STORMWATER MANAGEMENT REPORT

for

Atlantic City

1801 Baltic Avenue ; Block 396, Lots 1, 6 & 7
Atlantic City, Atlantic County, New Jersey

August 2021

Prepared for:

Village Super Market, Inc.

733 Mountain Avenue
Springfield, New Jersey 07081

Prepared by:

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1.0 PROJECT DESCRIPTION

Village Super Market, Inc. (Applicant) is seeking land use approvals for construction of a 54,000 square foot with supporting surface parking lot(s), landscaping, lighting, utilities and stormwater conveyance on Block 396 bound by Ohio Avenue, Bacharach Boulevard, Indiana Avenue and Baltic Avenue in Atlantic City, Atlantic County, New Jersey.

The site is located within the Central Business District (CBD) that is part of the Atlantic City Tourism District in which land use approvals are administered by the Casino Reinvestment Development Authority (CRDA). It will be developed according to the regulations outlined in the CRDA Tourism District Land Development Rules at NJAC 19:66 and applicable New Jersey Department of Environmental Protection (NJDEP) land use regulations such as the NJ Stormwater Management Rules at NJAC 7:8, Coastal Zone Management Rules at NJAC 7:7 and NJ Flood Hazard Area Control Act Rules at NJAC 7:13.

The surrounding land uses are as follows:

1. To the north across Bacharach Boulevard – residential;
2. To the east across Indiana Avenue – commercial and vacant land that was formerly a public Charter school;
3. To the south across Baltic Avenue – City fire station and commercial; and
4. To the west across Ohio Avenue – parking lots and service drives associated with the AC Convention Center and the Walk retail outlets.

Topographic elevations at the site range from approximately 8.0 in the middle of the lot to 5.5 in the surrounding roadways. Runoff from the existing parking lot that covers most of the site is collected in stormwater inlets on and around the site and adjacent roadways and is conveyed via storm sewer piping to the Baltic Avenue canal. The Baltic Avenue canal is a large brick and concrete conveyance structure on the northern side of Baltic Avenue constructed from March 1911 to August 1912. It is 1.8 miles long and runs from Georgia Avenue on its western end to Rhode Island Avenue on its eastern end. The two outlets into the bay are at Atlantis Avenue on the northern end of Georgia Avenue and Fisherman's Park at Mediterranean Avenue and Rhode Island Avenue in the southern end of Gardner's Basin. It has tide gates on each end creating a temporary storage capacity of 1.1 million cubic feet during high tide cycles. It drains approximately 775 acres of Atlantic City into the back bays. This canal ensures runoff from the site (and many others) is conveyed directly to the tidal water bodies behind Atlantic City without impact to surrounding sites.

The site is located within the tidal flood hazard area associated with the Atlantic Ocean. It is in Flood Zone AE10 as indicated on the preliminary FEMA Flood Insurance Rate Map for Atlantic County, New Jersey Panel 34001C0452F with a preliminary date of May 30, 2014.

According to the USDA Natural Resources Conservation Service (NRCS) New Jersey Soil Survey web data, the soil types on the project site is Psamments (PstAt) of hydrologic soil group D.

2.0 DESIGN CRITERIA

The stormwater management analysis is in accordance with the CRDA Tourism District Land Development Rules at NJAC 19:66-7.5, NJ Stormwater Management Rules at NJAC 7:8, subchapters 5 and 6, the New Jersey Stormwater Best Management Practices Manual, and the New Jersey Soil Erosion and Sediment Control Standards.

In accordance with the New Jersey Department of Environmental Protection (NJDEP) Stormwater Management Rules at N.J.A.C. 7:8, the development of the project is classified as a "Major Development." A Major Development is defined therein as a development which ultimately disturbs one or more acres of land and/or increases impervious coverage or regulated motor vehicle surface by one-quarter of an acre or more. This project includes disturbance to greater than one acre of land and increases impervious coverage by more than one-quarter acre, but a decrease of regulated motor vehicle surface. The three technical requirements of the Stormwater Management Rules at N.J.A.C 7:8 that generally need to be addressed are groundwater recharge, runoff quality and runoff quantity. There is also a requirement to incorporate Green Infrastructure (GI) measures into the project design to meet the numeric standards of the rules, if stormwater management measures are needed.

3.0 GROUNDWATER RECHARGE STANDARD

NJAC 7:8-5.4(b)2 states the groundwater recharge standard of the rules do not apply to projects within the "urban redevelopment area." Pursuant to NJAC 7:8-1.2 "Urban Redevelopment Area" is defined as previously developed portions of areas:

1. Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
2. Designated as CAFRA Centers, Cores or Nodes;
3. Designated as Urban Enterprise Zones; and
4. Designated as Urban Coordinating Council Empowerment Neighborhoods

Atlantic City is a designated CAFRA Center and this site is currently developed with a paved parking lot that has existed since the late 1990s. Since it is a previously developed site in a Designated Center, it is exempt from the groundwater recharge standards.

4.0 RUNOFF QUALITY STANDARD

Pursuant to NJAC 7:8-5.5(a), Stormwater runoff quality standards are applicable when the major development results in an increase of one-quarter acre or more of regulated motor vehicle surface. Pursuant to NJAC 7:8-1.2 "regulated motor vehicle surface" means any of the following, alone or in combination:

1. A net increase in motor vehicle surface; and/or
2. The total area of motor vehicle surface that is currently receiving water quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant, where the water quality treatment will be modified or removed.

Also pursuant to NJAC 7:8-1.2 "motor vehicle surface" means any pervious or impervious surface that is intended to be used by “motor vehicles” and/or aircraft, and is directly exposed to precipitation including, but not limited to, driveways, parking areas, parking garages, roads, racetracks, and runways.

The existing parking lot is a motor vehicle surface. The existing motor vehicle surface on the site totals 3.12 acres. Although there is an increase in the overall impervious surface at the site, it is due to the building proposed on site. The motor vehicle surface in the proposed condition will total 2.66 acres. Therefore, the motor vehicle surface is reduced by 0.46 acres and the project does not have to address the runoff quality standards of the rules.

5.0 RUNOFF QUANTITY STANDARD

Pursuant to NJAC 7:8-5.6(b) requires that in order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at N.J.A.C. 7:8-5.7, complete one of the following:

1. Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the two-, 10-, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;
2. Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the two-, 10-, and 100-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;
3. Design stormwater management measures so that the post-construction peak runoff rates for the two-, 10-, and 100-year storm events are 50, 75, and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed; or
4. In tidal flood hazard areas, stormwater runoff quantity analysis, in accordance with (b)1, 2, and 3 above, is required unless the design engineer demonstrates through hydrologic and hydraulic analysis that the increased volume, change in timing, or increased rate of the stormwater runoff, or any combination of the three will not result in additional flood damage below the point of discharge of the major development. No analysis is required if the stormwater is discharged

directly into any ocean, bay, inlet, or the reach of any watercourse between its confluence with an ocean, bay, or inlet and downstream of the first water control structure

As described in NJAC 7:8-5.6(b)4, the existence of the Baltic Avenue Canal and its direct connection to the bay, as well as its 1.1 million cubic foot capacity for temporary storage during abnormally high tidal events, demonstrates that the increase in overall impervious surface of 0.45 acres draining to the canal, which is less than 0.06% of the overall area draining to the feature, will not result in additional flood damage below the point of discharge of the major development.

6.0 STORMWATER CONVEYANCE

The Rational method was used for proposed storm inlet and pipe design. The stormwater conveyance system was designed in accordance with accepted practice. The proposed storm sewer collection pipes are designed to convey the 25-year storm. A minimum pipe diameter of 15 inches for storm drains is utilized. The crowns of the pipes have been matched when the pipe size increases. The pipe slopes are designed to provide a minimum of 2.0 feet/second velocity when flowing half full. See Appendix A for the Storm Sewer Calculations.

7.0 OFFSITE STABILITY

The entire downstream discharge area is fully installed and stable, which provides offsite stability as outlined in the New Jersey Soil Erosion and Sediment Control Standards Chapter 21.

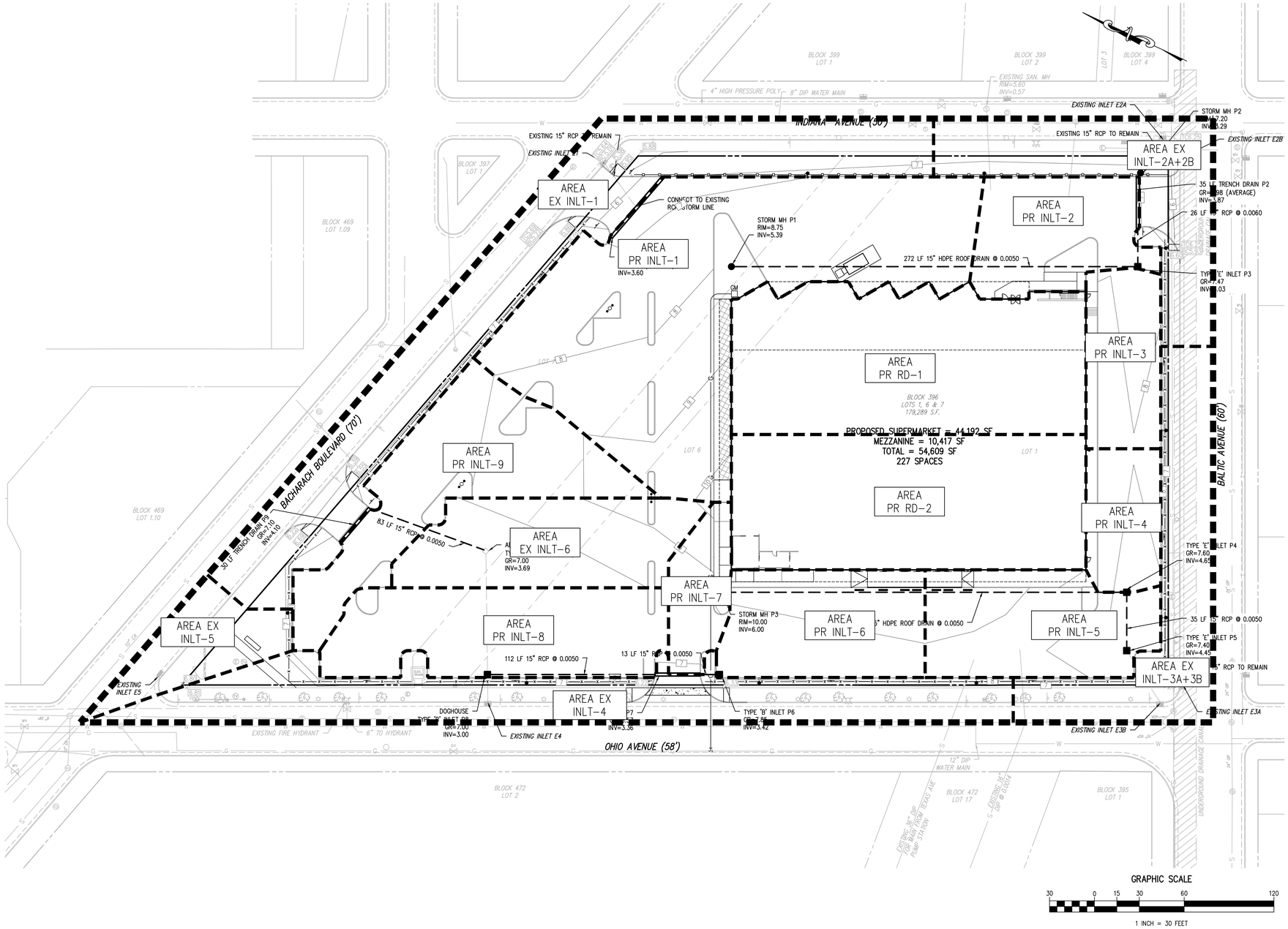
8.0 CONCLUSION

The project is a major development as defined in applicable regulations. As described above, the project is exempt from the runoff quality and groundwater recharge standards of applicable stormwater management rules, and the site's existence in the tidal flood hazard area (flood fringe) associated with the Atlantic Ocean and being directly connected to the Baltic Avenue Drainage Canal, which is directly connected to the bay behind Atlantic City, demonstrates that the redevelopment of the project site with a slight increase in impervious surface will not create the potential for additional flood damage below the point of discharge.

APPENDIX A

STORM SEWER CALCULATIONS
INLET DRAINAGE AREA PLAN

EX INLT-1			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	20730	0.476	0.99	0.471		
Open Spac	5595	0.128	0.00	0.000		
	26325	0.604		0.471	0.471	0.780
EX INLT-2A+2B			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	9150	0.210	0.99	0.208		
Open Spac	2810	0.065	0.00	0.000		
	11960	0.275		0.208	0.208	0.757
EX INLT-3A+3B			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	10130	0.233	0.99	0.230		
Open Spac	1940	0.045	0.00	0.000		
	12070	0.277		0.230	0.230	0.831
EX INLT-4			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	15015	0.345	0.99	0.341		
Open Spac	3860	0.089	0.00	0.000		
	18875	0.433		0.341	0.341	0.788
EX INLT-5			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	3680	0.084	0.99	0.084		
Open Spac	1670	0.038	0.00	0.000		
	5350	0.123		0.084	0.084	0.681
EX INLT-6			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	10590	0.243	0.99	0.241		
Open Spac	175	0.004	0.00	0.000		
	10765	0.247		0.241	0.241	0.974
PR INLT-1			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	34980	0.803	0.99	0.795		
Open Spac	1040	0.024	0.00	0.000		
	36020	0.827		0.795	0.795	0.961
PR INLT-2			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	14155	0.325	0.99	0.322		
Open Spac	0	0.000	0.00	0.000		
	14155	0.325		0.322	0.322	0.990
PR INLT-3			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	5960	0.137	0.99	0.135		
Open Spac	0	0.000	0.00	0.000		
	5960	0.137		0.135	0.135	0.990
PR INLT-4			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	4700	0.108	0.99	0.107		
Open Spac	0	0.000	0.00	0.000		
	4700	0.108		0.107	0.107	0.990
PR INLT-5			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	10380	0.238	0.99	0.236		
Open Spac	0	0.000	0.00	0.000		
	10380	0.238		0.236	0.236	0.990
PR INLT-6			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	9660	0.222	0.99	0.220		
Open Spac	0	0.000	0.00	0.000		
	9660	0.222		0.220	0.220	0.990
PR INLT-7			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	3625	0.083	0.99	0.082		
Open Spac	185	0.004	0.00	0.000		
	3810	0.087		0.082	0.082	0.942
PR INLT-8			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	12725	0.292	0.99	0.289		
Open Spac	270	0.006	0.00	0.000		
	12995	0.298		0.289	0.289	0.969
PR INLT-9			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	12985	0.298	0.99	0.295		
Open Spac	1160	0.027	0.00	0.000		
	14145	0.325		0.295	0.295	0.909
PR RD-1			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	22745	0.522	0.99	0.517		
Open Spac	0	0.000	0.00	0.000		
	22745	0.522		0.517	0.517	0.990
PR RD-2			HSG A			
	Area					
	SF	AC	C	CA	ΣcA	c(ave)
Impervious	21450	0.492	0.99	0.488		
Open Spac	0	0.000	0.00	0.000		
	21450	0.492		0.488	0.488	0.990



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ATLANTIC CITY SUPERMARKET

BLOCK 396, LOTS 1, 6 & 7
ATLANTIC CITY, ATLANTIC COUNTY, NEW JERSEY

PROPOSED DRAINAGE AREA PLAN

733 MOUNTAIN AVENUE
SPRINGFIELD, NEW JERSEY 07081

DATE	ISSUE NO.	SUBMISSION/REVISION	BY	APPR.
8/18/2021	1	INITIAL RELEASE	JTS	LAT

PROJECT NO. VSM 004.01
SCALE 1" = 30'
SHEET 1 OF 1
DRAWING NO. C1401