

**STORMWATER MANAGEMENT REPORT
TRAFFIC REPORT
ENVIRONMENTAL IMPACT REPORT**

"Methodist Church Major Subdivision"

**BLOCK 74
LOT 1**

**BOROUGH OF BELMAR
MONMOUTH COUNTY, NEW JERSEY**

PREPARED BY:

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RICHARD DIFOLCO, P.E., P.P. N.J. LICENSE NO. 24343

Stormwater Management Report

PROJECT DESCRIPTION

The site contains 22,500 square feet or 0.5165 acres and is known as Block 74 Lot 1 as shown on the Borough of Belmar tax map # 12. It is proposed to construct three new dwellings with a rear access paver drive, a new pool enclosure area and garage for the existing dwelling on the site and remove the existing church building and garage. The existing residence, paver driveway and paver walkways are to remain. The existing impervious area for Lot 1 is 16,703 sq ft. or 74% of the site. Pavers have been calculated at 100% impervious. The proposed impervious area is 13,481 sq ft (60% of the site), a reduction of 3,222 sq ft or approximately 19% reduction in impervious surfaces. The resultant reduction in impervious cover will result in a similar magnitude reduction (-14%) in storm water peak rates of runoff being generated from the site in the proposed condition.

There is an existing storm inlet at the corner of 7th Avenue and "D" Street adjacent to our site. The Boro drainage system drains to Silver Lake, approximately 370 feet to the east. The pipe invert of the inlet is elevation 2.69 (NAVD88) which is approximately 1.5 feet higher than Silver Lake water surface where it drains to. It is proposed to construct a 12" diameter ADS storm drain pipe within our site to drain the rear of Lot 1.04 and to provide roof leader connections for the three new dwellings with a connection into the existing inlet.

The installation of the storm drain will further reduce any drainage impacts by further reducing sheet flow to below pre-development levels.

STORMWATER RUNOFF QUANTITY AND QUALITY

The existing site is fully developed and approximately 74% impervious areas covered with buildings, concrete and paver walks and paver driveway paved areas. The proposed development will provide approximately 60% impervious coverage. The quantity of runoff will not increase after development and there is not an increase of any impervious areas. Accordingly, the project will not cause any detrimental impacts on the surrounding area from a runoff quantity perspective.

According to New Jersey storm water runoff quality standards 7:8-5.5 (a), storm water management measures shall only be required for water quality control if an additional one-quarter acre of impervious surface is being proposed on a development site. There is no increase in impervious surfaces for this project so the water quality control standards do not apply.

GROUNDWATER RECHARGE

The New Jersey standard for groundwater recharge 7:8-5.4 (a)2.i.(1) states that in order to comply, the site and its storm water management measures must maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site. As there is no increase to impervious cover, the groundwater standard is met. Furthermore, given the previously developed nature of the site and its location in a metropolitan planning area, it is unnecessary to provide any on site groundwater recharge BMPs.

DOWNSTREAM IMPACTS

There will be no detrimental impact from this development on any downstream drainage system. Drainage patterns are maintained and site runoff is either directed to the existing street gutters along Seventh Avenue and "D" Street via sheet flow or piped. The onsite piped drainage system, collecting roof runoff and yard areas and connecting to the existing Borough storm drain at the SW corner of 7th Avenue and "D" Street, ultimately flows to a stable discharge point at Silver Lake.

CALCULATION OF RUNOFF QUANTITIES

Existing Condition: Site Drainage Area = 0.5165 acres
74% impervious @ c=0.99 26% grass/landscaped @ c=0.20
Composite "c" factor = $((0.74 \times 0.99) + (0.26 \times 0.20))/1.00 = 0.78$

Proposed Condition: Site Drainage Area = 0.5165 acres
60% impervious @ c=0.99 40% grass/landscaped @ c=0.20
Composite "c" factor = $((0.60 \times 0.99) + (0.40 \times 0.20))/1.00 = 0.67$

Time of concentration for the existing and proposed condition = 5 minutes

Rainfall Intensity from NOAA data server :

$i_2 = 4.91$ in/hr $i_{10} = 6.48$ in/hr $i_{25} = 7.31$ in/hr $i_{100} = 8.51$ in/hr

$$Q = c \times i \times A$$

| <u>Storm</u> | <u>Existing Peak Rate of Runoff</u> | <u>Proposed Peak Rate of Runoff</u> |
|--------------|-------------------------------------|-------------------------------------|
| 2 | 1.98 cfs | 1.70 cfs |
| 10 | 2.61 cfs | 2.24 cfs |
| 25 | 2.94 cfs | 2.53 cfs |
| 100 | 3.43 cfs | 2.94 cfs |

CONCLUSION

It is my opinion that due the small size of the project, the reduction in impervious coverage, and the proposed on-site piped drain system, the proposed project will benefit the surrounding area with respect to storm water. To the best of our knowledge, there are no observed or recorded drainage problems at the project site or vicinity. The proposed development does not increase impervious surfaces, provides a reduction in the impervious cover at the site, therefore increasing the overall site recharge capabilities and decreasing the volume of storm water runoff. As a result, the storm water runoff quantity will be reduced, water quality and recharge will be improved and there is no need for any further analysis.

Traffic Report

PROJECT DESCRIPTION

The site contains 22,500 square feet or 0.5165 acres and is known as Block 74 Lot 1 as shown on the Borough of Belmar tax map # 12. It is proposed to construct three new dwellings with a rear access paver drive, a new pool enclosure area and garage for the existing dwelling on the site and remove the existing church building and garage. The existing residence, paver driveway and paver walkways are to remain.

The existing dwelling on "D" Street will continue to function as presently exists with no change in typical traffic volumes or movements associated with a single family dwelling. Adequate off-street parking is currently provided and will remain more than adequate (6 cars) for the single family use.

The removal of the use of the 11,200 square foot church/school building and replacement with three (3) single family homes will cause a reduction in traffic volumes and required parking. The site presently has no onsite parking provided. The development plan provides eleven (11) off-street parking spaces to serve the proposed three dwellings. The use of the rear access private lane with one curb cut on "D" Street enables the entire frontage of Seventh Avenue (150 feet) and 100 feet of frontage on "D" Street to provide neighborhood on street parking totaling approximately 11 vehicles. The onsite private alley also provides sufficient maneuvering room on site for reversing vehicle direction, thereby eliminating the backing up of vehicles into the adjacent street system, which would be a common occurrence with a typical front loaded driveway design.

The site is located at the intersection of Seventh Avenue and "D" Street, a four way stop controlled intersection. Crosswalks are present. According to NJ RSIS, sight triangles shall be in accordance with AASHTO's "A Policy on Geometric Design of Highways and Streets". Using the design criteria contained in the referenced design guide, a 25 MPH speed limit, and the recommended sight triangle dimensions, the "connecting" points creating a sight triangle fall within the 20 foot wide right-of-way area behind the curb and do not reach the right-of-way line which would cause need for an "easement" on the corner lot.

The project as designed will provide for adequate on-site parking and the safe and efficient flow of traffic within the site and surrounding neighborhood street system.

Environmental Impact Report

PROJECT DESCRIPTION

The site contains 22,500 square feet or 0.5165 acres and is known as Block 74 Lot 1 as shown on the Borough of Belmar tax map # 12. It is proposed to construct three new dwellings with a rear access paver drive, a new pool enclosure area and garage for the existing dwelling on the site and remove the existing church building and garage. The existing residence, paver driveway and paver walkways are to remain.

The construction of the three new dwellings with modern building materials and energy efficient building systems will replace the outdated inefficient existing materials and systems of the church and result in a benefit to the local environment. The site is within flood zone AE10 and the three new dwellings will be properly elevated above the flood elevation in accordance with all building codes.

The site is fully developed and the proposed development plan will reduce the amount of impervious surfaces by 3,222 square feet which will reduce site storm water runoff by approximately 19%. The net increase of "green" space will provide for additional recharge areas within the site.

The installation on the on-site storm drain system will reduce sheet flow and the potential from soil erosion occurring at the site. The approval of the Soil Erosion and Sediment Control certification will provide for project oversight by the State inspectors to insure plan compliance and a stabilized site.

There are no threatened or endangered species or their habitats on the subject property.

There are no environmental constraints, features, natural resources or land characteristics that are sensitive to the improvements as proposed on the site.

The proposed development project will provide new energy efficient buildings with less impacts on the environment than the existing use and building, and any impacts would be de minimis in relation to traffic, noise, air pollution, hydrology, storm water runoff, and water quality.