
Internal Memorandum

DATE: October 26, 2015
TO: Mark Bishop, Don Demers
FROM: Brady Busselman, Earth Evans
SUBJECT: Local Governing Agency Floodplain Requirements Summary

The following memorandum provides a brief summary of the impacts to SWLRT of the floodplain requirements of the local governing agencies. All of the agencies have adopted National Oceanic Atmospheric Administration (NOAA) Atlas 14 precipitation frequencies and have requirements for fill within the floodplain.

Summary of Local Floodplain Requirements

The local governing agencies with floodplain 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)

Each of these agencies and the Minnesota Department of Transportation (MnDOT) either has adopted or are in the process of adopting Atlas 14 precipitation frequency estimates. As a result, the 100-year, 24-hour rainfall event used for the project will increase from the TP-40 estimate, 5.9 inches, to 7.5 inches. During the Preliminary Engineering process the local agencies had not yet adopted Atlas 14 and had also not updated their hydrologic/hydraulic models to quantify the new floodplain elevation. Utilizing the Atlas 14 floodplain elevations has a significant impact on the floodplain elevations and design of the SWLRT.

MCWD has indicated that FEMA floodplain maps are to be used as the basis for implementing their floodplain rule. However, FEMA maps show the Kenilworth Lagoon outside of the 500-year floodplain. In this location, MCWD is requiring that the Atlas 14 100-year high water level elevation from the district's hydrologic/hydraulic model be utilized to evaluate floodplain impacts.

The floodplain requirements of the local agencies cover the following items:

- Freeboard to low structure varying from one to two feet depending on the agency
- No fill is allowed that will cause an increase in the 100-year stage

These requirements apply not just to Federal Emergency Management Agency (FEMA) designated floodplains, but also to wetland, regional pond, stormwater best management practices and other waterbodies.

Additionally, NMCWD and RPBCWD require compensatory storage at a ratio of 1:1 within +/- 1 foot of the floodplain impacts within the same waterbody.

The intent of this memo is to identify the approach used by SWLRT to comply with the floodplain requirements of the local agencies.

Implementation on SWLRT

The local agency requirements for freeboard apply strictly to buildings and therefore would only apply to the Park and Ride structures, Traction Power Substations (TPSS) and Operations and Maintenance Facility (OMF). The floor elevation of these structures will be set to meet the freeboard requirement of the applicable agency.

Proposed floodplain impacts are quantified in the table below. MCWD (at the Kenilworth Lagoon), NMCWD and RPBCWD hydrologic/hydraulic models were used to define the:

- Basins to include in the floodplain impacts
- normal water level
- high water level (100-year, 24-hour, 7.5-inch)
- pond identification number

Floodplain impacts were quantified by calculating the fill between the normal and high water level. Specific locations for providing the compensatory storage required by the local agencies are continuing to be refined. NMCWD and RPBCWD have indicated that a variance will be required if it is not feasible to provide 1:1 compensatory storage.

Table 1 - RPBCWD Summary Estimated Floodplain Impacts for FEIS

Wetland ID	Pond ID ¹	Floodplain Impacts	Floodplain Mitigation Provided	NWL	Atlas 14 HWL
	[-]	(CY)	(CY)		
Riley Purgatory Bluff Creek Watershed District (RPBCWD)					
EP-EP-24	Wetlands in SW Station	3100	492	820.43	826.08
EP-EP-22	SW Condos Wetland	90	493	826.86	831.21
EP-EP-18	Costco Pond	260	280	872.0	879.29

1) Pond ID within NMCWD corresponds with watershed ID. RPBCWD Pond ID based on location

Table 2 - NMCWD Summary Estimated Floodplain Impacts for FEIS

Wetland ID	Pond ID ¹	Floodplain Impacts	Floodplain Mitigation Provided	NWL	Atlas 14 HWL
	[-]	[CY]	[CY]		
Nine Mile Creek Watershed District (NMCWD)					
NM-EP-07	SL_14	96	(2)	858.6	861.3
NM-EP-06	SL_16	897	1409	858	859.7
NM-EP-08	SL_15	390		857	859.4
NM-EP-09	SL_37	10	12	860.8	861.3
DOT-EP-09	SL_34B	130	2533	869.8	879.7
MTA-MTA-06	582C_H	680	960	879.93	885.8
MTA-MTA-07	582C_I	280		878.8	883
MTA-MTA-11 (South)	520B_2A	174	175	890	895.1
MTA-MTA-11 (North & Middle)	520B_3	8	8	890.8	895.2
NM-HOP-13	RR_11	1141	1546	894	897.7
MTA-MTA-12	520A_2	41	86	898	900.84

1) Pond ID within NMCWD corresponds with watershed ID. RPBCWD Pond ID based on location

2) Floodplain mitigation to be provided in proposed BMP for Golden Triangle parking lot

Table 3 - MCWD Summary Estimated Floodplain Impacts for FEIS

Wetland ID	Pond ID ¹	Floodplain Impacts	Floodplain Mitigation Provided	NWL	Atlas 14 HWL
	[-]	(CY)	(CY)		
Minnehaha Creek Watershed District (MCWD)					
MC-MPL-13	Kenilworth Lagoon	-1.1 ¹	NA	852.03	854.81

1) Volume of existing timber piers to be removed exceeds volume of proposed piers