Year 1 Post-Construction Monitoring Report

for:

N. King Street / Brights Creek Area Stormwater Basin Retrofit

Hampton, Virginia

Prepared for:
The City of Hampton

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N. King Street / Brights Creek Area Stormwater Basin Retrofit Year 1 Post-Construction Monitoring Report

I. Background Summary

The N. King Street/Brights Creek Area Stormwater Basin Retrofit (N. King Street) project utilized funding issued by a grant from the National Fish and Wildlife Foundation (NFWF). This grant requires that monitoring be completed pre- and post-construction following protocols detailed in the *National Coastal Resilience Fund (NCRF) Monitoring* Document. Monitoring for the N. King Street Project followed the protocols and used the standard metrics detailed under the Floodplain Restoration Category. Wetlands were created within the stormwater basin.

The location of the project is depicted on **Exhibit 1**.

WSSI has utilized the NCRF monitoring document to develop site-specific monitoring protocols detailed in the Pre-Construction Monitoring Report.

II. Monitoring Methods & Findings

The following table was included in the NCRF Monitoring Document and summarizes the collected monitoring data recommended for Floodplain Restoration Projects. This has been updated to capture that the specifics of the current project. Based on this protocol Elevation and Biomass monitoring were completed for the current year 1 monitoring event.

Table 1:NCRF Floodplain Restoration Monitoring Requirements

Floodplain Restoration					
Metric (include units)	**Difference to Recommended Methods and Protocols**	**Spatial extent of metric monitoring**	**Baseline year**	**Frequency/ Timing**	**Data Limitations/ Considerations**
Percent Cover of biomass by species or cover type	Due to the small size of the project area 4 vegetation monitoring stations will be used.	At each quadrat	2020	Pre-Construction, 1- & 2-years post-construction	None
Elevation (cm)	Utilized GPS location and comparison to 90% plan sheets, Elevation in feet, extrapolated	At each quadrat	2020	Pre-Construction, 1- & 2-years post-construction	None
Water level	This parameter was not assessed for this project.				

Methods

WSSI revisited the four (4) vegetation monitoring stations previously established during the pre-construction monitoring event. The location of each monitoring station is shown on **Exhibit 2**. The plots are one square meter (1 m^2), and the center of each station was marked by a wooden survey stake.

The following data was collected at each plot location:

- Species of plants present
- Percent aerial coverage of plants
- Percent coverage of live oysters, mussels, and wrack (if present)
- Elevation
- Photographs

Each monitoring station was GPS-located by a Trimble GeoXt unit and staked in the field. Elevation data was collected from the project as-built survey for each monitoring station.

Results

Year 1 Post-Construction biomass monitoring was conducted August 23, 2021. WSSI re-visited the four (4) vegetation monitoring plots utilized in the Pre-Construction Monitoring effort.

Table 2 provides the biomass and elevation data for each of the monitoring plots. Photographs of each plot are included in Appendix A. Bivalves and wrack were absent in all plots. Table 3 provides the biomass and elevation data collected during the 2020 pre-construction monitoring effort last year.

Table 2: Year 1 Post-Construction Monitoring

Monitoring Station	Approximate Elevation (Feet)	Plant Species	Common Name	Percent Coverage (NCVS Value) *
1	1.1	*Schenoplectus pungens*	Three-square bullrush	50 (8)
2	1.1	*Schenoplectus pungens*	Three-square bullrush	70 (8)
3	1.3	*Schenoplectus pungens* *Cyperus pseudovegetus* *Juncus effusus*	Three-square bullrush Marsh flatsedge Common rush	40 (7) 30 (7) 10 (6)
4	1.2	*Schenoplectus pungens* *Cyperus pseudovegetus*	Three-square bullrush Marsh flatsedge	50 (8) 25 (7)

Table 3: Pre-Construction Monitoring

Monitoring Station	Approximate Elevation (Feet)	Plant Species	Common Name	Percent Coverage (NCVS Value) *
1	4.3	*Poa annua* *Digitaria ischaemum* *Elymus virginicus* *Trifolium repens* *Taraxacum officinale*	Annual bluegrass Smooth crabgrass Virginia wild rye White clover Common dandelion	40 (7) 25 (6) 10 (5) 10 (5) 5 (4)
2	5.0	*Digitaria ischaemum* *Desmodium canescens* *Trifolium repens* *Poa annua* *Ranunculus bulbosus* *Oxalis stricta*	Smooth crabgrass Hoary tick-trefoil White clover Annual bluegrass Bulbous buttercup Wood-sorrel	30 (7) 20 (6) 15 (6) 10 (6) 5 (4) 2 (3)
3	6.3	*Digitaria ischaemum* *Poa annua* *Oxalis stricta* *Elymus virginicus*	Smooth crabgrass Annual bluegrass Wood-sorrell Virginia wild rye	50 (8) 20 (6) 10 (5) 5 (4)
4	5.5	*Digitaria ischaemum* *Desmodium canescens* *Poa annua*	Smooth crabgrass Hoary tick-trefoil Annual bluegrass	40 (7) 30 (7) 20 (4)

*Percent Coverage is reported using the North Carolina Vegetation Survey (NCVS) categories required in the NCRF monitoring document defined in Table 4 below.

Table 4:

Cover Range	NCVS Category
Solitary/Few/Small	1
0.1-1%	2
1-2%	3
2-5%	4
5-10%	5
10-25%	6
25-50%	7
50-75%	8
75-95%	9

Discussion

Construction of the stormwater basin and wetland benches was completed in the winter of 2020 prior to the Year 1 Post-Construction monitoring effort.

All four monitoring stations are located on a wetland bench where bullrushes and other wetland vegetation has established and is thriving (Table 2). The elevation of all four monitoring stations decreased as anticipated as a result of construction and is now approximately 1' for all locations.

During the Pre-Construction monitoring effort, vegetation observed for all four stations was consistent with a maintained grass field (Table 3).

III. Conclusion

Wetlands have been established in the wetland bench as proposed, and ground elevations are in line with the project design plans. The project has resulted in enhanced stormwater retention and water quality improvements through the establishment of the stormwater basin and wetland vegetation at this lower elevation. The required monitoring data is provided above.

Year 2 Monitoring will take place in 2022 during the peak biomass season (July to August). The Year 1 Post-Construction monitoring data collected above will be used as a baseline for the Year 2 monitoring effort and summarized in the Year 2 Post-Construction Monitoring Report.

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Project Area

Vicinity
North King Street Stormwater Basin
WSSI #30409.03

NORTH
0 300
Feet
Original Scale:
1 " = 300 '

Source: Nearmap® - February 2021

Wetland Studies and Solutions, Inc.
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Exhibit 1

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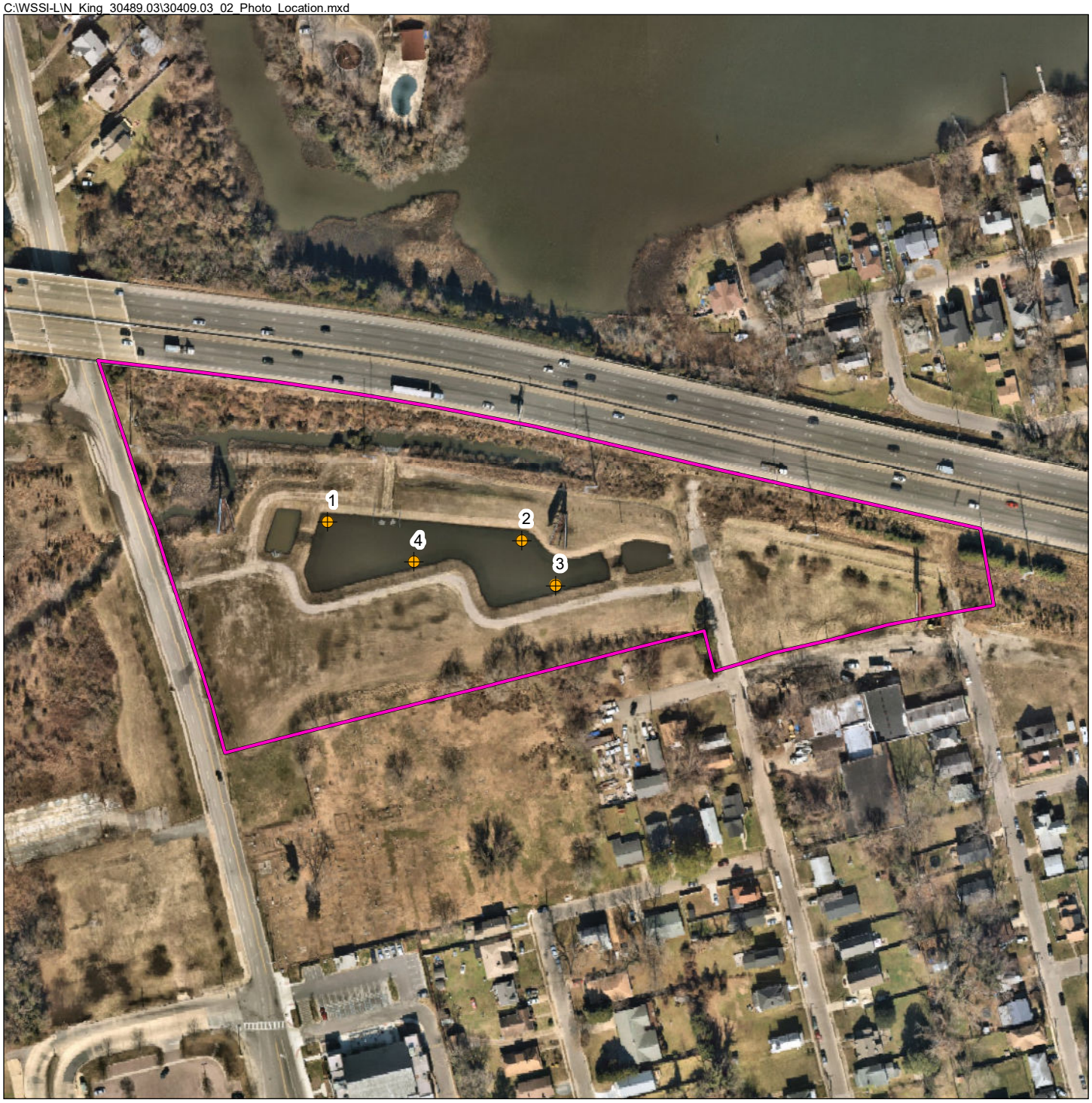

Project Area

Monitoring Station

Monitoring Stations
North King Street Stormwater Basin
WSSI #30409.03

NORTH
0 200
Feet
Original Scale:
1 " = 200 '

Source: Nearmap® - February 2021

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Exhibit 2

Appendix A
Monitoring Station Photographs

APPENDIX A
SITE PHOTOGRAPHS
N KING STREET YR1 POST CONSTURCTION MONITORING
WSSI #30409.03

1. **Monitoring Station 1 facing east.**

2. **Monitoring Station 1 facing south.**

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3. **Monitoring Station 2 facing west.**

4. **Monitoring Station 2 facing south.**

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5. Monitoring Station 3 facing south.

6. Monitoring Station 3 facing north.

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7. Monitoring Station 4 facing north.

8. Vegetation located at Monitoring Station 4.