Project is in partial beneficial use as of 8/26/22. See GIS for status of the lines.

PROJECT PERMITTED

GENERAL NOTES

1. This site has been addressed by the Prince William County Mapping Office as: 18100 COCKPIT POINT RD Dumfries, VA 22026 (addresses for subdivision lots shall appear on the approved plat for recordation).
2. Addresses assigned are for the layout of individual businesses or dwelling units and are for exterior doors as shown on this plan only. Any deviation in design or layout will require that a revised plan be submitted to the Office of Mapping for re-addressing. It is the responsibility of the developer to inform the County Office of Mapping before a change in layout occurs and to submit complete and accurate information for re-addressing. Prince William County does not assume any responsibility where re-addressing is required even though tenants have already occupied a portion of the building.
3. Methods and materials used in the construction of the improvements herein shall conform to the current County construction standards and specifications and/or current VDOT standards and specifications.
4. The contractor or developer is required to notify the Prince William County Department of Public Works in writing three (3) days prior to the beginning of the construction and specifically request inspection before beginning -- 703-792-7070.
   - A. Installation of approved erosion control devices.
   - B. Clearing and Grading
   - C. Subgrade excavation.
   - D. Installing storm sewers or culverts.
   - E. Setting curb and gutter forms.
   - F. Placing curb and gutter.
   - G. Placing other concrete.
   - H. Placing gravel base.
   - I. Placing any bituminous surfacing.
   - *J. Installing water mains outside the Service Authority's boundaries.
   - *K. Installing sanitary sewer outside the Service Authority's boundaries.
5. Measures to control erosion and siltation, including detention ponds serving as silt basins during construction, must be provided prior to issuance of the site development permit. The approval of these plans in no way relieves the developer or his agent of the responsibilities contained in the Virginia Erosion and Sediment Control Handbook.
6. A permit must be obtained from the Office of the Resident Engineer, Virginia Department of Transportation (VDOT) Prince William County, prior to construction in existing State right-of-way, 703-366-1900.
7. Approval of this plan does not guarantee issuance of an entrance permit by VDOT when such permit is required under State law.
8. The exact location of all guard rails will be determined by VDOT personnel. "A joint inspection will be held with the Developer, County Representatives, and Representatives, of the Virginia Department of Transportation (VDOT) to determine if and where guard rail and/or paved ditches will be needed. The developer will be responsible for providing guardrail and paved ditches as determined by this joint inspection." Refer to Virginia Department of Transportation (VDOT) Guard Rail and Paved Ditch Specifications.
9. An approved set of plans and all applicable permits must be available at the construction site. Also, a representative of the developer must be available at all times.
10. Warning signs, markers, barricades or flagmen should be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).
11. All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.
12. All pavement sections on the approved plans are based on a minimum CBR value of 10. CBR tests are to be performed by the engineer and submitted to the Prince William County Planning Office for review prior to placement of base material. CBR values less than 10 will require submittal of revised pavement section.
13. All roadside ditches at grades of more than 5% shall be paved with cement concrete to the limits indicated on the plans and as required at the field inspection.
14. All springs shall be capped and piped to the nearest storm sewer manholes or curb inlet. The pipe shall be minimum six inches (6") (150 mm) diameter and conform to VDOT standard SB-1.
15. All standard street name signs, traffic control devices, and street lights shall be installed by the developer when the first building unit is occupied.
16. Construction debris shall be containerized in accordance with the Virginia Litter Control Act; no less than one litter receptacle shall be provided at the construction site
17. The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets, and it is the contractors responsibility to clean streets, alley dust, and to take whatever measures are necessary to insure that the streets are maintained in a clean, mud and dust free condition at all times.
18. * Notification shall be given to the appropriate utility Company (Service Authority, Virginia-American Water Company, or Dale Service Corporation) prior to construction of water and/or sanitary sewer lines. Information should also be obtained from the appropriate authority concerning permits, cut sheets, and connections to existing lines.
19. All sanitary sewers and water mains and appurtenances shall be constructed in accordance with the current standards and specifications of Prince William County and/or the Service Authority.
20. The developer and/or contractor shall be responsible to supply all utility companies with copies of plans that have been approved by Prince William County and advising them that all grading shall conform to the approved plans, and further that the utility companies shall be responsible for honoring these plans and the finished grades in the installation of their utility lines.
21. Contractors shall notify operators who maintain underground utility lines in the area of proposed excavating or blasting at least two (2) working days, but not more than ten (10) working days, prior to commencement of excavation or demolition. Names and telephone numbers of the operators underground utility lines in Prince William County appear below. These numbers shall also be used to serve in an emergency condition.

• Washington Gas Light Co. Virginia Power Co. Northern Virginia Electric Co-op Columbia Gas of Virginia Continental Telephone of VA Colonial Pipeline Co. Transcontinental Gas Pipe Line Corp.	MISS UTILITY 1-800-257-7777	Service Authority Virginia-American Water Dale Service Corporation	703-335-7900 (After hours-Emergency 703-335-7990) 703-491-2136 703-494-4161

22. The location of existing utilities shown in these plans are taken from existing records. It shall be the contractors responsibility to verify the exact horizontal and vertical location of all existing utilities as needed prior to construction. The contractor shall inform the engineer of any conflicts arising from his existing utility verification and the proposed construction.
23. The developer will be responsible for any damage to the existing streets and utilities which occurs as a result of his construction project within or contiguous to the existing right-of-way.
24. All utilities placed under existing streets shall be bored or jacked.
25. When grading is proposed within easements of utilities, letters of permission from all involved companies must be provided to Prince William County Planning Office prior to issuance of grading and/or site development permits.
26. The developer will be responsible for the relocation of any utilities which is required as a result of his project. The relocation should be done prior to construction.
27. Before burning, blasting, transportation or storage of explosives in Prince William County, a permit shall be obtained from the Fire Marshal's Office, 703-792-6360.
28. Fire and Rescue Services must be notified immediately (703-792-6810) in the event that unusual items such as tanks, cylinders, unidentified containers, etc. which could contain potentially hazardous materials are discovered or observed. All activities must cease and not be resumed until authorization to proceed is given by the Fire Marshal's Office.
29. Sidewalk underdrains shall be installed per Section 650 of the Design and Construction Standards Manual.
30. All walkways outside of the right-of-way limits will be maintained by the homeowners association.
31. Maintenance of the Storm Drainage or Storm Water Management facilities located therein shall be pursuant to Section 700 of the Prince William County Design and Construction Standards Manual.
32. If units shown on this plan will be occupied in phases, a phasing plan must be approved by the engineering inspection branch prior to the issuance of any occupancy permits. (Detached single family subdivision exempt.)
33. These plans identify the location of all known gravesites. Gravesites shown on this plan will be protected in accordance with state law. In the event gravesites are discovered during construction, the County's Planning Office must be notified immediately (703-792-6830). All activities must cease and not be resumed until authorization to proceed is given by the County Planning Office.
34. Roof top mechanical equipment, if any, must be enclosed within a wall or similar screening barrier, designed in harmony with the building.
35. Individual sign permits will be required from the Zoning Office for all free standing and facade signs prior to erecting the signs.
36. All buffer areas shall be screened according to the Design and Construction Standards Manual.
37. For proffers statement and proffers analysis, see booklet
38. For waivers see sheet(s) N/A of N/A.
39. Anticipated sewage flows: 150 UNITS X 350 GPD/UNIT X 2.5 PF = 131,250 GPD
40. Anticipated fire flows: 2500 GPM
41. Distance to nearest existing school or proposed school site: COVINGTON-HARPER (ELEMENTARY SCHOOL) = 1.3 MILES

LEGEND

EXISTING INTERMEDIATE CONTOUR	33
EXISTING INDEX CONTOUR	32.5
PROPOSED CONTOUR	20
EXISTING EDGE OF PAVEMENT PROPOSED EDGE OF PAVEMENT	EX. E/P PROP. E/P
EXISTING CURB AND GUTTER	EX. C & G
PROPOSED CURB AND GUTTER	CG-6
TRANSITION FROM CG-6 TO CG-6R	CG-6 CG-6R
EXISTING TELEPHONE LINE	T T
PROPOSED TELEPHONE LINE	T
EXISTING STORM SEWER	EX. 375 mm (15") RCP
PROPOSED STORM SEWER	PROP. 375 mm (15") RCP
EXISTING SANITARY SEWER	
PROPOSED SANITARY SEWER	
EXISTING ELECTRIC SERVICE	E E
PROPOSED ELECTRIC SERVICE	E
EXISTING GAS LINE	G G
PROPOSED GAS LINE	G
PROPERTY LINE	
EASEMENT LINE	
CENTERLINE	
LIMITS OF CLEARING AND GRADING	
EXISTING SPOT ELEVATION	12.0
PROPOSED SPOT ELEVATION	X
EXISTING TREE DRIP LINE	
EXISTING TREE	375 mm (15") OAK OAK
PROPOSED TREE	

FLOW LINE	
FENCELINE	X
EXISTING UTILITY POLE	
PROPOSED UTILITY POLE	
EXISTING WATERLINE W/ TEE	W
PROPOSED WATERLINE W/ TEE	W
EXISTING FIRE HYDRANT	
PROPOSED FIRE HYDRANT	
EXISTING WATER VALVE	W
PROPOSED WATER VALVE	W
PROPOSED WATER METER	
EXISTING REDUCER	W
PROPOSED REDUCER	W
STOP SIGN	
HANDICAP RAMP (CG-12) DENOTES LOCATION OF STD VDOT CG-12 AND/OR JURISDICTIONAL STANDARD RAMP CONSTRUCTION	
PARKING INDICATOR INDICATES THE NUMBER OF TYPICAL PARKING SPACES	12
TEST PIT LOCATION	
CRITICAL SLOPE SLOPES TO BE STABILIZED PURSUANT TO VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK	
VEHICLES PER DAY COUNT	XXX VPD
PROPOSED STREET NAME SIGN	
PROPOSED SANITARY LATERAL CLEANOUT	
SANITARY MANHOLE INDENTIFIER	S
STORM DRAIN STRUCTURE IDENTIFIER	
EXISTING STORM DRAIN	
PROPOSED STORM DRAIN	
EXISTING SANITARY SEWER	
PROPOSED SANITARY SEWER	

SITE PLAN REVISION NARRATIVE

THIS PLAN COMPLIES WITH THE NEW PRINCE WILLIAM COUNTY SERVICE AUTHORITY UTILITY STANDARDS MANUAL, WHICH WENT INTO EFFECT ON JANUARY 1, 2016. ALL UTILITY PERMITS ISSUED AFTER THIS DATE MUST COMPLY WITH THE CONSTRUCTION CRITERIA IN THE NEW MANUAL, INCLUDING ANY REVISIONS WHICH HAVE BEEN ISSUED.

DESIGNATED PLANS EXAMINER CERTIFICATE

1ST SUBMISSION REVIEWED AND RECOMMENDED FOR SUBMISSION

DESIGNATED PLANS EXAMINER — REG. NUMBER — DATE

2ND SUBMISSION REVIEWED AND RECOMMENDED FOR SUBMISSION

DESIGNATED PLANS EXAMINER — REG. NUMBER — DATE

BOND ESTIMATE

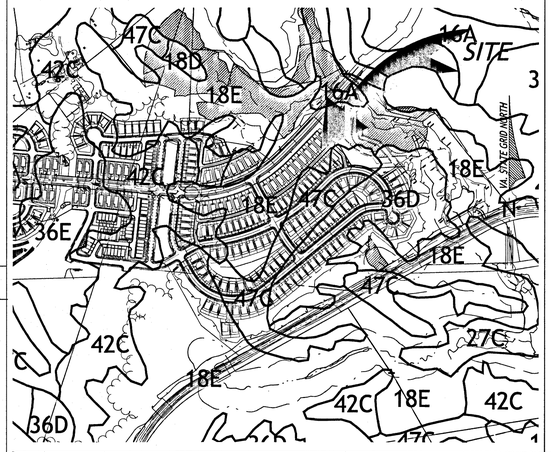
ITEM	COUNTY BOND	VDOT BOND
TOTAL CONSTRUCTION COST	$ 7,193,833.50	
ADMINISTRATIVE COST	$ 50,000.00	
INFLATION COST	$ 215,815.01	
TOTAL PERFORMANCE BOND AMOUNT	$ 7,459,648.51	
LANDSCAPE ESCROW	$ 99,206.00	
E&S ESCROW	$ 1,069,515.70	

SURVEY AND TOPOGRAPHIC INFORMATION

1. The application of the professional's seal and signature as required by Section 1.14 of the STATE BOARD OF ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS AND CERTIFIED LANDSCAPE ARCHITECTS RULES AND REGULATIONS shall be evidence that: the boundary data is correct to the best of the land surveyor's knowledge, and complies with the minimum standards and procedures of the said Board; the topographic information is accurate to within one-half of the contour interval, as shown. Application of the seal and signature indicates acceptance of responsibility for the work shown hereon.

SOILS MAP

SCALE 1"=500'



SOILS DATA

UNIT NUMBER	NAME	CATEGORY	RUNOFF	EROSION HAZARD	DEPTH TO BEDROCK	SHRINK/SWELL	FLOODING	SLOPES (%)	K VALUE	CLASS
16A	DELANCO	C	SLOW	SLIGHT	>60"	MODERATE	RARE	0 TO 4	0.28	III
18E	DUMFRIES	B	VERY RAPID	SEVERE	>60"	LOW	NONE	25 TO 50	0.24	I*
36D	MARR	B	RAPID	SEVERE	>60"	LOW	NONE	7 TO 25	0.37	III
36E	MARR	B	VERY RAPID	SEVERE	>60"	LOW	NONE	25 TO 50	0.37	III
37A	MAURERTOWN	C	SLOW	SLIGHT	>60"	HIGH	NONE	0 TO 4	0.24	III
42B	NEABSCO	C	MEDIUM	MODERATE	>60"	LOW	NONE	2 TO 7	0.2	II
47C	QUANTICO	B	MEDIUM	SEVERE	>60"	MODERATE	NONE	7 TO 15	0.2	I*

* WHEN THESE SOILS ARE LOCATED IN THE WESTERN AND EASTERN AND COASTAL PLAINS, THEY WILL BE CONSIDERED AS CATEGORY II AND III SOILS, RESPECTIVELY

REVISIONS

DATE	DESIGNER	NO.	DESCRIPTION

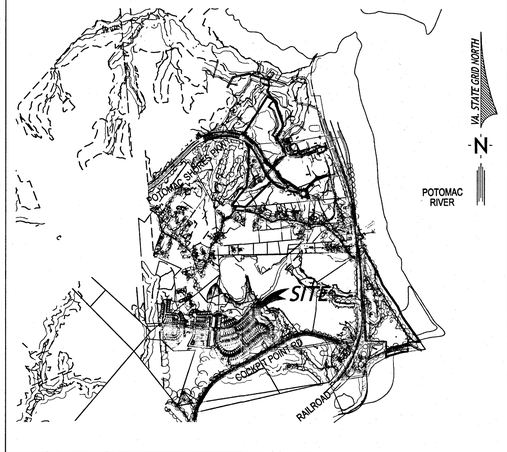
Per Prince William County Zoning Ordinance Section 32-250.71- Underground Utilities. Except for transmission power lines of 34,500 volts or greater, water towers, or other installations approved by the Director of Planning, all onsite utility facilities serving new uses or installed after the effective date of this chapter to serve any use (to include water, sewer, power, natural gas, telephone and cable) shall be installed underground.

REVIEWED BY: _____ APPROVED BY: _____

This plan has been reviewed and has been found to be in general conformance with the requirements of Prince William County. The developer is hereby authorized to obtain all necessary land development permits, subject to all designs, procedures, materials and workmanship being in compliance with lawful requirements. If not bonded or permitted (if applicable) within five (5) years of the authorized date or lawfully extended, this authorization will expire. A valid agreement and bond with Prince William County must be maintained to assure plan and permit validity.

VICINITY MAP

SCALE 1"=2000'



SHEET INDEX

01 - COVER SHEET
02 -04 NOTES & DETAILS
05 - EXISTING CONDITIONS
06-15A GRADING PLAN
16-17 PLAN AND PROFILE - RIVER HERITAGE BOULEVARD
18-19 PLAN AND PROFILE - MARSH PINE ROAD
20-21 PLAN AND PROFILE - SERVICEBERRY ROAD
22 - PLAN AND PROFILE - SCARLET PINE & WALNUT DRIVE
23-27A SIGHT DISTANCE PROFILE
27B - AUTOTURN ANALYSIS
28-33A EROSION & SEDIMENT CONTROL - PHASE I
34-39A EROSION & SEDIMENT CONTROL - PHASE II
40-42 EROSION & SEDIMENT CONTROL DETAILS AND COMPUTATIONS
43-46 STORM SEWER PROFILES
47-48A STORM SEWER COMPUTATIONS
49-51 100 YEAR OVERLAND RELIEF
52 - PRE DEVELOPMENT CONDITIONS
53 - LAND COVER MAP - PRE DEVELOPMENT CONDITIONS
54 - POST DEVELOPMENT CONDITIONS
55 - LAND COVER MAP - POST DEVELOPMENT CONDITIONS
56 - WATER QUALITY COMPLIANCE CALCULATIONS
57-58 ENERGY BALANCE COMPLIANCE CALCULATIONS
59-60A SWM & BMP DESIGN
61 - PWCSA WATER AND SANITARY SEWER INFORMATION
62 - PWCSA INSPECTOR WATER & SANITARY SEWER LOG SHEET
63-66 SANITARY SEWER PROFILES
67-68 SANITARY COMPUTATIONS
69-71 WATER PROFILES
72-73 FIRE HYDRANT COVERAGE AND FIRE PLAN
74-78 LANDSCAPE PLAN
79-79A LANDSCAPE DETAILS PLAN
80-81 SIGNAGE & PAVEMENT MARKING PLAN
82-83 PERFORMANCE BOND & ESCROW
84 - BORING LOCATIONS
85-89 GEOTECHICAL RECOMMENDATION
90-98 PROFFER ANALYSIS
99-105 MASTER ZONING PLAN
106 - CORRESPONDENCE

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PROFESSIONAL SEAL & SIGNATURE

THESE PLANS ARE IN CONFORMANCE WITH PRINCE WILLIAM COUNTY STANDARDS AND ORDINANCES. ANY DEVIATION OR CHANGE IN THESE PLANS SHALL BE APPROVED BY THE DIRECTOR OF PLANNING PRIOR TO CONSTRUCTION

PRINCE WILLIAM COUNTY

COVER SHEET

Project Name: POTOMAC SHORES		Project Number: SA2018-0321
Subdivision or Site Plan Name: LANDBAY 4 - SECTION 3	Market Name:	Plan Number: SDR2019-00009S02 Plan Type: PL SD Revision Number: 0
Magisterial District: POTOMAC	Present Zoning & Use: PMD, PMR, VACANT	Date of Plan: AUGUST, 2018
Owner: CHR PROPERTIES, LLC	Address, Including Zip Code & Telephone No.: 2392 MORSE AVE, IRVINE, CA 92614	PH. 949-241-8466
Developer: SAME AS OWNER	Address, Including Zip Code & Telephone No.	
Name, Address & Telephone No. of Engineer, Architect or Surveyor certifying Plan:	J2 ENGINEERS 17739 MAIN STREET, SUITE 150, DUMFRIES, VA 22026 - PH. 703.361.1550	

Parcel Identification Number: 8389-30-6811, 8389-11-4725, 8388-39-0813 — BMP Storage/hectore: SEE SHEET 52 - 60

Total Area: 62.38 ACRES — Project Area: 42.84 ACRES — Disturbed Area: 42.84 ACRES — Impervious Area: SEE SHEET 52 - 60 — BMP Storage/Acre: SEE SHEET 52 - 60

Related Plans Tracking Numbers (Including Rez. & S.U.P.): POTOMAC SHORES MATER PMR/PMD ZONING PLAN # REZ 2012-00420, NORTH PUBLIC IMPROVEMENTS PLAN #04-00279R00505, POTOMAC SHORES PARKWAY PHASE IV, PLAN# 15-00036R00504, PROFFER AMENDMENT 2014-00399, PUMP STATION 5 PL# SPR2018-00171, LANDBAY 5 - SECTIONS 1&2 PL# SDR2018-00069, LANDBAY 4 SECTION 2 PL#SDR2015-20005, LANDBAY 4 SECTION 3A PL#SDR2018-00072, LANDBAY 4 SECTION 3B PL#SDR2018-00073, WQIA (PL# ASP2018-00022S02, ASP2018-00022R01S00)

432-007 AR

POTOMAC SHORES - LANDBAY 4 - SECTION 3

Subdivision/Site Plan Name:

E-VC File Number: SDR2019-00009S02

EX. LANDBAY 5 - SECTION 1&2

PROP. LANDBAY 4- SECTION 3

EX. LANDBAY 4- SECTION 1

OPENSPACE PARCEL "A"

OPENSPACE PARCEL "B"

OPENSPACE PARCEL "B"

COCKPIT POINT ROAD

VA. STATE GRID NORTH

N

GRAPHIC SCALE

0 75 150 300

(IN FEET)

1 INCH = 150 FEET

① HARBOR STATION COMMUNITIES, LLC
2392 MORSE AVE.
IRVINE, CA 92614
GPIN 8388-39-0912
INSTR. 201708210063354
ZONED: PMR
PARCEL ADDRESS:
18001 RED CEDAR ROAD
DUMFRIES, VA 22026

② HARBOR STATION COMMUNITIES, LLC
2392 MORSE AVE.
IRVINE, CA 92614
GPIN 8288-29-3052
INSTR. 201611280097680
ZONED: PMR
PARCEL ADDRESS:
2091 RIVER HERITAGE BLVD
DUMFRIES, VA 22026

③ POTOMAC SHORES RESIDENTIAL ASSOC. INC.
4840 WESTFIELD BLVD STE 300
CHANTILLY, VA 20151
GPIN 8389-11-4725
INSTR. 201611280097680
ZONED: PMR
PARCEL ADDRESS:
2080 RIVER HERITAGE BLVD
DUMFRIES, VA 22026

④ BUSHEY MICHAEL E.
2029 CHERRY HILL RD
DUMFRIES, VA 22026
GPIN 8289-21-6554
INSTR. 201703270022434
ZONED: A-1
PARCEL ADDRESS:
2031 CHERRY HILL RD
DUMFRIES, VA 22026

⑤ BUSHEY MICHAEL E.
2029 CHERRY HILL RD
DUMFRIES, VA 22026
GPIN 8389-21-6980
ZONED: A-1
PARCEL ADDRESS:
SAME AS OWNER

⑥ VIGIL ELSA MARINA BLANCO
8502 FOUNTAIN VALLEY DR.
MONTGOMERY VILLAGE, MD 20886
GPIN 8389-21-7398
INSTR. 201511130094582
ZONED: A-1
PARCEL ADDRESS:
2025 CHERRY HILL RD
DUMFRIES, VA 22026

LEGEND

OPEN SPACE HATCH

J2 Engineers, Inc.
17739 Main Street
Suite 150
Dumfries, Va. 22026
703.361.1550 (office)
703.956.6845 (fax)
www.j2engineers.com

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= 2'
SCALE: 1" = 150'

PLAN DATE
08/09/18
11/09/18
08/26/19
08/24/20

EXISTING CONDITIONS

LANDBAY 4 - SECTION 3
POTOMAC SHORES

POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS

No.	DATE	DESCRIPTION

SHEET
05
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-EXISTING CONDITIONS.dwg [05 EXISTING CONDITIONS] August 27, 2020 - 8:34am mabdalhamid

SHEET 09

SHEET 10

SHEET 11

SHEET 08

SHEET 12

SHEET 14

SHEET 07

SHEET 13

SHEET 15

VA STATE GRID NORTH

GRAPHIC SCALE

0 45 90 180

(IN FEET)

1 INCH = 90 FEET

J2 engineers

J2 Engineers, Inc.
17739 Main Street
Suite 150
Dumfries, Va. 22026

703.361.1550 (office)
703.956.6845 (fax)
www.j2engineers.com

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= 2'
SCALE: 1"=90'

PLAN DATE
08/09/18
11/09/18
09/26/19
08/24/20

OVERALL GRADING PLAN

LANDBAY 4 - SECTION 3
POTOMAC SHORES

POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS

No.	DATE	DESCRIPTION

SHEET
06
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607 PGRAD.DWG [06 OVERALL GRADING PLAN] August 27, 2020 - 12:40pm mabdalhamid

NOTES:

1- AFTER THE CONSTRUCTION IS COMPLETE GEOTECHNICAL ENGINEER OF RECORD SHALL PROVIDE A WRITTEN CERTIFICATION THAT THE SLOPES HAVE BEEN CONSTRUCTED (INCLUDING BUT NOT LIMITED TO THE TYPE OF MATERIAL, DEGREE OF COMPACTION, DEPTH AND SPACING OF PILES/PIERS; LOCATION, LENGTH, SPACING, STRENGTH AND TYPE OF GEO-GRID, AND GROUND COVER TO PROTECT THE SLOPE) IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

2- AFTER THE CONSTRUCTION IS COMPLETE, THE PROJECT CIVIL ENGINEER OF RECORD OR LAND SURVEYOR DULY LICENSED IN THE COMMONWEALTH OF VIRGINIA SHALL PROVIDE A WRITTEN CERTIFICATION ON THE GRADIENT OF THE CONSTRUCTED SLOPE AS DIRECTED BY THE COUNTY STAFF.

3- THE STRUCTURAL DESIGN OF PROPOSED RETAINING WALLS MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

4- THE STRUCTURAL DESIGN OF THE PROPOSED DRILLED SHAFTS/DEEP FOUNDATIONS MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

5- THE STRUCTURAL DESIGN OF PROPOSED BRIDGE MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

6- NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE PERMANENT CONSERVATION AREA FOR BMP, WITHOUT SPECIFIC AUTHORIZATION FROM THE DEPARTMENT OF PUBLIC WORKS.

7- INDIVIDUAL LOT GRADING PLAN IS REQUIRED.

8- THE STRUCTURAL DESIGN OF THE PROPOSED BRIDGE/CULVERT MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC-BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION

GRADING LEGEND

- 250 — EXISTING CONTOUR
- 250 — PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- SITE BOUNDARY
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OLR — OVERLAND RELIEF

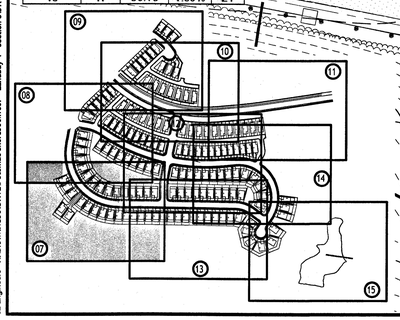
GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER / PROPOSED 4" SAN. LATERAL
- EXISTING WATER LINE
- W — PROPOSED WATER LINE
- 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 CG-6R CURB TRANSITION
- ESM'T WIDTH (SS) PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH (W) PROP. WATER ESM'T LABEL
- ESM'T WIDTH (SD) PROP. STORM DRAIN ESM'T. LABEL
- (I/E) PROP. INGRESS/EGRESS ESM'T. LABEL
- (PAE) PROP. PUBLIC ACCESS ESM'T. LABEL
- (LOS) PROP. LINE OF SIGHT ESM'T. LABEL
- (ROW) PROP. RIGHT OF WAY ESM'T. LABEL
- (CONS) PERMANENT CONSERVATION AREA FOR BMP

HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING PAVEMENT
- 5' PROP. CONCRETE SW (unless otherwise noted)
- PROP. GRAVEL ROAD

From Point	To Point	Length FT.	Slope %	Dia. IN.
25	24	147.07	1.00%	15
24	23	154.25	2.19%	15
23	22	124.76	7.32%	15
22	21	39.22	2.00%	15
21	17	266.09	7.00%	15
20E	20D	98.04	7.92%	15
20D	20C	128.62	5.37%	15
20C	20B	123.08	3.09%	15
20B	20A	100.87	3.47%	15
20A	20	42.09	4.00%	15
20	19	86.81	2.00%	18
19	18	36.77	1.00%	21
18	17	39.18	1.50%	21



PARCEL "B"
1,395,748 S.F.
32.0417 AC.
#1875 RIVER HERITAGE BLVD

PARCEL "B"
1,395,748 S.F.
32.04197 AC.
#1875 RIVER HERITAGE BLVD

10 YR WSE=141.72'
10 YR WSE=134.79'
10 YR WSE=130.89'
10 YR WSE=127.24'

MATCHLINE - SEE SHEET 08
MATCHLINE - SEE SHEET 12
MATCHLINE - SEE SHEET 13

RPA

30' LANDSCAPE BUFFER (TYPE B) PER PROFFER #10

30' LANDSCAPE BUFFER (TYPE B) PER PROFFER #10

WALL #1 TYPE - GRAVITY

COCKPIT POINT ROAD (VA. RTE. 783)
80' RIGHT-OF-WAY

VA. STATE GRID NORTH

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

J2 Engineers, Inc.
17739 Main Street
Suite 150
Dumfries, Va. 22026
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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL 2018
CONTOUR INT.= 2'
SCALE: 1"=30'

PLAN DATE
08/04/16
11/03/16
02/22/19
08/24/20

No.	DATE	DESCRIPTION
		REVISIONS

GRADING PLAN
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

SHEET 07 OF 106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PGRAD.dwg [07 GRADING PLAN] August 27, 2020 - 12:41pm mabdelhamid

NOTES:

1- AFTER THE CONSTRUCTION IS COMPLETE GEOTECHNICAL ENGINEER OF RECORD SHALL PROVIDE A WRITTEN CERTIFICATION THAT THE SLOPES HAVE BEEN CONSTRUCTED (INCLUDING BUT NOT LIMITED TO THE TYPE OF MATERIAL, DEGREE OF COMPACTION, DEPTH AND SPACING OF PILES/PIERS; LOCATION, LENGTH, SPACING, STRENGTH AND TYPE OF GEO-GRID, AND GROUND COVER TO PROTECT THE SLOPE) IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

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3- THE STRUCTURAL DESIGN OF PROPOSED RETAINING WALLS MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

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6- NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE PERMANENT CONSERVATION AREA FOR BMP, WITHOUT SPECIFIC AUTHORIZATION FROM THE DEPARTMENT OF PUBLIC WORKS.

7- INDIVIDUAL LOT GRADING PLAN IS REQUIRED.

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GRADING LEGEND

- 250 — EXISTING CONTOUR
- 250 — PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- SITE BOUNDARY
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OLR — OVERLAND RELIEF

GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED 4" SAN. LATERAL
- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE
- 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 CG-6R CURB TRANSITION
- ESM'T WIDTH SD — PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH W — PROP. WATER ESM'T LABEL
- ESM'T WIDTH SW — PROP. STORM DRAIN ESM'T. LABEL
- PROP. INGRESS/EGRESS ESM'T. LABEL
- PROP. PUBLIC ACCESS ESM'T. LABEL
- PROP. LINE OF SIGHT ESM'T. LABEL
- PROP. RIGHT OF WAY ESM'T. LABEL
- PERMANENT CONSERVATION AREA FOR BMP

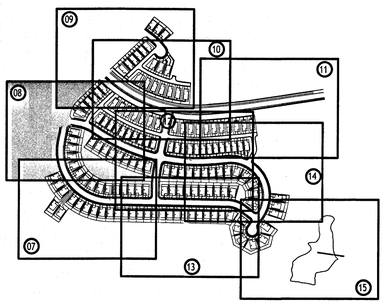
HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING PAVEMENT
- 5' PROP. CONCRETE SW (unless otherwise noted)
- 10' TRAIL

From Point	To Point	Length FT.	Slope %	Dia. IN.
313	312	54.52	10.45%	15
312	311	39.24	2.42%	15
216	215	151.25	3.88%	15
215	214	122.83	4.30%	15
214	213	182.76	4.01%	18
212	211	47.82	1.55%	15
211	210	167.90	4.00%	15
28	27	39.17	0.50%	15
27	26	75.84	0.50%	15
26	25	133.53	1.00%	15
25	24	147.07	1.00%	15
212	211	47.82	1.55%	15
211	210	167.90	4.00%	15
210	209	197.34	4.01%	15

VA STATE GRID NORTH

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET



MATCHLINE - SEE SHEET 09

MATCHLINE - SEE SHEET 10

MATCHLINE - SEE SHEET 07

HARBOR STATION COMMUNITIES LLC
POTOMAC SHORES LANDBAY 4 SECTION 1
INSTR. #20151230059680
#2081 RIVER HERITAGE BLVD

PARCEL "B"
1,395,748 S.F.
32.04197 AC.
#1875 RIVER HERITAGE BLVD

#1875 RIVER HERITAGE BLVD

PARCEL "A2A"
POTOMAC SHORES
LANDBAY 4 SECTION 2
18001 RED CEDAR ROAD
2,280,164 S.F. OR 52.34558 AC.

PARCEL "B"
1,395,748 S.F.
32.04197 AC.
#1875 RIVER HERITAGE BLVD

MARSH PINE ROAD
PRIVATE
586 VPD

SERVICEBERRY RD.
(PRIVATE STREET VARIABLE WIDTH I/E ESM'T)
INSTR. #20151230059680

SERVICEBERRY ROAD
PRIVATE
558 VPD

61 VPD

AL-1
PRIVATE

AD-2
PRIVATE

WALL #4
TYPE 'A' GRAVITY

10 YR WSE=149.63

10 YR WSE=141.72

10 YR WSE=134.79

10 YR WSE=130.89

J2 engineers

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703.956.6845 (fax)
www.J2engineers.com

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL 2018
CONTOUR INT.= 2'
SCALE: 1"=30'

PLAN DATE
08/28/18
08/27/19
08/23/20
08/24/20

GRADING PLAN
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
		REVISIONS

SHEET
08
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PGRAD.dwg (08 GRADING PLAN) August 27, 2020 - 12:42pm mabdelhamid

GRADING LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- SITE BOUNDARY
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OLR — OVERLAND RELIEF

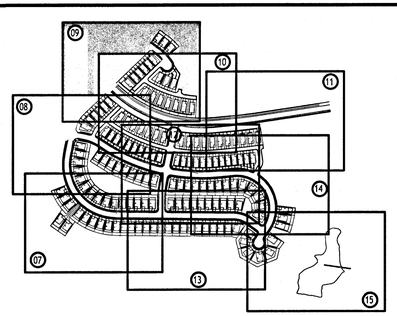
GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED 4" SAN. LATERAL
- EXISTING WATER LINE
- PROPOSED WATER LINE
- 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 CG-6R — CURB TRANSITION
- ESM'T WIDTH (SS) — PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH (W) — PROP. WATER ESM'T LABEL
- ESM'T WIDTH (SD) — PROP. STORM DRAIN ESMT. LABEL
- (PE) — PROP. INGRESS/EGRESS ESMT. LABEL
- (PAE) — PROP. PUBLIC ACCESS ESMT. LABEL
- (LOS) — PROP. LINE OF SIGHT ESMT. LABEL
- (ROW) — PROP. RIGHT OF WAY ESMT. LABEL
- (CMC) — PERMANENT CONSERVATION AREA FOR BMP

HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING PAVEMENT
- 5' PROP. CONCRETE SW (unless otherwise noted)
- 10' TRAIL

From Point	To Point	Length FT.	Slope %	Dia. IN.
318	317	71.92	4.25%	15
317A	317	61.69	1.89%	15
317	316	100.66	8.40%	15
316	315	168.16	6.32%	15
315	305	172.83	5.83%	15
313	312	54.52	10.45%	15
312	311	39.24	2.42%	15
311A	311	60.20	11.92%	15
311	310	153.07	6.17%	15
310	306	157.02	4.09%	15
309	308	39.17	1.00%	15
308	307	49.35	0.50%	15
307	306	40.15	0.95%	15
306	305	224.36	5.05%	18



GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

VA. STATE GRID NORTH

NOTES:

1- AFTER THE CONSTRUCTION IS COMPLETE GEOTECHNICAL ENGINEER OF RECORD SHALL PROVIDE A WRITTEN CERTIFICATION THAT THE SLOPES HAVE BEEN CONSTRUCTED (INCLUDING BUT NOT LIMITED TO THE TYPE OF MATERIAL, DEGREE OF COMPACTION, DEPTH AND SPACING OF PILES/PIERS; LOCATION, LENGTH, SPACING, STRENGTH AND TYPE OF GEO-GRID, AND GROUND COVER TO PROTECT THE SLOPE) IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

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PARCEL "A-1A"
POTOMAC SHORES
LANDBAY 4, SECTION 1
#2080 RIVER HERITAGE BOULEVARD
2,776,417 S.F. OR 63.73764 AC.

PARCEL "A"
569,653 S.F.
12.84786 AC.
#1876 RIVER HERITAGE

SCARLET PINE ROAD
PRIVATE
192 VPD
MARSH PINE ROAD
PRIVATE
162 VPD
RIVER HERITAGE BOULEVARD
PUBLIC
2044 VPD
911 VPD
101 VPD
SPOTTED OAK ROAD
AL-1 PRIVATE
AL-4 PRIVATE
AL-5 PRIVATE
MATCHLINE - SEE SHEET 08
MATCHLINE - SEE SHEET 10
SOIL REINFORCEMENT ZONES EASEMENT
10 YR WSE=145.24
RECOMMENDE
6FT IN Q C SI
210,000.85 I
FINAL LENGT
LOCATION AN
SELECTED DE
BUILDING DEP

J2 Engineers, Inc.
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703.361.1550 (office)
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www.J2engineers.com

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL 2018
CONTOUR INT.= 2'
SCALE: 1"=30'

PLAN DATE
09/09/18
11/09/18
09/26/19
03/24/20

GRADING PLAN
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION

REVISIONS

SHEET
09
OF
106

J2 Engineers - X:\J2\AWKINGS-ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STR\AM1607-PGRAD.dwg [09 GRADING PLAN] August 27, 2020 - 12:43pm mabdalhamid

GRADING LEGEND

- EXISTING CONTOUR (250)
- PROPOSED CONTOUR (250)
- PROPOSED LIMITS OF CLEARING & GRADING
- SITE BOUNDARY
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OLR — OVERLAND RELIEF

GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER / PROPOSED 4" SAN. LATERAL
- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE / 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 CG-6R — CURB TRANSITION
- ESM'T WIDTH (SS) — PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH (W) — PROP. WATER ESM'T LABEL
- ESM'T WIDTH (SD) — PROP. STORM DRAIN ESMT. LABEL
- (IE) — PROP. INGRESS/EGRESS ESMT. LABEL
- (PAE) — PROP. PUBLIC ACCESS ESMT. LABEL
- (LOS) — PROP. LINE OF SIGHT ESMT. LABEL
- (ROW) — PROP. RIGHT OF WAY ESMT. LABEL
- (CONS) — PERMANENT CONSERVATION AREA FOR BMP

HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING PAVEMENT
- 5' PROP. CONCRETE SW (unless otherwise noted)
- 10' TRAIL

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

VA. STATE GRID NORTH

PARCEL "A"
559,653 S.F.
12.847,88 AC.
#1876 RIVER HERITAGE BLVD

PARCEL "B"
1,395,748 S.F.
32.0413 AC.
#1876 RIVER HERITAGE BLVD

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 6FT IN O.C SPACING, MIN. 30FT IN LENGTH AND 310,000LBS (51.7 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 6FT IN O.C SPACING, MIN. 30FT IN LENGTH AND 210,000LBS (33.4 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

WALL #6 TYPE - MSEW

SOIL REINFORCEMENT ZONE EASEMENT

WALL #5 TYPE - GRAVITY

WALL #7 TYPE - GRAVITY

From Point	To Point	Length FT.	Slope %	Dia. IN.
318	317	71.92	4.25%	15
317A	317	61.69	1.89%	15
317	316	100.66	8.40%	15
316	315	168.16	6.32%	15
315	305	172.83	5.83%	15
313	312	54.52	10.45%	15
312	311	39.24	2.42%	15
311A	311	60.20	11.92%	15
311	310	153.07	6.17%	15
310	306	157.02	4.09%	15
309	308	39.17	1.00%	15
308	307	49.35	0.50%	15
307	306	40.15	0.95%	15
306	305	224.36	5.05%	18
305A	305	39.16	1.00%	15
305	304	214.81	6.33%	21
304A	304	39.21	0.50%	15
216	215	151.25	3.88%	15
215	214	122.83	4.30%	15
214	213	182.76	4.01%	18
213	208	124.92	1.47%	18

NOTES:

1- AFTER THE CONSTRUCTION IS COMPLETE GEOTECHNICAL ENGINEER OF RECORD SHALL PROVIDE A WRITTEN CERTIFICATION THAT THE SLOPES HAVE BEEN CONSTRUCTED (INCLUDING BUT NOT LIMITED TO THE TYPE OF MATERIAL, DEGREE OF COMPACTION, DEPTH AND SPACING OF PILES/PIERS; LOCATION, LENGTH, SPACING, STRENGTH AND TYPE OF GEO-GRID, AND GROUND COVER TO PROTECT THE SLOPE) IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

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THE STRUCTURAL DESIGN OF THE PROPOSED BRIDGE/CULVERT MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC-BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL 2018
CONTOUR INT.= 2'
SCALE: 1"=30'

PLAN DATE
03/09/18
10/01/18
08/01/19
08/24/20

GRADING PLAN
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
		REVISIONS

SHEET
10
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STP\AM1607-PGRADO.dwg [10 GRADING PLAN] August 27, 2020 - 12:46pm mabdelhamid

GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED 4" SAN. LATERAL
- EXISTING WATER LINE
- PROPOSED WATER LINE
- 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 / CG-6R CURB TRANSITION

- ESM'T WIDTH — PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH — PROP. WATER ESM'T LABEL
- ESM'T WIDTH — PROP. STORM DRAIN ESMT. LABEL
- PROP. INGRESS/EGRESS ESMT. LABEL
- PROP. PUBLIC ACCESS ESMT. LABEL
- PROP. LINE OF SIGHT ESMT. LABEL
- PROP. RIGHT OF WAY ESMT. LABEL
- PERMANENT CONSERVATION AREA FOR BMP

HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING PAVEMENT
- 5' PROP. CONCRETE SW (unless otherwise noted)
- 10' TRAIL

GRADING LEGEND

- 250 — EXISTING CONTOUR
- 250 — PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- SITE BOUNDARY
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OLR — OVERLAND RELIEF

From Point	To Point	Length FT.	Slope %	Dia. IN.
304A	304	39.21	0.50%	15
304	303	215.07	7.06%	21
303	302	39.16	0.50%	36
302	301	179.10	0.50%	36
301B	301A	214.21	4.18%	15
301A	301	24.86	3.00%	15
301	203	223.88	0.50%	36

NOTES:

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VA. STATE GRID NORTH

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

PARCEL "A"
559,653 S.F.
12.8478± AC.
#1876 RIVER HERITAGE BLVD

PARCEL "B"
1,395,748 S.F.
32.0437± AC.
#1870 RIVER HERITAGE BLVD

RIVER HERITAGE BOULEVARD
PUBLIC
2044 VPD

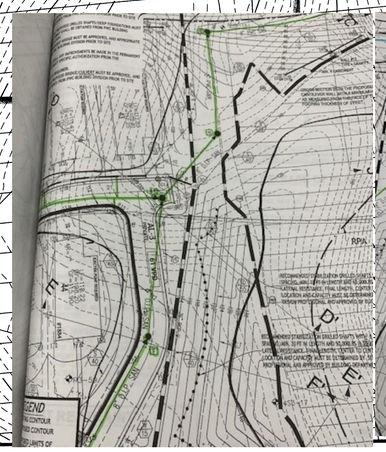
182 VPD

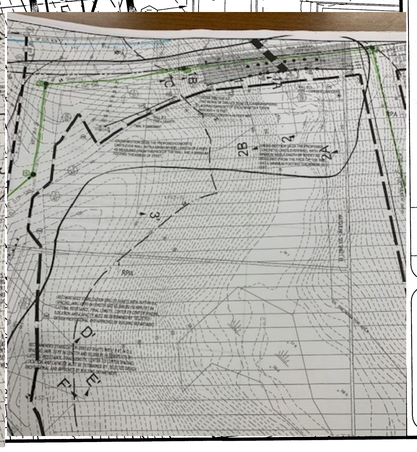
61 VPD

Sanitary outflow configuration changed with a 2021 revision (possibly PRV2021-023). Unable to locate approved revision record so see photos (below) from inspector.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 6 FT IN D.C SPACING, MIN. 15 FT IN LENGTH AND 60,000LBS (10 KIPS/FT) IN LATERAL RESISTANCE, FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 8 FT IN D.C SPACING, MIN. 20 FT IN LENGTH AND 50,000LBS (6.25KIPS/FT) IN LATERAL RESISTANCE, FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.





J2 engineers

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703.956.6845 (fax)
www.J2engineers.com

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= 2'
SCALE: 1"=30'

PLAN DATE
09/28/18
11/08/18
03/26/19
03/24/20

GRADING PLAN
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS

No.	DATE	DESCRIPTION

SHEET
11
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PGRAD.dwg [11 GRADING PLAN] August 27, 2020 - 12:45pm mabdelhamid

NOTES:

1- AFTER THE CONSTRUCTION IS COMPLETE GEOTECHNICAL ENGINEER OF RECORD SHALL PROVIDE A WRITTEN CERTIFICATION THAT THE SLOPES HAVE BEEN CONSTRUCTED (INCLUDING BUT NOT LIMITED TO THE TYPE OF MATERIAL, DEGREE OF COMPACTION, DEPTH AND SPACING OF PILES/PIERS; LOCATION, LENGTH, SPACING, STRENGTH AND TYPE OF GEO-GRID, AND GROUND COVER TO PROTECT THE SLOPE) IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

2- AFTER THE CONSTRUCTION IS COMPLETE, THE PROJECT CIVIL ENGINEER OF RECORD OR LAND SURVEYOR DULY LICENSED IN THE COMMONWEALTH OF VIRGINIA SHALL PROVIDE A WRITTEN CERTIFICATION ON THE GRADIENT OF THE CONSTRUCTED SLOPE AS DIRECTED BY THE COUNTY STAFF.

3- THE STRUCTURAL DESIGN OF PROPOSED RETAINING WALLS MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

4- THE STRUCTURAL DESIGN OF THE PROPOSED DRILLED SHAFTS/DEEP FOUNDATIONS MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

5- THE STRUCTURAL DESIGN OF PROPOSED BRIDGE MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

6-NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE PERMANENT CONSERVATION AREA FOR BMP, WITHOUT SPECIFIC AUTHORIZATION FROM THE DEPARTMENT OF PUBLIC WORKS.

7- INDIVIDUAL LOT GRADING PLAN IS REQUIRED.

8- THE STRUCTURAL DESIGN OF THE PROPOSED BRIDGE/CULVERT MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC-BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION

From Point	To Point	Length FT.	Slope %	Dia. IN.
215	214	122.83	4.30%	15
214	213	182.76	4.01%	18
213	208	124.92	1.47%	18
212	211	47.82	1.55%	15
211	210	167.90	4.00%	15
210	209	197.34	4.01%	15
209A	209	39.27	0.75%	15
209	208	37.27	3.00%	15
208	207	96.66	4.00%	18
207	206	193.29	4.50%	18
206A	206	39.16	0.50%	15
206	205	252.29	3.50%	21
205	204	81.33	4.00%	21
204	203	69.71	4.00%	21
20A	20	42.09	4.00%	15
20	19	86.81	2.00%	18
19A	19	39.17	0.71%	15
19	18	36.77	1.00%	21
18	17	39.18	1.50%	21
17	16	323.11	4.75%	21
16A	16	39.17	6.67%	15
16	15	219.89	3.25%	24
15	14	69.15	3.50%	24
14E	14D	156.00	3.75%	15
14D	14C	104.00	3.75%	15
14C	14B	122.05	3.28%	15
14B	14A	115.42	3.29%	15
14A	14	66.92	1.63%	18

GRADING LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OLR — OVERLAND RELIEF

GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED 4" SAN. LATERAL
- EXISTING WATER LINE
- PROPOSED WATER LINE
- 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 CG-6R CURB TRANSITION
- ESM'T WIDTH (SS) PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH (W) PROP. WATER ESM'T LABEL
- ESM'T WIDTH (SD) PROP. STORM DRAIN ESMT. LABEL
- (IE) PROP. INGRESS/EGRESS ESMT. LABEL
- (PAE) PROP. PUBLIC ACCESS ESMT. LABEL
- (LOS) PROP. LINE OF SIGHT ESMT. LABEL
- (ROW) PROP. RIGHT OF WAY LABEL
- (CONS) PERMANENT CONSERVATION AREA FOR BMP

HATCH LEGEND

- PROPOSED ROADWAY
- 5' PROP. CONCRETE SW (unless otherwise noted)

PARCEL "B"
1,395,748 S.F.
32.04197 AC.

WALNUT GLEN DRIVE (1133 VPD)
PUBLIC
26' B-B

SERVICEBERRY ROAD
PRIVATE

MARSH PINE ROAD
PRIVATE

AL-2
PRIVATE

MATCHLINE - SEE SHEET 10
MATCHLINE SEE SHEET 11
MATCHLINE SEE SHEET 14
MATCHLINE - SEE SHEET 08
MATCHLINE - SEE SHEET 07
MATCHLINE SEE SHEET

202 VPD
182 VPD

WALL #1
TYPE = GRAVITY

10 YR WSE=127.24
10 YR WSE=116.77
10 YR WSE=110.77
10 YR WSE=106.72
10 YR WSE=102.66

PARCEL "B"
#1875 RIVER HERITAGE BLVD
1,395,748 S.F.
32.04197 AC.

VA. STATE GRID NORTH

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= 2'
SCALE: 1"=30'

PLAN DATE
03/03/20
11/03/19
08/26/19
08/24/20

GRADING PLAN
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

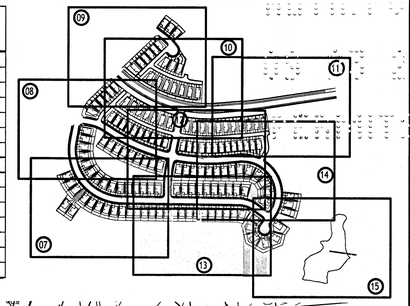
REVISIONS

No.	DATE	DESCRIPTION

SHEET
12
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PGRAD.dwg [12 GRADING PLAN] August 27, 2020 - 12:46pm maboldhamid

From Point	To Point	Length FT.	Slope %	Dia. IN.
19A	19	39.17	0.71%	15
19	18	36.77	1.00%	21
18	17	39.18	1.50%	21
17	16	323.11	4.75%	21
16A	16	39.17	6.67%	15
16	15	219.89	3.25%	24
15	14	69.15	3.50%	24
14E	14D	156.00	3.75%	15
14D	14C	104.00	3.75%	15
14C	14B	122.05	3.28%	15
14B	14A	115.42	3.29%	15
14A	14	66.92	1.63%	18
14	13	108.11	3.00%	27
13	12	40.93	3.00%	27
12	11	38.10	3.50%	27



MARSH PINE ROAD
PRIVATE

PARCEL "B"
1,395,748 S.F.
32.04197 AC.
#1875 RIVER HERITAGE BLVD

MATCHLINE - SEE SHEET 07

MATCHLINE - SEE SHEET 08

10 YR WSE=130.89

10 YR WSE=127.24

10 YR WSE=116.71

10 YR WSE=110.77

10 YR WSE=98.6

WALL #1
TYPE = GRAVITY

WALL #2
TYPE = MSE

WALL #3
TYPE = GRAVITY

SOIL REINFORCEMENT ZONE EASEMENT

FIELD-VERIFIED RPA

RPA

30' LANDSCAPE BUFFER
(TYPE B) PER PROFFER #10

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH, 6FTMIN C/C SPACING, MIN. 20FT IN LENGTH AND 210,000LBS (35 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY, SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

NOTES:

1- AFTER THE CONSTRUCTION IS COMPLETE GEOTECHNICAL ENGINEER OF RECORD SHALL PROVIDE A WRITTEN CERTIFICATION THAT THE SLOPES HAVE BEEN CONSTRUCTED (INCLUDING BUT NOT LIMITED TO THE TYPE OF MATERIAL, DEGREE OF COMPACTION, DEPTH AND SPACING OF PILES/PIERS; LOCATION, LENGTH, SPACING, STRENGTH AND TYPE OF GEO-GRID, AND GROUND COVER TO PROTECT THE SLOPE) IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
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6-NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE PERMANENT CONSERVATION AREA FOR BMP, WITHOUT SPECIFIC AUTHORIZATION FROM THE DEPARTMENT OF PUBLIC WORKS.
7- INDIVIDUAL LOT GRADING PLAN IS REQUIRED.
8- THE STRUCTURAL DESIGN OF THE PROPOSED BRIDGE/CULVERT MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC-BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION

GRADING LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- SITE BOUNDARY
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OVERLAND RELIEF

GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED 4" SAN. LATERAL
- EXISTING WATER LINE
- PROPOSED WATER LINE
- 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 / CG-6R CURB TRANSITION
- ESM'T WIDTH (SS) PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH (W) PROP. WATER ESM'T LABEL
- ESM'T WIDTH (SD) PROP. STORM DRAIN ESMT. LABEL
- (I/E) PROP. INGRESS/EGRESS ESMT. LABEL
- (PAE) PROP. PUBLIC ACCESS ESMT. LABEL
- (LOS) PROP. LINE OF SIGHT ESMT. LABEL
- (CNS) PERMANENT CONSERVATION AREA FOR BMP

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING PAVEMENT
- 5' PROP. CONCRETE SW (unless otherwise noted)

VA. STATE GRID NORTH

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PGRAD.dwg [13 GRADING PLAN] August 27, 2020 - 12:47pm mabdalhamid

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL 2018
CONTOUR INT. = 2'
SCALE: 1"=30'

PLAN DATE
03/09/18
11/09/18
08/26/19
08/24/20

GRADING PLAN
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
		REVISIONS

SHEET
13
OF
106

NOTES:

1- AFTER THE CONSTRUCTION IS COMPLETE GEOTECHNICAL ENGINEER OF RECORD SHALL PROVIDE A WRITTEN CERTIFICATION THAT THE SLOPES HAVE BEEN CONSTRUCTED (INCLUDING BUT NOT LIMITED TO THE TYPE OF MATERIAL, DEGREE OF COMPACTION, DEPTH AND SPACING OF PILES/PIERS; LOCATION, LENGTH, SPACING, STRENGTH AND TYPE OF GEO-GRID, AND GROUND COVER TO PROTECT THE SLOPE) IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

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From Point	To Point	Length FT.	Slope %	Dia. IN.
301B	301A	214.21	4.18%	15
301A	301	24.86	3.00%	15
301	203	223.88	0.50%	36
216	215	151.25	3.88%	15
215	214	122.83	4.30%	15
214	213	182.76	4.01%	18
213	208	124.92	1.47%	18
212	211	47.82	1.55%	15
211	210	167.90	4.00%	15
210	209	197.34	4.01%	15
209A	209	39.27	0.75%	15
209	208	37.27	3.00%	15
208	207	96.66	4.00%	18
207	206	193.29	4.50%	18
206A	206	39.16	0.50%	15
206	205	252.29	3.50%	21
205	204	81.33	4.00%	21
204	203	69.71	4.00%	21
202	203	48.50	1.00%	15
203	201	97.68	1.80%	36
201	200	282.8	1.87%	36
16A	16	39.17	6.67%	15
16	15	219.89	3.25%	24
15	14	69.15	3.50%	24
14E	14D	156.00	3.75%	15
14D	14C	104.00	3.75%	15
14C	14B	122.05	3.28%	15
14B	14A	115.42	3.29%	15
14A	14	66.92	1.63%	18
14	13	108.11	3.00%	27
13	12	40.93	3.00%	27
12	11	38.10	3.50%	27
11	10	41.04	3.50%	27

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 6 FT O.C. SPACING, MIN. 17 FT IN LENGTH AND 50,000LBS (10 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 8 FT O.C. SPACING, MIN. 20 FT IN LENGTH AND 50,000LBS (6.25KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 8 FT O.C.C SPACING; MIN. 20 FT IN LENGTH AND 60,000LBS (7.5 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH; CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

Sanitary outflow configuration changed with a 2021 revision (possibly PRV2021-023). Unable to locate approved revision record so see photo (below) from inspector.



GRADING LEGEND

- 250 / 250 — EXISTING CONTOUR / PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OLR — OVERLAND RELIEF

GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED 4" SAN. LATERAL
- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE
- 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 / CG-6R — CURB TRANSITION
- ESMT WIDTH — PROP. SAN. SEW. ESM'T LABEL
- ESMT WIDTH — PROP. WATER ESM'T LABEL
- ESMT WIDTH — PROP. STORM DRAIN ESMT. LABEL
- ESMT WIDTH — PROP. FOREBAY ACCEE ESMT. LABEL
- PROP. INGRESS/EGRESS ESMT. LABEL
- PROP. PUBLIC ACCESS ESMT. LABEL
- PROP. LINE OF SIGHT ESMT. LABEL
- PERMANENT CONSERVATION AREA FOR BMP

HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING PAVEMENT
- 5' PROP. CONCRETE SW (unless otherwise noted)
- 10' TRAIL
- PROP. GRAVEL ROAD

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

VA. STATE GRID NORTH

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
PROFESSIONAL ENGINEER
08/24/20

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= 2'
SCALE: AS NOTED

PLAN DATE
08/09/18
11/02/18
08/26/19
08/24/20

No.	DATE	DESCRIPTION
		REVISIONS

GRADING PLAN
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

SHEET 14 OF 106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PGRAD.dwg [14 GRADING PLAN] August 27, 2020 - 12:49pm mabdolhamid

From Point	To Point	Length FT.	Slope %	Dia. IN.
13	12	40.93	3.00%	27
12	11	38.10	3.50%	27
11	10	41.04	3.50%	27
10C	10B	58.10	0.50%	15
10B	10A	66.77	0.50%	15
10A	10	66.87	2.34%	15
10	9	119.60	4.24%	27
9	8	143.2	2.54%	30

GRADING LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- SITE BOUNDARY
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OVERLAND RELIEF

GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED 4" SAN. LATERAL
- EXISTING WATER LINE
- PROPOSED WATER LINE
- 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- PROPOSED HC RAMPS
- CG-6 / CG-6R CURB TRANSITION
- ESM'T WIDTH (SS) PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH (W) PROP. WATER ESM'T LABEL
- ESM'T WIDTH (SM) PROP. STORM DRAIN ESM'T. LABEL
- (PAE) PROP. INGRESS/EGRESS ESMT. LABEL
- (PAE) PROP. PUBLIC ACCESS ESMT. LABEL
- (CONS) PERMANENT CONSERVATION AREA FOR BMP

HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING PAVEMENT
- 5' PROP. CONCRETE SW (unless otherwise noted)
- 10' TRAIL
- PROP. GRAVEL ROAD

NOTES:

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4- THE STRUCTURAL DESIGN OF THE PROPOSED DRILLED SHAFTS/DEEP FOUNDATIONS MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

5- THE STRUCTURAL DESIGN OF PROPOSED BRIDGE MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

6-NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE PERMANENT CONSERVATION AREA FOR BMP, WITHOUT SPECIFIC AUTHORIZATION FROM THE DEPARTMENT OF PUBLIC WORKS.

7- INDIVIDUAL LOT GRADING PLAN IS REQUIRED.

8- THE STRUCTURAL DESIGN OF THE PROPOSED BRIDGE/CULVERT MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC-BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 6 FT IN O.C SPACING, MIN. 40 FT IN LENGTH AND 60,000 LBS (10 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 6 FT IN O.C SPACING, MIN. 40 FT IN LENGTH AND 120,000 LBS (20 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 6 FT IN O.C SPACING, MIN. 50 FT IN LENGTH AND 80,000 LBS (14 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

PARCEL "B"
1,395,748 S.F.
32.04197 AC.
#1875 RIVER HERITAGE BLVD

1 YR WSE = 29.09
2 YR WSE = 29.66
10 YR WSE = 31.40
100 YR WSE = 34.36
NORMAL POOL = 28.00

AREA FOR STORAGE OF DREDGED SEDIMENT

30' LANDSCAPE BUFFER (TYPE B) PER PROFFER #10

POND ACCESS

J.J. COCKETT POINT ROAD (VA. RTE. 783)
80' RIGHT-OF-WAY

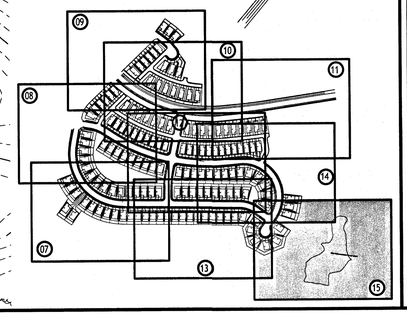
MATCHLINE - SEE SHEET 14

MATCHLINE - SEE SHEET 13

LANDBAY 5 - SECTION 2

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

VA. STATE GRID NORTH



J2 engineers

J2 Engineers, Inc.
17739 Main Street
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Dumfries, Va. 22026

703.361.1550 (office)
703.956.6845 (fax)
www.j2engineers.com

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= 2'
SCALE: AS NOTED

PLAN DATE
08/09/18
11/09/18
08/26/19
08/24/20

GRADING PLAN

LANDBAY 4 - SECTION 3
POTOMAC SHORES

POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
		REVISIONS

SHEET
15
OF
106

J2 Engineers - X:\DBA\WINGS\ACTIVE\Potomac Shores\AM1607 - LandBay 4 - Section 3\STPLI\AM1607-PGRAD.DWG [15 GRADING PLAN] August 27, 2020 - 12:30pm mabdalhamid

NOTES:

1- AFTER THE CONSTRUCTION IS COMPLETE GEOTECHNICAL ENGINEER OF RECORD SHALL PROVIDE A WRITTEN CERTIFICATION THAT THE SLOPES HAVE BEEN CONSTRUCTED (INCLUDING BUT NOT LIMITED TO THE TYPE OF MATERIAL, DEGREE OF COMPACTION, DEPTH AND SPACING OF PILES/PIERS; LOCATION, LENGTH, SPACING, STRENGTH AND TYPE OF GEO-GRID, AND GROUND COVER TO PROTECT THE SLOPE) IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

2- AFTER THE CONSTRUCTION IS COMPLETE, THE PROJECT CIVIL ENGINEER OF RECORD OR LAND SURVEYOR DULY LICENSED IN THE COMMONWEALTH OF VIRGINIA SHALL PROVIDE A WRITTEN CERTIFICATION ON THE GRADIENT OF THE CONSTRUCTED SLOPE AS DIRECTED BY THE COUNTY STAFF.

3- THE STRUCTURAL DESIGN OF PROPOSED RETAINING WALLS MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

4- THE STRUCTURAL DESIGN OF THE PROPOSED DRILLED SHAFTS/DEEP FOUNDATIONS MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

5- THE STRUCTURAL DESIGN OF PROPOSED BRIDGE MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION.

6-NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE PERMANENT CONSERVATION AREA FOR BMP, WITHOUT SPECIFIC AUTHORIZATION FROM THE DEPARTMENT OF PUBLIC WORKS.

7- INDIVIDUAL LOT GRADING PLAN IS REQUIRED.

8- THE STRUCTURAL DESIGN OF THE PROPOSED BRIDGE/CULVERT MUST BE APPROVED, AND APPROPRIATE PERMIT SHALL BE OBTAINED FROM PWC-BUILDING DIVISION PRIOR TO SITE IMPLEMENTATION

GRADING LEGEND

- EXISTING CONTOUR (250)
- PROPOSED CONTOUR (250)
- PROPOSED LIMITS OF CLEARING & GRADING
- EXISTING TREE LINE
- WETLANDS IMPACT AREA
- OLR — OVERLAND RELIEF

GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER / PROPOSED 4" SAN. LATERAL
- EXISTING WATER LINE
- PROPOSED WATER LINE / 3/4" WATER METER CROCK (unless otherwise noted)
- PROPOSED FIRE HYDRANT
- RIPRAP
- STOP SIGN
- STREET SIGN
- PROPOSED HC RAMPS
- CG-6 / CG-6R — CURB TRANSITION
- ESM'T WIDTH — (SA) PROP. SAN. SEW. ESM'T LABEL
- ESM'T WIDTH — (WE) PROP. WATER ESM'T LABEL
- ESM'T WIDTH — (SD) PROP. STORM DRAIN ESMT. LABEL
- (IE) PROP. INGRESS/EGRESS ESMT. LABEL
- (PAE) PROP. PUBLIC ACCESS ESMT. LABEL
- (LOS) PROP. LINE OF SIGHT ESMT. LABEL
- (ROW) PROP. RIGHT OF WAY LABEL
- (CBA) PERMANENT CONSERVATION AREA FOR BMP

HATCH LEGEND

- PROPOSED ROADWAY
- 5' PROP. CONCRETE SW (unless otherwise noted)

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 6 FT IN O.C SPACING, MIN. 15 FT IN LENGTH AND 60,000LBS (10 KIPS/FT)/IN LATERAL RESISTANCE, FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 8 FT IN O.C SPACING, MIN. 20 FT IN LENGTH AND 50,000LBS (6.25KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY, SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

RECOMMENDED STABILIZATION DRILLED SHAFTS WITH 8 FT IN O.C SPACING, MIN. 20 FT IN LENGTH AND 50,000LBS (7.5 KIPS/FT) IN LATERAL RESISTANCE. FINAL LENGTH, CENTER TO CENTER SPACING, LOCATION AND CAPACITY MUST BE DETERMINED BY SELECTED DESIGN PROFESSIONAL AND APPROVED BY BUILDING DEPARTMENT.

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= 2'
SCALE: 1"=30'

PLAN DATE
08/08/18
11/02/18
02/26/19
08/24/20

GRADING PLAN

LANDBAY 4 - SECTION 3
POTOMAC SHORES

POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION

REVISIONS

SHEET 15A OF 106

GRAPHIC SCALE
0 15 30 60
(IN FEET)
1 INCH = 30 FEET

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STRUAM1607-PGRAD.dwg [15A GRADING PLAN] August 27, 2020 - 12:51pm mabdalhamid

NOTES

1. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF WATER MAINS, SANITARY SEWERS AND APPURTENANCES SHALL BE IN CONFORMANCE WITH THE CURRENT PRINCE WILLIAM COUNTY SERVICE AUTHORITY UTILITY STANDARDS MANUAL (USM) AND THE VIRGINIA DEPARTMENT OF HEALTH REGULATIONS.

2. APPROVAL OF THESE PLANS BY THE SERVICE AUTHORITY WILL IN NO WAY RELIEVE THE OWNER FROM COMPLYING WITH THE METHODS, POLICIES OR REQUIREMENTS STATED IN THE SERVICE AUTHORITY'S UTILITY STANDARDS MANUAL (USM).

3. NO TREES, FENCES OR OTHER PERMANENT STRUCTURES WILL BE LOCATED ON ANY WATERLINE OR SANITARY SEWER EASEMENT WITHOUT OBTAINING PERMISSION IN WRITING FROM THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY.

4. CONTRACTOR TO NOTIFY THE THE SERVICE AUTHORITY AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS PRIOR TO COMMENCEMENT OF DEMOLITION, EXCAVATION OR BLASTING IN AREAS WITH UNDERGROUND WATER AND SEWER LINES.

5. A) WATER SERVICE LEVEL DUMFRIES/ TRIANGLE
   B) SEWER SHED HARBOR STATION

6. ALL SUBDIVISIONS WILL REQUIRE AN ADDRESS LISTINGAPPROVED BY THE PRINCE WILLIAM COUNTY MAPPING OFFICE. THE ADDRESS LISTING MUST BE PRESENTED TO THE SERVICE AUTHORITY AT THE TIME THE UTILITY PERMIT IS ISSUED. FORMS ARE AVAILABLE AT THE SERVICE AUTHORITY. (FAX COPIES ARE NOT ACCEPTABLE.)

7. ALL GRINDER PUMPS WILL BE PRIVATELY OWNED AND MAINTAINED, UNLESS OTHERWISE NOTED.

8. LOW PRESSURE SEWER SYSTEMS ARE SUBJECT TO REVIEW OF THE STATE HEALTH DEPARTMENT.

9. THE DEVELOPER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH DAMAGES TO OR RELOCATION OF WATER OR SANITARY SEWER MAINS OR SERVICE LINES CAUSED BY THE CONSTRUCTION OF THIS PROJECT.

10. THE CONTRACTOR SHALL COORDINATE ALL RELOCATION OF WATER OR SANITARY SEWER FACILITIES WITH THE SERVICE WATER OR SANITARY SEWER FACILITIES WITH THE SERVICE AUTHORITY'S INSPECTOR. NO SHUT OFFS SHALL BE DONE WITHOUT THE PRIOR APPROVAL OF THE SERVICE AUTHORITY'S INSPECTOR. THE INSPECTOR MAY REQUIRE THE CONTRACTOR TO SUBMIT A RELOCATION WORK PLAN FOR APPROVAL PRIOR TO THE COMMENCEMENT OF THE RELOCATION WORK. THE WORK PLAN WILL DETAIL HOW THE WORK WILL BE DONE AND THE MANPOWER, MATERIALS AND EQUIPMENT THAT WILL BE AT THE SITE TO PERFORM THE WORK.

11. EXISTING UNUSED SERVICE LINES SHALL BE EXPOSED AT THE CORPORATION STOP ON THE MAIN AND SHALL BE CUT AND CRIMPED PER THE DIRECTION OF THE PWCSA INSPECTOR.

12. EXISTING UNUSED LATERALS ARE TO BE CUT AND CAPPED AT THE MAIN PER THE DIRECTION OF THE PWCSA INSPECTOR.

13. WHEN AN EXISTING WATER SERVICE OR SANITARY SEWER LATERAL WILL BE REUSED AS PART OF A NEW DEVELOPMENT, THE SERVICE AUTHORITY SHALL INSPECT THE EXISTING SERVICE LINE OR LATERAL TO INSURE THAT THEY ARE SERVICEABLE AND MEET CURRENT PWCSA MATERIAL SPECIFICATIONS. ANY DEFECTS OR OUT-OF-DATE MATERIALS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE SERVICE AUTHORITY BEFORE THE EXISTING WATER SERVICE OR SANITARY SEWER LATERAL IS PLACED BACK IN SERVICE.

THRUST RESTRAINT

MINIMUM DESIGN PARAMETERS:
PIPE MATERIAL: POLY-WRAPPED DIP
SOIL TYPE: CL
SAFETY FACTOR: 1.5 (MIN. 1.5 TO 1)
TRENCH TYPE: 3 (MIN. 3)
TEST PRESSURE: 200 PSI (100 PSI PLUS THE MAX STATIC PRESSURE OR 150 PSI, WHICH EVER IS GREATER)
BURIED DEPTH: AS SHOWN IN THE PROFILES
*THE RESTRAINING LENGTH FOR EACH FITTING, REDUCER & DEAD END IS SHOWN AND SPECIFIED IN THE PROFILE SHEETS.

LOCAL FACILITIES CHARGE

THE PROPERTIES BEING DEVELOPED IN CONJUNCTION WITH THIS PROJECT ☐ ARE ☒ ARE NOT SUBJECT TO A LOCAL FACILITIES CHARGE. LFC Area: _____

MASTER PLAN UTILITY ADJUSTMENT

A MASTER PLAN UTILITY ADJUSTMENT AGREEMENT ☐ DOES ☒ DOES NOT EXIST BETWEEN THE SERVICE AUTHORITY AND THE DEVELOPER FOR DEFINED BETTERMENTS.

*DESIGN OR CONSTRUCTION CHANGES MUST CARRY THE CONSENT OF PWCSA ENGINEERING.

*THE DEVELOPER SHOULD REQUEST REIMBURSEMENT PER THE AGREEMENT AFTER BETTERMENTS ARE INSTALLED AND TESTED.

PWCSA WATER & SEWER MAIN INSPECTION FEES

	Original Qty. (Project Total)	Rev 1 Qty. (Project Total)	Rev 2 Qty. (Project Total)	Net Increase			
WATER MAIN	6140	0	0	----	(L.F.) x	$3.50	= $21,490.00
SEWER MAIN	7368	0	0	----	(L.F.) x	$5.45	= $40,155.60
TV SEWER MAIN	7368	0	0	----	(L.F.) x	$2.40	= $17,683.20
					TOTAL		= $79,328.80

NOTE: Minimum fee of $260 is required for water inspection service if water main is less than 100 L.F.
Minimum fee of $410 is required for sewer inspection service if sewer main is less than 100 L.F.

PWCSA AS BUILT FEES

	Original Qty. (Project Total)	Rev 1 Qty. (Project Total)	Rev 2 Qty. (Project Total)	Net Increase			
WATER MAIN	6140	0	0	----	(L.F.) x	$1.20	= $7,368.00
SEWER MAIN	7368	0	0	----	(L.F.) x	$1.80	= $13,262.40
					TOTAL		= $20,630.40 (Minimum $1,000)

NOTE: Minimum fee of $1000 is required for all plans connecting to utilities or installing main.
Fees shall be computed on a linear footage base for plan revisions that propose additional main as part of an actively developing project for which PWCSA has not yet executed its as-built.

AS BUILT RELEASE OF PLANS

THE UNDERSIGNED ENGINEER/ FIRM AGREES THAT THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY SHALL HAVE THE RIGHT TO USE THESE PLANS FOR THE PREPARATION OF AS-BUILT RECORDS, AS NECESSARY.
THE ENGINEER/ FIRM FURTHER AGREES THAT THE RIGHT TO USE THE PLANS SHALL BE PROVIDED WITHOUT COST TO THE SERVICE AUTHORITY.

NAME: SEBASTIAN SANDOVAL (TYPE OR PRINT)
TITLE: PROJECT MANAGER
FIRM: J2 ENGINEERS, INC.
SIGNATURE: _____
DATE: 08/24/20

LOCAL REVIEW AUTHORITY INFORMATION

PLAN TITLE: POTOMAC SHORES – LANDBAY 4 SECTION 3
PWC PLAN NO.: SDR2019-00009
ENGINEER: J2 ENGINEERS, INC.
MAP NO.: _____

SEWER

PROJECTED POPULATION: _____

SEWER MAIN SIZE AND LENGTH: (Note: lines larger than 24" must be submitted to VDH for approval)
8" PVC – 7368'
8" DIP –
10" –
12" –
6" FORCE MAIN –

NUMBER OF MANHOLES: 43

WATER

PIPE SIZES: (Note: lines larger than 18" must be submitted to VDH for approval)
4" –
6" – 142'
8" – 4553'
12" –
16" – 1445'
18" –

* CONNECTIONS
NUMBER OF WATER METERS: 150
RESIDENTIAL METER SIZE: 5/8" x 3/4"
NUMBER OF FIRE HYDRANTS: 8

FIRE FLOW INFORMATION:

A HYDRAULIC ANAYSIS IS REQUIRED OF ANY PROJECT EXTENDING WATER MAINS. A HYDRANT FLOW TEST CAN BE USED IN PLACE OF AN ANALYSIS TO CALCULATE AVAILABLE FIRE FLOW WHEN NO NEW WATER MAIN IS PROPOSED OR ONLY A FIRE HYDRANT IS SET.

COMPLETE EITHER "A" OR "B"

A
FROM HYDRANT ANALYSIS
a) Minimum Pressure: 51 PSI
b) Maximum Pressure: 70 PSI
c) Fire Flow: 2,500 GPM

B
FROM HYDRANT FLOW TEST
a) Static Pressure: _____
b) Residual Pressure: _____
c) Flow: _____
d) Pitot: _____

AS SUBMITTED WITH PLAN # _____

SANITARY SEWER DESIGN & TEST TABLE

SEE SANITARY SEWER DESIGN COMPUTATIONS ON SHEET 67

SANITARY LATERAL SCHEDULE

SEE SANITARY SEWER LATERAL SCHEDULE ON SHEET 68

RESTRAINT LENGTH(ft)	LOCATION	PIPE MATERIAL	SIZE	FITTING TYPE	BEND ANGLE	SOIL TYPE	TRENCH TYPE	TEST PRESSURE	SAFETY FACTOR	BURY DEPTH
ANY 8X8" 90° BEND										
51**	-	Poly-DIP	8"	BEND	45	CL	3	250 psi	1.5	3.5
ANY 8X8" 45° BEND										
21**	-	Poly-DIP	8"	BEND	45	CL	3	250 psi	1.5	3.5
ANY 4X4" 45° BEND										
12**	-	Poly-DIP	4"	BEND	45	CL	3	250 psi	1.5	3.5
ANY 8X8" 22.5° BEND										
10**	-	Poly-DIP	8"	BEND	22.5	CL	3	250 psi	1.5	3.5
ANY 4X4" 22.5° BEND										
6**	-	Poly-DIP	4"	BEND	22.5	CL	3	250 psi	1.5	3.5
ANY 8X8" 11.5° BEND										
5**	-	Poly-DIP	8"	BEND	11.5	CL	3	250 psi	1.5	3.5
ANY 8X8" TEE										
4** (Run)	-	Poly-DIP	8"	TEE	N/A	CL	3	250 psi	1.5	3.5
141** (Branch)	-	Poly-DIP	8"	TEE	N/A	CL	3	250 psi	1.5	3.5
ANY 8X4" TEE										
4** (Run)	-	Poly-DIP	8"	TEE	N/A	CL	3	250 psi	1.5	3.5
37** (Branch)	-	Poly-DIP	4"	TEE	N/A	CL	3	250 psi	1.5	3.5
ANY 8X6" TEE FOR A FIRE HYDRANT										
***	-	Poly-DIP	8"	TEE	N/A	CL	3	250 psi	1.5	3.5

*NOTE: CALCULATIONS WERE MADE USING EBAA 3-1
** OR UNTIL NEXT FITTING
***ENTIRE LENGTH OF BRANCH

MULTI-DWELLING OR NON-RESIDENTIAL METER SCHEDULE

Building Identifier	Building Address	Building Use	If applicable number of dwelling units	Meter Size	Peak demand in gpm	If applicable continuous demand in gpm	Account Type: Water & Sewer	Sub-Meter Account	Water Only Account	Sewer Only Account
							☐	☐	☐	☐
							☐	☐	☐	☐
							☐	☐	☐	☐
							☐	☐	☐	☐

NOTE: A fixture unit list and meter sizing calculations in accordance to AWWA M22 2nd edition is to be inserted in the plan set supporting the information in this table.

VALVE SCHEDULE

Qty.	Valve Size	Manufacturer (PWCSA use)
	4 – inch	
23	6 – inch	
85	8 – inch	
	10 – inch	
4	12 – inch	
	14 – inch	
7	16 – inch	
	18 – inch	
	24 – inch	

SHEET REVISED AS OF SEPTEMBER, 2012

Service Authority
Prince William County

WATER AND SANITARY SEWER INFORMATION

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17739 Main Street
Suite 150
Dumfries, Va. 22026
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703.956.6845 (fax)
www.j2engineers.com

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1615
DATE: APRIL 2018
CONTOUR INT.= N/A
SCALE: N/A

PLAN DATE
08/28/15
11/30/16
08/23/19
08/24/20

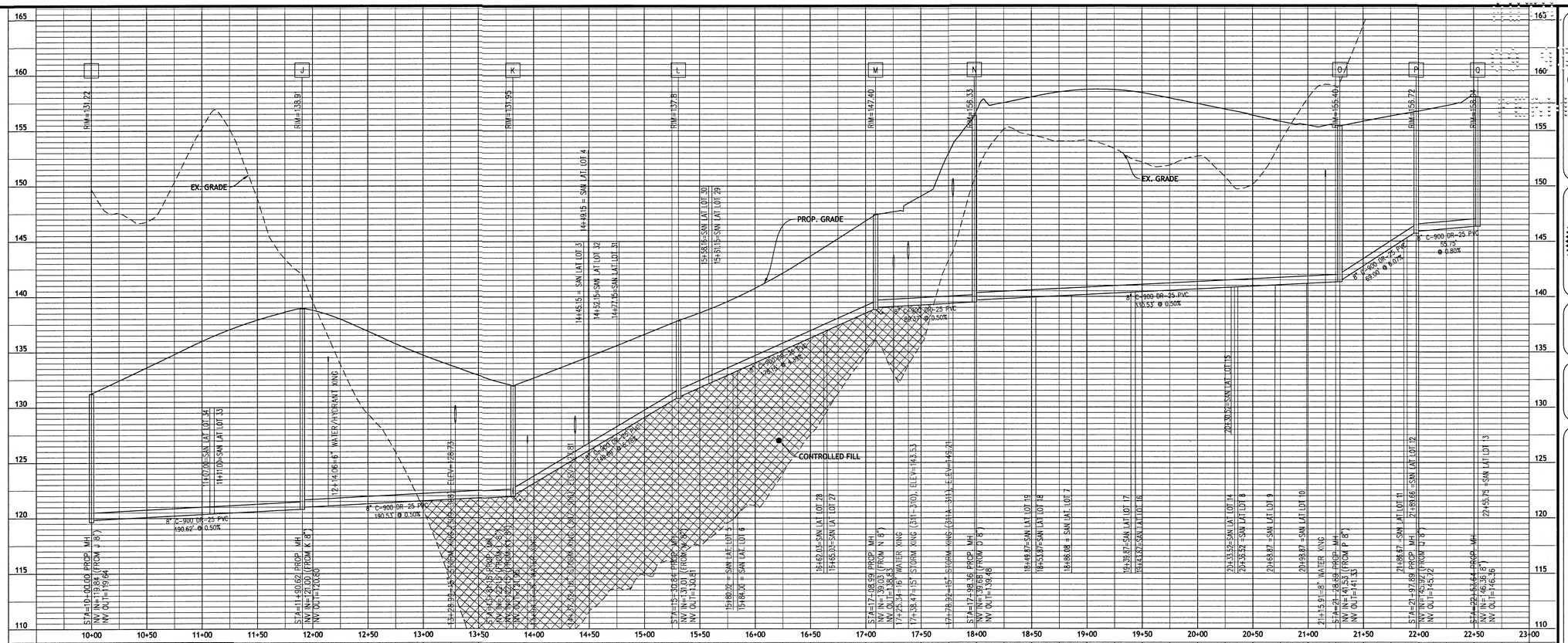
PWCSA WATER AND SANITARY SEWER INFORMATION
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS

No.	DATE	DESCRIPTION

SHEET
61
OF
106

J:\2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPL\AM1607-PWCSA-INF-SHEET.DWG [61 PWCSA WATER AND SANITARY SEWER INFORMATION] August 27, 2020 - 9:50am mabdalhamid



J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PP-SAN.dwg [03 SANITARY SEWER PROFILES] August 27, 2020 - 9:51am mabdalhamid

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= N/A
SCALE: (H) 1"=50' (V) 1"=5'

PLAN DATE
09/09/18
11/09/18
09/26/19
03/24/20

SANITARY SEWER PROFILES
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
		REVISIONS

SHEET
63
OF
106

NOTES

1. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF WATER MAINS, SANITARY SEWERS AND APPURTENANCES SHALL BE IN CONFORMANCE WITH THE CURRENT PRINCE WILLIAM COUNTY SERVICE AUTHORITY UTILITY STANDARDS MANUAL (USM) AND THE VIRGINIA DEPARTMENT OF HEALTH REGULATIONS.

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3. NO TREES, FENCES OR OTHER PERMANENT STRUCTURES WILL BE LOCATED ON ANY WATERLINE OR SANITARY SEWER EASEMENT WITHOUT OBTAINING PERMISSION IN WRITING FROM THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY.

4. CONTRACTOR TO NOTIFY THE THE SERVICE AUTHORITY AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS PRIOR TO COMMENCEMENT OF DEMOLITION, EXCAVATION OR BLASTING IN AREAS WITH UNDERGROUND WATER AND SEWER LINES.

5. A) WATER SERVICE LEVEL DUMFRIES/ TRIANGLE
   B) SEWER SHED HARBOR STATION

6. ALL SUBDIVISIONS WILL REQUIRE AN ADDRESS LISTINGAPPROVED BY THE PRINCE WILLIAM COUNTY MAPPING OFFICE. THE ADDRESS LISTING MUST BE PRESENTED TO THE SERVICE AUTHORITY AT THE TIME THE UTILITY PERMIT IS ISSUED. FORMS ARE AVAILABLE AT THE SERVICE AUTHORITY. (FAX COPIES ARE NOT ACCEPTABLE.)

7. ALL GRINDER PUMPS WILL BE PRIVATELY OWNED AND MAINTAINED, UNLESS OTHERWISE NOTED.

8. LOW PRESSURE SEWER SYSTEMS ARE SUBJECT TO REVIEW OF THE STATE HEALTH DEPARTMENT.

9. THE DEVELOPER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH DAMAGES TO OR RELOCATION OF WATER OR SANITARY SEWER MAINS OR SERVICE LINES CAUSED BY THE CONSTRUCTION OF THIS PROJECT.

10. THE CONTRACTOR SHALL COORDINATE ALL RELOCATION OF WATER OR SANITARY SEWER FACILITIES WITH THE SERVICE WATER OR SANITARY SEWER FACILITIES WITH THE SERVICE AUTHORITY'S INSPECTOR. NO SHUT OFFS SHALL BE DONE WITHOUT THE PRIOR APPROVAL OF THE SERVICE AUTHORITY'S INSPECTOR. THE INSPECTOR MAY REQUIRE THE CONTRACTOR TO SUBMIT A RELOCATION WORK PLAN FOR APPROVAL PRIOR TO THE COMMENCEMENT OF THE RELOCATION WORK. THE WORK PLAN WILL DETAIL HOW THE WORK WILL BE DONE AND THE MANPOWER, MATERIALS AND EQUIPMENT THAT WILL BE AT THE SITE TO PERFORM THE WORK.

11. EXISTING UNUSED SERVICE LINES SHALL BE EXPOSED AT THE CORPORATION STOP ON THE MAIN AND SHALL BE CUT AND CRIMPED PER THE DIRECTION OF THE PWCSA INSPECTOR.

12. EXISTING UNUSED LATERALS ARE TO BE CUT AND CAPPED AT THE MAIN PER THE DIRECTION OF THE PWCSA INSPECTOR.

13. WHEN AN EXISTING WATER SERVICE OR SANITARY SEWER LATERAL WILL BE REUSED AS PART OF A NEW DEVELOPMENT, THE SERVICE AUTHORITY SHALL INSPECT THE EXISTING SERVICE LINE OR LATERAL TO INSURE THAT THEY ARE SERVICEABLE AND MEET CURRENT PWCSA MATERIAL SPECIFICATIONS. ANY DEFECTS OR OUT-OF-DATE MATERIALS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE SERVICE AUTHORITY BEFORE THE EXISTING WATER SERVICE OR SANITARY SEWER LATERAL IS PLACED BACK IN SERVICE.

THRUST RESTRAINT

MINIMUM DESIGN PARAMETERS:
PIPE MATERIAL: POLY-WRAPPED DIP
SOIL TYPE: CL
SAFETY FACTOR: 1.5 (MIN. 1.5 TO 1)
TRENCH TYPE: 3 (MIN. 3)
TEST PRESSURE: 200 PSI (100 PSI PLUS THE MAX. STATIC PRESSURE OR 150 PSI, WHICH EVER IS GREATER)
BURIED DEPTH: AS SHOWN IN THE PROFILES
*THE RESTRAINING LENGTH FOR EACH FITTING, REDUCER & DEAD END IS SHOWN AND SPECIFIED IN THE PROFILE SHEETS.

LOCAL FACILITIES CHARGE

THE PROPERTIES BEING DEVELOPED IN CONJUNCTION WITH THIS PROJECT ☐ ARE ☒ ARE NOT SUBJECT TO A LOCAL FACILITIES CHARGE. LFC Area: _____

MASTER PLAN UTILITY ADJUSTMENT

A MASTER PLAN UTILITY ADJUSTMENT AGREEMENT ☐ DOES ☒ DOES NOT EXIST BETWEEN THE SERVICE AUTHORITY AND THE DEVELOPER FOR DEFINED BETTERMENTS.

*DESIGN OR CONSTRUCTION CHANGES MUST CARRY THE CONSENT OF PWCSA ENGINEERING.

*THE DEVELOPER SHOULD REQUEST REIMBURSEMENT PER THE AGREEMENT AFTER BETTERMENTS ARE INSTALLED AND TESTED.

PWCSA WATER & SEWER MAIN INSPECTION FEES

	Original Qty. (Project Total)	Rev 1 Qty. (Project Total)	Rev 2 Qty. (Project Total)	Net Increase				
WATER MAIN	6140	0		0	(L.F.) x	$3.50	=	$0.00
SEWER MAIN	7368	0		0	(L.F.) x	$5.45	=	$0.00
TV SEWER MAIN	7368	0		0	(L.F.) x	$2.40	=	$0.00
					TOTAL		=	$0.00

NOTE: Minimum fee of $260 is required for water inspection service if water main is less than 100 L.F.
Minimum fee of $410 is required for sewer inspection service if sewer main is less than 100 L.F.

PWCSA AS BUILT FEES

	Original Qty. (Project Total)	Rev 1 Qty. (Project Total)	Rev 2 Qty. (Project Total)	Net Increase				
WATER MAIN	6140	0		0	(L.F.) x	$1.20	=	$0.00
SEWER MAIN	7368	0		0	(L.F.) x	$1.80	=	$0.00
					TOTAL		=	$0.00 (Minimum $1,000)

NOTE: Minimum fee of $1000 is required for all plans connecting to utilities or installing main.
Fees shall be computed on a linear footage base for plan revisions that propose additional main as part of an actively developing project for which PWCSA has not yet executed its as-built.

AS BUILT RELEASE OF PLANS

THE UNDERSIGNED ENGINEER/ FIRM AGREES THAT THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY SHALL HAVE THE RIGHT TO USE THESE PLANS FOR THE PREPARATION OF AS-BUILT RECORDS, AS NECESSARY.
THE ENGINEER/ FIRM FURTHER AGREES THAT THE RIGHT TO USE THE PLANS SHALL BE PROVIDED WITHOUT COST TO THE SERVICE AUTHORITY.

NAME: SEBASTIAN SANDOVAL (TYPE OR PRINT)
TITLE: PROJECT MANAGER
FIRM: J2 ENGINEERS, INC.
SIGNATURE:
DATE: 08/24/20

LOCAL REVIEW AUTHORITY INFORMATION

PLAN TITLE: POTOMAC SHORES – LANDBAY 4 SECTION 3
PWC PLAN NO.: SDR2021-00035
ENGINEER: J2 ENGINEERS, INC.
MAP NO.:

SEWER

PROJECTED POPULATION:
SEWER MAIN SIZE AND LENGTH: (Note: lines larger than 24" must be submitted to VDH for approval)
8" PVC – 7368'
8" DIP –
10" –
12" –
6" FORCE MAIN –
NUMBER OF MANHOLES: 43

WATER

PIPE SIZES: (Note: lines larger than 18" must be submitted to VDH for approval)
4" –
6" – 142'
8" – 4553'
12" –
16" – 1445'
18" –
* CONNECTIONS
NUMBER OF WATER METERS: 151
RESIDENTIAL METER SIZE: 5/8" x 3/4"
NUMBER OF FIRE HYDRANTS: 8

FIRE FLOW INFORMATION:

A HYDRAULIC ANAYSIS IS REQUIRED OF ANY PROJECT EXTENDING WATER MAINS. A HYDRANT FLOW TEST CAN BE USED IN PLACE OF AN ANALYSIS TO CALCULATE AVAILABLE FIRE FLOW WHEN NO NEW WATER MAIN IS PROPOSED OR ONLY A FIRE HYDRANT IS SET.

COMPLETE EITHER "A" OR "B"

A
FROM HYDRANT ANALYSIS
a) Minimum Pressure: 51 PSI
b) Maximum Pressure: 70 PSI
c) Fire Flow: 2,500 GPM

B
FROM HYDRANT FLOW TEST
a) Static Pressure:
b) Residual Pressure:
c) Flow:
d) Pitot:

AS SUBMITTED WITH PLAN # SA2018-0321

SANITARY SEWER DESIGN & TEST TABLE

SEE SANITARY SEWER DESIGN COMPUTATIONS ON SHEET 67

SANITARY LATERAL SCHEDULE

SEE SANITARY SEWER LATERAL SCHEDULE ON SHEET 68

RESTRAINT LENGTH(ft)	LOCATION	PIPE MATERIAL	SIZE	FITTING TYPE	BEND ANGLE	SOIL TYPE	TRENCH TYPE	TEST PRESSURE	SAFETY FACTOR	BURY DEPTH
ANY 8X8" 90° BEND										
51**	-	Poly-DIP	8"	BEND	45	CL	3	250 psi	1.5	3.5
ANY 8X8" 45° BEND										
21**	-	Poly-DIP	8"	BEND	45	CL	3	250 psi	1.5	3.5
ANY 4X4" 45° BEND										
12**	-	Poly-DIP	4"	BEND	45	CL	3	250 psi	1.5	3.5
ANY 8X8" 22.5° BEND										
10**	-	Poly-DIP	8"	BEND	22.5	CL	3	250 psi	1.5	3.5
ANY 4X4" 22.5° BEND										
5**	-	Poly-DIP	4"	BEND	22.5	CL	3	250 psi	1.5	3.5
ANY 8X8" 11.5° BEND										
5**	-	Poly-DIP	8"	BEND	11.5	CL	3	250 psi	1.5	3.5
ANY 8X8" TEE										
4** (Run)	-	Poly-DIP	8"	TEE	N/A	CL	3	250 psi	1.5	3.5
141** (Branch)	-	Poly-DIP	8"	TEE	N/A	CL	3	250 psi	1.5	3.5
ANY 8X4" TEE										
4** (Run)	-	Poly-DIP	8"	TEE	N/A	CL	3	250 psi	1.5	3.5
37** (Branch)	-	Poly-DIP	4"	TEE	N/A	CL	3	250 psi	1.5	3.5
ANY 8X6" TEE FOR A FIRE HYDRANT										
***	-	Poly-DIP	8"	TEE	N/A	CL	3	250 psi	1.5	3.5

*NOTE: CALCULATIONS WERE MADE USING EBAA 3-1
** OR UNTIL NEXT FITTING
***ENTIRE LENGTH OF BRANCH

MULTI-DWELLING OR NON-RESIDENTIAL METER SCHEDULE

Building Identifier	Building Address	Building Use	If applicable number of dwelling units	Meter Size	Peak demand in gpm	If applicable continuous demand in gpm	Account Type: Water & Sewer	Account Type: Sub-Meter Account	Account Type: Water Only Account	Account Type: Sewer Only Account
							☐	☐	☐	☐
							☐	☐	☐	☐
							☐	☐	☐	☐
							☐	☐	☐	☐

NOTE: A fixture unit list and meter sizing calculations in accordance to AWWA M22 2nd edition is to be inserted in the plan set supporting the information in this table.

VALVE SCHEDULE

Qty.	Valve Size	Manufacturer (PWCSA use)
	4 – inch	
23	6 – inch	
85	8 – inch	
	10 – inch	
4	12 – inch	
	14 – inch	
7	16 – inch	
	18 – inch	
	24 – inch	

SHEET REVISED AS OF SEPTEMBER, 2012

Service Authority
Prince William County

WATER AND SANITARY SEWER INFORMATION

J2 Engineers, Inc.
17739 Main Street
Suite 180
Dumfries, Va. 22026
703.361.1550 (office)
703.956.6845 (fax)
www.j2engineers.com

COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
05/11/21
PROFESSIONAL ENGINEER

PLAN# AM1615
DATE: OCTOBER, 2020
CONTOUR INT.= N/A
SCALE: N/A

PLAN DATE: 12/14/20, 01/29/21, 03/19/21, 05/11/21

PWCSA WATER AND SANITARY SEWER INFORMATION
LANDBAY 4 - SECTION 3 REVISION 1
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

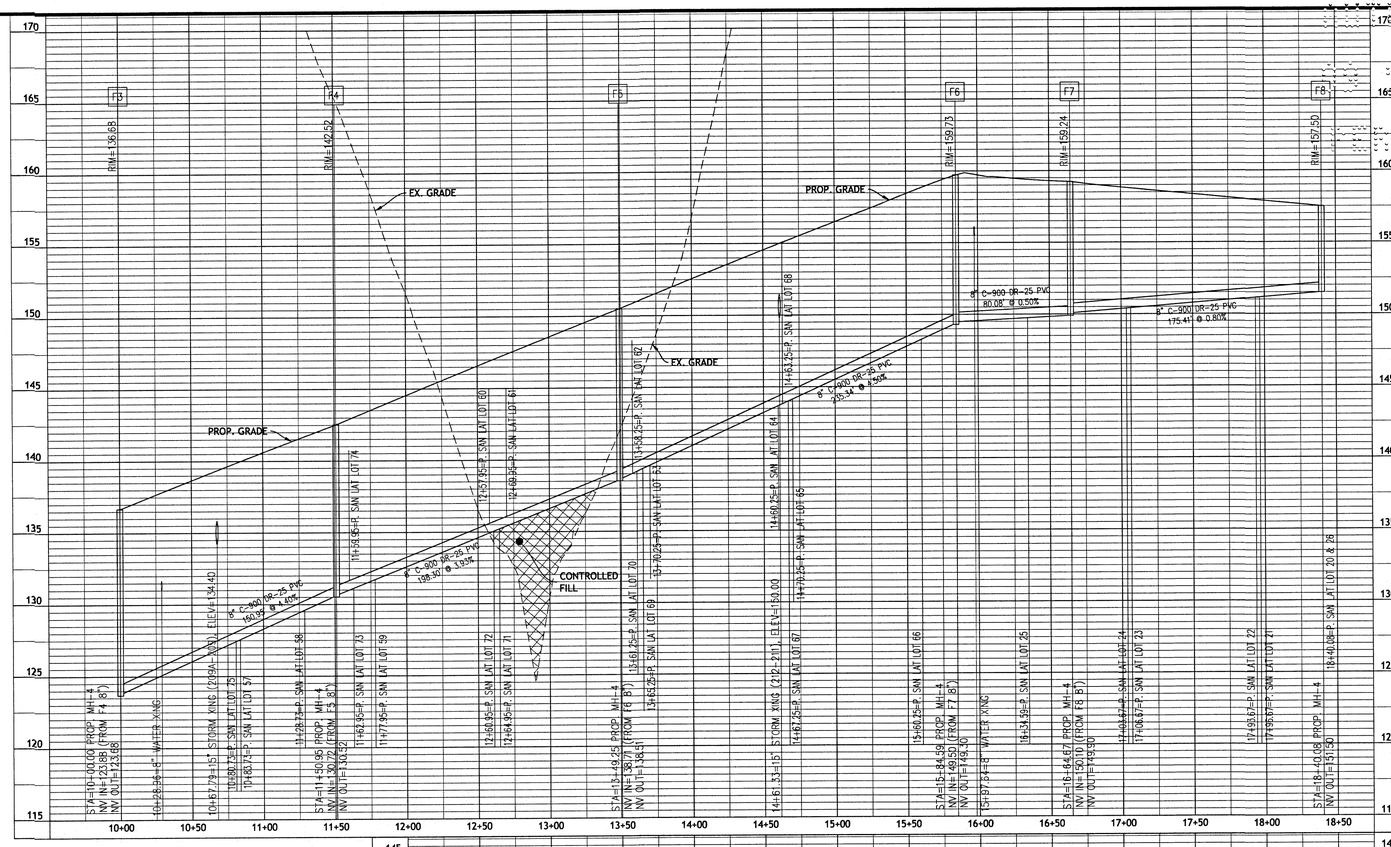
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1.	12/14/20	

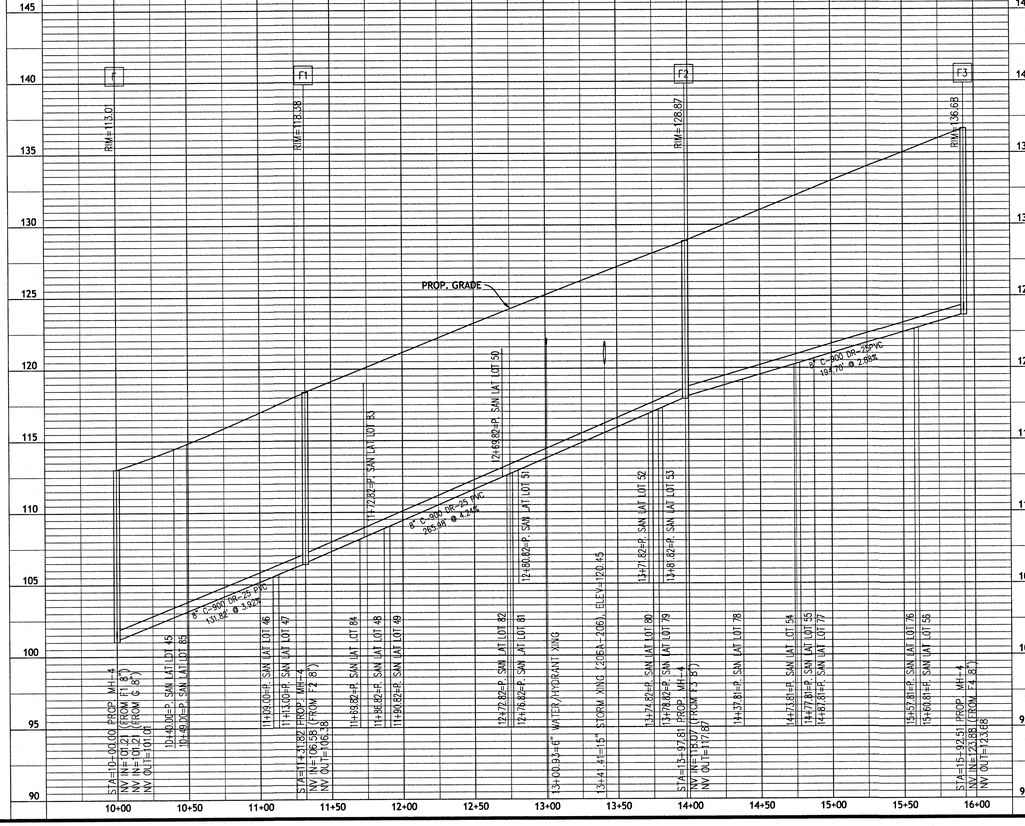
REVISIONS

TOTAL NUMBER OF WATER METERS HAS BEEN REVISED

SHEET 61 OF 106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STP\REVISION\AM1607-PWCSA-INF-SHEET.DWG [61 PWCSA WATER AND SANITARY SEWER INFORMATION] May 11, 2021 - 3:32pm zsafi





NOTES:

* CONTRACTORS TO INSTALL SPREAD FOOTERS AT THE BOTTOM OF MANHOLES THAT ARE ON 8' OF FILL OR MORE TO PREVENT SETTLEMENT. SPREAD FOOTERS DETAIL TO BE SUBMITTED TO PWCSA PRIOR TO CONSTRUCTION.

1- CONTROLLED FILL TO MEET COMPACTION STANDARDS TO A 95% PROCTOR DRY DENSITY.

J2 engineers

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL 2018
CONTOUR INT.= N/A
SCALE: (H) 1"=50' (V) 1"=5'

PLAN DATE
08/09/18
11/28/18
08/27/19
08/24/20

SANITARY SEWER PROFILES

LANDBAY 4 - SECTION 3
POTOMAC SHORES

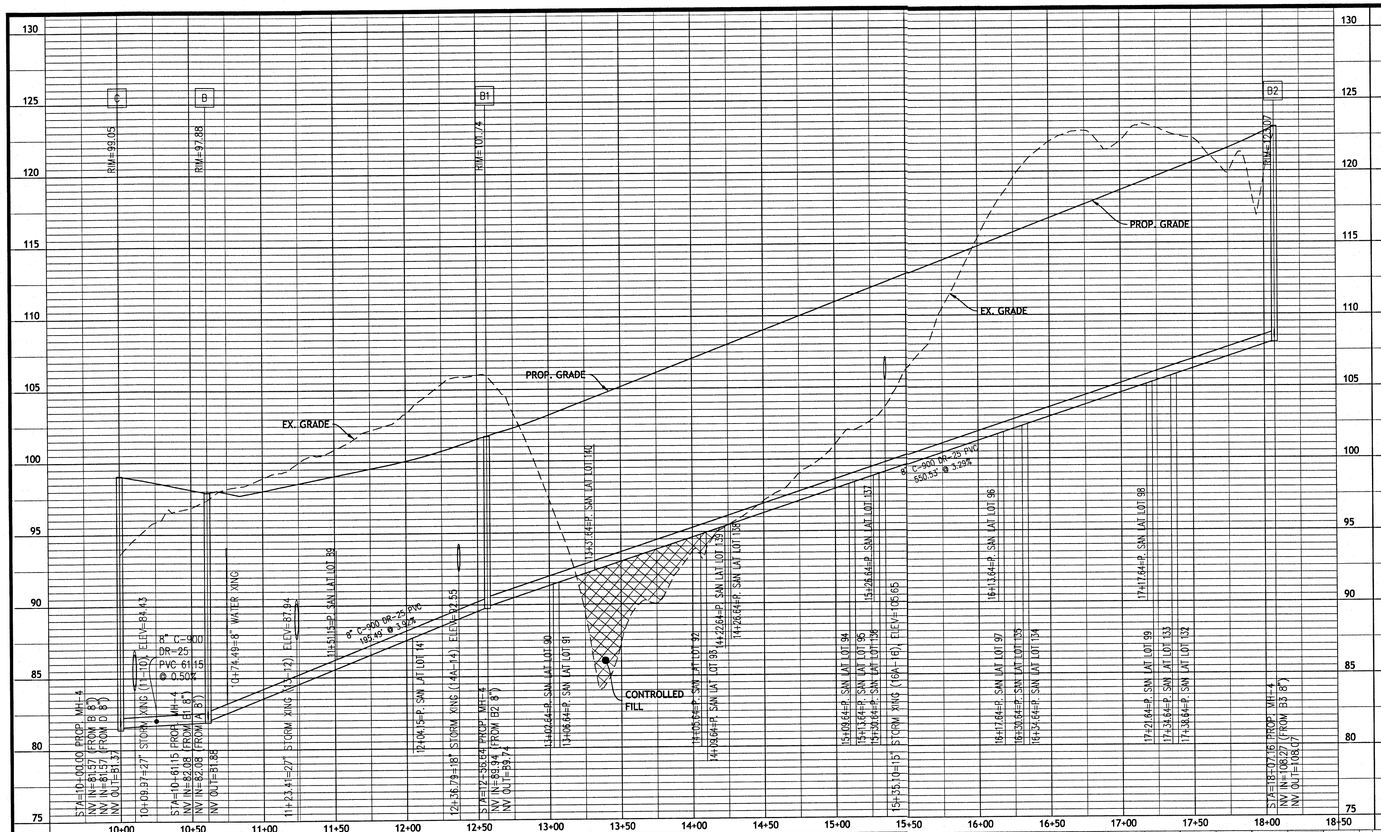
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

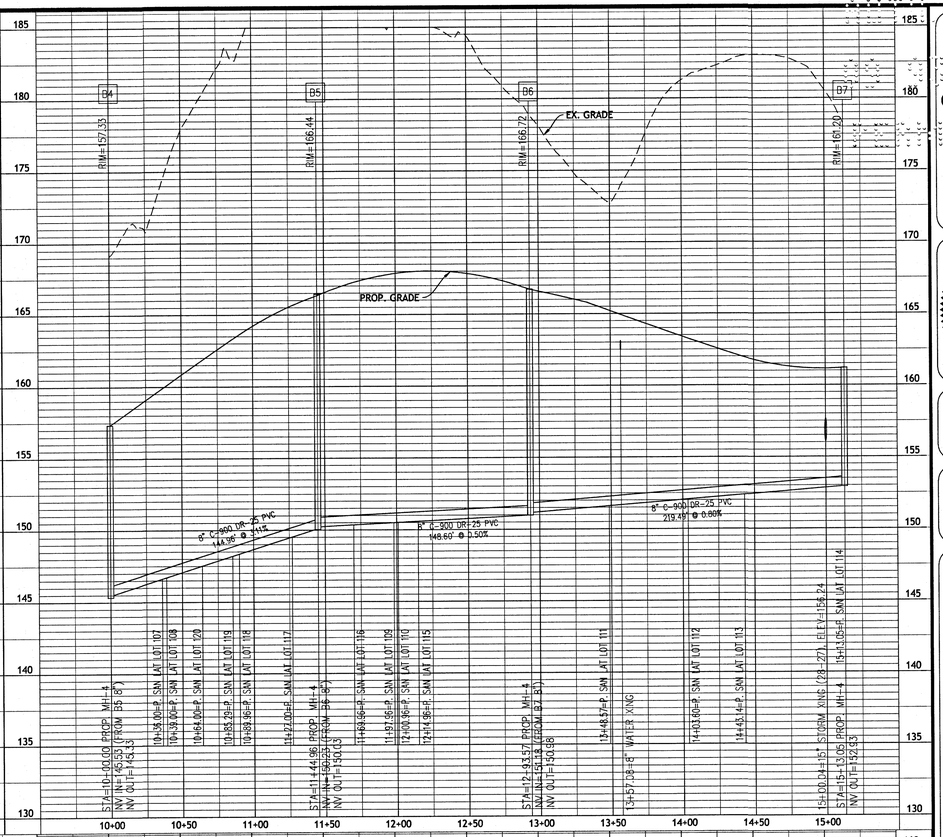
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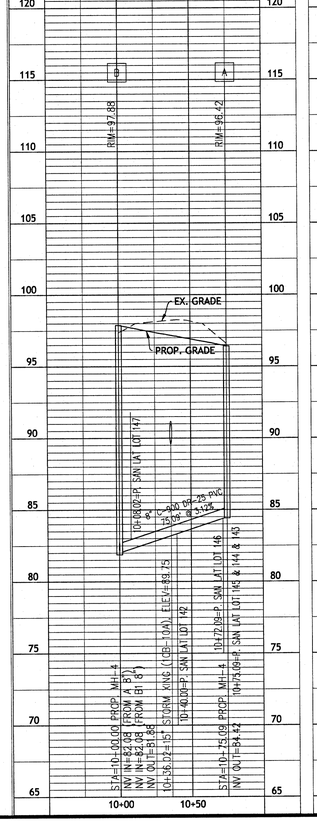
REVISIONS

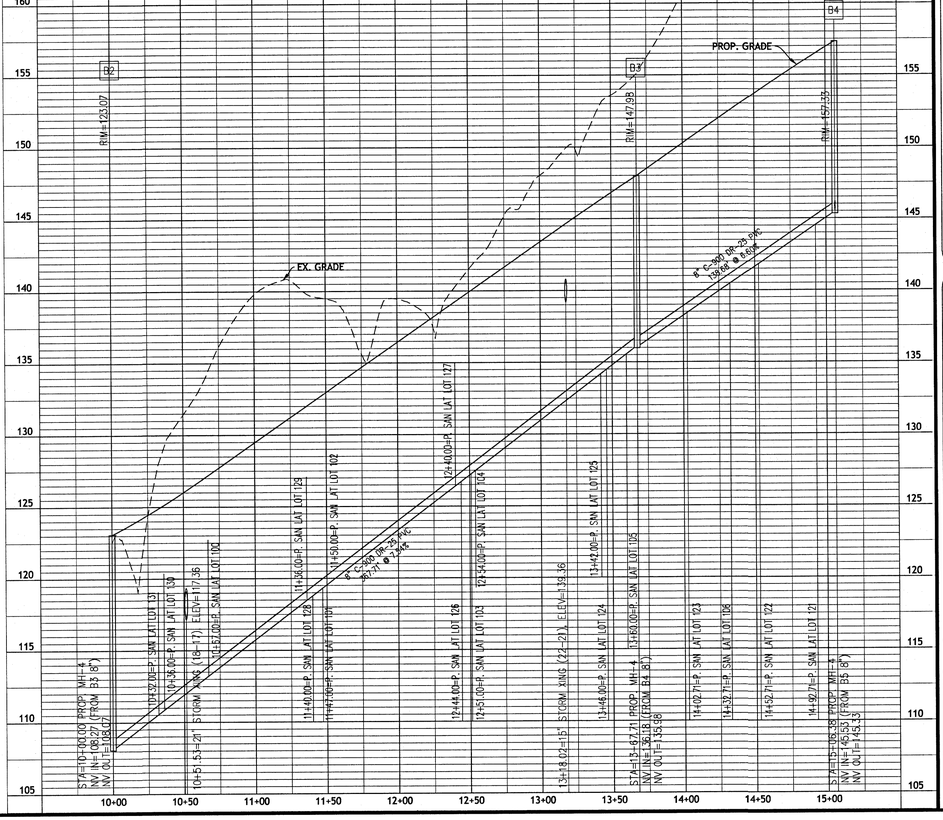
SHEET
64
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PP-SAN.dwg [64 SANITARY SEWER PROFILES] August 27, 2020 - 9:51am mabdalhamid









NOTES:

* CONTRACTORS TO INSTALL SPREAD FOOTERS AT THE BOTTOM OF MANHOLES THAT ARE ON 8' OF FILL OR MORE TO PREVENT SETTLEMENT. SPREAD FOOTERS DETAIL TO BE SUBMITTED TO PWCSA PRIOR TO CONSTRUCTION.

1- CONTROLLED FILL TO MEET COMPACTION STANDARDS TO A 95% PROCTOR DRY DENSITY.

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= N/A
SCALE: (H) 1"=50' (V) 1"=5'

PLAN DATE
08/09/18
11/09/18
03/29/19
08/24/20

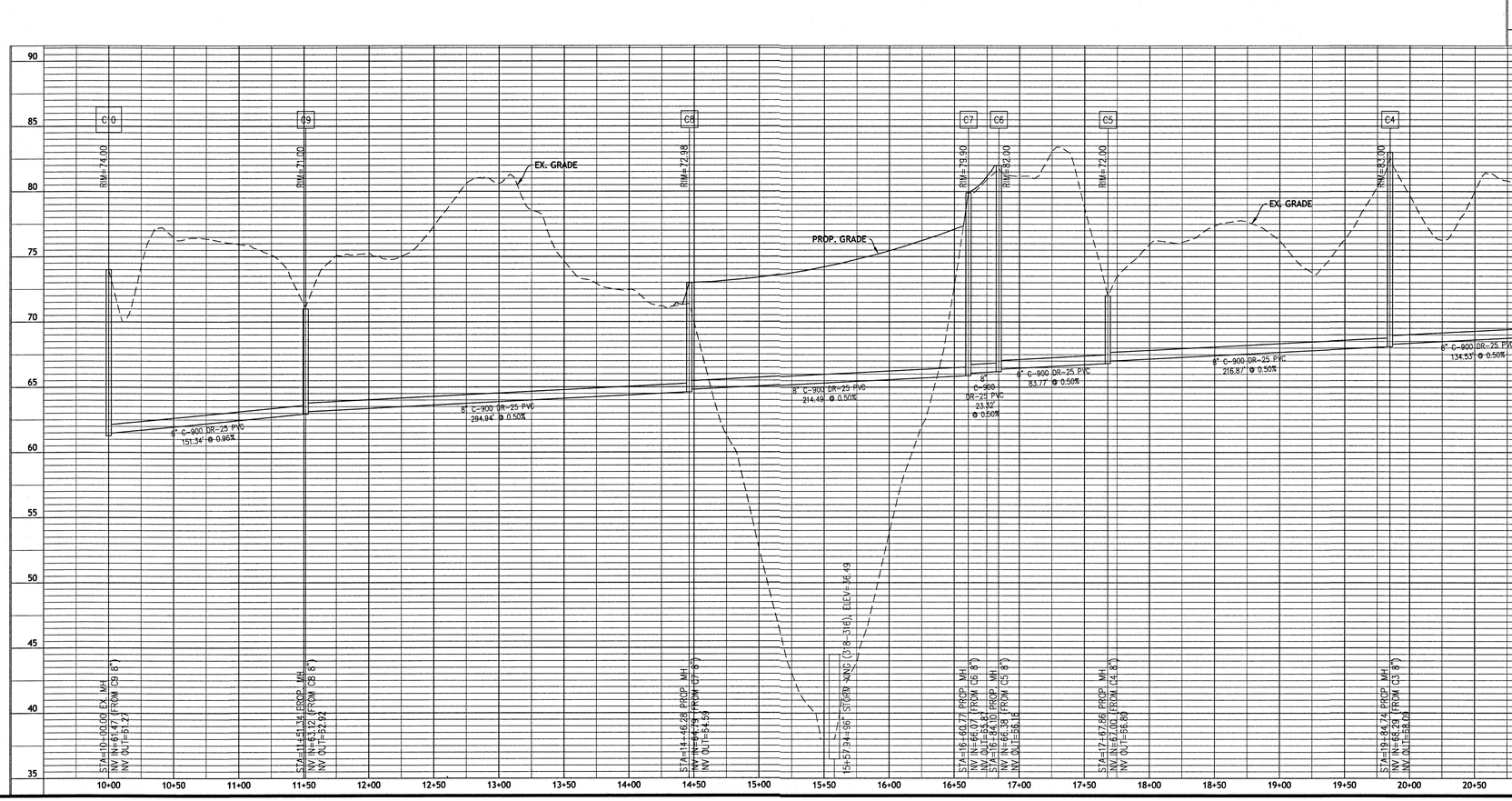
SANITARY SEWER PROFILES
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION

REVISIONS

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OF
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J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PP-SAN.dwg [65 SANITARY SEWER PROFILES] August 27, 2020 - 9:52am mabdalhamid



NOTES:

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL 2018
CONTOUR INT.= N/A
SCALE: (H) 1"=50' (V) 1"=5'

PLAN DATE
08/28/18
10/01/18
04/23/19
08/24/20

SANITARY SEWER PROFILES

LANDBAY 4 - SECTION 3
POTOMAC SHORES

POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS

No.	DATE	DESCRIPTION

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66
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PP-SAN.dwg [06 SANITARY SEWER PROFILES] August 27, 2020 - 9:52am mabdalhamid

SANITARY SEWER DESIGN COMPUTATIONS

MANHOLE		UNITS		AVG.DESIGN FLOWS	DISCHARGE	CUMULATIVE DISCHARGE	P.F.F.	RESIDENTIAL		ACTUAL	LENGTH	PIPE DIA.	SLOPE	n	FULL FLOW			ELEVATION OF INVERTS		d/D %	q/Q %	PIPE MATERIAL	PWCSA Use Only				
								PEAK FLOW	PEAK FLOW	VELOCITY					CAPACITY	CAPACITY	VEL.						Date Line	Date Line		MH	Date MH
US	DS	LOTS	TOTAL	(GPD/UNIT)	(GPD)	(GPD)		(GPD)	(cfs)	(fps)	(ft)	(in)	%		(GPD)	(cfs)	(fps)	US INV.	DS INV.				Installed	Passed Test		ID	Passed Vac. Test
A	B	6	6	350	2100	2100	4	8400	0.0130	0.58	75.09	8	3.12%	0.013	1382503	2.14	6.1	84.42	82.08	3.04%	0.61%	C-900					
B	C	0	59	350	0	20650	4	82600	0.1278	1.52	61.15	8	0.50%	0.013	553710	0.86	2.5	81.88	81.58	30.76%	14.92%	C-900					
D	C	4	91	350	1400	31850	4	127400	0.1971	4.32	152.37	8	8.15%	0.013	2235098	3.46	9.9	93.99	81.58	17.40%	5.70%	C-900					
E	D	1	87	350	350	30450	4	121800	0.1885	2.77	110.16	8	2.11%	0.013	1138006	1.76	5.0	96.52	94.19	25.29%	10.70%	C-900					
F	E	1	86	350	350	30100	4	120400	0.1863	3.18	131.82	8	3.26%	0.013	1413860	2.19	6.3	101.01	96.72	22.17%	8.52%	C-900					
G	F	0	37	350	0	12950	4	51800	0.0802	2.09	108.78	8	2.44%	0.013	1222183	1.89	5.4	103.86	101.21	14.48%	4.24%	C-900					
H	G	0	37	350	0	12950	4	51800	0.0802	1.29	105.66	8	0.50%	0.013	553710	0.86	2.5	104.59	104.06	23.36%	9.36%	C-900					
I	H	10	37	350	3500	12950	4	51800	0.0802	2.37	413.12	8	3.60%	0.013	1484936	2.30	6.6	119.65	104.79	12.98%	3.49%	C-900					
J	I	2	27	350	700	9450	4	37800	0.0585	1.16	190.62	8	0.50%	0.013	553710	0.86	2.5	120.80	119.85	19.65%	6.83%	C-900					
K	J	0	25	350	0	8750	4	35000	0.0542	1.12	190.53	8	0.50%	0.013	553710	0.86	2.5	121.95	121.00	18.64%	6.32%	C-900					
L	K	4	23	350	1400	8050	4	32200	0.0498	2.21	149.69	8	5.79%	0.013	1883430	2.91	8.3	130.81	122.15	8.55%	1.71%	C-900					
M	L	6	19	350	2100	6650	4	26600	0.0412	1.83	178.15	8	4.39%	0.013	1640703	2.54	7.3	138.83	131.01	8.11%	1.62%	C-900					
N	M	0	13	350	0	4550	4	18200	0.0282	0.87	89.37	8	0.50%	0.013	553710	0.86	2.5	139.48	139.03	12.57%	3.29%	C-900					
O	N	10	13	350	3500	4550	4	18200	0.0282	0.87	330.53	8	0.50%	0.013	553710	0.86	2.5	141.33	139.68	12.57%	3.29%	C-900					
P	O	2	3	350	700	1050	4	4200	0.0065	0.29	69.00	8	6.07%	0.013	1929266	2.99	8.6	145.72	141.53	1.09%	0.22%	C-900					
Q	P	1	1	350	350	350	4	1400	0.0022	0.10	55.75	8	0.80%	0.013	700395	1.08	3.1	146.37	145.92	1.00%	0.20%	C-900					
K1	K	2	2	350	700	700	4	2800	0.0043	0.19	54.78	8	3.08%	0.013	1374496	2.13	6.1	123.84	122.15	1.02%	0.20%	C-900					
F1	F	4	48	350	1400	16800	4	67200	0.1040	2.68	131.82	8	3.92%	0.013	1550389	2.40	6.9	106.38	101.21	14.67%	4.33%	C-900					
F2	F1	12	44	350	4200	15400	4	61600	0.0953	2.66	265.98	8	4.24%	0.013	1613190	2.50	7.2	117.87	106.58	13.64%	3.82%	C-900					
F3	F2	6	32	350	2100	11200	4	44800	0.0693	2.10	194.70	8	2.88%	0.013	1329367	2.06	5.9	123.68	118.07	12.74%	3.37%	C-900					
F4	F3	3	26	350	1050	9100	4	36400	0.0563	2.31	150.95	8	4.40%	0.013	1642384	2.54	7.3	130.52	123.88	10.43%	2.22%	C-900					
F5	F4	7	23	350	2450	8050	4	32200	0.0498	2.15	198.30	8	3.93%	0.013	1551971	2.40	6.9	138.51	130.72	10.15%	2.07%	C-900					
F6	F5	9	16	350	3150	5600	4	22400	0.0347	1.54	235.34	8	4.50%	0.013	1660947	2.57	7.4	149.30	138.71	6.74%	1.35%	C-900					
F7	F6	1	7	350	350	2450	4	9800	0.0152	0.67	80.08	8	0.50%	0.013	553710	0.86	2.5	149.90	149.50	8.85%	1.77%	C-900					
F8	F7	6	6	350	2100	2100	4	8400	0.0130	0.58	175.41	8	0.80%	0.013	700395	1.08	3.1	151.50	150.10	6.00%	1.20%	C-900					
B1	B	2	53	350	700	18550	4	74200	0.1148	2.78	195.49	8	3.92%	0.013	1549994	2.40	6.9	89.74	82.08	15.57%	4.79%	C-900					
B2	B1	19	51	350	6650	17850	4	71400	0.1105	2.60	550.53	8	3.29%	0.013	1420998	2.20	6.3	108.07	89.94	16.05%	5.02%	C-900					
B3	B2	14	32	350	4900	11200	4	44800	0.0693	2.98	367.71	8	7.54%	0.013	2149652	3.33	9.5	135.98	108.27	10.17%	2.08%	C-900					
B4	B3	4	18	350	1400	6300	4	25200	0.0390	1.73	138.68	8	6.60%	0.013	2011425	3.11	8.9	145.33	136.18	6.26%	1.25%	C-900					
B5	B4	6	14	350	2100	4900	4	19600	0.0303	1.35	144.96	8	3.11%	0.013	1380062	2.14	6.1	150.03	145.53	7.10%	1.42%	C-900					
B6	B5	4	8	350	1400	2800	4	11200	0.0173	0.76	148.60	8	0.50%	0.013	553710	0.86	2.5	150.98	150.23	10.05%	2.02%	C-900					
B7	B6	4	4	350	1400	1400	4	5600	0.0087	0.38	219.49	8	0.80%	0.013	700395	1.08	3.1	152.93	151.18	4.00%	0.80%	C-900					
C	C1	0	150	350	0	52500	4	210000	0.3249	4.75	155.87	8	6.20%	0.013	1949816	3.02	8.6	81.38	71.71	25.39%	11%	C-900					
C1	C2	0	150	350	0	52500	4	210000	0.3249	1.92	118.49	8	0.50%	0.013	553710	0.86	2.5	71.51	70.92	47.95%	38%	C-900					
C2	C3	0	150	350	0	52500	4	210000	0.3249	1.92	309.68	8	0.50%	0.013	555921	0.86	2.5	70.72	69.16	47.85%	38%	C-900					
C3	C4	0	150	350	0	52500	4	210000	0.3249	1.92	134.53	8	0.50%	0.013	553710	0.86	2.5	68.96	68.29	47.95%	38%	C-900					
C4	C5	0	150	350	0	52500	4	210000	0.3249	1.92	216.87	8	0.50%	0.013	553710	0.86	2.5	68.09	67.00	47.95%	38%	C-900					
C5	C6	0	150	350	0	52500	4	210000	0.3249	1.92	83.77	8	0.50%	0.013	553710	0.86	2.5	66.80	66.38	47.95%	38%	C-900					
C6	C7	0	150	350	0	52500	4	210000	0.3249	1.92	23.32	8	0.50%	0.013	553710	0.86	2.5	66.18	66.07	47.95%	38%	C-900					
C7	C8	0	150	350	0	52500	4	210000	0.3249	1.92	214.49	8	0.50%	0.013	553710	0.86	2.5	65.87	64.79	47.95%	38%	C-900					
C8	C9	0	150	350	0	52500	4	210000	0.3249	1.92	294.94	8	0.50%	0.013	553710	0.86	2.5	64.59	63.12	47.95%	38%	C-900					
C9	C10	0	150	350	0	52500	4	210000	0.3249	2.44	151.34	8	0.96%	0.013	766444	1.19	3.4	62.92	61.47	40.93%	27%	C-900					

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= N/A
SCALE: N/A

PLAN DATE
09/09/19
11/08/19
03/26/19
08/24/20

SANITARY COMPUTATIONS
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS
No. | DATE | DESCRIPTION

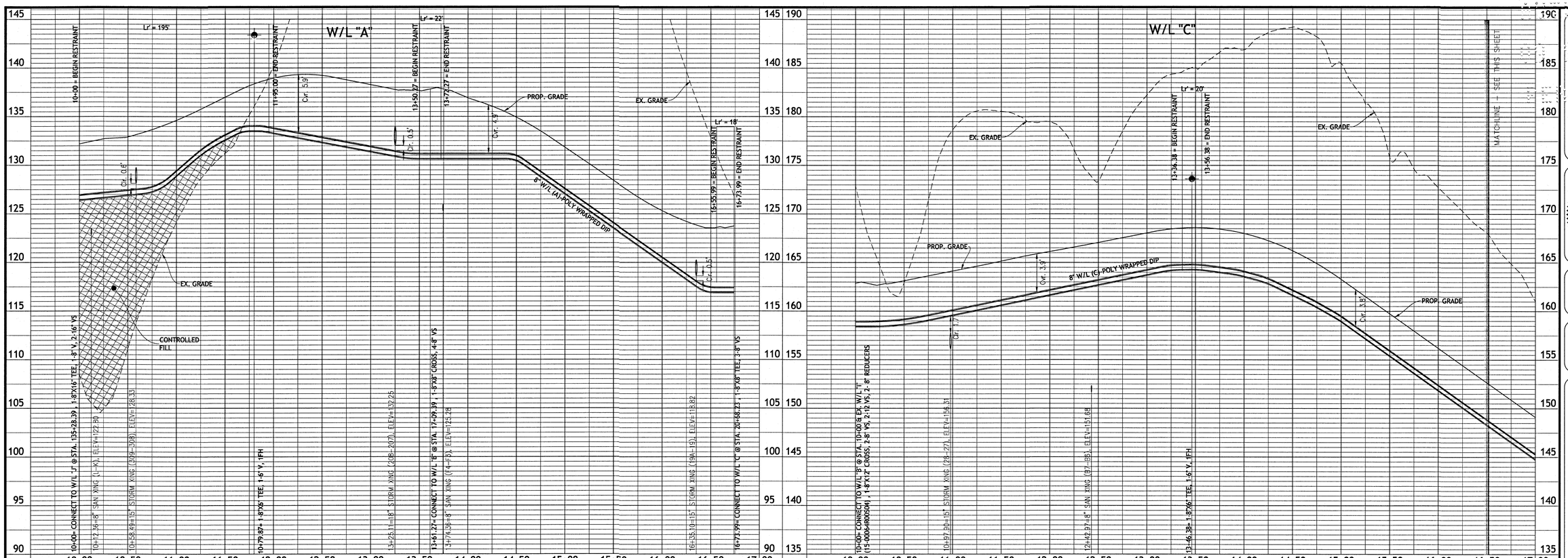
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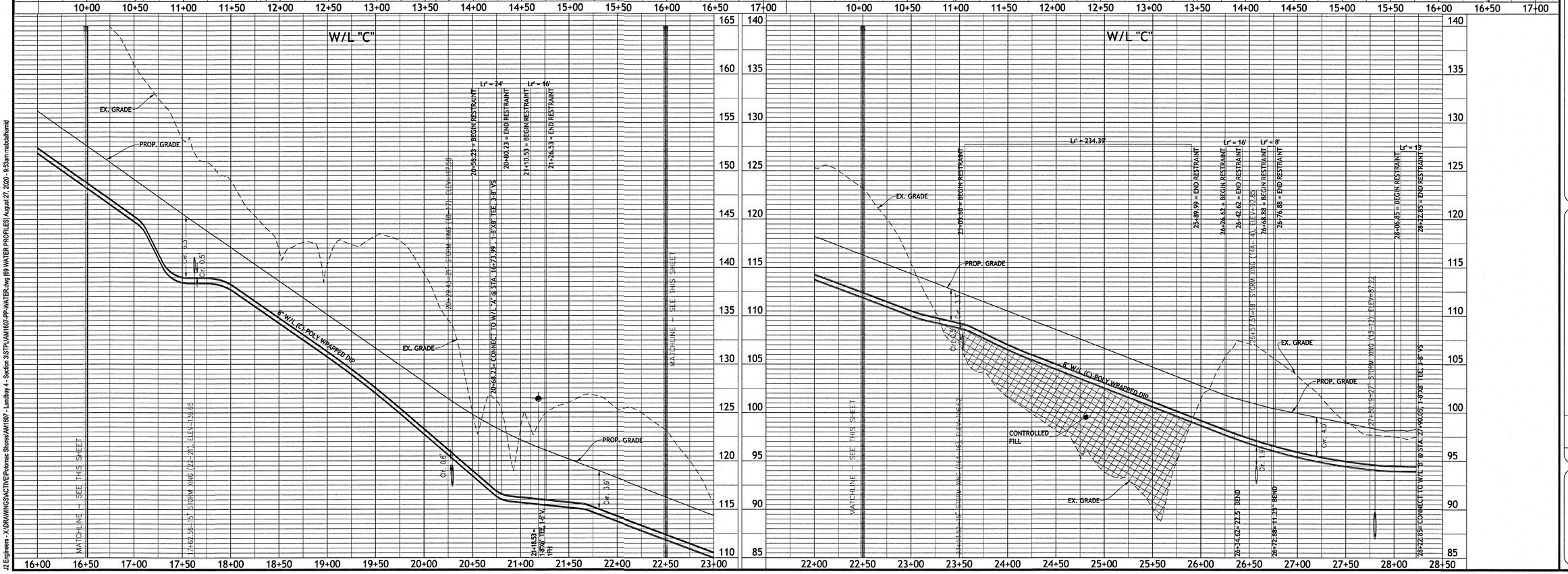
J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-PP-SAN.dwg [87 SANITARY COMPUTATIONS] August 27, 2020 - 11:29am mabdalhamid

SANITARY SEWER LATERAL COMPUTATIONS

Ejector Pump Required	Lot	Station	Lower MH	Upper MH	Slope (%)	Overall Length (FT.)	Invert @ Main	Crown @ Main	Distance to Vert. Bend	Inv. @ Bottom of Vert. Bend	Riser Height (FT.)	Inv @ Top of Vert. Bend	Inv. @ Lateral End	Lowest Flr.Elev. To Serve (Ft)	Diff. Lowest Floor to Crown @ Main	Lateral Material	PWCSA Use Only Date Installed	PWCSA Use Only Stub Installed % of Grade	Addt. length req.	Act Inv @ end	Diff ft-end of act	Lot
	1	0+54.8	@MH	K1	2.08%	43.0	123.50	124.17	33.00	124.86	4	128.94	129.07	134.72	10.55	C-900			111	131.38	3.34	1
	2	0+15.0	K	K1	2.08%	41.0	122.62	123.29	23.00	123.76	6	129.89	130.14	138.85	15.56	C-900			108	132.39	6.46	2
	3	0+64.0	K	L	2.08%	40.0	125.86	126.53	16.00	126.86	6	132.98	133.36	143.04	16.51	C-900			111	135.67	7.37	3
	4	0+68.0	K	L	2.08%	40.0	126.09	126.76	18.00	127.13	6	133.26	133.59	147.19	20.43	C-900			115	135.98	11.21	4
	5	0+49.2	L	M	2.08%	41.0	133.17	133.84	20.00	134.26	4	138.34	138.70	151.33	17.49	C-900			112	141.02	10.31	5
	6	0+53.2	L	M	2.08%	40.0	133.35	134.02	19.00	134.41	4	138.50	138.85	155.49	21.47	C-900			115	141.24	14.25	6
	7	0+87.7	N	O	9.00%	11.0	140.12	140.79	N/A	N/A	0	N/A	141.78	158.76	17.97	C-900			96	150.42	8.34	7
	8	2+38.2	N	O	9.00%	12.0	140.87	141.54	N/A	N/A	0	N/A	142.62	156.75	15.21	C-900			97	151.35	5.40	8
	9	2+70.5	N	O	2.08%	67.0	141.03	141.70	58.00	142.91	4	146.99	147.10	153.03	11.33	C-900			105	149.28	3.75	9
	10	3+00.5	N	O	2.08%	76.0	141.18	141.85	N/A	N/A	0	N/A	143.43	148.30	6.45	C-900			137	146.28	2.02	10
	11	0+59.0	O	P	2.08%	12.0	145.11	145.78	N/A	N/A	0	N/A	146.03	150.49	4.71	C-900			96	148.03	2.46	11
	12	0+63.0	O	P	2.08%	11.0	145.36	146.03	N/A	N/A	0	N/A	146.26	151.41	5.38	C-900			97	148.27	3.14	12
	13	0+55.8	@MH	Q	2.08%	11.0	146.03	146.70	N/A	N/A	0	N/A	146.93	152.87	6.17	C-900			89	148.78	4.09	13
	14	2+35.2	N	O	2.08%	14.0	140.86	141.53	3.00	141.59	6	147.71	147.82	157.77	16.24	C-900			84	149.57	8.20	14
	15	2+32.2	N	O	2.08%	14.0	140.84	141.51	3.00	141.57	6	147.70	147.80	158.64	17.13	C-900			84	149.55	9.09	15
	16	1+45.5	N	O	2.08%	15.0	140.41	141.08	3.00	141.14	7	148.29	148.39	159.54	18.46	C-900			85	150.16	9.38	16
	17	1+41.5	N	O	2.08%	15.0	140.39	141.06	3.00	141.12	7	148.27	148.37	160.04	18.98	C-900			84	150.12	9.92	17
	18	0+55.5	N	O	2.08%	15.0	139.96	140.63	3.00	140.69	7	147.84	147.94	159.73	19.10	C-900			85	149.71	10.02	18
	19	0+51.5	N	O	2.08%	15.0	139.94	140.61	3.00	140.67	7	147.82	147.92	158.90	18.29	C-900			87	149.73	9.17	19
	20	1+75.4	@MH	F8	2.08%	10.0	151.17	151.84	N/A	N/A	0	N/A	152.04	159.69	7.85	C-900			98	154.07	6.07	20
	21	1+32.0	F7	F8	2.08%	10.0	151.15	151.82	N/A	N/A	0	N/A	152.03	160.14	8.32	C-900			97	154.03	6.56	21
	22	1+29.0	F7	F8	2.08%	10.0	151.13	151.80	N/A	N/A	0	N/A	152.01	160.59	8.79	C-900			97	154.03	6.56	22
	23	0+42.0	F7	F8	2.08%	12.0	150.43	151.10	3.00	151.17	4	155.25	155.35	161.04	9.94	C-900			98	157.39	3.65	23
	24	0+39.0	F7	F8	2.08%	12.0	150.41	151.08	3.00	151.14	4	155.23	155.33	161.46	10.38	C-900			98	157.37	4.09	24
	25	0+50.0	F6	F7	2.08%	16.0	149.75	150.42	6.00	150.54	5	155.65	155.75	161.74	11.32	C-900			96	157.75	3.99	25
	26	1+75.4	@MH	F8	2.08%	20.0	151.17	151.84	N/A	N/A	0	N/A	152.25	157.43	5.59	C-900			69	153.69	3.74	26
	27	1+34.2	L	M	2.08%	67.0	136.90	137.57	51.00	138.64	11	149.86	149.97	155.80	18.23	C-900			109	152.24	3.56	27
	28	1+31.2	L	M	2.08%	67.0	136.77	137.44	54.00	138.57	8	146.73	146.84	153.00	15.56	C-900			106	149.04	3.96	28
	29	0+30.3	L	M	2.08%	64.0	132.34	133.01	49.00	134.03	10	144.24	144.35	150.40	17.39	C-900			110	146.63	3.77	29
	30	0+27.3	L	M	2.08%	63.0	132.21	132.88	50.00	133.92	8	142.09	142.19	147.70	14.82	C-900			106	144.40	3.30	30
	31	0+96.0	K	L	2.08%	65.0	127.71	128.38	50.00	129.42	10	139.63	139.73	145.00	16.62	C-900			107	141.96	3.04	31
	32	0+71.0	K	L	2.08%	65.0	126.26	126.93	52.00	128.01	8	136.18	136.28	142.30	15.37	C-900			102	138.40	3.90	32
	33	1+11.0	I	J	9.00%	12.0	120.40	121.07	3.00	121.34	4	125.70	126.15	138.55	17.48	C-900			100	135.15	3.40	33
	34	1+07.0	I	J	9.00%	8.0	120.38	121.05	N/A	N/A	0	N/A	121.77	137.30	16.25	C-900			100	130.77	6.53	34
	35	4+04.0	H	I	2.08%	18.0	119.32	119.99	5.00	120.09	8	128.26	128.36	134.40	14.41	C-900			100	128.34	3.08	35
	36	4+01.0	H	I	2.08%	18.0	119.21	119.88	7.00	120.03	6	126.15	126.26	131.42	11.54	C-900			100	124.22	4.28	36
	37	2+89.0	H	I	2.08%	14.0	115.18	115.85	3.00	115.92	6	122.04	122.14	128.50	12.65	C-900			100	124.22	4.28	37
	38	2+36.0	H	I	2.08%	14.0	113.28	113.95	3.00	114.01	6	120.13	120.24	125.72	11.77	C-900			99	122.30	3.42	38
	39	2+33.0	H	I	2.08%	15.0	113.17	113.84	7.00	113.99	3	117.05	117.15	123.10	9.26	C-900			99	119.21	3.89	39
	40	1+30.0	H	I	2.08%	16.0	109.47	110.14	6.00	110.26	5	115.37	115.47	120.42	10.28	C-900			99	117.53	2.89	40
	41	0+76.0	H	I	2.08%	18.0	107.53	108.20	9.00	108.38	4	112.47	112.57	117.77	9.57	C-900			99	114.63	3.14	41
	42	0+72.0	H	I	2.08%	18.0	107.38	108.05	N/A	N/A	0	N/A	108.43	115.04	6.99	C-900			99	110.49	4.55	42
	43	0+10.0	H	I	2.08%	20.0	105.15	105.82	N/A	N/A	0	N/A	106.24	112.25	6.43	C-900			97	108.26	3.99	43
	44	0+13.0	H	I	2.08%	12.0	105.26	105.93	3.00	105.99	4	110.08	110.18	115.90	9.97	C-900			102	112.30	3.60	44
	45	0+40.0	F	F1	2.08%	36.0	102.78	103.45	22.00	103.91	9	113.10	113.20	118.10	14.65	C-900			122	115.74	2.36	45
	46	1+09.0	F	F1	2.08%	35.0	105.49	106.16	23.00	106.64	7	113.78	113.88	120.20	14.04	C-900			106	116.09	4.11	46
	47	1+13.0	F	F1	2.08%	34.0	105.64	106.31	22.00	106.77	7	113.92	114.02	122.40	16.09	C-900			108	116.27	6.13	47
	48	0+55.0	F1	F2	2.08%	29.0	108.92	109.59	15.00	109.90	9	119.08	119.19	124.50	14.91	C-900			104	121.35	3.15	48
	49	0+59.0	F1	F2	2.08%	29.0	109.09	109.76	15.00	110.07	9	119.25	119.36	126.70	16.94	C-900			107	121.58	5.12	49
	50	1+38.0	F1	F2	2.08%	27.0	112.44	113.11	14.00	113.40	8	121.57	121.67	128.17	15.06	C-900			102	123.79	4.38	50
	51	1+49.0	F1	F2	2.08%	27.0	112.91	113.58	14.00	113.87	8	122.03	122.14	130.30	16.72	C-900			108	124.38	5.92	51
	52	2+40.0	F1	F2	2.08%	32.0	116.77	117.44	19.00	117.83	8	126.00	126.10	132.35	14.91	C-900			104	128.27	4.08	52
	53	2+50.0	F1	F2	2.08%	33.0	117.19	117.86	20.00	118.28	8	126.44	126.55	134.50	16.64	C-900			106	128.75	5.75	53
	54	0+76.0	F2	F3	2.08%	30.0	120.26	120.93	17.00	121.28	8	129.45	129.55	136.65	15.72	C-900			105	131.74	4.91	54
	55	0+80.0	F2	F3	2.08%	30.0	120.38	121.05	17.00	121.40	8	129.57	129.67	138.70	17.65	C-900			108	131.92	6.78	55
	56	1+63.0	F2	F3	2.08%	28.0	122.77	123.44	12.00	123.69	11	134.92	135.02	140.32	16.88	C-900			105	137.20	3.12	56
	57	0+83.7	F3	F4	2.08%	31.0	127.56	128.23	21.00	128.67	5	133.77	133.88	143.00	14.77	C-900			103	136.02	6.98	57
	58	1+28.7	F3	F4	2.08%	34.0	129.54	130.21	25.00	130.73	4	134.82	134.92	144.66	14.45	C-900			104	137.08	7.58	58
	59	0+27.0	F4	F5	2.08%	34.0	131.78	132.45	21.00	132.89	8	141.05	141.16	146.61	14.16	C-900			106	143.36	3.25	59
	60	1+07.0	F4	F5	2.08%	29.0	134.92	135.59	20.00	136.01	4	140.09	140.20	148.60	13.01	C-900			103	142.34	6.26	60
	61	1+60.4	F4	F5	2.08%	29.0	137.02	137.69	20.00	138.11	4	142.19	142.29	150.60	12.91	C-900			104	144.46	6.14	61
	62	0+09.0	F5	F6	2.08%	29.0	139.12	139.79	21.00	140.22	3	143.28	143.39	152.50	12.71	C-900			103	145.53	6.97	62
	63	0+21.0	F5	F6	2.08%	29.0	139.66	140.33	16.00	140.66	8	148.82	148.93	154.50	14.17	C-900			108	151.17	3.33	63
	64	1+11.0	F5	F6	2.08%	28.0	143.70	144.37	17.00	144.73	6	150.85	150.96	156.50	12.13	C-900			104	153.12	3.38	64
	65	1+21.0	F5	F6	2.08%	28.0	144.15	144.82	16.00	145.16	7	152.30	152.41	158.22	13.40	C-900			107	154.63	3.59	65
	66	2+11.0	F5	F6	2.08%	32.0	148.20	148.87	23.00	149.35	4	153.43	153.54	159.46	10.59	C-900			110	155.83	3.63	66
	67	1+18.0	F5	F6	2.08%	18.0	144.02	144.69	N/A	N/A	0	N/A	145.06	150.69	6.00	C-900			97	147.08	3.61	67
	68	1+14.0	F5	F6	2.08%	18.0	143.84	144.51	N/A	N/A	0	N/A	144.88	148.69	4.18	C-900			96	146.88	1.81	68
	69	0+16.0	F5	F6	2.08%	18.0	139.43	140.10	N/A	N/A	0	N/A	140.47	146.67	6.57	C-900			96	142.47	4.20	69
	70	0+12.0	F5	F6	2.08%	17.0	139.25	139.92	N/A	N/A	0	N/A	140.27	144.70	4.78	C-900			96	142.27	2.43	70
	71	1+14.0	F4	F5	2.08%	18.0	135.20	135.87	N/A	N/A	0	N/A	136.24	142.69	6.82	C-900			96	138.24	4.45	71
	72	1+10.0	F4	F5	2.08%	18.0	135.04	135.71	N/A	N/A	0	N/A	136.09	140.67	4.96	C-900			96	138.08	2.59	72
	73	0+12.0	F4	F5	2.08%	12.0	131.19	131.86	N/A	N/A	0	N/A	132.11	138.69	6.83	C-900			96	134.11	4.58	73
	74	0+09.0	F4	F5	2.08%	11.0	131.07	131.74	N/A	N/A	0	N/A	131.97	136.67	4.93	C-900			96	133.97	2.70	74
	75	0+80.7	F3	F4	2.08%	16.0	127.43	128.10	N/A	N/A	0	N/A	128.44	134.63	6.53	C-900			89	130.29	4.34	75
	76	1+60.0	F2	F3	2.08%	18.0	122.68	123.35	N/A	N/A	0	N/A	123.73	128.70	5.35	C-900			89	125.58	3.12	76
	77	0+90.0	F2	F3	2.08%	18.0	120.66	121.33	N/A	N/A	0	N/A	121.71	127.71	6.38	C-900			92	123.62	4.09	77
	78	0+40.0	F2	F3	2.08%	16.0	119.22	119.89	N/A	N/A	0	N/A	120.23	125.67	5.78	C-900			92	122.14	3.53	78
	79	2+47.0	F1	F2	2.08%	14.0	117.06	117.73	N/A	N/A	0	N/A	118.03	123.68	5.95	C-900			96	120.02	3.66	79
	80	2+43.0	F1	F2	2.08%	15.0	116.89	117.56	N/A	N/A	0	N/A	117.88	121.68	4.12	C-900			96	119.87	1.81	80
	81	1+45.0	F1	F2	2.08%	19.0	112.74	113.41	N/A	N/A	0	N/A	113.80	119.68	6.27	C-900			96	115.80	3.88	81
	82	1+41.0	F1	F2	2.08%	19.0	112.57	113.24	N/A	N/A	0	N/A	113.63	117.65	4.41	C-900			96	115.63	2.02	82
	83	0+41.0	F1	F2	2.08%	17.0	108.32	108.99	N/A	N/A	0	N/A	109.35	115.59	6.60	C-900			96	111.34	4.25	83
	84	0+38.0	F1	F2	2.08%	17.0	108.19	108.86	N/A	N/A	0	N/A	109.22	113.30	4.44	C-900			97	111.24	2.06	84
	85	0+49.0	F	F1	2.08%	10.0	103.13	103.80	N/A	N/A	0	N/A	104.01	109.82	6.02	C-900			90	105.88	3.94	85
	86	0+60.0	E	F	2.08%	9.0	98.67	99.34	N/A	N/A	0	N/A	99.53	105.81	6.47	C-900			97	101.55	4.26	86
	87	0+50.0	D	E	2.08%	11.0	95.25	95.92	N/A	N/A	0	N/A	96.14	101.36	5.44	C-900			104	98.31	3.05	87
	88	1+05.4	C	D	2.08%	11.0	90.17	90.84	N/A	N/A	0	N/A	91.06	97.24	6.40	C-900			102	93.19	4.05	88
	89	0+90.0	B	B1	2.08%	33.0	85.61	86.28	23.00	86.76	5	91.86	91.96	97.41	11.13	C-900			77	93.57	3.84	89
	90	0+46.0	B1	B2	2.08%	30.0	91.46	92.13	N/A	N/A	0	N/A	92.75	99.13	7.00	C-900			97	94.77	4.36	90
	91	0+50.0	B1	B2	2.08%	30.0	91.59	92.26	22.00	92.72	3	95.78	95.88	100.95	8.69	C-900			96	97.88	3.07	91
	92	1+49.0	B1	B2	2.08%	30.0	94.85	95.52	N/A	N/A	0	N/A	96.14	102.96	7.44	C-900			96	98.14	4.82	92
	93	1+53.0	B1	B2	2.08%	30.0	94.98	95.65	22.00	96.11	3	99.17	99.27	104.97	9.32	C-900			96	101.27	3.70	93
	94	2+53.0	B1	B2	2.08%	30.0	98.27	98.94	N/A	N/A	0	N/A	99.57	106.98	8.04	C-900			96	101.56	5.42	94
	95	2+57.0	B1	B2	2.08%	30.0	98.40	99.07	21.00	99.51	4	103.59	103.70	108.99	9.92	C-900			96	105.70	3.29	95
	96	3+57.0	B1	B2	2.08%	30.0	101.70	102.37	22.00	102.83	3	105.89	105.99	111.00	8.63	C-900			96	107.99	3.01	96
	97	3+61.0	B1	B2	2.08%	30.0	101.83	102.50	21.00	102.94	4	107.02	107.12	113.01	10.51	C-900			96	109.12	3.89	97
	98	4+61.0	B1	B2	2.08%	30.0	105.12	105.79	22.00	106.25	3	109.31	109.42	115.02	9.23	C-900			96	111.41	3.61	98
	99	4+65.0	B1	B2	2.08%	30.0	105.25	105.92	20.00	106.34	5	111.44	111.55	117.06	11.14	C-900			96	113.54	3.52	99
	100	0+67.0	B2	B3	2.08%	30.0	113.32	113.99	22.00	114.45	3	117.51	117.61	123.28	9.29	C-900			89	119.46	3.82	100
	101	1+47.0	B2	B3	2.08%	30.0	119.35	120.02	N/A	N/A	0	N/A	120.64	126.04	6.02	C-900			96	122.64	3.40	101
	102	1+50.0	B2	B3	2.08%	30.0	119.57	120.24	22.00	120.70	3	123.76	123.87	129.66	9.42	C-900			96	125.87	3.79	102
	103	2+51.0	B2	B3	2.08%	30.0	127.19	127.86	N/A	N/A	0	N/A	128.48	133.28	5.42	C-900			96	130.48	2.80	103
	104	2+54.0	B2	B3	2.08%	30.0	127.41	128.08	22.00	128.54	3	131.60	131.71	136.90	8.82	C-900			96	133.70	3.20	104
	105	3+60.0	B2	B3	2.08%	32.0	135.40	136.07	N/A	N/A	0	N/A	136.74	140.93	4.86	C-900			96	138.73	2.20	105

Ejector Pump Required	Lot	Station	Lower MH	Upper MH	Slope (%)	Overall Length (FT.)	Invert @ Main	Crown @ Main	Distance to Vert. Bend	Inv. @ Bottom of Vert. Bend	Riser Height (FT.)	Inv @ Top of Vert. Bend	Inv. @ Lateral End	Lowest Flr.Elev. To Serve (Ft)	Diff. Lowest Floor to Crown @ Main	Lateral Material	PWCSA Use Only Date Installed	PWCSA Use Only Stub Installed % of Grade	Addt. length req.	Act Inv @ end	Diff ft-end of act	Lot
	106	0+65.0	B3	B4	2.08%	27.0	140.47	141.14	N/A	N/A	0	N/A	141.70	146.43	5.29	C-900			93	143.64	2.79	106
	107	0+36.0	B4	B5	2.08%	30.0	146.65	147.32	N/A	N/A	0	N/A	147.94	152.01	4.69	C-900			101	150.04	1.97	107
	108	0+39.0	B4	B5	2.08%	30.0	146.74	147.41	21.00	147.85	4	151.93	152.04	157.28	9.87	C-900			101	154.14	3.14	108
	109	0+53.0	B5	B6	2.08%	27.0	150.50	151.17	18.00	151.54	4	155.63	155.73	161.05	9.88	C-900			101	157.83	3.22	109
	110	0+56.0	B5	B6	2.08%	27.0	150.51	151.18	18.00	151.56	4	155.64	155.75	161.74	10.56	C-900			101	157.85	3.89	110
	111	0+55.0	B6	B7	2.08%	20.0	151.62	152.29	N/A	N/A	0	N/A	152.70	160.21	7.92	C-900			94	154.66	5.55	111
	112	1+10.0	B6	B7	2.08%	11.0	152.06	152.73	N/A	N/A	0	N/A	152.96	157.65	4.92	C-900			88	154.79	2.86	112
	113	1+49.6	B6	B7	2.08%	11.0	152.37	153.04	N/A	N/A	0	N/A	153.27	157.81	4.77	C-900			92	155.19	2.62	113
	114	2+19.5	@MH	B7	2.08%	13.0	152.60	153.27	N/A	N/A	0	N/A	153.54	157.65	4.38	C-900			91	155.43	2.22	114
	115	0+70.0	B5	B6	2.08%	19.0	150.58	151.25	9.00	151.44	5	156.55	156.65	162.08	10.83	C-900			88	158.48	3.60	115
	116	0+25.0	B5	B6	2.08%	17.0	150.36	151.03	7.00	151.17	5	156.28	156.38	161.60	10.57	C-900			88	158.21	3.39	116
	117	1+27.0	B4	B5	2.08%	16.0	149.48	150.15	7.00	150.29	4	154.37	154.48	159.89	9.74	C-900			88	156.31	3.58	117
	118	0+90.0	B4	B5	2.08%	139.0	148.33	149.00	N/A	N/A	0	N/A	151.89	157.09	8.09	C-900			97	153.90	3.19	118
	119	0+85.3	B4	B5	2.08%	139.0	148.18	148.85	N/A	N/A	0	N/A	151.74	156.09	7.24	C-900			104	153.90	2.19	119
	120	0+64.0	B4	B5	2.08%	19.0	147.52	148.19	N/A	N/A	0	N/A	148.58	155.42	7.23	C-900			93	150.52	4.90	120
	121	1+25.0	B3	B4	2.08%	14.0	144.43	145.10	N/A	N/A	0	N/A	145.39	152.21	7.11	C-900			94	147.35	4.86	121
	122	0+85.0	B3	B4	2.08%	18.0	141.79	142.46	N/A	N/A	0	N/A	142.83	149.01	6.55	C-900			90	144.71	4.30	122
	123	0+35.0	B3	B4	2.08%	18.0	138.49	139.16	N/A	N/A	0	N/A	139.53	145.80	6.64	C-900			91	141.43	4.37	123
	124	3+46.0	B2	B3	2.08%	16.0	134.35	135.02	N/A	N/A	0	N/A	135.35	142.61	7.59	C-900			96	137.34	5.27	124
	125	3+42.0	B2	B3	2.08%	16.0	134.04	134.71	N/A	N/A	0	N/A	135.05	139.36	4.65	C-900			96	137.04	2.32	125
	126	2+44.0	B2	B3	2.08%	17.0	126.66	127.33	9.00	127.52	3	130.58	130.68	135.79	8.46	C-900			96	132.68	3.11	126
	127	2+40.0	B2	B3	2.08%	17.0	126.36	127.03	N/A	N/A	0	N/A	127.38	132.31	5.28	C-900			96	129.38	2.93	127
	128	1+40.0	B2	B3	2.08%	17.0	118.82	119.49	9.00	119.68	3	122.74	122.84	128.69	9.20	C-900			96	124.84	3.85	128
	129	1+36.0	B2	B3	2.08%	17.0	118.52	119.19	N/A	N/A	0	N/A	119.54	125.08	5.89	C-900			96	121.54	3.54	129
	130	0+36.0	B2	B3	2.08%	17.0	110.98	111.65	N/A	N/A	0	N/A	112.01	121.46	9.81	C-900			96	114.00	7.46	130
	131	0+32.0	B2	B3	2.08%	17.0	110.68	111.35	N/A	N/A	0	N/A	111.71	118.08	6.73	C-900			96	113.70	4.38	131
	132	4+82.0	B1	B2	2.08%	17.0	105.81	106.48	N/A	N/A	0	N/A	106.84	115.38	8.90	C-900			96	108.83	6.55	132
	133	4+78.0	B1	B2	2.08%	17.0	105.68	106.35	N/A	N/A	0	N/A	106.71	113.35	7.00	C-900			96	108.70	4.65	133
	134	3+78.0	B1	B2	2.08%	17.0	102.39	103.06	N/A	N/A	0	N/A	103.41	111.34	8.28	C-900			96	105.41	5.93	134
	135	3+74.0	B1	B2	2.08%	17.0	102.26	102.93	N/A	N/A	0	N/A	103.28	109.33	6.40	C-900			96	105.28	4.05	135
	136	2+74.0	B1	B2	2.08%	17.0	98.96	99.63	N/A	N/A	0	N/A	99.99	107.32	7.69	C-900			96	101.98	5.34	136
	137	2+70.0	B1	B2	2.08%	17.0	98.83	99.50	N/A	N/A	0	N/A	99.86	105.31	5.81	C-900			96	101.85	3.46	137
	138	1+70.0	B1	B2	2.08%	17.0	95.54	96.21	N/A	N/A	0	N/A	96.56	103.30	7.09	C-900			96	98.56	4.74	138
	139	1+66.0	B1	B2	2.08%	17.0	95.41	96.08	N/A	N/A	0	N/A	96.43	101.29	5.21	C-900			96	98.43	2.86	139
	140	0+75.0	B1	B2	2.08%	17.0	92.41	93.08	N/A	N/A	0	N/A	93.44	99.28	6.20	C-900			92	95.





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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= N/A
SCALE: V: 1"=5'; H: 1"=50'

PLAN DATE
09/28/18
11/09/18
02/25/19
08/24/20

WATER PROFILES

LANDBAY 4 - SECTION 3
POTOMAC SHORES

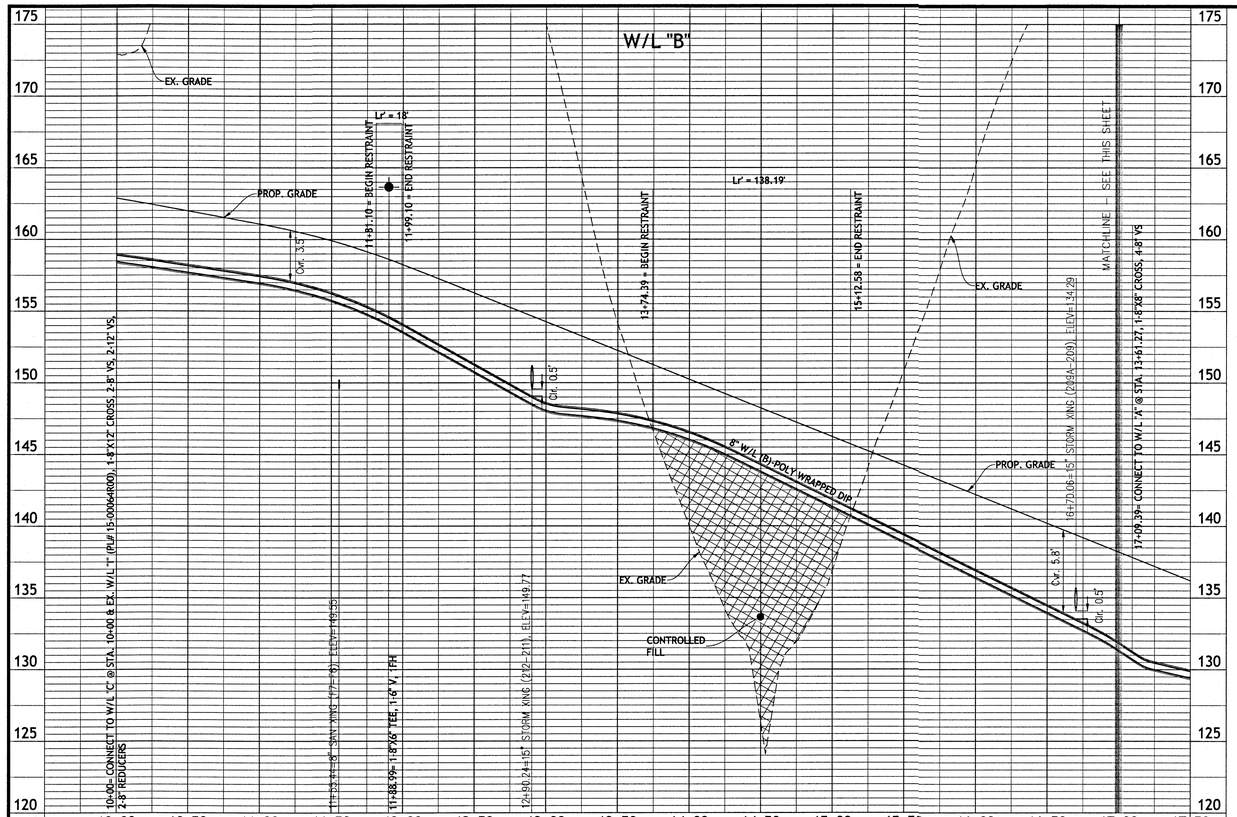
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

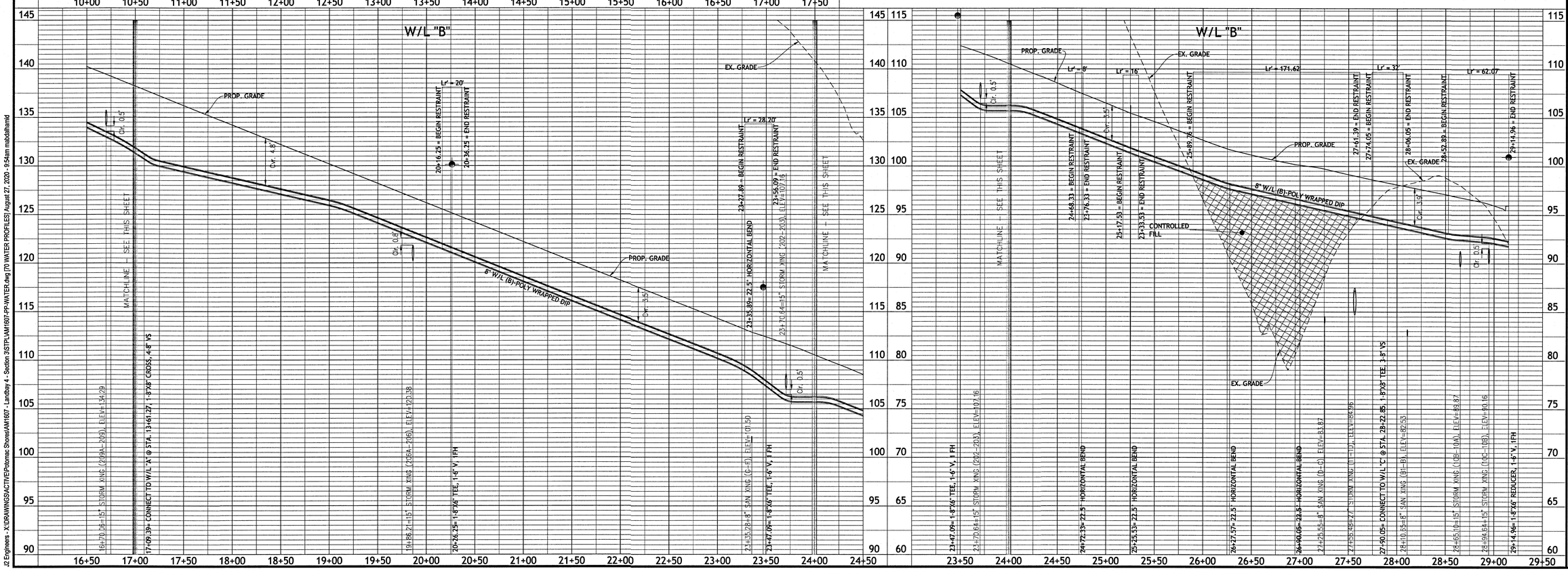
REVISIONS

No.	DATE	DESCRIPTION

SHEET
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106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STP\AM1607-PP-WATER.dwg (B9 WATER PROFILES) August 27, 2020 - 9:53am mabdalhamid





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08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= N/A
SCALE: V: 1"=5'; H: 1"=50'

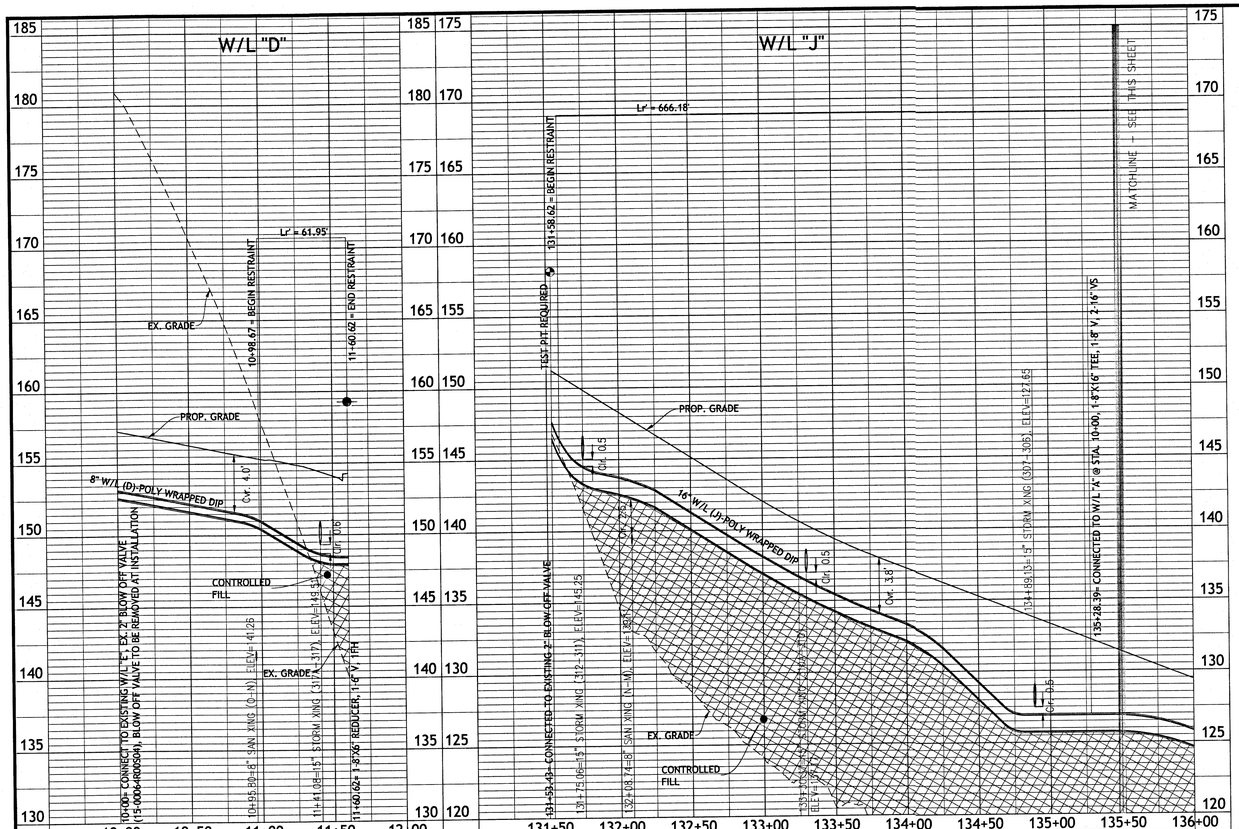
PLAN DATE
09/09/19
11/08/19
02/26/19
08/24/20

WATER PROFILES
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
		REVISIONS

SHEET
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OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLI\AM1607-PP-WATER.dwg [70 WATER PROFILES] August 27, 2020 - 9:54am mabdalhamid



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Lic. No. 045207
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PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL 2018
CONTOUR INT.= N/A
SCALE: V: 1"=5', H: 1"=50'

PLAN DATE
08/28/18
10/22/18
08/23/19
08/24/20

WATER PROFILES

LANDBAY 4 - SECTION 3
POTOMAC SHORES

POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
		REVISIONS

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OF
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J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\SITP\LAM1607-FPP-WATER.dwg [71 WATER PROFILES] August 27, 2020 - 9:55am maboldhamid

PRINCE WILLIAM COUNTY
Department of Development Services - Land Development Division
UNIT PRICE LIST
(Performance Bonds, Landscape Escrows, Siltation & Erosion Control Escrows, and Floodplain Item Escrows)

Effective: March 15, 2017

Project Name: Potomac Shores - Landbay 4 Section 3 Revision 1

PWC File #: SDR2021-00035 **Date Prepared:** 5/11/2021

NOTE: This form is to be used to estimate Performance Bond, Landscape Escrow, Siltation Erosion Escrow and Floodplain Items Escrow prices posted with Prince William County. These prices do not include items that are to be bonded separately with the Virginia Department of Transportation.

1. MOBILIZATION/DEMOBILIZATION OF CONSTRUCTION EQUIPMENT

Quantity	Item	Price	Cost
1	Mobilization/Demobilization	@ Lump Sum $15,000 min.	$ 15,000.00

2. STORM DRAINAGE

A. Structures

Quantity	Item	Price	Cost
	DI-1	@ $3,970 EA	$ -
63	DI-3	@ $4,500 EA	$ 283,500.00
	DI-4	@ $5,500 EA	$ -
3	MH-1	@ $3,000 EA	$ 9,000.00
	MH-2	@ $3,500 EA	$ -
	JB-1	@ $6,000 EA	$ -
11	DI-7	@ $4,000 EA	$ 44,000.00
	DI-12	@ $4,000 EA	$ -
		Subtotal for Structures:	**$ 336,500.00**

B. Concrete Pipe

Quantity	Item	Price	Cost
	12"0	@ $40 LF	$ -
4873	15"0	@ $45 LF	$ 219,285.00
793	18"0	@ $50 LF	$ 39,650.00
1233	21"0	@ $55 LF	$ 67,815.00
289	24"0	@ $60 LF	$ 17,340.00
348	27"0	@ $65 LF	$ 22,620.00
144	30"0	@ $75 LF	$ 10,800.00
	33"0	@ $110 LF	$ -
823	36"0	@ $120 LF	$ 98,760.00
113	42"0	@ $140 LF	$ 15,820.00
	48"0	@ $150 LF	$ -
	54"0	@ $200 LF	$ -
	60"0	@ $240 LF	$ -
	66"0	@ $300 LF	$ -
	72"0	@ $350 LF	$ -
		Subtotal for Concrete Pipe:	**$ 492,090.00**

		Subtotal for this page:	**$ 843,590.00**

C. End Walls

Quantity	Item	Price	Cost
	12"0	@ $900 EA	$ -
	15"0	@ $1,100 EA	$ -
	18"0	@ $1,300 EA	$ -
	21"0	@ $1,500 EA	$ -
	24"0	@ $1,700 EA	$ -
	27"0	@ $1,900 EA	$ -
	30"0	@ $2,100 EA	$ -
	33"0	@ $2,300 EA	$ -
	36"0	@ $2,800 EA	$ -
	42"0	@ $4,000 EA	$ -
	48"0	@ $4,200 EA	$ -
	54"0	@ $5,000 EA	$ -
	60"0	@ $5,500 EA	$ -
	66"0	@ $6,000 EA	$ -
	72"0	@ $7,500 EA	$ -
		Subtotal for End Walls:	**$ -**

D. End Sections (ES-1)

Quantity	Item	Price	Cost
	12"0	@ $550 EA	$ -
1	15"0	@ $580 EA	$ 580.00
	18"0	@ $700 EA	$ -
	21"0	@ $875 EA	$ -
	24"0	@ $900 EA	$ -
	27"0	@ $1,200 EA	$ -
1	30"0	@ $1,130 EA	$ 1,130.00
	33"0	@ $1,500 EA	$ -
2	36"0	@ $1,900 EA	$ 3,800.00
		Subtotal for End Section ES-1:	**$ 5,510.00**

E. Corrugated Metal Pipe

Quantity	Item	Price	Cost
	12"0	@ $30 LF	$ -
	15"0	@ $35 LF	$ -
	18"0	@ $45 LF	$ -
	24"0	@ $55 LF	$ -
	30"0	@ $65 LF	$ -
	36"0	@ $90 LF	$ -
	42"0	@ $100 LF	$ -
	48"0	@ $115 LF	$ -
	54"0	@ $130 LF	$ -
	60"0	@ $150 LF	$ -
		Subtotal for CM Pipe:	**$ -**

		Subtotal for this page:	**$ 5,510.00**

F. End Section (ES-2)

Quantity	Item	Price	Cost
	15"0	@ $400 EA	$ -
	18"0	@ $420 EA	$ -
	24"0	@ $480 EA	$ -
	30"0	@ $650 EA	$ -
	36"0	@ $1,100 EA	$ -
	42"0	@ $1,400 EA	$ -
	48"0	@ $1,800 EA	$ -
		Subtotal for End Sections (ES-2):	**$ -**

G. AD N-12 (HDPE)

Quantity	Item	Price	Cost
	12"0	@ $35 LF	$ -
	15"0	@ $45 LF	$ -
	18"0	@ $65 LF	$ -
	24"0	@ $75 LF	$ -
	30"0	@ $85 LF	$ -
	36"0	@ $95 LF	$ -
	42"0	@ $105 LF	$ -
	48"0	@ $125 LF	$ -
	60"0	@ $165 LF	$ -
		Subtotal for AD N-12 (HDPE):	**$ -**

		Subtotal for this page:	**$ -**

H. Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated (See Note 3)

Quantity	Item	Price	Cost
Non-Proprietary BMP(Engineer Estimate for all SWM)			
	Dry Retention Pond	By itemized cost	
	Dry Extended Detention Pond	By itemized cost	
1	Wet Pond/Wetlands	By itemized cost	$ 275,013.00
	Bioswale	By itemized cost	
	Vegetated Grass Channel	By itemized cost	
	Micro-Bio-Retention (Raingarden)	By itemized cost	
	Infiltration Practices without Sand	By itemized cost	
	Infiltration Practices with Sand	By itemized cost	
	Filtering Practices with Sand Below Ground	By itemized cost	
	Filtering Practices with Sand Above Ground	By itemized cost	
	Permeable Pavement Level 2 Design	By itemized cost	
	Vegetated Roof Level 1 Design	By itemized cost	
	Vegetated Roof Level 2 Design	By itemized cost	
	Soil Compost Amendment	By itemized cost	
	Rooftop Impervious Surface Disconnection	By itemized cost	
	Sheet Flow to a Vegetated Filter Strip	By itemized cost	
Proprietary/Manufactured BMP-manufacturer's Certified Cost Plus Construction Cost			
	Aqua-Swirl® Stormwater Treatment System	By itemized cost	
	BaySeparator™	By itemized cost	
	Continuous Defective Separator® (CDS)	By itemized cost	
	Downstream Defender®	By itemized cost	
	Hydroguard	By itemized cost	
	Stormceptor® MAX	By itemized cost	
	Stormceptor® OSR	By itemized cost	
	Stormceptor® STC	By itemized cost	
	StormPro	By itemized cost	
	Storm Water Quality Unit	By itemized cost	
	V2B1	By itemized cost	
	The Vortechs® System	By itemized cost	
	Aqua-Filter Stormwater™ Filtration System	By itemized cost	
	Storm Tech® Isolater Row™	By itemized cost	
	Up-Flo Filter® with CPZ Media	By itemized cost	
	The Stormwater Management StormFilter® with ZPG Media	By itemized cost	
	BayFilter™ Stormwater Cartridge System	By itemized cost	
	Filterra Bioretention Systems	By itemized cost	
	Jellyfish® Filter	By itemized cost	
	Modular Wetland System Linear (MWS-Linear)	By itemized cost	
	Perk Filter	By itemized cost	
	The Stormwater Management StormFilter® with Phosphosorb Media	By itemized cost	
	Subtotal for Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated:		**$ 275,013.00**

		Subtotal for this page:	**$ 275,013.00**

I. Miscellaneous Stormwater Management

Quantity	Item	Price	Cost
215622	Seed, Fertilizer & Mulch ($200 Min.)	@ $1.50 SY	$ 323,433.00
	Sod	@ $6.00 SY	$ -
	Hydraulic Cem. Conc. - 4" depth	@ $6.00 SF	$ -
	Bituminous Concreate - 1" depth	@ $5.00 SY	$ -
1046	Rip-Rap	@ $7.00 SF	$ 7,322.00
	Grouted Rip-Rap	@ $9.00 SF	$ -
	Erosion Control Stone (EC-1)	@ $113 TON	$ -
	#57 - Coarse Aggregate	@ $26 TON	$ -
	4' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $19 LF	$ -
	6' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $37 LF	$ -
	SWM Sign (WATER RISES RAPIDLY) (Minimum 3 signs per facility)	@ $390 EA	$ -
	Access Road	By Itemized Cost	$ 187,488.00
		Subtotal for Miscellaneous Stormwater Management	**$ 518,243.00**

J. Miscellaneous Drainage Items

Quantity	Item	Price	Cost
	Box Culvert	@ $ 727 CY of conc.	$ -
	Energy Dissipater	@ $1,953 EA	$ -
	Wing Walls	@ $860 CY of conc.	$ -
Ditches:			
	Roadside Standard Ditches (Seed, Fertilize & Mulch)	@ $7.00 LF	$ -
	Sod Ditches	@ $9.00 LF	$ -
	Paved Ditches	@ $8.00 SF	$ -
	Filter Cloth Fabric & Gabion Stone	@ $14 SF	$ -
	Rip-Rap	@ $7.00 SF	$ -
	Grouted Rip-Rap	@ $9.00 SF	$ -
	Paved Flume	@ $10 SF	$ -
16	Flush the Drainage System	$250/Hr. (Min 8 @ Hrs.)	$ 4,000.00
		Subtotal for Miscellaneous Drainage Items:	**$ 4,000.00**

		Subtotal for this page:	**$ 522,243.00**

3. CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR PRIVATE INGRESS/EGRESS EASEMENTS

A. Site Work

Quantity	Item	Price	Cost
44.54	Clear & Grub	@ $11,860	$ 528,244.40
	Excavation	@ $26 CY	$ -
	Embankment** (cut and fill)	@ $10 CY	$ -
	Embankment (haul off)	@ $36 CY	$ -
	Final Grading	@ $5,000 AC	$ -
	Rock Excavation	@ $64 CY	$ -
	Slope Stabilization - Hydroseeding (3:1 or flatter) $1,000 Min.	@ $1.00 SY	$ -
	Slope Stab. - Jute Mesh, matting Blankets, etc. (Between 2:1 to 3:1) $200 Min	@ $6.00 SY	$ -
	Slope Stab. - Sod (Between 2:1 to 3:1) $200 Min	@ $8.00 SY	$ -
	Steep Slopes (Grading and Stabilization with Jute Mesh, Netting, Blankets, etc.)	@ $17 SY	$ -
		Subtotal for Site Work:	**$ 528,244.40**

*B. Subgrade, Subbase, and Base Course Items

Quantity	Item	Price	Cost
	Subgrade preparation (Subbase and base course)	@ $3.00 SY	$ -
	Aggregate (21A/21B)	@ $2.50 SY per Inch Depth	$ -
	Bituminous Concrete	@ $5.50 SY per Inch Depth	$ -
	Reinforced Concrete Pavement	@ $15.50 SY per Inch Depth	$ -
	Gravel Shoulders (4" Depth)	@ $8.50 SY (4" Depth)	$ -
	Soil Cement Stabilization (4%)	@ $20.50 SY (6" Depth)	$ -
	Lime Stabilization (10%)	@ $15 SY (6" Depth)	$ -
	Cement Treated Aggregate	@ $5.00 per Inch Depth	$ -
Underdrains:			
	UD-1	@ $16 LF	$ -
	UD-2	@ $18 LF	$ -
	UD-3	@ $19 LF	$ -
	UD-4	@ $21 LF	$ -
		*** Subtotal for Subgrade, Subbase, Base Course Items & Underdrains (Public):**	$ 1,468,504.50

* BREAK DOWN OF SUBGRAD, SUBBASE, AND BASE COURSE ITEMS CAN BE FOUND ON SHEET 83

		Subtotal for this page:	$ 1,996,748.90

C. Entrances and Pipe Stems

Quality	Item	Price	Cost
	DE-1	@ $1,800 EA	$ -
151	DE-2	@ $1,950 EA	$ 294,450.00
	DE-3	@ $2,000 EA	$ -
	DE-4	@ $2,000 EA	$ -
	PP-1 (1 Lot)	@ $1,800 EA	$ -
	PP-1 (2-5 Lots)	@ $2,000 EA	$ -
	PP-2 (1 Lot)	@ $1,200 EA	$ -
	PP-2 (2-5 Lots)	@ $1,500 EA	$ -
	CG-9D or equal: 30' Width	@ $5,000 EA	$ -
	CG-9D or equal: 40' Width	@ $6,500 EA	$ -
	CG-10A or equal: 30' Width	@ $4,120 EA	$ -
	CG-10A or equal: 40' Width	@ $5,300 EA	$ -
	CG-11: Concrete Entrance	@ $3,000 EA	$ -
	Valley Gutter	@ $55 SY	$ -
	Pipestem Driveway - 10' (1 Lot)	@ $55 LF	$ -
163	Pipestem Driveway - 18' (2-5 Lots)	@ $70 LF	$ 11,410.00
		Subtotal for Entrance and Pipe Stems:	**$ 305,860.00**

		Subtotal for this page:	**$ 305,860.00**

D. Miscellaneous Construction Items

Quantity	Item	Price	Cost
13288	Sidewalk (5' Width)	@ $34 LF	$ 451,792.00
	Header Curb (CG-2/CG-3)	@ $20 LF	$ -
16078	Curb & Gutter	@ $25 LF	$ 401,950.00
	CG-12 (Truncated Dome)	@ $2,000 EA	$ -
14806	Bicycle Trail/Walkway	@ $9.00 SF	$ 133,254.00
	Raised Concrete Median (MS-1A)	@ $70 SY	$ -
	Trail (Wood Chip)	@ $19 SY	$ -
16451	Trail (Stone Dust)	@ $19 SY	$ 312,569.00
Retaining Walls:			
	Timber	@ $29 SF	$ -
	Crib	@ $38 SF	$ -
	MSE/Geogrid	@ $43 SF	$ -
	Gravity Wall	@ $62 SY	$ -
	Excavation for tiebacks in walls in cut areas	@ $25 CY	$ -
	Anti-Graffiti Paint (Concrete Retaining Walls only-treatment/sealant)	@ $15 SF (Min. $2,500)	$ -
	Guardrail	@ $39 LF	$ -
	GR-7 NCHRP 350	@ $2,686 EA	$ -
	GR-9	@ $3,640 EA	$ -
	Address Sign (Entrance to Pipestems)	@ $398 EA	$ -
6	Street Name Sign	@ $410	$ 2,460.00
122	Traffic Control Sign	@ $392	$ 47,824.00
	Bus Stop Sign	@ $342	$ -
	Bus Shelter	@ $17,284	$ -
	Traffic Signal	@ (Lump Sum)	
	HC Parking Space Sign	@ $649 EA	$ -
	Bike Rack	@ $305 EA	$ -
	Roadside Delineators (ED-1)	@ $64 EA	$ -
	Hand Rail (HR-1)	@ $102 LF	$ -
8132	Pavement Marking (Paint)	@ $2.00 SF	$ 16,264.00
	Pavement Marking (Thermoplastic)	@ $6.00 SF	$ -
	Traffic Barricade (TB-1)	@ $1,500 EA	$ -
	Street Lighting	@ $5,500 EA	$ -
	Utilities Relocation	(Min. $40,000) (Lump Sum or provide estimate from utility co.)	$ -
	VDOT Street Acceptance Package	@ $5,000	$ -
1	P.E. Certified "As-Built" Plans	Lump Sum (Min. $12,000)	$ 12,000.00
		Subtotal for Miscellaneous Construction Items:	**$ 1,378,113.00**

		Subtotal for this page:	**$ 1,378,113.00**

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
05/11/21
PROFESSIONAL ENGINEER

PLAN# 12345
DATE: OCTOBER, 2020
CONTOUR INT.= N/A
SCALE: N/A

PLAN DATE
12/14/20
01/29/21
03/16/21
05/11/21

PERFORMANCE BOND & ESCROW
LANDBAY 4 - SECTION 3 REVISION 1
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
05/11/21		QUANTITY FOR STEEP SLOPES AND TREES HAVE BEEN REVISED.

REVISIONS

SHEET
82
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPL\REVISION\AM1607-DOCUMENTS.dwg, [82 PERFORMANCE BOND & ESCROW], May 11, 2021 - 3:27pm, zsafi

4. SANITARY SEWER & WATER LINE CONSTRUCTION

Quantity	Item	Price		Cost
8	Fire Hydrant Assembly	@ $8,000	EA	$ 64,000.00
	Central Sewer Lift/Pump Station Construction	@ (Lump Sum)		

Water Main (Exclusive of Fire Hydrants)

Quantity	Item	Price		Cost
	4"0 DIP	@ $50	LF	$ -
142	6"0 DIP	@ $65	LF	$ 9,230.00
4553	8"0 DIP	@ $78	LF	$ 355,134.00
	12"0 DIP	@ $108	LF	$ -
1445	16"0 DIP	@ $140	LF	$ 202,300.00
	18'0 DIP	@ $160	LF	$ -
23	4"0 or 6"0 RW Valve (with accessories)	@ $1,000	EA	$ 23,000.00
89	8"0 or 12"0 RW Valve (with accessories)	@ $2,500	EA	$ 222,500.00
7	16"0 or 24"0 RW Valve (with accessories)	@ $6,000	EA	$ 42,000.00
151	Standard Meter Crock & Appurtenances (Angle valve, backflow preventer, yoke, frame & cover, and service line)	@ $2,000	EA	$ 302,000.00
	Meter Vault & Appurtenances (3 meters & larger)	@ $10,500	EA	$ -
	Water Main Blow-off Assembly	@ $2,500	EA	$ -
	Air Release Assembly	@ $3,500	EA	$ -
	Dead End Anchor System	@ $7,500	EA	$ -
			Subtotal for Water Main:	**$ 1,156,164.00**

Subtotal for this page: $ 1,220,164.00

Sanitary Sewer Pipe Line (Exclusive of Manhole Structures)

Quantity	Item	Price		Cost
	1.5"0 thru 4"0 LPFM (Low Pressure Force Main System)	@ $30	LF	$ -
7368	8"0 PVC	@ $70	LF	$ 515,760.00
	8"0 DIP	@ $80	LF	$ -
	10"0 PVC	@ $85	LF	$ -
	10"0 DIP	@ $90	LF	$ -
	12"0 PVC	@ $145	LF	$ -
	12"0 DIP	@ $150	LF	$ -
	15"0 PVC	@ $190	LF	$ -
43	4' Dia. Sanitary Sewer Manhole	@ $10,000	EA	$ 430,000.00
	5' Dia. Sanitary Sewer Manhole	@ $10,000	EA	$ -
	Street Manhole Frame & Cover Assembly (Including rain bowl & chimney seal)	@ $1,000	EA	$ -
	Easement Manhole Frame & Cover Assembly (Including chimney seal)	@ $1,000	EA	$ -
	Abandonment of Manhole	@ $250	VF	$ -
3930	4"0 PVC Lateral (including clean-out stack)	@ $40	LF	$ 157,200.00
	4"0 DIP Lateral (including clean-out stack)	@ $50	LF	$ -
	6"0 PVC Lateral (including clean-out stack)	@ $60	LF	$ -
	6"0 DIP Later (including clean-out stack)	@ $65	LF	$ -
	LPFM Flushing Station	@ $2,500	EA	$ -
	Sewerage Air Release/Vacuum Breaker Assembly	@ $3,500	EA	$ -
	Steel Casing	@ $500	LF	$ -
	Grease Trap (500 gal. minimum)	@ $4,500	EA	$ -
		@		$ -
		@		$ -
		@		$ -
			Subtotal for Sanitary Sewer Pipe:	**$ 1,102,960.00**

Note: For sizes larger than 15"0, add $4.00 per inch increase in diameter.

Subtotal for this page:	**$ 1,102,960.00**
TOTAL CONSTRUCTION COST: (Pages 1 through 10)	$ 7,650,201.90

5. MISCELLANEAOUS COSTS

A. Administrative Cost - 10% of the total construction cost, not to exceed $50,000	$ 50,000.00
B. Inflation Cost - Compounded annually at 3.0% per year of the total Construction Cost	$ 229,506.06
TOTAL PERFORMANCE BOND AMOUNT:	$ 7,929,707.96

6. FLOODPLAIN ITEMS ESCROW

Quantity	Item	Price		Cost
	LOMR	$15,000		$ -
	Elevation Certificate	$800		$ -
	LOMC (SF Detached)	$1,500		$ -
Stream Restoration				
	Stream Restoration	By itemized cost		

TOTAL FLOODPLAIN ITEMS ESCROW: $ -

7. LANDSCAPING ESCROW

A. Deciduous Trees

Quantity	Item	Price		Cost
	5'-6'	@ $165	EA	$ -
	1" - 1.5" or 1.5" - 2"	@ $165	EA	$ -
368	2" - 2.5" or 2.5 - 3"	@ $250	EA	$ 92,000.00
	3" - 3.5" or 3.5" - 4"	@ $450	EA	$ -
			Subtotal for Deciduous Trees:	**$ 92,000.00**

B. Evergreen Trees

Quantity	Item	Price		Cost
	5' - 6'	@ $125	EA	$ -
24	6' - 7'	@ $175	EA	$ 4,200.00
	7' - 8'	@ $300	EA	$ -
	8' - 10'	@ $400	EA	$ -
			Subtotal for Evergreen Trees:	**$ 4,200.00**

C. Shrubs

Quantity	Item	Price		Cost
	18" - 24"	@ $45	EA	$ -
	24" - 30"	@ $55	EA	$ -
			Subtotal for Shrubs:	**$ -**

D. Ornamental

Quantity	Item	Price		Cost
	1 Gal. (#1)	@ $10		$ -
151	2 Gal. (#2)	@ $22		$ 3,322.00
	3 Gal. (#3)	@ $30		$ -
			Subtotal for Ornamentals:	**$ 3,322.00**

E. Perennial

Quantity	Item	Price		Cost
	18" - 24"	@ $9.00		$ -
			Subtotal for Perennial:	**$ -**

F. Reforestation

Quantity	Item	Price		Cost
	# of Acres	@ $11,700	AC	$ -
			Subtotal for Reforestation	**$ -**

TOTAL LANDSCAPE ESCROW AMOUNT: $ 99,522.00

8. SILTATION AND EROSION CONTROL ESCROWS

Quantity	Item	Price		Cost
3826	Diversion Dike	@ $6.00	LF	$ 22,956.00
96	Cleaning out SWM Facilities, Silt Traps and Silt Basins	$500/Hr. Lump Sum (Min. $20,000 or actual estimate provided by engineer to the satisfaction of the plan review)		$ 48,000.00
	Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal)	@ $8.00	LF	$ -
	Silt Fence: 1001' - 10000' (installation, maintenance for 1 year & removal)	@ $6.00	LF	$ -
24522	Silt Fence: 10,000' + (installation, maintenance for 1 year & removal)	@ $4.00	LF	$ 98,088.00
	Super Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal)	@ $20	LF	$ -
9632	Super Silt Fence: 1001' - 10000' (installation, maintenance for 1 year & removal)	@ $10	LF	$ 96,320.00
	Super Silt Fence: 10,000' + (installation, maintenance for 1 year & removal)	@ $7.00	LF	$ -
	Sod	@ $6.00	SY	$ -
215622	Seed, Fertilizer & Mulch	@ $1.50 SY ($200 Min)		$ 323,433.00
1813	Steep Slopes (Grading and Stabilization with jute mesh, netting, blankets, etc.)	@ $15	SY	$ 27,195.00
	Coarse Aggregates (#1 or #57)	@ $28	TON	$ -
78	Inlet Protection	@ $165	EA	$ 12,870.00
60	Check Dam	@ $175	EA	$ 10,500.00
2	Temp. Construction Entrance	@ $1,150	EA	$ 2,300.00
2	Wash Rack	@ $2,000	EA	$ 4,000.00
2	Temp. Sediment Trap	@ $1,000		$ 2,000.00
1		@ $1,500		$ 1,500.00
7		@ $2,000		$ 14,000.00
3	Temporary Sediment Basin	By itemized cost		$ 140,891.00
	Channel Diversion	By itemized cost		
4164	6' Chain-link Safety Fence	@ $20	LF	$ 83,280.00
	4' Plastic Orange Safety Fence	@ $3.00	LF	$ -
151	Yard utility refurbishment	@ $750 EA Single Family Lot		$ 113,250.00
	Stockpile Removal (Quantity based on policy)	@ $25	CY	$ -
44.55	Removal of Erosion Control Measures	@ 500	AC (min $500)	$ 22,275.00
	Level Spreader	By itemized cost		
				$ -
			Total Cost:	**$ 1,022,858.00**
			Administrative Cost (10% of Total Cost):	$ 102,285.80
			TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT:	**$ 1,125,143.80**

Minimum acceptable amount for Siltation and Erosion Control is $2,000.00

I hereby certify that the above is my best estimate of the quantities and current cost of bondable improvements, landscaping items, Siltation & Erosion Control Escrow and floodplain items in this subdivision or site plan.

Preparer's Signature 703-361-1550 x 401 **Telephone #**

Sebastian Sandoval **Name (Print)** J2 Engineers **Company or Firm**

NOTES:

1. For items identified with ** the quantity for the embankment material is the net difference of total fill material needed and cut material available at the project site, if excavated or cut material is suitable for embankment.
2. The excavation and embankment costs include necessary grading, spreading and/or compaction of soil in accordance with County and State Standards and Specifications
3. The unit cost for each of the items in the Unit Price Lists is the installation cost which includes factors such as materials, excavation, bedding backfilling, compaction, form work, etc.
4. Inflation has been calculated based on Northern Virginia Consumer Price Index of the Washington D.C. area provided by the Bureau of Labor and Statistics.
5. Whoever certifies the site development plans must also certify the total cost of the bonded items, landscaping escrow and siltation and erosion control escrow and must sign "Preparer's Signature" on page 10 of this form.
6. Floodplain Items Escrow not to be part of Bond/Escrow reduction.

Sediment Basin #1 Breakdown			
1	48" Riser Structure	@ $3,500 EA	$ 1,313.00
1	Outlet Protection	@ $150 EA	$ 150.00
807	Excavation	@ $26 CY	$ 20,982.00
67	Outlet Pipe	@ $35 LF	$ 2,345.00
		SUM	**$ 24,790.00**

Sediment Basin #2 Breakdown			
1	24" Riser Structure	@ $1,752 EA	$ 1,752.00
1	Outlet Protection	@ $150 EA	$ 150.00
3526	Excavation	@ $26 CY	$ 91,676.00
40	Outlet Pipe	@ $35 LF	$ 1,400.00
		SUM	**$ 94,978.00**

Sediment Basin #3 Breakdown			
1	48" Riser Structure	@ $3,500 EA	$ 3,500.00
1	Outlet Protection	@ $150 EA	$ 150.00
143	Excavation	@ $26 CY	$ 3,718.00
393	Outlet Pipe	@ $35 LF	$ 13,755.00
		SUM	**$ 21,123.00**

SWM Breakdown			
Wet Pond			
2604	Road	@ $12 SY/Inch	$ 187,488.00
1	DE	@ 1,800 EA	$ 1,800.00
2654	Dredging SWM	@ $25 CY	$ 66,350.00
		SUM	**$ 255,638.00**
Sediment Fore-bay			
1	Excavation	@ $6,000 EA	$ 6,000.00
535	Dredging	@ $25 CY	$ 13,375.00
		SUM	**$ 19,375.00**
		Total SWM	**$ 275,013.00**

PUBLIC

Street Name RIVER HERITAGE CATEGORY (VI) — **Dedicated Right of Way**

Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ Inch)	Total Cost
6,666	Cement Treated Aggregate	STA. 130+30.74 TO STA. 146+11.47	8	$5.00	$266,640.00
5,612	Asph. Conc. Type BM-25.0	STA. 130+30.74 TO STA. 146+11.47	3	$5.50	$92,598.00
5,612	Asph. Conc. Type IM-19.0	STA. 130+30.74 TO STA. 146+11.47	2	$5.50	$61,732.00
5,612	Surface Treatment (SM-9.5A)	STA. 130+30.74 TO STA. 146+11.47	1.5	$5.50	$46,299.00
				SUBTOTAL	$467,269.00

PRIVATE

Street Name SCARLETT PINE ROAD — **Dedicated Right of Way**

Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ Inch)	Total Cost
1,011	Cement Treated Aggregate	STA. 9+40.21 TO STA. 10+94.71	6	$5.00	$30,330.00
874	Asph. Conc. Type IM-19.0	STA. 9+40.21 TO STA. 10+94.71	3	$5.50	$14,421.00
874	Surface Treatment (SM-9.5A)	STA. 9+40.21 TO STA. 10+94.71	1.5	$5.50	$7,210.50
				SUBTOTAL	$51,961.50

*BREAKDOWN OF SUBGRADE, SUBBASE, AND BASE COURSE ITEMS

Street Name WALNUT GLEN DRIVE *HEAVY* — **Dedicated Right of Way**

Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ Inch)	Total Cost
2,729	Cement Treated Aggregate	STA. 10+00 TO STA. 16+68.41	8	$5.00	$109,160.00
2,344	Asph. Conc. Type IM-19.0	STA. 10+00 TO STA. 16+68.41	3	$5.50	$38,676.00
2,344	Surface Treatment (SM-9.5A)	STA. 10+00 TO STA. 16+68.41	1.5	$5.50	$19,338.00
				SUBTOTAL	$167,174.00

Street Name SERVICEBERRY ROAD — **Dedicated Right of Way**

Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ Inch)	Total Cost
7,907	Cement Treated Aggregate	STA. 8+32.10 TO STA. 26+48.46	6	$5.00	$237,210.00
6,715	Asph. Conc. Type IM-19.0	STA. 8+32.10 TO STA. 26+48.46	3	$5.50	$110,797.50
6,715	Surface Treatment (SM-9.5A)	STA. 8+32.10 TO STA. 26+48.46	1.5	$5.50	$55,398.75
				SUBTOTAL	$403,406.25

Street Name MARSH PINE ROAD — **Dedicated Right of Way**

Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ Inch)	Total Cost
7,438	Cement Treated Aggregate	STA. 15+02.46 TO STA. 32+75.07	6	$5.00	$223,140.00
6,285	Asph. Conc. Type IM-19.0	STA. 15+02.46 TO STA. 32+75.07	3	$5.50	$103,702.50
6,285	Surface Treatment (SM-9.5A)	STA. 15+02.46 TO STA. 32+75.07	1.5	$5.50	$51,851.25
				SUBTOTAL	$378,693.75
				SUBTOTAL FOR SUBGRADE, SUBBASE, BASE COURSE & UNDERDRAINS	**$1,468,504.50**

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SEBASTIAN SANDOVAL
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PLAN# 12345
DATE: OCTOBER, 2020
CONTOUR INT.= N/A
SCALE: N/A

PLAN DATE
12/14/20
01/29/21
03/10/21
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PERFORMANCE BOND & ESCROW
LANDBAY 4 - SECTION 3 REVISION 1
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
	05/11/21	QUANTITY FOR STEEP SLOPES AND TREES HAVE BEEN REVISED.

REVISIONS

SHEET
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OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLI\REVISION\AM1607-DOCUMENTS.dwg|B3 PERFORMANCE BOND & ESCROW| May 11, 2021 - 3:27pm zsafi

PRINCE WILLIAM COUNTY
Department of Development Services - Land Development Division
UNIT PRICE LIST
(Performance Bonds, Landscape Escrows, Siltation & Erosion Control Escrows, and Floodplain Item Escrows)
Effective: March 15, 2017

Project Name: Potomac Shores Landbay 4 Section 3

PWC File #: SDR2019-00009 **Date Prepared:** 11/5/2019

NOTE: This form is to be used to estimate Performance Bond, Landscape Escrow, Siltation Erosion Escrow and Floodplain Items Escrow prices ported with Prince William County. These prices do not include items that are to be bonded separately with the Virginia Department of Transportation.

1. MOBILIZATION/DEMOBILIZATION OF CONSTRUCTION EQUIPMENT

Quantity	Item	Price	Cost
1	Mobilization/Demobilization	@ Lump Sum $15,000 min.	$ 15,000.00

2. STORM DRAINAGE

A. Structures

Quantity	Item	Price	Cost
	DI-1	@ $3,970 EA	$ -
63	DI-3	@ $4,500 EA	$ 283,500.00
	DI-4	@ $5,500 EA	$
3	MH-1	@ $3,000 EA	$ 9,000.00
	MH-2	@ $3,500 EA	$ -
	JB-1	@ $6,000 EA	$ -
11	DI-7	@ $4,000 EA	$ 44,000.00
	DI-12	@ $4,000 EA	$ -
		Subtotal for Structures:	$ 336,500.00

B. Concrete Pipe

Quantity	Item	Price	Cost
	12"0	@ $40 LF	$ -
4873	15"0	@ $45 LF	$ 219,285.00
793	18"0	@ $50 LF	$ 39,650.00
1233	21"0	@ $55 LF	$ 67,815.00
289	24"0	@ $60 LF	$ 17,340.00
348	27"0	@ $65 LF	$ 22,620.00
144	30"0	@ $75 LF	$ 10,800.00
	33"0	@ $110 LF	$ -
823	36"0	@ $120 LF	$ 98,760.00
113	42"0	@ $140 LF	$ 15,820.00
	48"0	@ $150 LF	$ -
	54"0	@ $200 LF	$ -
	60"0	@ $240 LF	$ -
	66"0	@ $300 LF	$ -
	72"0	@ $350 LF	$ -
		Subtotal for Concrete Pipe:	$ 492,090.00

		Subtotal for this page:	$ 843,590.00

C. End Walls

Quantity	Item	Price	Cost
	12"0	@ $900 EA	$ -
	15"0	@ $1,100 EA	$ -
	18"0	@ $1,300 EA	$ -
	21"0	@ $1,500 EA	$ -
	24"0	@ $1,700 EA	$ -
	27"0	@ $1,900 EA	$ -
	30"0	@ $2,100 EA	$ -
	33"0	@ $2,300 EA	$ -
	36"0	@ $2,800 EA	$ -
	42"0	@ $4,000 EA	$ -
	48"0	@ $4,200 EA	$ -
	54"0	@ $5,000 EA	$ -
	60"0	@ $5,500 EA	$ -
	66"0	@ $6,000 EA	$ -
	72"0	@ $7,500 EA	$ -
		Subtotal for End Walls:	$ -

D. End Sections (ES-1)

Quantity	Item	Price	Cost
	12"0	@ $550 EA	$ -
1	15"0	@ $580 EA	$ 580.00
-	18"0	@ $700 EA	$ -
	21"0	@ $875 EA	$ -
	24"0	@ $900 EA	$ -
	27"0	@ $1,200 EA	$ -
1	30"0	@ $1,130 EA	$ 1,130.00
	33"0	@ $1,500 EA	$ -
2	36"0	@ $1,900 EA	$ 3,800.00
		Subtotal for End Section ES-1:	$ 5,510.00

E. Corrugated Metal Pipe

Quantity	Item	Price	Cost
	12"0	@ $30 LF	$ -
	15"0	@ $35 LF	$ -
	18"0	@ $45 LF	$ -
	24"0	@ $55 LF	$ -
	30"0	@ $65 LF	$ -
	36"0	@ $90 LF	$ -
	42"0	@ $100 LF	$ -
	48"0	@ $115 LF	$ -
	54"0	@ $130 LF	$ -
	60"0	@ $150 LF	$ -
		Subtotal for CM Pipe:	$ -

		Subtotal for this page:	$ 5,510.00

F. End Section (ES-2)

Quantity	Item	Price	Cost
	15"0	@ $400 EA	$ -
	18"0	@ $420 EA	$ -
	24"0	@ $480 EA	$ -
	30"0	@ $650 EA	$ -
	36"0	@ $1,100 EA	$ -
	42"0	@ $1,400 EA	$ -
	48"0	@ $1,800 EA	$ -
		Subtotal for End Sections (ES-2):	$ -

G. AD N-12 (HDPE)

Quantity	Item	Price	Cost
	12"0	@ $35 LF	$ -
	15"0	@ $45 LF	$ -
	18"0	@ $65 LF	$ -
	24"0	@ $75 LF	$ -
	30"0	@ $85 LF	$ -
	36"0	@ $95 LF	$ -
	42"0	@ $105 LF	$ -
	48"0	@ $125 LF	$ -
	60"0	@ $165 LF	$ -
		Subtotal for AD N-12 (HDPE):	$ -

		Subtotal for this page:	$ -

H. Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated (See Note 3)

Quantity	Item	Price	Cost
Non-Proprietary BMP(Engineer Estimate for all SWM)			
	Dry Retention Pond	By itemized cost	
	Dry Extended Detention Pond	By itemized cost	
1	Wet Pond/Wetlands	By itemized cost	$ 275,013.00
	Bioswale	By itemized cost	
	Vegetated Grass Channel	By itemized cost	
	Micro-Bio-Retention (Raingarden)	By itemized cost	
	Infiltration Practices without Sand	By itemized cost	
	Infiltration Practices with Sand	By itemized cost	
	Filtering Practices with Sand Below Ground	By itemized cost	
	Filtering Practices with Sand Above Ground	By itemized cost	
	Permeable Pavement Level 2 Design	By itemized cost	
	Vegetated Roof Level 1 Design	By itemized cost	
	Vegetated Roof Level 2 Design	By itemized cost	
	Soil Compost Amendment	By itemized cost	
	Rooftop Impervious Surface Disconnection	By itemized cost	
	Sheet Flow to a Vegetated Filter Strip	By itemized cost	
Proprietary/Manufactured BMP-manufacturer's Certified Cost Plus Construction Cost			
	Aqua-Swirl® Stormwater Treatment System	By itemized cost	
	BaySeparator™	By itemized cost	
	Continuous Defective Separator® (CDS)	By itemized cost	
	Downstream Defender®	By itemized cost	
	Hydroguard	By itemized cost	
	Stormceptor® MAX	By itemized cost	
	Stormceptor® OSR	By itemized cost	
	Stormceptor® STC	By itemized cost	
	StormPro	By itemized cost	
	Storm Water Quality Unit	By itemized cost	
	V2B1	By itemized cost	
	The Vortechs® System	By itemized cost	
	Aqua-Filter Stormwater™ Filtration System	By itemized cost	
	Storm Tech® Isolator Row™	By itemized cost	
	Up-Flo Filter® with CPZ Media	By itemized cost	
	The Stormwater Management StormFilter® with ZPG Media	By itemized cost	
	BayFilter™ Stormwater Cartridge System	By itemized cost	
	Filterra Bioretention Systems	By itemized cost	
	Jellyfish® Filter	By itemized cost	
	Modular Wetland System Linear (MWS-Linear)	By itemized cost	
	Perk Filter	By itemized cost	
	The Stormwater Management StormFilter® with Phosphosorb Media	By itemized cost	
	Subtotal for Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated:		$ 275,013.00

		Subtotal for this page:	$ 275,013.00

I. Miscellaneous Stormwater Management

Quantity	Item	Price	Cost
207346	Seed, Fertilizer & Mulch ($200 Min.)	@ $1.50 SY	$ 311,019.00
	Sod	@ $6.00 SY	$ -
	Hydraulic Cem, Conc, - 4" depth	@ $6.00 SF	$ -
	Bituminous Concreate - 1" depth	@ $5.00 SY	$ -
1046	Rip-Rap	@ $7.00 SF	$ 7,322.00
	Grouted Rip-Rap	@ $9.00 SF	$ -
	Erosion Control Stone (EC-1)	@ $113 TON	$ -
	#57 - Coarse Aggregate	@ $26 TON	$ -
	4' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $19 LF	$ -
	6' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $37 LF	$ -
	SWM Sign (WATER RISES RAPIDLY) (Minimum 3 signs per facility)	@ $390 EA	$ -
	Access Road	By Itemized Cost	$ 187,488.00
		Subtotal for Miscellaneous Stormwater Management	$ 505,829.00

J. Miscellaneous Drainage Items

Quantity	Item	Price	Cost
	Box Culvert	@ $ 727 CY of conc.	$ -
	Energy Dissipater	@ $1,953 EA	$ -
	Wing Walls	@ $860 CY of conc.	$ -
Ditches:			
	Roadside Standard Ditches (Seed, Fertilize & Mulch)	@ $7.00 LF	$ -
	Sod Ditches	@ $9.00 LF	$ -
	Paved Ditches	@ $8.00 SF	$ -
	Filter Cloth Fabric & Gabion Stone	@ $14 SF	$ -
	Rip-Rap	@ $7.00 SF	$ -
	Grouted Rip-Rap	@ $9.00 SF	$ -
	Paved Flume	@ $10 SF	$ -
16	Flush the Drainage System	$250/Hr. (Min 8 @ Hrs.)	$ 4,000.00
		Subtotal for Miscellaneous Drainage Items:	$ 4,000.00

		Subtotal for this page:	$ 509,829.00

3. CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR PRIVATE INGRESS/EGRESS EASEMENTS

A. Site Work

Quantity	Item	Price	Cost
43	Clear & Grub	@ $11,860	$ 509,980.00
	Excavation	@ $26 CY	$ -
	Embankment** (cut and fill)	@ $10 CY	$ -
	Embankment (haul off)	@ $36 CY	$ -
	Final Grading	@ $5,000 AC	$ -
	Rock Excavation	@ $64 CY	$ -
	Slope Stabilization - Hydroseeding (3:1 or flatter) $1,000 Min.	@ $1.00 SY	$ -
	Slope Stab. - Jute Mesh, matting Blankets, etc. (Between 2:1 to 3:1) $200 Min	@ $6.00 SY	$ -
	Slope Stab. - Sod (Between 2:1 to 3:1) $200 Min	@ $8.00 SY	$ -
	Steep Slopes (Grading and Stabilization with Jute Mesh, Netting, Blankets, etc.)	@ $17 SY	$ -
		Subtotal for Site Work:	$ 509,980.00

*B. Subgrade, Subbase, and Base Course Items

Quantity	Item	Price	Cost
	Subgrade preparation (Subbase and base course)	@ $3.00 SY	$ -
	Aggregate (21A/21B)	@ $2.50 SY per Inch Depth	$ -
	Bituminous Concrete	@ $5.50 SY per Inch Depth	$ -
	Reinforced Concrete Pavement	@ $15.50 SY per Inch Depth	$ -
	Gravel Shoulders (4" Depth)	@ $8.50 SY (4" Depth)	$ -
	Soil Cement Stabilization (4%)	@ $20.50 SY (6" Depth)	$ -
	Lime Stabilization (10%)	@ $15 SY (6" Depth)	$ -
	Cement Treated Aggregate	@ $5.00 per Inch Depth	$ -
Underdrains:			
	UD-1	@ $16 LF	$ -
	UD-2	@ $18 LF	$ -
	UD-3	@ $19 LF	$ -
	UD-4	@ $21 LF	$ -
		Subtotal for Subgrade, Subbase, Base Course Items & Underdrains (Public):	$ -

		Subtotal for this page:	$ 509,980.00

* SEE SHEET 83

C. Entrances and Pipe Stems

Quality	Item	Price	Cost
	DE-1	@ $1,800 EA	$ -
149	DE-2	@ $1,950 EA	$ 290,550.00
	DE-3	@ $2,000 EA	$ -
	DE-4	@ $2,000 EA	$ -
	PP-1 (1 Lot)	@ $1,800 EA	$ -
	PP-1 (2-5 Lots)	@ $2,000 EA	$ -
	PP-2 (1 Lot)	@ $1,200 EA	$ -
	PP-2 (2-5 Lots)	@ $1,500 EA	$ -
	CG-9D or equal: 30' Width	@ $5,000 EA	$ -
	CG-9D or equal: 40' Width	@ $6,500 EA	$ -
	CG-10A or equal: 30' Width	@ $4,120 EA	$ -
	CG-10A or equal: 40' Width	@ $5,300 EA	$ -
	CG-11: Concrete Entrance	@ $3,000 EA	$ -
	Valley Gutter	@ $55 SY	$ -
	Pipestem Driveway - 10' (1 Lot)	@ $55 LF	$ -
163	Pipestem Driveway - 18' (2-5 Lots)	@ $70 LF	$ 11,410.00
		Subtotal for Entrance and Pipe Stems:	$ 301,960.00

		Subtotal for this page:	$ 301,960.00

D. Miscellaneous Construction Items

Quantity	Item	Price	Cost
13288	Sidewalk (5' Width)	@ $34 LF	$ 451,792.00
	Header Curb (CG-2/CG-3)	@ $20 LF	$ -
16078	Curb & Gutter	@ $25 LF	$ 401,950.00
	CG-12 (Truncated Dome)	@ $2,000 EA	$ -
14806	Bicycle Trail/Walkway	@ $9.00 SF	$ 133,254.00
	Raised Concrete Median (MS-1A)	@ $70. SY	$ -
	Trail (Wood Chip)	@ $19 SY	$ -
16451	Trail (Stone Dust)	@ $19. SY	$ 312,569.00
Retaining Walls:			
	Timber	@ $29 SF	$ -
	Crib	@ $38 SF	$ -
	MSE/Geogrid	@ $43 SF	$ -
	Gravity Wall	@ $62 SY	$ -
	Excavation for tiebacks in walls in cut areas	@ $25. CY	$ -
	Anti-Graffiti Paint (Concrete Retaining Walls only-treatment/sealant)	@ $15 SF (Min. $2,500)	$ -
	Guardrail	@ $39 LF	$ -
	GR-7 NCHRP 350	@ $2,686 EA	$ -
	GR-9	@ $3,640 EA	$ -
	Address Sign (Entrance to Pipestems)	@ $398 EA	$ -
6	Street Name Sign	@ $410	$ 2,460.00
122	Traffic Control Sign	@ $392	$ 47,824.00
	Bus Stop Sign	@ $342	$ -
	Bus Shelter	@ $17,284	$ -
	Traffic Signal	@ (Lump Sum)	
	HC Parking Space Sign	@ $649 EA	$ -
	Bike Rack	@ $305 EA	$ -
	Roadside Delineators (ED-1)	@ $64 EA	$ -
	Hand Rail (HR-1)	@ $102 LF	$ -
8132	Pavement Marking (Paint)	@ $2.00 SF	$ 16,264.00
	Pavement Marking (Thermoplastic)	@ $6.00 SF	$ -
	Traffic Barricade (TB-1)	@ $1,500 EA	$ -
	Street Lighting	@ $5,500 EA	$ -
	Utilities Relocation	(Min. $40,000) (Lump Sum or provide estimate from utility co.)	$ -
	VDOT Street Acceptance Package	@ $5,000	$ -
1	P.E. Certified "As-Built" Plans	Lump Sum (Min. $12,000)	$ 12,000.00
		Subtotal for Miscellaneous Construction Items:	$ 1,378,113.00

		Subtotal for this page:	$ 1,378,113.00

J2 Engineers, Inc.
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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
PROFESSIONAL ENGINEER
08/24/20

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT.= N/A
SCALE: N/A

PLAN DATE
08/09/18
11/09/18
08/26/19
08/24/20

PERFORMANCE BOND & ESCROW
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

No.	DATE	DESCRIPTION
		REVISIONS

SHEET
82
OF
106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STP\LAM1607-DOCUMENTS.dwg B2 PERFORMANCE BOND & ESCROW | August 27, 2020 - 10:26am mabdalhamid

4. SANITARY SEWER & WATER LINE CONSTRUCTION

Quantity	Item	Price		Cost
8	Fire Hydrant Assembly	@ $8,000	EA	$ 64,000.00
	Central Sewer Lift/Pump Station Construction	@ (Lump Sum)		

Water Main (Exclusive of Fire Hydrants)

Quantity	Item	Price		Cost
	4"0 DIP	@ $50	LF	$ -
142	6"0 DIP	@ $65	LF	$ 9,230.00
4553	8"0 DIP	@ $78	LF	$ 355,134.00
	12"0 DIP	@ $108	LF	$ -
1445	16"0 DIP	@ $140	LF	$ 202,300.00
	18'0 DIP	@ $160	LF	$ -
23	4"0 or 6"0 RW Valve (with accessories)	@ $1,000	EA	$ 23,000.00
89	8"0 or 12"0 RW Valve (with accessories)	@ $2,500	EA	$ 222,500.00
7	16"0 or 24"0 RW Valve (with accessories)	@ $6,000	EA	$ 42,000.00
	Standard Meter Crock & Appurtenances (Angle valve, backflow preventer, yoke, frame & cover, and service line)	@ $2,000	EA	$ -
	Meter Vault & Appurtenances (3 meters & larger)	@ $10,500	EA	$ -
	Water Main Blow-off Assembly	@ $2,500	EA	$ -
	Air Release Assembly	@ $3,500	EA	$ -
	Dead End Anchor System	@ $7,500	EA	$ -
		Subtotal for Water Main:		$ 854,164.00

Subtotal for this page:	$ 918,164.00

Sanitary Sewer Pipe Line (Exclusive of Manhole Structures)

Quantity	Item	Price		Cost
	1.5"0 thru 4"0 LPFM (Low Pressure Force Main System)	@ $30	LF	$ -
7368	8"0 PVC	@ $70	LF	$ 515,760.00
	8"0 DIP	@ $80	LF	$ -
	10"0 PVC	@ $85	LF	$ -
	10"0 DIP	@ $90	LF	$ -
	12"0 PVC	@ $145	LF	$ -
	12"0 DIP	@ $150	LF	$ -
	15"0 PVC	@ $190	LF	$ -
43	4' Dia. Sanitary Sewer Manhole	@ $10,000	EA	$ 430,000.00
	5' Dia. Sanitary Sewer Manhole	@ $10,000	EA	$ -
	Street Manhole Frame & Cover Assembly (Including rain bowl & chimney seal)	@ $1,000	EA	$ -
	Easement Manhole Frame & Cover Assembly (Including chimney seal)	@ $1,000	EA	$ -
	Abandonment of Manhole	@ $250	VF	$ -
3918	4"0 PVC Lateral (including clean-out stack)	@ $40	LF	$ 156,720.00
	4"0 DIP Lateral (including clean-out stack)	@ $50	LF	$ -
	6"0 PVC Lateral (including clean-out stack)	@ $60	LF	$ -
	6"0 DIP Later (including clean-out stack)	@ $65	LF	$ -
	LPFM Flushing Station	@ $2,500	EA	$ -
	Sewerage Air Release/Vacuum Breaker Assembly	@ $3,500	EA	$ -
	Steel Casing	@ $500	LF	$ -
	Grease Trap (500 gal. minimum)	@ $4,500	EA	$ -
		@		$ -
		@		$ -
		@		$ -
		Subtotal for Sanitary Sewer Pipe:		$ 1,102,480.00

Note: For sizes larger than 15"0, add $4.00 per inch increase in diameter.

Subtotal for this page:	$ 1,102,480.00
TOTAL CONSTRUCTION COST: (Pages 1 through 10)	$ 7,193,833.50

5. MISCELLANEAOUS COSTS

A. Administrative Cost - 10% of the total construction cost, not to exceed $50,000	$ 50,000.00
B. Inflation Cost - Compounded annually at 3.0% per year of the total Construction Cost	$ 215,815.01
TOTAL PERFORMANCE BOND AMOUNT:	$ 7,459,648.51

6. FLOODPLAIN ITEMS ESCROW

Quantity	Item	Price	Cost
	LOMR	$15,000	$ -
	Elevation Certificate	$800	$ -
	LOMC (SF Detached)	$1,500	$ -
Stream Restoration			
	Stream Restoration	By itemized cost	

TOTAL FLOODPLAIN ITEMS ESCROW:	$ -

7. LANDSCAPING ESCROW

A. Deciduous Trees

Quantity	Item	Price		Cost
	5'-6'	@ $165	EA	$ -
	1" - 1.5" or 1.5"- 2"	@ $165	EA	$ -
367	2" - 2.5" or 2.5 - 3"	@ $250	EA	$ 91,750.00
	3" - 3.5" or 3.5" - 4"	@ $450	EA	$ -
		Subtotal for Deciduous Trees:		$ 91,750.00

B. Evergreen Trees

Quantity	Item	Price		Cost
	5'- 6'	@ $125	EA	$ -
24	6'- 7'	@ $175	EA	$ 4,200.00
	7' - 8'	@ $300	EA	$ -
	8'- 10'	@ $400	EA	$ -
		Subtotal for Evergreen Trees:		$ 4,200.00

C. Shrubs

Quantity	Item	Price		Cost
	18" - 24"	@ $45	EA	$ -
	24" - 30"	@ $55	EA	$ -
		Subtotal for Shrubs:		$ -

D. Ornamental

Quantity	Item	Price	Cost
	1 Gal. (#1)	@ $10	$ -
148	2 Gal. (#2)	@ $22	$ 3,256.00
	3 Gal. (#3)	@ $30	$ -
		Subtotal for Ornamentals:	$ 3,256.00

E. Perennial

Quantity	Item	Price	Cost
	18" - 24"	@ $9.00	$ -
		Subtotal for Perennial:	$ -

F. Reforestation

Quantity	Item	Price		Cost
	# of Acres	@ $11,700	AC	$ -
		Subtotal for Reforestation		$ -

TOTAL LANDSCAPE ESCROW AMOUNT:	$ 99,206.00

8. SILTATION AND EROSION CONTROL ESCROWS

Quantity	Item	Price		Cost
4743	Diversion Dike	@ $6.00	LF	$ 28,458.00
96	Cleaning out SWM Facilities, Silt Traps and Silt Basins	$500/Hr. Lump Sum (Min. $20,000 or actual estimate (provided by engineer to the satisfaction of the plan review)		$ 48,000.00
	Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal)	@ $8.00	LF	$ -
	Silt Fence: 1001' - 1000' (installation, maintenance for 1 year & removal)	@ $6.00	LF	$ -
24508	Silt Fence: 10,000' + (installation, maintenance for 1 year & removal)	@ $4.00	LF	$ 98,032.00
	Super Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal)	@ $20	LF	$ -
9610	Super Silt Fence: 1001' - 10000 (installation, maintenance for 1 year & removal)	@ $10	LF	$ 96,100.00
	Super Silt Fence: 10,000' + (installation, maintenance for 1 year & removal)	@ $7.00	LF	$ -
	Sod	@ $6.00	SY	$ -
207346	Seed, Fertilizer & Mulch	@ $1.50 SY ($200 Min)		$ 311,019.00
	Steep Slopes (Grading and Stabilization with jute mesh, netting, blankets, etc.)	@ $15	SY	$ -
	Coarse Aggregates (#1 or #57)	@ $28	TON	$ -
78	Inlet Protection	@ $165	EA	$ 12,870.00
67	Check Dam	@ $175	EA	$ 11,725.00
2	Temp. Construction Entrance	@ $1,150	EA	$ 2,300.00
2	Wash Rack	@ $2,000	EA	$ 4,000.00
2	Temp. Sediment Trap	@ $1,000		$ 2,000.00
1		@ $1,500		$ 1,500.00
7		@ $2,000		$ 14,000.00
3	Temporary Sediment Basin	By itemized cost		$ 140,891.00
	Channel Diversion	By itemized cost		
4314	6' Chain-link Safety Fence	@ $20	LF	$ 86,280.00
	4' Plastic Orange Safety Fence	@ $3.00	LF	$ -
150	Yard utility refurbishment	@ $750 EA Single Family Lot		$ 112,500.00
	Stockpile Removal (Quantity based on policy)	@ $25	CY	$ -
43.54	Removal of Erosion Control Measures	@ 500	AC (min $500)	$ 21,770.00
	Level Spreader	By itemized cost		
				$ -

Total Cost:	$ 991,445.00
Administrative Cost (10% of Total Cost):	$ 99,144.50
TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT:	$ 1,069,515.70

Minimum acceptable amount for Siltation and Erosion Control is $2,000.00

I hereby certify that the above is my best estimate of the quantities and current cost of bondable improvements, landscaping items, Siltation, & Erosion Control Escrow and floodplain items in this subdivision or site plan.

Preparer's Signature — 703-361-1550 x 401 Telephone #

Sebastian Sandoval — Name (Print) — J2 Engineers — Company or Firm

NOTES:

1. For items identified with ** the quantity for the embankment material is the net difference of total fill material needed and cut material available at the project site, if excavated or cut material is suitable for embankment.
2. The excavation and embankment costs include necessary grading, spreading and/or compaction of soil in accordance with County and State Standards and Specifications
3. The unit cost for each of the items in the Unit Price Lists is the installation cost which includes factors such as materials, excavation, bedding backfilling, compaction, form work, etc.
4. Inflation has been calculated based on Northern Virginia Consumer Price Index of the Washington D.C. area provided by the Bureau of Labor and Statistics.
5. Whoever certifies the site development plans must also certify the total cost of the bonded items, landscaping escrow and siltation and erosion control escrow and must sign "Preparer's Signature" on page 10 of this form.
6. Floodplain Items Escrow not to be part of Bond/Escrow reduction.

Sediment Basin #1 Breakdown			
1	48" Riser Structure	@ $3,500 EA	$ 1,313.00
1	Outlet Protection	@ $150 EA	$ 150.00
807	Excavation	@ $26 CY	$ 20,982.00
67	Outlet Pipe	@ $35 LF	$ 2,345.00
		SUM	$ 24,790.00

Sediment Basin #2 Breakdown			
1	24" Riser Structure	@ $1,752 EA	$ 1,752.00
1	Outlet Protection	@ $150 EA	$ 150.00
3526	Excavation	@ $26 CY	$ 91,676.00
40	Outlet Pipe	@ $35 LF	$ 1,400.00
		SUM	$ 94,978.00

Sediment Basin #3 Breakdown			
1	48" Riser Structure	@ $3,500 EA	$ 3,500.00
1	Outlet Protection	@ $150 EA	$ 150.00
143	Excavation	@ $26 CY	$ 3,718.00
393	Outlet Pipe	@ $35 LF	$ 13,755.00
		SUM	$ 21,123.00

SWM Breakdown			
Wet Pond			
2604	Road	@ $12 SY/Inch	$ 187,488.00
1	DE	@ 1,800 EA	$ 1,800.00
2654	Dredging SWM	@ $25 CY	$ 66,350.00
		SUM	$ 255,638.00
Sediment Fore-bay			
1	Excavation	@ $6,000 EA	$ 6,000.00
535	Dredging	@ $25 CY	$ 13,375.00
		SUM	$ 19,375.00
		Total SWM	$ 275,013.00

PUBLIC

Street Name	RIVER HERITAGE CATEGORY (VI)			Dedicated Right of Way	
Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ inch)	Total Cost
6,666	Cement Treated Aggregate	STA. 130+30.74 TO STA. 146+11.47	8	$5.00	$266,640.00
5,612	Asph. Conc. Type BM-25.0	STA. 130+30.74 TO STA. 146+11.47	3	$5.50	$92,598.00
5,612	Asph. Conc. Type IM-19.0	STA. 130+30.74 TO STA. 146+11.47	2	$5.50	$61,732.00
5,612	Surface Treatment (SM-9.5A)	STA. 130+30.74 TO STA. 146+11.47	1.5	$5.50	$46,299.00
				SUBTOTAL	$467,269.00

PRIVATE

Street Name	SCARLETT PINE ROAD			Dedicated Right of Way	
Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ inch)	Total Cost
1,011	Cement Treated Aggregate	STA. 9+40.21 TO STA. 10+94.71	6	$5.00	$30,330.00
874	Asph. Conc. Type IM-19.0	STA. 9+40.21 TO STA. 10+94.71	3	$5.50	$14,421.00
874	Surface Treatment (SM-9.5A)	STA. 9+40.21 TO STA. 10+94.71	1.5	$5.50	$7,210.50
				SUBTOTAL	$51,961.50

*BREAKDOWN OF SUBGRADE, SUBBASE, AND BASE COURSE ITEMS

Street Name	WALNUT GLEN DRIVE *HEAVY*			Dedicated Right of Way	
Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ inch)	Total Cost
2,729	Cement Treated Aggregate	STA. 10+00 TO STA. 16+68.41	8	$5.00	$109,160.00
2,344	Asph. Conc. Type IM-19.0	STA. 10+00 TO STA. 16+68.41	3	$5.50	$38,676.00
2,344	Surface Treatment (SM-9.5A)	STA. 10+00 TO STA. 16+68.41	1.5	$5.50	$19,338.00
				SUBTOTAL	$167,174.00

Street Name	SERVICEBERRY ROAD			Dedicated Right of Way	
Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ inch)	Total Cost
7,907	Cement Treated Aggregate	STA. 8+32.10 TO STA. 26+48.46	6	$5.00	$237,210.00
6,715	Asph. Conc. Type IM-19.0	STA. 8+32.10 TO STA. 26+48.46	3	$5.50	$110,797.50
6,715	Surface Treatment (SM-9.5A)	STA. 8+32.10 TO STA. 26+48.46	1.5	$5.50	$55,398.75
				SUBTOTAL	$403,406.25

Street Name	MARSH PINE ROAD			Dedicated Right of Way	
Quantity (S.Y.)	Materials	Station to Station	Design Depth (per inch)	Unit Cost (per S.Y./ inch)	Total Cost
7,438	Cement Treated Aggregate	STA. 15+02.46 TO STA. 32+75.07	6	$5.00	$223,140.00
6,285	Asph. Conc. Type IM-19.0	STA. 15+02.46 TO STA. 32+75.07	3	$5.50	$103,702.50
6,285	Surface Treatment (SM-9.5A)	STA. 15+02.46 TO STA. 32+75.07	1.5	$5.50	$51,851.25
				SUBTOTAL	$378,693.75
SUBTOTAL FOR SUBGRADE, SUBBASE, BASE COURSE & UNDERDRAINS					$1,468,504.50

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COMMONWEALTH OF VIRGINIA
SEBASTIAN SANDOVAL
Lic. No. 045207
08/24/20
PROFESSIONAL ENGINEER

PLAN# AM1607
DATE: APRIL, 2018
CONTOUR INT. = N/A
SCALE: N/A

PLAN DATE
03/23/18
11/08/18
08/26/19
08/24/20

PERFORMANCE BOND & ESCROW
LANDBAY 4 - SECTION 3
POTOMAC SHORES
POTOMAC MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS

No.	DATE	DESCRIPTION

SHEET 83 OF 106

J2 Engineers - X:\DRAWINGS\ACTIVE\Potomac Shores\AM1607 - Landbay 4 - Section 3\STPLAM1607-DOCUMENTS.dwg [83 PERFORMANCE BOND & ESCROW] August 27, 2020 - 2:27pm mabdalhamid