



APPENDIX I: AGENCY MEETING MINUTES



DAY 1
RFP-1: INDIAN CREEK & TRIBUTARIES AT KONTERRA



Indian Creek and Tributaries at Konterra Wetland and Stream Mitigation Pre-Application - Meeting Minutes November 1, 2019

Date: November 1, 2019
Time: 9:00 AM – 3:00 PM
Location: 14401 Sweitzer Lane, Laurel, MD 20707

1. Attendees

Name	Company/Agency	Email	Phone
Troy Anderson	EIP	troy@ecosystempartners.com	608-212-6607
Susan Lindstrom	WSP	susan.lindstrom2@wsp.com	201-783-3600
Scott Petrey	WSSI	spetrey@wetlands.com	703-679-5653
Kelly Petrey	WSSI	kpetrey@wetlands.com	703-679-5658
Justin Reel	RK&K	jreel@rkk.com	410-468-9348
Karl Hellman	RK&K	khellman@rkk.com	410-462-9263
Maddy Sigrist	RK&K	msigrist@rkk.com	410-462-9125
Justin Bates	McCormick Taylor	Jhbates@mccormicktaylor.com	410-802-4850
Steve Hurt	McCormick Taylor	steve.hurt1@maryland.gov	410-336-1528
Mike Klebasko	WSSI	mklebasko@wetlands.com	410-672-5990
Collin Sumpter	Konterra	collin@aggmgt.com	443-835-7255
Jack Dinne	USACE	john.j.dinne@usace.army.mil	410-962-6005

2. Welcome and Project Purpose.

The meeting kicked off with attendees and project introductions. Maryland State Highway Administration (SHA) representative, Justin Reel, explained this proposed mitigation project will be one of many submitted as part of their draft Joint Permit Application (JPA) for the I-495 & I-270 Managed Lanes Study currently scheduled for a winter 2020 submission. This is the largest mitigation site currently proposed. Troy Anderson of Ecosystem Investment Partners (EIP) explained they have mitigation banks and performance-based projects nation-wide with over 11 miles of stream currently being restored in Cecil County. The Konterra mitigation project proposes over 27,000 linear feet of stream and 30 acres of wetland mitigation.

The goal of the pre-application site meeting was to walk portions of the proposed mitigation site that are representative of the entire mitigation package. Areas visited were Area 3 – Contee Dam, Area 2 – Indian Creek, the upstream portions of Area 4, Area 5, and Area 1 – Fashion Place as identified on the Overall Exhibit Map (attached). The site tour was led by Kelly Petrey, Wetland Studies and Solutions, Inc.'s (WSSI) project manager. Also included with the minutes are 11x17 aerial map exhibits of each area.

3. Site Visit #1 (Area 3 – Contee Dam)

First stop on the tour was at Contee Dam where approximately 30 acres of wetland mitigation and 4,000 linear feet of stream mitigation are proposed (refer Area 3 on Overall Map). The specific portions of this area that were visited included Contee Dam, the large cell upstream of the dam, the braided stream/wetland system downstream of the dam, and the southwest cell.

WSSI explained that this site contained former sand/gravel borrow pits, which later served as a depository for washings from excavated materials. The cells are comprised of poor quality, monotypic wetlands dominated by the invasive *Phragmites australis* and the surrounding buffer areas are dominated by upland pioneer/invasive species (i.e. black locust, bradford pear, porcelain berry, Japanese honeysuckle, poison ivy, blackberry, multiflora rose). WSSI is currently collecting existing condition data. From current data and review of historic information, groundwater varies 2 - 10' below surface and may perch after rain events. Drainage area is over 700 acres split between a culvert under the ICC (refer to Overall Map for locations). WSSI has taken both 12' and 3' hand-augured soil borings. Results show typically within cells there is a thin organic/silty sandy layer containing a vegetation mat and a deeper underlying soil layer comprised of very soft clayey silt with some gravel lenses. Drier portions of cells do have tight, dry clays.

Proposed wetland mitigation will be a surface driven, tiered palustrine forested wetland system with some emergent and open water areas. Hydraulic connection between existing cells will be established by breaches in the existing berms. Rock weirs may be installed to adaptively manage water level to create the desire wetland community as wetland system evolves. The wetland cell upstream of Contee Dam will also have an overbank flow component to tie in the stream from the culvert.

Maryland Department of the Environment (MDE) representative, Steve Hurt, inquired about proposed management of the widespread phragmites. WSSI confirmed control will be through a combination of chemical control and flooding is anticipated to take multiple years and would start prior to construction. EIP confirmed they have experience with successfully eradicating phragmites in similar large wetland systems.

Excavation of existing soil and addition of amendments is anticipated and will be described in the Phase II plan.

The degraded stream system located downstream will be restored using natural channel design including floodplain reconnection and re-establishing a stable plan, profile, and cross section. The Aitchesen Bog (a wetland of state concern) is located adjacent to this stream. WSSI scientists have identified potential bog areas at the toe of slope seeps. The stream restoration efforts will minimize any impacts to this area and may work to enhance/expand these areas.

4. Site Visit #2 (Area 2 – Indian Run)

Second stop was Area 2, specifically the only portion of the Indian Creek mainstem proposed for restoration. It is also the only FEMA-mapped floodplain associated with the mitigation sites. The existing stream has raw, vertical banks and is disconnected from the adjacent floodplain in many areas. Side channels within floodplain were also incised with similar vertical banks. Water in channel was elevated during the site visit as a result of rain the previous day. MDE representatives remarked that a culvert downstream is known to have log jams and cause backwater. The forest in this area was noted to be young with few to no specimen trees allowing additional flexibility for floodplain reconnection, re-establishment of stable planform, and construction access and staging.

WSSI explained the proposed restoration will be natural channel design priorities 1 or 2. Geomorphic structures will include both wood and rock and there will be in-stream habitat structures. Reinforced riffles will be used to provide additional stability and bedform diversity. A diverse mix of native riparian and stream side plants will be incorporated into the proposed design. Functional uplift is anticipated in Level 2 - Hydraulics, Level 3 - Geomorphology, Level 4 - Physiochemical, and limited uplift in Level 5 – Biology.

5. Site Visit #3 (Areas 4 and 5)

After lunch, the next stop included both Areas 4 and 5 with access from Konterra Drive. This stream network is typical of the headwater systems proposed for mitigation. As a former sand/gravel mine site, the geomorphic features are highly altered with channel relocated and straightened. The Area 4 stream system included in-line

dam and remnant ponds. Downstream of the existing berm was a series of headcuts migrating through the channel. The water in this area was opaque black. The forest was similar to the previous site with few to no specimen trees. Phragmites dominated the historic pond that has been filled in with eroded sediment from upstream. Depending on site hydrology, the headwater area (upstream of the large culvert/embankment) may support a wetland system or a wetland/stream.

The Area 5 stream system was straightened with a very small wetland/stream complex within 500' of Konterra Drive. The channel has been straightened within the non-forested area and altered by berms and in-line ponds in the forested area. The proposed buffer here is over 100' wide, which is typical of all the mitigation areas.

6. Site Visit #4 (Area 1 – Fashion Place)

The final stop was to Area 1 – Fashion Place, a proposed stream mitigation for the stream that runs parallel with Konterra Drive and flows through large culvert under Fashion Place. This is a small stream network that was previously straightened and altered. There is a stormwater pond and overhead utility line to the north. Proposed mitigation would tie into existing infrastructure while restoring floodplain connection, adding instream habitat features, and improving riparian buffer.

7. Additional Information

WSSI confirmed for this site that trilogy coordination with the Maryland Department of the Environment (DNR), US Fish and Wildlife Service (USFWS), and Maryland Historical Trust (MHT) has been initiated. DNR listed two endangered species low rough aster (*Eurybia radula*) and long-stalk greenbrier (*Smilax pseudochina*) in the northwest edge of Area 5 at the upstream portion of the restoration reach. During the meeting, it was confirmed both species were identified in the stream network north of ICC in Area 1. WSSI explained the conditions are likely not suitable for both species in the proposed restoration site in Area 5. DNR also identified the Aitcheson bog (piedmont seepage fen) in Area 3 downstream of Contee dam. Restoration is proposed within this area and continued coordination with DNR is anticipated. MHT confirmed there are no adverse effect on historic properties within the proposed restoration areas.

8. Conclusion

At the conclusion of the day, SHA representatives reviewed the overall project schedule, including additional site visits and anticipated submissions. MDE and USACE recommended DNR and USFWS be invited to future site visits. SHA explained they will submit the draft JPA in the winter of 2020, and that it will include all proposed private and public mitigation Phase I reports and will include extra mitigation to compensate for sites that may not be advanced.

It was also reiterated that the Indian Creek and Tributaries at Konterra Wetland and Stream Mitigation site will provide significant functional uplift to wetlands and stream, and that the site is in very close proximity to the proposed impacts.

Site visit concluded at 2:00 pm.

Exhibits provided:

Overall Project Map (8.5x11)
Project Map by Area (11x17)



DAY 2

AN-4: NORTHWEST BRANCH GLENALLEN AVE. TRIBUTARY

AN-5: NORTHWEST BRANCH LAMBERTON DR. TRIBUTARY

CA-5: SENECA CREEK TRIBUTARY

**I-495 & I-270 Managed Lanes Study
Mitigation Agency Field Review – Day 2
November 7, 2019 @ 9:00am**

Handouts:

Stream Site Vicinity Maps
AN-4 Phase I Mitigation Design Plan
AN-5 Phase I Mitigation Design Plan
CA-5 Phase I Mitigation Design Plan

A field review meeting was conducted on November 7, 2019 with representatives of several agencies and stakeholders including M-NCPPC, DNR, USFWS, USACE, and MDE to discuss potential stream mitigation sites located on M-NCPPC Montgomery County properties for the I-495 & I-270 Managed Lanes Study. A summary of the topics discussed at the meeting follows.

Introductions

All participants met at the Brookside Nature Center. The meeting began with introductions, followed by a general summary of the private and public mitigation process by Justin Reel. Mitigation opportunities were targeted within the three federal HUC-8 watersheds being impacted, including the Potomac-Anacostia-Occoquan, Middle Potomac-Catoctin, and Patuxent. The first step in pursuing mitigation began with identifying potential on-site mitigation for streams that would fully or partially retain their function and value following construction completion (i.e. channel relocations or channels to remain). Once on-site mitigation was determined, off-site mitigation was pursued by state and watershed, beginning with mitigation banking and in-lieu fee programs, and followed by permittee-responsible mitigation. A two-tiered approach was used to identify potential permittee-responsible mitigation that included a traditional mitigation site search on public lands and a Request for Proposals (RFP) on private lands. Public sites with the greatest mitigation potential that received preliminary approval from landowners and private sites that met MDOT SHA's financial, technical, and administrative qualifications were chosen as potential mitigation sites for the agency field review.

It was discussed that once the agencies gave their preliminary approval on sites, the group will need to rate each site based on more detailed parameters, such as geomorphology, hydrology, etc. Justin explained that the potential mitigation for the project exceeds the mitigation requirement by a site or two (and sometimes more) in each watershed, with the exception of wetland mitigation in the Patuxent. He estimated that the potential mitigation may be 30-50% over the total mitigation requirement. Justin explained that MDOT SHA's standard conservation easement language was provided to the RFP respondents. Steve Hurt (MDE) stressed that it will be important to discuss the language for certain sites that will require future stormwater management outfalls for surrounding developments.

Mitigation Opportunities

AN-4 – Glenallan Ave Tributary to Northwest Branch

Matt Drennan briefly introduced the site prior to the site walk. Matt explained that one of the main reasons that the site was considered for restoration was that it could provide educational opportunities to the Nature Center and the stream is largely protected by the surrounding park. M-NCPPC stated that they have a stream restoration project along the Glenallan Tributary, upstream of AN-4. The section of Northwest Branch downstream of the potential restoration site is Use IV and stocked with trout, which should not impact the viability of the restoration site but should be taken into consideration when developing the site design.

M-NCPPC also mentioned that if restoration were to occur, the preference would be for the restoration to extend upstream of the extents shown in the Phase I Design Plan to the confluence of the two tributaries, upstream of the entrance to the Brookside Nature Center parking lot. M-NCPPC stated that they were open to the idea of removing the in-stream pond control device and the possibility of altering the elevations of the bridges for the Nature Center access road.

The existing stream channel in the potential restoration site exhibits issues with bank erosion, geomorphic instability, overwidening, and fine sediment deposition. The channel and its floodplain are highly-confined by the adjacent Glenallan Avenue.

After concluding the site walk, the group was asked to make any final comments on the potential restoration site. Jack Dinne (USACE) stated that for the restoration to be successful, the design would have to provide floodplain access. Steve Hurt agreed that the site had potential, but the success of the restoration would depend on how much of a blank slate the property owner (M-NCPPC) would allow. The site has potential but would require forest impacts that may not be deemed acceptable by M-NCPPC. M-NCPPC stated that this is not a location where they would want to do a wholesale restoration project, because they would want to keep the forested feel of the park. M-NCPPC stated that the quality of the forest makes a wholesale project difficult to accept due to the required impacts to the adjacent resources. M-NCPPC stated that the goal should be to strike a balance between tree impacts and stream uplift.

M-NCPPC stated that they would like to wait to make a decision on the restoration site until they have seen the rest of the potential mitigation sites on M-NCPPC property. M-NCPPC proposed that a debriefing meeting be scheduled with the designers and M-NCPPC after all of the potential sites on M-NCPPC land have been reviewed, to discuss the proposed restoration techniques on each of the sites in more detail.

AN-5 – Lamberton Drive Tributary to Northwest Branch

The length of the potential mitigation site from Lovejoy Street downstream to the confluence of Northwest Branch was significantly reduced prior to the meeting due to the majority of the reach being listed as a high priority site on the USACE's Anacostia Watershed Restoration Program. M-NCPPC noted that the site was a DEP project more than 20 years ago. Most of the stream channel was heavily armored and banks without armor were experiencing localized scour. Steve Hurt expressed that there was limited potential for habitat enhancement and that the site has greater potential as a sediment control or TMDL project. M-NCPPC expressed interest in using the site to

create more capacity for stormwater storage and retention. Jack Dinne stated that the site should not be pursued unless the mitigation team was desperate.

CA-5 - Bradbury Dr. Tributary to Great Seneca Creek

Karl Hellmann gave a brief summary on the existing conditions of the CA-5 site. The original restoration reach extended downstream onto DNR property to the confluence with Great Seneca Creek, however this section was removed due to DNR's concerns with impacts to trees and the adjacent disc golf course. The stream consists of a deeply incised channel located in a narrow valley, with a small abandoned farm pond at the downstream end of the site. M-NCPPC stated that they supported the removal of the farm pond. MDE suggested using the abandoned farm pond to dispose of cut material for stream work and raise the pond bed to create a wetland. M-NCPPC would like the proposed design to lower the water level in the pond to create a wetland. M-NCPPC stated that the desire would be to remove part of the pond embankment near the existing outlet and leave the rest of the embankment to avoid tree impacts. It was proposed that depending on the depth of the pond, the most practical approach may be to lower the water level enough to create wetlands around the fringe and leave the deeper section open water. It was discussed that this might be achieved by extending the existing breach and adding a 20-foot opening on the upstream side of the pond. M-NCPPC suggested taking the restoration slightly upstream (~20-feet) of the pedestrian bridge to stabilize the bridge. Overall the agencies agreed that the site has potential for stream mitigation purposes.

Attendees:

Name	Agency	Email
Justin Reel	P3 / RK&K	jreel@rkk.com
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Matthew Drennan	P3 / CRI	matthewd@cri.biz
Sarah Norton	P3 / CRI	sarahn@cri.biz
Susan Lindstrom	P3 / WSP	Susan.lindstrom2@wsp.com
Ray Li	USFWS	ray_li@fws.gov
Jack Dinne	USACE	John.j.dinne@usace.army.mil
Steve Hurt	MDE	SHurt@mccormicktaylor.com
Gwen Gibson	DNR – MES	Gwendolyn.gibson@maryland.gov
Matthew Harper	M-NCPPC / Mo. County	Matthew.Harper@montgomerypark.org
Doug Stephens	M-NCPPC / Mo. County	Douglas.Stephens@montgomeryparks.org
Erin McArdle	M-NCPPC / Mo. County	Erin.McArdle@montgomerypark.org



DAY 3
AN-1: CRABBS BRANCH
AN-3: PEBBLESTONE DR. TRIBUTARY

**I-495 & I-270 Managed Lanes Study
Mitigation Agency Field Review – Day 3
November 8, 2019 @ 9:00am**

Handouts:

AN-1 Phase I Mitigation Design Plan & Site Vicinity Map
AN-3 Phase I Mitigation Design Plan & Site Vicinity Map

A field review meeting was conducted on November 8, 2019 with representatives of several agencies and stakeholders including M-NCPPC, USFWS, USACE, DNR and MDE to discuss potential stream mitigation sites located on M-NCPPC Montgomery County properties for the I-495 & I-270 Managed Lanes Study. A summary of the topics discussed at the meeting follows.

Introductions

All participants met at the Crabbs Branch site off Redland Road. The meeting began with introductions.

Mitigation Opportunities

AN-1 – Crabbs Branch, Tributary to Rock Creek

Karl Hellmann briefly summarized the existing conditions of the site, noting that the entire area surrounding the stream was agricultural fields in the 1950s, at which time the stream banks were bare. Karl explained that the site was recommended by M-NCPPC and includes a 7,700 linear foot of potential stream restoration, as well as wetland enhancement and wetland restoration areas. The stream is highly incised with tortuous meanders and severely eroded banks. The upper reach is surrounded by a mid-successional forest and there is an open, reed canary meadow in the lower reach. The restoration objectives would be to stabilize the stream bed and bank; improve floodplain connection; improve in-stream habitat; conduct invasive species control; and create and enhance wetlands.

The site originates just downstream of a large culvert under Redland Road that receives drainage from the Crabbs Branch Regional Stormwater Pond. It was apparent that some in-stream work was done previously in the upper forested reach and scattered tree planting were observed in the floodplain within the site. The upstream reach is accessible through a young riparian forest in the southern floodplain and the downstream reach is accessible through open meadows that connect to an HOA easement. The floodplain to the north of the upper reach consists of a mid-successional forest with several specimen trees that would be avoided during construction. There were several woodcock sightings in the upper forested reach during the site walk. Several shallow utility crossings were observed within the site that may pose a challenge to project. There are several exposed sewer lines and one exposed gas line at the downstream end of the lower reach that require attention. There is a high-quality seep wetland in the northwestern corner of the lower reach that would be avoided.

Steve Hurt (MDE) asked why a floodplain restoration design is not proposed in the lower reach, considering the majority of the floodplain is open meadow that would require minimal tree impacts. David Black responded that there were some concerns with the amount of material that would be

required to be transported off-site through the adjacent residential community. The site will be further investigated to determine the amount of material required for removal off-site or placed on site for a potential floodplain restoration design. There was discussion on the most effective way to remove the invasive reed canary grass and it was thought that a combination of herbicide, excavation, and shading with large tree plantings might be effective. M-NCPPC indicated that they would consider the possibility of careful application of herbicides to control invasive species in the floodplain. Matt Harper mentioned that the project would need to be mindful of where to plant trees in order to maintain open habitat for particular bird species.

David Black indicated that boring samples will be collected to determine whether the restored stream bed should be proposed at the gravel layer. The hydrology in the floodplain wetlands appears perched on top of a 3-foot clay layer above the gravel layer. The fine clay sediments likely washed into the floodplain from the surrounding landscape in the past when the area was predominantly used for agriculture. Installation of groundwater wells and a collection of geoprobe samples will be necessary to understand the valley hydrology. There is a distinct slope change between the valley slope and the channel slope. Top soil and organic matter would need to be placed on top of the clay in the proposed wetland restoration areas to successfully establish vegetation. Dry reed canary areas in the floodplain could be excavated to create new wetland areas.

The agencies agreed that the site had good potential for restoration. Ray Li noted that there is good connectivity to wildlife habitat below the site. Gwen Gibson suggested that it might be nice to have wet meadow in parts of the lower section of the site. Matt Harper indicated that the bird species that currently inhabit the area should be a design consideration and may limit the amount of trees that can be planted on the site.

AN-3 –Pebblestone Drive Tributary to Northwest Branch

Karl introduced AN-3, a stream restoration site located along an unnamed tributary to Northwest Branch, just east of Pebblestone Drive. The site was recommended by M-NCPPC and includes approximately 2,200 linear feet of potential stream restoration. The channel appears to have been straightened in some areas and is deeply incised, with severe bank erosion and extensive deposition bars. The forest surrounding the site is in poor condition with several dead green ash trees and extensive invasives in the herbaceous layer. A small section of the upstream reach is located within an HOA forest conservation easement. There is a 1-2 foot tall fish blockage at the upstream end of the site, just south of Bonifant Road. Just downstream of the site the channel reconnects to the Northwest Branch floodplain and transitions into a braided system surrounded by extensive PFO wetlands. There is a previous ICC stream restoration project (NW-4) within the same stream valley that runs parallel to the downstream section of the site. Matt mentioned that the land north of Bonifant Road is also parkland and this area may also be a good candidate for stream restoration. The group agreed to review this stream section as well following the AN-3 site walk.

Jason Coleman explained that the design would propose to lower the stream banks closer to the floodplain. Other restoration objectives would include bed and bank stabilization, instream and riparian habitat improvement, and a fish blockage removal at the culvert under Bonifant Road.

It was agreed that both sites have restoration potential, however the section upstream of AN-3 is more confined, with fewer design options. It was suggested that the upstream site could potentially

be considered for stormwater quality improvement and the downstream site for 404 mitigation. M-NCPPC stressed that if the project is working in this system, the upstream section should be analyzed as well. M-NCPPC would prefer to address both areas at once, rather than just the downstream section, but indicated that the forested character of the upstream section would have to remain intact. M-NCPPC was amenable to the idea of restoring the upstream reach for stormwater credit and said that there is excitement for stormwater work in the Anacostia Watershed.

Attendees:

Name	Agency	Email
Justin Reel	P3 / RK&K	jreel@rkk.com
Karl Hellmann	P3 / RK&K	khellmann@rkk.com
Maddy Sigrist	P3 / RK&K	msigrist@rkk.com
David Black	RK&K	dblack@rkk.com
Jason Coleman	RK&K	jcoleman@rkk.com
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Ray Li	USFWS	ray_li@fws.gov
Jack Dinne	USACE	John.j.dinne@usace.army.mil
Steve Hurt	MDE	SHurt@mccormicktaylor.com
Gwen Gibson	DNR – MES	Gwendolyn.gibson@maryland.gov
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Doug Stephens	M-NCPPC / Mo. County	Douglas.Stephens@montgomeryparks.org



DAY 4

CA-2: LOWER MAGRUDER BRANCH

CA-3: UPPER MAGRUDER BRANCH

CA-4: CABIN BRANCH

**I-495 & I-270 Managed Lanes Study
Mitigation Agency Field Review – Day 4
November 14, 2019 @ 9:00am**

Handouts:

CA-2 Phase I Mitigation Design Plan & Site Vicinity Map
CA-3 Phase I Mitigation Design Plan & Site Vicinity Map
CA-4 Phase I Mitigation Design Plan & Site Vicinity Map

A field review meeting was conducted on November 14, 2019 with representatives of several agencies and stakeholders including M-NCPPC, USFWS, USACE, EPA, DNR and MDE to discuss three potential stream mitigation sites located on M-NCPPC Montgomery County properties for the I-495 & I-270 Managed Lanes Study. A summary of the topics discussed at the meeting follows.

Introductions

All participants met at the M-NCPPC parking lot at the Magruder Branch trailhead at 23591 Log House Rd. Gaithersburg, MD 20872. The meeting began with introductions, followed by a general summary of the private and public mitigation process by Justin Reel. The group then consolidated into vehicles before driving to Sites CA-2 and CA-3.

Mitigation Opportunities

CA-3 – Upper Magruder Branch, Tributary to Great Seneca Creek

Karl Hellmann summarized the existing conditions of CA-2 and CA-3, which consist of combine stream/wetland restoration sites along Magruder Branch that are separated by Watkins Road. CA-2 was identified in MDOT SHA's database and CA-3 was added as a potential site during the windshield survey. CA-3 consists of approximately 1,000 linear feet of potential stream restoration, as well as wetland creation and enhancement areas. The stream is unstable with tortuous meanders and moderately eroded banks. The floodplain is dominated by invasive reed canary grass with scattered trees and PEM wetlands. There is a high-quality scrub-shrub wetland in the eastern floodplain, just north of Watkins Rd. The western floodplain is dominated by reed-canary grass and drains under Watkins Road through two 21-inch corrugated metal pipes and through a ditch that drains to Magruder Branch within the downstream CA-2 site. The restoration objectives include stabilizing the stream bed and bank, improving the floodplain connection and instream habitat, treating invasive species, reforesting the floodplain and creating and enhancing wetlands.

Drew Altland discussed the preliminary concept design that includes restoring the site by reconnecting the floodplain to the groundwater aquifer. The floodplain would be excavated and leveled in open areas, and sections of the channel would be relocated to a more centralized location in the valley and tied into the groundwater aquifer. The proposed design would redistribute flows across the valley that would restore the floodplain as an interconnected stream and wetland system.

Ray Li (USFWS) noted that the wet pockets within the existing old meadow along with the forested hillside provide good wildlife habitat. Fox, deer and birds were observed during the site visit.

The group reviewed a small reed canary grass wetland at the northern end of the site that is proposed for wetland enhancement. Steve Hurt (MDE) noted the area may not be worth pursuing due to the small size of the wetland and low credit potential. Karl noted that the meadow surrounding the reed canary wetland was removed from wetland enhancement consideration due to its habitat value as an old field with a diverse mix of wet and dry vegetation.

Gwen Gibson (DNR) noted that there is a Sensitive Species Project Review Area (SSPRA) that contains two listed plant species in the open canopy wetland near the stream crossing at Watkins Road. The designers mentioned that the restoration project could be designed to enhance/create wetland habitat conditions where these sensitive species are found.

All parties were in general agreement with the design approach. Additional information on the sediment supply, and more specific issues would need to be addressed.

Barbara Rudnick (EPA) asked how the mitigation sites were selected in terms of their proximity to the project impacts. It was discussed that potential mitigation sites were targeted within the three HUC-8 watersheds that are being impacted by the project. Many of the sites that were investigated in close proximity to the impacts had low potential for functional uplift or construction feasibility concerns. Sites were not removed based on their distance from the project impacts and some of the selected sites included recommendations from the public landowners. At the time of the meeting, a total of 19 potential mitigation sites were under consideration (13 public and 6 private).

CA-2 – Lower Magruder Branch, Tributary to Great Seneca Creek

Karl introduced CA-2, a stream/wetland restoration site located along Magruder Branch, just south of site CA-3. The site includes approximately 2,900 linear feet of potential stream restoration, as well as wetland creation and wetland enhancement areas. The stream is highly unstable with tortuous meanders and moderate to severely eroded banks. There is a one foot tall fish blockage at the upstream end of the site where Magruder Branch flows under Watkins Road. The upper stream reach is surrounded by a broad floodplain dominated by reed canary grass and the lower stream reach floodplain consists of a sparse forest dominated by black walnut. The upper western floodplain has two large PEM wetlands, dominated by cattail and reed canary grass, while the eastern floodplain is mostly dry reed canary grass meadow. The restoration objectives include stabilizing the stream bed and banks, improving floodplain connection, providing fish passage and in-stream habitat improvements, treating invasive species, reforesting the floodplain, and creating and enhancing wetlands.

The culvert that drains Magruder Branch under Watkins Road is undersized and outfalls near the toe of the valley slope where there is a one-foot tall fish blockage. It was noted that the downstream channel would have to be raised by three feet to backwater the culvert and remove the fish blockage. Debris wracks are evident along the roadway guardrail, indicating that the stream overtops the roadway during heavy rain events. The group discussed the possibility of relocating the culvert to a more central location in the valley to reduce flood flows over Watkins Road and remove the fish blockage. It was noted that Watkins Road is within the county road right-of-way and therefore the culvert relocation would need to be discussed with the Montgomery County Department of Transportation (MC DOT). Ray Li (USFWS) asked if it was possible to remove the roadway in this section and add a bridge to span the valley.

The wetlands within CA-2 are located near the toe of the valley slopes, which allows for room to work adjacent to the channel. The majority of the wetlands are poor quality and dominated by reed canary grass or cattail. Drew stated that the design would be similar to the upstream CA-3 site in that the modern floodplain sediments would be removed to reconnect the stream to the groundwater aquifer. The stream restoration would ideally be tied into the confluence with Seneca Creek using a hydraulically stable method. The proposed floodplain would be approximately 150-feet wide and the transition into Seneca Creek would be approximately 150-feet wide by 150-feet long.

Steve remarked that the new culvert would still be somewhat of a pinch point and would encourage sediments to fall out there. Drew replied that they would size the culvert to County designation for the 25-year storm or 50-year storm condition. The bed load would be encouraged to drop out at the top of the site and enhance sediment drop out in this area. This would protect the downstream section of the road from flood overflow.

Matt noted that there was flexibility with the site due to its open conditions, and that nothing should stop the restoration approach, but M-NCPPC may need to negotiate the width of the connection with the mainstem. Both the mainstem of Seneca Creek and Magruder Branch would benefit from making the connection.

The agencies agreed with the design approach and that the site had good potential for mitigation purposes. DNR deferred to M-NCPPC for tree protection. Matt said that there needs to be some acceptable tolerance as the majority of the site is not forested, with the exception of the downstream section. M-NCPPC will discuss the downstream forest conditions and impacts with their forest ecologist.

Karl noted that the site has great potential for uplift and sustainability due the expansive floodplain dominated by invasive reed canary grass and the lack of utilities.

There was further discussion about the habitat requirements that could be maintained. Drew said that at the upper end of the project there could be an intermixing of dry meadow/pollinator meadow with wetland pockets.

CA-4 – Cabin Branch, Tributary to Great Seneca Creek

Karl introduced CA-4, a stream restoration site on the Cabin Branch, just east of Goshen Rd. The site was recommended by M-NCPPC and includes a 3,500 linear feet of potential stream restoration. The stream is highly unstable with tortuous meanders and severely eroded banks. The site is surrounded by a mid-successional forest in the upper reach and a dry meadow with scattered trees in the downstream reach. The whole area is located within forest conservation easements. There is a small, deeply incised tributary to Cabin Branch in the upper reach. There is a house at the end of Poinsetta Court that is within the 100-year FEMA floodplain that would likely limit the restoration approach so that there is not an increase of flooding in that location. Access is fairly open to the downstream reach, while tree clearing would be required to access the upstream reach. The restoration objectives would be to stabilize the stream bed and bank; improve floodplain connection; riparian habitat improvements and fish and benthic habitat improvements.

Approximately 2,000 linear feet downstream of CA-4 there is an abandoned golf course that is a proposed MLS stream/wetland mitigation site (RFP-2) that will be donated to M-NCPPC as parkland after mitigation work is completed by RES. Upstream of CA-4 is a road widening project that will include some stream restoration. The land upstream is not owned by M-NCPPC.

The group discussed the existing conditions of the site and potential design approaches. A floodplain restoration design approach would not be proposed at CA-4 due to the narrow valley that is highly confined by adjacent residential communities. There appears to be a large amount of sediments moving through the system. Grade controls could be used to minimize the amount of sediment moving downstream. Matt talked about potentially using natural channel design techniques to lift sections of the channel where there are less constraints. M-NCPPC did not have reservations about finding reasonable construction access. The upstream drainage area is quite large (2.91 square miles) for such a narrow floodplain. M-NCPPC noted that there would be value in addressing the outfalls draining to the site. M-NCPPC recommended not proposing any work on the upstream end of the small tributary due to the stability of the channel. There is County monitoring data for the stream that can be shared.

Jack said he was unsure about the site considering the design challenges and that it would need to be studied further to determine goals. A full scale restoration would also likely be expensive. Steve mentioned that the site is somewhat far from the impacts and that access could be a challenge.

Justin noted that there will be an over-selection of potential Phase I sites so that there are enough remaining when sites are removed later due to "fatal flaws". CA-4 will be retained as a mitigation possibility but may not be selected as a site to move forward with if other sites are presented that have greater accessibility and uplift potential.

Steve recommended that a narrative be included in the Compensatory Mitigation Plan on how the process of site selection would work and how sites selected would move forward or drop-out.

There was a proposal for a smaller meeting that would be entirely focused on how sites are ranked for selection. There was general agreement with this approach.

Attendees:

Name	Agency	Email
Justin Reel	P3/RK&K	jreel@rkk.com
Drew Altland	RK&K	daltland@rkk.com
Karl Hellmann	P3 / RK&K	khellmann@rkk.com
Maddy Sigrist	P3 / RK&K	msigrist@rkk.com
Jason Coleman	RK&K	jcoleman@rkk.com
Susan Lindstrom	P3 / WSP	Susan.lindstrom2@wsp.com
Tim Whitman	EPA	Whitman.Timothy@epa.gov
Barbara Rudnick	EPA	Rudnick.Barbara@epa.gov
Ray Li	USFWS	ray_li@fws.gov
Jack Dinne	USACE	John.j.dinne@usace.army.mil
Nicole Voelker	USACE	Nicole.M.Voelker@usace.army.mil
Steve Hurt	MDE	SHurt@mccormicktaylor.com
Kaitlyn Burgess	MDE	ksburgess@mccormicktaylor.com
Gwen Gibson	DNR – MES	Gwendolyn.gibson@maryland.gov
Matthew Harper	M-NCPPC / Mo. County	Matthew.Harper@montgomerypark.org
Doug Stephens	M-NCPPC / Mo. County	Douglas.Stephens@montgomeryparks.org



DAY 5
RFP-2: CABIN BRANCH
RFP-3: TUSCARORA CREEK



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Memorandum

for your use ☒ for your approval ☐ as requested ☐ for your review ☐ attached ☐ under separate cover ☐

date: December 18, 2019

to:

from:

cc: Attendees;

subject: MDSHA Cabin Branch

we are sending you: Regulatory Field Review Meeting Milestone Report and Sign-In Sheet

of copies 1

On Friday, November 15, 2019 at 9:00 AM, RES staff met with representatives from USACE, MDE, EPA, FWS, DNR, WSP and RK&K to discuss the existing conditions and proposed design of the MDSHA Cabin Branch stream & wetland mitigation project. This project is being implemented to satisfy compensatory mitigation requirements for the I-495 & I-270 Managed Lanes Study. Prior to walking the site attendees met near the front of the property and a sign in sheet and copies of the site map were distributed.

The following were in attendance:

Susan Lindstrom	WSP	susan.lindstrom2@wsp.com
Maddy Sigrist	RK&K	msigrist@rkk.com
Karl Hellmann	RK&K	khellmann@rkk.com
Justin Reel	RK&K	jreel@rkk.com
Steve Hurt	MDE	steve.hurt1@maryland.gov
Jack Dinne	USACE	john.j.dinne@usace.army.mil
Tim Witman	EPA	witman.timothy@epa.gov
Gillian Rines	MDE	glrines@mccormicktaylor.com
Travis Cooke	RES	tcooke@res.us
Chris Homeister	DNR	christopherhomeister@maryland.gov
Raymond Li	FWS	ray_li@fws.gov
Julia Chand	RES	jchand@res.us
Bailey Wilfong	RES	bwilfong@res.us
Reid Cook	RES	rcook@res.us

After all parties had arrived, Reid Cook gave an introduction of the site and described overall project objectives. Major goals outlined were improved floodplain connectivity, increase bedform diversity, elimination of stream bank erosion, multi-category functional uplift, and creation of



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wetlands within existing amenity ponds. Impacts associated with existing dam currently located in the Pepco easement would also be alleviated regardless of mitigation credit. Another aspect of the project discussed includes daylighting water courses that are currently piped. These various aspects of the project allows the rare opportunity to undo historic alterations in an urban stream channel and create an intact wetland/stream complex.

Mr. Cook gave an overview of existing stream conditions that the group would see during the site visit as well as some background information. The site was previously a golf course and has various course infrastructure remaining on the property that will be removed. In addition, there are several broken cement crossings in the stream that have created significant flow impediments and channel instability.

Sections of the existing channel have little to no planform or bedform diversity and much of the channel upstream is incised and heavily armored. Upstream design strategies discussed included channel relocation, when necessary, and modification of bed elevations to decrease bank height ratio, increase entrenchment ratios, and increase floodplain connectivity. Another point of discussion was good construction access which will minimize the number of trees removed during restoration.

Questions were discussed during this portion of the site visit and included what legal entity would take ownership of the conservation easement after the Cabin Branch project's completion. Mr. Cook explained that according to the RFP, the conservation easement will be transferred to the State of Maryland after the project but there could be an alternate option to have MNCPPC (Maryland National Capital Park and Planning Commission) take on that role instead.

Another participant asked if the project site is going to get transferred to MNCPPC (Maryland National Capital Park and Planning Commission) after the project's completion. Portions of the project are will be transferred to MNCPPC after completion of the development project. Areas within the stream project easement are still being discussed.

A participant asked the size of the watershed of the project. Data was not available at the time of the site visit, but for clarification the watershed area to the downstream portion of the site is approximately 4.4 square miles.

Project Location near Pond 4

The site walked started upstream of Montgomery Village Avenue six large culverts under the road were discussed. Old cart path culverts enable increased floodplain drains and enable more efficient flood events through the road embankment. RES staff described the lower portion of the stream has the best bank height ratio and less riprap than other sections. However due to the lack of historic armoring, lateral channel migration is also prevalent. Proposed design strategies discussed included raising the channel as much as possible without altering the FEMA/County floodplain limits. Other channel impairments noted were lack of bedform diversity and subsequent decreased ecological habitat. Interaction with a proposed floodplain wetland was also discussed and will enable greater ecologic uplift and stream/riparian interaction.



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Project Location Tributary 2

The group continued upstream to confluence of the main channel and Tributary 2. Mr. Cook discussed relocation of Tributary 2 to maximize floodplain connectivity and interactions with proposed wetlands. Within Cabin Branch areas that had not been armored are exhibiting significant bank erosion and lateral channel migration. Due to high bank height ratios large storm events are still contained within the channel and creating significant shear stress and channel instability. One participant asked what is the bankfull of the stream. Reid said, off the top of his head, that its around 30 feet.

Project Location Pond 3/Tributary 1

By Pond 3, the group examined the floodplain and discussed the existing ponds. The existing ponds are failing and one has undergone dam/drainage failure. Mr. Cook discussed the intact floodplain and ability to work with existing ponds in the floodplain to create large wetland/stream complexes.

Project Location Pond 2 & 1

The group participants continued to the furthest upstream area of the project, where pond 2 and pond 1 are located. The channel is very incised here and is attempting to interact with the floodplain. Cabin Branch floodplain connectivity and wetland creation were discussed.

Project Location Tributary 3

Tributary 2 exhibits channel instability and is undergoing significant later migration in the lower sections. Channel relocation was discussed to mitigate the current channel issues.

Project Location Pepco Easement

The group stopped by the dam located in the section of the stream within the Pepco easement. Mr. Cook discussed with the group that the discussions about the dam between RES and Pepco have been positive. However, if RES does not end up getting credit for restoring this section of stream, they are still committed to fixing the dam reach to ensure overall the continuity of the stream restoration. One participant asked what exactly would be done to the dam during construction. Mr. Cook clarified that the concrete dam may not be actually removed but the stream would be altered to alleviate the dams impact to the channel. Planting issues within the Pepco easement were also discussed and further coordination will be required to determine what will be permissible.



Lower Cabin Branch/Ponds #6 and #7

The group continued downstream and examined the remaining portions of Cabin Branch and Ponds 6/7. Numerous issues were noted along this portion of Cabin Branch and included historic concrete outfall from Pond #6, crossings remaining in the channel, and significant bank erosion/channel migration in the lower reaches before exiting the project site.

Summary Discussion

After completion of the site tour, participants met for a closing discussions related to design strategies and comments regarding the site. Three general design approaches, benefits, and limitations of each were discussed with the thought that final design will probably incorporate some portion of all three.

- 1) Leaving the existing channel in place and trying to raise the bed elevation.
- 2) Relocation of the channel generally within the existing footprint.
- 3) Relocation of the channel to a new position within the floodplain.

Post Discussion Summary

- Site presents a good opportunity and may be best that design is not currently finalized. (USACE).
- Additional needs for upcoming road projects were discussed and the possibility of maximizing mitigation credits at this site to accommodate current/future needs.
- Good construction access and not removing significant numbers of trees just to do the project was discussed as a site benefit. (DNR).
- Channel relocation in the lower section and limited impacts to 100-year floodplain was discussed and noted as a project benefit. (MDE)
- Need for additional information regarding corridors and factors influencing site uplift (FWS)

Action Items

No action items were identified

If you have any corrections, additions, or any other comments regarding the above meeting summary please contact Reid Cook at (540) 905-4504, or at rcook@res.us.



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Memorandum

for your use ☒ for your approval ☐ as requested ☐ for your review ☐ attached ☐ under separate cover ☐

date: December 18, 2019

cc: Attendees

subject: MDSHA Tuscarora Creek

we are sending you: Regulatory Field Review Meeting Milestone Report and Sign-In Sheet

of copies 1

A regulatory field review meeting at Tuscarora Creek (5515 Mountville Road, Adamstown, MD 21710) was conducted to kick-off the SHA Tuscarora Creek Stream & Wetland Mitigation Project in Frederick County, MD. This project is being implemented to satisfy compensatory mitigation requirements for the I-495 & I-270 Managed Lanes Study. This meeting occurred around 12:30 pm on November 15, 2019 with RES and Stantec as well as regulatory agencies. A summary of the project goals and proposed design was discussed, and a stream walk conducted with the agencies (see attached sign-in sheet and meeting notes). The consensus was that Tuscarora Creek is a great site with lots of potential. However, there were some general concerns described by the agencies which include; the distance from the impact site, the current buffer of established trees, existing burrows in stream banks, future development around the site, and the existing easements. Stantec plans to begin research to address the questions and concerns, working closely with RES, for the next phase of design.

The following were in attendance:

Susan Lindstrom	WSP	susan.lindstrom2@wsp.com
Maddy Sigrist	RK&K	msigrist@rkk.com
Karl Hellmann	RK&K	khellmann@rkk.com
Justin Reel	RK&K	jreel@rkk.com
Steve Hurt	MDE	steve.hurt1@maryland.gov
Jack Dinne	USACE	john.j.dinne@usace.army.mil
Tim Witman	EPA	witman.timothy@epa.gov
Gillian Rines	MDE	glrines@mccormicktaylor.com
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Bailey Wilfong	RES	bwilfong@res.us
Reid Cook	RES	rcook@res.us
Roger Windschitl	Stantec	roger.windschitl@stantec.com
Rich Pfingsten	Stantec	Richard.pfingsten@stantec.com



Graham Boardman
Maddie Berg

Stantec
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Minutes

1) Conversation with Landowner

- a. Ms. Hope Green stated that she was very concerned that the water currently conveyed by the stream does not fit under the bridge and into the pipe during storm events.
- b. Flooding impacts her cattle pastures.
- c. Would like to see more wetlands included along the stream (more added to upper area by driveway).

2) Project Purpose

- a. Generate stream and wetland compensatory mitigation credits while addressing landowner concerns
- b. Primary Goal → functional uplift
 - i. Reducing sediment loads
 - 1. Restoring access to floodplain and corresponding riparian function
 - ii. Improving geomorphic functions and stability
- c. Specific Project Objective → restore degraded hydraulic functions
- d. Expected that both riparian and aquatic enhancements will occur

3) Exiting Conditions

- a. Drainage Area: 8.48 square miles
- b. 15% impervious surfaces in watershed
- c. Degrading C4 channel flowing southwesterly until confluence with Tuscarora Creek
- d. Class I-P (Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply)
- e. Soil
 - i. Linside Silt Loam (LsA) → Kfactor: 0.37 and hydric
- f. No cultural or historic resources identified along stream
 - i. Archeological assessment as part of scope
- g. Agricultural area with some smaller home plots established adjacent to project area
- h. In last 10-15 years planting efforts have occurred for buffer areas within agricultural easement (protection and enhancement of the buffer is a priority of the project)
- i. Livestock might have had access to stream in past but are now fenced off
- j. Upper reaches (starting at private driveway)
 - i. Reach is overly straightened and lacks natural bed diversity
 - ii. Riffles embedded in several locations
 - iii. Pools commonly have large woody debris → debris jams
 - iv. Evidence of historic channel meandering → abandoned oxbows
 - v. Seeps in floodplain → encourage wetlands on both banks
- k. Middle reaches
 - i. Large and tortuous meander bends
 - ii. Active erosion on outside of bends → compromising adjacent trees
 - iii. Instream concrete debris → not seen in historic imagery
- l. Downstream reaches
 - i. Increased evidence of manipulation → straightening
 - ii. Along CSX railroad bed → channel flows against toe of slope
- m. Sediment transport disequilibrium throughout reaches



4) Proposed Conditions

- a. Conventional NCD and threshold channel design
- b. Priority II/III Restoration:
 - i. Priority I – not feasible due to FEMA floodplain and developing buffer
 - ii. Priority II – not feasible in all areas due to impacts to developing buffer
 - iii. Priority III – will serve to meet uplift goals of project and avoid negative impacts to existing floodplain area
 - iv. Channel realignment is proposed in areas with tortuous meander bends but goal is to work with current alignment as much as possible
 - v. If left untreated, erosion would continue and negatively impact newly planted buffer
- c. Existing Channel Abandoned by Creating New Channel, Floodplain Depressions, and Wetlands:
 - i. Avoid impacting existing wetlands and supplement if needed
 - ii. Placement of clay plugs to shift back to former alignment
 - iii. Existing areas remain to provide habitat
 - iv. Planting of native grasses, shrubs, and trees
- d. Bank Stabilization:
 - i. Treatments:
 - 1. Type I (lighter touch) → works long term
 - a. Soil preparation / incidental grading
 - b. Seed / straw
 - c. Fiber matting
 - d. Live stake planting to bankfull and above bankfull to floodplain elevation
 - 2. Type II (more aggressive) → when shear stress along bank is higher than optimal – combined with Type I
 - a. Bench grading
 - b. Soil lifts
 - c. Log vanes
 - d. Toe wood → from onsite wood
- e. Instream Habitat Structures:
 - i. Ex: toe wood, J-hook, log vane
 - 1. Address bank erosion
 - 2. Enable bed stabilization
 - 3. Provide bedform diversity
 - 4. Provide corresponding hydraulic, geomorphic, and habitat uplift
 - ii. Series of stone riffles with woody debris and boulder clusters where appropriate

Functional Uplift Summary

- a. Hydrology
 - a. Functioning at risk → no plans to change
- b. Hydraulics
 - a. Channel bed will be raised to restore floodplain function and connectivity
 - b. Instream structures to help with vertical stability
 - c. Floodplain → designed as tiered to dissipate energy and process nutrients
 - d. Currently functioning at risk proposed to change to functioning
- c. Geomorphology
 - a. Stone / log riffles, log vanes, and pools → increase bedform diversity
 - i. Works to create stable sediment transport and dissipate energy
 - ii. Impacts water quality → reducing sediment loads



- iii. Varying substrate → habitat diversity
 - iv. Not functioning currently proposed to be functioning
- d. Physiochemical
 - a. Other restoration efforts may indirectly effect
 - b. Buffer helps filter out sediment, provide shade, and provide detritus to stream (habitat)
 - c. Will remain functioning at risk
- e. Biology
 - a. Expected to increase due to the other components being addressed
 - b. Will remain functioning at risk

Mitigation Credits – Concept Plan

- a. Stream: 4,465 LF
- b. Wetland: 1.03 acres

Planned Modifications to Floodplains, Buffers, and Access

- a. No plans to increase FEMA
- b. Landowner understands benefits of increasing floodplain accessibility and importance of buffer
- c. Access will be provided directly along stream throughout much of the site
 - a. Clearing will be required (limited as much as possible)
 - b. Stockpile and staging areas will be placed to avoid impacts to trees and wetlands (as much as possible)
- d. Temporary Access
 - a. Through property via a temporary construction easement
- e. Permanent Access
 - a. Provided through landowner negotiated routes



Stream Walk Discussions

- a. General Notes:
 - a. No formal wetland delineation completed yet
 - b. Phase 1 delivery schedule is expected to be delayed to account for the since-resolved protest and a general slow-down in the overall road project. SHA is working through that independently (i.e. we do not need to request an extension, and SHA will let us know once it's approved)
 - c. Monitoring well present on site (Map 1) – no MDE number shown on the well
 - d. Plan to mimic current tree selection in landscape plan
 - e. Poor habitat and uniform bed features that just need light touches
 - f. Want to preserve trees to extent possible
 - i. Attempt to traverse through trees with equipment
 - g. Would classify stream as a degraded C4 moving towards a G channel
 - h. Still working with RES on construction access
 - i. Beginning along north side near driveway where we parked
 - ii. Beginning on south side along fields abutting railroad tracks (EPA preference)
- b. Upper Reach Above Existing Driveway:
 - a. Not currently included in the concept mapping but might include
 - i. Will not be impacting the bridge structure
 - b. Meander bends exist with erosion potential that could benefit from improvements
 - i. Try to stabilize in place instead of move when feasible
 - c. PFO in wetland and some open water
- c. Driveway Crossing:
 - a. Realigning stream to better line up with bridge
 - b. Grade structures to tie in with upstream
 - c. Want to enhance the current abandoned channels
- d. First Proposed Wetland:
 - a. Could be legacy sediment issue
 - b. Will be realigning
 - c. Try to find reference reaches for comparison
 - d. Have the potential to expand beyond the 1 acre of wetland (due to site and landowner willingness)
- e. Downstream end of Map 1:
 - a. Riffles transporting (small material) – want to fix
 - b. Gravel lens layer is present (higher than bed bottom) – shows change in elevation historically
 - c. Evidence of this system being active
- f. Map 2
 - a. Torturous meander sequence (nested channel approach)
 - b. Major floodplain existing but could be improved
- g. Map 3
 - a. Proposed wetland area with oxbows
- h. Map 4
 - a. Oxbow areas due to channel movement
 - b. Stream is very straight but will try to add some complexity with space that is available
- i. Map 5
 - a. Stream is close to CSX railroad toe of slope
 - i. Fewer trees so more flexibility on right bank for channel realignment to better align stream with culvert under CSX bridge



Questions/Additional Comments at Conclusion of Walk

- a. Need to finalize length of stream and size of wetlands for credit
- b. Size of culvert at upper reach
 - a. Was not included in original concept design but will be added
- c. Try to find out if drain tiles have been used on this property? Fields along stream with sink holes
- d. Stantec: May not touch every foot of stream – How does that impact credits that we receive?
- e. Want to hear more about CREP plantings (DNR)
- f. Want to hear more about landscape level easements in the upstream watershed (USFW)
- g. Find out more about ponding downstream of site and CSX bridge off the property (i.e., will help justify uplift) (MDE)
- h. Interested in status of conservation easements (SHA)



DAY 6
RFP-4: CABIN BRANCH



AZ0485172-A Cabin Branch Stream & Wetland Mitigation Project Pre-Application Meeting Minutes

Time: Friday December 6, 2019 9:00 am

Location: 5500 Greenock Rd, Lothian, MD 20711.

Google lat. Long.: 38.810642, -76.645949

<https://goo.gl/maps/tCjmps4JVEFZs2yf9>

See attached Attendance Sheet and Mapping

Intro to project and MDOT SHA (MDOT SHA/RKK):

- MDOT SHA is currently working with 23 prospective mitigation sites being considered to provide compensation for anticipated wetland/stream impacts associated with the I-495 & I-270 Managed Lanes Study.
 - MDOT SHA likely will not need all of the prospective sites (public and private) to meet anticipated mitigation requirements. However, it is also assumed that some of the 23 sites will be eliminated from consideration during consultation with the agencies.
 - Impacts associated with the I-495 & I-270 Managed Lanes Study are still being assessed/discussed so final mitigation obligation has not yet been definitively determined.
 - The purpose of the site visits is for MDOT SHA and the Resource Agencies to confirm that the sites are good candidates for restoration/mitigation. It is anticipated that the first round of sites visits under the MDOT SHA Full Delivery (FD) Program will be completed by Dec 19, 2019.
 - Determination of each site's specific suitability to provide mitigation for the I-495 & I-270 Managed Lanes Study will be determined by the Agencies sometime in January.
 - Sites deemed to be suitable to generate compensatory mitigation will be advanced through the Phase II Mitigation Plan (MDOT SHA contract Phase I) process.

Intro to GreenVest Team

The GV approach to development of ecological assets is about creating ecological uplift through restoration of as much of the watershed as possible, not just about the economics of credit generation. For the Cabin Branch Project, GV assessed the entire watershed to first identify sources of impairment and then proposed a holistic restoration of the entire shallow groundwater ecosystem (stream, wetland, and floodplain forest). The proposed restoration techniques were then used to estimate functional uplift and generate preliminary mitigation yields using the Stream Quantification Tool (SQT) and the Evaluation for Planned Wetlands (EPW).

GreenVest's intent was to include all the streams in the entire Wilson Owen and upper Cabin Branch watersheds in the mitigation project. However, some stream sections that could and should be restored had to be left out of the proposal due to the additional time needed to navigate approvals for use of properties with existing conservation and floodplain easements. However, GV has maintained a relationship with these willing landowners with the goal of finding a mechanism to bring these sites forward and provide additional mitigation credits.

For the Regulatory Field Meeting, GV's objective was to ascertain from the resource agencies (USFWS, USACE, USEPA, DNR, and MDE); 1) Recognition of existing site/system impairment as the basis for restorability, 2) the site's need for restoration and thus suitability as a mitigation site.

Site Tour (see attached mapping for stop locations)

General Site Introduction, Impairments and Proposed Restoration Approaches (GV)

- Primary landowner reached out to adjacent property owners to build consensus. All landowners are receptive and supportive of the project and conservation/restoration in general.
- Streams throughout the project area are incised, provide little to no habitat, are disconnected from their floodplains, and are lowering the local groundwater table, draining floodplain wetlands.
- Proposed restoration. Wherever appropriate, use of woody log jam structures to bring up stream and reconnect stream to floodplain and restore historic groundwater elevations within adjacent floodplain wetland areas. Restoration/enhancement of historic wetlands and preservation of existing wetlands will increase the width of the buffer between adjacent land use and restored systems.
- **Stop 1 Wilson Owens Branch**
 - Crossing needs to be replaced.
 - Channel is incised, banks need to be stabilized, invasive species need to be controlled.
 - Proposed restoration:
 - Stabilize stream banks and remove dredge spoil levee to reintegrate the stream channel with its floodplain and floodplain wetlands.
 - Hydrologic enhancement of floodplain wetlands.
 - Invasive species control.
 - Wetland creation adjacent downstream left bank (facing downstream).
 - Wetland preservation elements flanking both the downstream right and downstream left banks. The preservation elements will serve to provide additional buffer and habitat to the restored stream segments.
- **Stop 2 Downstream portion of Cabin Branch Mainstem and southern tributary**
 - Southern Tributary (Reach B MS DS Trib).
 - Discussed the use of logjam structures to increase local groundwater levels in the floodplain and riparian areas.
 - Increasing local groundwater levels will rehydrate remnant hydric soils, creating opportunities for mitigation credit through hydrologic enhancement or restoration (pending results of wetland delineation).
 - Agency representatives were generally supportive of this approach recognizing that the water table in the adjacent wetlands has been lowered and raising it will restore historic wetland hydroperiod and thus dramatically increase associated wetland functions, provided that the functional uplift can be quantified.
 - Main channel of Cabin Branch between Southern Tributary (B MS DS Trib on attached mapping) and failed pond embankment.
 - The area consists of many vertical banks, unstable slopes, large trees tearing loose from banks and falling into stream, unvegetated banks contributing to mass wasting and sediment transport in these reaches.

- Discussed that the GreenVest Team (GVT) discovered the mainstem between the failed pond embankment and B MS DS Trib had migrated to the left onto County-Owned Property. Since it was on County Property, it could not be included in the proposal but GV believes that this reach is in need of restoration and the regulatory agencies agreed.
 - The Southern Tributary (B MS DS Trib) and B MS US upstream of the failed pond embankment can be restored independently of any restoration on the mainstem in this location. However, the County is in support of restoring the mainstem in this location and has given their permission for GV and ultimately MDOT SHA to access this reach should MDOT SHA want to add this segment of restoration to this project. This segment of the mainstem provides an additional 1,200 lf of restoration potential capable of yielding 1,200 stream mitigation units at the 1:1 ratio included in the proposal.
 - Area behind failed pond embankment.
 - Discussed options for restoration of the pond footprint. Restoration options and potential credit category will be based on what the delineation indicates is there now. Options for restoration include:
 - Harvest of existing wood material for use in construction and replacing with regionally appropriate floodplain wetland species,
 - Excavation of legacy sediment,
 - Use of structures downstream to bring up groundwater level and re-hydrate existing soils, or
 - Some combination of these/other techniques.
 - Main Channel of Cabin Branch upstream of failed pond embankment.
 - Similar to mainstem on County-Owned Property downstream, this area consists of many vertical banks, unstable slopes, large trees tearing loose from banks and falling into stream, unvegetated banks contributing to mass wasting and sediment transport in these reaches.
 - Remnant hydric soil profiles are visible on upper stream banks. Current riparian vegetation community is dryer than the presence of hydric soils indicates was there historically.
 - Preferred restoration approach is use of logjam structures to bring the stream channel back up and reintegrate the stream with its floodplain wetlands and rehydrate remnant wetland soils.
 - The following areas were also observed and discussed:
 - Headcuts encroaching into fields.
 - Headcuts and incised channels draining historic floodplain wetlands.
- **Stop 3 Culvert at top of Trib B3 Pond Trib.**
 - Stopped to give visual on depth of incision and separation of stream from floodplain.
 - Stream banks are deeply incised and V-shaped in cross section.
 - Banks subject to groundwater discharge leading to erosion and failure.
 - Little to no instream habitat (few shallow pools, little to no woody debris, etc.).
 - Preferred restoration is a combination of installation of logjam structures to bring stream bed up and grading to create small floodplain within existing alignment.
- **Stop 4 Mid way up Trib B1**
 - Headcut into field. Landowner attempted to arrest headcut with strawbales

- Portions of channel appear to be stable with formation of small floodplain bench down in the channel but these areas are few compared to remainder of channel with raw, vertical, failing banks, groundwater can be seen discharging from the banks above the channel in many spots leading to additional bank failure and loss of riparian hydrology.
- Proposed restoration. Raising stream up to top of bank may not be feasible. Overall goal for this Reach is to stabilize bed and bank and address current level of active incision, bank erosion, head cutting, and create more habitat diversity and ecological/functional uplift. Preservation of forested wetland pockets surrounding confluence of B1-LF and B1 RF also proposed to increase width of protective stream buffer.
- **Stop 5 Trib B2 Brooks Woods Property**
 - Streams similar to the other upper reaches visited, deeply incised, disconnected from floodplain, lowering local groundwater, and eroding banks.
 - Proposed restoration. Wherever appropriate, use of woody log jam structures to bring up stream and reconnect stream to floodplain and riparian groundwater. As in other reaches where wetland preservation is proposed, reintegrating the stream to the floodplain and increasing the groundwater elevation to rehydrate remnant wetland soils will expand the width and function of the buffer between the adjacent land use and the restored system components.
 - Regulatory Agencies mentioned support for GV's holistic approach and including the entire watershed within the restoration wherever possible. This includes the headwater of Brooks Woods Reach upstream of the current project limits. We explained to MDOT SHA that at the time we were preparing the proposal, the ability to include this reach was uncertain due to an existing AA County Forest and Ag easement, which may have created a barrier to using this site for compensatory mitigation. However, after submitting the proposal, GV met with both DNR and AA County to build consensus that:
 1. the upstream reach is in need of restoration, and
 2. the restoration objectives, means/methods are consistent with the purpose of the Forest and Ag Easement.

DNR has since developed and issued a checklist and approval process for stream restoration projects proposed on properties with these types of easements. Both AA County and DNR now support the restoration of this reach. GV has an agreement in place with the landowner for this site complete with an executed Attachment Q. This reach can provide an additional 1,570 lf of restoration potential yielding and anticipated 1,570 stream mitigation units at the proposed 1:1 credit ratio.

Summary Conversation

GV asked each agency representative if:

- 1) They recognize the current level of impairment identified for each reach and the overall project, including the wetland elements (creation, enhancement and preservation),
 - 2) This project suitable for restoration?
- USEPA, USFWS, MDE and DNR all agreed that the site is impaired and is in need of restoration. They also agreed that the restoration is feasible and thus the site is suitable for mitigation. Independent determination regarding specific applicability to compensate for proposed stream and wetland impacts associated with the I-495 & I-270 Managed Lanes Study is pending.

- US ACOE: Functional uplift is going to be difficult to determine, guidance coming out but probably won't get a straight 1:1, especially on the smaller, headwater areas.
 - GV uses the SQT for streams and EPW for Wetlands to quantify uplift and support requested mitigation ratios and yields.
 - US ACOE and EPA agreed with that approach.
 - GV stated that the Chesapeake Bay is giving highest credit for the smaller streams since impairment there has effects throughout the rest of the system.
 - US ACOE and EPA want to see ecological uplift, which GV agreed was the whole point of our approach.
- MDE: only approves preservation under certain conditions.
 - GV stated that preservation is a viable wetland mitigation option per COMAR and that GV has successfully secured preservation credit from MDE and USACE on several mitigation sites where it was deemed appropriate as part of an overall restoration/mitigation project and strategy. In this case, preservation is appropriate to add buffer around proposed restoration elements increasing several functions including water quality and wildlife habitat. The proposed preservation elements will also serve to add buffered/preserved acreage thus ensuring a higher level of sustainability in the future. In each case, preservation would be sought in conjunction with other restoration/enhancement activities. Additional justification will be provided both the Phase I and Phase II mitigation proposals.
- DNR stated that they are concerned with tree protection and want to minimize impacts to vegetation when proposing restoration projects.
 - GV responded by stating that this site already possesses an established trail network and was selected due to ease of access, which will inherently result in minimal impacts to existing forested resources.
- DNR noted that fish passage will be a concern and should be considered in the design approach.
 - GV stated that the proposed restoration approach would consider fish passage with a goal to improve, not impede, passage.
- DNR suggested a tree inventory and documentation of the change in vegetative community composition, which would be done as part of the FCA compliance.
- MDE and US ACOE were very much in favor of the holistic approach taken to corridor-wide restoration and that:
 - 1) Cabin Branch is a good candidate site for restoration and
 - 2) The issuing authorities would like to see all reaches restored in the manner proposed, with the inclusion of the headwaters of B2 and Mainstem reaches, if possible.

Mitigation Options

- Discussed inclusion of B2 headwater and mainstem of Cabin Branch within AA County property (per discussion above).
- HH enhancement credit in the streamside wetlands where exact location and extent will be determined during the design and engineering phase.
 - GV will be requesting a higher ratio than preservation, which according to the latest IRT guidance receives a 10:1. The final ratio requested will be supported with both a qualitative and quantitative documentation of proposed functional uplift.
- Resource agencies asked questions regarding design approach involving log jam, post-assisted log structures and post/wattle structures. GV stated that the design evolved as we continued to collect data, run HH and other modeling, and progressed through the engineering elements of



the project. Our intent is to use, where feasible, self-organizing means/methods that involve the use of wood sourced from the project corridor similar to GV's current Bacon Ridge Branch Restoration project. These means/methods may or may not be appropriate for the upper 0 and 1st order reaches at the top of the project.

- GV proposed an impromptu trip to GV's active construction site to observe these construction techniques and associated functional uplift. The visit to Bacon Ridge was attended by MDOT SHA, USEPA, DNR, USACE, and MDE representatives

Visit to Bacon Ridge (Elks)

- Walked from upper main stem to confluence with main tributary, and up the main tributary to upstream terminus at Chesterfield Road.
- Observed in-stream structures where Joe Berg provided context and design intent information on the engineered log jams.
- Overall informative discussion, strong support and interest from all agency representatives in attendance as to the pre-existing and now-restored conditions including the associated uplift in the adjacent floodplain wetlands and finally the applicability/suitability of this technique on sections of the Cabin Branch project.



**AZ0485172-A Cabin Branch Stream & Wetland Mitigation Project
Pre-Application Meeting Sign In Sheet**

Time: Friday December 6, 2019 9:00 am

Location: 5500 Greenock Rd, Lothian, MD 20711.

Google lat. Long.: 38.810642, -76.645949

<https://goo.gl/maps/tCimps4JVEFZs2yf9>

Present	Name	Affiliation	Email Address
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	Amanda Sigillito	MDE	amanda.sigillito@maryland.gov
	Amanda Wagoner	GV/KCI	Amanda.Wagoner@kci.com
	Barbara Rudnick	EPA	Rudnick.Barbara@epa.gov
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	Caryn Brookman	MDOT	CBrookman@mdot.maryland.gov
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X	Trevor Clark	FWS	trevor_clark@fws.gov ;



DAY 7
RFP-5: HENSON CREEK



AZ0485172-D Henson Creek Stream & Wetland Mitigation Project Pre-Application Meeting Minutes

Time: Tuesday December 10, 2019 9:00 am

Location: 9013 Livingston Rd, Fort Washington, MD 20744

Google lat. Long.: 38.764864, -76.995269

<https://goo.gl/maps/z95paJYYTGvSHJCY8>

See attached Attendance Sheet and Mapping

Intro to Site and Restoration Approach

Within the Henson Creek watershed, much of the bottomland is already protected by easement to or owned by the Maryland-National Capitol Park and Planning Commission (M-NCPPC) of Prince George's County. GV assessed the Henson Creek Corridor to identify potential gaps in the string of properties currently under M-NCPPC control. The assessment identified the proposed Henson Creek Project Site.

The site was historically a forested floodplain wetland, hydrologically connected to Henson Creek but was subsequently filled with 3-4 feet of fill and converted for use as a driving range (see EX-01). Despite the fill, the entire site is still located within the 100-year floodplain. Other than M-NCPPC property on the opposite bank of Henson Creek, adjacent land use is highly urbanized. The core of the site consists of mown grass for the driving range. A parking lot is located along the eastern border, along Livingston Road. Small wooded areas are present on the northern and southern edges of the property but these are of poor quality, species diversity is low and consists primarily of scrubby boxelder and invasive species. An incised stormwater conveyance crosses the southern portion of the site. A few larger oaks and sycamores dot the perimeter of the site. In its current condition, the site provides little to no water quality or habitat function.

The property owner has committed to providing an easement to GV to use the site as compensatory mitigation. The current parking area, which serves the historic Hovermale Ice Cream stand and the driving range, will remain. The other developed portions of the site adjacent to Livingston Road have been excluded from the mitigation site easement (see SP-01).

Proposed restoration. GV's intent is to return historic forested floodplain wetland functions to the site and complete this section of the Henson Creek forested floodplain corridor. Proposed restoration methods include:

- Excavation of previously placed fill used to create the driving range;
- Excavate and dispose of C/D rubble and other fill historically placed in upland and wetland sections of the proposed restoration area;
- Reconnection of Henson Creek to the floodplain wetland by removal of berm along the creek edge;
- Creation of additional stream length by restoring and redirecting an existing ditch (Henson Tributary) that currently bypasses the site, bringing it in to meander through the proposed wetland area;
- Eradication/Control of invasive species within existing forested wetland areas;
- Plant native vegetation throughout all enhancement, restoration, and creation areas plus the wetland buffer; and, if deemed feasible,

- Removing C/D rubble and restoring forested areas was alluded to by the regulators as being beneficial and would yield a greater number of wetland credits than identified in our original proposal to MDOT SHA. If MDOT SHA wishes to generate and acquire these additional credits (+2.14), the design can be augmented to include this element.

Proposed restoration techniques will be used to estimate functional uplift and generate preliminary mitigation yields using the Stream Quantification Tool (SQT) and the Evaluation for Planned Wetlands (EPW).

Currently, no activities are planned for the western bank and floodplain forest of Henson Creek. Additional properties along the western bank of Henson Creek that are contiguous with the site also contain forested wetlands and may be secured to provide additional buffer and compensatory mitigation through preservation.

For the Regulatory Field Meeting, GV's objective was to ascertain from the resource agencies (USFWS, USACE, USEPA, DNR, and MDE); 1) Recognition of existing site/system impairment as the basis for restorability, 2) the site's need for restoration and thus suitability as a mitigation site.

Site Tour (See attached mapping)

- **Stop 1**
 - Channel is steeply incised and runs immediately adjacent a WSSC easement. Although the banks are stable, the channel offers few habitat or water quality functions.
 - Proposed restoration: Remove the culvert on Henson Tributary and relocate the channel on a new alignment away from the WSSC easement. The new channel would be regraded to meander through the proposed wetland restoration area providing an additional source of hydrology and habitat. The new channel will tie back into the existing outlet along the south side of the parcel.
- **Stop 2**
 - The forest around the tie in point will be assessed for quality and health. Invasive species are also common and will be controlled. Pending results of the Forest Stand Delineation and quality assessment, supplemental plantings with native woody species may also be advantageous.
- **Stop 3**
 - Henson Creek. Berm/Levee along the creek bank prevents floodplain access.
 - Proposed restoration. Selective removal of the berm along Henson Creek. Large trees along the bank would be saved wherever practicable. The goal of removing the berm will be to balance saving trees with controlling velocity and carrying capacity of floodwaters as they enter the site. While floodwater and fine sediments are desired within the floodplain wetland, large cobble and gravel deposits carried by high energy, erosive flows are not.
 - Other than removal of the berm, no other work is proposed within the Henson Creek channel.
- **Stop 4**
 - Forest along eastern bank is growing mostly on concrete rubble and fill. No large trees, little species or vertical diversity or habitat value.
 - Proposed restoration. Within our original proposal to MDOT SHA, existing forested areas would be preserved as buffer. Invasive species would be controlled and the forest community supplemented with native floodplain forest tree and shrub species. GV will continue to assess forest/tree quality and explore the potential to remove rubble/fill if desired by MDOT to acquire additional wetland credits.

- **Stop 5**
 - Forested floodplain wetland on western bank.
 - Proposed for preservation credit and additional buffer adjacent to the proposed stream restoration along Henson Creek in this reach.
 - Additional parcels are available between current site and Livingston Road for additional preservation credit.
- **Stop 6. Summary Conversation**
 - GV asked each agency representative if:
 - They recognize the current level of impairment identified for each reach and the overall project, including the wetland elements (creation, enhancement and preservation),
 - This project suitable for restoration?
 - MDE, US ACOE, DNR, FWS, representatives all agreed that the site is impaired and is in need of restoration. They also agreed that the restoration is feasible and thus the site is suitable for mitigation. Independent determination regarding specific applicability to compensate for proposed stream and wetland impacts associated with I-270/495 is pending.
 - All agency representatives agreed that the fill material in the core of the driving range should be excavated to recreate a functioning forested floodplain wetland system.
 - All agency representatives agreed that realignment of the stormwater conveyance (Henson Creek Tributary) would improve the habitat and water quality functions of the system and augment the sources of hydrology.
 - All agency representatives agreed that removal of the berm along Henson Creek to allow floodwater to access the site would restore floodplain connection and integrate the stream and wetland restoration elements. Exact location of areas to be removed and target elevations will be determined during the design process. Large trees will be saved where possible.
 - All agency representatives agreed that an integrated stream and wetland restoration at this location would be valuable and is technically feasible.
 - All agencies agreed that this site is an excellent candidate for restoration including the restoration of a fully integrated stream and floodplain wetland system.

AZ0485172-D Henson Creek Stream & Wetland Mitigation Project
Pre-Application Meeting Sign In Sheet



Time: Tuesday December 10, 2019 9:00 am

Location: 9013 Livingston Rd, Fort Washington, MD 20744

Google lat. Long.: 38.764864, -76.995269

<https://goo.gl/maps/z95paJYYTGvSHJCY8>

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E			



DAY 8
CA-1: MCKEE BESHES
CA-6: ROCK RUN

**I-495 & I-270 Managed Lanes Study
Mitigation Agency Field Review – Day 8
December 11, 2019 @ 9:00am**

Handouts:

CA-1 Phase I Mitigation Design Plan & Site Vicinity Map
CA-6 Phase I Mitigation Design Plan & Site Vicinity Map

A field review meeting was conducted on December 11, 2019 with representatives of several agencies and stakeholders including M-NCPPC, USFWS, USACE, EPA, DNR, and MDE to discuss a potential wetland mitigation site on DNR parkland and a potential stream mitigation site on M-NCPPC Montgomery County parkland. A summary of the topics discussed at the meeting follows.

Introductions

All participants, with the exception of M-NCPPC, met at the DNR parking lot on Hunting Quarter Road, Poolesville, MD 20837. The meeting began with introductions, followed by a brief summary of the CA-1 site by Karl Hellmann and Jim Bennett.

Mitigation Opportunities

CA-1 – McKee Beshers Wildlife Management Area

The CA-1 site consists of approximately 7.3 acres of potential wetland restoration located in DNR's McKee Beshers Wildlife Management Area (WMA). The site was recommended by DNR and consists of an open field that is leased to farmers year-round for agricultural purposes. The topography of the site is flat with low areas at the western and south-eastern ends that had standing water during field investigations in March 2019. The remainder of the site consists of dry areas with remnant soy beans, with a groundwater table observed at 14 inches below the ground surface in the spring. According to DNR, the site ponds regularly and cannot be planted during years with heavy rainfall. The southeastern corner of the site abuts a PFO wetland just south of the site. There is direct existing access to the site from a gravel road that connects to Hunting Quarter Road, which is surrounded mostly by forested wetlands of special state concern. Although the site is within the Potomac River floodplain, there has been no evidence of flooding in the site. Restoration objectives include wetland restoration, wildlife habitat improvements, and restoration of groundwater connection, hydric soils, and vegetative structure.

The preliminary concept design includes excavating to targeted elevations in the dry agricultural field to restore the groundwater connection to promote hydric soil development. The site would be regraded and planted/seeded with shrubs and herbaceous species to create a mosaic of palustrine scrub-shrub/emergent wetland and open water habitat types. Microtopography grading and woody debris placement would promote diversity in the landscape and create additional wildlife habitat.

At the meeting, it was discussed that the acreage of each of these habitat types will depend on the site hydrology and groundwater wells would need to be installed.

Jim Bennett noted that the wetland restoration would align with DNR's overall interests in wildlife management on the site. An outfall is not proposed or needed due to the site's flat topography and

seasonal hydrology.

DNR's waterfowl staff will be heavily involved in the design. There is a lot of emergent and scrub-shrub wetlands near the site that no longer contain open water areas that are the preferred habitat for certain types of waterfowl.

Steve Hurt (MDE) asked if the excavated material for the project would be hauled off-site or relocated on-site. DNR indicated that there should be enough space to relocate all of the material to other areas within the McKee Beshers WMA.

Karl Hellmann (RK&K) said that there was a stand of non-native sawtooth oak (*Quercus acutissima*) at the northeastern corner of the site and asked if the trees could be removed and incorporated into the site as woody debris habitat. Jim responded that DNR would want the stand to remain due to the wildlife habitat the trees provide, and DNR does not consider the species invasive.

Jim noted that the site had been investigated by consultants in the past as a potential mitigation project, however he was unsure why the site did not move forward. Steve stated that he would check with Kelly Neff (MDE) to find out why the site was removed from consideration under previous SHA projects. The site may have been dropped because DNR did not have a policy in place to use these areas for mitigation at the time of the project.

Ray Li (USFWS) asked if there were any concerns that the site did not have an associated stream restoration component. It was noted that the habitat type objectives do not require a stream component and the group came to a consensus that this would not be an issue.

Jack Dinne (USACE) noted that he liked the idea of a scrub-shrub wetland mitigation site, however one drawback of the site could be its distance from the proposed project impacts. Karl noted that one of the challenges with the wetland mitigation sites is that there are less options and higher constraints the closer you get to the roadway alignment. Overall, all of the agencies agreed that the site had good potential for wetland mitigation.

The timeframe to determine whether this site would move forward would be during Phase II in 2021. Construction would be after this point. It was noted that groundwater wells should be installed at the site soon to collect data on the Spring hydrology.

After reviewing the CA-1 site, the group then drove east to the CA-6 site (Rock Run), located on M-NCPPC Montgomery County property.

CA-6 – Rock Run

Karl introduced CA-6, a stream restoration site located along Rock Run, just south of Falls Road. The site includes approximately 3,700 linear feet of potential stream restoration along an unstable channel surrounded by a narrow, forested valley with several forested wetlands in the eastern floodplain. The majority of the stream has one to five-foot tall banks with minor to moderate erosion that increases at the upstream end of the site. Some areas of the stream appear to still be connected to the floodplain based on evidence of out-of-bank flows. There is a three-foot tall fish blockage and an exposed sewer line at the upstream end of the site, just south of the culvert that flows under Falls Road. There is potential access along an old sewer line clearing in the eastern floodplain. The

restoration objectives include: improving floodplain connection, in-stream habitat improvements, bed and bank stabilization, and fish blockage removal.

The preliminary concept design includes the installation of instream structures to reduce incision of the channel and improve the fish and benthic habitat. The vertical banks would be graded and vegetated to reduce erosion and instream sedimentation. The floodplain connection would be improved by raising the stream bed and/or creating benches in the floodplain to provide more frequent floodplain access. Fish passage through the culvert could be improved by raising the downstream bed to allow access to upstream habitat.

The group walked the site from downstream to upstream starting at Logan Drive. Several severely eroded banks were observed at the very downstream and upstream ends of the site. An exposed sewer and water line were observed just downstream of Falls Road.

M-NCPPC stated that the upstream section of the site appears to be more unstable and should be the primary focus of the restoration. Steve Hurt said that he thought some of the worst banks were in the downstream section of the site.

After walking the entire site, the agencies agreed that the site had some mitigation potential, but was a lower priority compared to some other sites that had been reviewed. Some sections within the site appeared to be somewhat stable where there was evidence of out-of-bank flows. Localized areas in the lower section require stabilization, but when compared to the overall forest impacts, the site may not be worthwhile in the sense that it would not have the uplift potential that is needed. The site is located in a relatively narrow strip of mid-successional forest that is surrounded by residential homes. Access and construction would likely require forest clearing and large tree removals within close proximity to the homes.

Matt Harper asked if parts of the site could be considered for stormwater management mitigation for the MLS, as water quality is likely an issue. Justin Reel responded that after further coordination it was determined that stream stabilization is not a high-priority for meeting stormwater mitigation for this particular project, but still may be considered. He was not sure how many sites could be leveraged for this purpose.

Attendees:

Name	Agency	Email
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Ashby Strasburger	MDOT SHA M-NCPPC Liaison	astrassburger@mdot.maryland.gov



DAY 9

AN-6: PAINT BRANCH FISH PASSAGE

AN-7: PAINT BRANCH SOUTH FARM TRIBUTARIES

**I-495 & I-270 Managed Lanes Study
Mitigation Agency Field Review – Day 9
December 12, 2019 @ 9:00am**

Handouts:

AN-6 Phase I Mitigation Design Plan

AN-7 Phase I Mitigation Design Plan & Fish Passage Credits Map

A field review meeting was conducted on December 12, 2019 with representatives of several agencies and stakeholders including USDA BARC, USFWS, USACE, EPA, DNR and MDE to discuss a potential fish passage site and stream restoration site located on the United States Department of Agriculture's Beltsville Agricultural Research Center property for the I-495 & I-270 Managed Lanes Study. A summary of the topics discussed at the meeting follows.

Introductions

All participants met at the Beltsville Agricultural Research Center, 10300 Baltimore Ave., Building 003, Beltsville, MD 20705. The meeting began with introductions, followed by a summary of the Beltsville Agricultural Research Center's (BARC) facilities and goals by Dana Jackson. The group then consolidated into vehicles and drove to BARC's South Farm parcel, located just southeast of the I-95/I-495 Interchange.

On the way to the mitigation sites, the group stopped at a couple drainage areas within the South Farm parcel that BARC would like to have repaired. At the first stop, Dana showed the group an unstable outfall from I-495 that is causing erosion issues on the South Farm parcel. Stabilization of the outfall and downslope gully was originally included as a stewardship effort as a part of the Paint Branch Fish Passage Site that was originally proposed for the Greenbelt Metro Access Project. The group then stopped to look at an area between one of BARC's farm fields and Paint Branch that has ponded with water due to a failure in the drainage tile system. The group then proceeded to the AN-6 Paint Branch Fish Passage site.

Mitigation Opportunities

AN-6 – Paint Branch Fish Passage

Justin Reel gave an overview of the proposed roadway work where Paint Branch flows under the I-495/I-95 Interchange. The work entails constructing new bridges over Paint Branch to carry the managed lanes between the inner and outer loops of the I-495. Karl Hellmann (RK&K) provided history on the Paint Branch Fish Passage Site. The site was originally investigated and designed to 90% for the Greenbelt Metro Access Project, before the project was canceled in 2017. MDOT SHA's Environmental Programs Division (EPD) offered the site to the NEPA team during a mitigation meeting. The site consists of two quadruple cell box culverts under I-495 that have created one-foot tall fish blockages. Fish ladders were installed just downstream of the culverts in the 1990's, but have failed since. During preliminary investigations, a debris jam was observed at the upstream culvert that has created another 14-inch-tall blockage. Removing these blockages would allow complete upstream access to 0.45 miles of high-quality habitat below a partial blockage at I-95 northbound ramp culvert, and partial upstream access to an additional 13.84 miles of Paint Branch and its tributaries (2nd order and greater).

The site design entails incrementally raising the stream elevation through a series of constructed riffles placed downstream of the culverts. The riffles would backwater both culverts to allow passage, while maintaining hydraulic capacity of the culverts during high flow events. The work also includes removing the failed fish passages and the upstream debris jam.

A map was provided to the group that displays the credits that were originally proposed for the fish passage site. The proposed credit ratios include the following:

- 1:1 – Restored reach (e.g. 100 LF of instream work would receive 100 LF of credit)
- 10:1 – Full blockage removal (e.g. 100 LF of full upstream blockage removal would receive 10 LF of credit)
- 20:1 – Partial blockage removal not including 1st order streams (e.g. 100 LF of partial upstream blockage removal would receive 5 LF of credit)

Based on the above credit ratios, 1,544 linear feet of credit is proposed for full restoration, 97 linear feet of credit is proposed for full blockage removal, and 3,617 linear feet of credit is proposed for partial blockage removal, resulting in a total of 5,258 linear feet of proposed credit.

Ray Li (USFWS) noted that the project has great potential due to its connection upstream to the Upper Paint Branch Special Protection Area (SPA) that consists of the high-quality headwaters of Paint Branch that are under special protection from land development.

The group observed two sewer crossing approximately 300 feet and 2,000 feet downstream of AN-6 that could be causing fish blockages. Steve Hurt (MDE) asked that the crossings be investigated to determine if they were creating fish blockages, which could affect the decision on the upstream AN-6 site. Gwen Gibson (DNR) said that she would discuss the downstream sewer crossings with Jim Thompson (DNR), who is familiar with the Paint Branch Fish Passage project.

Nick Ozburn (USACE) noted that the USACE has a system set up to determine fish passage credits. He thought that the 5,258 linear feet of proposed credit for the site seemed high considering that the proposed instream work is 1,544 linear feet.

Overall the group agreed that the site had potential for mitigation, however the downstream blockages need to be investigated and the fish passage credits re-negotiated. The group then proceeded to the nearby AN-7 site.

AN-7 – Paint Branch South Farm Tributaries

Karl introduced AN-7, a stream restoration site located along two headwater streams that drain to Paint Branch, just southeast of the I-495/I-95 interchange. The two stream segments were recommended by BARC and consist of deeply incised channels surrounded by forest and agricultural fields. The northern tributary is approximately 1,200 linear feet and consists of a concrete lined channel and highly unstable natural channel that flows into a moderately stabilized section with localized erosion areas. There is a two-foot-tall fish blockage and exposed water line just downstream of where the concrete lined channel ends. The southern tributary is approximately 200 linear feet and consists of a small incised channel with a failed culvert and culvert outfall that are creating fish blockages to an upstream reach that appears stable.

David Black discussed design options for the northern tributary. The preferred option would be to relocate the channel into the northern farm field with surrounding wetland benches and tie the channel into Paint Branch near the confluence with the original channel. The tie-in to Paint Branch would be proposed near the existing channel to avoid the possibility of excavating in unstable material in the man-made berm that parallels Paint Branch.

Dana Jackson (USDA) said that there had been some discussions with the NEPA team regarding using the entire field for stream and wetland mitigation. He said the field is actively used for research purposes and that BARC did not want the entire field to be used for mitigation. BARC however would allow the channel to be relocated within closer proximity to its existing location under the condition that the restoration work stayed within approximately 60 feet of the existing channel.

David said that groundwater wells would need to be installed and geoprobe soil samples collected to help determine the design for the site. The site may have utility constraints depending on the depths and locations of water and sewer lines that could also affect the design.

Another design option for the northern tributary would be to keep the channel in its existing location and stabilize the banks in place using natural channel design. Steve Hurt said that MDE's preference would be to relocate the channel into the field considering sections of the existing channel appear to have already healed.

The group then proceeded to the southern tributary that consists of a small headwater channel just upstream of Paint Branch where a culvert failure and culvert outfall have created fish blockages. The site design includes removal of the failed culvert near Paint Branch and raising the stream elevation through a series of riffles to provide fish passage at the upstream culvert. The site is primarily for fish passage, however credits upstream of the culvert to remain are not proposed due to the small size of the channel. The agencies agreed that the small fish passage site had potential under the condition that it was pursued with the northern tributary.

The group discussed the conservation easements that would be required for AN-7. Nick Ozburn (USACE) noted that there would be a 30 - 35 foot minimum buffer required surrounding the stream sites.

Overall the agencies agreed that AN-7 has potential for mitigation, however the site may be challenging due to design constraints. USFWS noted that the site is attractive due to its location in the Paint Branch watershed and its upstream connection to high quality waterways. Gwen Gibson said she would coordinate with DNR fisheries to determine if there was potential for trout habitat improvements at the site.

Other Opportunities

The group proceeded south to look at a severely eroded bank along Paint Branch that BARC would like to have repaired. The severely eroded bank is approximately 12 feet tall and located along a section of Paint Branch that has eroded into the adjacent man-made berm. This section of Paint Branch was reviewed during the MLS walkthrough survey and it was determined that the site had

limited potential for ecological lift due to the majority of the reach being stable, with the exception of a few localized severely eroded banks.

The group then drove to the North Farm parcel located northeast of the I-495/I-95 Interchange to review an area that BARC recommended as a drainage repair. The site consists of a grass swale that drains into a roadway embankment that has caused backwatering and a small PEM wetland to form. Justin Reel noted that the site does not have potential for mitigation due the existing wetlands and isolated position in the landscape, however the site could be a potential candidate for off-site stormwater management for the MLS project. Following the field meeting the site will be coordinated with the stormwater management group to determine its potential for off-site stormwater management credits.

Attendees:

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DAY 10
PA:1 BACK BRANCH

**I-495 & I-270 Managed Lanes Study
Mitigation Agency Field Review – Day 10
December 19, 2019 @ 9:00am**

Handouts:

PA-1 Phase I Mitigation Design Plan

A field review meeting was conducted on December 19, 2019 with representatives of several agencies and stakeholders including the Prince George's County Board of Education (BOE) and Department of the Environment (DOE), USFWS, USACE, DNR and MDE to discuss a potential stream mitigation site located on Prince George's County BOE, DOE, and several private properties. A summary of the topics discussed at the meeting follows.

Introductions

All participants met at the Brown Station Sanitary Landfill parking lot at 3500 Brown Station Rd., Upper Marlboro, MD 20774. The meeting began with introductions, followed by a summary of the project and mitigation site selection process by Justin Reel (RK&K). A two-tiered approach was used to identify potential permittee-responsible mitigation that included a traditional mitigation site search on public lands and a Request for Proposals (RFP) on private lands. Public sites with the greatest mitigation potential that received preliminary approval from landowners and private sites that met MDOT SHA's financial, technical, and administrative qualifications were chosen to be presented to the agencies as potential mitigation sites.

Mitigation Opportunities

PA-1 – Back Branch

Karl Hellmann (RK&K) summarized the existing conditions of the PA-1 site that includes approximately 6,700 linear feet of potential stream restoration along a section of Back Branch located on several public and private properties. The site drains to Cabin Branch, which is located in the Patuxent watershed. The stream consists of an incised channel with several torturous meanders surrounded by a mid-successional upland forest. Portions of the northern floodplain had been cleared and filled in the past for landfill operations. A sewer line runs parallel to the stream in the floodplain and an old remnant railroad bed spans the center of the site. There is a large wetland mitigation site just north of PA-1 that receives flood flows from Back Branch through a man-made ditch.

The preliminary concept design includes improving the floodplain connection by raising the stream bed and/or creating floodplain benches to provide more-frequent floodplain access to mitigate damage from erosive flood flows. The design also entails grading and vegetating banks to reduce erosion and instream sedimentation, installing instream structures to reduce channel incision and improve in-stream habitat, and improving the plan and profile of the stream to enhance stream functions. Following the summary, the group consolidated vehicles and drove over to the site.

Frank Golisa (DOE) mentioned that the DOE has their own stream restoration sites for their CIP Program and that there may be other good potential stream site candidates in Prince George's County. He recommended that any other sites pursued on County property be coordinated with the

DOE. Frank noted that there are several parcels on the eastern side of PA-1 that are owned by Prince George's County; however, the land is not managed by the DOE.

Nick Ozburn (USACE) asked what the purpose of the gage near the stream and old railroad bed served. DOE responded that it was likely a groundwater gage for the landfill, however they weren't sure what kind of data it was collecting. Nick noted that if the gage was collecting water quality data, the information could be used to compare pre and post construction conditions for functional uplift purposes.

The entire group, with the exception of DOE, proceeded to walk the upstream section of the site, just west of the old railroad bed. Karl noted that based on historic aerial photos it appeared that the majority of the forest north of the site was cleared up to the edge of the channel in the late 1980's. The preferred construction access to the site would be from the DOE property considering the young age of the forest north of the site and the existing access roads throughout the landfill. It was also noted that the majority of the DNR/NWI wetlands displayed on the PA-1 map handout are inaccurate and that most of the site consists of upland forest.

Gwen Gibson (DNR) asked about the design approach for the site. Drew Altland (RK&K) responded that the design would be a floodplain restoration, however the degree of work and design approach would depend on the agencies and landowner comfort level with impacts to the surrounding forest. The approach could entail floodplain excavation, filling in the channel, or a combination of the two to improve floodplain access and stability of the site. An extensive floodplain excavation would likely provide more benefits to the stream, but require greater forest impacts; while minor floodplain grading would likely provide fewer benefits to the stream, but require less forest impacts.

Steve Hurt (MDE) asked what the source was for the extensive deposition in the stream channel. At this time the deposition source is unknown and will be further investigated during design. Steve also noted that the channel meanders/breakthroughs and oxbow features observed at the site were natural stream processes.

The group walked downstream of the remnant railroad bed where the southern stream bank is located on two private properties. Severe bank erosion was observed along the toe of a steep valley slope on the private properties. Karl noted that the private property boundaries appear to roughly follow the stream boundaries in this area. Nick mentioned that depending on the deed language, the private property boundaries may follow the stream boundaries or be set in place from the original stream boundaries. Karl said that coordination with the private landowners is currently pending and will depend on if the site is selected as a part of the Draft/Phase I mitigation package.

Drew pointed out the original floodplain hydric soil layer that was evident in several sections of eroded bank in the downstream reach. The preferred design approach for the site would include excavating down to this original floodplain layer where possible.

Upon completion of the site walk, each member of the group provided their input on the site conditions and potential for mitigation. Karl noted that the site is located in the Patuxent watershed in Prince George's County, which has been a difficult area to find good potential mitigation sites due to extensive land developments. Only two mitigation sites with potential have been identified in the Patuxent watershed, which include PA-1 and the Cabin Branch site located on private property (RFP-Confidential, Deliberative and Pre-Decisional

4).

Nick stated that county boundaries are not a limiting factor for the USACE when choosing mitigation sites and that the USACE's main focus would be staying within the impacted watersheds. Steve mentioned that county boundaries are not a concern for MDE, however MDE does take into consideration the proximity of the mitigation site to the proposed impacts.

Nick thought that while sections of the site appear to be healing, there does seem to be some potential for instream habitat improvements and possibly water quality improvements depending on the existing conditions.

Steve said that the site does not have as much mitigation potential as some of the other sites that have been reviewed, however the group may want to keep the site at this time considering options in the Patuxent are limited.

Gwen stated that DNR would prefer a design approach that minimizes impacts to the surrounding forest such as raising the channel as opposed to excavating out the entire floodplain. She mentioned that some of the bank erosion appeared to be old and healing, and questioned if drainage from the school or landfill had been altered in the past that could have already relieved the source of the erosion problem. It was noted that the site is within a Sensitive Species Project Review Area (SSPRA). Gwen said she would coordinate with DNR's Wildlife and Heritage Service to confirm the RTE species.

The USFWS and Prince George's BOE did not have any concerns with the site. Ray Li (USFWS) thought the site had potential due to its connection to adjacent wildlife corridors, and Ron Skyles (BOE) was overall in agreement with the site due to its remote location in the woods behind the school.

Attendees:

Name	Agency	Email
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USACE & MDE MITIGATION SITE REVIEW MEETING

**I-495 & I-270 Managed Lanes Study
MDE & USACE Permitting and Mitigation Coordination Meeting
700 East Pratt Street, Suite 500. Baltimore, Maryland 21202
January 10, 2020 @ 9:00 am**

Handouts: Permit Process Schedule Detail, Proposed Public Hearing Schedule, M-NCPPC Parks Mitigation Site Recommendations, Potential Mitigation Sites Table & Vicinity Map

* Indicates action items

A meeting was conducted on January 10, 2020 with the US Army Corps of Engineers (USACE) and Maryland Department of the Environment (MDE) to discuss permitting requirements and potential stream and wetland mitigation sites that will be included in the draft/phase I mitigation package. A summary of the topics discussed at the meeting follows.

Introductions, Implications in DEIS, and Revised Permit Schedule

The meeting began with introductions. The group then proceeded to discuss the implications of no recommended preferred alternative being identified within the Draft Environmental Impact Statement (DEIS). The group discussed the possibility of including the most impactful alternative, Alternative 10, in the initial draft of the JPA for public comment and then revising the permit application once the Recommended Preferred Alternative is identified in the FEIS and prior to the Record of Decision (ROD). Jack Dinne, USACE, indicated that he would need to discuss this possibility with Joe DaVia and USACE counsel and requested that the project team schedule a larger meeting to discuss these implications further and to determine a path forward for the JPA. *

The group then discussed the detailed Permit Process Schedule. The NEPA team asked if Steve Hurt would check with Amanda Sigillito, MDE, to determine whether it will work to submit the JPA 30 days prior to the single property owner notification of both the permit application and the public hearing notice. Steve agreed to check with Amanda Sigillito and get back to the NEPA team with an answer. *

The group discussed the timing of the public hearing dates/times. Jack Dinne and Steve Hurt requested that the hearing schedule be sent directly to Amanda Sigillito (MDE) and Joe DaVia (USACE) for their confirmation of dates/times, since they will be the panelists at the public hearings. * Jack indicated that USACE would prefer that the hearing times be shortened to 4-5 hours per day and offered that public testimony periods exceeding 3 hours are challenging. He suggested that additional days be added to the schedule if the project team feels it needs to receive more testimony than 3 hours per day. It was determined that the NEPA Team needs to coordinate further with Amanda Sigillito, MDE, and Joe DaVia, USACE, to finalize the public hearing schedule. * The agencies also recommended the NEPA Team complete the analysis of the new hybrid alternative prior to the public hearings and to make it clear in the public hearings whether the hybrid alternative is a viable alternative.

Mitigation Opportunities

The group proceeded to discuss the potential mitigation sites that were reviewed in the field by the agencies in November and December. Justin Reel and Karl Hellmann detailed the site selection process including the public and private mitigation approaches as well as the anticipated impacts and

mitigation requirements for the project. Each member of the group was given a list and map of the potential mitigation sites. The group then discussed the mitigation potential of each site on a watershed by watershed basis to confirm acceptance or rejection of the sites. Proposed credits were tracked during the discussion to determine if mitigation requirements were being met in each watershed. Results of the discussion follows:

RFP Sites:

- Include 4 of proposed RFP sites in the draft/phase 1 mitigation package; RFP-1, RFP-2, RFP-4, and RFP-5
- Further coordination is required on RFP-3 (Tuscarora Creek) prior to including the site in the draft/phase I mitigation package due to design concerns. *Note: Following the meeting, these concerns were discussed with the contractors and a new concept design has been developed and will be presented to the agencies in the near future.*
- RFP-1, Indian Creek and Tributaries at Konterra, assumed credits should be reduced. As presented the agencies are comfortable with 10.75 acres of wetlands, and ~13,000 linear feet of stream. Agencies suggested another meeting with all parties (MDE, USACE, the NEPA Team, and the RFP offeror) should be held. Discussion should focus on crediting, the size of stream buffers, and other creation opportunities.*

Public Sites:

- Include 8 of 14 proposed public sites in the draft/phase 1 package; PA-1, AN-1, AN-3, AN-6, AN-7, CA-2, CA-3, and CA-5
- Remove AN-3A, Northwest Branch Lamberton Dr. Trib. - M-NCPPC recommendation (upstream of site AN-3), due to limited functional uplift potential and site constraints
- Remove AN-4, Northwest Branch Glen Allen Ave. Trib., due to limited functional uplift potential and site constraints
- Remove AN-5, Northwest Branch Lamberton Dr. Trib., due to very limited functional uplift potential
- Remove CA-1, McKee Beshers, because additional wetland credits are not needed in Middle-Potomac-Catoctin watershed
- Remove CA-4, Cabin Branch, because of site constraints and limited restoration potential
- Remove CA-6, Rock Run, because of limited functional uplift potential and site constraints
- Reduce site size of AN-1, Crabbs Branch, to only include reed canary floodplain section (~4,276 LF)
- Reduce credit potential for AN-6, Paint Branch Fish Passage Site, to only include segment where in-stream work is proposed (~1,544 LF)

Based on the accepted sites and revised credits discussed above it was determined that the current mitigation package is deficient in the following watersheds and mitigation types:

- Middle-Potomac-Catoctin: ~900 feet short of stream mitigation credit. *Note: Following the meeting, the Tuscarora Creek site (RFP-3) was re-designed and included in the Phase I mitigation package, which removed the stream mitigation deficit in the Middle-Potomac-Catoctin Watershed.*
- Patuxent - ~3.5 acres short of wetland mitigation credit

Steve Hurt requested confirmation that the POWs listed in the mitigation table are ponds and that a note be added to the bottom of the table to clarify this. *

The deficiencies in credit led to a discussion of possible options to meet the required mitigation. The options discussed include:

1. Present the mitigation package “as is” and propose to make up shortfalls with surplus credits in the other watersheds and by expanding proposed sites in watersheds where possible.
2. Supplement the mitigation package with SHA umbrella bank credits from Aubaugh (wetland) and the proposed Woodfield Bank (ICC site SC-19, stream).
3. Present the package “as is” and propose site expansion/impact reduction for streams in Middle-Potomac-Catoctin and future bank credit/second RFP for shortfall in Patuxent since phasing places that section last.
4. Steve Hurt asked whether the contract indicated that the developer cannot create wetlands within the LOD to reduce impacts. He indicated that this had been attempted on previous projects in areas where timber matting had been placed and water had begun to pond. Steve suggested that onsite wetland mitigation be specifically addressed in the technical provisions.

Other Discussions

- Expanded Buffers
Areas with highly-erodible soils and steep slopes of 15% or greater will be indicated on the Online Mapping Tool as part of the JPA package. 297 out of 331 wetlands within the Alternative 9 LOD are adjacent either to highly-erodible soils or steep slopes. The most common situation is that if an expanded buffer were applied, the buffer would extend into the adjacent roadway. Steve Hurt indicated that during the draft JPA review, MDE will review these instances to determine whether any of these wetlands are within larger natural areas and will require expanded buffers.
- Major Crossings and Targeted Areas for Impact Reduction are covered in the Avoidance, Minimization, and Impacts Report (AMR), which will be a component of the JPA package. The Natural Resources Team has excerpted the AMR section covering major crossings and targeted areas for impact reduction and will send this text along with the associated impact plates and tables to Jack and Steve following the meeting for their review and feedback. *

Action Items

- Action Item: The NEPA Team will schedule a meeting with the agencies to discuss the permitting implications of removing the Recommended Preferred Alternative from the DEIS. (complete)
- Action Item: Steve Hurt will discuss with Amanda Sigillito, MDE, about the timing of the JPA and certified mail letters and respond to the NEPA team.
- Action Item: The NEPA Team will send the public hearing schedule directly to Joe DaVia (USACE) and Amanda Sigillito (MDE) for comment.

- Action Item: The NEPA Team will further coordinate with Joe DaVia (USACE) and Amanda Sigillito (MDE) about dates and times of the public hearings.
- Action Item: The NEPA Team will clarify in the mitigation tables that the POWs listed are pond impacts.
- Action Item: The NEPA Team will investigate contractual obligations related to wetland creation within the LOD during construction activities.
- Action Item: The NEPA Team will coordinate another site visit to RFP-1, Indian Creek and Tributaries at Konterra, to discuss crediting, the size of riparian buffers, and other creation opportunities.
- Action Item: The NEPA Team will send major crossings and targeted areas of impact reduction text and associated impact plates and tables to Steve Hurt and Jack Dinne for review and feedback. (complete)

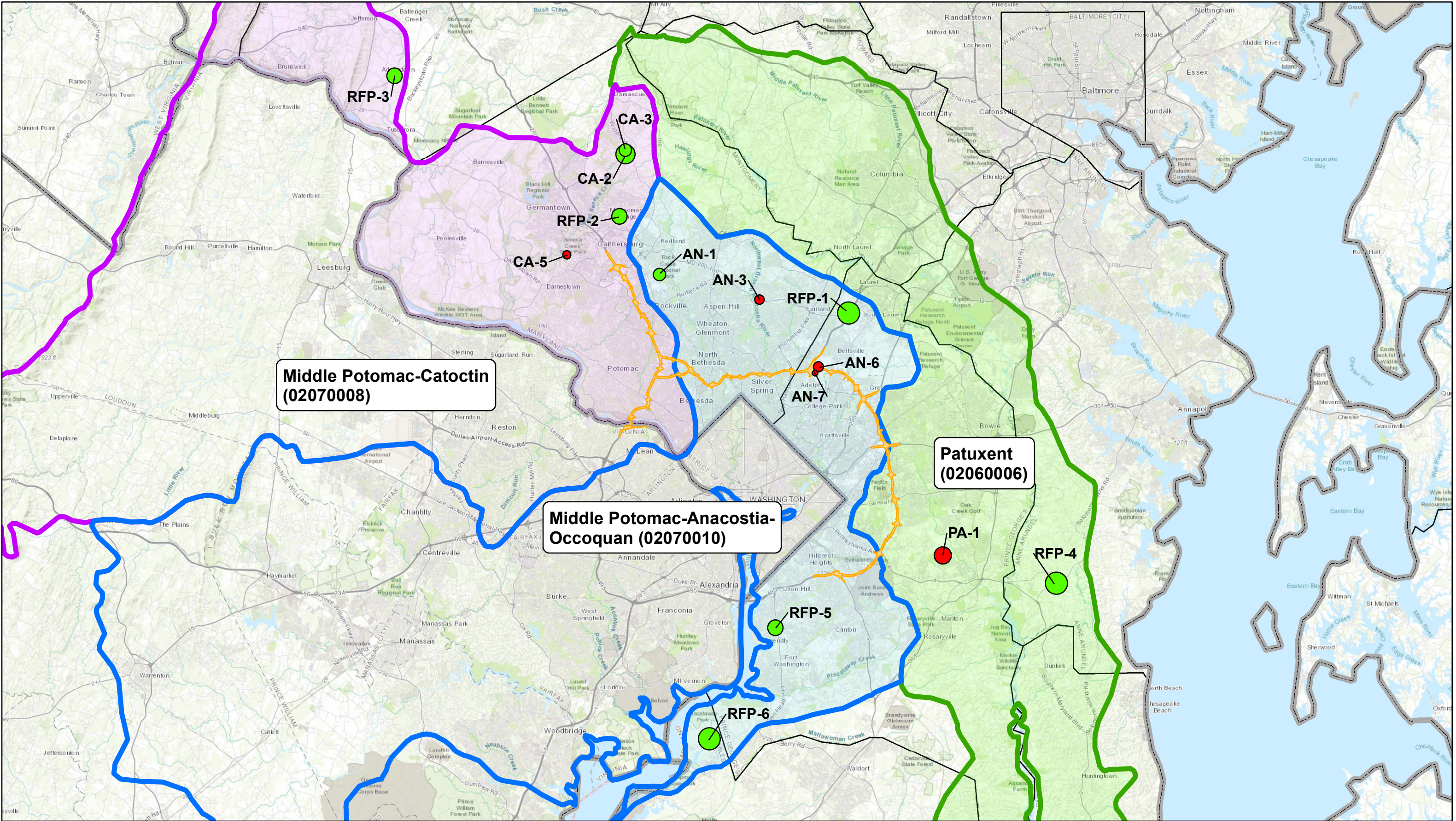


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APPENDIX J: PHASE I MITIGATION SITE VICINITY MAP



Legend

State Boundary

MLS Corridor

County Boundary

Middle Potomac-Anacostia-Occoquan

Middle Potomac-Catoctin

Patuxent

Stream Sites

Wetland/Stream Sites

036912

Miles

1 in = 6 Miles

**Figure J-1. Phase I Mitigation
Vicinity Map**

