



**DRAINAGE SUMMARY**  
**December 18, 2020**

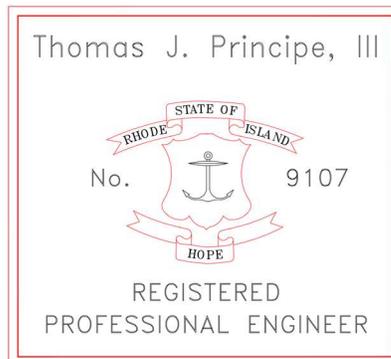
**#446 HIGH STREET**  
**AP 48-3 Lot 180**  
**South Kingstown, RI**

***Prepared For:***

PAUL MASSE CHEVROLET SOUTH

***Prepared By:***

Principe Engineering, Inc.  
27 Sakonnet Ridge Drive  
Tiverton, Rhode Island



The following Stormwater Management Analysis and accompanying HydroCAD design calculations were prepared in support of the commercial re-development proposed on land in the Town of South Kingstown at 446 High Street (AP 48-3, Lot 180). The property is approximately 0.52 acres and consists of an existing two-story commercial/apartment building occupying 2,830 square feet of area and an existing garage/shed encompassing 471 square feet of land. Currently, the majority of the remaining property area outside of the building area is dilapidated paved parking surface.

The re-development proposal includes removal of the existing buildings and pavement and repurposing the land area to accommodate a 54-space vehicle surplus parking lot for Paul Masse Chevrolet South which currently operates at 339 Main Street in South Kingstown. The proposed site improvements feature new parking surface, security fencing with gated access, stormwater improvements and a fully landscaped footprint around the improvements. Access to the parking area is only for employee use and the access/egress points coincide exactly with the existing curb-cuts on High Street which were recently installed by RIDOT during the High Street reconstruction project. The proposed site plan maintains the existing sidewalk location and dimensions within High Street and therefore no work is proposed within the State right-of-way.

Currently, the property slopes to the southeast towards High Street with no existing drainage structures on site. The stormwater runoff from this currently is handled by the existing catch basins within High Street which are tied into the State drainage system. This proposal includes mitigation of a portion of the impervious parking surface via a filter strip and landscaped bio-retention area within the property along its frontage.

Although the increase in impervious area on this site from pre to post-development is merely 596 square feet, the proposed bio-retention area at the easterly property border coupled with site regrading and landscaping will assist and reduce the amount of stormwater runoff and provide treatment for runoff as compared to the current conditions of the site. The following Stormwater Design Calculations demonstrate that the proposed stormwater best management practices (BMP's) will aid in reducing the post-development rate of runoff from the pre-existing rates of runoff caused by the rainfall intensity through the 25-year storm events. The bio-retention BMP selected for this site will promote a level of water quality treatment as well as attenuation of peak flows while integrating well with the overall landscape plan. As a result, post-development flows to the easterly property design line (High Street) have been reduced below the pre-development rates.

Below are the pre-development and post-development runoff rate and volumes to the project design point, High Street:

	1 yr storm (cfs, ac-ft)	10 yr storm (cfs, ac-ft)	25 yr storm (cfs, ac-ft)
Pre- High Street	0.69, 0.056	1.61, 0.133	2.15, 0.179
Post- High Street	10.47, 0.033	1.20, 0.083	1.63, 0.114

Based on the above, while incorporating the various BMP's and taking advantage of the natural and newly graded slopes and contours of the site, the project is able to achieve a decrease in stormwater runoff rate and volume toward the analyzed design point and thus typical post-development impacts to downstream properties and state/municipal infrastructure have been successfully mitigated through the design of this project.