PLAN APPROVAL INFORMATION

RELATED INFORMATION	REQUIRED	NOT REQUIRED	COUNTY I.D. NUMBER	COMMENTS/SHEET NO.
1. CONCURRENT PROCESSING		✓		
2. MODIFIED PROCESSING		✓		
3. MAXIMUM DENSITY ADJUSTMENTS BASED ON Z.O. 2-308		✓		
4. AFFORDABLE DWELLING UNITS		✓		
5. WORK FORCE UNITS		✓		
6. R.P.A. DELINEATION		✓		
7. FLOOD PLAIN STUDY		✓		
8. DRAINAGE STUDY		✓		
9. BATHYMETRIC SURVEY (SW-10)		✓		SEE NARRATIVE ON SHEET 2
10. CHESAPEAKE BAY ACT EXCEPTION		✓		
11. WATER QUALITY IMPACT ASSESSMENT		✓		
12. SOILS REPORT	✓		N/A	LIMITED REPORT - SEE SHEET 38 - 40
13. ONSITE EASEMENTS		✓		
14. OFFSITE EASEMENTS		✓		
15. NOTARIZED LETTERS OF PERMISSION		✓		
16. ARCHITECTURAL REVIEW BOARD APPROVAL		✓		
17. RETURN PLAN TO B.O.S. PRIOR TO APPR.		✓		
18. RETURN PLAN TO P.C. PRIOR TO APPR.		✓		
19. ADJACENT PROPERTY OWNER NOTICES		✓		
20. OFFSITE UTILITY WORK NOTICES		✓		
21. MAJOR UNDERGROUND UTILITY NOTICES		✓		
22. REZONING/SPECIAL EXCEPTION/SPECIAL PERMIT APPROVAL		✓		
23. B.O.S./B.Z.A. CLERK LETTER/RESOLUTION		✓		
24. REZONING PROFFERS/CONDITIONS		✓		
25. REZONING DEVELOPMENT PLAN		✓		
26. B.Z.A. VARIANCE APPROVAL		✓		
27. WETLANDS/WATERS OF THE U.S. PERMIT		✓		DATE SENT TO ACOE: PERMIT RECEIVED: PERMIT NO.
28. STATE REGULATED DAM PERMIT		✓		PERMIT RECEIVED: PERMIT NO.
29. LOCATED IN DAM BREAK INUNDATION ZONE (STATE REGULATED DAMS) 2 EXTRA PLAN SETS REQUIRED		✓		DAM NAME: DAM NO.:
30. FEMA LETTER OF MAP REVISION		✓		DATE CLOMR RECEIVED:
31. VEGETATED ROOF NOTE		✓		
32. OVERLAY DISTRICT INFORMATION		✓		
33. TREE BANKING		✓		
34. TREE FUND		✓		
35. GREEN PROJECT CERTIFICATION FOR GREEN PRIORITY PLAN REVIEW		✓		
36. STREET LIGHTS		✓		
MODIFICATIONS/WAIVERS				

SOLID WASTE AND RECYCLING: ALL PROPERTIES ARE REQUIRED TO RECYCLE. DESIGNS FOR ALL PROPERTIES MUST PROVIDE ADEQUATE CONTAINERS/STRUCTURES FOR THE SEPARATE MANAGEMENT OF RECYCLABLES AND TRASH.

SINGLE-FAMILY DETACHED AND TOWNHOUSE DEVELOPMENTS

I CERTIFY THAT THE SITE DEPICTED ON THIS PLAN IS (CHECK APPLICABLE STATEMENT):

N/A A SANITARY DISTRICT WHERE TRASH AND RECYCLING COLLECTION IS CONDUCTED BY FAIRFAX COUNTY AND THAT I HAVE INFORMED THE PROPERTY OWNER OF THIS CONDITION.

N/A NOT IN A SANITARY DISTRICT AND TRASH AND RECYCLING COLLECTION WILL BE CONDUCTED BY A PRIVATE COMPANY.

NON-RESIDENTIAL PROPERTIES, INCLUDING BUSINESSES, SCHOOLS AND INSTITUTIONS, AND MULTI-FAMILY PROPERTIES, INCLUDING CONDOMINIUMS AND APARTMENTS.

I CERTIFY THAT (ALL STEPS MUST BE COMPLETED):(PROPOSED IMPROVEMENTS NOT APPLICABLE TO SOLID WASTE REQUIREMENTS)

✓ I HAVE COMPLETED A WASTE STREAM CALCULATION WORKSHEET FOR THIS PROPERTY.

✓ I HAVE INDICATED ON THE PLAN THE LOCATION AND TYPE OF TRASH AND RECYCLING CONTAINERS AND STRUCTURES. SEE SHEET NUMBER 009

✓ THE TRASH AND RECYCLING MANAGEMENT CONTAINERS/STRUCTURES ON THIS PLAN ARE ADEQUATE TO MEET THE MINIMUM RECYCLING REQUIREMENT AS DESCRIBED ON THE WASTE STREAM CALCULATION WORKSHEET.

SANITARY SEWER INFORMATION

WASTEWATER TREATMENT PLANT BLUE PLAINS

___ THIS SITE IS SUBJECT TO N/A SANITARY SEWER REIMBURSEMENT CHARGES.

___ THIS SITE IS SERVED BY ONSITE SEWAGE TREATMENT SYSTEM(S).

INFORMATION REGARDING ACTIVITIES IN A RESOURCE PROTECTION AREA

ACTIVITY	YES/NO
CONSTRUCTION ACTIVITIES IN A RESOURCE PROTECTION AREA (IF YES, INDICATE TYPE BELOW)	NO
REDEVELOPMENT PRINCIPAL STRUCTURE	NO
REDEVELOPMENT ACCESSORY STRUCTURE	NO
PUBLIC ROADS	NO
PRIVATE ROADS	NO
DRIVEWAYS	NO
STORMWATER OUTFALL	NO
OTHER (INDICATE TYPE):	NO

TREE PRESERVATION

TREE PRESERVATION TARGET DEVIATIONS OR MODIFICATIONS ARE BEING REQUESTED.

YES ☐ NO ☒ N/A ☐

POTENTIAL FOR WETLANDS

IS THE DISTURBED AREA LOCATED IN A WETLANDS AREA DEPICTED ON THE NATIONAL WETLANDS INVENTORY MAP? YES ☐ NO ☒

IS THE DISTURBED AREA LOCATED IN AN ESTIMATED WETLANDS AREA DEPICTED ON THE COUNTY POTENTIAL WETLAND AREA MAP? YES ☐ NO ☒

IF YES, TO EITHER OF THE TWO QUESTIONS ABOVE, PROVIDE EVIDENCE OF APPROVED PERMIT OR VERIFICATION THAT NO PERMIT FROM THE ARMY CORPS OF ENGINEERS IS REQUIRED BEFORE PLAN IS APPROVED.

NOTES AND CONDITIONS

1. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE DEVELOPER OR HIS AGENT OF ANY LEGAL RESPONSIBILITIES WHICH MAY BE REQUIRED BY THE CODE OF VIRGINIA OR ANY ORDINANCE ENACTED BY THE COUNTY OF FAIRFAX.
2. THE DESIGN, CONSTRUCTION, FIELD PRACTICES, AND METHODS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE FAIRFAX COUNTY CODE AND IN THE PUBLIC FACILITIES MANUAL AS AMENDED. FAILURE TO COMPLY WITH THE FAIRFAX COUNTY CODE, THE PUBLIC FACILITIES MANUAL, THE APPROVED PLANS, AND THE PROVISIONS OF THE DEVELOPMENT AGREEMENT AND PERMIT SHALL BE DEEMED A VIOLATION.
3. WATER DISTRIBUTION NOTE: ALL FIRE PROTECTION SYSTEMS WHICH ARE INSTALLED IN COMPLIANCE WITH THESE PLANS AND COUNTY OF FAIRFAX ORDINANCES SHALL BE MAINTAINED IN AN OPERATIVE CONDITION AT ALL TIMES. WHEN NECESSARY TO TEMPORARILY REDUCE OR DISCONTINUE THE PROTECTION IN ORDER TO MAKE TESTS, REPAIRS, ALTERATIONS OR ADDITIONS, NOTIFY THE FAIRFAX COUNTY PUBLIC SAFETY COMMUNICATIONS CENTER AT 703-691-2131.
4. A PERMIT MUST BE OBTAINED FROM THE VIRGINIA DEPARTMENT OF TRANSPORTATION, NORTHERN VIRGINIA DISTRICT, BEFORE ANY CONSTRUCTION IS STARTED ON ANY EXISTING STATE ROUTE. CONTACT THE VIRGINIA DEPARTMENT OF TRANSPORTATION THREE WORKING DAYS BEFORE EXCAVATION IN ANY STATE RIGHT OF WAY AT 703-383-2888.
5. CONTRACTORS SHALL NOTIFY THE "MISS UTILITY" NOTIFICATION CENTER AT 1-800-552-7001 FOR ANY PROPOSED EXCAVATION, DEMOLITION, OR BLASTING AT LEAST TWO WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION DEMOLITION, OR BLASTING IN ACCORDANCE WITH THE VIRGINIA UNDERGROUND UTILITY DAMAGE PREVENTION ACT. IN ADDITION, NAMES AND TELEPHONE NUMBERS SHALL ALSO BE USED TO SERVE IN AN EMERGENCY CONDITION AS REQUIRED BY SECTION 63-2-2 OF THE FAIRFAX COUNTY CODE.
6. THE COUNTY INSPECTOR SHALL BE NOTIFIED WHEN ANY IMPROVEMENTS PERTINENT TO HIS INSPECTION DUTIES ARE BEING INSTALLED. SPECIFIC REQUIREMENTS ARE:
   A. THE COUNTY SITE INSPECTOR IS TO BE NOTIFIED AT LEAST 3 DAYS PRIOR TO START OF CONSTRUCTION.
   B. A MINIMUM OF 24 HOURS NOTICE IS REQUIRED WHEN REQUESTING RESIDENTIAL OR NON-RESIDENTIAL USE PERMITS.
   C. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED WHEN REQUESTING TESTS PERTAINING TO SANITARY SEWER ACCEPTANCE.

PROFESSIONAL SEAL AND SIGNATURE

COMMONWEALTH OF VIRGINIA — JOSEPH RILEY-RYAN — Lic. No. 058773 — PROFESSIONAL ENGINEER

DATE 11/03/2023

PROFESSIONAL SEAL AND SIGNATURE

INTERNATIONAL SOCIETY OF ARBORICULTURE — BENJAMIN HARTMANN — MA-6213A — CERTIFIED ARBORIST

DATE 11/03/2023

PROFESSIONAL SEAL AND SIGNATURE

DATE

DESIGNATED PLANS EXAMINER (DPE) CERTIFICATE

1ST SUBMISSION REVIEWED & RECOMMENDED FOR SUBMISSION

D.P.E. SIGNATURE & PRINTED NAME

DATE: REG. NO.:

2ND SUBMISSION REVIEWED & RECOMMENDED FOR APPROVAL

BRAD GLATEFELTER

D.P.E. SIGNATURE & PRINTED NAME

DATE: 11/03/2023 REG. NO.: 341

POST SUBMISSION CONFERENCE DATE: 9/27/2023

ZONING REQUIREMENTS

1) ZONING R-1
2) AVERAGE LOT AREA N/A (SQ. FT.)
3) MIN. LOT AREA 36,000 (SQ. FT.)
4) MIN. LOT WIDTH INTERIOR: 150', CORNER: 175' (FT.)
5) MAX. BUILDING HEIGHT S.F.D.: 35', OTHER STRUCTURES: 60' (FT.)
6) NUMBER OF FLOORS N/A (Commercial/Industrial ONLY)
7) MIN. YARD REQUIREMENTS:
   FRONT 40' (FT.) SIDE 20' (FT.) REAR 25' (FT.)
8) MAXIMUM FAR 0.20 FOR PUBLIC USES
9) MAXIMUM DENSITY 1 DU/AC (D.U./AC.)
10) OPEN SPACE REQUIRED NONE % (SQ. FT.)
11) ANGLE OF BULK PLANE: FRONT N/A SIDE N/A REAR N/A (DETAIL(S) ON SHEET __)
12) OVERLAY DISTRICT(S) N/A

SITE PLAN (SP) TABULATIONS

1) SITE AREA 95.92 (ACRES) 4,178,275 (SQ. FT.)(PER COUNTY RECORDS)
2) AREA OF STREET DEDICATION 0 (SQ. FT.)
3) USE PARKS (QUSAI-GOV'T)-OUTDOOR
4) NUMBER OF LOTS 5
5) AREA OF LOTS 4,178,275 (SQ. FT.)
6) DENSITY N/A (D.U./AC.)
7) EXISTING BUILDING GROSS FLOOR AREA ±23,329 (TOTAL PROPERTY) (SQ. FT.) (SEE SHEET 2)
8) PROPOSED BUILDING GROSS FLOOR AREA 3,200 (SQ. FT.)
9) EXISTING BUILDING NET FLOOR AREA ±18,663 (SQ. FT.)
10) PROPOSED BUILDING NET FLOOR AREA ±2,560 (SQ. FT.)
11) TOTAL FLOOR AREA RATIO (FAR) FOR ENTIRE SITE 0.006
12) PROPOSED BUILDING HEIGHT ±25' (FT.)
13) PROPOSED NUMBER OF FLOORS 1 COMMERCIAL/INDUSTRIAL ONLY
14) TOTAL HANDICAPPED PARKING REQUIRED 0
15) TOTAL HANDICAPPED PARKING PROVIDED 0
16) TOTAL HANDICAPPED VAN SPACES REQUIRED 0
17) TOTAL HANDICAPPED VAN SPACES PROVIDED 0
18) TOTAL PARKING SPACES REQUIRED 0
19) TOTAL PARKING SPACES PROVIDED 0
20) LOADING SPACES REQUIRED 0
21) LOADING SPACES PROVIDED 0
22) OPEN SPACE PROVIDED N/A % N/A (SQ. FT.)

*SEE PARKING NARRATIVE SHEET 2

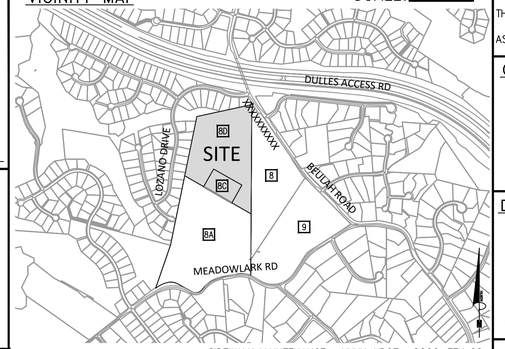
FIRE MARSHAL NOTES

AVAILABLE FIRE FLOW 2,225 (Q20) (GAL./MIN.)
SOURCE OF FIRE FLOW INFO. FAIRFAX WATER
TYPE OF CONSTRUCTION - USBC VB-WOOD
USE GROUP CLASSIFICATION - USBC S-1
BUILDING HEIGHT ±22' (FT.)
BUILDING TO BE FULLY SPRINKLERED YES ☐ NO ☒

IF YES, CHECK APPROPRIATE STANDARD: NFPA 13 ☐ ; NFPA 13D ☐ ; NFPA 13R ☐
SEE PFM CHAPTER 9, PART 2 FOR FULL INFORMATION REQUIRED. FIRE FLOW REQUIREMENTS TO BE DETERMINED BY THE FIRE PREVENTION DIVISION.
[SEE PUBLIC WATER AGENCY NOTES ON SHEET N/A.]

VICINITY MAP

SCALE: 1000'



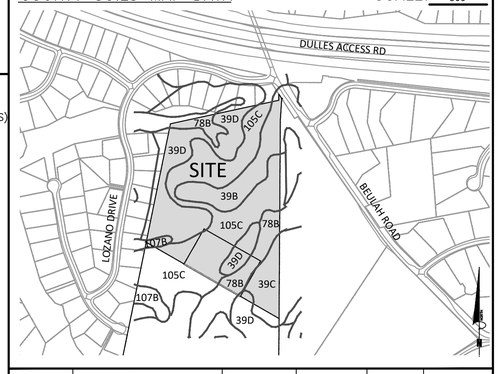
SIDEWALK MAINTENANCE: XXXX-VDOT, OOOO-FFX CO
TRAIL MAINTENANCE: OOOO-FFX CO
ALL OTHER WALKS/TRAILS TO BE OWNER MAINTAINED

TAX MAP REFERENCE NUMBER(S)

MAP PAGE #	DOUBLE CIRCLE #	BLOCK (SINGLE CIRCLE #)	LOT/PARCEL(S) #
028-1	((1))		0008C
028-1	((1))		0008D
028-1	((1))		0008
028-1	((1))		0008A
028-1	((1))		0009

COUNTY SOILS MAP DATA

SCALE: 500'



SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	EROSION POTENTIAL	PROBLEM CLASS
39B	GLENELG SILT LOAM	GOOD	GOOD	HIGH	I
39C	GLENELG SILT LOAM	GOOD	GOOD	HIGH	I
39D	GLENELG SILT LOAM	GOOD	GOOD	HIGH	I
78B	MEADOWVILLE LOAM	FAIR-W,B	MARGINAL-W	MEDIUM	II
105C	WHEATON-GLENELG COMP.	GOOD	GOOD	HIGH	IVB
107B	WHEATON-MEADOWVILLE COMP.	FAIR-W,B	MARGINAL-W,S	MEDIUM	IVB

IS THE SITE LOCATED ON NATURALLY OCCURRING ASBESTOS (NOA) SOIL?
YES ☐ NO ☒

AREAS THAT MAY CONTAIN NOA SOIL ARE SHOWN ON THE OFFICIAL COUNTY SOILS MAP ON THE DIGITAL MAP VIEWER ON THE COUNTY WEBSITE. ASBESTOS IS REGULATED BY THE VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY. SAFETY PRECAUTIONS AND LINKS TO REGULATIONS REGARDING THESE SOILS OR FILL ORIGINATING FROM THEM CAN BE FOUND ON THE NORTHERN VIRGINIA SOIL AND WATER CONSERVATION DISTRICT WEBSITE: WWW.FAIRFAXCOUNTY.GOV/NVSWCD

STORMWATER INFORMATION

COUNTY STORMWATER PERMIT REQUIRED? YES ☒ NO ☐ VPDES PERMIT COVERAGE REQUIRED YES ☒ NO ☐

SWM FACILITIES DESIGNED USING:

TECHNICAL CRITERIA 5 ☐ (OLD)
TIME LIMITS ☐ VPDES PERMIT NO. (IF TIME LIMITS): ____
GRANDFATHERED ☐ DEQ MEMO 14-2014 ☐
NEW DEVELOPMENT ☐ REDEVELOPMENT ☐

TECHNICAL CRITERIA 4 ☒ (NEW)
TYPE OF DEVELOPMENT: NEW DEVELOPMENT ☐ REDEVELOPMENT ☒
NEW+REDEVELOPMENT (i.e. REDEVELOPMENT WITH A NET INCREASE IN IMPERVIOUS AREA) ☒

HIGH DENSITY POLYETHYLENE (HDPE) PIPE USED ON THIS PROJECT YES ☒ NO ☐

WATER QUALITY OPTION: NONE ☒
NON-POINT NUTRIENT CREDITS ☐ COMPREHENSIVE SWM PLAN ☐
OFF-SITE FACILITY ☐ EXISTING ONSITE FACILITY ☐

SWM FACILITIES (PROPOSED ONLY)

FACILITY ID NO.	FACILITY TYPE	PURPOSE (QUALITY/ QUANTITY)	AREA TREATED (ACRES)	LATITUDE (DECIMAL DEGREE)	LONGITUDE (DECIMAL DEGREE)	WATERSHED	RECEIVING WATERS	MAINTENANCE AGREEMENT Y/N	VAHU6 CODE	LENGTH/ AREA OF FACILITY	UNIT (FT/ SF)	NO. OF BLDG. SERVED (FOR ROOFTOP DISCONNECT)
1	LEVEL 2 BIORETENTION	QUALITY	0.31	38.939795	-77.282859	DIFFICULT RUN	DIFFICULT RUN RIVER	N	PL22	1110.00	SF	N/A

DISTURBED AREA (DA) WITHIN WATERSHED(S):

WATERSHED 1 DIFFICULT RUN DA= 1.43 (ACRES) WATERSHED 2 ____ DA=____ (ACRES) TOTAL DISTURBED AREA= 1.43 (ACRES)

ENGINEER'S/SURVEYOR'S CERTIFICATE:

THIS PROPERTY IS IN THE NAME OF NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
AS RECORDED IN DEED BOOK 07218 05993 PAGE 0632 0649 OF THE LAND RECORDS OF FAIRFAX COUNTY, VA.

OWNER INFORMATION

(X) OWNER ( ) TRUSTEE

( ) A CORPORATION ( ) A PARTNERSHIP ( ) AN INDIVIDUAL

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY — NAME
(703) 352-5900 — PHONE
5400 OX ROAD FAIRFAX STATION, VIRGINIA 22039 — ADDRESS
thafnernvrpa.org — EMAIL

DEVELOPER INFORMATION

(X) DEVELOPER ( ) CONTRACT OWNER ( ) LESSEE

( ) A CORPORATION ( ) A PARTNERSHIP ( ) AN INDIVIDUAL

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY — NAME
(703) 352-5900 — PHONE
5400 OX ROAD FAIRFAX STATION, VIRGINIA 22039 — ADDRESS
thafner@nvrpa.org — EMAIL

WETLANDS PERMITS CERTIFICATION

I HEREBY CERTIFY THAT ALL WETLANDS PERMITS REQUIRED BY LAW WILL BE OBTAINED PRIOR TO COMMENCING WITH LAND DISTURBING ACTIVITIES.

SIGNATURE

OWNER/DEVELOPER JOE RILEY-RYAN, P.E. (AGENT)
NAME TITLE

NOTE: PERMITS MUST BE PRESENTED TO THE COUNTY INSPECTOR PRIOR TO LAND DISTURBANCE.

DATE	RECOMMEND APPROVAL (SIGNATURE & PRINTED NAME)
	STREETLIGHT REVIEW - DPWES
	PUBLIC WATER AGENCY
	SANITARY SEWER REVIEW - DPWES
	URBAN FOREST MANAGEMENT REVIEW - DPWES
	FAIRFAX COUNTY FIRE MARSHAL
	FAIRFAX COUNTY HEALTH DEPARTMENT
	VIRGINIA DEPARTMENT OF TRANSPORTATION
	GEOTECHNICAL REVIEW, DPWES
	STORMWATER REVIEW, DPWES
	PLAN REVIEWER - DPWES
	DIRECTOR, SITE DEVELOPMENT & INSPECTIONS DIVISION, LDS, - DPWES

APPROVED

DATE ____ BY ____
DIRECTOR, DEPT. OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES

THIS PLAN SHALL EXPIRE WITHOUT NOTICE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE COUNTY CODE. REVISIONS DO NOT EXTEND THE APPROVAL PERIOD. THE APPROVAL PERIOD IS INDEPENDENT OF THE AGREEMENT EXPIRATION DATE.

THIS APPROVAL IS NOT A COMMITMENT TO PROVIDE PUBLIC SANITARY SEWER

CERTIFICATE OF NO CHANGE (FOR SUBMISSION OTHER THAN THE FIRST)

I HEREBY CERTIFY THAT NO CHANGES HAVE BEEN MADE THAT WOULD AFFECT PRIOR APPROVAL BY THE

FIRE MARSHAL DATED ____
WATER AUTHORITY DATED ____
HEALTH DEPARTMENT DATED ____
VDOT DATED ____
DPWES-SAN. SEWER DATED ____
DPWES-STREETLIGHTS DATED ____
UFMD DATED ____

SHEET INDEX

1. COVER SHEET
2. NOTES AND ABBREVIATIONS
3. UTILITY NOTES
4. OVERALL BOUNDARY EXHIBIT
5. VICINITY PLAN
5A. VICINITY PLAN
5B. VICINITY PLAN
6. EXISTING CONDITIONS PLAN (1 OF 3)
7. EXISTING CONDITIONS PLAN (2 OF 3)
8. EXISTING CONDITIONS PLAN (3 OF 3)
9. SITE PLAN (1 OF 3)
10. SITE PLAN (2 OF 3)
11. SITE PLAN (3 OF 3)
12. SITE DETAILS
13. SITE DETAILS
14. SITE DETAILS
15. EROSION AND SEDIMENT CONTROL PLAN - PHASE I
15A. EROSION AND SEDIMENT CONTROL PLAN - PHASE II
16. EROSION AND SEDIMENT CONTROL PLAN - PHASE I AND II
17. EROSION AND SEDIMENT CONTROL PLAN - PHASE I AND II
18. EROSION AND SEDIMENT CONTROL PLAN NOTES
19. EROSION AND SEDIMENT CONTROL PLAN DETAILS (1 OF 2)
20. EROSION AND SEDIMENT CONTROL PLAN DETAILS (2 OF 2)
21. EXISTING VEGETATION MAP
22. TREE PRESERVATION PLAN (1 OF 3)
23. TREE PRESERVATION PLAN (2 OF 3)
24. TREE PRESERVATION PLAN (3 OF 3)
25. TREE PRESERVATION NOTES & DETAILS (1 OF 2)
26. TREE PRESERVATION NOTES & DETAILS (2 OF 2)
27. EXISTING DRAINAGE DIVIDES
28. PROPOSED DRAINAGE DIVIDES
29. STORM SEWER PROFILES
30. STORM SEWER COMPUTATIONS
31. STORMWATER MANAGEMENT PLAN
32. STORMWATER ROUTING OUTPUTS
33. STORMWATER MANAGEMENT DETAILS
34. STORMWATER MANAGEMENT DETAILS
35. STORMWATER MANAGEMENT DETAILS
36. VIRGINIA RUNOFF REDUCTION METHOD
37. SANITARY SEWER AND WATER LINE PROFILE
38. GEOTECHNICAL REPORT (1 OF 3)
39. GEOTECHNICAL REPORT (2 OF 3)
40. GEOTECHNICAL REPORT (3 OF 3)

DESIGN ENGINEER / SURVEYOR
BOWMAN CONSULTING GROUP, LTD.
FIRM NAME:
13461 SUNRISE VALLEY DRIVE
ADDRESS:
SUITE 500, HERDON, VIRGINIA 20171
PHONE NO: 703-464-1000 FAX NO: 703-481-9720
PROJ. MANAGER: JOE RILEY-RYAN, P.E. EMAIL: JRILEYRYAN@BOWMANCG.COM

SITE PLAN OR PUBLIC IMPROVEMENT PLAN COVERSHEET

COVER SHEET

MEADOWLARK BOTANICAL GARDEN

MAINTENANCE FACILITY

HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY NUMBER

SP-2023-00031

PLAN REVIEWER

SHEET 1 of 40

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HWY & TRANSP OFFICIALS
AC	ACRE
ADJ	ADJACENT
AGGR	AGGREGATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BACK OF CURB
BF	BASEMENT FLOOR
BLDG	BUILDING
BM	BENCHMARK
BMP	BEST MANAGEMENT PRACTICES (WATER QUALITY)
BOV	BLOW OFF VALVE
BRL	BUILDING RESTRICTION LINE
BW	BOTTOM OF WALL
C	RUNOFF COEFFICIENT
CATV	CABLE TELEVISION
C&G	CURB AND GUTTER
CB	CATCH BASIN
CBR	CALIFORNIA BEARING RATIO
CC	CENTER TO CENTER
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CG(R)	CURB AND GUTTER (REVERSE SLOPE)
CIP	CAST IRON PIPE
CL	CENTERLINE OR CLASS
℄	CENTERLINE
C/L	CENTERLINE
CLR	CLEAR
CM	CUBIC METERS
CMP	CORRUGATED METAL PIPE
CMS	CUBIC METERS PER SECOND
CONT	CONTINUOUS
CO	CLEAN OUT
CONC	CONCRETE
CS	CURB STOP
CT	COURT
CTR	CENTERLINE
CY	CUBIC YARD
DA	DRAINAGE AREA
DB	DEED BOOK
DB	DRAIN BASIN
DEQ	VA. DEPARTMENT OF ENVIRONMENTAL QUALITY
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DI	DROP INLET
DIST	DISTANCE
DL	DOMESTIC LINE
DM	DROP MANHOLE
DOM	DOMESTIC
DR	DRIVE
DRN	DRAINAGE AREA
DS	DOWN SPOUT
DU	DWELLING UNITS
DWG	DRAWING
D/W	DRIVEWAY
Δ	DELTA
EA	EACH
EBL	EAST BOUND LANE
EC	EROSION CONTROL
EG	EDGE OF GUTTER
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATION
ENGR	ENGINEER
ENT	ENTRANCE
EP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
ES	END SECTION
ESMT	EASEMENT
ETD	EXISTING TO BE DEMOLISHED
ETR	EXISTING TO REMAIN
ETRL	EXISTING TO BE RELOCATED
ETRP	EXISTING TO BE REPLACED
EW	END WALL
EX	EXISTING
EQC	ENVIRONMENTAL QUALITY CORRIDOR
FAR	FLOOR AREA RATIO
FC	FACE OF CURB
FCPA	FAIRFAX COUNTY PARK AUTHORITY
FCWA	FAIRFAX COUNTY WATER AUTHORITY
FD	FLOOR DRAIN
FF	FIRST FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FND	FOUNDATION
FOY	FOYER
FP	FLOOD PLAIN
FPS	FEET PER SECOND
FS	FIRE SERVICE OR FACTOR OF SAFETY
FT	FOOT / FEET
G	GAS
GAR	GARAGE
GFA	GROSS FLOOR AREA
GR	GUARD RAIL OR GRATE INLET
HDPE	HIGH DENSITY POLYETHELENE PIPE
HC	HANDICAP
HB	HORIZONTAL BEND
HGL	HYDRAULIC GRADE LINE
HORZ	HORIZONTAL
HP	HIGH POINT
HR	HAND RAIL
HT	HEIGHT
HW	HEADWATER
I	RAINFALL INTENSITY
ID	INSIDE DIAMETER OR IDENTIFICATION
IE	INVERT ELEVATION
IN	INCH
INV	INVERT
IP	IRON PIPE
IPF	IRON PIPE FOUND
IPS	IRON PIPE SET
JB	JUNCTION BOX
JNT	JOINT
LAT	LATERAL
LCG	LIMITS OF CLEARING & GRADING
LF	LINEAR FEET
LL	LOWER LEVEL
LOS	LINE OF SIGHT
LP	LOW POINT
LS	LOADING SPACE
LT	LEFT
MAX	MAXIMUM
MECH	MECHANICAL
MH	MANHOLE
MI	MILE
MIN	MINIMUM
MISC	MISCELLANEOUS
MPH	MILES PER HOUR
MS	MEDIAN STRIP
NA OR N/A	NOT APPLICABLE
NBL	NORTH BOUND LANE
N/F	NOW OR FORMERLY
NFA	NET FLOOR AREA
NO. OR #	NUMBER
OC	ON CENTER
OBJ	OBJECT
OD	OUTSIDE DIAMETER
OH	OVERHANG
O/H	OVERHEAD
OHC	OVERHEAD CABLE
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELEPHONE
P&P	PLAN AND PROFILE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PCEC	POINT OF CURVATURE TOP OF CURB
PCEP	POINT OF CURVE EDGE OF PAVEMENT
PFM	PUBLIC FACILITIES MANUAL
PG	PAGE
PGL	POINT OF GRADE LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
ℙ	PROPERTY LINE
PRC	POINT OF REVERSE CURVE
PRELIM	PRELIMINARY
PROP	PROPOSED
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVRC	POINT OF VERTICAL REVERSE CURVE
PVT	POINT OF VERTICAL TANGENT
Q (cfs)	AMOUNT OF RUNOFF (FLOW RATE)
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROAD OR ROOF DRAIN
REINF	REINFORCED
REQD	REQUIRED
RET	RETAINING
REV	REVISION
RMA	RESOURCE MANAGEMENT AREA
RPA	RESOURCE PROTECTION AREA
RR	RAILROAD
RT	RIGHT
RTE	ROUTE
R/W	RIGHT OF WAY
SAN	SANITARY
SCH	SCHEDULE
SD	SIGHT DISTANCE
SEC	SECTION
SECT	SECTION
SEW	SEWER
SF	SQUARE FEET
SH	SHOULDER
SP	SPACE OR SITE PLAN
SPEC	SPECIFICATIONS
STA	STATION
STD	STANDARD
STM	STORM
STR	STRUCTURE
SVC	SERVICE
S/W	SIDEWALK
SWM	STORM WATER MANAGEMENT
SY	SQUARE YARD
TB	TOP OF BANK OR TEST BORING
TC	TOP OF CURB
Tc	TIME OF CONCENTRATION
TEL	TELEPHONE
TEMP	TEMPORARY
TP	TEST PIT OR TREE PROTECTION
TRANSP	TRANSPORTATION
TW	TOP OF WALL OR TAILWATER
TYP	TYPICAL
UL	UPPER LEVEL
UP	UTILITY POLE
USGS	US GEOLOGICAL SURVEY
V OR VOL	VOLUME
V OR VEL	VELOCITY
VA	VIRGINIA
VAN	HANDICAPPED VAN PARKING SPACE
VB	VERTICAL BEND
VC	VERTICAL CURVE
VDOT	VA DEPT OF TRANSPORTATION
VF	VERTICAL FOOT
WBL	WEST BOUND LANE
WL	WATER LINE
WM	WATER METER
W/M OR WM	WATER MAIN
WQIA	WATER QUALITY IMPACT ASSESSMENT
WSEL	WATER SURFACE ELEVATION
WV	WATER VALVE
XF	TRANSFORMER
XING	CROSSING
YI	YARD INLET
YR	YEAR

NOTES:

1. THIS IS A STANDARD SHEET, THEREFORE SOME ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE USED ON THE PROJECT.

PROJECT NARRATIVE

THIS PROJECT CONSISTS OF CONSTRUCTION OF A 3,200 GSF MAINTENANCE AND STORAGE BUILDING, 1,120 LINEAR FEET OF 6" PVC GRAVITY SANITARY SEWER, AND 863 LINEAR FEET OF 2" WATERMAIN FOR THE USE BY THE NVRPA. THE PROPOSED BUILDING AND EXISTING ACCESS ROAD ARE FOR USE BY THE N.V.R.P.A. AND NOT INTENDED FOR PUBLIC USE OR ACCESS.

ACCESSIBILITY NOTES

1. THIS PROJECT IS DESIGNED TO MEET ADAAG AND/OR FHAAG STANDARDS. THE CONTRACTOR SHALL CONTACT FCPA ADA COORDINATOR TO VERIFY ALL ACCESSIBLE ROUTES ARE IDENTIFIED FOR THIS PROJECT PRIOR TO COMPLETING WALKWAY AND PAVEMENT CONSTRUCTION AND GRADING.
2. ANY PART OF AN ACCESSIBLE ROUTE WITH A SLOPE GREATER THAN 5% (1:20) SHALL BE CONSIDERED A RAMP.
3. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 8.33% (1:12). RAMPS BETWEEN 5% (1:20) AND 8.33% (1:12) SHALL REQUIRE HANDRAILS ON BOTH SIDES AND MEET ADAAG, FHAAG AND ANSI STANDARDS.
4. THE MAXIMUM RISE FOR ANY RUN SHALL BE 30 INCHES. IF THE SLOPE OF A RAMP IS BETWEEN 8.33% (1:12) AND 6.25% (1:16), THE MAXIMUM RISE SHALL BE 30 INCHES AND THE MAXIMUM HORIZONTAL RUN SHALL BE 30 FEET.
5. IF THE SLOPE OF THE RAMP IS BETWEEN 6.25% (1:16) AND 5% (1:20), THE MAXIMUM RISE SHALL BE 30 INCHES AND THE MAXIMUM HORIZONTAL RUN SHALL BE 40 FEET.
6. RAMPS SHALL HAVE LEVEL LANDINGS AT THE BOTTOM AND TOP OF EACH RAMP AND EACH RAMP RUN. LANDINGS SHALL HAVE THE FOLLOWING FEATURES:
   A. THE LANDING SHALL BE AT LEAST AS WIDE AS THE RAMP RUN LEADING TO IT.
   B. THE LANDING LENGTH SHALL BE A MINIMUM OF 60 INCHES CLEAR.
   C. IF RAMPS CHANGE DIRECTION AT LANDINGS, THE MINIMUM LANDING SIZE SHALL BE 60"X60".
7. CROSSWALKS ACROSS PRIVATE STREETS THAT PROVIDE AN ACCESSIBLE ROUTE SHALL PROVIDE A SPEED HUMP TO ENSURE THE LONGITUDINAL STREET GRADE DOES NOT EXCEED 2% (1:50) THRU THE WIDTH OF THE CROSSWALK (MIN. 5 FEET WIDE).
8. ACCESSIBLE RAMPS STEEPER THAN 8.33% (1:12) ARE NOT ACCEPTABLE.
9. ALL ACCESSIBLE ROUTES SHALL HAVE A MIN. 36 INCH WIDE NET CLEAR WIDTH WITH A MAXIMUM 5% (1:20) RUNNING SLOPE, 2% (1:50) MAX. CROSS SLOPE AND 80 INCH CLEAR HEAD HEIGHT. CLEAR WIDTH CANNOT BE REDUCED BY VEHICULAR OVERHANG OR OTHER OBSTRUCTIONS.
10. IF AN ACCESSIBLE ROUTE IS LESS THAN 60 INCHES WIDE THEN A 60"X60" PASSING SPACE OR INTERSECTION OF TWO 36 INCH WIDE WALKS IS REQUIRED AT INTERVALS NOT TO EXCEED 200'. FINAL LOCATION SHALL BE DETERMINED IN THE FIELD UNLESS OTHERWISE SHOWN ON THE CONTRACT DOCUMENTS.
11. ACCESSIBLE PAVEMENT MARKINGS AND SIGNAGE SHALL BE PROVIDED BY THE CONTRACTOR PER LOCAL JURISDICTIONAL STANDARDS.
12. ACCESSIBLE PARKING SPACES AND AISLES INDICATED ON THE CONTRACT DOCUMENTS SHALL HAVE A MAX. 2% (1 IN 50) RUNNING AND CROSS SLOPE. MIN. 5' WIDE ACCESS AISLE ADJACENT TO ACCESSIBLE SPACES AND A MIN. 8' WIDE AISLE ADJACENT TO VAN ACCESSIBLE SPACES SHALL BE PROVIDED.
13. WHEEL STOPS (IF INSTALLED) SHALL NOT OBSTRUCT AN ACCESSIBLE ROUTE.
14. ALL ACCESSIBLE RAMPS ON PUBLIC OR PRIVATE STREETS SHALL MEET VDOT STANDARD CG-12 A, B OR C.
15. WARNING TEXTURE SURFACE SHALL BE PROVIDED ON ALL RAMPS IN ACCORDANCE WITH VDOT STANDARDS.
16. A 2 FOOT WIDE WARNING TEXTURE SURFACE SHALL BE PROVIDED ON ALL COMMERCIAL DRIVEWAY ENTRANCES AND PRIVATE STREETS THAT CROSS SIDEWALKS AT GRADE (NOT REQUIRING AN ACCESSIBLE RAMP) FOR THE WIDTH OF THE SIDEWALK AREA AND ALONG RADIUS AND/OR FLARE.
17. ALL STEPS THAT PROVIDE PUBLIC ACCESS SHALL MEET ADA-ABA ACCESSIBLE GUIDELINE STANDARDS (SECTION 504 "STAIRWAYS").

PARKING NARRATIVE

THE PROPOSED BUILDING IS AN ACCESSORY MAINTENANCE AND STORAGE FACILITY INTENDED TO SUPPLEMENT TO THE EXISTING PARK FACILITIES. NO ADDITIONAL PARKING NEEDS ARE ANTICIPATED WITH THIS NEW BUILDING. THE EXISTING PARKING FACILITIES ON SITE ARE ADEQUATE TO SERVE THE CURRENT PARK OPERATIONS. PROPOSED USE IS ONLY FOR INTERNAL USE BY PARK STAFF AND NO PUBLIC USE.

BUILDING/USE PARKING TABULATION

EXISTING VISITOR CENTER (PLAN #5731-SP-002)
REQUIRED PARKING; 16 SPACES
PROVIDED PARKING: 212 SPACES (WITH PLAN #5731-MSP-006)

EXISTING CONSERVANCY CENTER (PLAN #5731-SP-003)
REQUIRED PARKING: 42 SPACES
PROVIDED PARKING: 147 SPACES

EXISTING MAINTENANCE BUILDING (PLAN#5731-MSP-003)
REQUIRED PARKING: 3 SPACES
PROVIDED PARKING: 10 SPACES

PROPOSED MAINTENANCE STORAGE BUILDING (THIS APPLICATION PLAN #SP-2023-00031)
REQUIRED PARKING: NA (NO ADDITIONAL EMPLOYEES ARE PROPOSED)

EXISTING BUILDING TABULATION:

EXISTING VISITOR CENTER (PLAN #5731-SP-002)
GFA REPORTED: 4,656 SF

EXISTING CONSERVANCY CENTER (PLAN #5731-SP-003)
GFA REPORTED: 12,050 SF

EXISTING MAINTENANCE BUILDING (PLAN#5731-MSP-003)
GFA REPORTED: 5,363 SF

EXISTING GREENHOUSE (PLAN #5731-MSP-007)
GFA INDICATED: 1,260 SF

TOTAL GFA: 23,329 SF

EXCESS HAULING MATERIAL NOTE:

THE GRADING/EXCAVATION CONTRACTOR FOR THE SUBJECT SITE IS REQUIRED TO NOTIFY, IN WRITING, THE ASSIGNED SITE INSPECTOR REGARDING ANY EXCESS MATERIAL PROPOSED TO BE HAULED OFFSITE PRIOR TO HAULING. THE NOTIFICATION MUST INDICATE THE QUANTITY OF MATERIAL TO BE MOVED OFFSITE, IDENTIFICATION OF THE RECEIVING SITE WHERE THE EXCESS WILL BE TAKEN, AND ALL INFORMATION NECESSARY TO SHOW THAT SUCH RECEIVING SITE HAS BEEN PROPERLY PERMITTED AND HAS E&S CONTROLS INSTALLED.

LAND DISTURBING ACTIVITY NOTE:

IN ACCORDANCE WITH AN AMENDMENT TO VIRGINIA SEDIMENT AND EROSION CONTROL LAW, EFFECTIVE JULY 1, 2001, AS A PREREQUISITE TO THE APPROVAL OF AN EROSION AND SEDIMENT CONTROL PLAN, THAT THE PERSON RESPONSIBLE FOR CARRYING OUT THE PLAN (OWNER/DEVELOPER/PERMITEE) SHALL PROVIDE TO THE PLAN APPROVING AUTHORITY THE NAME OF AN INDIVIDUAL HOLDING A CERTIFICATE OF COMPETENCE ISSUED BY THE DEPARTMENT OF CONSERVATION AND RECREATION (DCR) WHO WILL BE RESPONSIBLE FOR CARRYING OUT THE LAND DISTURBING ACTIVITY. THIS INFORMATION MUST BE KEPT CURRENT FOR THE LIFE OF THE PLAN. PLANS APPROVED PRIOR TO JULY 1, 2001, ARE NOT SUBJECT TO THESE REQUIREMENTS.

FIRE DEPARTMENT ACCESS NOTE:

FIRE DEPARTMENT ACCESS TO THE PROPOSED MAINTENANCE BUILDING AND EXISTING MAINTENANCE/GREENHOUSE BUILDING IS PROVIDED VIA THE EXISTING GATED ENTRANCE LOCATED ALONG BEULAH ROAD, AS INDICATED ON SHEET 5 HEREIN.

GENERAL NOTES AND SPECIFICATIONS

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE MOST CURRENT APPROVED STRUCTURAL PLANS AND COORDINATE SAME WITH THE SITE PLAN, PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.
2. WHEN DURING THE COURSE OF CONSTRUCTION, ANY OBJECT OF AN UNUSUAL NATURE IS ENCOUNTERED, THE CONTRACTOR SHALL CEASE WORK IN THAT AREA AND IMMEDIATELY NOTIFY THE OWNER, FAIRFAX COUNTY, AND/OR THE ARCHITECT/ENGINEER.
3. THE EXISTING UNDERGROUND UTILITIES SHOW HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN IN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUANCE OF SERVICE.
4. STANDARD GUARD RAIL AND HAND RAILS SHALL BE INSTALLED AS INDICATED ON THE PLANS.
5. CONTROLLED FILLS MUST BE COMPACTED TO 95% AS DETERMINED PER STANDARD PROCTOR AASHTO T-99 OR ASTM D 698, AS SHOWN IN THE GEOTECHNICAL REQUIREMENTS. DENSITY MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER AND THE RESULTS SUBMITTED TO FAIRFAX COUNTY PRIOR TO FOOTING CONSTRUCTION.
6. UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS, ALL FILL SOILS UNDER EXPANDED PAVED AREAS SHALL BE COMPACTED TO 95% OF THEORETICAL MAXIMUM % OF DENSITY AS DETERMINED BY ASTM SPECIFICATION D-698 STANDARD PROCTOR METHOD, WITHIN + OR − 2% OPTIMUM MOISTURE FOR THE FULL WIDTH OF ANY DEDICATED RIGHT-OF-WAY AND ALL PARKING LOTS, CURB AND GUTTER AND SIDEWALKS WITH UPPER 1.0 FT. COMPACTED TO 100% OF THE MAXIMUM DRY DENSITY PER ASTM D-698.
7. ADDITIONAL DITCH LININGS OR SEDIMENT AND EROSION CONTROL MEASURES SHALL BE PROVIDED, AT THE CONTRACTOR EXPENSE, AS DETERMINED NECESSARY BY VDOT AND/OR FAIRFAX COUNTY DURING FIELD REVIEW. ALL COSTS SHALL BE ASSUMED BY THE CONTRACTOR.
8. THE DESIGN AND INSTALLATION OF PAVEMENT PLACED WITHIN THE RIGHT-OF-WAY IF ANY, SHOULD EQUAL OR EXCEED THE THICKNESS OF THE EXISTING PAVEMENT.
9. OVERLAY OF EXISTING PAVEMENT SHALL BE MINIMUM OF 1 1/2 INCH DEPTH; ANY COST ASSOCIATED WITH PAVEMENT OVERLAY, OR THE MILLING OF EXISTING PAVEMENT TO OBTAIN REQUIRED DEPTH, SHALL BE ASSUMED BY THE CONTRACTOR.
10. THE PAVEMENT DESIGN AND DEPTH OF STREETS SHOWN HEREON, IF ANY, IS BASED ON AN ASSUMED CBR VALUE. PRIOR TO CONSTRUCTION, SOIL TESTS OF SUBGRADE MUST BE PERFORMED BY A GEOTECHNICAL ENGINEER OF RECORD AND MUST BE SUBMITTED TO ENGINEER FOR ACTUAL DETERMINATION AND CALCULATION OF THE REQUIRED PAVEMENT DESIGN AND SUBBASE THICKNESS. NO PAVEMENT CONSTRUCTION MAY COMMENCE WITHOUT THE FINAL PAVEMENT DESIGN APPROVAL BY THE OWNER.
11. EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND THE REGULATIONS OF FAIRFAX COUNTY.
12. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO GRAVE SITES OR BURIAL PLOTS ON THIS PROPERTY.
13. ALL ELEVATIONS SHALL BE BASED ON USGS OR USC&GS MEAN SEA LEVEL DATUM.
14. NO BLASTING SHALL BE PERMITTED.
15. ALL RETAINING WALLS 3' IN HEIGHT AND OVER REQUIRE A SEPARATE BUILDING PERMIT (LTI JULY 30, 2014).
16. THE APPROVAL OF THIS PLAN DOES NOT CONSTITUTE THE APPROVAL OF FUTURE WORK.
17. IT SHALL BE INCUMBENT UPON THE CONTRACTOR TO OBTAIN AND BE FAMILIAR WITH THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM, LATEST EDITION), THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS (LATEST EDITION), THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (LATEST EDITION).
18. PER AGREEMENT, ANY PROPOSED SWM FACILITIES WILL BE OWNED BY FCPA BUT MAINTAINED BY MSDS.

TRAFFIC MAINTENANCE

1. ALL TRAFFIC MAINTENANCE AS REQUIRED TO ALLOW CONTINUED UNINTERRUPTED OPERATIONS OF PARK FACILITIES AND PUBLIC ROADWAYS SHALL CONFORM WITH THE VIRGINIA WORK AREA PROTECTION MANUAL, CURRENT EDITION.

TREE REMOVAL PROTECTION DURING CONSTRUCTION

DENOTES TREES TO HAVE TREE PROTECTION BARRICADE (6' CHAIN LINK FENCE) AT DRIP LINE AS PER ARTICLE 12 OF THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL. CONSTRUCTION OPERATIONS SHALL TAKE NECESSARY MEASURES TO AVOID THE DAMAGING OR REMOVAL OF EXISTING TREES. TREES REQUIRED TO BE DISTURBED OR REMOVED WILL BE DONE SO ONLY AFTER WRITTEN PERMISSION IS OBTAINED FROM THE FCPA.

OVERLAND RELIEF

OVERLAND RELIEF FOR HIGHER STORMS IS PROVIDED FOR ALL LOW POINTS. FOR THE PURPOSES OF THE OVERLAND RELIEF, A 100-YEAR DESIGN STORM WAS USED AND STORM SEWER INLETS AND THE STORM SEWER WERE CONSIDERED INOPERABLE.

SURVEY NOTES

1. THE SURVEYED AREA IS CURRENTLY IN THE NAME OF NORTHERN VIRGINIA REGIONAL PARK AUTHORITY (PIN 0281-01-0008C,0281-01-0008A, 0281-01-0008D).
2. HORIZONTAL DATUM IS REFERENCED TO VIRGINIA STATE PLANE NAD83.
3. VERTICAL DATUM IS REFERENCED TO NGVD29 PER GPS OBSERVATIONS AND A CORPSCON CONVERSION.
4. THE PROPERTY SHOWN HEREON LIES IN ZONE X (NO SCREEN) (0.2% ANNUAL CHANCE FLOOD HAZARD) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP FOR FAIRFAX COUNTY, VIRGINIA, MAP NUMBER 24031C0410D, EFFECTIVE DATE SEPTEMBER 29, 2006.
5. THE PROPERTY SHOWN HEREON IS SUBJECT TO ALL COVENANTS AND RESTRICTIONS OF RECORD. BOWMAN HAS NOT BEEN PROVIDED A TITLE REPORT AND THEREFORE THIS PLAT DOES NOT NECESSARILY INDICATE THE EXISTENCE OF ALL COVENANTS AND RESTRICTIONS ON THE PROPERTY.
6. BOUNDARY AS SHOWN IS APPROXIMATE PER FAIRFAX COUNTY GIS AND DOES NOT REPRESENT BOUNDARY SURVEY.
7. LOCATION OF UTILITIES DESIGNATED WITH "DATR" AND ASSOCIATED INFORMATION WERE PROVIDED BY NOVA PARKS.

SOURCE NOTE:

ARCHITECTURAL INFORMATION WAS OBTAINED FROM PLANS PROVIDED BY NVRPA, DATED FEBRUARY 23, 2023.

BATHYMETRIC SURVEY NOTE

THE DOWNSTREAM IMPOUNDMENT WITHIN THE DRAINAGE AREA OF THE PROPOSED IMPROVEMENT IS LOCATED ENTIRELY WITHIN THE APPLICATION SUBJECT PROPERTY LIMITS. THE APPLICANT RELEASES ITSELF FROM THE REQUIREMENT OF A PRE OR POST DEVELOPMENT BATHYMETRIC SURVEY.

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING A BID FOR THE CONSTRUCTION OF THE PROJECT.
2. THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE AND MAKE ALL INSPECTIONS NECESSARY IN ORDER TO DETERMINE THE FULL EXTENT OF THE WORK REQUIRED TO MAKE THE PROPOSED WORK CONFORM TO THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK, CONDITIONS, AND CONFIRMATION AND CONDITION OF EXISTING GROUND SURFACE AND THE CHARACTER OF THE EQUIPMENT AND FACILITIES NEEDED PRIOR TO AND DURING EXECUTION OF THE WORK. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE CHARACTER, QUANTITY AND QUALITY OF SURFACE AND SUBSURFACE MATERIALS OR OBSTACLES TO BE ENCOUNTERED. ANY INACCURACIES OR DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS MUST BE BROUGHT TO THE OWNER'S ATTENTION IN ORDER TO CLARIFY THE EXACT NATURE OF THE WORK TO BE PERFORMED PRIOR TO THE COMMENCEMENT OF ANY WORK.
3. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM) AND THE VIRGINIA DEPARTMENT OF TRANSPORTATION (V.D.O.T.) STANDARDS AND SPECIFICATIONS, AND THE VIRGINIA STATEWIDE BUILDING CODE (AS APPLICABLE).
4. UNLESS MORE STRINGENT COMPACTION REQUIREMENTS ARE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS, THE INSTALLATION OF TRENCH BACKFILL AND THE RESTORATION OF DISTURBED AREAS SHALL BE COMPACTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE V.D.O.T. ROAD AND BRIDGE SPECIFICATIONS. ALL COMPACTION SHALL BE AT ±2% OF THE OPTIMUM MOISTURE CONTENT.
5. WHERE EXISTING NATURAL DRAINAGE DITCHES OR STREAM BANKS ARE DISTURBED DURING CONSTRUCTION THE CONTRACTOR SHALL RESTORE THIS AREA TO ORIGINAL ALIGNMENT, GRADE AND INVERT.
6. THE FOLLOWING PROVISIONS SHALL APPLY TO THE USE OF SHEETING AND SHORING:
   6.1. SHEETING AND SHORING OR OTHER APPROVED METHODS FOR TRENCH BRACING MAY BE REQUIRED ON THIS CONTRACT AS NEEDED TO MEET ALL SAFETY REQUIREMENTS.
   6.2. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, SHEETING AND SHORING WILL BE REMOVED FROM ALL TRENCHES PRIOR TO BACKFILLING OPERATIONS.
   6.3. UNLESS SPECIFICALLY IDENTIFIED IN THE CONTRACT DOCUMENTS, NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR SHEETING AND SHORING.
7. WHERE A PROPOSED PIPE CROSSES OR PARALLELS A STREET OR DRIVE AISLE, THE ASPHALT SHALL BE NEATLY SAWCUT TO FULL DEPTH. AFTER INSTALLATION OF THE PIPE, THE ROADWAY SHALL BE PATCHED IN ACCORDANCE WITH THE V.D.O.T. LAND USE PERMIT ISSUED FOR THE PROJECT.
8. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING ROADS AND UTILITIES WHICH OCCURS AS A RESULT OF THE PROJECT CONSTRUCTION WITHIN OR CONTIGUOUS TO THE EXISTING RIGHT-OF-WAY.
9. ALL STREET CUT AND PATCH WORK IN PUBLIC RIGHT-OF-WAY REQUIRED FOR UTILITIES INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH COUNTY AND/OR VDOT STANDARDS AND SPECIFICATIONS.
10. THE APPROVAL OF THIS PLAN SHALL IN NO WAY GRANT PERMISSION BY THE COUNTY FOR THE CONTRACTOR TO TRESPASS ON OFF-SITE PROPERTIES.
11. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF COMPLYING WITH OTHER APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.
12. THESE PLANS MAKE NO REPRESENTATION AS TO THE SUBSURFACE CONDITIONS AND THE PRESENCE OF SUBSURFACE WATER OR THE NEED FOR SUBSURFACE DRAINAGE FACILITIES.
13. THE CONTRACTOR IS RESPONSIBLE FOR ARRANGING ALL NECESSARY INSPECTIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A SAFE CONSTRUCTION SITE AND COMPLYING WITH ALL OSHA REGULATIONS.
15. EMERGENCY VEHICLE ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION.
16. ALL FINISHED GRADING, SEEDING, SODDING OR PAVING SHALL BE DONE IN SUCH A MANNER TO PRECLUDE THE PONDING OF WATER.
17. THE ENGINEER SHALL NOT HAVE CONTROL OVER OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK SHOWN ON THESE PLANS. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S SCHEDULES OR FAILURE TO CARRY OUT THE WORK. THE ENGINEER IS NOT RESPONSIBLE FOR ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR THEIR AGENTS OR EMPLOYEES, OR OF ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DIGGING OF TEST HOLES PRIOR TO BEGINNING OF ANY CONSTRUCTION ON THE PROJECT. IF CONFLICTS ARE DISCOVERED AS A RESULT OF TEST HOLE FINDINGS, NOTIFY OWNER'S REPRESENTATIVE IMMEDIATELY.
19. TYPICAL SECTIONS ARE INTENDED TO SHOW GENERAL FEATURES OF THE PROPOSED CONSTRUCTION. FOR EXACT DETAILS AT ANY GIVEN LOCATION, SEE PLANS.
20. EXCAVATION SUPPORT SYSTEMS SHALL CONFORM TO THE PROVISIONS OF OSHA CONSTRUCTION STANDARD 29 CFR PART 1926 SUBPART P, OR CURRENT EDITION.
21. AT LOCATIONS WHERE THE FINAL SURFACE COURSE OF ASPHALT PAVEMENT IS TO BE FEATHERED INTO THE EXISTING SURFACE COURSE, THE EXISTING SURFACE COURSE IS TO BE SCABBLED TO A MINIMUM DEPTH OF 1" AND A TACK COAT APPLIED PRIOR TO FINAL PAVING TO INSURE A SMOOTH, WELL BONDED JOINT.
22. ANY NEW PAVEMENT OPENED TO TRAFFIC SHALL RECEIVE A TACK COAT PRIOR TO PLACEMENT OF ANY OVERLYING ASPHALT COURSE.
23. ALL SIDEWALKS TO BE 4" THICK CONCRETE UNLESS OTHERWISE SHOWN ON THE PLAN.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE SITE FROM UNAUTHORIZED ACCESS AT ALL TIMES DURING CONSTRUCTION.

BENCH MARKS TABLE

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
#1	7,027,324.772	11,828,532.754	319.36	IRON ROD W/CAP
#2	7,027,478.073	11,828,589.738	324.14	IRON ROD W/CAP
#4	7,026,722.644	11,828,590.579	270.16	IRON ROD W/CAP

Bowman

Bowman Consulting Group, Ltd.
13461 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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NOTES AND ABBREVIATIONS
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION
DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: N/A V:
JOB No. 140291-01-001
DATE : MAY, 2023
FILE No. 140291-D-ZP-001
SHEET 2 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-NTS.dwg

UTILITIES

GENERAL UTILITY NOTES

COMPACTION OF BACKFILL IN UTILITY TRENCHES SHALL BE IN ACCORDANCE WITH FAIRFAX COUNTY AND/OR VDOT STANDARDS & SPECIFICATIONS.

ALL UTILITIES NOTED TO BE RELOCATED OR REMOVED SHALL BE AT THE CONTRACTOR'S EXPENSE, TO INCLUDE ALL POLES AND STRUCTURES AS REQUIRED. ALL POLES REQUIRED TO BE RELOCATED MUST BE MOVED PRIOR TO CONSTRUCTION.

ALL UTILITIES WHICH WILL BE PLACED UNDER EXISTING STREETS WILL BORED AND JACKED, UNLESS OTHERWISE ALLOWED IN WRITING BY JURISDICTION HAVING AUTHORITY OVER STREET.

EXISTING MANHOLE FRAMES AND COVERS AND VALVE BOXES AND COVERS SHALL BE ADJUSTED OR RECONSTUCTED, AS NECESSARY, TO MATCH FINISHED GRADES.

WHILE THIS PLAN MAY SHOW THE APPROXIMATE REALIGNMENT OF ELECTRIC, GAS, COMMUNICATIONS AND DATA LINES, DETAILED CONSTRUCTION DRAWINGS AND SPECIFICATIONS WILL BE GENERATED FOR THOSE IMPROVEMENTS BY RESPECTIVE UTILITY COMPANIES.

EXISTING UTILITIES

THE UTILITY INFORMATION SHOWN ON THESE PLANS IS TAKEN FROM AVAILABLE RECORD. THE FAIRFAX COUNTY PARK AUTHORITY DOES NOT GUARANTEE THAT THE UTILITY INFORMATION SHOWN ON THE PLANS IS COMPLETE OR ACCURATE. THE CONTRACTOR MUST VERIFY THE UTILITY LOCATIONS PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN IN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUANCE OF SERVICE.

ALL EXISTING UNDERGROUND UTILITIES IN THE VICINITY OF PROPOSED IMPROVEMENTS/CONSTRUCTION SHALL BE MARKED IN THE FIELD BY MISS UTILITY PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING THE FIELD MARKING OF UTILITIES WITH "MISS UTILITY".

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT EXISTING UTILITIES ARE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS WITHIN THE LIMITS OF CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS INDICATED ON THE CONSTRUCTION PLANS.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED CONSTRUCTION, EXCAVATION OR BLASTING AT LEAST 3 WORKING DAYS, BUT NOT MORE THAN 10 WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION IN ACCORDANCE WITH CHAPTER 63 OF FAIRFAX COUNTY CODE. NAMES AND TELEPHONE NUMBERS OF THE VARIOUS OPERATORS OF UNDERGROUND UTILITY LINES IN FAIRFAX COUNTY APPEAR ABOVE. THESE NUMBERS WILL ALSO BE USED TO SERVE EMERGENCY CONDITION NOTICE AS REQUIRED BY CHAPTER 63 OF THE FAIRFAX COUNTY CODE.

THE CONTRACTOR SHALL CONTACT MISS UTILITY OF VIRGINIA AT 811, UTILITY COMPANY REPRESENTATIVES, PERFORM TEST PITS, REVIEW CURRENT TEST PIT DATA, AND WHATEVER OTHER OPERATIONS AVAILABLE TO INSURE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES IN THE AREA OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE F.C.P.A. OF ANY POTENTIAL CONFLICTS PRIOR TO COMMENCING CONSTRUCTION.

PRIMARY UTILITY COMPANIES

PRIMARY UTILITY COMPANIES	MISS UTILITY OF VIRGINIA	EMERGENCY
AMERICAN TELEPHONE & TELEGRAPH CO.	811	1-800-241-3624
COLUMBIA GAS OF VIRGINIA	811	1-800-543-8911 - (703) 631-5363 (METRO)
COLUMBIA GAS TRANSMISSION CORP.	811	1-800-835-7191 (24 HRS)
COLONIAL PIPELINE CO.	811	1-800-926-2728
COX COMMUNICATIONS	811	(703) 313-6527 OR (703) 313-6531
DOMINION VIRGINIA POWER	811	(703) 591-2606
FAIRFAX COUNTY WATER AUTHORITY	811	(703) 698-5613
FAIRFAX CO. WASTEWATER COLLECTION DIVISION	811	(703) 323-1211
FAIRFAX CITY WATER SERVICE	811	(703) 385-7915 OR 385-7924 (24 HRS)
FAIRFAX COUNTY PUBLIC SAFETY	811	911
FALLS CHURCH PUBLIC UTILITIES / WATER	811	(703) 248-5044
MCI, INTERNATIONAL	811	1-800-852-6700
MCI, WORLD	811	1-800-624-9675
METROPOLITAN FIBER SYSTEMS	811	(703) 852-6700
NORTHERN VIRGINIA ELEC. CO-OP	811	(703) 335-0500
TRANSCO GAS PIPELINE CO.	811	1-800-440-8475 (24 HRS)
TOWN OF HERNDON PUBLIC WORKS	811	(703) 435-6860 STATION 185 (703) 368-3255
TOWN OF VIENNA WATER SERVICE	811	(703) 255-6381 AFTER 5:00 PM., (703) 255-6385
SPRINT (GLOBAL ONE)	811	1-800-521-0579 (24 HRS)
VERIZON (BELL ATLANTIC)	811	1-800-275-2355 - (703) 954-2222 (24 HRS)
VERIZON SOUTH	811	1-800-745-1944 (EMERGENCY REPAIR)
WASHINGTON GAS	811	(703) 750-1000 (GAS LEAK (703) 750-4831)

FIBER OPTIC UTILITY COMPANES

FIBER OPTIC COMPANIES	MISS UTILITY	EMERGENCY
Abovenet Communications	811	1-888-636-2778
Comcast Communications in Alexandria	811	
Cavalier Telephone Company	811	1-888-662-5700
Comcast Communications in Reston	811	(after hours 703-841-7700)
Cox Communications Fiber Division	811	(703) 313-6527 or (703) 313-6531
Dominion Telecom	811	1-888-854-2138
Level 3 Communications, LLC	811	1-887-366-8344
Lightwave Spectrum, Inc.	811	1-800-388-6460
Looking Glass Network, Inc.	811	1-866-342-7288
MCI	811	(703) 391-5787, (Cell – 703-598-1721)
Verizon South	811	1-800-745-1944 (Emergency Repair)
Qwest Communications Corporation	811	1-800-283-4237
Sprint	811	1-800-521-0579
Star Power Communications	811	
TCG/AT&T	811	1-888-634-1840 (Pager)
WilTel Communications	811	1-888-265-2283
XO Communications	811	
YIPES Communication, Inc.	811	
Xspedius	811	1-800-627-0181

MISS UTILITY

CALL "MISS UTILITY OF VIRGINIA" AT 811, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF FAIRFAX COUNTY CODES AND REGULATIONS.

CAUTION!!

THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE, THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION

Bowman

Bowman Consulting Group, Ltd.
14560 Lee Jackson Memorial Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
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UTILITY NOTES

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION
DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: N/A V:

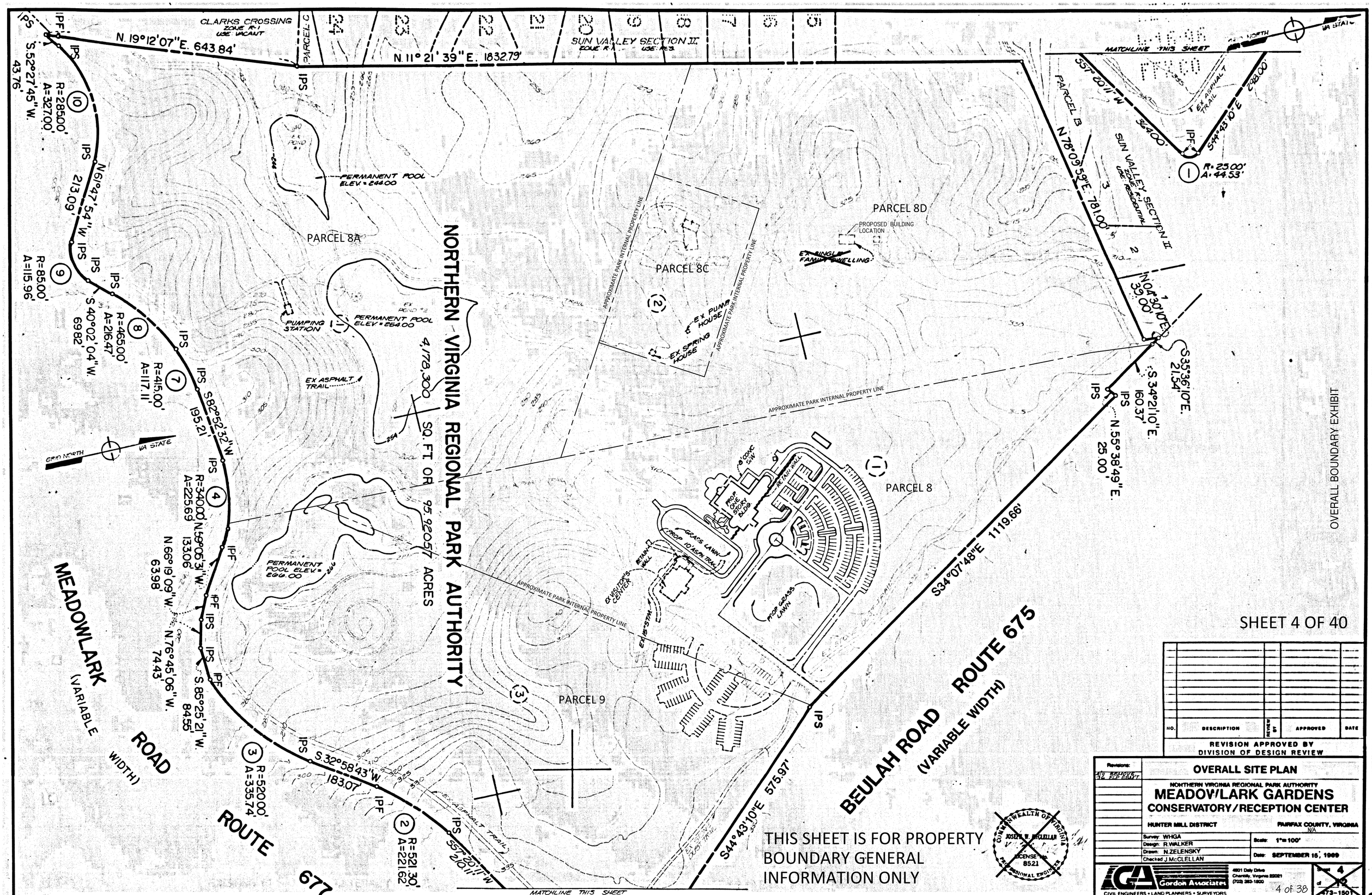
JOB No. 140291-01-001

DATE : MAY, 2023

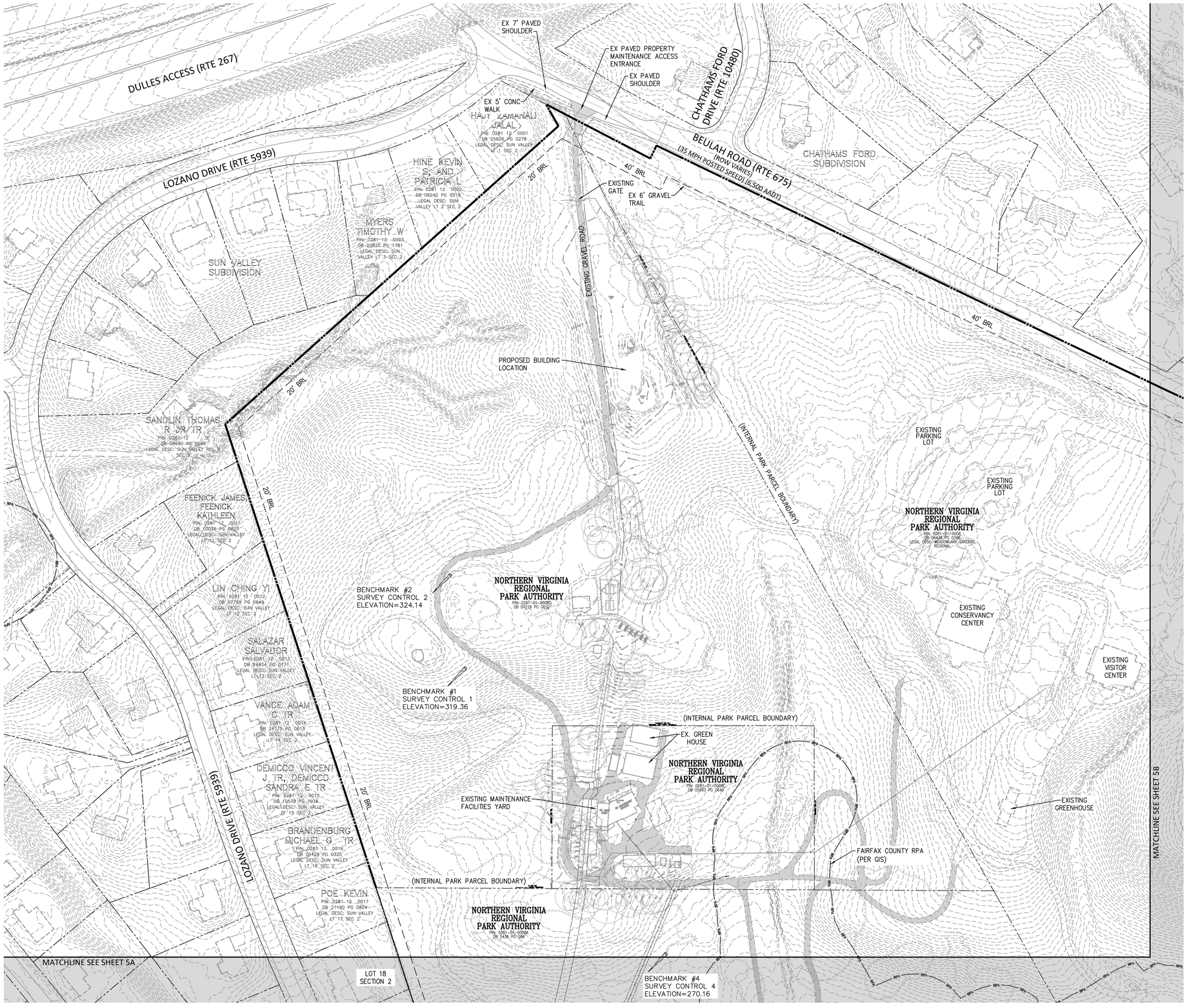
FILE No. 140291-D-ZP-001

SHEET 3 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-NTS.dwg



CLARKS CROSSING
ZONE R-1
USE VACANT
N. 19°12'07"E. 643.84'
N. 11°21'39"E. 1832.79'
SUN VALLEY SECTION II
ZONE R-1 USE RES.
MATCHLINE THIS SHEET
PARCEL C
PARCEL B
PARCEL 8A
PARCEL 8C
PARCEL 8D
PARCEL 8
PARCEL 9
PERMANENT POOL ELEV. = 244.00
PERMANENT POOL ELEV. = 264.00
PERMANENT POOL ELEV. = 266.00
PUMPING STATION
EX ASPHALT TRAIL
EX PUMP HOUSE
EX SPRING HOUSE
PROPOSED BUILDING LOCATION
EX SINGLE FAMILY DWELLING
APPROXIMATE PARK INTERNAL PROPERTY LINE
NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
4,178,300 SQ. FT. OR 95.92057 ACRES
MEADOWLARK ROAD (VARIABLE WIDTH)
ROUTE 677
BEULAH ROAD ROUTE 675 (VARIABLE WIDTH)
S34°07'48"E 1119.66'
S44°43'10"E 575.97'
S32°58'43"W 183.07'
S82°52'32"W 195.21'
S.52°27'45"W. 43.76'
N61°47'54"W 213.09'
S40°02'04"W. 69.82'
N66°19'09"W. 63.98'
N76°45'06"W. 74.43'
S.85°25'21"W. 84.55'
N.59°05'31"W. 133.06'
N.78°09'59"E. 781.00'
N04°30'10"E. 39.00'
S35°36'10"E. 21.54'
S.34°21'10"E. 160.37'
N.55°38'49"E. 25.00'
S44°43'10"E 298.00'
S57°20'11"W 364.00'
S57°20'11"W 210.11'
R=285.00' A=327.00'
R=85.00' A=115.96'
R=465.00' A=216.47'
R=415.00' A=117.11'
R=340.00' A=225.69'
R=520.00' A=335.74'
R=521.30' A=221.62'
R=25.00' A=44.53'
GRID NORTH
VA STATE
OVERALL BOUNDARY EXHIBIT
SHEET 4 OF 40
THIS SHEET IS FOR PROPERTY BOUNDARY GENERAL INFORMATION ONLY
NO. DESCRIPTION REVIEW BY APPROVED DATE
REVISION APPROVED BY DIVISION OF DESIGN REVIEW
OVERALL SITE PLAN
NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
MEADOWLARK GARDENS
CONSERVATORY/RECEPTION CENTER
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA
Survey: WHGA
Design: R.WALKER
Drawn: N.ZELENSKY
Checked J.McCLELLAN
Scale: 1"=100'
Date: SEPTEMBER 15, 1989
Gordon Associates
CIVIL ENGINEERS • LAND PLANNERS • SURVEYORS
4601 Daly Drive
Chantilly, Virginia 22021
(703) 263-1800
4 of 38
473-1501
REV. 2



LEGEND

BENCHMARK

NOTE:

1. REFER TO SHEET 4 FOR OVERALL PARK BOUNDARY EXHIBIT.
2. REFER TO SHEET 2 FOR BENCHMARK DATA.
3. INFORMATION SHOWN HEREON WAS OBTAINED FROM AVAILABLE FAIRFAX COUNTY G.I.S. DATA AND DOES NOT INCLUDE FIELD RUN TOPOGRAPHIC OR BOUNDARY SURVEY.

80 40 0 80 160

GRAPHIC SCALE
1" = 80'

Bowman

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12435 Park Potomac Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000

Fax: (703) 481-9720

www.bowman.com

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VICINITY PLAN

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION	
MT DESIGN	KF DRAWN	MT CHKD

SCALE H: 1"=50'
V:

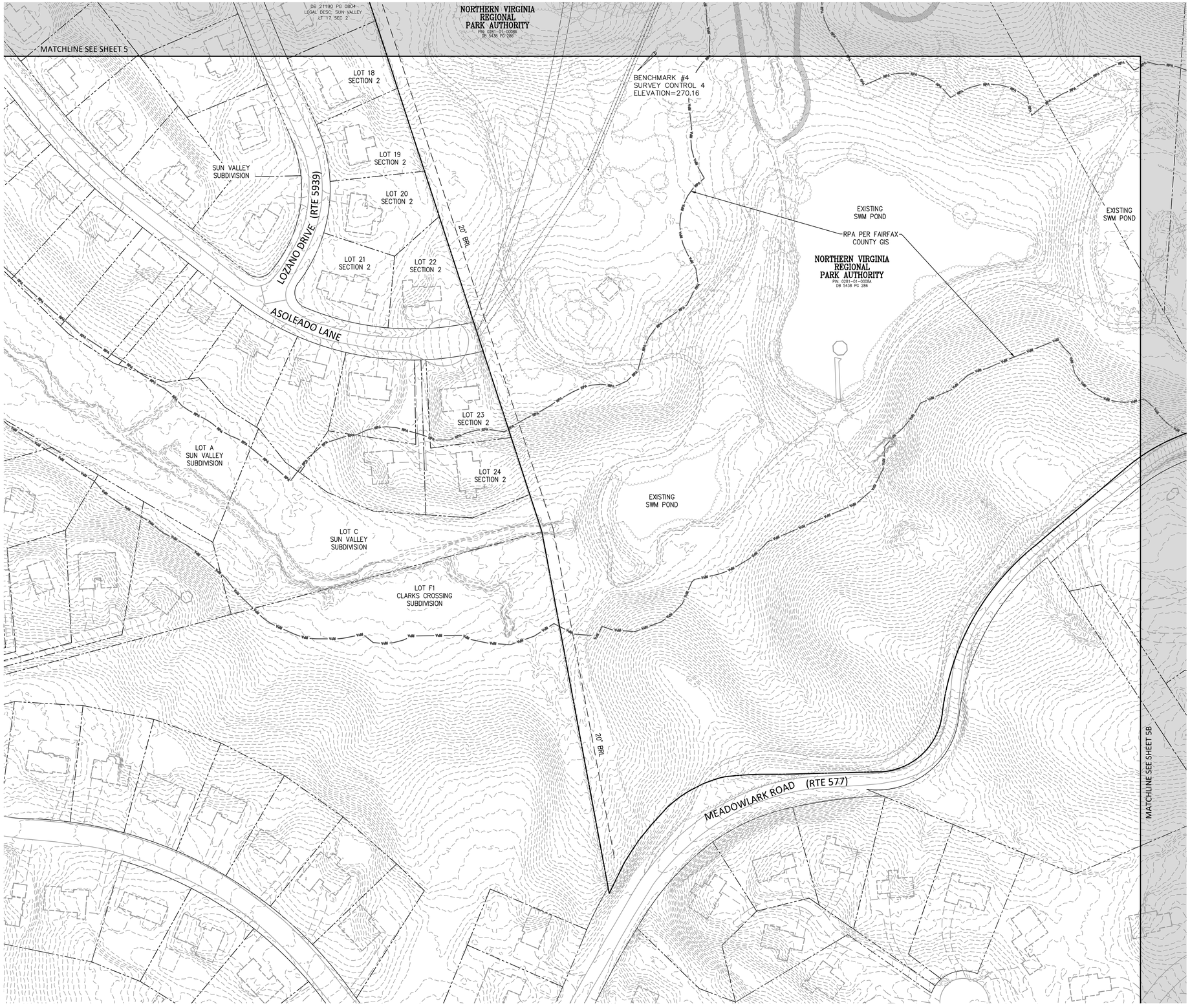
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 5 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-OVR.dwg



LEGEND

BENCHMARK

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2. REFER TO SHEET 2 FOR BENCHMARK DATA.
3. INFORMATION SHOWN HEREON WAS OBTAINED FROM AVAILABLE FAIRFAX COUNTY G.I.S. DATA AND DOES NOT INCLUDE FIELD RUN TOPOGRAPHIC OR BOUNDARY SURVEY.

80 40 0 80 160
GRAPHIC SCALE
1" = 80'

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VICINITY PLAN

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MAINTENANCE FACILITY
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11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION	
MT DESIGN	KF DRAWN	MT CHKD

SCALE H: 1"=80' V:

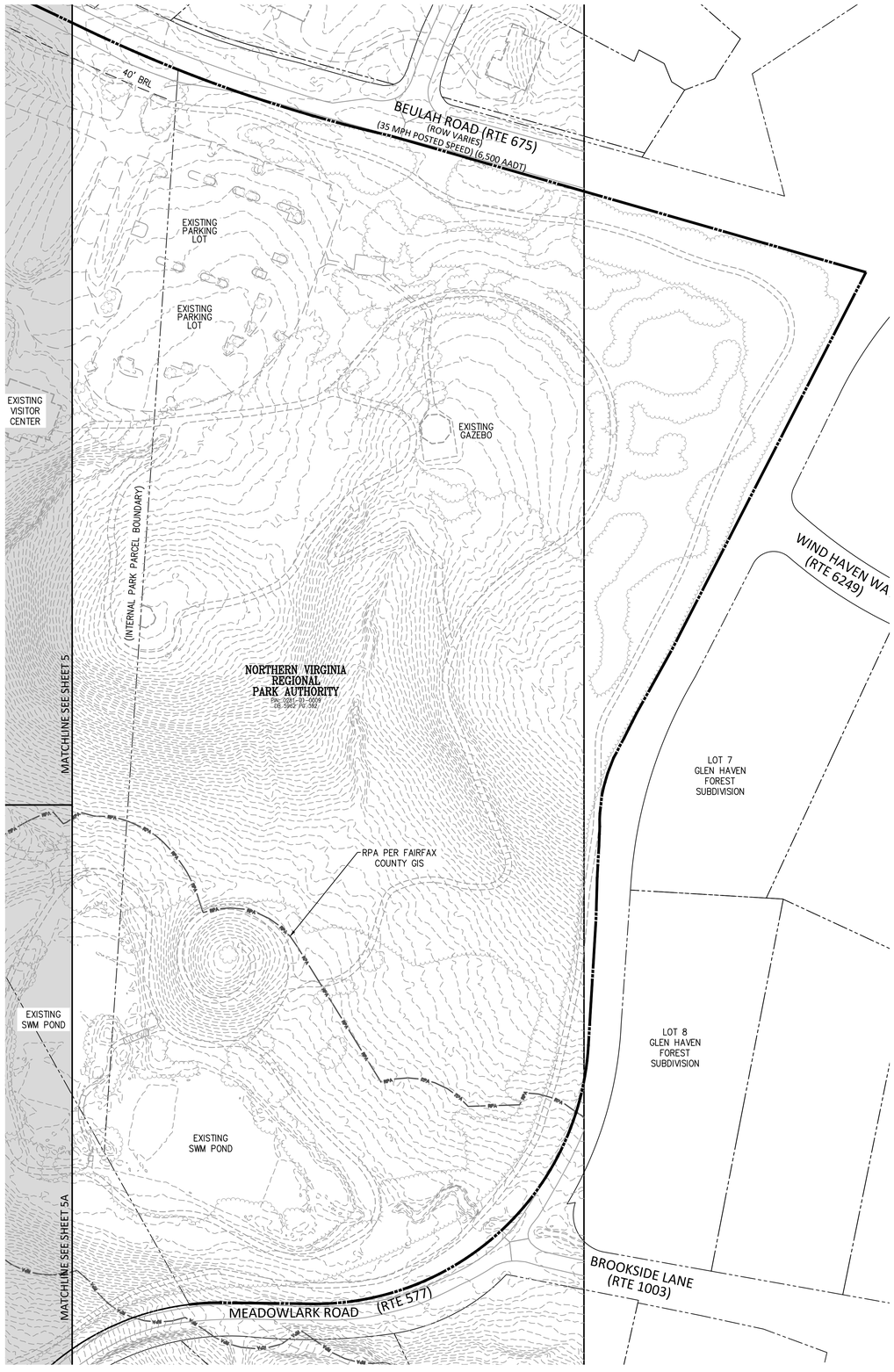
JOB No. 140291-01-001

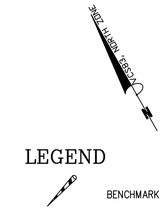
DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 5A OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-OVR.dwg





NOTE:
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3. INFORMATION SHOWN HEREON WAS OBTAINED FROM AVAILABLE FAIRFAX COUNTY G.I.S. DATA AND DOES NOT INCLUDE FIELD RUN TOPOGRAPHIC OR BOUNDARY SURVEY.

80 40 0 80 160
GRAPHIC SCALE
1" = 80'

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VICINITY PLAN

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
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FAIRFAX COUNTY, VIRGINIA

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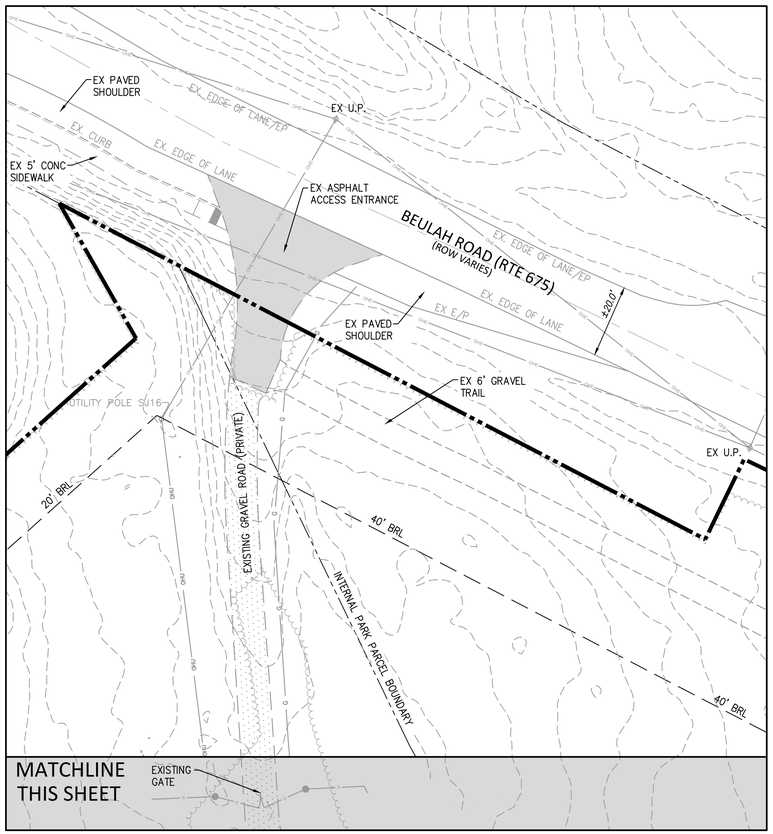
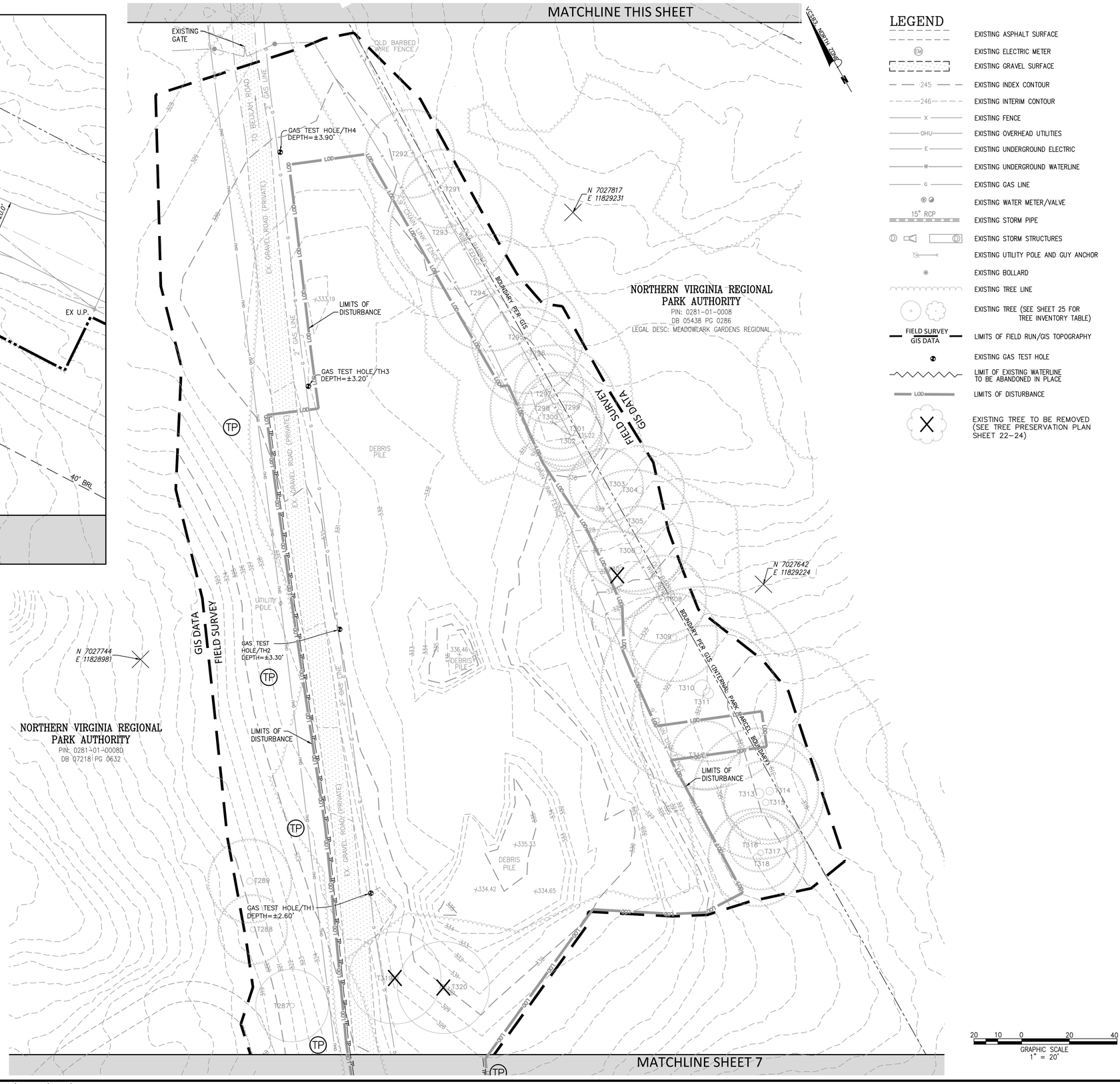
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION	
MT DESIGN	KF DRAWN	MT CHKD
SCALE	H: 1"=80' V:	
JOB No. 140291-01-001		
DATE : MAY, 2023		
FILE No. 140291-D-ZP-001		
SHEET 5B OF 40		

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-OVR.dwg





LEGEND

- EXISTING ASPHALT SURFACE
- EM — EXISTING ELECTRIC METER
- EXISTING GRAVEL SURFACE
- 245 — EXISTING INDEX CONTOUR
- 246 — EXISTING INTERIM CONTOUR
- X — EXISTING FENCE
- OHU — EXISTING OVERHEAD UTILITIES
- E — EXISTING UNDERGROUND ELECTRIC
- W — EXISTING UNDERGROUND WATERLINE
- G — EXISTING GAS LINE
- EXISTING WATER METER/VALVE
- 15" RCP — EXISTING STORM PIPE
- EXISTING STORM STRUCTURES
- EXISTING UTILITY POLE AND GUY ANCHOR
- EXISTING BOLLARD
- EXISTING TREE LINE
- EXISTING TREE (SEE SHEET 25 FOR TREE INVENTORY TABLE)
- FIELD SURVEY / GIS DATA — LIMITS OF FIELD RUN/GIS TOPOGRAPHY
- EXISTING GAS TEST HOLE
- LIMIT OF EXISTING WATERLINE TO BE ABANDONED IN PLACE
- LOD — LIMITS OF DISTURBANCE
- EXISTING TREE TO BE REMOVED (SEE TREE PRESERVATION PLAN SHEET 22-24)

GRAPHIC SCALE
20 10 0 20 40
1" = 20'

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12435 Gunnlee Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000

Fax: (703) 481-9720

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EXISTING CONDITIONS PLAN (1 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA
HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20'
V:

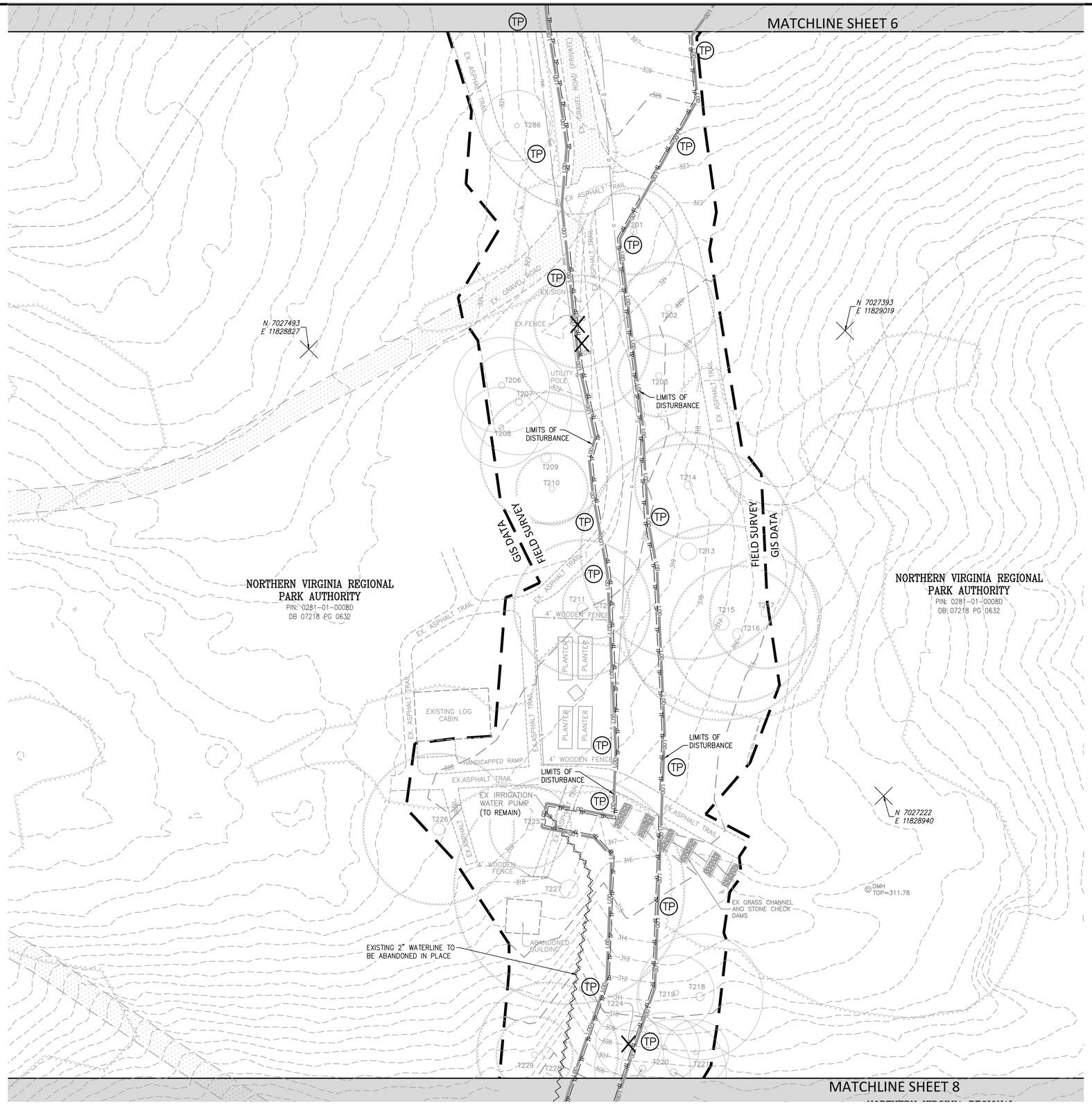
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 6 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-XCD.dwg



VCS83, NORTH ZONE

LEGEND

- EXISTING ASPHALT SURFACE
- EXISTING ELECTRIC METER
- EXISTING GRAVEL SURFACE
- 245 EXISTING INDEX CONTOUR
- 246 EXISTING INTERIM CONTOUR
- X EXISTING FENCE
- OHU EXISTING OVERHEAD UTILITIES
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- W EXISTING UNDERGROUND WATERLINE
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- EXISTING TREE (SEE SHEET 25 FOR TREE INVENTORY TABLE)
- FIELD SURVEY GIS DATA LIMITS OF FIELD RUN/GIS TOPOGRAPHY
- EXISTING GAS TEST HOLE
- LIMIT OF EXISTING WATERLINE TO BE ABANDONED IN PLACE
- LOD LIMITS OF DISTURBANCE
- EXISTING TREE TO BE REMOVED (SEE TREE PRESERVATION PLAN SHEET 22-24)

20 10 0 20 40
GRAPHIC SCALE
1" = 20'

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EXISTING CONDITIONS PLAN (2 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION	
MT DESIGN	KF DRAWN	MT CHKD

SCALE H: 1"=20' V:

JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 7 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-XCD.dwg

MATCHLINE SHEET 7

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281-01-0008D
DB 07218 PG 0632

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281 01 0008C
DB 05993 PG 0649

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281 01 0008A
DB 05438 PG 0286

GIS DATA FIELD SURVEY

EXISTING 2" WATERLINE TO BE ABANDONED IN PLACE

2" SERVICE LINE PER DATR (APPROXIMATE LOCATION)

4" WOOD FRAME FENCE

BOUNDARY PER GIS (INTERNAL PARK PARCEL BOUNDARY)

LIMITS OF DISTURBANCE

EX. GREENHOUSE

EX.SHED

N 7027137
E 11828613

N 7027016
E 11828823

10' FAIRFAX COUNTY WATER AUTHORITY EASEMENT (APPROX. LOCATION) DB: 6041 PG: 388

EXISTING WATER METER TO BE REMOVED AND SERVICE LINE TO BE DISCONNECTED FROM WATERMAIN PER FCWA STANDARDS

EX FH #28-1-29

6"W

6"WV

8" WATERLINE PER DATR (APPROXIMATE LOCATION) (TO REMAIN)

GRAVEL ROAD

15' FAIRFAX COUNTY WATER AUTHORITY EASEMENT (APPROX. LOCATION) DB: 6041 PG: 388

RETAINING WALL

EX. MAINTENANCE BUILDING

EX. WOOD BARN

EX. BUILDING

EXISTING 1 ½" SERVICE LINE CONNECTION TO 8" MAIN AND EX. 1" WATER METER ARE TO BE DISCONNECTED AND REMOVED PER FCWA STANDARDS

EX. 1" WATER METER

8" WATERLINE

APPROX. 1" SERVICE LINE PER PREVIOUSLY APPROVED SITE PLAN (TO REMAIN)

EX. 4" SAN LAT

FIELD SURVEY GIS DATA

FAIRFAX COUNTY RPA (PER GIS)

CENTER LINE OF DITCH 7.06%
INV.=284.84

INVERTS ARE PARTIALLY BURIED
INV.=285.83

CENTER LINE OF DITCH 1.69%

8" WATERLINE PER DATR (APPROXIMATE LOCATION)

8" WATERLINE

POLE MOUNTED MAILBOX

METAL CRATES WITH METAL & WOOD ROOF

EX. SHED

BOLLARD

GAS TANK

DIESEL TANK

ELEC. BOX

TELEPHONE PEDESTAL

EX. GRAVEL ROAD

EX. SAN LAT

SANITARY STRUCTURE 1074
TOP=276.58
IN=263.65 (FR STR 1889)
IN=263.82 (FR STR ATRIUM BUILDING)
OUT=263.44 (8" PVC TO STR 5W)

10' FAIRFAX COUNTY SANITARY SEWER EASEMENT (APPROXIMATE LOCATION) DB: 6034 PG: 1061

N 7026768
E 11828743

TP

RPA

VICINITY MAP
SCALE: 1" = 2000'
VICINITY NORTH

LEGEND

- EXISTING ASPHALT SURFACE
- EM — EXISTING ELECTRIC METER
- EXISTING GRAVEL SURFACE
- 245 — EXISTING INDEX CONTOUR
- 246 — EXISTING INTERIM CONTOUR
- X — EXISTING FENCE
- OHU — EXISTING OVERHEAD UTILITIES
- E — EXISTING UNDERGROUND ELECTRIC
- W — EXISTING UNDERGROUND WATERLINE
- G — EXISTING GAS LINE
- EXISTING WATER METER/VALVE
- 15" RCP — EXISTING STORM PIPE
- EXISTING STORM STRUCTURES
- EXISTING UTILITY POLE AND GUY ANCHOR
- EXISTING BOLLARD
- EXISTING TREE LINE
- EXISTING TREE (SEE SHEET 25 FOR TREE INVENTORY TABLE)
- FIELD SURVEY GIS DATA — LIMITS OF FIELD RUN/GIS TOPOGRAPHY
- EXISTING GAS TEST HOLE
- LIMIT OF EXISTING WATERLINE TO BE ABANDONED IN PLACE
- LOD — LIMITS OF DISTURBANCE
- EXISTING TREE TO BE REMOVED (SEE TREE PRESERVATION PLAN SHEET 22-24)

GRAPHIC SCALE
20 10 0 20 40
1" = 20'

Bowman

Bowman Consulting Group, Ltd.
14645 Rothgeb Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000

Fax: (703) 481-9720

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EXISTING CONDITIONS PLAN (3 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20'
V:

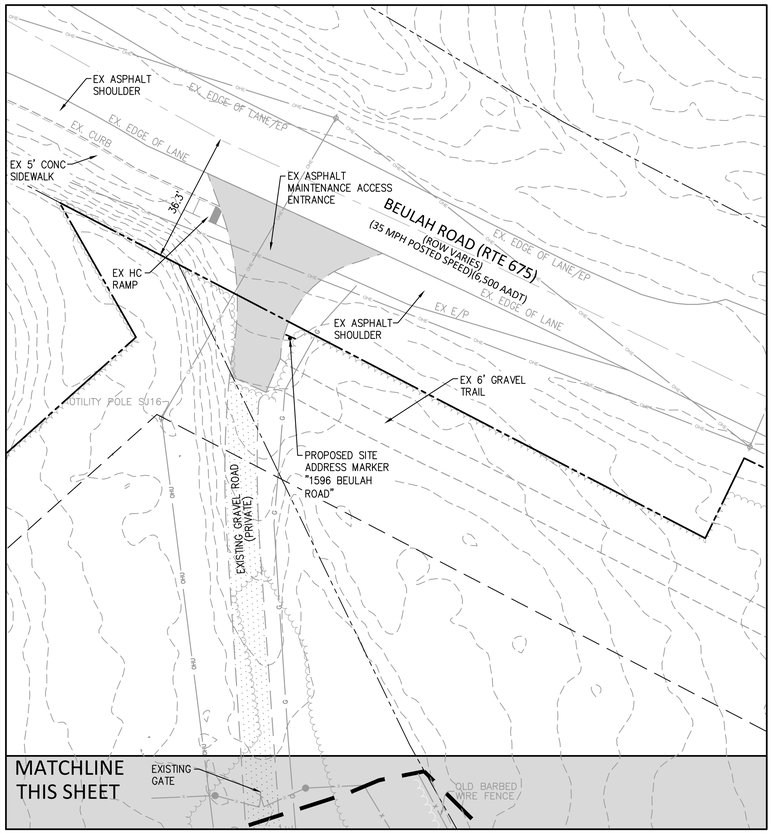
JOB No. 140291-01-001

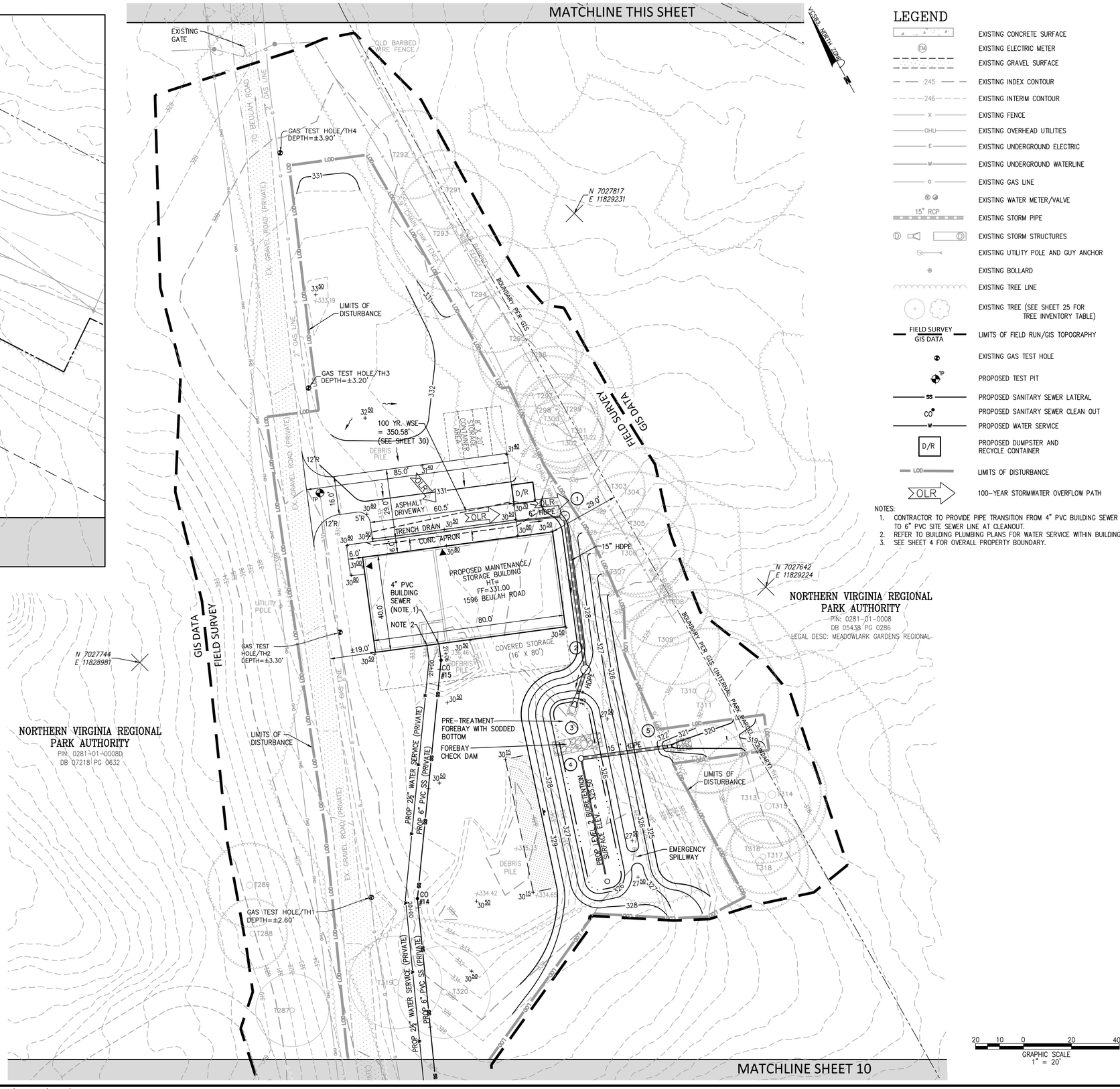
DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 8 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-XCD.dwg





LEGEND

- EXISTING CONCRETE SURFACE
- EM — EXISTING ELECTRIC METER
- EXISTING GRAVEL SURFACE
- 245 — EXISTING INDEX CONTOUR
- 246 — EXISTING INTERIM CONTOUR
- X — EXISTING FENCE
- OHU — EXISTING OVERHEAD UTILITIES
- E — EXISTING UNDERGROUND ELECTRIC
- W — EXISTING UNDERGROUND WATERLINE
- G — EXISTING GAS LINE
- EXISTING WATER METER/VALVE
- 15" RCP — EXISTING STORM PIPE
- EXISTING STORM STRUCTURES
- EXISTING UTILITY POLE AND GUY ANCHOR
- EXISTING BOLLARD
- EXISTING TREE LINE
- EXISTING TREE (SEE SHEET 25 FOR TREE INVENTORY TABLE)
- FIELD SURVEY GIS DATA — LIMITS OF FIELD RUN/GIS TOPOGRAPHY
- EXISTING GAS TEST HOLE
- TP — PROPOSED TEST PIT
- SS — PROPOSED SANITARY SEWER LATERAL
- CO — PROPOSED SANITARY SEWER CLEAN OUT
- W — PROPOSED WATER SERVICE
- D/R — PROPOSED DUMPSTER AND RECYCLE CONTAINER
- LOD — LIMITS OF DISTURBANCE
- OLR — 100-YEAR STORMWATER OVERFLOW PATH

NOTES:
1. CONTRACTOR TO PROVIDE PIPE TRANSITION FROM 4" PVC BUILDING SEWER TO 6" PVC SITE SEWER LINE AT CLEANOUT.
2. REFER TO BUILDING PLUMBING PLANS FOR WATER SERVICE WITHIN BUILDING.
3. SEE SHEET 4 FOR OVERALL PROPERTY BOUNDARY.

20 10 0 20 40
GRAPHIC SCALE
1" = 20'

Bowman

Bowman Consulting Group, Ltd.
12435 Gunnlee Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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SITE PLAN (1 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20'
V:

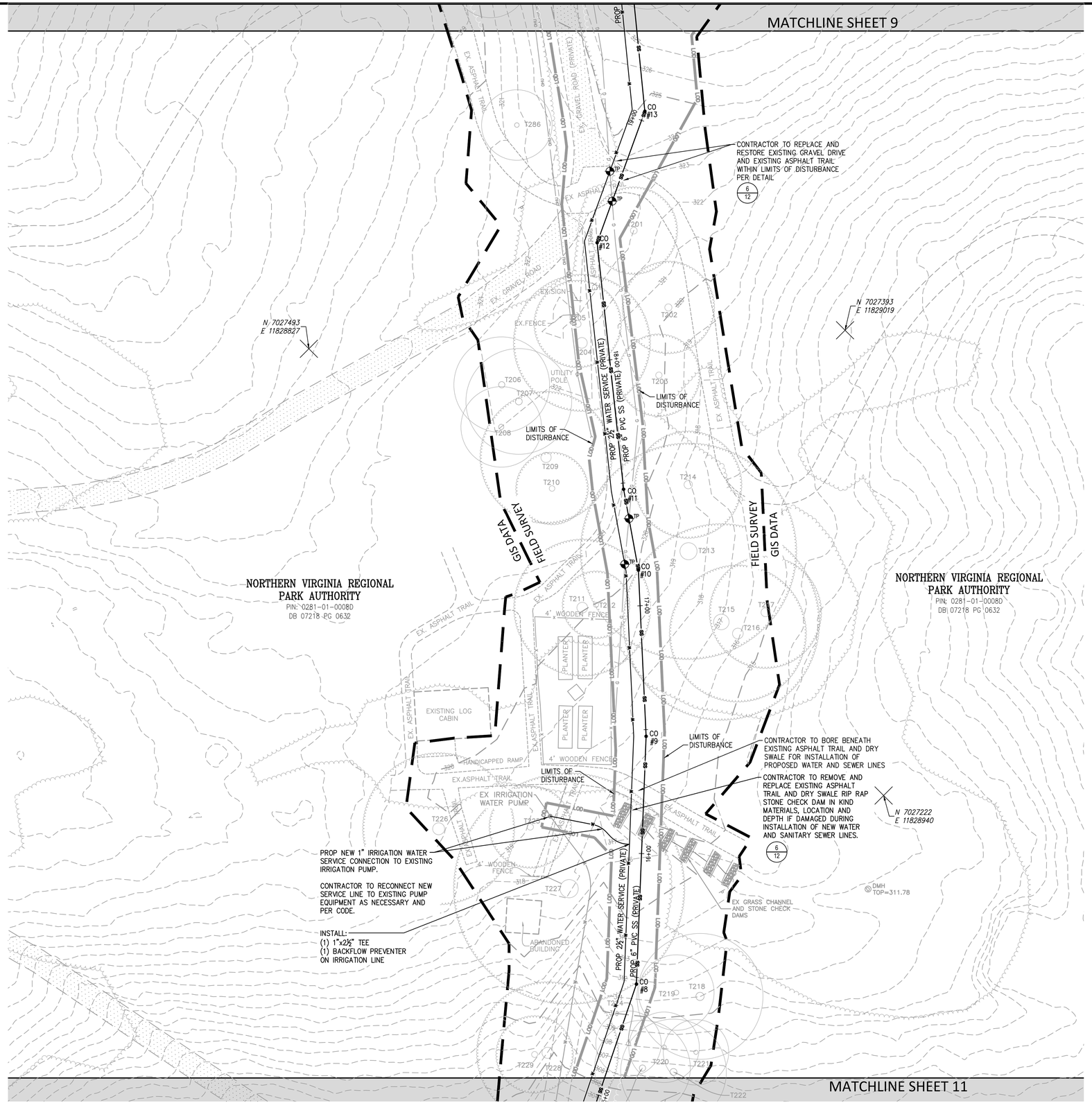
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 9 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-GRD.dwg



VESSEL NORTH ZERO

LEGEND

- EXISTING CONCRETE SURFACE
- EM — EXISTING ELECTRIC METER
- EXISTING GRAVEL SURFACE
- 245 — EXISTING INDEX CONTOUR
- 246 — EXISTING INTERIM CONTOUR
- X — EXISTING FENCE
- OHU — EXISTING OVERHEAD UTILITIES
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- TP — PROPOSED TEST PIT
- SS — PROPOSED SANITARY SEWER LATERAL
- CO — PROPOSED SANITARY SEWER CLEAN OUT
- W — PROPOSED WATER SERVICE
- LOD — LIMITS OF DISTURBANCE

NOTES:
1. SEE SHEET 4 FOR OVERALL PROPERTY BOUNDARY.
2. CONTRACTOR IS TO LOCATE EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY AT ALL CROSSINGS OF PROPOSED IMPROVEMENTS PRIOR TO COMMENCING WORK.

Bowman

Bowman Consulting Group, Ltd.
12435 Park Potomac Avenue
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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SITE PLAN (2 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA
HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20' V:

JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 10 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-GRD.dwg

MATCHLINE SHEET 10

GIS DATA FIELD SURVEY

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281-01-0008D
DB 07218 PG 0632

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281 01 0008C
DB 05993 PG 0649

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281 01 0008A
DB 05438 PG 0286

2" SERVICE LINE PER DATR (APPROXIMATE LOCATION)

4" WOOD FRAME FENCE

BOUNDARY PER GIS (INTERNAL PARK PARCEL BOUNDARY)

EX. GREENHOUSE

EX. GRAVEL ROAD

PROP 2½" WATER SERVICE (PRIVATE)

PROP 6" PVC SS (PRIVATE)

LIMITS OF DISTURBANCE

N 7027137
E 11828613

N 7027016
E 11828823

10' FAIRFAX COUNTY WATER AUTHORITY EASEMENT (APPROX. LOCATION) DB: 6041 PG: 388

EX.SHED

EX GREENHOUSE

EX FH #28-1-29

6"W

WV

SWM

8" WATERLINE PER DATR (APPROXIMATE LOCATION)

GRAVEL ROAD

15' FAIRFAX COUNTY WATER AUTHORITY EASEMENT (APPROX. LOCATION) DB: 6041 PG: 388

CONTRACTOR TO REPLACE AND RESTORE EXISTING GRAVEL DRIVE WITHIN LIMITS OF DISTURBANCE PER DETAIL

6/12

RETAINING WALL

EX. MAINTENANCE BUILDING

EX. WOOD BARN

EX. BUILDING

NEW 2" W/L CONNECT TO EX 8" MAIN PER FCWA STANDARDS

REMOVE EXISTING 1" WATER METER. INSTALL NEW 2" WATER METER. INSTALL 2½"x 2½" TEE AND 2½"x1½" REDUCER

CONNECT EX. 1½" WATER SERVICE (EX. MAINTENANCE BUILDING SERVICE LINE) TO NEW 2½" WATER LINE

PROP 2½"W (PRIVATE)

EX. 1" WATER METER

APPROX. 1" SERVICE LINE PER PREVIOUSLY APPROVED SITE PLAN

EX. 4" SAN LAT

FIELD SURVEY GIS DATA

RPA PER COUNTY GIS

8" WATERLINE PER DATR (APPROXIMATE LOCATION)

8" WATERLINE

POLE MOUNTED MAILBOX

BOLLARD

EX. SHED

GAS TANK

DIESEL TANK

EX. METAL CRATES WITH METAL & WOOD ROOF

ELEC BOX

TEL PEDESTAL

GRAVEL ROAD

EX. SAN LAT

SANITARY STRUCTURE 1074
TOP=276.58
IN=263.65 (FR STR 1089)
IN=263.82 (FR STR ATRIUM BUILDING)
OUT=263.44 (8" PVC FR SW)

CONNECT NEW 6" PVC TO EX. MH #1074 PROP INV IN = 264.00

N 7026768
E 11828743

10' FAIRFAX COUNTY SANITARY SEWER EASEMENT (APPROXIMATE LOCATION) DB: 6034 PG:1061

CONTRACTOR TO REPLACE AND RESTORE EXISTING GRAVEL DRIVE WITHIN LIMITS OF DISTURBANCE PER DETAIL

6/12

CENTER LINE OF DITCH 7.06%
INV.=284.84
INVERTS ARE PARTIALLY BURIED
INV.=285.83
CENTER LINE OF DITCH 1.69%

CO #1 CO #2 CO #3 CO #4 CO #5 CO #6 CO #7

11+00 12+00 13+00 14+00 10+00

LEGEND

- EXISTING CONCRETE SURFACE
- EXISTING ELECTRIC METER
- EXISTING GRAVEL SURFACE
- EXISTING INDEX CONTOUR
- EXISTING INTERIM CONTOUR
- EXISTING FENCE
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- PROPOSED SANITARY SEWER LATERAL
- PROPOSED SANITARY SEWER CLEAN OUT
- PROPOSED WATER SERVICE
- LIMITS OF DISTURBANCE

NOTES:
1. SEE SHEET 4 FOR OVERALL PROPERTY BOUNDARY.
2. CONTRACTOR IS TO LOCATE EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY AT ALL CROSSINGS OF PROPOSED IMPROVEMENTS PRIOR TO COMMENCING WORK.

20 10 0 20 40
GRAPHIC SCALE
1" = 20'

Bowman

Bowman Consulting Group, Ltd.
14740 Newbrook Drive
Suite 200
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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SITE PLAN (3 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS

DATE	DESCRIPTION
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20' V:

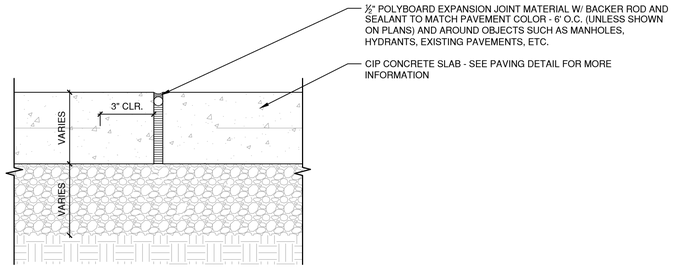
JOB No. 140291-01-001

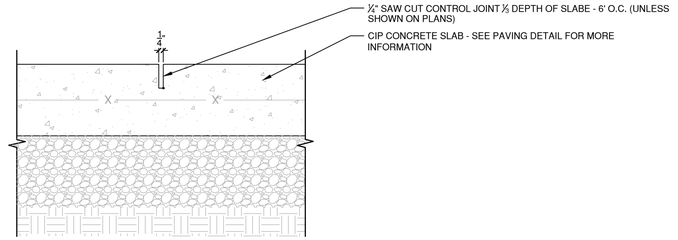
DATE : MAY, 2023

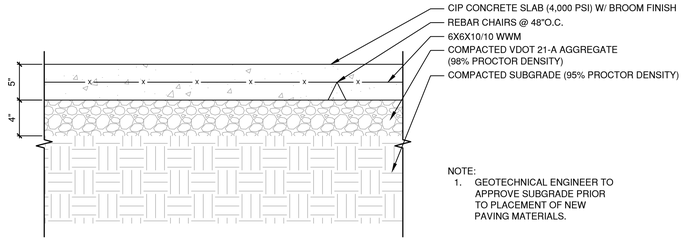
FILE No. 140291-D-ZP-001

SHEET 11 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-GRD.dwg

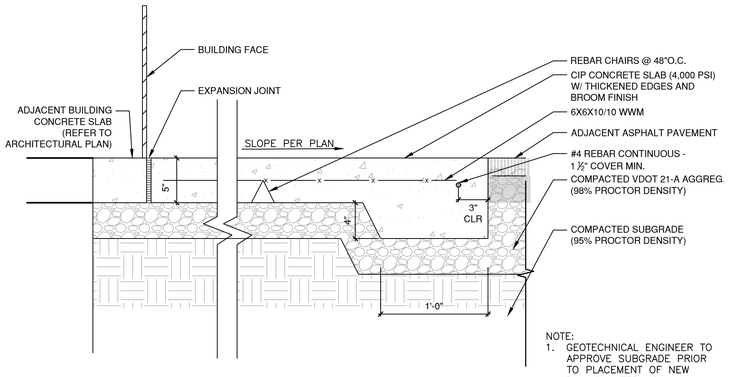






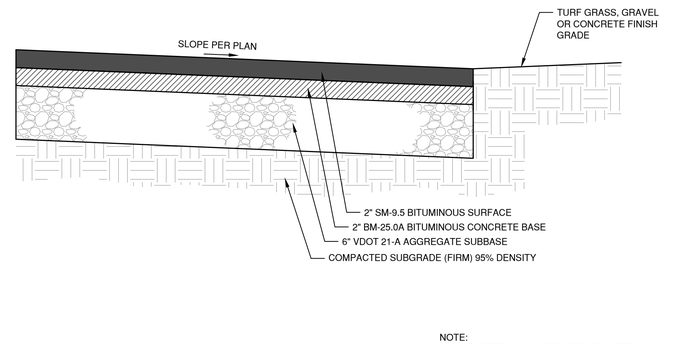
NOTE:
1. GEOTECHNICAL ENGINEER TO APPROVE SUBGRADE PRIOR TO PLACEMENT OF NEW PAVING MATERIALS.

1 CONCRETE EXPANSION JOINT
SECTION — Scale: 3" = 1'-0"



NOTE:
1. GEOTECHNICAL ENGINEER TO APPROVE SUBGRADE PRIOR TO PLACEMENT OF NEW PAVING MATERIALS.

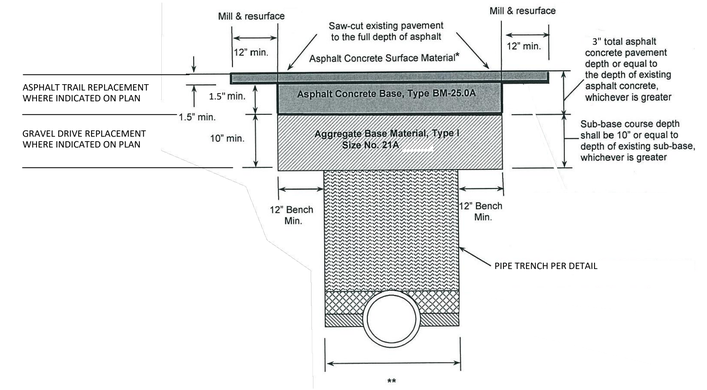
2 CONCRETE CONTROL JOINT
SECTION — Scale: 3" = 1'-0"



NOTE:
1. GEOTECHNICAL ENGINEER TO APPROVE SUBGRADE PRIOR TO PLACEMENT OF NEW PAVING MATERIAL.

3 CONCRETE PEDESTRIAN PAVING
SECTION — Scale: 1 1/2" = 1'-0"

GRAVEL/ASPHALT PAVEMENT RESTORATION DETAIL FOR OPEN CUT UTILITY INSTALLATION



4 CONCRETE – VEHICULAR PAVING @ BUILDING APRON
SECTION — Scale: 1 1/2" = 1'-0"

5 ASPHALT PARKING LOT PAVING
SECTION — Scale: 1' = 1'-0"

6 GRAVEL DIRVE/ASPHALT TRAIL REPLACEMENT DETAIL
SECTION — NTS

NOTE:
1. REMOVE, REPAIR AND/OR REPLACE ALL EXISTING FEATURES AS NECESSARY, INCLUDING BUT NOT LIMITED TO: GRAVEL DRIVE, ASPHALT TRAIL, SIGNS ETC.
2. ALL REPAIRS SHALL DUPLICATE EXISTING MATERIALS AT EXISTING LINE, LOCATION AND GRADE.

PAVEMENT REPAIR NOTE:
1. IF THE EXISTING PAVEMENT SECTION IS THICKER THAN THE PROPOSED SECTION SHOWN HEREIN, THE PROPOSED PAVEMENT SECTION SHALL BE ADJUSTED TO MATCH THE EXISTING SECTION.

Bowman

Bowman Consulting Group, Ltd.
12345 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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SITE DETAILS

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA
HUNTER MILL DISTRICT

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COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
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SCALE H: 1"=20' V:

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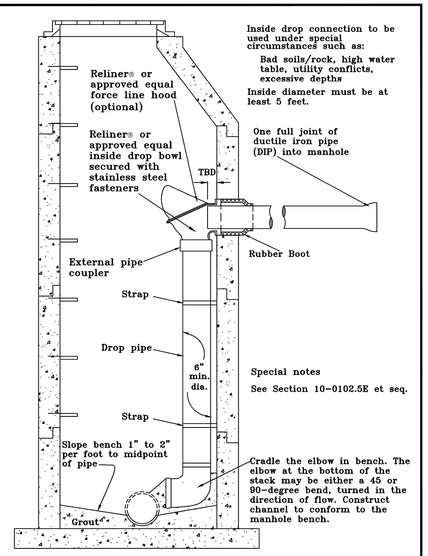
FILE No. 140291-D-ZP-001

SHEET 12 OF 40

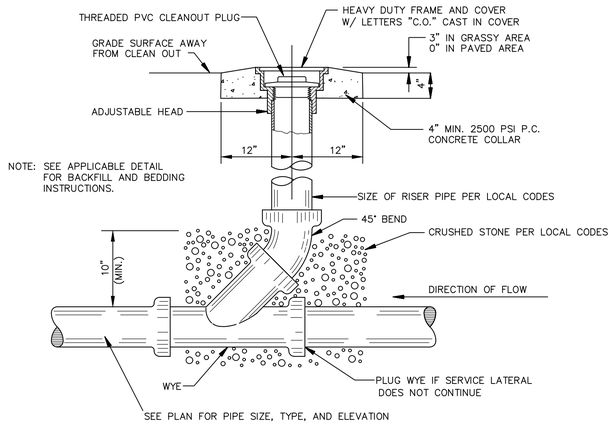
Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-DTL.dwg

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



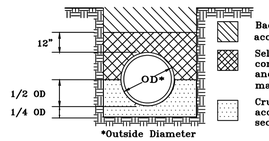
Ref. Sec. 10-0102.5E Rev. 1-00, 2-07, 2018 Reprint, 10-20	TYPICAL 5' ID MANHOLE WITH INSIDE DROP CONNECTION	PLATE NO. 14-10

1 5' MANHOLE WITH INSIDE DROP CONNECTION
SECTION NTS



2 SANITARY SEWER CLEAN-OUT
SECTION NTS

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL

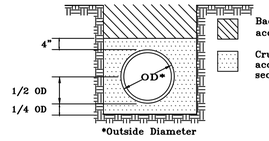


Backfill and compaction requirements in accordance with Section 10-0104.2L(13).

Select backfill - hand packed to 95% compaction in accordance with VDOT Road and Bridge Specs. Sections 302 and 303, max granular size 1"

Crushed stone VDOT size 57, 68, or 78 in accordance with VDOT Road and Bridge Specs section 203 Table II-3

Ref. Sec. 6-1607.1B(2), 10-0103.7, Plate 17-10 Rev. 1-00, 2011 Reprint, 2018 Reprint, 10-20	TYPICAL TRENCH CONSTRUCTION PIPE BEDDING - ALTERNATE "A" (CONTRACTOR'S OPTION)	PLATE NO. 15-10



Backfill and compaction requirements in accordance with Section 10-0104.2L(13)

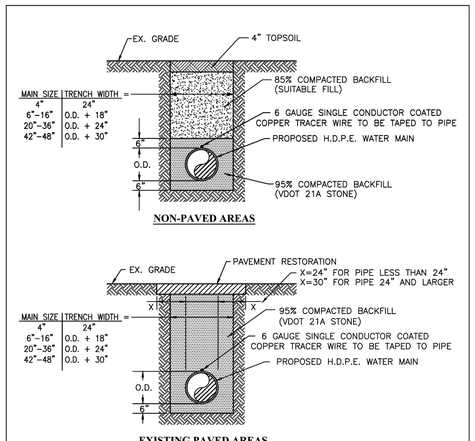
Crushed stone VDOT size 57, 68, or 78 in accordance with VDOT Road and Bridge Specs section 203 Table II-3

NOTE 1: The width of the trench is to be as specified by the Engineer on the plans or as set forth in the Specs. Max. trench width and depth must be as specified in Tables 10.4 and 10.5. Trenching methods must be in compliance with the Va. Department of Labor and Industry (VOSH) requirements.

NOTE 2: The pipe must be bedded in carefully compacted granular material placed on a flat trench bottom. The granular material must be crushed stone VDOT size 57, 68, or 78, in accordance with VDOT Spec. Section 203. The granular bedding must have a min. thickness of 1/4 the outside pipe dia. (4" min.) and must extend vertically in accordance with alternatives A or B. If the max. width of the trench at the top of the pipe exceeds those specified, granular bedding material will be brought to the top of the pipe for the full width of the trench. The remainder of the side fills and a min. depth of 12" over the top of the pipe must be filled with carefully compacted material. Should the contractor elect to use larger stone to carry the water, the larger stone is to be placed beneath the specified amount of granular material. The larger stone is not in any way to affect the amount of granular material to be used.

Ref. Sec. 6-1607.1B(2), 10-0103.7, Plates 17-10, 18-10, 19-10 Rev. 1-00, 2011 Reprint, 2018 Reprint, 10-20	TYPICAL TRENCH CONSTRUCTION PIPE BEDDING - ALTERNATE "B" (CONTRACTOR'S OPTION)	PLATE NO. 16-10

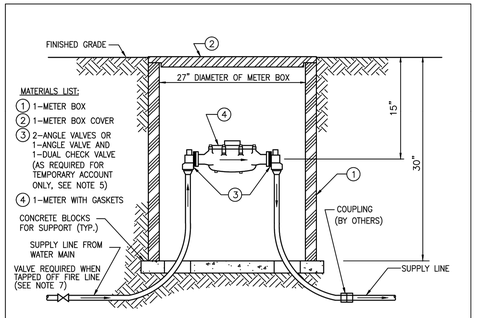
3 SANITARY SEWER LATERAL TRENCH DETAIL
SECTION NTS



NOTES:
1. VDOT NO. 57 STONE SHALL BE USED AT CREEK CROSSINGS OR IN AREAS WHERE TRENCH CONTAINS GROUND WATER.
2. ALL PAVEMENT RESTORATION AND COMPACTED BACKFILL WITHIN VDOT RIGHT-OF-WAY SHALL ADHERE TO ALL APPLICABLE VDOT SPECIFICATIONS.
3. ALL WATER MAIN INSTALLATION IN AREAS WITH PROPOSED PAVING SHALL ADHERE TO APPROVED DEVELOPMENT PLAN.

	FAIRFAX WATER STANDARD DETAILS	SCALE: NOT TO SCALE
DATE: 1/22	TRENCH - HIGH DENSITY POLYETHYLENE PIPE	DETAIL NO.: 13

4 WATER LINE TRENCH DETAIL
SECTION NTS



NOTES:
1. THE WATER METER BOX SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION IN GREEN SPACE AND SO AS NOT TO BE A TRIP HAZARD.
2. WATER METER TO BE INSTALLED BY FAIRFAX WATER AS SHOWN IN THE DIAGRAM ABOVE. METER TO BE INSTALLED BY CUSTOMER WHEN TAPPED OFF FIRE LINE.
3. THE METER INSTALLATION WILL BE INSPECTED AND APPROVED BY FAIRFAX WATER. CALL 703-289-6402 FOR INSPECTION PRIOR TO PLACING LINE IN SERVICE.
4. FAIRFAX WATER TO SUPPLY ITEMS SHOWN IN MATERIALS LIST ONLY. ALL OTHER MATERIALS TO BE SUPPLIED BY THE CUSTOMER.
5. DUAL CHECK VALVE BACKFLOW PREVENTER SHALL BE INSTALLED ON OUTLET SIDE OF THE WATER METER IN A LOCATION THAT IS ACCESSIBLE, WITH CAP EXPOSED TO FACILITATE REMOVAL, SERVICING, OR TESTING. PIPE MUST BE THOROUGHLY FLUSHED TO REMOVE FOREIGN MATERIALS BEFORE INSTALLING THE CHECK VALVE.
6. FAIRFAX WATER MAINTAINS THE SUPPLY LINE BETWEEN THE METER AND THE MAIN, THE METER, METER BOX, AND THE METER BOX COVER ONLY. FAIRFAX WATER WILL NOT MAINTAIN SUPPLY LINE WHEN TAPPED OFF FIRE LINE.
7. A 3" MINIMUM GATE VALVE WITH A 2" OPERATING NUT MUST BE INSTALLED ON THE SERVICE LINE WHEN TAPPED OFF FIRE LINE.

	FAIRFAX WATER STANDARD DETAILS	SCALE: NOT TO SCALE
DATE: 1/22	EXTERIOR METER INSTALLATION 1 1/2" AND 2" METER SIZES	DETAIL NO.: 8

5 2" WATER METER
SECTION NTS

Bowman

Bowman Consulting Group, Ltd.
12355 Sunrise Valley Drive
Suite 520
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720

www.bowman.com
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SITE DETAILS

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION	
MT DESIGN	KF DRAWN	MT CHKD
SCALE	H: 1"=20' V:	
JOB No. 140291-01-001		
DATE : MAY, 2023		
FILE No. 140291-D-ZP-001		
SHEET 13 OF 40		

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-DTL 3.dwg

Duraslot®

The most cost-effective slotted and trench surface drain systems.

THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS®

APPLICATIONS

Duraslot drains are linear drains designed to capture sheet flow of water from sloping paved surfaces or cleared areas. They have the same inlet as corrugated steel pipe slotted drains. A 1¾" (45 mm) wide opening runs the length of the pipe and special connectors provide for a continuous slot of virtually unlimited length. For curb and gutter applications, the inlet acts as an orifice and the AISI Handbook* method can be used to determine hydraulic capacity.

For interception of sheet flow, the inlet acts as a weir. Testing done by the Federal Highway Administration (FHWA) concluded that for inlets as narrow as 1" (25 mm) wide virtually all the flow - 0.04 cfs (1.13 l/s) per one foot of inlet - could be intercepted under most design conditions.

Typical applications for Duraslot drains include the following:

- Public Streets
- Highways
- Sidewalks
- Parking lots
- Plazas
- Loading docks
- Industrial floors
- Parks and athletic fields

COMPETITIVE BENEFITS

Duraslot surface drains offer a number of cost and performance benefits compared to corrugated metal, polymer trench drain and cast-in-place systems:

- **Reduced maintenance costs:** Vacuum trucks are not needed for cleanouts as Duraslot systems are more shallow and can be easily cleaned from the surface
- **Resilient materials:** Corrosion-resistant polyethylene and aluminum are impervious to most acids, storm water contaminants, and road salt
- **Greater hydraulic efficiency:** Water flow through the smooth inner wall of polyethylene pipe is superior to corrugated steel pipe

* American Iron and Steel Institute Handbook of Steel Drainage and Highway Construction Products, 1994, pages 218-223, "Hydraulics of Storm Water Inlets"

Parking Lot

Loading Docks

Public Street

Highway

- **Lower installation costs:** Lightweight sections quickly and easily set in place with no heavy machinery or extra manpower
- **Lower material costs:** Most cost-effective compared to other systems that support vehicular traffic
- **Longer pipe:** Longer lay lengths compared to 3' (1 m) lengths of polymer trench drain, 10' (3 m) Duraslot drains speed installation time and make it much easier to maintain constant slope
- **Impact resistant:** Polyethylene withstands storage and handling. Durable construction provides no waste due to deformation or breakage

FABRICATED FITTINGS

Design flexibility is enhanced with a complete line of fabricated fittings in all standard pipe sizes. Styles include elbows in virtually any angle up to 90°, tees, wyes, reducing tees, and other fittings custom fabricated to your specifications.

Fabricated Fittings

VARIABLE HEIGHT SLOT

In addition to the standard fixed slot height style, Duraslot drains are available with a variable height slot to permit slope in the pipe invert when grade is level. The standard change in slot height is 5/8" (16 mm) per 10' (3 m) length (H_2 minus H_1 in drawing) providing an approximate 0.5% slope. Other slopes are also available and the product is delivered in sequentially numbered sections to facilitate installation. Slot heights of more than 30" (750 mm) have been installed. Contact ADS for complete product and installation details.

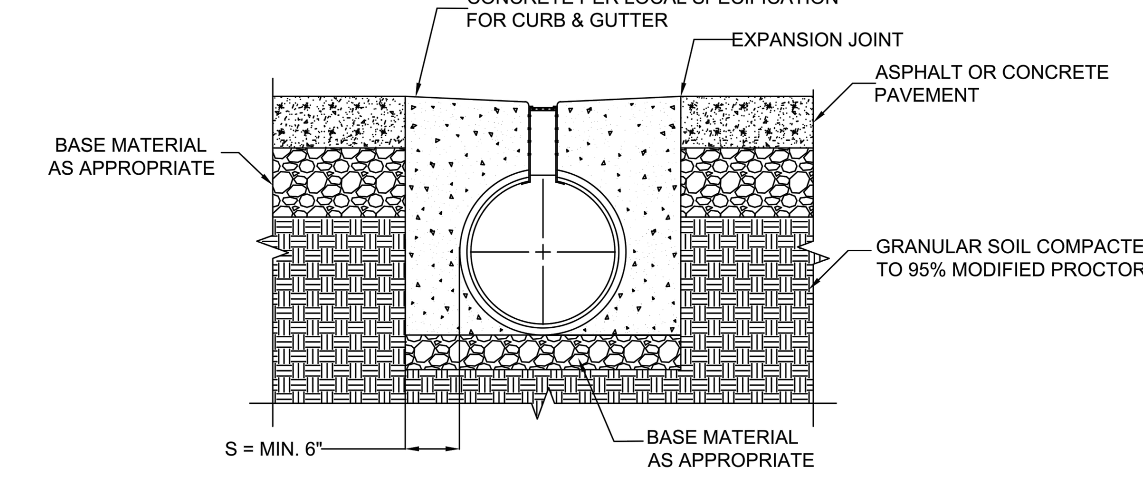
Variable Height Slot

THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS®

(OR APPROVED EQUAL)

HEAVY TRAFFIC DURASLOT® INSTALLATION

(OR APPROVED EQUAL)



Heavy Traffic - surrounded by concrete for critical loading applications. This would include frequent high-speed, H-20 traffic (i.e. highways, loading docks, etc.). The 'S' dimension is generally 6" depending on the specific conditions for the project (design layout, traffic patterns, soil properties, etc.). Expansion joints and concrete and/or asphalt pavement is to be designed by others.

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ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D

DRAWING NUMBER:

ADS 4640 TRUEMAN BLVD HILLIARD, OHIO 43026 ADVANCED DRAINAGE SYSTEMS, INC.

NTS
1 OF 1

(OR APPROVED EQUAL)

INSTALLATION BASICS

Duraslot surface drains are made from a flexible conduit designed to attain its structural strength utilizing ring compression derived from soil pressure. For this to occur, a minimum cover height of 12" (300 mm) is typically required with N-12 pipe in traffic applications. This cannot be achieved with Duraslot drains because the tops of the grates must be set to finish grade. Therefore, where vehicle traffic may be present, the drain must be backfilled with concrete to support the pipe and provide a non-eroding surface at the top of the slot where water enters the inlet.

Backfill requirements for the Duraslot drain depend on the type of loading on the drain:

- **Heavy traffic** (Figure 1): Surrounded by concrete for critical loading applications. This would include frequent high-speed H-20 traffic (i.e. highways, loading docks, etc.). The dimension 'S' should be a minimum 6" (150 mm) for all heavy traffic applications. Expansion joints and concrete and/or asphalt is designed by others.
- **Moderate traffic** (Figure 2): Surrounded by concrete to below the center of the pipe. This type of installation has been used when traffic loads are not as heavy (H-10 loads, retail parking lots, against curbs, etc.). The soild below the pipe and concrete must be high quality and well compacted. Expansion joints and concrete and/or asphalt pavement is designed by others.
- **Residential/pedestrian traffic** (Figure 3): Concrete, asphalt, or soil concrete slab at grade. For non-vehicular installations (patios, sidewalks, against foundations, landscaping, etc.) there still must be a surface adjoining the slot which will not erode where stormwater flows into the slotted inlet. Concrete and/or pedestrian pavement is designed by others.

INSTALLATION NOTES (Suggested installation steps)

1. Excavate trench to correspond with the traffic application for which Duraslot pipe is being installed (see applications)
2. Determine depth of base material (B) to be placed in bottom of trench. The depth of base is the difference between: final elevation (E), slot riser recess (R) (depending on the application**) actual slot height (H), inner pipe diameter (ID), and corrugation thickness (T). The equation for the depth of base material:

B = E - R - H - ID - T

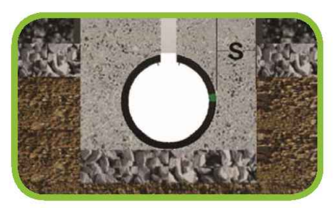


Figure 1

Figure 2

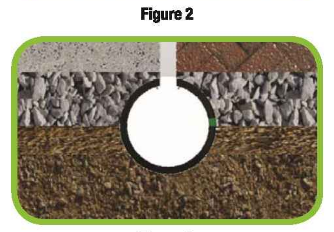


Figure 3

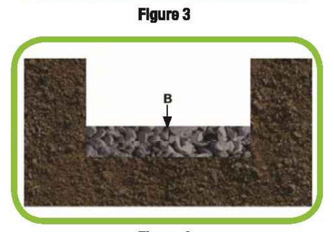


Figure 4

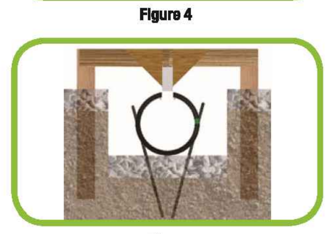


Figure 5

INSTALLATION NOTES (CONTINUED)

3. Place Duraslot pipe in bottom of trench, on top of base material.
4. Before Duraslot pipe is braced in the trench, the slot opening should be covered to prevent the concrete or asphalt from entering the system. An accepted way to do so is to run a piece of ¼"-½" (6-13 mm) plywood over the grates, then use 2" (50 mm) duct tape to hold it over the grate. (Figure 6) This will help prevent clogging the grate and help achieve the recess for Duraslot pipe.
5. Duraslot pipe must be secure in place. (Figure 5) Suggestions include:
   a) Stake rebar or wood in bottom of trench to cradle the HDPE pipe
   b) Places 2x4s vertically alongside of trench
   c) Span 2x4s transversally across Duraslot slot riser and connect to vertical bracing
   d) Attach angle braces at the middle of lateral bracing to keep the slot from tipping
6. When placing Duraslot pipe, it is highly suggested to place the concrete simultaneously to both sides of the slot. To help accomplish this, take a 4" or 6" (100 or 150 mm), 4' (1.2 m) length of scrap plastic pipe, field cut a 2½" (64 mm) wide strip out and saddle it around the slot riser. Place the concrete directly over the saddled pipe. This will allow the concrete to distribute evenly to both sides. Move the pipe as you continue to place concrete down the run. (Figure 7)
7. There should be two separate pours during the installation process. (Figure 8) The first pout should reach the level where the pipe meets the slot. Remove the bracing and place second layer of concrete to achieve the designed final grade.

** The top of the slot should be recessed ¼" (6 mm) for pedestrian applications and ½" (13 mm) for heavy appliactions, below finished grade. (Figure 9) This allows surface run-off to enter the inlet efficiently and protects the grate and flanges from snowplows and the like. A mason's tool can be used to knurl the edges after tape and plywood have been removed.*

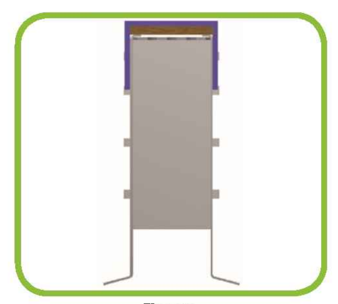


Figure 6

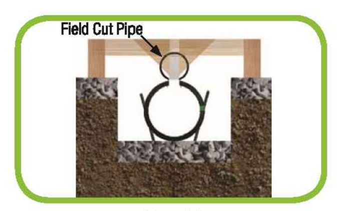


Figure 7

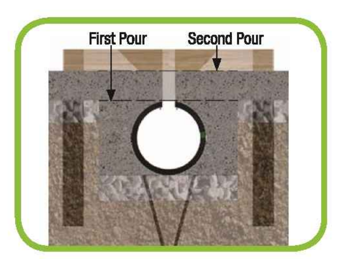


Figure 8

Figure 9

THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS®

SCOPE

This specification describes 4"-36" (100 to 900 mm) ADS Duraslot pipe for use in surface drain applications.

PIPE REQUIREMENTS

ADS Duraslot pipe shall have a smooth interior and annular exterior corrugations with an aluminum slot mounted longitudinally along the length of the pipe to accept the grate frame while maintaining the original pipe diameter.

- 4"-10" (100 to 250 mm) pipe shall meet AASHTO M252, Type S.
- 12"-36" (300-900 mm) pipe shall meet AASHTO M294, Type S or ASTM F2306.
- Manning's "n" value for use in design shall be 0.012.

The aluminum grate frame shall be manufactured from 0.063" (1.6 mm) tempered commercial aluminum, consisting of two parallel plates separated by spaces spanning the slot on 6" (150 mm) centers. The grating shall be ½" (13 mm) #13 galvanized steel. The flange at the bottom of the aluminum grate shall be riveted to the pipe with a minimum of two rivets per linear foot.

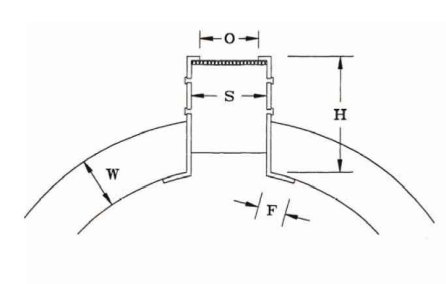
FITTINGS

Pipe fittings shall conform to AASHTO M252, AASHTO M294 or ASTM F2306.

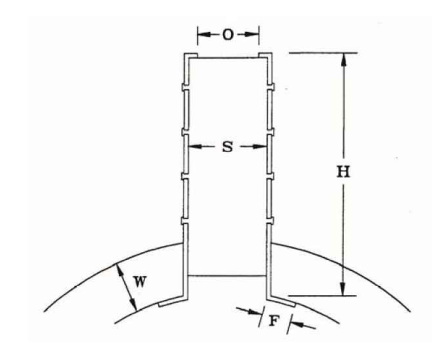
INSTALLATION

Contact your local ADS representative for a copy of the installation guidelines from Duraslot.

PHYSICAL DIMENSIONS



2.5" Slot shown with 1/2 - #13 Galvanized Grating



6" Slot shown without Grating (Open Top)

	Pipe Diameter, in (mm)									
	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	15 (375)	18 (450)	24 (600)	30 (750)	36 (900)
H (2.5" (64 mm) Nominal Slot)	2.75 (70)	3.0 (75)	3.0 (75)	3.0 (75)	3.5 (90)	3.75 (95)*	4.0 (100)*	4.75 (120)*	5.0 (125)*	5.25 (130)*
H (6" (150 mm) Slot)	6.25 (160)	6.5 (165)	6.5 (165)	6.5 (165)	7.0 (175)	7.0 (175)	7.0 (175)	7.25 (185)*	8.25 (210)*	8.25 (210)*
W (Corrugation Height)	0.34 (9)	0.46 (12)	0.61 (15)	0.73 (18)	1.15 (30)	1.30 (33)	1.57 (40)	1.86 (47)	2.55 (65)	2.85 (72)
F (Flange Length)	0.5 (13)	0.75 (19)	0.75 (19)	0.75 (19)	0.75 (19)	0.75 (19)	0.75 (19)	1 (25)	1 (25)	1 (25)
O (Opening Width)	1.25 (32)	1.75 (45)	1.75 (45)	1.75 (45)	1.75 (45)	1.75 (45)	1.75 (45)	1.75 (45)	1.75 (45)	1.75 (45)
S (Slot Width)	1.75 (45)	2.25 (57)	2.25 (57)	2.25 (57)	2.25 (57)	2.25 (57)	2.25 (57)	2.25 (57)	2.25 (57)	2.25 (57)
L (Drain Grate Length)	118 (3000)	118 (3000)	118 (3000)	118 (3000)	116 (2950)	116 (2950)	116 (2950)	116 (2950)	116 (2950)	116 (2950)
E (Pipe End Length)	1 (25)	1 (25)	1 (25)	1 (25)	2 (50)	2 (50)	2 (50)	2 (50)	2 (50)	2 (50)

* Expect longer production time for these non-inventoried products.

(OR APPROVED EQUAL)

TRENCH DRAIN NOTE

1. CONTRACTOR TO PROVIDE COMPLETE PRODUCT MATERIAL DATA, ASSEMBLY DIAGRAMS AND SHOP DRAWINGS FOR OWNER REVIEW AND APPROVAL PRIOR TO ORDERING MATERIAL.

Bowman

Bowman Consulting Group, Ltd.
13461 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720

www.bowman.com

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SITE DETAILS

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION
DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20' V:

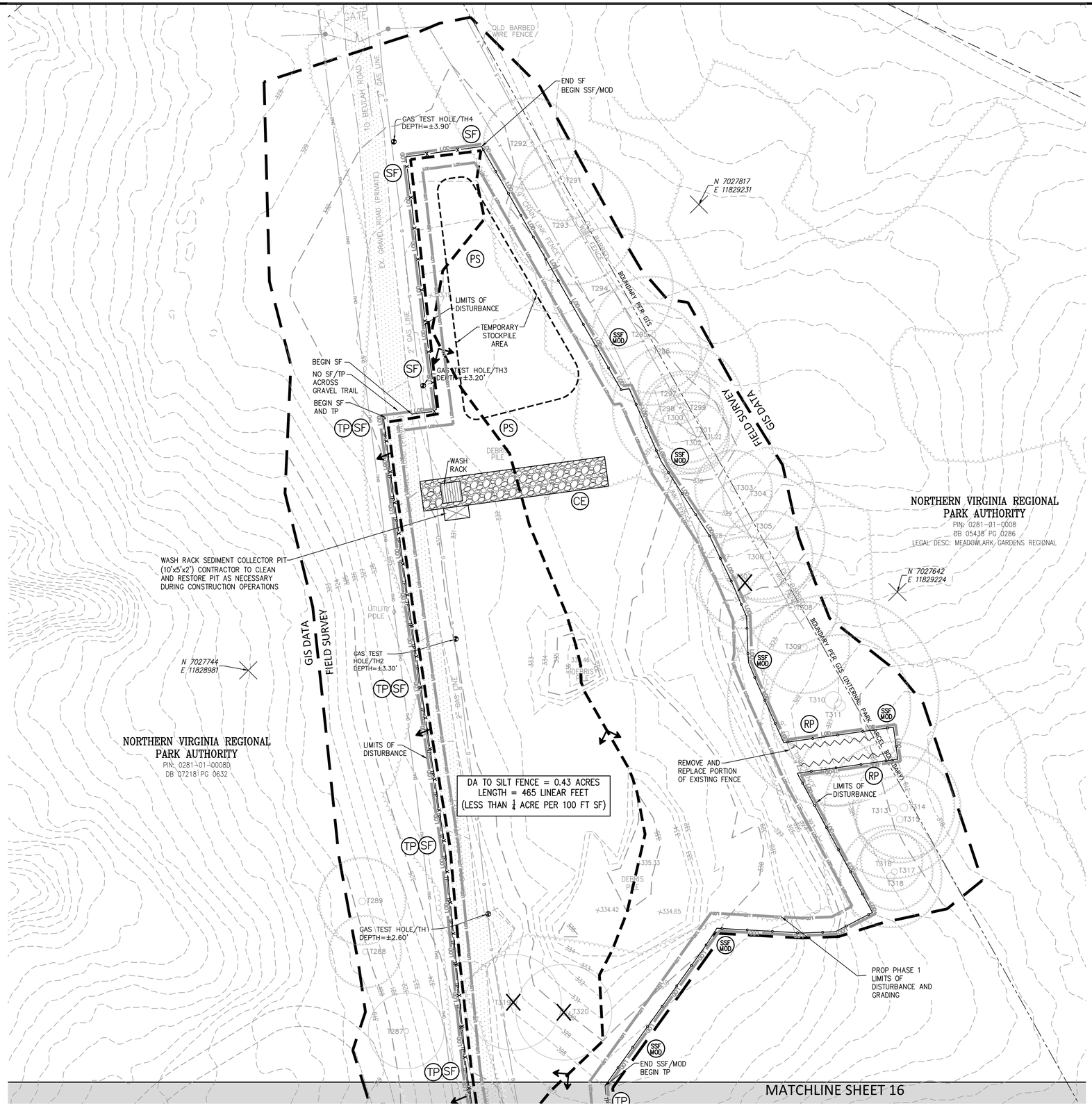
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 14 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-DTL 2.dwg



VEGETATION TO REMAIN

EROSION AND SEDIMENT CONTROL LEGEND

NO.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE W/ WASH RACK	CE	
3.05	SILT FENCE	SF	
3.05	SUPER SILT FENCE (TO BE USED AS TREE PROTECTION)	SSF/TP	
3.05	SUPER SILT FENCE (MODIFIED)(TO BE USED AS TREE PROTECTION)	SSF MOD	
3.07	STORM DRAIN INLET PROTECTION	IP	
3.08	CULVERT INLET PROTECTION	CIP	
3.38	TREE PROTECTION	TP	
3.18	OUTLET PROTECTION	OP	
3.19	RIPRAP	RR	
3.32	PERMANENT SEEDING	PS	PS
	ROOT PRUNE	RP	

EXISTING TREE TO BE REMOVED

GENERAL NOTES

1. LIMITS OF DISTURBANCE AND PERIMETER CONTROLS SHALL BE ESTABLISHED BEFORE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. TREE REMOVAL IS BASED ON THE TREE PRESERVATION PLAN. SEE SHEET 22-25.

SILT FENCE NOTE:

SUPER SILT/ MODIFIED SUPER SILT FENCE TO SERVE AS PERIMETER EROSION CONTROL AND TREE PROTECTION WHERE INDICATED.

TREE REMOVAL/PRESERVATION NOTES:

1. ADDITIONAL TREES MAY BE REMOVED DURING CONSTRUCTION AT THE DISCRETION OF THE OWNER AS MAY BE NEEDED TO ACCOMMODATE CONSTRUCTION IMPACT.
2. ANY WORK OUTSIDE LIMITS OF CLEARING AND GRADING REQUIRING THE USE OF LARGE MOTORIZED EQUIPMENT SUCH AS, BUT NOT LIMITED TO, SKID LOADERS, TRACTORS, TRUCKS, STUMP-GRINDERS, OR ANY ACCESSORY OR ATTACHMENT CONNECTED TO SUCH EQUIPMENT SHALL NOT OCCUR.
3. TREES LOCATED OUTSIDE THE LIMITS OF CLEARING AND GRADING THAT ARE DESIGNATED TO BE REMOVED SHALL BE CUT DOWN BY HAND WITH A CHAIN SAW IN A MANNER THAT MINIMIZES DAMAGE TO TREES, UNDERSTORY SHRUBS, HERBACEOUS PLANTS, LEAF LITTER, ROOT SYSTEMS AND SOIL CONDITIONS. ANY TREES BEING REMOVED SHALL NOT BE FELLED, PUSHED OR PULLED INTO TREE PRESERVATION AREAS.

CONSTRUCTION ENTRANCE NOTE:

DEPENDING ON THE ACTUAL SITE CONDITIONS AND LIMITATIONS IN THE FIELD, THE SITE INSPECTOR MAY ALLOW:

1. WATER SOURCE MAY BE PROVIDED BY EITHER AN ON-SITE WATER SYSTEM OR TEMPORARY TRUCK SERVICE.

PHASE 1 LIMITS OF DISTURBANCE TO SET UP PERIMETER CONTROLS = 0.97 ACRES

20 10 0 20 40
GRAPHIC SCALE
1" = 20'

Bowman

Bowman Consulting Group, Ltd.
12435 Gunnine Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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EROSION AND SEDIMENT CONTROL PLAN - PHASE I
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
Joseph Riley-Ryan
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
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SCALE H: 1"=20' V:

JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 15 OF 40

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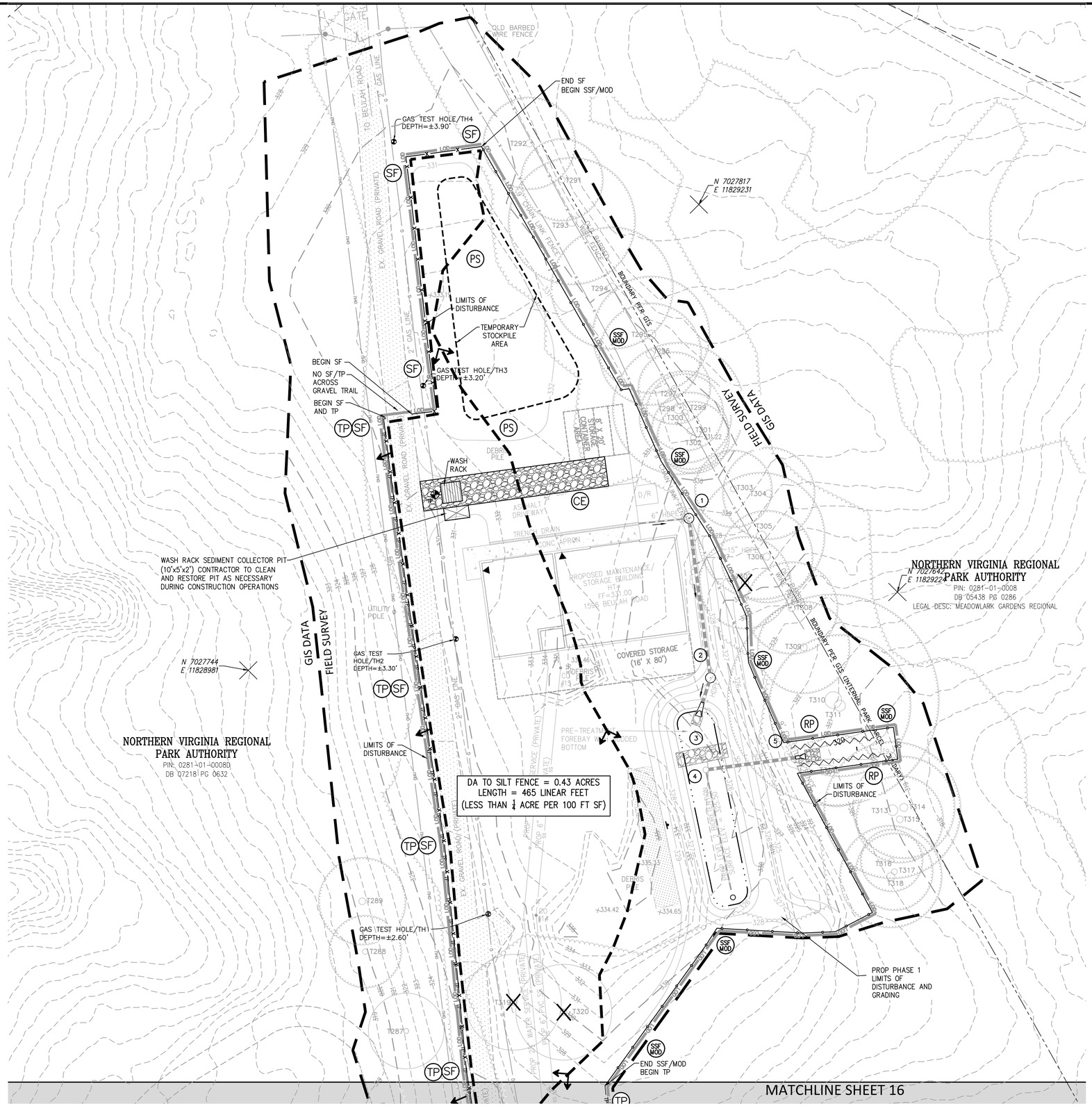

VESSEL NORTH ZERO

EROSION AND SEDIMENT CONTROL LEGEND

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3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE W/ WASH RACK	CE	
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3.38	TREE PROTECTION	TP	
3.18	OUTLET PROTECTION	OP	
3.19	RIPRAP	RR	
3.32	PERMANENT SEEDING	PS	PS
	ROOT PRUNE	RP	

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GRAPHIC SCALE
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EROSION AND SEDIMENT CONTROL PLAN - PHASE II
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

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Joseph Riley-Ryan
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MT DESIGN	KF DRAWN	MT CHKD

SCALE H: 1"=20' V:

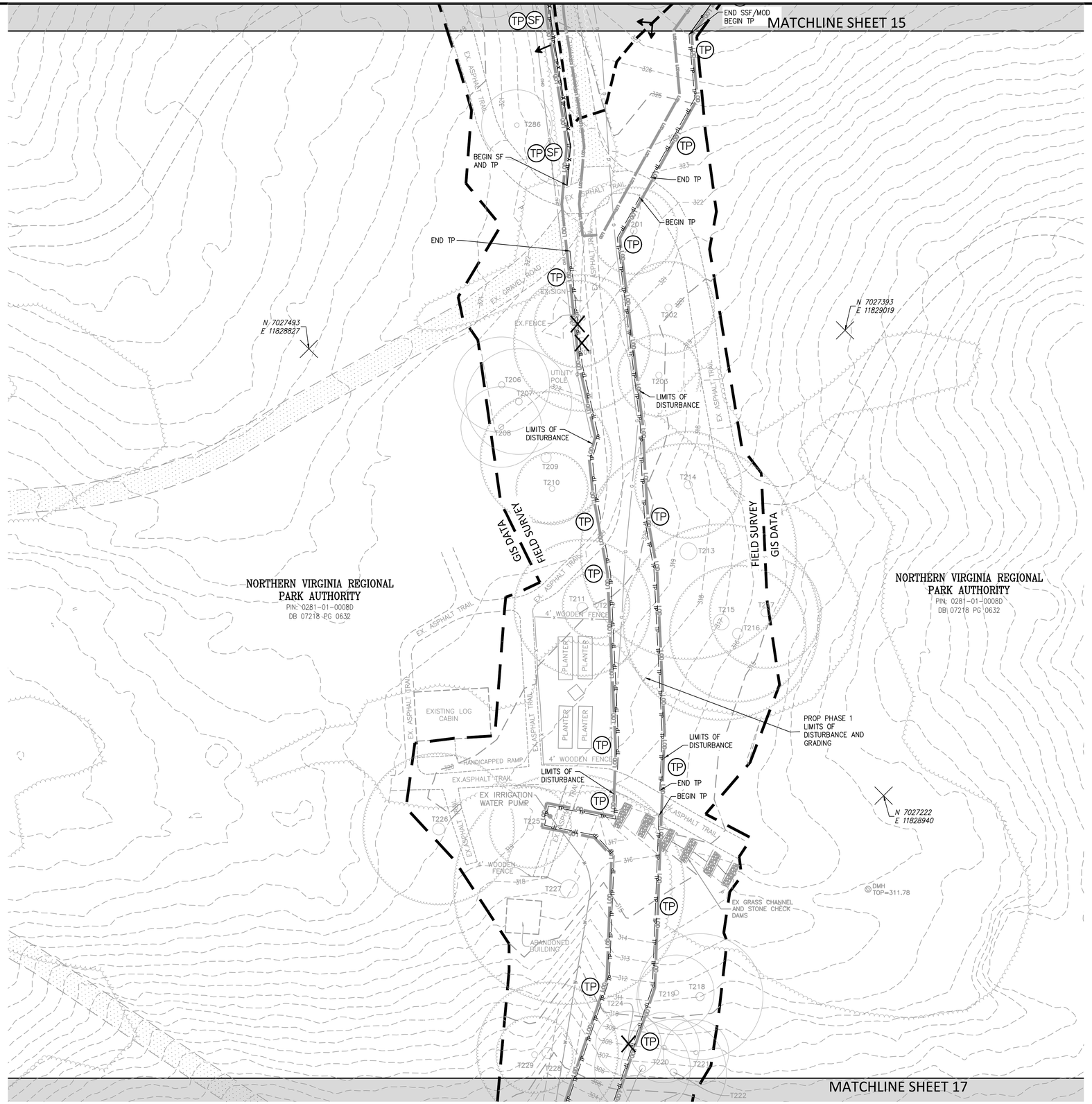
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 15A OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-ESP 2.dwg



VESSEL NORTH ZONE

EROSION AND SEDIMENT CONTROL LEGEND

NO.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE W/ WASH RACK	CE	
3.05	SILT FENCE	SF	
3.05	SUPER SILT FENCE (TO BE USED AS TREE PROTECTION)	SSF /TP	
3.05	SUPER SILT FENCE (MODIFIED)(TO BE USED AS TREE PROTECTION)	SSF MOD	
3.07	STORM DRAIN INLET PROTECTION	IP	
3.08	CULVERT INLET PROTECTION	CIP	
3.38	TREE PROTECTION	TP	
3.18	OUTLET PROTECTION	OP	
3.19	RIPRAP	RR	
3.32	PERMANENT SEEDING	PS	PS
	ROOT PRUNE	RP	

EXISTING TREE TO BE REMOVED

GENERAL NOTES

1. LIMITS OF DISTURBANCE AND PERIMETER CONTROLS SHALL BE ESTABLISHED BEFORE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. TREE REMOVAL IS BASED ON THE TREE PRESERVATION PLAN. SEE SHEET 22-25.

SILT FENCE NOTE:

SUPER SILT/ MODIFIED SUPER SILT FENCE TO SERVE AS PERIMETER EROSION CONTROL AND TREE PROTECTION WHERE INDICATED.

TREE REMOVAL/PRESERVATION NOTES:

1. ADDITIONAL TREES MAY BE REMOVED DURING CONSTRUCTION AT THE DISCRETION OF THE OWNER AS MAY BE NEEDED TO ACCOMMODATE CONSTRUCTION IMPACT.

2. ANY WORK OUTSIDE LIMITS OF CLEARING AND GRADING REQUIRING THE USE OF LARGE MOTORIZED EQUIPMENT SUCH AS, BUT NOT LIMITED TO, SKID LOADERS, TRACTORS, TRUCKS, STUMP-GRINDERS, OR ANY ACCESSORY OR ATTACHMENT CONNECTED TO SUCH EQUIPMENT SHALL NOT OCCUR.

3. TREES LOCATED OUTSIDE THE LIMITS OF CLEARING AND GRADING THAT ARE DESIGNATED TO BE REMOVED SHALL BE CUT DOWN BY HAND WITH A CHAIN SAW IN A MANNER THAT MINIMIZES DAMAGE TO TREES, UNDERSTORY SHRUBS, HERBACEOUS PLANTS, LEAF LITTER, ROOT SYSTEMS AND SOIL CONDITIONS. ANY TREES BEING REMOVED SHALL NOT BE FELLED, PUSHED OR PULLED INTO TREE PRESERVATION AREAS.

CONSTRUCTION ENTRANCE NOTE:

DEPENDING ON THE ACTUAL SITE CONDITIONS AND LIMITATIONS IN THE FIELD, THE SITE INSPECTOR MAY ALLOW:

1. WATER SOURCE MAY BE PROVIDED BY EITHER AN ON-SITE WATER SYSTEM OR TEMPORARY TRUCK SERVICE.

EROSION CONTROL NOTES FOR LINEAR UTILITY PROJECT:

(WATER AND SEWER STATION 10+00 TO 19+00)

1. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

   A. NO MORE THAN 500 LINEAR FEET OF TRENCH, OR THAT WHICH CAN BE BACKFILLED WITHIN THE SAME DAY, SHALL BE OPENED AT ONE TIME.

   B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES TO PRELUDE SEDIMENT RUNOFF DOWNHILL OF TRENCH.

   C. EFFLUENT FROM TRENCH DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.

   D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.

   E. STABILIZATION WITHIN TRENCH LIMITS AND ADJACENT AREAS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.

2. IN VICINITY TO EXISTING TREES, TREE PROTECTION TO BE PROVIDED ON DOWNHILL AND UPHILL SIDE OF UTILITY TRENCH.

3. SITE MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES IF DEEMED NECESSARY DURING UTILITY INSTALLATION OPERATIONS.

PHASE 1 LIMITS OF DISTURBANCE TO SET UP PERIMETER CONTROLS = 0.97 ACRES

20 10 0 20 40
GRAPHIC SCALE
1" = 20'

Bowman

Bowman Consulting Group, Ltd.
14555 Sullyfield Circle
Suite 300
Chantilly, Virginia 20151
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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EROSION AND SEDIMENT CONTROL
PLAN - PHASE I AND II
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA
HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
Joseph Riley-Ryan
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

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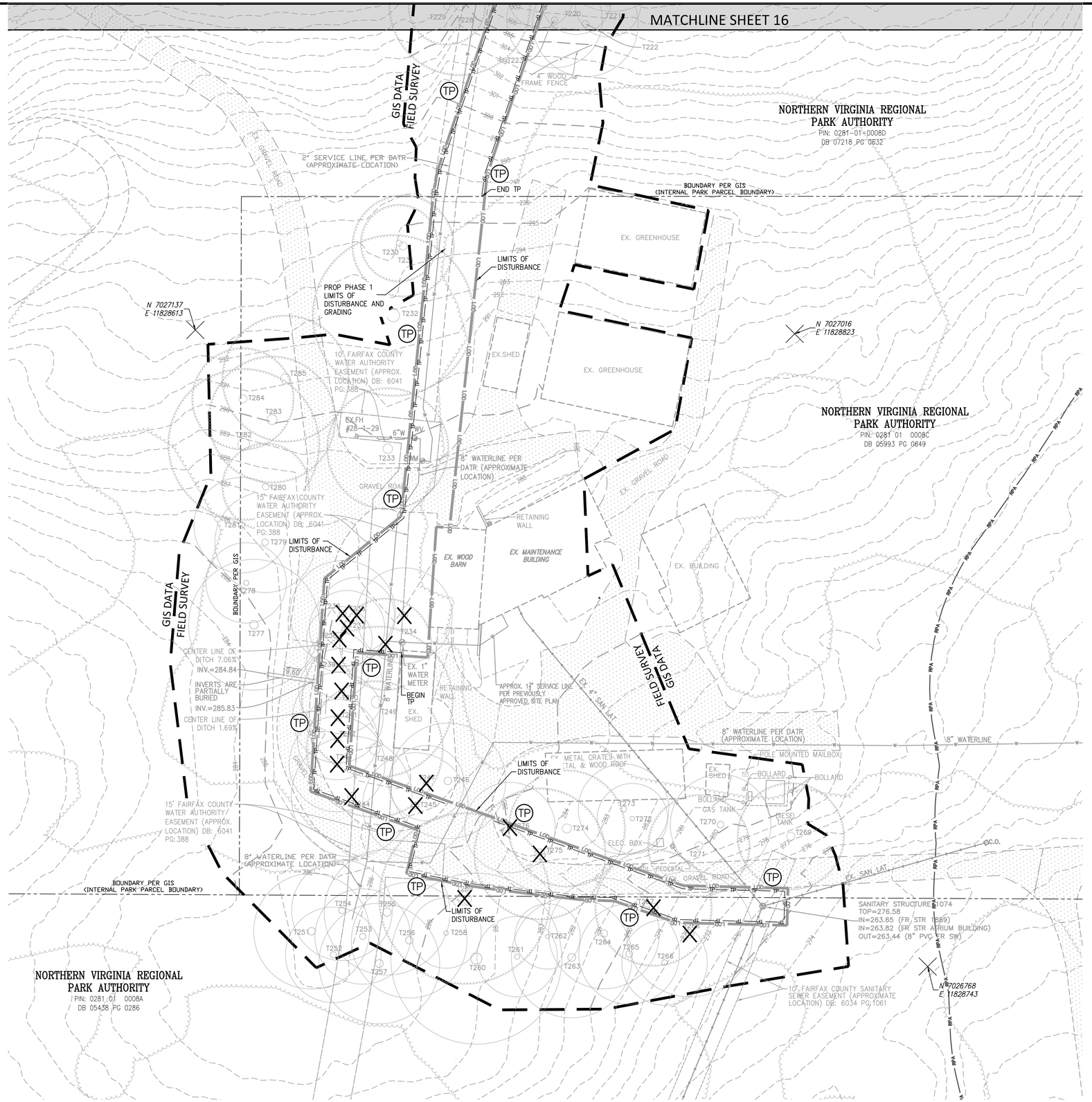

VEGETATION TYPES

EROSION AND SEDIMENT CONTROL LEGEND

NO.	TITLE	KEY	SYMBOL
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3.32	PERMANENT SEEDING	PS	PS
	ROOT PRUNE	RP	

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SILT FENCE NOTE:

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EROSION CONTROL NOTES FOR LINEAR UTILITY PROJECT:

(WATER AND SEWER STATION 10+00 TO 19+00)

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   - A. NO MORE THAN 500 LINEAR FEET OF TRENCH, OR THAT WHICH CAN BE BACKFILLED WITHIN THE SAME DAY, SHALL BE OPENED AT ONE TIME.
   - B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES TO PRELUDE SEDIMENT RUNOFF DOWNHILL OF TRENCH.
   - C. EFFLUENT FROM TRENCH DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
   - D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
   - E. STABILIZATION WITHIN TRENCH LIMITS AND ADJACENT AREAS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
2. IN VICINITY TO EXISTING TREES, TREE PROTECTION TO BE PROVIDED ON DOWNHILL AND UPHILL SIDE OF UTILITY TRENCH.
3. SITE MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES IF DEEMED NECESSARY DURING UTILITY INSTALLATION OPERATIONS.

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Bowman Consulting Group, Ltd.
14555 Dallas Parkway
Suite 400
Dallas, Texas 75254
Phone: (972) 387-4300
Fax: (972) 387-4777
www.bowman.com
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EROSION AND SEDIMENT CONTROL PLAN - PHASE I AND II

MEADOWLARK BOTANICAL GARDEN

MAINTENANCE FACILITY

FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
Joseph Riley-Ryan
JOSEPH RILEY-RYAN
Lic. No. 058773
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SHEET 17 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-ESP.dwg

GENERAL EROSION & SEDIMENT CONTROL NOTES:

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL DEVICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE APPROVING AUTHORITY.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE COUNTY INSPECTOR.

ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING THE SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE. (IF APPLICABLE)

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

FAIRFAX COUNTY PRIORITY RATING FORM FOR EROSION & SEDIMENT CONTROL

PROJECT NAME: MEADOWLARK BOTANICAL GARDEN MAINTENANCE BUILDING PROJECT NUMBER: TBD

TAX MAP: 028-1-((01))-0008C AND 0008D EVALUATOR: JOE RILEY RYAN DATE: 05-12-23

A. Percentage of Denuded Area to Total Site Area

		Rating
> 60%	[ ]	5
31 to 60%	[ ]	3
10 to 30%	[X]	1

If the denuded area is greater than 10 acres, the project is initially rated a high priority.

B. Watercourse Crossing

		Rating
Yes	[ ]	*
No	[X]	0

*If yes, project is initially rated a high priority.

C. Distance of Denuded Area to Downstream Adjacent Property

		Rating
< 50-feet	[ ]	5
50 to 150-feet	[ ]	3
> 150-feet	[X]	0

D. Distance of Any Portion of the Denuded Area to a Natural Watercourse

		Rating
< 50-feet	[ ]	5
50 to 150-feet	[ ]	3
> 150- feet	[X]	0

E. *Minimum Vegetative Buffer (Trees, Shrubs, Grasses and other Plants)

		Rating
< 50-feet	[X]	0
50 to 150-feet	[ ]	-3
> 150-feet	[ ]	-5

* Vegetation in Resource Protection Areas are not to be included as vegetative buffers for this application.

F. Distance Between the Site Outfall and any Downstream, Wet Pond, Wetland, Parkland or other Land Deemed Environmentally Sensitive by the Director.

		Rating
< 2,500-feet	[X]	5
2,500 to 5,000-feet	[ ]	3
> 5,000-feet	[ ]	0

G. Critical Slopes Within 50-feet of Adjacent Property

- Are there any slopes of 0 to 7%; greater than or equal to 300-feet in length; or,
- Are there any slopes of 7 to 15%; greater than or equal to 150-feet in length; or,
- Are there any slopes greater than 15% and greater than or equal to 75-feet in length

		Rating
If Yes to any of the above	[X]	5
Not Applicable if critical slope is > 50-feet from adjacent property	[ ]	0

H. Soil Erodibility (Based on Physiographic Setting)

Physiographic Province		Rating
Triassic Basin	[ ]	5
Piedmont Upland	[X]	3
Coastal Plain	[ ]	1

TOTAL/OVERALL RATING: 14

OVERALL RATING	PRIORITY (Mark with an "X")	
If > 22	High	[ ]
If > 14 and < or = to 22	Medium	[ ]
If < or = to 14	Low	[X]

PROJECT PRIORITY LEVEL: LOW

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APPROVED BY: ______________ DATE: ______________

Plan Reviewer

Descriptions on Reverse Side

PERMANENT SEEDING (PER VESCH REQUIREMENTS):

1. PERMANENT VEGETATION COVER MUST MEET THE REQUIREMENTS OF MINIMUM STANDARDS #3 (MS #3).
   - –ALL TAGS ON CONTAINERS OF SEED SHALL BE LABELED TO MEET THE REQUIREMENTS OF THE STATE SEED LAW.
   - –ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY THAT EMPLOYS A REGISTERED SEED TECHNOLOGIST OR BY A STATE SEED LAB.
   - –ALL SEED USED SHALL HAVE BEEN TESTED WITHIN TWELVE MONTHS.
   - –THE QUALITY OF THE SEED USED SHALL BE SHOWN ON THE BAG TAGS TO CONFORM TO THE GUIDELINES IN TABLE 3.32-E:
   - –TURF-TYPE: PER PERMANENT SEEDING SPECIFICATION, SEE SHEET #019.
2. PROVIDE A NOTE WHICH DESCRIBES THE PROCEDURE FOLLOWED IN SELECTING PLANT MATERIAL. THE SELECTION SHOULD BE BASED ON TABLES 3.32 – A&B DEPENDING ON CLIMATE, TOPOGRAPHY, SOILS, AND SITE CONDITIONS.
   - –GRASS TYPES SHALL BE PER PERMANENT SEEDING SPECIFICATION, SEE SHEET #019.
3. THE PLANTING SOIL MUST HAVE ENOUGH FINE GRAINED SOIL, SUFFICIENT PORE SPACE, SUFFICIENT DEPTH, AND FREE FROM TOXIC OR EXCESSIVE QUANTITIES OF ROOTS AND SHALL BE APPLIED IN ACCORDANCE WITH STANDARD 3.30.
   - –TOPSOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION, WHEN TOPSOIL OR SUBGRADE IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED SODDING OR SEEDING. THE TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED TO A MINIMUM COMPACTED DEPTH OF 2" ON 3:1 OR STEEPER SLOPES AND 4" ON FLATTER SLOPES. ANY IRREGULARITIES IN THE SURFACE, RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSION OR WATER POCKETS.
   - –THE TOPSOIL MUST BE COMPACTED ENOUGH TO ENSURE GOOD CONTACT WITH THE UNDERLYING SOIL AND TO OBTAIN A LEVEL SEED BED FOR THE ESTABLISHMENT OF HIGH MAINTENANCE TURF. HOWEVER, EXCESSIVE COMPACTION IS TO BE AVOIDED AS IT INCREASES RUNOFF VELOCITY AND VOLUME, AND DETERS SEED GERMINATION.

STOCKPILES:

TEMPORARY STOCKPILE, IF NECESSARY WILL BE LOCATED AT MEADOWLARK BOTANICAL GARDEN WITHIN AN AREA AGREED UPON BY THE CONTRACTOR AND FAIRFAX COUNTY, ALL SPOILS WILL BE IMMEDIATELY HAULED OFFSITE.

9VAC25-840-40 MINIMUM STANDARDS

AN EROSION AND SEDIMENT CONTROL PROGRAM ADOPTED BY A DISTRICT OR LOCALITY MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.

B. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.

8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.

13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.

14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.

B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.

C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.

D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.

E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.

F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

17. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.

18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA: CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE, OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.

LAND CONSERVATION NOTES

1. MEASURES TO CONTROL EROSION AND SILTATION SHALL BE PROVIDED PURSUANT TO AND IN COMPLIANCE WITH CURRENT FEDERAL, STATE AND LOCAL REGULATIONS. THE INFORMATION CONTAINED IN THE CONSTRUCTION PLANS AND/OR THE APPROVAL OF THE PLANS SHALL IN NO WAY RELIEVE THE CONTRACTOR OR HIS AGENT OF ANY LEGAL RESPONSIBILITY WHICH MAY BE REQUIRED BY THE CODE OF VIRGINIA OR ANY ORDINANCE ENACTED BY THE COUNTY OF FAIRFAX.
2. ALL AREAS, ON OR OFF-SITE, WHICH ARE DISTURBED BY THIS CONSTRUCTION AND WHICH ARE NOT PAVED OR BUILT UPON SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION. ACCEPTABLE STABILIZATION SHALL CONSIST OF PERMANENT GRASS SEED MIXTURE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. ALL SLOPES 2:1 AND GREATER SHALL BE SODDED AND STAKED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE OWNER'S REPRESENTATIVE.
3. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
4. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
5. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IN THE OPINION OF THE LOCAL PROGRAM ADMINISTRATOR OR HIS DESIGNATED AGENT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
6. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
7. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
8. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE SEDIMENT BASIN SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE THE ANTICIPATED SEDIMENT LOADING FROM THE LAND-DISTURBING ACTIVITY. THE OUTFALL DEVICE OR SYSTEM DESIGN SHALL TAKE INTO ACCOUNT THE TOTAL DRAINAGE AREA FLOWING THROUGH THE DISTURBED AREA TO BE SERVED BY THE BASIN.
9. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
10. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
11. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
12. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
13. BEFORE NEWLY CONSTRUCTED STORM WATER CONVEYANCE CHANNELS ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
14. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
15. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
16. ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE ADHERED TO.
17. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN A WATERCOURSE IS COMPLETED.
18. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PUBLIC ROAD SURFACE, THE ROAD SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL SUBDIVISION LOTS AS WELL AS TO LARGER LAND DISTURBING ACTIVITIES.
19. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM ADMINISTRATOR. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
20. REFER TO THIS SHEET FOR EROSION & SEDIMENT CONTROL NARRATIVE.

UTILITY ONLY INSTALLATION AREA OF THIS PROJECT

21. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE REQUIREMENTS, STANDARDS AND SPECIFICATIONS:
    - a. NO MORE THAN 500 LINEAR FEET OF TRENCH SHALL BE OPENED AT ONE TIME.
    - b. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
    - c. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
    - d. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
    - e. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS AND REQUIREMENTS.
    - f. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NOT SHOWN HEREON THAT ARE DEEMED NECESSARY BY THE APPROVING AUTHORITY AND/OR THE SITE INSPECTOR.
23. THE CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENT CONTROL DEVICES DAILY. ANY DAMAGED CONTROLS SHALL BE REPAIRED OR REPLACED BY THE CLOSE OF EACH WORKING DAY.

EROSION & SEDIMENT CONTROL NARRATIVE:

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS FOR THE CONSTRUCTION OF A NEW MAINTENANCE BUILDING AND ASSOCIATED UTILITY CONNECTIONS. LAND DISTURBING ACTIVITIES WILL BE LIMITED TO THE INSTALLATION OF THE NEW BUILDING AND ITS ASSOCIATED IMPROVEMENTS. APPROXIMATELY 1.43 ACRES WILL BE DISTURBED WITH THE PROPOSED IMPROVEMENTS.

EXISTING SITE CONDITIONS

THE EXISTING TOPOGRAPHY WITHIN THE WORK AREA CONSISTS OF SLOPES RANGING FROM 10% – 30%. THE MAJORITY OF THE SITE IS OPEN.

ADJACENT PROPERTY

THE PROPOSED WORK AREA IS BOUNDED ON THE NORTH BY BEULAH ROAD AND RESIDENTIAL HOMES TO THE WEST AND NVRPA PARK TO THE EAST AND SOUTH.

OFF-SITE AREAS

THERE ARE NO OFFSITE AREAS THAT WILL BE NEGATIVELY IMPACTED BY THIS DEVELOPMENT. APPROVED EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN SPECIFIED AT THE PERIPHERAL BOUNDARIES OF THE PROPOSED LIMITS OF DISTURBANCE.

SOILS

SEE SHEET 1 FOR SITE SOIL TYPE.

CRITICAL EROSION AREAS

THERE ARE NO CRITICAL SLOPES ON THE SITE.

EROSION AND SEDIMENT CONTROL MEASURES

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. THE MINIMUM STANDARDS OF THE VESCH SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

STRUCTURAL PRACTICES

1. MODIFIED SUPER SILT FENCE BARRIER – 3.05
   SUPER SILT FENCE SEDIMENT BARRIERS WILL BE INSTALLED DOWNSLOPE OF AREAS WITH MINIMAL GRADES TO FILTER SEDIMENT-LADEN RUNOFF FROM SHEET FLOW AS INDICATED ON THE PHASE I AND II EROSION AND SEDIMENT CONTROL PLAN.
2. TEMPORARY CONSTRUCTION ENTRANCE – 3.02
   CONSTRUCTION ENTRANCE IS PROVIDED AT THE LOCATION OF THE PROPOSED MAINTENANCE BUILDING OFF OF THE PARK ENTRANCE ROAD. DRIVERS OF CONSTRUCTION VEHICLES WILL BE REQUIRED TO WASH THEIR WHEELS BEFORE LEAVING THE IMPROVED AREA. IT IS THE CONTRACTORS RESPONSIBILITY TO INSURE THAT THERE IS AN ADEQUATE WATER SOURCE TO PERFORM SUCH WASHING.
3. SILT FENCE BARRIER – 3.05
   SILT FENCE BARRIER WILL BE INSTALLED DOWNSLOPE OF AREAS WITH MINIMAL GRADES TO FILTER SEDIMENT-LADEN RUNOFF FROM SHEET FLOW HAS BEEN IDENTIFIED ON THE PHASE I&II EROSION CONTROL PLAN.
4. TREE PROTECTION FENCE
   SUPER SILT FENCE AND STANDARD TREE PROTECTION FENCING WILL SERVE AS TREE PROTECTION FENCING AND WILL BE INSTALLED AS IDENTIFIED ON PHASE 1&2 EROSION CONTROL PLAN.

VEGETATIVE PRACTICES

1. TOPSOILING (STOCKPILE) – 3.30
   TOPSOIL WILL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATIONS SHALL BE LOCATED ON-SITE AND ARE TO BE STABILIZED WITH TEMPORARY VEGETATION. IN ACCORDANCE WITH THE VA E&S CONTROL HANDBOOK, AND THE FAIRFAX COUNTY PFM.
2. TEMPORARY SEEDING – 3.31
   ALL DENUDED AREAS WHICH WILL BE LEFT DORMANT FOR EXTENDED PERIODS OF TIME, SHALL BE SEEDED WITH FAST GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING. SELECTION OF THE SEED MIXTURE WILL DEPEND ON THE TIME OF YEAR IT IS APPLIED (SEE PAGE 19 TABLE 3.31B & C).
   TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. FOR TEMPORARY VEGETATIVE STABILIZATION OF ALL DENUDED AREAS, SEE SECTION 3.31 FROM THE VA E&S CONTROL HANDBOOK.
3. PERMANENT SEEDING 3.32
   STABILIZE AREAS WHICH ARE TO REMAIN UNWORKED SHALL BE VEGETATED AS EARLY AS POSSIBLE. AREAS BROUGHT TO FINISHED GRADE MUST BE SEEDED WITHIN 7 DAYS. SEE SHEET 019 FOR SEEDING SPECS.

MANAGEMENT STRATEGIES

1. CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
2. SEDIMENT TRAPPING MEASURES WILL BE INSTALLED AS A FIRST STEP IN GRADING AND WILL BE SEEDED AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.
3. TEMPORARY SEEDING OR OTHER STABILIZATION WILL FOLLOW IMMEDIATELY AFTER GRADING.
4. AREAS, WHICH ARE NOT TO BE DISTURBED, WILL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC.
5. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.
6. AFTER ACHIEVING ADEQUATE STABILIZATION, THE TEMPORARY E&S CONTROLS WILL BE CLEANED UP AND REMOVED.

PERMANENT STABILIZATION 3.32

ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING. SEEDING SHALL BE DONE IN ACCORDANCE WITH STD & SPEC 3.32, PERMANENT SEEDING, OF THE HANDBOOK.

STORMWATER MANAGEMENT 3.05

REFER TO SHEET 31-36

MAINTENANCE

THE SITE SUPERINTENDENT, OR HIS/HER REPRESENTATIVE, SHALL MAKE A VISUAL INSPECTION OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (I.E., SEEDED AND MULCHED AND/OR SODDED AREAS) ON A DAILY BASIS, ESPECIALLY AFTER A HEAVY RAINFALL EVEN TO INSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE DAY INCLUDING RE-SEEDING AND MULCHING OR RESODDING IF NECESSARY.

THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

1. THE SILT FENCE BARRIER WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES HALF WAY TO THE TOP OF THE BARRIER.
2. THE SEEDED AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEEDED AS NEEDED.
3. NO UNPROTECTED, DISTURBED AREA SHALL DRAIN TO ROADWAY PAVEMENTS SUCH THAT THE SUBBASE, BASE, OR WEARING SURFACE ARE CONTAMINATED BY SILT TRAPPED AT LOW POINTS OR INLETS.

QUALITY CONTROL

REFER TO SHEET 31-36.

QUANTITY CONTROL

REFER TO SHEET 31-36.

DUST CONTROL

CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE ENTIRE CONSTRUCTION PHASE BY THE APPLICATION OF WATER AND/OR APPROVED ADHESIVES PER STD. 3.39 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (CURRENT EDITION).

SEQUENCE OF CONSTRUCTION

SEDIMENT CONTROL PLAN (INITIAL OPERATIONS)

1. SCHEDULE AND ATTEND PRE-CONSTRUCTION MEETING WITH OWNER AND FAIRFAX COUNTY INSPECTOR. CLEARING LIMITS ARE TO BE FLAGGED IN THE FIELD PRIOR TO MEETING DATE.
2. INSTALL MODIFIED SUPER SILT/ TREE PROTECTION FENCING, AND CONSTRUCTION ENTRANCE AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN. SITE INSPECTOR SHALL APPROVE PRIOR TO COMMENCING WITH THE NEXT STEPS.
3. PERIMETER SEDIMENT CONTROLS INCLUDING SUPER & MODIFIED SUPER SILT FENCE, AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN, MUST BE INSTALLED PRIOR THE COMMENCING OF WORK.

SEDIMENT CONTROL PLAN (PHASE 2)

1. PERIMETER CONTROLS SHALL REMAIN IN PLACE AND SHALL NOT BE REMOVED WITHOUT THE APPROVAL OF THE FAIRFAX COUNTY INSPECTOR. INSTALL ROOT MATTING BEFORE WORKING BEGINS IN AREAS WHERE INDICATED ON APPROVED PLAN.
2. UTILITY ONLY INSTALLATION AREAS SHALL FOLLOW PROCEDURES OUTLINED IN LAND CONSERVATION NOTES #21 HEREON, AND AS DESCRIBED ON INDIVIDUAL EROSION CONTROL SHEETS.
3. BEGIN GRADING OPERATION AND INSTALLATION OF SITE WORK.
4. FILL SLOPE SURFACE SHALL BE LEFT IN A ROUGHENED CONDITION TO REDUCE SHEET AND RILL EROSION OF THE SLOPES. THE CONTRACTOR SHALL RE-DIRECT CONCENTRATED FLOW AWAY FROM THE FILL SLOPES BY INSTALLING EARTH BERMS AND OUTLETTING THE RUNOFF TO STABILIZE OUTLET OR SEDIMENT TRAPPING DEVICE.
5. COMPLETE INSTALLATION OF REMAINING IMPROVEMENTS (MAINTENANCE BUILDING, UTILITIES, WALKWAYS, ETC), WHILE MAINTAINING SEDIMENT CONTROLS.
6. AFTER CONSTRUCTION OPERATIONS HAVE ENDED AND ALL DISTURBED AREAS HAVE BEEN STABILIZED IN ACCORDANCE WITH SECTION 6-1503.3 OF THE FAIRFAX COUNTY PFM AND ONCE THE SITE INSPECTOR HAS INSPECTED THE STABILIZED AREAS, MECHANICAL SEDIMENT CONTROLS SHALL BE REMOVED. ALL DENUDED AREAS ARE TO BE PERMANENTLY STABILIZED WITH PERMANENT VEGETATION UPON THE APPROVAL OF THE FAIRFAX COUNTY INSPECTOR.

Bowman

Bowman Consulting Group, Ltd.
13461 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com

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EROSION AND SEDIMENT CONTROL PLAN NOTES

MEADOWLARK BOTANICAL GARDEN MAINTENANCE FACILITY

HUNTER MILL DISTRICT FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
Joe Riley-Ryan
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION
DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20' V:

JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 18 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-ESN.dwg

TABLE 3.32-D
SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residential	175-200 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	95-100%
- Improved Perennial Ryegrass	0-5%
- Kentucky Bluegrass	0-5%
High-Maintenance Lawn	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	100%
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
	150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- Crownvetch **	20 lbs.
	150 lbs.

* Use seasonal nurse crop in accordance with seeding dates as stated below:
February 16th through April ..... Annual Rye
May 1st through August 15th ..... Foxtail Millet
August 16th through October ..... Annual Rye
November through February 15th ..... Winter Rye

** Substitute Sericea lespedeza for Crownvetch east of Farmville, Va. (May through September use hulled Sericea, all other periods, use unhulled Sericea). If Flatpea is used in lieu of Crownvetch, increase rate to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10-20 lbs./acre in mixes.

TABLE 3.31-C

TEMPORARY SEEDING PLANT MATERIALS, SEEDING RATES, AND DATES

SPECIES	SEEDING RATE		NORTH[a]			SOUTH[b]			PLANT CHARACTERISTICS
	Acre	1000 ft²	3/1 to 4/30	5/1 to 8/15	8/15 to 11/1	2/15 to 4/30	5/1 to 9/1	9/1 to 11/15	
OATS (Avena sativa)	3 bu. (up to 100 lbs., not less than 50 lbs.)	2 lbs.	X	-	-	X	-	-	Use spring varieties (e.g., Noble).
RYE[d] (Secale cereale)	2 bu. (up to 110 lbs., not less than 50 lbs.)	2.5 lbs.	X	-	X	X	-	X	Use for late fall seedings, winter cover. Tolerates cold and low moisture.
GERMAN MILLET (Setaria italica)	50 lbs.	approx. 1 lb.	-	X	-	-	X	-	Warm-season annual. Dies at first frost. May be added to summer mixes.
ANNUAL RYEGRASS[d] (Lolium multi-florum)	60 lbs.	1½ lbs.	X	-	X	X	-	X	May be added in mixes. Will snow out of most stands.
WEEPING LOVEGRASS (Eragrostis curvula)	15 lbs.	5½ ozs.	-	X	-	-	X	-	Warm-season perennial. May persist. Tolerates hot, dry slopes and acid, infertile soils. May be added to mixes.
KOREAN LESPEDEZA[c] (Lespedeza stipulacea)	25 lbs.	50/50 mix 1½ lbs.	X	X	-	X	X	-	Warm season annual legume. Tolerates acid soils. May be added to mixes.

[a] Northern Piedmont and Mountain region. See Plates 3.22-1 and 3.22-2.
[b] Southern Piedmont and Coastal Plain.
[c] May be used as a cover crop with spring seeding.
[d] May be used as a cover crop with fall seeding.
X May be planted between these dates.
- May not be planted between these dates.

1992 3.31

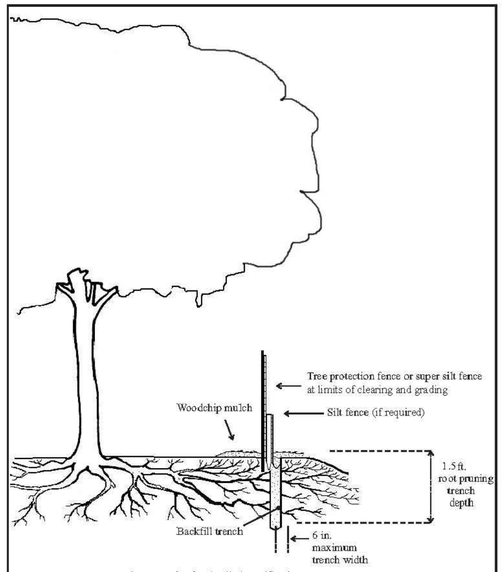
TABLE 3.31-B

ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS

"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug 31	German Millet (Setaria italica)	50

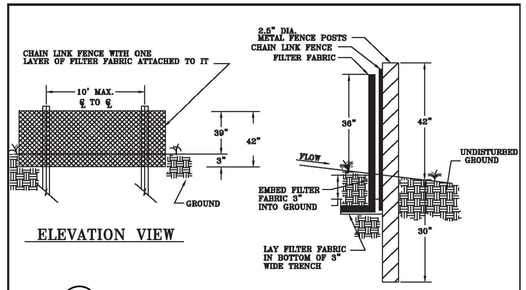
Source: Va. DSWC



Note: See Tree Preservation Narrative for detailed specifications.

Ref. Sec. 12-0502.1, 12-0504.20	TREE PROTECTION FENCE INSTALLATION & ROOT PRUNING	PLATE NO. 7-12	STD. NO. RP
Rev. 2-02, 2011 Reprint, 2018 Reprint, 10-20			

TREE PROTECTION SIGNAGE N.T.S.
NOTE: TYPICAL SIGNAGE FOR TREE PRESERVATION AREA



ELEVATION VIEW

SSF/TP

SECTION VIEW

SUPER SILT FENCE
NO SCALE

FENCING

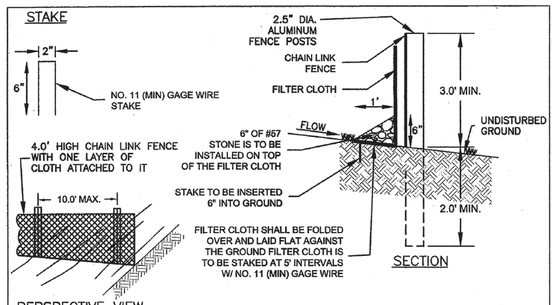
Chain link fence shall be 39" above grade with 3" embedded for a total fabric width of 42". The post shall be 42" above grade with 30" placed below grade (without concrete) for a total length of 72".

NOTES

1. **Chain link fence shall be fastened securely to fence posts with wire ties.**
2. **Filter fabric shall be fastened securely to chain link fence with ties spaced horizontally 24" at the top and midsection.**
3. **Physical properties of the filter fabric shall conform to the latest edition of THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK.**
4. **When two sections of filter fabric adjoin each other, they shall be overlapped by 6".**
5. **Maintenance shall be performed as needed and material shall be removed when sediment build-up reaches 50% of the height of the super silt fence.**

Ref. Sec. 11-0110.3, 11-0110.3J	SUPER SILT FENCE NO SCALE	PLATE NO. 7-11	STD. NO.
Rev. 1-00, 2011 Reprint			

SUPER SILT FENCE SHALL SERVE AS TREE PROTECTION WHERE NOTED ON THE EROSION CONTROL PLAN.



PERSPECTIVE VIEW

FENCING
CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST VDOT STANDARDS. POSTS SHALL BE PLACED WITHOUT CONCRETE EMBEDMENT.

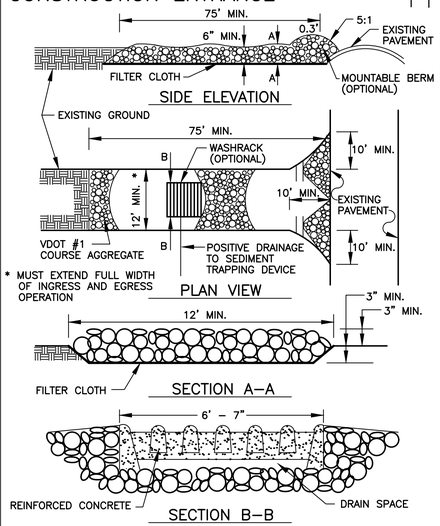
NOTES
1. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES.
2. FILTER CLOTH SHALL BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES SPACED 2.0' AT THE TOP, MID SECTION, AND BOTTOM.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SUPER SILT FENCE
5. SILT FENCE MATERIAL SHALL MEET THE REQUIRED PHYSICAL PROPERTIES FOR SYNTHETIC FILTER FABRIC AS REQUIRED IN 3.05 OF THE VESCH.

MODIFIED SUPER SILT FENCE
NOT TO SCALE

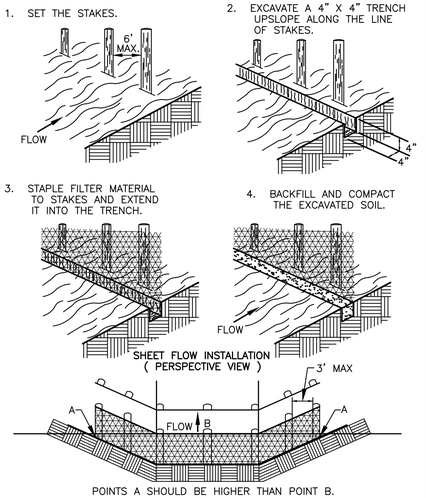
SSF/MOD TP

MODIFIED SUPER SILT FENCE SHALL SERVE AS TREE PROTECTION WHERE NOTED ON THE EROSION CONTROL PLAN.

TEMPORARY STONE CONSTRUCTION ENTRANCE 3.02-1 CE



SILT FENCE (WITHOUT WIRE SUPPORT) 3.05-2 SF



NOTE:
1. REFER TO SHEET 25 FOR ADDITIONAL TREE PRESERVATION NOTES, NARRATIVE AND DETAILS.

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Bowman Consulting Group, Ltd.
14020 Thunderbolt Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720
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EROSION AND SEDIMENT CONTROL
PLAN DETAILS (1 OF 2)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
HUNTER MILL DISTRICT FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION
DATE	DESCRIPTION

MT DESIGN	KF DRAWN	MT CHKD
SCALE	H: 1"=20' V:	
JOB No. 140291-01-001		
DATE : MAY, 2023		
FILE No. 140291-D-ZP-001		
SHEET 19 OF 40		

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-ESD.dwg

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13461 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
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EROSION AND SEDIMENT CONTROL
PLAN DETAILS (2 OF 2)
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
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PLAN STATUS

05/15/23	SP 1ST SUBMISSION
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MT DESIGN	KF DRAWN	MT CHKD

SCALE H: 1"=20' V:

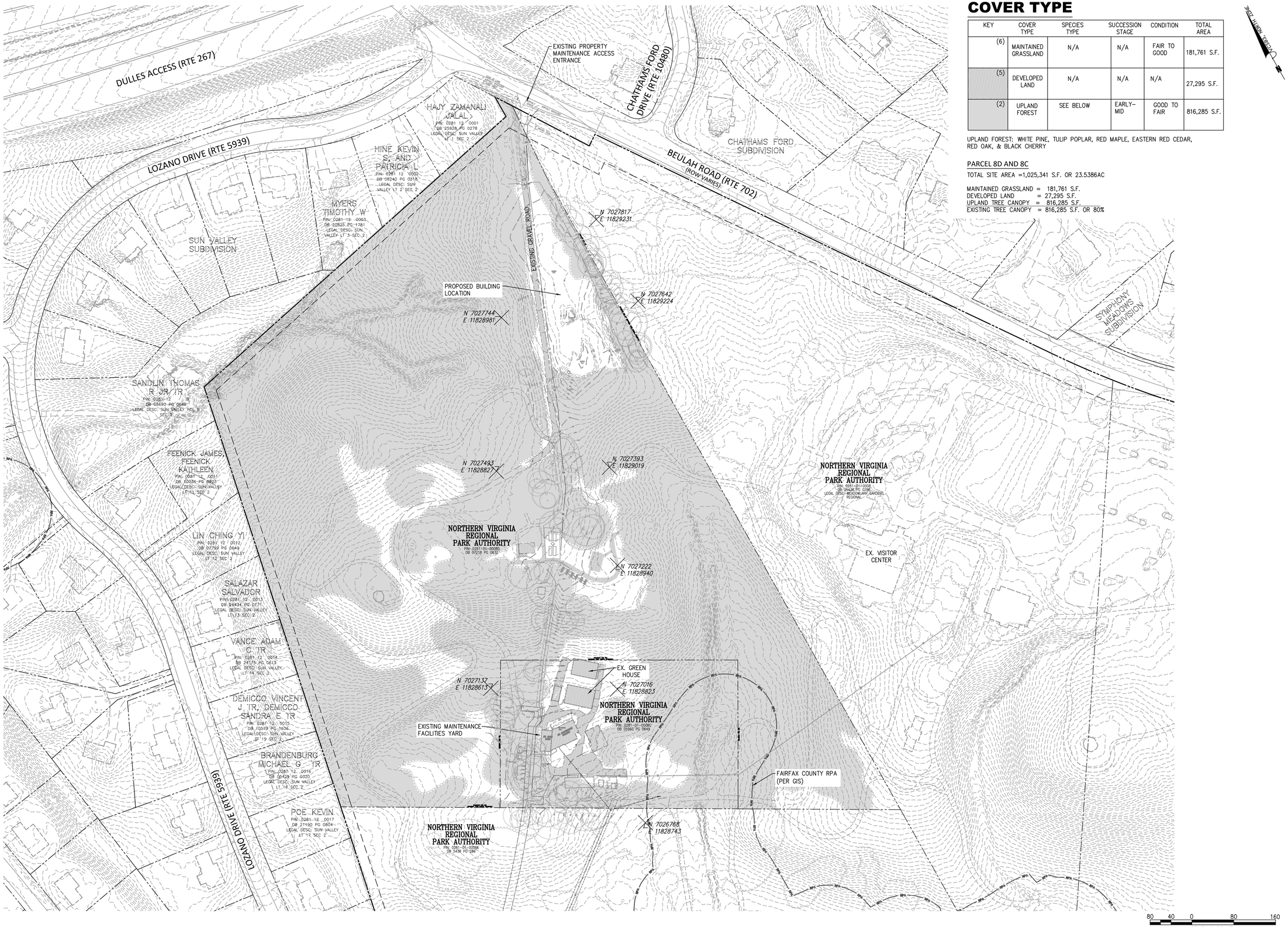
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 20 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-ESD.dwg



COVER TYPE

KEY	COVER TYPE	SPECIES TYPE	SUCCESSION STAGE	CONDITION	TOTAL AREA
(6)	MAINTAINED GRASSLAND	N/A	N/A	FAIR TO GOOD	181,761 S.F.
(5)	DEVELOPED LAND	N/A	N/A	N/A	27,295 S.F.
(2)	UPLAND FOREST	SEE BELOW	EARLY-MID	GOOD TO FAIR	816,285 S.F.

UPLAND FOREST: WHITE PINE, TULIP POPLAR, RED MAPLE, EASTERN RED CEDAR, RED OAK, & BLACK CHERRY

PARCEL 8D AND 8C

TOTAL SITE AREA =1,025,341 S.F. OR 23.5386AC

MAINTAINED GRASSLAND = 181,761 S.F.
DEVELOPED LAND = 27,295 S.F.
UPLAND TREE CANOPY = 816,285 S.F.
EXISTING TREE CANOPY = 816,285 S.F. OR 80%

NORTH

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12435 Park Potomac Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000

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EXISTING VEGETATION MAP

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY

HUNTER MILL DISTRICT

FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
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PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=80'
V:

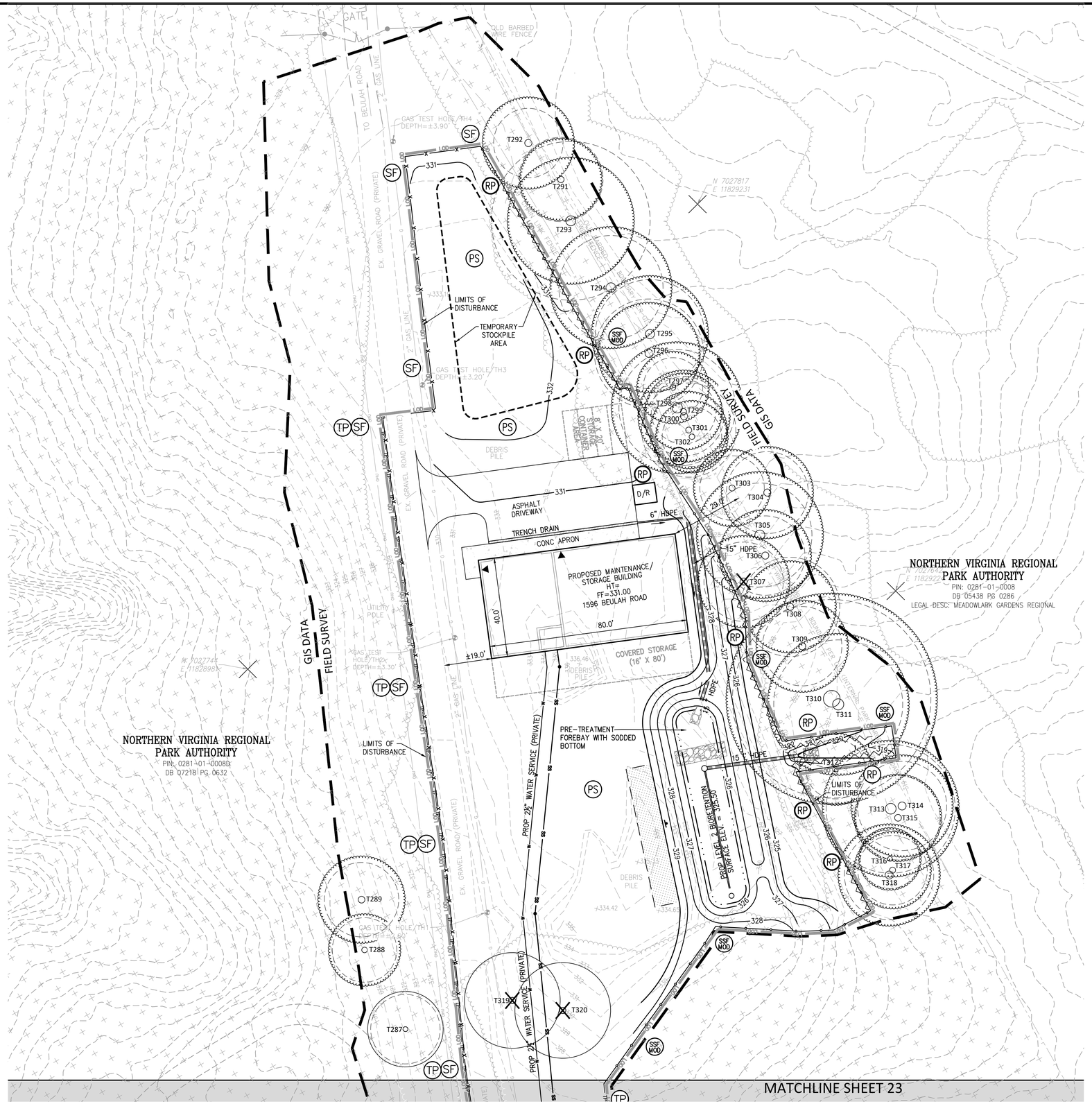
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 21 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-EVM.dwg



LEGEND

- T1688 — EX. TREE TO BE PRESERVED
- T1688 — EX. TREE TO BE REMOVED
- EX. TREE CRITICAL ROOT ZONE
- LOD — PROP. LIMITS OF DISTURBANCE
- SSF / TPF — PROP. SUPER SILT FENCE (TREE PROTECTION FENCE)
- SSF MOD — PROP. SUPER SILT FENCE (MODIFIED)
- TP — PROP. TREE PROTECTION FENCE
- RP — PROP. ROOT PRUNE
- PS — PROP. PERMANENT SEEDING
- TREE PRESERVATION AREA (803,808 S.F.)

GRAPHIC SCALE
20 10 0 20 40
1" = 20'

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Bowman Consulting Group, Ltd.
12435 Gunnlee Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
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TREE PRESERVATION PLAN (1 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

INTERNATIONAL SOCIETY OF ARBORICULTURE
BENJAMIN G. HARTMANN
MA-6213A
10/14/2022
CERTIFIED ARBORIST

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20' V:

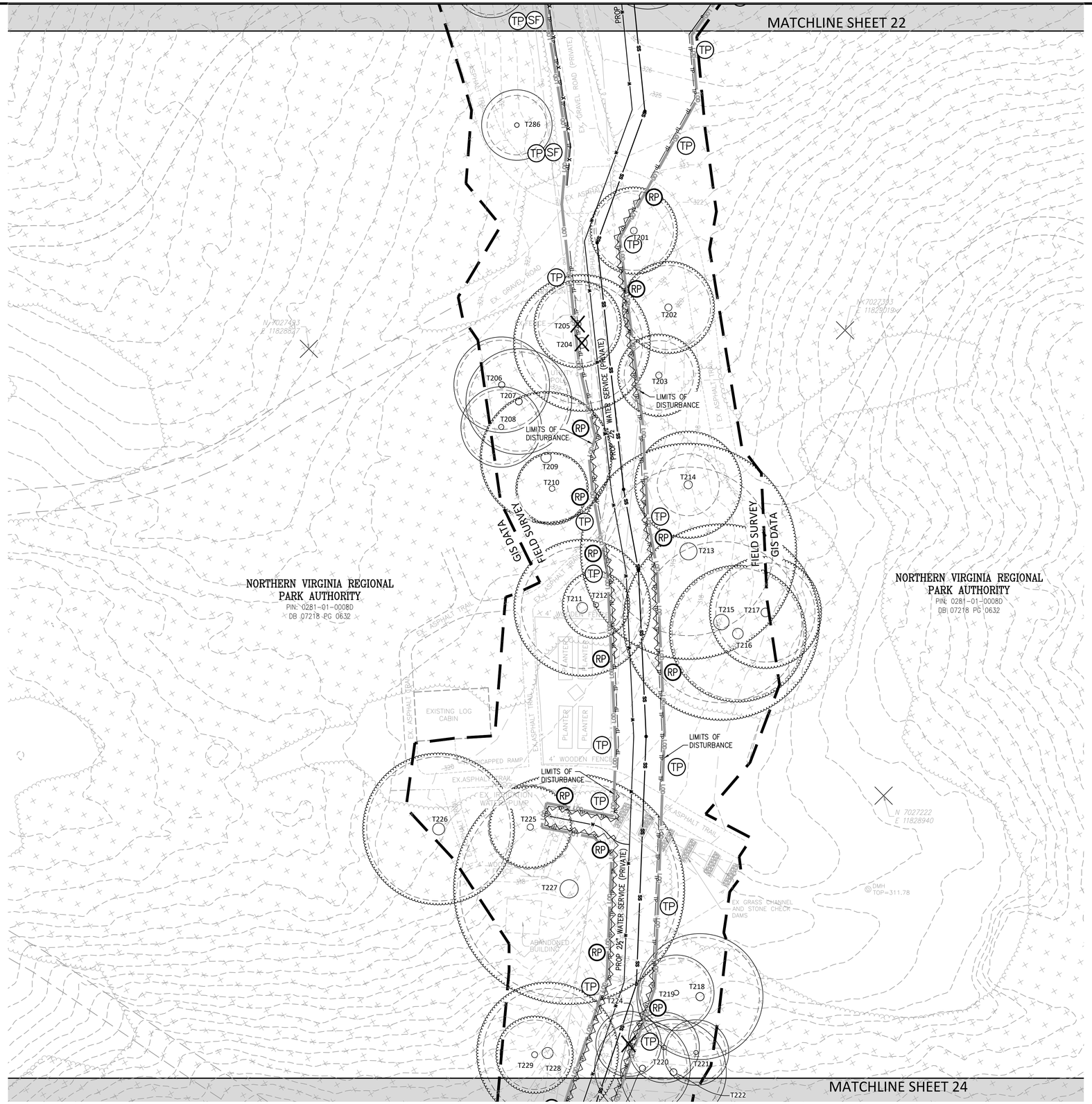
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 22 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-TPP.dwg



LEGEND

- EX. TREE TO BE PRESERVED
- EX. TREE TO BE REMOVED
- EX. TREE CRITICAL ROOT ZONE
- PROP. LIMITS OF DISTURBANCE
- PROP. SUPER SILT FENCE (TREE PROTECTION FENCE)
- PROP. SUPER SILT FENCE (MODIFIED)
- PROP. TREE PROTECTION FENCE
- PROP. ROOT PRUNE
- TREE PRESERVATION AREA (803,808 S.F.)

Bowman

Bowman Consulting Group, Ltd.
14401 Sullyfield Circle
Suite 200
Chantilly, Virginia 20151
Phone: (703) 464-1000
Fax: (703) 461-9720
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TREE PRESERVATION PLAN (2 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY

FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

INTERNATIONAL SOCIETY OF ARBORICULTURE
BENJAMIN G. HARTMANN
MA-6213A
10/14/2022
CERTIFIED ARBORIST

PLAN STATUS	
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11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20' V:

JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 23 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-TPP.dwg

MATCHLINE SHEET 23

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281-01-0008D
DB 07218 PG 0632

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281 01 0008C
DB 05993 PG 0649

NORTHERN VIRGINIA REGIONAL PARK AUTHORITY
PIN: 0281 01 0008A
DB 05438 PG 0286

GIS DATA FIELD SURVEY

LIMITS OF DISTURBANCE

PROP. 24" WATER SERVICE (PRIVATE)

NEW 2" W/L
CONNECT TO EX 8" MAIN
PER FCWA STANDARDS

REMOVE EXISTING 1" WATER METER.
INSTALL NEW 2" WATER METER.
INSTALL 2½"x 2½" TEE AND 2½"x1½" REDUCER

CONNECT EX. 1½" WATER
SERVICE (EX. MAINTENANCE
BUILDING SERVICE LINE) TO
NEW 2½" WATER LINE

PROP 2½"W

EX. GREENHOUSE

EX. GRAVEL ROAD

EX. MAINTENANCE BUILDING

EX. WOOD BARN

EX. BUILDING

8" WATERLINE PER DATR (APPROXIMATE LOCATION)

10" FAIRFAX COUNTY SANITARY SEWER EASEMENT (APPROXIMATE LOCATION) DB. 6034 PG 1061

SANITARY STRUCTURE 1074
TOP=276.58
IN=263.65 (FR STR 1073)
IN=263.82 (FR STR ATRIUM BUILDING)
OUT=263.44 (8" PVC FR SW)

LEGEND

- EX. TREE TO BE PRESERVED
- EX. TREE TO BE REMOVED
- EX. TREE CRITICAL ROOT ZONE
- PROP. LIMITS OF DISTURBANCE
- PROP. SUPER SILT FENCE (TREE PROTECTION FENCE)
- PROP. SUPER SILT FENCE (MODIFIED)
- PROP. TREE PROTECTION FENCE
- PROP. ROOT PRUNE
- TREE PRESERVATION AREA (803,808 S.F.)

GRAPHIC SCALE
1" = 20'

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TREE PRESERVATION PLAN (3 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY

HUNTER MILL DISTRICT

FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

BENJAMIN C. HARTMANN
MA-6213A
10/14/2022
INTERNATIONAL SOCIETY OF ARBORICULTURE CERTIFIED ARBORIST

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
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11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20'
V:

JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 24 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-TPP.dwg

TREE INVENTORY

Meadowlark Regional Park
Date of site visit(s): December 29, 2022
Certified Arborist: Ben Hartmann (MA-6213A)

Tree Plan #	Botanic Name	Common Name	Caliper (DBH)	Condition Rating	Species Rating	Preserve/ Remove
T201	Quercus palustris	Pin Oak	16	70	70	Preserve
T202	Quercus palustris	Pin Oak	17	70	70	Preserve
T203	Quercus palustris	Pin Oak	14	75	70	Preserve
T204	Prunus serotina	Black Cherry	24.5	40	50	REMOVE
T205	Juniperus virginiana	Eastern Red Cedar	16	45	70	REMOVE
T206	Pinus strobus	White Pine	18	70	40	Preserve
T207	Pinus strobus	White Pine	20	70	40	Preserve
T208	Pinus strobus	White Pine	15	70	40	Preserve
T209	Juglans nigra	Black Walnut	26	65	60	Preserve
T210	Larix laricina	Tamarack	14	45	50	Preserve
T211	Robinia pseudoacacia	Black Locust	24.5	55	50	Preserve
T212	Robinia pseudoacacia	Black Locust	11.5	50	50	Preserve
T213	Castanea dentata	American Chestnut	34	55	30	Preserve
T214	Castanea dentata	American Chestnut	12.5	60	30	Preserve
T215	Juglans nigra	Black Walnut	25, 21	60	60	Preserve
T216	Robinia pseudoacacia	Black Locust	26.5	50	50	Preserve
T217	Juglans nigra	Black Walnut	20	65	60	Preserve
T218	Juniperus virginiana	Eastern Red Cedar	24	60	70	Preserve
T219	Juniperus virginiana	Eastern Red Cedar	14	65	70	Preserve
T220	Juniperus virginiana	Eastern Red Cedar	13	60	70	Preserve
T221	Pinus strobus	White Pine	12	60	40	Preserve
T222	Pinus strobus	White Pine	19.5	50	40	Preserve
T223	Pinus strobus	White Pine	18	65	40	Preserve
T224	Juniperus virginiana	Eastern Red Cedar	12	60	70	REMOVE
T225	Prunus serotina	Black Cherry	17	70	50	Preserve
T226	Acer rubrum	Red Maple	29	45	70	Preserve
T227	Juglans nigra	Black Walnut	44	65	60	Preserve
T228	Juglans nigra	Black Walnut	26	40	60	Preserve
T229	Prunus serotina	Black Cherry	14	Dead	50	Preserve
T230	Juglans nigra	Black Walnut	14	40	60	Preserve
T231	Juglans nigra	Black Walnut	18	40	60	Preserve
T232	Juglans nigra	Black Walnut	29.5	40	60	Preserve
T233	Liquidambar styraciflua	Sweetgum	22.5	70	70	Preserve
T234	Juniperus virginiana	Eastern Red Cedar	17.5	70	70	REMOVE
T235	Juniperus virginiana	Eastern Red Cedar	13	65	70	REMOVE
T236	Juniperus virginiana	Eastern Red Cedar	20	70	70	REMOVE
T237	Juniperus virginiana	Eastern Red Cedar	12	Dead	70	REMOVE
T238	Juniperus virginiana	Eastern Red Cedar	12	51	70	REMOVE
T239	Juniperus virginiana	Eastern Red Cedar	12	Dead	70	REMOVE
T240	Juniperus virginiana	Eastern Red Cedar	16	40	70	REMOVE
T241	Juniperus virginiana	Eastern Red Cedar	17	60	70	REMOVE
T242	Juniperus virginiana	Eastern Red Cedar	15	60	70	REMOVE
T243	Juniperus virginiana	Eastern Red Cedar	18	40	70	REMOVE
T244	Cryptomeria japonica	Japanese Cedar	22	70	70	REMOVE
T245	Juniperus virginiana	Eastern Red Cedar	15	50	70	REMOVE
T246	Cryptomeria japonica	Japanese Cedar	18.5	70	70	Preserve
T247	Juniperus virginiana	Eastern Red Cedar	21.5	50	70	REMOVE
T248	Acer rubrum	Red Maple	26	65	70	Preserve
T249	Acer rubrum	Red Maple	28	60	70	Preserve
T250	Acer rubrum	Red Maple	16	55	70	REMOVE
T251	Pinus strobus	White Pine	22	70	40	Preserve
T252	Pinus strobus	White Pine	18	Dead	40	Preserve
T253	Pinus strobus	White Pine	17	61	40	Preserve
T254	Pinus strobus	White Pine	18	Dead	40	Preserve
T255	Pinus strobus	White Pine	23	60	40	Preserve
T256	Pinus strobus	White Pine	21	70	40	Preserve
T257	Platanus occidentalis	American Sycamore	14, 17	70	70	Preserve
T258	Ficea abies	Norway Spruce	12	70	70	Preserve
T259	Prunus serotina	Black Cherry	32	40	50	REMOVE
T260	Ficea abies	Norway Spruce	17.5	70	70	Preserve
T261	Ficea abies	Norway Spruce	15	70	70	Preserve
T262	Ficea abies	Norway Spruce	11.5	70	70	Preserve
T263	Dead	Dead	23	75		Preserve
T264	Cedrus deodara	Deodar Cedar	20.5	75	50	Preserve
T265	Cedrus deodara	Deodar Cedar	18.5	75	50	Preserve
T266	Cedrus deodara	Deodar Cedar	15	75	50	Preserve
T267	Prunus serotina	Black Cherry	21	45	50	REMOVE
T268	Cedrus deodara	Deodar Cedar	17.5, 18.5	65	50	REMOVE
T269	Diospyros virginiana	Common Persimmon	19.5	50	60	Preserve
T270	Tsuga canadensis	Eastern Hemlock	11, 10	60	60	Preserve
T271	Prunus serotina	Black Cherry	20	45	50	Preserve
T272	Tsuga canadensis	Eastern Hemlock	12	70	60	Preserve
T273	Tsuga canadensis	Eastern Hemlock	9, 9	65	60	Preserve
T274	Juglans nigra	Black Walnut	22	60	60	Preserve
T275	Juglans nigra	Black Walnut	25	65	60	REMOVE
T276	Juniperus virginiana	Eastern Red Cedar	16	60	70	REMOVE
T277	Ficea abies	Norway Spruce	25	70	70	Preserve
T278	Ficea abies	Norway Spruce	14	70	70	Preserve
T279	Ficea abies	Norway Spruce	18	70	70	Preserve
T280	Prunus serotina	Black Cherry	15	65	50	Preserve

Tree Plan #	Botanic Name	Common Name	Caliper (DBH)	Condition Rating	Species Rating	Preserve/ Remove
T281	Picea abies	Norway Spruce	18	70	70	Preserve
T282	Pinus strobus	White Pine	29	Dead	40	Preserve
T283	Pinus strobus	White Pine	24	66	40	Preserve
T284	Pinus strobus	White Pine	19	Dead	40	Preserve
T285	Pinus strobus	White Pine	24	60	40	Preserve
T286	Cryptomeria japonica	Japanese Cedar	12	70	70	Preserve
T287	Cryptomeria japonica	Japanese Cedar	14	70	70	Preserve
T288	Liriodendron tulipifera	Tulip Poplar	13	65	70	Preserve
T289	Liriodendron tulipifera	Tulip Poplar	15	70	70	Preserve
T290	Not Used	Not Used				
T291	Acer rubrum	Red Maple	17	40	70	Preserve
T292	Prunus serotina	Black cherry	14	55	50	Preserve
T293	Liriodendron tulipifera	Tulip Poplar	23, 23	55	70	Preserve
T294	Acer rubrum	Red Maple	21	50	70	Preserve
T295	Liriodendron tulipifera	Tulip Poplar	22	40	70	Preserve
T296	Acer rubrum	Red Maple	17.5, 16	50	70	Preserve
T297	Acer rubrum	Red Maple	12	45	70	Preserve
T298	Acer rubrum	Red Maple	23.5	65	70	Preserve
T299	Prunus serotina	Black Cherry	13	65	50	Preserve
T300	Acer rubrum	Red Maple	16	70	70	Preserve
T301	Prunus serotina	Black Cherry	13.5, 14	50	50	Preserve
T302	Prunus serotina	Black Cherry	12	50	50	Preserve
T303	Acer rubrum	Red Maple	13	40	70	Preserve
T304	Liriodendron tulipifera	Tulip Poplar	16.5	45	70	Preserve
T305	Prunus serotina	Black Cherry	21	45	50	Preserve
T306	Prunus serotina	Black Cherry	16	40	50	Preserve
T307	Liriodendron tulipifera	Tulip Poplar	16	40	70	REMOVE
T308	Prunus serotina	Black Cherry	20	35	50	Preserve
T309	Prunus serotina	Black Cherry	16	45	50	Preserve
T310	Liriodendron tulipifera	Tulip Poplar	40	50	70	Preserve
T311	Liriodendron tulipifera	Tulip Poplar	26	55	70	Preserve
T312	Prunus serotina	Black Cherry	12	55	50	Preserve
T313	Liriodendron tulipifera	Tulip Poplar	26	70	70	Preserve
T314	Liriodendron tulipifera	Tulip Poplar	18	70	70	Preserve
T315	Liriodendron tulipifera	Tulip Poplar	17	70	70	Preserve
T316	Liriodendron tulipifera	Tulip Poplar	12	70	70	Preserve
T317	Liriodendron tulipifera	Tulip Poplar	14	70	70	Preserve
T318	Liriodendron tulipifera	Tulip Poplar	18	65	70	Preserve
T319	Pinus strobus	White Pine	18	70	40	REMOVE
T320	Pinus strobus	White Pine	18	65	40	REMOVE

TREE INVENTORY NOTES

1. CONDITION RATING BASED ON FORMULA PROVIDED BY THE GUIDE FOR PLANT APPRAISAL PUBLISHED BY THE ISA.

   81–100 EXCELLENT
   61–80 GOOD
   41–60 FAIR
   21–40 POOR
   06–20 VERY POOR

2. SPECIES RATING BASED ON FORMULA PROVIDED BY THE GUIDE FOR PLANT APPRAISAL PUBLISHED BY THE ISA.

3. ALL TREES WITH TRUNKS 8 INCHES OR GREATER IN DIAMETER WERE LOCATED WITHIN 25 FEET OF THE PROPOSED LIMITS OF CLEARING WITHIN THE UNDISTURBED AREA AND WITHIN 10 FEET OF THE LIMITS OF CLEARING IN THE DISTURBED AREA.

4. NO OFFSITE TREES ARE TO BE REMOVED WITHOUT THE CONSENT/PERMISSION OF THE ADJACENT PROPERTY OWNER.

TREE PRESERVATION SEQUENCE NARRATIVE

PROJECT DESCRIPTION
THIS PROJECT CONSISTS OF THE CONSTRUCTION OF A NEW MAINTENANCE BUILDING AND ASSOCIATED PARKING AREA WITHIN THE EXISTING OPEN SPACE AREA SHOWN ON SHEET 9. ALSO PROPOSED IS THE INSTALLATION OF NEW WATERLINE & SANITARY SEWER LINE TO SERVICE THE PROPOSED BUILDING AS SHOWN ON SHEETS 10–11. THE UTILITY INSTALLATION WILL BE A LINEAR OPERATION TO BE PERFORMED WITHIN THE CONFINES OF THE SPECIFIC TRENCH LOCATIONS AS SHOWN ON SHEETS 10–11. TREE PROTECTION MEASURES WILL BE PROVIDED ALONG THE PERIMETER OF THE TRENCHES WHERE IN VICINITY TO EXISTING TREES AS SHOWN HEREIN.

A. PRIOR TO CONSTRUCTION, THE APPLICANT SHALL RETAIN THE SERVICES OF A CERTIFIED ARBORIST OR REGISTERED CONSULTING ARBORIST, AND SHALL HAVE THE LIMITS OF CLEARING AND GRADING MARKED WITH A CONTINUOUS LINE OF FLAGGING PRIOR TO THE WALK– THROUGH MEETING. DURING THE TREE PRESERVATION WALK–THROUGH MEETING, THE APPLICANT'S CERTIFIED ARBORIST SHALL WALK THE LIMITS OF CLEARING AND GRADING WITH AN UFMD & DPWES REPRESENTATIVE TO DETERMINE WHERE ADJUSTMENTS TO THE CLEARING LIMITS CAN BE MADE TO INCREASE THE AREA OF TREE PRESERVATION AND/OR TO INCREASE THE SURVIVABILITY OF TREES AT THE EDGE OF THE LIMITS OF CLEARING AND GRADING, AND SUCH ADJUSTMENT SHALL BE IMPLEMENTED.

B. AFTER THE WALK–THROUGH, ALL SUPER SILT/TREE PROTECTION FENCE SHALL BE INSTALLED PER THE DETAILS AND LOCATIONS SHOWN. LARGE ROOTS (GREATER THAN 1") THAT ARE FOUND WHILE TRENCHING NEAR TREES ARE TO BE CUT BY HAND TO MINIMIZE IMPACT ON TREES TO BE PRESERVED.

C. AFTER THE SUPER SILT/TREE PROTECTION FENCE HAS BEEN INSTALLED, BILINGUAL SIGNS SHALL BE POSTED AT A MINIMUM OF 50–FOOT INTERVALS ALONG THE SUPER SILT/TREE PROTECTION FENCE THAT CLEARLY STATE THAT TREES AND FORESTED AREAS MUST BE PROTECTED AND LEFT UNDISTURBED. SIGNS SHALL REMAIN POSTED THROUGHOUT ALL PHASES OF CONSTRUCTION.

D. AFTER SUPER SILT/TREE PROTECTION FENCE AND SIGNAGE HAVE BEEN INSTALLED, ALL SPECIFIED TREES SHALL BE REMOVED FROM THE SITE. TREES THAT ARE LOCATED WITHIN THE LIMITS OF CLEARING AND GRADING ARE TO BE REMOVED WITH MACHINERY AND STUMPS ARE TO BE GROUND DOWN WITH A STUMP GRINDER. TREES ON THE EDGE OF THE LIMITS OF CLEARING AND GRADING SHALL BE CUT DOWN BY HAND WITH A CHAIN SAW. REMAINING STUMPS SHALL EITHER BE LEFT IN PLACE OR GROUND DOWN WITH A STUMP GRINDER. ANY TREES BEING REMOVED SHALL NOT BE FELLED, PUSHED OR PULLED INTO TREE PRESERVATION AREAS.

E. NO TREES ARE PLANNED TO BE TRANSPLANTED AND NO SPECIMEN, HERITAGE, OR MEMORIAL TREES ARE DENOTED IN THE PLANS TO BE REMOVED OR TO REMAIN.

TREE PRESERVATION MONITORING NARRATIVE

THE CERTIFIED ARBORIST SHALL OBSERVE AND INSPECT THE TREE PRESERVATION MEASURES AS CONSTRUCTION OPERATIONS COMMENCE IN THE GENERAL ORDER BELOW:

1. OBSERVE INITIAL INSTALLATION OF EROSION CONTROL MEASURES ASSOCIATED WITH TREE PROTECTION INCLUDING SUPER–SILT FENCE AND TREE PROTECTION FENCING TO ENSURE PROPER INSTALLATION METHODS.
2. OBSERVE INITIAL ROOT PRUNING OPERATIONS TO ENSURE PROPER TECHNIQUE AND RESULTS.
3. PROVIDE TO COUNTY SITE INSPECTOR AND UFMD A FIELD REPORT OF OBSERVATIONS MADE DURING FIELD OPERATIONS #1 & #2 ABOVE, INCLUDING PHOTOGRAPHS AND NOTATIONS OF RESULTS AND OR DEFICIENCIES.
4. OBSERVE TREE PRESERVATION MEASURES AND OPERATIONS ONCE COMPLETED (INCLUDING FENCING & ROOT PRUNING) AND ISSUE A FINAL FIELD REPORT TO COUNTY PRIOR TO BEGINNING FULL CONSTRUCTION OPERATIONS.
5. APPLICANT SHALL PERFORM ROUTINE OBSERVATION OF TREE PRESERVATION MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION TO ENSURE THEY REMAIN IN PROPER CONDITION AND OPERATION.

TREE CONSERVATION CONSTRUCTION NOTES

CONTRACTOR MUST BE FAMILIAR WITH CURRENT EDITION OF FAIRFAX COUNTY PUBLIC FACILITIES MANUAL P.F.M., SPECIFICALLY CHAPTER 12–0500 (STANDARDS FOR FIELD PRACTICE) AND ITS ASSOCIATED SECTIONS/ MATERIALS. CONTRACTOR MUST ALSO BE FAMILIAR WITH CURRENT INDUSTRY STANDARDS, INCLUDING BUT NOT LIMITED TO, ISA & ANSI STANDARDS/ PRACTICES. CONTRACTOR MUST ADHERE TO LANGUAGE OF THE PFM IN ADDITION TO ANY ADDITIONAL INFORMATION/ NOTES PROVIDED WITHIN THE TREE PRESERVATION PLAN AND THE GENERAL NOTES DESCRIBED BELOW.

PRE–CONSTRUCTION:

1. PRIOR TO THE PRE–CONSTRUCTION MEETING, THE LIMITS OF DISTURBANCE AND TREES PROPOSED FOR REMOVAL SHALL BE FLAGGED/ MARKED IN THE FIELD..
2. ALL TREES LABELED ON THE APPROVED TREE INVENTORY AS "ASSESSED AS DEAD," "ASSESSED IN POOR CONDITION" OR "ASSESSED AS HAZARDOUS" WILL BE EVALUATED BY URBAN FOREST MANAGEMENT DIVISION STAFF BEFORE, OR DURING THE PRE–CONSTRUCTION WALK–THROUGH FOR REMOVAL OR OTHER ARBORICULTURAL TREATMENTS DURING THE DEVELOPMENT SITE'S INITIAL LAND CLEARING OPERATIONS.
3. THE DIRECTOR MAY REQUIRE THE REMOVAL OR TREATMENT OF ANY TREE OR TREE CONDITION DESCRIBED IN THE P.F.M. THAT HAS NOT BEEN IDENTIFIED ON THE APPROVED PLANS BUT IS OBSERVED DURING THE PRE–CONSTRUCTION WALK–THROUGH, OR DURING ANY OTHER INSPECTION OF THE SITE. THE DIRECTOR MAY ALSO REQUIRE THE REMOVAL OR TREATMENT OF ANY TREE OR PORTION THEREOF THAT HAS BECOME HIGH RISK OR A MAINTENANCE NUISANCE DUE TO THE INTRODUCTION OF A TARGET SUCH AS A STRUCTURE, OPEN SPACE FREQUENTED BY PEOPLE, OR OTHER IMPROVEMENT. TREES SHOULD BE REMOVED BY HAND WITH A CHAIN SAW AND THE STUMP SHOULD BE LEFT IN PLACE UNLESS IT TOO IS DEEMED A HIGH RISK OR A MAINTENANCE NUISANCE. THE REMOVAL OF THE TRUNK OR BRANCHES OF THE FELLED TREE(S) IS NOT REQUIRED WITHIN WOODED AREAS, UNLESS SPECIFICALLY REQUIRED BY THE DIRECTOR.
4. TREE PROTECTION FENCE (14 GAUGE WELDED WIRE FENCE OR SUPER SILT FENCE) SHALL BE INSTALLED BEFORE A GENERAL LAND DISTURBING ACTIVITIES COMMENCE.
5. TREE PROTECTION AREA SIGNS ARE TO BE PLACED EVERY 50' ALONG LIMITS OF CLEARING AND GRADING. SIGNS SHALL REMAIN POSTED THROUGHOUT ALL PHASES OF CONSTRUCTION; SHALL BE ATTACHED TO PROPOSED TREE PROTECTION FENCING; AND, SHALL NOT BE NAILED OR IN ANY MANNER ATTACHED TO THE TREES OR VEGETATION TO BE PRESERVED.
6. BEFORE GENERAL LAND DISTURBING ACTIVITIES, ROOT PRUNING WITH A VIBRATORY PLOW, TRENCHER OR OTHER DEVICE APPROVED BY THE DIRECTOR MUST BE CONDUCTED ALONG THE LIMITS OF CLEARING ADJACENT TO TREE PRESERVATION AREAS &/ OR AS SHOWN WITHIN APPROVED TREE PRESERVATION PLANS.

DURING CONSTRUCTION:

1. TREES AND FORESTED AREAS SHALL BE PROTECTED AND MANAGED DURING ALL PHASES OF CONSTRUCTION IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION AND ANY SITE–SPECIFIC GUIDANCE PROVIDED WITHIN THE APPROVED TREE PRESERVATION PLAN AND NARRATIVE..
2. TREES AND FORESTED AREAS SHALL BE PROTECTED AND MANAGED DURING ALL PHASES OF CONSTRUCTION IN A MANNER THAT WILL ENSURE THAT THESE RESOURCES CONFORM TO THE POST–DEVELOPMENT TREE AND FORESTED AREA STANDARDS AT THE END OF CONSTRUCTION. THESE STANDARDS REQUIRE THAT TREES SURVIVE CONSTRUCTION IN A MANNER THAT SUBSTANTIALLY RETAINS THEIR PRE–DEVELOPMENT LEVEL OF BIOLOGICAL FUNCTION, HEALTH AND STRUCTURAL CONDITION; AND REQUIRE THAT FORESTED AREAS SURVIVE CONSTRUCTION IN A MANNER THAT PRESERVES THE ECOLOGICAL FUNCTIONALITY, HEALTH, AND CONDITION OF SUPER– AND SUB–CANOPY TREE SPECIES; WOODY SHRUBS, HERBACEOUS PLANTS, VINES, NONVASCULAR PLANTS AND EPIPHYTES; DECAYING LEAF LITTER, ROOT MASS, FUNGI, SOIL BIOTA AND SOIL CONDITIONS THAT MAY BE PRESENT.
3. IN ADDITION TO PROTECTING TREES, THE PERMITTEE SHALL PROTECT ALL UNDERSTORY PLANTS, LEAF LITTER AND SOIL CONDITIONS FOUND IN FORESTED AREAS DESIGNATED TO BE LEFT PRESERVED EXCEPT AS MAY BE ALLOWED BY THE APPROVED TREE PRESERVATION PLAN AND NARRATIVE.
4. THE PERMITTEE SHALL ACTIVELY MONITOR THE CONSTRUCTION SITE TO ENSURE THAT INAPPROPRIATE ACTIVITIES SUCH AS THE STORAGE OF CONSTRUCTION MATERIALS, DUMPING OF CONSTRUCTION DEBRIS, AND TRAFFIC BY CONSTRUCTION EQUIPMENT AND PERSONNEL DO NOT OCCUR WITHIN AREAS SHOWN TO BE PRESERVED OUTSIDE OF THE LIMITS OF CLEARING.
5. ANY WORK ALLOWED BY THE APPROVED TREE PRESERVATION PLAN AND NARRATIVE TO OCCUR ADJACENT TO TREES OR WITHIN FORESTED AREAS TO BE PRESERVED, SUCH AS ROOT PRUNING; INSTALLATION OF TREE PROTECTION FENCING AND SILT CONTROL DEVICES; REMOVAL OF TRASH OR DEBRIS; OR EXTRACTION OF TREES DESIGNATED TO BE REMOVED TO ELIMINATE HAZARDOUS CONDITIONS MUST BE PERFORMED IN A MANNER THAT MINIMIZES DAMAGE TO TREES, UNDERSTORY SHRUBS, HERBACEOUS PLANTS, LEAF LITTER, ROOTS SYSTEMS AND SOIL CONDITIONS.
6. THE PERMITTEE SHALL RESTORE UNDERSTORY PLANT MATERIALS, LEAF LITTER AND SOIL CONDITIONS TO THE SATISFACTION OF THE DIRECTOR IF THESE ARE FOUND TO BE DAMAGED, REMOVED OR ALTERED IN A MANNER NOT SPECIFICALLY ALLOWED BY THE PROVISIONS OF THE P.F.M. OR NOT SPECIFICALLY ADDRESSED WITHIN THE APPROVED TREE PRESERVATION PLAN AND NARRATIVE.
7. TREE PROTECTION DEVICES SHALL BE MAINTAINED UNTIL ALL WORK IN THE VICINITY HAS BEEN COMPLETED AND SHALL NOT BE REMOVED OR RELOCATED WITHOUT THE CONSENT OF THE DIRECTOR. IF THE DIRECTOR DEEMS THAT THE PROTECTIVE DEVICES ARE INSUFFICIENT, INSTALLATION OF ADDITIONAL PROTECTIVE DEVICES SHALL BE REQUIRED.
8. HEAVY EQUIPMENT, VEHICULAR TRAFFIC, STOCKPILING OF MATERIALS OR DEPOSITION OF SEDIMENT SHALL NOT BE PERMITTED WITHIN TREE PRESERVATION AREAS.
9. ANY POWER EQUIPMENT USE PRESCRIBED BY THE APPROVED TREE PRESERVATION PLAN NARRATIVE WITHIN TREE PRESERVATION AREAS SHALL BE LIMITED TO SMALL HAND–OPERATED EQUIPMENT SUCH AS CHAINSAWS.
10. ANY WORK WITHIN TREE PRESERVATION AREAS REQUIRING THE USE OF LARGER MOTORIZED EQUIPMENT SUCH AS, BUT NOT LIMITED TO, TREE TRANSPLANTING SPADES, SKID LOADERS, TRACTORS, TRUCKS, STUMP–GRINDERS, OR ANY ACCESSORY OR ATTACHMENT CONNECTED TO SUCH EQUIPMENT MAY NOT OCCUR UNLESS APPROVED IN WRITING BY THE DIRECTOR, OR UNLESS THE ACTIVITY HAS BEEN SPECIFICALLY ADDRESSED WITHIN THE APPROVED TREE PRESERVATION PLAN NARRATIVE.
11. NO TOXIC MATERIALS SHALL BE STORED NEAR RETAINED VEGETATION IN ACCORDANCE WITH THE CURRENT FAIRFAX COUNTY FIRE PREVENTION CODE SAFE DISTANCE.
12. FIRES AUTHORIZED BY FAIRFAX COUNTY AIR POLLUTION CONTROL ORDINANCE, FIRE CODE, OR ANY OTHER STATE OR COUNTY LAW SHALL NOT BE PERMITTED WITHIN 100 FEET OF VEGETATED AREAS RETAINED UNLESS APPROVED BY THE DIRECTOR IN ACCORDANCE WITH THE ORDINANCE, CODE OR LAW. IF AUTHORIZED, FIRES SHALL BE LIMITED IN SIZE SO AS NOT TO ADVERSELY AFFECT THE VEGETATION.
13. NO PROTECTIVE DEVICES, SIGNS, UTILITY BOXES OR OTHER OBJECTS SHALL BE NAILED OR AFFIXED TO TREES TO BE PRESERVED.
14. IF THE DIRECTOR DETERMINES THAT A TREE OR PORTION THEREOF IS DEAD, DECLINING, A HIGH RISK, OR A PROPERTY MAINTENANCE BURDEN DUE TO CONSTRUCTION OR ENVIRONMENTAL CHANGES RESULTING FROM CONSTRUCTION; OR, IS HIGH RISK TO LIFE OR PROPERTY BECAUSE OF CONDITIONS NOT RELATED TO CONSTRUCTION, THE DIRECTOR WILL REQUIRE THE PERMITTEE TO REMOVE THE TREE OR PORTION THEREOF. THE PERMITTEE MUST TAKE SUCH ACTION AS NECESSARY TO ELIMINATE THE TREE OR PORTION THEREOF CAREFULLY. THE PERMITTEE MUST NOTIFY THE DIRECTOR OF ANY ACTIONS TAKEN OR PROPOSED TO BE TAKEN UNDER THIS SECTION.
15. THE MAIN TRUNKS OF DEAD TREES MAY BE ALLOWED TO REMAIN ON SITES WHERE THE DIRECTOR DETERMINES THAT A "TRUNK SNAG" MAY PROVIDE HABITAT OR OTHER WILDLIFE BENEFITS AND HAVE LITTLE OR NO POTENTIAL TO CAUSE PERSONAL INJURY OR PROPERTY DAMAGE, OR TO OBSTRUCT STREAMS OR OTHER DRAINAGE.
16. WHEN EXCAVATING, TRENCHING, OR TUNNELING, ALL TREE ROOTS GREATER THAN 1 INCH IN DIAMETER THAT ARE EXPOSED AND/OR DAMAGED SHALL BE TRIMMED CLEANLY, AND COVERED WITH ORGANIC MULCH, TOPSOIL, OR OTHER SUITABLE MATERIAL TO PREVENT THE EXPOSED ROOTS FROM DRYING OUT.
17. ANY DAMAGE INFLICTED TO THE ABOVE OR BELOW–GROUND PORTIONS OF THE TREES SHOWN TO BE PRESERVED SHALL BE REPAIRED IMMEDIATELY. ALL DAMAGED BRANCHES IN THE CROWN SHALL BE REPAIRED AS SPECIFIED IN RELATED SECTIONS OF THE CURRENT EDITION OF THE PFM.
18. ANY PORTION OF A TREE PRESERVATION AREA THAT IS DISTURBED WITHOUT PRIOR APPROVAL OF THE DIRECTOR SHALL BE MULCHED IMMEDIATELY WITH A MINIMUM OF 4–INCHES OF WOOD CHIPS OR OTHER SUITABLE MATERIAL AS APPROVED BY THE DIRECTOR.

END OF CONSTRUCTION:

1. INSPECTION.
   1.1. THE DEVELOPER MUST REQUEST AN INSPECTION WHEN CONSTRUCTION IS COMPLETED TO ENSURE THAT ALL WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.
2. REPAIR.
   2.1. ALL TREES THAT HAVE BEEN DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITY MUST BE REPAIRED USING STANDARDS IDENTIFIED IN THE CURRENT EDITION OF THE FAIRFAX COUNTY PFM.
3. PERMITTEE MUST BE FAMILIAR WITH CURRENT EDITION OF FAIRFAX COUNTY PFM, SPECIFICALLY SECTION 'END OF CONSTRUCTION' IN CHAPTER 12 ITS ASSOCIATED SECTIONS/ MATERIALS THAT MAY REQUIRED ACTION

Bowman

Bowman Consulting Group, Ltd.
12355 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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TREE PRESERVATION NOTES & DETAILS (1 OF 2)
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA
HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

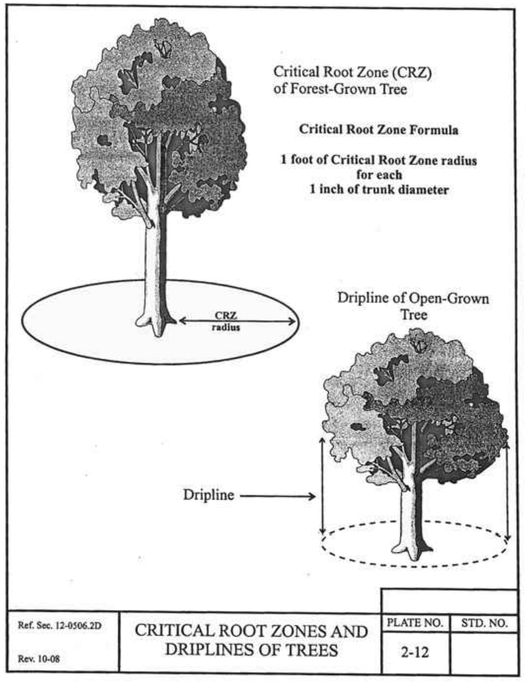
DATE	DESCRIPTION

MT DESIGN	KF DRAWN	MT CHKD
SCALE	H: 1"=20' V:	
JOB No. 140291-01-001		
DATE : MAY, 2023		
FILE No. 140291-D-ZP-001		

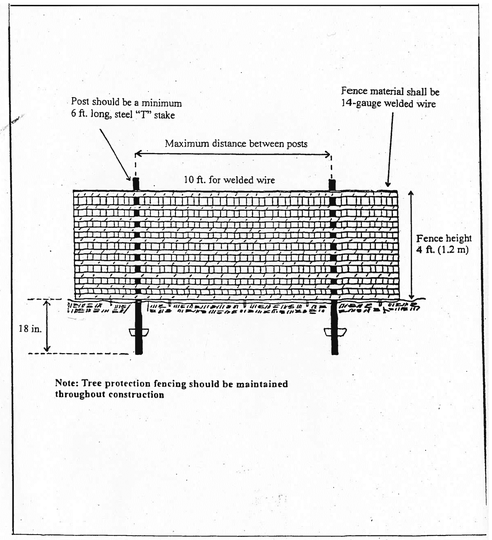
SHEET 25 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-TPP DTL.dwg

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



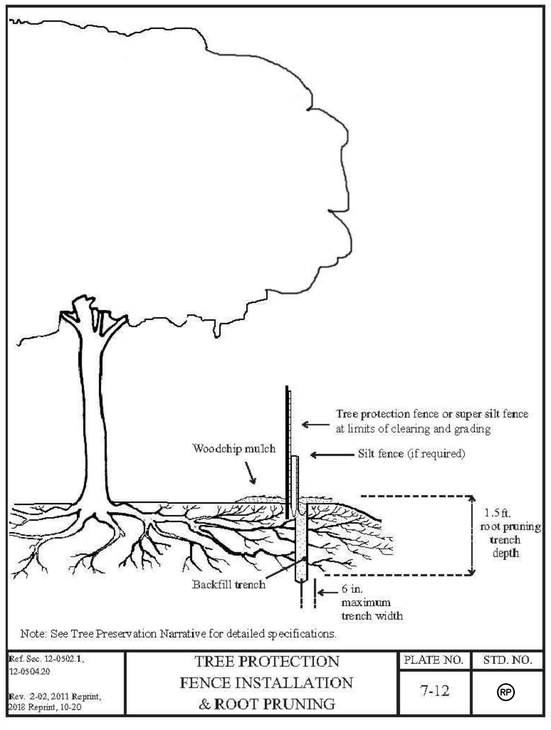
Ref. Sec. 12-0506.2D Rev. 10-08	CRITICAL ROOT ZONES AND DRIPLINES OF TREES	PLATE NO. 2-12	STD. NO.



TREE PROTECTION FENCE
INSTALLATION DETAIL

TREE PROTECTION SIGNAGE N.T.S.
NOTE: TYPICAL SIGNAGE FOR TREE PRESERVATION AREA

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



Ref. Sec. 12-0502.1, 12-0504.20 Rev. 2-02, 2011 Reprint, 2018 Reprint, 10-20	TREE PROTECTION FENCE INSTALLATION & ROOT PRUNING	PLATE NO. 7-12	STD. NO. (RP)

Table 12.9: 10-year Tree Canopy Calculation Worksheet

A. Tree Preservation Target and Statement (Table 12.3)

A	Pre-development area of existing tree canopy (from Existing Vegetation Map) =	816,285
B	Percentage of gross site area covered by existing tree canopy =	80%
C	Percentage of 10-year canopy required for site (see Table 12.4) =	30% (307,602 S.F.)
D	Percentage of the 10-year tree canopy requirement that should be met through tree preservation =	80%
E	Tree canopy that should be met through tree preservation (Tree Preservation Target)=	246,081 S.F.
F	Proposed percentage of canopy requirement that will be met through tree preservation =	100%
G	Has the Tree Preservation Target minimum been met?	YES
H	If No for line G, then a request to deviate from the Tree Preservation Target shall be provided on the plan that states one or more of the justifications listed in 12-0308.3 along with a narrative that provides a site-specific explanation of why the Tree Preservation Target cannot be met. Provide sheet number where deviation request is located.	OK
I	If step G requires a narrative, it shall be prepared in accordance with 12-0308.4	OK
J	Place this information prior to the 10-year Tree Canopy Calculations as per instructions in Table 12.9	

Step		Totals	Reference
B. Tree Canopy Requirement			
B1	Identify gross site area =	1,025,341 S.F.	§ 12-0311.1A
B2	Subtract area dedicated to parks, road frontage, schools and other public use	0 S.F.	§ 12-0311.1B
B3	Subtract area of exemptions =	0 S.F.	§ 12-0311.1C(1) through § 12-0311.1C(6)
B4	Adjusted gross site area (B1 – B2) =	1,025,341 S.F.	
B5	Identify site's zoning and/or use	R-1	
B6	Percentage of 10-year tree canopy required =	30%	§ 12-310.1 and Table 12.4
B7	Area of 10-year tree canopy required (B4 x B6) =	307,602 S.F.	
B8	Modification of 10-year Tree Canopy Requirements Requested	NO	Yes or No
B9	If B8 is yes, then list plan sheet where modification request is located		Sheet number
C. Tree Preservation			
C1	Tree Preservation Target Area =	246,081 S.F.	S.F.
C2	Total canopy area meeting standards of § 12-0200 =	758,695 S.F.	
C3	C2 x 1.25 =	0 S.F.	§ 12-0310.3B
C4	Total canopy area provided by unique or valuable forest or woodland communities =	0 S.F.	
C5	C4 x 1.5 =	0 S.F.	§ 12-0310.3B(1)
C6	Total of canopy area provided by "Heritage," "Memorial," "Specimen," or "Street" trees =	0 S.F.	
C7	C6 x 1.5 to 3.0 =	0 S.F.	§ 12-0310.3B(2)
C8	Canopy area of trees within Resource Protection Areas and 100-year floodplains =	45,113 S.F.	
C9	C8 x 1.0 =	45,113 S.F.	§ 12-0310.3C(1)
C10	Total of C3, C5, C7 and C9 = If area of C10 is less	803,808 S.F.	If area of C10 is less than B7 then remainder of requirement must be met through tree planting - go to D
D. Tree Planting			
D1	Area of canopy to be met through tree planting (B7-C10) =	0 S.F.	(6,970 + 1,750 S.F. (PER APPROVED CONDITIONS OF SP #7788-SP-006))
D2	Area of canopy planted for air quality benefits =	0 S.F.	SEE NOTE BELOW
D3	x 1.5 =	0 S.F.	§ 12-0310.4B(1)
D4	Area of canopy planted for energy conservation =	0 S.F.	
D5	x 1.5 =	0 S.F.	§ 12-0310.4B(2)
D6	Area of canopy planted for water quality benefits =	0 S.F.	
D7	D7 x 1.25 =	0 S.F.	§ 12-0310.4B(3)
D8	Area of canopy planted for wildlife benefits =	0 S.F.	
D9	D9 x 1.5 =	0 S.F.	§ 12-0310.4B(4)
D10	Area of canopy provide by native trees =	0 S.F.	
D11	D11 x 1.5 =	0 S.F.	§ 12-0310.4B(5)
D12	Area of canopy provided by improved cultivars and varieties =	0 S.F.	
D13	D13 X 1.25 =	0 S.F.	§ 12-0310.4B(6)
D14	Area of canopy provided through tree seedlings = x1.0 =	0 S.F.	§ 12-0310.4D(1)
D15	Area of canopy provided through native shrubs = x1.0 =	0 S.F.	§ 12-0310.4D(1)
D16	Percentage of D14 represented by D15 =	0 S.F.	Must not exceed 33% of D14
D17	Area of canopy credit for planting with no added credit=	0 S.F.	
D18	Total of canopy area provided through tree planting =	0 S.F.	
D19	Is an offsite planting relief requested?	No	Yes or No
D20	D19 Tree Bank or Tree Fund?	N/A	§ 12-0312
D21	Canopy area requested to be provided through offsite banking or tree fund	N/A	
D22	Amount to be deposited into the Tree Preservation and Planting Fund	N/A	
E. Total of 10-year Tree Canopy Provided			
E1	Total of canopy area provided through tree preservation (C10) =	803,808 S.F.	
E2	Total of canopy area provided through tree planting (D17) =	0 S.F.	
E3	Total of canopy area provided through offsite mechanism (D19) =	0 S.F.	
E4	Total of 10-year Tree Canopy Provided = Total of E1 through E3.	803,808 S.F.	Total of E1 through E3. Area should meet or exceed area in B7

BENJAMIN G. HARTMANN
MA-6213A
10/14/2022
INTERNATIONAL SOCIETY OF ARBORICULTURE
CERTIFIED ARBORIST

Bowman

Bowman Consulting Group, Ltd.
12435 Gunnlee Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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TREE PRESERVATION NOTES & DETAILS (2 OF 2)

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HUNTER MILL DISTRICT

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JOSEPH RILEY-RYAN
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05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT DESIGN	KF DRAWN	MT CHKD

SCALE H: 1"=20'
V:

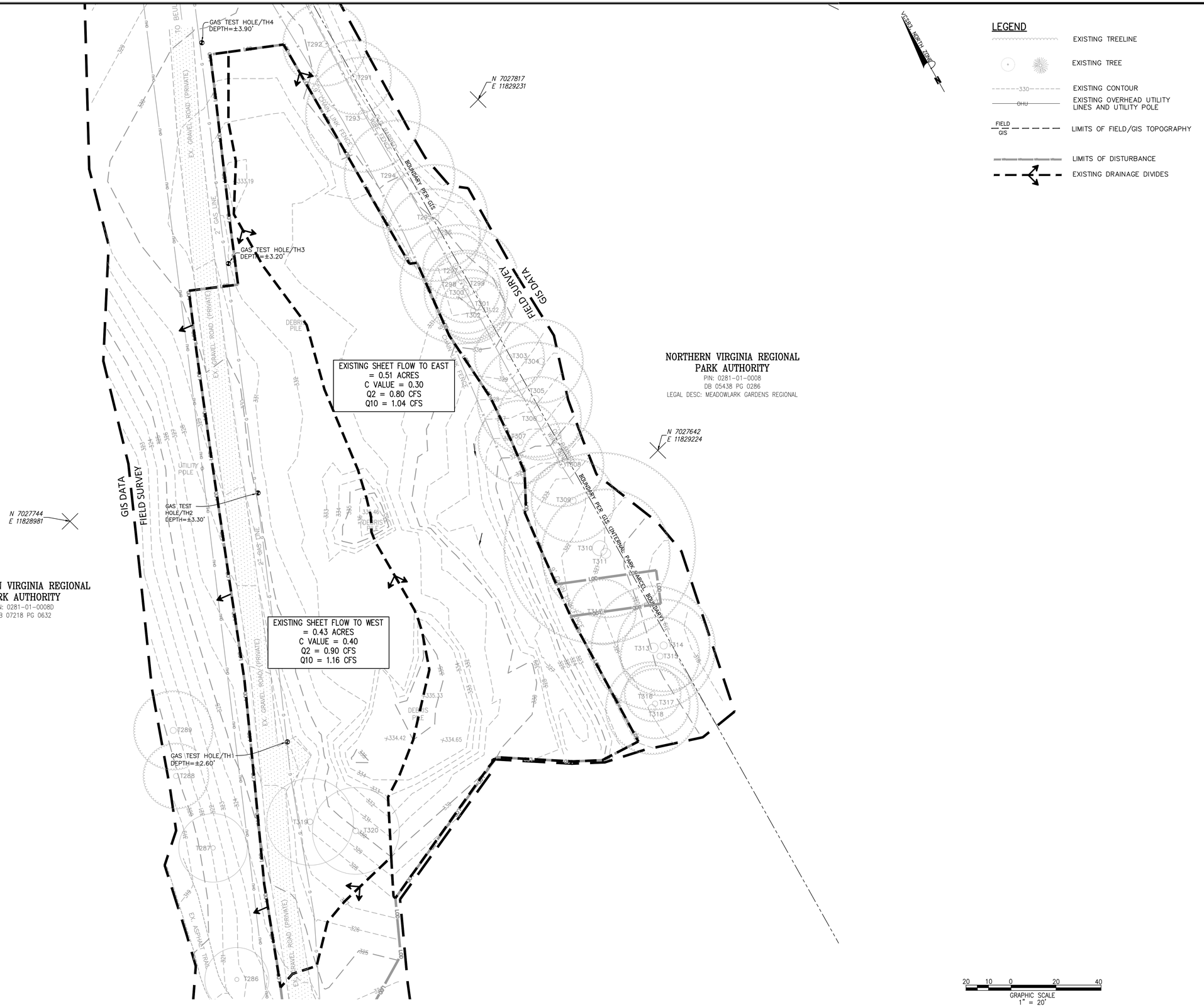
JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 26 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-TPP DTL.dwg



Bowman

Bowman Consulting Group, Ltd.
12435 Gunnisle Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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EXISTING DRAINAGE DIVIDES

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MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

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SHEET 27 OF 40

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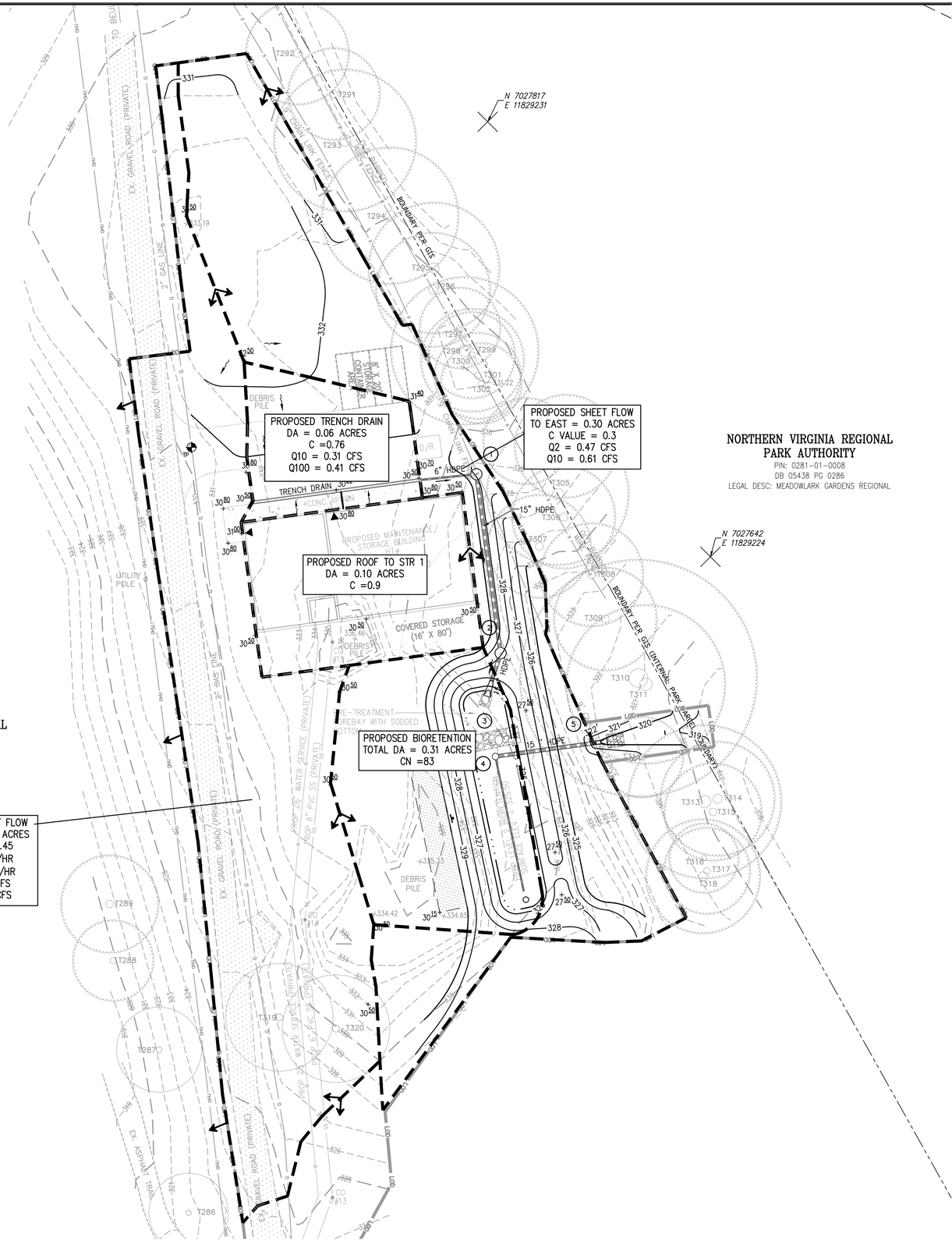

Bowman

Bowman Consulting Group, Ltd.
13461 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720

www.bowman.com
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PROPOSED DRAINAGE DIVIDES

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FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 056773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=20' V:

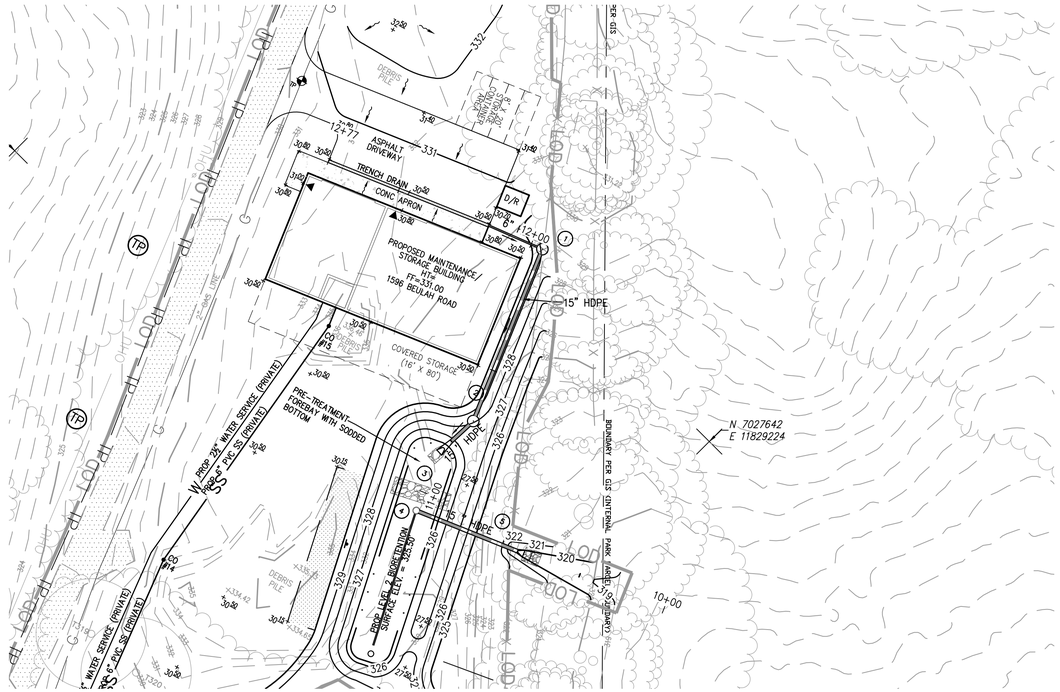
JOB No. 140291-01-001

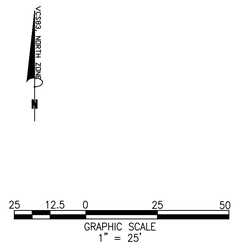
DATE : MAY, 2023

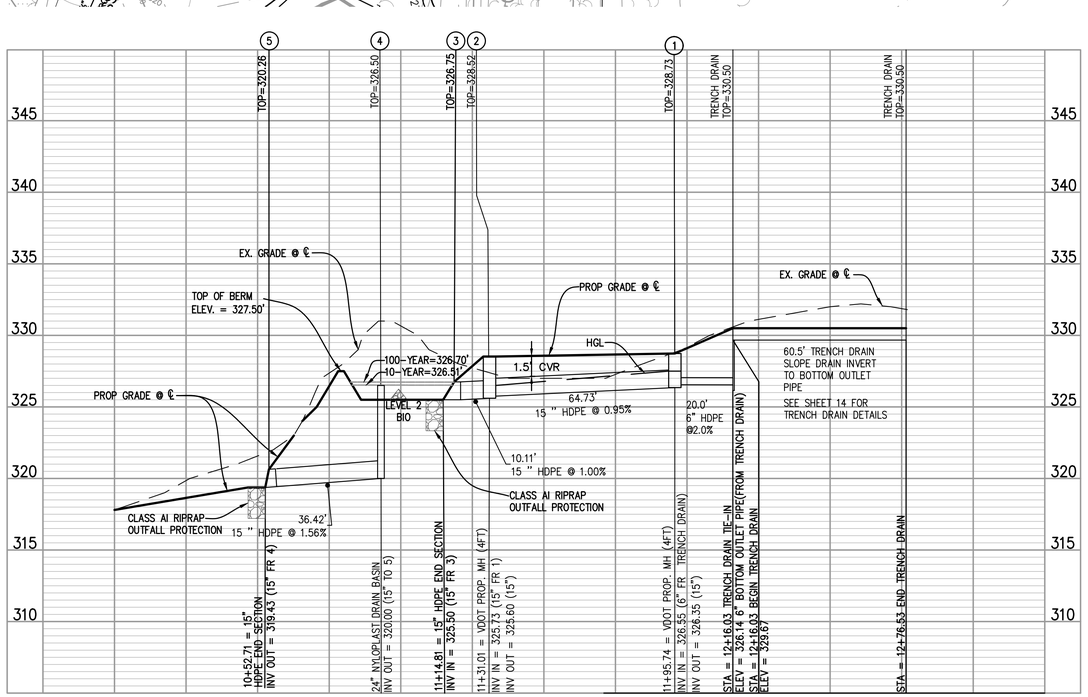
FILE No. 140291-D-ZP-001

SHEET 28 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-DDP.dwg







STR 1 TO STR 5 PROFILE VIEW
HORIZONTAL SCALE: 1"=25'
VERTICAL SCALE: 1"=5'

PIPE OUTLET PROTECTION SUMMARY TABLE		
OUTLET STRUCTURE	VELOCITY	CLASS OF RIPRAP
#3		CLASS A1
#5	2.04 FT/S	CLASS AI

NOTE:
REFER TO VDOT ROAD AND BRIDGE STANDARDS (LATEST EDITION) DETAIL EC-1 FOR COMPLETE DESIGN, MATERIAL AND SPECIFICATIONS OF PIPE OUTLET PROTECTION MEASURES.

Bowman

Bowman Consulting Group, Ltd.
15461 Commerce Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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STORM SEWER PROFILES

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: AS SHOWN
V:

JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 29 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\140291-01-001-SDP.dwg

back calculated
from routing or assumed flow
assumed

STORM SEWER DESIGN
10 YEAR FREQUENCY

Project: Meadowlark
Job# : 140291-01-001
Date: May 5, 2023
By: BN

FROM POINT	TO POINT	DA (ACRES)	C	CA INCR.	CA ACCUM.	TC (MINUTES)	RAINFALL (IN/HR)	RUN-OFF (CFS)	LINE	INVERT UPPER	INVERT LOWER	LENGTH (FEET)	SLOPE	DIAM. (INCHES)	CAPACITY (CFS)	VELOCITY (F.P.S.)	FLOW TIME (MINUTES)	PERCENT CAPACITY	.8 DIA	DI	TOP	H	RIM
Trench	1	0.06	0.76	**0.05**	0.05	5.00	6.77	0.31		326.14	325.95	19.41	0.98%	6	0.55	2.90	0.11	56%	326.35	Trench	330.50	4.36	329.83
1	2	0.10	0.90	**0.09**	0.14	5.11	6.77	0.92		325.85	325.23	61.88	1.00%	15	6.46	3.70	0.28	14%	326.23	1	329.06	3.21	328.39
2	3	0.00	0.00	**0.00**	0.14	5.39	6.64	0.90		325.13	325.00	12.97	1.00%	15	6.46	3.68	0.06	14%	326.00	2	328.71	3.58	328.04

PROJECT: Meadowlark
PROJECT NO: 140291-01-001
CREATED BY: BN
DATE: May 5, 2023
CHECKED BY: JR

10 YEAR RETURN FREQUENCY
HYDRAULIC GRADE LINE CALCULATIONS

INLET STATION		OUTLET WATER SURFACE ELEV.	Outgoing Do	Qo	Lo	Sfo	Hf	Incoming Vo	Ho	Qi	Vi	QiVi	Vi^2/2g	Hi	JUNCTION LOSS ANGLE	H^	Ht	1.3Ht	0.5Ht	FINAL H	INLET WATER SURFACE ELEV.	RIM ELEV.	INLET SHAPING (Y or N)	DROP INLET MANHOLE (D or M)	FOR REFERENCE (Qo-Qi) Qo	OPEN SEWER (Y or N)	TAILWATER INLET STATION		.8 DIA.	IWSE
Downstream	multiple																												
2	1	326.00	15"	0.90	12.97	0.02	0.00	3.68	0.05	0.92	3.70	3.39	0.21	0.07	61	0.12	0.24	0.00	0.12	0.12	326.12	328.04	Y	M	-1.96%	N	2	[1]	326.00	0.00
1	Trench	326.23	15"	0.92	61.88	0.02	0.01	3.70	0.05	0.31	2.90	0.90	0.13	0.05	23	0.03	0.12	0.00	0.06	0.07	326.30	328.39	Y	M	66.37%	N	1	Trench	326.23	326.12
Trench		326.35	6"	0.31	19.41	0.30	0.06	2.90	0.03	0.00	0.00	0.00	0.00	0.00	0	0.00	0.03	0.00	0.02	0.08	326.43	329.83	Y	M	100.00%	N	Trench		326.35	326.30

This design is used in parking lots, loading dock, etc.

Rational Equation for Waterflow in Commercial Markets
Sheet Flow Inlet Design Calculator

Enter variables in gold colored area			Answers	
A= Width (Ft)		(ft.)		
Length (Ft)		(ft.)	0.060	(acres)
I= Rainfall Intensity (inches / hour)	6.8	(in/hr)	0.00016	(ft/sec)
(10 years / 5 min. storm frequency)				
C= Runoff Coefficient (avg area)	0.76	Coef.		
(reference Runoff Coef Chart)				
Pipe/Channel Slope (%)	0.5			
Q = CIA - Peak flow			0.309	(cfs)
			138.56	(gpm)
Slope (Ft per 100, 1 / 100 = 1.0)			0.50	(ft./100 ft.)
Pipe Size (Duraslot Slotted Drain)			6	Inches
(self-cleaning at .5%)				
Channel Size (outlet)			6	Inches
Answers in green colored areas				

*Slotted Drain inlet capacity = 0.04 cfs/ft

Transfer Q to Curb & Gutter Flow to determine required length of Duraslot Drain

Required Pipe Length for Total Interception for Slotted Drain in Sag Conditions

Flow Rate (Q - CFS)	Depth curb measured from normal perpendicular slope	Required Pipe Length (LT - Ft)	Required Length of Pipe including Safety Factor
0.309	0.1	4	8
0.309	0.2	1	3
0.309	0.3	1	2
0.309	0.4	1	1
0.309	0.5	0	1

In ft.

In inches / Equation is in ft.
spread is the concern

*PROVIDED LENGTH = 60.50 FT

100-YR OVERLAND RELIEF WSE

Worksheet for Trench Drain 100yr WSE

Project Description	
Solve For	Headwater Elevation
Input Data	
Discharge	0.41 cfs
Crest Elevation	0.00 ft
Tailwater Elevation	0.00 ft
Crest Surface Type	Paved
Crest Breadth	5.00 ft
Crest Length	6.0 ft
Results	
Headwater Elevation	0.08 ft
Headwater Height Above Crest	0.08 ft
Tailwater Height Above Crest	0.00 ft
Weir Coefficient	2.93 ft^(1/2)/s
Submergence Factor	1.000
Adjusted Weir Coefficient	2.93 ft^(1/2)/s
Flow Area	0.5 ft²
Velocity	0.84 ft/s
Wetted Perimeter	6.2 ft
Top Width	6.00 ft

trench 100yr wse.fm8
5/19/2023

Bentley Systems, Inc. Haestad Methods Solution Center
27 Siemon Company Drive Suite 200 W
Watertown, CT 06795 USA +1-203-755-1666

FlowMaster [10.03.00.03]
Page 1 of 1

Bowman

Bowman Consulting Group, Ltd.
12435 Park Potomac Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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STORM SEWER COMPUTATIONS
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA
HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT DESIGN	KF DRAWN	MT CHKD

SCALE H: V:

JOB No. 140291-01-001

DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 30 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\140291-01-001-SDP.dwg

ADEQUATE OUTFALL NARRATIVE

BMP WATER QUANTITY NARRATIVE:

THE PROPOSED SITE AREA IS 1.43 AC. THE SITE IS LOCATED IN THE DIFFICULT RUN WATERSHED. CONSTRUCTION OF THE BUILDING, PARKING AREA, AND GRADING AROUND THE BUILDING ENCOMPASSES 0.94 ACRES OF THE LOD. THE REMAINDER OF THE LOD IS FOR THE LINEAR INSTALLATION OF THE WATER SERVICE AND SEWER LATERAL WHICH CONNECT TO THE PUBLIC SYSTEMS FURTHER SOUTH IN THE SITE WITH NO CHANGE IN LAND COVER PROPOSED SO SHEET FLOW RUNOFF FROM THIS AREA WILL REMAIN THE SAME IN THE EXISTING AND PROPOSED CONDITIONS.

RUNOFF FROM THE PROPOSED PARKING AREA OF THE SITE SHEET FLOWS SOUTH WHERE IT IS COLLECTED ONSITE BY A PROPOSED TRENCH DRAIN. THE TRENCH DRAIN IS CONNECTED TO A PROPOSED STORM SEWER SYSTEM, WHICH ALSO COLLECTS THE RUNOFF FROM THE PROPOSED BUILDING, THEN DIRECTS THE RUNOFF INTO A PROPOSED DRY DETENTION POND THAT WILL SERVE TO MEET WATER QUANTITY REQUIREMENTS FOR THE SITE. RUNOFF THEN OUTFALLS INTO A LEVEL SPREADER THAT DISCHARGES THE 2-YEAR AND 10-YEAR PEAK DISCHARGES AS SHEET FLOW. THE TOTAL CONTRIBUTING DRAINAGE AREA TO THE PROPOSED DRY POND FACILITY IS 0.31 ACRES. THE REMAINDER OF THE LOD DISCHARGES RUNOFF AS SHEET FLOW IN THE EXISTING AND PROPOSED CONDITIONS. AS DEMONSTRATED ON SHEETS 27-32, SHEET FLOW LEAVING THE SITE WILL BE REDUCED FOR THE 2-YEAR AND 10-YEAR STORMS IN THE PROPOSED CONDITION. THEREFORE, IN ACCORDANCE WITH SECTION 124-4-4-E OF THE FAIRFAX COUNTY STORMWATER MANAGEMENT ORDINANCE, NO FURTHER WATER QUANTITY CONTROLS ARE REQUIRED.

BMP WATER QUALITY NARRATIVE:

THE PROJECT IS SUBJECT TO THE 'REDEVELOPMENT' CRITERIA OF THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM) AS PRESCRIBED BY THE COMMONWEALTH OF VIRGINIA AND FAIRFAX COUNTY. BY PROTECTING APPROXIMATELY 1.92 ACRES OF FORESTED SPACE WITHIN THE PARK, THERE ARE NO REQUIRED POLLUTANT REDUCTIONS ASSOCIATED WITH THE DEVELOPMENT PROPOSED IN THIS PLAN. SEE SHEET 36 FOR THE VIRGINIA RUNOFF REDUCTION METHOD SPREADSHEET.

CONCLUSION:

SINCE ALL RUNOFF FROM THE SITE IS SHEET FLOW IN THE EXISTING AND PROPOSED CONDITIONS AND THE PEAK FLOW RATES FOR THE 2-YR AND 10-YR STORMS ARE REDUCED, THE OUTFALL FOR THIS PROJECT IS DEEMED ADEQUATE. REFER TO COMPUTATIONS SHOWN ON SHEETS 27 THROUGH 32.

BASED ON THE DOWNSTREAM REVIEW AND THE REQUIREMENTS SET FORTH IS SECTION 6-0203 OF THE PFM, IT IS THE OPINION OF THE SUBMITTING ENGINEER (BOWMAN CONSULTING GROUP) THAT THE EXISTING DOWNSTREAM HYDRAULIC SYSTEM IS ADEQUATE AND THAT THERE WILL BE NO ADVERSE IMPACTS ON THE DOWNSTREAM PROPERTIES.

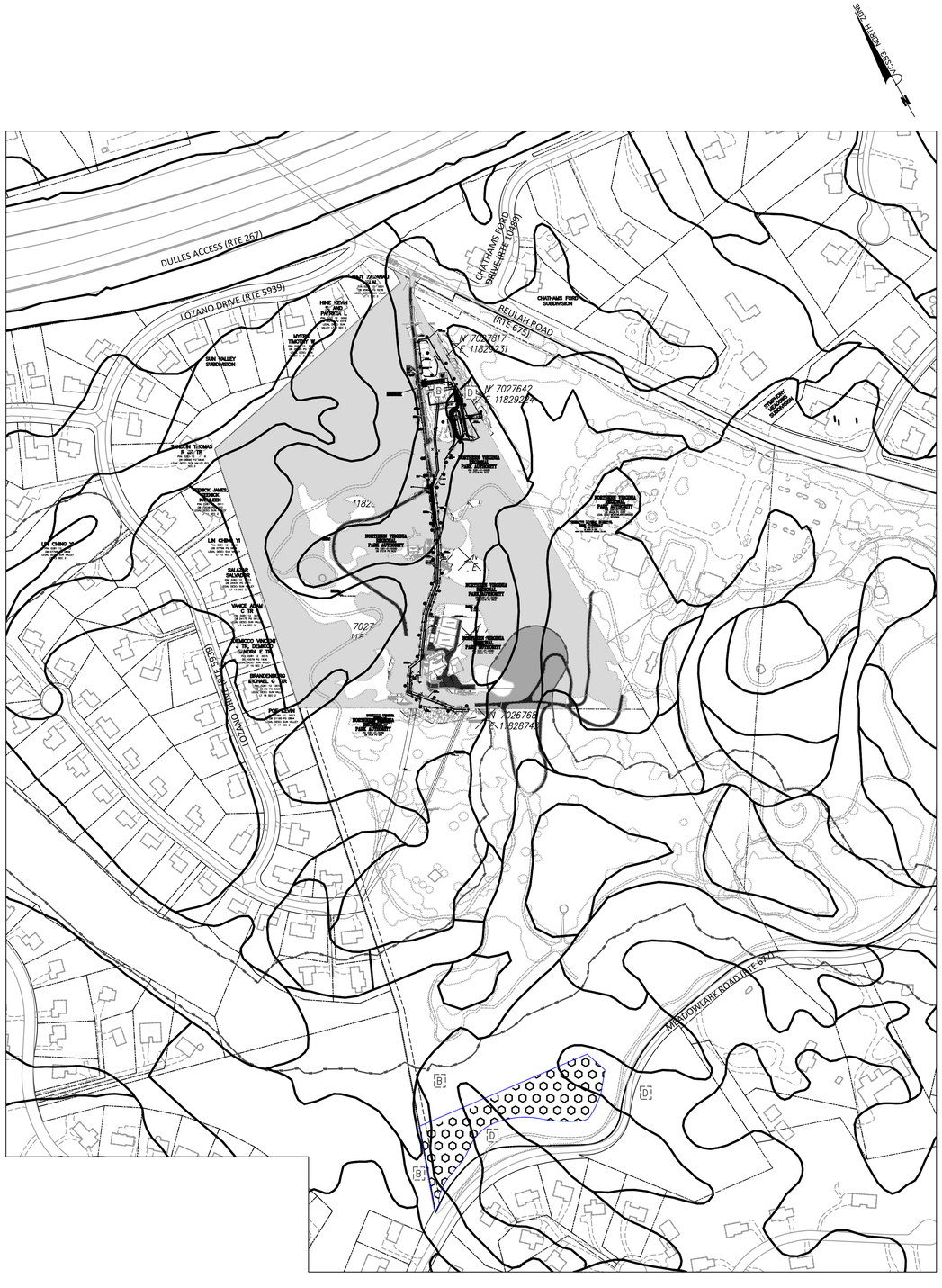
	2-Year Sheet Flow (CFS)		10-Year Sheet Flow (CFS)	
	Existing	Proposed	Existing	Proposed
To West	0.9	0.78	1.16	1.01
To East	0.8	0.47 + 0.24 = 0.71	1.04	0.61 + 0.39 = 1.00

CONSERVED FORESTED/OPEN SPACE NARRATIVE

STORMWATER QUALITY REQUIREMENTS WERE ANALYZED USING REDEVELOPMENT CRITERIA OF THE VIRGINIA RUNOFF REDUCTION METHOD, AS PRESCRIBED BY THE COMMONWEALTH OF VIRGINIA AND FAIRFAX COUNTY. BY PROTECTING APPROXIMATELY 1.92 ACRES OF FORESTED SPACE, THERE ARE NO REQUIRED POLLUTANT REDUCTIONS ASSOCIATED WITH THE DEVELOPMENT PROPOSED IN THIS PLAN. THE CONSERVED AREA IS PROTECTED NORTHERN VIRGINIA REGIONAL PARK AUTHORITY OWNED PARKLAND THAT WILL REMAIN IN A NATURAL, VEGETATED STATE IN PERPETUITY. SHOULD THE NORTHERN VIRGINIA REGIONAL PARK AUTHORITY DECIDE TO DEVELOP ANY PORTION OF THE CONSERVED OPEN SPACE IDENTIFIED ON THIS PLAN IN THE FUTURE THEY WILL BE REQUIRED TO IDENTIFY OTHER AREAS WITHIN THE PARK THAT WILL BE CONSERVED IN ORDER TO CONTINUE TO MEET THE WATER QUALITY REQUIREMENTS ASSOCIATED WITH THIS SITE PLAN.

LEGEND

- PROPOSED CONSERVATION OF FORESTED OPEN SPACE FOR STORMWATER MANAGEMENT (1.92 ACRES) THIS AREA MUST REMAIN IN A NATURAL VEGETATED STATE
- EXISTING TREELINE
- EXISTING TREE
- 330 — EXISTING CONTOUR
- OHU — EXISTING OVERHEAD UTILITY LINES AND UTILITY POLE
- FIELD / GIS — LIMITS OF FIELD/GIS TOPOGRAPHY
- EXISTING TRAIL
- B — HYDROLOGIC SOIL GROUPS
- LOD — LIMITS OF DISTURBANCE



Bowman

Bowman Consulting Group, Ltd.
15461 Sonnier Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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STORMWATER MANAGEMENT PLAN

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY

FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=200'
V:

JOB No. 140291-01-001

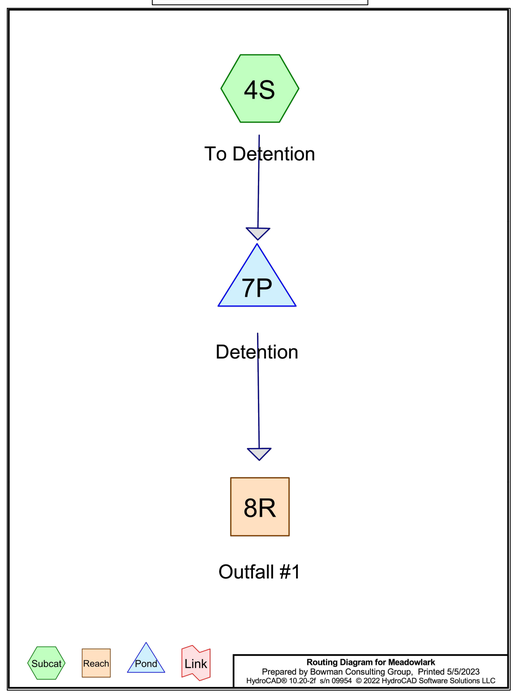
DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 31 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-SWM.dwg

ROUTING DIAGRAM



TO DETENTION 10-YEAR

Summary for Subcatchment 4S: To Detention

[49] Hint: Tc<2dt may require smaller dt

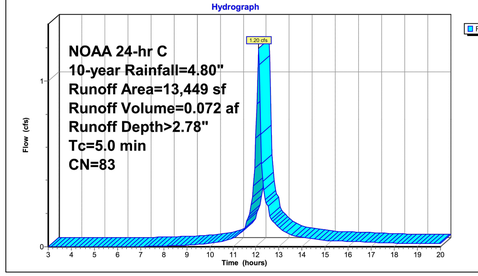
Runoff = 1.20 cfs @ 12.11 hrs, Volume= 0.072 af, Depth> 2.78"
Routed to Pond 7P : Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 3.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-year Rainfall=4.80"

Area (sf)	CN	Description
4,300	61	>75% Grass cover, Good, HSG B
5,711	98	Paved parking, HSG B
2,558	80	>75% Grass cover, Good, HSG D
880	98	Paved parking, HSG D
13,449	83	Weighted Average
6,858		50.99% Pervious Area
6,591		49.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S: To Detention



TO DETENTION 2-YEAR

Summary for Subcatchment 4S: To Detention

[49] Hint: Tc<2dt may require smaller dt

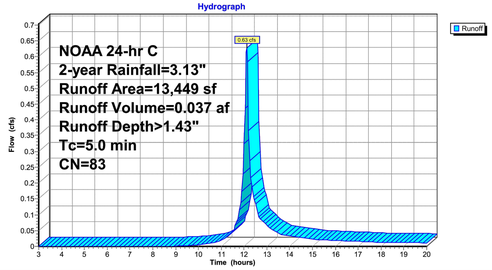
Runoff = 0.63 cfs @ 12.12 hrs, Volume= 0.037 af, Depth> 1.43"
Routed to Pond 7P : Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 3.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-year Rainfall=3.13"

Area (sf)	CN	Description
4,300	61	>75% Grass cover, Good, HSG B
5,711	98	Paved parking, HSG B
2,558	80	>75% Grass cover, Good, HSG D
880	98	Paved parking, HSG D
13,449	83	Weighted Average
6,858		50.99% Pervious Area
6,591		49.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S: To Detention



DETENTION 10-YEAR

Summary for Pond 7P: Detention

Inflow Area = 0.309 ac, 49.01% Impervious, Inflow Depth > 2.78" for 10-year event
Inflow = 1.20 cfs @ 12.11 hrs, Volume= 0.072 af
Outflow = 0.39 cfs @ 12.31 hrs, Volume= 0.070 af, Atten= 68%, Lag= 11.9 min
Primary = 0.39 cfs @ 12.31 hrs, Volume= 0.070 af
Routed to Reach 8R : Outfall #1

Routing by Stor-Ind method, Time Span= 3.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 326.01' @ 12.31 hrs Surf.Area= 1,170 sf Storage= 918 cf

Plug-Flow detention time= 39.8 min calculated for 0.069 af (97% of inflow)
Center-of-Mass det. time= 29.5 min (808.4 - 778.9)

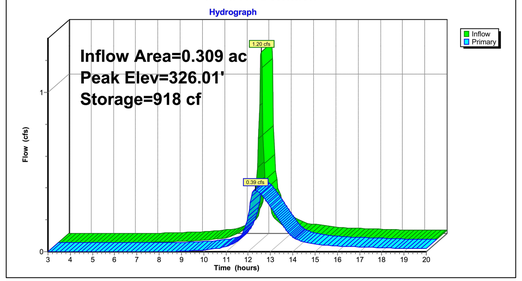
Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	4,419 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	642	0	0
326.00	1,164	903	903
327.00	1,744	1,454	2,357
328.00	2,379	2,062	4,419

Device	Routing	Invert	Outlet Devices
#1	Primary	323.00'	**15.0" Round CMP_Round 15"** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 323.00' / 322.50' S= 0.0125 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	325.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	326.50'	**12.6' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.39 cfs @ 12.31 hrs HW=326.01' (Free Discharge)
1=CMP_Round 15" (Passes 0.39 cfs of 9.12 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.39 cfs @ 4.42 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 7P: Detention



DETENTION 2-YEAR

Summary for Pond 7P: Detention

Inflow Area = 0.309 ac, 49.01% Impervious, Inflow Depth > 1.43" for 2-year event
Inflow = 0.63 cfs @ 12.12 hrs, Volume= 0.037 af
Outflow = 0.24 cfs @ 12.28 hrs, Volume= 0.035 af, Atten= 61%, Lag= 9.5 min
Primary = 0.24 cfs @ 12.28 hrs, Volume= 0.035 af
Routed to Reach 8R : Outfall #1

Routing by Stor-Ind method, Time Span= 3.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 325.50' @ 12.28 hrs Surf.Area= 905 sf Storage= 455 cf

Plug-Flow detention time= 42.3 min calculated for 0.035 af (96% of inflow)
Center-of-Mass det. time= 27.9 min (821.9 - 793.9)

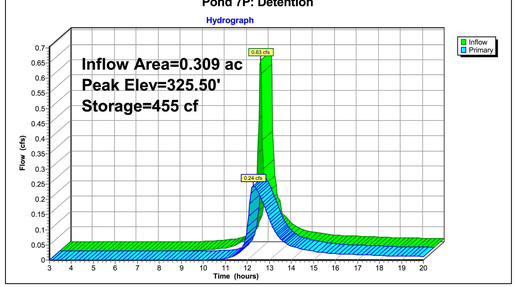
Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	4,419 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	642	0	0
326.00	1,164	903	903
327.00	1,744	1,454	2,357
328.00	2,379	2,062	4,419

Device	Routing	Invert	Outlet Devices
#1	Primary	323.00'	**15.0" Round CMP_Round 15"** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 323.00' / 322.50' S= 0.0125 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	325.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	326.50'	**12.6' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.24 cfs @ 12.28 hrs HW=325.50' (Free Discharge)
1=CMP_Round 15" (Passes 0.24 cfs of 8.10 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.24 cfs @ 2.79 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 7P: Detention



OUTFALL TO LEVEL SPREADER 10-YEAR

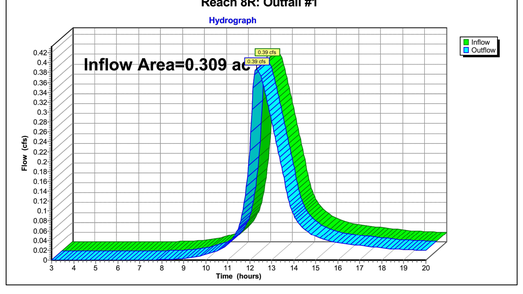
Summary for Reach 8R: Outfall #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.309 ac, 49.01% Impervious, Inflow Depth > 2.71" for 10-year event
Inflow = 0.39 cfs @ 12.31 hrs, Volume= 0.070 af
Outflow = 0.39 cfs @ 12.31 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 3.00-20.00 hrs, dt= 0.05 hrs

Reach 8R: Outfall #1



OUTFALL TO LEVEL SPREADER 2-YEAR

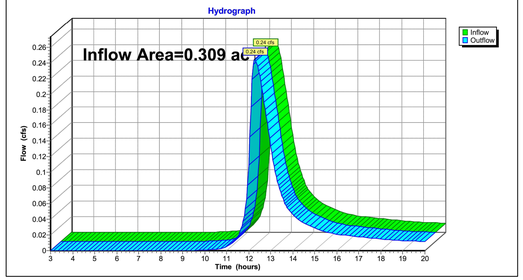
Summary for Reach 8R: Outfall #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.309 ac, 49.01% Impervious, Inflow Depth > 1.37" for 2-year event
Inflow = 0.24 cfs @ 12.28 hrs, Volume= 0.035 af
Outflow = 0.24 cfs @ 12.28 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 3.00-20.00 hrs, dt= 0.05 hrs

Reach 8R: Outfall #1



DETENTION 100-YEAR (FOR FREEBOARD)

Summary for Pond 7P: Detention

Inflow Area = 0.309 ac, 49.01% Impervious, Inflow Depth > 5.87" for 100-Year event
Inflow = 2.42 cfs @ 12.11 hrs, Volume= 0.151 af
Outflow = 1.78 cfs @ 12.20 hrs, Volume= 0.148 af, Atten= 27%, Lag= 5.5 min
Primary = 1.78 cfs @ 12.20 hrs, Volume= 0.148 af
Routed to Reach 8R : Outfall #1

Routing by Stor-Ind method, Time Span= 3.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 326.60' @ 12.21 hrs Surf.Area= 1,511 sf Storage= 1,773 cf

Plug-Flow detention time= 39.6 min calculated for 0.148 af (98% of inflow)
Center-of-Mass det. time= 32.5 min (793.5 - 761.0)

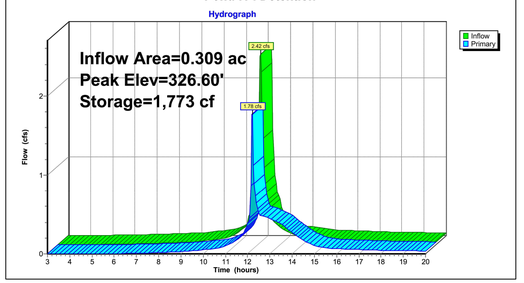
Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	4,419 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	642	0	0
326.00	1,164	903	903
327.00	1,744	1,454	2,357
328.00	2,379	2,062	4,419

Device	Routing	Invert	Outlet Devices
#1	Primary	323.00'	**15.0" Round CMP_Round 15"** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 323.00' / 322.50' S= 0.0125 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	325.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	326.50'	**12.6' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.70 cfs @ 12.20 hrs HW=326.59' (Free Discharge)
1=CMP_Round 15" (Passes 1.70 cfs of 10.18 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.50 cfs @ 5.75 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 1.20 cfs @ 1.01 fps)

Pond 7P: Detention



Bowman
Bowman Consulting Group, Ltd.
12435 Park Potomac Avenue
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
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STORMWATER MANAGEMENT OUTPUTS
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: 1"=80'
V:

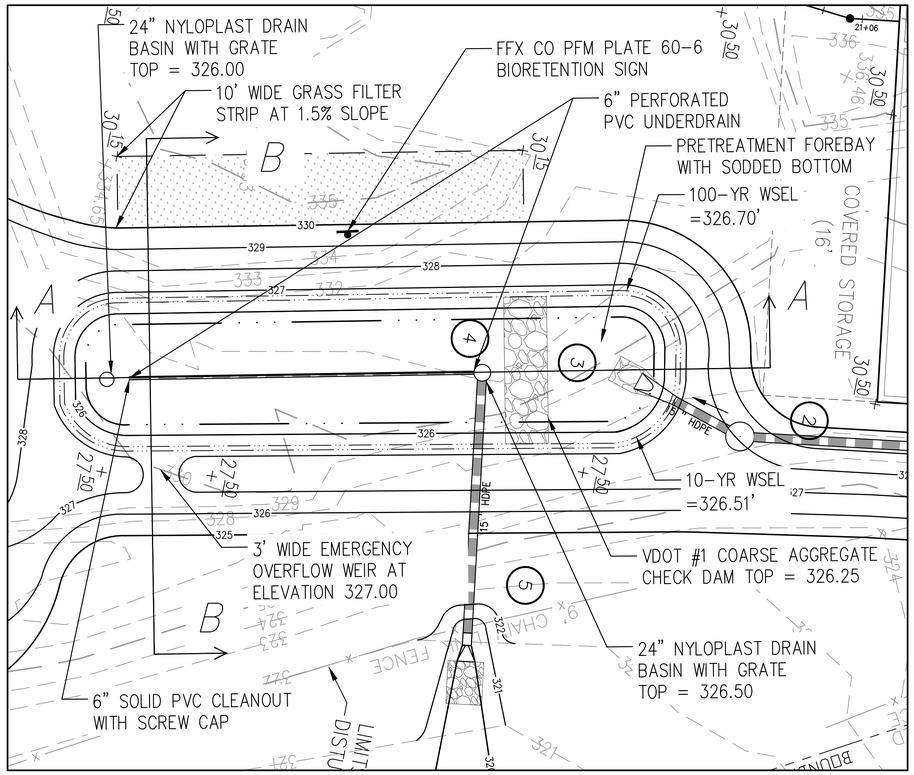
JOB No. 140291-01-001

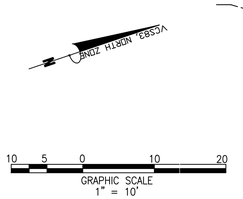
DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 32 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-SWM2.dwg





FILTER DRAIN TIME:

tf = (Tv*df)/[(kf/12)*(0.5hf+df)*Af]
WHERE:
tf = DRAIN TIME THROUGH FILTER (HRS)
Tv = PROVIDED TREATMENT VOLUME (CF)
df = DEPTH OF FILTER (FT)
kf = COEFFICIENT OF PERMEABILITY (IN/HR)
hf = MAXIMUM PONDING DEPTH (FT)
Af = AREA OF FILTER (SF)

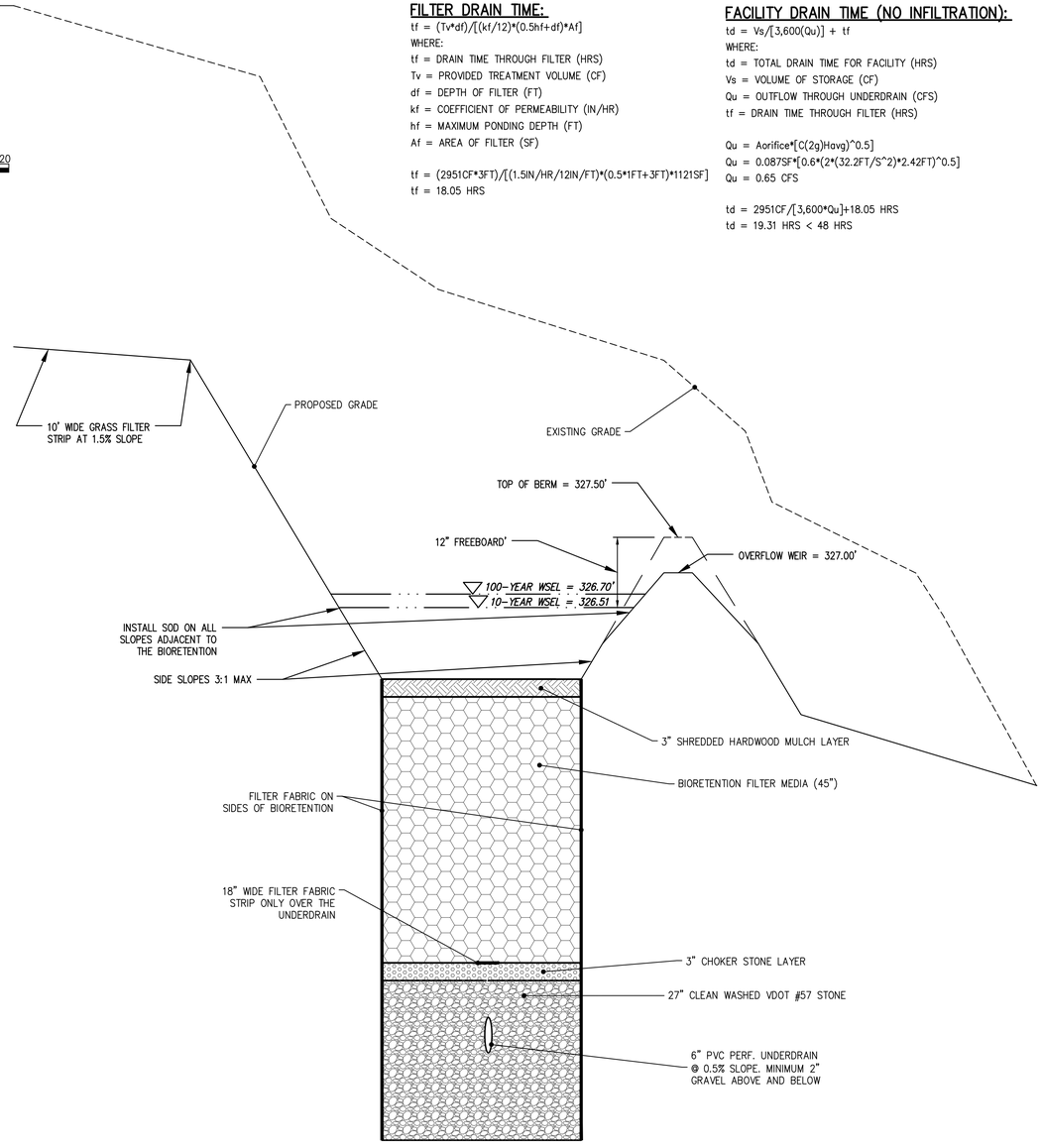
tf = (2951CF*3FT)/[(1.5IN/HR/12IN/FT)*(0.5*1FT+3FT)*1121SF]
tf = 18.05 HRS

FACILITY DRAIN TIME (NO INFILTRATION):

td = Vs/[3,600(Qu)] + tf
WHERE:
td = TOTAL DRAIN TIME FOR FACILITY (HRS)
Vs = VOLUME OF STORAGE (CF)
Qu = OUTFLOW THROUGH UNDERDRAIN (CFS)
tf = DRAIN TIME THROUGH FILTER (HRS)

Qu = Aorifice*[C(2g)Havg)^0.5]
Qu = 0.0873SF*[0.6*(2*(32.2FT/S^2)*2.42FT)^0.5]
Qu = 0.65 CFS

td = 2951CF/[3,600*Qu]+18.05 HRS
td = 19.31 HRS < 48 HRS



BIORETENTION SECTION B-B
HORIZONTAL SCALE: 1 INCH = 5 FEET
VERTICAL SCALE: 1 INCH = 1 FOOT

LEVEL 2 BIORETENTION FACILITY COMPUTATIONS

Facility Type	Elevation (ft)							Total Drainage Area	Rv For Bioretention Dranage Area	Treatment Volume Required = 1.25*Rv*A/12	Pre-Treatment Volume Required (15% of TV)	Pre-Treatment Volume Provided	Filter Surface Area Provided	Forebay Surface Area Provided	Surface Area at Treatment Volume Depth (Ele. 326.50)	Surface Area at Berm Height Depth (Ele. 227.50)	Treatment Volume Provided	Media Depth	Gravel Depth	Total Below Grade Storage Depth	Remarks
	A	B	C	D	E	F	G	sf	-	cf	cf	cf	sf	sf	sf	sf	cf	ft	ft	ft	
Level 2 Bio Filter	326.5	325.5	325.25	321.5	321.3	320	319	13460	0.58	813	122	158	800	200	1675	2295	2618	4.00	1.50	1.60	SHWT EL. < 317'

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Bowman Consulting Group, Ltd.
12435 Gunnister Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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MAINTENANCE FACILITY

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SCALE H: AS SHOWN V:

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FILE No. 140291-D-ZP-001

SHEET 33 OF 40

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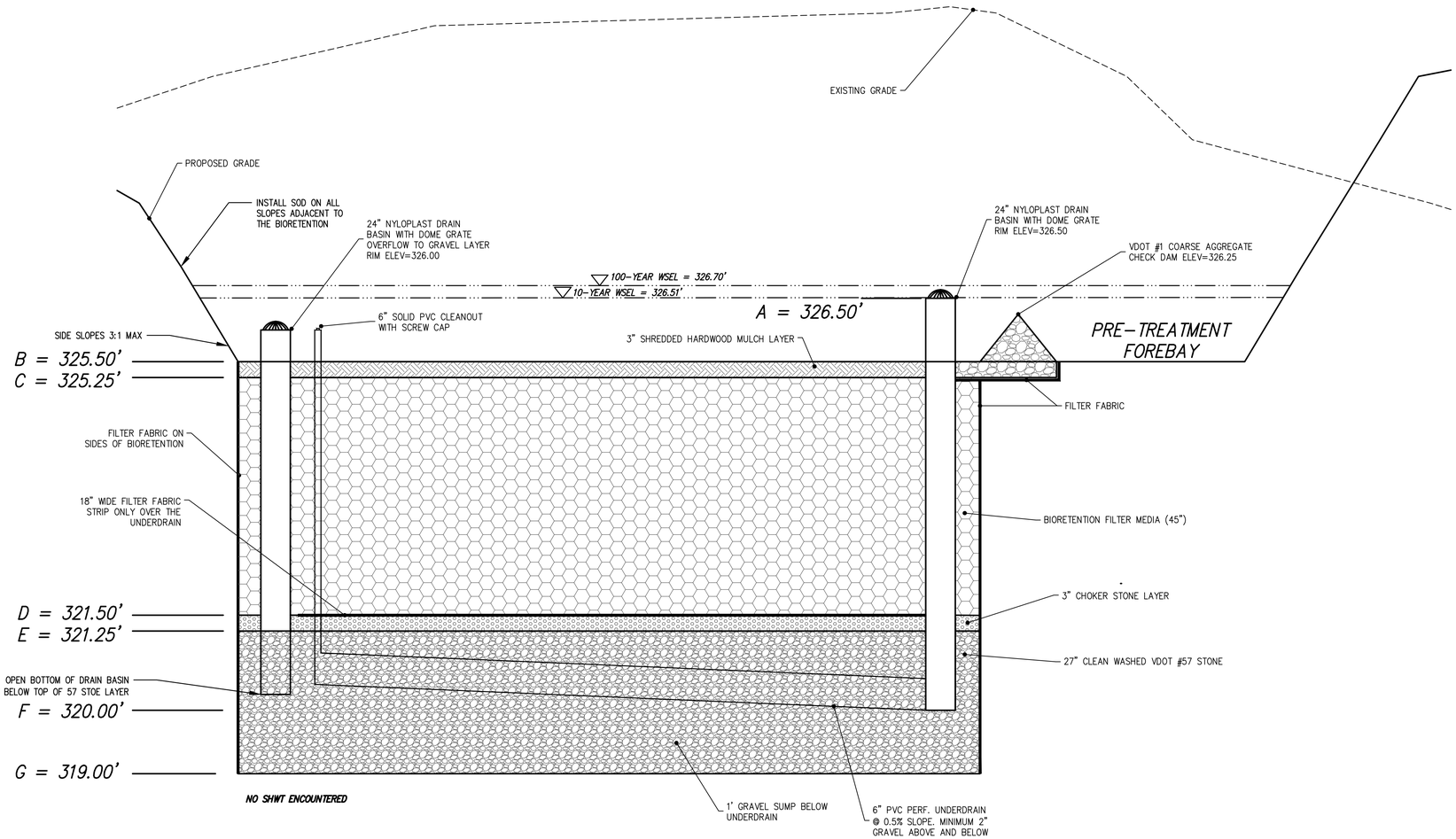

BIORETENTION SECTION A–A

HORIZONTAL SCALE: 1 INCH = 5 FEET
VERTICAL SCALE: 1 INCH = 1 FOOT

Bowman

Bowman Consulting Group, Ltd.
13461 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
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SCALE	H: V:	AS SHOWN

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BIORETENTION FILTER MATERIALS SPECIFICATIONS:

6-1307.9 Materials Specifications.

A. The bioretention soil media must meet the requirements of Virginia Stormwater Design Specification No. 9 Bioretention (latest version referenced in the VSMP Regulations). Topsoil used to create bioretention soil media should be a sandy loam or loamy sand per USDA textural classification. The textural class of the topsoil should be verified by a laboratory analysis. Topsoil must be of uniform composition, containing no more than 5 percent clay, free of stones, stumps, brush, roots, or similar objects larger than 2 inches. Topsoil must be free of Bermuda Grass, Quackgrass, Johnson Grass, Mugwort, Nutsedge, Poison Ivy, Canadian Thistle, Tearthumb, or other noxious weeds. Sand must meet AASHTO M-6, ASTM C-33, or VDOT Section 202 Grade "A" Fine Aggregate specifications. Sand must be clean and free of deleterious materials. Any organic material added to create the final soil mixture must consist of leaf compost or compost meeting the requirements of Virginia Stormwater Design Specification No. 4 Soil Compost Amendment. The final soil mixture may not contain any material or substance that may be harmful to plant growth, or a hindrance to plant growth or maintenance. Each bioretention area must have a minimum of one soil test performed on the final soil mixture to demonstrate compliance with the mixture requirements for sand, soil fines, organic matter, P-Index (phosphorus content) and cation exchange capacity (CEC) using standard test methods. Test results and materials certifications must be submitted to LDS before bond release.

B. Mulch must be double shredded aged hardwood bark with a particle size greater than 0.5 inch. Mulch must be well aged, uniform in color, and free of salts, harmful chemicals, and extraneous material including soil, stones, and plant material. Well-aged mulch is mulch that has been stockpiled or stored for 6-12 months.

C. Underdrains must be PVC pipe conforming to the requirements of ASTM F758, Type PS 28 or ASTM F949; HDPE pipe conforming to the requirements AASHTO M252 or M 294, Type S; or approved equivalent pipe. Underdrains must be perforated with four rows of 3/8-inch holes with a hole spacing of 3.25 ± 0.25 inches or a combination of hole size and spacing that provides a minimum inlet area ≥ 1.76 square inches per linear foot of pipe or be perforated with slots 0.125 inches in width that provides a minimum inlet area ≥ 1.5 square inches per linear foot of pipe.

D. Filter fabric. Filter fabric must be a needled, non-woven, polypropylene geotextile meeting the requirements listed in Virginia Stormwater Design Specification No. 9 Bioretention (latest version referenced in the VSMP Regulations). Heat-set or heat-calendared fabrics are not permitted.

BIORETENTION FILTER CONSTRUCTION SPECIFICATIONS:

6-1307.11 Construction Specifications.

A. The owner must provide for inspection during construction of the facility by a licensed design professional. (In accordance with standard practice, the actual inspections may be performed by an individual under responsible charge of the licensed professional.) The licensed professional must certify that the facility was constructed in accordance with the approved plans. The licensed professional's certification along with any material delivery tickets and certifications from the material suppliers and results of the tests and inspections required under § 6-1307.9A, § 6-1307.11D, and § 6-1307.11K must be submitted to the County before bond release. For projects requiring as-built plans, the required certification and supporting documents must be submitted with or incorporated in the as-built plans. For projects that do not require as-built plans, the required certification and supporting documents must be submitted with the RUP or non-RUP request.

B. Bioretention facilities must be constructed after the drainage area to the facility is completely stabilized. Erosion and sediment controls for construction of the facility must be installed as specified in the erosion and sediment control plan.

C. The components of the soil media must be thoroughly mixed until a homogeneous mixture is obtained. It is preferable that the components of the soil media be mixed at a batch facility before delivery to the site. The soil media must be moistened, as necessary, to prevent separation during installation.

D. The soil media must be tested for pH, organic matter, grain size distribution, P-Index (phosphorus content) and cation exchange capacity (CEC) using standard test methods before installation. If the results of the tests indicate that the required specifications are not met, the soil represented by such tests must be amended or corrected as required and retested until the soil meets the required specifications. If the pH is low, it may be raised by adding lime. If the pH is too high, it may be lowered by adding iron sulfate plus sulfur.

E. For bioretention basins, the floor of the facility must be scarified or tilled to reduce soil compaction and raked to level it before the filter fabric, stone, and soil media are placed.

F. The soil media may be placed by mechanical methods with minimal compaction in order to maintain the porosity of the media. Spreading must be by hand. The soil media must be placed in 8- to 12-inch lifts with no machinery allowed over the soil media during or after construction. The soil media should be overfilled above the proposed surface elevation as needed to allow for natural settlement. Lifts may be lightly watered to encourage settlement. After the final lift is placed, the soil media must be raked to level it, saturated, and allowed to settle for at least one week before installation of plant materials.

G. Fill for the berm and overflow weir must consist of clean material free of organic matter, rubbish, frozen soil, snow, ice, particles with sizes larger than 3 inches, or other deleterious material. Fill must be placed in 8- to12-inch lifts and compacted to at least 95 percent of Standard Proctor Maximum Density in accordance with ASTM D-698, AASHTO T-99, or VDOT specifications. Compaction equipment is not allowed within the facility on the soil bed. The top of the berm and the invert of the overflow weir must be constructed level at the design elevation.

H. Plant material must be installed per § 12-0505.

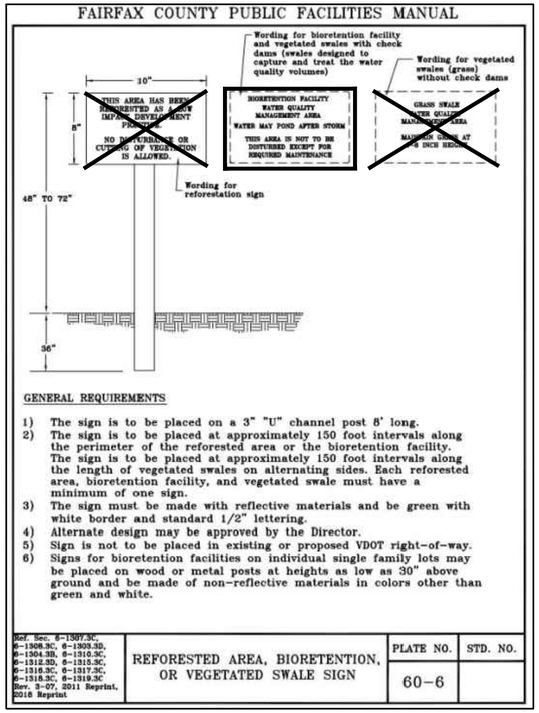
I. Planting must take place after construction is completed and during the following periods: March 15 through June 15 and Sept. 15 through Nov. 15, unless otherwise approved by the Director.

J. All areas surrounding the facility that are graded or denuded during construction of the facility and are to be planted with turf grass must be sodded.

K. The facility must be inspected at 12-24 and 36-48 hours after a significant rainfall (0.5-1.0 inches) or artificial flooding to determine that the facility is draining properly. Results of the inspection must be provided to LDS before bond release.

L. Additional guidelines for construction are provided in Virginia Stormwater Design Specification No. 9 Bioretention (latest version referenced in the VSMP Regulations).

BIORETENTION FILTER SIGNS:



BIORETENTION MAINTENANCE SPECIFICATIONS:

VA DCR STORMWATER DESIGN SPECIFICATION NO. 9 BIORETENTION

Table 9.8. Suggested Annual Maintenance Activities for Bioretention

Maintenance Tasks	Frequency
• Mowing of grass filter strips and bioretention turf cover	At least 4 times a year
• Spot weeding, erosion repair, trash removal, and mulch raking	Twice during growing season
• Add reinforcement planting to maintain desired the vegetation density • Remove invasive plants using recommended control methods • Stabilize the contributing drainage area to prevent erosion	As needed
• Spring inspection and cleanup • Supplement mulch to maintain a 3 inch layer • Prune trees and shrubs	Annually
• Remove sediment in pre-treatment cells and inflow points	Once every 2 to 3 years
• Replace the mulch layer	Every 3 years

SOILS REPORT – STORMWATER MANAGEMENT FACILITY:

Bowman

Bowman Consulting Group, Ltd.
12435 Sunrise Valley Drive
Suite 520
Herndon, Virginia 20171

Phone: (703) 464-1000

Fax: (703) 481-9720

www.bowman.com

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STORMWATER MANAGEMENT DETAILS

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MAINTENANCE FACILITY

HUNTER MILL DISTRICT

FAIRFAX COUNTY, VIRGINIA

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SHEET 35 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\140291-01-001-SDP.dwg

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

○ 2011 BMP Standards and Specifications ☉ 2013 Draft BMP Standards and Specifications

Project Name: Meadowlark
Date: 9/26/2023
Linear Development Project? No

CLEAR ALL (Ctrl+Shift+R)

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.19

Maximum reduction required:	*20%*
The site's net increase in impervious cover (acres) is:	*0.164439853*
Post-Development TP Load Reduction for Site (lb/yr):	*0.43*

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed		0.67		0.39	1.06
Impervious Cover (acres)		0.07		0.06	0.13
					1.19

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed		0.53		0.36	0.89
Impervious Cover (acres)		0.22		0.08	0.29
Area Check	OK.	OK.	OK.	OK.	1.19

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre

Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	1.06	0.89
Weighted Rv(turf)	0.22	0.22
% Managed Turf	89%	87%
Impervious Cover (acres)	0.13	0.13
Rv(impervious)	0.95	0.95
% Impervious	11%	13%
Total Site Area (acres)	**1.19**	**1.02**
Site Rv	**0.30**	**0.31**

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.0294	0.0266
Pre-ReDevelopment Treatment Volume (cubic feet)	1,282	1,159
Pre-ReDevelopment TP Load (lb/yr)	**0.81**	**0.73**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	0.68	0.71
Baseline TP Load (lb/yr) (**0.41 lbs/acre/yr** applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*0.42*

[1] *Adjusted Land Cover Summary:*
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requriement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.89
Weighted Rv (turf)	0.22
% Managed Turf	75%
Impervious Cover (acres)	0.29
Rv(impervious)	0.95
% Impervious	25%
Final Site Area (acres)	**1.19**
Final Post Dev Site Rv	**0.40**

Land Cover Summary-Post

Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.89
Weighted Rv (turf)	0.22
% Managed Turf	87%
ReDev. Impervious Cover (acres)	0.13
Rv(impervious)	0.95
% Impervious	13%
Total ReDev. Site Area (acres)	**1.02**
ReDev Site Rv	**0.31**

Land Cover Summary-Post

Post-Development New Impervious	
New Impervious Cover (acres)	0.16
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.0396	**Post-ReDevelopment Treatment Volume (acre-ft)** 0.0266	**Post-Development Treatment Volume (acre-ft)** 0.0130
Final Post-Development Treatment Volume (cubic feet)	1,726	**Post-ReDevelopment Treatment Volume (cubic feet)** 1,159	**Post-Development Treatment Volume (cubic feet)** 567
Final Post-Development TP Load (lb/yr)	**1.08**	**Post-ReDevelopment Load (TP) (lb/yr)*** **0.73**	**Post-Development TP Load (lb/yr)** **0.36**
Final Post-Development TP Load per acre **(lb/acre/yr)**	0.91	Post-ReDevelopment TP Load per acre **(lb/acre/yr)** 0.71	
		Max. Reduction Required (Below Pre-ReDevelopment Load) **20%**	
		TP Load Reduction Required for Redeloped Area (lb/yr) **0.15**	**TP Load Reduction Required for New Impervious Area (lb/yr)** **0.29**

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	**0.43**

Bowman

Bowman Consulting Group, Ltd.
12435 Gunnister Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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VIRGINIA RUNOFF REDUCTION METHOD

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MAINTENANCE FACILITY

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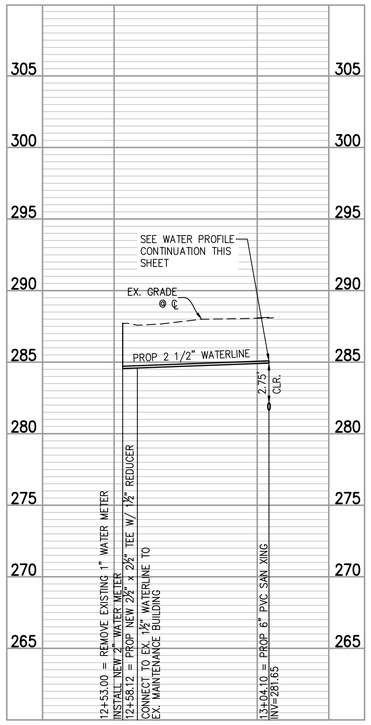
FILE No. 140291-D-ZP-001

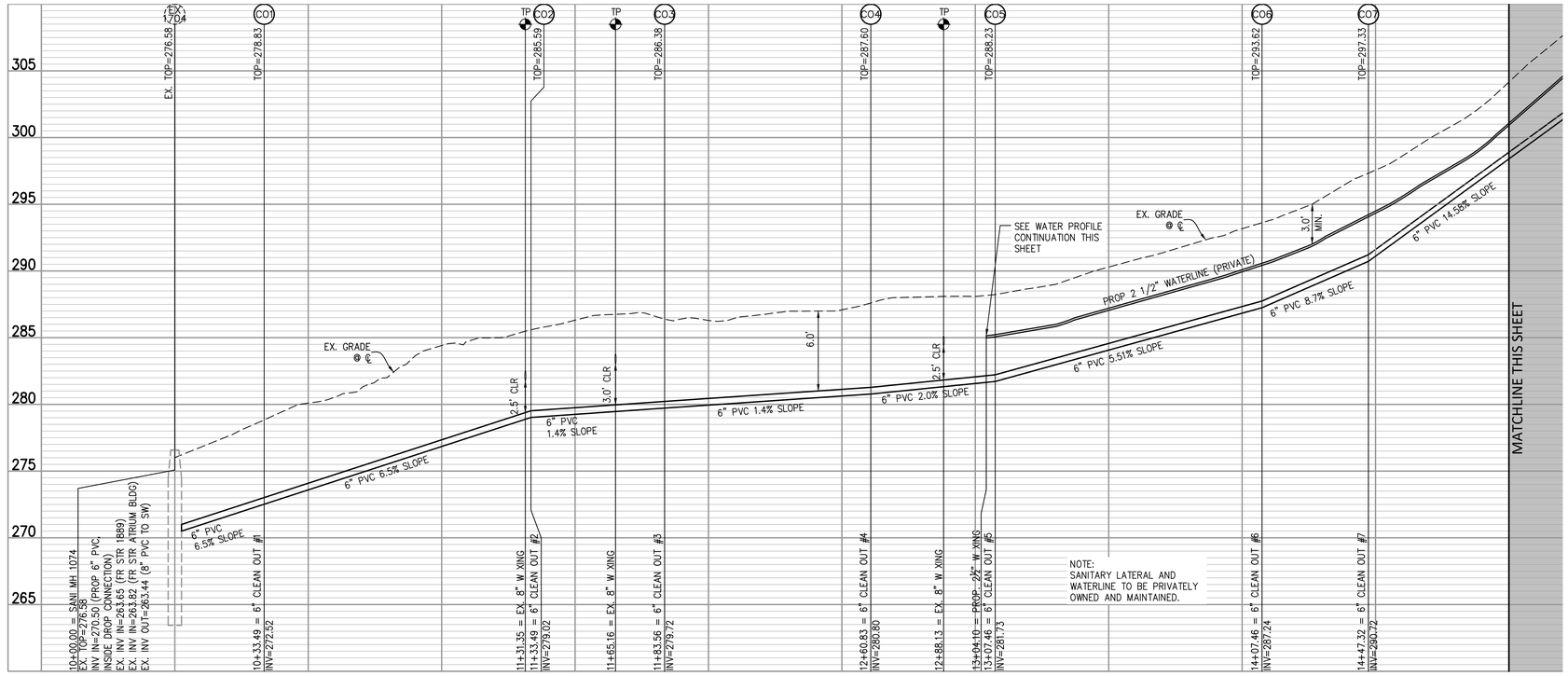
SHEET 36 OF 40

Cad file name : P:\140291 - Meadowlark Botanical Gardens - Storage\140291-01-001 (PLN) - Meadowlark Botanical Gardens - Storage\Planning\Engineering\Current\140291-01-001-SWM2.dwg



WATER LINE PROFILE

HORIZONTAL SCALE: 1"=25'
VERTICAL SCALE: 1"=5'

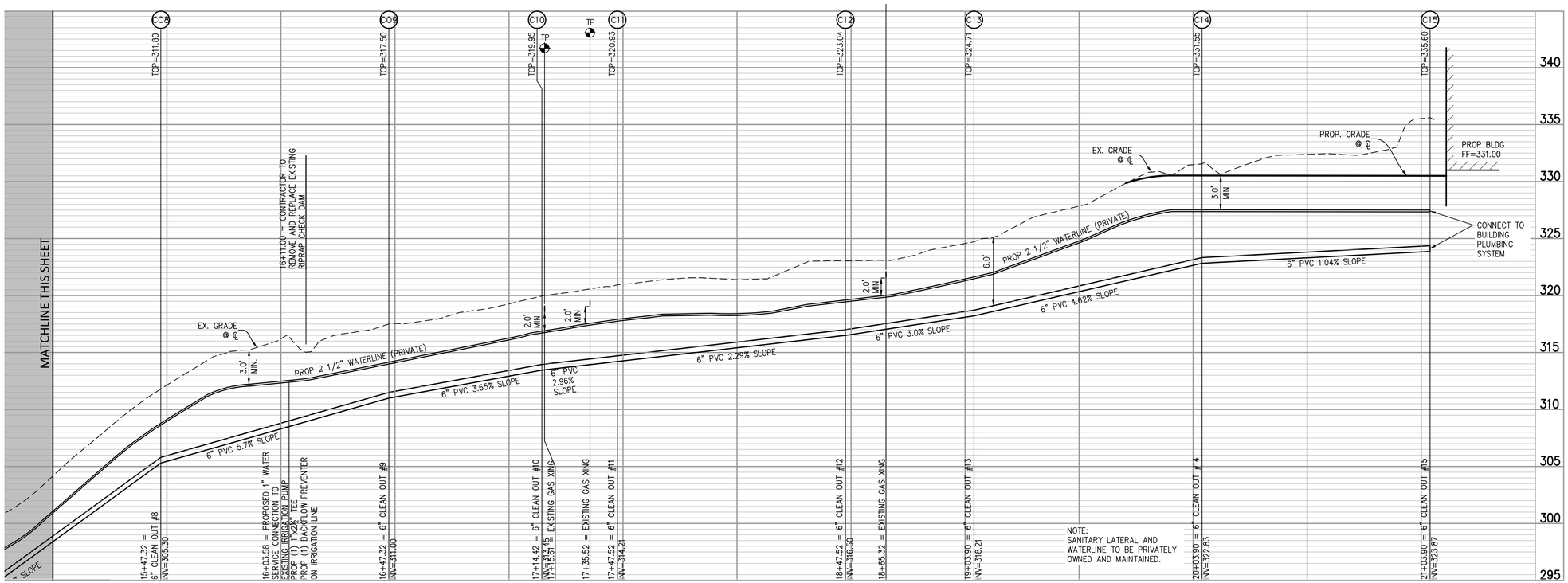


SANITARY LATERAL AND WATER LINE PROFILE

HORIZONTAL SCALE: 1"=25'
VERTICAL SCALE: 1"=5'

NOTE:
SANITARY LATERAL AND WATER SERVICE LINE ARE TO BE PRIVATELY OWNED AND MAINTAINED.

TEST PIT NOTE:
CONTRACTOR IS TO LOCATE EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY AT ALL CROSSINGS OF PROPOSED IMPROVEMENTS PRIOR TO COMMENCING WORK.



SANITARY LATERAL AND WATERLINE PROFILE

HORIZONTAL SCALE: 1"=25'
VERTICAL SCALE: 1"=5'

Bowman

Bowman Consulting Group, Ltd.
14740 Sullyfield Circle
Suite 300
Chantilly, Virginia 20151

Phone: (703) 464-1000

Fax: (703) 481-9720

www.bowman.com

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SANITARY SEWER AND WATER LINE PROFILE

MEADOWLARK BOTANICAL GARDEN

MAINTENANCE FACILITY

FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION
MT DESIGN	KF DRAWN / MT CHKD
SCALE	H: 1"=25' V:
JOB No. 140291-01-001	
DATE : MAY, 2023	
FILE No. 140291-D-ZP-001	
SHEET 37 OF 40	

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-SAN.dwg

Piedmont Geotechnical, Inc.
286 High Rail Terrace, SE • Leesburg, Virginia 20175
540-882-9350 • PiedmontGeo@aol.com

Daniel S. Rom

Digitally signed by Daniel S. Rom
DN: cn=Daniel S. Rom, o=Piedmont Geotechnical, Inc., ou=Piedmont Geotechnical, Inc., e=piedmontgeo@aol.com, c=US
Reason: I am the author of this document
Location:
Date: 2023-03-15 08:01:04-00

March 15, 2023

NOVA Parks
Attn: Mr. Todd E. Hafner
5400 Ox Road
Fairfax Station, Virginia 22039

Re: Geotechnical Engineering Evaluation
and Geotechnical Requirements
Proposed Storage Building
Meadowlark Botanical Gardens
Vienna, Virginia
PGI No. 3743VA

Dear Mr. Hafner:

Piedmont Geotechnical, Inc., has completed the authorized geotechnical engineering review for a proposed storage structure. The native soils include Fairfax County Problem Class IVB, which requires that geotechnical engineering requirements be included in the plans.

We have appreciated this opportunity to be of service to you. Should you have any questions regarding the Geotechnical Requirements, or if we may be of further service, please contact our office.

Sincerely,

Piedmont Geotechnical, Inc.

COMMONWEALTH OF VIRGINIA
DANIEL S. ROM
Lic. No. 12511
PROFESSIONAL ENGINEER

Daniel S. Rom, P.E.
Vice President

DSR/jbp

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 Commonwealth of Virginia, License No. 12511, Expiration Date: September 30, 2024.

Geotechnical and Geo-Environmental Consulting

Virginia, Maryland, District of Columbia, West Virginia, New Jersey
North Carolina, Pennsylvania, Delaware, US Virgin Islands

PROPOSED STORAGE BUILDING
MEADOWLARK BOTANICAL GARDENS
VIENNA, VIRGINIA
PGI NO. 3743VA

PROPOSED CONSTRUCTION

The project consists of the design and construction of a storage building at Meadowlark Botanical Gardens in Vienna, Virginia. The concept plan provided to us shows that the structure will be situated on the north side of the maintenance road that extends into the park from Beulah Road at Meadowlark Gardens. Construction will presumably be of metal framing. The overall footprint of the structure will be 80 feet by 40 feet. A grading plan provided to us shows a final floor elevation of 331.0, which is close to current grade, and nominal site grading is expected to be provided.

Maximum structural loads in the range of 2 to 3 kips per lineal foot are estimated. No unusual loading conditions were indicated, and it is assumed that a tolerable differential settlement of ½-inch will be satisfactory.

EXISTING SITE CONDITIONS

The site was unimproved land in March of 2023. According to a topographic plan provided to us, grades ranged from elevation 328± in the northeast to 330± in the south. A topographic high of 336± in east-center was noted. These elevations are referenced on the soil boring logs, but true surface elevations may differ. Site drainage is northeasterly and southerly. The site is within the limits of Meadowlark Botanical Gardens.

FIELD EXPLORATION AND STUDY

The exploration consisted of making four auger borings (B-3001 through B-3004) in accordance with ASTM D1452 methods. The approximate test locations are illustrated on the Soil Boring Location Plan in the Appendix. Test locations were established in accordance with generally accepted practice, and boring depths were controlled by the nature of the underlying soils. The borings were made on March 8, 2023, and were advanced to depths of ten feet below existing grade levels. At intervals the soil relative density was tested in accordance with ASTM STP 399, *Dynamic Cone for Shallow In-Situ Penetration Testing* (Sowers and Hedges, 1966).

Laboratory testing included sieve analysis, Atterberg Limits, and natural moisture content of representative samples. The tests were conducted to aid in the visual classification of the samples and to estimate soil shear strength and settlement characteristics.

SUBSURFACE CONDITIONS

The soils underlying the site are mapped as *Wheaton-Glenelg Complex* (105C). The 105-series are Soil Problem Class IVB. For Problem Class IVB, Fairfax County requires a geotechnical report to prepare Geotechnical Requirements to address issues such as foundation bearing, high seasonal groundwater, and poor surface drainage. The observed stratification is briefly described below:

STRATUM I (fill and topsoil) - consists of dark brown and gray-brown, moist Sandy SILT and SILT with Sand, which are organic-bearing. Stratum I had a depth of 1 foot to 2.5 feet at soil test locations. The relative density was judged to be loose on the basis of ease of excavation.

STRATUM II - consists of yellow-red, moist Sandy SILT (ML). Stratum II was encountered below Stratum I, borings B-3004 and B-3004, to depths of 3 feet to 4 feet. The relative density was judged to be medium dense based on resistance values of 6 to 11 blows per increment.

STRATUM III - consists of yellow-brown, moist Silty SAND (SM). Stratum III was encountered below Stratum I or Stratum II to boring termination depths of 10 feet. The relative density was judged to be medium dense to dense, based on cone resistance values of 7 to 30+ blows per increment.

Free groundwater was not encountered while augering or on completion, thus groundwater levels were below exploration depths on March 8, 2023. Seasonal influences such as precipitation, surface runoff, evaporation, and other factors will influence the groundwater level. In order to better define long-term water levels, it would be necessary to monitor conditions over an extended period of time.

GEOTECHNICAL REQUIREMENTS

A. Site Preparation

Prior to the construction of foundations or floor slabs, or the placement of fill in any structural areas, all organic materials, debris, topsoil, frozen or wet, excessively soft or loose soils, disturbed materials, and deleterious matter shall be removed and wasted. Abandoned utilities, if encountered, shall also be thoroughly removed. The Geotechnical Engineer shall determine the extent of any necessary undercut and observe the placement of suitable backfill material.

After the stripping operations have been completed, the engineer may require the exposed surface be proofrolled utilizing a loaded dump truck or another pneumatic-tired vehicle of similar size and weight. Earthwork and proofrolling must not be attempted during and following wet weather or if perched groundwater conditions develop. Pre-existing stable soils will be disturbed by excessive traffic in the presence of moisture. Therefore, the grading must be conducted during dry weather. This should minimize subgrade instability problems, although they may not be eliminated.

If the integrity of the subgrade is compromised, the Geotechnical Engineer shall be consulted for an evaluation of the conditions. Over-excavated areas resulting from the removal of disturbed soil, organic matter, tree roots, or otherwise unsuitable materials must be backfilled with properly compacted materials in accordance with the procedures in Section B.

B. Structural Fill

For site proofrolling and fill compaction operations, construction limits shall be extended at least 10 feet laterally beyond structural boundaries. All materials to be used as fill shall be tested and approved by the Geotechnical Engineer prior to use. The on-site soils include Sandy SILT (ML), SILT with Sand (ML), and Silty SAND (SM). These soils are generally satisfactory for re-use if the moisture content is adjusted properly. Organic-bearing soil, Lean CLAY (CL), and Elastic SILT (MH) or Fat CLAY (CH), if encountered, are unsuitable for re-use as compacted fill.

Borrow fill used for raising grades shall be of Unified Classification ML or better (coarser), and have a liquid limit less than 40 and a plasticity index less than 15. Structural fill shall be placed in maximum 8 inch lifts (loose thickness) and be compacted to at least 95 percent of the Standard Proctor maximum dry density (ASTM D698). Soil moisture contents must be maintained within ±2 percentage points of optimum. For utility construction performed after initial earthwork, the contractor shall achieve 95 percent compaction in all trench backfill.

A sufficient number of in-place density tests must be performed by an engineering technician to verify that the proper degree of compaction is being obtained on all fill soils. All lifts shall be tested, with a minimum of one test per 2500 square feet required.

The finer-grained local soils are sensitive to alteration in moisture content and will become unworkable during and following periods of precipitation. For this reason, care must be taken to protect exposed subgrade soil materials. Should exposed soils become wet or soft, extensive use of high-quality granular fill (borrow) will be required.

Fill soils which are placed and compacted dry of optimum moisture content, or those with nested coarse particles, may be subject to destructive collapse on wetting. Silt soils and coarse-grained soils with silt and/or clay binder are most susceptible to such collapse. For this reason, the Geotechnical Engineer shall confirm during construction that all fill areas are compacted with sufficient moisture such that conditions favorable to collapse are not created. The engineer shall review the soil compaction records and verify the appropriateness of Proctor test methods and density test correction factors, if used.

C. Building Foundations

Structural elements shall be supported on spread or continuous footings bearing on firm natural soil or new structural fill placed and compacted over firm, natural soils. A maximum allowable net design soil bearing pressure value of 3000 psf may be used for spread footings which bear on approved soils.

Footings must not bear directly on or above existing topsoil or disturbed fill soils. Minimum dimensions of 24-inches for square footings and 18 inches for continuous or rectangular footings shall be used to minimize the possibility of a local shear failure.

All foundation excavations shall be observed by the Geotechnical Engineer or his representative prior to the placement of concrete. The purposes of the observation are to verify that the exposed bearing materials are suitable for the design soil bearing pressure and that loose, wet, frozen, or compressible soils are absent.

Exterior footings and footings in unheated areas shall be located at a minimum depth of 2.5 feet below the outside final exterior grade to provide adequate frost protection. If the structure will be constructed during the winter months, or if it will be subjected to freezing temperatures after footing construction, then all footings must be adequately protected during freezing periods. Soils exposed at the bases of all satisfactory foundation excavations must be protected against any detrimental change in condition such as disturbance from rain or frost. Surface runoff must be directed from excavations and ponding must be prevented.

D. Ground Supported Slabs

The ground-supported slab shall bear on firm, natural soils or on new granular structural fill placed and compacted over firm, natural soils. The subgrade shall be prepared in accordance with the procedures described in Sections A and B. Additional over-excavation will be required where uncontrolled fills or other unsuitable soils are encountered, or if wet weather conditions prevail during construction. If Fat CLAY (CH) or Elastic SILT (MH) soils are encountered at the floor slab subgrade elevation, these

materials must be over-excavated and replaced with at least 24 inches of non-expansive fill meeting the requirements stated in Section B. It is also required that a 4-inch clean granular leveling and load-distributing material such as screened, crushed stone be used beneath all floor slabs. This material will require acquisition from off-site sources. Prior to placing the stone, the slab subgrade must be free of standing water or mud. A suitable moisture barrier must also be provided.

E. Groundwater and Drainage

The extent of construction dewatering will depend on the depth of excavation and prevailing weather conditions. Although hydrostatic groundwater levels were below likely excavation depths at the time of the field study, there is the potential for groundwater intrusion from perched water seasonally. The subgrade soils are susceptible to deterioration from water infiltration and effects of construction traffic. For these reasons, the contractor must be prepared to provide construction dewatering.

Where groundwater or soft ground prevents fill placement by conventional means, open-graded coarse aggregate can be used to bridge affected areas. Thorough monitoring of such operations will be essential. Furthermore, the removal of locally contaminated areas may be required, as evidenced by *pumping* during construction. Construction entrances are particularly prone to such degradation from repeated loading.

Adequate drainage must be provided to minimize any increase in moisture content of the foundation soils. All pavements or parking areas must be sloped away from the structure to prevent ponding of water around the building. The site drainage shall also be such that the runoff onto adjacent properties is controlled properly.

CODE OF COUNTY OF FAIRFAX, VIRGINIA REQUIREMENTS

The following requirements of Section 4-0402 of the Public Facilities Manual and Section 107-1-6 of *The Code of the County of Fairfax, Virginia*, shall be shown as a note on the approved plans:

1. All construction involving problem soil must be performed under the full-time inspection of the geotechnical engineer.

2. The geotechnical engineer shall furnish a written opinion to the County as to whether or not work has been performed in accordance with the approved plans prior to the issuance of any occupancy or use permit.

3. Review and approval of plans, specifications, and reports by the County, with or without recommendations by the Geotechnical Review Board, shall in no way relieve the developer of the responsibility for the design, construction, and performance of the structures, pavement, and slopes on the project and damage to surrounding properties.

Fairfax County may enforce other requirements not stated above.

REMARKS

This report has been prepared solely and exclusively to provide guidance to design professionals in developing plans and specifications. It has not been developed to meet the needs of others, such as contractors, and applications of this report for other than its intended purpose could result in substantial difficulties. The consulting engineer cannot be held accountable for problems which occur due to application of this report to other than its intended purpose.

These stated requirements are, of necessity, based on the limited concepts made available to us at the time of the writing of this report and on-site conditions, surface and subsurface, that existed at the time the exploratory borings were made. Further assumption has been made that the limited exploration, in relation both to the areal extent of the site and to depth, is representative of conditions across the site. If conditions contrary to those reported herein are encountered during the design or construction phase our analyses must be reviewed and revised as necessary. It is also recommended that we be given the opportunity to review the plans and specifications in order to comment on the interaction of soil conditions as described herein and the design requirements.

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties implied or expressed.

APPENDIX

1. Soil Boring Location Plan
2. Soil Boring Logs
3. Laboratory Test Results
4. Unified Soil Classification
5. Field Classification
6. Important Information About this Geotechnical Report

Bowman

Bowman Consulting Group, Ltd.
12355 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171

Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com
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GEOTECHNICAL REPORT (1 OF 3)

MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
FAIRFAX COUNTY, VIRGINIA

HUNTER MILL DISTRICT

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION

DATE	DESCRIPTION

MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: NA V:

JOB No. 140291-01-001

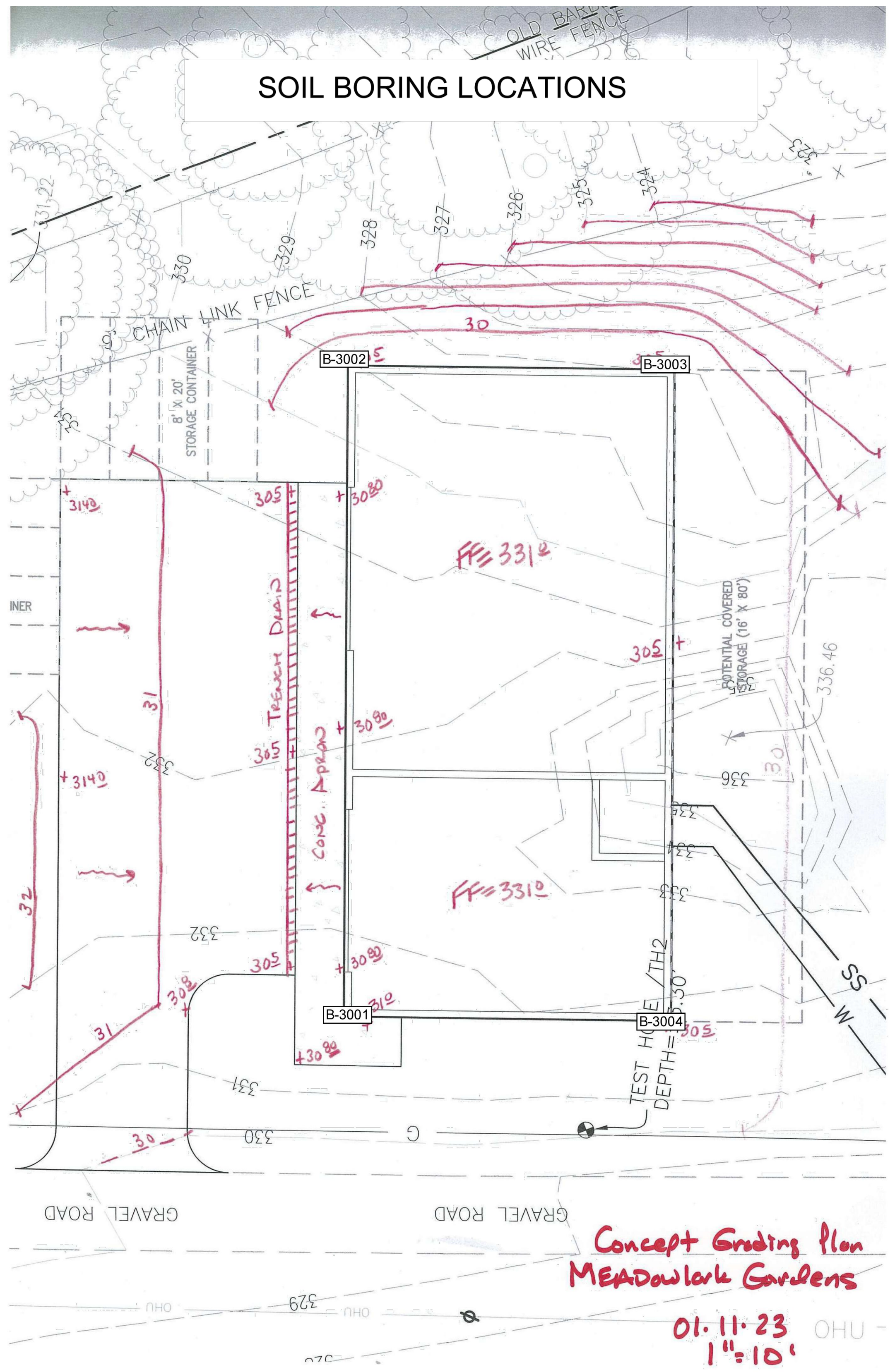
DATE : MAY, 2023

FILE No. 140291-D-ZP-001

SHEET 38 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-GEOTECH.dwg

SOIL BORING LOCATIONS



Project: **Meadowlark Gardens Storage Building** Project Location: **9750 Meadowlark Gardens Court, Vienna, Virginia** Project Number: **3743VA**	Log of Boring B-3002 **Sheet 1 of 1**

Date(s) Drilled **March 8, 2023**	Logged By **D. Rom**	Checked By **DSR**
Drilling Method **ASTM D1452**	Drill Bit Size/Type **3.5-in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **Hand Auger**	Drilling Contractor **STI**	Approximate Surface Elevation **329**
Groundwater Level and Date Measured **dry**	Sampling Method(s) **Auger**	Hammer Data **manual**
Borehole Backfill **cuttings**	Location **see plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
329	0				Fill		FILL: Dark brown and gray-brown, moist, loose SILT with Sand, some organics	surface elevation assumed = 329
					Fill		Yellow-red, moist, loose SILT with Sand	
326.5	2.5		1	7-9	SM		Yellow-brown, moist, medium dense to dense Silty SAND	
324	5		2	14-16				
319	10						Soil boring terminated at 10 feet	
314	15							
309	20							
304	25							
299	30							

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Project: **Meadowlark Gardens Storage Building** Project Location: **9750 Meadowlark Gardens Court, Vienna, Virginia** Project Number: **3743VA**	Log of Boring B-3004 **Sheet 1 of 1**

Date(s) Drilled **March 8, 2023**	Logged By **D. Rom**	Checked By **DSR**
Drilling Method **ASTM D1452**	Drill Bit Size/Type **3.5-in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **Hand Auger**	Drilling Contractor **STI**	Approximate Surface Elevation **332**
Groundwater Level and Date Measured **dry**	Sampling Method(s) **Auger**	Hammer Data **manual**
Borehole Backfill **cuttings**	Location **see plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
332	0				Fill		FILL: Dark brown, moist, loose Sandy SILT, some organics	surface elevation assumed = 332
331	1				ML		Yellow-red, moist, medium dense Sandy SILT	
329	3		1	10-11	SM		Yellow-red, moist, medium dense to dense Silty SAND	
327	5		2	18-21				
			3	30+				
322	10						Soil boring terminated at 10 feet	
317	15							
312	20							
307	25							
302	30							

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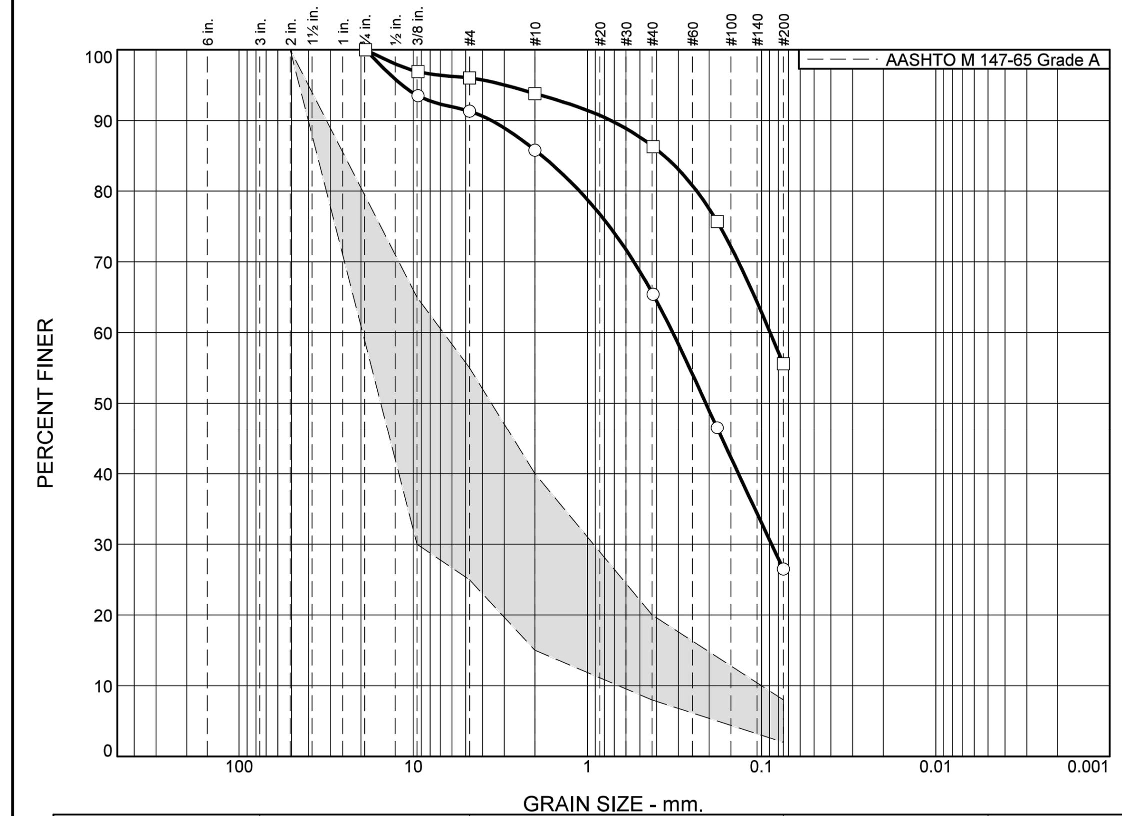
Particle Size Distribution Report



	% +3"	% Gravel	% Sand	% Silt	% Clay
○	0.0	8.7	64.8	26.5	
□	0.0	4.0	40.4	55.6	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○		B-3001	3'	silty SAND	SM
□		B-3003	3'	sandy SILT	ML

Client: Piedmont Geotechnical, Inc.
Project: Meadowlark Gardens Storage Building
Fairfax County, Virginia
Project No.: 18-13177 **Figure**

Project: **Meadowlark Gardens Storage Building** Project Location: **9750 Meadowlark Gardens Court, Vienna, Virginia** Project Number: **3743VA**	Log of Boring B-3001 **Sheet 1 of 1**

Date(s) Drilled **March 8, 2023**	Logged By **D. Rom**	Checked By **DSR**
Drilling Method **ASTM D1452**	Drill Bit Size/Type **3.5-in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **Hand Auger**	Drilling Contractor **STI**	Approximate Surface Elevation **331.5**
Groundwater Level and Date Measured **dry**	Sampling Method(s) **Auger**	Hammer Data **manual**
Borehole Backfill **cuttings**	Location **see plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
331.5	0				Fill		FILL: Dark brown and gray-brown, moist, loose SILT with Sand, some organics	surface elevation assumed = 331.5
329	2.5		1	30+	SM		Yellow-brown, moist, dense Silty SAND	
326.5	5		2	17-20				
			3	30+				
321.5	10						Soil boring terminated at 10 feet	
316.5	15							
311.5	20							
306.5	25							
301.5	30							

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Project: **Meadowlark Gardens Storage Building** Project Location: **9750 Meadowlark Gardens Court, Vienna, Virginia** Project Number: **3743VA**	Log of Boring B-3003 **Sheet 1 of 1**

Date(s) Drilled **March 8, 2023**	Logged By **D. Rom**	Checked By **DSR**
Drilling Method **ASTM D1452**	Drill Bit Size/Type **3.5-in**	Total Depth of Borehole **10 feet bgs**
Drill Rig Type **Hand Auger**	Drilling Contractor **STI**	Approximate Surface Elevation **328**
Groundwater Level and Date Measured **dry**	Sampling Method(s) **Auger**	Hammer Data **manual**
Borehole Backfill **cuttings**	Location **see plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
328	0				Fill		FILL: Dark brown, moist, loose Sandy SILT with organics	surface elevation assumed = 328
					Fill		Yellow-brown, moist, loose SILT with Sand, trace organics	
325.5	2.5		1	6-8	ML		Yellow-red, moist, medium dense Sandy SILT	
323	5		2	23-30	SM		Yellow-brown, moist, medium dense to dense Silty SAND	
318	10						Soil boring terminated at 10 feet	
313	15							
308	20							
303	25							
298	30							

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Project: **Meadowlark Gardens Storage Building** Project Location: **9750 Meadowlark Gardens Court, Vienna, Virginia** Project Number: **3743VA**	Key to Log of Boring **Sheet 1 of 1**

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9

COLUMN DESCRIPTIONS

1. Elevation (feet): Elevation (MSL, feet).
2. Depth (feet): Depth in feet below the ground surface.
3. Sample Type: Type of soil sample collected at the depth interval shown.
4. Sample Number: Sample identification number.
5. Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6. Material Type: Type of material encountered.
7. Graphic Log: Graphic depiction of the subsurface material encountered.
8. MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9. REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

AF
SILT, SILT w/SAND, SANDY SILT (ML)
Silty SAND (SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS

Auger sampler
Bulk Sample
3-inch-OD California w/ brass rings
CME Sampler
Grab Sample
2.5-inch-OD Modified California w/ brass liners
Pitcher Sample
2-inch-OD unlined split spoon (SPT)
Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting, AW)
Minor change in material properties within a stratum
Inferred/gradational contact between strata
Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

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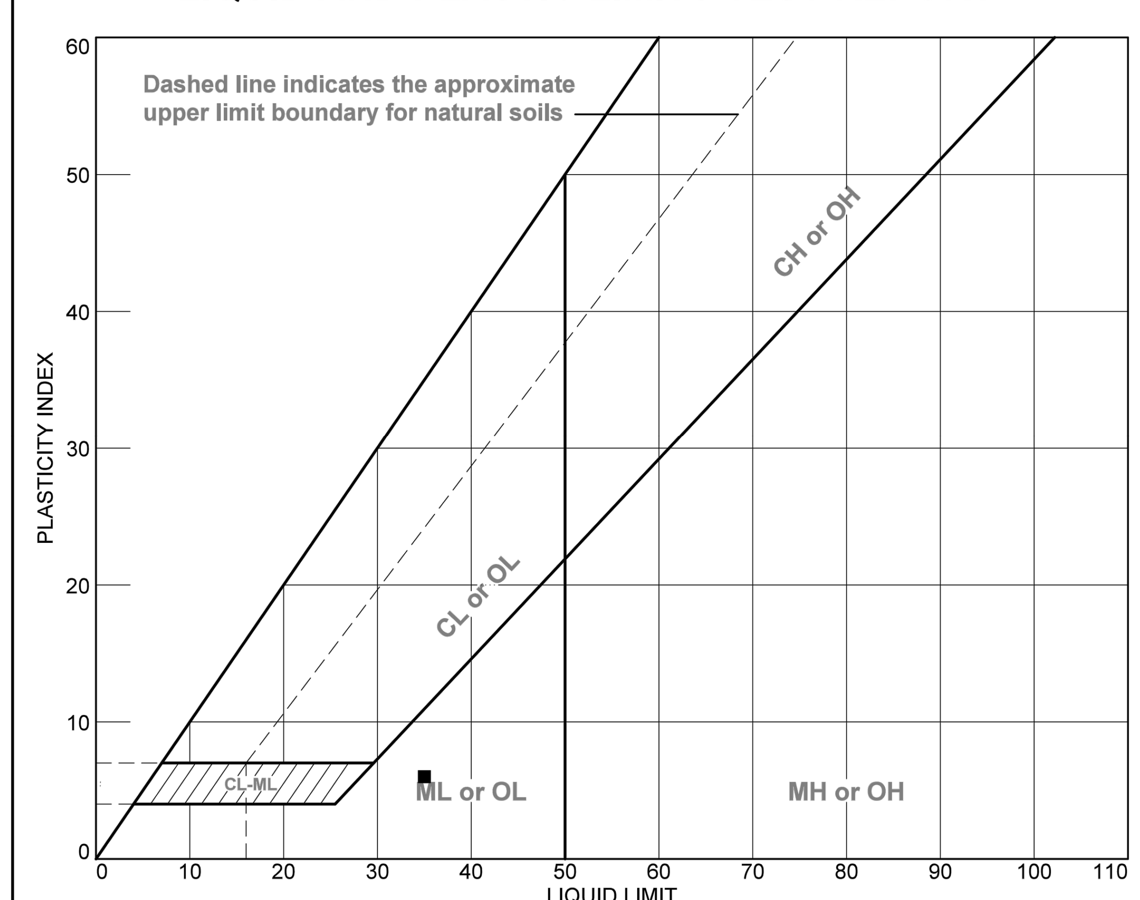
Figure B-1

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●		B-3001	3'	12.7	NP	NV	NP	SM
■		B-3003	3'	22.5	29	35	6	ML

Client: Piedmont Geotechnical, Inc.
Project: Meadowlark Gardens Storage Building
Fairfax County, Virginia
Project No.: 18-13177 **Figure**

Bowman

Bowman Consulting Group, Ltd.
13461 Sunrise Valley Drive
Suite 500
Herndon, Virginia 20171
Phone: (703) 464-1000
Fax: (703) 481-9720
www.bowman.com

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GEOTECHNICAL REPORT (2 OF 3)
MEADOWLARK BOTANICAL GARDEN
MAINTENANCE FACILITY
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY PROJECT NUMBER

COMMONWEALTH OF VIRGINIA
JOSEPH RILEY-RYAN
Lic. No. 058773
11/06/2023
PROFESSIONAL ENGINEER

PLAN STATUS	
05/15/23	SP 1ST SUBMISSION
11/06/23	SP 2ND SUBMISSION
DATE	DESCRIPTION

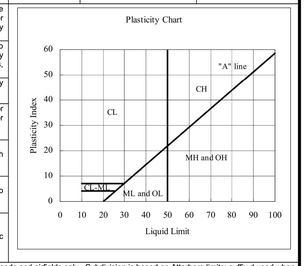
MT	KF	MT
DESIGN	DRAWN	CHKD

SCALE H: NA V:
JOB No. 140291-01-001
DATE : MAY, 2023
FILE No. 140291-D-ZP-001
SHEET 39 OF 40

Cad file name : P:\140291 – Meadowlark Botanical Gardens – Storage\140291-01-001 (PLN) – Meadowlark Botanical Gardens – Storage\Planning\Engineering\Current\140291-01-001-GEOTECH.dwg

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

Major Divisions			Group Symbols	Typical Names	Laboratory Classification Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 Sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C_u = D_{60}/D_{10}$ greater than 4 $C_c = (D_{30})^2/(D_{10}xD_{60})$ between 1 and 3		
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW		
		Gravels with fines (Appreciable amount of fines)	GM[a] d u	Silty gravels, gravel-sand mixtures	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols	
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits below "A" line or P.I. less than 7		
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines	$C_u = D_{60}/D_{10}$ greater than 6 $C_c = (D_{30})^2/(D_{10}xD_{60})$ between 1 and 3		
			SP	Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW		
		Sands with fines (Appreciable amount of fines)	SM[a] d u	Silty sands, sand-silt mixtures	Atterberg limits above "A" line or P.I. less than 4	Limits plotting in CL-ML zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols	
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7		
Fine-grained soils (More than half material is smaller than No. 200 Sieve)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent GW, GP, SW, SP More than 12 percent GM, GC, SM, SC 5 to 12 percent Borderline cases requiring dual symbols [a]		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL	Organic silts and organic silty clays of low plasticity			
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH	Inorganic clays of high plasticity, fat clays			
			OH	Organic clays of medium to high plasticity, organic silts			
Highly Organic soils			Pt	Peat and other highly organic soils			



[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.
[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder. (From Table 2.16 - Winterkorn and Fang, 1975)

Piedmont Geotechnical, Inc.
14735 Wrights Lane • Waterford, Virginia 20197-1601
540-882-9350 • FAX 540-882-3629

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

COARSE-GRAINED SOILS
(Silt, Sand, Gravel, and Combinations)

Density

Very Loose	≤5 blows/ft
Loose	6 to 10 blows/ft
Medium Dense	11 to 30 blows/ft
Dense	31 to 50 blows/ft
Very Dense	≥51 blows/ft

Relative Proportions

Descriptive Term	Percent
Trace	1-10
Little	11-20
Some	21-35
And	36-50

Particle Size Identification

Boulders	≥8 inch diameter	
Cobbles	3 to 8 inches diameter	
Gravel	Coarse	1-3 in
	Medium	½ - 1 in
	Fine	¼ - ½ in
Sand	Coarse	0.6mm - ¼ in
	Medium	0.2mm - 0.6mm (broom straw dia)
	Fine	0.05mm - 0.2mm (human hair dia)
Silt		0.6mm - 0.002mm (can't see grains)

FINE-GRAINED SOILS
(Clay, Silt, and Combinations)

Consistency

Very Soft	≤3 blows/ft
Soft	4 to 5 blows/ft
Medium Stiff	6 to 10 blows/ft
Stiff	11 to 15 blows/ft
Very Stiff	16 to 30 blows/ft
Hard	≥31 blows/ft

Plasticity

Degree of Plasticity	Plasticity Index
None to slight	0-4
Slight	5-7
Medium	8-22
High to Very High	>22

Classifications on logs are made by visual inspection of samples.

Standard Penetration Test - Driving a 2.0-inch OD, 1⅜-inch ID, sampler a distance of 1.0 foot into undisturbed soil with a 140-pound hammer free-falling a distance of 30.0 inches. It is customary for Piedmont Geotechnical, Inc., to drive the spoon 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the test are recorded on the boring log for each 6 inches of penetration (Example - 7/9/10). The Standard Penetration resistance value can be obtained by adding the last two figures (i.e. 9 + 10 = 19 blows/ft). (ASTM D-1586-84)

Stratum Changes - In the column "Soil Descriptions" on the boring log, the horizontal lines represent stratum changes. A solid line (—) represents an actually observed change, and a dashed line (---) represents an estimated change.

Ground Water - Observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, tides, etc., may cause changes in the water levels indicated on the logs.

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