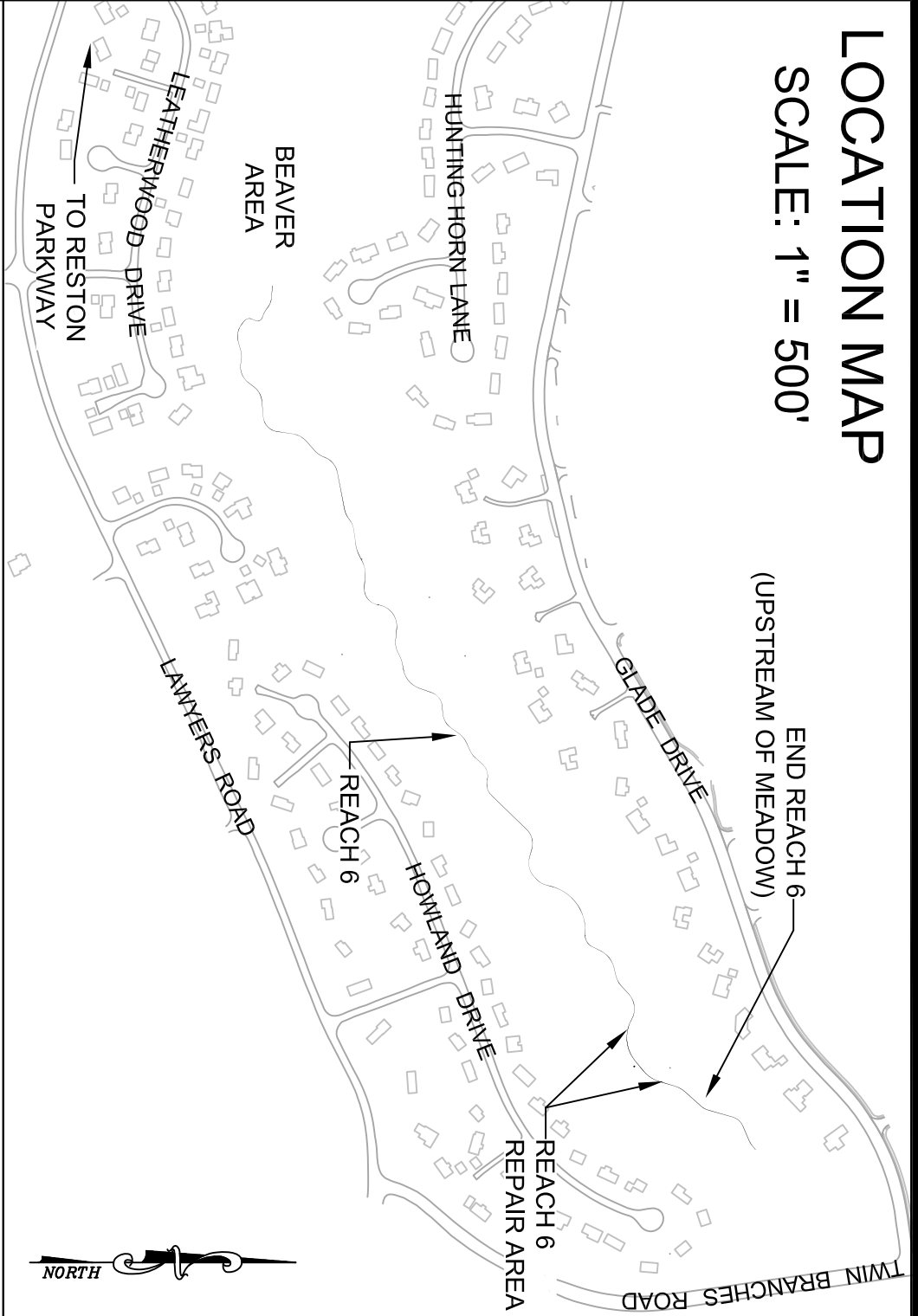


LOCATION MAP
SCALE: 1" = 500'

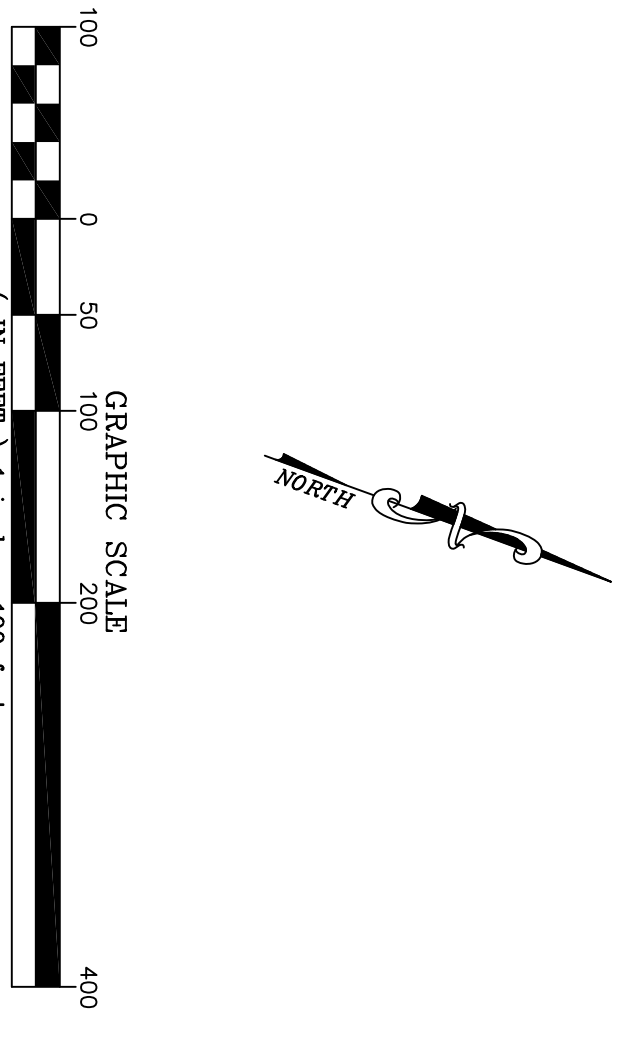
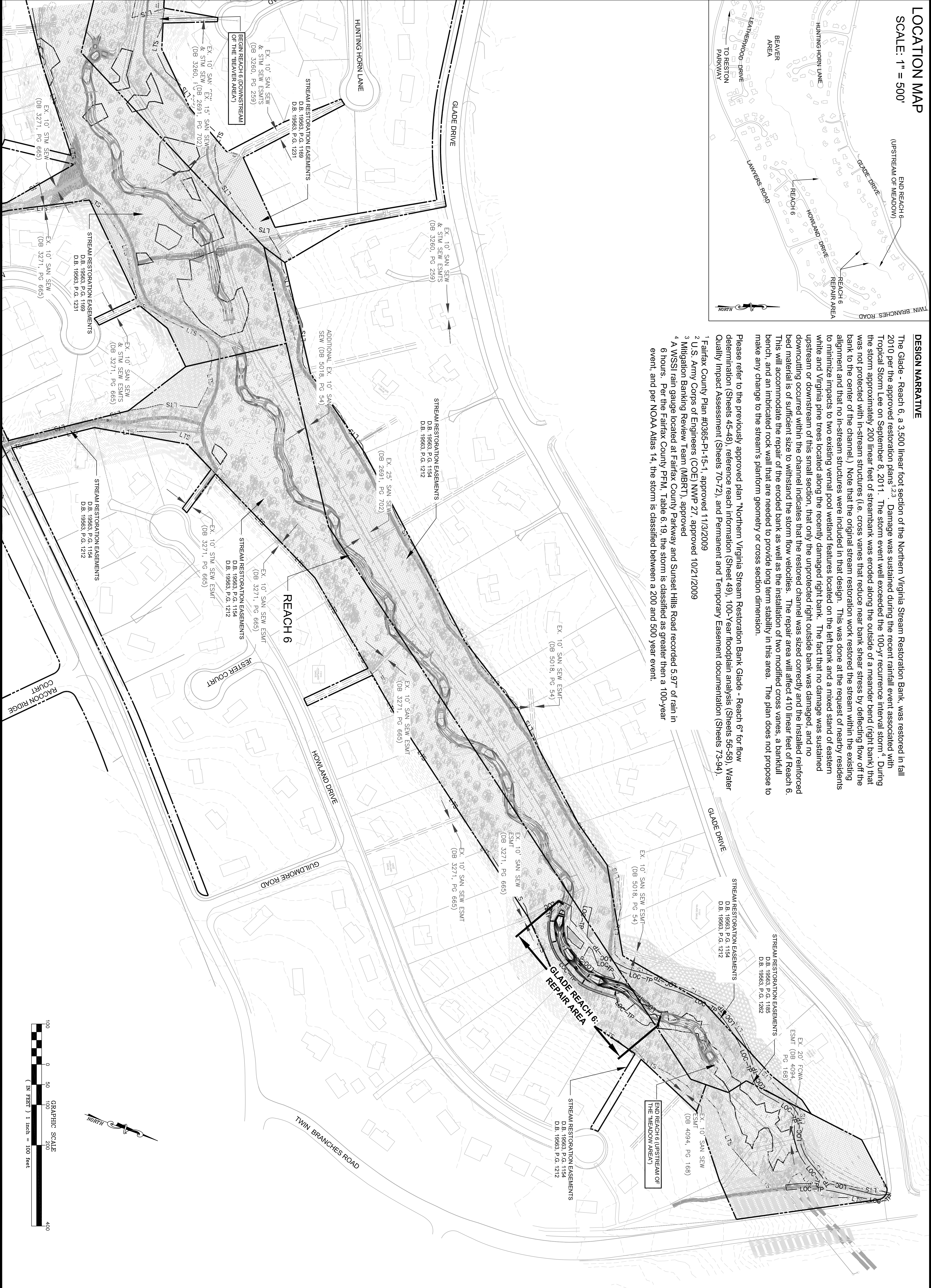


DESIGN NARRATIVE

The Glade - Reach 6, a 3,500 linear foot section of the Northern Virginia Stream Restoration Bank, was restored in fall 2010 per the approved restoration plans.^{2,3} Damage was sustained during the recent rainfall event associated with Tropical Storm Lee on September 8, 2011. The storm event well exceeded the 100-yr recurrence interval storm.⁴ During the storm approximately 200 linear feet of streambank was eroded along the outside of a meander bend (right bank) that was not protected with in-stream structures (i.e. cross vanes that reduce near bank shear stress by deflecting flow off the bank to the center of the channel). Note that the original stream restoration work restored the stream within the existing alignment and that no in-stream structures were included in that design. This was done at the request of nearby residents to minimize impacts to two existing vernal pool wetland features located on the left bank and a mixed stand of eastern white and Virginia pine trees located along the recently damaged right bank. The fact that no damage was sustained upstream or downstream of this small section, that only the unprotected right outside bank was damaged, and no downcutting occurred within the channel indicates that the restored channel was sized correctly and the installed reinforced bed material is of sufficient size to withstand the storm flow velocities. The repair area will affect 410 linear feet of Reach 6. This will accommodate the repair of the eroded bank as well as the installation of two modified cross vanes, a bankfill bench, and an imbricated rock wall that are needed to provide long term stability in this area. The plan does not propose to make any change to the stream's planform geometry or cross section dimension.

Please refer to the previously approved plan "Northern Virginia Stream Restoration Bank Glade - Reach 6" for flow determination (Sheets 45-48), reference reach information (Sheet 49), 100-Year floodplain analysis (Sheets 56-58), Water Quality Impact Assessment (Sheets 70-72), and Permanent and Temporary Easement documentation (Sheets 73-94).

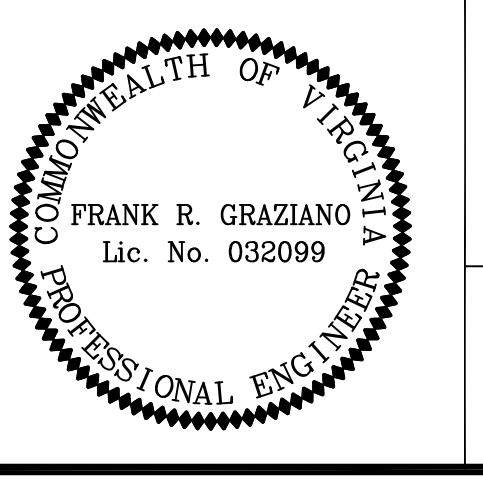
- 1 Fairfax County Plan #0365-P1-15-1, approved 11/13/2009
- 2 U.S. Army Corps of Engineers (COE) NWP 27, approved 10/21/2009
- 3 Mitigation Banking Review Team (MBRT), approved
- 4 A WSSI rain gauge located at Fairfax County Parkway and Sunset Hills Road recorded 5.97" of rain in 6 hours. Per the Fairfax County PFM, Table 6.19, the storm is classified as greater than a 100-year event, and per NOAA Atlas 14, the storm is classified between a 200 and 500 year event.



REVISIONS		Rev. By	App. By
No.	Date	Description	

Horizontal Datum: VCS NAD 83	Vertical Datum: NGVD 29
Boundary and Topo Source: WSSI and Fairfax Digital Data	
Design: SRP	Date: SRP
Design: SRP	Approved: FRG

DATE: OCTOBER 2011 SCALE: 1" = 100'



Northern Virginia Stream Restoration Bank
The Glade - Reach 6 Storm Repair
Fairfax County, Virginia

Design Narrative & Overall Site Exhibit

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