

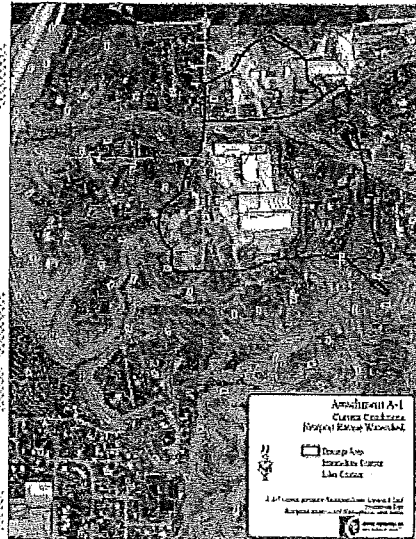
Newport Big Ravine Drainage Concerns

Project Work Scope

Introduction

The South Washington Watershed District has been working with the City of Newport during the past 2 years to structure a response to the drainage and flooding concerns that occur at the intersection of Ford Road and Hastings Ave in the City. The drainage area for this watershed consists of lands east of Sterling Ave, which comprise a large impervious area owned by Bailey Nurseries. This drainage area flows westward towards the intersection of Ford Road and Hastings Avenue down two drainage ravines behind the City's PublicWorks Building.

In the northerly ravine the City constructed a temporary holding pond in 1993 and elevated the dike in 2000. The berm was construct as a dike across the natural ravine using salvaged materials from a storm sewer project such as river rock, gravel, trench rock, sand and clay, and silty sands. During last years storm events this temporary pond was overtopped on 2 occassions, eroding the spillways and washing off 2-3 feet of the dike, these washouts were reoccurrences of the washout from the 100-year storm that occurred in 2005. The second drainage ravine was opened by erosion during the 2005 flood event, which eroded more more than 1000 Cuyds of sand washing debrejs down to the Ford Road/Hastings Avenue area.



Following the 2005 event the City increased the capacity drainage structures draining to the northerly pond in an attempt to relieve erosion in the southerly ravine, but there were two rainfall events in 2007, which over topped the drainage way to the northerly ravine causing further erosion in the southerly draw. The control of erosion in the southerly ravine is critical given that Washington County is in the process of constructing a 800 Mhz emergency services radio tower within 150' of the erosion site. Continued flow into the southerly ravine with continue the erosion eastwards towards the tower base.

The City of Newport is City continues to receive comments from residents, who were inundated by flood and silt during the 2005 flood event and by the major rains last summer, requesting that the City mitigate runoff from the ravine behind the public works garage. The City is considering several actions to address the flooding and erosion concerns.

The South Washington Watershed District has been working cooperatively with Newport to address the ongoing ravine erosion and runoff control. In 2007 we prepared a Repoprt entitled Newport Raviner Storm Water Analysis. We continue to work with Bailey's Nurseries to identify site to help mitigate the volume of runoof contributing to the City's "Big Ravine drainage problem, but these actions will not alone provide an answer to the City's immediate need to address property damage and flooding concerns.

It is appropriate that the South Washington Watershed District take the lead in providing a study that will provide direction to the City on how to best address their flooding and erosion concerns.

We see that the following work scope is required to provide a set of guidelines to address both long and short term issues in this watershed.

1. Identify rate and water quality control measures applicable to the "Big Ravine Watershed":

Watershed District Staff have in cooperation with the City of Newport will develop a roster of actions, which can be implemented in the watershed actions already discussed include;

- a) Diversion of a portion of the runoff from the North side of Bailey Road to the MnDOT storm sewer that flows west towards the new TH61/I494 interchange. MnDOT is evaluating the volume and rate of additional runoff, which can be accommodated in their storm sewer system. Preliminarily they have determined that this proposal has merit, but as yet the area or means by which the "diversion" is accomplished has not been evaluated.
- b) MnDOT owns a drainage easement across the property south of Sterling Avenue. It may be practical to utilize this easement to accommodate a major detention/treatment facility or use the easement for contributing flow to the "diversion" described above.
- c) Evaluate the structural integrity of the holding pond on the northerly ravine to determine if this facility should be raised or removed and reconstructed using appropriate fill and keyways.
- d) Evaluate means of routing drainage away from the southerly pond to protect the County's emergency radio tower from ongoing erosion.
- e) Continue to work with Bailey Nurseries and the City of Newport to develop a series of rain gardens and detention ponds to treat and control runoff from storms having a 1 - 2 year return frequency. In effect mitigating the ongoing erosion in the north ravine allowing the vegetation to re-establish and stabilize the drainage way.
- f) Evaluate the existing detention and treatment pond on the south end of the Bailey warehouse site to determine if this pond can be enlarged to operate as a regional detention and treatment pond relieving the peak runoff to the City property and ravines.
- g) Evaluate construction options available for armoring the drainage ways west of the City garage to control erosion and stabilize the ravines.

The work task shall include locating and identifying the applicable measures describing in general terms the areas, design parameters and costs required to further develop these and other applicable strategies.

2. Evaluate Rate Control Measures

Central to managing an acceptable rate of flow from the Bailey watershed over the bluff to the Ford Road – Hastings Avenue area is management of rate control. Identified above in Items a), b), c), e), and f) are opportunities to develop or enlarge existing or construct new retention and treatment facilities. Ponding for rate control and treatment of runoff from 1, 10 and 100 year storm events will be evaluated for the following sites.

- a) Ditch area SE corner Bailey Road /Sterling Ave
- b) Libby property west Sterling Avenue
- c) Existing impoundment north ravine
- d) Existing pond NW corner Sterling Ave/Garage driveway.
- e) Existing pond south end Bailey Parking area
- f) Rain garden sites as previously identified SWWD report.

The work task shall include collecting and plotting necessary topography to study means of collecting stormwater drainage, locating detention ponds, identifying additional land requirements and reviewing discharge routings.

3. Evaluate Berm Stability North Ravine Temporary Pond

To address the issue of whether the City of Hasting should repair the existing Temporary pond on the north ravine exploratory borings will be undertaken to provide information as to the stability of the existing berm and whether raising the berm to provide additional detention and treatment at this site is feasible or practical.

4. Evaluate Immediate Actions for North Ravine Pond

Develop and quantify options to immediately address the City's concerns regarding the functionality and stability of the temporary pond on the north ravine. Options shall include evaluating, the rate control outfall structure, replacing dike material eroded in last years washouts, providing means of erosion control to the spillway and pond discharge piping.

5. Coordinate Development of Ponding and Rain Gardens within the upper reaches of the Watershed

Assist SWWD and Newport staff coordinate meetings and provide input with neighboring property owners in the upper reaches of the ravine watershed.

6. Progress Reports

Provide 2 updates for SWWD managers and City of Newport council summarizing the progress and findings of the Study.

7. Final Report

Provide 10 copies of a final report describing the alternative means of rate control and erosion suppression evaluated. The report shall provide recommendations for implementation of management techniques and facilities development and shall identify a recommended timeline for short and long term actions.

8. Time for Completion of Report

The technical portions of the report shall be completed within 4 months of receiving direction to proceed.

9. Estimated Cost to Complete

The estimated cost (exclusive of SWWD staff time on Task 5 is estimated to be \$47,500.00