, REMOVE EROSION AND SEDIMENT CONTROLS WITH THE APPROVAL OF THE HARFORD COUNTY SCD INSPECTOR AND STABILIZE THE AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.

STREAM CONSTRUCTION AREA 6:
STREAM BASELINE STA. 11+70 TO STA. 15+22 (DWG. ES-03 AND DWG. ES-04)
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TEMPORARY ORANGE CONSTRUCTION FENCE, MULCH ACCESS ROAD, TREE PROTECTION PLANKING, SILT FENCE AND STAGING AND STOCKPILE AREA AS INDICATED ON PLANS. CONTRACTOR MAY PLACE TEMPORARY GRADING FOR COMPLETION OF ACCESS ROAD WITHIN THE LOD.

2. INSTALL SANDBAG DIVERSION (SB-8), DIRTY WATER PUMP (DW-6), FILTER BAG (FB-6), DIVERSION HOSE, AND OUTFALL PROECTION (OP-6). SEE DWG. ES-03 AND ES-04 FOR APPROXIMATE LOCATIONS. CONTRACTOR TO HAND PLACE SB-8.

3. PRIOR TO ANY INSTREAM OR BANK WORK, DEWATER ANY SITTING WATER BETWEEN THE TWO SANDBAG DIVERSIONS USING DIRTY WATER PUMP AND FILTER BAG (SEE CONSTRUCTION NOTE 4).

4. COMPLETE STREAMWORK FROM STA 11+70 TO STA. 15+22 WORKING FROM DOWNSTREAM TO UPSTREAM. DO NOT DISTURB MORE THAN CAN BE BROUGHT TO FINISHED GRADE AND STABILIZED IN A DAY.

5. COMPLETE CURB, INLET, AND RIPRAP OUTFLOW WORK. DO NOT DISTURB MORE THAN CAN BE BROUGHT TO FINISHED GRADE AND STABILIZED IN A DAY.

6. PLACE PERMANENT AND TEMPORARY SEED AS INDICATED PRIOR TO THE PLACEMENT OF ANY STABILIZATION MATTING OR MULCH.

7. PERMANENTLY STABILIZE THE WORK AREA WITH TYPE D SOIL STABILIZATION MATTING AND TEMPORARY MULCH AS SHOWN ON PLANS. TEMPORARILY STABILZE STREAM CHANNEL WITH ROCK AT THE END OF EACH DAY. CONTRACTOR TO PLACE STRAW MULCH UNDER TEMPORARY MATTING AND ALL NON STREAMBED DISTURBED AREAS.

8. INSTALL PERMANENT PLANTINGS PER THE LANDSCAPE SCHEDULE AND PLANS (SEE DWG. XX) AFTER THE COMPLETION OF ALL PHASES. COMPLETE SAME DAY STABILIZATION FOR ANY DISTURBANCE.

9. CONSTRUCTION TO BE COORDINATED SO THAT ANY BANK GRADING IN THE ACCESS ROAD LOCATION IS COMPLETED CONCURRENT WITH THE REMOVAL OF ACCESS ROAD WITHIN CONSTRUCTION AREA 6.

10. AFTER CONSTRUCTION IS COMPLETE AND AREAS HAVE BEEN STABILIZED, REMOVE EROSION AND SEDIMENT CONTROLS WITH THE APPROVAL OF THE HARFORD COUNTY SCD INSPECTOR AND STABILIZE THE AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.

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BILLING NO. XXXXXX

EG-SWMENG- XXXXXX-XXXX #XXXX

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. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

SEQUENCE OF CONSTRUCTION

Drawn By : RMO/BEA
Designed By : RMO/BEA
Reviewed By : DMH
Drawing No. SC-01 of SC-01

Scale : NOT TO SCALE
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 22 of 34

BY: roaks

PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\24_pSC-0001-Woodland.dgn

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'

SEDIMENT CONTROL NOTES

1. THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.

2. THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREAS WILL BE DELINEATED WITH BLAZE ORANGE FENCE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING. WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.

3. ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL OF DPW.

4. ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION, EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.

5. EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.

6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:

   A. THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.

   B. SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.

7. DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.

8. SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.

9. TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.

10. AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NOI/NPDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.

11. ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND OR BASINS.

12. CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2020 EROSION AND SEDIMENT CONTROL STANDARD AND SPECIFICATIONS FOR LAND GRADING.

13. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.

14. OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.

15. ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.

16. STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2020 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.

17. TOPSOIL, LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL AN ESSENTIAL PART OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.

18. TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2020 EROSION AND SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.

19. PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES. THE STORM DRAINS WILL BE FLUSHED.

20. SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

PERMANENT VEGETATIVE STABILIZATION

ALL DISTURBED AREAS WHICH ARE NOT BE PAVED, SHALL BE PERMANENTLY STABILIZED AS FOLLOWS:

A). SEEDBED PREPARATION:
LOOSEN UPPER THREE INCH BY RAKING,DISCING, OR OTHER ACCEPTABLE MEANS AFTER SPREADING FOUR INCHES OF TOP SOIL.

B). SOIL AMENDMENTS:
APPLY 500 LBS. PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.

C). SEEDING:*
FOR PERIODS MARCH1 TO MAY 15 AND AUGUST 15 TO OCTOBER 15, SEED WITH 125LBS. PER ACRE OF TALL FESCUE, 15 LBS. PER ACRE OF PERENNIAL RYEGRASS, AND 10 LBS. OF KENTUCKY BLUEGRASS.

FOR PERIOD OF MARCH 16 TO AUGUST 14, SEED WITH 110 LBS. PER ACRE OF TALL FESCUE AND 3 LBS. PER ACRE OF WEEPING LOVEGRASS.

FOR PERIOD OF OCTOBER 16 TO FEBRUARY 28, PROTECT SITE BY: OPTIONS (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, (2) USE SOD OR (3) SEED WITH 60LBS. PER ACRE OF TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.
NOTE: FOR QUICK COVER WITH TALL FESCUE, ADD 2 LBS. OF SMALL GRAIN PER 1,000 SQ.FT.

D). MULCHING SPECIFICATIONS
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDD AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRE.**

MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MUCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS, CHAPTER 20, TABLE 25.
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS, CHAPTER 20.

TEMPORARY VEGETATION STABILIZATION

A). SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS.

B). SOIL AMENDMENTS:
APPLY 600 LBS. PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.

C). SEEDING:
FOR PERIOD OF MARCH 11 TO APRIL 30 AND AUGUST 15 TO NOVEMBER 15, SEED WITH 2.5 BU PER ACRE OF CEREAL RYE PLUS 30 LBS. PER ACRE OF TALL FESCUE OR 5 LBS. PER ACRE OF REDTOP OR 20 LBS. PER ACRE OF PERENNIAL RYEGRASS.

FOR PERIODS LOF MAY1 TO AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS OR 40 LBS. PER ACRE OF JAPANESE OR FOXTAIL MILLET.

FOR PERIODS OF NOVEMBER 16 TO FEBRUARY 28, PROTECT THE SITE BY APPLYING TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

D). MULCHING SPECIFICATIONS:
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS. IMMEDIATELY AFTER SEEDING.
APPLY TWO TONS PER ACREA OF STRAW OVER ALL SEEDED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 25 TONS PER ACRE.**
MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND AETER. THE MULCH ANCHORING TOOL MUST COMPLY WITH THE 1994 MARYLAND STANDARDS SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS, CHAPTER 20, TABLE 25
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 1994 MAYLAND STANDARDS AND SPECIFICATIONS, CHAPTER 20.

BEST MANAGEMENT PRACTICES FOR WORKING IN NON TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS AND 100 YEAR FLOOD PLAINS

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

3. DO NOT USE EXCAVATED MATERIAL AS BACK FILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACK FILL IS REQUIREED, 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 NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, OR WATRWAYS OR THE 100 YEAR FLOODPLAIN.

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

6. RECTIFY ANY NON TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100 YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.

7. ALL STABILIZATION IN THE NON TIDAL WETLAND AND NON TIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS(LOLIUM MULTIFLORUM), MILLET(SETRA ITALICA), BARLEY(HORDEUM SP.), OATS(UNIOLA SP), AND/OR RYE(SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NON TIDAL WETLANDS 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.

8. AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED, 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:
   9.1. USE I WATERS: IN STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THRU JUNE 15, 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 OBSTUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPONUD WATER.

DEVELOPER'S/LANDOWNER'S CERTIFICATION

I/WE CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) WILL BE ACCOMPLISHED PURSUANT TO THESE PLANS. I/WE ALSO UNDERSTAND THAT IT IS MY/OUR RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND CERTIFIED, INCLUDING THE SUBMITTAL OF "AS-BUILT" PLANS WITHIN 30 DAYS OF COMPLETION, BY A REGISTERED PROFESSIONAL ENGINEER.

SIGNED _____ DATE _____

PRINTED NAME _____

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL AND STORM WATER MANAGEMENT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED WITH THE *2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL*

ENGINEER _____ DATE _____

EROSION AND SEDIMENT CONTROL

PLAN # _____

RECOMMEND FOR APPROVAL

_____
HARFORD COUNTY DPW

TECHNICAL CONCURRENCE

_____
HARFORD SOIL CONSERVATION DISTRICT

APPROVED:

_____
HARFORD SOIL CONSERVATION DISTRICT

SITE ANALYSIS (NOT FOR BIDDING PURPOSES)

TOTAL AREA TO BE STABILIZED = 2.77 AC
TOTAL DISTURBED AREA = 2.77 AC
TOTAL AREA TO BE PAVED = 0 AC
TOTAL CUT = 4570.87 CU YD
TOTAL FILL = 1371.24 CU YD
NPDES ID POINT: N: 677615 E: 1500521

ANY SOIL MATERIAL LEAVING THE SITE SHALL ONLY BE DISPOSED OF AT SITES WITH AN APPROVED EROSION AND SEDIMENT CONTROL PLAN AND AN ACTIVE GRADING PERMIT

NOT FOR CONSTRUCTION

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S/C PLAN # XXXXX
GP # XXXXX-XXXX
SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL NOTES

Drawn By : RMO/BEA
Designed By : RMO/BEA
Reviewed By : DMH
Drawing No. EN-01 of EN-02

Scale : NOT TO SCALE
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 23 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'

BY: roaks -

PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\25_pES-N001-Woodland.dgn

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

A. SOIL PREPARATION
1. TEMPORARY STABILIZATION
   A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES 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 MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED 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 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
2. PERMANENT STABILIZATION
   A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
      I. SOIL PH BETWEEN 6.0 AND 7.0.
      II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
      III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
      IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
      V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
   B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
   C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
   D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
   E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
   A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
   B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
   C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
   D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
   A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1.5 INCHES IN DIAMETER.
   B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
   C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
   A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
   B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
   C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING B.14 AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.1)					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
	ANNUAL RYEGRASS	40 LB/ACRE	3/01 - 5/15 8/01 - 10/15	1/2"	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
	FOXTAIL MILLET	30 LB/ACRE	5/16 - 7/31	1/2"		

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE
TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES
TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

A. SEEDING
1. SPECIFICATIONS
   A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
   B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
   C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE 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 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
   D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
   A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
      I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT
   B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
      I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
   C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
      I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P (PHOSPHOROUS), 200 POUNDS PER ACRE; K (POTASSIUM), 200 POUNDS PER ACRE.
      II. 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 ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
      III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
      IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
   A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
   B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
      I. WCFM IS TO 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.
      II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
      III. WCFM MATERIALS ARE TO 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 MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
      IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
      V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.CONTACT.
2. APPLICATION
   A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
   B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
   C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
   A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE 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 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 FOLLOW THE CONTOUR.
      II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
      III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
      IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.3)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
1	SWITCH GRASS CREEPING RED FESCUE PATRIDGE PEA	10 15 4	2/15 - 5/31	1/4" - 1/2"	45 LB/AC (1.0 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
8	TALL FESCUE (85%),	100	2/15 - 4/30 8/15 - 11/30					
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60 40 20	2/15 - 4/30 8/15 - 11/30					

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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. XXXXX, EXPIRATION DATE: XX/XX/XXXX.

S/C PLAN # XXXXX

GP # XXXXX-XXXX

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Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL NOTES

Drawn By : RMO/BEA
Designed By : RMO/BEA
Reviewed By : DMH

Scale : NOT TO SCALE
Date : OCTOBER 2023
Contract No.: XX-XXXX

Drawing No. EN-02 of EN-02

Sheet No. 24 of 34

BY: roaks

PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\26_pES-N002-Woodland.dgn

TAX MAP: 0049 GRID: 0003C
HCG BILLING ID No.:
ADC MAP: 21 GRID: H10
HCG DWG ID No.:
SCALE: 1" = 100'

ISTRATION
56124

LINDILL LLC
104 VICTORY LANE

ANGELA'S ADOBE LLC
106 VICTORY LANE

DAVID A & LUCILLE B SONNICHSEN
108 VICTORY LANE

BRET A WHITMORE
110 VICTORY LANE

ENVISION BUILDERS LLC
94 WOODLAND DRIVE

WOODLAND DR

TEMPORARY ACCESS ROAD

MANHOLE 47

8" ACP SANITARY

SCE

BENJAMIN D & SARA L BERNSTEIN
1115 SOUTH MAIN STREET

PRIVATE DRIVEWAY
(BERNSTEIN & ROBINSON DERMATOLOGY)

BENJAMIN D & SARA L BERNSTEIN
1115 SOUTH MAIN STREET

MATCHLINE, SEE ES-02

TAX MAP: 0049 GRID: 0003C

ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

BY: nhoward

STANDARD PROPOSED SYMBOLS

- FB FILTER BAG
- OP OUTLET PROTECTION
- DW DIRTY WATER PUMP
- CWP CLEAN WATER PUMP
- P PUMP
- SAND BAG
- STOCKPILE AREA
- SF >10-20% SILT FENCE
- TEMPORARY ACCESS ROAD
- TB TEMPORARY BRIDGE
- SCE STABILIZED CONSTRUCTION ENTRANCE (SCE)
- TREE PROTECTION PLANKING

20' 0 20' 40'
SCALE: 1" = 20'

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EG-SWMENG- XXXXXX-XXXX #XXXX

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SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

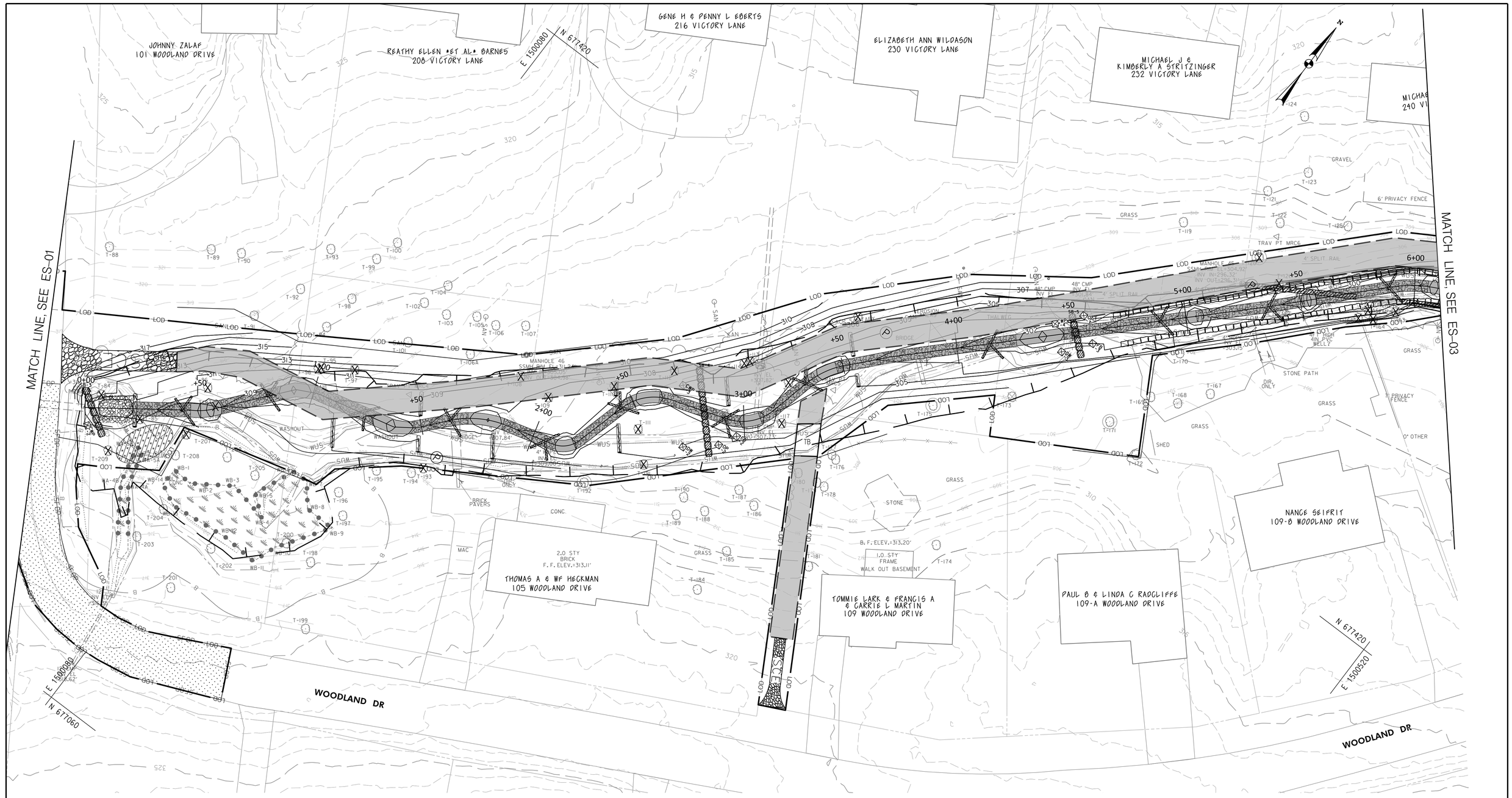
EROSION AND SEDIMENT CONTROL PLANS

Drawn By : RMO/BEA/NAH
Designed By : RMO/BEA/NAH
Reviewed By : DMH
Drawing No. ES-01 of ES-04

Scale : 1" = 20'
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 25 of 34

SCALE: 1 inch

PLOTTED: 10/11/2023
FILE: \\ad.rkk.com\fs\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\27_pES-P001-Woodland.dgn



STANDARD PROPOSED SYMBOLS

- FB — FILTER BAG
- OP — OUTLET PROTECTION
- DW — DIRTY WATER
- CWP — CLEAN WATER PUMP
- P — PUMP
- SAND BAG
- STOCKPILE AREA
- SF — SILT FENCE (>10-20%)
- TEMPORARY ACCESS ROAD
- TEMPORARY ACCESS ROAD
- SCE — STABILIZED CONSTRUCTION ENTRANCE (SCE)
- WOODY DEBRIS
- SURVEYED TREE
- TREE PROTECTION PLANKING
- TREE PROTECTION FENCE
- TREE TO BE REMOVED

TREE PROTECTION NOTES:

1. TPF SHOWN OUTSIDE OF THE LOD FOR GRAPHICAL PURPOSES ONLY.

2. ROOT PRUNING SHALL BE CONDUCTED ALONG EDGE OF GRADING ADJACENT TO SURVEYED TREES AS DIRECTED BY MD LTE.

3. SEE ES-05 AND ES-06 FOR TREE INVENTORY TABLES AND TREE PROTECTION DETAILS.

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WOODLAND RUN STREAM RESTORATION

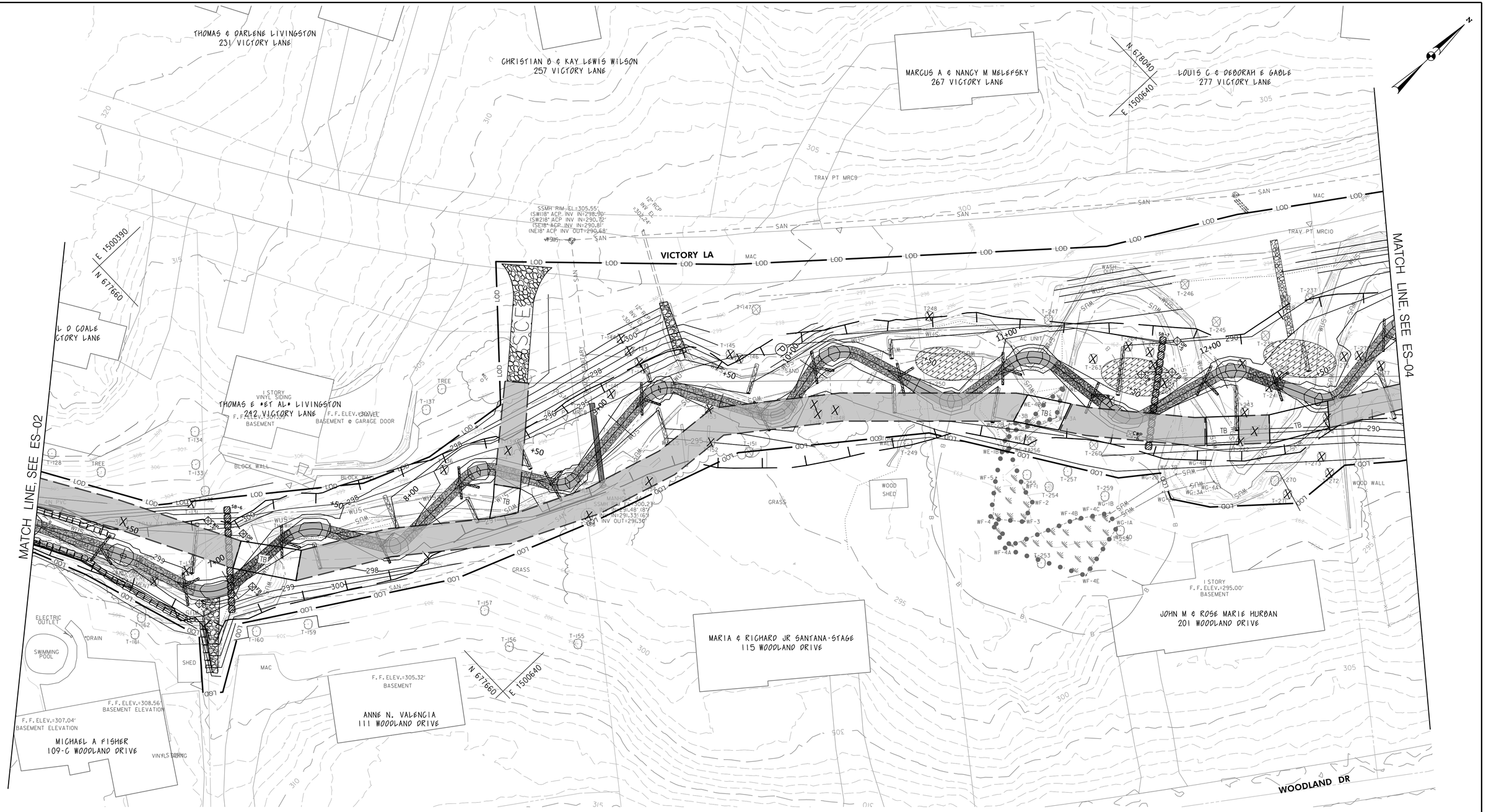
EROSION AND SEDIMENT CONTROL PLAN

Drawn By : NAH
Designed By : NAH
Reviewed By : RMO
Drawing No. ES-02 of ES-04

Scale : NOT TO SCALE
Date : OCTOBER 2023
Contract No.: XX-XXXX
Sheet No. 26 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE 1 inch

BY: nhoward –
PLOTTED: 10/13/2023
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STANDARD PROPOSED SYMBOLS

- FB FILTER BAG
- OP OUTLET PROTECTION
- DW DIRTY WATER
- CWP CLEAN WATER PUMP
- P PUMP
- SAND BAG
- STOCKPILE AREA
- >10-20% SILT FENCE
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- TEMPORARY BRIDGE
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WOODLAND RUN STREAM RESTORATION

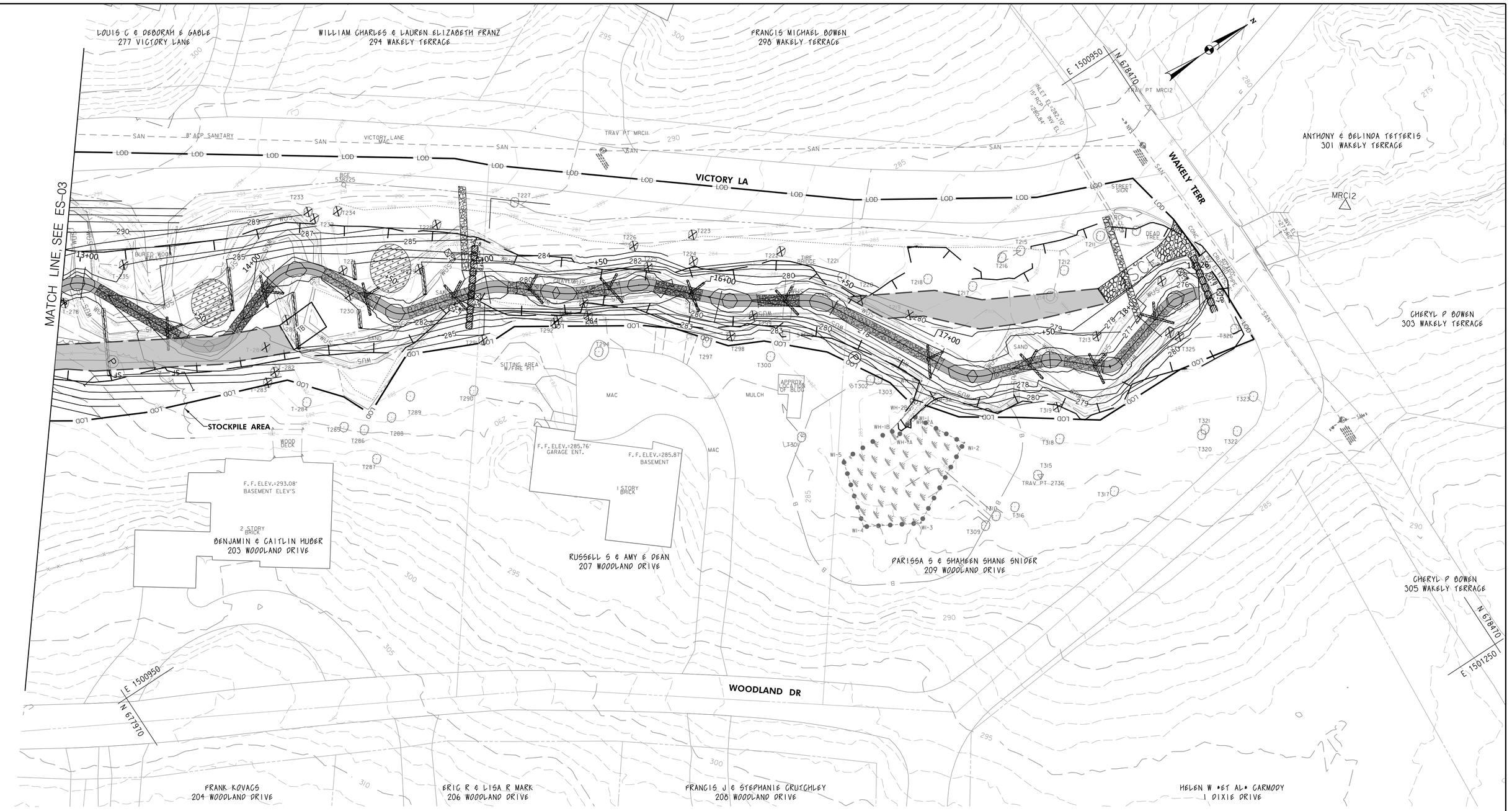
EROSION AND SEDIMENT CONTROL PLAN

Drawn By : NAH	Scale : NOT TO SCALE
Designed By : NAH	Date : OCTOBER 2023
Reviewed By : RMO	Contract No.: XX-XXXX
Drawing No. ES-03 of ES-04	Sheet No. 27 of 34

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HCG DWG ID No.:

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STANDARD PROPOSED SYMBOLS

- FB FILTER BAG
- OP OUTLET PROTECTION
- DW DIRTY WATER
- CWP CLEAN WATER PUMP
- P PUMP
- SAND BAG
- STOCKPILE AREA
- SF SILT FENCE (>10-20%)
- TEMPORARY ACCESS ROAD
- SCE STABILIZED CONSTRUCTION ENTRANCE (SCE)
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Revisions

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WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL PLANS

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Designed By : NAH
Reviewed By : RMO

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Contract No.: XX-XXXX

Drawing No. ES-04 of ES-04

Sheet No. 28 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

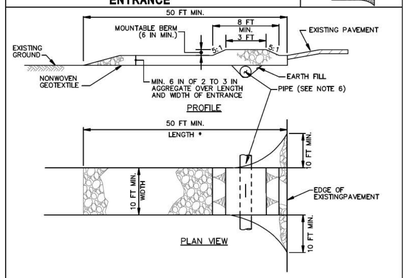
SCALE 1" = 50'

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DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*50 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

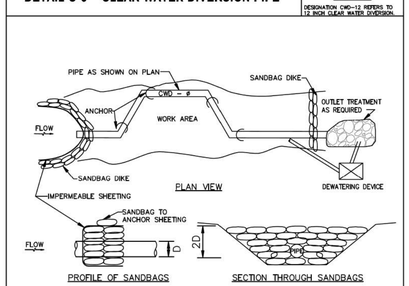
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL: CWD – 12

DESIGNATION CWD–12 REFERS TO 12 INCH CLEAR WATER DIVERSION



CONSTRUCTION SPECIFICATIONS

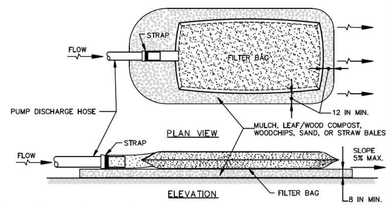
1. FLEXIBLE PIPE IS PREFERRED, HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA–VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: ☒FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D–4632
PUNCTURE	150 LB	ASTM D–4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D–4491
PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D–4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D–4355
APPARENT OPENING SIZE (AOS)	0.15–0.18 MM	ASTM D–4751
SEAM STRENGTH	90%	ASTM D–4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

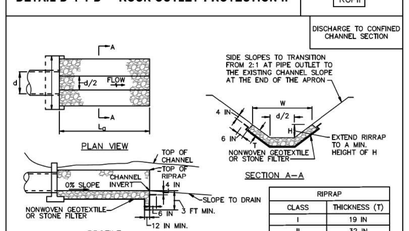
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-B ROCK OUTLET PROTECTION II

STANDARD SYMBOL: ROPII

DISCHARGE TO CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

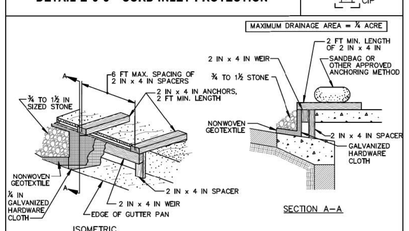
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP



CONSTRUCTION SPECIFICATIONS

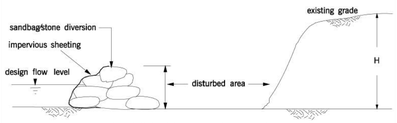
1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¾ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON–SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

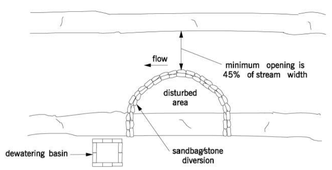
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

TRANSVERSE SECTION VIEW



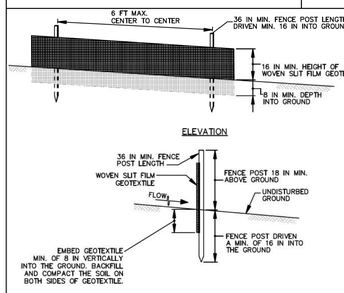
PLAN VIEW



TEMPORARY INSTREAM CONSTRUCTION MEASURES	*REVISED NOVEMBER 2000 PAGE 1.5 – 3*	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1⅜ X 1⅜ ± 1/8 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID–SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

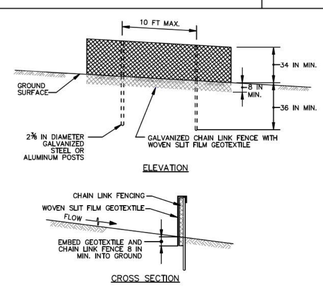
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF

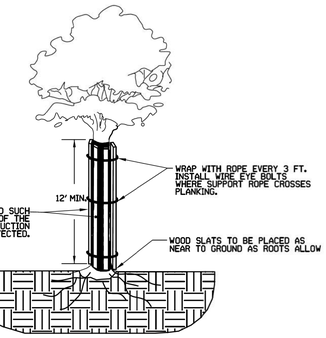


CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HOG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



NOTES:
PROTECTIVE PLANKING SHALL BE ERECTED PRIOR TO CLEARING, GRADING OR CONSTRUCTION BEGINS. PROTECTIVE MEASURES SHALL REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION.

TREE PROTECTION PLANKING (TPP)

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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. XXXXX. EXPIRATION DATE: XX/XX/XXXX.

S/C PLAN # XXXXX	Revisions
GP # XXXXX–XXXX	
SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

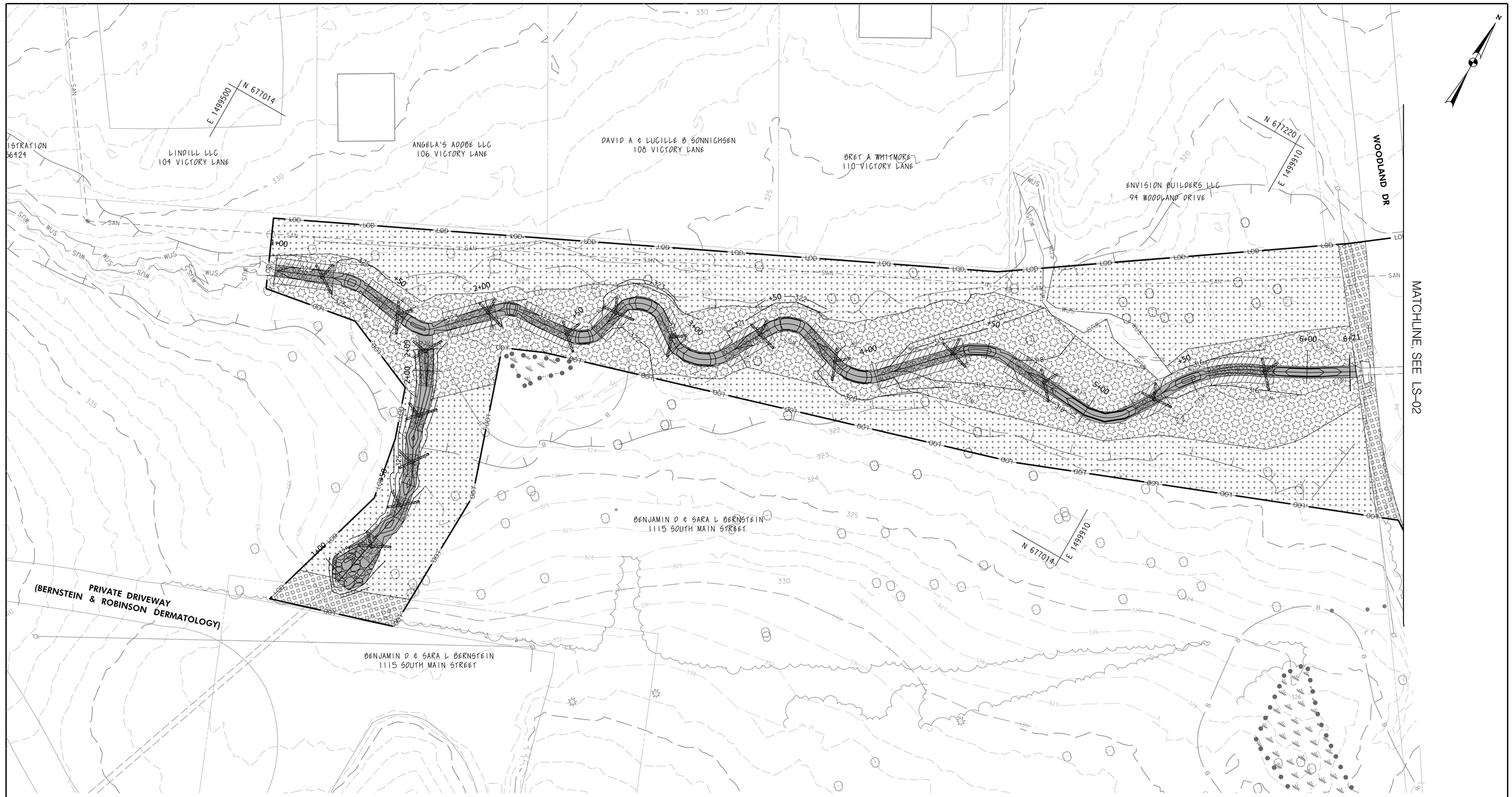
WOODLAND RUN STREAM RESTORATION

EROSION AND SEDIMENT CONTROL DETAILS

Drawn By : RMO/BEA	Scale : NOT TO SCALE
Designed By : RMO/BEA	Date : OCTOBER 2023
Reviewed By : DMH	Contract No.: XX–XXXX
Drawing No. DE–01 of DE–01	Sheet No. 29 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 100'
BY: roaks –

PLOTTED: 9/15/2021
FILE: \\balsrv05\v2017\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\31_pES-D001-Woodland.dgn



MATCHLINE SEE LS-02

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

LEGEND

- FLOODPLAIN FOREST PLANTING
- RIPARIAN BUFFER FOREST PLANTING
- TURFGRASS ESTABLISHMENT
- SURVEYED TREE
- PROPOSED RIPRAP
- LIVE STAKES
- LIMIT OF DISTURBANCE (LOD) — LOD —
- MODELED 100-YR FLOODPLAIN

NOTES:

1. SEE SHEET LS-05 FOR PLANTING SCHEDULES AND DETAILS.
2. PLACEMENT AND SPACING OF PLANTS SHALL BE FIELD ADJUSTED TO ACCOMODATE PLACED WOODY DEBRIS.
3. TREES AND SHRUBS SHALL NOT BE PLANTED WITHIN 10 FEET OF EITHER SIDE OF EXISTING SANITARY SEWER LINE.

NOT FOR CONSTRUCTION

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S/C PLAN # XXXXX	Revisions
GP # XXXXX-XXXX	
SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

LANDSCAPE PLAN

Drawn By : NAH	Scale : 1" = 20'
Designed By : NAH	Date : OCTOBER 2023
Reviewed By : RMO	Contract No.: XX-XXXX
Drawing No. LS-01 of LS-05	Sheet No. 30 of 34

BY: mterrell

PLOTTED: 10/13/2023
FILE: \\ad.rkk.com\FS\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\32_pLS-P001-Woodland.dgn

JOHNNY ZALAF
101 WOODLAND DRIVE

REATHY ELLEN •ET AL• BARNES
208 VICTORY LANE

E 1500080
N 677420

GENE H & PENNY L EDERTS
216 VICTORY LANE

ELIZABETH ANN WILDASON
230 VICTORY LANE

MICHAEL J & KIMBERLY A STRITZINGER
232 VICTORY LANE

MICHAE
240 VI

MATCH LINE, SEE SHEET LS-01

MATCH LINE, SEE SHEET LS-03

SANITARY SEWER

0+00
1+00
2+00
3+00
4+00
5+00
6+00

STOCKPILE AREA

MULCH ACCESS ROAD

NANCE SEIFRIT
109-B WOODLAND DRIVE

THOMAS A & WF HECKMAN
105 WOODLAND DRIVE

TOMMIE LARK & FRANCIS A & CARRIE L MARTIN
109 WOODLAND DRIVE

PAUL B & LINDA C RADCLIFFE
109-A WOODLAND DRIVE

N 677060
E 1500080

N 677420
E 1500520

WOODLAND DR

WOODLAND DR

LEGEND

- FLOODPLAIN FOREST PLANTING
- RIPARIAN BUFFER FOREST PLANTING
- TURFGRASS ESTABLISHMENT
- SURVEYED TREE
- PROPOSED RIPRAP
- LIVE STAKES
- LIMIT OF DISTURBANCE (LOD) — LOD —
- MODELED 100-YR FLOODPLAIN

NOTES:

1. SEE SHEET LS-05 FOR PLANTING SCHEDULES AND DETAILS.
2. PLACEMENT AND SPACING OF PLANTS SHALL BE FIELD ADJUSTED TO ACCOMODATE PLACED WOODY DEBRIS.
3. TREES AND SHRUBS SHALL NOT BE PLANTED WITHIN 10 FEET OF EITHER SIDE OF EXISTING SANITARY SEWER LINE.

20' 0 20' 40'
SCALE: 1" = 20'

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S/C PLAN # XXXXX	Revisions
GP # XXXXX-XXXX	
SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

LANDSCAPE PLAN

Drawn By :	NAH	Scale :	1" = 20'
Designed By :	SJF	Date :	OCTOBER 2023
Reviewed By :	KDG	Contract No.:	XX-XXXX
Drawing No.	LS-02 of LS-05	Sheet No.	31 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

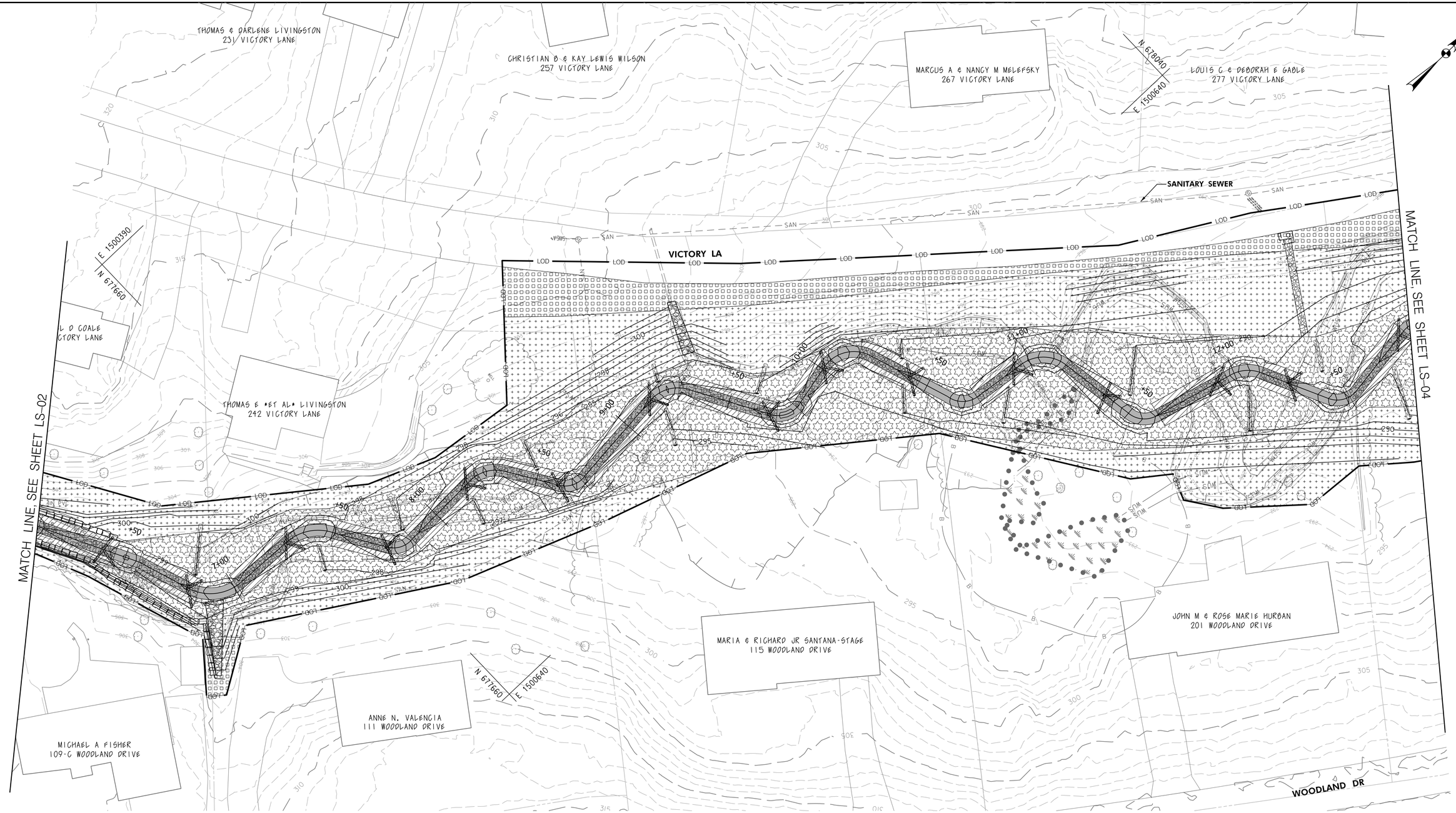
HCG BILLING ID No.:

HCG DWG ID No.:

SCALE: 1" = 1inch

BY: mterrell—

PLOTTED: 10/13/2023
FILE: \\ad.rkk.com\FS\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\33_plLS-P002-Woodland.dgn



LEGEND

- FLOODPLAIN FOREST PLANTING
- RIPARIAN BUFFER FOREST PLANTING
- TURFGRASS ESTABLISHMENT
- SURVEYED TREE
- PROPOSED RIPRAP
- LIVE STAKES
- LIMIT OF DISTURBANCE (LOD) — LOD —
- MODELED 100-YR FLOODPLAIN

NOTES:

1. SEE SHEET LS-05 FOR PLANTING SCHEDULES AND DETAILS.
2. PLACEMENT AND SPACING OF PLANTS SHALL BE FIELD ADJUSTED TO ACCOMODATE PLACED WOODY DEBRIS.
3. TREES AND SHRUBS SHALL NOT BE PLANTED WITHIN 10 FEET OF EITHER SIDE OF EXISTING SANITARY SEWER LINE.

20' 0 20' 40'
SCALE: 1" = 20'

NOT FOR CONSTRUCTION

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S/C PLAN # XXXXX

GP # XXXXX-XXXX

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

LANDSCAPE PLAN

Drawn By : NAH
Designed By : SJF
Reviewed By : KDG

Scale : 1" = 20'
Date : OCTOBER 2023
Contract No.: XX-XXXX

Drawing No. LS-03 of LS-05
Sheet No. 32 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1" = 20'

BY: mterrell

PLOTTED: 10/13/2023
FILE: \\ad.rkk.com\FS\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\34_pLS-P003-Woodland.dgn

LOUIS C & DEBORAH E GABLE
277 VICTORY LANE

WILLIAM CHARLES & LAUREN ELIZABETH FRANZ
294 WAKELY TERRACE

FRANCIS MICHAEL BOWEN
298 WAKELY TERRACE

ANTHONY & BELINDA TETTERIS
301 WAKELY TERRACE

CHERYL P BOWEN
303 WAKELY TERRACE

CHERYL P BOWEN
305 WAKELY TERRACE

BENJAMIN & CAITLIN HUBER
203 WOODLAND DRIVE

RUSSELL S & AMY E DEAN
207 WOODLAND DRIVE

PARISSA S & SHAHEEN SHANE SNIDER
209 WOODLAND DRIVE

FRANK KOVACS
204 WOODLAND DRIVE

ERIC R & LISA R MARK
206 WOODLAND DRIVE

FRANCIS J & STEPHANIE CRUICHLEY
208 WOODLAND DRIVE

HELEN W (ET AL) CARMODY
1 DIXIE DRIVE

SANITARY SEWER

MATCH LINE, SEE LS-03

E 1500950 N 678470

E 1500950 N 677970

E 1501250 N 678470

STREET SIGN

APPROX LOCATION OF BLDG

MAC

1 STORY BRICK

2 STORY BRICK

13+00 14+00 15+00 16+00 17+00 18+00 18+20

LEGEND

- FLOODPLAIN FOREST PLANTING
- RIPARIAN BUFFER FOREST PLANTING
- TURFGRASS ESTABLISHMENT
- SURVEYED TREE
- PROPOSED RIPRAP
- LIVE STAKES
- LIMIT OF DISTURBANCE (LOD) — LOD —
- MODELED 100-YR FLOODPLAIN

NOTES:

1. SEE SHEET LS-05 FOR PLANTING SCHEDULES AND DETAILS.
2. PLACEMENT AND SPACING OF PLANTS SHALL BE FIELD ADJUSTED TO ACCOMODATE PLACED WOODY DEBRIS.
3. TREES AND SHRUBS SHALL NOT BE PLANTED WITHIN 10 FEET OF EITHER SIDE OF EXISTING SANITARY SEWER LINE.

20' 0 20' 40'
SCALE: 1" = 20'

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S/C PLAN # XXXXX

GP # XXXXX-XXXX

SIGN AND SEAL

Revisions

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

LANDSCAPE PLAN

Drawn By : NAH
Designed By : SJF
Reviewed By : KDG

Scale : 1" = 20'
Date : OCTOBER 2023
Contract No.: XX-XXXX

Drawing No. LS-04 of LS-05

Sheet No. 33 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

HCG BILLING ID No.:

HCG DWG ID No.:

BY: mterrell

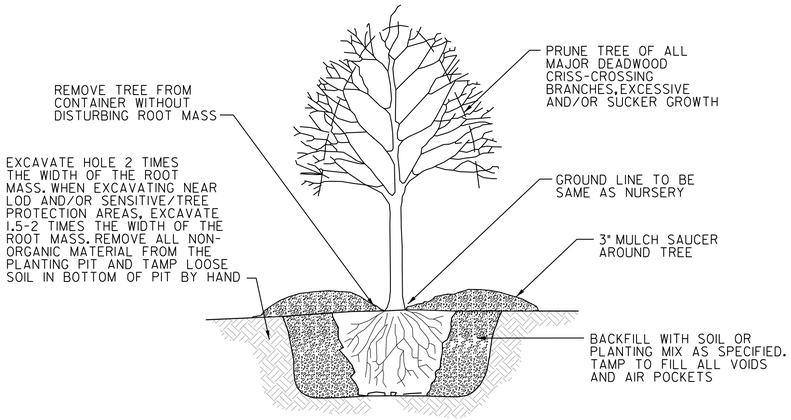
PLOTTED: 10/13/2023
FILE: \\ad.rkk.com\FSICloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\35_pLS-P004-Woodland.dgn

FLOODPLAIN FOREST PLANTING SCHEDULE						
Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
	TREES					
28	*Nyssa sylvatica*	Blackgum	FAC	3/4" cal.	#3 container	Naturalized at 12' O.C.
49	*Platanus occidentalis*	American sycamore	FACW	3/4" cal.	#3 container	Naturalized at 12' O.C.
49	*Quercus bicolor*	Swamp white oak	FACW	3/4" cal.	#3 container	Naturalized at 12' O.C.
49	*Quercus palustris*	Pin oak	FACW	3/4" cal.	#3 container	Naturalized at 12' O.C.
49	*Ulmus americana 'Princeton'*	American elm	FACW	3/4" cal.	#3 container	Naturalized at 12' O.C.
224	=total					
	SHRUBS					
21	*Cornus amomum*	Silky dogwood	FACW	2' ht.	#2 container	Naturalized at 22' O.C.
21	*Ilex verticillata*	Winterberry	FACW	2' ht.	#2 container	Naturalized at 22' O.C.
22	*Viburnum dentatum*	Southern arrowwood	FAC	2' ht.	#2 container	Naturalized at 22' O.C.
64	=total					
WET MEADOW ESTABLISHMENT (SY):		4,778				

RIPARIAN BUFFER FOREST PLANTING SCHEDULE						
Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
	TREES					
25	*Nyssa sylvatica*	Blackgum	FAC	1" cal.	#5 container	Naturalized at 15' O.C.
46	*Pinus strobus*	Eastern white pine	FACU	1" cal.	#5 container	Naturalized at 15' O.C.
45	*Pinus virginiana*	Virginia pine	UPL	1" cal.	#5 container	Naturalized at 15' O.C.
46	*Quercus coccinea*	Scarlet oak	UPL	1" cal.	#5 container	Naturalized at 15' O.C.
46	*Quercus montana*	Chestnut oak	UPL	1" cal.	#5 container	Naturalized at 15' O.C.
208	=total					
	SHRUBS					
52	*Kalmia latifolia*	Mountain laurel	FACU	2' ht.	#2 container	Naturalized at 17' O.C.
52	*Vaccinium angustifolium*	Lowbush blueberry	FACU	2' ht.	#2 container	Naturalized at 17' O.C.
52	*Viburnum prunifolium*	Blackhaw	FACU	2' ht.	#2 container	Naturalized at 17' O.C.
156	=total					
RIPARIAN BUFFER MEADOW ESTABLISHMENT (SY):		8,911				

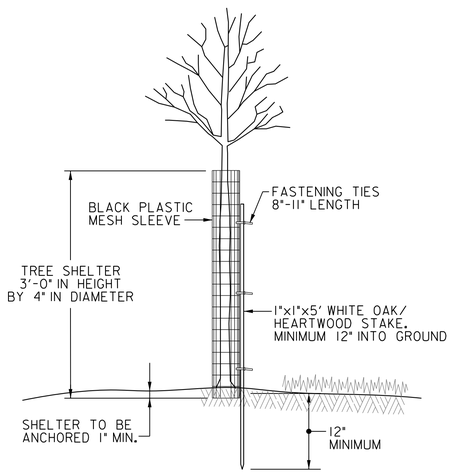
LIVE STAKE PLANTING SCHEDULE						
Species Quantity	Vegetation Strata/ Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
	TREES					
659	*Cornus sericea*	Red osier dogwood	FACW	3' long	Live stake	Naturalized at 2' O.C.
659	*Salix nigra*	Black willow	OBL	3' long	Live stake	Naturalized at 2' O.C.
659	*Salix sericea*	Silky willow	OBL	3' long	Live stake	Naturalized at 2' O.C.
1,977	=total					
WET MEADOW ESTABLISHMENT (SY):		745				

SEEDING SCHEDULE	
Seed Mix	Area (SY)
Turfgrass Establishment	1,254



TREE/SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE

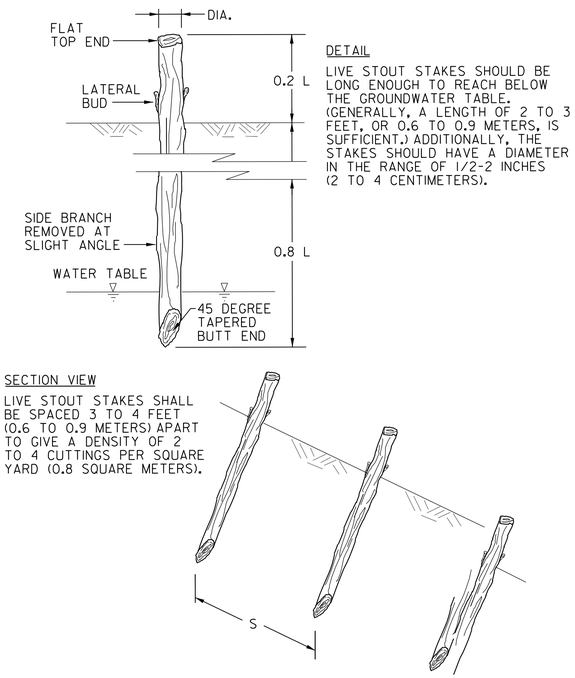


DEER PROTECTION - TREE

NOT TO SCALE

NOTES:

1. UP TO 2" OF SOIL CAN BE MOUNDED AROUND THE OUTSIDE OF TREE SHELTER.
2. REFER TO DEER PROTECTION SPECIFICATION FOR ADDITIONAL INFORMATION.



DETAIL

LIVE STOUT STAKES SHOULD BE LONG ENOUGH TO REACH BELOW THE GROUNDWATER TABLE. (GENERALLY, A LENGTH OF 2 TO 3 FEET, OR 0.6 TO 0.9 METERS, IS SUFFICIENT.) ADDITIONALLY, THE STAKES SHOULD HAVE A DIAMETER IN THE RANGE OF 1/2-2 INCHES (2 TO 4 CENTIMETERS).

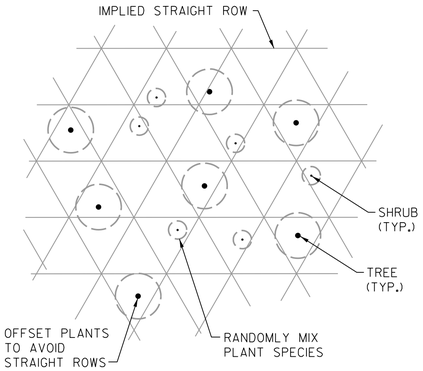
SECTION VIEW

LIVE STOUT STAKES SHALL BE SPACED 3 TO 4 FEET (0.6 TO 0.9 METERS) APART TO GIVE A DENSITY OF 2 TO 4 CUTTINGS PER SQUARE YARD (0.8 SQUARE METERS).

LIVE STAKES DETAIL

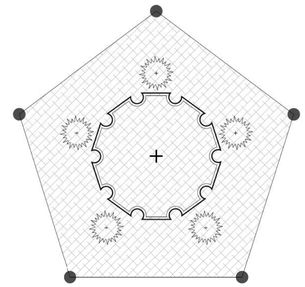
NOT TO SCALE

Source: Adapted from USDA-SCS (1994)



NATURALIZED PLANT SPACING

NOT TO SCALE



LEGEND

(1) TREE

(5) SHRUB

FENCE POSTS

3" SHREDDED HARDWOOD MULCH

NOTES:

1. FENCING SHALL BE 4' HIGH, 14 GAUGE WELDED WIRE FENCE SECURED TO 6' T-POSTS DRIVE 2' INTO THE GROUND.
2. ALL SHRUBS SHALL BE PLACED 2' FROM THE CENTRAL TREE AND 3' APART FROM THE ADJACENT SHRUBS. THE FENCE SHALL BE 2' OFF THE EDGE OF ALL PLANTINGS.
3. ALL FIVE SHRUBS WITHIN A CLUMP SHALL BE THE SAME SPECIES. THE TREE SHALL BE CHOSEN AT RANDOM FROM THE PLANTING SCHEDULE.

TREE AND SHRUB CLUMP DETAIL

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SIGN AND SEAL	

HARFORD COUNTY, MARYLAND

WOODLAND RUN STREAM RESTORATION

LANDSCAPE TABLES AND DETAILS

Drawn By :	NAH	Scale :	NOT TO SCALE
Designed By :	SJF	Date :	OCTOBER 2023
Reviewed By :	KDG	Contract No.:	XX-XXXX
Drawing No.	LS-05 of LS-05	Sheet No.	34 of 34

TAX MAP: 0049 GRID: 0003C ADC MAP: 21 GRID: H10

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BY: mterrell

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FILE: \\ad.rkk.com\FS\Cloud\Projects\2017\17040_HARCO\Task 001_Woodland Run\CADD\plans\36_pLS-P005-Woodland.dgn