# Internal Memorandum

DATE: June 30, 2015

TO: Mark Bishop, Don Demers

FROM: Earth Evans, Brady Busselman

SUBJECT: Local and State Governing Agency Stormwater Requirements Summary

The following memorandum provides a brief summary of:

- local and state governing agency stormwater requirements
- proposed SWLRT best management practice (BMP) toolbox and sequencing for compliance with these requirements

This memo is specific to agency stormwater quality and quantity requirements for temporary and permanent impacts. Wetland, floodplain and other water resources related topics are discussed in separate memos.

**Summary of Local and State Governing Agency Stormwater Requirements**

The local governing agencies with stormwater requirements are:

- City stakeholders (Minneapolis, St. Louis Park, Hopkins, Minnetonka and Eden Prairie)
- Nine Mile Creek Watershed District (NMCWD)
- Bassett Creek Watershed Management Commission (BCWMC)
- Riley Purgatory Bluff Creek Watershed District (RPBCWD)
- Minnehaha Creek Watershed District (MCWD)

The Mississippi Watershed Management Organization (MWMO) and BCWMC both have requirements but the City of Minneapolis retains permit authority.

State governing agencies with stormwater requirements are:

- Minnesota Department of Natural Resources (DNR)
- Minnesota Pollution Control Agency (MPCA)
- Minnesota Buildings, Benchmarks and Beyond (B3)

The Minnesota Department of Transportation (MnDOT) has hydraulic requirements; however they are more specific to bridge drainage and storm sewer design, not water quality BMPs.

There is significant overlap and the attached matrix summarizes the requirements of each of these agencies for rate control, volume control and water quality.

Additionally, RPBCWD, NMCWD, BCWMC and MCWD has linear project versus redevelopment stormwater requirements. These requirements are listed in the attached table. Three of these agencies have indicated that their redevelopment requirements must be applied to Park and Ride structures and parking lots, and the operations and maintenance facility (OMF). BCWMC has indicated that the entire project will be viewed as a linear project. Traction power substation (TPSS) classification as linear or redevelopment varies by jurisdiction. Watershed District staff have indicated that a variance is required if redevelopment rules cannot be met on-site. Linear project requirements are applied to trails, roads, stations and the proposed light rail track.

B3 is specifically required for projects with state funding and applies only to buildings. These requirements have been interpreted to be required for the proposed OMF building and park and ride structures.

**Implementation on SWLRT**

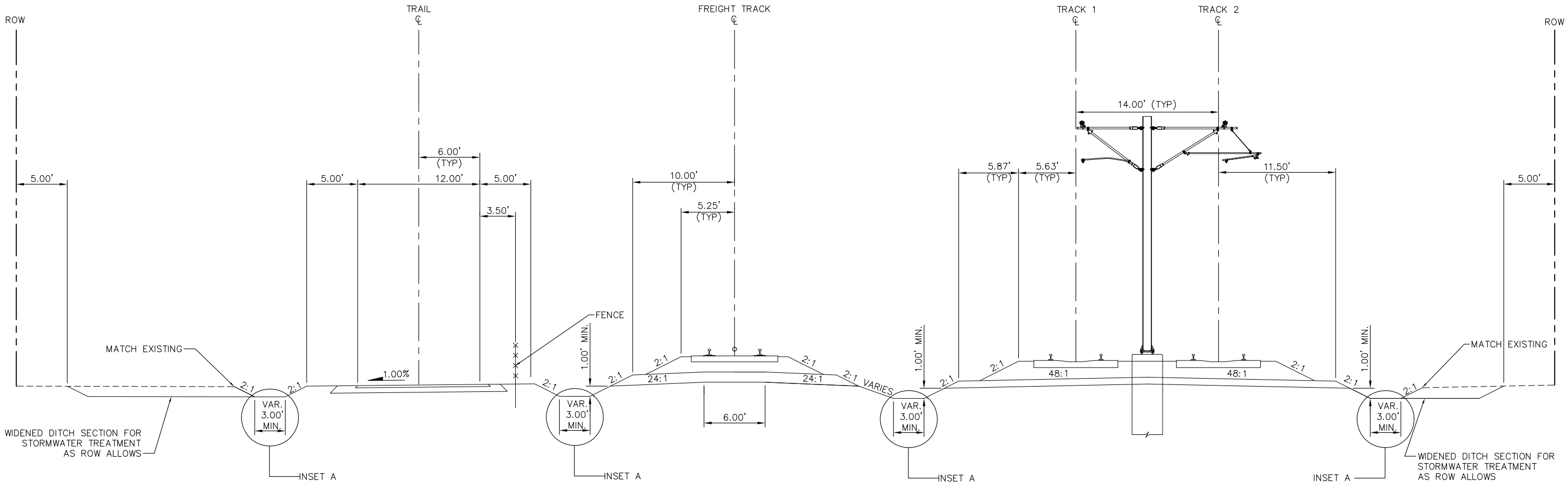
The agency requirements are all triggered by construction of impervious surfaces. The impervious constructed with the project includes: LRT track, freight track, roads, park and rides, and stations. Additionally there are both permanent and temporary (construction related) stormwater management requirements.

<u>Permanent Stormwater Management Sequencing</u>
The agencies have all expressed a preference for infiltration BMPs. The primary project infiltration BMP is the proposed track ditch. The attached typical cross section illustrates how infiltration will be accomplished within the ditch. The cross section includes three feet of engineered medium and ditch checks are necessary to promote infiltration. Siting of infiltration BMPs is dependent on space and the ability to route proposed runoff to the BMP. Infiltration basins are also incorporated into the design where feasible.

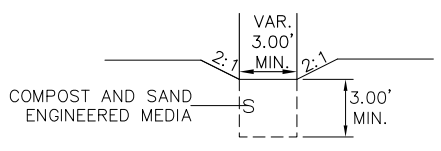
However, infiltration is not always feasible within the corridor. The agency requirements list alternative compliance sequencing when infiltration is precluded. On example of when infiltration is not feasible is contamination. Preliminary Phase II Environmental Site Assessment results indicate soil and groundwater contamination within the corridor. The MPCA precludes infiltration when it may cause the migration of existing contamination. In these locations, a combination of bioretention, wet ponds and filtration are incorporated into the design. The track typical section is modified to provide filtration with the incorporation of draintile. The SWLRT is also pursuing oversizing infiltration within the corridor as another method to address locations where infiltration is precluded.

<u>Temporary Stormwater Management</u>
As a primarily linear project, temporary erosion and sediment control BMPs used for the project focus on perimeter controls, including silt fence, floating silt curtain, vegetative buffers, filter logs, temporary culvert and storm sewer inlet protection, temporary seeding and erosion control blankets. A toolbox of options are available for water quality treatment of temporary dewatering dependent on the quality of the water and regulatory requirements, including filter bags, portable sediment tanks and temporary sedimentation basins.

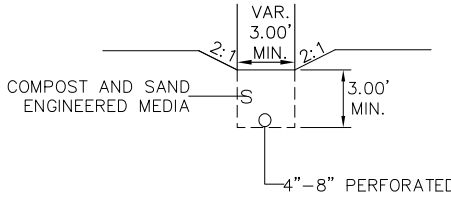
Attachments:
Track Typical Section
Agency Requirement Summary




TYPICAL SECTION (NO SCALE)




INSET A (NO SCALE) INFILTRATION TYPICAL SECTION OPTION




NOTE:
TRAIL MAY BE ON EITHER SIDE OF FREIGHT AND LIGHT RAIL.

INSET A (NO SCALE) FILTRATION TYPICAL SECTION OPTION

**DRAFT-WORK IN PROCESS**

SOUTHWEST Green Line LRT Extension

# STORMWATER TREATMENT TYPICAL SECTION

06/30/2015

NORTH

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SCALE

METROPOLITAN COUNCIL

| | Rate Control | Volume Control | Water Quality Control | Permitting Authority | URL |
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| **Bassett Creek Watershed Management Commission**<br><br>**(2015 DRAFT PLAN)** | "The BCWMC requires cities to manage stormwater runoff so that future peak flow rates leaving development and redevelopment sites are equal to or less than existing rates for the 2-year, 10-year, and 100-year events."<br><br>§4.2.2-31<br>p.4-6 | "The BCWMC requires the retention of on-site runoff from development and redevelopment projects consistent with the MPCA's Minimal Impact Design Standards (MIDS) performance goals. These include the retention of: 1.1 inches of runoff from impervious areas for new development creating more than 1 acre of new impervious area, 1.1 inches of runoff from new or fully reconstructed impervious areas for redevelopment creating one or more acres of new or fully redeveloped impervious area, 0.55 inches of runoff from new or fully reconstructed impervious areas for linear projects creating one or more acres of new or fully redeveloped impervious area (or 1.1 inches from the net increase in impervious area, whichever is greater)."<br><br>§4.2.2-32<br>p. 4-6 | "The BCWMC requires all stormwater to be treated in accordance with the MPCA's Minimal Impact Design Standards (MIDS) performance goal for new development, redevelopment, and linear projects. If the MIDS performance goal is not feasible and/or is not allowed for a proposed project, then the project proposer must implement the MIDS flexible treatment options, as shown in the MIDS Design Sequence Flow Chart."<br><br>§4.2.1-12<br>p. 4-4 | " Each member city is responsible for incorporating the BCWMC's requirements into its official controls and implementing BCWMC policies at the time of development and redevelopment....Member cities shall permit only those projects that conform to the policies and standards of the BCWMC. The BCWMC will review developer's submittals and other proposed projects only after the applicant demonstrates that the project has received preliminary approval from the member city, indicating compliance with the city's local water management plan. Once the proposed project has received preliminary approval from the city, the BCWMC Application Form shall be signed by city staff and submitted to the BCWMC for its review. The signed application form authorizes the BCWMC or its staff to commence its review. Following BCWMC review, the BCWMC or its staff will send a letter of approval or disapproval to each member city, stating that the proposed project meets the requirements of the BCWMC Plan or stating how the proposed project does not meet BCWMC requirements. Member cities shall not issue construction permits, or other approvals, until the BCWMC has approved the project "<br><br>§5.1.2<br>p. 5-7 | http://www.bassettcreekwmo.org/NextGenerationPlan2015/2015DraftPlan-for-60DayCommentPeriod/BCWMC%202015%20Draft%20Plan_60day.pdf |
| **B3** | "Control the rate of runoff from the post-development site to match the runoff rates for the native soil and vegetation conditions for the 2-year and 10-year, 24-hour design storms."<br><br>S.2 Stormwater Management | "Prohibit discharge from the site for 1.1 inches of runoff from all new or redeveloped impervious (non-vegetated) areas."<br><br>S.2 Stormwater Management | "Provide treatment systems designed to remove 80% of the post-development Total Suspended Solids (TSS). Provide treatment systems designed to remove 60% of the post-development Total Phosphorus (TP)."<br><br>S.2 Stormwater Management | No. | http://www.b3mn.org/guidelines/s_2.html |

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| **City of Hopkins** | "The two-year, ten-year, and 100-year storm peak discharge rates existing before the proposed development shall not be increased"<br><br>§546.06, Subd. 7 (a) | City of Hopkins Code makes no reference to a required onsite retention volume. | City of Hopkins Code makes no reference to water quality requirements for stormwater. | "Every application for a conditional use permit that involves construction of a building subdivision approval or a permit to allow land disturbing activities must submit a stormwater management plan to the planning department. No conditional use permit subdivision approval or permit to allow land disturbing activities shall be issued until approval of the stormwater management plan or a waiver of the approval requirement has been obtained in strict conformance with the provision of this ordinance. The provisions of section 546.07 of this ordinance apply to alll and public or private located within the City of Hopkins." Exemptions listed in Subd. 2.<br><br>§546.02, Sudb. 1 | http://www.hopkinsmn.com/weblink8/Browse.aspx?login=1&dbid=1&startid=3083 |
| **City of St. Louis Park** | "The city requires that discharge from a site cannot increase from the existing rate. In addition, discharge from the site resulting from the 100-year storm event must be held on site and released no greater than the 10-year storm event rate."<br><br>§5.8.1.1<br>p. 5-17 - 5-18 | "The city requires new development and redevelopment to apply best management practices to reduce the volume of stormwater runoff to the maximum practical extent. "<br><br>§5.8.1.1<br>p. 5-17 | "The city requires that redevelopment projects reduce phosphorus loading in stormwater runoff consistent with the current rules and requirements of the MCWD...This includes a 50% reduction in phosphorus loading for development sites that fall under the jurisdiction of the MCWD... "<br><br>§5.8.1.1<br>p.5-17 | "The City of St. Louis Park has deferred permitting authority within the MCWD watershed. For projects requiring a permit under the MCWD's rules, a permit must be obtained from the MCWD."<br><br>§5.8.2.2<br>p. 5-20<br><br>"The BCWMC does not issue formal permits. Instead, the member cities must implement the BCWMC's development policies.The BCWMC or its staff will send a letter of approval to each member city, stating the proposed project meets the requirements of the BCWMC plan, prior to the city issuing its construction permit or other approval.<br><br>§5.8.2.1<br>p. 5-19 | http://www.stlouispark.org/webfiles/file/public-works/st_louis_park_swmp_report_and_appendices_nov_2009.pdf |

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| **City of Minneapolis** | "Development should be planned in a manner that does not increase peak flows."<br><br>Chapter 54.73 v. | "To the greatest possible degree (except in the case of storm water hotspots), natural drainage ways and vegetated soil surfaces should be used to convey, store, filter, and retain storm water before discharging runoff into public waters or the public storm drain system. Opportunities for maximizing infiltration include minimizing the extent of impervious surfaces and directing runoff from impervious surfaces and from roof gutter systems onto lawns or other pervious surfaces."<br><br>Chapter 54.73 iv. | "The Chapter 54 ordinance specifies that stormwater management standards be set according to the receiving water body and are prescribed in the design manual."<br><br>Chapter 54.73 i.<br><br>Have not been able to locate the Design Manual online. Copies can be obtained from the Minneapolis Department of Public Works. | "All land-disturbing projects on sites in excess of one (1) acre, including phased or connected actions, shall be served by storm water facilities, on or off site or a combination thereof, designed to meet or exceed targets according to the type of receiving water body as prescribed in the design manual. Land use and building permits will not be issued until a Storm Water Management Plan has been approved."<br><br>Chapter 54.50 | http://www.minneapolismn.gov/www/groups/public/@publicworks/documents/webcontent/convert_253841.pdf |
| **Nine Mile Creek Watershed District** | "Limit peak runoff flow rates to that from existing conditions for the 2-, 10- and 100-year storm events for all points where stormwater<br>discharge leaves a parcel."<br><br>§4.3.1.b | "Provide for the retention onsite of one inch of runoff from all (net new or additional impervious for linear projects) impervious surface of the parcel; where below-ground infiltration facilities, practices or systems are proposed, pretreatment of runoff must be provided."<br><br>§4.3.1.a | "Provide for all runoff from the parcel from the 2.5-inch storm event to be treated, through onsite or offsite detention, to at least sixty percent (60%) annual removal efficiency for phosphorus, and at least ninety percent (90%) annual removal efficiency for total suspended solids. The onsite retention of runoff may be included in demonstrating compliance with the total suspended solids and phosphorus removal requirements."<br><br>§4.3.1.c | "Any person undertaking an activity for which a permit is required by these rules must obtain the required permit prior to commencing the activity that is regulated by the District. "<br><br>§1.1<br><br>"Linear projects. Notwithstanding section 4.2.3, a permit under this rule is not required for a linear project if the project entails construction or reconstruction, including mill and overlay or other maintenance, creating less than 1 acre of new or additional impervious surface. For linear projects creating more than 1 acre of new or additional impervious surface, the criteria of section 4.3 will apply only to the net new or additional impervious surface."<br><br>§4.2.4 | http://www.ninemilecreek.org/Regulatory/Reg.asp |

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| **Riley Purgatory Bluff Creek Watershed District** | "Limit peak runoff flow rates to that from existing conditions for the 2-, 10- and 100-year storm events for all points where stormwater<br>discharge leaves a parcel."<br><br>§5.3.1.a | "Provide for the retention onsite of 1.1 inch of runoff from impervious surface of the parcel; where below-ground infiltration facilities, practices or systems are proposed, pretreatment of runoff must be provided."<br><br>§5.3.1.b | "Provide for at least sixty percent (60%) annual removal efficiency for phosphorus, and at least ninety percent (90%) annual removal efficiency for total suspended solids. The onsite retention of runoff may be included in demonstrating compliance with the total suspended solids and phosphorus removal requirements."<br><br>§5.3.1.c | "Any person undertaking an activity for which a permit is required by these rules must obtain the required permit prior to commencing the activity that is regulated by the District. "<br><br>§1.1<br><br>"Linear projects. Notwithstanding section 2.3, a permit under this rule is not required for a linear project if the project entails less than 5,000 SF of new or reconstructed impervious. For linear projects greater than 5,000 SF, the criteria of subsection 3.2 will apply."<br><br>§5.2.4<br><br>"Redevelopment. If proposed activity will disturb more than 50% of the existing impervious or will increase impervious more than 50%, the criteria of section 3 will apply to the entire parcel. Otherwise the criteria of section 3 will apply to only the disturbed areas and additional impervious surface on the parcel."<br><br>§5.2.5 | http://www.rpbcwd.org/permits/ |
| **City of Eden Prairie** | Hold runoff rates to predevelopment condition rates. Predevelopment refers to the predominant land use from the land ten years.<br><br>§2008 LWMP, Section 7.0 | Encourage use of LID principles. Provide for the retention onsite of one inch of runoff from all impervious surfaces.<br><br>§Section 11.55, Subd 5 | Meet NURP Design Criteria<br><br>§Section 11.55, Subd 5 | Any activity which results in land alteration is required to have a Land Alteration Permit with exceptions as listed in City Code<br><br>§Section 11.55, Subd. 3 | |

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| **City of Minnetonka** | "Limit peak runoff flow rates to that from existing conditions for the 2-, 10- and 100-year storm events for all points where stormwater<br>discharge leaves a parcel."<br><br>§6.1.1 WRMP Appendix A | "Provide for the retention onsite of one inch of runoff from all impervious surfaces."<br><br>§6.1.1 WRMP Appendix A | "Provide for at least sixty percent (60%) annual removal efficiency for phosphorus, and at least ninety percent (90%) annual removal efficiency for total suspended solids." The onsite retention of runoff may be included in demonstrating compliance with the total suspended solids and phosphorus removal requirements.<br><br>§6.1.1 WRMP Appendix A | The City of Minnetonka requires the control of peak runoff flow rates and volume for: .<br><br>Land altering activities disturbing more than 50 CY.<br>Land altering activities disturbing more than 5000 sf.<br>Subdivision of parcel into 3 or more lots.<br>Development within 300 feet of Minnehaha, Nine Mile or Purgatory Creek<br><br>§6.1.1 WRMP Appendix A | |
| **Minnehaha Creek Watershed District** | "No net increase in the peak runoff rate for the 1-, 10- and 100-year design storms where stormwater discharges across the downgradient site boundary, compared to the rate for the site in its existing condition, " with exceptions. "Peak runoff rates for the 1-, 10- and 100-year design storms may not increase within a specific drainage area of the site so as to create or exacerbate drainage or erosion problems."<br><br>§3(b) | "The stormwater management plan must provide for the abstraction of the first one inch of rainfall from the site's impervious surface (code does not specify whether rule applies to only new impervious or all impervious surfaces). Credit toward compliance with the one inch volume control standard will be calculated by the applicant using industry accepted hydrologic models and Appendix A: Volume Abstraction Credit Schedule, following guidance provided in the Minnesota Pollution Control Agency's Minnesota Stormwater Manual."<br><br>§3(c)<br><br>Requirements may vary based on project size according to section 6. | "NEW DEVELOPMENT/LINEAR TRANSPORTATION PROJECTS: Activity subject to this rule for new development or linear transportation projects shall result in no net increase in phosphorus loading from existing conditions, except that: for a parcel in existing use for row crop agriculture or feedlot, new development shall result in no net increase in phosphorus loading from the site as modeled in meadow condition."<br><br>§3(a)(1)<br><br>"No new point source may discharge to a waterbody without pretreatment for sediment and nutrient removal. Pretreatment may be provided by non-structural means. An activity changing flow that discharges from an existing point source is not a new point source."<br><br>§8 | "No one may create new or replace existing impervious surface or change the contours of a parcel of land in a way that affects the direction, peak rate, volume, or water quality of runoff flows from the parcel or subdivide a parcel of one acre or more in size into three or more lots without first submitting a stormwater management plan to the District and securing a permit from the District approving the plan."<br><br>§2<br><br>(a) The construction of a new road, trail, sidewalk, utility, or other linear transportation project that will create 10,000 square feet or more of impervious surface must meet the phosphorus control requirements in accordance with subsection 3(a), rate control<br>requirements in accordance with subsection 3(b) and volume control requirements in accordance with subsection 3(c);<br><br>(b) Linear Reconstruction Projects that will increase the impervious area within the project limits by between 10,000 square feet and one acre from existing conditions must meet the phosphorus control requirements in accordance with subsection 3(a) and rate<br>control requirements in accordance with subsection 3(b) for the area of increased impervious surface;<br><br>(c) Linear Reconstruction Projects that will increase the impervious area within the project limits by one acre or more from existing conditions must meet the phosphorus control requirements in accordance with subsection 3(a), rate control requirements in | http://www.minnehahacreek.org/permits/regulatory-rules<br><br>Stormwater Management, Wetland Protection, and Floodplain Alteration Rules apply. |

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| **MPCA** | For wet sedimentation basins, "...The Permittee(s) must design basin outlets such that the water quality volume is discharged at no more than 5.66 cubic feet per second (cfs) per acre of surface area of the pond."<br><br>Part III.D.2.c | "Where a project's ultimate development replaces vegetation and/or other pervious surfaces with<br>one (1) or more acres of cumulative impervious surface, the Permittee(s) must design the project so that the water quality volume of one (1) inch of runoff from the new impervious surfaces created by the project is retained on site (i.e. infiltration or other volume reduction practices) and not discharged to a surface water."<br><br>Part III.D | If inflitration is determined to be infeasible or prohibited, the water quality volume of one inch over new imperviosu surfaces must be treated by some other means. | Permit required for land disturbance in excess of one acre. | http://www.pca.state.mn.us/index.php/view-document.html?gid=18984 |
| **MWMO** | For wet sedimentation basins, "...The Permittee(s) must design basin outlets such that the water quality volume is discharged at no more than 5.66 cubic feet per second (cfs) per acre of surface area of the pond."<br><br>Part III.D.2.c | "Where a project's ultimate development replaces vegetation and/or other pervious surfaces with<br>one (1) or more acres of cumulative impervious surface, the Permittee(s) must design the project so that the water quality volume of one (1) inch of runoff from the new impervious surfaces created by the project is retained on site (i.e. infiltration or other volume reduction practices) and not discharged to a surface water."<br><br>Part III.D | If infiltration is determined to be infeasible or prohibited, the water quality volume of one inch over new imperviosu surfaces must be treated by some other means. | | Permit required for land disturbance in excess of one acre. |