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MEMORANDUM

TO: Attendees (via e-mail)
FROM: Rick Brylanski, P.E.
DATE: June 24, 2014
SUBJECT: CN13029- Nalle Grade Stormwater Park – Task 2 project meeting **HM#2013.046**

On June 17, 2014, a project meeting was held at the office of Lee County for **CN13029 Implementation of North Fort Myers Surface Water Management (NFMSWM) Plan Phase One; Task Two; Design, Permitting and CEI Services of Nalle Grade Stormwater Park.**

The following were in attendance:
Anura Karuna-Muni/Wanda Wooten/Phil Gillogly/Steve Farah/Sam Lee– LCNR; and Rick Brylanski – HM

The following **AGENDA** items discussed:

PROJECT UPDATE:

a. HYDRLOGIC/HYDRAULIC DATA COLLECTION:

Review of Bayshore Creek 2013 stage recorder data indicates that last year the creek exhibited the following surface water conditions:
Dry season Elevation – 17.4 ft NAVD
Wet Season Elevation – 19.1 to 20.4 ft NAVD
Peak Recorded Stage (Sept. 2, 2013) – 21.87 ft NAVD
By comparison, peak surface water elevations within the North Fort Myers Surface Water Master Plan ICPR analysis conclude for the Existing Conditions at Basin BAY-105 (downstream side of Nalle Grade Road) at 21.9 and 22.9 for the 5-year and 25-year design events.

LC staff presented additional groundwater monitoring output summarizing ground water elevations in proximity to the project and Popash Creek. LC staff directed Engineer to review groundwater elevations to verify provided treatment stages.

b. DESIGN ALTERNATIVES:

The five (5) Concepts plans were briefly reviewed, as well as the Costs/Benefit spreadsheets. In each analysis the cost was compared to the treatment storage provided within each concept. Staff requested that the concepts be reviewed based upon the amount of Nitrogen and phosphorous which may be removed, rather than just overall treatment storage volume due to possible grant opportunities. Staff requested Concepts 1, 4 and 5 be reviewed in this manner. Since some of the concepts provide unquantifiable benefits for the region, such as: increased conveyance capacity for culvert crossings of Nalle Grade Road and linear filter strips for Nalle Grade Road drainage prior to the introduction of stormwater into the filter marsh system – these types of benefits should be emphasized by narrative as part of the Benefit Costs analysis summary if applicable.

Other discussion items:

1. ***Staff requested that Life Cycle Costs be evaluated as part of each concept benefit-cost analysis. Using Powell Creek Preserve power usage for Operation and Maintenance considerations would be acceptable due to the similar anticipated pump characteristics and operation schedules.***

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2. ***It is the intent that the permitting of the site excludes disturbing the archery club lease area to the maximum extent possible, including any exotic vegetation removal.***

c. PROJECT MEETING:

Next meeting is tentatively scheduled for July 17, 2014 at 9:00 AM at the office of the Lee County Department of Natural Resources.

END OF MEETING

I trust the meeting minutes presented is consistent with the items discussed. However, if the attendees' recollection of the items discussed differs from what was presented, please submit me your comments within 10 days.

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MEMORANDUM

TO: Attendees (via e-mail w/concepts)
FROM: Rick Brylanski, P.E.
DATE: April 10, 2014
SUBJECT: CN13029- Nalle Grade Stormwater Park – project review meeting **HM#2013.046**

On April 3, 2014, a project introduction meeting was held at the site to meet and review the concepts with the Lee County Archers, Inc. Archery Club for **CN13029 Implementation of North Fort Myers Surface Water Management (NFMSWM) Plan Phase One; Task Two; Design, Permitting and CEI Services of Nalle Grade Stormwater Park.**

The following were in attendance:
Phil Gillogly– LCNR;
Robert Green, – Lee County Parks and Rec.;
Ben Brown, Pres.; John Lackey, Vice-Pres.; Ralph Galatz and Greg Miller, Board Members – Lee County Archers ***and Rick Brylanski – HM***

The meeting introduced the goals of the project and presented five (5) concepts prepared for the Nalle Grade Storm Water Park improvements. The park site is comprised of an archery lease which occupies approximately the southern third of the parcel, a wetland which was field verified and mapped by BEC, and the remainder of the parcel is partially utilized for public park use/access, as well as conveyance of the Bayshore Creek upper watershed along the eastern portion of the site. The parcel is bordered by Nalle Grade Road to the north, and rural residential properties along the other three boundary limits.

Concept 1:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Maintains archery lease area for southern one-third of property consistent with current lease.
- Limits direct impacts to the existing wetland, maintaining the jurisdictional wetland line as a boundary for any site development
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to dry treatment area.
- Proposes a 4 acre dry treatment area, with a bottom elevation of approximately 21.0 ft AVD. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 16 ac-ft of treatment volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; dry retention within the created dry treatment area; and further detention/wetland filtering by outfalling to the existing wetland prior to outfall back into the downstream portion Bayshore Creek. Note any breaches from existing wetland to adjacent properties or archery lease are proposed to be filled.
- Proposes a 5.9 acre filter marsh with direct connection to the southern swale of Nalle Grade Road to act as further regional treatment and storage for the open swale roadway drainage system. The bottom elevation would fluctuate from 19 to 20 ft AVD to offer foraging pools, and planting variations. The additional storage provided for Nalle Grade Road is approximately 11.2 ac-ft.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.

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- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 1 TOTAL TREATMENT STORAGE = 79.5 AC-FT (incl. wetland as area for water quality treatment)

Concept 2:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Maintains archery lease area for southern one-third of property consistent with current lease.
- Limits direct impacts to the existing wetland, maintaining the jurisdictional wetland line as a boundary for any site development
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to dry treatment area.
- Proposes a 4 acre dry treatment storage area, with a bottom elevation of 21 ft AVD. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 16 ac-ft of treatment volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; dry retention treatment area; and further detention/wetland filtering by outfalling to the existing wetland prior to outfall back into the downstream portion Bayshore Creek. Note any breaches from existing wetland adjacent properties or archery lease are proposed to be be filled.
- Proposes a 3.4 acre open water area with a 2.4 acre vegetative filter strip with direct connection to the southern swale of Nalle Grade Road to act as further regional treatment and storage for the open swale roadway drainage system. The additional storage provided for Nalle Grade Road is approximately 11.2 ac-ft.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 2 TOTAL TREATMENT STORAGE = 79.5 AC-FT (incl. wetland as area for water quality treatment)

Concept 3:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Impacts the fringe of the archery area bordering the exiting wetland to construct a raised berm. Does not impact the existing range targets or shooting areas.
- Proposes some direct impacts to the existing wetland to create an elevated berm along the boundary of the proposed storm water treatment area. A total footprint of 2.8 acres of primary wetland impacts is estimated.
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to storm water treatment area.
- Proposes a 38.7 acre overall surface water treatment storage area, consisting of a created filter marsh (or as an option a dry retention area) area of 3.8 acre; a created filter marsh/mitigation area of an additional 2.4 acres with a bottom elevation of varying from 18 to 21.0 ft AVD; and utilizing 24.7 acres of the existing wetland. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 116 ac-ft of storage volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.

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- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; retention within the created filter marsh areas; and further attenuation/wetland filtering by outfalling to the existing wetland prior to discharge back into the downstream portion Bayshore Creek. The existing wetland was determined to exhibit a Seasonal High Water Level (SHWL) by survey of wetland indicators at 21.7 ft AVD. It is intended to use this as a seasonal high, however in extreme rainfall events; the bermed wetland could exhibit higher storage elevation up to elevation 25.0 ft AVD to provide additional storage opportunities for the watershed.
- Proposes an improved swale system with direct connection to the southern swale of Nalle Grade Road to act as an improved conveyance for the roadway drainage system. Area includes removal of existing exotics.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 3 TOTAL TREATMENT STORAGE = 116 AC-FT

Concept 4:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Impacts the fringe of the archery area bordering the exiting wetland to construct a raised berm. Does not impact the existing range targets or shooting areas.
- Proposes some direct impacts to the existing wetland to create an elevated berm along the boundary of the proposed storm water treatment area. A total footprint of 2.8 acres of primary wetland impacts is estimated.
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to storm water treatment area.
- Proposes a 32 acre overall surface water treatment storage area, consisting of a created filter marsh (or as an option a dry retention area) area of 3.8 acre; a created filter marsh/mitigation area of an additional 2.4 acres with a bottom elevation of varying from 18 to 21.0 ft AVD; and utilizing 24.7 acres of the existing wetland. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 105 ac-ft of storage volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; retention within the created filter marsh area; and further attenuation/wetland filtering by outfalling to the existing wetland prior to discharge back into the downstream portion Bayshore Creek. The existing wetland was determined to exhibit a Seasonal High Water Level (SHWL) by survey of wetland indicators at 21.7 ft AVD. It is intended to use this as a seasonal high, however in extreme rainfall events, the bermed wetland could exhibit higher storage elevation up to elevation 25.0 ft AVD to provide additional storage opportunities for the watershed.
- Proposes a 5.9 acre filter marsh with direct connection to the southern swale of Nalle Grade Road to act as further regional treatment and storage for the open swale roadway drainage system. The bottom elevation would fluctuate from 19 to 20 ft AVD to offer foraging pools, and planting variations. The additional storage provided for Nalle Grade Road is approximately 11.2 ac-ft.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 4 TOTAL TREATMENT STORAGE = 128.2 AC-FT

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Concept 5:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Impacts the fringe of the archery area bordering the exiting wetland to construct a raised berm. Does not impact the existing range targets or shooting areas.
- Proposes some direct impacts to the existing wetland to create an elevated berm (elev. 23.0 ft AVD) along the boundary of the proposed storm water treatment area. A total footprint of 1.9 acres of primary wetland impacts is estimated.
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to storm water treatment area.
- Proposes a 42.2 acre overall surface water treatment storage area, consisting of a created filter marsh (or as an option a dry retention area) area of 4.6 acre; an open water area of an additional 2.5 acres with a bottom elevation of 17.0 ft AVD; and utilizing 35.1 acres of the existing wetland. The area would be encircled with a raised berm at elevation 23.0 to provide approx. 65 ac-ft of storage volume while still maintaining a minimum freeboard of one-foot. The influent source would be generated from the adjacent Bayshore Creek.
- If an on-line treatment system is desired, then a weir may be installed within the downstream section of Bayshore Creek to create a water elevation differential to force influent through the treatment train before discharge to the downstream Bayshore Creek. If an off-line system is desired, the weir would not be included, and the water level in the created system would equalize with the adjacent Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/Bayshore Creek; dry retention/wet detention within the created marsh and open water area; and further attenuation/wetland filtering by outfalling to the existing wetland prior to discharge back into the downstream portion Bayshore Creek.
- Proposes an improved vegetated filter strip/swale system with direct connection to the southern swale of Nalle Grade Road to act as an improved conveyance and water quality for the roadway drainage system. Area includes removal of existing exotics.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 5 TOTAL TREATMENT STORAGE = 65 AC-FT (excl. vegetated filter strip – Nalle Grade Rd.)

Discussion on the presented concepts provided the following input:

1. The Archery Club accepts the improvements as being positive for the watershed, but would not want any of the improvements to encroach within their lease area. The lease area is being well occupied for the archery club activities. However, it is possible that a small area near the security gate and just east of the access road could be utilized for the pumping station location if necessary. The opinion of staff is that the area would provide better security for the pumping station equipment if located behind the lease security gate.
2. The Archery Club does use a portion of the non-lease park area for a range near the security gate. The alignment for the range uses a south to north alignment due to path of the sun. This area would be affected by each of the concepts. The Club did not have a solution for its relocation, but would work with staff on a preferred location.
3. The Archery Club was informed that it might be required to remove all exotic vegetation as part of the project improvements which may include the land within their lease area. They mentioned that they understand the need for exotic removal; however, the vegetation does offer a shade benefit for the range that they will lose.
4. Archery Club noted that the immediate downstream section of Bayshore Creek from the County park site has a shallow bottom section due to a limerock strata that was not excavated as part of the creek

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channeling. It is approximately 60-80 long and is about 3 feet higher than the adjacent channel depth. The deepening of this section may improve the water conveyance for the upstream Bayshore Creek.

5. There is no schedule for the project construction at this time. In all likelihood, the project will not start prior to mid-2015 due to the design process remaining, permitting review by various agencies, and public bidding requirements.
6. Some perceptions of the concepts that were clarified by staff and HM were discussed as follows:
    a. The lease area will not exhibit noticeably different hydrology at the completion of the project. The storm water improvements proposed serve to benefit water quality for the Caloosahatchee River, and have minor benefit for flood control. However, the improvements would redirect upstream water from the wetland area to the creek versus through an existing narrow ditch which runs within the lease. This would lessen runoff through the lease – possibly benefitting the lease during peak wet season.
    b. The concepts require some berming along the lease boundary affronting the wetland. The berm varies in the concepts from a lower elevation of 23.0 ft to 26.0 ft AVD (or around 3 to 6 feet higher than existing grade). When considering side slopes and top width of berm, the disturbed area would be approximately 80 feet in width. The berm is proposed to start at the edge of the target range and proceed to the wetland. The active and currently utilized shooting range area should not be affected with the exception for the backdrop of the range that will be cleared and filled with the raised berm construction.
    c. Per each of the concepts, the existing access gate to the lease area will remain and will not be affected.

END OF MEETING

I trust the meeting minutes presented is consistent with the items discussed. However, if the attendees' recollection of the items discussed differs from what was presented, please submit me your comments within 10 days.

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MEMORANDUM

TO: Attendees (via e-mail w/concepts)
FROM: Rick Brylanski, P.E.
DATE: March 26, 2014
SUBJECT: CN13029- Nalle Grade Stormwater Park – project review meeting **HM#2013.046**

On March 12, 2014, a project introduction meeting was held at the office of South Florida Water Management District – Fort Myers Service Center to review **CN13029 Implementation of North Fort Myers Surface Water Management (NFMSWM) Plan Phase One; Task Two; Design, Permitting and CEI Services of Nalle Grade Stormwater Park.**

The following were in attendance:
Anura Karuna-Muni/Phil Gillogly– LCNR;
Dan Waters/Laura Layman – SFWMD;
Dave Mason – Boylan Env. Consultants (BEC)
and Rick Brylanski – HM

The meeting introduced the goals of the project and presented five (5) concepts prepared for the Nalle Grade Storm Water Park improvements. The park site is comprised of an archery lease which occupies approximately the southern third of the parcel, a wetland which was field verified and mapped by BEC, and the remainder of the parcel is partially utilized for public park use/access, as well as conveyance of the Bayshore Creek upper watershed along the eastern portion of the site. The parcel is bordered by Nalle Grade Road to the north, and rural residential properties along the other three boundary limits.

The following Hydrologic data for Bayshore Creek was presented:
Review of Bayshore Creek 2013 stage recorder data indicates that last year the creek exhibited the following surface water conditions:
Dry season Elevation – 17.4 ft AVD
Wet Season Elevation – 19.1 to 20.4 ft AVD
Peak Recorded Stage (Sept. 2, 2013) – 21.87 ft AVD

Concept 1:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Maintains archery lease area for southern one-third of property consistent with current lease.
- Limits direct impacts to the existing wetland, maintaining the jurisdictional wetland line as a boundary for any site development
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to dry treatment area.
- Proposes a 4 acre dry treatment area, with a bottom elevation of approximately 21.0 ft AVD. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 16 ac-ft of treatment volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; dry retention within the created dry treatment area; and further detention/wetland filtering by outfalling to the existing wetland prior to outfall back into the downstream portion Bayshore Creek. Note any breaches from existing

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wetland to adjacent properties or archery lease are proposed to be filled.

- Proposes a 5.9 acre filter marsh with direct connection to the southern swale of Nalle Grade Road to act as further regional treatment and storage for the open swale roadway drainage system. The bottom elevation would fluctuate from 19 to 20 ft AVD to offer foraging pools, and planting variations. The additional storage provided for Nalle Grade Road is approximately 11.2 ac-ft.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 1 TOTAL TREATMENT STORAGE = 79.5 AC-FT (incl. wetland as area for water quality treatment)

Concept 2:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Maintains archery lease area for southern one-third of property consistent with current lease.
- Limits direct impacts to the existing wetland, maintaining the jurisdictional wetland line as a boundary for any site development
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to dry treatment area.
- Proposes a 4 acre dry treatment storage area, with a bottom elevation of 21 ft AVD. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 16 ac-ft of treatment volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; dry retention treatment area; and further detention/wetland filtering by outfalling to the existing wetland prior to outfall back into the downstream portion Bayshore Creek. Note any breaches from existing wetland adjacent properties or archery lease are proposed to be be filled.
- Proposes a 3.4 acre open water area with a 2.4 acre vegetative filter strip with direct connection to the southern swale of Nalle Grade Road to act as further regional treatment and storage for the open swale roadway drainage system. The additional storage provided for Nalle Grade Road is approximately 11.2 ac-ft.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 2 TOTAL TREATMENT STORAGE = 79.5 AC-FT (incl. wetland as area for water quality treatment)

Concept 3:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Impacts the fringe of the archery area bordering the exiting wetland to construct a raised berm. Does not impact the existing range targets or shooting areas.
- Proposes some direct impacts to the existing wetland to create an elevated berm along the boundary of the proposed storm water treatment area. A total footprint of 2.8 acres of primary wetland impacts is estimated.
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to storm water treatment

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area.

- Proposes a 38.7 acre overall surface water treatment storage area, consisting of a created filter marsh (or as an option a dry retention area) area of 3.8 acre; a created filter marsh/mitigation area of an additional 2.4 acres with a bottom elevation of varying from 18 to 21.0 ft AVD; and utilizing 24.7 acres of the existing wetland. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 116 ac-ft of storage volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; retention within the created filter marsh areas; and further attenuation/wetland filtering by outfalling to the existing wetland prior to discharge back into the downstream portion Bayshore Creek. The existing wetland was determined to exhibit a Seasonal High Water Level (SHWL) by survey of wetland indicators at 21.7 ft AVD. It is intended to use this as a seasonal high, however in extreme rainfall events; the bermed wetland could exhibit higher storage elevation up to elevation 25.0 ft AVD to provide additional storage opportunities for the watershed.
- Proposes an improved swale system with direct connection to the southern swale of Nalle Grade Road to act as an improved conveyance for the roadway drainage system. Area includes removal of existing exotics.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 3 TOTAL TREATMENT STORAGE = 116 AC-FT

<u>Concept 4:</u>

- Maintains the use of the picnic shelter “as-is” with adjacent “open space” for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Impacts the fringe of the archery area bordering the exiting wetland to construct a raised berm. Does not impact the existing range targets or shooting areas.
- Proposes some direct impacts to the existing wetland to create an elevated berm along the boundary of the proposed storm water treatment area. A total footprint of 2.8 acres of primary wetland impacts is estimated.
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an “open water” area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to storm water treatment area.
- Proposes a 32 acre overall surface water treatment storage area, consisting of a created filter marsh (or as an option a dry retention area) area of 3.8 acre; a created filter marsh/mitigation area of an additional 2.4 acres with a bottom elevation of varying from 18 to 21.0 ft AVD; and utilizing 24.7 acres of the existing wetland. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 105 ac-ft of storage volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; retention within the created filter marsh area; and further attenuation/wetland filtering by outfalling to the existing wetland prior to discharge back into the downstream portion Bayshore Creek. The existing wetland was determined to exhibit a Seasonal High Water Level (SHWL) by survey of wetland indicators at 21.7 ft AVD. It is intended to use this as a seasonal high, however in extreme rainfall events, the bermed wetland could exhibit higher storage elevation up to elevation 25.0 ft AVD to provide additional storage opportunities for the watershed.
- Proposes a 5.9 acre filter marsh with direct connection to the southern swale of Nalle Grade Road to act as further regional treatment and storage for the open swale roadway drainage system. The bottom elevation would fluctuate from 19 to 20 ft AVD to offer foraging pools, and planting variations. The additional storage provided for Nalle Grade Road is approximately 11.2 ac-ft.

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- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 4 TOTAL TREATMENT STORAGE = 128.2 AC-FT

Concept 5:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Impacts the fringe of the archery area bordering the exiting wetland to construct a raised berm. Does not impact the existing range targets or shooting areas.
- Proposes some direct impacts to the existing wetland to create an elevated berm (elev. 23.0 ft AVD) along the boundary of the proposed storm water treatment area. A total footprint of 1.9 acres of primary wetland impacts is estimated.
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to storm water treatment area.
- Proposes a 42.2 acre overall surface water treatment storage area, consisting of a created filter marsh (or as an option a dry retention area) area of 4.6 acre; an open water area of an additional 2.5 acres with a bottom elevation of 17.0 ft AVD; and utilizing 35.1 acres of the existing wetland. The area would be encircled with a raised berm at elevation 23.0 to provide approx. 65 ac-ft of storage volume while still maintaining a minimum freeboard of one-foot. The influent source would be generated from the adjacent Bayshore Creek.
- If an on-line treatment system is desired, then a weir may be installed within the downstream section of Bayshore Creek to create a water elevation differential to force influent through the treatment train before discharge to the downstream Bayshore Creek. If an off-line system is desired, the weir would not be included, and the water level in the created system would equalize with the adjacent Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/Bayshore Creek; dry retention/wet detention within the created marsh and open water area; and further attenuation/wetland filtering by outfalling to the existing wetland prior to discharge back into the downstream portion Bayshore Creek.
- Proposes an improved vegetated filter strip/swale system with direct connection to the southern swale of Nalle Grade Road to act as an improved conveyance and water quality for the roadway drainage system. Area includes removal of existing exotics.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 5 TOTAL TREATMENT STORAGE = 65 AC-FT (excl. vegetated filter strip – Nalle Grade Rd.)

Discussion with staff on the presented concepts provided the following input:

1. A UMAM assessment will be required for all direct and secondary wetland impacts.
2. If mitigation is required, County wetland credits may be used.
3. If the hydro-period of the wetland is altered, the assessement will need to include the secondary effects of the change.

END OF MEETING

I trust the meeting minutes presented is consistent with the items discussed. However, if the attendees' recollection of the items discussed differs from what was presented, please submit me your comments within 10 days.

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MEMORANDUM

TO: Attendees (via e-mail w/concepts)
FROM: Rick Brylanski, P.E.
DATE: March 10, 2014
SUBJECT: CN13029- Nalle Grade Stormwater Park – Task 2 project meeting **HM#2013.046**

On February 13, 2014, a project meeting was held at the office of Lee County for **CN13029 Implementation of North Fort Myers Surface Water Management (NFMSWM) Plan Phase One; Task Two; Design, Permitting and CEI Services of Nalle Grade Stormwater Park.**

The following were in attendance:
Anura Karuna-Muni/Wanda Wooten/Phil Gillogly– LCNR; and Rick Brylanski – HM

The following **AGENDA** items discussed:

PROJECT UPDATE:

a. DATA COLLECTION:

i. Boundary Survey – Completed and pdf submitted to County.

ii. Topographic Survey –Field work completed and data provided within design alternatives

iii. Wildlife Survey – Completed and pdf submitted to County.

iv. Jurisdictional Wetland Survey – Completed and pdf submitted to County.

b. HYDRLOGIC/HYDRAULIC DATA COLLECTION:

Review of Bayshore Creek 2013 stage recorder data indicates that last year the creek exhibited the following surface water conditions:
Dry season Elevation – 17.4 ft AVD
Wet Season Elevation – 19.1 to 20.4 ft AVD
Peak Recorded Stage (Sept. 2, 2013) – 21.87 ft AVD

c. DESIGN ALTERNATIVES:

Design considerations were discussed at the preceding January meeting. Three (3) Design Concepts were presented with summary of key items as follows:

Concept 1:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Maintains archery lease area for southern one-third of property consistent with current lease.
- Limits direct impacts to the existing wetland, maintaining the jurisdictional wetland line as a boundary for any site development
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area

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will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to dry treatment area.

- Proposes a 4 acre dry treatment area, with a bottom elevation of approximately 21.0 ft AVD. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 16 ac-ft of treatment volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; dry retention within the created dry treatment area; and further detention/wetland filtering by outfalling to the existing wetland prior to outfall back into the downstream portion Bayshore Creek. Note any breaches from existing wetland to adjacent properties or archery lease are proposed to be filled.
- Proposes a 5.9 acre filter marsh with direct connection to the southern swale of Nalle Grade Road to act as further regional treatment and storage for the open swale roadway drainage system. The bottom elevation would fluctuate from 18 to 20 ft AVD to offer foraging pools, and planting variations. The additional storage provided for Nalle Grade Road is approximately 15 ac-ft.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 2:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Maintains archery lease area for southern one-third of property consistent with current lease.
- Limits direct impacts to the existing wetland, maintaining the jurisdictional wetland line as a boundary for any site development
- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to dry treatment area.
- Proposes a 4 acre dry treatment storage area, with a bottom elevation of 21 ft AVD. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 16 ac-ft of treatment volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; dry retention treatment area; and further detention/wetland filtering by outfalling to the existing wetland prior to outfall back into the downstream portion Bayshore Creek. Note any breaches from existing wetland adjacent properties or archery lease are proposed to be be filled.
- Proposes a 3.4 acre open water area with a 2.4 acre vegetative filter strip with direct connection to the southern swale of Nalle Grade Road to act as further regional treatment and storage for the open swale roadway drainage system. The additional storage provided for Nalle Grade Road is approximately 11.6 ac-ft.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Concept 3:

- Maintains the use of the picnic shelter "as-is" with adjacent "open space" for recreational use.
- Provides a suitable footprint for a formal public park access and parking area consisting of up to 40 spaces, if desired
- Impacts the fringe of the archery area bordering the exiting wetland to construct a raised berm. Does not impact the existing range targets or shooting areas.
- Proposes some direct impacts to the existing wetland to create an elevated berm along the boundary of the

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proposed storm water treatment area. A total footprint of 2.8 acres of primary wetland impacts is estimated.

- Proposes a wider conveyance for the northern portion of Bayshore Creek as an "open water" area. The area will be graded to a bottom elevation of 17.0 ft AVD which is consistent with the current bottom elevation of the channel. The open water area will be used as the source for pumping water to storm water treatment area.
- Proposes a 38.7 acre overall surface water treatment storage area, consisting of a created filter marsh (or as an option a dry retention area) area of 3.8 acre; a created filter marsh/mitigation area of an additional 2.4 acres with a bottom elevation of varying from 18 to 21.0 ft AVD; and utilizing 24.7 acres of the existing wetland. The area would be encircled with a raised berm at elevation 26.0 to provide approx. 116 ac-ft of storage volume while still maintaining a freeboard of one-foot. The influent would be a pumped source from the open water section of Bayshore Creek.
- Proposes a treatment train, utilizing sediment removal within the open water/ Bayshore Creek; dry retention within the created dry treatment area; and further attenuation/wetland filtering by outfalling to the existing wetland prior to outfall back into the downstream portion Bayshore Creek. Utilizing the existing wetland for treatment storage exceeding the natural hydro-period may cause secondary impacts to the remainder of the wetland.
- Proposes an improved swale system with direct connection to the southern swale of Nalle Grade Road to act as an improved conveyance for the roadway drainage system. Area includes removal of existing exotics.
- During the detail design process and modeling of the project, additional culverts crossings would be considered under Nalle Grade Road and other locations.
- Passive recreation opportunities would be possible by providing recreational trails along protective berms, and fringes of wetland/created filter marsh locations.

Discussion with staff on the presented concepts provided the following input:

1. ***Indicate on each concept the total treatment/storage provided for ease of review and comparison.***
2. ***Prepare a Concept 4, which is a hybrid of Concept 3 with Concept 1 treatment storage provided adjacent to Nalle Grade Road.***
3. ***Consider additional cross culverts along Nalle Road in addition to the culverts as proposed. Locate culvert crossing along western property line or nearby to this location.***
4. ***Prepare a concept which does not utilize a pump, but gravity structures.***

a. PUBLIC MEETING/PRESENTATION:

i. Consider setting up a meeting with Archery Club to review concepts once they are prepared per staff input listed above. Consider additional meeting w/ SFWMD-Laura Layman to review potential wetland issues with primary impacts, and potential secondary impacts due to hydroperiod changes.

b. PROJECT MEETING:

i. Next meeting is tentatively scheduled for March 13, 2014 at 9:00 AM at the office of the Lee County Department of Natural Resources.

END OF MEETING

I trust the meeting minutes presented is consistent with the items discussed. However, if the attendees' recollection of the items discussed differs from what was presented, please submit me your comments within 10 days.

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MEMORANDUM

TO: Attendees (via e-mail)
FROM: Rick Brylanski, P.E.
DATE: January 9, 2014
SUBJECT: CN13029- Nalle Grade Stormwater Park – Task 2 project meeting **HM#2013.046**

On this date, January 9, a project meeting was held at the office of Lee County for **CN13029 Implementation of North Fort Myers Surface Water Management (NFMSWM) Plan Phase One; Task Two; Design, Permitting and CEI Services of Nalle Grade Stormwater Park.**

The following were in attendance:
Anura Karuna-Muni/Sam Lee/Phil Gillogly– LCNR; and Rick Brylanski – HM

The following **AGENDA** items discussed:

PROJECT UPDATE:

a. DATA COLLECTION:

i. Boundary Survey – All property corners have been established.

ii. Topographic Survey – Majority of Field work completed

iii. Wildlife Survey – BEC completed.

iv. Jurisdictional Wetland Survey – BEC completed.

b. HYDRLOGIC/HYDRAULIC DATA COLLECTION:

i. ICPR data files have been provided by County staff related to the North Fort Myers Surface Water Master Plan prepared for Bayshore Creek watershed.

ii. Field review of the peak wet season conditions exhibited this year has been observed by consultant for subject watershed. The issues observed which impede the flowways draining the upstream areas have been documented during the October 2 Public meeting. Issues of note is lack of maintenance of privately owned conveyances (ditches/culverts); fencing transecting open channels which eventually clog with floating debris/vegetation; and lack of channelized drainage along private roadways to collect and convey the runoff from adjacent properties.

c. DESIGN ALTERNATIVES:

i. Discuss Conceptual Plan considerations (see attached).

d. PUBLIC MEETING/PRESENTATION:

i. Consultant met with Bayshore Creek Civic Association January 6.

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Nalle Grade Storm Water Park – Conceptual Plan Considerations:

1. **Archery Club** – maintain lease area "as-is". No improvements to be located within active lease area with exception of berming to isolate storm water treatment from discharging through lease area, and exotic removal. A meeting will be proposed with Club to discuss design concepts, and possible areas within lease areas which are not being utilized by club.

2. **Existing Park Pavilion** – Structure to remain "as-is".

3. **Existing Park ingress/egress** – Maintain existing driveway at its present location. Consider improving access by installation of paved driveway.

4. **Public Parking** – Existing park does not provide a formal parking area.
    a. Consider planning location for formal parking area for park use.
    b. Park access/public parking would be Park's Dept. decision related to number of spaces, restrictions or security as presently exists.

5. **Bridal Path** – Consider planning corridor for bridal path adjacent to Nalle Grade Road. Note: There are no bridal paths located within Nalle Grade Road currently. Note: comment suggested by Bayshore Civic Assn.

6. **Existing Vegetated Buffer along Nalle Grade Road** – consider thinning line of sight vegetation for improved visibility from adjacent Nalle Grade Road for improved security of park/pavilion area.

7. **Park area west of existing pavilion** –
    a. Should this area remain as-is, or be included with potential storm water treatment area?
    b. Consider alternate for isolated storm water treatment area connected to southern swale of Nalle Grade Road.

8. **Provide Open Water on site for fishing** – Consider widening Bayshore Creek for improved conveyance and recreational fishing opportunity.

9. **Nalle Grade Rd./Bayshore creek storm sewer crossing** – The existing dual 48" culverts do not convey the 25-year design event according to the NFMSWM ICPR analysis. Consider upgrading crossing by additional culvert(s) to improve capacity.

10. **Existing jurisdictional wetland** –
    a. Consider not impacting wetland area by fill or dredging and maintaining existing jurisdictional limits.
    b. Evaluate secondary impacts by incorporating within storm water treatment train. HM/BEC to obtain in field hydrologic wetland indicators for viable hydro-period restoration.

11. **Water Quality Treatment Goal** – According to NFMSWM, the Bayshore Creek watershed does not pose water quality concerns, but cited dry retention goals which provide quality and quantity benefits:
    a. Provide treatment system which provides recommendation from report of approximately 30 acres at 3.5 feet of vertical treatment stage, or what storage is practical due to land limitations. Site has restrictions as far as existing wetland, archery lease area, and existing park facilities – 30 acres of retention area may not be possible without impacts to these uses.
    b. Consider sorptive media material options in treatment cells – i.e. wood chips, sawdust, tire crumbs, limestone, etc…

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PROJECT MEETING:

Next meeting is scheduled for February 13, 2014 at 9:00 AM at the office of the Lee County Department of Natural Resources

END OF MEETING
I trust the meeting minutes presented is consistent with the items discussed. However, if the attendees' recollection of the items discussed differs from what was presented, please submit me your comments within 10 days.

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MEMORANDUM

TO: Attendees (via e-mail)
FROM: Rick Brylanski, P.E.
DATE: December 9, 2013
SUBJECT: CN13029- Nalle Grade Stormwater Park – Task 2 project meeting **HM#2013.046**

On December 5, 2013, a project meeting was held at the office of Lee County for **CN13029 Implementation of North Fort Myers Surface Water Management (NFMSWM) Plan Phase One; Task Two; Design, Permitting and CEI Services of Nalle Grade Stormwater Park.**

The following were in attendance:
Anura Karuna-Muni/Steve Farah/Wanda Wooten/Sam Lee/Phil Gillogly– LCNR; and Rick Brylanski – HM

The following **AGENDA** items discussed:

Review of PREVIOUS ACTION ITEMS from June 25, 2013 Scope Meeting:

A. Dean Cerdan will research if a property survey of the site or record park plans of the site is available.
Comment: No information was provided. Item to be deleted.
B. Dean Cerdan to provide lease agreement with respect to Lee County Archers, Inc. lease boundary and access considerations.
Comment: Lease was provided. Item to be deleted.
C. Sam Lee will research on-going studies with respect to Charlotte Harbor Flatwood Master Plan
Comment: Nothing new to report.
D. LCNR provided consultant via email surface water recorder data and ground water data for both Popash and Bayshore watersheds.
Comment: LCNR provided consultant data available through on-line sources. Item to be deleted.
E. LCNR provided consultant via email Popash Creek ICPR data.
Comment: ICPR data files provided by LCNR. Item to be deleted.
F. Consultant to prepare draft Scope of Services for staff review.
Comment: Consultant provided scope which has been subsequently authorized by BOCC. Item to be deleted.

PROJECT UPDATE:

e. DATA COLLECTION:

i. Boundary Survey – parcel deed is based upon fractional description and the section quarter has been field surveyed and the parcel has been described based upon the section monumentation. All property corners have been established.

ii. Topographic Survey – The field survey was suspended due to severe wet conditions of the site. The survey has resumed and now the majority of the site topography has been obtained including sections along east ditch/property and along Nalle Grade Road. In addition, County survey data files for Nalle Grade Road have been appended to survey data showing right-of-way culverts from Popash Creek to Williams Drive. The remaining effort to complete the survey requires additional field data of the archery range and middle portions of the parcel.

iii. Wildlife Survey – The conditions for wildlife survey have improved due to the drier site conditions. The

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parcel will be surveyed over the next two weeks and a Species Survey will be prepared as a final product.

iv. Jurisdictional Wetland Survey – The conditions for wetland determination have improved due to the drier site conditions. The wetland will be surveyed over the next two weeks and a FLUCCS map will be prepared as a final product.

f. HYDRLOGIC/HYDRAULIC DATA COLLECTION:

i. ICPR data files have been provided by County staff related to the North Fort Myers Surface Water Master Plan prepared for Bayshore Creek watershed.

ii. Field review of the peak wet season conditions exhibited this year has been observed by consultant for subject watershed. The issues observed which impede the flowways draining the upstream areas have been documented during the October 2 Public meeting. Issues of note is lack of maintenance of privately owned conveyances (ditches/culverts); fencing transecting open channels which eventually clog with floating debris/vegetation; and lack of channelized drainage along private roadways to collect and convey the runoff from adjacent properties.

g. DESIGN ALTERNATIVES:

i. No activity has been completed until data collection has been finalized.

h. PUBLIC MEETING/PRESENTATION:

i. A public meeting was conducted for the project at the office of Lee County on October 2, 2013. The County staff/consultant presented an overview of the project objectives for the Nalle Grade Storm Water Park project. Several civic organizations represented at the meeting were invited to participate in the review of the project at future milestones determined by County staff.

i. PROJECT MEETING:

i. Next meeting is scheduled for January 9, 2014 at 9:00 AM at the office of the Lee County Department of Natural Resources.

j. OTHER DISCUSSION ITEMS:

i. Due to input provided by the residents at the October Public Meeting, which concentrated on the desire to improve conveyances and capacity to abate flooding exhibited during the current wet season, LCNR staff suggested that Consultant may want to review as part of "Design Alternatives" other regional improvements which conceptually may want to be considered. These suggestions would be based upon observations of the field conditions within the Bayshore Creek and adjacent watersheds.

ii. County has been approached by the adjacent landowner to the east of the park parcel, containing 7.5 acres more or less, to purchase the property. LCNR may request Consultant to look at potential water quality benefits which may be realized by aggregation of land as part of project.

END OF MEETING

I trust the meeting minutes presented is consistent with the items discussed. However, if the attendees' recollection of the items discussed differs from what was presented, please submit me your comments within 10 days.