WEST END

BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY 02, 2024

PROJECT TEAM

OWNER
FOULGER-PRATT DEVELOPMENT, LLC
12435 PARK POTOMAC AVE, SUITE 200
POTOMAC, MD 20854
TEL. 240-499-9684
CONTACT: JAY KELLY

APPLICANT
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9900 MAIN STREET, SUITE 500
FAIRFAX, VA 22031
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CONTACT: MATTHEW DAVIS

ATTORNEY
WIRE GILL LLP
700 N. FAIRFAX STREET, SUITE 600
ALEXANDRIA, VA 22314
TEL. 703-677-3129
CONTACT: KENNETH WIRE

CIVIL ENGINEER
URBAN, LTD.
4200D TECHNOLOGY COURT
CHANTILLY, VA 20151
TEL. 703-376-4221
CONTACT: CLAYTON TOCK, P.E.

ARCHITECT
RUST ORLING ARCHITECTURE
1215 CAMERON STREET
ALEXANDRIA, VA 22314
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CONTACT: SCOTT FLEMING,
AIA, LEED AP BD+C

LANDSCAPE ARCHITECT
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TRAFFIC ENGINEER
GOROVE SLADE
225 REINEKERS LANE
SUITE 750
ALEXANDRIA, VA 22314
TEL. 202-540-1926
CONTACT: ROBERT SCHIESEL, P.E.

AREA TABULATIONS:

BLOCK L (LOT 709) LOT AREA = 1.79 AC. 77,919 SF.
BLOCK M LOT AREA = 2.80 AC. 122,172 SF.
TOTAL DEVELOPMENT AREA = 4.59 AC. 200,091 SF.
TOTAL DISTURBED AREA = 4.86 AC. 211,845 SF.

ZONING TABULATIONS:

ON-SITE LOCATIONS / ADDRESSES:	T.M. #047.02-03-11 / 5801 DUKE ST. ALEXANDRIA, VA 22304
TOTAL SITE/LOT AREAS:	211,845 SF OR 4.86 ACRES
EXISTING ZONE:	CDD #29 (COORDINATED DEVELOPMENT DISTRICT #29)
PROPOSED ZONE:	CDD #29 (COORDINATED DEVELOPMENT DISTRICT #29)
OPEN SPACE REQUIREMENTS:	50,023 SF (25% OF DEVELOPMENT AREA AT OR ABOVE-GRADE)
OPEN SPACE PROVIDED:	PUBLIC AT-GRADE OPEN SPACE: 50,023 S.F.* (25.00% OF DEVELOPMENT AREA) *INCLUDES 6,039 S.F OPEN SPACE TRANSFER FROM BLOCK R
EXISTING USE:	VACANT/DEMOLISHED
PROPOSED USE:	RESIDENTIAL TOWNHOMES
DENSITY:	
BLOCK L (LOT 709):	16'X40' TH: 30 UNITS 20'X40' TH: 14 UNITS
BLOCK L SUBTOTAL:	44 UNITS
BLOCK M:	16X40' TH: 44 UNITS 20'X40' TH: 22 UNITS
BLOCK M SUBTOTAL:	66 UNITS
TOTAL UNITS PROVIDED:	110 UNITS
AVERAGE LOT AREA:	927 SF*

*SEE SHEET 02 FOR LOT AREA TABULATION

PROPOSED DENSITY:	110 UNITS/ 4.59 AC = 23.97 D.U/AC.
GROSS FLOOR AREA:	
BLOCK L (LOT 709) SUBTOTAL:	119,932 GSF
BLOCK M SUBTOTAL:	180,526 GSF
TOTAL GSF PROVIDED:	300,458 GSF
NET FLOOR AREA:	
BLOCK L (LOT 709) SUBTOTAL:	119,932 SF
BLOCK M SUBTOTAL:	180,526 SF
TOTAL FLOOR ARE PROVIDED:	300,458 SF
F.A.R PERMITTED:	
BLOCK L:	3.33
BLOCK M:	1.64
F.A.R PROVIDED:	
BLOCK L:	1.54
BLOCK M:	1.48
AVERAGE FINISHED GRADE:	195.80
BUILDING HEIGHT PROPOSED:	50 FT.
FRONTAGE REQUIRED:	9 FT. FRONTAGE ZONE (VERVE ST) 6 FT. FRONTAGE ZONE (HECHT AVE.)
FRONTAGE PROVIDED:	9 FT. FRONTAGE ZONE (VERVE ST) 6 FT. FRONTAGE ZONE (HECHT AVE.)

PARKING TABULATIONS:

PARKING REQUIRED:

BLOCK L: 2.0 SP/UNIT(43) = 86 SPACES
BLOCK M: 2.0 SP/UNIT (66) = 132 SPACES
TOTAL PARKING REQUIRED: 218 SPACES

PARKING PROVIDED:

BLOCK L: 86 SPACES (GARAGE: 58 STANDARD, 30 COMPACT)
BLOCK M: 132 SPACES (GARAGE: 88 STANDARD, 44 COMPACT)
TOTAL PARKING PROVIDED: 218 SPACES*

*PARKING PROVIDED INCLUDED TANDEM SPACES

BICYCLE PARKING TABULATIONS

BICYCLE PARKING REQUIRED:

BLOCK L: 1 SP/50 UNITS(44) = 1 VISITOR SPACE
BLOCK M: 1 SP/50 UNITS(66) = 2 VISITOR SPACES

BICYCLE PARKING PROVIDED:

BLOCK L: 2 SPACES
BLOCK M: 2 SPACES

BUILDING CODE ANALYSIS (ALL UNITS)

CONSTRUCTION CODE:	2018 IRC WITH VAUSBC AMENDMENT
USE GROUP:	R-5
TYPE OF CONSTRUCTION:	VB
STORIES:	3 STORIES PLUS HABITABLE ATTIC
FLOOR AREA PER FLOOR:	SEE A-SHEETS
FIRE PROTECTION PLAN:	NFPA: NON-SPRINKLERED.

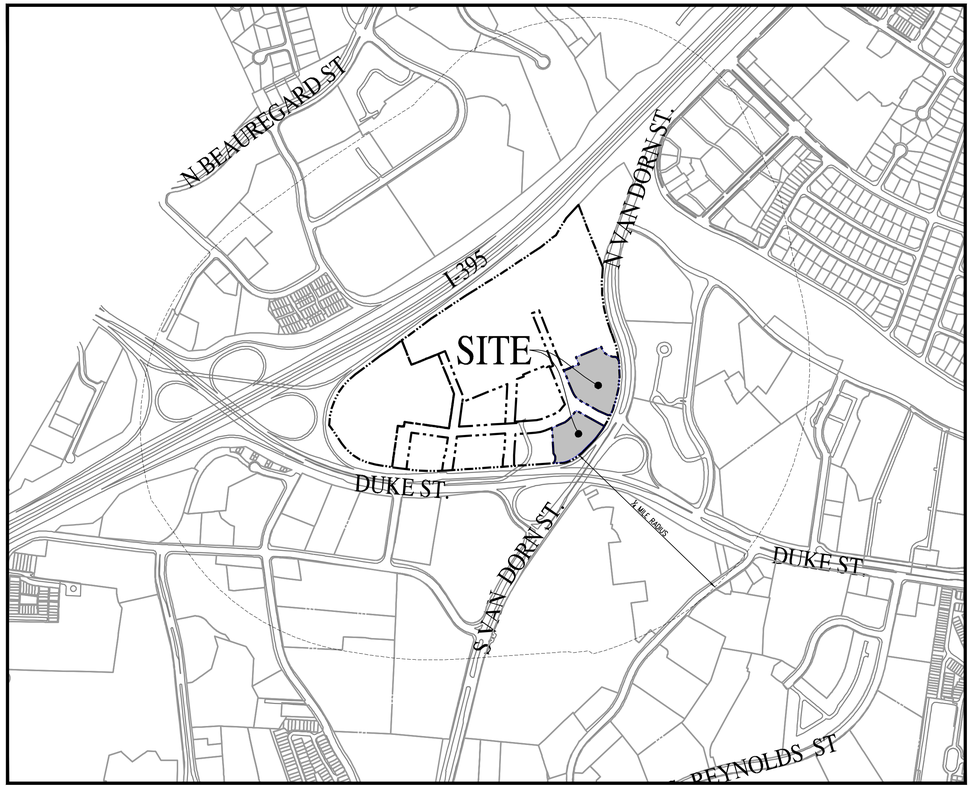
TRIP GENERATION:

BLOCK L EAST

Land Use	ITE Code	Size		Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Proposed Development Program										
Residential										
Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo; max 10 floors)	221	43	DU	4	11	15	12	8	20	233
Total Residential w/o Reductions				4	11	15	12	8	20	233

BLOCK M

Land Use	ITE Code	Size		Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Proposed Development Program										
Residential										
Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo; max 10 floors)	221	83	DU	8	21	29	23	14	37	451
Total Residential w/o Reductions				8	21	29	23	14	37	451



VICINITY MAP
SCALE: 1"=500'

PROJECT NARRATIVE:

EXISTING SITE CONDITIONS:
THE EXISTING INFRASTRUCTURE ON SITE HAS BEEN DEMOLISHED AS PART OF THE PROPOSED IMPROVEMENT ASSOCIATED WITH DSP 2021-00012. THE ULTIMATE CONDITION OF THE EXISTING SITE IS A VACANT LOT.

DESCRIPTION OF DEVELOPMENT:
BLOCK L IS BORDERED TO THE NORTH BY HECHT AVE. (PUBLIC), TO THE EAST BY VERVE ST. (PUBLIC), TO THE SOUTH BY N. VAN DORN ST (PUBLIC) & DUKE ST. (PUBLIC), AND TO THE WEST BY THE REMAINING PORTION OF BLOCK L THAT IS NOT A PART OF THIS APPLICATION. BLOCK M IS BORDERED TO THE NORTH BY BLOCK R (PARKS), TO THE EAST BY LANDMARK STREET (PRIVATE), TO THE SOUTH BY DUKE STREET (PUBLIC) AND TO THE WEST BY VERVE ST. (PUBLIC)..

THE PURPOSE OF THE REDEVELOPMENT FOR BLOCKS L & M IS TO ALLOW FOR A RESIDENTIAL DEVELOPMENT CONSISTING OF 110 TOTAL TOWNHOUSE UNITS WITH ASSOCIATED INFRASTRUCTURE. THIS PROJECT IS NOT A FEDERAL UNDERTAKING OR INVOLVES THE USE OF ANY FEDERAL FUNDING, IN COMPLIANCE WITH FEDERAL PRESERVATION LAWS, IN PARTICULAR SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966.

LIST OF EXISTING APPROVALS:

- CDD #2020-00007
- DSP #2021-00012
- SUB #2021-00003
- SUB #2022-00005
- CPD #2022-00012
- SUB #2023-0003

LIST OF REQUESTED APPROVALS:

- SUP TO ALLOW FOR MORE THAN 8 UNITS IN A GROUP OF TOWNHOUSES

GREEN BUILDING NARRATIVE:

THE APPLICANT WILL COMPLY WITH THE CITY'S CURRENT GREEN BUILDING POLICY AS MODIFIED BY THE CDD#2020-00007 REQUIREMENTS. SEE GREEN BUILDING NARRATIVE PROVIDED ON SHEET A0.1.

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
05/02/2024
PROFESSIONAL ENGINEER

PLAN DATE	REVISION
03-21-2024	DSUP SUBMISSION
05-02-2024	DSUP SUBMISSION #2

urban
Planners+Engineers+Landscape Architects+Land Surveyors
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CHANTILLY, VA. 20151
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FAX 703.378.7888
www.urban-ltd.com

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR DATE
CHAIRMAN, PLANNING COMMISSION DATE
DATE RECORDED _____
INSTRUMENT NO. DEED BOOK NO. PAGE NO.

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GENERAL NOTES

1. THE SUBJECT SITE IS LOCATED ON THE FOLLOWING CITY OF ALEXANDRIA ASSESSMENT MAP NO.s: LOT 707 2ND LANDMARK MALL REDEVELOPMENT R/S: 047.02-03-17 (5755 DUKE ST), LOT 709 2ND LANDMARK MALL REDEVELOPMENT R/S: 047.02-03-19 (5725 DUKE ST), AND IS ZONED CDD.
2. OWNER: LANDMARK LAND HOLDINGS, LLC C/O FOULGER-PRATT DEVELOPMENT, LLC
3. ADDRESS: 12435 PARK POTOMAC AVE, SUITE 200, POTOMAC, MD, 20854
4. THE SITE IS LOCATED IN THE HOLMES RUN WATERSHED.
5. CONSTRUCTION PERMITS ARE REQUIRED FOR THIS PROJECT. THE APPROVED SITE PLAN MUST BE ATTACHED TO THE PERMIT APPLICATION THAT FULLY DETAILS THE CONSTRUCTION AS WELL AS LAYOUTS AND SCHEMATICS OF THE MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS.
6. ALL PUBLIC AND PRIVATE EASEMENTS OR ALL KNOWN PUBLIC AND PRIVATE EASEMENTS, INCLUDING ALL UTILITY, EGRESS, AND CONSERVATION RESTRICTIONS ARE SHOWN. THE APPLICANT SHALL NOT CONSTRUCT ANY PERMANENT STRUCTURES OVER ANY EXISTING OR PROPOSED PUBLIC EASEMENTS UNLESS OTHERWISE APPROVED BY THE PLANNING COMMISSION AND CITY OF ALEXANDRIA COUNCIL.
7. ALL NEW CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ALEXANDRIA AND TO THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE (USBC).
8. PRIOR TO COMMENCING NEW WORK, THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING ADJACENT AREAS. IF CITY'S EXISTING PUBLIC INFRASTRUCTURE, INCLUDING BUT NOT LIMITED TO, STREETS, ALLEYWAYS, DRIVEWAY APRONS, SANITARY AND STORM SEWERS, STREET LIGHTING, TRAFFIC AND PEDESTRIAN SIGNALS, SIDEWALKS, CURB AND GUTTER, AND STORM WATER DROP INLET STRUCTURES ARE DAMAGED BY THE CONTRACTOR OR BY ACTIVITIES RELATING TO THE SITE CONSTRUCTION THEN THE APPLICANT SHALL REPAIR THE SAME TO THE SATISFACTION OF DIRECTOR, TRANSPORTATION AND ENVIRONMENTAL SERVICES (T&ES). A PRE-CONSTRUCTION WALK/SURVEY OF THE SITE SHALL OCCUR WITH CONSTRUCTION AND INSPECTION STAFF TO DOCUMENT EXISTING CONDITIONS PRIOR TO ANY LAND DISTURBING ACTIVITY.
9. ALL IMPROVEMENTS TO THE CITY'S RIGHT-OF-WAY SUCH AS CURB, GUTTER, SIDEWALK, AND DRIVEWAY APRONS, ETC., ARE DESIGNED PER THE CITY OF ALEXANDRIA STANDARDS AND SPECIFICATIONS.
10. ALL STREET CUT AND PATCH WORK LOCATED IN PUBLIC RIGHT-OF-WAYS, REQUIRED FOR ANY UTILITY INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CITY OF ALEXANDRIA STANDARDS AND SPECIFICATIONS AND TO THE SATISFACTION OF THE DIRECTOR OF TRANSPORTATION AND ENVIRONMENTAL SERVICES (T&ES).
11. CONTRACTOR MUST ENSURE THAT THERE IS NO DISTURBANCE ON ADJACENT PROPERTIES WITHOUT RECORDED EASEMENT OR NOTARIZED LETTER OF PERMISSION FROM THE ADJACENT PROPERTY OWNERS.
12. ALL REQUIRED STATE AND FEDERAL PERMITS, WHICH COULD INCLUDE PERMITS FROM THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION (VDCR), VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (VDEQ), VIRGINIA DEPARTMENT OF HISTORIC RESOURCES (VDHR), UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA), ARMY CORPS OF ENGINEERS AND VIRGINIA MARINE RESOURCES, MUST BE IN PLACE FOR ALL PROJECT CONSTRUCTION AND MITIGATION WORK PRIOR TO RELEASE OF THE FINAL SITE PLAN. THIS INCLUDES THE STATE REQUIREMENT FOR A VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES FOR LAND DISTURBING ACTIVITIES GREATER THAN 2,500. INFORMATION REGARDING THE VSMP GENERAL PERMIT CAN BE FOUND ONLINE AT: http://www.dcr.virginia.gov/soil_and_water/vsmp.shtml.
13. PERMITS FROM THE CITY OF ALEXANDRIA OFFICE OF ENVIRONMENTAL QUALITY (OEQ), TRANSPORTATION AND ENVIRONMENTAL SERVICES (T&ES), AND BUILDING AND FIRE CODE ADMINISTRATION SHALL BE OBTAINED BY THE APPLICANT, AS REQUIRED AND DOCUMENTED HEREIN. THE CONTRACTOR CAN CONTACT ALEXANDRIA FIRE AND CODE ADMINISTRATION DEPARTMENT AT (703) 838-4644 OR (703) 746-4200 FOR ANY QUESTIONS OR ADDITIONAL INFORMATION.
14. ANY WORK IN THE PUBLIC RIGHT OF WAY SHALL REQUIRE A SEPARATE PERMIT FROM THE DIRECTOR, TRANSPORTATION AND ENVIRONMENTAL SERVICES. THE CONTRACTOR CAN CONTACT THE DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES AT (703) 746-4035 FOR ANY QUESTIONS OR ADDITIONAL INFORMATION.
15. THE PROPERTY ADDRESS MUST BE CLEARLY MARKED IN THE FRONT AND BACK OF THE PROPOSED DEVELOPMENT SITE DURING CONSTRUCTION FOR EMERGENCY RESPONSE PURPOSES IN CONTRASTING COLORS FOR EASY IDENTIFICATION.
16. THE APPLICANT SHALL CONTACT THE CRIME PREVENTION UNIT OF THE ALEXANDRIA POLICE DEPARTMENT AT 703-746-1920 REGARDING SECURITY HARDWARE FOR NEW CONSTRUCTION. THIS SHALL BE COMPLETED PRIOR TO ISSUANCE OF BUILDING PERMIT.
17. THE CONTRACTOR MUST ENSURE THAT POSITIVE DRAINAGE OCCURS ON SITE TO PREVENT PONDING OR DRAINAGE PROBLEMS ON ADJACENT PROPERTIES.
18. A SEPARATE DESIGN IS REQUIRED FOR ALL WALLS 24" AND OVER IN HEIGHT FROM THE GRADE AND SUBJECT TO SEPARATE PERMITS TO BE OBTAINED BY THE OWNERS. GEOTECHNICAL AND STRUCTURAL DESIGN IS TO BE COMPLETED BY OTHERS. THIS FINAL SITE PLAN SHOWS LOCATION, PROPOSED GRADING, AND DESIGN OF ALL THE WALLS.
19. ALL SANITARY LATERALS AND/OR SEWERS NOT SHOWN IN THE EASEMENTS SHALL BE OWNED AND MAINTAINED PRIVATELY.
20. ALL STORM DRAINS NOT SHOWN WITHIN AN EASEMENT OR IN A PUBLIC RIGHT-OF-WAY SHALL BE OWNED AND MAINTAINED PRIVATELY.
21. ALL WATER FACILITY CONSTRUCTIONS SHALL CONFORM TO VIRGINIA AMERICAN WATER (VAW) STANDARDS AND SPECIFICATIONS. NO WORK CAN BE COMPLETED ON EXISTING AND PROPOSED WATER FACILITIES UNTIL ALL EASEMENTS AND AGREEMENTS WITH VAW ARE FINALIZED, EXECUTED AND RECORDED. DEVELOPER OR CONTRACTOR SHALL CONTACT VAW AT 703-706-3889 TO OBTAIN AN APPROVED PROPOSAL AND PAY ALL REQUIRED FEES, PRIOR TO THE START OF CONSTRUCTION, DEMOLITION AND INSPECTION OF WATER FACILITIES, INCLUDING, BUT NOT LIMITED TO, WATER MAINS, FIRE HYDRANTS, DOMESTIC AND FIRE SERVICE LINES. ALL THE PROPOSED WET TAPS ON AN EXISTING WATER MAIN SHALL BE CONSTRUCTED BY VAW.
22. PRIOR TO THE RELEASE OF THE FINAL SITE PLAN, A TRAFFIC CONTROL PLAN FOR CONSTRUCTION DETAILING PROPOSED CONTROLS TO TRAFFIC MOVEMENT, LANE CLOSURES, CONSTRUCTION ENTRANCES, HAUL ROUTES, AND STORAGE AND STAGING SHALL BE PROVIDED FOR INFORMATION PURPOSES; HOWEVER, AN AMENDED TRAFFIC CONTROL PLAN, IF REQUIRED BY THE DIRECTOR OF TRANSPORTATION AND ENVIRONMENTAL SERVICES SHALL BE SUBMITTED TO THE DIRECTOR OF TRANSPORTATION AND ENVIRONMENTAL SERVICES ALONG WITH THE BUILDING PERMIT APPLICATION. THE FINAL SITE PLAN SHALL INCLUDE A STATEMENT "FOR INFORMATION ONLY" ON THE TRAFFIC CONTROL PLAN SHEETS.
23. THIS SITE IS NOT LOCATED WITHIN A COMBINED SEWER AREA.
24. THE SITE CONTAINS EXISTING STORM SEWER, SANITARY SEWER, WATERLINES, ELECTRIC, AND OVERHEAD UTILITY. THE SUBJECT PLAN PROPOSES THE ADDITION OF STORM SEWER, SANITARY SEWER, WATERLINES, ELECTRIC, AND TELECOMMUNICATION CONNECTIONS. SOME OF THE EXISTING UTILITIES WILL REMAIN BUT NEW ONES WILL BE ADDED.
25. THE APPLICANT IS RESPONSIBLE FOR THE MAINTENANCE OF ALL SPECIAL PAVING MATERIAL INSTALLED WITHIN THE PUBLIC RIGHT OF WAY PER DEVELOPMENT CONDITION 26.

ADDITIONAL NOTES

1. CONTRACTOR SHALL ENSURE ALL DISCHARGES ARE IN ACCORDANCE WITH CITY OF ALEXANDRIA CODE TITLE 5, CHAPTER 6, ARTICLE B.

2. DEWATERING AND OTHER CONSTRUCTION RELATED DISCHARGE LIMITS TO THE SEWER SYSTEM ARE REGULATED BY ALEXRENEW PRETREATMENT. CONTRACTOR IS REQUIRED TO CONTACT ALEXRENEW'S PRETREATMENT COORDINATOR AT 703-721-3500 X2020.

EXISTING CONDITIONS SURVEY NOTES

1. HORIZONTAL DATUM* NORTH AMERICAN DATUM OF 1983, NAD83
   VERTICAL DATUM* NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD88*
2. UTILITY INFORMATION, AS SHOWN ON THIS PLAN, IS TAKEN FROM THE RECORDS AND/OR FIELD SURVEY COMPLETED BY URBAN LTD., DATED 05/10/2012; AND CANNOT BE GUARANTEED. FOR EXACT LOCATIONS OF EXISTING UNDERGROUND UTILITIES, NOTIFY "MISS UTILITY" AT 1-800-257-7777 AND 811 72 HOURS BEFORE THE START OF ANY EXCAVATION OR CONSTRUCTION. THE CONSTRUCTION WORKERS AND CONTRACTOR(S) ARE ENCOURAGED TO VISIT DOMINION VIRGINIA POWER WEB SITE AT WWW.DOM.COM (KEYWORD SAFETY) FOR ADDITIONAL SAFETY INSTRUCTIONS.
3. LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR/ENGINEER SHOULD DIG TEST PITS BY HAND AT ALL UTILITY CROSSINGS TO VERIFY EXACT LOCATION.
4. THE BOUNDARY INFORMATION FOR THE SUBJECT SITE IS BASED ON A CURRENT FIELD SURVEY PREPARED BY URBAN LTD., DATED 02/01/2012 IN ACCORDANCE WITH THE REQUIREMENTS OF VIRGINIA ASSOCIATION OF LAND SURVEYORS.

* PER MEMORANDUM TO INDUSTRY, JULY 20, 2005; THE PLAN SHALL BE PREPARED USING VIRGINIA STATE PLANE (NORTHZONE) COORDINATES BASED ON NAD83 AND NAVD88; HOWEVER, IF THE CURRENT DRAWINGS ARE PREPARED USING NORTH AMERICAN DATUM OF 1927 (NAD27) AND NORTHGEODETIC VERTICAL DATUM OF 1929 (NGVD29) THEN THE AS-BUILT DRAWINGS SHALL PROVIDE A CONVERSION TABLE OF SANITARY AND STORM SEWER DATA IN THE NAD83 AND NAVD88 DATUMS.

ENVIRONMENTAL SITE ASSESSMENT

1. THE CITY OF ALEXANDRIA DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES, OFFICE OF ENVIRONMENTAL QUALITY MUST BE NOTIFIED IF UNUSUAL OR UNANTICIPATED CONTAMINATION OR UNDERGROUND STORAGE TANKS, DRUMS, AND CONTAINERS ARE ENCOUNTERED AT THE SITE. IF THERE IS ANY DOUBT ABOUT PUBLIC SAFETY OR A RELEASE TO THE ENVIRONMENT, THE ALEXANDRIA FIRE DEPARTMENT MUST BE CONTACTED IMMEDIATELY BY CALLING 911. THE TANK OR CONTAINER'S REMOVAL, ITS CONTENTS, ANY SOIL CONTAMINATION AND RELEASES TO THE ENVIRONMENT WILL BE HANDLED IN ACCORDANCE WITH FEDERAL, STATE, AND CITY REGULATIONS.
2. ALL WELLS TO BE DEMOLISHED IN THIS PROJECT, INCLUDING MONITORING WELLS MUST BE CLOSED IN ACCORDANCE WITH VIRGINIA STATE WATER CONTROL BOARD (VSWCB) REQUIREMENTS. CONTACT ENVIRONMENTAL HEALTH SPECIALIST AND COORDINATE WITH THE ALEXANDRIA HEALTH DEPARTMENT AT 703-746-4996.
3. UNLESS APPROVED BY THE DIRECTOR OF TRANSPORTATION & ENVIRONMENTAL SERVICES (T&ES) ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE ALEXANDRIA NOISE CONTROL CODE TITLE 11, CHAPTER 5, WHICH PERMITS CONSTRUCTION ACTIVITIES TO OCCUR
   BETWEEN THE FOLLOWING HOURS:
   MONDAY THROUGH FRIDAY FROM 7 AM TO 6 PM AND
   SATURDAYS FROM 9 AM TO 6 PM.
   NO CONSTRUCTION ACTIVITIES ARE PERMITTED ON SUNDAYS.
   PILE DRIVING IS FURTHER RESTRICTED TO THE FOLLOWING HOURS:
   MONDAY THROUGH FRIDAY FROM 9 AM TO 6 PM AND
   SATURDAYS FROM 10 AM TO 4 PM.

SANITARY FLOW COMPUTATIONS

TOTAL FLOW FROM BLOCK L&M=
350 GPD/UNIT * 110 UNITS = 38,500 GPD
PEAK FACTOR FLOW FROM BUILDING = 38,500 GPD * 4.0 = 154,000 OR 0.15 MGD

THE TOTAL ESTIMATED FLOW EXCEEDS 10,000 GPD AND IS THEREFORE SUBJECT MEMORANDUM TO INDUSTRY NO. 06-14, WHICH STATES THAT AT THE TIME OF THE FINAL SITE PLAN,

1. THE APPLICANT SHALL PROVIDE ADEQUATE SANITARY SEWER OUTFALL ANALYSIS, AS GENERALLY DESCRIBED BELOW, SUFFICIENT TO DETERMINE EXISTING AND FUTURE FLOWS IN THE CITY-OWNED SEWERS THAT ARE USED BY THE DEVELOPMENT/REDEVELOPMENT PROJECT. THE SANITARY SEWER ADEQUATE OUTFALL ANALYSIS SHALL BE COMPLETED UP TO THE TRUNK SEWER DOWNSTREAM WITH A MINIMUM DIAMETER OF 24" OR TO A POINT AS DIRECTED BY T&ES STAFF.
2. THE APPLICANT SHALL PROVIDE AN ESTIMATE OF THE AVERAGE DAY AND PEAK WASTEWATER FLOW DISCHARGED UPSTREAM AND DOWNSTREAM OF THE DEVELOPMENT SITE UNDER EXISTING CONDITIONS AND THE CONTRIBUTION OF SANITARY FLOW FROM THE PROPOSED DEVELOPMENT SITE TO THE TRUNK SEWER USING THE FACTORS DESCRIBED BELOW:

A. AVERAGE DESIGN FLOWS:
I. SINGLE FAMILY HOME/TOWNHOUSE 350 GPD/UNIT
II. MULTI-FAMILY (CONDO, APARTMENT) 300 GPD/UNIT
III. OFFICE/RETAIL 200 GPD/1000 S.F.
IV. HOTEL 130 GPD/ROOM
B. THE SANITARY SEWERS SHALL BE DESIGNED FOR PEAK FLOW USING A PEAKING FACTOR OF 4 APPLIED TO THE AVERAGE FLOW.
C. AT THE DISCRETION OF T&ES STAFF, EXISTING CONDITIONS PEAK FLOWS, BASED ON LONG-TERM MONITORING AND/OR SEWER MODELING, MAY BE AVAILABLE TO THE APPLICANT FOR USE IN DETERMINING SANITARY SEWER CAPACITY.
D. SHORT-TERM TEMPORARY FLOW MONITORING OR WATER METER DATA MAY NOT BE USED IN LIEU OF COMPUTING EXISTING FLOWS. LONG-TERM MONITORING MAY BE USED SUBJECT TO THE APPROVAL OF THE DIRECTOR OF T&ES.

3. IN LIEU OF THE ESTIMATION OF THE AVERAGE DAY AND PEAK HOUR WASTEWATER FLOW, THE DIRECTOR OF T&ES AT HIS DISCRETION MAY REQUEST THE APPLICANT TO MEASURE THE SANITARY FLOW UPSTREAM AND DOWNSTREAM OF THE PROPOSED DEVELOPMENT SITE TO DETERMINE THE CURRENT SANITARY FLOW DISCHARGED INTO THE TRUNK SEWER UPSTREAM OF THE DEVELOPMENT SITE AND THE CURRENT CONTRIBUTION OF THE SANITARY FLOW TO THE TRUNK SEWER FROM THE DEVELOPMENT SITE UNDER EXISTING CONDITIONS.
4. THE APPLICANT SHALL ESTIMATE ADDITIONAL AVERAGE DAY AND PEAK HOUR WASTEWATER FLOW TO BE DISCHARGED INTO THE TRUNK SEWER FROM THE PROPOSED DEVELOPMENT SITE UNDER PROPOSED CONDITIONS USING THE FACTORS DESCRIBED ABOVE.
5. THE SANITARY SEWER ADEQUATE OUTFALL ANALYSIS SHALL ACCOUNT FOR THE EXISTING AND FUTURE NEEDS.
6. THE CITY OF ALEXANDRIA, AT ITS DISCRETION, WILL PROVIDE THE APPLICANT WITH ANY READILY AVAILABLE DATA TO ASSIST IN COMPLETION OF THE ADEQUATE OUTFALL ANALYSIS. THE ADDITIONAL PARAMETERS REQUIRED TO COMPLETE THE ANALYSIS SHALL BE FIELD MEASURED (I.E., LENGTH, PIPE DIAMETER, MATERIAL OF CONSTRUCTION, AND SLOPE, ETC.) AND/OR ESTIMATED (I.E., MANNING'S ROUGHNESS COEFFICIENT) BY THE APPLICANT. THE APPLICANT SHALL USE THE CRITERIA ESTABLISHED BY THE ENGINEERS AND SURVEYORS (ESI) INSTITUTE, AS SHOWN ON THE ESI CHECK LIST, WHERE APPLICABLE.
7. THE APPLICANT SHALL PROVIDE ALL THE MEASURED AND/OR ESTIMATED DATA AND CALCULATIONS ON THE ADEQUATE SANITARY SEWER OUTFALL ANALYSIS ON THE PLANS FOR REVIEW BY THE CITY STAFF.
8. THE INCREASED PEAK FLOW WILL BE PLACED IN THE CITY OF ALEXANDRIA WASTEWATER FLOW CAPACITY REGISTRY TO DETERMINE THAT THE CITY HAS SUFFICIENT TREATMENT CAPACITY AVAILABLE IN THE ALEXANDRIA SANITATION AUTHORITY (ASA) ADVANCED WASTEWATER TREATMENT PLANT (A WWTP) AND IN VARIOUS INTERCEPTOR SEWERS IN THE CITY OF ALEXANDRIA.
9. SANITARY SEWER SYSTEMS THAT SERVE OVER 400 PEOPLE REQUIRE THE APPROVAL OF THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (VDEQ). THEREFORE, THE APPLICANT SHALL COMPLY WITH ALL THE REGULATORY REQUIREMENTS OF THE STATE OF VIRGINIA.
10. THE INSTALLATION OF PLUMBING FIXTURES THROUGHOUT THE CITY SHALL BE GOVERNED BY LOCATION. IN THE AREAS A AND B SHOWN IN THE ATTACHED MAP, THE SANITARY SEWER PLUMBING FIXTURES AND DRAINS LOCATED BELOW THE FIRST FLOOR (INCLUDING PARKING STRUCTURES) SHALL HAVE IN-STRUCTURE OR ON-SITE PLUNPED DISCHARGE TO THE CITY'S GRAVITY COLLECTION SYSTEM.
11. THE PUMPED FACILITIES SHALL BE PROVIDED WITH A STANDBY SOURCE OF POWER (I.E., BATTELY OR GENERATOR).
12. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE PERPETUAL OWNERSHIP, CAPITAL, AND MAINTENANCE AND OPERATION OF THE PUMPS AND APPURTENANCES.
13. NO FOUNDATION DRAIN, BASEMENT DRAIN, OR STAIRWELL BASEMENT ACCESS DRAIN SHALL BE CONNECTED TO THE CITY OR ASA SANITARY SEWER.

SEE SHEET 10 & 11 FOR ADEQUATE OUTFALL ANALYSIS.

DEMOLITION

1. A SEPARATE PERMIT IS REQUIRED FOR DEMOLITION; HOWEVER, NO DEMOLITION SHALL BEGIN UNTIL ALL EROSION AND SEDIMENT AND TREE PROTECTION CONTROLS ARE IN PLACE AND ARE APPROVED BY AN EROSION AND SEDIMENT CONTROL INSPECTOR OF THE DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES.
2. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE MOST CURRENT APPLICABLE FEDERAL, STATE , AND LOCAL LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED, TO ENVIRONMENTAL PROTECTION AGENCY (EPA), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), VIRGINIA OCCUPATIONAL AND SAFETY HEALTH COMPLIANCE PROGRAM (VOSH ENFORCEMENT), VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT, NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), AND NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (NIOSH).
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF WORK WITH REPRESENTATIVE UTILITY COMPANIES AND FOR THE IMPLEMENTATION OF REQUIRED UTILITY-RELATED WORK.
4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE UPON ENCOUNTERING ANY HAZARDOUS MATERIALS DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL DOCUMENT SAME TO THE OWNER'S REPRESENTATIVE AND OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
5. DISCONNECTION OF SERVICES AND SYSTEMS SUPPLYING UTILITIES TO BE ABANDONED OR DEMOLISHED SHALL BE COMPLETED PRIOR TO OTHER SITE DEMOLITION IN FULL COMPLIANCE WITH APPLICABLE CODES, REGULATIONS, AND THE REQUIREMENTS OF UTILITY PURVEYORS HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE UTILITY PURVEYORS, PAYMENT OF ASSOCIATED FEES AND PROCUREMENT OF ALL NECESSARY PERMITS.
6. PRIOR TO REMOVAL OF MATERIALS OVER EXISTING UTILITY SYSTEMS, THE CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS AND, IF AT VARIANCE WITH CONDITIONS AS REPRESENTED ON THE PLANS, NOTIFY THE OWNER'S REPRESENTATIVE AND OBTAIN DIRECTIONS AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
7. THE CONTRACTOR SHALL BACKFILL EXCAVATED AREAS WITH APPROVED MATERIALS/CLEAN FILL AS PER THE REQUIREMENTS OF VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT).
8. THE CONTRACTOR SHALL PROTECT AND PREVENT DAMAGE TO EXISTING ON-SITE UTILITY DISTRIBUTION FACILITIES THAT ARE TO REMAIN. ACTIVE UTILITY DISTRIBUTION FACILITIES ENCOUNTERED DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES SHALL BE SHUT OFF AT THE SERVICE MAIN WITH THE APPROVAL OF THE OWNER'S REPRESENTATIVE.
9. DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE UPON ENCOUNTERING ANY EXISTING UTILITIES AND/OR UTILITY SYSTEM STRUCTURES NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL DOCUMENT THE SAME AND FORWARD THE INFORMATION TO THE RESIDENT ENGINEER/OWNER'S REPRESENTATIVE, AND OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
10. THE CONTRACTOR OR APPLICANT SHALL WORK WITH THE CITY STAFF TO REUSE THE EXISTING, LEFTOVER, UNUSED, AND/OR DISCARDED BUILDING MATERIALS AS PART OF THE DEMOLITION PROCESS OR THE CONSTRUCTION DEBRIS MUST BE REMOVED TO AN APPROVED LANDFILL WITH ADEQUATE FREQUENCY IN ACCORDANCE WITH THE VIRGINIA STATE LINER CONTROL ACT.

SIGN CONSTRUCTION

A SEPARATE PERMIT IS REQUIRED FOR SIGN CONSTRUCTION.

CEMETERY AND/OR BURIAL GROUNDS

THERE IS NO OBSERVABLE, HISTORICAL, OR ARCHAEOLOGICAL EVIDENCE OF CEMETERIES OR BURIAL GROUNDS ON THIS PROPERTY. FURTHERMORE, IT IS ILLEGAL TO DISTURB HUMAN REMAINS WITHOUT OBTAINING APPROPRIATE LEGAL AUTHORIZATION. IF BURIALS ARE FOUND DURING THE ARCHAELOGICAL INVESTIGATION AND NEED TO BE MOVED PRIOR TO DEVELOPMENT, THE APPLICANT SHALL BE RESPONSIBLE FOR THE ARCHAEOLOGICAL REMOVAL AND FOR OBTAINING THE NECESSARY LEGAL DOCUMENTS, INCLUDING A PERMIT FROM THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES FOR THE ARCHAEOLOGICAL REMOVAL OF BURIALS.

RODENT ABATEMENT NOTE

PRIOR TO THE ISSUANCE OF A DEMOLITION PERMIT, A RODENT ABATEMENT PLAN SHALL BE SUBMITTED TO THE CITY OF ALEXANDRIA DEPARTMENT OF CODE ADMINISTRATION THAT WILL OUTLINE WHAT STEPS HAVE AND WILL BE TAKEN TO PREVENT THE SPREAD OF RODENTS FROM THE CONSTRUCTION SITE TO THE SURROUNDING COMMUNITY AND SEWERS. THE CONTRACTOR CAN CONTACT THE ALEXANDRIA DEPARTMENT OF CODE ADMINISTRATION AT 703-746-4200 FOR ANY QUESTIONS OR ADDITIONAL INFORMATION. PLEASE BE ADVISED ONCE ANY DEMOLITION HAS BEEN COMPLETED ANY ABOVE GROUND BAIT BOXES MUST BE RELOCATED TO WITHIN 50 FEET OF A STRUCTURE IN KEEPING WITH EPA REGULATIONS. IF THIS IS NOT POSSIBLE, THEY SHALL BE REMOVED AND REGULAR INSPECTIONS OF THE SITE CONDUCTED BY A VIRGINIA LICENSED PEST EXTERMINATOR TO ENSURE THE SITE REMAINS RODENT FREE.

MARINE CLAY STATEMENT

NO MARINE CLAYS EXISTS ON SITE FOR BLOCK L & M

SOLID WASTE MANAGEMENT

1. SINCE THE APPLICANT IS NOT REQUIRED, BY SECTION 5-1-31 OF THE CITY CHARTER AND CODE TITLE 5: TRANSPORTATION AND ENVIRONMENTAL SERVICES, TO USE THE CITY OF ALEXANDRIA'S COLLECTION AND DISPOSAL SERVICES; SOLID WASTE COLLECTION AND DISPOSAL SERVICES SHALL BE PROVIDED BY THE APPLICANT / PRIVATE COLLECTORS AND SHALL BE PASSED ON TO THE NEW OWNER IN CASE OF A SALE OF THE PROPERTY SUBSEQUENT TO THE DEVELOPMENT.

SITE ACCESSIBILITY NOTES

1. ALL BUILDINGS WITHIN THE BOUNDARY OF THIS SITE SHALL HAVE AT LEAST ONE "ACCESSIBLE ROUTE" THAT CONFORMS TO "ADA"-"ACCESSIBLE ROUTE" STANDARDS. THESE STANDARDS INCLUDE, BUT ARE NOT LIMITED TO: MAXIMUM WALK SLOPE=1:20 AND MAXIMUM RAMP SLOPE=1:12. ALL WALKS WILL BE BROOM-FINISHED CONCRETE UNLESS OTHERWISE SPECIFIED ON THESE DRAWINGS AND/OR THE ARCHITECTURAL PLANS.

2. ALL "ACCESSIBLE" PARKING SPACES SHALL BE DESIGNATED WITH APPROPRIATE SIGNAGE.

3. THE PAVEMENT SLOPE WITHIN ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION.

ARCHAEOLOGY NOTES

1. ALL REQUIRED ARCHAEOLOGICAL PRESERVATION MEASURES SHALL BE COMPLETED PRIOR TO GROUND-DISTURBING ACTIVITIES (SUCH AS CORING, GRADING, FILLING, VEGETATION REMOVAL, UNDERGROUNDING UTILITIES , PILE DRIVING, LANDSCAPING AND OTHER EXCAVATIONS AS DEFINED IN SECTION 2-151 OF THE ZONING ORDINANCE) OR A RESOURCE MANAGEMENT PLAN MUST BE IN PLACE TO PRESERVE AND/OR RECOVER SIGNIFICANT RESOURCES IN CONCERT WITH CONSTRUCTION ACTIVITIES. TO CONFIRM, CALL ALEXANDRIA ARCHAEOLOGY AT (703) 838-4399.
2. CALL ALEXANDRIA ARCHAEOLOGY (703-746-4399) TWO WEEKS BEFORE THE STARTING DATE OF ANY GROUND DISTURBANCE SO THAT AN INSPECTION OR MONITORING SCHEDULE FOR CITY ARCHAEOLOGISTS CAN BE ARRANGED.
3. THE APPLICANT SHALL CALL ALEXANDRIA ARCHAEOLOGY IMMEDIATELY (703-746-4399) IF ANY BURIED STRUCTURAL REMAINS (WALL FOUNDATIONS, WELLS, PRIVIES, CISTERNS, ECT.) OR CONCENTRATIONS OF ARTIFACTS ARE DISCOVERED DURING DEVELOPMENT. WORK MUST CEASE IN THE AREA OF THE DISCOVERY UNTIL A CITY ARCHAEOLOGIST COMES TO THE SITE AND RECORDS THE FINDS.
4. THE APPLICANT SHALL NOT ALLOW ANY METAL DETECTION AND/OR ARTIFACT COLLECTION TO BE CONDUCTED ON THE PROPERTY, UNLESS AUTHORIZED BY ALEXANDRIA ARCHAEOLOGY. FAILURE TO COMPLY SHALL RESULT IN PROJECT DELAYS.
5. ALL REQUIRED ARCHAEOLOGICAL MEASURES SHALL BE COMPLETED IN COMPLIANCE WITH SECTION 11-411 OF THE ZONING ORDINANCE.

CONSTRUCTION NOTES

1. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREIN ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH MAY OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY ACTION AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUATION OF SERVICE.
2. THE CONTRACTOR SHALL DIG TEST PITS AS REQUIRED FOLLOWING NOTIFICATION AND MARKING OF ALL EXISTING UTILITIES TO VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES TEST HOLES TO BE PERFORMED AT LEAST 30 DAYS PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REPORTED IMMEDIATELY TO THE OWNER AND ENGINEER. REDESIGN AND APPROVAL BY REVIEWING AGENCIES SHALL BE OBTAINED, IF REQUIRED.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM ANY AUTHORITY ISSUING PERMITS.
4. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL VERIFY EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION.
5. THE CONTRACTOR SHALL CLEAR THE SITE OF ALL TREES, BUILDINGS, FOUNDATIONS, ETC., WITHIN THE LIMITS OF CONSTRUCTION UNLESS OTHERWISE SPECIFIED, AND SHALL BE RESPONSIBLE FOR ENSURING THAT EXISTING UTILITIES ARE DISCONNECTED.
6. THE DEVELOPER SHALL PROVIDE OVER-LOT GRADING TO PROVIDE POSITIVE DRAINAGE AND PRECLUDE PONDING OF WATER.
7. ALL AREAS, ON OR OFFSITE, WHICH ARE DISTURBED BY THIS CONSTRUCTION AND WHICH ARE NOT PAVED OR BUILT UPON, SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION. THE MINIMUM ACCEPTABLE STABILIZATION SHALL CONSIST OF PERMANENT GRASS, SEED MIXTURE TO BE AS RECOMMENDED BY THE CITY AGENT. ALL SLOPES 3:1 AND GREATER SHALL BE SODDED AND PEGGED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY OF AL

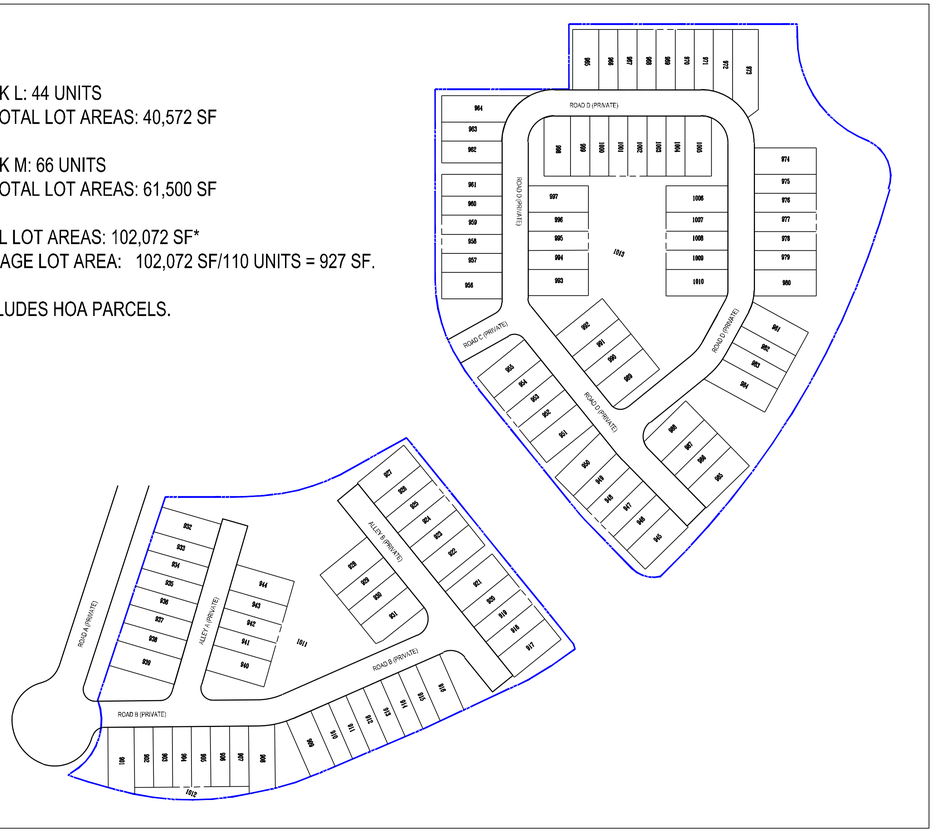
LOT AREA TABULATION (SCALE: 1"=60')

BLOCK L: 44 UNITS
SUBTOTAL LOT AREAS: 40,572 SF

BLOCK M: 66 UNITS
SUBTOTAL LOT AREAS: 61,500 SF

TOTAL LOT AREAS: 102,072 SF*
AVERAGE LOT AREA: 102,072 SF/110 UNITS = 927 SF.

*EXCLUDES HOA PARCELS.



INDIVIDUAL LOT AREAS

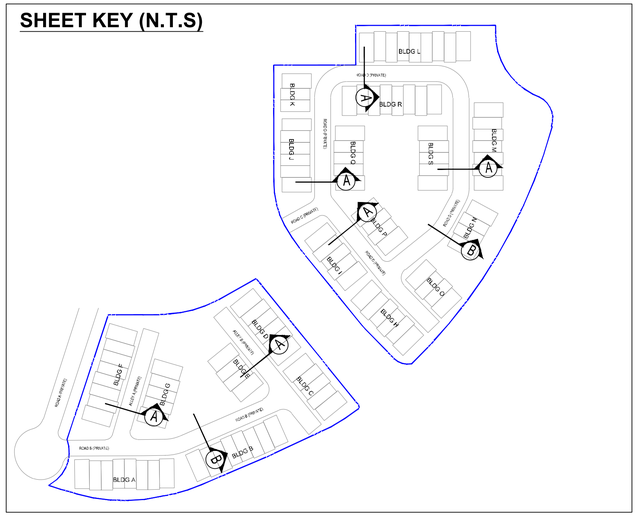
901 1174 S.F.	0.0269 ACRES	957 808 S.F.	0.0185 ACRES
902 808 S.F.	0.0186 ACRES	958 808 S.F.	0.0185 ACRES
903 808 S.F.	0.0186 ACRES	959 808 S.F.	0.0185 ACRES
904 808 S.F.	0.0186 ACRES	960 808 S.F.	0.0185 ACRES
905 808 S.F.	0.0186 ACRES	961 922 S.F.	0.0212 ACRES
906 808 S.F.	0.0186 ACRES	962 917 S.F.	0.0211 ACRES
907 808 S.F.	0.0186 ACRES	963 827 S.F.	0.019 ACRES
908 1205 S.F.	0.0277 ACRES	964 1356 S.F.	0.0311 ACRES
909 1116 S.F.	0.0256 ACRES	965 1111 S.F.	0.0255 ACRES
910 815 S.F.	0.0187 ACRES	966 808 S.F.	0.0185 ACRES
911 818 S.F.	0.0188 ACRES	967 808 S.F.	0.0185 ACRES
912 821 S.F.	0.0189 ACRES	968 808 S.F.	0.0185 ACRES
913 824 S.F.	0.0189 ACRES	969 808 S.F.	0.0185 ACRES
914 827 S.F.	0.019 ACRES	970 808 S.F.	0.0185 ACRES
915 827 S.F.	0.019 ACRES	971 812 S.F.	0.0186 ACRES
916 1125 S.F.	0.0258 ACRES	972 875 S.F.	0.0201 ACRES
917 1111 S.F.	0.0255 ACRES	973 1466 S.F.	0.0337 ACRES
918 808 S.F.	0.0185 ACRES	974 1152 S.F.	0.0265 ACRES
919 808 S.F.	0.0185 ACRES	975 832 S.F.	0.0191 ACRES
920 808 S.F.	0.0185 ACRES	976 832 S.F.	0.0191 ACRES
921 1111 S.F.	0.0255 ACRES	977 832 S.F.	0.0191 ACRES
922 1112 S.F.	0.0255 ACRES	978 832 S.F.	0.0191 ACRES
923 808 S.F.	0.0185 ACRES	979 832 S.F.	0.0191 ACRES
924 808 S.F.	0.0185 ACRES	980 1153 S.F.	0.0265 ACRES
925 808 S.F.	0.0185 ACRES	981 1155 S.F.	0.0265 ACRES
926 808 S.F.	0.0185 ACRES	982 832 S.F.	0.0191 ACRES
927 1111 S.F.	0.0255 ACRES	983 832 S.F.	0.0191 ACRES
928 1111 S.F.	0.0255 ACRES	984 1197 S.F.	0.0275 ACRES
929 808 S.F.	0.0185 ACRES	985 1111 S.F.	0.0255 ACRES
930 808 S.F.	0.0185 ACRES	986 808 S.F.	0.0185 ACRES
931 1106 S.F.	0.0254 ACRES	987 808 S.F.	0.0185 ACRES
932 1144 S.F.	0.0263 ACRES	988 1115 S.F.	0.0256 ACRES
933 843 S.F.	0.0194 ACRES	989 1119 S.F.	0.0257 ACRES
934 853 S.F.	0.0196 ACRES	990 808 S.F.	0.0185 ACRES
935 863 S.F.	0.0198 ACRES	991 808 S.F.	0.0185 ACRES
936 872 S.F.	0.02 ACRES	992 1111 S.F.	0.0255 ACRES
937 882 S.F.	0.0202 ACRES	993 1111 S.F.	0.0255 ACRES
938 891 S.F.	0.0205 ACRES	994 808 S.F.	0.0185 ACRES
939 1242 S.F.	0.0285 ACRES	995 808 S.F.	0.0185 ACRES
940 1111 S.F.	0.0255 ACRES	996 808 S.F.	0.0185 ACRES
941 808 S.F.	0.0185 ACRES	997 1119 S.F.	0.0257 ACRES
942 808 S.F.	0.0185 ACRES	998 1114 S.F.	0.0256 ACRES
943 808 S.F.	0.0185 ACRES	999 808 S.F.	0.0185 ACRES
944 1111 S.F.	0.0255 ACRES	1000 808 S.F.	0.0185 ACRES
945 1111 S.F.	0.0255 ACRES	1001 808 S.F.	0.0185 ACRES
946 808 S.F.	0.0185 ACRES	1002 808 S.F.	0.0185 ACRES
947 808 S.F.	0.0185 ACRES	1003 808 S.F.	0.0185 ACRES
948 808 S.F.	0.0185 ACRES	1004 808 S.F.	0.0185 ACRES
949 809 S.F.	0.0186 ACRES	1005 1114 S.F.	0.0256 ACRES
950 1141 S.F.	0.0262 ACRES	1006 1152 S.F.	0.0265 ACRES
951 1111 S.F.	0.0255 ACRES	1007 832 S.F.	0.0191 ACRES
952 808 S.F.	0.0185 ACRES	1008 832 S.F.	0.0191 ACRES
953 808 S.F.	0.0185 ACRES	1009 832 S.F.	0.0191 ACRES
954 808 S.F.	0.0185 ACRES	1010 1151 S.F.	0.0264 ACRES
955 1111 S.F.	0.0255 ACRES	1011 36465 S.F.	0.8374 ACRES
956 1111 S.F.	0.0255 ACRES	1012 884 S.F.	0.0203 ACRES
		1013 60674 S.F.	1.394 ACRES
		TOTAL 200091 S.F.	4.5935 ACRES

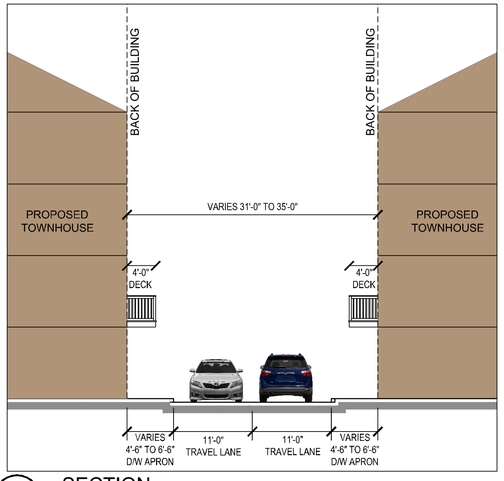
LEGEND:

EXISTING WATER LINE	EXISTING TELEPHONE LINE
PROPOSED WATER LINE	PROP. TELEPHONE LINE
EX. FIRE HYDRANT	EXISTING VDOT ELECTRIC LINE
PROP. FIRE HYDRANT	EXISTING ELECTRIC LINE
EXISTING WATER METER	EX. VERIZON FIBER
PROPOSED WATER METER	EX. COMCAST FIBER
EXISTING WATER VALVE	EX. PRIVATE FIBER
PROPOSED WATER VALVE	EX. ACF FIBER
EXISTING STORM DRAIN	EX. ELECTRIC MANHOLE
PROPOSED STORM DRAIN	EX. FIBER HANDHOLE
EXISTING SANITARY SEWER	PROP. ELECTRIC LINE
PROPOSED SANITARY SEWER DIRECTION OF FLOW	PROP. VERIZON FIBER
EXISTING GAS LINE	PROP. COMCAST FIBER
PROPOSED GAS LINE	PROPOSED PRIVATE FIBER
EXISTING GAS VALVE	PROPOSED ACF FIBER
PROPOSED GAS VALVE	PROPOSED ELECTRIC MANHOLE
EXISTING OVERHEAD WIRE	PROPOSED FIBER HANDHOLE
EXISTING LIGHTING	EXISTING CABLE TV LINE
PROPOSED LIGHTING	ROAD SIGN
EXISTING FENCE	EX. POWER POLE
PROPOSED FENCE	EXISTING SPOT ELEVATION
EXISTING TREE LINE	PROP. SPOT ELEVATION
EXISTING CONTOURS	SPILL AND TRANSITION CURB AND GUTTER
PROPOSED CONTOURS	PROPOSED CURB
PROPOSED PHASE LINE	EX. STREET LIGHTS
PROPOSED LIMITS OF CLEARING & GRADING	PROP. STREET LIGHTS
EXISTING WETLANDS	PROPOSED CG-12
PROP. RET. WALL	EXISTING TREE
EX. RET. WALL	PROPOSED TREE
PROP. POST LIGHT	WATER FITTING IDENTIFIER
PROP. BUILDING MAIN ENTRANCE	LOADING AREA
PROP. BUILDING ENTRANCE	BENCHMARK
PROP. UNDERGROUND GARAGE	TEST PIT REQUIRED
PROPERTY LINE	PROJECTED TRAFFIC COUNT
LOADING SPACE	OVERLAND RELIEF
INTERSECTION VISIBILITY TRIANGLE	PROP. PROPOSED EX. EXISTING SF SQUARE FEET GSF GROSS SQUARE FEET NSF NET SQUARE FEET T.B.R. TO BE REMOVED FF FINISHED FLOOR V VISITOR PARKING SPACE S, C, HC STANDARD, COMPACT, AND HANDICAP PARKING SPACE DESIGNATOR
BRICK PAVE AREA (TO MATCH EXISTING PLAZA)	PROP. PERVIOUS AREA
PROP. CONCRETE SIDEWALK	PROP. PARKING SPACE
PARKING SPACE COUNT	EX. TRASH AND RECYCLING.
(COA) CITY OF ALEXANDRIA (AW) AMERICAN WATER (CSW) CONC. SIDEWALK (ASW) ASPHALT SIDEWALK	

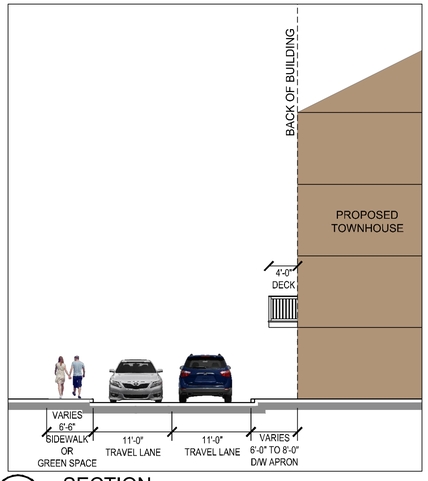
STREET SECTIONS

SHEET KEY (N.T.S)





A SECTION
SCALE: 1"=10'



B SECTION
SCALE: 1"=10'

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR DATE
CHAIRMAN, PLANNING COMMISSION DATE
DATE RECORDED _____
INSTRUMENT NO. DEED BOOK NO. PAGE NO.

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. POCH
Lic. No. 036790
PROFESSIONAL ENGINEER
05/02/2024

GENERAL NOTES & DETAILS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
DATE: MAY, 2024
SCALE: AS NOTED C.I.= N/A

SHEET 02A OF 28
FILE No. SP-13141

Urban, Ltd. - J:_OBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-02-GNOTES.dwg [GNOTES 1] May 03, 2024 - 10:22am owolo

DEVELOPMENT SUMMARY

INOVA HOSPITAL CAMPUS

Use	Floor Area	Residential Units	Hotel Keys		Building A Floor Area	Building A Units	Building B Floor Area	Building B Units	Building C Floor Area	Building C Units	Block D Floor Area	Block D Units	Block E Floor Area	Block E Units	Block G Floor Area	Block G Units	Block H Floor Area	Block H Units	Block I Floor Area	Block I Units	Block F Floor Area	Block F Units	Block N Floor Area	Block N Units	Block J Floor Area	Block J Units	Block K Floor Area	Block K Units	Block L Floor Area	Block L Units	Blocks M Floor Area	Blocks M Units
Hospital	464,467				464,467	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medical Office	280,805				-	-	94,212	-	76,357	-	-	-	110,236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Multifamily	1,118,397	1,072 units			-	-	-	-	-	-	-	-	150,697	140	193,847	234	-	-	413,853	375	-	-	-	-	-	-	360,000	323	-	-	-	-
Affordable Multifamily	12,250	45 units			-	-	-	-	-	-	-	-	5,500	6	6,750	10	-	-	-	15	-	-	-	-	-	-	-	14	-	-	-	-
Senior Housing (AL/IL)	-	0 units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-over-2 Townhomes	-	0 units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traditional Townhomes	300,458	110 units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	119,932	44	180,526	66
Condo Flats	-	0 units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hotel	-		0 keys		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retail	236,146				-	-	-	-	-	-	-	-	89,971	-	23,888	-	-	-	90,287	-	7,279	-	4,064	-	-	-	32,000	-	-	-	-	-
Grocer	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Firestation	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Garage / Loading / Service					298,250 (TOTAL GARAGE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80,000	-	-	-	-	-
Total	**2,412,523**	**1,227 units**	**0 keys**		**762,717**	-	**94,212**	-	**76,357**	-	-	-	**356,404**	**146**	**224,485**	**244**	-	-	**504,140**	**390**	**7,279**	-	**4,064**	-	-	-	**472,000**	**337**	**119,932**	**44**	**180,526**	**66**
FAR over Gross Land Area	**1.0754**																															

PARKING TABULATIONS

INOVA HOSPITAL CAMPUS

Parking Requirement	Parking Ratio	Totals	Building A REQUIRED	Building A PROPOSED	Building B REQUIRED	Building B PROPOSED	Building C REQUIRED	Building C PROPOSED	Block D REQUIRED	Block D PROPOSED	Block E REQUIRED	Block E PROPOSED	Block G REQUIRED	Block G PROPOSED	Block H REQUIRED	Block H PROPOSED	Block I REQUIRED	Block I PROPOSED	BLOCK F REQUIRED	BLOCK F PROPOSED	BLOCK N REQUIRED	BLOCK N PROPOSED	Block J REQUIRED	Block J PROPOSED	Block K REQUIRED	Block K PROPOSED	Block L REQUIRED	Block L PROPOSED	Blocks M REQUIRED	Blocks M PROPOSED
PARKING RATES																														
Hospital	1/ 2 BEDS		TBD	(SEE BELOW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office	1.5/ 1000 GSF		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medical Office	1.5/ 1000 GSF		-	-	408	(SEE BELOW)	335	(SEE BELOW)			180	403																				
Multifamily	1/ BEDROOM		-	-	-	-	-	-	-	-	213	229	285	285	-	-	-	483	-	-	-	-	-	-	312	298	-	-	-	-	-	-
Affordable Multifamily	0.8/ UNIT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-
Senior Housing (AL/IL)	0.7/ UNIT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-over-2 Townhomes	2.0/ UNIT		-	-	-	-	-	-	-	-	-	-																				
Traditional Townhomes	2.0/ UNIT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	-	132	
Condo Flats	1.3/ UNIT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hotel	0.7/ KEY		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retail	3.0/ 1000 GSF		-	-	-	-	-	-	-	-	270	202	72	95	-	-	-	375	2**	0	2**	0	-	-	8	63 (SEE SHEET 03A)	-	-	-	-	-	-
Grocer	50 spaces		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
Firestation			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VEHICLE PARKING																																
STANDARD PARKING SPACES			-	TBD	-	TBD	-	TBD	-	-	-	382	-	117	-	-	-	154	-	-	-	-	-	-	-	114	-	88	-	132		
COMPACT PARKING SPACES			-	TBD	-	TBD	-	TBD	-	-	-	429	-	248	-	-	-	683	-	-	-	-	-	-	-	186	-	-	-	-		
ON-STREET PARKING SPACES												15		15												20						
HANDICAP PARKING SPACES (NON-VAN)			-	TBD	-	TBD	-	TBD	-	-	-	18	-	11	-	-	-	12	-	-	-	-	-	-	-	8	-	-	-	-	-	-
HANDICAP PARKING SPACES (VAN)			-	TBD	-	TBD	-	TBD	-	-	-	5	-	4	-	-	-	9	-	-	-	-	-	-	-	2	-	-	-	-	-	-
TOTAL PARKING PROVIDED:		**4,162**		1,510					-	-	663	849	357	395	-	-	-	858	-	-	-	-	-	-	320	330	-	88	-	132		
PARKING PROVIDED IN EXISTING GARAGE			550 (EXISTING GARAGE)						-	-	-	834	-	380	-	-	-	858	-	0	-	0	-	-	-	63 (SEE SHEET 03A)	-	-	-	-	-	-
PARKING PROVIDED IN PROPOSED GARAGE			960 (ABOVE GRADE GARAGE + BELOW GRADE GARAGE)						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	310	-	-	-	-	-	-
LOADING SPACES											5	4	1	3			6	3								2						
BICYCLE PARKING																																
Residential									-	-	44	45	74	75	-	-	-	129	-	-	-	-	-	-	102	116						
Visitor									-	-	9	9	5	5	-	-	-	8	-	15	-	6	-	-	7	7	1	2	2	2		
Retail											18	18	6	6				28		3		2			9	11						
Office									-	-	16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ZONING TABULATIONS

INOVA HOSPITAL CAMPUS

Zoning Requirement	Building A PROPOSED	Building B PROPOSED	Building C PROPOSED	Block D REQUIRED	Block D PROPOSED	Block E REQUIRED	Block E PROPOSED	Block G REQUIRED	Block G PROPOSED	Block H REQUIRED	Block H PROPOSED	Block I REQUIRED	Block I PROPOSED	Block F REQUIRED	Block F PROPOSED	Block N REQUIRED	Block N PROPOSED	Block J REQUIRED	Block J PROPOSED	Block K REQUIRED	Block K PROPOSED	Block L REQUIRED	Block L PROPOSED	Blocks M REQUIRED	Blocks M PROPOSED
LOT AREA (SQ. FT.)	452,343 (COMBINED INOVA HOSPITAL CAMPUS AREA)			-	-	-	108,575	-	62,083	-	-	-	107,845	-	31,872	-	22,509	-	-	-	98,964	-	77,919	-	122,172
LOT WIDTH (FT.)	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRONT YARD (FT.)	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SIDE YARD (FT.)	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REAR YARD (FT.)	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLOOR AREA (SQ. FT.)	933,286 (COMBINED FLOOR AREA FOR BUILDINGS A,B,C)			-	-	-	356,404	-	224,485	-	-	-	485,460		7,279	-	4,064	-	-	-	392,578	-	119,932	-	180,526
OPEN SPACE (SF / %)	15%			-	-	25.00%	25.00%	25.00%	25.00%	-	-	-	28.26%	25%	80.75%	25%	87.73%	-	-	25%	25.66%	25%	25%	25%	32.33%
GROUND FLOOR	53,530			-	-	-	10,303	-	14,056	-	-	-	1,364	7,968	25,738	5,627	19,748	-	-	24,741	7,248	19,480	19,480	30,543	30,543
ABOVE GROUND	10,000			-	-	-	16,840	-	1,464	-	-	-	29,115	-	-	-	-	-	-	-	18,142	-	-	-	-
TOTAL OPEN SPACE	62,530			-	-	27,143	27,143	15,520	15,520	-	-	-	30,479	7,968	25,738	5,627	19,748	-	-	24,741	25,390	-	19,480	-	30,543
AVERAGE FINISHED GRADE (FT.)	216.34 (PROPOSED)	209.86 (PROPOSED)	212.07 (PROPOSED)	-	-	-	200.11	-	198.35	-	-	-	193.00		208.90	-	201.625	-	-	-	199.21	-	195.8	-	195.8
MAX. BUILDING HEIGHT (FT.)	159	52	60	-	-	-	91.90/80	-	85	-	-	-	85	-	38'-0"	-	33'-0"	-	-	-	85	-	50	-	50
CROWN COVERAGE (SQ. FT.)	-	-	-	-	-	-	14750 (13.6%)	-	13500 (21.7%)	-	-	-	-	7,968	38250 (120%)	5,627	28500 (126%)	-	-	24,741	19019 (19.22%)	-	19,800 (25.4%)	-	31,690 (25.9%)
MAX. RESI DENTISTY (UNITS/AC.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.58 D.U/AC	-	23.57 DU.AC
Dwelling Unit Summary (ADU)	-	-	-	-	-	-	146	-	244	-	-	-	390	-	-	-	-	-	-	-	337 (14)	-	44	-	66
STUDIO UNITS (ADU)	-	-	-	-	-	-	1	-	37	-	-	-	58	-	-	-	-	-	-	-	4 (1)	-	-	-	-
JR ONE BEDROOM UNITS (ADU)									17												125				
ONE BEDROOM UNITS (ADU)	-	-	-	-	-	-	64	-	143	-	-	-	189	-	-	-	-	-	-	-	119 (10)	-	-	-	-
ONE BEDROOM DEN UNITS (ADU)	-	-	-	-	-	-	14	-	6	-	-	-	50	-	-	-	-	-	-	-	5	-	-	-	-
TWO BEDROOM UNITS (ADU)	-	-	-	-	-	-	46	-	36	-	-	-	68	-	-	-	-	-	-	-	77 (2)	-	-	-	-
TWO BEDROOM DEN UNITS (ADU)	-	-	-	-	-	-	6	-	5	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-
THREE BEDROOM UNITS (ADU)	-	-	-	-	-	-	15	-	-	-	-	-	12	-	-	-	-	-	-	-	7 (1)	-	-	-	-
LOADING SPACES	1	1	1	-	-	5	4	1	3	-	-	6	3	-	-	-	-	-	-	-	2	-	-	-	-
TRIP GENERATION (ADT)	5,774	910	3,317	-	-	-	6,587	-	1,605	-	-	-	5,173	-	-	-	-	-	-	-	1,981	-	93	-	180

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

REVISIONS

No.	DATE	DESCRIPTION

PLAN DATE
10 – 20 – 2023
03 – 01 – 2024
05 – 02 – 2024

Urban Ltd.
4200 D TECHNOLOGY CT.
CHANTILLY, VA. 20151
TEL. 703.642.2306
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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038780
07/02/2024
REGISTERED PROFESSIONAL

GENERAL NOTES & DETAILS

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

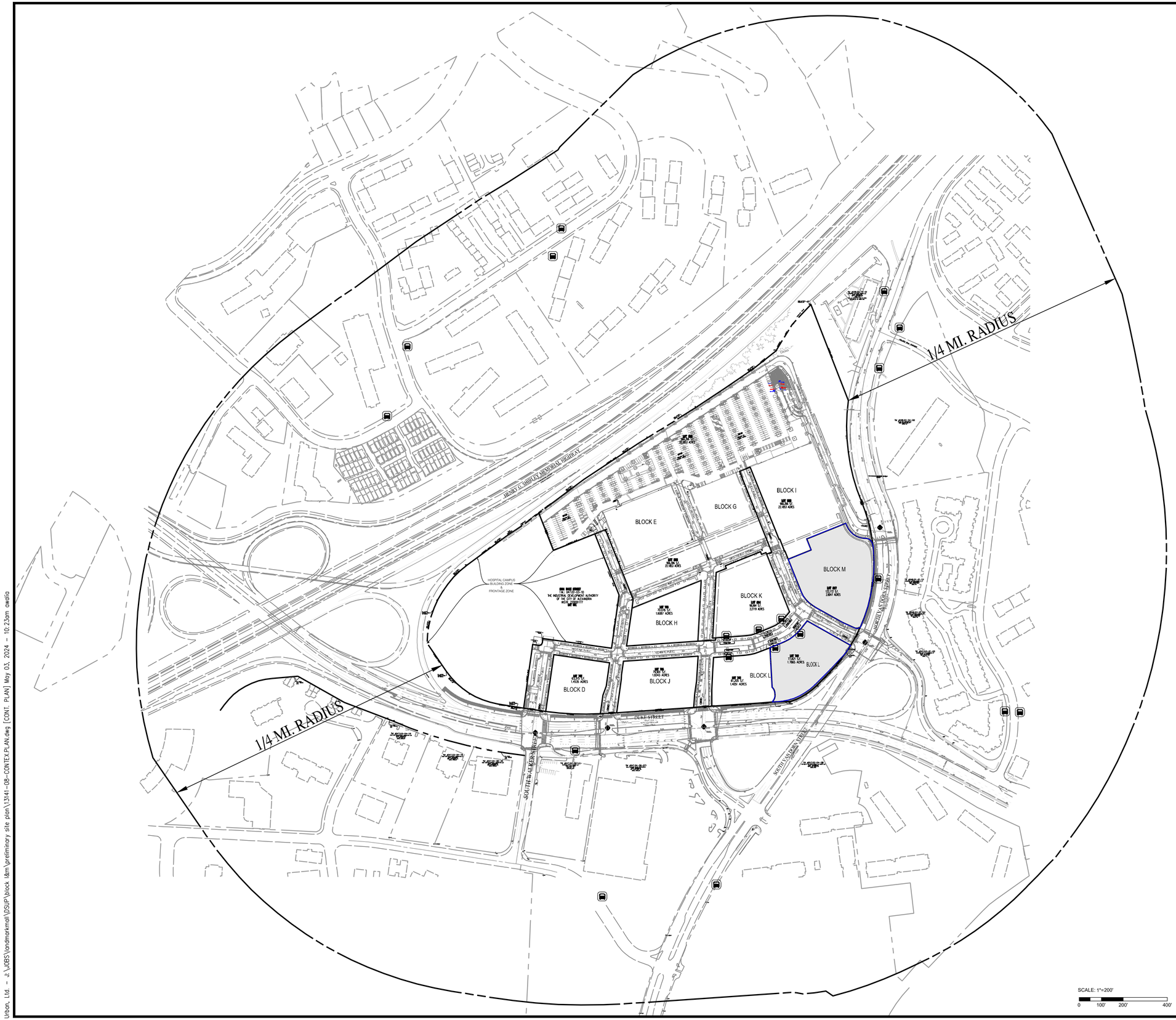
CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
C.I.= N/A
SCALE: N/A

SHEET 02B OF 28

FILE No. SP-13141

Urban, Ltd. – J:\JOBS\Landmarkmall\DSUP\block l&m\preliminary site plan\13141-02-GNOTES.dwg [GNOTES2] May 03, 2024 – 10:22am awalia



LEGEND

TRANSIT STOP

PROPOSED PROJECT SITE

APPROVED

DEVELOPMENT SITE PLAN NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

No.	DATE	REVISIONS

PLAN DATE 10-20-2023

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
10/20/2023

CONTEXTUAL PLAN

WEST END
BLOCK L&M - CONCEPT II

CITY OF ALEXANDRIA, VIRGINIA

DATE: OCT, 2023

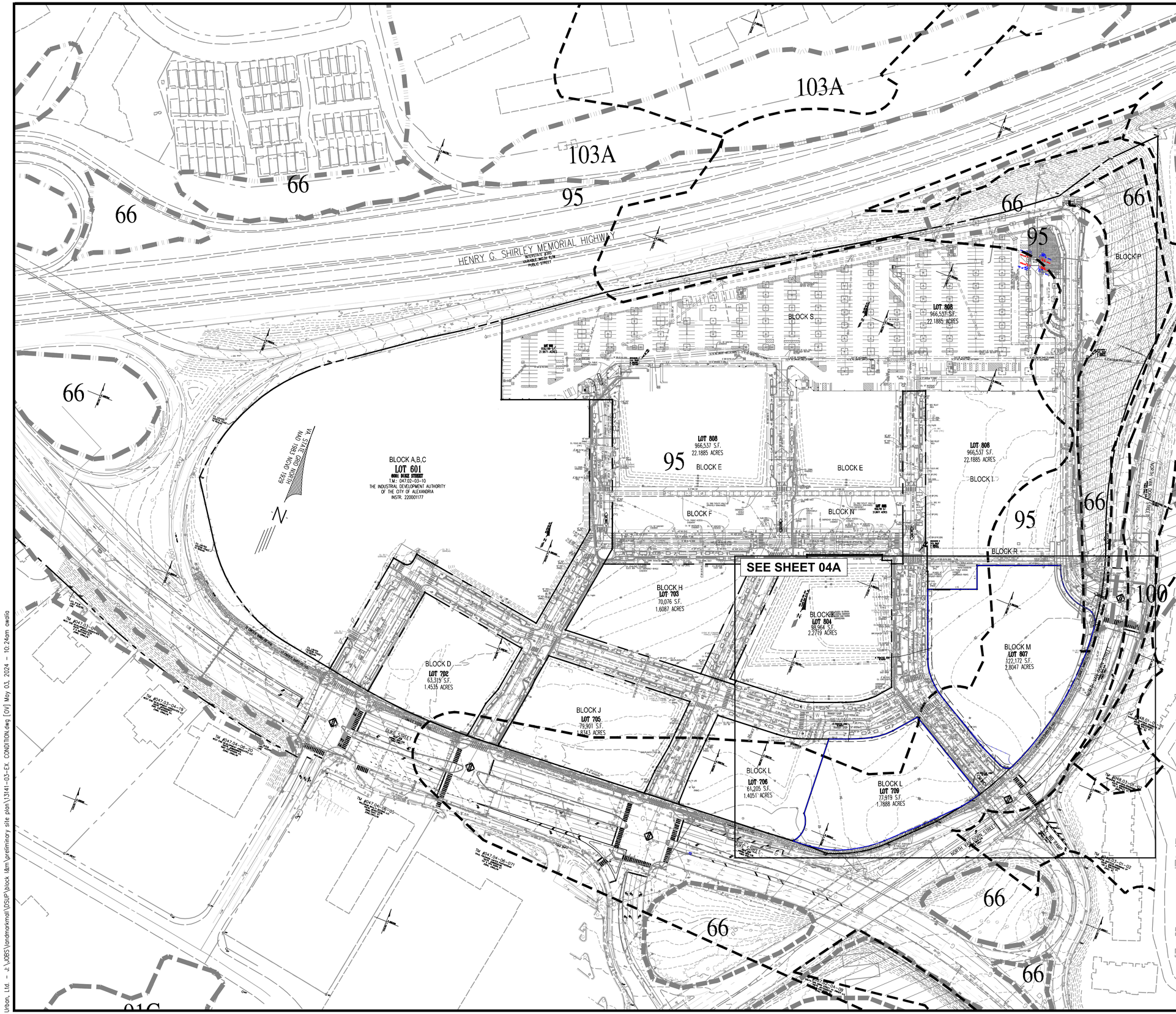
SCALE: 1"=200'

C.I.= N/A

SHEET 03 OF 10

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-08-CONTEXT PLAN.dwg [CONT. PLAN] May 03, 2024 - 10:23am awallo



LEGEND

- PROPERTY LINES
- BLOCK L & M PROPERTY LINES
- SOIL LINES
- MARINE CLAY OUTLINE
- OVER 25% SLOPE

SOIL INFORMATION

		CLASS	HYDRIC SOILS	HYDROLOGIC CLASS	SOIL DRAINED
95	URBAN LAND	IVB N/A	N/A	N/A	N/A
66	KINGSTOWNE SANDY CLAY LOAM	IVB D	NO	D	FAIR

NOTES

1. EXISTING CONDITIONS ON THIS PLAN WAS TAKEN FROM THE PROPOSED INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATION FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN.
2. ALL ADJOINING PROPERTY LINES AND LOT NUMBERS SHOWN HEREON REFLECT SUBDIVISION PLAT SUB #2023-00003, INSTR #230009477.
3. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO KNOWN CONTAMINATED SOIL AND/OR GROUNDWATER CONTAMINATION FOR BLOCK L AND M.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION

REVISIONS

PLAN DATE
10-20-2023
03-21-2024
05-02-2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
PROFESSIONAL ENGINEER
03/02/2024

OVERALL EXISTING CONDITIONS

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=100' C.I.= 2' DATE: MAY, 2024

SHEET 04 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-03-EX. CONDITION.dwg [OV] May 03, 2024 - 10:24am awalia

LINE & CURVE TABLE FOR BLOCKS L(LOT 709) & M

LINE	BEARING	DISTANCE
L1	N 60°51'20" W	222.57'
L2	S 39°08'39" W	64.02'
L3	S 68°08'38" W	47.02'
L4	S 03°26'26" E	179.16'
L5	N 83°41'28" E	23.22'
L6	N 45°07'17" E	99.59'
L7	N 43°02'34" E	94.36'
L8	N 37°04'34" E	22.46'
L9	S 66°06'21" E	56.15'
L10	S 85°08'59" W	1.07'
L11	N 86°36'04" W	9.48'
L12	N 72°38'53" W	110.12'
L13	S 68°07'48" W	191.22'
L14	S 21°52'19" E	54.50'
L15	S 68°07'48" W	112.16'
L16	S 21°51'22" E	159.48'
L17	S 60°51'25" E	132.18'

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH	TANGENT
C1	50.30'	173.54'	16°36'26"	S 50°07'20" W	50.12'	25.33'
C2	51.73'	319.08'	9°17'23"	S 64°44'32" W	51.68'	25.92'
C3	71.48'	50.00'	81°53'02"	S 01°26'05" E	65.55'	43.39'
C4	2.50'	5.00'	28°36'07"	S 25°12'19" W	2.47'	1.27'
C5	16.72'	1512.69'	0°38'00"	N 86°56'15" E	16.72'	8.36'
C6	117.47'	233.82'	28°47'04"	N 69°47'47" E	116.24'	60.00'
C7	56.29'	240.49'	13°24'58"	N 51°46'31" E	56.16'	28.27'
C8	24.86'	683.11'	2°05'07"	N 37°38'08" E	24.86'	12.43'
C9	4.10'	13.86'	16°56'50"	N 38°25'41" W	4.08'	2.06'
C10	8.16'	79.27'	5°53'51"	S 63°14'40" E	8.16'	4.08'
C11	26.11'	25.00'	59°50'51"	N 83°58'13" E	24.94'	14.39'
C12	381.46'	714.22'	30°36'04"	N 08°46'25" E	376.94'	195.40'
C13	47.96'	32.50'	84°33'26"	N 44°41'23" W	43.73'	29.55'
C14	103.39'	91.84'	64°29'43"	N 5370'13" W	98.01'	57.94'
C15	62.65'	126.00'	28°29'16"	S 36°04'46" E	62.01'	31.99'
C16	39.53'	215.00'	10°32'03"	S 55°35'26" E	39.47'	19.82'

BLOCK K
LOT 804
98,964 S.F.
2.2719 ACRES

BLOCK L
LOT 706
61,205 S.F.
1.4051 ACRES

BLOCK L
LOT 709
77,919 S.F.
1.7888 ACRES

BLOCK M
LOT 807
122,172 S.F.
2.8047 ACRES

NOTE: BLOCK TO DRAIN USING EXISTING SEDIMENT BASIN RISER AND STORM CONNECTION

ALLEYWAY (PRIVATE)
POSTED SPEED 25 MPH

VERVE ST. (PUBLIC)
POSTED SPEED= 25 MPH

HECHT AVE. (PUBLIC)
POSTED SPEED= 25 MPH

DUKE STREET
ROUTE #236
VARIABLE WIDTH R/W
PUBLIC STREET

NORTH VAN DORN STREET
VARIABLE WIDTH R/W
PUBLIC STREET

DUKE ST. WB RAMP
VARIABLE WIDTH R/W
PUBLIC STREET

LANDMARK ST. (PRIVATE)
POSTED SPEED 25 MPH

TM #048.01-0-0
MAGAZINE, BARTONS CROSSING
INSTR. #080009595
200 N. RIPLEY ST.
ZONE: RC

LEGEND

BLOCK L & M PROPERTY LINES

NOTES

1. EXISTING CONDITIONS ON THIS PLAN WAS TAKEN FROM THE PROPOSED INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATION FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN.
2. ALL ADJOINING PROPERTY LINES AND LOT NUMBERS SHOWN HEREON REFLECT SUBDIVISION PLAT SUB #2023-00003, INSTR #230009477.
3. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO KNOWN CONTAMINATED SOIL AND/OR GROUNDWATER CONTAMINATION PRESENT FOR BLOCKS L AND M.

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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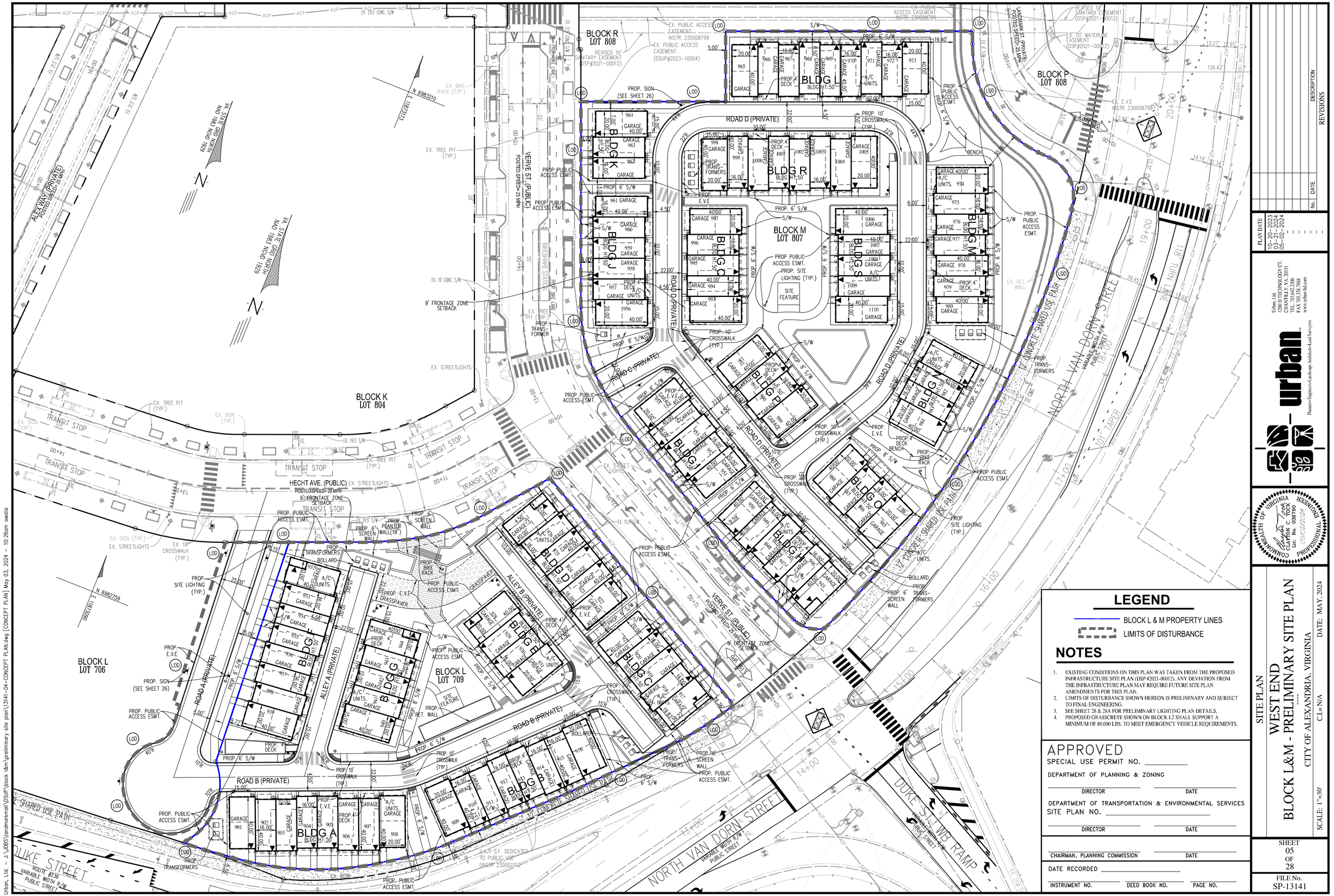
COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 039780
PROFESSIONAL ENGINEER
05/01/2024

EXISTING CONDITIONS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
DATE: MAY, 2024
SCALE: 1"=30' C.I.= 2'

SHEET
04A
OF
28

FILE No.
SP-13141

Urban, Ltd. - s:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-03-EX. CONDITION.dwg [01] May 03, 2024 - 10:25am owolla



LEGEND

BLOCK L & M PROPERTY LINES

LIMITS OF DISTURBANCE

NOTES

1. EXISTING CONDITIONS ON THIS PLAN WAS TAKEN FROM THE PROPOSED INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATION FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN.
2. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING.
3. SEE SHEET 28 & 28A FOR PRELIMINARY LIGHTING PLAN DETAILS.
4. PROPOSED GRASSCRETE SHOWN ON BLOCK L2 SHALL SUPPORT A MINIMUM OF 80,000 LBS. TO MEET EMERGENCY VEHICLE REQUIREMENTS.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION

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PLAN DATE
10-20-2023
03-01-2024
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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
09/02/2024

SITE PLAN

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=30'

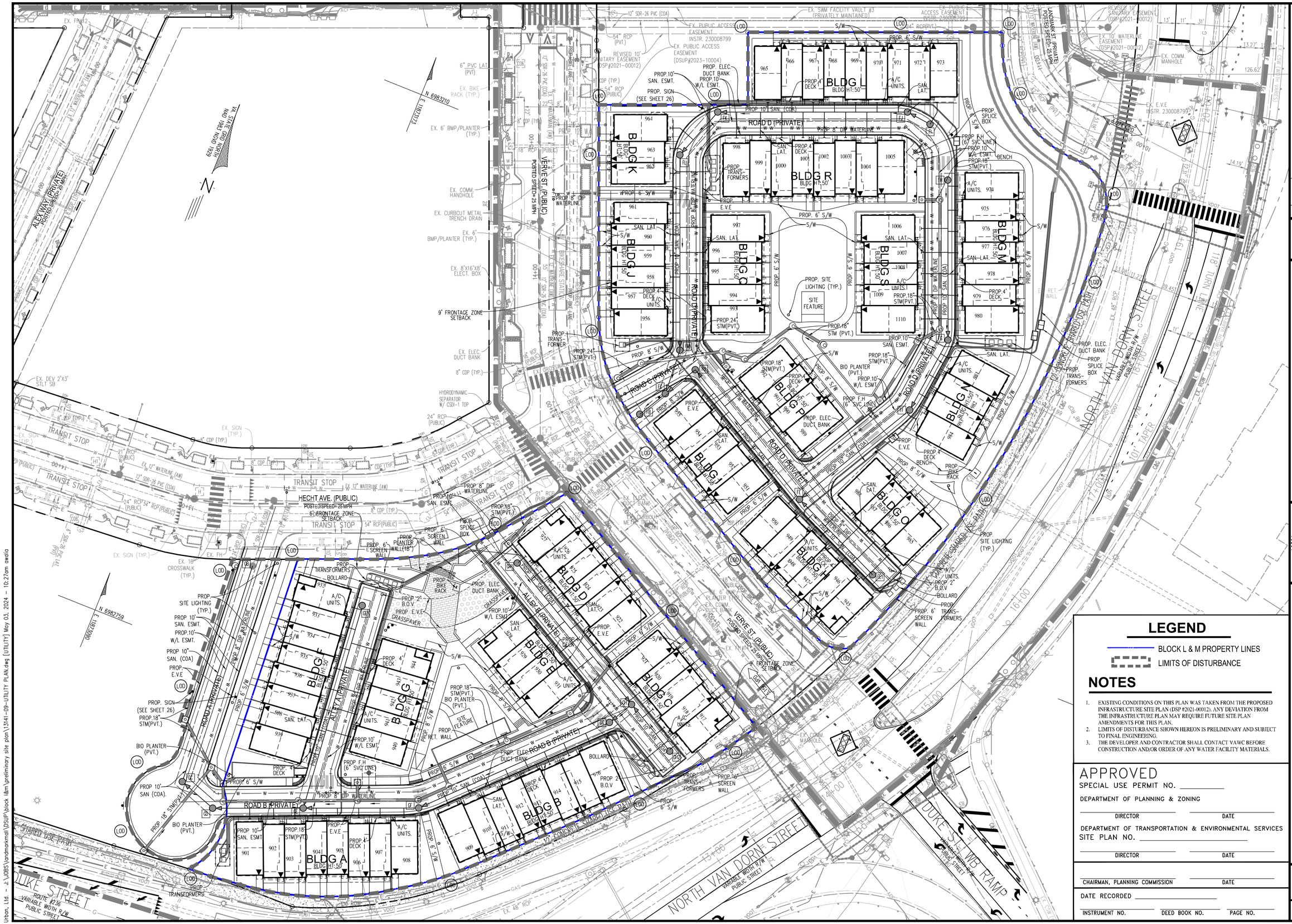
C.I.= N/A

DATE: MAY, 2024

SHEET 05 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\ardmarkmall\DSUP\block l&m\preliminary site plan\13141-04-CONCEPT PLAN.dwg [CONCEPT PLAN] May 03, 2024 - 10:26am awalia


ALLEY A (PRIVATE)
POSTED SPEED 25 MPH
VERVE ST. (PUBLIC)
POSTED SPEED=25 MPH
ROAD A (PRIVATE)
ROAD B (PRIVATE)
ROAD C (PRIVATE)
ROAD D (PRIVATE)
ALLEY B (PRIVATE)
HECHT AVE. (PUBLIC)
POSTED SPEED 25 MPH
LANDMARK ST. (PRIVATE)
POSTED SPEED 25 MPH
NORTH VAN DORN STREET
VARIABLE WIDTH R/W
PUBLIC STREET
DUKE STREET
ROUTE #236
VARIABLE WIDTH R/W
PUBLIC STREET
DUKE ST. WB RAMP
VARIABLE WIDTH R/W
PUBLIC STREET
BLDG A
BLDG B
BLDG C
BLDG D
BLDG E
BLDG F
BLDG G
BLDG H
BLDG I
BLDG J
BLDG K
BLDG L
BLDG M
BLDG N
BLDG O
BLDG P
BLDG Q
BLDG R
BLDG S
BLDG T
BLDG U
BLDG V
BLDG W
BLDG X
BLDG Y
BLDG Z
BLDG AA
BLDG BB
BLDG CC
BLDG DD
BLDG EE
BLDG FF
BLDG GG
BLDG HH
BLDG II
BLDG JJ
BLDG KK
BLDG LL
BLDG MM
BLDG NN
BLDG OO
BLDG PP
BLDG QQ
BLDG RR
BLDG SS
BLDG TT
BLDG UU
BLDG VV
BLDG WW
BLDG XX
BLDG YY
BLDG ZZ
PROP. 6' S/W
PROP. 8" DIP WATERLINE
PROP. 10" SAN. (COA)
PROP. 10" SAN. ESMT.
PROP. 10" W/L ESMT.
PROP. 18" STM (PVT.)
PROP. 24" STM(PVT.)
PROP. E.V.E
PROP. F.H (6" SVC LINE)
PROP. SITE LIGHTING (TYP.)
PROP. TRANS-FORMERS
PROP. SPLICE BOX
PROP. ELEC. DUCT BANK
PROP. BIKE RACK
PROP. BENCH
PROP. 6' SCREEN WALL
PROP. 16' SCREEN WALL
PROP. 4' DECK
PROP. 2' B.O.V
BIO PLANTER (PVT.)
SITE FEATURE
A/C UNITS.
SAN. LAT.
BOLLARD
PROP. SIGN (SEE SHEET 26)
EX. 12" WATERLINE (AW)
EX. 8" SAN. (COA)
EX. 54" RCP (PUBLIC)
EX. 24" RCP (PUBLIC)
EX. 21" RCP (PUBLIC)
EX. 18" RCP (PUBLIC)
EX. 48" RCP
EX. 36" RCP (PUBLIC)
EX. 8" CDP (TYP.)
EX. FH
EX. SIGN (TYP.)
EX. BIKE RACK (TYP.)
EX. 6' BMP/PLANTER (TYP.)
EX. COMM. HANDHOLE
EX. CURBCUT METAL TRENCH DRAIN
EX. 6' BMP/PLANTER (TYP.)
EX. 8"X16"X8" ELECT. BOX
EX. ELEC. DUCT BANK
EX. DEV 2'X3' STLT SB
EX. 10' CROSSWALK (TYP.)
EX. SWM FACILITY VAULT #3 (PRIVATELY MAINTAINED)
EX. PUBLIC ACCESS EASEMENT INSTR. 230008799
EX. PUBLIC ACCESS EASEMENT (DSUP#2023-10004)
REVISED 10' SANITARY EASEMENT (DSP#2021-00012)
EX. 10" WATERLINE EASEMENT (DSP#2021-00012)
EX. COMM. MANHOLE
EX. E.V.E INSTR. 230008799
EX. DUCT BANK
EX. 8" SAN. (COA)
EX. 12" SDR-26 PVC (COA)
EX. 36" SDR-26 PVC (COA)
EX. 8" CDP (TYP.)
EX. 54" RCP (PVT.)
EX. 24" RCP (PVT.)
EX. 6" PVC LAT (PVT.)
EX. 8" DIP WATERLINE
EX. 10" SAN. (COA)
EX. 8" DIP WATERLINE
EX. 8

VIRGINIA- AMERICAN WATER COMPANY MATERIAL SPECIFICATIONS	Date: February 22, 2023
Item	Authorized Manufacturer
DUCTILE IRON PIPE (AWWA C151/A21.51) •Double coated cement lining with paint seal coat •Tar coated on outside •Press-on joint (NO MJ PIPE) •Thickness Class 52 for 4"- 16" under normal laying conditions •All buried ductile iron pipe & fittings shall be polywrap encased. PolyWrap encasement (AWWA-C105), blue color, seamless 12mil thick high density cross laminated	•United States Pipe and Foundry •Griffin Pipe Products, Inc. •American (ACI PCO) •McWane, Inc.
DUCTILE IRON FITTINGS •Compact Ductile Iron Fittings AWWA C153/A21.53 •Double thickness cement lining with paint seal coat •Tar coated on outside •350 PSI working pressure •Mechanical joint (ALL MJ)	•United States Pipe and Foundry •American (ACIPCO) •McWane, Inc.
GATE VALVES 2"- 12" AWWA C509 •Resilient-seated •Iron body suitable for buried service, Epoxy coated AWWA C550 •2" square operating nut •Open left (Alex & PrinceWilliam District). *contact local engineer for other districts. •Non-rising stem with double O-Ring stem seal •200 PSI working pressure and 400 PSI test pressure •4"-12" valves: Mechanical joint •2" valve: Screw Joint	•Mueller Co. MJ Gate Valve: Muller #A2360 MJ Tapping Sleeve: Muller #H615 MJ Tapping Valve: Muller #T2360-16-LN •American Flow Control MJ Tapping Sleeve: Series 2800-C
BUTTERFLY VALVES 16"- 24" AWWA C504 •Rubber seated •Iron body suitable for buried service •Manual operator with 2" square operating nut •Class 150 •Mechanical joint	•Henry Pratt Co. •Dezurik
FTRE HYDRANTS AWWA C502 •Mueller Super Centurion 250 •5 ¼" valve with 6" mechanical joint inlet •4 ½ feet bury •Two 2 ½" nozzles with 7 ½ threads per inch •Prince William County: One 4 ½" pumper nozzle with National Standard threads •Alexandria City: One 4" pumper nozzle with National Standard threads •1 ½" pentagon operating nut, open left	•Mueller Co. Dale City: Mueller #A423-500-087 Alexandria City: Mueller #A423-500-100 Other district: contact local engineer
VALVE BOXES •Cast iron, slide type adjustment, with "WATER" on the lid •5 ½" x 60" two piece with flared base	Bingham & Taylor; Mueller Handley Ind; A.Y.McDo nald Quality Water Products; Clay & Bailey
WATER FACILITY MISCELLANEOUS MATERIALS •Pennatex: food grade adhesive, either FORM-A-GASKET No.2 Sealant or Clear RTV Silicone Adhesive •Pipe Soap: Nontoxic vegetable soap, such as Tyton Joint Lubricant or Super Bell-Tite Lubricant •Chlorine tablets: Olin Pulsar CCH Tablets, 5G size, available chlorine - 65% (Calcium Hypochlorite) •Pipe Joint Compound: Nontoxic for water, Harvey's TFE Paste w/ Teflon or Rectorseal T Plus 2 •Asphalt Coating: Koppers #50 Coal Tar or Orion HS-2 by Triple G Coatings Inc. •Concrete: 3000 PSI @ 28 days ASTM C-94, Slump 3"- 5" •All copper tube shall be Type K. All copper and brass fittings shall be lead fee.	

VIRGINIA AMERICAN WATER
DEVELOPER INSTALL WATER MAIN AND SERVICE LINE
SPECIFICATIONS AND DETAILS

TABLE OF CONTENTS

GENERAL NOTES
Appendix – Disposal of Chlorinated Waters
Appendix – Backflow and Cross Connection Program

TECHNICAL SPECIFICATIONS

Division 1 – General Requirements
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Attachment – Water Main As-Built and Field Sketch Requirements
Section 01600 – Products
Section 01700 – Project Closeout

Division 2 – Site Work
Section 02020 – Dewatering
Section 02025 – Existing Utilities and Structures
Section 02105 – Clearing and Grubbing
Section 02210 – Trenching Backfilling and Compacting
Section 02220 – Casing Installation
Section 02230 – Stream Crossing
Section 02235 – Bridge Crossing
Section 02276 – Gabions
Section 02457 – Small Main Directional Drilling
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Section 02540 – Erosion and Sedimentation Control
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Division 3 – Concrete
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VIRGINIA AMERICAN WATER
DEVELOPER INSTALL WATER MAIN AND SERVICE LINE
SPECIFICATIONS AND DETAILS

Division 15 – Mechanical
Section 15000 – Piping – General Provisions
Section 15020 – Disinfecting Pipelines
Section 15025 – Cleaning Pipelines
Section 15030 – Pressure and Leakage Tests
Section 15106 – Ductile Iron Pipe and Fittings (Contractor Furnished)
Section 15110 – Steel Pipe and Fittings (Contractor Furnished)
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Section 15121 – Polyvinyl Chloride (PVC) Pipe (Contractor Furnished)
Section 15125 – High Density Polyethylene (HDPE) Pipe (Contractor Furnished)
Section 15131 – Piping Specialties (Contractor Furnished)
Section 15151– Gate Valves, Pressure Reducing Valves, Cross Connection and Backflow Prevention, and Check Valves (Contractor Furnished)
Section 15155 – Butterfly Valves (Contractor Furnished)
Section 15171 – Tapping Sleeves, Saddles and Valves (Contractor Furnished)
Section 15181 – Fire Hydrants (Contractor Furnished)
Section 15190 – Air Release and Blow-Off Outlets (Contractor Furnished)
Section 15200 – Service Lines (Contractor Furnished)
Section 15205 – Service Lines (Owner Furnished)

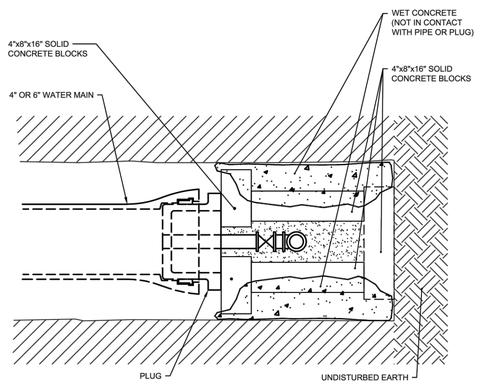
VIRGINIA AMERICAN WATER
DEVELOPER INSTALL WATER MAIN AND SERVICE LINE
SPECIFICATIONS AND DETAILS

GENERAL NOTES

1. "Owner" used in these specification and details means "American Water".
2. "Engineer" used in these specification and details means "American Water Engineering Department".
3. "Contractor" used in these specification and details means "Developer and its contractor".
4. Developer is not permitted to make any connection to existing Water Company Facilities. The Water Company or its designated Contractor shall make all such connections to provide water service to the main extension. The Water Company or its designated contractor shall perform all main installation within the existing public right-of-way.
5. Developer shall provide cut sheets sealed by a state VA licensed professional Surveyor/Engineer for all water (and Dale City Sanitary Sewer) facility installations. The professional Surveyor/Engineer who seals and signs the cut sheets shall also provide the following statement on all sets: "The professional seal and signature appearing on this document certifies that information shown conforms to the approved Project Plan and/or actual field conditions."
6. Before construction, developer's state licensed surveyor shall place line and grade stakes identifying dedicated easements, main, service connections, and other appurtenances to ensure the water and sanitary sewer system is constructed in accordance with the approved project plans.
7. Developer shall contact VAW to obtain all construction specifications and details, before construction start and/or order materials.
8. Developer needs to submit water main extension and/or replacement construction schedule, call out each water main section construction sequence, including pressure test length, disinfection method, water main flushing and bacteria sample collection timeline.

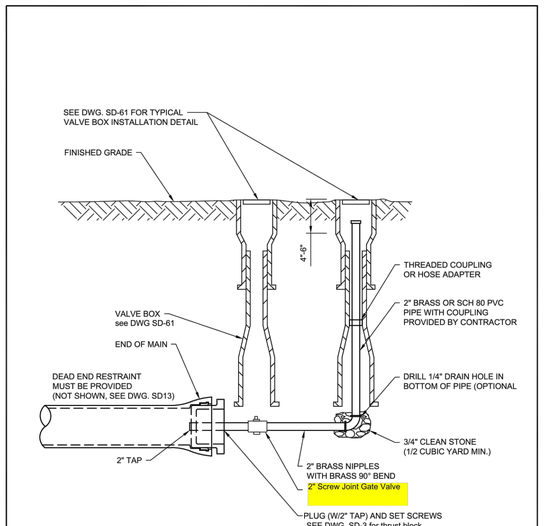
NOTES:

1. RESTRAINT OF WATER MAIN PIPE LENGTHS NOT SHOWN.
2. SEE DRAWING SD13 FOR LARGER MAIN SIZES.
3. ALTERNATIVE PLAN USING 2" CORPORATION WITH TAPPING SADDLE PERMITTED WHERE APPROVED BY ENGINEER.



PLAN

AMERICAN WATER ENGINEERING 1 WATER STREET CAMDEN, NJ 08102 AMERICAN WATER	**AMERICAN WATER STANDARD** **CIVIL** **WATER DISTRIBUTION SYSTEM** **BLOCKING AT END OF MAIN WITH BLOW-OFF DETAIL**	
DATE: 09-OCT-2019	AMERICAN WATER ENGINEERING	SCALE: NTS
STANDARD DETAILS	APPROVED	SD- 3



AMERICAN WATER ENGINEERING 1 WATER STREET CAMDEN, NJ 08102 AMERICAN WATER	**AMERICAN WATER STANDARD** **CIVIL** **WATER DISTRIBUTION SYSTEM** **2" BLOWOFF AT END OF MAIN DETAIL**	
DATE: 09-OCT-2019	AMERICAN WATER ENGINEERING	SCALE: NTS
PIPELINE DETAILS	APPROVED	SD- 4

No.	DATE	REVISIONS

PLAN DATE
10-20-2023
03-01-2024
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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
05/02/2024

UTILITY PLAN NOTES & DETAILS

BLOCK L&M - PRELIMINARY SITE PLAN

WEST END

CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
C.I.= N/A
SCALE: N/A

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

SHEET
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OF
28

FILE No.
SP-13141

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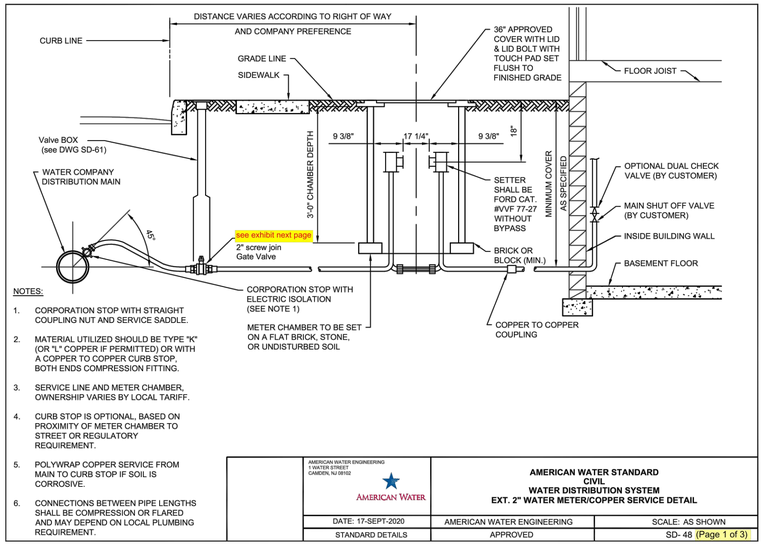


NOTES:

1. CORPORATION STOP WITH STRAIGHT COUPLING NUT AND SERVICE SADDLE.
2. MATERIAL UTILIZED SHOULD BE TYPE "K" (OR "L" COPPER IF PERMITTED) OR WITH A COPPER TO COPPER CURB STOP, BOTH ENDS COMPRESSION FITTING.
3. SERVICE LINE AND METER CHAMBER, OWNERSHIP VARIES BY LOCAL TARIFF.
4. CURB STOP IS OPTIONAL, BASED ON PROXIMITY OF METER CHAMBER TO STREET OR REGULATORY REQUIREMENT.
5. POLYWRAP COPPER SERVICE FROM MAIN TO CURB STOP IF SOIL IS CORROSIVE.
6. CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE COMPRESSION OR FLARED AND MAY DEPEND ON LOCAL PLUMBING REQUIREMENT.

AMERICAN WATER ENGINEERING
1 WATER STREET
CAMDEN, NJ 08102

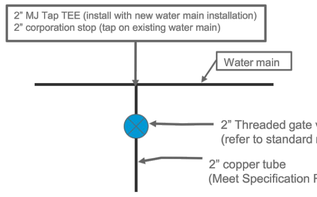
AMERICAN WATER

AMERICAN WATER STANDARD
CIVIL
WATER DISTRIBUTION SYSTEM
EXT. 2" WATER METER/COPPER SERVICE DETAIL

DATE: 17-SEPT-2020	AMERICAN WATER ENGINEERING	SCALE: AS SHOWN
STANDARD DETAILS	APPROVED	SD- 48 (Page 1 of 3)

Typical 2" Copper Domestic and Fire Service Line Installation Exhibit

1. Developer's contractor could only use Method #1.
2. Method #2 must be installed by American Water.



Typical Fitting sequence (Method #1)
(with new water main installation)
- 2" tap TEE (see next page)
- 2"x6" Brass Nipple
- **2" Threaded Gate Valve (screw join)**
- 2" copper x iron male adapter (e.g. Mueller H-15425N)
- And then, 2" copper service line starts

Typical Fitting sequence (Method #2)
(tap on existing water main)
- 2" corporation stop with service saddle
- 2" copper tube
- 2" copper x iron male adapter
- **2" Threaded Gate Valve (screw join)**
- 2" copper x iron male adapter
- And then, 2" copper service line starts

Straight coupling
Copper flare nut x M.I.P.

H-15425N

1/2"‡	1/2" x 3/4"	5/8" x 3/4"	3/4"	5/8" x 1/2"	3/4" x 1/2"
3/4" x 1"	1"	1" x 3/4"	1" x 1-1/4"‡	1-1/4"	1-1/2"	2"

SD-48 (Page 2 of 3)

866.DIP.PIPE

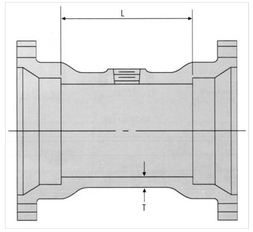
MECHANICAL JOINT FITTINGS

NSF

2005 EDITION | P 21

Tee, 4" X 2" Tap MJ X FIP; US PIPE #8000002742
Tee, 6" X 2" Tap MJ X FIP; US PIPE #8000000756
Tee, 8" X 2" Tap MJ X FIP; US PIPE #8000000822
Tee, 12" X 2" Tap MJ X FIP; US PIPE #8000001943

Tapped Tees



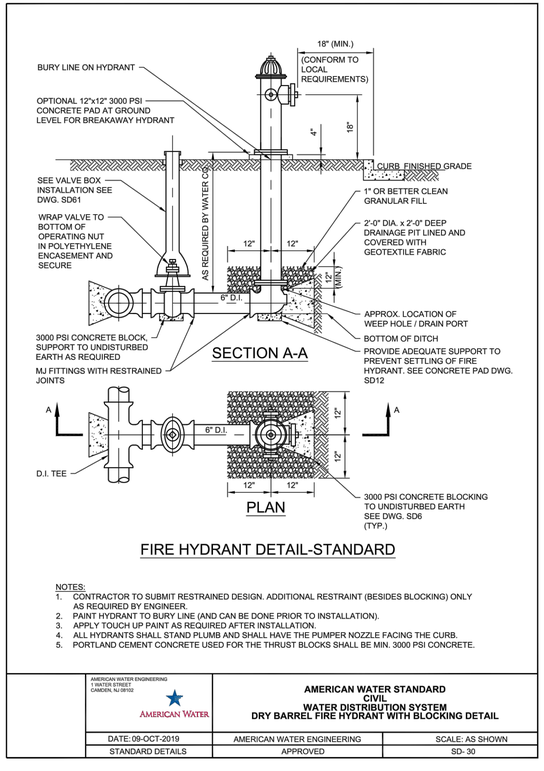
SIZE Inches	PRESSURE RATING psi	DIMENSIONS Inches T	DIMENSIONS Inches L	MAXIMUM TAP IN BOSS	WEIGHT Pounds
3	350	.49	8	2-1/2	35
4	350	.52	8	2-1/2	45
6	350	.55	8	2-1/2	70
8	350	.60	8	2-1/2	95
10	350	.68	8	2-1/2	130
12	350	.75	8	2-1/2	165

Two bosses can be used to make a tapped cross.
For dimensions of Mechanical Joints see page 4.

For Reference Only

SD-48 (Page 3 of 3)

U.S. PIPE AND FOUNDRY CO. **MECHANICAL JOINT FITTINGS BRO-007** Revised 12.05



FIRE HYDRANT DETAIL-STANDARD

NOTES:
1. CONTRACTOR TO SUBMIT RESTRAINED DESIGN. ADDITIONAL RESTRAINT (BESIDES BLOCKING) ONLY AS REQUIRED BY ENGINEER.
2. PAINT HYDRANT TO BURY LINE (AND CAN BE DONE PRIOR TO INSTALLATION).
3. APPLY TOUCH UP PAINT AS REQUIRED AFTER INSTALLATION.
4. ALL HYDRANTS SHALL STAND PLUMB AND SHALL HAVE THE PUMPER NOZZLE FACING THE CURB.
5. PORTLAND CEMENT CONCRETE USED FOR THE THRUST BLOCKS SHALL BE MIN. 3000 PSI CONCRETE.

AMERICAN WATER ENGINEERING
1 WATER STREET
CAMDEN, NJ 08102

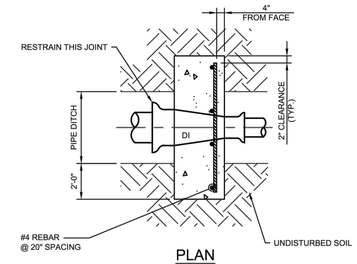
AMERICAN WATER

AMERICAN WATER STANDARD
CIVIL
WATER DISTRIBUTION SYSTEM
DRY BARREL FIRE HYDRANT WITH BLOCKING DETAIL

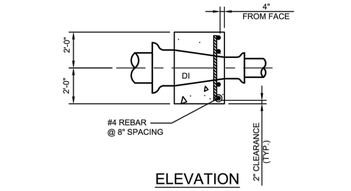
DATE: 09-OCT-2019	AMERICAN WATER ENGINEERING	SCALE: AS SHOWN
STANDARD DETAILS	APPROVED	SD- 30

NOTES:

1. ONLY BELL TO BELL REDUCERS ARE ACCEPTABLE.
2. THE JOINT BETWEEN THE LARGE END OF THE REDUCER AND FOLLOWING PIPE SHOULD BE RESTRAINED AS WELL.
3. AVOID USE OF MEGALUGS ON DIP FITTINGS IN CONCRETE.
4. PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN. 3000 PSI CONCRETE.



PLAN



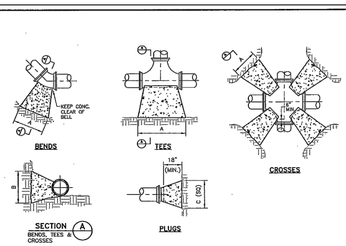
ELEVATION

AMERICAN WATER ENGINEERING
1 WATER STREET
CAMDEN, NJ 08102

AMERICAN WATER

AMERICAN WATER STANDARD
CIVIL
WATER DISTRIBUTION SYSTEM
REDUCER THRUST BLOCK DETAIL

DATE: 09-OCT-2019	AMERICAN WATER ENGINEERING	SCALE: NTS
STANDARD DETAILS	APPROVED	SD- 15



NOTES:

1. COVER OVER TOP OF PIPE SHALL BE BELOW FROST LINE OR 36" MINIMUM, 72" MAXIMUM ACCORDING TO REGULATORY REQUIREMENTS. IF GRADING PLANS RECEIVED BY THE ENGINEER/OWNER WITH THE REQUEST FOR WATER MAIN LAYOUT, INDICATE ADJUSTMENTS TO EXISTING GRADE, THEN PIPE SHALL BE INSTALLED TO MEET MINIMUM AND MAXIMUM COVER FROM PROPOSED GRADES SHOWN ON SAID PLANS.
2. THRUST BLOCKS SHALL BE BUILT AGAINST UNDISTURBED SOIL WITH ADEQUATE BACKING TO PREVENT MOVEMENT OF FITTING.
3. NO THRUST BLOCKS TO BE PLACED IN SEWER LATERAL DITCHES.
4. THRUST BLOCKING MUST FIT IN EASEMENT, IN SOME CASES ADDITIONAL RESTRAINT MAY BE REQUIRED.
5. BASED IN 150 PSI STATIC PRESSURE PLUS 50 PSI WATER HAMMER AND 2000 PSF SOIL BEARING.
6. POLYETHYLENE ENCASEMENT ON ALL D.I. PIPE AND FITTINGS.
7. PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE.
8. ALLOW SUFFICIENT CLEARANCE BETWEEN CONCRETE AND BOLTS FOR FUTURE MAINTENANCE.
9. ALL ANCHOR BOLTS SHALL BE GALVANIZED STEEL, MINIMUM 1/2" DIAMETER, COAT EXPOSED ROD WITH ASPHALT CEMENT AFTER CONCRETE HAS SET.
10. ALL M.J. AND F.L.G. FITTINGS TO RECEIVE THRUST BLOCKS SHALL HAVE THE FASTENER AREAS FELT WRAPPED AND TAPED PRIOR TO THE CONCRETE POUR TO ALLOW FUTURE ACCESS TO THE FASTENERS AT THE JOINTS.
11. THRUST BLOCKING DETAILS ARE SHOWN HERE FOR TYPICAL INSTALLATIONS. IN SOME CASES, ADDITIONAL RESTRAINT MAY BE REQUIRED.
12. PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN 3000 PSI CONCRETE.
13. FOR UNSTABLE SOIL CONDITIONS, CHECK WITH ENGINEER FOR THRUST BLOCK DIMENSIONS.
14. FOR MAIN SIZES GREATER THAN 16", SEE ENGINEER FOR THRUST BLOCK DIMENSIONS.

REQUIRED BEARING AREA ON UNDISTURBED SOIL AND TYPICAL DIMENSIONS

PIPE SIZE	90 DEGREE BENDS AREA (sq ft)	"A"	"B"	45 DEGREE BENDS AREA (sq ft)	"A"	"B"	11.25 DEGREE BENDS AREA (sq ft)	"A"	"B"	22.5 DEGREE BENDS AREA (sq ft)	"A"	"B"	TEES/PLUGS AREA (sq ft)	"A"	"B"
6	5.3	43	18	2.9	23	18	0.7	6	18	1.5	12	18	3.7	30	18
8	9.2	55	24	5.0	30	24	1.3	8	24	2.5	15	24	6.4	39	24
10	13.8	68	30	7.5	36	30	1.9	9	30	3.8	18	30	9.7	46	30
12	19.4	78	36	10.6	42	36	2.7	11	36	5.3	21	36	13.5	55	36
14	26.0	89	42	14.0	48	42	3.6	12	42	7.2	25	42	18.5	63	42
16	33.7	101	48	18.3	55	48	4.7	14	48	9.4	28	48	23.9	72	48

Area in square feet "A" and "B" in inches
Bearing table area is based on 200 psi maximum with soil bearing capacity of 2000 lbs/square foot.
For higher water pressures or lower soil pressures, consult Engineer for adjustments.
Bearing table area does not include a safety factor.
A safety factor and additional bearing area may be required as directed by the Engineer.

AMERICAN WATER STANDARD
CIVIL
THRUST BLOCK DETAILS
AMERICAN WATER ENGINEERING
APPROVED
SD- 0301-0601-SD6
FOR COMMENTS

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038790
05/02/2024
REGISTERED PROFESSIONAL ENGINEER

UTILITY PLAN NOTES & DETAILS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
C.I.= N/A
SCALE: N/A

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

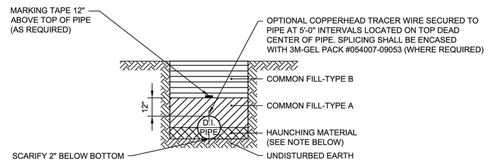
SHEET 06B OF 28

FILE No. SP-13141

Urban, Ltd. – J:_GBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-09-UTILITY PLAN.dwg [DETAIL2] May 03, 2024 – 10:27am awalia

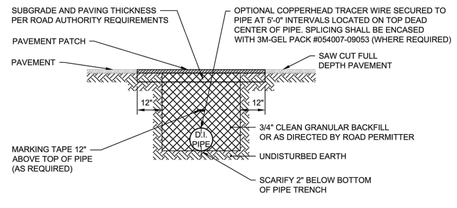
C:\ACAD\ACADCNW\Jenkins Water Standards\Blocking\D201-0601-SD6.dwg Feb 20, 2007 – 7:42pm

NON-TRAFFIC AREA



DETAIL "A"

D.I. - SOIL
(FOR AREAS NOT TO BE PAVED)



DETAIL "B"

D.I. - SOIL
(FOR PAVED AREAS OR AREAS TO BE PAVED OR WITHIN 18" OF PAVING)

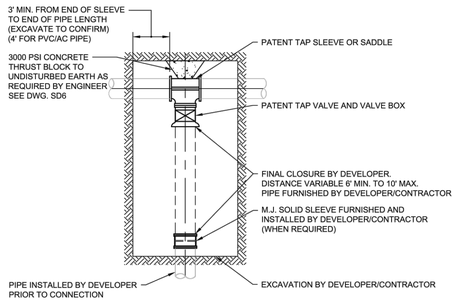
NOTES:

1. CAUTION MUST BE EXERCISED TO ENSURE PROPER PLACEMENT OF EMBEDMENT MATERIAL UNDER THE HAUNCHES OF THE PIPE.
2. POLYETHYLENE ENCASING ON ALL D.I. PIPE, FITTINGS, VALVES & APPURTENANCES.
3. SEE SPECIFICATION SECTION ~~312333~~ #02210 FOR DESCRIPTION OF BACKFILL AND BEDDING MATERIAL.

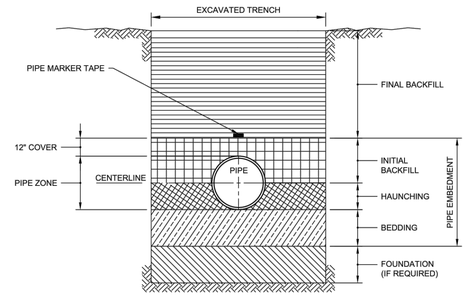
AMERICAN WATER ENGINEERING 1 WATER STREET CAMDEN, NJ 08102	AMERICAN WATER STANDARD CIVIL WATER DISTRIBUTION SYSTEM TRENCH - D.I. PIPE IN SOIL DETAIL	
DATE: 23-OCT-2020	AMERICAN WATER ENGINEERING	SCALE: AS SHOWN
STANDARD DETAILS	APPROVED	SD- 55

NOTES:

1. TAP CONNECTIONS TO AC (TRANSITE PIPE) 4" AND LARGER REQUIRE AN EXCAVATION 5 FT. IN WIDTH. (MAIN SIZE IS VARIABLE).
2. ALL EXCAVATIONS SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS FOR PROTECTION OF WORKERS.
3. IF PIPE BELL IS EXPOSED IN TAP HOLE OR OTHER OBSTACLES ENCOUNTERED, CONTACT LOCAL WATER COMPANY DISTRICT PERSONNEL FOR FIELD REVIEW BEFORE COMPLETING EXCAVATION.
4. TAP HOLE SHALL BE FREE OF WATER AND MUD TO ALLOW SAFE HANDLING OF HEAVY SLEEVES AND TAPPING MACHINE.
5. CONCRETE BLOCKING BEHIND TAP TO BE PER REQUIREMENTS ON DRAWING SD6.
6. BOTTOM OF EXCAVATION TO BE 12" BELOW BOTTOM OF PIPE AND REASONABLY LEVEL.



AMERICAN WATER ENGINEERING 1 WATER STREET CAMDEN, NJ 08102	AMERICAN WATER STANDARD CIVIL WATER DISTRIBUTION SYSTEM PATENT TAP CONNECTION DETAIL	
DATE: 09-OCT-2019	AMERICAN WATER ENGINEERING	SCALE: AS SHOWN
STANDARD DETAILS	APPROVED	SD- 52



TRENCH TERMINOLOGY:

FOUNDATION: A FOUNDATION IS NECESSARY ONLY WHEN NATIVE SOILS ARE UNSTABLE. FOR SUCH CONDITIONS, THE TRENCH IS OVER-EXCAVATED AND A LAYER OF SUPPORTIVE MATERIAL IS PLACED AND COMPACTED TO PROVIDE A FIRM FOUNDATION FOR THE SUBSEQUENT PIPE EMBEDMENT MATERIALS.

EMBEDMENT: THIS ZONE IS THE MOST IMPORTANT IN TERMS OF PIPE PERFORMANCE. IT IS DIVIDED INTO THE FOLLOWING SUB ZONES:

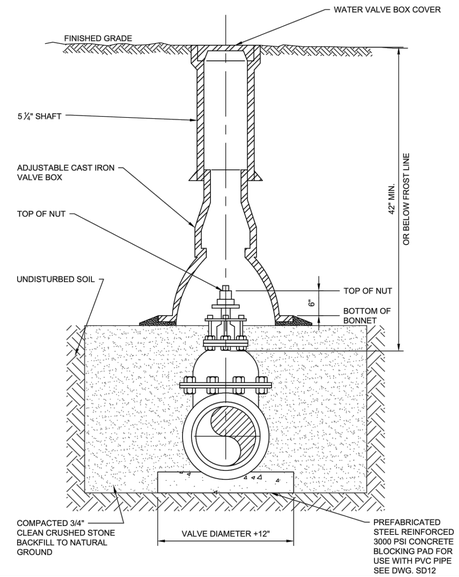
- BEDDING: TYPICALLY SIX INCHES OF SUPPORTIVE, COMPACTED MATERIAL. THIS ZONE PROVIDES EVEN SUPPORT FOR THE PIPE AND BRINGS IT TO GRADE.
- HAUNCHING: EXTENDS FROM THE BOTTOM OF THE PIPE TO THE CENTERLINE OF THE PIPE. IT PROVIDES THE MOST RESISTANCE TO PIPE DEFLECTION. SPECIFYING PROPER MATERIALS AND COMPACTION ARE MOST IMPORTANT FOR THIS ZONE.
- INITIAL BACKFILL: EXTENDS FROM THE SPRINGLINE TO A POINT ABOVE THE TOP OF THE PIPE. THIS ZONE PROVIDES SOME PIPE SUPPORT AND HELPS TO PREVENT DAMAGE TO THE PIPE DURING PLACEMENT OF THE FINAL BACKFILL. THE COVER EXTENDS FROM THE TOP OF THE PIPE TO THE TOP OF THE INITIAL BACKFILL. THE DEPTH OF COVER SHOULD BE AS MUCH AS NECESSARY TO PROTECT THE PIPE DURING PLACEMENT OF THE FINAL BACKFILL. TWELVE INCHES IS A COMMON DEPTH OF COVER.

FINAL BACKFILL: THIS ZONE EXTENDS FROM THE TOP OF THE INITIAL BACKFILL TO THE TOP OF THE TRENCH. THIS ZONE HAS LITTLE INFLUENCE ON PIPE PERFORMANCE, BUT CAN BE IMPORTANT TO THE INTEGRITY OF ROADS AND STRUCTURES.

AMERICAN WATER ENGINEERING 1 WATER STREET CAMDEN, NJ 08102	AMERICAN WATER STANDARD CIVIL WATER DISTRIBUTION SYSTEM PIPE TRENCH TERMINOLOGY DETAIL	
DATE: 09-OCT-2019	AMERICAN WATER ENGINEERING	SCALE: AS SHOWN
STANDARD DETAILS	APPROVED	SD- 53

NOTE:

1. 6"x6" WOOD BLOCK MAY BE USED AS VALVE PAD WHERE APPROVED BY ENGINEER.

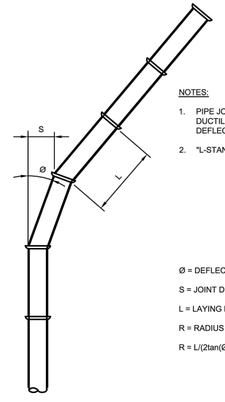


AMERICAN WATER ENGINEERING 1 WATER STREET CAMDEN, NJ 08102	AMERICAN WATER STANDARD CIVIL WATER DISTRIBUTION SYSTEM VALVE BOX INSTALLATION FROST AREAS DETAIL	
DATE: 23-OCT-2020	AMERICAN WATER ENGINEERING	SCALE: AS SHOWN
STANDARD DETAILS	APPROVED	SD- 59

MAXIMUM JOINT DEFLECTION

MAXIMUM JOINT DEFLECTION DUCTILE IRON PUSH ON PIPE						
NOMINAL PIPE SIZE INCHES	DEFLECTION ANGLE DEGREES	MAX OFFSET -S INCHES		APPROX RADIUS OF CURVE - R PRODUCED BY SUCCESSION OF JOINTS INCHES		CURRENT AW DEFLECTION ANGLE DEGREES
		L=18 FT	L=20 FT	L=18 FT	L=20 FT	
3	4	15	17	256	285	
4	4	15	17	256	285	
6	4	15	17	256	285	4
8	4	15	17	256	285	4
10	4	15	17	256	285	
12	4	15	17	256	285	4
14	4	9	10	256	285	
16	2.5	9	10	429	476	2.5
18	2.5	9	10	429	476	
20	2.5	9	10	429	476	2
24	2.5	9	10	429	476	1.5

MAXIMUM JOINT DEFLECTION DUCTILE IRON MJ PIPE						
NOMINAL PIPE SIZE INCHES	DEFLECTION ANGLE DEGREES	MAX OFFSET -S INCHES		APPROX RADIUS OF CURVE - R PRODUCED BY SUCCESSION OF JOINTS INCHES		CURRENT AW DEFLECTION ANGLE DEGREES
		L=18 FT	L=20 FT	L=18 FT	L=20 FT	table deleted
3	6.5	25	28	158	176	
4	6.5	25	28	158	176	
6	5.5	22	24	182	202	
8	4	16	18	256	285	
10	4	16	18	256	285	
12	4	16	18	256	285	
14	3	11	12	367	408	
16	3	11	12	367	408	
18	2.5	11	10	429	476	
20	2.5	9	10	429	476	
24	1.5	9	8	644	715	



NOTES:

1. PIPE JOINT DEFLECTION ALLOWED ON DUCTILE IRON PIPE ONLY. PIPE JOINT DEFLECTION NOT ALLOWED ON PVC PIPE.
2. "L-STANDARD LENGTH OF PIPE SECTION.

Ø = DEFLECTION ANGLE

S = JOINT DEFLECTION OFFSET

L = LAYING LENGTH

R = RADIUS OF CURVE

R = L/(2tan(Ø/2))

AMERICAN WATER ENGINEERING 1 WATER STREET CAMDEN, NJ 08102	AMERICAN WATER STANDARD CIVIL WATER DISTRIBUTION SYSTEM PIPE CURVE GEOMETRY DETAIL	
DATE: 09-OCT-2019	AMERICAN WATER ENGINEERING	SCALE: AS SHOWN
STANDARD DETAILS	APPROVED	SD- 32

APPROVED
SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

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_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

No.	DATE	REVISIONS DESCRIPTION

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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CLAYTON C. POOLE
Lic. No. 038790
PROFESSIONAL ENGINEER
05/02/2024

UTILITY PLAN NOTES & DETAILS

BLOCK L&M - PRELIMINARY SITE PLAN
WEST END

CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
C1.=N/A
SCALE: N/A

SHEET 06C OF 28

FILE No. SP-13141

Urban, Ltd. - J:_DBS\landmark\dsup\block l&m\preliminary site plan\13141-09-UTILITY PLAN.dwg [DETAIL3] May 03, 2024 - 10:27am awolla

West End Towns Fixture Count - Block L

Unit Type	Fixture Type	Quantity per Unit	Total Units	Total for Unit Type
16x40 Unit	Kitchen sink	1	30	30
	Dishwasher	1	30	30
	Powder Sink	1	30	30
	PR Toilet	1	30	30
	Primary Bath Sinks	2	30	60
	Shower	1	30	30
	Toilet	1	30	30
	Bath #2 Sink	1	30	30
	Shower/Tub	1	30	30
	Toilet	1	30	30
	Bath #3 Sink	1	30	30
	Shower/tub	1	30	30
	Toilet	1	30	30
	Hose Bib	2	30	60
	Washing Machine	1	30	30
			Unit Total	510

Unit Type	Fixture Type	Quantity per Unit	Total Units	Total for Unit Type
20x40 Unit	Kitchen sink	1	14	14
	Dishwasher	1	14	14
	Powder Sink	1	14	14
	PR Toilet	1	14	14
	Primary Bath Sinks	2	14	28
	Shower	1	14	14
	Toilet	1	14	14
	Bath #2 Sink	1	14	14
	Shower/Tub	1	14	14
	Toilet	1	14	14
	Bath #3 Sink	1	14	14
	Shower/tub	1	14	14
	Toilet	1	14	14
	Hose Bib	2	14	28
	Washing Machine	1	14	14
			Unit Total	238
			Total fixtures Block L:	748

West End Towns Fixture Count - Block M

Unit Type	Fixture Type	Quantity per Unit	Total Units	Total for Unit Type
16x40 Unit	Kitchen sink	1	44	44
	Dishwasher	1	44	44
	Powder Sink	1	44	44
	PR Toilet	1	44	44
	Primary Bath Sinks	2	44	88
	Shower	1	44	44
	Toilet	1	44	44
	Bath #2 Sink	1	44	44
	Shower/Tub	1	44	44
	Toilet	1	44	44
	Bath #3 Sink	1	44	44
	Shower/tub	1	44	44
	Toilet	1	44	44
	Hose Bib	2	44	88
	Washing Machine	1	44	44
			Unit Total	748

Unit Type	Fixture Type	Quantity per Unit	Total Units	Total for Unit Type
20x40 Unit	Kitchen sink	1	22	22
	Dishwasher	1	22	22
	Powder Sink	1	22	22
	PR Toilet	1	22	22
	Primary Bath Sinks	2	22	44
	Shower	1	22	22
	Toilet	1	22	22
	Bath #2 Sink	1	22	22
	Shower/Tub	1	22	22
	Toilet	1	22	22
	Bath #3 Sink	1	22	22
	Shower/tub	1	22	22
	Toilet	1	22	22
	Hose Bib	2	22	44
	Washing Machine	1	22	22
			Unit Total	374
			Total Fixtures Block M:	1,122

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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UTILITY PLAN NOTES & DETAILS

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: N/A | C.I.=N/A | DATE: MAY, 2024

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SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

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SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

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SHEET 06D OF 28

FILE No. SP-13141

Urban, Ltd. - J:_OBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-09-UTILITY PLAN.dwg [detail4] May 03, 2024 - 10:28am awolla

LOT 804
98,964 S.F.
2.2719 ACRES

LOT 706
61,205 S.F.
1.4051 ACRES

NOTE: BLOCK TO DRAIN USING EXISTING SEDIMENT BASIN RISER AND STORM CONNECTION

ALEX WAY (PRIVATE)
POSTED SPEED= 25 MPH

VERVE ST. (PUBLIC)
POSTED SPEED= 25 MPH

HECHT AVE. (PUBLIC)
POSTED SPEED= 25 MPH

LANDMARK ST. (PRIVATE)
POSTED SPEED= 25 MPH

NORTH VAN DORN STREET
VARIABLE WIDTH R/W
PUBLIC STREET

DUKE ST WB RAMP
VARIABLE WIDTH R/W
PUBLIC STREET

DUKE STREET
ROUTE #236
VARIABLE WIDTH R/W
PUBLIC STREET

ROAD A (PRIVATE)
ROAD B (PRIVATE)
ROAD C (PRIVATE)
ROAD D (PRIVATE)
ALLEY A (PRIVATE)
ALLEY B (PRIVATE)

BLDG A
BLDG B
BLDG C
BLDG D
BLDG E
BLDG G
BLDG J
BLDG K
BLDG L
BLDG M
BLDG N
BLDG O
BLDG P
BLDG R
BLDG S

EX. PUBLIC ACCESS EASEMENT INSTR. 230008799
EX. PUBLIC ACCESS EASEMENT (DSP#2023-10004)
EX. PUBLIC ACCESS EASEMENT INSTR. 230008799
EX. CONCRETE RETAINING WALL
EX. BIKE RACK (TYP.)
EX. CROSSWALK
EX. 18' CROSSWALK (TYP.)
EXTENT OF STANDARD PARALLEL PARKING (TYP.)
BIKESHARE STATION
PROP. BIKE LANE
PROP. SITE LIGHTING (TYP.)
PROP. TRANSFORMERS
PROP. BOLLARD
PROP. 12' CONCRETE SHARED USE PATH
PROP. 24" STM(PVT.)
PROP. 18" STM(PVT.)
PROP. 4' DECK
BIO PLANTER (PVT.)
TRANSIT STOP
TW: 90.00
TW: 86.00
TW: 96.70
TW: 96.45
N 6982759 E 1182313
N 6983210 E 1182313
VA. STATE GRID NORTH NAD 1983

LEGEND

BLOCK L & M PROPERTY LINES

LIMITS OF DISTURBANCE

NOTES

1. EXISTING CONDITIONS ON THIS PLAN WAS TAKEN FROM THE PROPOSED INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATION FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN.
2. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING.

APPROVED
SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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05/02/2024

GRADING PLAN
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
SCALE: 1"=30'
C.I.= 2'

SHEET
07
OF
28

FILE No.
SP-13141

Urban, Ltd. - J:\OBS\1\andmarkmall\DSUP\block l&m\preliminary site plan\13141-07-GRADING PLAN.dwg [01] May 03, 2024 - 10:28am awalia

OPEN SPACE CALCULATION:

BLOCK L (LOT 709) SITE AREA: 1.79 AC.
REQUIRED OPEN SPACE: .44 AC. OR 19,480 SF (25% OF SITE AREA)

OPEN SPACE PROVIDED:
PUBLIC OPEN SPACE: 15,304 S.F
TRANSFERRED OPEN SPACE FROM BLOCK R (PUBLIC): 4,176 SF
TOTAL PROVIDED: .44 AC. OR 19,480 SF (25.00% OF SITE AREA)

BLOCK M SITE AREA: 2.80 AC.
REQUIRED OPEN SPACE: .70 AC. OR 30,543 SF (25% OF SITE AREA)

OPEN SPACE PROVIDED:
PUBLIC OPEN SPACE: 28,680 S.F
TRANSFERRED OPEN SPACE FROM BLOCK R (PUBLIC): 1,863 SF
TOTAL PROVIDED: .70 AC. OR 30,543 SF (25.00% OF SITE AREA)

LEGEND

- BLOCK L & M PROPERTY LINES
- LIMITS OF DISTURBANCE
- PUBLIC OPEN SPACE
- TRANSFERRED OPEN SPACE

NOTES

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2. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING.

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. YOCH
Lic. No. 036790
PROFESSIONAL ENGINEER
05/02/2024

OPEN SPACE PLAN
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
SCALE: 1"=30' C.I.=N/A

SHEET 08 OF 28
FILE No. SP-13141

Urban, Ltd. - z:\OBS\Landmarkmall\DSUP\block l&m\preliminary site plan\13141-05-OPEN SPACE PLAN.dwg [OPEN SPACE] May 03, 2024 - 10:29am owalia

LANDMARK MASTER OPEN SPACE CALCULATIONS

DSUP	Block	Lot Area SF	Lot Area AC	Publicly Accessible	Onsite At Grade	Onsite Above Grade	Onsite Transferred Block Open Space (1)	Onsite Mandatory Open Space Blocks	Onsite Transferred Mandatory Open Space (SF)	Remaining Mandatory Open Space (AC.)	Total	Percent OS/Block	Sitewide Open Space SF	Sitewide Open Space AC	Notes
CDSP 2022-00011	Hospital Campus (A,B,C)	416,577 SF	9.56 AC	No	62,500 SF	10,000 SF	0 SF	0 SF	0 SF	1.66	72,500 SF	17.40%	72,500 SF	1.66 AC	
	Block D	60,360 SF	1.39 AC	No			-	-	0 SF	0.00	0 SF	0.00%	0 SF	0.00 AC	
DSUP 2022- 10017	Block E	108,575 SF	2.49 AC	No		16,840 SF	-	-	10,303 SF	0.15	27,143 SF	25.00%	27,143 SF	0.62 AC	10,303 SF Transfer from Block P
DSUP- 2023-10004	Block F	31,872 SF	0.73 AC	Yes	25,806 SF	0 SF	-	-	0 SF	0.59	25,806 SF	80.97%	25,806 SF	0.59 AC	
DSUP 2022- 10017	Block G	62,083 SF	1.43 AC	No	10,805 SF	1,464 SF	-	-	3,251 SF	0.21	15,520 SF	25.00%	15,520 SF	0.36 AC	3,251 SF Transfer from Block P
	Block H	89,320 SF	2.05 AC	No			-	-	0 SF	0.00	0 SF	0.00%	0 SF	0.00 AC	
DSUP 2022- 10015	Block I	107,845 SF	2.48 AC	No	1,364 SF	29,115 SF	-	-	0 SF	0.70	30,479 SF	28.26%	30,479 SF	0.70 AC	
	Block J	80,597 SF	1.85 AC	No			-	-	0 SF	0.00	0 SF	0.00%	0 SF	0.00 AC	
DSUP 2022- 10016	Block K	98,964 SF	2.27 AC	No	7,248 SF	18,142 SF	-	-	0 SF	0.58	25,390 SF	25.66%	25,390 SF	0.58 AC	
DSUP- 2024-10006	Block L	139,124 SF	3.19 AC	Yes	15,304 SF	0 SF	-	-	4,176 SF	0.26	19,480 SF	14.00%	19,480 SF	0.45 AC	4,176 SF Transfer from Block R to L2
DSUP- 2024-10006	Block M	122,172 SF	2.80 AC	Yes	28,705 SF	0 SF	-	-	1,863 SF	0.62	30,543 SF	25.00%	30,543 SF	0.70 AC	1,863 SF Transfer from Block R
DSUP- 2023-10004	Block N	22,509 SF	0.52 AC	Yes	20,104 SF	0 SF	-	-	0 SF	0.46	20,104 SF	89.31%	20,104 SF	0.46 AC	
DSUP- 2023-10004	Block P	128,715 SF	2.95 AC	Yes	127,399 SF	0 SF	-	-	(13,544)	2.61	113,855 SF	88.45%	113,855 SF	2.61 AC	13,544 SF Transfer to Block E&G
	Block Q	14,581 SF	0.33 AC	Yes	14,581 SF	0 SF	-	-	0 SF	0.33	14,581 SF	100.00%	14,581 SF	0.33 AC	
DSUP- 2023-10004	Block R	21,009 SF	0.48 AC	Yes	19,486 SF	0 SF	-	-	(6,039)	0.59	13,447 SF	64.01%	13,447 SF	0.31 AC	6,039 SF Transfer to Block L2 & M
	Road 7 Bridge	-	-	Yes	662 SF	0 SF	-	-	0 SF	0.02	662 SF	100.00%	662 SF	0.02 AC	
									TOTAL	8.78			409,510 SF	9.40 AC	

1. See sheet L002 of DSUP-2023-10004 for Block Parks Public and Private open space locations.
2. See "Notes" column for explanation of where open space was transferred from or to.
3. Per condition 69 of CDD 2020-00007, if development Blocks D, E, G, H, I, J, K, L and M cannot meet their individual open space requirements, then the unmet portion may be accommodated as publicly accessible ground-level open space on adjacent blocks within the CDD Plan Area. Area in excess of the required 3.5 acres of publicly accessible open spaces provided on Blocks F, N, P, Q, and R may contribute towards the unmet portions of development blocks outside the Hospital Campus, as determined through the DSUP process.
4. Mandatory OS AC. cannot fall below 3.5 Acres.
5. Block L lot area shown includes portions L1 & L2. The onsite open space currently shown for Block L is for portion L2 only, which requires 19,480 of open space (25% of L2 site area). See Open Space Plan per DSUP-2024-10006.

LEGEND

- BLOCK E&G BOUNDARY
- OPEN SPACE PROVIDED FOR RESPECTIVE BLOCKS
- PUBLICLY ACCESSIBLE OPEN SPACE

HENRY G. SHIRLEY MEMORIAL HIGHWAY
INTERSTATE 395
HOV/BUS - MOTOR BUS
PUBLIC STREET

INOVA HOSPITAL CAMPUS

BLOCK P
TERRACE PARK
LANDMARK SHOPPING CENTER (PRIVATE)

BLOCK E
BLOCK G
BLOCK I
BLOCK Q
BLOCK F
BLOCK N
WESTEND BLVD. (PRIVATE)
BLOCK R
PASEO
BLOCK H
BLOCK K
BLOCK M
BLOCK D
63,315 S.F.
1.4535 ACRES
BLOCK J
BLOCK L

TUCKER ST. (PUBLIC)
ALEXWAY (PRIVATE)
VERVE ST. (PUBLIC)
HECHT AVE. (PUBLIC)
HECHT WAY PL. (PUBLIC)
DUKE STREET
SOUTH WALKER STREET
NORTH VAN DORN STREET
N. HOWARD STREET

SCALE: 1"=100'
0 50' 100' 200'

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
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CLAYTON C. TOCK
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PROFESSIONAL ENGINEER
05/02/2024

MASTER OPEN SPACE PLAN
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
DATE: MAY, 2024
SCALE: 1"=100' C.I.= N/A

SHEET 08A OF 28
FILE No. SP-13141

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LEGEND

BLOCK L & M PROPERTY LINES

LIMITS OF DISTURBANCE

NOTES

1. EXISTING CONDITIONS ON THIS PLAN WAS TAKEN FROM THE PROPOSED INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATION FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN.
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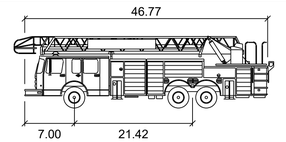

COA FIRETRUCK

	feet
Width	: 8.42
Track	: 8.42
Lock to Lock Time	: 6.0
Steering Angle	: 35.5

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

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AUTOTURN EXHIBIT

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

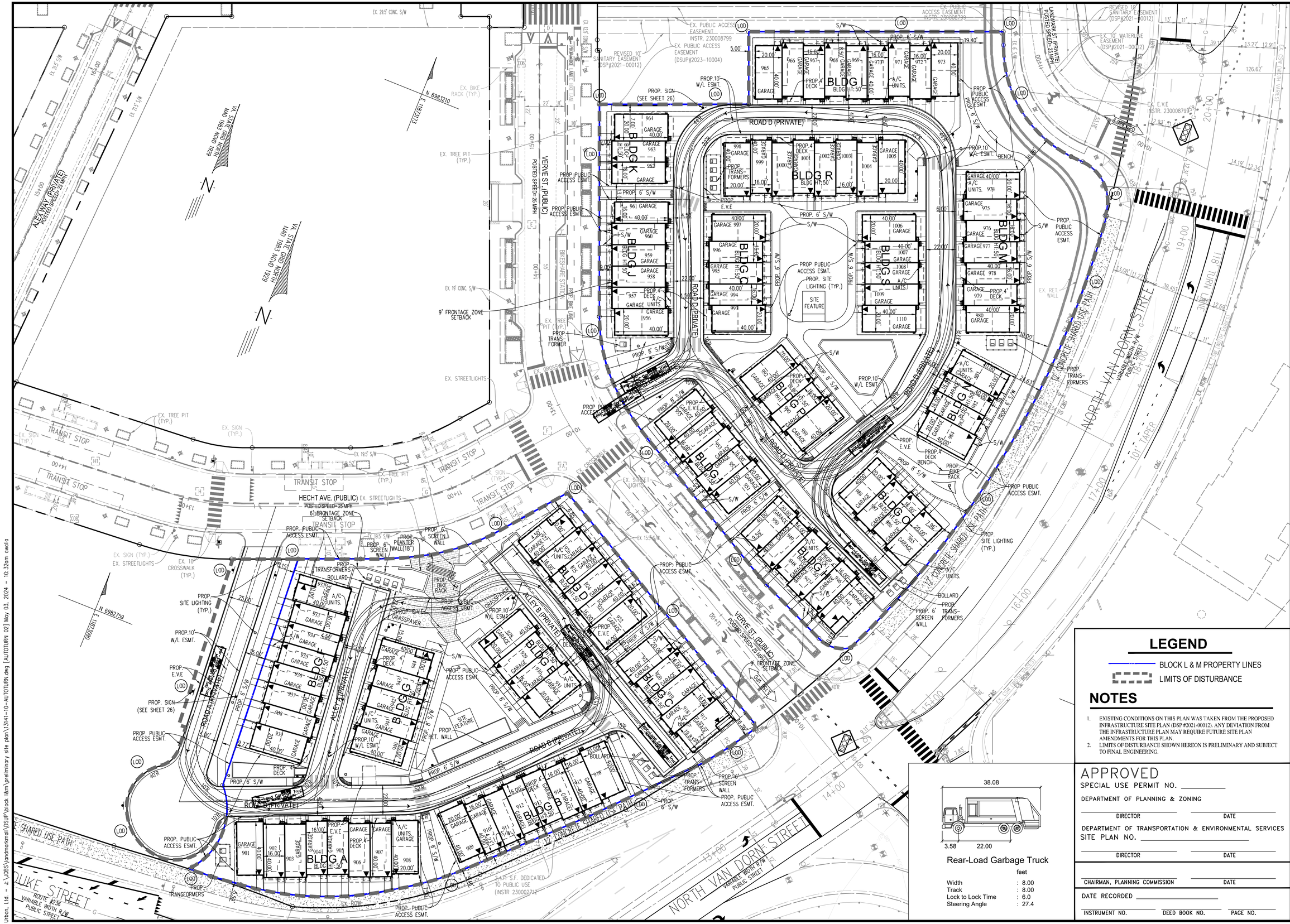
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=30' C.I.=N/A DATE: MAY, 2024

SHEET 09 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\OBS\landmark\all\DSUP\block L&m\preliminary site plan\13141-10-AUTOTURN.dwg [AUTOTURN 01] May 03, 2024 - 10:31am awalia


EX. 29.5' CONC. S/W
EX. BIKE RACK (TYP.)
N 6983210
E 1183173
VA STATE GRID NORTH
NAD 1983 NSRS 1929
EX. TREE PIT (TYP.)
VERVE ST. (PUBLIC)
POSTED SPEED= 25 MPH
ALLEY (PRIVATE)
POSTED SPEED= 25 MPH
PROP. PUBLIC ACCESS ESMT.
PROP. 6' S/W
EX. 19' CONC. S/W
9' FRONTAGE ZONE SETBACK
PROP. TRANS-FORMER
EX. CROSSWALK
EX. STREETLIGHTS
EX. SIGN (TYP.)
TRANSIT STOP
HECHT AVE. (PUBLIC)
POSTED SPEED= 25 MPH
6' FRONTAGE ZONE SETBACK
EX. 19.5' S/W
EX. 18' CROSSWALK (TYP.)
PROP. SITE LIGHTING (TYP.)
PROP.10' W/L ESMT.
PROP. E.V.E
PROP. SIGN (SEE SHEET 26)
PROP. PUBLIC ACCESS ESMT.
ROAD A (PRIVATE)
PROP. 6' S/W
PROP. 4' DECK
PROP. TRANSFORMERS
BOLLARD
PROP. 6' SCREEN WALL
PROP. 6' PLANTER WALL(18")
PROP. BIKE RACK
PROP. 8' S/W
PROP. 6' SCREEN WALL
GRASSPAVER
ALLEY B (PRIVATE)
ROAD B (PRIVATE)
SITE FEATURE
PROP. RET. WALL
PROP. 10' W/L ESMT.
PROP. SITE LIGHTING (TYP.)
PROP. PUBLIC ACCESS ESMT.
PROP. 6' SCREEN WALL
PROP. 8' S/W
PROP. 6' S/W
PROP. 10' W/L ESMT.
PROP. 4' DECK
PROP. E.V.E
PROP. BENCH
PROP. BIKE RACK
PROP. SIGN (SEE SHEET 26)
PROP. 6' S/W
PROP. 10' W/L ESMT.
PROP. PUBLIC ACCESS ESMT.
PROP. SITE LIGHTING (TYP.)
SITE FEATURE
PROP. 6' S/W
PROP. 8' S/W
PROP. 10' W/L ESMT.
PROP. 4' DECK
PROP. E.V.E
PROP. BENCH
PROP. BIKE RACK
PROP. PUBLIC ACCESS ESMT.

LEGEND

BLOCK L & M PROPERTY LINES

LIMITS OF DISTURBANCE

NOTES

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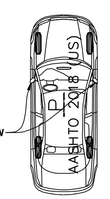
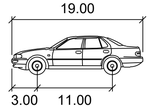
PASSENGER VEHICLE (TOP VIEW)





PASSENGER VEHICLE

		feet
Width	:	7.00
Track	:	6.00
Lock to Lock Time	:	6.0
Steering Angle	:	31.6

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

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CLAYTON C. YOCH
Lic. No. 036790
PROFESSIONAL ENGINEER
09/03/2024

AUTOTURN EXHIBIT

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=30' C.I.= N/A DATE: MAY, 2024

SHEET 09B OF 28

FILE No. SP-13141

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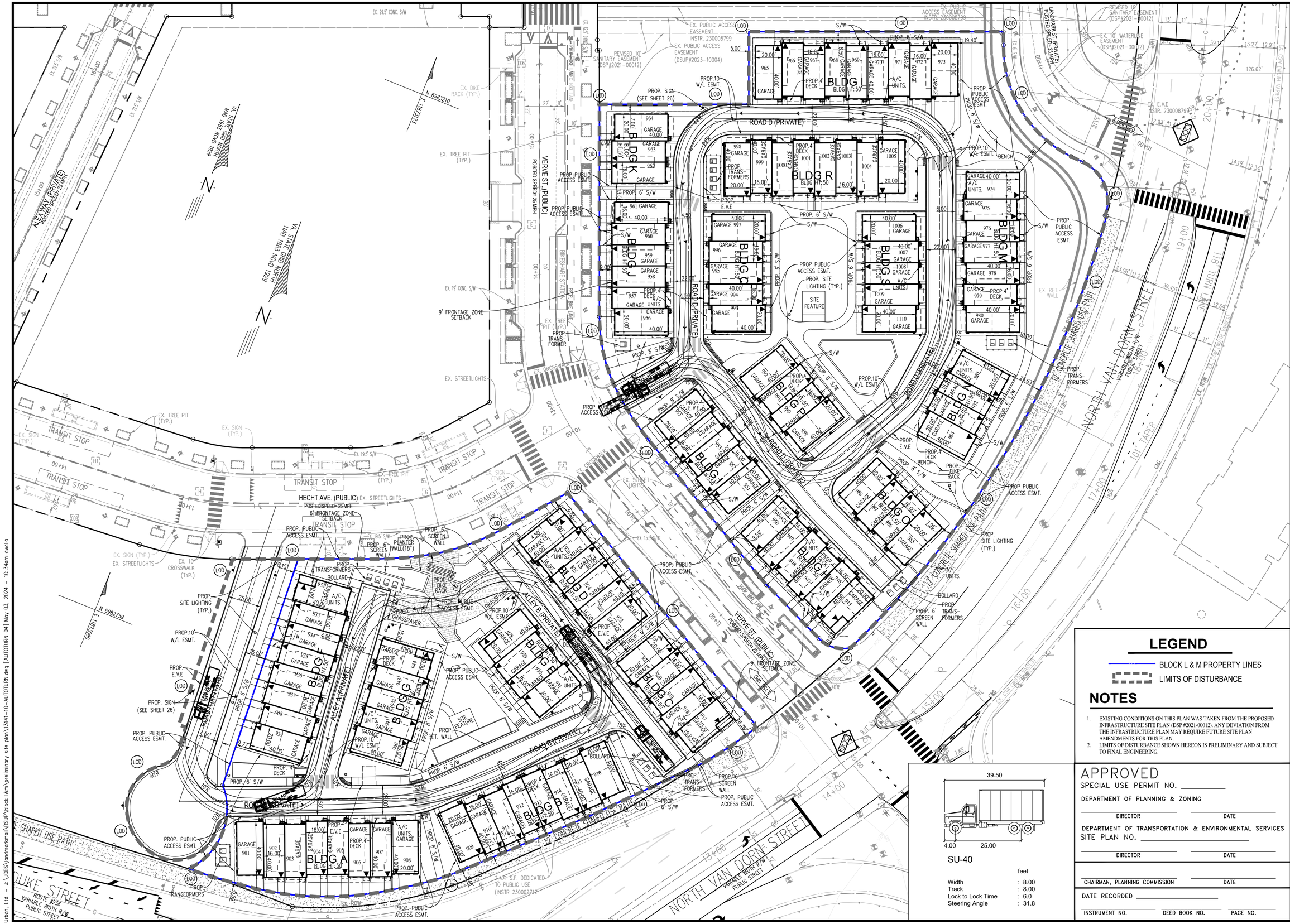

LEGEND

BLOCK L & M PROPERTY LINES

LIMITS OF DISTURBANCE

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39.50

4.00 25.00

SU-40

	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

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09/02/2024

AUTOTURN EXHIBIT

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=30' C.I.= N/A DATE: MAY, 2024

SHEET 09C OF 28

FILE No. SP-13141

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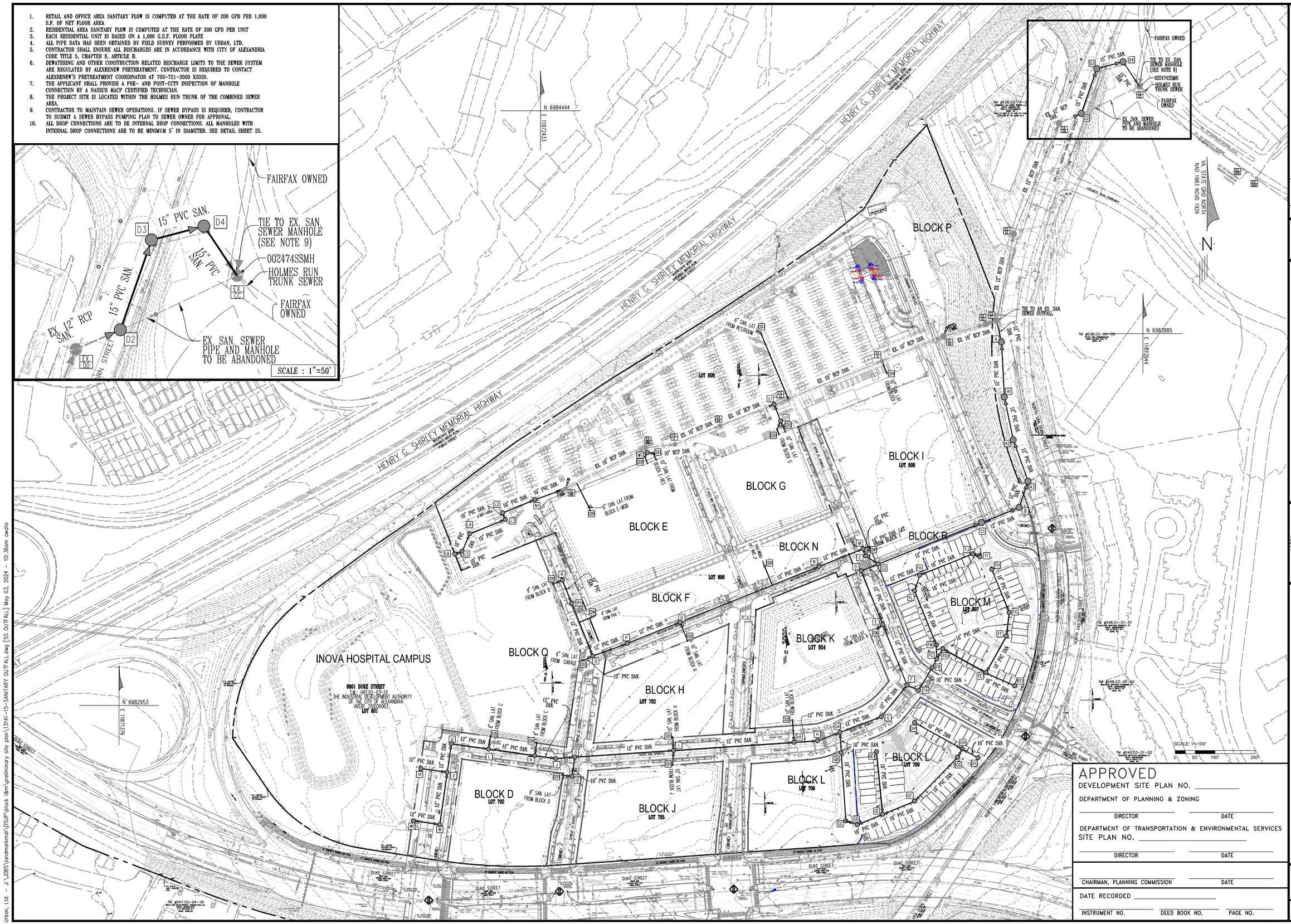
1. RETAIL AND OFFICE AREA SANITARY FLOW IS COMPUTED AT THE RATE OF 200 GPD PER 1,000 S.F. OF NET FLOOR AREA
2. RESIDENTIAL AREA SANITARY FLOW IS COMPUTED AT THE RATE OF 300 GPD PER UNIT
3. EACH RESIDENTIAL UNIT IS BASED ON A 1,000 G.S.F. FLOOR PLATE
4. ALL PIPE DATA HAS BEEN OBTAINED BY FIELD SURVEY PERFORMED BY URBAN, LTD.
5. CONTRACTOR SHALL ENSURE ALL DISCHARGES ARE IN ACCORDANCE WITH CITY OF ALEXANDRIA CODE TITLE 5, CHAPTER 6, ARTICLE B.
6. DEWATERING AND OTHER CONSTRUCTION RELATED DISCHARGE LIMITS TO THE SEWER SYSTEM ARE REGULATED BY ALEXRENEW PRETREATMENT. CONTRACTOR IS REQUIRED TO CONTACT ALEXRENEW'S PRETREATMENT COORDINATOR AT 703-721-3500 X2020.
7. THE APPLICANT SHALL PROVIDE A PRE- AND POST-CCTV INSPECTION OF MANHOLE CONNECTION BY A NASSCO MACP CERTIFIED TECHNICIAN.
8. THE PROJECT SITE IS LOCATED WITHIN THE HOLMES RUN TRUNK OF THE COMBINED SEWER AREA.
9. CONTRACTOR TO MAINTAIN SEWER OPERATIONS. IF SEWER BYPASS IS REQUIRED, CONTRACTOR TO SUBMIT A SEWER BYPASS PUMPING PLAN TO SEWER OWNER FOR APPROVAL.
10. ALL DROP CONNECTIONS ARE TO BE INTERNAL DROP CONNECTIONS. ALL MANHOLES WITH INTERNAL DROP CONNECTIONS ARE TO BE MINIMUM 5' IN DIAMETER. SEE DETAIL SHEET 25.



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CLARION C. TOCK
Lic. No. 039790
EXPIRATION 09/30/2024
PROFESSIONAL ENGINEER

SANITARY OUTFALL ANALYSIS

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=100' C.I.= 2' DATE: MAY, 2024

APPROVED

DEVELOPMENT SITE PLAN NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

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SHEET 10 OF 28

FILE No. SP-13141

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PROPOSED SANITARY SEWER FLOW COMPUTATIONS

Project: West End

From Point	To Point	RESIDENTIAL 300 GPD/UNIT	OFFICE/RETAIL 200 GPD/ 1000 SF	SFA/SFD DWELLINGS 350 GPD/UNIT	HOTEL 130 GPD/UNIT	PEAK FACTOR	INCR Q MGD	FLOW Q MGD	FLOW Q C.F.S.	Invert Elevation Upper End	Invert Elevation Lower End	Length FT.	Slope %	Dia. IN.	Capacity Q MGD	VEL. F.P.S.	Capacity q/Q %	Pipe Coefficient	Pipe Material	BLOCKS TO STR	Remarks
L6	L5		190396			4.0	0.15	0.15	0.24	190.24	190.18	13.00	0.50%	10	1.30	2.65	11.72	0.010	PVC		33.34% Flow from Block A
L5	L4					4.0	0.00	0.15	0.24	190.08	189.84	47.79	0.50%	10	1.31	2.65	11.67	0.010	PVC		
L4	L3					4.0	0.00	0.15	0.24	189.74	189.26	96.24	0.50%	10	1.31	2.65	11.67	0.010	PVC		
L3	L2					4.0	0.00	0.15	0.24	189.16	189.07	17.58	0.50%	10	1.31	2.65	11.67	0.010	PVC		
L2	N1					4.0	0.00	0.15	0.24	188.97	188.53	87.06	0.50%	10	1.31	2.65	11.67	0.010	PVC		
N1	EX.NN					4.0	0.00	0.15	0.24	188.43	188.02	82.58	0.50%	10	1.31	2.65	11.67	0.010	PVC		
EX.NN	EX.MM					4.0	0.10	0.25	0.38	187.92	186.84	223.82	0.46%	10	0.83	2.65	29.71	0.015	RCP		100% Flow from Block E1 (MOB)
EX.MM	EX.LL					4.0	0.25	0.50	0.77	186.81	185.94	74.55	1.17%	10	1.33	3.48	37.20	0.015	RCP		100% Flow from Block E (Res.)
EX.LL	EX.KK					4.0	0.00	0.50	0.77	185.71	185.14	122.64	0.46%	10	0.83	2.65	59.32	0.015	RCP		
EX.KK	L1					4.0	0.00	0.50	0.77	185.10	184.27	145.48	0.57%	10	0.93	2.68	53.29	0.015	RCP		
L1	EX.JJ					4.0	0.31	0.81	1.25	184.27	184.09	31.95	0.57%	10	0.93	3.01	86.86	0.015	RCP		100% Flow from Block G
EX.JJ	EX. II					4.0	0.00	0.81	1.25	184.01	181.16	259.55	1.10%	10	1.29	3.85	62.53	0.015	RCP		
EX.II	EX.HH					4.0	0.30	1.11	1.71	180.86	160.37	165.68	12.37%	10	4.33	10.00	25.60	0.015	RCP		Flow from block I and Ex. Garage Restroom
EX.HH	EX. GG					4.0	0.00	1.11	1.71	160.03	134.41	111.27	23.02%	10	5.91	12.00	18.76	0.015	RCP		
EX. GG	EX. FF					4.0	0.00	1.11	1.71	134.24	132.08	28.12	7.68%	12	5.55	8.54	19.98	0.015	RCP		
EX. FF	EX. EE					4.0	2.80	3.91	6.05	129.77	119.03	222.04	4.84%	12	4.40	5.61	88.77	0.015	RCP		100% Flow from Landmark Mall
EX. EE	EX.DD					4.0	0.00	3.91	6.05	118.81	97.75	299.39	7.03%	12	5.31	6.76	73.66	0.015	RCP		
EX.DD	D2	184				4.0	0.22	4.13	6.39	97.45	88.15	63.22	14.71%	12	7.68	10.90	53.80	0.015	RCP		100% Flow from Broadstone Appt
D2	D3					4.0	0.00	4.13	6.39	88.15	87.44	112.52	0.63%	15	4.32	3.52	95.58	0.010	PVC		
D3	D4					4.0	0.00	4.13	6.39	87.44	87.01	68.52	0.63%	15	4.32	3.52	95.58	0.010	PVC		
D4	EX.CC					4.0	0.00	4.13	6.39	76.29	74.96	66.40	2.00%	15	7.70	9.87	53.64	0.010	PVC		
W1	W		190339			4.0	0.15	0.15	0.24	195.87	195.04	66.50	1.25%	12	3.36	3.30	4.54	0.010	PVC		33.33% Flow from Block A
W	V					4.0	0.00	0.15	0.24	194.94	193.28	132.42	1.25%	12	3.36	3.30	4.53	0.010	PVC		
V	U		-			4.0	0.15	0.30	0.47	186.77	186.41	72.26	0.50%	12	2.12	2.97	14.35	0.010	PVC		
U	L					4.0	0.00	0.30	0.47	186.31	185.84	94.64	0.50%	12	2.12	2.97	14.35	0.010	PVC		
L	K		-			4.0	0.02	0.33	0.50	185.74	185.15	117.14	0.50%	12	2.12	3.05	15.38	0.010	PVC		Flow from Block C
K	J		-			4.0	0.02	0.35	0.54	185.05	184.79	52.56	0.50%	12	2.12	3.09	16.41	0.010	PVC		Flow from Block C
J	I1					4.0	0.00	0.35	0.54	184.69	184.45	47.70	0.50%	12	2.12	3.09	16.41	0.010	PVC		
I1	I					4.0	0.40	0.75	1.16	184.35	183.11	248.57	0.50%	12	2.12	3.83	35.40	0.010	PVC		Flow from Block D
I	H1					4.0	0.55	1.30	2.01	183.01	181.17	302.66	0.61%	12	2.34	4.73	55.71	0.010	PVC		Flow from Block J 50% Flow from Block H
H1	H					4.0	0.22	1.52	2.35	181.07	180.34	59.20	1.25%	12	3.35	6.43	45.30	0.010	PVC		Flow from Block K
H	GA					4.0	0.00	1.52	2.35	180.24	179.73	59.82	0.85%	12	2.77	5.58	54.83	0.010	PVC		
GA	G					4.0	0.33	1.85	2.86	179.63	178.68	111.03	0.85%	12	2.77	3.52	66.74	0.010	PVC		Flow from Block L
G	F					4.0	0.00	1.85	2.86	178.58	177.72	102.02	0.85%	12	2.77	3.52	66.74	0.010	PVC		
F	E					4.0	0.09	1.94	3.00	177.62	176.23	163.39	0.85%	12	2.77	3.52	70.08	0.010	PVC		Flow from Block M
E	D					4.0	0.21	2.15	3.33	176.13	173.94	145.68	1.50%	12	3.68	7.53	58.58	0.010	PVC		Flow from Block K
D	C2					4.0	0.00	2.15	3.33	171.13	170.44	45.86	1.50%	12	3.68	7.53	58.58	0.010	PVC		
C2	C1					4.0	0.65	2.80	4.33	169.79	164.21	279.42	2.00%	12	4.24	5.40	66.00	0.010	PVC		Flows from SSMH C & D
C1	B					4.0	0.00	2.80	4.33	163.69	161.16	101.26	2.50%	12	4.75	9.74	59.00	0.010	PVC		
B	A3					4.0	0.00	2.80	4.33	157.93	156.19	69.56	2.50%	12	4.75	9.74	59.00	0.010	PVC		
A3	A2					4.0	0.00	2.80	4.33	151.41	148.65	110.30	2.50%	12	4.75	9.74	59.00	0.010	PVC		
A2	A1					4.0	0.00	2.80	4.33	144.65	141.91	109.92	2.50%	12	4.75	9.74	59.00	0.010	PVC		
A1	A					4.0	0.00	2.80	4.33	138.91	135.45	138.24	2.50%	12	4.75	9.74	59.00	0.010	PVC		
A	EX.FF					4.0	0.00	2.80	4.33	133.45	132.08	54.80	2.50%	12	4.75	9.74	59.00	0.010	PVC		
R	R1					4.0	0.09	0.09	0.14	189.17	188.15	40.91	2.50%	10	2.92	3.60	2.99	0.010	PVC		Flow from Block B
R1	Q					4.0	0.01	0.09	0.14	187.99	186.73	142.21	0.88%	12	2.82	2.66	3.31	0.010	PVC		Flow from Pav. 1
Q	P					4.0	0.02	0.12	0.18	186.63	185.95	91.68	0.75%	12	2.60	2.56	4.45	0.010	PVC		Flow from Block C
P	O					4.0	0.00	0.12	0.18	185.85	184.77	143.07	0.75%	12	2.60	2.56	4.45	0.010	PVC		
O	N					4.0	0.23	0.35	0.53	184.67	178.40	375.50	1.67%	12	3.88	4.74	8.91	0.010	PVC		50% Flow from Block H Flow from Pav.2
N	M					4.0	0.00	0.35	0.53	178.30	175.93	118.87	2.00%	12	4.25	5.09	8.14	0.010	PVC		
M	C					4.0	0.30	0.65	1.00	175.83	175.43	19.66	2.00%	12	4.25	6.04	15.23	0.010	PVC		Flow from Block I
C	C2					5.0	0.00	0.65	1.00	170.62	169.89	36.41	2.00%	12	4.25	6.04	15.23	0.010	PVC		Flow to C2
CO1	I	175	21000			4.0	0.23	0.23	0.35	186.00	185.17	33.00	2.50%	6	0.75	5.22	30.34	0.010	PVC		50% Flow from Block H
CO2	Q		28164			4.0	0.02	0.02	0.03	200.86	191.24	25.09	2.50%	6	0.75	2.99	3.01	0.010	PVC		34% Flow from Block C
CO3	O	175	21000			4.0	0.23	0.23	0.35	187.68	186.41	51.00	2.50%	10	2.92	4.96	7.77	0.010	PVC		50% Flow from Block H
CO4	K		27336			4.0	0.02	0.02	0.03	185.98	185.15	33.00	2.50%	8	1.61	2.68	1.36	0.010	PVC		33% Flow from Block C
CO5	L		27336			4.0	0.02	0.02	0.03	187.00	186.17	33.00	2.50%	8	1.61	2.68	1.36	0.010	PVC		33% Flow from Block C
BLDG K	CO6	168	16000			4.0	0.21	0.21	0.33	177.48	176.90	23.00	2.50%	10	2.92	4.83	7.35	0.010	PVC		50% Flow from Block K
CO6	E					4.0	0.00	0.21	0.33	176.80	176.40	16.24	2.50%	10	2.92	4.83	7.35	0.010	PVC		
CO7	I	235	52000			4.0	0.32	0.32	0.50	186.09	185.17	36.66	2.50%	10	2.92	5.46	11.09	0.010	PVC		100% Flow from Block J
BLDG K	CO35	169	16000			4.0	0.22	0.22	0.33	183.08	182.83	10.00	2.50%	10	2.92	4.86	7.39	0.010	PVC		50% Flow from Block K
CO35	H1					4.0	0.00	0.22	0.33	182.73	181.34	55.56	2.50%	10	2.92	4.86	7.39	0.010	PVC		
GH2	GH			3		4.0	0.00	0.00	0.01	185.65	185.20	45.30	1.00%	10	1.85	1.67	0.23	0.010	PVC		BLDG C (3 units)
GE1	GE			13		4.0	0.02	0.02	0.03	183.83	182.24	158.64	1.00%	10	1.85	1.67	0.99	0.010	PVC		BLDG F & G (13 units)
GH1	GH			12		4.0	0.02	0.02	0.03	186.56	185.20	136.71	1.00%	10	1.85	1.67	0.91	0.010	PVC		BLDG C & D (12 units)
GH	GG					4.0	0.00	0.02	0.03	185.10	184.88	21.54	1.00%	10	1.85	1.67	1.14	0.010	PVC		
GG	GF			8		4.0	0.01	0.03	0.05	184.78	183.21	157.03	1.00%	10	1.85	1.67	1.74	0.010	PVC		BLDG B (8 units)
GF	GE			5		4.0	0.01	0.04	0.06	183.11	182.24	86.97	1.00%	10	1.85	1.67	2.12	0.010	PVC		BLDG A (5 units)
GE	GD			3		4.0	0.00	0.06	0.10	182.14	181.46	67.95	1.00%	10	1.85	1.67	3.34	0.010	PVC		BLDG A (3 units)
GD	GC					4.0	0.00	0.06	0.10	181.36	181.21	30.27	0.50%	10	1.31	1.18	4.72	0.010	PVC		
GC	GB					4.0	0.00	0.06	0.10	181.11	180.26	170.63	0.50%	10	1.31	1.18	4.72	0.010	PVC		
GB	GA	216	11000	BLOCK L (RES)		4.0	0.27	0.33	0.51	180.16	179.90	51.65	0.50%	10	1.31	3.07	25.25	0.010	PVC		Future Block L2
FE1	FE			9		4.0	0.01	0.01	0.02	184.10	182.13	78.91	2.50%	10	2.92	2.15	0.43	0.010	PVC		BLDG H & O (9 units)
FH	FG			12		4.0	0.02	0.02	0.03	187.17	185.36	120.31	1.50%	10	2.26	1.67	0.74	0.010	PVC		BLDG M & S (12 units)
FG	FF			4		4.0	0.01	0.02	0.03	185.26	184.36	60.06	1.50%	10	2.26	2.40	0.99	0.010	PVC		BLDG N (4 units)
FF	FE					4.0	0.00	0.02	0.03	184.26	182.13	106.60	2.00%	10	2.61	2.77	0.86	0.010	PVC		
FE	FD			10		4.0	0.01	0.05	0.08	182.03	179.53	125.06	2.00%	10	2.61	2.77	1.88	0.010	PVC		BLDG I & P (10 units)
FD	FC					4.0	0.00	0.05	0.08	179.43	178.85	28.79	2.00%	10	2.61	2.77	1.88	0.010	PVC		
FI	FJ			2		4.0	0.00	0.00	0.00	186.98	186.59	19.27	2.00%	10	2.61	0.52	0.11	0.010	PVC		BLDG L (2 units)
FJ	FK			15		4.0	0.02	0.02	0.04	186.49	183.64	142.60	2.00%	10	2.61	2.13	0.91	0.010	PVC		BLDG L & R (15 units)
FK	FL			2		4.0	0.00	0.03	0.04	183.54	182.68	43.12	2.00%	10	2.61	2.44	1.02	0.010	PVC		BLDG K (2 units)
FL	FM			12		4.0	0.02	0.04	0.07	182.58	179.64	146.85	2.00%	10	2.61	2.60	1.66	0.010	PVC		BLDG J & Q (12 units)
FM	FC					4.0	0.00	0.04	0.07	179.54	178.85	34.46	2.00%	10	2.61	2.60	1.66	0.010	PVC		
FC	FB					4.0	0.00	0.09	0.14	178.75	178.51	24.66	1.00%	10	1.85	2.83	5.01	0.010	PVC		
FB	FA			BLOCK M (RES)		4.0	0.00	0.09	0.14	178.41	178.08	66.33	0.50%	10	1.31	2.16	7.08	0.010	PVC		
FA	F					4.0	0.00	0.09	0.14	177.98	177.82	31.68	0.50%	10	1.31	2.16	7.08	0.010	PVC		
CO10	R		109206			4.0	0.09	0.09	0.14	189.91	189.27	25.44	2.50%	8	1.61	3.74	5.42	0.010	PVC		100% Flow from Block B
CO11	I2	336				4.0	0.40	0.40	0.62	190.07	189.47	24.00	2.50%	8	1.61	5.96	25.04	0.010	PVC		100% Flow from Block D
I2	I1					4.0	0.00	0.40	0.62	189.30	188.08	48.93	2.50%	10	2.92	5.85	13.81	0.010	PVC		
BLDG E (RES)	CO12	73	44986			4.0	0.12	0.12	0.19	188.31	187.83	18.96	2.50%	10	2.00	4.09	6.18	0.010	PVC		50% Flow from Block E (Res.)
CO12	M1					4.0	0.00	0.12	0.19	187.73	187.34	15.71	2.50%	10	2.00	4.09	6.18	0.010	PVC		
M1	EXMM					4.0	0.00	0.25	0.38	187.24	186.94	12.00	2.50%	10	2.00	5.09	12.36	0.010	PVC		100% Flow from Block E (Res.)
BLDG E (RES)	CO21	73	44986			4.0	0.12	0.12	0.19	188.23	187.75	19.01	2.50%	10	2.00	4.09	6.18	0.010	PVC		50% Flow from Block E (Res.)
CO21	M1					4.0	0.00	0.12	0.19	187.65	187.34	12.40	2.50%	10	2.00	4.09	6.18	0.010	PVC		
BLDG G	CO13	122	11944			4.0	0.16	0.16	0.24	186.48	186.10	15.00	2.50%	10	2.00	4.43	7.80	0.010	PVC		50% Flow from Block G
CO13	L3					4.0	0.00	0.16	0.24	186.00	185.58	16.76	2.50%	10	2.00	4.43	7.80	0.010	PVC		
L3	L1					4.0	0.00	0.31	0.48	185.48	184.37	44.50	2.50%	10	2.00	5.40	15.60	0.010	PVC		100% Flow from Block G
BLDG G	CO31A	122	11944			4.0	0.16	0.16	0.24	186.53	186.28	10.00	2.50%	10	2.00	4.43	7.80	0.010	PVC		50% Flow from Block G
CO31A	CO31					4.0	0.00	0.16	0.24	0.37	0.10	10.70	2.50%	10	2.00	4.43	7.80	0.010	PVC		
CO31	L7					4.0	0.00	0.16	0.24	186.18	185.58	23.71	2.50%	10	2.00	4.43	7.80	0.010	PVC		
BLDG I	CO45	195	83517			4.0	0.30	0.30	0.47	176.64	176.52	5.00	2.50%	10	2.92	5.27	10.31	0.010	PVC		50% Flow from Block I
CO45	M					4.0	0.00	0.30	0.47	176.42	176.10	12.78	2.50%	10	2.92	5.27	10.30	0.010	PVC		
BLDG I	CO14	195	83517			4.0	0.30	0.30	0.47	183.25	182.18	42.81	2.50%	10	2.92	5.27	10.31	0.010	PVC		50% Flow from Block I
CO14	EX.II					4.0	0.00	0.30	0.47	182.08	181.26	32.65	2.50%	10	2.92	5.27	10.31	0.010	PVC		
BLDG E1 (MOB)	CO16			119630		4.0	0.10	0.10	0.15	190.66	190.41	10.00	2.50%	6	0.75	4.03	12.80	0.010	PVC		100% Flow from Block E1 (MOB)
CO16	EX.NN					4.0	0.00	0.10	0.15	190.31	188.60	68.32	2.50%	6	0.75	4.03	12.80	0.010	PVC		
EX. GAR. Restroom	CO17			100		4.0	0.00	0.00	0.00	189.54	189.27	10.64	2.50%	6	0.75	0.00	0.01	0.010	PVC		100% Flow from Ex. Garage Restroom
CO17	EX.II					4.0	0.00	0.00	0.00	189.27	184.78	179.47	2.50%	6	0.75	0.00	0.01	0.010	PVC		
V1	V			190339		4.0	0.15	0.15	0.24	187.54	186.87	66.50	1.00%	12	3.00	3.06	5.08	0.010	PVC		33.33% Flow from Block A
PAV.1	CO40			7279		4.0	0.01	0.006	0.01	189.74	189.53	8.47	2.50%	4	0.25	1.45	2.30	0.010	PVC		100% Flow from Pavillion 1 Block F
CO40	R1			0		4.0	0.00	0.006	0.01	189.36	188.54	32.71	2.50%	6	0.75	0.79	0.78	0.010	PVC		100% Flow from Pavillion 1 Block F
PAV.2	CO41			4064		4.0	0.00	0.003	0.01	183.28	182.96	12.92	2.50%	4	0.25	1.26	1.28	0.010	PVC		100% Flow from Pavillion 2 Block N
CO41	O			0		4.0	0.00	0.003	0.01	182.79	181.51	51.15	2.50%	6	0.75	0.43	0.43	0.010	PVC		100% Flow from Pavillion 2 Block N

ADEQUATE OUTFALL ANALYSIS

Blocks		Office Sanitary Flow	Office G.S.F	Retail Sanitary Flow	Retail G.S.F	MFH Sanitary Flow	MFH Units	SFA Units	Total Proposed Sanitary Flow (GPD)
HOSPITAL CAMPUS	A	200GPD/1,000 S.F.	571,074	200GPD/1,000 S.F.		300GPD/UNIT	-	-	114,215
	B	200GPD/1,000 S.F.	109,206	200GPD/1,000 S.F.	-	300GPD/UNIT	-	-	21,841
	C	200GPD/1,000 S.F.	82,835	200GPD/1,000 S.F.	-	300GPD/UNIT	-	-	16,567
Total			763,115		-		-	-	152,623
				TOTAL FLOW FROM HOSPITAL CAMPUS (MGD)					0.61
LANDMARK	D	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	-	300GPD/UNIT	336		100,800
	E (MOB & RES.)	200GPD/1,000 S.F.	119,630	200GPD/1,000 S.F.	89,971	300GPD/UNIT	146		85,720
	G	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	23,888	300GPD/UNIT	244		77,978
	H	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	42,000	300GPD/UNIT	350		113,400
	I	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	167,033	300GPD/UNIT	390		150,407
	J	200GPD/1,000 S.F.	52000			300GPD/UNIT	235		80,900
	K	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	32,000	300GPD/UNIT	337		107,500
	L	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	11,000	300GPD/UNIT	216	44	82,400
	M	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	-	350GPD/UNIT	0	66	23,100
	F	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	7,279	300GPD/UNIT	0		1,456
	N	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	4,064	300GPD/UNIT	0		813
	Ex. Garage Restroom	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	100	300GPD/UNIT	0		20
Total			171,630		377,335		2,254		824,493
				TOTAL FLOW FROM LANDMARK MALL BLOCKS (MGD)					3.30
EX. BUILDING	MULTI-FAMILY USE	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	-	300GPD/UNIT	184		55,200.00
				TOTAL FLOW FROM BROADSTONE APPT					0.22
				TOTAL FLOW GOING TO EX. CC (MGD)					4.13

Landmark Mall Breakdown by Manhole

	Block	Lateral #	Lateral Tie In Location	% of Block Flow	MH Flow Enters in
HOSPITAL CAMPUS	A	1	SMH W1	33.33%	W
		2	SMH V1	33.33%	V
		3	L6	33.34%	L5
	B	1	CO10	100.00%	R
	C	1	CO5	33.00%	L
		2	CO4	33.00%	K
	(Garage)	3	CO2	34.00%	Q
LANDMARK MALL	D	1	CO11	100%	I2
	E1 (MOB)	1	CO16	100%	EX. NN
	E (RES.)	1	CO12	50%	M1
		2	CO21	50%	M1
	G	1	CO13	50%	L7
		2	CO31A	50%	L7
	H	1	CO1	50%	I
		2	CO3	50%	O
	I	1	CO45	50%	M
		2	CO14	50%	EX. II
	J	1	CO7	100%	I
	K	1	CO35	50%	H1
		2	CO6	50%	E
	L	1	GB	100%	GA
	M	1	FB	100%	FA
	F	1	CO40	100%	Q
	N	1	CO41	100%	N
	Ex. Garage Restroom	1	CO17	100%	EX.II

NOTE:

- SEE WESTEND INFRASTRUCTURE (DSP #2021-00012) SHEETS 144A-152 FOR SANITARY SEWER OUTFALL CONTINUATION.

APPROVED

DEVELOPMENT SITE PLAN NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

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No.	DATE	DESCRIPTION
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PLAN DATE
10 - 20 - 2023
03 - 01 - 2024
05 - 2 - 2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038780
05/02/2024
PROFESSIONAL ENGINEER

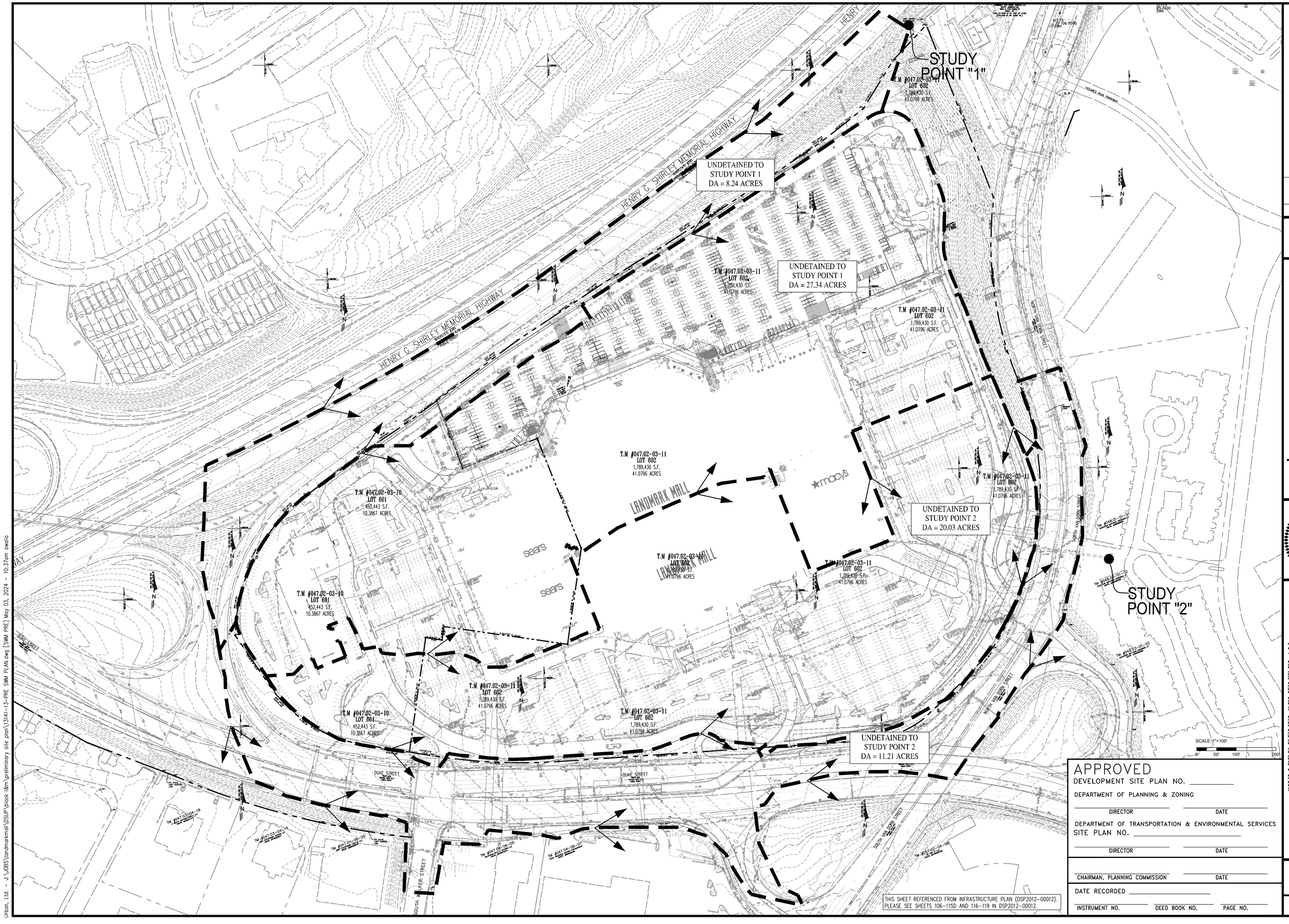
SANITARY SEWER COMPUTATIONS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
SCALE: 1"=100' C.I.= 2'

SHEET 11 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\Landmarkmall\DSUP\block l&m\preliminary site plan\13141-15-SANITARY OUTFALL.dwg [COMPS] May 03, 2024 - 10:36am awalo



THIS SHEET REFERENCED FROM INFRASTRUCTURE PLAN (DSP2012-00012). PLEASE SEE SHEETS 106-115D AND 116-119 IN DSP2012-00012.

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05/02/2024

SWM PRE DEVELOPMENT PLAN

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=100' C.I.= 2' DATE: MAY, 2024

SHEET 12 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-13-PRE SWM PLAN.dwg [SWM PRE] May 03, 2024 - 10:37am owolla

SWM PRE - Study Point "2"

SWM PRE OFFSITE Undetained Runoff Calculations

Curve Number Calculations

	Area (ac)	CN	Description
*	11.210	98	Urban commercial, 85% imp, HSG D
	1.682		15.00% Pervious Area
	9.528		85.00% Impervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 33.04 cfs @ 12.08 hrs, Volume= 95,334 cf, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 39.16 cfs @ 12.08 hrs, Volume= 114,673 cf, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 56.97 cfs @ 12.08 hrs, Volume= 191,351 cf, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM PRE ONSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
8.210	98	Paved parking, HSG D
11.820	80	>75% Grass cover, Good, HSG D
20.030	87	Weighted Average
11.820		59.01% Pervious Area
8.210		40.99% Impervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 48.77 cfs @ 12.03 hrs, Volume= 99,926 cf, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 62.66 cfs @ 12.03 hrs, Volume= 129,838 cf, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 106.06 cfs @ 12.03 hrs, Volume= 255,599 cf, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

STUDY POINT 2 SWM PRE FLOWS

1 Year Flow Calculations

Inflow Area = 1,360,814 sf, 56.78% Impervious, Inflow Depth > 1.72" for 1-yr event
Inflow = 76.56 cfs @ 12.04 hrs, Volume= 195,259 cf
Primary = 76.56 cfs @ 12.04 hrs, Volume= 195,259 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

2 Year Flow Calculations

Inflow Area = 1,360,814 sf, 56.78% Impervious, Inflow Depth > 2.16" for 2-yr event
Inflow = 95.46 cfs @ 12.04 hrs, Volume= 244,511 cf
Primary = 95.46 cfs @ 12.04 hrs, Volume= 244,511 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

3 Year Flow Calculations

Inflow Area = 1,360,814 sf, 56.78% Impervious, Inflow Depth > 3.94" for 10-yr event
Inflow = 153.75 cfs @ 12.04 hrs, Volume= 446,950 cf
Primary = 153.75 cfs @ 12.04 hrs, Volume= 446,950 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

SWM PRE - Study Point "1"

SWM PRE OFFSITE Undetained Runoff Calculations

Curve Number Calculations

	Area (ac)	CN	Description
*	7.370	95	
	7.370		100.00% Pervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 16.82 cfs @ 12.15 hrs, Volume= 54,327 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 20.36 cfs @ 12.15 hrs, Volume= 66,748 cf, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 31.07 cfs @ 12.15 hrs, Volume= 116,470 cf, Depth> 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM PRE ONSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
11.210	98	Paved parking, HSG D
16.130	80	>75% Grass cover, Good, HSG D
27.340	87	Weighted Average
16.130		59.00% Pervious Area
11.210		41.00% Impervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 52.17 cfs @ 12.09 hrs, Volume= 136,159 cf, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 67.33 cfs @ 12.09 hrs, Volume= 176,935 cf, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 116.25 cfs @ 12.09 hrs, Volume= 348,346 cf, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

STUDY POINT 2 SWM PRE FLOWS

1 Year Flow Calculations

Inflow Area = 1,511,968 sf, 32.30% Impervious, Inflow Depth > 1.51" for 1-yr event
Inflow = 67.19 cfs @ 12.10 hrs, Volume= 190,486 cf
Primary = 67.19 cfs @ 12.10 hrs, Volume= 190,486 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

2 Year Flow Calculations

Inflow Area = 1,511,968 sf, 32.30% Impervious, Inflow Depth > 1.93" for 2-yr event
Inflow = 85.47 cfs @ 12.10 hrs, Volume= 243,683 cf
Primary = 85.47 cfs @ 12.10 hrs, Volume= 243,683 cf, Atten= 0%, Lag= 0.0 min

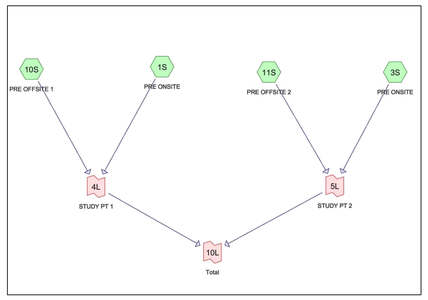
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

3 Year Flow Calculations

Inflow Area = 1,511,968 sf, 32.30% Impervious, Inflow Depth > 3.69" for 10-yr event
Inflow = 143.92 cfs @ 12.10 hrs, Volume= 464,816 cf
Primary = 143.92 cfs @ 12.10 hrs, Volume= 464,816 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

PRE-DEVELOPMENT HYDROCAD MODEL - Study Point "1"



THIS SHEET REFERENCED FROM INFRASTRUCTURE PLAN (DSP2012-00012).
PLEASE SEE SHEETS 106-115D AND 116-119 IN DSP2012-00012.

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PROFESSIONAL ENGINEER
05/02/2024

SWM PRE DEVELOPMENT COMPUTATIONS

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
C.I.= N/A
SCALE: N/A

SHEET 13 OF 28

FILE No. SP-13141

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STORMWATER MANAGEMENT NARRATIVE

OVERALL, THE EXISTING TOPOGRAPHY OF THE PARCEL HAS TWO DISTINCT OUTFALLS, RESULTING IN TWO STUDY POINTS. STUDY POINT #1 OUTFALLS TO THE NORTHEAST CORNER OF THE PROPERTY. STUDY POINT #2 OUTFALLS TO THE EAST OF THE SITE, IMMEDIATELY NORTH OF THE DUKE STREET RAMP CONNECTION TO VAN DORN STREET. A TOTAL DRAINAGE AREA OF 32.86 ACRES DRAINS TO STUDY POINT 1, WHEREAS A TOTAL OF 31.94 ACRES DRAINS TO STUDY POINT 2.

SPECIFIC TO THE SUBJECT SITE, BLOCK E&G STORM SYSTEM DRAINS TO VAULT #2 THEN DISCHARGE TO AN EXISTING CHANNEL LOCATED ON THE NORTHEAST SIDE OF THE LANDMARK DEVELOPMENT. STORMWATER MANAGEMENT IS TO BE PROVIDED IN VAULT 2 WHICH IS LOCATED BETWEEN BLOCKS E&G AND OPENSPACE PARKS AND HAS A TOTAL DRAINAGE AREA OF 17.46 ACRES WHICH ENCOMPASSES BLOCKS E&G, I, H, K AND PART OF INOVA SITE. IN ACCORDANCE WITH THE ARTICLE XIII SECTION 13-109 OF THE ALEXANDRIA ZONING ORDINANCE, AND UTILIZING THE VIRGINIA RUNOFF REDUCTION METHODOLOGY, THE TREATMENT VOLUME IS REDUCED VIA THE UNDERGROUND SWM FACILITY.

THE ALLOWABLE RELEASE RATE FOR EACH STUDY POINT HAS BEEN CALCULATED IN ACCORDANCE WITH ARTICLE XIII SECTION 13-109(F) OF THE ALEXANDRIA ZONING ORDINANCE. FOR THE CHANNEL PROTECTION AND FLOOD PROTECTION WHEN STORMWATER FROM A DEVELOPMENT IS DISCHARGED TO A NATURAL STORMWATER CONVEYANCE SYSTEM, THE MAXIMUM PEAK FLOW RATE FROM THE 1-YEAR 24-HOUR STORM FOLLOWING THE LAND-DISTURBING ACTIVITY SHALL BE CALCULATED WHERE:

$Qdev \leq I.F. * (Qpre * RVpre)/RVdev$

AND THE PEAK FLOW RATE FOR THE 10-YEAR 24-HOUR STORM EVENT IS LESS THAN THE PRE-DEVELOPMENT PEAK FLOW RATE FROM THE 10-YEAR 24-HOUR STORM EVENT. AS SHOWN IN THE FLOW SUMMARY TABLE ON SHEET 43. THE PROPOSED FLOW TO THE STUDY POINTS ARE LESS THAN THE ALLOWABLE RUNOFF.

IT IS THEREFORE THE OPINION OF URBAN, LTD. THAT THE PROPOSED SWM DESIGN MEETS THE REQUIRED SWM REQUIREMENTS OF THE ALEXANDRIA ORDINANCE.

Clayton Tock

URBAN LTD.
CLAYTON C. TOCK, P.E., PRINCIPLE

STUDY POINT "1"

STUDY POINT "2"

HENRY G. SHIRLEY MEMORIAL HIGHWAY

STUDY POINT "1":
ONSITE DA TO VAULT 4
DA = 8.06 AC
CN= 98
TC = 10 MINS

OFFSITE UNDETAINED DRAINAGE AREA
TO STUDY POINT "1"
DA = 7.37 AC
CN= 95
TC = 15 MINS

STUDY POINT "1":
ONSITE DA TO VAULT 2
DA = 17.46 AC
CN= 95
TC = 10 MINS

STUDY POINT "2":
ONSITE DA TO VAULT 3
DA = 20.73 AC
CN= 95
TC = 10 MINS

OFFSITE UNDETAINED DRAINAGE AREA
TO STUDY POINT "2"
DA = 11.21AC
CN= 95
TC = 10 MINS

VAULT 2 · VAULT 3 · VAULT 4

BLOCK D · BLOCK E · BLOCK G · BLOCK H · BLOCK I · BLOCK J · BLOCK K · BLOCK L · BLOCK M

LOT 708 · LOT 704 · LOT 703 · LOT 702 · LOT 706 · LOT 705 · LOT 709

6001 DUKE STREET
T.M.: 047.02-03-10
THE INDUSTRIAL DEVELOPMENT AUTHORITY
OF THE CITY OF ALEXANDRIA
INSTR. 210026063
LOT 601

DUKE STREET · SOUTH WALKER STREET · NORTH VAN DORN STREET · SOUTH VAN DORN STREET

SCALE: 1"=100'
0 50' 100' 200'

THIS SHEET REFERENCED FROM INFRASTRUCTURE PLAN (DSP2012-00012). PLEASE SEE SHEETS 106-115D AND 116-119 IN DSP2012-00012.

NOTE:
* ALL STORMWATER BMP FACILITIES SHOWN ON THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY.
** DISCHARGE FROM GARAGE SUMP PUMPS MUST BYPASS BMPS AND DETENTION STRUCTURES.
*** VAULT NUMBERS ASSOCIATED WITH THE INFRASTRUCTURE PLAN BEGIN WITH VAULT #2. VAULT #1 IS NOT PART OF THIS PLAN.

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DIRECTOR — DATE
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SWM POST DEVELOPMENT PLAN

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=100' C.I.= 2' DATE: MAY, 2024

SHEET 14 OF 28

FILE No. SP-13141

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SWM POST - Study Point "1"

SWM POST OFFSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
7.370	95	Urban commercial, 85% imp, HSG D
1.106		15.00% Pervious Area
6.264		85.00% Impervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 16.82 cfs@ 12.15 hrs, Volume= 54,327 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 20.36 cfs@ 12.15 hrs, Volume= 66,748 cf, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 31.07 cfs@ 12.15 hrs, Volume= 116,470 cf, Depth> 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST Onsite DETAINED (VAULT #2) Runoff Calculations

Curve Number Calculations

	Area (ac)	CN	Description
*	17.460	95	
	17.460		

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 47.42 cfs @ 12.08 hrs, Volume= 128,878 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 57.27 cfs @ 12.08 hrs, Volume= 158,337 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 86.27 cfs @ 12.08 hrs, Volume= 276,287 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST Onsite DETAINED (VAULT #4) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
8.060	98	Paved parking, HSG D
8.060		100.00% Impervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 23.76 cfs@ 12.08 hrs, Volume= 68,545 cf, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 28.16 cfs@ 12.08 hrs, Volume= 82,450 cf, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 40.96 cfs@ 12.08 hrs, Volume= 137,581 cf, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

STUDY POINT 1 SWM POST FLOWS

1 Year Flow Calculations

Inflow Area = 1,432,688 sf, 43.55% Impervious, Inflow Depth > 2.07" for 1-yr event
Inflow = 41.04 cfs @ 12.18 hrs, Volume= 247,586 cf
Primary = 41.04 cfs @ 12.18 hrs, Volume= 247,586 cf, Atten= 0% Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

2 Year Flow Calculations

Inflow Area = 1,432,688 sf, 43.55% Impervious, Inflow Depth > 2.53" for 2-yr event
Inflow = 54.67 cfs @ 12.20 hrs, Volume= 302,203 cf
Primary = 54.67 cfs @ 12.20 hrs, Volume= 302,203 cf, Atten= 0% Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

10 Year Flow Calculations

Inflow Area = 1,432,688 sf, 43.55% Impervious, Inflow Depth > 4.36" for 10-yr event
Inflow = 122.14 cfs @ 12.15 hrs, Volume= 520,261 cf
Primary = 122.14 cfs @ 12.15 hrs, Volume= 520,261 cf, Atten= 0% Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

ENERGY BALANCE METHOD TO STUDY POINT "1"

$Q_{(Developed)}$=	41.04	cfs
$Q_{(Pre-Developed)}$=	67.19	cfs
$RV_{(Pre-Developed)}$=	4.37	ac-ft
$RV_{(Developed)}$=	5.68	ac-ft
I.F. =	0.8	(0.8 for sites greater than one acre) (0.9 for sites less than or equal to one acre)

Q Developed	≤	I.F x ($Q_{Pre\text{-}Developed}$ X $RV_{Pre\text{-}Developed}$)/$RV_{Developed}$
41.04	≤	41.35

VAULT #2

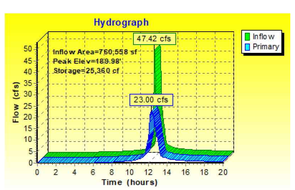
1 YEAR EVENT SUMMARY

Inflow Area = 760,558 sf 0.00% Impervious, Inflow Depth > 2.03" for 1-yr event
Inflow = 47.42 cfs@ 12.08 hrs, Volume= 128,878 cf
Outflow = 23.00 cfs@ 12.27 hrs, Volume= 127,952 cf, Atten= 52%, Lag= 11.1 min
Primary = 23.00 cfs@ 12.27 hrs, Volume= 127,952 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 189.98'@ 12.27 hrs Surf.Area= 4,200 sf Storage= 25,360 cf

Plug-Flow detention time=15.8 min calculated for 127,888 cf (99% of inflow)
Center-of-Mass det. time=12.7 min (769.2 - 756.5)

Primary OutFlow Max=23.00 cfs @ 12.27 hrs HW=189.98'(Free Discharge)
└1=Culvert(Passes 23.00 cfs of 222.28 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 23.00 cfs @ 11.50 fps)
├3=Orifice/Grate (Controls 0.00 cfs)
└4=Orifice/Grate (Controls 0.00 cfs)



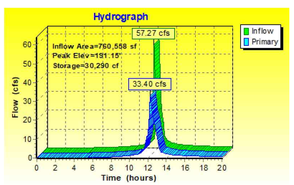
2 YEAR EVENT SUMMARY

Inflow Area = 760,558 sf, 0.00% Impervious, Inflow Depth >2.50" for 2-yr event
Inflow = 57.27 cfs @ 12.08 hrs, Volume= 158,337 cf
Outflow = 33.40 cfs @ 12.23 hrs, Volume= 157,324 cf, Atten= 42%, Lag= 8.6 min
Primary = 33.40 cfs @ 12.23 hrs, Volume= 157,324 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 191.15'@ 12.23 hrs Surf.Area= 4,200 sf Storage= 30,290 cf

Plug-Flow detention time= 15.5 min calculated for 157,324 cf (99% of inflow)
Center-of-Mass det. time=12.7 min (764.5 - 751.8)

Primary OutFlow Max=33.38 cfs @ 12.23 hrs HW=191.15' (Free Discharge)
└1=Culvert(Passes 33.38 cfs of 256.50 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 25.25 cfs @ 12.63 fps)
├3=Orifice/Grate (Orifice Controls 8.13 cfs @ 3.47 fps)
└4=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.09 fps)



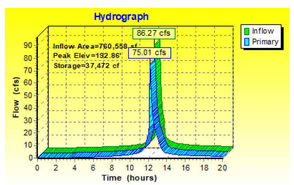
10 YEAR EVENT SUMMARY

Inflow Area = 760,558 sf, 0.00% Impervious, Inflow Depth > 4.36" for 10-yr event
Inflow = 86.27 cfs @ 12.08 hrs, Volume= 276,287 cf
Outflow = 75.01 cfs @ 12.14 hrs, Volume= 274,936 cf, Atten= 13%, Lag= 3.5 min
Primary = 75.01 cfs @ 12.14 hrs, Volume= 274,936 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 192.86'@ 12.14 hrs Surf.Area= 4,200 sf Storage= 37,472 cf

Plug-Flow detention time= 12.9 min calculated for 274,798 cf (99% of inflow)
Center-of-Mass det. time=10.7 min (749.4 - 738.7)

Primary OutFlow Max=74.94 cfs @ 12.14 hrs HW=192.86'(Free Discharge)
└1=Culvert(Passes 74.94 cfs of 299.43 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 28.22 cfs @ 14.11 fps)
├3=Orifice/Grate (Orifice Controls 18.02 cfs @ 7.21 fps)
└4=Orifice/Grate (Orifice Controls 28.71 cfs @ 4.20 fps)



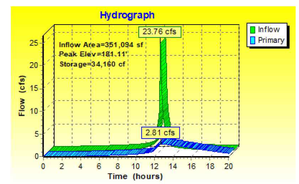
VAULT #4

1 YEAR EVENT SUMMARY

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth > 2.34" for 1-yr event
Inflow = 23.76 cfs @ 12.08 hrs, Volume= 68,545 cf
Outflow = 2.81 cfs @ 12.70 hrs, Volume= 65,307 cf, Atten= 88% Lag= 37.1 min
Primary = 2.81 cfs @ 12.70 hrs, Volume= 65,307 cf
Routed to Link 8L : STUDY POINT 1
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 181.11'@ 12.70 hrs Surf.Area= 4,211 sf Storage= 34,160 cf

Plug-Flow detention time= 139.4 min calculated for 65,274 cf (95% of inflow)
Center-of-Mass det. time= 120.3 min (853.2 - 732.9)

Primary OutFlow Max=2.81 cfs@ 12.70 hrs HW=181.11' (Free Discharge)
└1=Culvert (Passes 2.81 cfs of 109.40 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 2.81 cfs @ 13.50 fps)
├3=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.15 fps)
└4=Orifice/Grate (Controls 0.00 cfs)

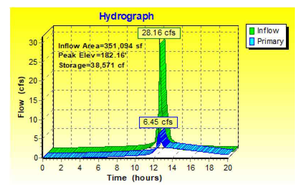


2 YEAR EVENT SUMMARY

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth > 2.82" for 2-yr event
Inflow = 28.16 cfs @ 12.08 hrs, Volume= 82,450 cf
Outflow = 6.45 cfs @ 12.57 hrs, Volume= 78,131 cf, Atten= 77% Lag= 29.2 min
Primary = 6.45 cfs @ 12.57 hrs, Volume= 78,131 cf
Routed to Link 8L : STUDY POINT 1
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 182.16'@ 12.57 hrs Surf.Area= 4,211 sf Storage= 38,571 cf

Plug-Flow detention time= 132.3 min calculated for 78,092 cf (95% of inflow)
Center-of-Mass det. time= 111.4 min (840.9 - 729.5)

Primary OutFlow Max=6.45 cfs@ 12.57 hrs HW=182.16' (Free Discharge)
└1=Culvert (Passes 6.45 cfs of 117.74 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 2.99 cfs @ 14.37 fps)
├3=Orifice/Grate (Orifice Controls 3.45 cfs @ 3.29 fps)
└4=Orifice/Grate (Controls 0.00 cfs)

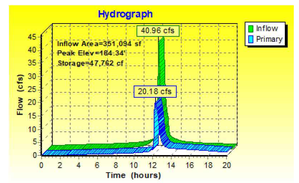


10 YEAR EVENT SUMMARY

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth > 4.70" for 10-yr event
Inflow = 40.96 cfs @ 12.08 hrs, Volume= 137,581 cf
Outflow = 20.18 cfs @ 12.28 hrs, Volume= 128,856 cf, Atten= 51% Lag= 11.8 min
Primary = 20.18 cfs @ 12.28 hrs, Volume= 128,856 cf
Routed to Link 8L : STUDY POINT 1
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 184.34'@ 12.28 hrs Surf.Area= 4,211 sf Storage= 47,762 cf

Plug-Flow detention time= 104.2 min calculated for 128,791 cf (94% of inflow)
Center-of-Mass det. time= 78.8 min (798.0 - 719.2)

Primary OutFlow Max=20.18 cfs@ 12.28 hrs HW=184.34' (Free Discharge)
└1=Culvert (Passes 20.18 cfs of 133.47 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 3.34 cfs @ 16.04 fps)
├3=Orifice/Grate (Orifice Controls 8.54 cfs @ 7.88 fps)
└4=Orifice/Grate (Orifice Controls 8.30 cfs @ 6.22 fps)



THIS SHEET REFERENCED FROM INFRASTRUCTURE PLAN (DSP2012-00012).
PLEASE SEE SHEETS 106-115D AND 116-119 IN DSP2012-00012.

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
_____ DIRECTOR _____ DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
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_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
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No.	DATE	DESCRIPTION
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05-02-2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. YOCK
Lic. No. 036790
PROFESSIONAL ENGINEER
05/02/2024

SWM POST DEVELOPMENT COMPUTATIONS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
SCALE: N/A C.I.=N/A DATE: MAY, 2024

SHEET 15 OF 28
FILE No. SP-13141

Urban, Ltd. - J:\OBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-14-POST SWM PLAN.dwg [SWM POST COMPS] May 03, 2024 - 10:39am owallio

SWM POST - Study Point "1"

VAULT #2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Primary (cfs)
183.94	**4,200**	0	0.00
184.14	4,200	840	0.50
184.34	4,200	1,680	1.98
184.54	4,200	2,520	4.40
184.74	4,200	3,360	6.42
184.94	4,200	4,200	7.78
185.14	4,200	5,040	8.91
185.34	4,200	5,880	9.90
185.54	4,200	6,720	10.81
185.74	4,200	7,560	11.64
185.94	4,200	8,400	12.41
186.14	4,200	9,240	13.14
186.34	4,200	10,080	13.83
186.54	4,200	10,920	14.49
186.74	4,200	11,760	15.11
186.94	4,200	12,600	15.72
187.14	4,200	13,440	16.30
187.34	4,200	14,280	16.86
187.54	4,200	15,120	17.40
187.74	4,200	15,960	17.92
187.94	4,200	16,800	18.43
188.14	4,200	17,640	18.93
188.34	4,200	18,480	19.41
188.54	4,200	19,320	19.89
188.74	4,200	20,160	20.35
188.94	4,200	21,000	20.80
189.14	4,200	21,840	21.24
189.34	4,200	22,680	21.67
189.54	4,200	23,520	22.10
189.74	4,200	24,360	22.51
189.94	4,200	25,200	22.92
190.14	4,200	26,040	23.73
190.34	4,200	26,880	25.10
190.54	4,200	27,720	26.79
190.74	4,200	28,560	28.74
190.94	4,200	29,400	30.90
191.14	4,200	30,240	33.25
191.34	4,200	31,080	36.61
191.54	4,200	31,920	40.49
191.74	4,200	32,760	44.78
191.94	4,200	33,600	49.45
192.14	4,200	34,440	54.46
192.34	4,200	35,280	59.78
192.54	4,200	36,120	65.40
192.74	4,200	36,960	71.29
192.94	4,200	**37,800**	77.44
193.14	4,200	37,800	83.83

Volume	Invert	Avail.Storage	Storage Description
#1	183.94'	37,800 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
183.94	4,200	0	0
192.94	4,200	37,800	37,800

Device	Routing	Invert	Outlet Devices
#1	Primary	183.94'	60.0" Round Culvert L= 87.6' RCP, groove end w/ headwall, Ke= 0.200 Inlet / Outlet Invert= 183.94' / 176.72' S= 0.0824 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 19.63 sf
#2	Device 1	183.94'	9.0" W x 8.0" H Vert. Orifice/Grate X 4.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	189.98'	24.0" W x 15.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	191.15'	48.0" W x 24.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

VAULT #4

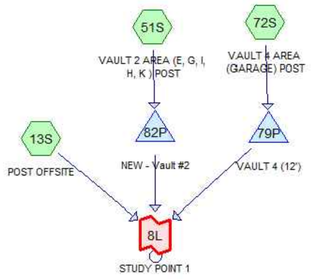
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Primary (cfs)
173.00	4,211	0	0.00
173.30	4,211	1,263	0.22
173.60	4,211	2,527	0.58
173.90	4,211	3,790	0.80
174.20	4,211	5,053	0.97
174.50	4,211	6,317	1.12
174.80	4,211	7,580	1.25
175.10	4,211	8,843	1.36
175.40	4,211	10,106	1.47
175.70	4,211	11,370	1.57
176.00	4,211	12,633	1.66
176.30	4,211	13,896	1.75
176.60	4,211	15,160	1.84
176.90	4,211	16,423	1.92
177.20	4,211	17,686	1.99
177.50	4,211	18,950	2.07
177.80	4,211	20,213	2.14
178.10	4,211	21,476	2.21
178.40	4,211	22,739	2.28
178.70	4,211	24,003	2.34
179.00	4,211	25,266	2.41
179.30	4,211	26,529	2.47
179.60	4,211	27,793	2.53
179.90	4,211	29,056	2.59
180.20	4,211	30,319	2.64
180.50	4,211	31,583	2.70
180.80	4,211	32,846	2.76
181.10	4,211	34,109	2.81
181.40	4,211	35,372	3.36
181.70	4,211	36,636	4.37
182.00	4,211	37,899	5.66
182.30	4,211	39,162	7.30
182.60	4,211	40,426	9.32
182.90	4,211	41,689	11.62
183.20	4,211	42,952	14.13
183.50	4,211	44,216	16.07
183.80	4,211	45,479	17.68
184.10	4,211	46,742	19.11
184.40	4,211	48,005	20.42
184.70	4,211	49,269	21.64
185.00	4,211	50,532	22.77

Volume	Invert	Avail.Storage	Storage Description
#1	173.00'	50,532 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.00	4,211	0	0
185.00	4,211	50,532	50,532

Device	Routing	Invert	Outlet Devices
#1	Primary	173.00'	36.0" Round Culvert L= 106.7' RCP, groove end w/ headwall, Ke= 0.200 Inlet / Outlet Invert= 173.00' / 167.56' S= 0.0510 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Device 1	173.00'	5.0" W x 6.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	181.11'	12.0" W x 13.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	182.16'	16.0" W x 12.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

POST DEVELOPMENT ROUTING SCHEMATIC
STUDY POINT '1'



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PROFESSIONAL ENGINEER
09/03/2024

SWM POST DEVELOPMENT COMPUTATIONS

WEST END

BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
C.I.= N/A
SCALE: N/A

SHEET 16 OF 28

FILE No. SP-13141

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SWM POST - Study Point "2"

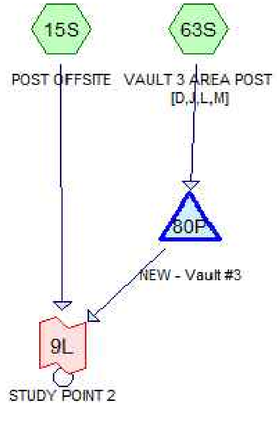
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Primary (cfs)
167.90	7,254	0	0.00
168.20	7,254	2,176	0.44
168.50	7,254	4,352	1.24
168.80	7,254	6,529	2.24
169.10	7,254	8,705	2.92
169.40	7,254	10,881	3.46
169.70	7,254	13,057	3.92
170.00	7,254	15,233	4.33
170.30	7,254	17,410	4.70
170.60	7,254	19,586	5.05
170.90	7,254	21,762	5.37
171.20	7,254	23,938	5.67
171.50	7,254	26,114	5.96
171.80	7,254	28,291	6.24
172.10	7,254	30,467	6.50
172.40	7,254	32,643	6.75
172.70	7,254	34,819	7.00
173.00	7,254	36,995	7.23
173.30	7,254	39,172	7.46
173.60	7,254	41,348	7.68
173.90	7,254	43,524	7.90
174.20	7,254	45,700	8.11
174.50	7,254	47,876	8.31
174.80	7,254	50,053	8.51
175.10	7,254	52,229	8.71
175.40	7,254	54,405	8.90
175.70	7,254	56,581	9.08
176.00	7,254	58,757	9.27
176.30	7,254	60,934	9.45
176.60	7,254	63,110	9.62
176.90	7,254	65,286	9.80
177.20	7,254	67,462	9.97
177.50	7,254	69,638	11.46
177.80	7,254	71,815	15.11
178.10	7,254	73,991	19.99
178.40	7,254	76,167	26.86
178.70	7,254	78,343	37.51
179.00	7,254	80,519	50.53
179.30	7,254	82,696	65.19
179.60	7,254	84,872	76.27
179.90	7,254	87,048	85.28

Volume	Invert	Avail.Storage	Storage Description
#1	167.90'	87,048 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.90	7,254	0	0
179.90	7,254	87,048	87,048

Device	Routing	Invert	Outlet Devices
#1	Primary	167.90'	36.0" Round Culvert L= 46.8' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert=167.90' / 166.49' S= 0.0301 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area=7.07 sf
#2	Device 1	167.90'	10.0" W x 10.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	177.28'	48.0" W x 24.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	178.24'	60.0" W x 12.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

POST DEVELOPMENT ROUTING SCHEMATIC
STUDY POINT '2'



SWM POST OFFSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
11.210	95	Urban commercial, 85% imp, HSG D
1.682		15.00% Pervious Area
9.529		85.00% Impervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 30.45 cfs@ 12.08 hrs Volume= 82,745 cf Depth>2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 36.77 cfs@ 12.08 hrs Volume= 101,658 cf Depth>2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 55.39 cfs@ 12.08 hrs Volume= 177,387 cf Depth>4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST Onsite DETAINED Runoff Calculations

Area (ac)	CN	Description
20.730	95	
20.730		

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 56.31 cfs @ 12.08 hrs, Volume= 153,015 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 68.00 cfs @ 12.08 hrs, Volume= 187,991 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 102.42 cfs @ 12.08 hrs, Volume= 328,031 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

VAULT #3

1 YEAR EVENT SUMMARY

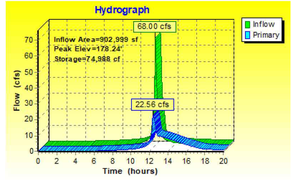
Inflow Area = 902,999 sf, 0.00% Impervious, Inflow Depth > 2.03" for 1-yr event
Inflow = 56.31 cfs @ 12.08 hrs, Volume= 153,015 cf
Outflow = 10.01 cfs @ 12.63 hrs, Volume= 149,754 cf Atten= 82% Lag= 32.8 min
Primary = 10.01 cfs @ 12.63 hrs, Volume= 149,754 cf
Routed to Link 9L : STUDY POINT 2
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 177.28@ 12.63 hrs Surf.Area= 7,254 sf Storage= 68,019 cf

Plug-Flow detention time=81.3 min calculated for 149,679 cf (98% of inflow)
Center-of-Mass det. time=72.4 min (828.9 - 756.5)
Primary OutFlow Max=10.01 cfs@ 12.63 hrs HW=177.28' (Free Discharge)
└1=Culvert (Passes 10.01 cfs of 119.40 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 10.01 cfs @ 14.41 fps)
├3=Orifice/Grate (Controls 0.00 cfs)
└4=Orifice/Grate (Controls 0.00 cfs)

2 YEAR EVENT SUMMARY

Inflow Area = 902,999 sf, 0.00% Impervious, Inflow Depth > 2.50" for 2-yr event
Inflow = 68.00 cfs @ 12.08 hrs, Volume= 187,991 cf
Outflow = 22.56 cfs @ 12.39 hrs, Volume= 184,345 cf Atten= 67% Lag= 18.6 min
Primary = 22.56 cfs @ 12.39 hrs, Volume= 184,345 cf
Routed to Link 9L : STUDY POINT 2
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 178.24@ 12.39 hrs Surf.Area= 7,254 sf Storage= 74,988 cf

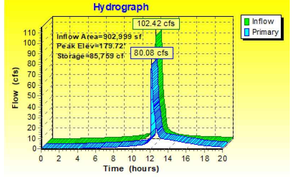
Plug-Flow detention time=75.7 min calculated for 184,253 cf (98% of inflow)
Center-of-Mass det. time=67.5 min (819.3 - 751.8)
Primary OutFlow Max=22.55 cfs@ 12.39 hrs HW=178.24' (Free Discharge)
└1=Culvert (Passes 22.55 cfs of 126.47 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 10.53 cfs @ 15.16 fps)
├3=Orifice/Grate (Orifice Controls 12.02 cfs @ 3.14 fps)
└4=Orifice/Grate (Controls 0.00 cfs)



10 YEAR EVENT SUMMARY

Inflow Area = 902,999 sf, 0.00% Impervious, Inflow Depth > 4.36" for 10-yr event
Inflow = 102.42 cfs @ 12.08 hrs, Volume= 328,031 cf
Outflow = 80.08 cfs @ 12.17 hrs, Volume= 322,649 cf Atten= 22% Lag= 5.0 min
Primary = 80.08 cfs @ 12.17 hrs, Volume= 322,649 cf
Routed to Link 9L : STUDY POINT 2
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 179.72@ 12.17 hrs Surf.Area= 7,254 sf Storage= 85,759 cf

Plug-Flow detention time=60.3 min calculated for 322,649 cf (98% of inflow)
Center-of-Mass det. time=53.0 min (791.7 - 738.7)
Primary OutFlow Max=80.07 cfs@ 12.17 hrs HW=179.72' (Free Discharge)
└1=Culvert (Passes 80.07 cfs of 136.68 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 11.29 cfs @ 16.26 fps)
├3=Orifice/Grate (Orifice Controls 45.20 cfs @ 5.65 fps)
└4=Orifice/Grate (Orifice Controls 23.57 cfs @ 4.71 fps)



STUDY POINT 2 SWM POST FLOWS

1 Year Flow Calculations

Inflow Area = 1,391,306 sf, 29.83% Impervious, Inflow Depth > 2.01" for 1-yr event
Inflow = 37.59 cfs @ 12.09 hrs, Volume= 232,499 cf
Primary = 37.59 cfs @ 12.09 hrs, Volume= 232,499 cf Atten= 0% Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

2 Year Flow Calculations

Inflow Area = 1,391,306 sf, 29.83% Impervious, Inflow Depth > 2.47" for 2-yr event
Inflow = 44.82 cfs @ 12.09 hrs, Volume= 286,003 cf
Primary = 44.82 cfs @ 12.09 hrs, Volume= 286,003 cf Atten= 0% Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

10 Year Flow Calculations

Inflow Area = 1,391,306 sf, 29.83% Impervious, Inflow Depth > 4.31" for 10-yr event
Inflow = 126.23 cfs @ 12.14 hrs, Volume= 500,036 cf
Primary = 126.23 cfs @ 12.14 hrs, Volume= 500,036 cf Atten= 0% Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

ENERGY BALANCE METHOD TO STUDY POINT "2"

$Q_{(Developed)}$=	37.59	cfs
$Q_{(Pre-Developed)}$=	76.56	cfs
$RV_{(Pre-Developed)}$=	4.48	ac-ft
$RV_{(Developed)}$=	5.34	ac-ft
I.F. =	0.8	(0.8 for sites greater than one acre) (0.9 for sites less than or equal to one acre)

Q Developed	≤	I.F x ($Q_{Pre-Developed}$ x $RV_{Pre-Developed}$)/$RV_{Developed}$
37.59		51.42

THIS SHEET REFERENCED FROM INFRASTRUCTURE PLAN (DSP2012-00012).
PLEASE SEE SHEETS 106-115D AND 116-119 IN DSP2012-00012.

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
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REVISIONS

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PLAN DATE
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03-01-2024
05-02-2024

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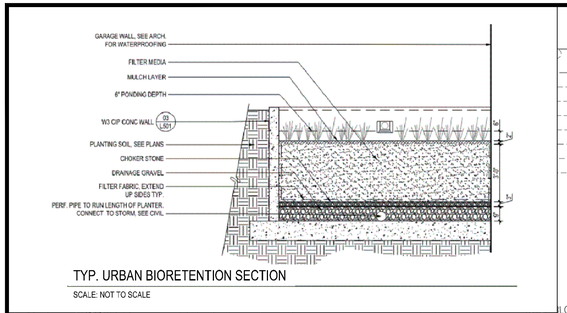
COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036780
PROFESSIONAL ENGINEER
07/02/2024

SWM POST DEVELOPMENT COMPUTATIONS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
DATE: MAY, 2024
C.I.= N/A
SCALE: N/A

SHEET 16A OF 28
FILE No. SP-13141

Urban, Ltd. - J:\JOBS\londonmarkmall\DSUP\block l&m\preliminary site plan\13141-14-POST SWM PLAN.dwg [SP2 NEW] May 03, 2024 - 10:39am owolla



TYP. URBAN BIORETENTION SECTION

SCALE: NOT TO SCALE

BLOCK TO DRAIN USING EXISTING SEDIMENT BASIN RISER AND STORM CONNECTION

DA AREA=1.31 AC TO BIORETENTION

DA AREA=1.00 AC TO BIORETENTION

LEGEND

- DRAINAGE AREA
- DRAINAGE AREA TO BIORETENTION BMP
- BIORETENTION BMP

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
05/02/2024

BMP PLAN
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024
SCALE: 1"=30' C.I.= 2'

SHEET 17 OF 28

FILE No. SP-13141

Urban, Ltd. – J:\JOBS\Vandmarkmall\DSUP\block l&m \preliminary site plan\13141-16-BMP PLAN.dwg [BMP PLAN] May 03, 2024 - 10:40am cwallio

Project Name: West End - Block LM
Date: 12/19/2022
Linear Development Project? No

(Ctrl+Shift+R)

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 4.86

Maximum reduction required:	*20%*	
The site's net increase in impervious cover (acres) is:	*0*	
Post-Development TP Load Reduction for Site (lb/yr):	~~1.99~~	4.22

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

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be					0.00
Impervious Cover (acres)				4.59	4.59
					4.59

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be					0.00
Impervious Cover (acres)				4.59	4.59
Area Check	OK.	OK.	OK.	OK.	4.59

Constants

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

Runoff Coefficients (Rv)

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

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre		
Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	0.00	0.00
Weighted Rv(turf)	0.00	0.00
% Managed Turf	0%	0%
Impervious Cover (acres)	4.59	4.59
Rv(impervious)	0.95	0.95
% Impervious	100%	100%
Total Site Area (acres)	4.59	4.59
Site Rv	0.95	0.95
Treatment Volume and Nutrient Load		
Pre-ReDevelopment Treatment Volume (acre-ft)	0.3634	0.3634
Pre-ReDevelopment Treatment Volume (cubic feet)	15,829	15,829
Pre-ReDevelopment TP Load (lb/yr)	**9.95**	**9.95**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	2.17	2.17
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*1.88*

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

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

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

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)	
Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.00
Weighted Rv (turf)	0.00
% Managed Turf	0%
Impervious Cover (acres)	4.59
Rv(impervious)	0.95
% Impervious	100%
Final Site Area (acres)	4.59
Final Post Dev Site Rv	0.95
Treatment Volume and Nutrient Load	
Final Post-Development Treatment Volume (acre-ft)	0.3634
Final Post-Development Treatment Volume (cubic feet)	15,829
Final Post-Development TP Load (lb/yr)	**9.95**
Final Post-Development TP Load per acre (lb/acre/yr)	2.17

Land Cover Summary-Post	
Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.00
Weighted Rv (turf)	0.00
% Managed Turf	0%
ReDev. Impervious Cover (acres)	4.59
Rv(impervious)	0.95
% Impervious	100%
Total ReDev. Site Area (acres)	4.59
ReDev Site Rv	0.95
Post-ReDevelopment Treatment Volume (acre-ft)	0.3634
Post-ReDevelopment Treatment Volume (cubic feet)	15,829
Post-ReDevelopment Load (TP) (lb/yr)*	**9.95**
Post-ReDevelopment TP Load per acre (lb/acre/yr)	2.17
Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
TP Load Reduction Required for Redeveloped Area (lb/yr)	**1.99**

Land Cover Summary-Post	
Post-Development New Impervious	
New Impervious Cover (acres)	0.00
Rv(impervious)	--
Post-Development Treatment Volume (acre-ft)	--
Post-Development Treatment Volume (cubic feet)	--
Post-Development TP Load (lb/yr)	**--**
TP Load Reduction Required for New Impervious Area (lb/yr)	**0**

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	~~1.99~~	4.22

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	71.15	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	71.15

Drainage Area A

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)					0.00	0.00
Impervious Cover (acres)				1.79	1.79	0.95
				Total	1.79	

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists-

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
6. Bioretention (RR)													
6.b. Bioretention #2 or Micro-Bioretention #2 (Spec #9)	80		1.00	0	2,759	690	3,449	50	0.00	2.16	1.95	0.22	

Drainage Area B

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)					0.00	0.00
Impervious Cover (acres)				2.80	2.80	0.95
				Total	2.80	

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists-

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
6. Bioretention (RR)													
6.b. Bioretention #2 or Micro-Bioretention #2 (Spec #9)	80		1.31	0	3,614	904	4,518	50	0.00	2.84	2.55	0.28	

Site Results (Water Quality Compliance)

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	1.79	2.80	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	1.00	1.31	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.00	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft³) 15,829

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft³)	2,759	3,614	0	0	0	6,373
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	3.88	6.07	0.00	0.00	0.00	9.95
TP LOAD REDUCTION ACHIEVED (lb/yr)	1.95	2.55	0.00	0.00	0.00	4.50
TP LOAD REMAINING (lb/yr)	1.93	3.52	0.00	0.00	0.00	5.45
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	14.24	18.66	0.00	0.00	0.00	32.90

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	9.95	
TP LOAD REDUCTION REQUIRED (lb/yr)	~~1.99~~	REQUIRED REDUCTION PER APPROVED (DSP #2021-00017)= 4.22 LB/YR
TP LOAD REDUCTION ACHIEVED (lb/yr)	4.50	
TP LOAD REMAINING (lb/yr):	5.45	TP REMOVAL PER APPROVED (DSP #2021-00017)= 4.22 LB/YR
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00	**

** TARGET TP REDUCTION EXCEEDED BY ~~2.51 LB~~/YEAR ** 0.28 LB/YR

Total Nitrogen (For Information Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	71.15
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	32.90
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	38.24

BMP NARRATIVE

STORMWATER BEST MANAGEMENT PRACTICE FOR THE SUBJECT SITE IS BEING PROVIDED IN ACCORDANCE WITH VA DEQ AND CITY OF ALEXANDRIA STANDARDS BY USING THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM) TO MEET THE WATER QUALITY CRITERIA

THE PHOSPHOROUS LOAD REDUCTION REQUIRED BY THE VRRM WILL BE SATISFIED WITH THE UTILIZATION OF THREE (3) STORMWATER BEST MANAGEMENT PRACTICE (BMP) FACILITIES IN CONFORMANCE WITH THE STORMWATER BMP CLEARINGHOUSE WEBSITE. THE THREE (3) BMP FACILITIES PROPOSED ARE:

- URBAN BIORETENTION - BIORETENTION FACILITY (LEVEL 2)

BASED ON THE SUBJECT SITE'S PROPOSED LAND COVER, AND THE OVERALL SITE ANALYSIS AS OUTLINED IN THE MASTER SWM PLAN (SWM#2021-00017) THE TOTAL PHOSPHOROUS LOAD REDUCTION REQUIRED TO BE REMOVED IS 4.22 LBS/YEAR. THE TOTAL PHOSPHOROUS LOAD REDUCTION ACHIEVED IS 4.50 LBS/YEAR, THEREFORE THE TOTAL PHOSPHOROUS LOAD REDUCTION IS EXCEEDED BY 0.28 LBS/YEAR.

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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BMP COMPS & NARRATIVE
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
DATE: MAY, 2024
SCALE: 1"=30' C.I.= 2'

SHEET 18 OF 28
FILE No. SP-13141

Urban, Ltd. - X:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-16-BMP PLAN.dwg [BLK LM VRRM] May 03, 2024 - 10:40am owalla

PROPOSED BMP COMPUTATIONS FOR BLOCK L&M

Project Description

Development or Redevelopment

Drainage Area	Impervious	Pervious	Total
Site Area	4.59 AC.		4.59 AC.
On-Site Treated	2.31 AC.		2.31 AC.
Off-Site Treated	0 AC.		0 AC.
Total Treated	2.31 AC.		
Any On-Site Disconnected by a Vegetated Buffer (25 ft)			
Total On-Site Treated or Disconnected			

Water Treatment on site

BMP Type	*Area treated by BMP (acres)*	*Impervious area treated by BMP (acres)*	*BMP efficiency (%)*
Bioretention #1	1.31 AC.	1.31 AC.	50%
Bioretention #2	0.70 AC.	0.70 AC.	50%
Bioretention #3	0.30 AC.	0.30 AC.	50%

Miscellaneous

Total WQV treated: **yes** **no**
Detention on site: **yes** **no**

Project is within which watershed? HOLMES RUN WATERSHED

Project discharges to which body of water? HOLMES RUN

PROPOSED WQV TREATMENT:

TOTAL SITE IMPERVIOUS AREA = 4.59 AC OR 200,091 SF

SITE WQV REQUIRED = 4.22 TP REMOVAL PER YEAR REQUIRED (PER MASTER SWM PLAN #2021-00017)

SITE WQV PROPOSED = 3,449+4,518 = 7,967 CF OR 0.183 AC-FT (SEE SHEET 18 FOR TOTAL BMP TREATMENT VOLUME VALUES)

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
05/02/2024

WQVD DATA BLOCKS

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=30' C.I.= 2' DATE: MAY, 2024

SHEET 19 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-16-BMP PLAN.dwg [WQVD] May 03, 2024 - 10:40am awallio

OFFSITE UNDETAINED DRAINAGE AREA TO OUTFALL POINT "1" DA = 0.86 AC CN= 96 TC = 15 MINS

OUTFALL POINT #1

STUDY POINT "1"

TIME OF CONCENTRATION TRAVEL PATH

HENRY G. SHIRLEY MEMORIAL HIGHWAY

STUDY POINT "1": ONSITE DA TO VAULT 4 DA = 8.06 AC CN= 98 TC = 10 MINS

OUTFALL POINT #2

FEMA ZONE FLOODPLAIN BOUNDARY

OFFSITE UNDETAINED DRAINAGE AREA TO STUDY POINT "1" DA = 7.37 AC CN= 95 TC = 15 MINS

STUDY POINT "1": ONSITE DA TO VAULT 2 DA = 17.46 AC CN= 95 TC = 10 MINS

OFFSITE UNDETAINED DRAINAGE AREA TO OUTFALL POINT "2" DA = 5.36 AC CN= 92 TC = 10 MINS

TIME OF CONCENTRATION TRAVEL PATH

OFFSITE UNDETAINED DRAINAGE AREA TO EX. CHANNEL DA = 0.29 AC

BLOCK E

BLOCK G

BLOCK I

BLOCK K

BLOCK M

BLOCK H

BLOCK J

BLOCK D

BLOCK L

STUDY POINT "2"

STUDY POINT "2": ONSITE DA TO VAULT 3 DA = 20.73 AC CN= 95 TC = 10 MINS

OFFSITE UNDETAINED DRAINAGE AREA TO STUDY POINT "2" DA = 11.21AC CN= 95 TC = 10 MINS

SCALE: 1"=125'

0 62.5' 125' 250'

APPROVED

DEVELOPMENT SITE PLAN NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	REVISIONS

PLAN DATE
10-20-2023
03-21-2024
05-02-2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOPE
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PROFESSIONAL ENGINEER
05/02/2024

OUTFALL ANALYSIS

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"= 125' C.I.= 2' DATE: MAY, 2024

SHEET 20 OF 28

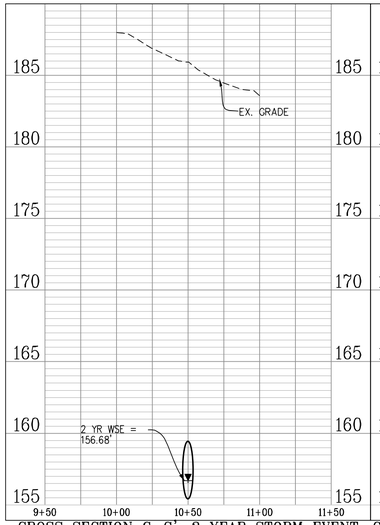
FILE No. SP-13141

Urban, Ltd. - J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-19-OUTFALL ANALYSIS.dwg [ANALYSIS] May 03, 2024 - 10:42am awallo

CROSS SECTION A-A': 2 YEAR STORM EVENT

Discharge: 44.83 cfs
Flow Area: 3.5 ft²
Wetted Perimeter: 4.8 ft
Hydraulic Radius: 8.7 in
Top Width: 3.74 ft
Normal Depth: 15.4 in
Critical Depth: 24.0 in
Critical Slope: 0.013 ft/ft
Velocity: 12.84 ft/s
Velocity Head: 2.56 ft
Specific Energy: 3.85 ft
Froude Number: 2.342
Maximum Discharge: 215.34 cfs
Discharge Full: 200.18 cfs
Slope Full: 0.003 ft/ft
Flow Type: Supercritical

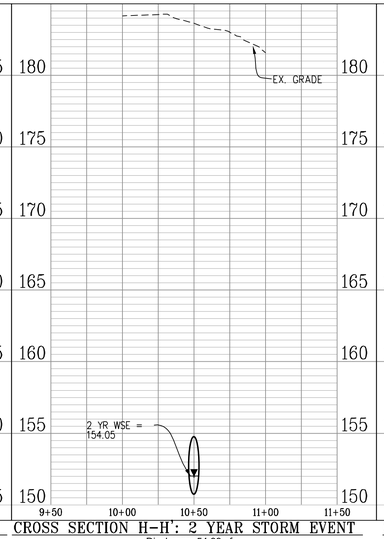
V2ALLOW=15 FPS



CROSS SECTION B-B': 2 YEAR STORM EVENT

Discharge: 44.83 cfs
Flow Area: 3.5 ft²
Wetted Perimeter: 4.8 ft
Hydraulic Radius: 8.7 in
Top Width: 3.74 ft
Normal Depth: 15.4 in
Critical Depth: 24.0 in
Critical Slope: 0.013 ft/ft
Velocity: 12.84 ft/s
Velocity Head: 2.56 ft
Specific Energy: 3.85 ft
Froude Number: 2.342
Maximum Discharge: 215.34 cfs
Discharge Full: 200.18 cfs
Slope Full: 0.003 ft/ft
Flow Type: Supercritical

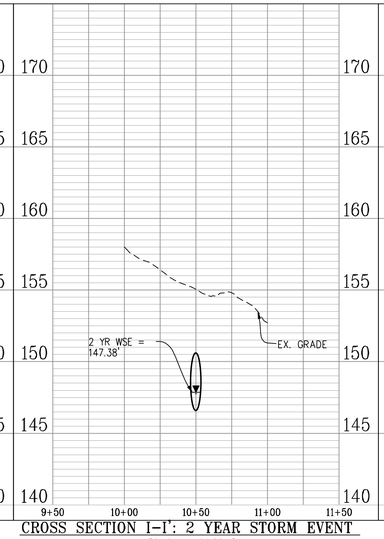
V2ALLOW=15 FPS



CROSS SECTION C-C': 2 YEAR STORM EVENT

Discharge: 44.83 cfs
Flow Area: 3.5 ft²
Wetted Perimeter: 4.8 ft
Hydraulic Radius: 8.7 in
Top Width: 3.74 ft
Normal Depth: 15.4 in
Critical Depth: 24.0 in
Critical Slope: 0.013 ft/ft
Velocity: 12.84 ft/s
Velocity Head: 2.56 ft
Specific Energy: 3.85 ft
Froude Number: 2.342
Maximum Discharge: 215.34 cfs
Discharge Full: 200.18 cfs
Slope Full: 0.003 ft/ft
Flow Type: Supercritical

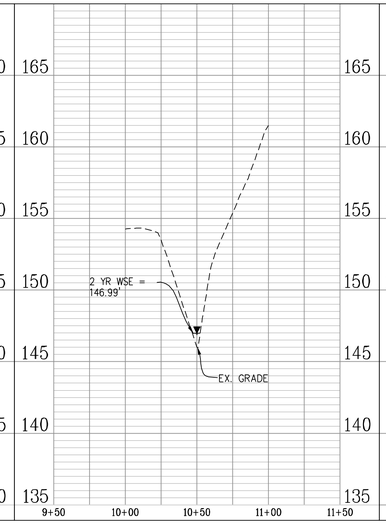
V2ALLOW=15 FPS



CROSS SECTION D-D': 2 YEAR STORM EVENT

Discharge: 52.77 cfs
Flow Area: 2.5 ft²
Wetted Perimeter: 5.5 ft
Hydraulic Radius: 5.5 in
Top Width: 5.07 ft
Normal Depth: 11.8 in
Critical Depth: 23.0 in
Critical Slope: 0.003 ft/ft
Velocity: 21.26 ft/s*
Velocity Head: 7.02 ft
Specific Energy: 8.00 ft
Froude Number: 5.355
Flow Type: Supercritical

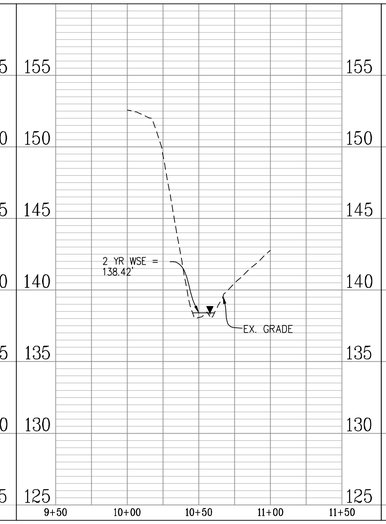
*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION E-E': 2 YEAR STORM EVENT

Discharge: 52.77 cfs
Flow Area: 3.3 ft²
Wetted Perimeter: 14.5 ft
Hydraulic Radius: 2.7 in
Top Width: 14.30 ft
Normal Depth: 4.8 in
Critical Depth: 10.9 in
Critical Slope: 0.003 ft/ft
Velocity: 16.10 ft/s*
Velocity Head: 4.03 ft
Specific Energy: 4.42 ft
Froude Number: 5.927
Flow Type: Supercritical

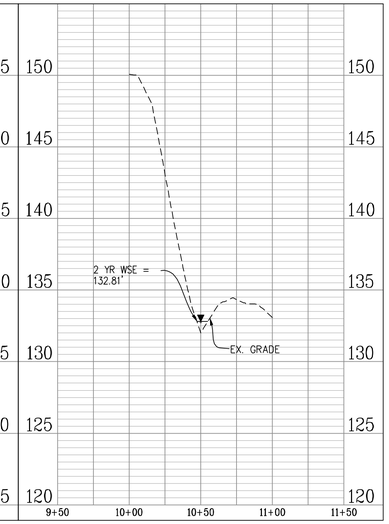
*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION F-F': 2 YEAR STORM EVENT

Discharge: 52.77 cfs
Flow Area: 3.1 ft²
Wetted Perimeter: 7.9 ft
Hydraulic Radius: 4.8 in
Top Width: 7.71 ft
Normal Depth: 9.7 in
Critical Depth: 18.0 in
Critical Slope: 0.003 ft/ft
Velocity: 16.86 ft/s*
Velocity Head: 4.42 ft
Specific Energy: 5.23 ft
Froude Number: 4.665
Flow Type: Supercritical

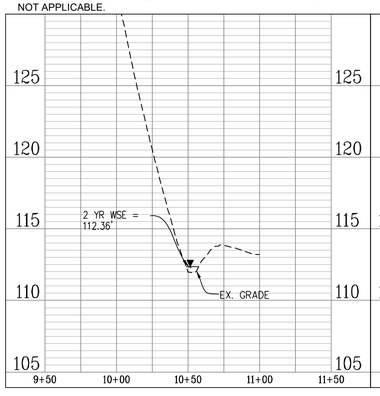
*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION G-G': 2 YEAR STORM EVENT

Discharge: 54.39 cfs
Flow Area: 2.7 ft²
Wetted Perimeter: 8.8 ft
Hydraulic Radius: 3.7 in
Top Width: 8.69 ft
Normal Depth: 5.1 in
Critical Depth: 13.8 in
Critical Slope: 0.003 ft/ft
Velocity: 20.25 ft/s*
Velocity Head: 6.37 ft
Specific Energy: 6.80 ft
Froude Number: 6.421
Flow Type: Supercritical

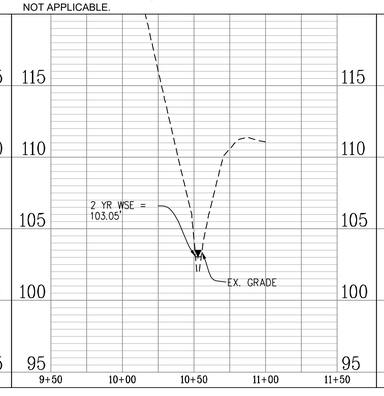
*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION H-H': 2 YEAR STORM EVENT

Discharge: 54.39 cfs
Flow Area: 1.7 ft²
Wetted Perimeter: 3.9 ft
Hydraulic Radius: 5.3 in
Top Width: 3.16 ft
Normal Depth: 12.9 in
Critical Depth: 29.2 in
Critical Slope: 0.003 ft/ft
Velocity: 31.88 ft/s*
Velocity Head: 15.80 ft
Specific Energy: 16.88 ft
Froude Number: 7.653
Flow Type: Supercritical

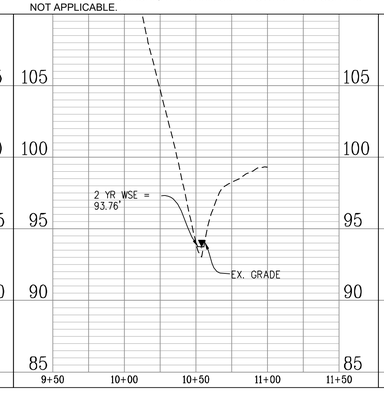
*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION I-I': 2 YEAR STORM EVENT

Discharge: 54.39 cfs
Flow Area: 1.9 ft²
Wetted Perimeter: 5.0 ft
Hydraulic Radius: 4.7 in
Top Width: 4.69 ft
Normal Depth: 8.6 in
Critical Depth: 21.6 in
Critical Slope: 0.003 ft/ft
Velocity: 28.15 ft/s*
Velocity Head: 12.32 ft
Specific Energy: 13.03 ft
Froude Number: 7.737
Flow Type: Supercritical

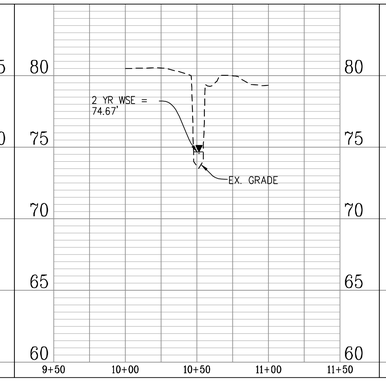
*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION J-J': 2 YEAR STORM EVENT

Discharge: 60.84 cfs
Flow Area: 6.1 ft²
Wetted Perimeter: 8.1 ft
Hydraulic Radius: 9.0 in
Top Width: 7.00 ft
Normal Depth: 13.6 in
Critical Depth: 19.1 in
Critical Slope: 0.036 ft/ft
Velocity: 9.96 ft/s
Velocity Head: 1.54 ft
Specific Energy: 2.67 ft
Froude Number: 1.880
Flow Type: Supercritical

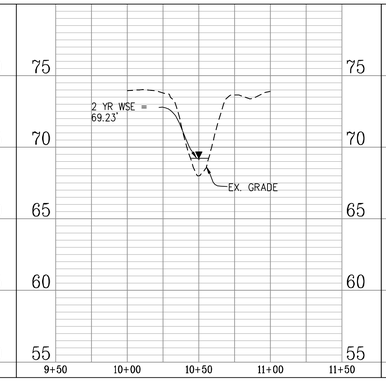
V2ALLOW= 13 FPS



CROSS SECTION K-K': 2 YEAR STORM EVENT

Discharge: 60.84 cfs
Flow Area: 6.8 ft²
Wetted Perimeter: 11.0 ft
Hydraulic Radius: 7.4 in
Top Width: 10.69 ft
Normal Depth: 14.7 in
Critical Depth: 19.5 in
Critical Slope: 0.032 ft/ft
Velocity: 9.01 ft/s
Velocity Head: 1.26 ft
Specific Energy: 2.49 ft
Froude Number: 1.999
Flow Type: Supercritical

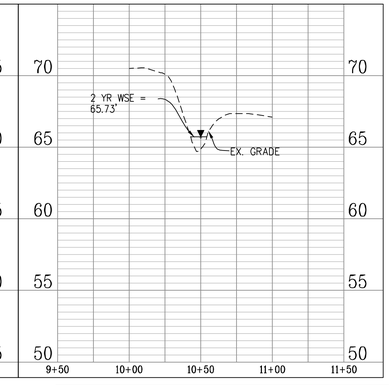
V2ALLOW= 13 FPS



CROSS SECTION L-L': 2 YEAR STORM EVENT

Discharge: 60.84 cfs
Flow Area: 7.5 ft²
Wetted Perimeter: 12.8 ft
Hydraulic Radius: 7.1 in
Top Width: 12.57 ft
Normal Depth: 12.2 in
Critical Depth: 16.2 in
Critical Slope: 0.033 ft/ft
Velocity: 8.06 ft/s
Velocity Head: 1.01 ft
Specific Energy: 2.03 ft
Froude Number: 1.835
Flow Type: Supercritical

V2ALLOW= 13 FPS



APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
_____ DIRECTOR _____ DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
DATE RECORDED _____
_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 039790
ENGINEER
PROFESSIONAL
05/02/2024

OUTFALL ANALYSIS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
DATE: MAY, 2024
SCALE: H:1"=40'; V:1"=5'
C.I.=N.A.

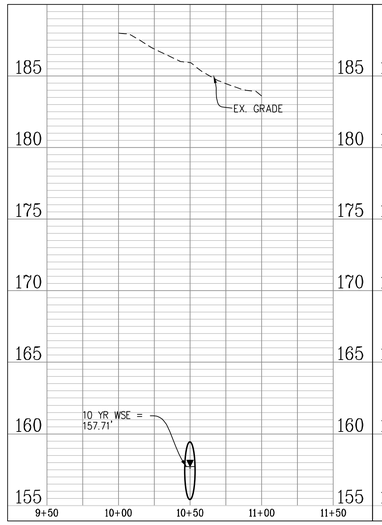
SHEET
21
OF
28

FILE No.
SP-13141

Urban, Ltd. - J:_JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-19-OUTFALL ANALYSIS.dwg [2 years] May 03, 2024 - 10:42am avalla

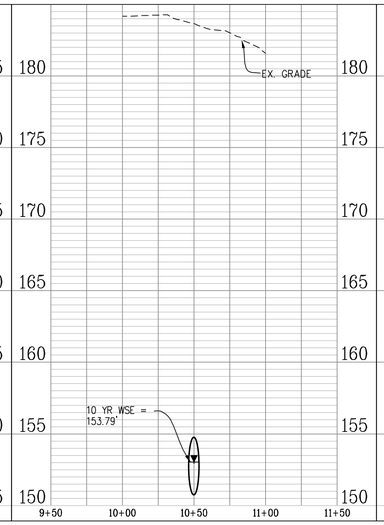
CROSS SECTION A-A': 10 YEAR STORM EVENT

Discharge: 126.27 cfs
Flow Area: 7.5 ft²
Wetted Perimeter: 6.9 ft
Hydraulic Radius: 13.0 in
Top Width: 3.95 ft
Normal Depth: 27.7 in
Critical Depth: 40.5 in
Critical Slope: 0.025 ft/ft
Velocity: 16.84 ft/s
Velocity Head: 4.41 ft
Specific Energy: 6.71 ft
Froude Number: 2.156
Maximum Discharge: 215.34 cfs
Discharge Full: 200.18 cfs
Slope Full: 0.026 ft/ft
Flow Type: Supercritical



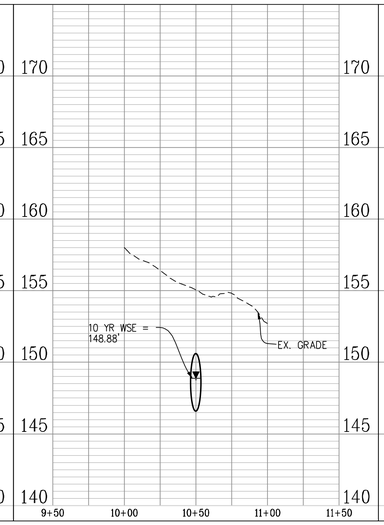
CROSS SECTION B-B': 10 YEAR STORM EVENT

Discharge: 126.27 cfs
Flow Area: 7.5 ft²
Wetted Perimeter: 6.9 ft
Hydraulic Radius: 13.0 in
Top Width: 3.95 ft
Normal Depth: 27.7 in
Critical Depth: 40.5 in
Critical Slope: 0.025 ft/ft
Velocity: 16.84 ft/s
Velocity Head: 4.41 ft
Specific Energy: 6.71 ft
Froude Number: 2.156
Maximum Discharge: 215.34 cfs
Discharge Full: 200.18 cfs
Slope Full: 0.026 ft/ft
Flow Type: Supercritical



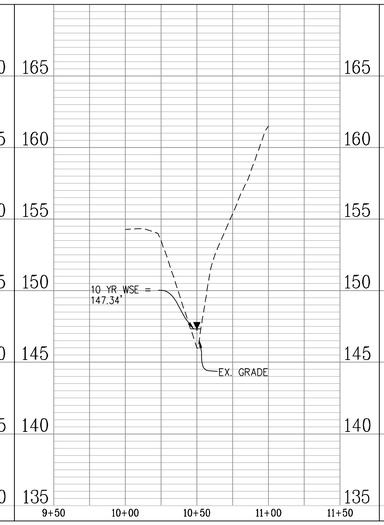
CROSS SECTION C-C': 10 YEAR STORM EVENT

Discharge: 126.27 cfs
Flow Area: 7.5 ft²
Wetted Perimeter: 6.9 ft
Hydraulic Radius: 13.0 in
Top Width: 3.95 ft
Normal Depth: 27.7 in
Critical Depth: 40.5 in
Critical Slope: 0.025 ft/ft
Velocity: 16.84 ft/s
Velocity Head: 4.41 ft
Specific Energy: 6.71 ft
Froude Number: 2.156
Maximum Discharge: 215.34 cfs
Discharge Full: 200.18 cfs
Slope Full: 0.026 ft/ft
Flow Type: Supercritical



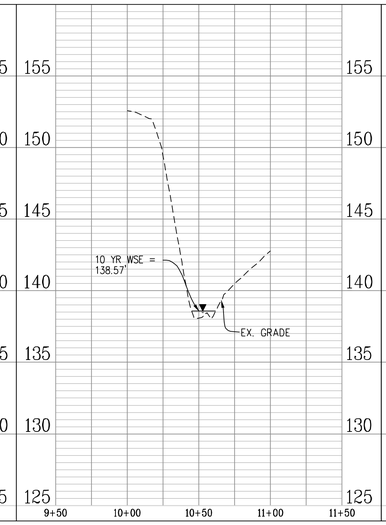
CROSS SECTION D-D': 10 YEAR STORM EVENT

Discharge: 118.46 cfs
Flow Area: 4.6 ft²
Wetted Perimeter: 7.4 ft
Hydraulic Radius: 7.4 in
Top Width: 6.86 ft
Normal Depth: 15.9 in
Critical Depth: 31.8 in
Critical Slope: 0.002 ft/ft
Velocity: 26.03 ft/s
Velocity Head: 10.53 ft
Specific Energy: 11.85 ft
Froude Number: 5.635
Flow Type: Supercritical



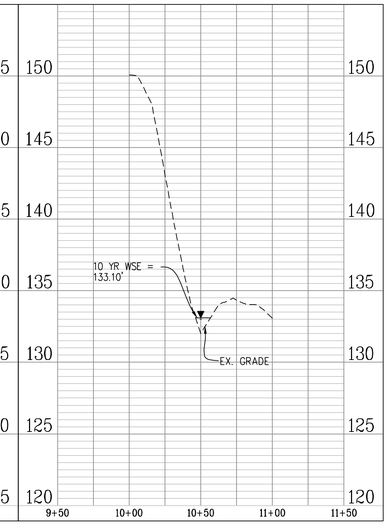
CROSS SECTION E-E': 10 YEAR STORM EVENT

Discharge: 118.46 cfs
Flow Area: 5.5 ft²
Wetted Perimeter: 15.6 ft
Hydraulic Radius: 4.2 in
Top Width: 15.42 ft
Normal Depth: 6.5 in
Critical Depth: 16.7 in
Critical Slope: 0.003 ft/ft
Velocity: 21.56 ft/s
Velocity Head: 7.22 ft
Specific Energy: 7.77 ft
Froude Number: 6.366
Flow Type: Supercritical



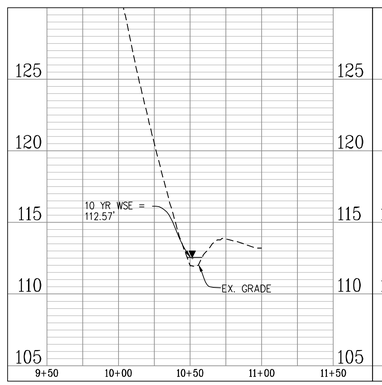
CROSS SECTION F-F': 10 YEAR STORM EVENT

Discharge: 118.46 cfs
Flow Area: 5.7 ft²
Wetted Perimeter: 10.7 ft
Hydraulic Radius: 6.4 in
Top Width: 10.44 ft
Normal Depth: 13.2 in
Critical Depth: 26.0 in
Critical Slope: 0.003 ft/ft
Velocity: 20.64 ft/s
Velocity Head: 6.62 ft
Specific Energy: 7.72 ft
Froude Number: 4.908
Flow Type: Supercritical



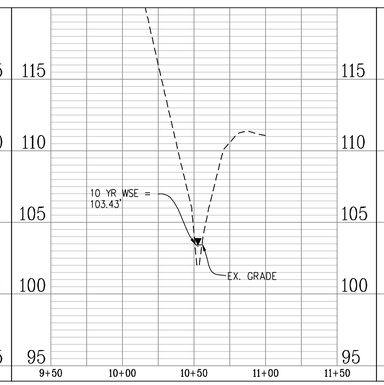
CROSS SECTION G-G': 10 YEAR STORM EVENT

Discharge: 121.50 cfs
Flow Area: 4.7 ft²
Wetted Perimeter: 10.5 ft
Hydraulic Radius: 5.3 in
Top Width: 10.39 ft
Normal Depth: 7.6 in
Critical Depth: 20.3 in
Critical Slope: 0.003 ft/ft
Velocity: 25.97 ft/s
Velocity Head: 10.48 ft
Specific Energy: 11.11 ft
Froude Number: 6.821
Flow Type: Supercritical



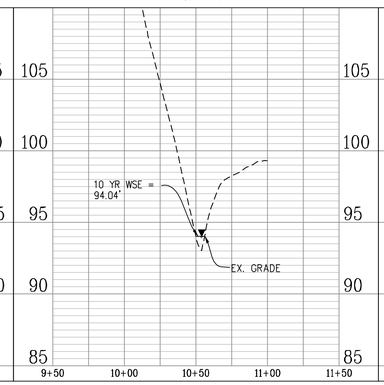
CROSS SECTION H-H': 10 YEAR STORM EVENT

Discharge: 121.50 cfs
Flow Area: 3.1 ft²
Wetted Perimeter: 5.2 ft
Hydraulic Radius: 7.2 in
Top Width: 4.27 ft
Normal Depth: 17.5 in
Critical Depth: 40.4 in
Critical Slope: 0.003 ft/ft
Velocity: 38.98 ft/s
Velocity Head: 23.61 ft
Specific Energy: 25.07 ft
Froude Number: 8.047
Flow Type: Supercritical



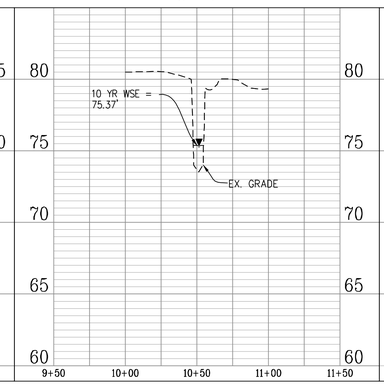
CROSS SECTION I-I': 10 YEAR STORM EVENT

Discharge: 121.50 cfs
Flow Area: 3.5 ft²
Wetted Perimeter: 6.3 ft
Hydraulic Radius: 6.5 in
Top Width: 5.96 ft
Normal Depth: 12.0 in
Critical Depth: 30.6 in
Critical Slope: 0.002 ft/ft
Velocity: 35.18 ft/s
Velocity Head: 19.23 ft
Specific Energy: 20.23 ft
Froude Number: 8.145
Flow Type: Supercritical



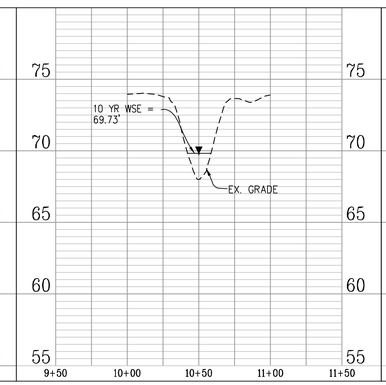
CROSS SECTION J-J': 10 YEAR STORM EVENT

Discharge: 148.84 cfs
Flow Area: 11.2 ft²
Wetted Perimeter: 9.6 ft
Hydraulic Radius: 14.0 in
Top Width: 7.37 ft
Normal Depth: 22.0 in
Critical Depth: 32.1 in
Critical Slope: 0.037 ft/ft
Velocity: 13.33 ft/s
Velocity Head: 2.76 ft
Specific Energy: 4.60 ft
Froude Number: 1.910
Flow Type: Supercritical



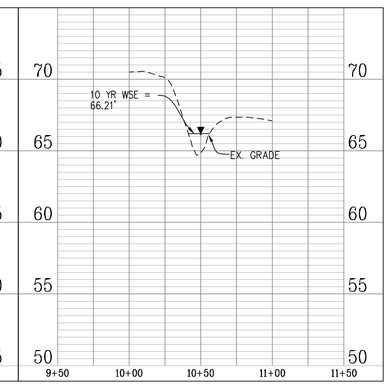
CROSS SECTION K-K': 10 YEAR STORM EVENT

Discharge: 148.84 cfs
Flow Area: 13.0 ft²
Wetted Perimeter: 14.8 ft
Hydraulic Radius: 10.6 in
Top Width: 14.37 ft
Normal Depth: 20.7 in
Critical Depth: 28.3 in
Critical Slope: 0.029 ft/ft
Velocity: 11.44 ft/s
Velocity Head: 2.03 ft
Specific Energy: 3.76 ft
Froude Number: 2.120
Flow Type: Supercritical



CROSS SECTION L-L': 10 YEAR STORM EVENT

Discharge: 148.84 cfs
Flow Area: 14.5 ft²
Wetted Perimeter: 17.0 ft
Hydraulic Radius: 10.2 in
Top Width: 16.67 ft
Normal Depth: 17.9 in
Critical Depth: 24.2 in
Critical Slope: 0.029 ft/ft
Velocity: 10.29 ft/s
Velocity Head: 1.64 ft
Specific Energy: 3.14 ft
Froude Number: 1.947
Flow Type: Supercritical



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DEVELOPMENT SITE PLAN NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

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PLAN DATE
10-20-2023
03-01-2024
05-02-2024

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
05/02/2024

OUTFALL ANALYSIS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA

SCALE: H:1"=40', V:1"=5' C.I.= N.A. DATE: MAY, 2024

SHEET 22 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\Landmark\mall\DSUP\block l&m \preliminary site plan\13141-19-OUTFALL ANALYSIS.dwg [10 years] May 03, 2024 - 10:42am owilio

SWM PRE OFFSITE Undetained Runoff Calculations To Ex. Ditch

Curve Number Calculations

Area (ac)	CN	Description
0.276	80	>75% Grass cover, Good, HSG D
0.149	98	Paved roads w/curbs & sewers, HSG D
0.425	86	Weighted Average
0.276		64.94% Pervious Area
0.149		35.06% Impervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 0.98 cfs @ 12.03 hrs , Volume= 2,014 cf , Depth> 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 1.27 cfs @ 12.03 hrs , Volume= 2,635 cf , Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 2.20 cfs @ 12.03 hrs , Volume= 5,269 cf , Depth> 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST OFFSITE Undetained Runoff Calculations To Ex. Ditch

Curve Number Calculations

Area (ac)	CN	Description
0.236	80	>75% Grass cover, Good, HSG D
0.057	98	Paved roads w/curbs & sewers, HSG D
0.293	84	Weighted Average
0.236		80.55% Pervious Area
0.057		19.45% Impervious Area

Time of Concentration Calculations

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

1 Year Flow Calculations

Runoff = 0.61 cfs @ 12.03 hrs , Volume= 1,249 cf , Depth> 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 0.80 cfs @ 12.03 hrs , Volume= 1,659 cf , Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 1.44 cfs @ 12.03 hrs , Volume= 3,425 cf , Depth> 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

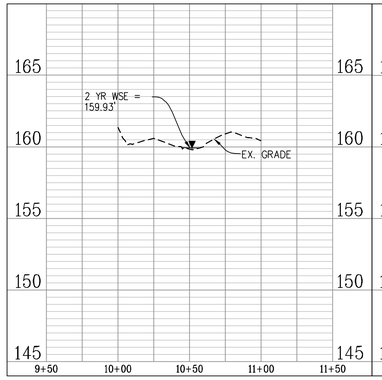
ENERGY BALANCE METHOD TO Ex. Channel at Str. 43.

$Q_{(Developed)}$=	0.61	cfs
$Q_{(Pre-Developed)}$=	0.98	cfs
$RV_{(Pre-Developed)}$=	2014.00	c.f.
$RV_{(Developed)}$=	1249.00	c.f.
I.F. =	0.9	(0.8 for sites greater than one acre) (0.9 for sites less than or equal to one acre)

Q Developed	≤	I.F x ($Q_{Pre-Developed}$ X $RV_{Pre-Developed}$)/$RV_{Developed}$
0.61		1.42

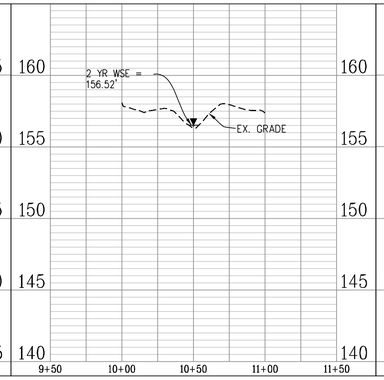
CROSS SECTION M-M': 2 YEAR STORM EVENT

Discharge: 0.80 cfs
Flow Area: 0.9 ft²
Wetted Perimeter: 12.2 ft
Hydraulic Radius: 0.9 in
Top Width: 12.16 ft
Normal Depth: 1.8 in
Critical Depth: 1.4 in
Critical Slope: 0.093 ft/ft
Velocity: 0.88 ft/s
Velocity Head: 0.01 ft
Specific Energy: 0.16 ft
Froude Number: 0.568
Flow Type: Subcritical
V2ALLOW= 13 FPS



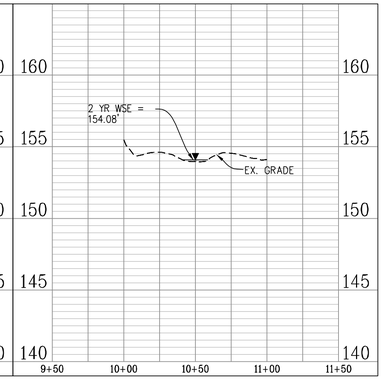
CROSS SECTION N-N': 2 YEAR STORM EVENT

Discharge: 0.80 cfs
Flow Area: 0.5 ft²
Wetted Perimeter: 4.8 ft
Hydraulic Radius: 1.3 in
Top Width: 4.79 ft
Normal Depth: 2.5 in
Critical Depth: 2.4 in
Critical Slope: 0.079 ft/ft
Velocity: 1.58 ft/s
Velocity Head: 0.04 ft
Specific Energy: 0.25 ft
Froude Number: 0.858
Flow Type: Subcritical
V2ALLOW= 13 FPS



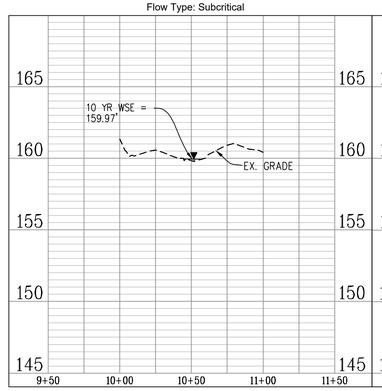
CROSS SECTION O-O'-: 2 YEAR STORM EVENT

Discharge: 0.80 cfs
Flow Area: 0.7 ft²
Wetted Perimeter: 9.9 ft
Hydraulic Radius: 0.8 in
Top Width: 9.88 ft
Normal Depth: 1.6 in
Critical Depth: 1.5 in
Critical Slope: 0.092 ft/ft
Velocity: 1.20 ft/s
Velocity Head: 0.02 ft
Specific Energy: 0.16 ft
Froude Number: 0.819
Flow Type: Subcritical
V2ALLOW= 13 FPS



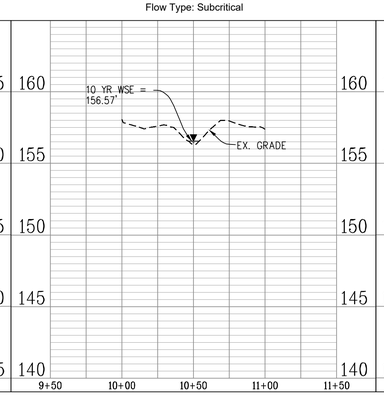
CROSS SECTION M-M': 10 YEAR STORM EVENT

Discharge: 1.44 cfs
Flow Area: 1.4 ft²
Wetted Perimeter: 15.2 ft
Hydraulic Radius: 1.1 in
Top Width: 15.16 ft
Normal Depth: 2.2 in
Critical Depth: 1.8 in
Critical Slope: 0.086 ft/ft
Velocity: 1.02 ft/s
Velocity Head: 0.02 ft
Specific Energy: 0.20 ft
Froude Number: 0.589
Flow Type: Subcritical



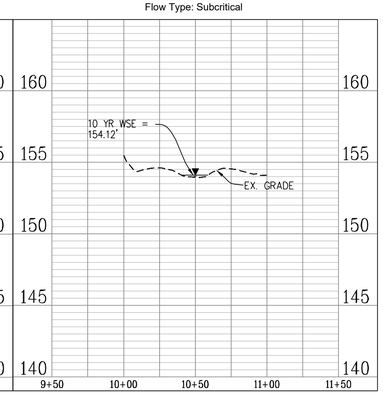
CROSS SECTION N-N': 10 YEAR STORM EVENT

Discharge: 1.44 cfs
Flow Area: 0.8 ft²
Wetted Perimeter: 6.0 ft
Hydraulic Radius: 1.6 in
Top Width: 5.97 ft
Normal Depth: 3.2 in
Critical Depth: 3.0 in
Critical Slope: 0.073 ft/ft
Velocity: 1.83 ft/s
Velocity Head: 0.05 ft
Specific Energy: 0.32 ft
Froude Number: 0.890
Flow Type: Subcritical



CROSS SECTION O-O': 10 YEAR STORM EVENT

Discharge: 1.44 cfs
Flow Area: 1.0 ft²
Wetted Perimeter: 12.3 ft
Hydraulic Radius: 1.0 in
Top Width: 12.31 ft
Normal Depth: 2.0 in
Critical Depth: 1.9 in
Critical Slope: 0.085 ft/ft
Velocity: 1.40 ft/s
Velocity Head: 0.03 ft
Specific Energy: 0.20 ft
Froude Number: 0.850
Flow Type: Subcritical



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CLAYTON C. TOCK
Lic. No. 039790
ENGINEER
05/02/2024
PROFESSIONAL

OUTFALL ANALYSIS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
SCALE: H:1"=40'; V:1"=5' C.I.=N.A. DATE: MAY, 2024

SHEET 23 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-19-OUTFALL ANALYSIS.dwg [M-M' to O-O'] May 03, 2024 - 10:42am owolio

OUTFALL ANALYSIS NARRATIVE

OVERALL, THE EXISTING TOPOGRAPHY OF THE PARCEL HAS TWO DISTINCT OUTFALLS, RESULTING IN TWO STUDY POINTS. STUDY POINT #1 OUTFALLS TO THE NORTHEAST CORNER OF THE PROPERTY. STUDY POINT #2 OUTFALLS TO THE EAST OF THE SITE, IMMEDIATELY NORTH OF THE DUKE STREET RAMP CONNECTION TO VAN DORN STREET. A TOTAL DRAINAGE AREA OF 32.86 ACRES DRAINS TO STUDY POINT 1, WHEREAS A TOTAL OF 31.94 ACRES DRAINS TO STUDY POINT 2.

SPECIFIC TO THE SUBJECT SITE, BLOCK E&G STORM SYSTEM DRAINS TO VAULT #2 THEN DISCHARGE TO AN EXISTING CHANNEL LOCATED ON THE NORTHEAST SIDE OF THE LANDMARK DEVELOPMENT. STORMWATER MANAGEMENT IS TO BE PROVIDED IN VAULT 2 WHICH IS LOCATED BETWEEN BLOCKS E&G AND OPENSPACE PARKS AND HAS A TOTAL DRAINAGE AREA OF 17.46 ACRES WHICH ENCOMPASSES BLOCKS E&G, I, H, K AND PART OF INOVA SITE. IN ACCORDANCE WITH THE ARTICLE XIII SECTION 13-109 OF THE ALEXANDRIA ZONING ORDINANCE, AND UTILIZING THE VIRGINIA RUNOFF REDUCTION METHODOLOGY, THE TREATMENT VOLUME IS REDUCED VIA THE UNDERGROUND SWM FACILITY.

THE ALLOWABLE RELEASE RATE FOR EACH STUDY POINT HAS BEEN CALCULATED IN ACCORDANCE WITH ARTICLE XIII SECTION 13-109(F) OF THE ALEXANDRIA ZONING ORDINANCE. FOR THE CHANNEL PROTECTION AND FLOOD PROTECTION WHEN STORMWATER FROM A DEVELOPMENT IS DISCHARGED TO A NATURAL STORMWATER CONVEYANCE SYSTEM, THE MAXIMUM PEAK FLOW RATE FROM THE 1-YEAR 24-HOUR STORM FOLLOWING THE LAND-DISTURBING ACTIVITY SHALL BE CALCULATED WHERE:

$Qdev \leq I.F. * (Qpre * RVpre)/RVdev$

AND THE PEAK FLOW RATE FOR THE 10-YEAR 24-HOUR STORM EVENT IS LESS THAN THE PRE-DEVELOPMENT PEAK FLOW RATE FROM THE 10-YEAR 24-HOUR STORM EVENT. AS SHOWN IN THE FLOW SUMMARY TABLE ON THIS SHEET. THE PROPOSED FLOW TO THE STUDY POINTS ARE LESS THAN THE ALLOWABLE RUNOFF.

IT IS THEREFORE THE OPINION OF URBAN, LTD. THAT THE PROPOSED SWM DESIGN MEETS THE REQUIRED SWM REQUIREMENTS OF THE ALEXANDRIA ORDINANCE.

Clayton Tock

URBAN LTD.
CLAYTON C. TOCK, P.E., PRINCIPLE

FLOW SUMMARY TABLES

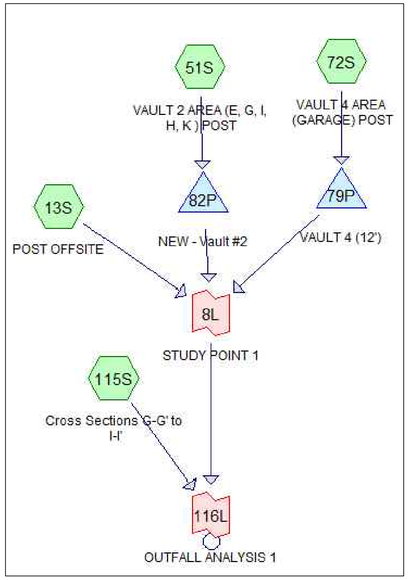
STUDY POINT 1:

FLOW SUMMARY		PRE-DEVELOPMENT			POST-DEVELOPMENT SUMMARY			Q ALLOW*
NODE ID	RETURN EVENT	Q PEAK hrs	Q PEAK cfs	Rv cu.ft.	Q PEAK hrs	Q PEAK cfs	Rv cu.ft.	CFS
ONSITE	1	12.09	52.17	136,159				
	2	12.09	67.33	176,935				
	10	12.09	116.25	348,346				
OFFSITE	1	12.15	16.82	54,327	12.15	16.82	54,327	
	2	12.15	20.36	66,748	12.15	20.36	66,748	
	10	12.15	31.07	116,470	12.15	31.07	116,470	
VAULT 2	1				12.27	23.00	127,952	
	2				12.23	33.40	157,324	
	10				12.14	75.01	274,936	
VAULT 4	1				12.67	3.28	66,871	
	2				12.56	6.70	80,392	
	10				12.28	20.39	132,914	
CROSS SECTIONS G-G TO I-I'	1				12.16	1.30	4,051	
	2				12.16	1.70	5,303	
	10				12.15	3.04	10,605	
STUDY POINT 1	1	12.10	67.19	190,486	12.18	41.46	249,150	41.35
	2	12.10	85.47	243,683	12.20	55.14	304,463	85.47
	10	12.10	143.92	464,816	12.15	125.38	534,923	143.92
OUTFALL POINT 1	1				12.18	42.76	253,200	
	2				12.20	56.77	309,766	
	10				12.15	121.50	520,368	

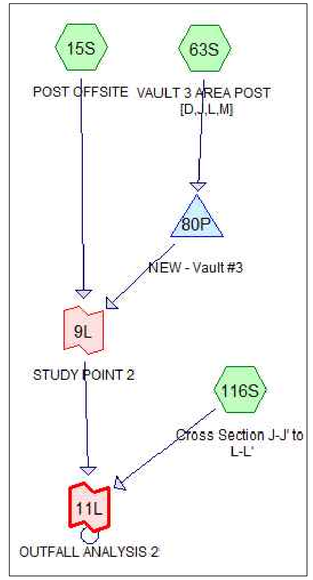
STUDY POINT 2:

FLOW SUMMARY		PRE-DEVELOPMENT			POST-DEVELOPMENT SUMMARY			Q ALLOW*
NODE ID	RETURN EVENT	Q PEAK hrs	Q PEAK cfs	Rv cu.ft.	Q PEAK hrs	Q PEAK cfs	Rv cu.ft.	CFS
ONSITE	1	12.03	48.77	99,926				
	2	12.03	62.66	129,838				
	10	12.03	106.06	255,599				
OFFSITE	1	12.08	33.04	95,334	12.08	30.45	82,745	
	2	12.08	39.16	114,673	12.08	36.77	101,658	
	10	12.08	56.97	191,351	12.08	55.39	177,387	
VAULT 3	1				12.63	10.03	153,017	
	2				12.39	22.60	187,991	
	10				12.17	80.15	326,881	
CROSS SECTION J-J' TO L-L'	1				12.09	12.95	34,232	
	2				12.09	16.01	42,944	
	10				12.08	25.30	78,364	
STUDY POINT 2	1	12.04	76.56	195,259	12.09	37.61	235,762	50.75
	2	12.04	95.46	244,511	12.09	44.83	289,649	95.46
	10	12.04	153.75	446,950	12.14	126.27	504,268	153.75
OUTFALL POINT 2	1				12.09	50.55	269,994	
	2				12.09	60.84	332,593	
	10				12.13	148.84	582,632	

POST-DEVELOPMENT NODE SUMMARIES FOR OUTFALL POINT #1



POST-DEVELOPMENT NODE SUMMARIES FOR OUTFALL POINT #2



NODE LEGEND

ROUTING DIAGRAM NODE SYMBOLS:

Subcat — HYDROCAD SUBCATCHMENT - USED TO MODEL THE EFFECT OF RAINFALL ON A SPECIFIC SECTION OF THE WATERSHED, AND PRODUCES A RUNOFF HYDROGRAPH. SUBCATCHMENTS ARE DESCRIBED BY A NUMBER OF PARAMETERS SUCH AS AREA, CURVE NUMBER, AND TIME OF CONCENTRATION.

Pond — HYDROCAD POND -USED TO MODEL THE STORAGE EFFECTS OF ANY RETENTION OR DETENTION AREA, SUCH AS A RESERVOIR, DETENTION POND, OR STORAGE CHAMBER. A POND CAN ALSO INCORPORATE A VARIETY OF ANY OUTLET CONTROL DEVICES, SUCH AS CULVERTS, WEIRS, ETC., WITH THE ABILITY TO ACCOUNT FOR HEADWATER AND TAILWATER EFFECTS.

Link — HYDROCAD LINK -USED TO INTERCONNECT SEVERAL ROUTING DIAGRAMS AND PRODUCES A RUNOFF HYDROGRAPH SCALED APPROPRIATELY FOR TIME. THIS PROVIDES A REPRESENTATION OF DISCHARGE OF RUNOFF WHERE MULTIPLE HYDROGRAPHS ARE ACCUMULATED TO A POINT OF ANALYSIS.

**NOTE - THE NUMBER AND LETTER GENERATED WITHIN THE ROUTING DIAGRAM NODE IS AUTOMATICALLY GENERATED BY THE HYDROCAD SOFTWARE. THE NUMBER AND LETTER HAS NO EFFECT ON THE ROUTING CALCULATIONS. THE TEXT BELOW EACH HYDROCAD NODE PROVIDES A BRIEF DESCRIPTION OF THE NODES REPRESENTATION.

POST-DEVELOPMENT 2-YEAR OUTFALL POINT #1

Inflow Area = 1,470,063 sf , 42.45% Impervious , Inflow Depth > 2.53" for 2-yr event
Inflow = 56.77 cfs @ 12.20 hrs , Volume= 309,766 cf
Primary = 56.77 cfs @ 12.20 hrs , Volume= 309,766 cf , Atten= 0% , Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

POST-DEVELOPMENT 10-YEAR OUTFALL POINT #1

Inflow Area = 1,470,063 sf , 42.45% Impervious , Inflow Depth > 4.37" for 10-yr event
Inflow = 125.38 cfs @ 12.15 hrs , Volume= 534,923 cf
Primary = 125.38 cfs @ 12.15 hrs , Volume= 534,923 cf , Atten= 0% , Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

POST-DEVELOPMENT 2-YEAR OUTFALL POINT #2

Inflow Area = 1,624,676 sf , 34.88% Impervious , Inflow Depth > 2.46" for 2-yr event
Inflow = 60.84 cfs @ 12.09 hrs , Volume= 332,597 cf
Primary = 60.84 cfs @ 12.09 hrs , Volume= 332,597 cf , Atten= 0% , Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

POST-DEVELOPMENT 10-YEAR OUTFALL POINT #2

Inflow Area = 1,624,676 sf , 34.88% Impervious , Inflow Depth > 4.30" for 10-yr event
Inflow = 148.84 cfs @ 12.13 hrs , Volume= 582,638 cf
Primary = 148.84 cfs @ 12.13 hrs , Volume= 582,638 cf , Atten= 0% , Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

OUTFALL ANALYSIS COMPUTATION SUMMARY

CROSS SECTIONS	SWALE TYPE DESCRIPTION:	AVG. CHANNEL SLOPE (%):	DRAINAGE AREA (AC):	CN FACTOR:	Tc (MIN):	ROUGHNESS COEFFICIENT:	2 YEAR FLOW (CFS):	2 YEAR VELOCITY (FPS):	2 YEAR NORMAL DEPTH (FT):	10 YEAR FLOW (CFS):	10 YEAR VELOCITY (FPS):	10 YEAR NORMAL DEPTH (FT):	CHANNEL LINING:
D-D'	EXISTING MANMADE CHANNEL-OFFSITE	0.10%	31.97	96	10*	0.013	52.77	21.26	0.98	118.46	26.03	1.33	EX. CONCRETE LINING
E-E'	EXISTING MANMADE CHANNEL-OFFSITE	0.14%	31.97	96	10*	0.013	52.77	16.10	0.40	118.46	21.56	0.54	EX. CONCRETE LINING
F-F'	EXISTING MANMADE CHANNEL-OFFSITE	0.08%	31.97	96	10*	0.013	52.77	16.86	0.81	118.46	20.64	1.10	EX. CONCRETE LINING
G-G'	EXISTING MANMADE CHANNEL-OFFSITE	0.15%	32.83	86	15*	0.013	54.39	20.25	0.43	121.50	25.97	0.63	EX. CONCRETE LINING
H-H'	EXISTING MANMADE CHANNEL-OFFSITE	0.23%	32.83	86	15*	0.013	54.39	31.88	1.08	121.50	38.98	1.46	EX. CONCRETE LINING
I-I'	EXISTING MANMADE CHANNEL-OFFSITE	0.21%	32.83	86	15*	0.013	54.39	28.15	0.72	121.50	35.18	1.00	EX. CONCRETE LINING
J-J'	EXISTING MANMADE CHANNEL-OFFSITE	0.13%	37.30	92	10*	0.045	60.84	9.96	1.13	148.84	13.33	1.83	EX. RIP RAP LINING
K-K'	EXISTING MANMADE CHANNEL-OFFSITE	0.14%	37.30	92	10*	0.045	60.84	9.01	1.23	148.84	11.44	1.73	EX. RIP RAP LINING
L-L'	EXISTING MANMADE CHANNEL-OFFSITE	0.12%	37.30	92	10*	0.045	60.84	8.06	1.02	148.84	10.29	1.49	EX. RIP RAP LINING

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
_____ DIRECTOR _____ DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
DATE RECORDED _____
_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE: 10-20-2023, 03-01-2024, 05-02-2024

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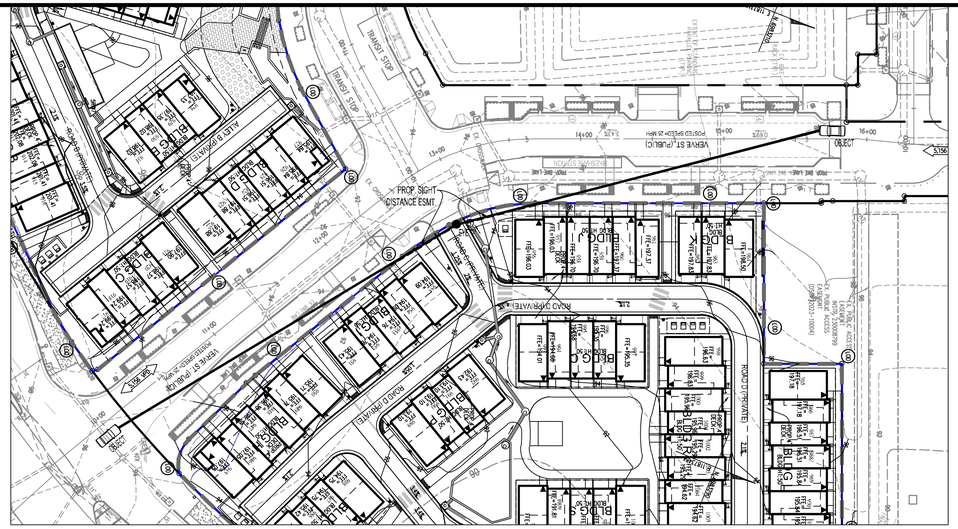
COMMONWEALTH OF VIRGINIA — CLAYTON C. TOCK Lic. No. 039790 — PROFESSIONAL ENGINEER — 05/02/2024

OUTFALL ANALYSIS
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
DATE: MAY, 2024
SCALE: N.A. C.I.=N.A.

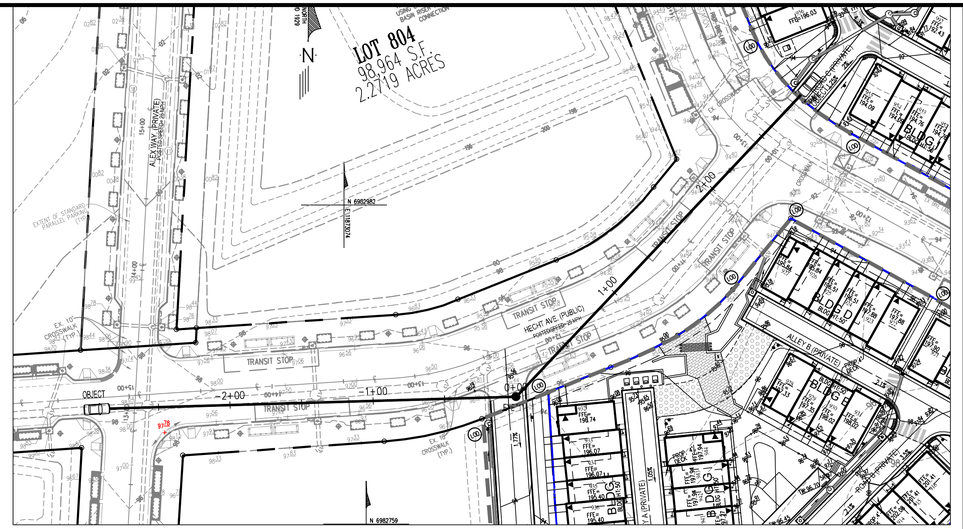
SHEET 24 OF 28
FILE No. SP-13141

Urban, Ltd. - J:_OBS\Landmark\all\DSUP\block l&m\preliminary site plan\13141-19-OUTFALL ANALYSIS.dwg [NARR] May 03, 2024 - 10:42am awolla



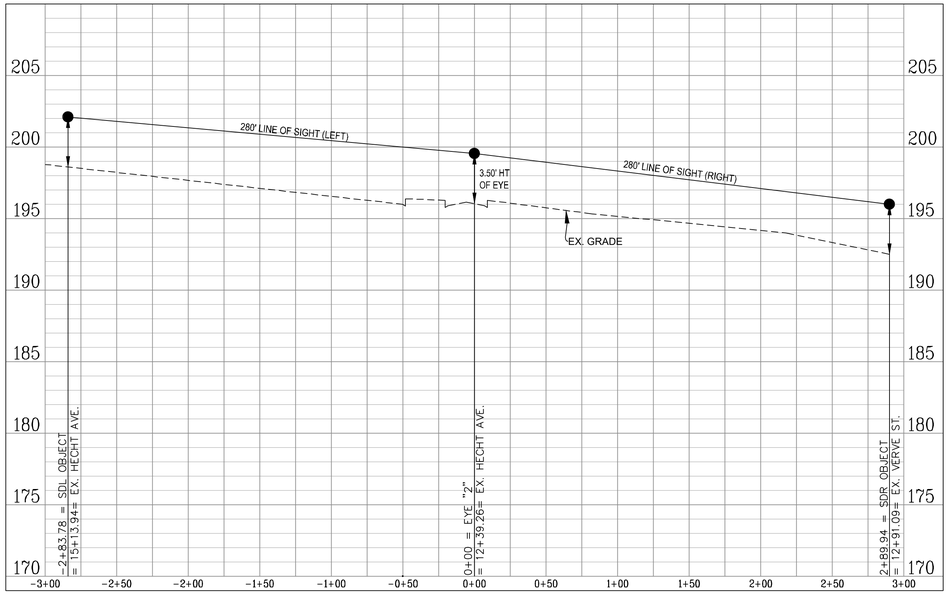
PLAN VIEW
SCALE: 1"=50'

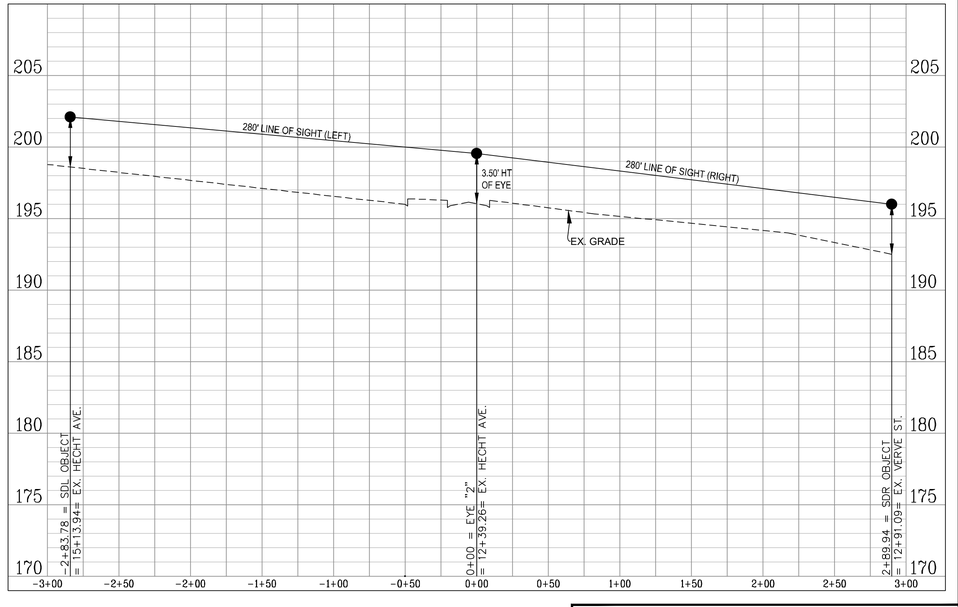
SIGHT DISTANCE PROFILE
PROP. ROAD C AND EX. VERVE ST. INTX.
EYE "2"
POSTED SPEED = 25MPH
DESIGN SPEED = 25MPH



PLAN VIEW
SCALE: 1"=50'

SIGHT DISTANCE PROFILE
PROP. ROAD A AND EX. HECHT AVE INTX.
EYE "1"
POSTED SPEED = 25 MPH
DESIGN SPEED = 25 MPH





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DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

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CLAYTON C. TUCK
Lic. No. 039780
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PROFESSIONAL ENGINEER

SIGHT DISTANCE PROFILES

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024

SCALE: H: 1"=50' ; V: 1"=5' C.I.= 2'

SHEET
25
OF
28

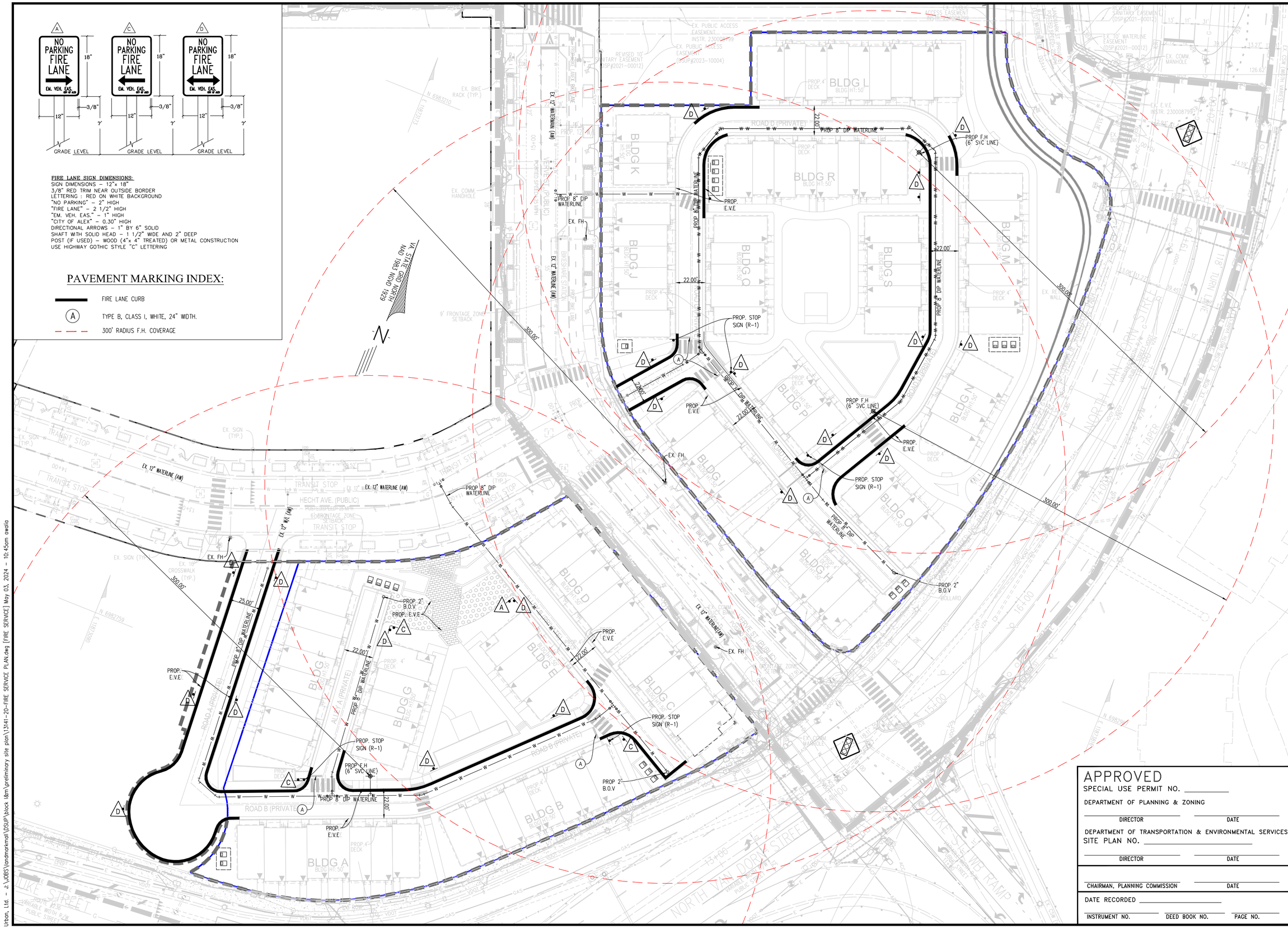
FILE No.
SP-13141

Urban, Ltd. - J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-18-SIGHT DISTANCE.dwg [SIGHT DISTANCE] May 03, 2024 - 10:44am owilla

FIRE LANE SIGN DIMENSIONS:
SIGN DIMENSIONS – 12"x 18"
3/8" RED TRIM NEAR OUTSIDE BORDER
LETTERING : RED ON WHITE BACKGROUND
"NO PARKING" – 2" HIGH
"FIRE LANE" – 2 1/2" HIGH
"EM. VEH. EAS." – 1" HIGH
"CITY OF ALEX" – 0.30" HIGH
DIRECTIONAL ARROWS – 1" BY 6" SOLID
SHAFT WITH SOLID HEAD – 1 1/2" WIDE AND 2" DEEP
POST (IF USED) – WOOD (4"x 4" TREATED) OR METAL CONSTRUCTION
USE HIGHWAY GOTHIC STYLE "C" LETTERING

PAVEMENT MARKING INDEX:

- FIRE LANE CURB
- (A) TYPE B, CLASS I, WHITE, 24" WIDTH.
- 300' RADIUS F.H. COVERAGE



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DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

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CLAYTON C. TOCK
Lic. No. 036790
09/02/2024
PROFESSIONAL ENGINEER

FIRE SERVICE PLAN
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA
C.I.= N/A
DATE: MAY, 2024
SCALE: 1"=30'

SHEET 26 OF 28
FILE No. SP-13141

Urban, Ltd. – J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-20-FIRE SERVICE PLAN.dwg [FIRE SERVICE] May 03, 2024 – 10:45am awalia

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DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
10-20-2023
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GIS DIMENSION PLAN

WEST END
BLOCK L&M - PRELIMINARY SITE PLAN

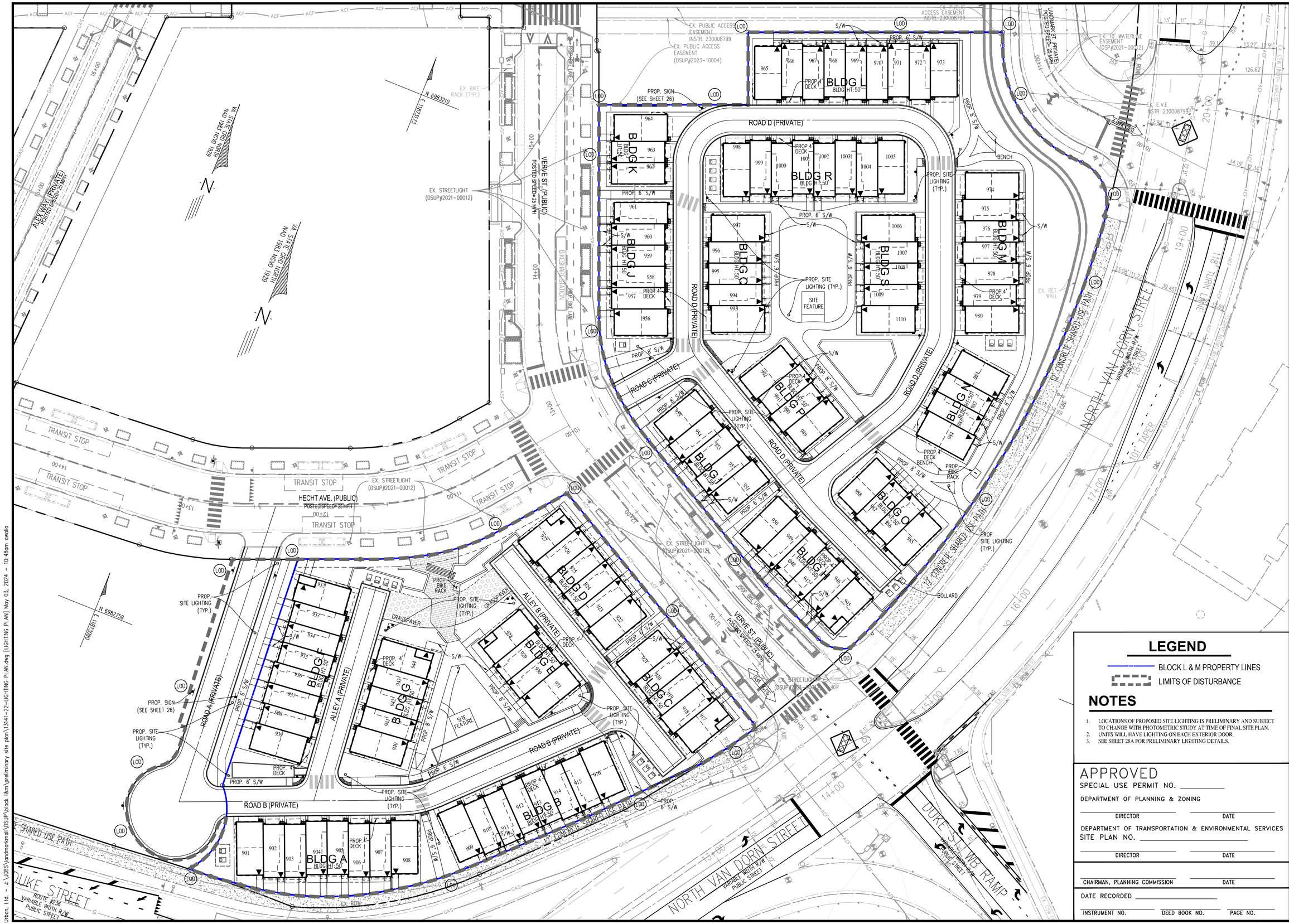
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=30' C.I.= N/A DATE: MAY, 2024

SHEET 27 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\landmarkmall\DSUP\block l&m\preliminary site plan\13141-21-GIS DIMENSION PLAN.dwg [GIS] May 03, 2024 - 10:46am awalia



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COMMONWEALTH OF VIRGINIA
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PROFESSIONAL ENGINEER
05/02/2024

LIGHTING PLAN
WEST END
BLOCK L&M - PRELIMINARY SITE PLAN
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=30' | C.I.=N/A | DATE: MAY, 2024

LEGEND

BLOCK L & M PROPERTY LINES

LIMITS OF DISTURBANCE

NOTES

1. LOCATIONS OF PROPOSED SITE LIGHTING IS PRELIMINARY AND SUBJECT TO CHANGE WITH PHOTOMETRIC STUDY AT TIME OF FINAL SITE PLAN.
2. UNITS WILL HAVE LIGHTING ON EACH EXTERIOR DOOR.
3. SEE SHEET 28A FOR PRELIMINARY LIGHTING DETAILS.

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SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

SHEET 28 OF 28

FILE No. SP-13141

Urban, Ltd. - J:\JOBS\1andmarkmall\DSUP\block L&m\preliminary site plan\13141-22-LIGHTING PLAN.dwg [LIGHTING PLAN] May 03, 2024 - 10:48am awallo

SITE LIGHTING

CARLYLE ACORN

THE CARLYLE ACORN STYLE LUMINAIRE IS FREQUENTLY USED WHERE GREATER VERTICAL ILLUMINATION AND A MODERATE AMOUNT OF UPLIGHT IS PREFERRED, SUCH AS IN URBAN STREETSCAPE AND PEDESTRIAN LIGHTING APPLICATIONS.

- BASIC STYLE LUMINAIRE
- 3000K COLOR TEMPERATURE
- FINISH COLOR BLACK
- TYPE III LIGHTING PATTERN
- INTERNAL GLASS REFRACTOR FOR LIGHT CONTROL
- 70W, 100W, 150W, 250W HID EQUIVALENTS

CARLYLE ACORN	
	REVISION DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES ALEXANDRIA, VIRGINIA	CSCA-1
	PAGE 69

UNIT LIGHTING (FRONT/SIDE DOORS)

Camillo™ 15" 1 Light Wall Light with Clear Seeded Glass Textured Black — 59080BKT

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SPECIFICATIONS

Certifications/Qualifications	
	www.kichler.com/warranty
Dimensions	
Base Backplate	4.75" X 6.25"
Extension	7.50"
Weight	4.60 LBS
Height from center of Wall opening (Spec Sheet)	3.25"
Height	14.75"
Width	6.00"
Light Source	
Dimmable	Yes
Lamp Included	Not Included
Lamp Type	A19
Light Source	Incandescent
Max or Nominal Watt	100.00
# of Bulbs/LED Modules	1
Max Wattage/Range	100.00
Socket Type	Medium
Socket Wire	150"
Mounting/Installation	
Interior/Exterior	Exterior
Location Rating	Wet
Mounting Style	Wall Mount
Mounting Weight	3.00 LBS

FIXTURE ATTRIBUTES

Housing	
Diffuser Description	Clear Seeded
Primary Material	ALUMINUM
Shade Dimensions	4.74" D X 10.75" H
Product/Ordering Information	
SKU	59080BKT
Finish	Textured Black
Style	Industrial
UPC	783927002257
Finish Options	
Natural Brass	
Textured Black	

ALSO IN THIS FAMILY

59139BKT | 59140BKT | 59141BKT

59142BKT | 59079NBR | 59079BKT

UNIT LIGHTING (REAR/GARAGE DOORS)

8.25" 1 Light Wall Light Black — 9611BK

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SPECIFICATIONS

Certifications/Qualifications	
	www.kichler.com/warranty
Dimensions	
Base Backplate	5.00" DIA
Extension	5.75"
Weight	1.05 LBS
Height from center of Wall opening (Spec Sheet)	2.75"
Height	8.25"
Width	5.00"
Light Source	
Dimmable	Yes
Lamp Included	Not Included
Lamp Type	A19
Light Source	Incandescent
Max or Nominal Watt	60.00
# of Bulbs/LED Modules	1
Socket Type	Medium
Socket Wire	105"
Mounting/Installation	
Interior/Exterior	Exterior
Location Rating	Wet
Mounting Style	Wall Mount

FIXTURE ATTRIBUTES

Housing	
Diffuser Description	Clear
Primary Material	Aluminum
Product/Ordering Information	
SKU	9611BK
Finish	Black
Style	Traditional
UPC	783927961158
Finish Options	
Black	
Olde Bronze	
Stainless Steel	
Tannery Bronze	

NOTES

1. LIGHTING FIXTURES/DETAILS PROVIDED HEREON ARE PRELIMINARY AND SUBJECT TO CHANGE AT TIME OF FINAL SITE PLAN.

APPROVED
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DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	REVISIONS DESCRIPTION

PLAN DATE
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Lic. No. 038790
PROFESSIONAL ENGINEER
05/02/2024

LIGHTING PLAN DETAILS

BLOCK L&M - PRELIMINARY SITE PLAN

WEST END

CITY OF ALEXANDRIA, VIRGINIA

DATE: MAY, 2024

SCALE: 1"=30' C.I.= N/A

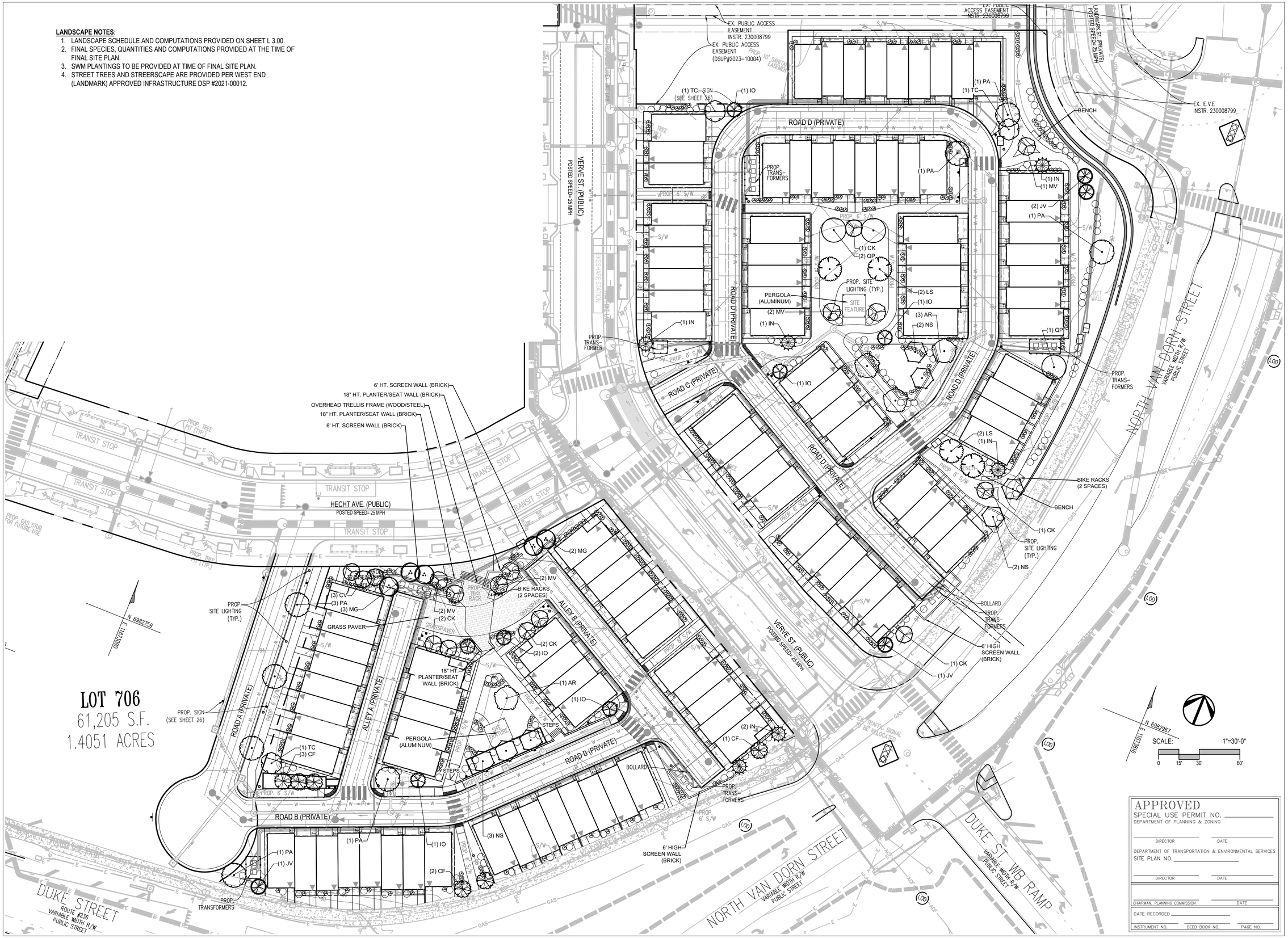
SHEET
28A
OF
28

FILE No.
SP-13141

Urban, Ltd. – J:\JOBS\Landmarkmall\DSUP\block l&m \preliminary site plan\13141-22-LIGHTING PLAN.dwg [DETAILS] May 03, 2024 – 10:48am awalla

LANDSCAPE NOTES:

1. LANDSCAPE SCHEDULE AND COMPUTATIONS PROVIDED ON SHEET L 3.00.
2. FINAL SPECIES, QUANTITIES AND COMPUTATIONS PROVIDED AT THE TIME OF FINAL SITE PLAN.
3. SWM PLANTINGS TO BE PROVIDED AT TIME OF FINAL SITE PLAN.
4. STREET TREES AND STREERSCAPE ARE PROVIDED PER WEST END (LANDMARK) APPROVED INFRASTRUCTURE DSP #2021-00012.



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DEPARTMENT OF PLANNING & ZONING

DIRECTOR DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR DATE

CHAIRMAN, PLANNING COMMISSION DATE

DATE RECORDED _____

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SUITE 330
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CHANTILLY
LEESBURG
DUMFRIES
WARRENTON
ARLINGTON
P: 703.361.1550
J2ATWORK.COM

CLIENT
VAN METRE HOMES OF WESTEND, LLC
9900 MAIN STREET, SUITE 500
FAIRFAX, VA 22031

SEAL

COMMONWEALTH OF VIRGINIA
Adam J. Steiner
Lic. No. 1237
05/02/24
LANDSCAPE ARCHITECT

CITY OF ALEXANDRIA, VA

OVERALL LANDSCAPE PLAN

WEST END - BLOCK L&M
PRELIMINARY SITE PLAN

REVISION / ISSUANCE

NO.	DATE	DESCRIPTION
1	03.21.24	PRELIMINARY SITE PLAN
2	05.02.24	PRELIMINARY SITE PLAN

J2 PROJECT NO.
VM2308

PLAN DATE
05.02.2024

SCALE
1"=30'

SHEET NUMBER
L1.00

PRELIMINARY SITE PLAN

X:\DRAWINGS\ACTIVE\West End Block L-M\DSUP\VM2308 - 01 - LANDSCAPE.dwg, Layout:L1.00 May 02, 2024 arogers
XREFS: VM2308 - 00 - TBK - DSUP VM2308 - C - PBASE VM2308 - C - PBASE - INFRASTRUCTURE VM2308 - 00 - BASE VM2308 - 00 - LA BASE

LIMITS OF IRRIGATION LEGEND

LIMITS OF IRRIGATED
PLANT BEDS
(SHRUBS, PERENNIALS, GROUNDCOVER)

LIMITS OF IRRIGATED
LAWN AREAS

NOTES:

- FINAL IRRIGATION/WATER MANAGEMENT, TO BE DESIGNED AT TIME OF FINAL SITE PLAN.
- AREAS NOT IDENTIFIED TO BE IRRIGATED ARE TO BE MANUALLY WATERED.
- ALL TURF,TREE, SHRUB, AND GROUNDCOVER AREAS, TO BE WATERED AT TIME OF PLANTING UNTIL THE RELEASE OF THE MAINTENANCE BOND AT THE RATES SPECIFIED IN CURRENT CITY OF ALEXANDRIA LANDSCAPE GUIDELINES.

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DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

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DATE RECORDED _____

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DUMFRIES
WARRENTON
ARLINGTON
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J2ATWORK.COM

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OF WESTEND, LLC
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FAIRFAX, VA 22031

SEAL

COMMONWEALTH OF VIRGINIA
Adam J. Steiner
Lic. No. 1237
05/02/24
LANDSCAPE ARCHITECT

CITY OF ALEXANDRIA, VA

LANDSCAPE WATER MANAGEMENT PLAN

WEST END - BLOCK L&M
PRELIMINARY SITE PLAN

REVISION / ISSUANCE

NO.	DATE	DESCRIPTION
1	03.21.24	PRELIMINARY SITE PLAN
2	05.02.24	PRELIMINARY SITE PLAN

J2 PROJECT NO.
VM2308

PLAN DATE
05.02.2024

SCALE
1"=30'

SHEET NUMBER
L2.00

PRELIMINARY SITE PLAN

X:\DRAWINGS\ACTIVE\West End Block L-M\DSUP\VM2308 - 01 - LANDSCAPE.dwg, Layout:L2.00 May 02, 2024 orogers
XREFS: VM2308 - 00 - TBK VM2308 - DSUP VM2308 - C - PBASE VM2308 - C - PBASE - INFRASTRUCTURE VM2308 - 00 - BASE VM2308 - 00 - LA BASE

BLOCK L - CROWN COVER TABULATIONS	
TOTAL SITE AREA (SF)	**77,919**
25% CROWN COVER REQUIRED (SF)	**19,480**
EXISTING CROWN COVER (SF)	0
REMOVED CROWN COVER (SF)	0
PRESERVED CROWN COVER (SF)	
Crown Cover from Preserved Trees	0
Crown Cover from Preserved Shrubs	0
PROPOSED CROWN COVER (SF)	
Crown Cover from Proposed Trees	16,500
Crown Cover from Proposed Shrubs	2,980
TOTAL CROWN COVER PROVIDED (%)	**25.0%**
TOTAL CROWN COVER PROVIDED (SF)	**19,480**

BLOCK M - CROWN COVER TABULATIONS	
TOTAL SITE AREA (SF)	**122,172**
25% CROWN COVER REQUIRED (SF)	**30,543**
EXISTING CROWN COVER (SF)	0
REMOVED CROWN COVER (SF)	0
PRESERVED CROWN COVER (SF)	
Crown Cover from Preserved Trees	0
Crown Cover from Preserved Shrubs	0
PROPOSED CROWN COVER (SF)	
Crown Cover from Proposed Trees	25,750
Crown Cover from Proposed Shrubs	4,840
TOTAL CROWN COVER PROVIDED (%)	**25.0%**
TOTAL CROWN COVER PROVIDED (SF)	**30,590**

TOTAL PROPOSED CROWN COVER REQUIRED FOR BLOCK L AND M = 50,023 SF

TOTAL PROPOSED CROWN COVER PROVIDED FOR BLOCK L AND M = 50,070 SF

BLOCK L - PLANT SCHEDULE

PLANT TYPE	PLAN INFORMATION		BOTANIC / COMMON NAME				SIZE	NOTES	CROWN COVER ALLOWANCE (CCA)		NATIVE PLANTS PROVIDED		
	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/HYBRID	COMMON NAME	CALIPER/HEIGHT		CCA PER TREE (SF)	TOTAL CROWN COVER (SF)	LOCAL/ REGIONAL (#)	EASTERN U.S. (#)	TOTAL
TREES	AR	1	Acer	saccharum		Sugar Maple	2" cal.	B&B; symmetrical, single leader	1,250	1,250	1		1
	NS	3	Nyssa	sylvatica		Black Gum	2" cal.	B&B; symmetrical, single leader	750	2,250	3		3
	PA	2	Platanus	occidentalis		Sycamore	2" cal.	B&B; symmetrical, single leader	1,250	2,500	2		2
	TC	1	Tilia	cordata		Littleleaf Linden	2" cal.	B&B; symmetrical, single leader	1,250	1,250			
	CF	6	Cornus	florida		Flowering Dogwood	2" cal.	B&B; multistem; full branching	250	1,500	6		6
	CK	4	Cornus	kousa		Kousa Dogwood	2" cal.	B&B; multistem; full branching	250	1,000			
	CV	3	Crateagus	viridis	Winter King	Winter King Hawthorn	2" cal.	B&B; symmetrical, multi-stem	500	1,500	3		3
	MV	4	Magnolia	virginiana		Sweetbay Magnolia	2" cal.	B&B; symmetrical, multi-stem	250	1,000	4		4
	IO	4	Ilex	opaca		American Holly	6' ht.	B&B; symmetrical, single leader	250	1,000	4		4
	IN	2	Ilex	x attenuata	Fosteri	Foster Holly	6' ht.	B&B; symmetrical, single leader	250	500			
	JV	1	Juniperus	virginiana		Eastern Redcedar	6' ht.	B&B; symmetrical, single leader	250	250	1		1
	MG	5	Magnolia	grandiflora	Little Gem	Southern Magnolia	6' ht.	B&B; symmetrical, single leader	500	2,500		5	5
	TOTALS	**36**							**TREE CCA:**	**16,500**	**24**	**5**	**29**
											66.7%	**13.9%**	**80.6%**
	PLAN KEY	**QUANTITY**					**HEIGHT**		**CCA PER SHRUB (SF)**	**TOTAL CROWN COVER (SF)**	**LOCAL/ REGIONAL (#)**	**EASTERN U.S. (#)**	**TOTAL**
SHRUBS	CATEGORY II	123					18" ht.		10	1,230	120	50	170
	CATEGORY III	70					18" ht.		25	1,750	60	26	86
	TOTALS	**193**							**SHRUB CCA:**	**2,980**	**180**	**76**	**256**
											93.3%	**39.4%**	**132.6%**

BLOCK M - PLANT SCHEDULE

PLANT TYPE	PLAN INFORMATION		BOTANIC / COMMON NAME				SIZE	NOTES	CROWN COVER ALLOWANCE (CCA)		NATIVE PLANTS PROVIDED		
	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/HYBRID	COMMON NAME	CALIPER/HEIGHT		CCA PER TREE (SF)	TOTAL CROWN COVER (SF)	LOCAL/ REGIONAL (#)	EASTERN U.S. (#)	TOTAL
TREES	AR	3	Acer	saccharum		Sugar Maple	2" cal.	B&B; symmetrical, single leader	1,250	3,750	3		3
	LS	4	Liquidambar	styraciflua	Rotundiloba	Sweetgum	2" cal.	B&B; symmetrical, single leader	1,250	5,000	4		4
	NS	4	Nyssa	sylvatica		Black Gum	2" cal.	B&B; symmetrical, single leader	750	3,000	4		4
	PA	3	Platanus	occidentalis		Sycamore	2" cal.	B&B; symmetrical, single leader	1,250	3,750	3		3
	QP	3	Quercus	phellos		Willow Oak	2" cal.	B&B; symmetrical, single leader	1,250	3,750	3		3
	TC	2	Tilia	cordata		Littleleaf Linden	2" cal.	B&B; symmetrical, single leader	1,250	2,500			
	CK	3	Cornus	kousa		Kousa Dogwood	2" cal.	B&B; multistem; full branching	250	750			
	MV	3	Magnolia	virginiana		Sweetbay Magnolia	2" cal.	B&B; symmetrical, single leader	250	750	3		3
	IO	3	Ilex	opaca		American Holly	6' ht.	B&B; symmetrical, single leader	250	750	3		3
	IN	4	Ilex	x attenuata	Fosteri	Foster Holly	6' ht.	B&B; symmetrical, single leader	250	1,000			
	JV	3	Juniperus	virginiana		Eastern Redcedar	6' ht.	B&B; symmetrical, single leader	250	750	3		3
	TOTALS	**35**							**TREE CCA:**	**25,750**	**26**	**0**	**26**
											74.3%	**0.0%**	**74.3%**
	PLAN KEY	**QUANTITY**					**HEIGHT**		**CCA PER SHRUB (SF)**	**TOTAL CROWN COVER (SF)**	**LOCAL/ REGIONAL (#)**	**EASTERN U.S. (#)**	**TOTAL**
SHRUBS	CATEGORY II	244					18" ht.		10	2,440	180	64	244
	CATEGORY III	96					18" ht.		25	2,400	70	26	96
	TOTALS	**340**							**SHRUB CCA:**	**4,840**	**250**	**90**	**340**
											73.5%	**26.5%**	**100.0%**

BIODIVERSITY TABULATIONS							
TREES (URBAN AND STANDARD)							
TOTAL NUMBER OF TREES PROPOSED: 71							
GENUS	QTY.	PERCENT OF TOTAL PROPOSED	MAXIMUM PERCENT ALLOWED	SPECIES	QTY.	PERCENT OF TOTAL PROPOSED	MAXIMUM PERCENT ALLOWED
Acer	4	5.6%	33%	saccharum	4	5.6%	10%
Crateagus	3	4.2%	33%	viridis "Winter King"	3	4.2%	10%
Liquidambar	4	5.6%	33%	styraciflua 'Rotundiloba'	4	5.6%	10%
Nyssa	7	9.9%	33%	sylvatica	7	9.9%	10%
Platanus	5	7.0%	33%	occidentalis	5	7.0%	10%
Quercus	3	4.2%	33%	phellos	3	4.2%	10%
Tilia	3	4.2%	33%	cordata	3	4.2%	10%
Cornus	13	18.3%	33%	florida	6	8.5%	10%
				kousa	7	9.9%	10%
Ilex	13	18.3%	33%	x Fosteri	6	8.5%	10%
				opaca	7	9.9%	10%
Juniperus	4	5.6%	33%	virginiana	4	5.6%	10%
Magnolia	12	16.9%	33%	virginiana	7	9.9%	10%
				grandiflora "Little Gem"	5	7.0%	10%

NATIVE PLANT TABULATIONS										
			MARCH 2, 2019 – JANUARY 1, 2020			JANUARY 2, 2020 – JANUARY 1, 2024			BEGINNING JANUARY 2, 2024	
			REQUIRED	PROVIDED		REQUIRED	PROVIDED		REQUIRED	PROVIDED
PLANT TYPE	QUANTITY	NATIVE TYPE	%	QTY.	%	%	QTY.	%	%	QTY. %
Trees	71	Regional/Local	10%			15%	50	70.4%	20%	
		Total Natives	25%			25%	55	77.5%	50%	

OFF-SITE (PRIVATE ROAD A - BLOCK L) - PLANT SCHEDULE

PLANT TYPE	PLAN INFORMATION		BOTANIC / COMMON NAME				SIZE	NOTES
	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/HYBRID	COMMON NAME	CALIPER/HEIGHT	
TREES	PA	3	Platanus	occidentalis		Sycamore	2" cal.	B&B; symmetrical, single leader
	TOTALS	**3**						

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

4080 LAFAYETTE CENTER DRIVE
SUITE 330
CHANTILLY, VA 20151
CHANTILLY
LEESBURG
DUMFRIES
WARRENTON
ARLINGTON
P: 703.361.1550
J2ATWORK.COM

CLIENT
VAN METRE HOMES
OF WESTEND, LLC
9900 MAIN STREET, SUITE 500
FAIRFAX, VA 22031

SEAL
COMMONWEALTH OF VIRGINIA
Adam J. Steiner
Lic. No. 1237
05/02/24
LANDSCAPE ARCHITECT

LANDSCAPE SCHEDULE & COMPUTATIONS

WEST END - BLOCK L&M
PRELIMINARY SITE PLAN

CITY OF ALEXANDRIA, VA

REVISION / ISSUANCE

NO.	DATE	DESCRIPTION
1	03.21.24	PRELIMINARY SITE PLAN
2	05.02.24	PRELIMINARY SITE PLAN

J2 PROJECT NO.
VM2308

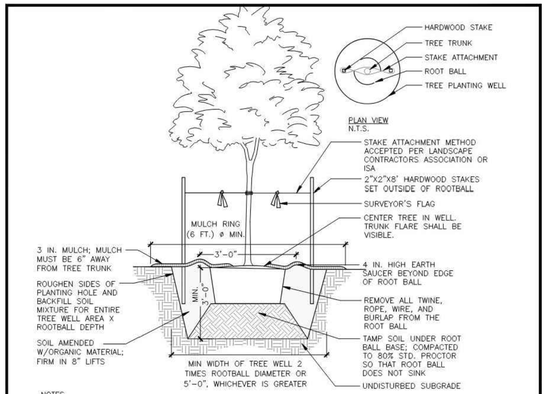
PLAN DATE
05.02.2024

SCALE

SHEET NUMBER
L3.00

PRELIMINARY SITE PLAN

X:\DRAWINGS\ACTIVE\West End Block L-M\DSUP\VM2308 - 01 - LANDSCAPE.dwg, Layout:L3.00 May 02, 2024 rogers
XREFS: VM2308 - 00 - TBK - DSUP VM2308 - C - PBASE VM2308 - C - PBASE - INFRASTRUCTURE VM2308 - 00 - BASE VM2308 - 00 - LA BASE



NOTES

1. AT PLANTING PRUNE ONLY CROSSING LIMBS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS PER ANSI STANDARDS A300. DO NOT PRUNE INTO OLD WOOD ON EVERGREENS.
2. CONTRACTOR SHALL MAXIMIZE EXCAVATED AREA FOR TREE WELL WITHOUT ADVERSELY IMPACTING ADJACENT SITE FEATURES
4. UNLESS OTHERWISE DIRECTED BY PROJECT SPECIFICATIONS OR CITY STAFF, SOIL MIXTURE SHALL BE CLEANED OF DEBRIS, AND MEET SOIL COMPOSITION REQUIREMENTS OF CITY OF ALEXANDRIA LANDSCAPE GUIDELINES.
5. TREES PLANTED WITHOUT THE TRUNK FLARE VISIBLE WILL BE REJECTED.
6. ALL PLANTS MUST BE WATERED AT INSTALLATION AND AGAIN WITHIN 48-HOURS OF INSTALLATION, ESTABLISHMENT WATERING SHALL BE PER THE SPECIFICATIONS ON ALL DETAILS.
7. STAKES WILL BE INSTALLED USING ARBORICULTURE PRACTICES, TREES SHALL STAND PLUM AFTER STAKING.
8. INSTALLATION WILL INCLUDE THE REMOVAL OF ALL STAKING MATERIAL ONE YEAR AFTER INSTALLATION. ANY HOLES LEFT BY REMOVING STAKING SHALL BE FILLED WITH APPROVED TOPSOIL / BACKFILL MIXTURE.
9. CONTRACTOR SHALL USE GALVANIZED EYESCREW & TURNBUCKLE INSTEAD OF ARBOR TIE ONLY FOR TREES OF SIGNIFICANT SIZE AS DIRECTED BY CITY STAFF.

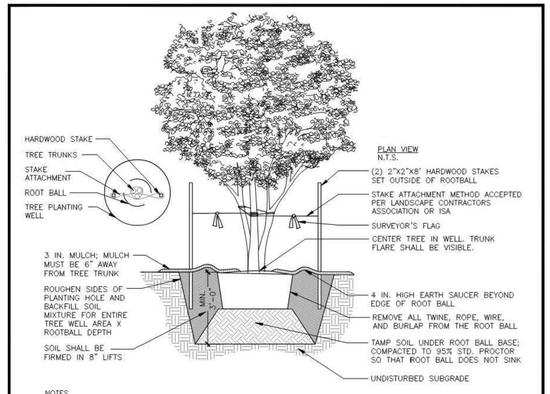
A DECIDUOUS TREE PLANTING
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.

Source: CITY OF ALEXANDRIA	DECIDUOUS TREE PLANTING	
Approved By: COA	Date drawn: 01/01/19	LD 001
1 OF 1		



NOTES

1. AT PLANTING PRUNE ONLY CROSSING LIMBS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS PER ANSI STANDARDS A300. DO NOT PRUNE INTO OLD WOOD ON EVERGREENS.
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7. STAKES WILL BE INSTALLED USING ARBORICULTURE PRACTICES, TREES SHALL STAND PLUM AFTER STAKING.
8. INSTALLATION WILL INCLUDE THE REMOVAL OF ALL STAKING MATERIAL ONE YEAR AFTER INSTALLATION. ANY HOLES LEFT BY REMOVING STAKING SHALL BE FILLED WITH APPROVED TOPSOIL / BACKFILL MIXTURE.
9. CONTRACTOR SHALL USE GALVANIZED EYESCREW & TURNBUCKLE INSTEAD OF ARBOR TIE ONLY FOR TREES OF SIGNIFICANT SIZE AS DIRECTED BY CITY STAFF.

A MULTI-STEM TREE PLANTING
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

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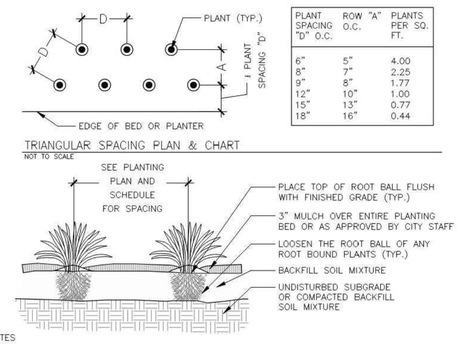
Source: CITY OF ALEXANDRIA	MULTI-STEM TREE PLANTING	
Approved By: COA	Date drawn: 01/01/19	LD 003
1 OF 1		



PLANT SPACING "D" O.C.	ROW "A" O.C.	PLANTS PER SQ. FT.
6"	5"	4.00
8"	7"	2.25
9"	8"	1.77
12"	10"	1.00
15"	13"	0.77
18"	16"	0.44

TRIANGULAR SPACING PLAN & CHART
NOT TO SCALE

NOTES

1. PLANTING WELL / TRENCH SHALL BE DUG TO ALLOW TOP OF ROOT BALL TO SET FLUSH WITH EXISTING GRADE.
2. SET PLANTS IN ERECT, STABLE, AND UNIFORM POSITIONS. ORIENT BEST FACE OF PLANT TO BE MOST VISIBLE.
3. GROUND COVERS AND PERENNIALS SHALL BE INSTALLED WITH TRIANGULAR SPACING. REFER TO CHART.
4. UNLESS OTHERWISE DIRECTED BY PROJECT SPECIFICATIONS OR CITY STAFF, SOIL MIXTURE SHALL BE CLEANED OF DEBRIS, AND MEET SOIL COMPOSITION REQUIREMENTS OF CITY OF ALEXANDRIA LANDSCAPE GUIDELINES.
5. DO NOT PLACE MULCH IN CONTACT WITH STEM OR CROWN OF PLANTS.
6. ALL PLANTS MUST BE WATERED AT INSTALLATION AND AGAIN WITHIN 48-HOURS OF INSTALLATION, PER THE SPECIFICATIONS.

A GROUNDCOVER & PERENNIAL PLANTING
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

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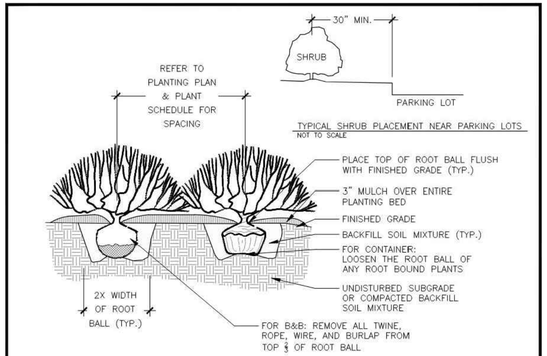
Source: CITY OF ALEXANDRIA	GROUNDCOVER & PERENNIAL PLANTING	
Approved By: COA	Date drawn: 01/01/19	LD 011
1 OF 1		



NOTES

1. AT PLANTING, PRUNE ONLY BROKEN OR DEAD BRANCHES PER ANSI 300 STANDARD.
2. PLANTING WELL / TRENCH SHALL BE DUG TO ALLOW TOP OF ROOT BALL TO SET FLUSH WITH EXISTING GRADE.
3. SET PLANTS IN ERECT, STABLE, AND UNIFORM POSITIONS. ORIENT BEST FACE OF PLANT TO BE MOST VISIBLE.
4. UNLESS OTHERWISE DIRECTED BY PROJECT SPECIFICATIONS OR CITY STAFF, SOIL MIXTURE SHALL BE CLEANED OF DEBRIS, AND MEET SOIL COMPOSITION REQUIREMENTS OF CITY OF ALEXANDRIA LANDSCAPE GUIDELINES.
5. DO NOT PLACE MULCH IN CONTACT WITH STEM OF PLANTS.
6. ALL PLANTS MUST BE WATERED AT INSTALLATION AND AGAIN WITHIN 48-HOURS OF INSTALLATION, ESTABLISHMENT WATERING SHALL BE PER THE SPECIFICATIONS ON ALL DETAILS.

A SHRUB PLANTING
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

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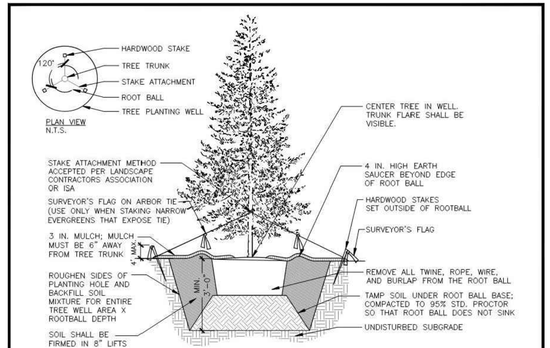
Source: CITY OF ALEXANDRIA	SHRUB PLANTING	
Approved By: COA	Date drawn: 01/01/19	LD 009
1 OF 1		



NOTES

1. AT PLANTING PRUNE ONLY CROSSING LIMBS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS PER ANSI STANDARDS A300. DO NOT PRUNE INTO OLD WOOD ON EVERGREENS.
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9. CONTRACTOR SHALL USE GALVANIZED EYESCREW & TURNBUCKLE INSTEAD OF ARBOR TIE ONLY FOR TREES OF SIGNIFICANT SIZE AS DIRECTED BY CITY STAFF.

A EVERGREEN TREE PLANTING
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.

Source: CITY OF ALEXANDRIA	EVERGREEN TREE PLANTING	
Approved By: COA	Date drawn: 01/01/19	LD 002
1 OF 1		

A) STANDARD LANDSCAPE PLAN NOTES FOR ALL PLANS REQUIRING APPROVAL:

THE FOLLOWING NOTES SHALL BE PROVIDED ON LANDSCAPE PLAN SUBMISSIONS FOR ALL PROJECTS THAT REQUIRE APPROVAL BY THE CITY AS OUTLINED IN CHAPTER 3 OF THE CITY'S 2019 LANDSCAPE GUIDELINES:

1) THE PROPERTY OWNER AND/OR APPLICANT, SPECIFIER, CONTRACTOR AND INSTALLER OF PLANT MATERIAL ARE RESPONSIBLE FOR UNDERSTANDING AND ADHERING TO THE STANDARDS SET FORTH IN THE MOST RECENT VERSION OF THE CITY OF ALEXANDRIA LANDSCAPE GUIDELINES AND APPLICABLE CONDITIONS OF APPROVAL. ALL QUESTIONS REGARDING APPLICATION OF, OR ADHERENCE TO, THE STANDARDS AND/OR CONDITIONS OF APPROVAL SHALL BE DIRECTED TO THE CITY PRIOR TO COMMENCEMENT OF DEMOLITION, CONSTRUCTION, OR ANY LAND DISTURBING ACTIVITY.

2) THE CITY-APPROVED LANDSCAPE PLAN SUBMISSION, INCLUDING PLANT SCHEDULE, NOTES AND DETAILS SHALL BE THE DOCUMENT USED FOR INSTALLATION PURPOSES AND ALL PROCEDURES SET FORTH IN THE LANDSCAPE GUIDELINES MUST BE FOLLOWED.

3) THE CONTRACTOR SHALL NOT INTERFERE WITH ANY TREE PROTECTION MEASURES OR IMPACT ANY EXISTING VEGETATION IDENTIFIED TO BE PRESERVED PER THE APPROVED TREE AND VEGETATION PROTECTION PLAN.

4) ANY CHANGES, ALTERATIONS OR MODIFICATIONS TO THE SITE CONDITIONS THAT AFFECT VEGETATION PROTECTION ZONES WILL REQUIRE AN AMENDMENT TO THE APPROVED TREE AND VEGETATION PROTECTION PLAN AND/OR DETAILS.

5) INSTALLATION OF PLANT MATERIAL MAY ONLY OCCUR DURING THE PLANTING SEASONS IDENTIFIED IN THE LANDSCAPE GUIDELINES.

6) IN LIEU OF MORE STRENUOUS SPECIFICATIONS, ALL LANDSCAPE RELATED WORK SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE CURRENT AND MOST UP-TO-DATE EDITION (AT TIME OF CONSTRUCTION) OF LANDSCAPE SPECIFICATION GUIDELINES AS PRODUCED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF MARYLAND, DISTRICT OF COLUMBIA AND VIRGINIA; GAITHERSBURG, MARYLAND.

7) SUBSTITUTIONS TO THE APPROVED PLANT MATERIAL SHALL NOT OCCUR UNTIL WRITTEN APPROVAL IS PROVIDED BY THE CITY.

8) MAINTENANCE FOR THIS PROJECT SHALL BE PERFORMED BY THE OWNER, APPLICANT, SUCCESSOR(S) AND/OR ASSIGN(S) IN PERPETUITY AND IN COMPLIANCE WITH CITY OF ALEXANDRIA LANDSCAPE GUIDELINES AND AS CONDITIONED BY PROJECT APPROVAL, AS APPLICABLE.

B) STANDARD LANDSCAPE PLAN NOTES FOR DEVELOPMENT SITE PLANS:

IN ADDITION TO THE NOTES PROVIDED ABOVE, THE FOLLOWING NOTES SHALL BE PROVIDED ON LANDSCAPE PLAN SUBMISSIONS FOR ALL DSP/DSUP PROJECTS:

1) THE APPROVED METHOD(S) OF PROTECTION MUST BE IN PLACE FOR ALL VEGETATION TO BE PRESERVED ON-SITE AND ADJACENT TO THE PROJECT SITE PURSUANT TO THE APPROVED TREE AND VEGETATION PROTECTION PLAN AND DETAILS PRIOR TO COMMENCEMENT OF DEMOLITION, CONSTRUCTION, OR ANY LAND DISTURBANCE. THE APPLICANT SHALL NOTIFY THE PLANNING & ZONING (P&Z) PROJECT MANAGER ONCE THE TREE PROTECTION METHODS ARE IN PLACE. NO DEMOLITION, CONSTRUCTION, OR LAND DISTURBANCE MAY OCCUR UNTIL AN INSPECTION IS PERFORMED BY THE CITY AND WRITTEN CONFIRMATION IS PROVIDED BY THE CITY WHICH VERIFIES CORRECT INSTALLATION OF THE TREE PROTECTION MEASURES.

2) THE APPLICANT MUST CONTACT THE P&Z PROJECT MANAGER PRIOR TO COMMENCEMENT OF LANDSCAPE INSTALLATION/PLANTING OPERATION TO SCHEDULE A PRE-INSTALLATION MEETING. THE MEETING SHOULD BE HELD BETWEEN THE APPLICANT'S GENERAL CONTRACTOR, LANDSCAPE CONTRACTOR, LANDSCAPE ARCHITECT, THE P&Z PROJECT MANAGER AND THE CITY ARBORIST (AS APPLICABLE) TO REVIEW THE SCOPE OF INSTALLATION PROCEDURES AND PROCESSES DURING AND AFTER INSTALLATION.

3) THE FOLLOWING INFORMATION SHALL BE PROVIDED TO THE P&Z PROJECT MANAGER AT LEAST FIVE (5) BUSINESS DAYS PRIOR TO THE LANDSCAPE PRE-INSTALLATION MEETING: 1) A LETTER THAT CERTIFIES THAT THE PROJECT LANDSCAPE ARCHITECT PERFORMED PRE-SELECTION TAGGING FOR ALL TREES PROPOSED WITHIN THE PUBLIC RIGHT OF WAY AND ON PUBLIC LAND PRIOR TO INSTALLATION. THIS LETTER MUST BE SIGNED AND SEALED BY THE PROJECT LANDSCAPE ARCHITECT, AND 2) A COPY OF THE SOIL BULK DENSITY TEST REPORT VERIFYING THAT MAXIMUM COMPRESSION RATES ARE MET.

4) ALL CONSTRUCTION WASTE SHALL BE REMOVED PRIOR TO PLANTING.

5) AS-BUILT DRAWINGS FOR THIS LANDSCAPE AND/OR IRRIGATION/WATER MANAGEMENT SYSTEM WILL BE PROVIDED IN COMPLIANCE WITH CITY OF ALEXANDRIA LANDSCAPE GUIDELINES, THE CITY CODE OF ORDINANCES, AND ALL APPLICABLE PLAN PREPARATION CHECK-LISTS. AS-BUILT DRAWINGS SHALL INCLUDE CLEAR IDENTIFICATION OF ALL VARIATION(S) AND CHANGES FROM APPROVED DRAWINGS INCLUDING LOCATION, QUANTITY AND SPECIFICATION OF ALL PROJECT ELEMENTS.

6) AREAS OF BARE SOIL WILL NOT BE ACCEPTED. MULCHED AREAS AND PLANTING AREAS SHALL BE WEED FREE UPON ACCEPTANCE OF THE PROJECT BY THE CITY.

A STANDARD LANDSCAPE PLAN NOTES
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

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Source: CITY OF ALEXANDRIA	STANDARD LANDSCAPE PLAN NOTES	
Approved By: COA	Date drawn: 01/01/19	LD 016
1 OF 1		

NOTES:

- ALL MATERIALS' SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE INDUSTRY STANDARD FOR GRADING PLANT MATERIAL-THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1).
- MAINTENANCE OF ALL TREES AND LANDSCAPE MATERIALS SHALL CONFORM TO ACCEPTED INDUSTRY STANDARDS SET FORTH BY THE LANDSCAPE CONTRACTORS ASSOCIATION, AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, THE INTERNATIONAL SOCIETY OF ARBORICULTURE, AND THE AMERICAN NATIONAL STANDARDS INSTITUTE.

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

J2
4080 LAFAYETTE CENTER DRIVE
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CHANTILLY
LEESBURG
DUMFRIES
WARRENTON
ARLINGTON
P: 703.361.1550
J2ATWORK.COM

CLIENT
VAN METRE HOMES OF WESTEND, LLC
9900 MAIN STREET, SUITE 500
FAIRFAX, VA 22031

SEAL

COMMONWEALTH OF VIRGINIA
Adam J. Steiner
Lic. No. 1237
05/01/24
LANDSCAPE ARCHITECT

CITY OF ALEXANDRIA, VA

LANDSCAPE DETAILS

WEST END - BLOCK L&M
PRELIMINARY SITE PLAN

REVISION / ISSUANCE

NO.	DATE	DESCRIPTION
1	03.21.24	PRELIMINARY SITE PLAN
2	05.02.24	PRELIMINARY SITE PLAN

J2 PROJECT NO.
VM2308

PLAN DATE
05.02.2024

SCALE

SHEET NUMBER
L3.01

PRELIMINARY SITE PLAN

X:\DRAWINGS\ACTIVE\West End Block L-M\DSUP\VM2308 - 01 - LANDSCAPE.dwg, Layout: L3.01 May 02, 2024 - arogers
XREFS: VM2308 - 00 - TBK - DSUP VM2308 - C - PBASE VM2308 - C - PBASE - INFRASTRUCTURE VM2308 - 00 - BASE VM2308 - 00 - LA BASE

1

February 22, 2024

Green Building Narrative for:

Townhouses at Landmark by Van Metre Homes

The following narrative is in support of the Completeness submission for the project referenced above.

General Approach

The 2020 National Green Building Standard (NGBS; ICC-700), verified at the Silver level with sufficient Performance Points achieved per the 2019 City of Alexandria Green Building Policy, is proposed for green building compliance.

Energy

- Dwelling-unit-specific energy models are being completed to ensure all involved building components contribute to achieving sufficient Performance Points for project energy use. These incorporate passive solar heating design elements by including in energy calculations all orientations, areas, and solar heat gain coefficients (SHGC's) of exterior fenestrations.
- Building envelopes will utilize light residential construction with 2x6 wood frame walls assembled with advanced framing techniques to save materials and enhance performance.
- 100% LED lighting will be used inside and on the exterior of all homes in this community.
- All equipment and appliances will be ENERGY STAR labeled or equivalent and included as installed in energy modeling to confirm adequate overall energy performance impacts.
- Renewable energy production is projected for a selection of homes to be net-zero-energy such that, relative to the total-site energy consumption of all the homes, 5% will be supplied by onsite solar photovoltaics. The NGBS scorecard provided is reflective of a home in projected worst-case configuration without any associated onsite generation. Energy report documentation is provided for the home projected to have the largest electricity demand and the home with the smallest projected electricity demand, both without any associated onsite generation.
- A HVAC Commissioning Agent certified by a HVAC Quality Installation Training and Oversight Organization (H-QUITO) will be contracted for the project to complete EPA's ENERGY STAR Single-Family New Homes National HVAC Commissioning Checklist.
- Dwelling units at this location will be individually metered.

Water

- Irrigation will be minimized through the assembly of an irrigation plan with implementation executed by a qualified professional. The plan will involve smart irrigation controllers in accordance with the performance criteria of the EPA WaterSense program. 50% reduction in irrigation demand will be demonstrated with the EPA WaterSense Water Budget Tool.
- Indoor water efficiency strategies are a) the installation of low-flow plumbing fixtures in kitchens and lavatories, b) ENERGY STAR labels specified for installed dishwashers and clothes washers, and c) suggestions for water use reduction provided to homeowners in "Your Green Home" homeowner manuals. 40% reduction in indoor water use will be demonstrated with the LEED Water Tool.

Proposed Flow Rates	
showerheads	1.5 gpm
lavatory faucets	1.0 gpm
kitchen faucets	1.5 gpm
toilets	1.28 gpf

February 22, 2024

Indoor Environmental Quality

- The project will be monitored at all key stages of construction to verify that best management practices are present in the following areas:
  1. installation of clean, uncontaminated products
  2. All installed structural plywood made with moisture-resistant adhesives
  3. Protection of installed ductwork during construction with temporary MERV 8+ filters placed in all return grilles
  4. Indoor air quality assessment to be performed post-completion per ASTM D7338 Section 6.3 and ASTM D7338 Section 7.4.3
- Low VOC/no-emitting site-applied finish components and insulation materials
- ASHRAE 62.2-compliant mechanical ventilation system specified
- All spot ventilation vented directly to outdoors
- Verification of spot and whole-house mechanical ventilation rates
- Prefinished building flooring, siding, and fenestration components
- MERV 8+ filters to be specified for HVAC system
- All-electric design eliminating on-site combustion
- No carpeting in bathrooms
- Mechanical equipment will be capable of operating in a dehumidification mode for humidity control in addition to temperature control.
- There are no requirements for a daylight analysis regarding this project according to Alexandria's 2019 Green Building Policy.

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2

NGBS 2020 Performance

Property	Organization	Inspection Status
West End Alexandria, VA 22206 Model: 20' TH signature, front terrace Community: West End	PEG Justin Krupa **Builder** Van Metre	Results are projected

West End 20' TH - Alexandria GBP Performance end unit

UNCONFIRMED

Annual Energy	Reference		As Designed	
Type	**Cost ($/yr)**	**MBtu**	**Cost ($/yr)**	**MBtu**
Heating	$466	15.7	$407	13.7
Cooling	$228	7.7	$199	6.7
Water Heating	$304	10.3	$303	10.2
Lights & Appliances	$797	26.9	$565	19.0
Onsite Generation	-$0	0.0	-$0	0.0
Total	$1,796	60.6	$1,474	49.7

NGBS Points: 66

The As Designed home consumes 18% less energy than the NGBS Reference Home and MEETS the requirements of the 2020 NGBS Section 702 for Chapter 7, Energy Efficiency, Performance path and is eligible for 66 points in section 702.2.2. This energy use summary compares the NGBS Proposed Design to the NGBS Reference Design. The NGBS Proposed Design includes improvements in building envelope, air infiltration, heating system efficiencies, cooling system efficiencies, ventilation system efficiencies, duct sealing, water heating system efficiencies, lighting, appliances, and on-site renewable energy production. Points are assigned using the following formula: Points = 30 + (percent above NGBS Reference Design) * 2.

Energy Rating Index (ERI)

Index	56

General Information

Conditioned Area	2,364.9 ft²
Conditioned Volume	24,218.2 ft³
House Type	Townhouse, end unit
Foundation	Slab
Bedrooms	3

Mechanical Systems Features

Heating:	Air Source Heat Pump • Electric • 10 HSPF
Cooling:	Air Source Heat Pump • Electric • 18 SEER
Water Heating:	Residential Water Heater • Electric • 0.93 UEF
Duct Leakage to Outside:	2 CFM25 / 100 ft²
Ventilation System:	180 CFM • 36 Watts • Supply Only
Programmable Thermostat:	Yes

Ekotrope RATER - Version 4.2.1.3343

All results are based on data entered by Ekotrope users. Ekotrope disclaims all liability for the information shown on this report.

NGBS 2020 Performance

Property	Organization	Inspection Status
West End Alexandria, VA 22206 Model: 20' TH signature, front terrace Community: West End	PEG Justin Krupa **Builder** Van Metre	Results are projected

West End 20' TH - Alexandria GBP Performance end unit

UNCONFIRMED

Building Shell Features

Ceiling Flat	R-49
Vaulted Ceiling	R-51
Above Grade Walls	R-21
Foundation Walls	N/A
Slab	R-10
Exposed Floor	R-49
Window Type	U-Value: 0.32, SHGC: 0.3
Infiltration Rate	2.5 ACH50
Method	Blower-door tested

Lights and Appliances Features

% Interior LED Lighting	100%
% Garage LED Lighting	100%
Refrigerator (kWh/yr)	646.0
Dishwasher Efficiency	270 kWh
Range/Oven Fuel	Electric
Clothes Dryer Fuel	Electric
Clothes Dryer CEF	3.0
Ceiling Fan	None

Fuel Summary

Property	Organization	Inspection Status
West End Alexandria, VA 22206 Model: 20' TH signature, front terrace Community: West End	PEG Justin Krupa **Builder** Van Metre	Results are projected

West End 20' TH - Alexandria GBP Performance end unit

Annual Energy Cost

Electric	$905

Annual End-Use Cost

Heating	$238
Cooling	$91
Water Heating	$145
Lights & Appliances	$352
Onsite Generation	-$0
Service Charges	$79
Total	$905

Annual End-Use Consumption

Heating [Electric kWh]	4,082.3
Cooling [Electric kWh]	1,360.1
Hot Water [Electric kWh]	2,326.9
Lights & Appliances [Electric kWh]	5,581.2
Total [Electric kWh]	13,350.6
Total Onsite Generation [Electric kWh]	0.0

Peak Electric Consumption

Peak Winter kW	3.06
Peak Summer kW	2.22

Utility Rates

Electricity	Dominion 2022
Natural Gas	Default Gas Provid..

Ekotrope RATER - Version 4.2.1.3343

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3

NGBS 2020 Performance

Property	Organization	Inspection Status
West End Alexandria, VA 22206 Model: 16' TH, front terrace Community: West End	PEG Justin Krupa **Builder** Van Metre	Results are projected

West End 16' TH - Alexandria GBP Performance inside unit

UNCONFIRMED

Annual Energy	Reference		As Designed	
Type	**Cost ($/yr)**	**MBtu**	**Cost ($/yr)**	**MBtu**
Heating	$302	10.2	$239	8.1
Cooling	$148	5.0	$134	4.5
Water Heating	$301	10.1	$299	10.1
Lights & Appliances	$697	23.5	$503	17.0
Onsite Generation	-$0	0.0	-$0	0.0
Total	$1,447	48.8	$1,176	39.7

NGBS Points: 68

The As Designed home consumes 19% less energy than the NGBS Reference Home and MEETS the requirements of the 2020 NGBS Section 702 for Chapter 7, Energy Efficiency, Performance path and is eligible for 68 points in section 702.2.2. This energy use summary compares the NGBS Proposed Design to the NGBS Reference Design. The NGBS Proposed Design includes improvements in building envelope, air infiltration, heating system efficiencies, cooling system efficiencies, ventilation system efficiencies, duct sealing, water heating system efficiencies, lighting, appliances, and on-site renewable energy production. Points are assigned using the following formula: Points = 30 + (percent above NGBS Reference Design) * 2.

Energy Rating Index (ERI)

Index	53

General Information

Conditioned Area	1,818.6 ft²
Conditioned Volume	18,687.7 ft³
House Type	Townhouse, inside unit
Foundation	Slab
Bedrooms	3

Mechanical Systems Features

Heating:	Air Source Heat Pump • Electric • 10 HSPF
Cooling:	Air Source Heat Pump • Electric • 18 SEER
Water Heating:	Residential Water Heater • Electric • 0.93 UEF
Duct Leakage to Outside:	2 CFM25 / 100 ft²
Ventilation System:	150 CFM • 36 Watts • Supply Only
Programmable Thermostat:	Yes

Ekotrope RATER - Version 4.2.1.3343

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NGBS 2020 Performance

Property	Organization	Inspection Status
West End Alexandria, VA 22206 Model: 16' TH, front terrace Community: West End	PEG Justin Krupa **Builder** Van Metre	Results are projected

West End 16' TH - Alexandria GBP Performance inside unit

UNCONFIRMED

Building Shell Features

Ceiling Flat	R-49
Vaulted Ceiling	R-51
Above Grade Walls	R-21
Foundation Walls	N/A
Slab	R-10
Exposed Floor	R-49
Window Type	U-Value: 0.32, SHGC: 0.3
Infiltration Rate	2.5 ACH50
Method	Blower-door tested

Lights and Appliances Features

% Interior LED Lighting	100%
% Garage LED Lighting	100%
Refrigerator (kWh/yr)	646.0
Dishwasher Efficiency	270 kWh
Range/Oven Fuel	Electric
Clothes Dryer Fuel	Electric
Clothes Dryer CEF	3.0
Ceiling Fan	None

Fuel Summary

Property	Organization	Inspection Status
West End Alexandria, VA 22206 Model: 16' TH, front terrace Community: West End	PEG Justin Krupa **Builder** Van Metre	Results are projected

West End 16' TH - Alexandria GBP Performance inside unit

Annual Energy Cost

Electric	$1,513

Annual End-Use Cost

Heating	$344
Cooling	$132
Water Heating	$325
Lights & Appliances	$713
Onsite Generation	-$0
Service Charges	$0
Total	$1,513

Annual End-Use Consumption

Heating [Electric kWh]	2,401.8
Cooling [Electric kWh]	918.8
Hot Water [Electric kWh]	2,268.1
Lights & Appliances [Electric kWh]	4,972.8
Total [Electric kWh]	10,561.6
Total Onsite Generation [Electric kWh]	0.0

Peak Electric Consumption

Peak Winter kW	2.27
Peak Summer kW	1.74

Utility Rates

Electricity	South Atlantic (DE, DC, FL, GA, MD, SC, NC VA, WV) Electric Provider
Natural Gas	Default Gas Provid..

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. XXXXX

DIRECTOR DATE

CHAIRMAN, PLANNING COMMISSION DATE

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INSTRUMENT NO. DEED BOOK NO. PAGE NO.

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REVISIONS

DATE	DESCRIPTION
03.21.24	COMPLETENESS
05.02.24	COMPLETENESS

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GREEN BUILDING NARRATIVE & ENERGY SAVINGS ESTIMATES

SHEET NO.

A0.1

1

2

3

4

5

6

7

8

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NGBS SILVER SCORECARD

SHEET NO.

A0.2

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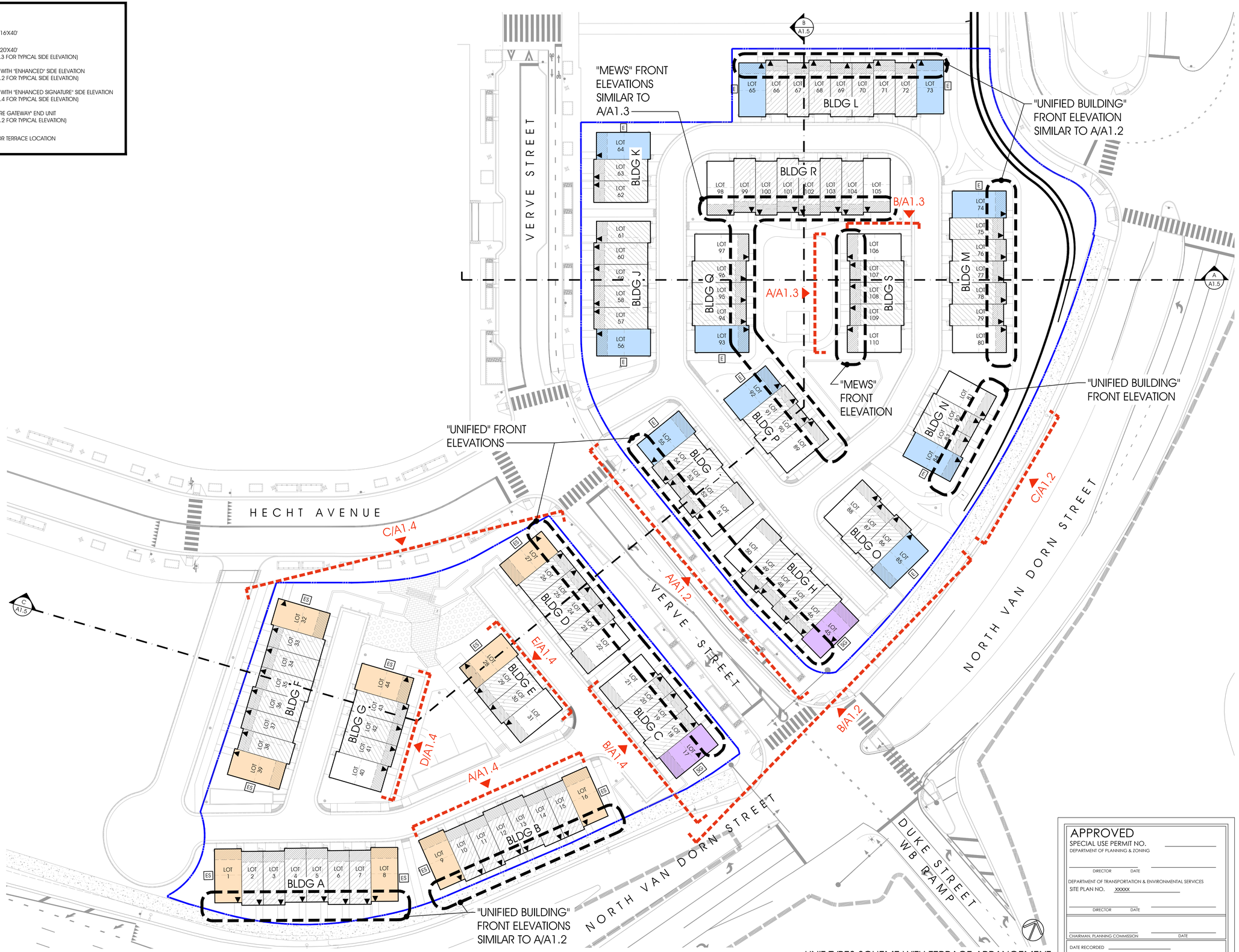
KEY

- TYP. UNIT 16'X40'
- TYP. UNIT 20'X40' (SEE B/A1.3 FOR TYPICAL SIDE ELEVATION)
- E — END UNIT WITH "ENHANCED" SIDE ELEVATION (SEE A/A1.2 FOR TYPICAL SIDE ELEVATION)
- ES — END UNIT WITH "ENHANCED SIGNATURE" SIDE ELEVATION (SEE A/A1.4 FOR TYPICAL SIDE ELEVATION)
- SG — "SIGNATURE GATEWAY" END UNIT (SEE A/A1.2 FOR TYPICAL ELEVATION)
- 4TH FLOOR TERRACE LOCATION



UNIT TYPES SCHEME WITH TERRACE ARRANGEMENT

1/32"=1'-0"

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DEPARTMENT OF PLANNING & ZONING
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DATE	DESCRIPTION
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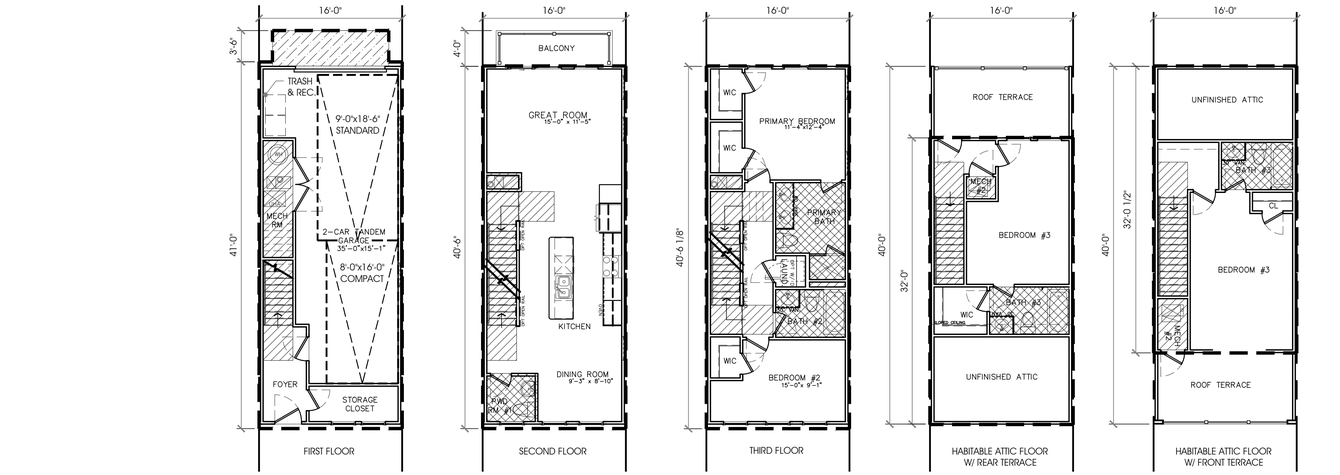
SITE PLAN & STATISTICS

SHEET NO.

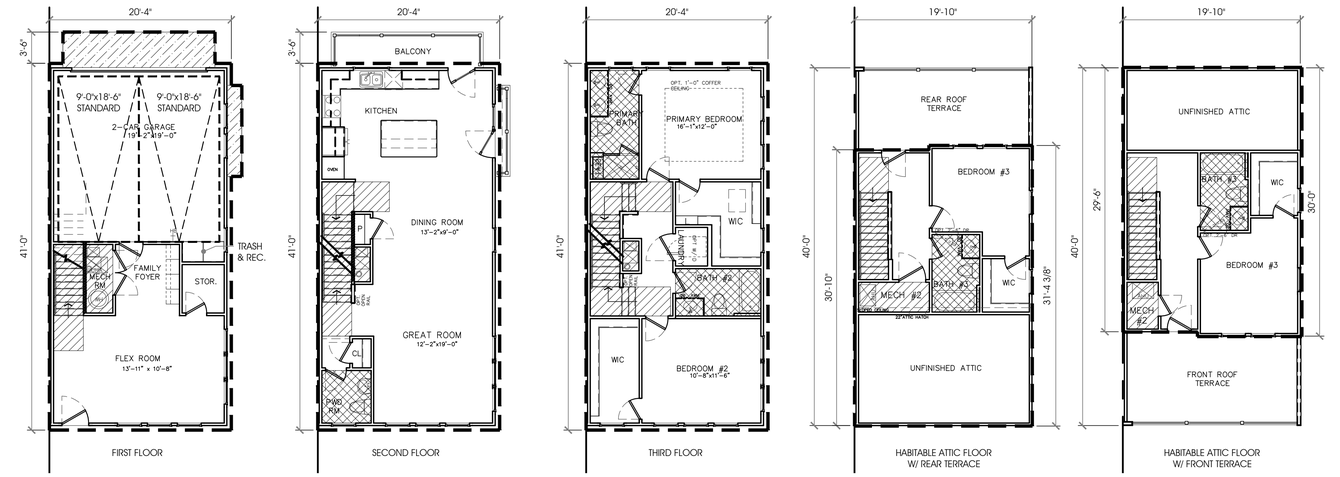
A1.0



C

16 FT UNIT- TYPICAL FLOOR PLANS

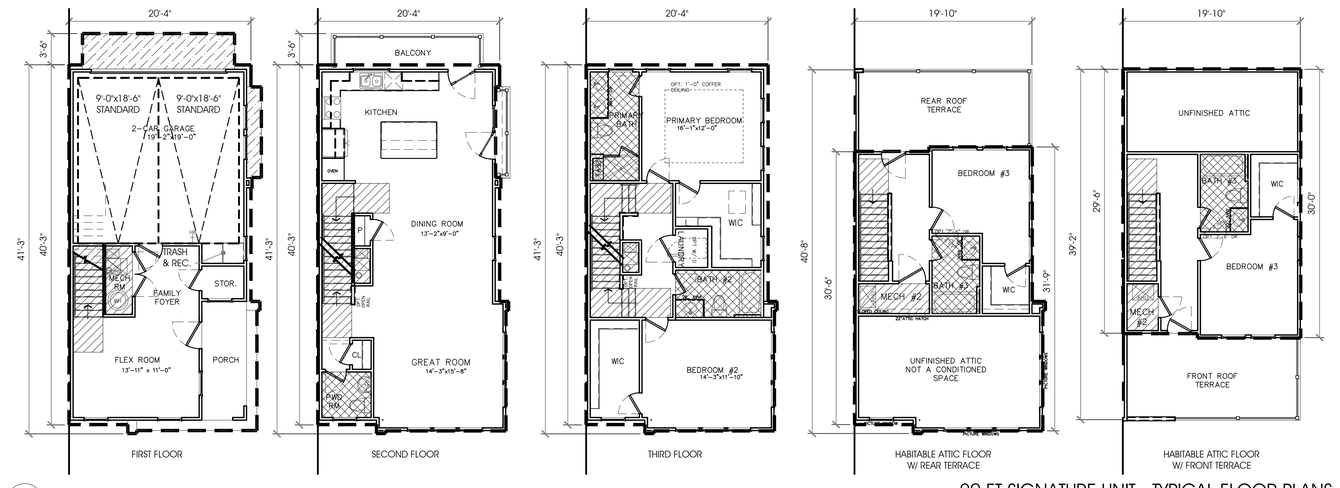
1/8"=1'-0"



B

20 FT UNIT- TYPICAL FLOOR PLANS

1/8"=1'-0"



A

20 FT SIGNATURE UNIT - TYPICAL FLOOR PLANS

1/8"=1'-0"

	UNIT TYPE	QTY	GSF	DEDUCTIONS (POSSIBLE)	DEDUCTIONS (TAKEN)	FLOOR AREA	SUBTOTAL
BLOCK L	20X40 UNITS (TYP.)	12	3,192	561	-	3,192	38,304 SF
	20X40 UNITS (SIGNATURE)	2	3,221	557	-	3,221	6,442 SF
	16X40 UNITS	30	2,511	526	-	2,511	75,330 SF
	BLOCK L TOTAL	44					120,076 SF
						SITE AREA	77,919 SF
						FAR PERMITTED	3.33
						FAR PROVIDED	1.54

	UNIT TYPE	QTY	GSF	DEDUCTIONS POSSIBLE (1)	DEDUCTIONS TAKEN	FLOOR AREA	SUBTOTAL
BLOCK M	20X40 UNITS (TYP.)	20	3,192	477	-	3,192	63,840 SF
	20X40 UNITS (SIGNATURE)	2	3,221	473	-	3,221	6,442 SF
	16X40 UNITS	44	2,511	475	-	2,511	110,484 SF
	TOTAL	66					180,766 SF
						SITE AREA	122,178 SF
						FAR PERMITTED	1.64
						FAR PROVIDED	1.48

BLOCK L + M	110 UNITS	TOTAL FLOOR AREA	300,842 SF

NOTE: EXTERIOR MATERIALS AND LOCATION OF TOP FLOOR TERRACE CAN AFFECT GSF AND/OR POSSIBLE FLOOR AREA DEDUCTIONS. THESE CALCULATIONS ASSUME THE "WORST CASE SCENARIO" PER UNIT.

FLOOR AREA KEY:

GROSS FLOOR AREA

AREAS ALLOWED TO BE DEDUCTED FROM GROSS SQ. FT. TO DETERMINE FAR:

- STAIRWAYS
- MECH. SPACES
- BATHROOMS (DEDUCT 50 SQ.FT. MAX. PER BATHROOM)
- SPACE UNDER OPEN BALCONIES AND SIMILAR STRUCTURES PROJECTING FROM A FLOOR ABOVE THE 1ST FLOOR UP TO A MAX. DEPTH OF 8 FEET

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DEPARTMENT OF PLANNING & ZONING

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DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. XXXXX

DIRECTOR DATE

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REVISIONS

DATE	DESCRIPTION
03.21.24	COMPLETENESS
05.02.24	COMPLETENESS

COMPLETENESS

FLOOR PLANS & FAR CALCS

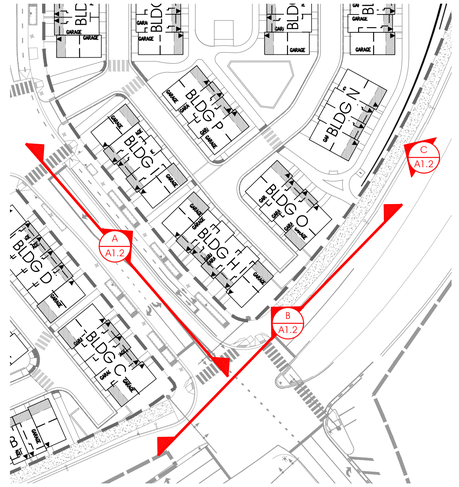
SHEET NO.

A1.1

C

NORTH VAN DORN STREET ELEVATION (BUILDING N FRONT ELEVATION)

3/32"=1'-0"



B

NORTH VAN DORN STREET ELEVATION (BUILDING C, H & O SIDE ELEVATIONS)

3/32"=1'-0"

A

VERVE STREET ELEVATION (BUILDINGS I & H FRONT ELEVATION)

3/32"=1'-0"

GENERAL NOTE: "SYNTHETIC WOOD" REFERS TO CLADDING MATERIALS THAT EMULATE TRADITIONAL WOOD CONSTRUCTION, SUCH AS CEMENTITIOUS, PVC, METAL, FRP OR OTHER COMPOSITE TRIM MATERIALS. FINAL PRODUCT TO BE BASED ON MANUFACTURER AND PRODUCT AVAILABILITY.

APPROVED
SPECIAL USE PERMIT NO.
DEPARTMENT OF PLANNING & ZONING
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DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. XXXXX
DIRECTOR DATE
CHAIRMAN, PLANNING COMMISSION DATE
DATE RECORDED
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REVISIONS

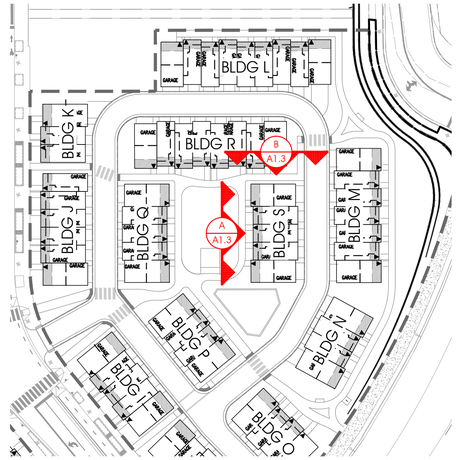
DATE	DESCRIPTION
03.21.24	COMPLETENESS
05.02.24	COMPLETENESS

COMPLETENESS

BLOCK M EXTERIOR ELEVATIONS

SHEET NO.

A1.2



BUILDING T

"MEWS" SIDE ELEVATION

B — BUILDING S SIDE ELEVATION

TYPICAL SIDE ELEVATION U.N.O. — 3/32"=1'-0"

BUILDING T

"MEWS" FRONT ELEVATIONS

A — BUILDING S "MEWS" FRONT ELEVATION

3/32"=1'-0"

GENERAL NOTE: "SYNTHETIC WOOD" REFERS TO CLADDING MATERIALS THAT EMULATE TRADITIONAL WOOD CONSTRUCTION, SUCH AS CEMENTITIOUS, PVC, METAL, FRP OR OTHER COMPOSITE TRIM MATERIALS. FINAL PRODUCT TO BE BASED ON MANUFACTURER AND PRODUCT AVAILABILITY.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. XXXXX

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West End Townhomes

Blocks L & M
Alexandria, VA

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REVISIONS

DATE	DESCRIPTION
03.21.24	COMPLETENESS
05.02.24	COMPLETENESS

COMPLETENESS

BLOCK M EXTERIOR ELEVATIONS

SHEET NO.

A1.3

E

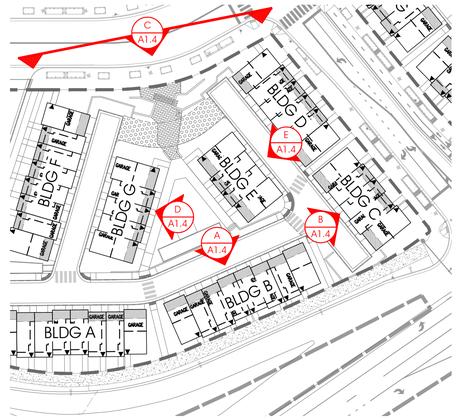
BUILDING E REAR ELEVATION

3/32"=1'-0"

D

BUILDING G FRONT ELEVATION

3/32"=1'-0"



C

HECHT AVENUE ELEVATION (BUILDINGS D, E, G, F "ENHANCED SIGNATURE" SIDE ELEVATIONS)

3/32"=1'-0"

B

BUILDING C REAR ELEVATION

3/32"=1'-0"

A

BUILDING B REAR ELEVATION

3/32"=1'-0"

GENERAL NOTE: "SYNTHETIC WOOD" REFERS TO CLADDING MATERIALS THAT EMULATE TRADITIONAL WOOD CONSTRUCTION, SUCH AS CEMENTITIOUS, PVC, METAL, FRP OR OTHER COMPOSITE TRIM MATERIALS. FINAL PRODUCT TO BE BASED ON MANUFACTURER AND PRODUCT AVAILABILITY.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. XXXXX

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

COMMONWEALTH OF VIRGINIA
SCOTT FLEMING
Lic. No. 13094
05/02/24
ARCHITECT

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West End Townhomes

Blocks L & M
Alexandria, VA

23.003

REVISIONS

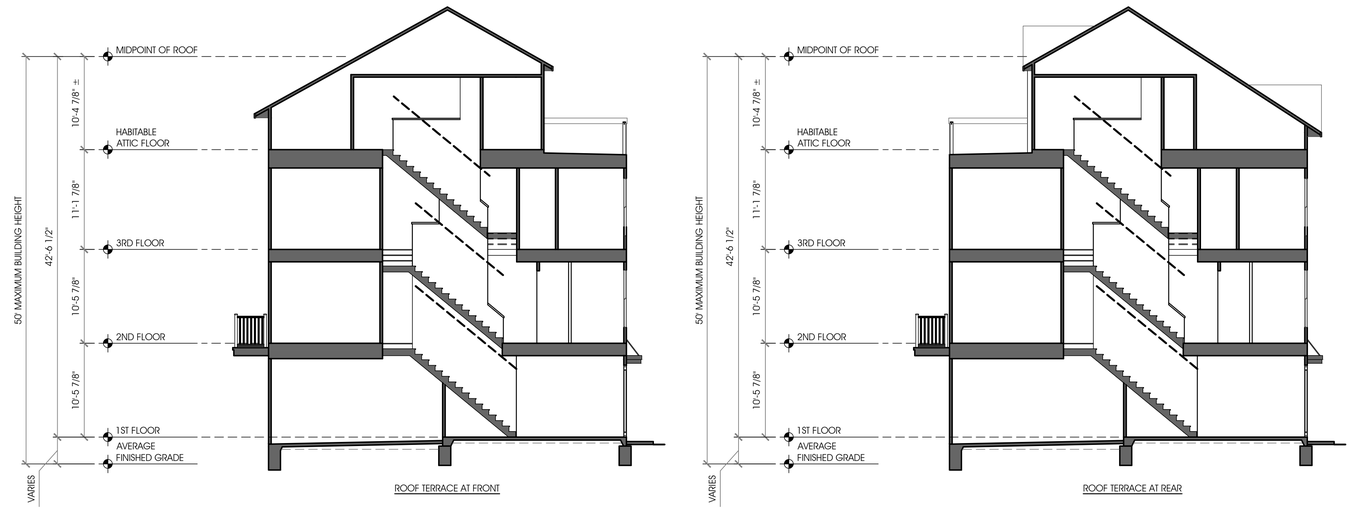
DATE	DESCRIPTION
03.21.24	COMPLETENESS
05.02.24	COMPLETENESS

COMPLETENESS

BLOCK L
EXTERIOR
ELEVATIONS

SHEET NO.

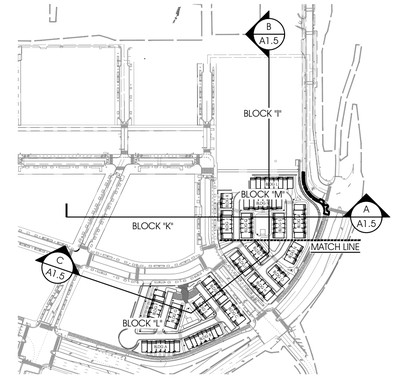
A1.4

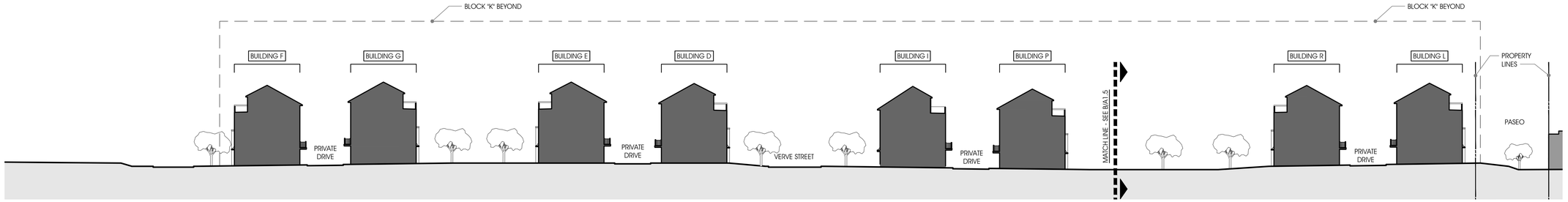


D

TYPICAL 20' UNIT BUILDING SECTION (16' UNIT SIMILAR)

1/8"=1'-0"

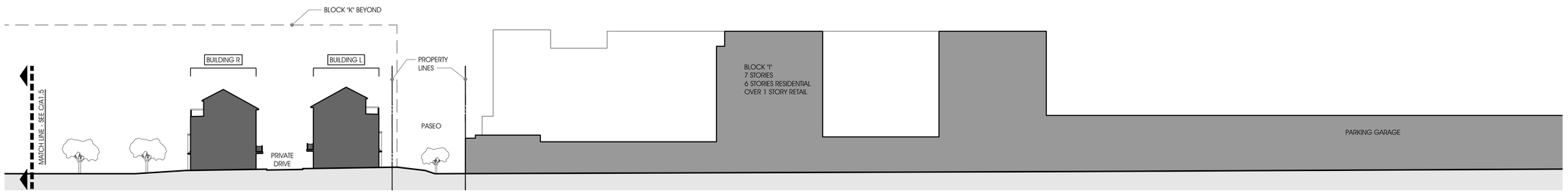




C

SITE SECTION

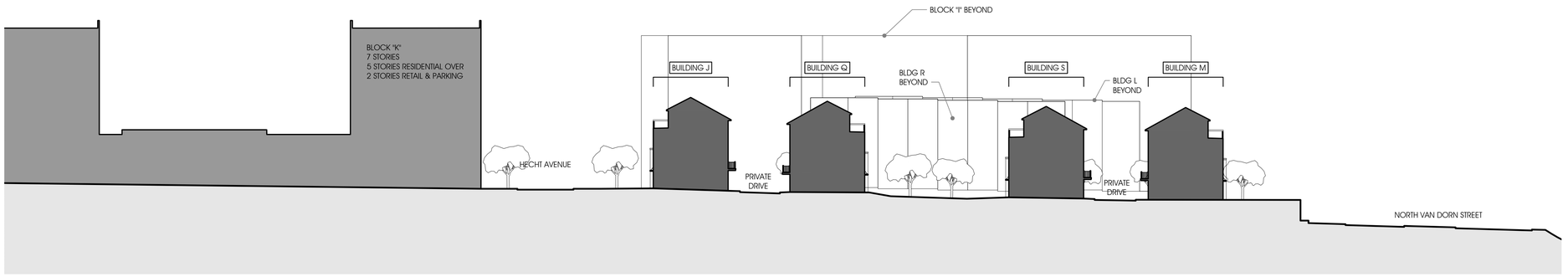
1/32"=1'-0"



B

SITE SECTION

1/32"=1'-0"



A

SITE SECTION

1/32"=1'-0"

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_____ _____

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DIRECTOR DATE

_____ _____

CHAIRMAN, PLANNING COMMISSION DATE

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_____ _____

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COMPLETENESS

SECTIONS

SHEET NO.

A1.5