CITY OF EDMONDS

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PUBLIC WORKS DEPARTMENT

Engineering Division

Public Works Department **Engineering Division Policy**	**Number: ENGR-DEV(STM)-2011-02** **Effective Date: April 25, 2011** **Issue/Revision: 3/6/2023-Revision 1**
Subject: Requirements for the Design and Operation of Stormwater Pumping Systems for Private Development	**Approved:** DocuSigned by: 73665C5B1528485...

Purpose:

The purpose of this policy is to provide requirements for stormwater pumping systems that meet the City's stormwater management requirements.

Conditions:

Pump systems may be used for conveyance of stormwater flows within a project site if no other feasible option exists. If the Engineering Division of the Public Works Department approves the use of a pump system, it shall meet the following minimum requirements.

Requirements:

1. The reason(s) for using a stormwater pumping system instead of a gravity flow system must be detailed in the drainage report. Pumping should only be used after all possible gravity-flow options have been exhausted.
2. The pump system shall be used to convey water from one location or elevation to another within the project site, prior to gravity discharge to the public storm drainage system (point of compliance). Private force mains shall not be directly connected to the City's stormwater system. All force mains shall connect to a catch basin or manhole on private property and gravity flow to the City's storm system to an approved connection point.
3. The pump system must be located on private property and be privately owned, operated, and maintained.
4. Should the pump system fail to operate or the runoff exceed the design parameters, a safe overflow location shall be designed into and shown on the site plan such that the overflow does not cause any of the following: 1) flooding of a building or an emergency access route, 2) erosion or downstream sedimentation, or 3) slope failure.
5. The overflow location must be the natural discharge point for the project site when possible. A note on the approved plan shall stipulate that the private property owner(s) shall be responsible for any and all claims for injuries and damage due to the operation or non-operation of the pump system.
6. The pump system shall be designed by a currently licensed Civil Engineer in the state of Washington.

7. The Civil Engineer shall submit to the City for review in the drainage report information that includes a chart with both the pump curve(s) and the system curve for the full range of anticipated head loss and discharge rates. This will allow the City's reviewer to verify the operating point(s) for the pump system.
8. All installation work for the pump, electrical connections, and piping will require applicable building, electrical, and plumbing permits.
9. The design, construction, operation, and maintenance of the pump system shall not be used to circumvent any code, engineering standard, or permit condition, including, but not limited to, applicable building codes.
10. Design Standards:
    a. Project Sites Subject to Minimum Requirement (MR) No. 5 (On-site Stormwater Management) but not subject to the flow control performance standard in MR No. 7)[1]:

       If the applicant is using the list approach for complying with MR No.5, all other best management practices on the applicable list, prior to detention, must be shown to be infeasible using the criteria in the *Edmonds Stormwater Addendum.* The detention system must be designed by a licensed Civil Engineer (Washington) and shall include an overflow pipe. The pre-sized approach for detention systems described in the *Edmonds Stormwater Addendum* cannot be used.

       The pump system can be in a wet well downstream of the detention system's control structure or inside the detention system. In either case, the allowable discharge rate to the public stormwater system shall be the less than or equal to *0.25 cubic feet per second per acre of hard surface flowing to the pump system*. Orifices may be used to throttle pump discharges to meet flow control requirements.

       The storm drainage report should include modeling of the proposed pumping system by creating a stage-storge-discharge (SSD) table that is imported into the modeling to demonstrate compliance with the flow control standard at the point of compliance. The discharge through the overflow pipe should be included in the SSD table.

       Auditory and visual external alarms are required to indicate high water level and/or pump failure. Dual (alternating) pumps are highly recommended.

    b. Project Sites Subject to the Flow Control Performance Standard in Minimum Requirement No. 7 (Flow Control)[1]:

       The allowable discharge rates to the public stormwater system shall be the same as a gravity flow system that is designed to meet the MR No.7 flow control performance standard: *stormwater discharges shall match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow.* Orifices may be used to throttle pump discharges to meet flow control requirements.

       Detention will likely be required upstream of the pump system that shall include an overflow pipe. The pump system can be in a wet well downstream of the detention system's control structure or inside the detention system. Multiple pumps in the detention system will likely be required to meet the range of allowable discharges. Each pump shall

[1] See ECDC 18.30.060

have its own pressure line that discharges to the onsite catch basin or manhole, prior to gravity flow to the City's storm system.

In addition to the information required in item number 7 above, the storm drainage report should include modeling of the proposed pumping system by creating a stage-storge-discharge (SSD) table that is imported into the modeling to demonstrate compliance with the flow control standard. The discharge through the overflow pipe should be included in the SSD table.

Backup power able to start and run at least one pump. Auditory and visual external alarms are also required to indicate high water level and/or pump failure. The backup power shall be fueled by the owner(s) until the electrical grid power is restored.