Permit Application Review

Applicant:	Robert Lunieski; Lunieski & Associates, LLC
Consultant:	Emily Riihl; ISG, Inc.
Project:	FilmTec Parking Lot Improvements
Location:	5230 West 73 <sup>rd</sup> Street: Edina
Rule(s):	2, 4 and 5
Reviewer:	LLH

# General Background & Comments

The project proposes parking lot improvements at the FilmTec Corporation site located at 5230 West 73<sup>rd</sup> Street in Edina, MN. The existing multi-story building is located on a 3.5-acre parcel that is developed with surface parking. Proposed parking lot improvements include bituminous pavement reclamation and mill and overlayment, full depth bituminous pavement reconstruction, and concrete pavement construction. In addition, site improvements including landscaping, grading, utility improvements and construction of a stormwater management facility are proposed. Existing building additions and/or improvements are not proposed.

The applicant has requested that the site be considered restricted under subsection 4.3.2 of the NMCWD Rules, resulting from site constraints including high groundwater, site soils with low permeability, topography and limited green space. The applicant provided technical documentation of site constraints limiting retention of runoff, including grading plans identifying topography constraints and limited green space, and soil boring analysis with poor infiltration capacities and identifying high groundwater. We have reviewed findings from the geotechnical evaluation and site plans, and concur that the site is restricted.

The project site information includes the following:

- Total Site Area: 3.46 acres (150,907 square feet)
- Existing Site Impervious Area: 2.74 acres (119,354 square feet)
- Proposed Site Impervious Area: 2.63 acres (114,394 square feet)
- Total Disturbed and Reconstructed Impervious Area: 0.41 acres (17,981 square feet, surface area does not include the 4,960 square feet of permeable pavers)
- A 4.2% decrease in the site impervious area (4,960 square feet) with the construction of the permeable pavers as proposed.
- 15.1% of the existing site impervious area is to be disturbed and reconstructed

The North Fork of Nine Mile Creek is located east of the project site. Inundation on a portion of the site results at the District's Atlas 14 100-year frequency flood elevation, 829.5 M.S.L. Because the proposed parking lot improvements involve alteration and filling of land below the

100-year floodplain elevation of the creek, the project activities must conform to NMCWD Floodplain Management and Drainage Alterations, Rule 2.0.

The District's requirements for both stormwater management and erosion and sediment control apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 4.2.1a and b and 5.2.1a and b.

The Nine Mile Creek Watershed District's Rule for Redevelopment, Rule 4.2.3, states, if a proposed activity will disturb more than 50% of the existing impervious surface on the site or will increase the imperviousness of the site by more than 50%, stormwater management will apply to the entire project site. Otherwise, the stormwater requirements will apply only to the disturbed areas, replaced and net additional impervious surface on the project site. Since the project will disturb less than 50% of the existing impervious surface on the project site, stormwater management is not required for the entire site. Applicable stormwater management criteria will therefore only apply to the 17,981 square feet of disturbed and replaced impervious surface.

Stormwater management will be provided by an underground filtration system beneath the proposed permeable pavers located on the eastern side of the site. The underground filtration system will provide water quality management for the disturbed and reconstructed impervious surface, 17,981 square feet (excludes the 4,960 square feet of permeable pavers). The underground filtration system will receive runoff from the disturbed and reconstructed parking and access drive surfaces, and the southeastern portion of the building flat roof system.

Because proposed activities do not result in increased impervious surface at the site and predevelopment drainage patterns will be maintained in post-development conditions, rate control is achieved. Once the permeable pavers are in-place and functional, discharge rates will be reduced as a result of the 4.2% reduction in site impervious area (4,960 square feet). Additionally, the underground stormwater management facility (UGSWMF) will attenuate surface runoff, further reducing discharge rates.

Pretreatment for runoff entering the underground filtration system will be provided by geotextile fabric around the top, bottom and sides of the rock layer surrounding the perforated subdrains. The project site plans propose two alternate site plans, including varying configurations of stormwater tie-in locations. All proposed site plans and alternates show site runoff from the disturbed and reconstructed impervious surface being conveyed to the UGSWMF and discharging to the City of Edina storm sewer system along West 73<sup>rd</sup> Street.

Silt fence will be utilized for temporary erosion prevention and sediment control at the limits of disturbance. Storm drain inlet protection will be provided for erosion control at the surface parking areas and along West 73<sup>rd</sup> Street downgradient from land-disturbing activities. Permanent stabilization methods include sodding.

### Exhibits

- 1. Permit Application dated May 27, 2020.
- 2. Plans dated May 20, 2020, revised May 20, 2020 (submitted July 23, 200) prepared by ISG, Inc.
- 3. Stormwater Management Report dated May 22, 2020, revised July 21, 2020 prepared by ISG, Inc.

- 4. Geotechnical Evaluation Report dated May 5, 2020 prepared by Braun Intertec.
- 5. Email correspondence dated June 17, 2020 specifying three items that required for the application to be considered complete.
- 6. Supplemental Geotechnical Evaluation Log of Hand Auger dated July 10, 2020 prepared by Braun Intertec.

The applicant with the revised submittal has addressed the items identified in the June 17, 2020 email. The submittal is complete.

# 2.0 Floodplain Management and Drainage Alterations

As previously stated, the North Fork of Nine Mile Creek is located east of the project site. The District's Atlas 14 100-year frequency floodplain inundation area extends onto the site, elevation 829.5 M.S.L. A portion of the site is inundated at the creek's 100-year flood elevation. Because the proposed parking lot improvements involve alteration and filling of land within this area, the project activities must conform to NMCWD Floodplain Management and Drainage Alterations Rule 2.0.

Proposed work within the 100-year frequency floodplain of Nine Mile Creek includes bituminous pavement reclamation and mill and overlayment, full depth bituminous pavement reconstruction, concrete pavement construction, grading, utility improvements and construction of a stormwater management facility. Land alterations resulting in floodplain cut/ fill are located along the eastern boundary of the site, within the disturbed and reconstructed impervious surface area. As shown on the plans at the locations of proposed pavement mill and overlayment along the western and northern portions of the site, existing grades are matched (i.e. no floodplain cut or fill).

The supporting materials demonstrate, and the NMCWD Engineer concurs, that 47 cubic yards of fill will be placed and 121 cubic yards of compensatory storage will be created below the 100-year frequency floodplain elevation of Nine Mile Creek, thus providing a net increase in the floodplain storage volume of approximately 74 cubic yards.

# 2.3.1: The low floor elevation of all new and reconstructed structures must be constructed in accordance with the NMCWD Stormwater Rule, subsection 4.3.3

At least two (2) feet of separation was provided between the constructed building low floor elevation and the 100-year frequency flood elevation of Nine Mile Creek at the time of construction. In relation to the updated District Atlas 14 100-year frequency elevations, the two (2) feet of separation between the existing building low floor elevation and the District's Atlas 14 100-year frequency floodplain elevation is not provided. However, no new or reconstructed buildings are proposed. Therefore, NMCWD Rule 4.3.3 subsections a, b and c do not apply to the project.

NMCWD Rule 4.3.3 states that a stormwater management facility must be constructed an elevation that ensures that no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.3. The volume of runoff generated from the 17,981 square feet of disturbed and reconstructed impervious area for the 100-year frequency storm event will be detained in the 19-inches of clean stone beneath the permeable pavers. With this detention volume and the 4-inch subdrain system providing an outlet, this detention will remain below ground not having an impact on the 831.03 M.S.L.

low floor elevation and low opening of the building. The surface overflow from the paver system, should it occur, is located at the subdrain outlet, which ties into the proposed manhole with a rim elevation at 827.3 M.S.L., 3.7 feet lower than the building low floor elevation. The project conforms to NMCWD Rule 4.3.3.

2.3.2: Placement of fill below the 100-year flood elevation is prohibited unless fully compensatory storage is provided within the floodplain and:

- a. at the same elevation +/- 1 foot for fill in the floodplain and:
- *b.* at or below the same elevation for fill in the floodplain of a water basin or constructed stormwater facility.

The supporting materials demonstrate, and the NMCWD Engineer concurs, that 47 cubic yards of fill will be placed and 121 cubic yards of compensatory storage will be created below the 100-year frequency floodplain, thus providing a net increase in the floodplain storage volume of approximately 74 cubic yards. The compensatory storage is provided below the same elevation of the fill within the 100-year floodplain. The project conforms to Rule 2.3.2.

2.3.3. The District will issue a permit to alter surface flows only if it finds that the alteration will not have an adverse impact on any upstream or downstream landowner and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream base-flow, water quality or aquatic or riparian habitat.

Because the applicant has demonstrated and the engineer concurs that the project will preserve the existing 100-year flood level, the project will not alter surface flows, complying with Rule 2.3.3. Land disturbance is not proposed within the channel or bank of Nine Mile Creek.

Since the project will not result in increased impervious surface at the site and predevelopment drainage patterns will be maintained in post-development conditions, discharge rates from the site will not increase, as stormwater runoff rates are maintained. Once the permeable pavers are in-place and functional, discharge rates will be reduced as a result of the 4.2% reduction in site impervious area (4,960 square feet). Additionally, the UGSWMF will attenuate surface runoff, further reducing discharge rates. Because discharge rates in post-development conditions will not increase and drainage patterns will be maintained, the land altering activities will not have an adverse impact on upstream or downstream landowners.

The proposed hydraulic configuration will maintain existing drainage patterns while improving water quality as a result of the underground filtration system. Infiltration is not proposed on the site, therefore, ground hydrology will be maintained. Potential impacts to stream base-flow are not applicable to the project because discharge rates from the site will be reduced with the reduction in impervious area. Additionally, there are no direct discharge locations from the site to Nine Mile Creek. Proposed work having a temporary impact on riparian habitat during the construction phase of the project is also not applicable to the project because land disturbance is not proposed within the channel, bank or directly adjacent to Nine Mile Creek. 2.3.4 No structure may be placed, constructed or reconstructed and no surface may be paved within 50 feet of the centerline of any water course, except that this provision does not apply to:

a. Bridges, culverts, and other structures and associated impervious surface regulated under Rule 6.0;

b. Trails 10 feet wide or less, designed primarily for nonmotorized use.

This section of the rule does not apply to the proposed project.

The proposed project conforms to the floodplain management and drainage alteration requirements of Rule 2.0.

## 4.0 Stormwater Management

As previously stated, stormwater management will be provided by an underground filtration system with an elevated perforated subdrain beneath a permeable paver system along the eastern side of the building. The underground filtration system will provide water quality management for the disturbed and replaced impervious surface, 17,981 square feet. The underground filtration system will receive runoff from the disturbed and reconstructed parking and access drive surfaces, and a portion of the building flat roof system.

The proposed underground stormwater management facility (UGSWMF) consists of 4-inch perforated subdrains surrounded by a rock layer beneath permeable pavers. The project site plans propose two alternate site plans, including varying configurations of stormwater tie-in locations. All proposed site plans and alternates show site runoff from the disturbed and reconstructed impervious surface being conveyed to the UGSWMF and discharging to the City of Edina storm sewer system along West 73<sup>rd</sup> Street.

In order to meet the rate control criteria listed in Rule 4.3.1b, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. Proposed activities do not increase impervious surface at the site and pre-development drainage patterns will be maintained in post-development conditions. Once the permeable pavers are in-place and function as designed, discharge rates will be further reduced as a result of the 4.2% reduction in site impervious area (4,960 square feet). Therefore, rate control is achieved with the reduction in on-site impervious surface, as stormwater runoff rates are reduced. In addition, the UGSWMF will attenuate surface runoff, further reducing discharge rates. Rule 4.3.1b is met.

The District's water quality criteria requires 60% annual removal efficiency for phosphorus and 90% annual removal efficiency for total suspended solids. The results from the MIDS Calculator provided shows the UGSWMF will provide an annual removal efficiency of 66% for total phosphorus (0.69 lbs.) and 90% for total suspended solids (172 lbs.). We are in agreement with the modeling results. Rule 4.3.1c is met.

As previously stated, the applicant has requested that the site be considered restricted under subsection 4.3.2 of the NMCWD rules, resulting from site constraints including high groundwater, site soils with low permeability, topography and limited green space. We have reviewed findings from the geotechnical evaluation and site plans, and concur that infiltration is

precluded on the site as a result of high groundwater conditions and the site is restricted. Retention of runoff onsite to the maximum extent practicable is zero.

The Braun Intertec Geotechnical Evaluation Report dated May 5, 2020 indicates five (5) borings were completed onsite to depths ranging from approximately 817 M.S.L. to 823 M.S.L. Groundwater was encountered in four of the five soil borings at elevations ranging from 819 M.S.L. to 823 M.S.L. Soil classification from the borings indicate approximately 1 to 3 feet of fill underlain by sandy lean clays (CL), poorly graded sand with silt (SP-SM), clayey sands (SC), and peat (PT). The engineer concurs with the soil boring analysis identifying high groundwater elevations and site soil textures associated with poor infiltration capacities.

For compliance with NMCWD Rule 4.3.1a, the applicant considered a combination of onsite best management practices, including alternatives to infiltration such as reuse and relocation of project elements to address varying soil conditions and other site constraints. The applicant provided technical documentation of site constraints limiting retention of runoff, including grading plans identifying topography constraints, soil boring analysis identifying high groundwater and soils with poor infiltration capacities, and existing site conditions with limited green space. The applicant considered various UGSWMF locations for volume retention below the disturbed and reconstructed impervious surface. UGSWMF locations were not evaluated along the western and northern portions of the site where proposed activities include mill and overlayment, as full depth reconstruction is not proposed at these locations. SB-4 and SB-5 taken near the location of the proposed stormwater management facilities identify groundwater approximately four (4) and seven (7) feet below the ground surface, respectively. Given the physical limitations of the presence of high groundwater and identification of clayey soils with low permeability, three (3) feet of separation between the bottom of an infiltration system and groundwater would not be feasible along the eastern side of the building.

The applicant considered the green space along the southern side of the building. Supplemental geotechnical evaluation was performed by Braun Intertec on July 10, 2020, which identified groundwater at a depth of approximately five (5) feet below the ground surface, the same elevation as with the other borings. Soil classification from the boring identified sandy lean clay (SL). As a result of high groundwater at the green space, identification of clayey soils with low permeability and existing topography constraints, the green space is not a practical or viable option for infiltration.

Other forms of volume retention practices, such as reuse or collection and transporting stormwater runoff off-site, are not practical or viable options because of the volume of stormwater generated from the 79% impermeable lot coverage and lack of green space for reuse. Under District Rule 4.3.2, Restricted Sites, retention to the standard in paragraph 4.3.1a is not practicably feasible, and site conditions (as described above) as such that 0.55 inches of retention is not feasible and indeed retention to the maximum extent practicable is 0, because of the high groundwater conditions. The applicant provides rate control and water quality treatment in accordance with paragraphs 4.3.1b and 4.3.1c, respectively, and the project conforms to Rule 4.3.2b.

Rule 4.3.3 states that a stormwater management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.3. The volume of runoff generated from the 17,981 square feet of disturbed and reconstructed impervious area for the 100-year frequency storm event will be

detained in the 19-inches of clean stone beneath the permeable pavers. With this detention volume and the 4-inch subdrain system providing an outlet, this detention will remain below ground not having an impact on the 831.03 M.S.L. low floor elevation and low opening of the building. The surface overflow from the paver system, should it occur, is located at the subdrain outlet, which ties into the proposed manhole with a rim elevation at 827.3 M.S.L., 3.7 feet lower than the building low floor elevation.

At least two (2) feet of separation was provided between the constructed building low floor elevation and the 100-year frequency flood elevation of Nine Mile Creek at the time of construction. In relation to the updated District Atlas 14 100-year frequency elevations, the two (2) feet of separation between the existing building low floor elevation and the District's Atlas 14 100-year frequency floodplain elevation is not provided. However, no new or reconstructed buildings are proposed. Therefore, NMCWD Rule 4.3.3 subsections a, b and c do not apply to the project.

The project conforms to NMCWD Rule 4.3.3.

In accordance with Rule 4.3.1a (i), where infiltration facilities, practices or systems are proposed, pretreatment of runoff must be provided. Pretreatment for runoff entering the underground filtration system will be provided by geotextile fabric around the top, bottom and sides of the rock layer surrounding the perforated subdrains. Rule 4.3.1a (i) is met.

In accordance with Rule 4.3.4, a post-project chloride management plan must be provided that will, 1) designate an individual authorized to implement the chloride-use plan and 2) designate a MPCA certified salt applicator engaged in the implementation of the chloride-use plan for the site.

# 5.0 Erosion and Sediment Control

The requirements of Rule 5.0 - Erosion and Sediment Control are applicable to the project since land-disturbing activities will involve excavation of more than 50 cubic yards of material and will disturb 5,000 square feet of more of surface area or vegetation, Rules 5.2.1a and b. Erosion control measures include silt fence, a stabilized rock construction entrance and storm drain inlet protection. Permanent stabilization methods include sodding. The project contact is Emily Riihl, ISG, Inc.

# 11.0 Fees

Fees for the project are: Rules 2.0, 4.0 and 5.0

\$2,250

# 12.0 Financial Assurances

Financial Assurances for the project are:

Rule 4: Stormwater Management Filtration Facility:	\$103,630 <sup>1</sup>
Chloride Management:	\$5,000
Rule 5: Perimeter control: 615 L.F. x \$2.50/L.F.= \$1,538	
Inlet Control: 5 x \$100/each = \$500	
Site restoration: 2.8 acres x \$2,500/acre = \$7,000	\$9,038
Contingency and Administration	\$48,432

### **Findings**

- 1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
- 2. Rules 2, 4, and 5 are met.
- 3. The findings concur with the applicant that the project meets restricted site criteria, Rule 4.3.2. Volume retention is not feasible for the site as a result of high groundwater conditions and site soils with low permeability, and retention to the maximum extent practicable is zero.
- 4. In addition to the reduction in impervious area, the proposed stormwater management facility will provide rate control and water quality management in accordance with Rules 4.3.1b and 4.3.1c, respectively. In accordance with NMCWD Rule 4.3.5, the applicant must provide a maintenance and inspection plan that identifies and protects the design, capacity and functionality of the stormwater management facility.

### **Recommendation**

Approval, contingent upon:

- 1. General Conditions
- 2. Financial Assurance in the amount of \$166,100, \$161,100 for stormwater management, erosion control and site restoration, and \$5,000 for compliance with the chloride management requirements.
- 3. Submission of documentation that a drainage easement over the stormwater-management facility has been submitted to the City of Edina (4.5.4i), if such easement is required by the City.
- 4. Per Rule 4.3.5, a receipt showing recordation of a maintenance declaration for the on-site stormwater management facility. A draft of the declaration must be approved by the District prior to recordation.
- 5. Per Rule 4.5.3c, site plans identifying the District's Atlas 14 100-year frequency floodplain elevation for Nine Mile Creek on the site, elevation 829.5 M.S.L.

<sup>&</sup>lt;sup>1</sup> A cost of \$82,904 was provided by ISG, Inc. for the stormwater management facility. In accordance with Schedule B-Financial Assurance Rates, a cost of \$103,630,125% of the construction and maintenance costs, is shown.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

- 1. Per Rule 4.5.8, an as-built drawing of the stormwater management facility conforming to the design specifications.
- 2. Per Rule 4.5.6, an as-built drawing of the floodplain mitigation areas conforming to the design specifications as approved by the District.
- 3. Submission of a plan for post-project management of Chloride use on the site. The plan must include 1) the designation of an individual authorized to implement the chloride use plan and 2) the designation of a Minnesota Pollution Control Agency certified salt applicator engaged in the implementation of the chloride-use plan for the site. The release of the \$5,000 of the financial assurance required for the chloride-management plan requires that chloride-management plan has been provided and approved by the District's Administrator.
- 4. For the release of the \$161,100 financial assurance required, Rule 12.4.1b requires demonstration and confirmation that the stormwater management facility has been constructed or installed and is functioning as designed and permitted.

### Board Action

It was moved by Manager \_\_\_\_\_\_, seconded by Manager \_\_\_\_\_\_ to approve permit application No. 2020-67 with the conditions recommended by staff.



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**EXISTING PAVEMENT AREA** 



NOTES