

BAGDAD MILL SITE PARK

DRAINAGE REPORT

Submitted For:



Santa Rosa County

Prepared By:

ATKINS

**Atkins North America
2401 Executive Plaza, Suite 2
Pensacola, Florida 32504**

January 2012

Table of Contents

1.0	Project Location	1
2.0	Introduction	1
3.0	Project Site History	1
3.1	Previous Development	1
3.2	Ownership	2
4.0	On-Site Drainage Evaluation	2
4.1	Overview	2
4.2	On-Site Stormwater Management Facilities	3
4.2.1	<i>Basin 1</i>	3
4.2.2	<i>Basin 2</i>	3
4.2.3	<i>Basin 3</i>	4
4.3	Areas Dedicated for Over-Treatment	4
5.0	Stormwater Modeling	5
6.0	Floodplains	5
7.0	Environmental Impact	5
6.1	Sovereign Submerged Lands Impacts	5
6.2	Wetland Impacts	6
6.3	Wetland Impacts	6

APPENDICES

Appendix A – Previous Permit Documentation

Appendix B – Lease and Sublease Documentation

Appendix C – NRCS Soil Survey

Appendix D – Geotechnical Report

Appendix E – FDEP Pre-Application Meeting Minutes

Appendix F – Proposed Basin Maps/Over-Treatment Area Calculations

Appendix G – On-Site Stormwater Management Facility Calculations

Appendix H – Stormwater Modeling Data

Appendix I – Floodplain Data

Appendix J – Dredge and Fill Drawings

1.0 Project Location

The subject property is located at 6953 Main Street on the northern side of Bagdad within Sections 10 and 11, Township 1 North, Range 28 West, Santa Rosa County, Florida. A portion of the U. S. Geological Survey (USGS) 7.5 Minute Topographic Quadrangle Map of Milton South, Florida showing the site location is presented as Figure 1, Site Vicinity Map.

The Santa Rosa County parcel number is 15-1N-28-0120-00100-0010. The irregularly shaped property is located at the southwest corner of the confluence of the Blackwater River and Pond Creek, which border the eastern and northern property line, respectively. The southern and western property lines are bordered by private residences and city streets.

2.0 Introduction

The Bagdad Mill Site was acquired by the State of Florida Board of Trustees in 2000 and was leased to Santa Rosa County in 2004 for development of a passive recreation area. A passive park is typically defined as an area maintained in its natural state with no active sporting facilities and amenities focused on passive activities such as walking trails, picnicking, and nature study.

Park facilities to be designed include a park entrance gate, main parking area, walking trail loop, entertainment pavilion with a nearby restroom for performances and events, information and teaching kiosk, a fishing pier with floating dock for boat tie-up, and boardwalk access to a kayak launch. Hardscape amenities are to include a gazebo with seating, lighting and electrical plans picnic tables, benches, grills and bike racks. Future development will allow for the construction of a maintenance building as well as provide for the potential connection to the Bagdad Heritage Trail.

One educational component of the park is the installation of history and environment wayside exhibits strategically placed along the waterfront and multi-purpose trails. The environmental exhibits will provide educational information to park users about the Blackwater River ecosystem, wetlands restoration and preservation, and native species. Sign content will be developed through the joint efforts of Bagdad Waterfronts Partnership Florida, the Blackwater River Foundation and the Bagdad Village Preservation Association.

3.0 Project Site History

3.1 Previous Development

From 1835 to 1939, the site was the home of the Simpson and Company gang mill, which harvested "yellow pine" and hardwoods from the Florida panhandle, southern Georgia and southern Alabama. Logs were trimmed on the property and placed on barges for shipment. Since that time, the property remained largely undeveloped until 1977 when Blackwater Pre-stress Concrete operated a pre-stress concrete facility on the property until to 1992. In 1995 Anderson Columbia used the property as an asphalt plant until plant operations were discontinued in late 1999.

Anderson Columbia obtained a Stormwater General Permit from FDEP for development under permit number RC-57-293448, which included the construction of a detention by filtration pond along the northern border of the property. Subsequently FDEP commenced enforcement actions against Anderson Columbia in regards to embankment failures of the original retention pond located on the north end of the property. A total of 4 failures occurred over a period of a year. The first failure was created by an equipment operator. The ongoing failures were the result of rebuilding the embankment with sand and sod. Two hurricanes within one year additionally contributed to the failures.

In response to claims that a portion of the industrial site was not being conveyed to the detention by filtration pond on the north boundary of the site, Anderson Columbia was allowed to modify the existing permit 1998 to include a second retention pond on the southern portion of the site. In order to construct the second pond a fill berm was constructed in this area adjacent to the existing wetlands. Permit documentation for the property during Anderson Columbia's ownership have been provided in **Appendix A**.

3.2 Ownership

In 2000, the site was donated to the State of Florida Board of Trustees of the Internal Improvement Trust Fund of the State of Florida with the intent that the site would be used a public park. The Office of Greenways and Trails entered into a lease agreement on July 27, 2004 under lease number 4470 for the Bagdad Mill Site. Santa Rosa County has a sublease with the Office of Greenways and Trails for the Bagdad Mill Site under sublease number 4470-01. The term of the sublease is January 28, 2005 to July 26, 2054. Copies of the lease and sublease are provided in **Appendix B**.

4.0 On-Site Drainage Evaluation

4.1 Overview

Development from the Anderson Columbia operation initially left the site approximately 50 to 60 percent covered with limerock gravel. The gravel varied in depth from a few inches to over 3 feet. While most of the gravel has been removed as part of the demolition activity, traces can be found throughout the site. The gravel was brought to the property by Anderson Columbia via barges for the purpose of leveling the property and developing the asphalt plant operation on the site.

A review of the soil survey shows the existing soils to be predominately a Bibb-Kinston soil, which is classified silt with low plasticity with a dual Hydrologic Soil Group (HSG) B/D. Excerpts from the "Web Soil Survey" have been provided in the **Appendix C**. A geotechnical investigation was performed by Professional Service Industries, Inc. (PSI) in 2011 and the geotechnical report is attached in **Appendix D**.

The existing topography of site allows for a predominately northern drainage pattern towards the existing detention pond immediately upstream of Pond Creek, a Class III water body. Runoff from the area east of the existing high point located in the southwest corner of the site will flow to the south and the east toward the existing wetland ditch and Blackwater River, which is classified as an Outstanding Florida Water (OFW).

Two meetings with FDEP were conducted in 2011 pertaining to this development where all these specific areas were discussed in detail. The first meeting was a conceptual pre-application meeting, which was held in January 2011 with FDEP in order to discuss general concepts prior to beginning the design effort. A follow-up pre-application meeting was held in November 2011. The meeting minutes from the pre-application are provided in **Appendix E**.

4.2 On-Site Stormwater Management Facilities

Stormwater management for the proposed park will be comprised of three specific facilities designed to use the location of existing facilities while bringing them into compliance with the current water quality regulations. Seasonal high groundwater determinations were provided specifically for each pond areas and are included within the provided geotechnical report. Due to this site discharging to tidally influenced areas, the attenuation criteria is not a requirement for development; however, the environmental footprint of the proposed park compared to its predecessor, Anderson Columbia, will be considerably smaller as the site will remain largely pervious with its primary focus to be on historical and environmental education.

The post development site has been comprised of three basins. The first basin is dedicated to the main parking area. The second basin contains the largest contributing area of the three as it receives all the runoff from within the looped multi-purpose trail. The third basin provides treatment for the site that drains to east for discharge to Blackwater River. This area is largely pervious and consists primarily of the proposed Dog Park and the back half of the raised grassed amphitheatre seating. While the majority of the site discharges to Pond Creek, one basin will discharge to Backwater River and will meet OFW standards for water quality. As discussed at pre-application meeting, a sample calculation for the basins discharging to the Pond Creek is provided demonstrating sufficient “mixing” of the discharge with Pond Creek prior to reaching the Blackwater River. Overall Basin Maps and sample calculations for Pond Creek discharge points have been provided in **Appendix F**.

4.2.1 Basin 1

Basin 1 consists primarily of the main parking area and a small portion of the multi-purpose loop trail as it is transitioning cross-slope back towards the interior. This basin sits atop the highest elevation on the site and the stormwater management will be accomplished by dry retention. The retention pond will be located within the median for the parking area, which will be sloped to the inside with a flat ribbon curb along the perimeter allowing for sheet flow into the pond. The pond will discharge through the Type “D” ditch bottom inlet as the discharge structure with a wrap around skimmer. In order to maintain the existing drainage patterns. The existing contours will be adjusted to form a conveyance ditch to drain to the existing detention by filtration pond. The existing perforated pipes and discharge spillway will remain for ultimate discharge of all excess runoff. Tailwater condition used for stormwater modeling was assumed to be at the invert elevation of the existing concrete spillway. The on-site dry retention pond calculations are provided in **Appendix G**.

4.2.2 Basin 2

Basin 2 is comprised of the majority of the developed area as the majority of the loop trail is sloped to the inside where the runoff is conveyed to the treatment pond. Due to its location and

site constraints from the geotechnical investigation, stormwater management for this basin will be through use of wet detention pond, Pond 2. Due to the existing area currently being used as detention by filtration the groundwater at the time of drilling was artificially low. Upon review of the permit drawings for the existing detention pond, the invert of the underdrains are at EL 3.5, which is equal to the groundwater elevation encountered at the time of drilling. All existing perforated pipes will be removed within the footprints of the proposed pond. Due to the existing pipes remaining to discharge the excess runoff from Basin 1, the control elevation for the proposed will be an average of the seasonal high groundwater and the artificial elevation encountered at the time of drilling, which is assumed to the season low elevation.

Estimated Seasonal Low Water Table Elevation	Estimated Seasonal High Water Table Elevation	Control Elevation for Pond 2
3.5	6.5	5.0

The wet pond design incorporated the use of an additional 50% of permanent pool volume in lieu of littoral plantings as allowed in Section 8.6 of the ERP Applicant's Handbook. The resultant required permanent pool elevation is also provided below the estimated season low groundwater elevation. The on-site wet detention pond calculations are provided in **Appendix G**.

4.2.3 Basin 3

Basin 3 consists primarily of the dog park area, the back side of the raised grassed amphitheatre seating, and the small portion of the multi-purpose loop trail as it is transitioning cross-slope back towards the interior. This basin on the southern portion of the site immediately north of the wetland ditch that bisects the main portion of the site and the kayak launch area. The stormwater management will be accomplished by dry retention. The retention pond will be located immediately downstream of the dog park allowing for the runoff to sheet flow into the dry retention pond. The pond will discharge through concrete spillway prior to discharge to the former retention pond area for Anderson Columbia. Tailwater condition used for stormwater modeling was assumed to be at the existing ground elevation downstream of the pond as it is greater than the 10 year flood stage for the Blackwater River. The on-site dry retention pond calculations are provided in **Appendix G**.

4.3 Areas Dedicated for Over-Treatment

As identified during the pre-application meeting in November 2011, certain areas on the project site are constrained to the extent that they will be unable to be conveyed to a stormwater management facility. These areas combined will comprise less than 10% of the overall project area. The main areas will be the kayak launch where there are limited amount of uplands and excessive slopes and the entrance area to the main parking facility where existing contours are such that will not allow conveyance to the shallow dry retention area.

To compensate for the areas, the amount of treatment volume provided by the treatment facilities exceeds the required treatment volume by greater than 10%. Also, as discussed the overtreatment volume has been consolidated into similar BMPs and does not include any overtreatment from the wet detention pond. These areas are identified on the basin map provided in **Appendix E** and summarized in tabular form in **Appendix G**.

5.0 Stormwater Modeling

In addition to the water quality calculations provided in Appendix G, water quantity was also evaluated using ICPR v3.10 for common events as well as the 25 year – 24 hour SCS Type III design event. Due to the discharge of the runoff directly to either Pond Creek or Blackwater River, pre-development versus post-development rates were not required as discussed at the pre-application meeting with FDEP; however, peak stages for all retention/detention ponds were identified and able to be discharged through the proposed control structure.

A second software was also used to evaluate the recovery (or drawdown) of the required treatment volume. Due to the proximity to the water combined with the previous on-site industrial activities, the effect of the groundwater mound was the controlling factor for the dry retention facilities. The mounding was analyzed using PONDS version 3.3 by Devo Engineering. Both facilities were able to recover the treatment volume within the required 72 hours even with a factor of safety of 2 being applied to the vertical percolation rates recommended in the geotechnical report. Input and output data of both programs are provided in **Appendix H**.

6.0 Floodplains

The 100 year floodplain does encompass approximately half of the site with Zone AE (El 11). Correspondence with the Floodplain Manager for Santa Rosa County has identified the 10 year flood stage in Blackwater Bay to be EL 4.9 with a Stillwater elevation of EL 3.7. Copies of this correspondence are provided in **Appendix I** along with the backup documentation from the FIS and the FEMA flood maps.

7.0 Environmental Impact

Environmental impacts for this project are comprised of two groups. The primary component relates to activities that occur over sovereign submerged lands, whereas the impacts to wetlands landward of mean high water are not as significant.

The wetland line delineation and site assessment was performed by Sean O'Toole with Edmisten & Associates. As the environmental consultant for Santa Rosa County, Edmisten & Associates performed the initial assessment and delineation prior as well as a recent re-assessment prior to this submittal to confirm flag locations and identify any changes that may have occurred. Copies of the wetland map and letter provided by Edmisten and Associates as well as dredge and fill drawings depicting proposed impacts from the current scope of work are provided in the **Appendix J**.

6.1 Sovereign Submerged Lands Impacts

Activities over sovereign submerged lands will comprise of three main areas, a floating dock, a fixed pier and a kayak launch area. These areas have been accurately depicted in the dredge and fill drawings included in **Appendix J**. The proposed site has 2,517 feet of shoreline as it borders Pond Creek and Blackwater River. The total amount of structures over the submerged lands is 8,863 square feet. Additionally, a 15 foot offset around perimeter of the floating docks was

assumed for a mooring area, which adds an additional 12,890 square feet. Given the fact that small boats are expected to use the facility, the 15 feet assumed for a mooring area is somewhat conservative. Based on these assumptions, the ratio of direct impact docks, kayak launch, and mooring area to shoreline is approximately 8.6 to 1.

Due to the elevation of the existing concrete bulkhead in the uplands, the proposed fixed pier and the floating docks were connected by an ADA acceptable dock to account for the change in elevation. The complete dock configuration can be seen on Sheet EX-02 of the Dredge and Fill drawings and further detailed on Sheets EX-10 to EX-31. Based on the configuration, a portion of the submerged lands has been isolated and the area has been shown and quantified in the drawing set as well.

6.2 Wetland Impacts

Wetland impacts as a result of the development are relatively minor and consist of primarily piling and shading impacts from elevated boardwalks and docks in addition to a few instances where temporary impacts will occur. In an effort to maximize avoidance and minimization, the placement discharge pipes for Pond 2 were situated in the only area where uplands are present on the downstream side of the existing concrete retaining wall. The design was also modified to allow the pipes to discharge immediately at the walls edge as opposed to extending closer to the wetland line.

All other wetland impacts are related to the elevated boardwalks and docks, which have a direct impact from the piles and a lesser impact as a result from any shading. Regarding the shading impact, the elevation of the docks are such due to the concrete retaining that they are significantly higher than existing freshwater marsh below. The boardwalks that span the ditches, however, will be closer to the existing ground elevation and may provide more of a shading effect.

No other permanent wetland impacts are proposed. A couple of instances of temporary impacts will be present during the installation of the erosion control by Pond 2's outfall and the installation of a water service underneath the ditch to serve the Kayak Launch area.

6.3 Wetland Impacts

Based on feedback from the local residents at one of our two public meetings, we are proposing to remove fill berm that was constructed by Anderson Columbia around 1998 for the purpose of constructing their retention pond. This berms constricts the existing wetland, and by removing the area will be allowed to return to its natural condition. This also presents an educational opportunity as the boardwalk will span this area and the County's goal to provide education kiosks or signage to not only describe the history of the Bagdad Mill Site, but to identify wetland species as well

Appendix A

Previous Permit Documentation

Memorandum

Florida Department of
Environmental Protection

TO: File

FROM: Cliff Street, P.E. *CS/20*

DATE: August 18, 1998

SUBJECT: Review of Proposed Modification to Stormwater
General Permit RC57-293448 (57-0079132-002-RG)

I have reviewed the information originally submitted for this proposed modification, as well as the additional information provided today at my request, and have determined that the modification continues to qualify for the original general permit. My evaluation follows.

This proposal adds a portion of the southeast quadrant of the site to the scope of the original general permit. Runoff from this portion of the property can not reach the originally permitted stormwater detention with filtration pond at the north end of the property because of existing contours.

The area involved, according to the data submitted, is approximately 5 acres. (An earlier verbal estimate by the applicant's representative had preliminarily indicated the area was approximately 2.5 acres). Thus, the DEP volume requirement, based on 150% of the normal one-half inch of runoff (because the property is adjacent to the Blackwater River, an OFW), is 13,613CF. Runoff will sheetflow to a new, large (in surface area), approximately two foot deep, retention pond with a volume of more than 19,000CF, which is more than adequate.

The pond bottom elevation will be established at approximately elevation 6, with any unsuitable material below that elevation, to approximately elevation 3.5, removed and replaced with "clean filterable sand that has a minimum permeability of 12 inches per hour". (Contractor will confirm). The top of the pond will be at approximately elevation 8. The interior slopes of the pond will be sodded.

At my request, the seasonal high water table (SHWT) was estimated by field observation to be at approximately elevation 4, which provides a sufficient 2-foot separation from the proposed pond bottom elevation of 6. The minimum permeability of the insitu sands below the proposed pond bottom was found by laboratory analysis to be approximately 17 inches per hour. Calculations for pond volume recovery using only 12 inches per hour yielded a volume recovery time of approximately 3 hours for the entire pond capacity, which is well within the allowed 72 hours for the DEP requirement.

In addition, an existing berm behind the pond will be reconstructed and sodded to a top elevation of approximately 10.5, extending from the current terminus of the existing 2.0 foot high concrete wall adjacent to the river, to a point slightly upland of the western extension of the new pond. Any runoff which exceeds the pond's capacity, or circumnavigates it, will be retained onsite by the berm.

An existing depression north of the new pond will be "filled in" to match surrounding contours, so that the revised slope will be toward the pond.

The applicant, Anderson Columbia, remains a suitable long term maintenance entity.

Erosion control is adequate.

Therefore, based on all the above, I find that the proposed modification continues to qualify for the original general permit.

Date: 8/18/98 3:13:51 PM
From: Cliff Street PEN
Subject: Stormwater Permit for Bagdad Asphalt Plant

I received a request from Anderson Columbia on July 23rd to modify the original stormwater general permit for this site to include runoff from the currently unpermitted southeastern portion. The area is indicated to be approximately 5 acres and treatment will be provided by a large shallow retention pond. Volume recovery should be more than adequate after poor insitu material below the proposed pond bottom is replaced with well-draining sand. The water table should not be a problem.

I have completed my review (including additional information) and determined that the project qualifies for the modification and am prepared to send the qualifying letter to the applicant. Before doing so, I wanted to be sure there is concurrence with this action.

I am not aware of any data that indicates we have a CONTINUING water quality problem with any stormwater discharge from this site. While there were earlier apparent problems with high pH, the source of that problem has been eliminated (or reduced). Also, although the north stormwater detention with filtration pond berm "blew out" several times, that problem has been corrected. The filtrate quality from the north pond has been found to be satisfactory. In fact, I'm not aware of any continuing problems at the site, although we're still "in court" on past actions.

Lacking such evidence of a continuing water quality problem involving stormwater, I don't believe a stormwater construction permit (with Specific Conditions) is now justified. (This was the suggested action at an earlier meeting that many of you attended, and is the reason for this e-mail.)

Last week, we asked the attorney, Bob Gough, whether, in light of the Attorney General's recent opinion, general permits, and by extension, modifications to GPs, are subject to the 120 Noticing requirements. He said "No". (This is germane, because we have received a certified letter from two neighbors, who want to be informed of the District's action on this mod).

Unless there is objection, I will send the normal letter to the applicant, copy to the neighbors, indicating that, as modified, the project continues to qualify for the original GP. This letter will go out by the end of the week, which is the end of the allowed 30-day review period.

If you object, please provide suitable justification (including a reference to Statute and Rule) for a denial, which is the only other course of action available!

CASE REPORT
NORTHWEST DISTRICT

Type of Violation: Submerged Land Lease
Date Submitted: June 19, 1997

I. ALLEGED VIOLATOR:

Anderson Columbia Co., Inc.
P.O. Box 1829
Lake City, Florida 32056-1829

II. LOCATION OF VIOLATION:

S.E. 1/4 of the S.E. 1/4 of Section 10, Township 1-N,
Range 28-W, Bagdad, Santa Rosa County.

III. NATURE OF ALLEGED VIOLATION:

Anderson Columbia Co., Inc. is a Florida Corporation which has been conducting an asphalt batch plant type operation on the banks of the Blackwater River between Thompson and Forsyth Streets in Bagdad, Florida.

1. On September 7, 1995 Cliff Rohlke of the Department's Northwest District observed a jurisdictional area approximately 1 acre in size being cleared and filled without Department's authorization. Additionally, he observed that stormwater was allowed to discharge, untreated, directly into waters of Pond Creek and that stockpiles of stone aggregate were eroding into the Blackwater River. The above resulted in a noncompliance letter dated October 31, 1995.
2. On January 8, 1996 Cliff Rohlke(DEP), Bill Schaal(DEP), and Ken Pitts(Anderson Columbia) met to discuss a Consent Order to resolve the alleged violations.
3. On February 1, 1996 the Department received a formal, written complaint from Concerned Citizens of Bagdad.
4. On February 13, 1996 a Warning Letter was issued. The letter suggested a Consent Order as a solution for the above problems.
5. On February 23, 1996 a draft Consent Order was mailed to Anderson Columbia.

13. On October 17, 1996 a Warning letter was sent advising that the barge unloading does require a lease and should cease and desist immediately.

14. On October 22, 1996, Art Leskovich (DEP), Al Ford (OGC), and Mike Killary (Florida Marine Patrol) conducted a site visit. Upon arrival they met with Mike Langa (Anderson Columbia, Plant Manager).

15. On October 25, 1996 the Department received the Title Determination for the Consent Order (96-0530) from the Division of State Lands.

16. On November 15, 1996 the Department received a letter from Brian Yerby, Project Manager, Anderson Columbia that stated they were going to raise the height of the retaining wall.

17. On November 27 1996 a draft Amended Consent Order was mailed to Anderson Columbia.

18. On December 2, 1996 the Department received by fax the signed Amended Consent Order from Mr. Bram D. E. Canter with Pennington, Culpepper, Moore, Wilkinson, Dunbar & Dunlap, P.A. representing Anderson Columbia and a check for \$10,700 lease fees in arrears and one year in advance.

19. On December 11, 1996 the executed Amended Consent Order was mailed to Anderson Columbia. In addition to the Restoration Requirements described in the first Consent Order, the Amended Consent Order required:

a. Completion of the construction of the stormwater treatment system within 45 days of the execution of this Consent Order.

b. Maintenance of a 10 foot setback of the toe of any gravel pile from the top of the bank of the Blackwater River upon the effective date of this order.

c. Use of a portable offloading platform which will bridge the open water area between the gravel pile area and the offloading barge to prevent any discharge to the surface waters of the Blackwater River upon the effective date of this order.

d. Designation and maintenance of an employee on site responsible for compliance with the Department's rules and statutes within 60 days of the execution of this order.

e. Designation of an Environmental Manager responsible for compliance with Department's rules and statutes within 60 days of the execution of this order.

30. On March 5, 1997 Debbie Looney and Blair Burleson of the Northwest District Office observed that gravel was spilling over the retaining wall into the Blackwater River. Water quality samples that were taken at the west outfall (previously referred to as the Northwest discharge pipe) revealed water quality violations for pH and turbidity. Water quality samples that were taken at the east outfall (previously referred to as the northeast discharge pipe) revealed water quality violations for pH. The inspection also revealed that the stormwater berm along the eastern boundary is not impervious. The contouring of the area does not route the stormwater to the treatment pond and does not correspond to the stormwater permit.

31. On March 11, 1997 the Department returned the check (\$5750.00) submitted on behalf of Anderson Columbia, Inc. to address the stipulated penalty in Amended Consent Order, OGC #96-0530.

32. On March 12, 1997 Bill Schaal, Cliff Street, Blair Burleson, Bill Evans, and Eric Ericson, of the Northwest District Office met with Anderson Columbia and Southeastern Engineering Company representatives to discuss the quality of water that was leaving the permitted stormwater treatment system at the Bagdad Plant.

33. On March 19, 1997 the Department received a formal complaint from a concerned citizen.

34. On March 27, 1997 the Department received a letter from Anderson Columbia stating that they will visually monitor the discharges on a daily basis and will take turbidity measurements if the effluent looks cloudy.

35. On April 8, 1997 Debbie Looney of the Northwest District Office observed that gravel had spilled over the retaining wall into Blackwater River and that some of the old bridge pilings had encroached on the edge of the jurisdictional wetlands associated with Pond Creek.

36. On April 9, 1997 Debbie Looney of the Northwest District Office spoke to Brian Yerby of Anderson Columbia about the gravel. He said they were currently pulling the gravel back away from the retaining wall. He also stated that the bridge pilings had been there a long time but that they were going to be moved.

37. April 17, 1997 Debbie Looney of the Northwest District Office and Mike Killary of the Florida Marine Patrol observed the gravel

IV. RECOMMENDATION FOR RELIEF:

The District recommends that a complaint be filed in circuit court as soon as possible seeking: 1) a temporary injunction prohibiting: a) any further mooring and offloading of gravel barges outside of the area authorized by the Temporary Use Agreement and, b) any discharges to surface waters of the State; and, 2) civil penalties for all applicable Department violations.

V. PROPERTY OWNER:

Anderson Columbia Company, Inc.
P.O. Box 1829
Lake City, Florida 32056

VI. ALL RELEVANT DOCUMENTS ARE ATTACHED with exception of the Draft Consent Order and petitions of intervenors, which are already in your files.

The information contained in this Case Report is complete and accurate to the best of my knowledge, information and belief.

Cliff Rauls
INVESTIGATOR

Debra A. Loney
INVESTIGATOR

Review by

William E. Schad
Program Administrator

I recommend filing an action in circuit court seeking the above described relief against the above described violators.

Boyd A. Coos
Director of District Management

The case described in the District's Case Report has sufficient legal merit to proceed.

Deputy General Counsel

General Counsel

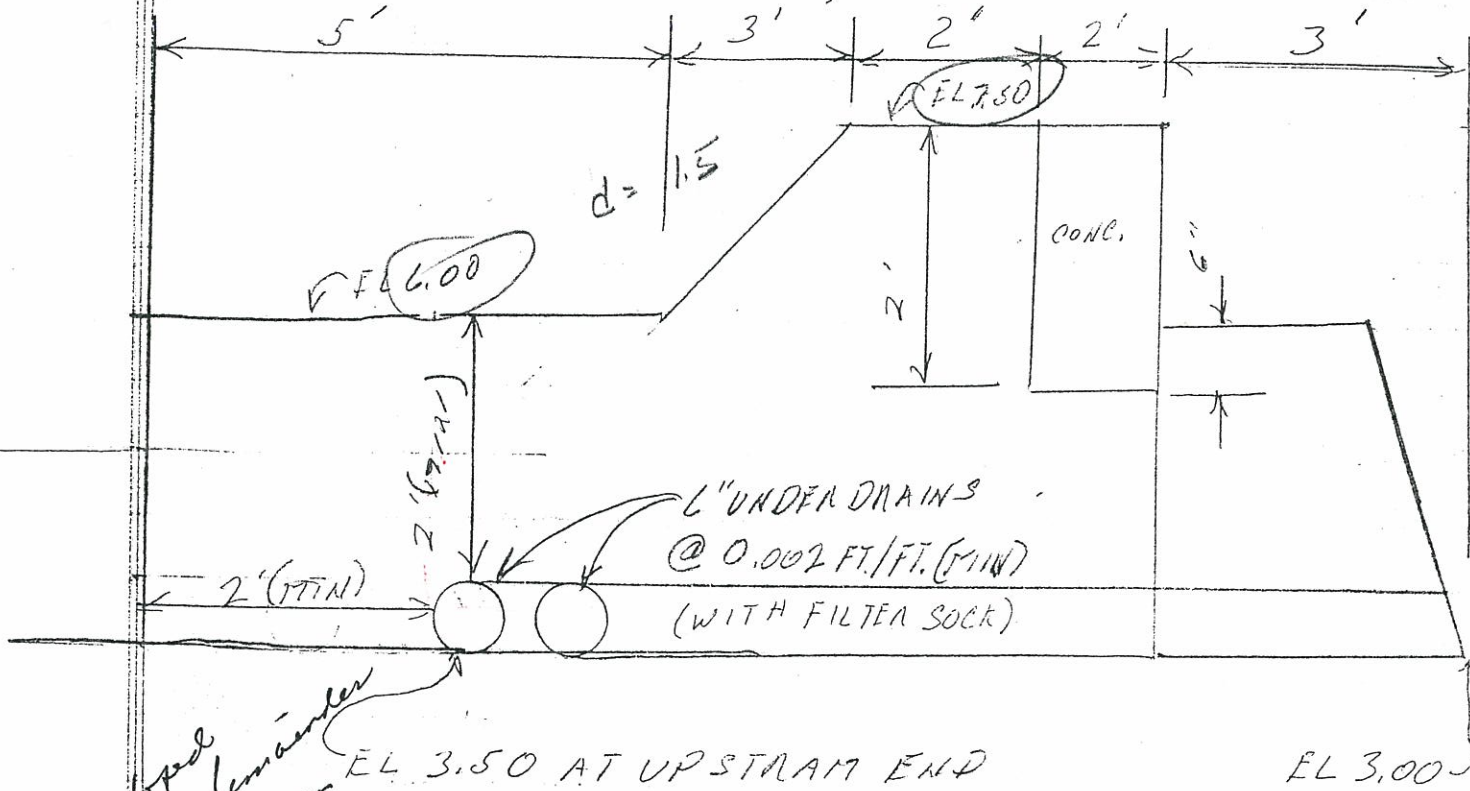
BAGDAD ASPHALT PLAN AUG 15 1996
DRAINAGE CALCULATION
RETENTION AREA

Northwest Florida
DEP

why not 20?

A = 15 AC

L = 800' W = 5' K = 12 IN/HR = 1 FT/HR
Blackwater is OFW (150%) Pond Creek is Class III. Use
DEP for 20 ac = 20 (1815) (1.5) = 54450 150% for
VOL = 15 X 43,560 / 12 = 54,450 C.F. (REQ'D) conservative



Later: Developed site is only 15 ac. remainder is primarily wetlands on north. Not reg'd to be included.

Bottom Reg'd 15 (1815) have 60,000 OK
Retention 136 hrs OK

Provided 60,000 Reg'd 54450 for 20 ac @ 150%
VOL = 1.5 X 800 X 50 = 60,000 C.F. (PROV) OK
average with OK conservative.

Q = K I A C D A R C E Y S LAW

K = 1 FT/HR

A = 5 X 800 = 4000

note A should be limited to 7 max 3

later → A = 3 X 800 = 2400
3 X 600 = 1800

Q = (12 / 12) (1) (2400) = 2400 C.F.

T = 54450 / 2400 = 22.7 hrs ≈ 23 hrs OK

later: still at 3400
41000 / 2000 = 20.5

RECEIVED

BAGDAD ASPHALT PLANT
DRAINAGE CALCULATIONS
RETENTION AREA

AUG 15 1996

Northwest Florida
DEP.

TRAY 2 - 6" UNDERDRAINS @ 0.002 FT/FT SLOPE

$$A = 2\pi D = 2 \times 3.14 \times 0.5 = 3.14 \text{ SF}$$

$$Q = 1 \times 1 \times 3.14 \times 800 = 2,512 \text{ CF/HR}$$

$$\text{TIME OF PERCOLATION} = 60,000 / 2,512 = 23.88 \text{ HR}$$

USE 24 HOURS

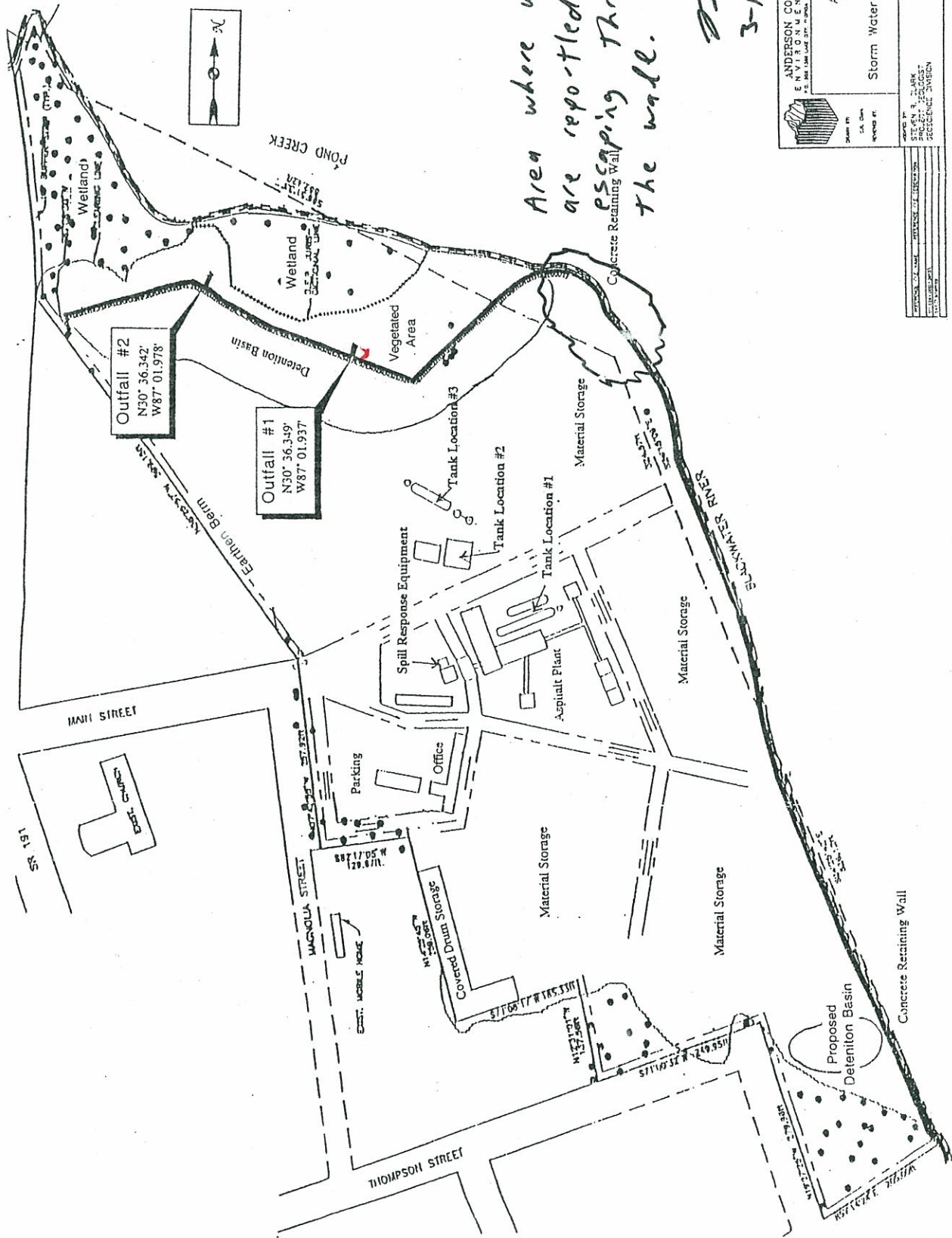
TRAY 4 - 6" UNDERDRAIN OUTLETS ($n = 0.015$)

FROM FIGURE C-42

$$Q \text{ FOR 1 - 6" OUTLET @ } 0.002 \text{ FT/FT SLOPE} = 0.22 \text{ C.F.S.}$$

$$0.22 \times 3600 = 792 \text{ CF/HR}$$

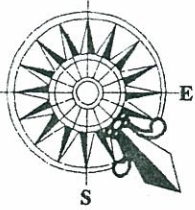
$$4 \text{ OUTLETS} = 3168 \text{ C.F./HR} > 2512 \text{ C.F./HR}$$



Area where waters
are reportedly
escaping through
the wall.

2323
3-12-99

	ANDERSON COLUMBIA ENGINEERING & CONSTRUCTION, INC.	DESIGNED BY STEVEN R. CLARK PROJECT MANAGER	DATE 3-12-99
	PERMITTING & COMPLIANCE DIVISION	ACC: Plant #5 Bogdad, Florida	FIGURE 1
Storm Water Pollution Prevention Plan Site Map		DRAWING NUMBER	



SOUTHEASTERN ENVIRONMENTAL ENGINEERING COMPANY

365 US Hwy. 90 West • P.O. Box 1236 • Crestview, Florida 32536

Telephone: (850) 682-6915

BAGDAD ASPHALT PLANT

Retention Area 2

Narrative

This submittal is intended as a modification of Florida Department of Environmental Protection General Permit RC57-293448. This modification will provide additional storm water treatment of a 5-acre section of the original 20 acre site. As noted in the general permit the ground is underlain with concrete, asphalt, brick slabs and rubble resulting in poor percolation rates in the upper 2 - 3 feet of insitu soils.

Under the supervision of Professional Engineer Thomas F. Turbeville soil explorations were conducted at the proposed retention site. The results of these explorations showed a thin compacted layer near the surface and contained rubble, clay, and silt. Deeper investigations showed an additional layer of organic silty material that also had poor permeability. At 32" - 36" below the existing surface at an elevation of approximately 4 feet a white clean filterable sand was encountered. Lab tests on this material showed a permeability rate in excess of 17 inches per hour. A copy of the lab tests is included. A rate of 12 inches per hour was used for this design.

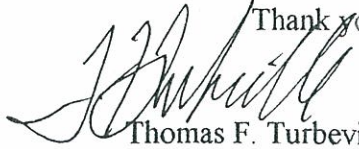
The highest apparent water table elevation observed over a two day period was 3.8 feet (Four observations were made). It is estimated that the high water table will be less than or equal to four feet. The proposed retention pond will have a bottom elevation of six feet. This will provide a minimum of two feet of filterable material between the bottom of the pond and the estimated high water table. The existing unsuitable material will be undercut and removed until the insitu clean sandy layer is reached. This area will be backfilled with a clean filterable sand that has a minimum permeability of 12 inches per hour. Documentation of the permeability of the backfill to be provided by the contractor.

At the request of Department of Environmental Protection there is no emergency overflow structure for this detention basin. Instead excess runoff will be stored on site. There exists a concrete barrier wall between the site and Blackwater River to prevent the excess runoff from overflowing into the river. The barrier also serves to route the runoff to the retention basin. Additional site grading will be done to ensure that all runoff in this 5-acre section is directed to the retention basin. Existing erosion control measures should be adequate for the construction of the retention pond. Any damaged areas of the existing silt fence will be repaired or reinforced before construction begins.

RECEIVED

AUG 1 8 1998

**NORTHWEST FLORIDA
DEP**

Thank you,

Thomas F. Turbeville
P.E. # 20238

BAGDAD ASPHALT PLANT

Retention Area 2
Drainage Calculations

Drainage Area = 5 Acres

1" Runoff = 220,000 Square Feet x 1' / 12" = 18,333 Cubic Feet

Impervious Area: 16,400 Square Feet (C = 0.80)

Pervious Area: 220,000 SF - 16,400 SF = 203,600 SF (C = 0.30)

Weighted C = $\frac{(16,400)(0.80) + (203,600)(0.30)}{220,000} = 0.34$

Volume Available = 19,380 Cubic Feet

Volume Required = 18,333 CF

Percolation Area = 9,695 Square Feet

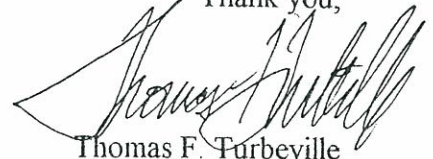
Percolation Rate = 12 Inches\hr.

Outflow Rate = 9,695 SF x 1 Ft.\hr. = 9,695 CF\hr. = 2.69 CFS

Time of Percolation (Pond Full)

19,390 CF\ 2.69 CFS\ 3,600 s\hr. = 2 hrs. Use 2 hours

Thank you,



Thomas F. Turbeville
P.E. # 20238

RECEIVED

AUG 18 1998

**NORTHWEST FLORIDA
DEP**

Job
Date

9502 Bagdad Asplalt Plant Retention Area 2
August 15, 1998

Area (SF)=	220,000 SF
Area (Acres)=	5.05 Acres
1" Runoff (CF)=	18,333 CF
Impervious Area (SF)=	16,400 SF
Pervious Area (SF)=	203,600 SF
Pre C=	0.30
Post C=	0.34
Volume Available (CF)	19380 CF
Depth of Pond (Feet)	2
Soil Type	3 Bibb
Percolation Rate (in/hr)	12 in/hr
Time of Percolation (Hours)	2.00 hours
Outflow Rate (CFS)	2.69 CFS

RECEIVED
AUG 18 1998
NORTHWEST FLORIDA
DEP

Job: 9502 Bagdad Asplalt Plant Retention Area 2
Retention Area Sizing
100 Year Storm
Basin No. 1

Duration T Min	Intensity I In/Hr	Inflow CF	Outflow CF	Volume V CF	Volume In - Out CF
8	9.6	7,913	1,292	6,621	6,621
10	9.4	9,685	1,615	8,070	8,070
15	8.5	13,136	2,423	10,714	10,714
20	7.6	15,661	3,230	12,431	12,431
25	7.0	18,030	4,038	13,993	13,993
30	6.4	19,782	4,845	14,937	14,937
40	5.6	23,079	6,460	16,619	16,619
50	5.0	25,758	8,075	17,683	17,683
60	4.6	28,436	9,690	18,746	18,746
75	4.0	30,909	12,113	18,797	18,797
90	3.6	33,382	14,535	18,847	18,847
120	3.0	37,091	19,380	17,711	17,711
150	2.6	40,182	24,225	15,957	15,957
180	2.3	42,655	29,070	13,585	13,585
240	1.9	46,982	38,760	8,222	8,222
300	1.6	49,455	48,450	1,005	1,005
360	1.4	51,927	58,140	(6,213)	(6,213)
420	1.3	56,255	67,830	(11,575)	(11,575)
480	1.2	59,345	77,520	(18,175)	(18,175)
540	1.1	61,200	87,210	(26,010)	(26,010)
600	1.0	63,055	96,900	(33,845)	(33,845)
660	1.0	65,280	106,590	(41,310)	(41,310)
720	0.9	67,505	116,280	(48,775)	(48,775)
780	0.9	69,113	125,970	(56,857)	(56,857)
840	0.8	70,535	135,660	(65,125)	(65,125)
900	0.8	72,327	145,350	(73,023)	(73,023)
960	0.8	74,182	155,040	(80,858)	(80,858)
1020	0.7	75,665	164,730	(89,065)	(89,065)
1080	0.7	77,335	174,420	(97,085)	(97,085)
1140	0.7	78,695	184,110	(105,415)	(105,415)
1200	0.6	79,745	193,800	(114,055)	(114,055)
1260	0.6	80,487	203,490	(123,003)	(123,003)
1320	0.6	81,600	213,180	(131,580)	(131,580)
1380	0.6	82,465	222,870	(140,405)	(140,405)
1440	0.6	83,084	232,560	(149,476)	(149,476)

Critical Volume

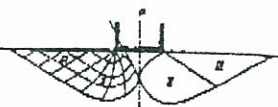
RECEIVED

AUG 18 1998

NORTHWEST FLORIDA
DEP

Larry M. Jacobs & Associates, Inc.

Geotechnical Engineering / Material Testing / Drilling



August 17, 1998

Southeastern Environmental Engineering, Inc.
Attn: Mr. Mark Mason
P O Box 1236
Crestview, FL 32536

Re: Anderson Columbia
Retention Area #2
Bagdad, FL
Report # 67427

Dear Robert:

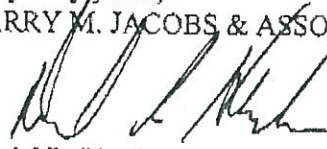
This letter forwards the results of laboratory testing of soil from the above referenced project. The soils were two white sand samples of in-situ soils. The tests conducted on each sample was a falling head permeability test. The results are as follows:

	<u>TEST NO. 1</u>	<u>TEST NO. 2</u>
Description:	White sand	White Sand
Unit Weight:	95.8 Lbs. cu/ft.	96.2 Lbs. cu/ft.
Percent Moisture:	8.7%	8.9%
Permeability:	37.2 ft./day	33.3 ft/day

NOTE: Sample No. 1 was prepared by compacting the sample with 3 layers and 15 blows per layer. Sample No. 2 was prepared by compacting the sample with 3 layers and 20 blows per layer.

We hope this provides you with sufficient information at this time. If you have any questions or comments regarding this matter please don't hesitate to call on us.

Very truly yours,
LARRY M. JACOBS & ASSOCIATES, INC.


Daniel R. Henderson
Laboratory Manager

RECEIVED

AUG 18 1998

**NORTHWEST FLORIDA
DEP**

DRH:cm
Word: 67427perms

Appendix B

Lease and Sublease Documentation

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL
PROTECTION, OFFICE OF GREENWAYS AND TRAILSSUBLEASE AGREEMENT

Sublease Number 4470-01

THIS SUBLEASE AGREEMENT is made and entered into this 28th day of January, 2005, between THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF GREENWAYS AND TRAILS, hereinafter referred to as "SUBLESSOR", and SANTA ROSA COUNTY, a political subdivision of the State of Florida, hereinafter referred to as "SUBLESSEE".

WITNESSETH

In consideration of the covenants and conditions set forth herein SUBLESSOR subleases the below-described premises to SUBLESSEE on the following terms and conditions:

1. ACKNOWLEDGMENTS: The parties acknowledge that title to the subleased premises is held by the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida ("TRUSTEES") and is currently managed by SUBLESSOR as the Bagdad Mill Site under TRUSTEES' Lease No. 4470.
2. DESCRIPTION OF PREMISES: The property subject to this sublease, is situated in the County of Santa Rosa, State of Florida and is more particularly described in Exhibit "A" attached hereto and hereinafter called the "subleased premises"
3. SUBLEASE TERM: This sublease shall commence on January 28, 2005 and end on July 26, 2054 unless sooner terminated pursuant to the provisions of this sublease.
4. PURPOSE: SUBLESSEE shall manage the subleased premises only for the conservation and protection of natural and historical resources and for resource based public outdoor recreation which is compatible with the conservation and protection of these public lands, as set forth in subsection 259.032(11), Florida Statutes, along with other related uses necessary for the accomplishment of this purpose as designated in the Management Plan required by paragraph 7 of this sublease.
5. CONFORMITY: This sublease shall conform to all terms and conditions of TRUSTEES' LEASE NO. 4470 between the TRUSTEES and SUBLESSOR dated July 27, 2004, a copy of which is attached hereto as Exhibit "B" and SUBLESSEE shall, through its agents and employees, prevent the unauthorized use of the property or any use thereof not in conformance with this sublease.

6. QUIET ENJOYMENT AND RIGHT OF USE: SUBLESSEE shall have the right of ingress and egress to, from and upon the subleased premises for all purposes necessary to the full, quiet enjoyment by said SUBLESSEE of the rights conveyed herein.

7. MANAGEMENT PLAN: SUBLESSEE shall prepare and submit a Management Plan for the subleased premises in accordance with subsection 18-2.021(4) Florida Administrative Code, within twelve months of the effective date of TRUSTEES' Lease Number 4470. The Management Plan shall be submitted to the TRUSTEES for approval through SUBLESSOR and the Division of State Lands. The subleased premises shall not be developed or physically altered in any way other than what is necessary for security and maintenance of the subleased premises without the prior written approval of the TRUSTEES and SUBLESSOR until the Management Plan is approved. SUBLESSEE shall provide SUBLESSOR with an opportunity to participate in all phases of preparing and developing the Management Plan for the subleased premises. The Management Plan shall be submitted to SUBLESSOR in draft form for review and comments within nine months of the effective date TRUSTEES' Lease Number 4470. SUBLESSEE shall give SUBLESSOR reasonable notice of the application for and receipt of any state, federal or local permits as well as any public hearings or meetings relating to the development or use of the subleased premises. SUBLESSEE shall not proceed with development of said subleased premises including, but not limited to, funding, permit application, design or building contracts, until the Management Plan required herein has been submitted and approved. Any financial commitments made by SUBLESSEE which are not in compliance with the terms of this sublease shall be done at SUBLESSEE'S own risk. The Management Plan shall emphasize the original management concept as approved by the TRUSTEES at the time of acquisition which established the primary public purpose for which the subleased premises were acquired. The approved Management Plan shall provide the basic guidance for all management activities and shall be reviewed jointly by SUBLESSEE, SUBLESSOR and the TRUSTEES at least every five years. SUBLESSEE shall not use or alter the subleased premises except as provided for in the approved Management Plan without the advance written approval of the TRUSTEES and SUBLESSOR. The Management Plan prepared under this sublease shall identify management strategies for exotic species, if present. The introduction of exotic species is prohibited, except when specifically authorized by the approved

Management Plan.

8. ASSIGNMENT: This sublease shall not be assigned in whole or in part without the prior written consent of the TRUSTEES and SUBLESSOR. Any assignment made either in whole or in part without the prior written consent of the TRUSTEES and SUBLESSOR shall be void and without legal effect.
9. RIGHT OF INSPECTION: The TRUSTEES and SUBLESSOR or their duly authorized agents, representatives or employees shall have the right at any and all times to inspect the subleased premises and the works and operations of SUBLESSEE in any matter pertaining to this sublease.
10. PLACEMENT AND REMOVAL OF IMPROVEMENTS: All buildings, structures and improvements shall be constructed at the expense of SUBLESSEE in accordance with plans prepared by professional designers and shall require the prior written approval of SUBLESSOR as to purpose, location and design. Further, no trees other than non-native species, shall be removed or major land alterations done by SUBLESSEE without the prior written approval of SUBLESSOR. Removable equipment and removable improvements placed on the subleased premises by SUBLESSEE which do not become a permanent part of the subleased premises will remain the property of SUBLESSEE and may be removed by SUBLESSEE upon termination of this sublease.
11. INSURANCE REQUIREMENTS: During the term of this sublease SUBLESSEE shall procure and maintain policies of fire, extended risk, and liability insurance coverage. The extended risk and fire insurance coverage shall be in an amount equal to the full insurable replacement value of any improvements or fixtures located on the subleased premises. The liability insurance coverage shall be in amounts not less than \$100,000 per person and \$200,000 per incident or occurrence for personal injury, death, and property damage on the subleased premises. Such policies of insurance shall name SUBLESSEE, the TRUSTEES, SUBLESSOR and the State of Florida as coinsureds. SUBLESSEE shall submit written evidence of having procured all insurance policies required herein prior to the effective date of this sublease and shall submit annually thereafter, written evidence of maintaining such insurance policies to SUBLESSOR and the Bureau of Public Land Administration, Division of State Lands, Department of Environmental Protection, Mail Station 130, 3800 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. SUBLESSEE shall purchase all policies of insurance from a financially-responsible insurer duly authorized to do business in the State of Florida. The insurer

must possess a minimum current rating of B+ Class VIII in "Bests Key Rating Guide" in lieu of purchasing insurance, SUBLESSEE may elect to self-insure these coverages. Any certificate of self-insurance shall be issued or approved by the Insurance Commissioner, State of Florida. The certificate of self-insurance shall provide for casualty and liability coverage. SUBLESSEE further agrees to immediately notify SUBLESSOR, the TRUSTEES and the insurer of any erection or removal of any structure or other fixed improvement on the subleased premises and any changes affecting the value of any improvements and to request said insurer to make adequate changes in the coverage to reflect the changes in value. SUBLESSEE shall be financially responsible for any loss due to failure to obtain adequate insurance coverage, and the failure to maintain such policies or certificate in the amounts set forth shall constitute a breach of this sublease.

12. LIABILITY: Each party is responsible for all personal injury and property damage attributable to the negligent acts or omissions of that party and the officers, employees and agents thereof. Nothing herein shall be construed as an indemnity or a waiver of sovereign immunity enjoyed by any party hereto, as provided in Section 768.28, Florida Statutes, as amended from time to time, or any other law providing limitations on claims.

13. PAYMENT OF TAXES AND ASSESSMENTS: SUBLESSEE shall assume full responsibility for and shall pay all liabilities that accrue to the subleased premises or to the improvements thereon, including any and all drainage and special assessments or taxes of every kind and all mechanic's or materialman's liens which may be hereafter lawfully assessed and levied against the subleased premises.

14. SIGNS: SUBLESSEE shall insure that the subleased premises are identified as being publicly owned and operated as a public outdoor recreation facility in all signs, literature and advertising and shall erect signs identifying the facility as being open to the public. If federal grants or funds are used by SUBLESSEE for any project on the subleased premises SUBLESSEE shall erect signs identifying the subleased premises as a federally assisted project.

15. NO WAIVER OF BREACH: The failure of SUBLESSOR to insist in any one or more instances upon strict performance of any one or more of the covenants, terms and conditions of this sublease shall not be construed as a waiver of such covenants, terms and conditions, but the same shall continue in full

force and effect, and no waiver of SUBLESSOR of any of the provisions hereof shall in any event be deemed to have been made unless the waiver is set forth in writing, signed by SUBLESSOR.

16. TIME: Time is expressly declared to be of the essence of this sublease.

17. NON-DISCRIMINATION: SUBLESSEE shall not discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity occurring within the subleased premises or upon lands adjacent to and used as an adjunct of the subleased premises.

18. UTILITY FEES: SUBLESSEE shall be responsible for the payment of all charges for the furnishing of gas, electricity, water and other public utilities to the subleased premises and for having all utilities turned off when the subleased premises are surrendered.

19. RIGHT OF AUDIT: SUBLESSEE shall make available to SUBLESSOR and the TRUSTEES all financial and other records relating to this sublease and SUBLESSOR and the TRUSTEES shall have the right to either audit such records at any reasonable time or require the submittal of an independent audit by a Certified Public Accountant. This right shall be continuous until this sublease expires or is terminated. This sublease may be terminated by SUBLESSOR should SUBLESSEE fail to allow public access to all documents, papers, letters or other materials made or received in conjunction with this sublease, pursuant to the provisions of Chapter 119, Florida Statutes.

20. MINERAL RIGHTS: This sublease does not cover petroleum or petroleum products or minerals and does not give the right to SUBLESSEE to drill for or develop the same.

21. CONDITION OF PROPERTY: SUBLESSOR assumes no liability or obligation to SUBLESSEE with reference to the condition of the subleased premises or the suitability of the subleased premises for any improvements. The subleased premises herein are subleased by SUBLESSOR to SUBLESSEE in an "as is" condition, with SUBLESSOR assuming no responsibility for planning, bidding, contracting, permitting, restoration, construction, and the use, care, repair, maintenance or improvement of the subleased premises for the benefit of SUBLESSEE.

22. NOTICES: All notices given under this sublease shall be in writing and shall be served by certified mail including, but not limited to, notice of

any violation served pursuant to Section 253.04, Florida Statutes, to the last address of the party to whom notice is to be given, as designated by such party in writing. SUBLESSOR and SUBLESSEE hereby designate their address as follows:

SUBLESSOR: Office of Greenways and Trails
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, M.S. 795
Tallahassee, Florida 32399-3000

SUBLESSEE: Santa Rosa County Administrator
6495 Caroline Street, Suite M
Milton, Florida 32570

23. BREACH OF COVENANTS TERMS, OR CONDITIONS: Should SUBLESSEE breach any of the covenants, terms, or conditions of this sublease, SUBLESSOR shall give written notice to SUBLESSEE to remedy such breach within sixty days of such notice. In the event SUBLESSEE fails to remedy the breach to the satisfaction of SUBLESSOR within sixty days of receipt of written notice, SUBLESSOR may either terminate this sublease and recover from SUBLESSEE all damages SUBLESSOR may incur by reason of the breach including, but not limited to, the cost of recovering the subleased premises and attorneys' fees or maintain this sublease in full force and effect and exercise all rights and remedies conferred upon SUBLESSOR herein.

24. DAMAGE TO THE PREMISES: (a) LESSEE shall not do, or suffer to be done, in, on, or upon the leased premises or as affecting said leased premises or adjacent properties, any act which may result in damage or depreciation of value to the leased premises or adjacent properties, or any part thereof. (b) Lessee shall not generate, store, produce, place, treat, release, or discharge any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents on, into, or from the leased premises or any adjacent lands or waters in any manner not permitted by law. For the purposes of this lease, "hazardous substances" shall mean and include those elements or compounds defined in 42 USC Section 9601 or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency (EPA) and the list of toxic pollutants designated by the United States Congress or the EPA or defined by any other federal, state or local statute, law, ordinance, code, rule, regulation, order or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or

dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" shall mean those products or substances defined in Chapters 376 and 403, Florida Statutes, and the rules promulgated thereunder, all as amended or updated from time to time. In the event of LESSEE'S failure to comply with this paragraph, LESSEE shall, at its sole cost and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the leased premises, and (2) all off-site ground and surface waters and lands affected by LESSEE'S such failure to comply, as may be necessary to bring the leased premises and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders and decrees, and to restore the damaged property to the condition existing immediately prior to the occurrence which caused the damage. LESSEE'S obligations set forth in this paragraph shall survive the termination or expiration of this lease. This paragraph shall not be construed as a limitation upon the obligations or responsibilities of LESSEE as set forth herein. Nothing herein shall relieve LESSEE of any responsibility or liability prescribed by law for fines, penalties and damages levied by governmental agencies, and the cost of cleaning up any contamination caused directly or indirectly by LESSEE'S activities or facilities. Upon discovery of a release of a hazardous substance or pollutant, or any other violation of local, state or federal law, ordinance, code, rule, regulation, order or decree relating to the generation, storage, production, placement, treatment, release or discharge of any contaminant, LESSEE shall report such violation to all applicable governmental agencies having jurisdiction, and to LESSOR, all within the reporting periods of the applicable agencies.

25. ENVIRONMENTAL AUDIT: At LESSOR'S discretion, LESSEE shall provide LESSOR with a current Phase I environmental site assessment conducted in accordance with the Department of Environmental Protection, Division of State Lands' standards prior to termination of this lease, and if necessary a Phase II environmental site assessment.

26. SURRENDER OF PREMISES: Upon termination or expiration of this sublease, SUBLESSEE shall surrender the subleased premises to SUBLESSOR. In the event no further use of the subleased premises or any part thereof is needed, SUBLESSEE shall give written notification to SUBLESSOR and the Bureau

of Public Land Administration, Division of State Lands, Department of Environmental Protection, Mail Station 130, 3800 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, at least six months prior to the release of any or all of the subleased premises. Notification shall include a legal description, this sublease number and an explanation of the release. The release shall only be valid if approved by SUBLESSOR and the TRUSTEES through execution of a release of sublease instrument with the same formality as this sublease. Upon release of all or any part of the subleased premises or upon termination or expiration of this sublease, all improvements, including both physical structures and modifications to the subleased premises, shall become the property of the TRUSTEES and SUBLESSOR, unless SUBLESSOR gives written notice to SUBLESSEE to remove any or all such improvements at the expense of SUBLESSEE. The decision to retain any improvements upon termination of this sublease shall be at SUBLESSOR'S sole discretion. Prior to surrender of all or any part of the subleased premises SUBLESSOR shall perform an on-site inspection and the keys to any building on the subleased premises shall be turned over to SUBLESSOR. If the subleased premises and improvements located thereon do not meet all conditions as set forth in paragraphs 18 and 36 herein, SUBLESSEE shall pay all costs necessary to meet the prescribed conditions.

27. BEST MANAGEMENT PRACTICES: SUBLESSEE shall implement applicable Best Management Practices for all activities conducted under this sublease in compliance with paragraph 18-2.018(2)(h), Florida Administrative Code, which have been selected, developed, or approved by SUBLESSOR, SUBLESSEE or other land managing agencies for the protection and enhancement of the subleased premises.

28. PUBLIC LANDS ARTHROPOD CONTROL PLAN: SUBLESSEE shall identify and subsequently designate to the respective arthropod control district or districts within one year of the effective date of this sublease, all of the environmentally sensitive and biologically highly productive lands contained within the subleased premises, in accordance with Section 388.4111, Florida Statutes and Chapter 5E-13, Florida Administrative Code, for the purpose of obtaining a public lands arthropod control plan for such lands.

29. SOVEREIGNTY SUBMERGED LANDS: This sublease does not authorize the use of any lands located waterward of the mean or ordinary high water line of any lake, river, stream, creek, bay, estuary, or other water body or the waters

or the air space thereabove.

30. PROHIBITIONS AGAINST LIENS OR OTHER ENCUMBRANCES: Fee title to the subleased premises is held by the TRUSTEES. SUBLESSEE shall not do or permit anything to be done which purports to create a lien or encumbrance of any nature against the real property contained in the subleased premises including, but not limited to, mortgages or construction liens against the subleased premises or against any interest of the TRUSTEES and SUBLESSOR therein.
31. CONDITIONS AND COVENANTS: All of the provisions of this sublease shall be deemed covenants running with the land included in the subleased premises, and construed to be "conditions" as well as "covenants" as though the words specifically expressing or imparting covenants and conditions were used in each separate provision.
32. PARTIAL INVALIDITY: If any term, covenant, condition or provision of this sublease shall be ruled by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder shall remain in full force and effect and shall in no way be affected, impaired or invalidated.
33. ENTIRE UNDERSTANDING: This sublease sets forth the entire understanding between the parties and shall only be amended with the prior written approval of the TRUSTEES and SUBLESSOR.
34. EASEMENTS: All easements including, but not limited to, utility easements are expressly prohibited without the prior written approval of the TRUSTEES and SUBLESSOR. Any easement not approved in writing by the TRUSTEES and SUBLESSOR shall be void and without legal effect.
35. SUBLEASES: This sublease is for the purposes specified herein and other subleases of any nature are prohibited, without the prior written approval of the TRUSTEES and SUBLESSOR. Any sublease not approved in writing by the TRUSTEES and SUBLESSOR shall be void and without legal effect.
36. MAINTENANCE OF IMPROVEMENTS: SUBLESSEE shall maintain the real property contained within the subleased premises and any improvements located thereon, in a state of good condition, working order and repair including, but not limited to, maintaining the planned improvements as set forth in the approved Management Plan, keeping the subleased premises free of trash or litter, meeting all building and safety codes in the location situated and maintaining any and all existing roads, canals, ditches, culverts, risers, and the like in as good condition as the same may be on the effective date of

this sublease; provided, however, that any removal, closure, etc., of the above improvements shall be acceptable when the proposed activity is consistent with the goals of conservation, protection, and enhancement of the natural and historical resources within the subleased premises and with the approved Management Plan.

37. COMPLIANCE WITH LAWS: SUBLESSEE agrees that this sublease is contingent upon and subject to SUBLESSEE obtaining all applicable permits and complying with all applicable permits, regulations, ordinances, rules, and laws of the State of Florida or the United States or of any political subdivision or agency of either.

38. ARCHAEOLOGICAL AND HISTORIC SITES: Execution of this sublease in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or the disturbance of archaeological and historic sites on state-owned lands is prohibited unless prior authorization has been obtained from the Department of State, Division of Historical Resources. The Management Plan prepared pursuant to Chapter 18-2, Florida Administrative Code, shall be reviewed by the Division of Historical Resources to insure that adequate measures have been planned to locate, identify, protect and preserve the archaeological and historic sites and properties on the subleased premises.

39. GOVERNING LAW: This sublease shall be governed by and interpreted according to the laws of the State of Florida.

40. SECTION CAPTIONS: Articles, subsections and other captions contained in this sublease are for reference purposes only and are in no way intended to describe, interpret, define or limit the scope, extent or intent of this sublease or any provisions thereof.

41. ADMINISTRATIVE FEE: SUBLESSEE shall pay TRUSTEES an annual administrative fee of \$300 pursuant to subsection 18-2.021(8), Florida Administrative Code. The initial annual administrative fee shall be payable within thirty days from the date of execution of this sublease agreement and shall be prorated based on the number of months or fraction thereof remaining in the fiscal year of execution. For purposes of this sublease agreement, the fiscal year shall be the period extending from July 1 to June 30. Each annual payment thereafter shall be due and payable on July 1 of each subsequent year.

IN WITNESS WHEREOF, the parties have caused this sublease to be executed on the day and year first above written.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION, OFFICE OF
GREENWAYS AND TRAILS

Destiny Bryant
Witness
Destiny L. Bryant
Print/Type Witness Name

Judy A. Brooks
Witness
Judy A. Brooks
Print/Type Witness Name

By: [Signature]
JAMES M. WOOD
Print/Type Name
Title: ASSISTANT DIRECTOR

"SUBLESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 26th day of January, 2005, by James M. Wood, as Assistant Director of the Office of Greenways and Trails, Florida Department of Environmental Protection, who is/are personally known to me, or who produced [Signature] as identification.



Shannon Franklin
MY COMMISSION # DD119914 EXPIRES
May 23, 2006
BONDED THRU TROY FAIN INSURANCE, INC.

[Signature]
Notary Public, State of Florida

Shannon Franklin
Print/Type Notary Name

Commission Number: DD119914

Commission Expires: May 23, 2006

SANTA ROSA COUNTY, a political
subdivision of the State of Florida
By its Board of County Commissioners

Merry Beth Andrews
Witness

Merry Beth Andrews
Print/Type Witness Name

Michelle Parker
Witness

Michelle Parker
Print/Type Witness Name

By: [Signature]

Gordon Goodin
Print/Type Name

Title: Chairman

(Official Seal)

Attest: Mary Johnson

Mary Johnson
Print/Type Name

Title: Clerk of Court

STATE OF FLORIDA
COUNTY OF SANTA ROSA

"SUBLESSEE"

The foregoing instrument was acknowledged before me this 18th day of
January 2005, by Gordon Goodin and
Mary Johnson, as Chairman and
Clerk of Court, respectively, on behalf of the Board of
County Commissioners of Santa Rosa County, Florida, who is/are personally known
to me or who produced as identification.

Kelly L. Hobbs
Notary Public, State of Florida

Kelly L. Hobbs
Print/Type Notary Name



Kelly Lynn Hobbs
My Commission DD127503
Expires August 11, 2006

Commission Number:

Commission Expires:

CONSENT

Consented to by the TRUSTEES on this 28th day of January 2005.

Gloria C. Nelson
Gloria C. Nelson, Operations and
Management Consultant Manager,
Bureau of Public Land Administration,
Division of State Lands, Department of
Environmental
Protection

Approved as to Form and Legality

By: [Signature]
DEP Attorney

EXHIBIT "A"
LEGAL DESCRIPTION OF THE SUBLEASED PREMISES

COMMENCE AT THE INTERSECTION OF THE NORTH RIGHT-OF-WAY LINE OF CROSS STREET (80' R/W) AND THE EAST RIGHT-OF-WAY LINE OF THOMPSON STREET (80' R/W), CITY OF BAGDAD, FLORIDA; THENCE N 57°14'24" E ALONG SAID NORTH RIGHT-OF-WAY LINE FOR 205.0 FEET, MORE OR LESS, TO THE WEST BANK OF THE BLACKWATER RIVER FOR THE POINT OF BEGINNING; THENCE S 57°14'24" W ALONG SAID NORTH RIGHT-OF-WAY LINE FOR 205.0 FEET, MORE OR LESS, TO AFORESAID EAST RIGHT-OF-WAY LINE; THENCE N 18°27'25" W ALONG SAID EAST RIGHT-OF-WAY LINE FOR 279.96 FEET TO THE NORTH RIGHT-OF-WAY LINE OF THOMPSON STREET; THENCE S 71°00'32" W ALONG SAID RIGHT-OF-WAY LINE FOR 249.95 FEET; THENCE N 12°31'01" W FOR 137.58 FEET; THENCE S 71°08'17" W FOR 185.33 FEET; THENCE N 14°28'43" W FOR 259.06 FEET; THENCE S 82°17'05" W FOR 129.67 FEET TO THE EAST RIGHT-OF-WAY LINE OF MAGNOLIA STREET (R/W VARIES); THENCE N 07°42'55" W ALONG SAID RIGHT-OF-WAY LINE FOR 257.92 FEET TO THE NORTH RIGHT-OF-WAY LINE OF MAIN STREET (60' R/W); THENCE N 38°25'57" W FOR 599.15 FEET TO A POINT ON THE NORTH RIGHT-OF-WAY LINE OF MILTON ROAD (R/W VARIES); THENCE S 87°08'30" W ALONG SAID RIGHT-OF-WAY LINE FOR 2.25 FEET TO THE EAST RIGHT-OF-WAY LINE OF MILTON ROAD, SAID POINT BEING ON THE POINT OF CURVATURE OF A CURVE CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 1932.40 FEET AND A CENTRAL ANGLE OF 08°38'39"; THENCE NORTHWESTERLY ALONG SAID CURVE AN ARC DISTANCE OF 291.54 FEET, (CHORD = 291.26', CHORD BEARING N 07°10'50" W); THENCE CONTINUE NORTHWESTERLY ALONG SAID CURVE FOR 15 FEET, MORE OR LESS, TO THE SOUTH BANK OF ROND CREEK; THENCE MEANDER NORTHEASTERLY ALONG SAID SOUTH BANK FOR 80 FEET, MORE OR LESS, THENCE CONTINUING ALONG SAID SOUTH BANK, MEANDER GENERALLY SOUTHERLY AND EASTERLY FOR 1000 FEET, MORE OR LESS, TO THE WEST BANK OF THE BLACKWATER RIVER; THENCE MEANDER SOUTHERLY AND EASTERLY ALONG SAID WEST BANK FOR 1200 FEET MORE OR LESS TO THE POINT OF BEGINNING, ALL LYING AND BEING IN SECTIONS 10 AND 11, TOWNSHIP 1 NORTH, RANGE 28 WEST, SANTA ROSA COUNTY, FLORIDA

SAL3

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT
TRUST FUND OF THE STATE OF FLORIDA

LEASE AGREEMENT

BAGDAD DONATION

Lease Number 4470

This lease is made and entered into this 27th day of July, 2004, between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LESSOR", and the FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF GREENWAYS AND TRAILS, hereinafter referred to as "LESSEE".

WITNESSETH:

WHEREAS, the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA holds title to certain lands and property being utilized by the State of Florida for public purposes, and

WHEREAS, the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA is authorized in Section 253.03, Florida Statutes, to enter into leases for the use, benefit and possession of public lands by state agencies which may properly use and possess them for the benefit of the people of the State of Florida;

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements hereinafter contained, LESSOR leases the below described premises to LESSEE subject to the following terms and conditions:

1. DELEGATIONS OF AUTHORITY: LESSOR'S responsibilities and obligations herein shall be exercised by the Division of State Lands, Department of Environmental Protection.
2. DESCRIPTION OF PREMISES: The property subject to this lease is situated in the County of Santa Rosa, State of Florida and is more particularly described in Exhibit "A" attached hereto and hereinafter called the "leased premises".
3. TERM: The term of this lease shall be for a period of fifty years, commencing on July 27, 2004 and ending on July 26, 2054, unless sooner terminated pursuant to the provisions of this lease.
4. PURPOSE: LESSEE shall manage the leased premises only for the conservation and protection of natural and historical resources and resource-based public outdoor recreation which is compatible with the

conservation and protection of these public lands, as set forth in subsection 259.032(11), Florida Statutes, along with other related uses necessary for the accomplishment of this purpose as designated in the Management Plan required by paragraph 7 of this lease.

5. QUIET ENJOYMENT AND RIGHT OF USE: LESSEE shall have the right of ingress and egress to, from and upon the leased premises for all purposes necessary to the full quiet enjoyment by said LESSEE of the rights conveyed herein.
6. UNAUTHORIZED USE: LESSEE shall, through its agents and employees, prevent the unauthorized use of the leased premises or any use thereof not in conformance with this lease.
7. MANAGEMENT PLAN: LESSEE shall prepare and submit a Management Plan for the leased premises, in accordance with Section 253.034, Florida Statutes, and subsection 18-2.021(4), Florida Administrative Code. The Management Plan shall be submitted for approval to the Department of Environmental Protection, Division of State Lands, Office of Environmental Services, Mail Station 140, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. The leased premises shall not be developed or physically altered in any way other than what is necessary for security and maintenance of the leased premises without the prior written approval of LESSOR until the Management Plan is approved. The Management Plan shall emphasize the original management concept as approved by LESSOR at the time of acquisition, which established the primary public purpose for which the leased premises were acquired. The approved Management Plan shall provide the basic guidance for all management activities and shall be reviewed jointly by LESSEE and LESSOR. LESSEE shall not use or alter the leased premises except as provided for in the approved Management Plan without the prior written approval of LESSOR. The Management Plan prepared under this lease shall identify management strategies for exotic species, if present. The introduction of exotic species is prohibited, except when specifically authorized by the approved Management Plan.
8. RIGHT OF INSPECTION: LESSOR or its duly authorized agents shall have the right at any and all times to inspect the leased premises and the works and operations thereon of LESSEE, in any matter pertaining to this lease.

9. INSURANCE REQUIREMENTS: LESSEE shall procure and maintain fire and extended risk insurance coverage, in accordance with Chapter 284, F.S., for any buildings and improvements located on the leased premises by preparing and delivering to the Division of Risk Management, Department of Insurance, a completed Florida Fire Insurance Trust Fund Coverage Request Form and a copy of this lease immediately upon erection of any structures as allowed by paragraph 4 of this lease. A copy of said form and immediate notification in writing of any erection or removal of structures or other improvements on the leased premises and any changes affecting the value of the improvements shall be submitted to the following: Bureau of Public Land Administration, Division of State Lands, Department of Environmental Protection, Mail Station 130, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000.
10. LIABILITY: LESSEE shall assist in the investigation of injury or damage claims either for or against LESSOR or the State of Florida pertaining to LESSEE'S respective areas of responsibility under this lease or arising out of LESSEE'S respective management programs or activities and shall contact LESSOR regarding the legal action deemed appropriate to remedy such damage or claims.
11. ARCHAEOLOGICAL AND HISTORIC SITES: Execution of this lease in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or the disturbance of archaeological and historic sites on state-owned lands is prohibited unless prior authorization has been obtained from the Department of State, Division of Historical Resources. The Management Plan prepared pursuant to Section 253.034, Florida Statutes, shall be reviewed by the Division of Historical Resources to insure that adequate measures have been planned to locate, identify, protect and preserve the archaeological and historic sites and properties on the leased premises.
12. EASEMENTS: All easements including, but not limited to, utility easements are expressly prohibited without the prior written approval of LESSOR. Any easement not approved in writing by LESSOR shall be void and without legal effect.

Exhibit "B"
Page 4 of 13

13. SUBLEASES: This lease is for the purposes specified herein and subleases of any nature are prohibited, without the prior written approval of LESSOR. Any sublease not approved in writing by LESSOR shall be void and without legal effect.

14. POST CLOSING RESPONSIBILITIES: In an effort to define responsibilities of the LESSOR and LESSEE with regard to resolving post closing management issues, the parties agree to the following:

- a. After consultation with the LESSEE, LESSOR agrees to provide the LESSEE with the title, survey and environmental products procured by the LESSOR, prior to closing.
- b. LESSOR will initiate surveying services to locate and mark boundary lines of specific parcels when necessary for immediate agency management and will provide a boundary survey of the entire acquisition project at the conclusion of all acquisition within the project boundary. Provided, however, the LESSEE may request individual parcel boundary surveys, if necessary, prior to the conclusion of acquisition activities within the project boundaries.
- c. Unless otherwise agreed to by LESSEE, LESSOR shall at its sole cost and expense, make a diligent effort to resolve all issues pertaining to all title defects, survey matters or environmental contamination associated with the leased premises, including but not limited to trash and debris, which were either known or should have been reasonably known by LESSOR at the time LESSOR acquired the leased premises. Notwithstanding the foregoing, LESSOR will not be responsible for any of LESSEE'S attorney's fees, costs, or liability or damages incurred by the LESSEE in resolving any issue in which the LESSEE is named as a party in any litigation or other legal or administrative proceeding.
- d. With regard to all title defects, survey matters, or environmental contamination associated with the leased premises which were not known or could not have been reasonably known by

LESSOR at the time LESSOR acquired the leased premises, LESSOR and LESSEE agree to cooperate in developing an appropriate strategy for jointly resolving these matters. LESSOR acknowledges and understands that LESSEE is unable to commit any substantial amount of their routine operating funds for the resolution of any title defect, survey matter, or environmental contamination associated with the lease premises. Notwithstanding the foregoing, LESSOR will not be responsible for any of LESSEE'S attorney's fees, costs, or liability or damages incurred by the LESSEE in resolving any issue in which the LESSEE is named as a party in any litigation or other legal or administrative proceeding.

15. SURRENDER OF PREMISES: Upon termination or expiration of this lease LESSEE shall surrender the leased premises to LESSOR. In the event no further use of the leased premises or any part thereof is needed, written notification shall be made to the Bureau of Public Land Administration, Division of State Lands, Department of Environmental Protection, Mail Station 130, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, at least six months prior to the release of all or any part of the leased premises. Notification shall include a legal description, this lease number and an explanation of the release. The release shall only be valid if approved by LESSOR through execution of a release of lease instrument with the same formality as this lease. Upon release of all or any part of the leased premises or upon expiration or termination of this lease, all permanent improvements, including both physical structures and modifications to the leased premises, shall become the property of LESSOR, unless LESSOR gives written notice to LESSEE to remove any or all such improvements at the expense of LESSEE. The decision to retain any improvements upon termination of this lease shall be at LESSOR'S sole discretion. Prior to surrender of all or any part of the leased premises, a representative of the Division of State Lands shall perform an on-site inspection and the keys to any buildings on the leased premises shall be turned over to the Division. If the leased premises and improvements located thereon do not meet all conditions set forth in

paragraphs 18 and 21 herein, LESSEE shall pay all costs necessary to meet the prescribed conditions.

16. BEST MANAGEMENT PRACTICES: LESSEE shall implement applicable Best Management Practices for all activities conducted under this lease in compliance with paragraph 18-2.018(2)(h), Florida Administrative Code, which have been selected, developed, or approved by LESSOR, LESSEE or other land managing agencies for the protection and enhancement of the leased premises.
17. PUBLIC LANDS ARTHROPOD CONTROL PLAN: LESSEE shall identify and subsequently designate to the respective arthropod control district or districts within one year of the effective date of this lease all of the environmentally sensitive and biologically highly productive lands contained within the leased premises, in accordance with Section 388.4111, Florida Statutes and Chapter 52-13, Florida Administrative Code, for the purpose of obtaining a public lands arthropod control plan for such lands.
18. UTILITY FEES: LESSEE shall be responsible for the payment of all charges for the furnishing of gas, electricity, water and other public utilities to the leased premises and for having all utilities turned off when the leased premises are surrendered.
19. ASSIGNMENT: This lease shall not be assigned in whole or in part without the prior written consent of LESSOR. Any assignment made either in whole or in part without the prior written consent of LESSOR shall be void and without legal effect.
20. PLACEMENT AND REMOVAL OF IMPROVEMENTS: All buildings, structures, improvements, and signs shall be constructed at the expense of LESSEE in accordance with plans prepared by professional designers and shall require the prior written approval of LESSOR as to purpose location, and design. Further, no trees, other than non-native species, shall be removed or major land alterations done without the prior written approval of LESSOR. Removable equipment placed on the leased premises by LESSEE which do not become a permanent part of the leased premises will remain the property of LESSEE and may be removed by LESSEE upon termination of this lease.
21. MAINTENANCE OF IMPROVEMENTS: LESSEE shall maintain the real property contained within the leased premises and any improvements located thereon,

Exhibit "B"
Page 7 of 13

in a state of good condition, working order and repair including, but not limited to, keeping the leased premises free of trash or litter, maintaining all planned improvements as set forth in the approved Management Plan, meeting all building and safety codes in the location situated and maintaining any and all existing roads, canals, ditches, culverts, risers and the like in as good condition as the same may be at the date of this lease; provided, however, that any removal, closure, etc., of the above improvements shall be acceptable when the proposed activity is consistent with the goals of conservation, protection, and enhancement of the natural and historical resources within the leased premises and with the approved Management Plan.

22. ENTIRE UNDERSTANDING: This lease sets forth the entire understanding between the parties and shall only be amended with the prior written approval of LESSOR.

23. BREACH OF COVENANTS, TERMS, OR CONDITIONS: Should LESSEE breach any of the covenants, terms, or conditions of this lease, LESSOR shall give written notice to LESSEE to remedy such breach within sixty days of such notice. In the event LESSEE fails to remedy the breach to the satisfaction of LESSOR within sixty days of receipt of written notice, LESSOR may either terminate this lease and recover from LESSEE all damages LESSOR may incur by reason of the breach including, but not limited to, the cost of recovering the leased premises or maintain this lease in full force and effect and exercise all rights and remedies herein conferred upon LESSOR.

24. NO WAIVER OF BREACH: The failure of LESSOR to insist in any one or more instances upon strict performance of any one or more of the covenants, terms and conditions of this lease shall not be construed as a waiver of such covenants, terms and conditions, but the same shall continue in full force and effect, and no waiver of LESSOR of any one of the provisions hereof shall in any event be deemed to have been made unless the waiver is set forth in writing, signed by LESSOR.

25. PROHIBITIONS AGAINST LIENS OR OTHER ENCUMBRANCES: Fee title to the leased premises is held by LESSOR. LESSEE shall not do or permit anything which purports to create a lien or encumbrance of any nature against the

real property contained in the leased premises including, but not limited to, mortgages or construction liens against the leased premises or against any interest of LESSOR therein.

26. CONDITIONS AND COVENANTS: All of the provisions of this lease shall be deemed covenants running with the land included in the leased premises, and construed to be "conditions" as well as "covenants" as though the words specifically expressing or imparting covenants and conditions were used in each separate provision.

27. DAMAGE TO THE PREMISES: (a) LESSEE shall not do, or suffer to be done, in, on or upon the leased premises or as affecting said leased premises or adjacent properties, any act which may result in damage or depreciation of value to the leased premises or adjacent properties, or any part thereof. (b) LESSEE shall not generate, store, produce, place, treat, release or discharge any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents on, into, or from the leased premises or any adjacent lands or waters in any manner not permitted by law. For the purposes of this lease, "hazardous substances" shall mean and include those elements or compounds defined in 42 USC Section 9601 or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency (EPA) and the list of toxic pollutants designated by the United States Congress or the EPA or defined by any other federal, state or local statute, law, ordinance, code, rule, regulation, order or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" shall mean those products or substances defined in Chapters 376 and 403, Florida Statutes, and the rules promulgated thereunder, all as amended or updated from time to time. In the event of LESSEE'S failure to comply with this paragraph, LESSEE shall, at its sole cost and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the leased premises, and (2) all off-site ground and surface waters and lands affected by LESSEE'S such failure to

comply, as may be necessary to bring the leased premises and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders and decrees, and to restore the damaged property to the condition existing immediately prior to the occurrence which caused the damage. LESSEE'S obligations set forth in this paragraph shall survive the termination or expiration of this lease. Nothing herein shall relieve LESSEE of any responsibility or liability prescribed by law for fines, penalties and damages levied by governmental agencies, and the cost of cleaning up any contamination caused directly or indirectly by LESSEE'S activities or facilities. Upon discovery of a release of a hazardous substance or pollutant, or any other violation of local, state or federal law, ordinance, code, rule, regulation, order or decree relating to the generation, storage, production, placement, treatment, release or discharge of any contaminant, LESSEE shall report such violation to all applicable governmental agencies having jurisdiction, and to LESSOR, all within the reporting periods of the applicable governmental agencies.

28. PAYMENT OF TAXES AND ASSESSMENTS: LESSEE shall assume full responsibility for and shall pay all liabilities that accrue to the leased premises or to the improvements thereon, including any and all drainage and special assessments or taxes of every kind and all mechanic's or materialman's liens which may be hereafter lawfully assessed and levied against the leased premises.

29. RIGHT OF AUDIT: LESSEE shall make available to LESSOR all financial and other records relating to this lease and LESSOR shall have the right to audit such records at any reasonable time. This right shall be continuous until this lease expires or is terminated. This lease may be terminated by LESSOR should LESSEE fail to allow public access to all documents, papers, letters or other materials made or received in conjunction with this lease, pursuant to Chapter 119, Florida Statutes.

30. NON-DISCRIMINATION: LESSEE shall not discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity

Exhibit "B"
Page 10 of 13

occurring within the leased premises or upon lands adjacent to and used as an adjunct of the leased premises.

31. COMPLIANCE WITH LAWS: LESSEE agrees that this lease is contingent upon and subject to LESSEE obtaining all applicable permits and complying with all applicable permits, regulations, ordinances, rules, and laws of the State of Florida or the United States or of any political subdivision or agency of either.
32. TIME: Time is expressly declared to be of the essence of this lease.
33. GOVERNING LAW: This lease shall be governed by and interpreted according to the laws of the State of Florida.
34. SECTION CAPTIONS: Articles, subsections and other captions contained in this lease are for reference purposes only and are in no way intended to describe, interpret, define or limit the scope, extent or intent of this lease or any provisions thereof.
35. ADMINISTRATIVE FEE: LESSEE shall pay LESSOR an annual administrative fee of \$300. The initial annual administrative fee shall be payable within thirty days from the date of execution of this lease agreement and shall be prorated based on the number of months or fraction thereof remaining in the fiscal year of execution. For purposes of this lease agreement, the fiscal year shall be the period extending from July 1 to June 30. Each annual payment thereafter shall be due and payable on July 1 of each subsequent year.

IN WITNESS WHEREOF, the parties have caused this lease to be executed on the day and year first above written.

BOARD OF TRUSTEES OF THE INTERNAL
IMPROVEMENT TRUST FUND OF THE
STATE OF FLORIDA

Gudy Woodward
Witness

Gudy Woodward
Print/Type Witness Name

Lisa Sparkman
Witness

Lisa Sparkman
Print/Type Witness Name

By: Gloria C. Nelson (SEAL)
GLORIA C. NELSON, OPERATIONS
AND MANAGEMENT CONSULTANT
MANAGER, BUREAU OF PUBLIC
LAND ADMINISTRATION,
DIVISION OF STATE LANDS,
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

"LESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 27th day of July 2004, by Gloria C. Nelson, as Operations and Management Consultant, Manager, Bureau of Public Land Administration, Division of State Lands, Florida Department of Environmental Protection, acting as agent on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida.

Theresa M. Brady
Notary Public, State of Florida

Print/Type Notary Name: Theresa M. Brady
Commission Number: DD081826
Expires Jan. 2, 2006
Bonded Thru
Atlantic Bonding Co., Inc.
Commission Expires:

Approved as to Form and Legality

By: [Signature]
DEP Attorney

FLORIDA DEPARTMENT OF ENVIRONMENTAL
PROTECTION, OFFICE OF GREENWAYS AND TRAILS

Destiny Bryant
Witness

Destiny L. Bryant
Print/Type Witness Name

Carolyn Thompson
Witness

CAROLYN Thompson
Print/Type Witness Name

By: James M. Wood

James M. Wood
Print/Type Name

Title: Assistant Director

"LESSEE"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 12th day of July, 2004, by James M. Wood, as Assistant Director, Florida Department of Environmental Protection, Office of Greenways and Trails. He/she is personally known to me.



Shannon Franklin
MY COMMISSION # DD119914 EXPIRES
May 23, 2006
BONDED THRU TROY FAH INSURANCE, INC.

Shannon Franklin
Notary Public, State of Florida

Shannon Franklin
Print/Type Notary Name

Commission Number: DD119914

Commission Expires: May 23, 2006

EXHIBIT "A"

LEGAL DESCRIPTION OF THE LEASED PREMISES

COMMENCE AT THE INTERSECTION OF THE NORTH RIGHT-OF-WAY LINE OF CROSS STREET (80' R/W) AND THE EAST RIGHT-OF-WAY LINE OF THOMPSON STREET (80' R/W), CITY OF BAGDAD, FLORIDA; THENCE N 57°14'24" E ALONG SAID NORTH RIGHT-OF-WAY LINE FOR 205.0 FEET, MORE OR LESS, TO THE WEST BANK OF THE BLACKWATER RIVER FOR THE POINT OF BEGINNING; THENCE S 57°14'24" W ALONG SAID NORTH RIGHT-OF-WAY LINE FOR 205.0 FEET, MORE OR LESS, TO AFORESAID EAST RIGHT-OF-WAY LINE; THENCE N 18°27'25" W ALONG SAID EAST RIGHT-OF-WAY LINE FOR 278.96 FEET TO THE NORTH RIGHT-OF-WAY LINE OF THOMPSON STREET; THENCE S 71°00'32" W ALONG SAID RIGHT-OF-WAY LINE FOR 249.95 FEET; THENCE N 12°31'01" W FOR 137.58 FEET; THENCE S 82°17'05" W FOR 185.33 FEET; THENCE N 14°26'43" W FOR 259.08 FEET; THENCE S 82°17'05" W FOR 129.67 FEET TO THE EAST RIGHT-OF-WAY LINE OF MAGNOLIA STREET (R/W VARIES); THENCE N 07°42'55" W ALONG SAID RIGHT-OF-WAY LINE FOR 257.92 FEET TO THE NORTH RIGHT-OF-WAY LINE OF MAIN STREET (80' R/W); THENCE N 38°25'57" W FOR 389.15 FEET TO A POINT ON THE NORTH RIGHT-OF-WAY LINE OF MILTON ROAD (R/W VARIES); THENCE S 87°08'30" W ALONG SAID RIGHT-OF-WAY LINE FOR 2.25 FEET TO THE EAST CURVATURE OF A CURVE CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 1832.40 FEET AND A CENTRAL ANGLE OF 08°38'39"; THENCE NORTHWESTERLY ALONG SAID CURVE AN ARC DISTANCE OF 291.54 FEET, (CHORD = 291.26', CHORD BEARING N 07°10'50" W); THENCE CONTINUE NORTHWESTERLY ALONG SAID CURVE FOR 15 FEET, MORE OR LESS, TO THE SOUTH BANK OF POND CREEK; THENCE MEANDER NORTHEASTERLY ALONG SAID SOUTH BANK FOR 80 FEET, MORE OR LESS, THENCE CONTINUING ALONG SAID SOUTH BANK, MEANDER GENERALLY SOUTHERLY AND EASTERLY FOR 1000 FEET, MORE OR LESS, TO THE WEST BANK OF THE BLACKWATER RIVER; THENCE MEANDER SOUTHERLY AND EASTERLY ALONG SAID WEST BANK FOR 1200 FEET MORE OR LESS TO THE POINT OF BEGINNING, ALL LYING AND BEING IN SECTIONS 10 AND 11, TOWNSHIP 1 NORTH, RANGE 28 WEST, SANTA ROSA COUNTY, FLORIDA

RECEIVED

Appendix C

NRCS Soil Survey

Soil Map—Santa Rosa County, Florida
(Bagdad Mill Site)



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

1/13/2012
Page 1 of 3

Soil Map—Santa Rosa County, Florida
(Bagdad Mill Site)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot



Very Stony Spot



Wet Spot



Other

Special Line Features



Gully



Short Steep Slope



Other

Political Features



Cities

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

MAP INFORMATION

Map Scale: 1:3,580 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: UTM Zone 16N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Rosa County, Florida

Survey Area Data: Version 8, Feb 1, 2010

Date(s) aerial images were photographed: 9/16/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



Map Unit Legend

Santa Rosa County, Florida (FL 113)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Bibb-Kinston association	25.4	78.7%
34	Pachius loamy sand, 0 to 5 percent slopes	5.2	16.0%
99	Water	1.7	5.3%
Totals for Area of Interest		32.3	100.0%



Santa Rosa County, Florida

3—Bibb-Kinston association

Map Unit Setting

Elevation: 0 to 450 feet

Mean annual precipitation: 65 to 73 inches

Mean annual air temperature: 63 to 70 degrees F

Frost-free period: 242 to 272 days

Map Unit Composition

Bibb and similar soils: 50 percent

Kinston and similar soils: 25 percent

Minor components: 25 percent

Description of Bibb

Setting

Landform: Flood plains on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy and sandy alluvium

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 8.5 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 17 inches: Silt loam

17 to 42 inches: Silt loam

42 to 65 inches: Fine sand

Description of Kinston

Setting

Landform: Flood plains on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy alluvium

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 8.5 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 9 inches: Silt loam

9 to 18 inches: Silt loam

18 to 50 inches: Sandy clay loam

50 to 65 inches: Sand

Minor Components**Rutlege**

Percent of map unit: 10 percent

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Pamlico

Percent of map unit: 5 percent

Landform: Flood plains on marine terraces, depressions on marine terraces

Landform position (three-dimensional): Flat

Down-slope shape: Linear

Across-slope shape: Concave

Johns

Percent of map unit: 4 percent

Landform: Stream terraces on marine terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Escambia

Percent of map unit: 3 percent

Landform: Rises on marine terraces

Landform position (three-dimensional): Interfluve, talf

Down-slope shape: Convex

Across-slope shape: Linear

Pactolus

Percent of map unit: 3 percent

Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear

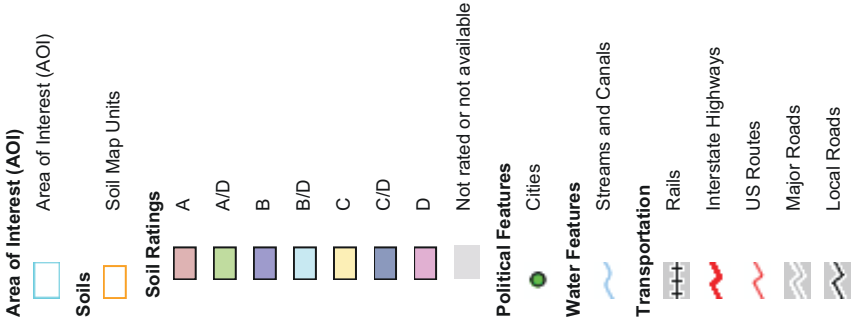
Data Source Information

Soil Survey Area: Santa Rosa County, Florida
Survey Area Data: Version 8, Feb 1, 2010

Hydrologic Soil Group—Santa Rosa County, Florida
(Bagdad Mill Site)



MAP LEGEND



MAP INFORMATION

Map Scale: 1:3,580 if printed on A size (8.5" x 11") sheet.
The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.
Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 16N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Rosa County, Florida
Survey Area Data: Version 8, Feb 1, 2010

Date(s) aerial images were photographed: 9/16/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Santa Rosa County, Florida (FL113)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Bibb-Kinston association	B/D	25.4	78.7%
34	Pactolus loamy sand, 0 to 5 percent slopes	A	5.2	16.0%
99	Water		1.7	5.3%
Totals for Area of Interest			32.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix D

Geotechnical Report

**Geotechnical Engineering Services
Report for the Proposed**

**Bagdad Mill Site Park
Stormwater Ponds
Santa Rosa County, Florida**

PSI Project No. 0783738

Prepared for

**Mr. Jason Ripley, PE
PBS&J, Inc.
2114 Airport Blvd., Suite 1450
Pensacola, Florida 32504**

Prepared by

**Professional Service Industries, Inc.
175 South A Street
Pensacola, Florida 32501
Telephone (850) 434-1000**

**Revised January 27, 2012
April 25, 2011**

Revised January 27, 2012

April 25, 2011

Mr. Jason Ripley, PE
PBS&J, Inc.
2114 Airport Blvd., Suite 1450
Pensacola, Florida 32504

SUBJECT: Bagdad Mill Site Park – Stormwater Ponds
Santa Rosa County, Florida
PSI Project No. 0783738

Dear Mr. Ripley:

Thank you for choosing Professional Service Industries, Inc. (PSI) as your Geotechnical consultant. Per your authorization, we have completed the Geotechnical exploration for the proposed stormwater ponds. The results of the study are discussed in this report, two copies of which are enclosed (one bound copy, one unbound copy). An electronic copy of this report has been forwarded to you as well.

This revised report incorporates comments made on our April 25, 2011 report and includes the additional information that you requested. This new report supersedes our submittal on April 25, 2011. Should you have any questions regarding the enclosed report or the project in general, please do not hesitate to contact us at (850) 434-1000. PSI would be pleased to continue providing Geotechnical engineering and construction testing services throughout the design and construction phases of the project, and we look forward to working with you on this and future projects.

Sincerely,
PROFESSIONAL SERVICE INDUSTRIES, INC.

MITCHELL L. SMITH, PE
District Manager/Principal Consultant

GABRIEL R. CAMPOSAGRADO, PE
Project Engineer
Florida License No. 69116

TABLE OF CONTENTS

1.0 Project Information	1
1.1 Project Authorization	1
1.2 Project Description	1
1.3 Purpose and Scope of Services	2
2.0 Site and Subsurface Conditions	3
2.1 Site Location and Description	3
2.2 Subsurface Conditions	3
2.2.1 Pond 1	3
2.2.2 Pond 2	4
2.2.3 Pond 3	4
2.3 Groundwater Conditions	4
Table #1 – Rainfall Data	5
Table #2 – Groundwater Elevations	5
2.4 Laboratory Soil Testing	6
Table #3 – Soil Permeability Test Results	6
3.0 Evaluation and Recommendations	7
3.1 Pond 1 (Borings R-1 and R-2)	7
3.2 Pond 2 (Borings R-3 and R-4)	9
3.3 Pond 3A (Borings R-5, R-6, and R-7)	10
4.0 Report Limitations	11

Figure #1 – Boring Location Plan

Figure #2 – Logs of Boring

1.0 PROJECT INFORMATION

1.1 Project Authorization

Authorization to proceed on this project was issued by Mr. Jeff Helms, PE, Vice President/Division Manager with PBS&J, Inc. via acceptance of our Geotechnical Engineering Services proposal dated November 5, 2010. A formal contract has been executed between PSI and PBS&J, Inc. for these services.

1.2 Project Description

Based on the information provided by Mr. Jason Ripley, PE, with PBS&J, we understand that the proposed project will include development of a new multi-purpose recreation park in Bagdad, Santa Rosa County, Florida. The park will include a pavilion, bike trail and loop, kayak launch and parking, parking lots, fishing pier with boardwalk, and stormwater ponds. This report addresses the proposed ponds.

Three ponds are proposed to support the proposed development. The locations of the ponds can be referenced using Figure #1. For the purposes of this report, we have designated the three ponds as Pond 1, Pond 2, and Pond 3.

Pond 1 will be located in the east central portion of the site where borings R-3 and R-4 are shown. This pond, which is expected to have a bottom elevation of about 9 feet MSL, will serve the proposed parking lot and surrounding areas. Pond 2 will be the northernmost pond located where borings R-1 and R-2 are shown. This pond will be a reconfiguration of the existing pond located in this area, which reportedly has underdrains to facilitate drawdown. The existing bottom elevation is 6 feet MSL, and the new pond is expected to have a similar bottom elevation. Pond 3 was to be located where borings R-5, R-6, and R-7 are shown. There is an existing 2± foot deep pond in this area with a bottom elevation of approximately 6 feet MSL.

If any of the project information noted above is incorrect or has changed, please inform PSI so that we may amend the recommendations presented in this report, if necessary.

1.3 Purpose and Scope of Services

The purpose of this exploration was to evaluate the subsurface conditions present in the subject areas and to render geotechnical design parameters for the pond recovery analyses. Our exploration consisted of one 10 foot deep auger boring and six 10 foot to 15 foot deep Standard Penetration Test borings, laboratory soil testing to aid in soil classification and evaluate material properties of the soils encountered, and analysis by our engineering staff.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands or hazardous/toxic materials in the air, surface water(s), soil, or groundwater on or in the vicinity of the subject site. Any statements in this report or on the Logs of Boring regarding odors, stains, or unusual/suspicious conditions are strictly for the information of the client.

2.0 SITE AND SUBSURFACE CONDITIONS

2.1 Site Location and Description

The site is located at the Bagdad Mill Site in Bagdad, Santa Rosa County, Florida. The property is bounded on the north and south by undeveloped property, on the east by Blackwater River, and the west by residential homes and undeveloped property.

At the time of our exploration, the previously development had been razed. Construction debris was observed on the ground surface in the central portion of the site. Standing water was observed on isolated areas of the site. A retaining wall as present along Blackwater River. Several depressed areas were observed where previous ponds were located. The bottoms of the ponds/depressions were soft and wet. The southern portion of the site was wooded. Vegetation across the site consisted of pine trees, oak trees, and magnolia trees with underbrush. Jurisdictional wetlands were present in the northern and southern portions of the site.

Based on the topographic information provided, site grades generally ranged from about 15 feet MSL in the eastern central portion of the site to about 6 feet MSL at the perimeter of the site. Blackwater River is estimated to be near elevation 2 feet to 3 feet MSL.

2.2 Subsurface Conditions

Figure #1 shows the Boring Location Plan and Figure #2 shows the Logs of Boring of the six 10 foot to 15 foot deep Standard Penetration Test (SPT) borings and the one 10 foot deep auger boring performed in the proposed pond areas. The test borings were field located using a hand held GPS unit with a typical accuracy of 3 meters. The boring locations were specified by our client. The subsurface conditions in each pond area are summarized below.

2.2.1 Pond 1

Borings R-3 and R-4, which were drilled in the Pond 1 area, generally encountered slightly silty sand with organic stain/wood/concrete debris from the ground surface to about 3 feet to 4 feet below existing grade underlain by slightly silty sand to the bottom of the 15 foot deep borings.

2.2.2 Pond 2

Borings R-1 and R-2, which were drilled in the bottom of the existing pond in the proposed Pond 2 area, generally encountered sands, clayey sands, and pieces of concrete/gravel from the ground surface to a depth of approximately 2 feet to 4 feet below existing grade underlain by sand and slightly silty sand with organic stain/peat/wood to about 11 feet underlain by slightly silty sand to the bottom of the 10 foot deep borings.

2.2.3 Pond 3

Borings R-5 and R-6, which were drilled in the bottom of the existing pond at the proposed Pond 3 location, generally encountered sand from the ground surface to a depth of approximately 3 feet to 6 feet below existing grade underlain by slightly silty sand with organic stain to the bottom of the 10 foot to 15 foot deep borings. Boring R-5 encountered a 1± foot thick layer of concrete debris approximately 6 feet below existing grade.

Boring R-7, which was drilled in the northern portion of Pond 3 area, generally encountered slightly silty sand from the ground surface to a depth of approximately 2 feet below existing grade underlain by gravel to about 5 feet underlain by sand to the bottom of the 10 foot deep boring. Note that the gravel is not native and is not representative of natural conditions in the subject area.

The above subsurface descriptions are of a generalized nature, provided to highlight the major soil strata encountered. The Logs of Boring should be reviewed for specific subsurface conditions at each boring location. The stratification shown on the Logs of Boring represents the subsurface conditions at the actual boring locations only, and variations in the subsurface conditions can and may occur between boring locations and should therefore be expected. The stratification represents the approximate boundary between subsurface materials, and the transitions between strata may be gradual.

2.3 Groundwater Conditions

Groundwater was encountered at depths ranging from roughly 1 foot to 5 feet below existing grade at the time of drilling, which was during a period of below normal seasonal rainfall. Groundwater levels will fluctuate with rainfall and could vary several feet during typical seasonal fluctuations. Larger fluctuations are possible under severe weather conditions.

Rainfall data from weather station KFLMILT010, located approximately 1 mile northeast of the site, indicated that cumulative rainfall over the 2 months preceding the date of drilling was 3.3 inches below normal. Cumulative rainfall over the 6 months preceding the date of drilling was 15.2 inches below normal. Rainfall data collected from this weather station and averages from the Pensacola Gulf Coast Regional Airport weather station (the nearest weather station with historical monthly averages) for the six months preceding the study are summarized below in Table #1.

TABLE #1 – Rainfall Data						
	Sept 2010	Oct 2010	Nov 2010	Dec 2010	Jan 2011	Feb 2011
Actual	1.11	0.35	3.68	1.50	3.80	2.87
Normal	5.75	4.38	4.46	3.97	5.33	4.65
Variance	-4.64	-4.03	-0.78	-2.47	-1.53	-1.78

Based on the topographic information provided, groundwater was encountered in the pond borings at elevations ranging from about 3 feet to 8 feet MSL. Table #2 below summarizes the groundwater elevations encountered at the time of drilling and estimated seasonal high groundwater elevations at each pond/boring location.

TABLE #2 – Groundwater Elevations			
Pond	Boring	Approx. Groundwater Elevation @ Time of Drilling	Estimated Seasonal High Groundwater Elevation
1	R-3	7 ft. MSL	9 ft. MSL
	R-4	8 ft. MSL	10 ft. MSL
2	R-1	4 ft. MSL	7 ft. MSL
	R-2	3 ft. MSL	6 ft. MSL
3	R-5	5 ft. MSL	7 ft. MSL
	R-6	5 ft. MSL	7 ft. MSL
	R-7	6 ft. MSL	8 ft. MSL

2.4 Laboratory Soil Testing

Laboratory soil testing consisted of water content tests, wash #200 sieve tests, organic content tests, and falling head permeability tests. The results of these tests can be found on the Logs of Boring opposite the samples tested.

The falling head permeability tests were performed on bulk samples of the predominate soil types encountered in the pond borings. The results of these tests are summarized below in Table #3. Note that the sample tested from boring R-2 yielded a permeability value of 4.5×10^{-7} cm/sec which is outside the recommended range for the falling head permeability test. Consequently, the reported permeability value is an approximation.

TABLE #3 – Soil Permeability Test Results					
Boring	Sample Depth	Sample Description	% Fines	Dry Density	Permeability
R-2	2' – 7'	Black slightly silty SAND/PEAT	---	85 pcf	0.001 ft/day
R-3	4' – 6'	Lt. grey slightly silty SAND	6	104 pcf	2.5 ft/day
R-4	6' – 8'	Lt. brown SAND	3	104 pcf	1.7 ft/day
R-7	6' – 8'	Lt. brown SAND	4	102 pcf	2.2 ft/day

3.0 EVALUATION AND RECOMMENDATIONS

Geotechnical design parameters for the pond recovery analyses for each pond are provided below based on the design information provided at the time of this report, the field data collected from the site, the results of the laboratory soil tests noted above, and our experience with the subsurface conditions in the subject area.

3.1 Pond 1 (Borings R-3 and R-4)

- **Effective Aquifer Thickness:** A confining unit, which would hydrogeologically define the thickness of the surficial aquifer, was not encountered in the 16 foot deep borings. Given the relatively shallow head expected in the pond and the ground surface elevations at the boring locations, we recommend a bottom of aquifer elevation of 0 feet MSL for modeling purposes.
- **Seasonal High Groundwater Level:** See Table #2 on page 5 of this report. An average of the two estimates, or approximately elevation 9.5 feet MSL, would be reasonable for the drawdown analysis.
- **Vertical Permeability:** Based on the falling head permeability tests, the most restrictive material for vertical flow at the boring R-3 location is the slightly silty sand with organic stain and gravel encountered from the ground surface to about 4 feet below existing grade. We estimate the permeability of the organic stained slightly silty sand to be approximately 0.1 ft/day, and if we assume the gravel comprises approximately 50% of the formation, the vertical permeability would be one half this value, or 0.05 ft/day.

At the boring R-4 location, the most restrictive material for vertical flow is the slightly silty sand with limerock, wood, and concrete debris encountered from the ground surface to about 3 feet below existing grade. The vertical permeability test performed on the slightly silty sand (without debris) yielded a value of 1.7 ft/day. Assuming that the debris comprises 50% of the formation, the vertical permeability would be about one half this value, or about 0.85 ft/day.

Assuming that the subsurface conditions depicted by the borings are equally weighted, an average vertical permeability value of 0.45 ft/day would be reasonable for the drawdown analysis.

To increase vertical infiltration, we recommend undercutting the bottom of the pond to the more permeable sands and slightly silty sand encountered from near elevation +8 feet MSL (approximately 1 foot below the bottom of the pond). Backfill soils should be a clean coarse sand having a minimum vertical permeability of 1×10^{-2} cm/sec (28 ft/day). If the undercut option is selected, the controlling permeabilities below the bottom of the pond would be native sand and slightly silty sand. Assuming that the sand and slightly silty sand are equally weighted, an average vertical permeability value of 2.1 ft/day would be reasonable for the drawdown analysis. Given that the pond bottom will be close to the seasonal high water table elevation, we suggest ignoring the vertical infiltration component for the pond recovery analysis.

- **Horizontal Permeability:** The horizontal permeability of the soils encountered in the borings has been estimated based on the results of the vertical permeability tests and extensive experience with similar soils from field permeability tests. While horizontal permeabilities have generally been found to range from 3 to 10 times higher than vertical permeabilities of regional deposits, we recommend that a multiplier of 3 with a factor of safety of 2 be used for design (effectively, a 1.5 multiplier). Based on the falling head permeability test results and the assumptions presented for the vertical permeability estimates above, we recommend a K_h value of 0.7 ft/day for the soils present from the ground surface to an average depth of about 4.5 feet below existing grade (or to an average elevation of 7.5 feet MSL) and a K_h value of 3.1 ft/day (average of 2.5 ft/day for the vertical permeability of the slightly silty sand encountered in R-3 and 1.7 ft/day for the vertical permeability of the slightly silty sand encountered in R-4) for those soils present from an average elevation of about 7.5 feet MSL to the base of the aquifer at elevation 0 feet MSL.

Because most pond recovery software used can only model one layer, a weighted average horizontal permeability is typically required. The weighted average horizontal permeability is calculated by multiplying the horizontal permeability of each layer by the thickness of each layer, summing these values, and dividing the resultant by the sum of the thicknesses of each layer. For this analysis,

$$K_{h-avg} = \frac{(0.7 \text{ ft/day} \times 2.5 \text{ ft}) + (3.1 \text{ ft/day} \times 7.5 \text{ ft})}{(2.5 \text{ ft} + 7.5 \text{ ft})} = \underline{\underline{2.5 \text{ ft/day}}}$$

- **Effective Porosity:** Based on the fines contents of the soils encountered in the borings, an effective porosity of 0.25 would be a reasonable estimate for modeling.

3.2 Pond 2 (Borings R-1 and R-2)

- **Effective Aquifer Thickness:** A falling head permeability test performed on the slightly silty sand with peat which was encountered in the two borings approximately 2 feet to 4 feet below existing grade yielded a vertical permeability (0.001 ft/day) which would practically define a confining unit for the purposes of this study. Therefore, we recommend setting the base of the aquifer at an average depth of 3 feet below existing grade which, based on the topographic information provided, corresponds to elevation +3 feet MSL.
- **Seasonal High Groundwater Level:** See Table #2 on page 5 of this report. An average of the two estimates, or approximately elevation 6.5 feet MSL would be reasonable for the drawdown analysis.
- **Vertical Permeability:** The soils present in the affected aquifer are predominately slightly silty sands with gravel and concrete debris. The vertical permeability test performed on the slightly silty sand (without gravel or concrete debris) yielded a value of 1.7 ft/day. Assuming that the debris comprises 50% of the formation, the vertical permeability would be about one half this value, or about 0.85 ft/day which we believe to be reasonable for the drawdown analysis.
- **Horizontal Permeability:** The horizontal permeability of the soil in the affected aquifer has been estimated based on the results of the vertical permeability test and extensive experience with similar soils from field permeability tests. While horizontal permeabilities have generally been found to range from 3 to 10 times higher than vertical permeabilities of regional deposits, we recommend that a multiplier of 3 with a factor of safety of 2 be used for design (effectively, a 1.5 multiplier). Based on the suggested vertical permeability value of 0.85 ft/day and using a multiplier of 1.5, a K_h value of 1.3 ft/day would be reasonable for the soils present in the affected aquifer.
- **Effective Porosity:** Assuming the slightly silty sands have an effective porosity of 0.25 and the debris accounts for 50% of the material in the affected aquifer, an effective porosity of 0.12 (average of 0.25 and 0.0) would be reasonable for modeling.

3.3 Pond 3 (Borings R-5, R-6, and 7)

- **Effective Aquifer Thickness:** A confining unit, which would hydrogeologically define the thickness of the surficial aquifer, was encountered approximately 10 feet to 14 feet below existing grade, or at an average elevation of -6 feet MSL. However, based on the minimal head expected in the pond and the presence of the Blackwater River with an estimated water elevation of +2 feet MSL very nearby, we recommend that the base of the aquifer be set at elevation +2 feet MSL.
- **Seasonal High Groundwater Level:** See Table #2 on page 5 of this report. An average of the two estimates, or approximately elevation 7.5 feet MSL would be reasonable for the drawdown analysis.
- **Vertical Permeability:** Based on the falling head permeability tests, the slightly silty sand which comprises the affected aquifer had a vertical permeability of 2.0 ft/day.
- **Horizontal Permeability:** The horizontal permeability of the soil within the affected aquifer has been estimated based on the results of the vertical permeability test and extensive experience with similar soils from field permeability tests. While horizontal permeabilities have generally been found to range from 3 to 10 times higher than vertical permeabilities of regional deposits, we recommend that a multiplier of 3 with a factor of safety of 2 be used for design (effectively, a 1.5 multiplier). Based on the falling head permeability test results, a K_h value of 3 ft/day for the soils present from the ground surface to the bottom of the affected aquifer (or to about elevation +2 feet MSL) would be reasonable for the drawdown analysis.
- **Effective Porosity:** Based on the fines contents of the soils encountered in the test borings, an effective porosity of 0.25 would be reasonable for modeling.

4.0 REPORT LIMITATIONS

The recommendations submitted are based on the available soil information obtained by PSI and design details furnished by our client for the subject project. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the foundation, or other, recommendations are required. If PSI is not retained to perform these functions, PSI can not be responsible for the impact of such conditions on the performance of the project.

The Geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional Geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the Geotechnical engineer should be provided the opportunity to review the final design plans and specifications to assure our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of PBS&J, Inc. for the specific application to the subject project.

Appendix E

FDEP Pre-Application Meeting Minutes



MEETING MINUTES

Date and Time: Friday, October 28, 2011, 9:00 am
Location: Florida Department Environmental Protection – NW District
Project Description: Bagdad Mill Site

Attendees:	Cliff Street, PE	FDEP	Rich Boelens	FDEP
	Linda Bauer, PE	FDEP	Tanya McHale	FDEP
	Greg Allen, PE	ATKINS	Jason Ripley, PE	ATKINS

These minutes are not intended to be comprehensive verbatim minutes. These minutes only highlight the meeting and summarize the general discussion points and any decisions made.

Project Summary

The proposed project is the redevelopment of the Old Anderson Columbia Industrial site by Santa Rosa County. The proposed design is for a public park with on-site parking, walking trail, pavilions, docks and a kayak launch.

Previously a conceptual pre-application was held on February 17th, 2011 between FDEP and Atkins to begin preliminary discussion on the proposed development. At the time of the initial meeting, the existing survey provided to Atkins by Santa Rosa County was dated in 2005 and was still showing remnants of the Industrial plant, which have since been removed. At that time, Atkins was directed by FDEP to obtain an up-to-date survey accurately showing the existing condition of the site.

Since the initial meeting, Atkins has obtained geotechnical investigation and recommendations and completed 60% design plans. Atkins provided a full size sheet of the current survey recently produced by Santa Rosa County. The existing survey now contains bathymetric data for the dock, fishing pier, and kayak areas. Additionally, the wetland delineation of the southern boundary of the drainage ditch adjacent to Cross St. was added, and all previously wetland delineation lines were confirmed and reflagged.

Discussion pertaining to the existing stormwater permit for the Anderson Columbia plant was discussed in detail. The permit was obtained in the mid-1990s to treat approximately 20 acres of basin area in a side back filtration system along the northern boundary of the property discharging to Pond Creek. Prior to the initial meeting with FDEP, Atkins was able to review the FDEP's permit file for the existing permit, which showed documentation of the violation of the permit conditions around 1998 due to runoff from a portion of the site not being conveyed to the treatment facility. As a result, a second retention pond was added on the southeast portion of the site adjacent to the wetland ditch. Mr. Ripley also recalled specific language in the permit file stating that fill was brought in to create the back berm of this pond, which appears to have encroached into the existing wetland and restrict the flow area in the ditch discharging to Blackwater River.

Mr. Ripley recalled the permit citing a basin area of 15 acres for the detention by filtration pond and a 5 acre basin for the additional wet retention pond, which was designed to be a zero discharge facility. FDEP stated that there was a period of time in the late 1990's where General Permits were allowed to be modified, and this could have fallen within that time period where modifications were permissible.

FDEP's position is that proposed development would not be authorized under the existing permit due to the proposed use and the drainage characteristics of the site being changed in addition to the lack of a basin delineation in the existing permit.

Drainage Design – Basin 1

Basin 1 consists of the main parking area, which consists of a one-way travel lane with angled parking. Due to the parking lots design to accommodate the turning radius of a school bus, the parking lot layout incorporates a large median area, which will also be used for stormwater management.

The median area will be graded to provide a dry retention facility, Pond 1, with a control structure to discharge excess runoff to the north. The discharge will follow the existing drainage pattern for eventual discharge into Pond Creek. As part of the proposed development, a large portion of the existing filtration pond will be converted to a wet detention pond, Pond 2, to serve the adjacent basin, and the remainder will receive discharge from Pond 1. The existing underdrain pipes will remain in the area provided they do not affect the seasonal low water elevation in the adjacent wet detention pond. Mr. Ripley stated that during the geotechnical investigation the groundwater was encountered approximately at the design inverts of the perforated pipe per permit drawings. Since this elevation is above the seasonal low elevation for the pond, leaving the pipes in place will likely have no effect on the wet detention pond design. If after further evaluation Atkins determines the underdrain pipes will have an adverse effect on Pond 2, the perforated pipes will be removed and replaced with a catch basin that will utilize the existing outfall pipes underneath the concrete spillway.

Since Pond Creek is a tributary of Blackwater River, which is an Outstanding Florida Water (OFW), ample discussion regarding the water quality requirements for the basins that do not directly discharge to Blackwater River. FDEP stated that the rule addressing direct discharge to OFWs has some subjectivity, and states that the OFW criteria will not apply provided the applicant can show that sufficient mixing of the discharge will occur prior to reaching the OFW so that the ambient water quality will not be affected. An acceptable calculation to evaluate the level of mixing would be a comparison between the pond discharge volume and the volume of water within Pond Creek.

Drainage Design – Basin 2

Basin 2 consists of the majority of the proposed development and is approximately 7 acres in size. The area is bounded by the looped multi-purpose trail, which will be sloped to the inside where runoff will be conveyed to the proposed wet detention pond for treatment and will discharge to Pond Creek. The basin will consist primarily of grassed performing area and raised amphitheatre seating, which will also be grassed, a small pavilion, interior trails, and miscellaneous hardscape items.

Identical to Basin 1, OFW water quality requirement will not apply provided the applicant can show that sufficient mixing of the discharge will occur prior to reaching the OFW so that the ambient water quality will not be affected.

Other key elements in the wet pond design that were discussed were:

- The existing underdrain pipes will be removed within the limits of the pond.
- The required permanent pool volume below the season low water elevation will be increased by 50% in lieu of littoral plantings
- No fencing will be required by FDEP provided 4:1 side slopes extend to a minimum depth of 2 below the normal water elevation.
- Aesthetic fencing may be used at the County's discretion as can plantings on the flat shelf to conceal the outfall structure.
- Signage discouraging recreational activity within the pond will be required

Drainage Design – Basin 3

Basin 3 is the smallest of the three basins consisting of the back side of the raised amphitheatre seating area, the dog park, and the portion of the multipurpose trail, which bisects the two. The trail in this area will be sloped of the outside allowing all runoff to sheet flow into a proposed retention pond.

The dry retention pond will have a depth of 1 to 1 ½ feet and discharge through a concrete spillway into the existing retention pond area built by Anderson Columbia. OFW criteria will apply to Basin 3.

Compensatory Treatment Volume

Due to the limited amount of uplands in the area of the proposed kayak/canoe launch, overtreatment in the other three basins will be proposed as compensation. The total amount of uncaptured developed area will not exceed 10% of the total project area. The amount of overtreatment required will be on a 1:1 relationship with the percent of uncaptured area. All of the required additional storage volume for overtreatment can be provided in one of the stormwater facilities or spread among multiple, however, it is recommended that the overtreatment not mix BMP types as treatment requirements between the dry retention and wet detention differ substantially.

Wetland Impacts

Three potential areas where minimal wetland impacts may occur were discussed. These areas are the wet detention outfall pipe, the pile impacts from docks landward of mean high water, and the traversing the wetland ditch by the Kayak Launch area.

The pond outfall location was chosen due to a small upland area present on the opposite side of the vertical retaining wall. Depending on the end section and invert elevation of the pipe some minor grading within the wetland limits may be necessary to tie into the existing grades.

The proposed docks will span wetlands landward of mean high water in two locations. The area of the docks for shading impact will be tabulated as well as the impacts from the pile footprint. Due to the elevation of the proposed docks over existing grade, shading from the structure will have little impact.

The wetland ditch by the Kayak Launch will also be spanned by a raised pedestrian boardwalk. The area of the boardwalk as well as the impacts from the pile footprint also will be tabulated and shown in the permit drawings. Also crossing the wetland ditch will be a proposed water line that will be direct buried. Mr. Ripley also asked whether the impact of the water line would be considered temporary since it is only a present during installation and the wetland vegetation would be allowed return. Ms. McHale stated that it could possibly be considered temporary, but she would follow up environmental staff within FDEP to discuss the impacts.

Mr. Ripley then proposed removing the fill berm from the existing retention pond that is constricting the wetland ditch. By removing the fill berm, the existing pond area would be hydrologically connected to the wetlands allowing the return of wetland vegetation. Mr. Ripley also pointed out that there will be an educational component to the park and the raised boardwalk will have an observation platform and restoring the wetland vegetation would be beneficial. While this could be considered a mitigation activity, the amount of impacts from the proposed development would likely not warrant it to be a requirement of the permit.

Sovereign Submerged Lands

Activities over the sovereign submerged lands were also discussed in detail. Key points from the meeting are as follows:

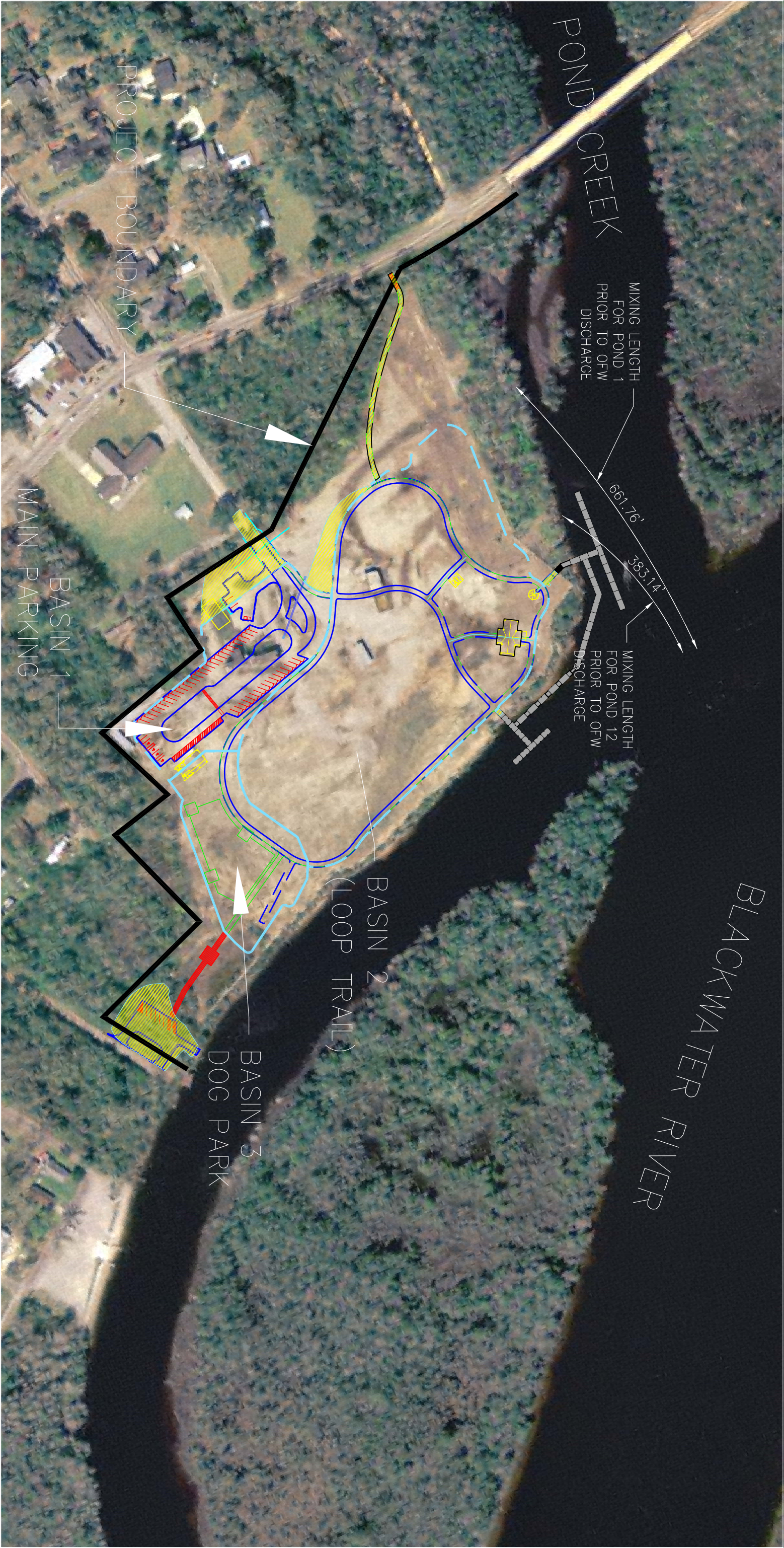
- Kayak launch will have a 25' setback from the property line. A waiver would need to be obtained by the owner of the adjoining property, which in this case is public right of way for Cross St.
- Due to funding the project will be phased and at a minimum a portion of the docks and/or kayak launch will be constructed as part of the future phase. Ms. McHale stated that the permit will only be effective for 5 years, at which time a request for an extension would have to be made. IF no extension is granted, then the County would need to reapply for the permit.
- Public Interest is a key component for allowing the proposed activity. Since the proposed development is a public park for the community, public interest is not expected to be a problem. If any money is generated from use of the docks, the monies would need to be put back into the park.
- Whether the permit would qualify for a "consent by rule", "letter of consent", or require a submerged lands lease survey would depend on the amount of pre-empted area from the docks

versus the linear feet of shoreline on the property. Ms. McHale stated that the project would not qualify for the "consent by rule", but the "letter of consent" may be achieved if the pre-empted area can be held to under a 10:1 ratio of area to shoreline.

- Ms. McHale stated that the typical mooring area could be anywhere from 10 to 20 feet from the docks. Due to the size of the boats anticipated to use the facility, and mooring area of 15 feet would be used in the preliminary calculations.
- If a submerged lands lease survey is required the fee may be waived.
- Ms. McHale asked if any wetland vegetation was present although it was believed to be unlikely. Mr. Ripley stated that the Environmental sub consultant for Santa Rosa County is Edmiston and Associates, who provided a letter stating the lack of submerged vegetation.
- Both a copy of the warranty deed and the lease agreement will need to be submitted with the permit application. Santa Rosa County can be listed as the applicant for the permit.
- Mr. Ripley inquired if there were any restrictions to blockage of the waterway from the extension of the dock structures. Ms. McHale stated the FDEP requirement would only apply to multi-family projects, however, other agencies such as the Army Corps of Engineers or the Coast Guard may have some restrictions that apply.
- Mr. Allen noted that the opposite shoreline from the park is that of a barrier island and the main portion of Blackwater River is on the opposite side of the barrier island.
- Due to the amount of structures over the water, the project would not be exempt from Dredge and Fill permitting. The permit fee will be the greater of the two fees calculated for dredge and fill impacts and stormwater, which was stated to be \$710.

Appendix F

Proposed Basin Maps/ Over-Treatment Area Calculations



BAGDAD MILL SITE BASIN MAP



AREAS FOR OVERTREATMENT

FIS Pond Creek Data

Cross Sectional Data < - 100 YR - Flood (Extreme Case)

Section A-A 7,497 sf

Flow Paths from Discharge Point to Blackwater River

Pond 1 (Main Parking) 661 LF

Pond 2 (Loop Trail) 383 LF

Total Volume of Water Available for "Mixing"

Pond 1 (Main Parking) 4,955,517 cf 114 ac-ft

Pond 2 (Loop Trail) 2,871,351 cf 66 ac-ft

Output from ICPR Post Development

Total Volume of Water Discharge

Pond 1 (Main Parking) 6 ac-ft

Pond 2 (Loop Trail) 2 ac-ft

Output from ICPR Post Development

Percentage Volume Discharge to Volume Available

Pond 1 (Main Parking) 5.27%

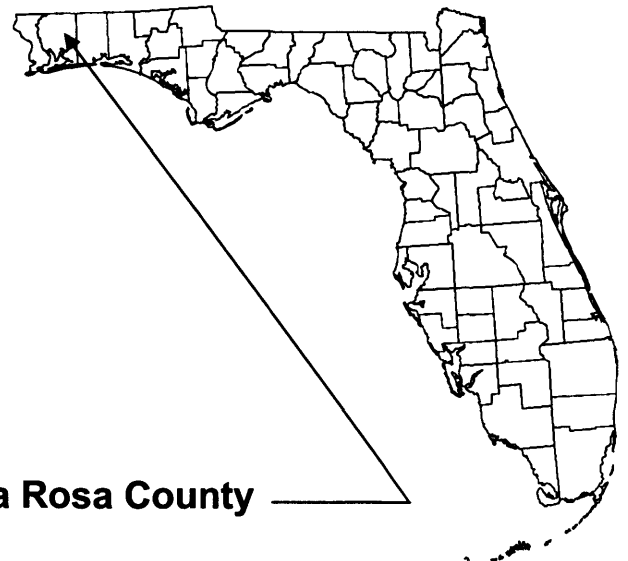
Pond 2 (Loop Trail) 3.03%

Conclusion: Sufficient volume of water present to allow mixing prior to Blackwater

FLOOD INSURANCE STUDY



SANTA ROSA COUNTY, FLORIDA AND INCORPORATED AREAS



Santa Rosa County

COMMUNITY NAME

GULF BREEZE, CITY OF

JAY, TOWN OF

MILTON, CITY OF

SANTA ROSA COUNTY

(UNINCORPORATED AREAS)

COMMUNITY NUMBER

120275

120339

120276

120274

DECEMBER 19, 2006



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

12113CV000A

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Pond Creek								
A	1,179	1,168	7,497	5.9	10.6	5.0 ²	5.8	0.8
B	1,280	1,164	7,610	5.8	10.6	5.4 ²	5.9	0.5
C	4,370	481	6,327	4.3	10.6	6.9 ²	7.6	0.7
D	6,775	286	3,372	10.0	10.6	7.7 ²	8.5	0.8
E	6,889	256	3,405	9.5	10.6	8.9 ²	9.5	0.6
F	10,108	1,564	10,773	3.8	12.2	12.2	12.7	0.5
G	13,133	404	4,992	9.5	13.3	13.3	14.0	0.7
H	13,268	431	5,678	8.6	14.9	14.9	15.1	0.2
I	14,352	1,286	10,598	7.2	15.7	15.7	16.7	1.0
J	15,669	1,537	18,269	4.2	16.8	16.8	17.8	1.0
K	18,389	1,210	12,295	5.1	18.0	18.0	19.0	1.0
L	23,254	778	9,372	5.9	22.1	22.1	23.1	1.0
M	25,016	1,359	11,129	6.0	24.1	24.1	25.0	0.9
N	30,373	1,070	10,383	5.5	29.1	29.1	30.0	0.9
O	32,268	973	12,088	4.0	30.4	30.4	31.2	0.8
P	33,216	1,151	13,349	4.3	30.8	30.8	31.6	0.8
Q	35,720	1,222	15,925	3.3	31.7	31.7	32.5	0.8
R	39,348	1,071	9,717	5.6	33.5	33.5	34.3	0.8
S	39,427	1,071	9,959	5.5	33.7	33.7	34.6	0.9
T	40,496	1,250	8,221	8.9	35.5	35.5	36.3	0.8
U	44,985	812	9,725	6.1	42.3	42.3	43.0	0.7
V	45,461	850	11,927	4.6	42.6	42.6	43.4	0.8
W	48,988	707	8,896	3.9	44.7	44.7	45.7	1.0
X	51,399	809	9,254	5.2	46.8	46.8	47.8	1.0
Y	53,324	565	5,208	6.1	48.8	48.8	49.6	0.8
Z	53,463	545	5,377	5.9	49.3	49.3	50.2	0.9

¹Feet above confluence with Blackwater River

²Elevation computed without considering backwater effect from Blackwater River

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA ROSA COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

POND CREEK

TABLE 10

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Pond Creek (continued)								
AA	54,091	400	4,825	9.1	50.4	50.4	51.1	0.7
AB	54,639	669	7,530	5.9	51.4	51.4	52.3	0.9
AC	55,245	653	6,954	6.6	52.1	52.1	52.9	0.8
AD	58,228	761	7,121	7.2	56.2	56.2	57.2	1.0
AE	61,641	710	8,201	5.8	60.1	60.1	61.0	0.9
AF	65,620	1,199	11,040	5.0	63.7	63.7	64.6	0.9
AG	66,421	1,511	9,341	6.5	64.6	64.6	65.3	0.7
AH	69,258	1,046	7,590	4.0	67.0	67.0	67.7	0.7
AI	69,388	1,046	8,514	3.7	67.7	67.7	68.6	0.9

¹Feet above confluence with Blackwater River

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

**SANTA ROSA COUNTY, FL
AND INCORPORATED AREAS**

FLOODWAY DATA

POND CREEK

Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc. Page 1 of 34

Page 17 of 34

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100yr_024hr	Main Parking	Base	0.07	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.10	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.13	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.18	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.21	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.23	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.27	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.31	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.34	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.37	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.40	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.45	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.48	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.51	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.55	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.58	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.61	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.65	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.68	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.71	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.75	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.78	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.81	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.85	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.88	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.91	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.95	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	0.98	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.01	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.05	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.08	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.11	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.15	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.18	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.21	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.25	11.000	13.000	6098	0.000	0.000	0	0
100yr_024hr	Main Parking	Base	1.28	11.000	13.000	6098	0.002	0.000	0	0
100yr_024hr	Main Parking	Base	1.31	11.000	13.000	6099	0.004	0.000	0	0
100yr_024hr	Main Parking	Base	1.35	11.000	13.000	6099	0.006	0.000	0	0
100yr_024hr	Main Parking	Base	1.38	11.000	13.000	6099	0.008	0.000	0	0
100yr_024hr	Main Parking	Base	1.41	11.001	13.000	6099	0.010	0.000	0	0
100yr_024hr	Main Parking	Base	1.45	11.001	13.000	6100	0.012	0.000	0	0
100yr_024hr	Main Parking	Base	1.48	11.001	13.000	6100	0.014	0.000	0	0
100yr_024hr	Main Parking	Base	1.51	11.001	13.000	6101	0.018	0.000	0	0
100yr_024hr	Main Parking	Base	1.55	11.002	13.000	6101	0.025	0.000	0	0
100yr_024hr	Main Parking	Base	1.58	11.002	13.000	6102	0.031	0.000	0	0
100yr_024hr	Main Parking	Base	1.61	11.003	13.000	6104	0.038	0.000	0	0
100yr_024hr	Main Parking	Base	1.65	11.004	13.000	6105	0.044	0.000	0	0
100yr_024hr	Main Parking	Base	1.68	11.005	13.000	6107	0.050	0.000	0	0
100yr_024hr	Main Parking	Base	1.71	11.006	13.000	6108	0.055	0.000	0	0
100yr_024hr	Main Parking	Base	1.73	11.006	13.000	6110	0.061	0.000	0	0
100yr_024hr	Main Parking	Base	1.77	11.008	13.000	6112	0.067	0.000	0	0
100yr_024hr	Main Parking	Base	1.80	11.009	13.000	6114	0.074	0.000	0	0
100yr_024hr	Main Parking	Base	1.84	11.011	13.000	6117	0.082	0.000	0	0
100yr_024hr	Main Parking	Base	1.87	11.012	13.000	6120	0.087	0.000	0	0
100yr_024hr	Main Parking	Base	1.90	11.014	13.000	6123	0.094	0.000	0	0
100yr_024hr	Main Parking	Base	1.94	11.016	13.000	6126	0.100	0.000	0	0
100yr_024hr	Main Parking	Base	1.97	11.018	13.000	6130	0.107	0.000	0	0
100yr_024hr	Main Parking	Base	2.00	11.020	13.000	6134	0.115	0.000	0	0
100yr_024hr	Main Parking	Base	2.04	11.023	13.000	6138	0.129	0.000	0	0
100yr_024hr	Main Parking	Base	2.07	11.025	13.000	6142	0.144	0.000	0	0
100yr_024hr	Main Parking	Base	2.10	11.028	13.000	6148	0.160	0.000	0	0
100yr_024hr	Main Parking	Base	2.13	11.031	13.000	6153	0.174	0.000	0	0
100yr_024hr	Main Parking	Base	2.17	11.035	13.000	6159	0.190	0.000	0	0
100yr_024hr	Main Parking	Base	2.20	11.039	13.000	6166	0.204	0.000	0	0
100yr_024hr	Main Parking	Base	2.24	11.043	13.000	6173	0.220	0.000	0	0
100yr_024hr	Main Parking	Base	2.27	11.048	13.000	6181	0.234	0.000	0	0
100yr_024hr	Main Parking	Base	2.30	11.052	13.000	6189	0.245	0.000	0	0
100yr_024hr	Main Parking	Base	2.34	11.057	13.000	6198	0.257	0.000	0	0
100yr_024hr	Main Parking	Base	2.37	11.062	13.000	6206	0.269	0.000	0	0
100yr_024hr	Main Parking	Base	2.40	11.067	13.000	6215	0.280	0.000	0	0
100yr_024hr	Main Parking	Base	2.43	11.072	13.000	6225	0.292	0.000	0	0
100yr_024hr	Main Parking	Base	2.47	11.078	13.000	6235	0.303	0.000	0	0
100yr_024hr	Main Parking	Base	2.50	11.084	13.000	6245	0.315	0.000	0	0
100yr_024hr	Main Parking	Base	2.53	11.090	13.000	6256	0.324	0.000	0	0
100yr_024hr	Main Parking	Base	2.57	11.097	13.000	6267	0.333	0.000	0	0
100yr_024hr	Main Parking	Base	2.60	11.103	13.000	6278	0.342	0.000	0	0
100yr_024hr	Main Parking	Base	2.63	11.110	13.000	6290	0.351	0.000	0	0
100yr_024hr	Main Parking	Base	2.67	11.117	13.000	6302	0.360	0.000	0	0
100yr_024hr	Main Parking	Base	2.70	11.124	13.000	6314	0.369	0.000	0	0
100yr_024hr	Main Parking	Base	2.74	11.131	13.000	6326	0.378	0.000	0	0
100yr_024hr	Main Parking	Base	2.77	11.138	13.000	6339	0.386	0.000	0	0
100yr_024hr	Main Parking	Base	2.80	11.145	13.000	6352	0.393	0.000	0	0
100yr_024hr	Main Parking	Base	2.83	11.153	13.000	6364	0.400	0.000	0	0
100yr_024hr	Main Parking	Base	2.87	11.160	13.000	6378	0.407	0.000	0	0

Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc. Page 24 of 34

Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc. Page 34 of 34

Appendix G

On-Site Stormwater Management Facility Calculations

Captured Area		
Basin 1	82504.4 sf	1.89 ac
Basin 2	310199.3 sf	7.12 ac
Basin 3	63733.7 sf	1.46 ac
Total	456437.3 sf	10.48 ac

Uncaptured Area		
Concrete Bulkhead	37007.9 sf	0.85 ac
Kayak Area	18585.1 sf	0.43 ac
Pond 1 Outfall Ditch	7954.4 sf	0.18 ac
Entrance	16544.3 sf	0.38 ac
Docks	549.7 sf	0.01 ac
Future Trail	4237.6 sf	0.10 ac
Total	47871.1 sf	1.10 ac

Total Developed Area	504308.4 sf	11.58 ac
% Uncaptured Area		9.5%

	Req. Treatment Volume	Treatment Provided	Overtreatment Volume
Basin 1	4257.0 cf	6875.7 cf	2618.7 cf
Basin 2	25849.9 cf		
Basin 3	3983.4 cf	4932.9 cf	949.5 cf
Total	34090.2 cf		3568.2 cf
			10.5%

Is % increase in treatment volume greater than % uncaptured area? **yes**

Basin 1 - Main Parking Area

Treatment Type	Dry Retention	
Contributing Drainage Area	82,504 sf	1.89 ac

Composite Runoff Coefficient:

Main Parking	35947.5	0.95	34,150	98	3,522,855
Multi-Purpose Trail	2448.67	0.95	2,326	98	239,970
Sidewalk	2980.94	0.95	2,832	98	292,132
Hardscape	191.44	0.95	182	98	18,761
Building	807.09	0.95	767	98	79,095
Future parking	2813.29	0.95	2,673	98	275,702
Future sidewalk	81.39	0.95	77	98	7,976
Future Building	839.78	0.95	798	98	82,298
Pervious	36,394	0.20	7,279	80	2,911,546
			0.62		90.06

Treatment Requirement, whichever is greater:

0.5" runoff over Contributing Area	3,438 cf
Runoff from 1" of rainfall	4,257 cf

Required Treatment Volume	4,257 cf
---------------------------	----------

BASIN 1 POND VOLUME

STAGE	SURFACE AREA (sf)	SURFACE AREA (Ac)	INCREMENTAL VOLUME ACRE FT.	TOTAL VOLUME ACRE FT.	TOTAL VOLUME CUBIC FT.
13.00	10778	0.25	0.16	0.37	16,199 <<Top of Bank
12.30	8761	0.20	0.06	0.22	9,373
12.00	7896	0.18	0.16	0.16	6,876 <<Treatment Volume @ 12.0'
11.00	5904	0.14	0.00	0.00	0 <<Pond Bottom

Ponds Parameters

Eff. Perimeter 664.87 ft
Height 1.00 ft
Volume 6,876 cf

Eff. Length 310.27
Eff. Width 22.16

Basin 2 - Loop Trail

Treatment Type	Wet Detention				
Contributing Drainage Area	310,199 sf	7.12 ac			
Composite Runoff Coefficient:					
Multi-Purpose Trail	24899.6	0.95	23,655	98	2,440,161
Hardscape	2240.54	0.95	2,129	98	219,573
Building	3526.91	0.95	3,351	98	345,637
Permanent Pool	16480	1.00	16,480	100	1,648,008
Pervious	263,052	0.20	52,610	80	21,044,170
			0.32		82.84

Treatment Requirement, whichever is greater:

1" runoff over Contributing Area	25,850 cf
Add'l 50% for OFW	0 cf

Required Treatment Volume **25,850 cf**

2. Permanent wet pool volume (Vb)

based on 21 day residence volume (Vr) for 26 inches of rain over 122 days

Composite rational coefficient

of runoff = 0.32

Vr = 0.84 ac-ft <<Req'd Permanent Pool Volume

Additional 50% has been added in lieu of Littoral Plantings
by increasing residence time to 21 days

Therefore the design

pool volume = **0.84 ac-ft or 36,633 cf**

BASIN 2 POND VOLUME

STAGE	SURFACE AREA (sf)	SURFACE AREA (Ac)	INCREMENTAL TOTAL		TOTAL VOLUME CUBIC FT.	
			VOLUME ACRE FT.	VOLUME ACRE FT.		
8.00	36423	0.84	0.71	3.01	131,163	<<Top of Bank
7.00	26107	0.60	0.54	2.30	100,041	
6.00	20888	0.48	0.22	1.76	76,592	
5.50	17941	0.41	0.20	1.54	66,895	
5.00	16480	0.38	0.35	1.34	58,292	<< Control Elevation
4.00	13718	0.31	0.15	0.99	43,214	
3.50	12360	0.28	0.13	0.84	36,698	<< Seasonal Low Elevation
3.00	10106	0.23	0.21	0.71	31,090	
2.00	8489	0.19	0.18	0.50	21,805	
1.00	6929	0.16	0.14	0.32	14,109	
0.00	5425	0.12	0.11	0.18	7,947	
-1.00	3982	0.09	0.07	0.07	3,262	
-2.00	2592	0.06	0.00	0.00	0	<<Pond Bottom

TREATMENT VOLUME

STAGE	SURFACE AREA (sf)	SURFACE AREA (Ac)	INCREMENTAL TOTAL		TOTAL VOLUME CUBIC FT.	
			VOLUME ACRE FT.	VOLUME ACRE FT.		
7.00	26107	0.60	0.34	0.96	41,784	
6.40	22975	0.53	0.20	0.62	27,070	<<Treatment Volume @ 6.4'
6.00	20888	0.48	0.22	0.42	18,300	
5.50	17941	0.41	0.20	0.20	8,603	
5.00	16480	0.38	0.00	0.00	0	<<Normal Pool at 5.0'

1/2 TREATMENT VOLUME = 12925 cf

STAGE	SURFACE AREA (sf)	SURFACE AREA (Ac)	INCREMENTAL TOTAL		TOTAL VOLUME CUBIC FT.	
			VOLUME ACRE FT.	VOLUME ACRE FT.		
7.00	26107	0.60	0.34	0.66	28,714	
6.40	22975	0.53	0.20	0.32	14,000	<<Treatment Volume @ 6.4'
6.00	20888	0.48	0.12	0.12	5,230	
5.74	19355	0.44	0.00	0.00	0	<<1/2 Treatment Volume

h1 1.400

h2 0.660

MEAN DEPTH AT CONTROL ELEVATION

EL 5 - Volume = 58292 cf Area = 16480 sf

Mean Depth = Volume / Area = 3.5 ft

Average Discharge Rate (Q) to drawdown

$$1/2 \text{ treatment volume in time (t)} = Q = \frac{TV}{2tCF} = 0.060 \text{ cfs}$$

where: TV = 1/2 Req. Treatment Volume (ft³)

t = recovery time (60 hrs)

CF = conversion factor = 3,600 sec/hr

$$\text{Determine Depth of water (h, ft.)} = h = \frac{(h_1 + h_2)}{2} = 1.030 \text{ ft} \quad \leftarrow \text{use}$$

$$\text{or } h = \frac{3 * (h_1)}{4} = 1.050 \text{ ft}$$

$$\text{Required Orifice Area (A, sq.ft.)} = A = \frac{Q}{c\sqrt{2gh}} = 0.012$$

where: Q = rate of discharge (cfs)

c = orifice coefficient = 0.6

g = gravitational constant = 32.2 ft/sec²

h = depth of water above flow line of orifice (ft)

$$\text{Req'd Diameter (D, ft.)} = D = \sqrt{\frac{4A}{\pi}} = 0.12 \text{ ft. or } 1.49 \text{ in.} \quad \leftarrow \text{Use 1.50 in.}$$

Check:

$$A_{\text{provided}} \quad A = \frac{\pi D^2}{4} = 0.012 \text{ sq. ft.}$$

$$D = 1.50 \text{ in.}$$

$$Q_{\text{provided}} \quad Q = C A \sqrt{2gh} = 0.060 \text{ sq. ft.}$$

$$t_{\text{provided}} \quad t = \frac{TV}{2 \times Q \times CF} = 59.9 \text{ hrs}$$

$$48 \text{ hrs} < t_{\text{provided}} < 60 \text{ hrs?} \quad \text{yes}$$

Basin 3 - Dog Park

Treatment Type	Dry Retention	
Contributing Drainage Area	63,734 sf	1.46 ac

Composite Runoff Coefficient:

Multi-Purpose Trail	5185.87	0.95	4,927	98	508,215
Hardscape	158.55	0.95	151	98	15,538
Building	1232.91	0.95	1,171	98	120,825
Sidewalk	1353.12	0.95	1,285	98	132,606
Pervious	55,803	0.20	11,161	80	4,464,257
			0.29		82.24

Treatment Requirement, whichever is greater:

0.5" runoff over Contributing Area	2,656 cf
Runoff from 1" of rainfall	1,558 cf

Treatment Volume	2,656 cf
------------------	----------

BASIN 3 POND VOLUME

STAGE	SURFACE		INCREMENTAL		TOTAL	TOTAL
	AREA (sf)	AREA (Ac)	VOLUME	VOLUME	VOLUME	VOLUME
			ACRE FT.	ACRE FT.	CUBIC FT.	
10.00	10384	0.24	0.16	0.27	11,841	<<Top of Bank
9.30	9362	0.21	0.06	0.11	4,933	
9.00	8933	0.21	0.05	0.05	2,189	<<Treatment Volume
8.75	8579	0.20	0.00	0.00	0	<<Pond Bottom

Ponds Parameters

Eff. Perimeter 472.06 ft
Height 0.55 ft
Volume 4,933 cf

Eff. Length 188.43
Eff. Width 47.60

Time of Concentration (TR-55)

Project: Bagdad Mill

Designer: JTR

Date: 5/4/2011

Checked by:

Date:

Basin: Basin 2

Structure: C-1

Sheet Flow

1. Surface Description (Table 3-1)
2. Manning's roughness coeff., n (Table 3-1)
3. Flow Length, L (total <= 300 ft) (feet)
4. 2-year 24-hour rainfall, P_2 (inches)
5. Land slope, s (ft/ft)
6. $T_t = (0.007 * (nL)^{0.8}) / ((P_2^{0.5}) * (s^{0.4}))$ (hr)

Segment ID

1		
Grass		
0.24		
300		
6.00		
0.0100	Sub-total	
0.55	0.55 hr	33.1 min

Time of Concentration (TR-55)

Project: Bagdad Mill

Designer: JTR

Date: 5/4/2011

Checked by:

Date:

Basin: B-3

Structure: Dog Park Pond

Sheet Flow

1. Surface Description (Table 3-1)
2. Manning's roughness coeff., n (Table 3-1)
3. Flow Length, L (total <= 300 ft) (feet)
4. 2-year 24-hour rainfall, P_2 (inches)
5. Land slope, s (ft/ft)
6. $T_t = (0.007 * (nL)^{0.8}) / ((P_2^{0.5}) * (s^{0.4}))$ (hr)

Segment ID

1		
Grass		
0.24		
268		
6.00		
0.0187	Sub-total	
0.39	0.39 hr	23.6 min

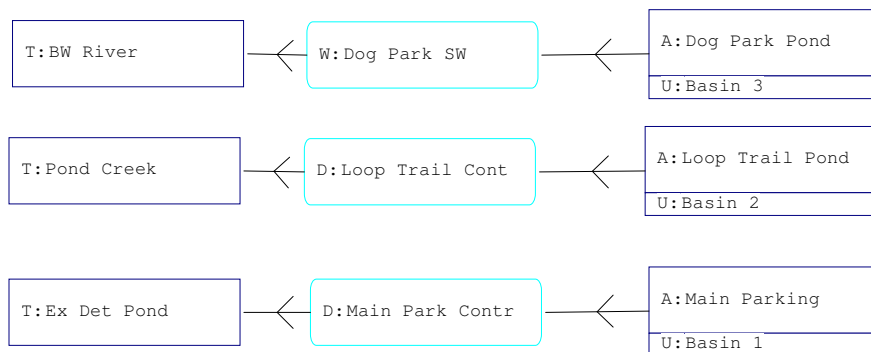
Appendix H

Stormwater Modeling Data

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



=====

==== Basins =====

=====

Name: Basin 1	Node: Main Parking	Status: Onsite
Group: Base	Type: SCS Unit Hydrograph CN	
Unit Hydrograph: Uh323	Peaking Factor: 323.0	
Rainfall File:	Storm Duration(hrs): 0.00	
Rainfall Amount(in): 0.000	Time of Conc(min): 10.00	
Area(ac): 1.890	Time Shift(hrs): 0.00	
Curve Number: 90.06	Max Allowable Q(cfs): 999999.000	
DCIA(%): 0.00		

Name: Basin 2	Node: Loop Trail Pond	Status: Onsite
Group: Base	Type: SCS Unit Hydrograph CN	
Unit Hydrograph: Uh323	Peaking Factor: 323.0	
Rainfall File:	Storm Duration(hrs): 0.00	
Rainfall Amount(in): 0.000	Time of Conc(min): 37.40	
Area(ac): 7.120	Time Shift(hrs): 0.00	
Curve Number: 82.84	Max Allowable Q(cfs): 999999.000	
DCIA(%): 0.00		

Name: Basin 3	Node: Dog Park Pond	Status: Onsite
Group: Base	Type: SCS Unit Hydrograph CN	
Unit Hydrograph: Uh323	Peaking Factor: 323.0	
Rainfall File:	Storm Duration(hrs): 0.00	
Rainfall Amount(in): 0.000	Time of Conc(min): 23.60	
Area(ac): 1.460	Time Shift(hrs): 0.00	
Curve Number: 82.24	Max Allowable Q(cfs): 999999.000	
DCIA(%): 0.00		

=====

==== Nodes =====

=====

Name: BW River	Base Flow(cfs): 0.000	Init Stage(ft): 6.000
Group: Base		Warn Stage(ft): 6.100
Type: Time/Stage		

TW set at Existing Retention Pond Bottom

Time(hrs)	Stage(ft)
0.00	6.000
240.00	6.000

Name: Dog Park Pond	Base Flow(cfs): 0.000	Init Stage(ft): 8.750
Group: Base		Warn Stage(ft): 9.500
Type: Stage/Area		

Stage(ft)	Area(ac)
8.750	0.2000
9.000	0.2100
10.000	0.2400

Name: Ex Det Pond	Base Flow(cfs): 0.000	Init Stage(ft): 7.000
Group: Base		Warn Stage(ft): 7.100
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	7.000
240.00	7.000

Name: Loop Trail Pond	Base Flow(cfs): 0.000	Init Stage(ft): 5.000
Group: Base		Warn Stage(ft): 7.500
Type: Stage/Area		

Stage(ft)	Area(ac)
5.000	0.3800
5.500	0.4100
6.000	0.4800
7.000	0.6000
8.000	0.8400

Name: Main Parking Base Flow(cfs): 0.000 Init Stage(ft): 11.000
Group: Base Warn Stage(ft): 13.000
Type: Stage/Area

Stage(ft)	Area(ac)
11.000	0.1400
12.000	0.1800
13.000	0.2500

Name: Pond Creek Base Flow(cfs): 0.000 Init Stage(ft): 4.900
Group: Base Warn Stage(ft): 5.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	4.900
240.00	4.900

==== Cross Sections =====

Name: Bauer Rd Group: BASE
Encroachment: No

Roadway profile taken from survey data.

Station(ft)	Elevation(ft)	Manning's N
0.000	20.470	0.013000
230.000	20.000	0.013000
250.000	19.980	0.013000
300.000	19.980	0.013000
317.000	20.000	0.013000
599.000	20.450	0.013000

==== Operating Tables =====

Name: Type D Blocked- Group: BASE
Type: Rating Curve
Function: US Stage vs. Discharge

US Stage(ft)	Discharge(cfs)
7.000	0.00
7.200	4.36
7.400	8.15
7.600	12.41
7.800	17.13
8.000	22.29
8.200	25.83
8.400	29.39

==== Drop Structures =====

Name: Loop Trail Cont From Node: Loop Trail Pond Length(ft): 32.00
Group: Base To Node: Pond Creek Count: 2

UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.500
Invert(ft): 4.750	4.500	Exit Loss Coef: 1.000
Manning's N: 0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc

Bot Clip(in): 0.000 0.000 Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure Loop Trail Cont ***

Count: 1	Bottom Clip(in): 0.000
Type: Horizontal	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Rectangular	Orifice Disc Coef: 0.600
Span(in): 79.00	Invert(ft): 7.000
Rise(in): 36.00	Control Elev(ft): 7.000

TABLE

*** Weir 2 of 3 for Drop Structure Loop Trail Cont ***

Count: 2	Bottom Clip(in): 0.000
Type: Vertical: Mavis	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Rectangular	Orifice Disc Coef: 0.600
Span(in): 24.00	Invert(ft): 6.400
Rise(in): 5.20	Control Elev(ft): 6.400

TABLE

*** Weir 3 of 3 for Drop Structure Loop Trail Cont ***

Count: 1	Bottom Clip(in): 0.000
Type: Horizontal	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Circular	Orifice Disc Coef: 0.600
Span(in): 1.50	Invert(ft): 5.000
Rise(in): 1.50	Control Elev(ft): 5.000

TABLE

Name: Main Park Contr	From Node: Main Parking	Length(ft): 143.00
Group: BASE	To Node: Ex Det Pond	Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 23.00	23.00	Flow: Both
Rise(in): 14.00	14.00	Entrance Loss Coef: 0.500
Invert(ft): 9.500	9.000	Exit Loss Coef: 1.000
Manning's N: 0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 1 for Drop Structure Main Park Contr ***

Count: 1	Bottom Clip(in): 0.000
Type: Horizontal	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Rectangular	Orifice Disc Coef: 0.600
Span(in): 49.00	Invert(ft): 12.000
Rise(in): 37.00	Control Elev(ft): 12.000

TABLE

==== Weirs =====

Name: Dog Park SW	From Node: Dog Park Pond
Group: Base	To Node: BW River
Flow: Both	Count: 1
Type: Vertical: Fread	Geometry: Trapezoidal
Bottom Width(ft): 10.00	
Left Side Slope(h/v): 4.00	
Right Side Slope(h/v): 4.00	
Invert(ft): 9.300	
Control Elevation(ft): 9.300	
Struct Opening Dim(ft): 9999.00	

TABLE

Bottom Clip(ft): 0.000
Top Clip(ft): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

==== Hydrology Simulations =====

Name: 002yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_001hr.R32

Override Defaults: Yes
Storm Duration(hrs): 1.00
Rainfall File: Fdot-1
Rainfall Amount(in): 2.40

Time(hrs)	Print Inc(min)
2.000	2.00
10.000	15.00

Name: 002yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_002hr.R32

Override Defaults: Yes
Storm Duration(hrs): 2.00
Rainfall File: Fdot-2
Rainfall Amount(in): 3.00

Time(hrs)	Print Inc(min)
4.000	2.00
15.000	15.00

Name: 002yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_004hr.R32

Override Defaults: Yes
Storm Duration(hrs): 4.00
Rainfall File: Fdot-4
Rainfall Amount(in): 3.60

Time(hrs)	Print Inc(min)
20.000	2.00

Name: 002yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_008hr.R32

Override Defaults: Yes
Storm Duration(hrs): 8.00
Rainfall File: Fdot-8
Rainfall Amount(in): 4.40

Time(hrs)	Print Inc(min)
3.500	15.00
5.000	2.00
8.000	15.00

Name: 002yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_024hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Fdot-24
Rainfall Amount(in): 6.40

Time(hrs)	Print Inc(min)
9.000	15.00
35.000	2.00
48.000	15.00

Name: 002yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_072hr.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00

Rainfall File: Fdot-72
Rainfall Amount(in): 7.60

Time(hrs)	Print	Inc(min)
8.000	15.00	
70.000	2.00	
144.000	15.00	

Name: 003yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_001hr.R32
Override Defaults: Yes
Storm Duration(hrs): 1.00
Rainfall File: Fdot-1
Rainfall Amount(in): 2.60

Time(hrs)	Print	Inc(min)
2.000	2.00	
10.000	15.00	

Name: 003yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_002hr.R32
Override Defaults: Yes
Storm Duration(hrs): 2.00
Rainfall File: Fdot-2
Rainfall Amount(in): 3.40

Time(hrs)	Print	Inc(min)
4.000	2.00	
15.000	15.00	

Name: 003yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_004hr.R32
Override Defaults: Yes
Storm Duration(hrs): 4.00
Rainfall File: Fdot-4
Rainfall Amount(in): 4.20

Time(hrs)	Print	Inc(min)
20.000	2.00	

Name: 003yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_008hr.R32
Override Defaults: Yes
Storm Duration(hrs): 8.00
Rainfall File: Fdot-8
Rainfall Amount(in): 5.10

Time(hrs)	Print	Inc(min)
3.500	15.00	
5.000	2.00	
8.000	15.00	

Name: 003yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_024hr.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Fdot-24
Rainfall Amount(in): 7.30

Time(hrs)	Print	Inc(min)
9.000	15.00	
35.000	2.00	
48.000	15.00	

Name: 005yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_001hr.R32
Override Defaults: Yes
Storm Duration(hrs): 1.00
Rainfall File: Fdot-1
Rainfall Amount(in): 2.85

Time(hrs)	Print Inc(min)
2.000	2.00
10.000	15.00

Name: 005yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_002hr.R32

Override Defaults: Yes
Storm Duration(hrs): 2.00
Rainfall File: Fdot-2
Rainfall Amount(in): 3.70

Time(hrs)	Print Inc(min)
4.000	2.00
15.000	15.00

Name: 005yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_004hr.R32

Override Defaults: Yes
Storm Duration(hrs): 4.00
Rainfall File: Fdot-4
Rainfall Amount(in): 4.60

Time(hrs)	Print Inc(min)
20.000	2.00

Name: 005yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_008hr.R32

Override Defaults: Yes
Storm Duration(hrs): 8.00
Rainfall File: Fdot-8
Rainfall Amount(in): 5.60

Time(hrs)	Print Inc(min)
3.500	15.00
5.000	2.00
8.000	15.00

Name: 005yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_024hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Fdot-24
Rainfall Amount(in): 8.00

Time(hrs)	Print Inc(min)
9.000	15.00
35.000	2.00
48.000	15.00

Name: 005yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_072hr.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Fdot-72
Rainfall Amount(in): 9.60

Time(hrs)	Print Inc(min)
8.000	15.00
70.000	2.00
144.000	15.00

Name: 010yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_001hr.R32

Override Defaults: Yes
Storm Duration(hrs): 1.00
Rainfall File: Fdot-1
Rainfall Amount(in): 3.20

Time(hrs)	Print Inc(min)
-----------	----------------

2.000	2.00
10.000	15.00

Name: 010yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_002hr.R32

Override Defaults: Yes
Storm Duration(hrs): 2.00
Rainfall File: Fdot-2
Rainfall Amount(in): 4.20

Time(hrs)	Print Inc(min)
4.000	2.00
15.000	15.00

Name: 010yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_004hr.R32

Override Defaults: Yes
Storm Duration(hrs): 4.00
Rainfall File: Fdot-4
Rainfall Amount(in): 5.20

Time(hrs)	Print Inc(min)
20.000	2.00

Name: 010yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_008hr.R32

Override Defaults: Yes
Storm Duration(hrs): 8.00
Rainfall File: Fdot-8
Rainfall Amount(in): 6.40

Time(hrs)	Print Inc(min)
3.500	15.00
5.000	2.00
8.000	15.00

Name: 010yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_024hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Fdot-24
Rainfall Amount(in): 9.50

Time(hrs)	Print Inc(min)
9.000	15.00
35.000	2.00
48.000	15.00

Name: 010yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_072hr.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Fdot-72
Rainfall Amount(in): 11.20

Time(hrs)	Print Inc(min)
8.000	15.00
70.000	2.00
144.000	15.00

Name: 010yr_168hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_168hr.R32

Override Defaults: Yes
Storm Duration(hrs): 168.00
Rainfall File: Fdot-168
Rainfall Amount(in): 12.70

Time(hrs)	Print Inc(min)
32.000	15.00

166.000	2.00
240.000	15.00
300.000	30.00

Name: 010yr_240hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_240hr.R32

Override Defaults: Yes
Storm Duration(hrs): 240.00
Rainfall File: Fdot-240
Rainfall Amount(in): 14.20

Time(hrs)	Print Inc(min)

32.000	15.00
195.000	2.00
312.000	15.00

Name: 025yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_001hr.R32

Override Defaults: Yes
Storm Duration(hrs): 1.00
Rainfall File: Fdot-1
Rainfall Amount(in): 3.70

Time(hrs)	Print Inc(min)

2.000	2.00
10.000	15.00

Name: 025yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_002hr.R32

Override Defaults: Yes
Storm Duration(hrs): 2.00
Rainfall File: Fdot-2
Rainfall Amount(in): 4.80

Time(hrs)	Print Inc(min)

4.000	2.00
15.000	15.00

Name: 025yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_004hr.R32

Override Defaults: Yes
Storm Duration(hrs): 4.00
Rainfall File: Fdot-4
Rainfall Amount(in): 6.00

Time(hrs)	Print Inc(min)

20.000	2.00

Name: 025yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_008hr.R32

Override Defaults: Yes
Storm Duration(hrs): 8.00
Rainfall File: Fdot-8
Rainfall Amount(in): 7.50

Time(hrs)	Print Inc(min)

3.500	15.00
5.000	2.00
8.000	15.00

Name: 025yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_024hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Fdot-24
Rainfall Amount(in): 11.00

Time(hrs)	Print Inc(min)

9.000	15.00
35.000	2.00

48.000 15.00

Name: 025yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_072hr.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Fdot-72
Rainfall Amount(in): 13.20

Time(hrs)	Print Inc(min)
8.000	15.00
70.000	2.00
144.000	15.00

Name: 025yr_168hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_168hr.R32

Override Defaults: Yes
Storm Duration(hrs): 168.00
Rainfall File: Fdot-168
Rainfall Amount(in): 14.80

Time(hrs)	Print Inc(min)
32.000	15.00
166.000	2.00
240.000	15.00
300.000	30.00

Name: 025yr_240hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_240hr.R32

Override Defaults: Yes
Storm Duration(hrs): 240.00
Rainfall File: Fdot-240
Rainfall Amount(in): 16.40

Time(hrs)	Print Inc(min)
32.000	15.00
195.000	2.00
312.000	15.00

Name: 050yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_001hr.R32

Override Defaults: Yes
Storm Duration(hrs): 1.00
Rainfall File: Fdot-1
Rainfall Amount(in): 4.20

Time(hrs)	Print Inc(min)
2.000	2.00
10.000	15.00

Name: 050yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_002hr.R32

Override Defaults: Yes
Storm Duration(hrs): 2.00
Rainfall File: Fdot-2
Rainfall Amount(in): 5.40

Time(hrs)	Print Inc(min)
4.000	2.00
15.000	15.00

Name: 050yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_004hr.R32

Override Defaults: Yes
Storm Duration(hrs): 4.00
Rainfall File: Fdot-4
Rainfall Amount(in): 6.80

Time(hrs)	Print Inc(min)
20.000	2.00

Name: 050yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_008hr.R32
Override Defaults: Yes
Storm Duration(hrs): 8.00
Rainfall File: Fdot-8
Rainfall Amount(in): 8.60

Time(hrs)	Print Inc(min)
3.500	15.00
5.000	2.00
8.000	15.00

Name: 050yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_024hr.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Fdot-24
Rainfall Amount(in): 12.00

Time(hrs)	Print Inc(min)
9.000	15.00
35.000	2.00
48.000	15.00

Name: 050yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_072hr.R32
Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Fdot-72
Rainfall Amount(in): 14.60

Time(hrs)	Print Inc(min)
8.000	15.00
70.000	2.00
144.000	15.00

Name: 050yr_168hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_168hr.R32
Override Defaults: Yes
Storm Duration(hrs): 168.00
Rainfall File: Fdot-168
Rainfall Amount(in): 16.50

Time(hrs)	Print Inc(min)
32.000	15.00
166.000	2.00
240.000	15.00
300.000	30.00

Name: 050yr_240hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_240hr.R32
Override Defaults: Yes
Storm Duration(hrs): 240.00
Rainfall File: Fdot-240
Rainfall Amount(in): 18.40

Time(hrs)	Print Inc(min)
32.000	15.00
195.000	2.00
312.000	15.00

Name: 100yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_001hr.R32
Override Defaults: Yes
Storm Duration(hrs): 1.00
Rainfall File: Fdot-1
Rainfall Amount(in): 4.60

Time(hrs)	Print Inc(min)
-----------	----------------

2.000	2.00
10.000	15.00

Name: 100yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_002hr.R32

Override Defaults: Yes
Storm Duration(hrs): 2.00
Rainfall File: Fdot-2
Rainfall Amount(in): 6.00

Time(hrs)	Print Inc(min)
-----	-----
4.000	2.00
15.000	15.00

Name: 100yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_004hr.R32

Override Defaults: Yes
Storm Duration(hrs): 4.00
Rainfall File: Fdot-4
Rainfall Amount(in): 7.60

Time(hrs)	Print Inc(min)
-----	-----
20.000	2.00

Name: 100yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_008hr.R32

Override Defaults: Yes
Storm Duration(hrs): 8.00
Rainfall File: Fdot-8
Rainfall Amount(in): 9.40

Time(hrs)	Print Inc(min)
-----	-----
3.500	15.00
6.000	2.00
10.000	15.00

Name: 100yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_024hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Fdot-24
Rainfall Amount(in): 14.00

Time(hrs)	Print Inc(min)
-----	-----
9.000	15.00
35.000	2.00
48.000	15.00

Name: 100yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_072hr.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Fdot-72
Rainfall Amount(in): 15.60

Time(hrs)	Print Inc(min)
-----	-----
8.000	15.00
70.000	2.00
144.000	15.00

Name: 100yr_168hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_168hr.R32

Override Defaults: Yes
Storm Duration(hrs): 168.00
Rainfall File: Fdot-168
Rainfall Amount(in): 18.30

Time(hrs)	Print Inc(min)
-----	-----
32.000	15.00
166.000	2.00

240.000	15.00
300.000	30.00

Name: 100yr_240hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_240hr.R32

Override Defaults: Yes
Storm Duration(hrs): 240.00
Rainfall File: Fdot-240
Rainfall Amount(in): 20.20

Time(hrs)	Print Inc(min)
-----	-----
32.000	15.00
195.000	2.00
312.000	15.00

Name: SCS_025yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\SCS_025yr_024hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Scsiii
Rainfall Amount(in): 11.20

Time(hrs)	Print Inc(min)
-----	-----
9.000	15.00
35.000	2.00
48.000	15.00

==== Routing Simulations =====

Name: 002yr_001hr Hydrology Sim: 002yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_001hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 5.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
-----	-----
5.000	2.000

Group	Run
-----	-----
BASE	Yes

Name: 002yr_002hr Hydrology Sim: 002yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_002hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00300
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 8.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
-----	-----
8.000	2.000

Group	Run
-----	-----
BASE	Yes

Name: 002yr_004hr Hydrology Sim: 002yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\002yr_004hr.I32

Time(hrs)	Print Inc(min)
2.000	2.000
6.000	2.000
12.000	15.000
Group	Run
BASE	Yes

Execute: Yes	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10		Delta Z Factor: 0.00500
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000		End Time(hrs): 24.00
Min Calc Time(sec): 0.3000	Max	Calc Time(sec): 60.0000
Boundary Stages:		Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	2.000
Group	Run
Base	Yes

Execute: Yes	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10		Delta Z Factor: 0.00500
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000		End Time(hrs): 48.00
Min Calc Time(sec): 0.3000	Max	Calc Time(sec): 60.0000
Boundary Stages:		Boundary Flows:

Time(hrs)	Print Inc(min)
48.000	2.000
Group	Run
Base	Yes

Execute: Yes	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10		Delta Z Factor: 0.00500
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000		End Time(hrs): 144.00
Min Calc Time(sec): 0.3000	Max	Calc Time(sec): 60.0000
Boundary Stages:		Boundary Flows:

Time(hrs)	Print Inc(min)
-----	-----
144.000	2.000

Group	Run

Base	Yes

Name: 003yr_001hr	Hydrology Sim: 003yr_001hr	
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_001hr.I32		
Execute: No	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500	
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000	End Time(hrs): 5.00	
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000	
Boundary Stages:	Boundary Flows:	

Time(hrs)	Print Inc(min)

5.000	2.000

Group	Run

BASE	Yes

Name: 003yr_002hr	Hydrology Sim: 003yr_002hr	
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_002hr.I32		
Execute: No	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10	Delta Z Factor: 0.00300	
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000	End Time(hrs): 8.00	
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000	
Boundary Stages:	Boundary Flows:	

Time(hrs)	Print Inc(min)

8.000	2.000

Group	Run

BASE	Yes

Name: 003yr_004hr	Hydrology Sim: 003yr_004hr	
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_004hr.I32		
Execute: No	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10	Delta Z Factor: 0.00300	
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000	End Time(hrs): 12.00	
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000	
Boundary Stages:	Boundary Flows:	

Time(hrs)	Print Inc(min)

2.000	2.000
6.000	2.000
12.000	15.000

Group	Run

BASE	Yes

Name: 003yr_008hr	Hydrology Sim: 003yr_008hr	
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\003yr_008hr.I32		
Execute: No	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500	

Time Step Optimizer: 10.000
Start Time(hrs): 0.000
Min Calc Time(sec): 0.3000
Boundary Stages:

End Time(hrs): 24.00
Max Calc Time(sec): 60.0000
Boundary Flows:

Time(hrs) Print Inc(min)

24.000 2.000

Group Run

Base Yes

Name: 005yr_001hr Hydrology Sim: 005yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_001hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 5.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

5.000 2.000

Group Run

BASE Yes

Name: 005yr_002hr Hydrology Sim: 005yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_002hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00300
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 8.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

8.000 2.000

Group Run

BASE Yes

Name: 005yr_004hr Hydrology Sim: 005yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_004hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00300
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 12.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

2.000 2.000
6.000 2.000
12.000 15.000

Group Run

BASE Yes

Execute: No	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10		Delta Z Factor: 0.00500
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000		End Time(hrs): 24.00
Min Calc Time(sec): 0.3000	Max	Calc Time(sec): 60.0000
Boundary Stages:		Boundary Flows:

```

-----
Name: 005yr_024hr          Hydrology Sim: 005yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\005yr_024hr.I32

Execute: No                Restart: No                Patch: No
Alternative: No

```

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 48.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time (hrs)	Print Inc(min)
48.000	2.000
Group	Run
Base	Yes

Execute: No	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10		Delta Z Factor: 0.00500
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000		End Time(hrs): 144.00
Min Calc Time(sec): 0.3000	Max	Calc Time(sec): 60.0000
Boundary Stages:		Boundary Flows:

Time (hrs)	Print Inc(min)
-----	-----
144.000	2.000
Group	Run
-----	-----
Base	Yes

Execute: Yes	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.10		Delta Z Factor: 0.00500
Time Step Optimizer: 10.000		
Start Time(hrs): 0.000		End Time(hrs): 5.00
Min Calc Time(sec): 0.3000	Max	Calc Time(sec): 60.0000
Boundary Stages:		Boundary Flows:

Time(hrs)	Print Inc(min)
5.000	2.000

Group	Run
BASE	Yes

Name: 010yr_002hr Hydrology Sim: 010yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_002hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00300
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 8.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
8.000	2.000

Group	Run
BASE	Yes

Name: 010yr_004hr Hydrology Sim: 010yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_004hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00300
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 12.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
2.000	2.000
6.000	2.000
12.000	15.000

Group	Run
BASE	Yes

Name: 010yr_008hr Hydrology Sim: 010yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_008hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 24.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	2.000

Group	Run
Base	Yes

Name: 010yr_024hr Hydrology Sim: 010yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\010yr_024hr.I32

Base Yes

Name: 025yr_001hr Hydrology Sim: 025yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_001hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 5.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

5.000 2.000

Group Run

BASE Yes

Name: 025yr_002hr Hydrology Sim: 025yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_002hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00300
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 8.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

8.000 2.000

Group Run

BASE Yes

Name: 025yr_004hr Hydrology Sim: 025yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_004hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00300
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 12.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

2.000 2.000

6.000 2.000

12.000 15.000

Group Run

BASE Yes

Name: 025yr_008hr Hydrology Sim: 025yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_008hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 24.00

Min Calc Time(sec): 0.3000
Boundary Stages:

Max Calc Time(sec): 60.0000
Boundary Flows:

Time(hrs) Print Inc(min)

24.000 2.000

Group Run

Base Yes

Name: 025yr_024hr Hydrology Sim: 025yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_024hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 48.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

48.000 2.000

Group Run

Base Yes

Name: 025yr_072hr Hydrology Sim: 025yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_072hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 144.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

144.000 2.000

Group Run

Base Yes

Name: 025yr_168hr Hydrology Sim: 025yr_168hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_168hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 240.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

240.000 2.000

Group Run

Base Yes

Name: 025yr_240hr Hydrology Sim: 025yr_240hr

Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\025yr_240hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 312.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

312.000 2.000

Group Run

Base Yes

Name: 050yr_001hr Hydrology Sim: 050yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_001hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 5.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

5.000 2.000

Group Run

BASE Yes

Name: 050yr_002hr Hydrology Sim: 050yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_002hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00300
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 8.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

8.000 2.000

Group Run

BASE Yes

Name: 050yr_004hr Hydrology Sim: 050yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_004hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00300
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 12.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

2.000 2.000

6.000	2.000
12.000	15.000

Group	Run

BASE	Yes

Name: 050yr_008hr	Hydrology Sim: 050yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_008hr.I32	

Execute: No	Restart: No	Patch: No
Alternative: No		

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 24.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)

24.000	2.000

Group	Run

Base	Yes

Name: 050yr_024hr	Hydrology Sim: 050yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_024hr.I32	

Execute: No	Restart: No	Patch: No
Alternative: No		

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 48.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)

48.000	2.000

Group	Run

Base	Yes

Name: 050yr_072hr	Hydrology Sim: 050yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_072hr.I32	

Execute: No	Restart: No	Patch: No
Alternative: No		

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 144.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)

144.000	2.000

Group	Run

Base	Yes

Name: 050yr_168hr	Hydrology Sim: 050yr_168hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_168hr.I32	

Execute: No	Restart: No	Patch: No
Alternative: No		

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
-----------------------	-------------------------

Time Step Optimizer: 10.000
Start Time(hrs): 0.000
Min Calc Time(sec): 0.3000
Boundary Stages:

End Time(hrs): 240.00
Max Calc Time(sec): 60.0000
Boundary Flows:

Time(hrs) Print Inc(min)

240.000 2.000

Group Run

Base Yes

Name: 050yr_240hr Hydrology Sim: 050yr_240hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\050yr_240hr.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 312.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

312.000 2.000

Group Run

Base Yes

Name: 100yr_001hr Hydrology Sim: 100yr_001hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_001hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 5.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

5.000 2.000

Group Run

BASE Yes

Name: 100yr_002hr Hydrology Sim: 100yr_002hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_002hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00300
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 8.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

8.000 2.000

Group Run

BASE Yes

Name: 100yr_004hr Hydrology Sim: 100yr_004hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_004hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00300
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 12.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
2.000	2.000
6.000	2.000
12.000	15.000

Group	Run
BASE	Yes

Name: 100yr_008hr Hydrology Sim: 100yr_008hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_008hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 24.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	2.000

Group	Run
Base	Yes

Name: 100yr_024hr Hydrology Sim: 100yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_024hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 48.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
48.000	2.000

Group	Run
Base	Yes

Name: 100yr_072hr Hydrology Sim: 100yr_072hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_072hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 144.00
Min Calc Time(sec): 0.3000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
144.000	2.000

Group	Run
Base	Yes

Name: 100yr_168hr Hydrology Sim: 100yr_168hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_168hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 240.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
240.000	2.000

Group	Run
Base	Yes

Name: 100yr_240hr Hydrology Sim: 100yr_240hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\100yr_240hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 312.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
312.000	2.000

Group	Run
Base	Yes

Name: SCS_025yr_024hr Hydrology Sim: SCS_025yr_024hr
Filename: T:\BAGDAD Mill Site Park\Drainage Design\ICPR\SCS_025yr_024hr.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.10	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 48.00
Min Calc Time(sec): 0.3000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
48.000	2.000

Group	Run
Base	Yes

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs
Dog Park Pond	BASE	002yr_001hr	3.00	9.294	9.500	0.0001	9532	0.83	1.927	0.00
Dog Park Pond	BASE	002yr_002hr	2.06	9.375	9.500	-0.0002	9638	1.00	1.806	2.06
Dog Park Pond	BASE	002yr_004hr	3.18	9.408	9.500	-0.0002	9681	2.60	1.538	3.18
Dog Park Pond	Base	002yr_008hr	4.52	9.410	9.500	-0.0003	9684	4.07	1.799	4.52
Dog Park Pond	Base	002yr_024hr	12.16	9.379	9.500	0.0003	9643	12.03	0.742	12.16
Dog Park Pond	Base	002yr_072hr	60.02	9.363	9.500	0.0003	9622	59.97	0.512	60.02
Dog Park Pond	BASE	010yr_001hr	1.35	9.402	9.500	-0.0003	9672	0.83	3.148	1.35
Dog Park Pond	BASE	010yr_002hr	1.51	9.450	9.500	-0.0002	9736	1.00	3.141	1.51
Dog Park Pond	BASE	010yr_004hr	2.74	9.474	9.500	-0.0002	9767	2.57	2.588	2.74
Dog Park Pond	Base	010yr_008hr	4.17	9.492	9.500	-0.0003	9791	4.07	3.004	4.17
Dog Park Pond	Base	010yr_024hr	12.13	9.410	9.500	0.0003	9683	12.03	1.214	12.13
Dog Park Pond	Base	010yr_072hr	60.00	9.383	9.500	0.0002	9648	59.96	0.784	60.00
Dog Park Pond	BASE	100yr_001hr	1.06	9.528	9.500	-0.0003	9837	0.80	5.457	1.06
Dog Park Pond	BASE	100yr_002hr	1.22	9.548	9.500	-0.0002	9864	0.97	5.291	1.22
Dog Park Pond	BASE	100yr_004hr	2.60	9.544	9.500	0.0002	9859	2.53	4.191	2.60
Dog Park Pond	Base	100yr_008hr	4.12	9.565	9.500	0.0003	9887	4.03	4.826	4.12
Dog Park Pond	Base	100yr_024hr	12.11	9.446	9.500	-0.0003	9731	12.03	1.891	12.11
Dog Park Pond	Base	100yr_072hr	60.00	9.404	9.500	-0.0003	9676	59.97	1.112	60.00
Dog Park Pond	Base	100yr_168hr	160.00	9.383	9.500	0.0003	9648	159.93	0.782	160.00
Dog Park Pond	Base	100yr_240hr	183.96	9.398	9.500	0.0002	9667	183.96	1.009	183.96
Dog Park Pond	BaseSCS	025yr_024hr	12.42	9.637	9.500	0.0003	9980	12.33	7.256	12.42
Loop Trail Pond	BASE	002yr_001hr	3.47	6.288	7.500	0.0003	22416	1.00	7.144	3.47
Loop Trail Pond	BASE	002yr_002hr	2.87	6.608	7.500	-0.0003	24088	1.17	7.050	2.87
Loop Trail Pond	BASE	002yr_004hr	3.93	6.781	7.500	-0.0003	24991	2.73	6.757	3.93
Loop Trail Pond	Base	002yr_008hr	5.46	6.850	7.500	-0.0005	25353	4.17	7.650	5.46
Loop Trail Pond	Base	002yr_024hr	13.16	6.766	7.500	0.0005	24913	12.13	3.491	13.16
Loop Trail Pond	Base	002yr_072hr	60.13	6.728	7.500	0.0005	24715	59.98	2.506	60.13
Loop Trail Pond	BASE	010yr_001hr	2.18	6.678	7.500	-0.0005	24451	1.00	11.586	2.18
Loop Trail Pond	BASE	010yr_002hr	2.29	6.978	7.500	-0.0003	26023	1.17	12.161	2.29
Loop Trail Pond	BASE	010yr_004hr	3.35	7.129	7.500	-0.0003	27487	2.67	11.403	3.35
Loop Trail Pond	Base	010yr_008hr	4.72	7.144	7.500	0.0005	27645	4.17	12.864	4.72
Loop Trail Pond	Base	010yr_024hr	12.60	6.979	7.500	0.0005	26027	12.13	5.702	12.60
Loop Trail Pond	Base	010yr_072hr	60.09	6.841	7.500	0.0005	25303	59.93	3.829	60.09
Loop Trail Pond	BASE	100yr_001hr	1.58	7.104	7.500	-0.0005	27227	0.93	20.133	1.58
Loop Trail Pond	BASE	100yr_002hr	1.73	7.240	7.500	-0.0003	28644	1.13	20.342	1.73
Loop Trail Pond	BASE	100yr_004hr	2.98	7.322	7.500	0.0003	29499	2.67	18.612	2.98
Loop Trail Pond	Base	100yr_008hr	4.37	7.369	7.500	0.0005	29997	4.17	20.781	4.37
Loop Trail Pond	Base	100yr_024hr	12.25	7.125	7.500	0.0005	27447	12.13	8.878	12.25
Loop Trail Pond	Base	100yr_072hr	60.14	7.009	7.500	0.0005	26229	59.93	5.429	60.14
Loop Trail Pond	Base	100yr_168hr	159.98	6.842	7.500	0.0005	25309	159.96	3.815	159.98
Loop Trail Pond	Base	100yr_240hr	184.01	6.955	7.500	0.0005	25898	184.00	4.925	184.01
Loop Trail Pond	BaseSCS	025yr_024hr	12.76	7.569	7.500	0.0005	32087	12.47	28.327	12.76
Main Parking	BASE	002yr_001hr	0.98	12.127	13.000	0.0005	8229	0.67	5.501	0.98
Main Parking	BASE	002yr_002hr	1.17	12.140	13.000	0.0003	8268	0.83	4.915	1.17
Main Parking	BASE	002yr_004hr	2.54	12.147	13.000	0.0003	8288	2.03	2.876	2.54
Main Parking	Base	002yr_008hr	4.03	12.167	13.000	0.0005	8350	4.00	3.182	4.03
Main Parking	Base	002yr_024hr	12.01	12.085	13.000	0.0005	8099	12.00	1.135	12.01
Main Parking	Base	002yr_072hr	59.98	12.062	13.000	0.0005	8028	59.97	0.701	59.98
Main Parking	BASE	010yr_001hr	0.85	12.247	13.000	0.0005	8593	0.63	8.116	0.85
Main Parking	BASE	010yr_002hr	0.96	12.252	13.000	0.0003	8610	0.83	7.583	0.96
Main Parking	BASE	010yr_004hr	2.12	12.207	13.000	0.0003	8473	2.03	4.515	2.12
Main Parking	Base	010yr_008hr	4.01	12.223	13.000	0.0005	8520	4.00	4.848	4.01
Main Parking	Base	010yr_024hr	12.01	12.113	13.000	0.0005	8185	12.00	1.744	12.01
Main Parking	Base	010yr_072hr	59.98	12.080	13.000	0.0005	8086	59.96	1.045	59.98
Main Parking	BASE	100yr_001hr	0.83	12.471	13.000	0.0005	9277	0.63	12.846	0.83
Main Parking	BASE	100yr_002hr	0.95	12.450	13.000	0.0003	9213	0.83	11.589	0.95
Main Parking	BASE	100yr_004hr	2.07	12.282	13.000	0.0003	8700	2.03	6.948	2.07
Main Parking	Base	100yr_008hr	4.01	12.294	13.000	0.0005	8736	4.00	7.314	4.01
Main Parking	Base	100yr_024hr	12.01	12.148	13.000	0.0005	8293	12.00	2.618	12.01
Main Parking	Base	100yr_072hr	59.97	12.101	13.000	0.0005	8148	59.96	1.464	59.97
Main Parking	Base	100yr_168hr	159.96	12.079	13.000	0.0005	8082	159.96	1.022	159.96
Main Parking	Base	100yr_240hr	183.96	12.094	13.000	0.0005	8127	183.96	1.320	183.96
Main Parking	BaseSCS	025yr_024hr	12.37	12.716	13.000	0.0005	10025	12.27	13.226	12.37

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
Copyright 2011
Devo Seereeram, Ph.D., P.E.

Project Data

Project Name: Bagdad Main Parking Retention Swale
Simulation Description: OFW Treatment Volume Drawdown
Project Number:
Engineer : JTR
Supervising Engineer:
Date: 05-03-2011

Aquifer Data

Base Of Aquifer Elevation, [B] (ft datum): 0.00
Water Table Elevation, [WT] (ft datum): 9.50
Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day): 2.50
Fillable Porosity, [n] (%): 25.00
Unsaturated Vertical Infiltration Rate, [Iv] (ft/day): 1.05
Maximum Area For Unsaturated Infiltration, [Av] (ft²): 7565.0

Geometry Data

Equivalent Pond Length, [L] (ft): 310.3
Equivalent Pond Width, [W] (ft): 22.2
Ground water mound is expected to intersect the pond bottom

Stage vs Area Data

Stage (ft datum)	Area (ft ²)
11.00	5904.0
12.00	7896.0
13.00	10778.0

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
Copyright 2011
Devo Seereeram, Ph.D., P.E.

Scenario Input Data

Scenario 10 :: Treatment Volume

Hydrograph Type: Slug Load
Modflow Routing: Routed with infiltration

Treatment Volume (ft³) 6876

Initial ground water level (ft datum) 9.50 (default)

<u>Time After Storm Event (days)</u>	<u>Time After Storm Event (days)</u>
0.100	2.000
0.250	2.500
0.500	3.000
1.000	3.500
1.500	4.000

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
Copyright 2011
Devo Seereeram, Ph.D., P.E.

Detailed Results :: Scenario 10 :: Treatment Volume

Elapsed Time (hours)	Inflow Rate (ft ³ /s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft ³ /s)	Overflow Discharge (ft ³ /s)	Cumulative Inflow Volume (ft ³)	Cumulative Infiltration Volume (ft ³)	Cumulative Discharge Volume (ft ³)	Flow Type
0.000	1146.0000	0.0000	9.500	0.00000	0.00000	0.0	0.0	0.0	N.A.
0.002	1146.0000	0.0000	11.997	0.09194	0.00000	6876.0	0.6	0.0	U/P
2.400	0.0000	0.0000	11.895	0.09167	0.00000	6876.0	794.3	0.0	U/P
6.000	0.0000	0.0000	11.738	0.10266	0.00000	6876.0	1977.1	0.0	U/P
12.000	0.0000	0.0000	11.363	0.09009	0.00000	6876.0	4604.7	0.0	U/S
24.000	0.0000	0.0000	11.182	0.02186	0.00000	6876.0	5769.2	0.0	S
36.000	0.0000	0.0000	11.064	0.01281	0.00000	6876.0	6493.6	0.0	S
48.000	0.0000	0.0000	10.939	0.00443	0.00000	6876.0	6876.0	0.0	S
60.000	0.0000	0.0000	10.774	0.00000	0.00000	6876.0	6876.0	0.0	S
72.000	0.0000	0.0000	10.656	0.00000	0.00000	6876.0	6876.0	0.0	S
84.000	0.0000	0.0000	10.566	0.00000	0.00000	6876.0	6876.0	0.0	S
96.000	0.0000	0.0000	10.493	----	----	6876.0	6876.0	0.0	N.A.

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
Copyright 2011
Devo Seereeram, Ph.D., P.E.

Summary of Results :: Scenario 10 :: Treatment Volume

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	0.000	9.50		
Maximum	0.002	12.00		
Inflow				
Rate - Maximum - Positive	0.002		1146.0000	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	0.002			6876.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			6876.0
Infiltration				
Rate - Maximum - Positive	6.000		0.1027	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	48.000			6876.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			6876.0
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			0.0
Discharge Structure 1 - simple weir				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			0.0
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	36.000	11.06		6493.6
72 Hour Stage and Infiltration Volume	72.000	10.66		6876.0

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
Copyright 2011
Devo Seereeram, Ph.D., P.E.

Project Data

Project Name: Bagdad Dog Park Pond
Simulation Description: OFW Treatment Volume Drawdown
Project Number:
Engineer : JTR
Supervising Engineer:
Date: 05-03-2011

Aquifer Data

Base Of Aquifer Elevation, [B] (ft datum): 2.00
Water Table Elevation, [WT] (ft datum): 7.50
Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day): 3.30
Fillable Porosity, [n] (%): 25.00
Unsaturated Vertical Infiltration Rate, [Iv] (ft/day): 1.1
Maximum Area For Unsaturated Infiltration, [Av] (ft²): 9362.0

Geometry Data

Equivalent Pond Length, [L] (ft): 188.4
Equivalent Pond Width, [W] (ft): 47.6
Ground water mound is expected to intersect the pond bottom

Stage vs Area Data

Stage (ft datum)	Area (ft ²)
8.75	8579.0
9.00	8933.0
10.00	10384.0

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
Copyright 2011
Devo Seereeram, Ph.D., P.E.

Scenario Input Data

Scenario 10 :: OFW Treatment Volume

Hydrograph Type: Slug Load
Modflow Routing: Routed with infiltration

Treatment Volume (ft³) 5190

Initial ground water level (ft datum) 7.50 (default)

<u>Time After Storm Event (days)</u>	<u>Time After Storm Event (days)</u>
0.100	2.000
0.250	2.500
0.500	3.000
1.000	3.500
1.500	4.000

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
Copyright 2011
Devo Seereeram, Ph.D., P.E.

Detailed Results :: Scenario 10 :: OFW Treatment Volume

Elapsed Time (hours)	Inflow Rate (ft ³ /s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft ³ /s)	Overflow Discharge (ft ³ /s)	Cumulative Inflow Volume (ft ³)	Cumulative Infiltration Volume (ft ³)	Cumulative Discharge Volume (ft ³)	Flow Type
0.000	865.0000	0.0000	7.500	0.00000	0.00000	0.0	0.0	0.0	N.A.
0.002	865.0000	0.0000	9.327	0.11919	0.00097	5190.0	0.7	0.0	U/P
2.400	0.0000	0.0000	9.216	0.11771	0.00000	5190.0	1025.5	13.2	U/P
6.000	0.0000	0.0000	9.051	0.09366	0.00000	5190.0	2531.9	13.2	U/P
12.000	0.0000	0.0000	8.915	0.04215	0.00000	5190.0	3742.3	13.2	U/S
24.000	0.0000	0.0000	8.844	0.01198	0.00000	5190.0	4362.7	13.2	S
36.000	0.0000	0.0000	8.796	0.00856	0.00000	5190.0	4777.8	13.2	S
48.000	0.0000	0.0000	8.759	0.00462	0.00000	5190.0	5101.8	13.2	S
60.000	0.0000	0.0000	8.680	0.00087	0.00000	5190.0	5176.8	13.2	S
72.000	0.0000	0.0000	8.602	0.00000	0.00000	5190.0	5176.8	13.2	S
84.000	0.0000	0.0000	8.539	0.00000	0.00000	5190.0	5176.8	13.2	S
96.000	0.0000	0.0000	8.487	----	----	5190.0	5176.8	13.2	N.A.

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
Copyright 2011
Devo Seereeram, Ph.D., P.E.

Summary of Results :: Scenario 10 :: OFW Treatment Volume

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	0.000	7.50		
Maximum	0.002	9.33		
Inflow				
Rate - Maximum - Positive	0.002		865.0000	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	0.002			5190.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			5190.0
Infiltration				
Rate - Maximum - Positive	0.002		0.1192	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	60.000			5176.8
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			5176.8
Combined Discharge				
Rate - Maximum - Positive	0.002		0.0010	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	2.400			13.2
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			13.2
Discharge Structure 1 - simple weir				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			0.0
Discharge Structure 2 - simple weir				
Rate - Maximum - Positive	0.002		0.0010	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	2.400			13.2
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			13.2
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	36.000	8.80		4777.8
72 Hour Stage and Infiltration Volume	72.000	8.60		5176.8

Appendix I

Floodplain Data

Ripley, Jason T

To: Ripley, Jason T
Subject: RE: Flood Stage Data for Bagdad Mill Site

From: Karen Thornhill [mailto:KarenT@santarosa.fl.gov]
Sent: Monday, March 28, 2011 4:17 PM
To: Ripley, Jason T; Sheila Harris
Cc: Chris Phillips; Allen, Gregory S
Subject: RE: Flood Stage Data for Bagdad Mill Site

Using the FIS for Blackwater River, I come up with 4.9', This area is within the Blackwater Bay Storm Surge effect area. Looking this information up, (The confluence of Blackwater Bay and Blackwater River" Transect 13) the 10 percent Stillwater Elevation is 3.7'

Hope this helps.

Karen Thornhill, CFM
Santa Rosa County
Floodplain Manager
Residential Plan Review
850-981-7029 Office
850-983-5367 or 850-623-1208 Fax

Tell us how we are doing. Please fill out our on line Customer Service Survey at:
<http://www.santarosa.fl.gov/customerservice/index.html>

From: Ripley, Jason T [mailto:JTRipley@pbsj.com]
Sent: Monday, March 28, 2011 3:59 PM
To: Karen Thornhill; Sheila Harris
Cc: Chris Phillips; Allen, Gregory S
Subject: RE: Flood Stage Data for Bagdad Mill Site

Yes, ma'am. That sounds like it is exactly what I need.

Jason T. Ripley, PE
Sr. Engineer I | PBS&J
850.478.9844 ext. 227
Fax: 850.478.0620

From: Karen Thornhill [mailto:KarenT@santarosa.fl.gov]
Sent: Monday, March 28, 2011 3:50 PM
To: Sheila Harris
Cc: Chris Phillips; Ripley, Jason T; Allen, Gregory S
Subject: RE: Flood Stage Data for Bagdad Mill Site

Yes, I phoned and left a voice mail message for Jason to call me. The Bagdad mill site is in the Blackwater River and thus there is not a 10 year flood stage like there would be for a coastal area with stillwater elevations and transects.. There is a 10% annual chance flood within the flood profiles in the Flood Insurance Study. Is this what he is looking for?

Thanks,

Karen Thornhill, CFM

Santa Rosa County
Floodplain Manager
Residential Plan Review
850-981-7029 Office
850-983-5367 or 850-623-1208 Fax

Tell us how we are doing. Please fill out our on line Customer Service Survey at:
<http://www.santarosa.fl.gov/customerservice/index.html>

From: Sheila Harris
Sent: Monday, March 28, 2011 3:16 PM
To: Karen Thornhill
Cc: Chris Phillips; Ripley, Jason T; 'Allen, Gregory S'
Subject: Flood Stage Data for Bagdad Mill Site

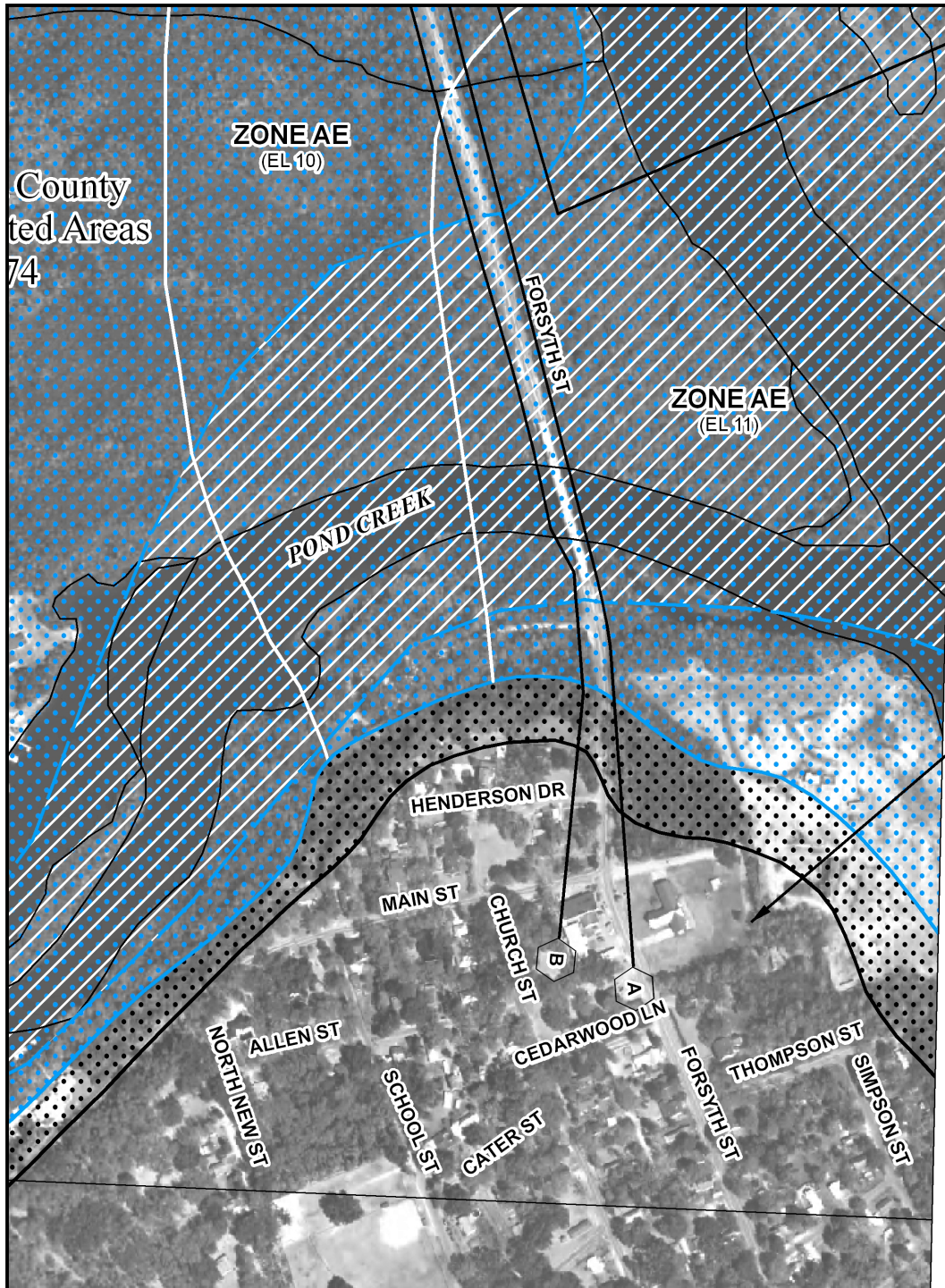
Karen,

PBS&J is currently working on design plans for the Mill Site. they need 10-year flood stage data for the park. Can you help with this request?

If you need additional information regarding this request, please contact Jason Ripley at 478-9844. Thanks.

Sheila A. Harris, Special Projects/Grants
Santa Rosa County BOCC
6495 Caroline Street, Suite H
Milton, Florida 32570
(850) 983-1848 (850) 393-5239 (Cell)
(850) 983-1944 Fax
sheilah@santarosa.fl.gov

PLEASE NOTE: "Florida has a very broad Public Records Law. Most written communications to or from State and Local Officials regarding State or Local business are public records available to the public and media upon request. Your email communications may therefore be subject to public disclosure.



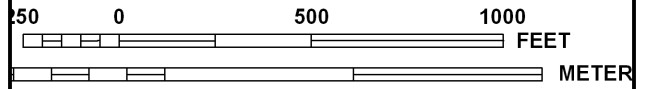
JOINS PANEL 0435

33° 86' 00" N

MAGNOLIA BLOSS



MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0431G

FIRM

FLOOD INSURANCE RATE MAP

SANTA ROSA COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 431 OF 657

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MILTON, CITY OF	120276	0431	G
SANTA ROSA COUNTY	120274	0431	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

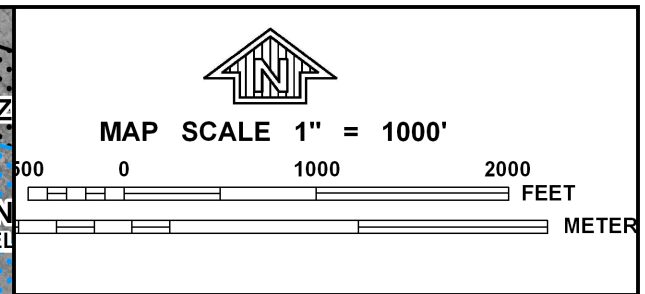
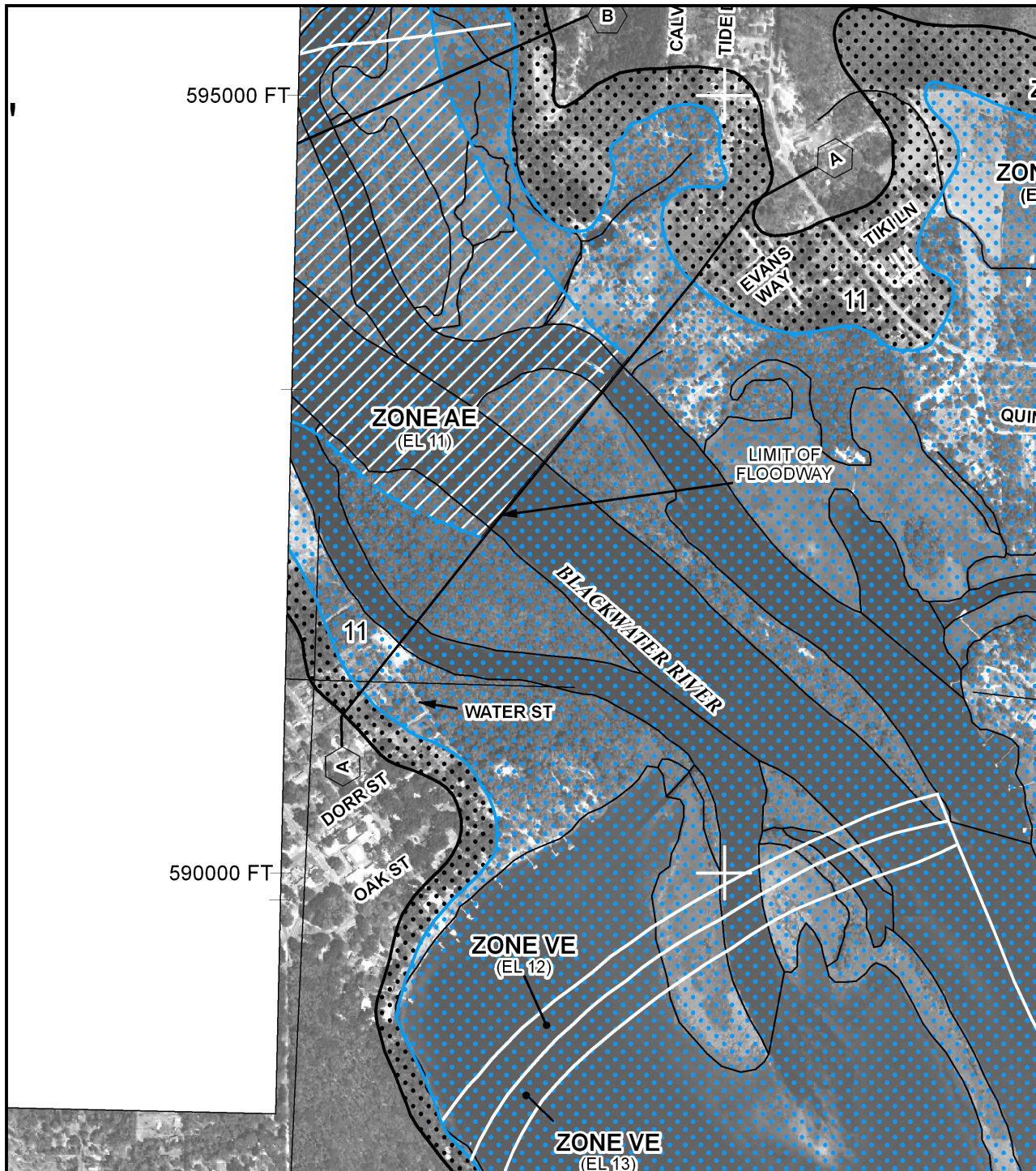


MAP NUMBER
12113C0431G

EFFECTIVE DATE
DECEMBER 19, 2006

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0435G

FIRM

FLOOD INSURANCE RATE MAP

SANTA ROSA COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 435 OF 657

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SANTA ROSA COUNTY	120274	0435	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
12113C0435G

EFFECTIVE DATE
DECEMBER 19, 2006

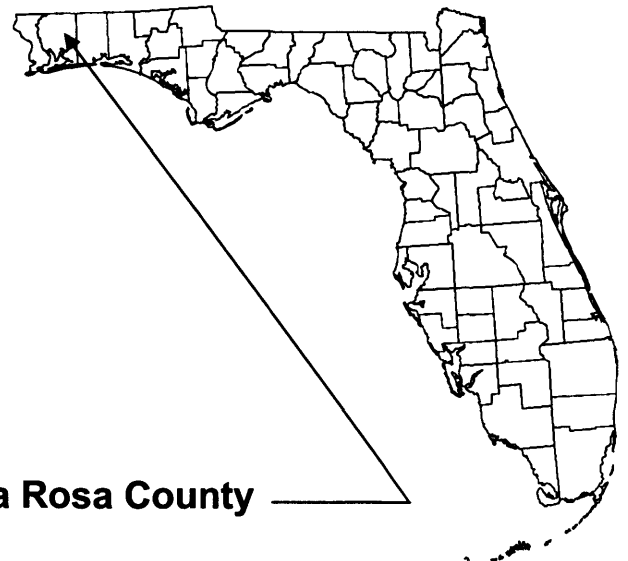
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FLOOD INSURANCE STUDY



SANTA ROSA COUNTY, FLORIDA AND INCORPORATED AREAS



Santa Rosa County

COMMUNITY NAME

GULF BREEZE, CITY OF

JAY, TOWN OF

MILTON, CITY OF

SANTA ROSA COUNTY

(UNINCORPORATED AREAS)

COMMUNITY NUMBER

120275

120339

120276

120274

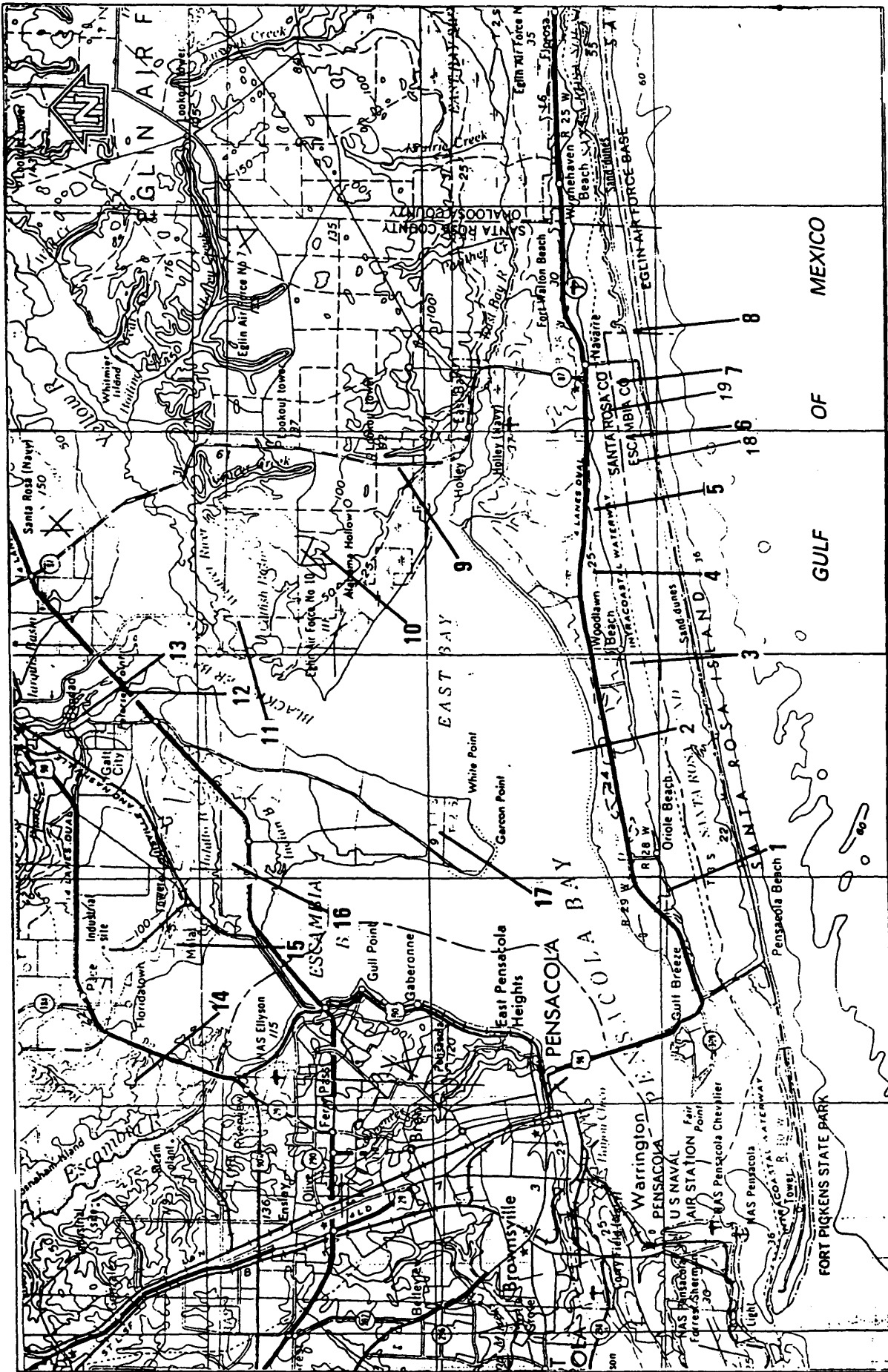
DECEMBER 19, 2006



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

12113CV000A



APPROXIMATE SCALE



FEDERAL EMERGENCY MANAGEMENT AGENCY

**SANTA ROSA COUNTY, FL
AND INCORPORATED AREAS**

TRANSECT LOCATION MAP

FIGURE 1

Various source data were used in the interpolation, including topographic maps, aerial photographs, FDEP aerial photography and surveys, and engineering judgment. The transect data is presented in Table 8, "Transect Descriptions," which describes the location of each transect. In addition, Table 8 provides the Gulf of Mexico 100-year stillwater and maximum wave crest elevations for each transect along with the corresponding inland bay or soundside 100-year stillwater and maximum wave crest elevation. In Table 9, "Transect Data," the flood hazard zone and base flood elevations for each transect flooding source is provided, along with the 100-year stillwater elevation for the respective flooding source.

TABLE 8 - TRANSECT DESCRIPTIONS

<u>TRANSECT</u>	<u>LOCATION</u>	<u>ELEVATION (feet NAVD*)</u>	
		<u>1-PERCENT STILLWATER</u>	<u>MAXIMUM 1-PERCENT WAVE CREST¹</u>
1	Approximately 1,550 feet southwest of the intersection of Woodlore Circle and Fawn Lane, extending northwest through Oriole Beach from Santa Rosa Sound	7.8	12.1
2	Approximately 2,450 feet southwest of the intersection of Thomas Street and Central Parkway West, extending northwest, west of Woodlawn Beach from Santa Rosa Sound	7.8	11.8
3	Approximately 400 feet south of the intersection of Nanthala Road and Nanthala Beach Road, extending northwest into Woodlawn Beach from Santa Rosa Sound	7.8	11.8
4	Approximately 4,680 feet south of the intersection of Bergen Street and U.S. Route 98, extending northwest into incorporated areas of Santa Rosa County from Santa Rosa Sound	7.8	12.1

¹Because of map scale limitations, the maximum wave elevation may not be shown on the FIRM.

*North American Vertical Datum of 1988

TABLE 8 - TRANSECT DESCRIPTIONS - continued

<u>TRANSECT</u>	<u>LOCATION</u>	<u>ELEVATION (feet NAVD*)</u>	
		<u>1-PERCENT STILLWATER</u>	<u>MAXIMUM 1-PERCENT WAVE CREST¹</u>
5	Approximately 2,500 feet south of the intersection of Pelican Lane and Water Street, extending northwest into incorporated areas of Santa Rosa County from Santa Rosa Sound	7.8	12.1
6	Approximately 2,400 feet south of the intersection of Bayou Street and Sandstone Road, extending northwest into incorporated areas of Santa Rosa County from Santa Rosa Sound	7.8	12.1
7	Approximately 1,700 feet south of the intersection of 4th Street and San Paolo Place, extending northwest into incorporated areas of Santa Rosa County from Santa Rosa Sound	7.8	12.0
8	Approximately 3,800 feet southeast of the intersection of State Route 399 and State Route 87, extending northwest across Santa Rosa Island	10.3 ²	15.9
	Approximately 950 feet southeast of the intersection of Blessed Lane and U.S. Route 98 extending northwest into Navarre from Santa Rosa Sound	7.8	12.0

¹Because of map scale limitations, the maximum wave elevation may not be shown on the FIRM.

²Includes wave setup of 2.5 feet

*North American Vertical Datum of 1988

TABLE 8 - TRANSECT DESCRIPTIONS - continued

<u>TRANSECT</u>	<u>LOCATION</u>	<u>ELEVATION (feet NAVD*)</u>	
		<u>1-PERCENT STILLWATER</u>	<u>MAXIMUM 1-PERCENT WAVE CREST¹</u>
9	At the confluence of Poplar Creek with East Bay, just east of Miller Point	6.9	10.3
10	Approximately 3.2 miles northwest of Miller Point at East Bay	6.3	9.0
11	Approximately 1.3 miles northeast of Grassy Point at Blackwater Bay	7.4	10.7
12	Just west of Robinson Point at Blackwater Bay	7.5	11.0
13	At the confluence of Blackwater River with Blackwater Bay	8.2	11.9
14	At the confluence of the Bannahassee River with Escambia Bay	8.3	13.0
15	Approximately 2,500 feet northwest of Mulatto Bayou at Escambia Bay	7.7	11.2
16	At the inlet of Indian Bayou at Escambia Bay	6.8	9.7
17	Approximately 2,500 feet northwest of Garcon Point at Pensacola Bay	5.5	7.9
18 ²	Located approximately 3.21 miles west of the Escambia-Santa Rosa Island at the Gulf of Mexico	10.3 ³	15.9

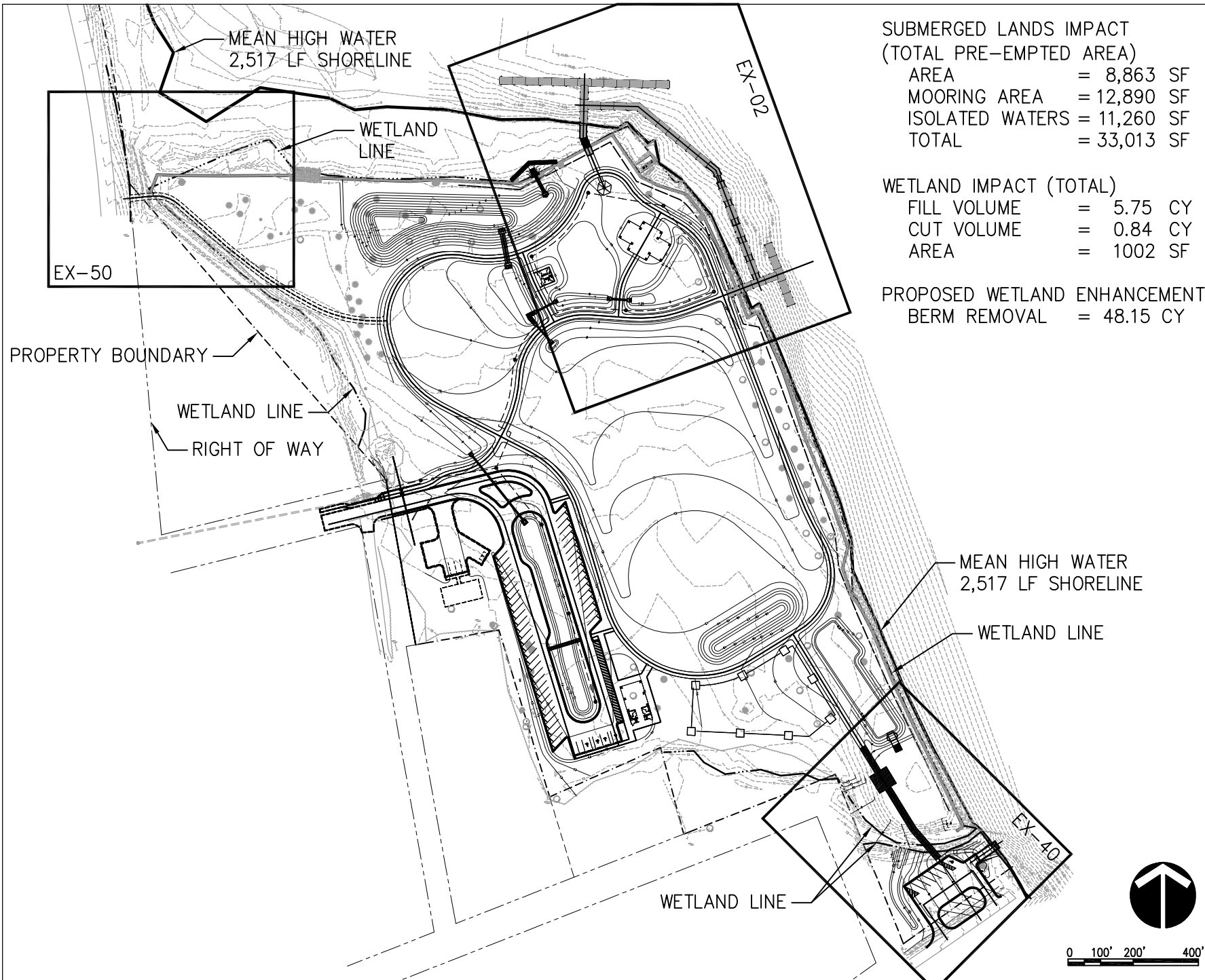
¹Because of map scale limitations, the maximum wave elevation may not be shown on the FIRM.

²Formerly shown on Escambia County and Incorporated Areas FIS and FIRM (Transects 15 and 16)

*North American Vertical Datum of 1988

Appendix J

Dredge and Fill Drawings



SUBMERGED LANDS IMPACT
(TOTAL PRE-EMPTED AREA)

AREA	= 8,863 SF
MOORING AREA	= 12,890 SF
ISOLATED WATERS	= 11,260 SF
TOTAL	= 33,013 SF

WETLAND IMPACT (TOTAL)

FILL VOLUME	= 5.75 CY
CUT VOLUME	= 0.84 CY
AREA	= 1002 SF

PROPOSED WETLAND ENHANCEMENT
BERM REMOVAL = 48.15 CY

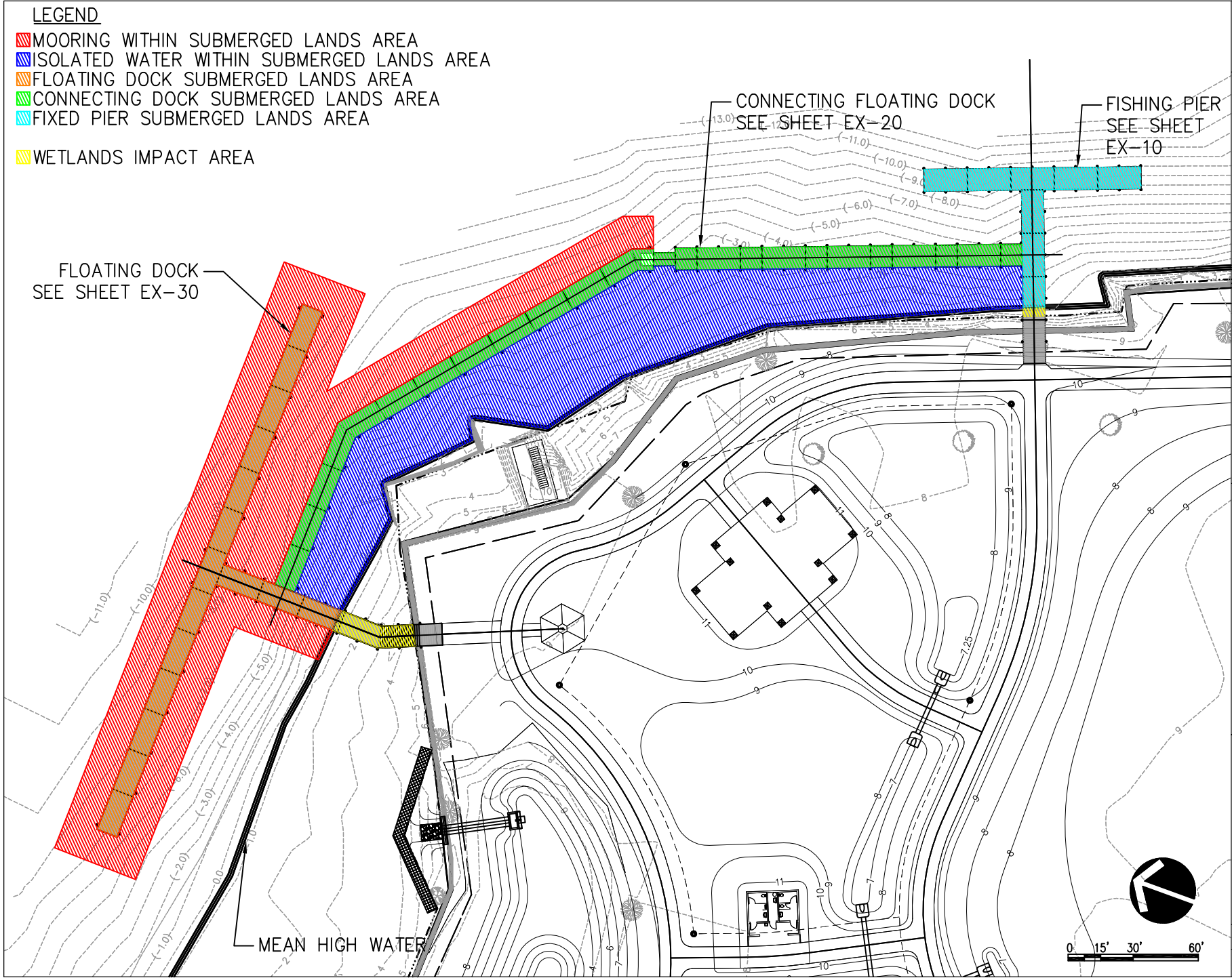
OVERALL SITE PLAN

BAGDAD
MILL SITE PARK

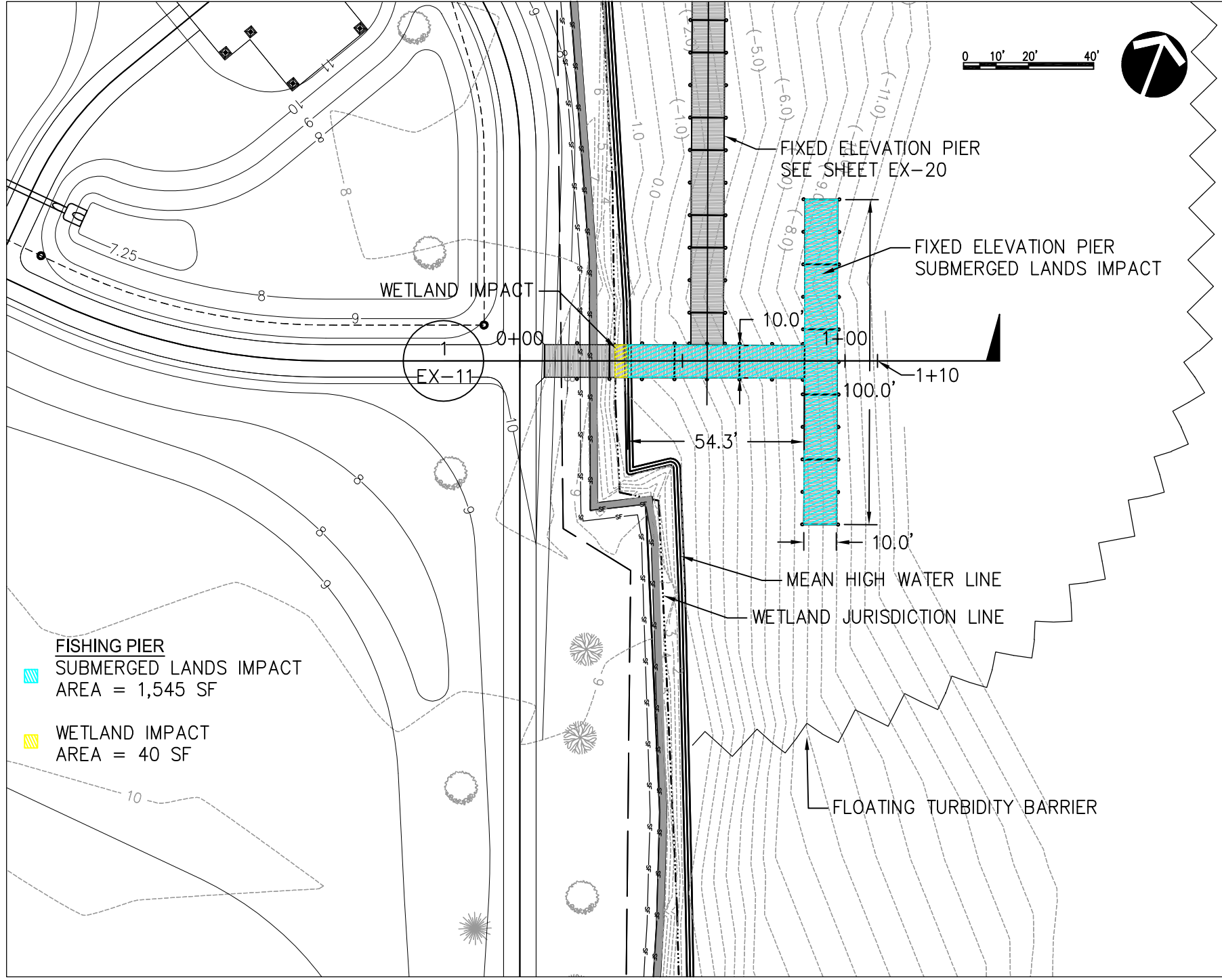
ATKINS
www.atkinsglobal.com
2114 Airport Boulevard, Suite 1450 Pensacola, FL
32504-0988 Tel: +1(850) 478 9944
Certificate of Authorization No. 24

12/20/11

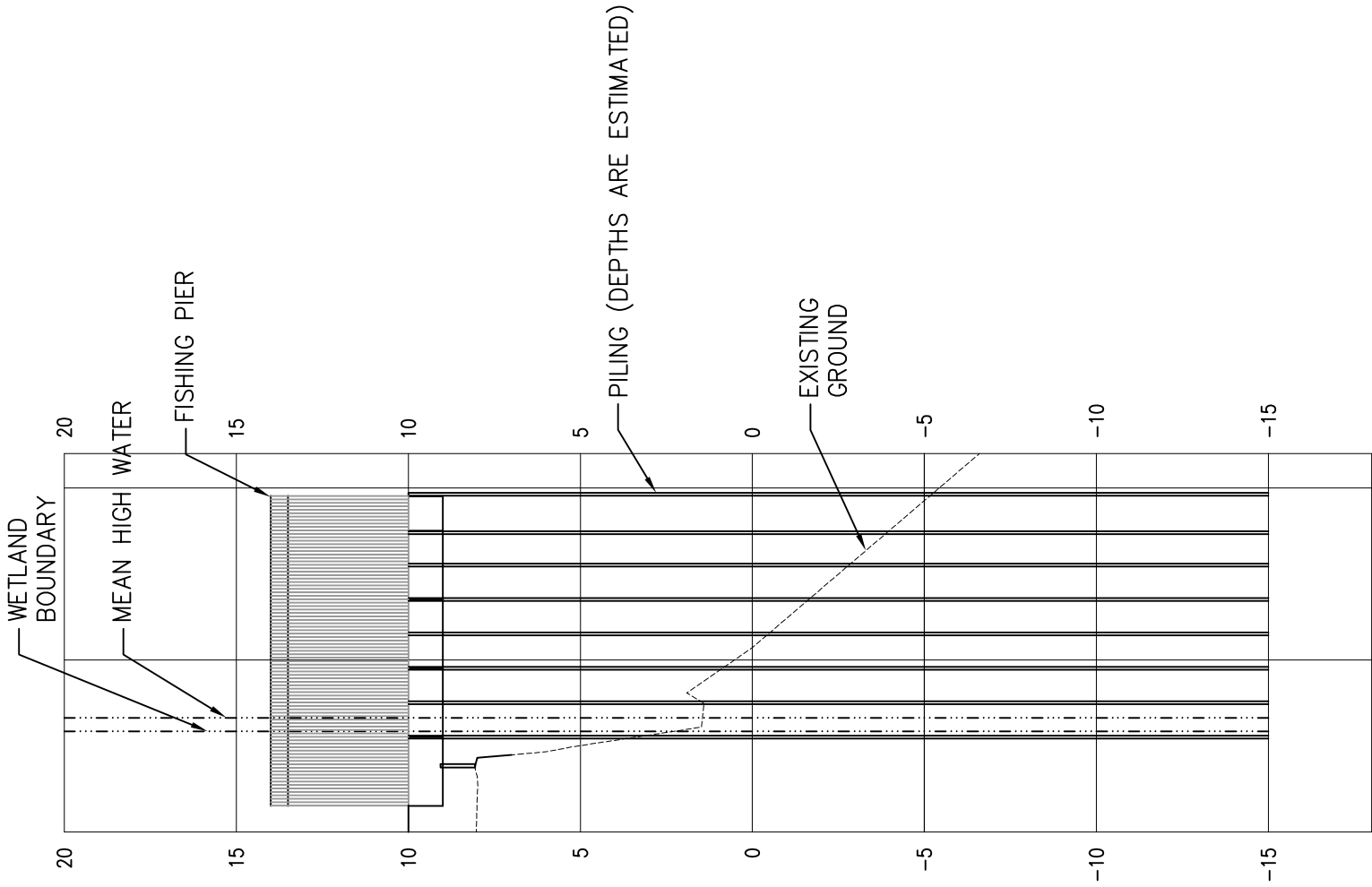
EX-01



PIER SITE PLAN	
BAGDAD MILL SITE PARK	
ATKINS www.atkinsglobal.com 2114 Airport Boulevard, Suite 1400 Panama, FL 32064-6988 Tel: +1(850) 478 9944 Certificate of Authorization No. 24	12/20/11 EX-02



FISHING PIER PLAN	
BAGDAD MILL SITE PARK	
ATKINS www.atkinsglobal.com 2114 Airport Boulevard, Suite 1450 Pensacola, FL 32504-6988 Tel: +1(850) 478 9944 Certificate of Authorization No. 24	
12/20/11	EX-10



VERT. 0 1' 2' 5'

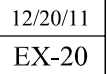
HORIZ. 0 10' 20' 50'

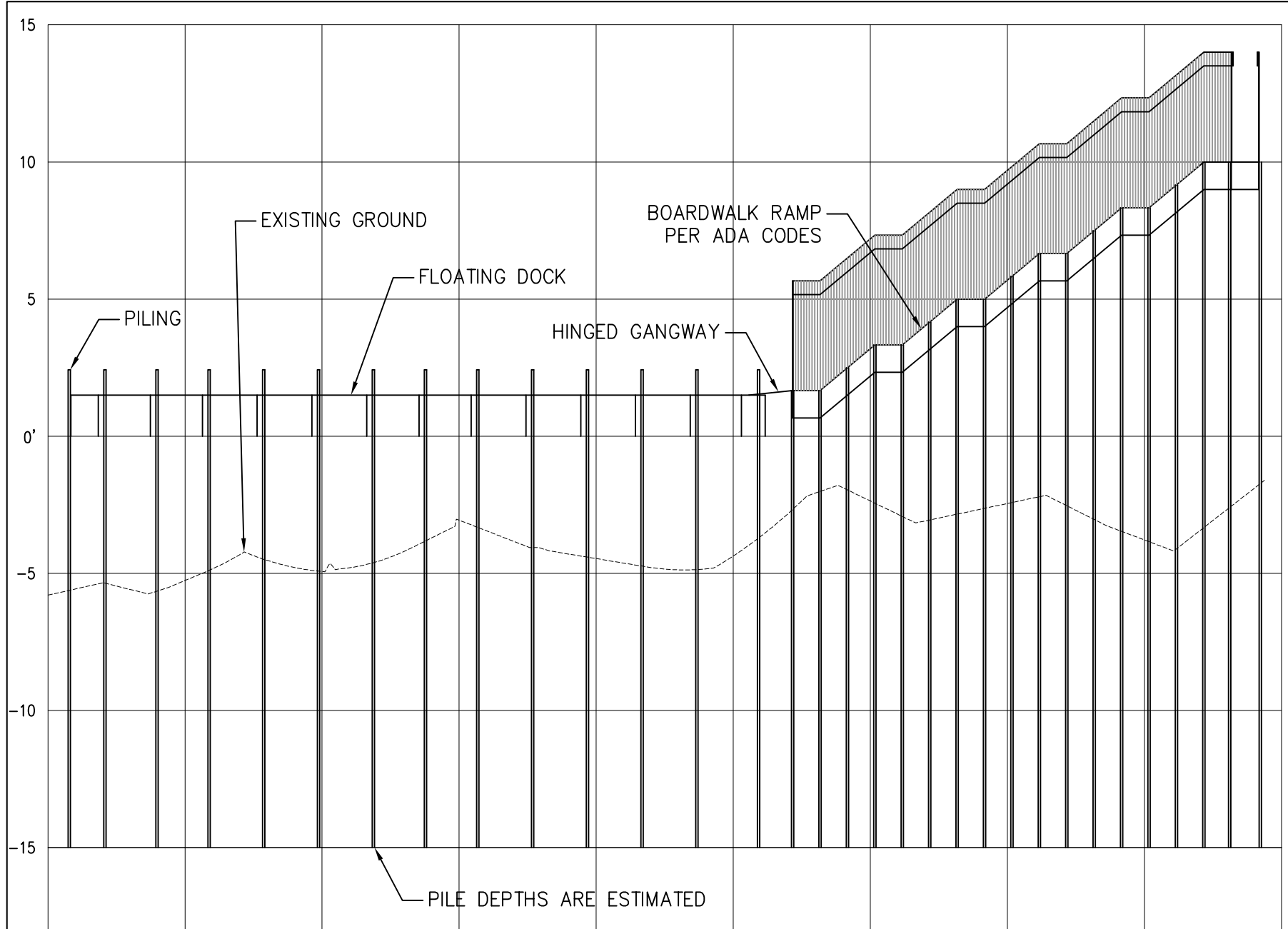
1

EX-11

FISHING PIER PROFILE

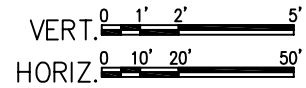
12/20/11	BAGDAD MILL SITE PARK	FISHING PIER PROFILE
EX-11	ATKINS www.atkinsglobal.com 2114 Airport Boulevard, Suite 1450 Pensacola, FL 32504-6988 Tel: +1(850) 478 9944 Certificate of Authorization No. 24	



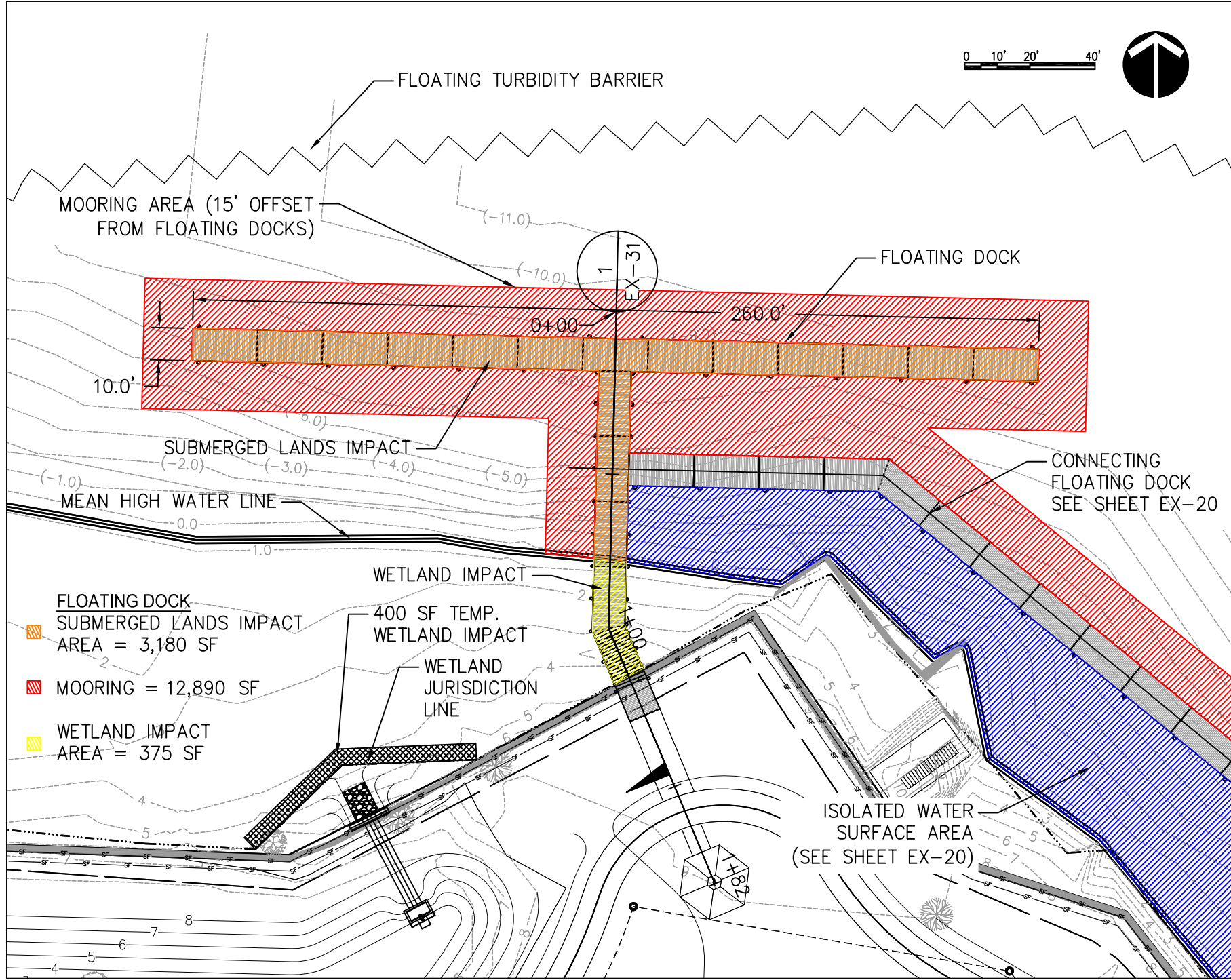


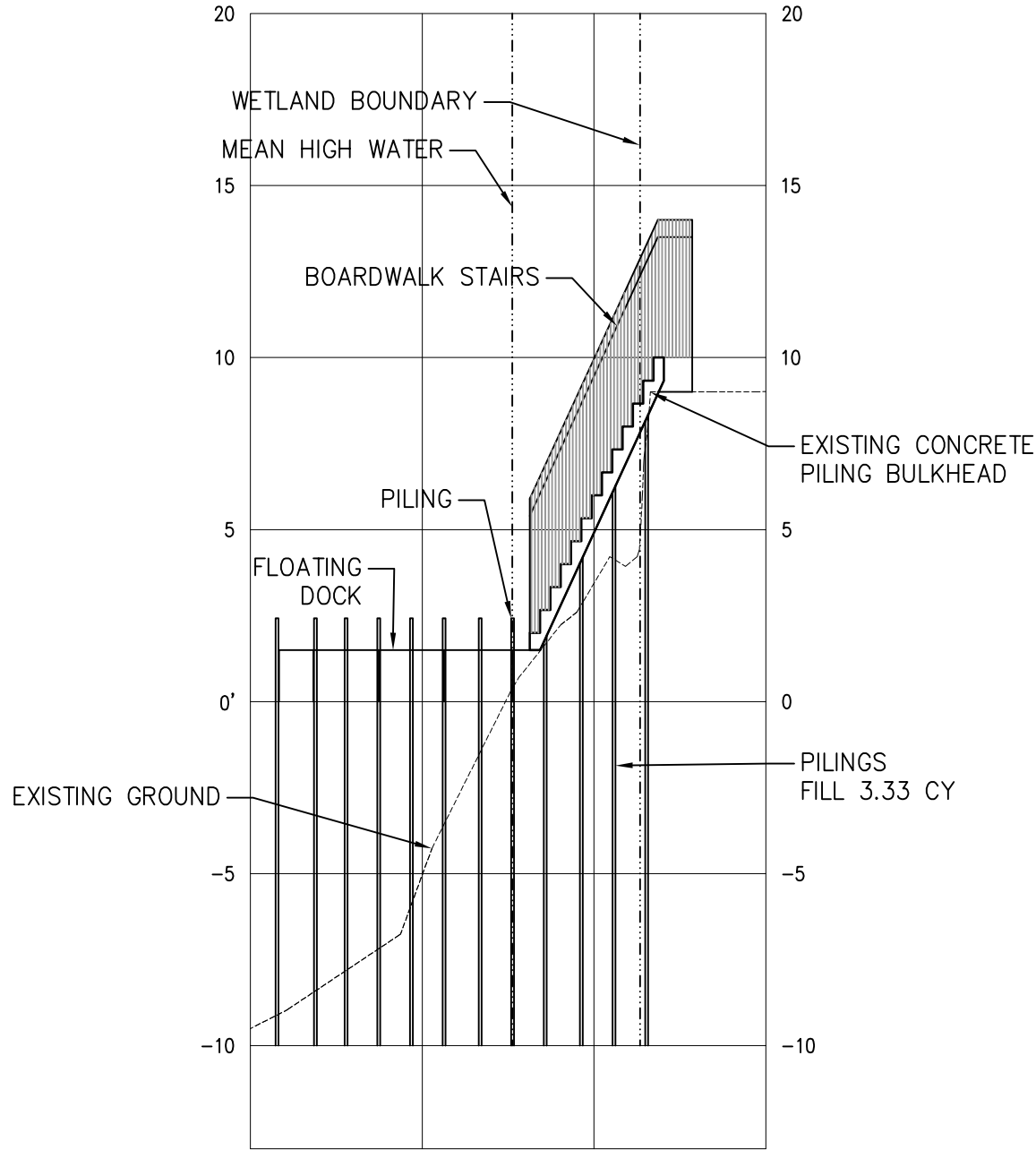
1
EX-21

CONNECTING FLOATING DOCK PROFILE



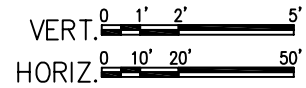
ATKINS www.atkinsglobal.com 2114 Airport Boulevard, Suite 1450 Pensacola, FL 32504-6988 Tel: +1(850) 478 9944 Certificate of Authorization No. 24	BAGDAD MILL SITE PARK	CONNECTING FLOATING DOCK PROFILE
12/20/11 EX-21		



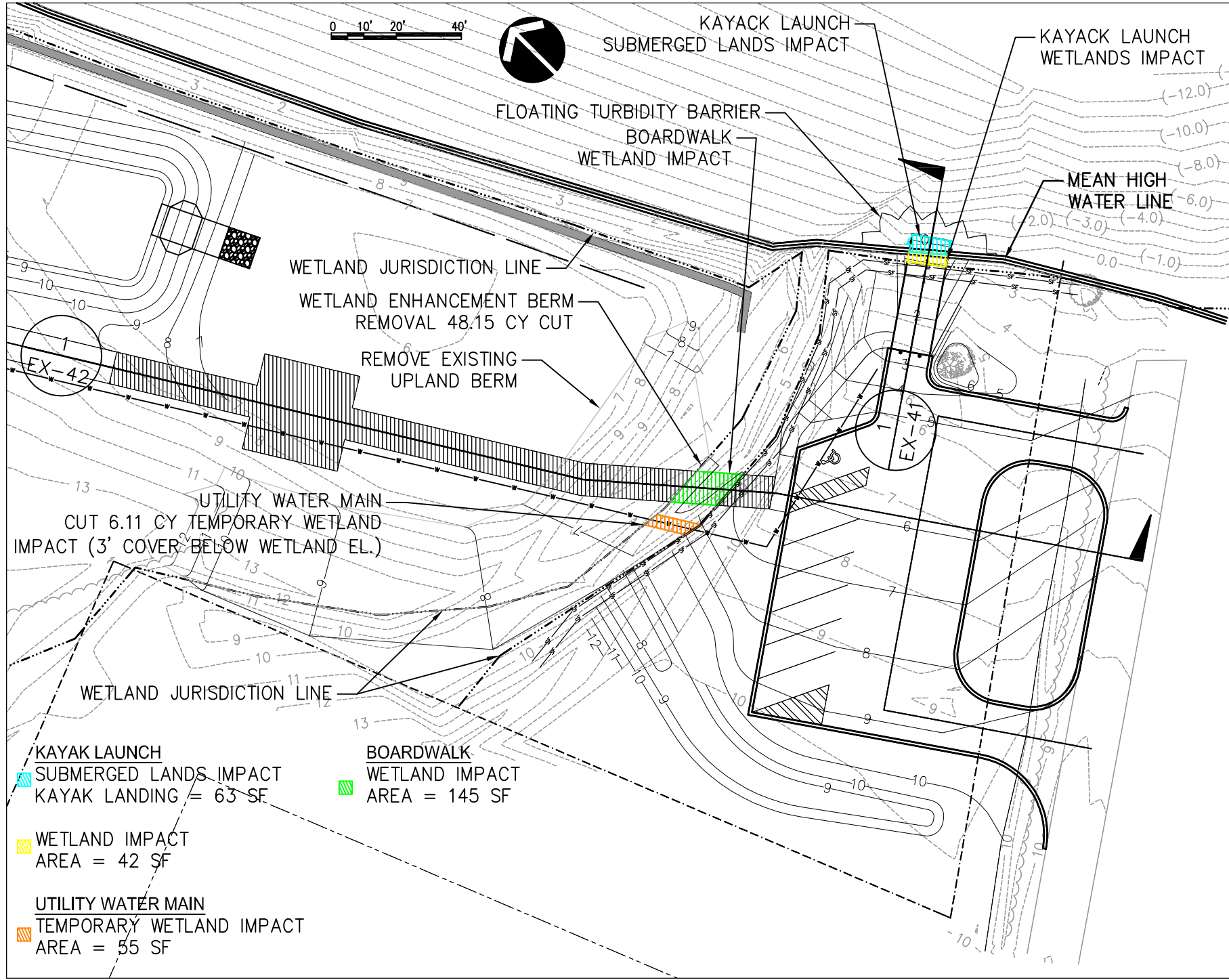


1
EX-31

FLOATING DOCK PROFILE



FLOATING DOCK PROFILE	BAGDAD MILL SITE PARK	ATKINS www.atkinsglobal.com 2114 Airport Boulevard, Suite 1450 Pensacola, FL 32504-6988 Tel: +1(850) 478 9944 Certificate of Authorization No. 24 12/20/11 EX-31
------------------------------	----------------------------------	---

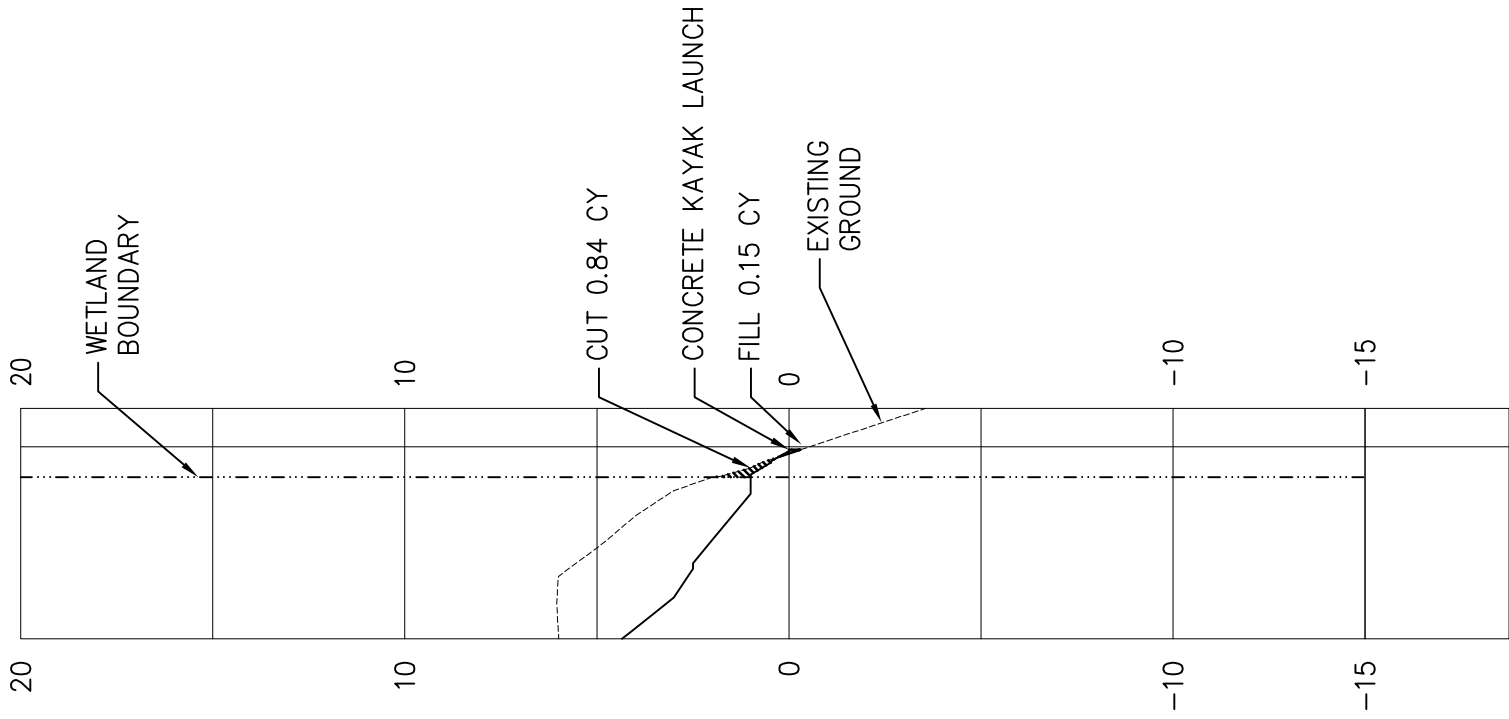


KAYACK LAUNCH PLAN

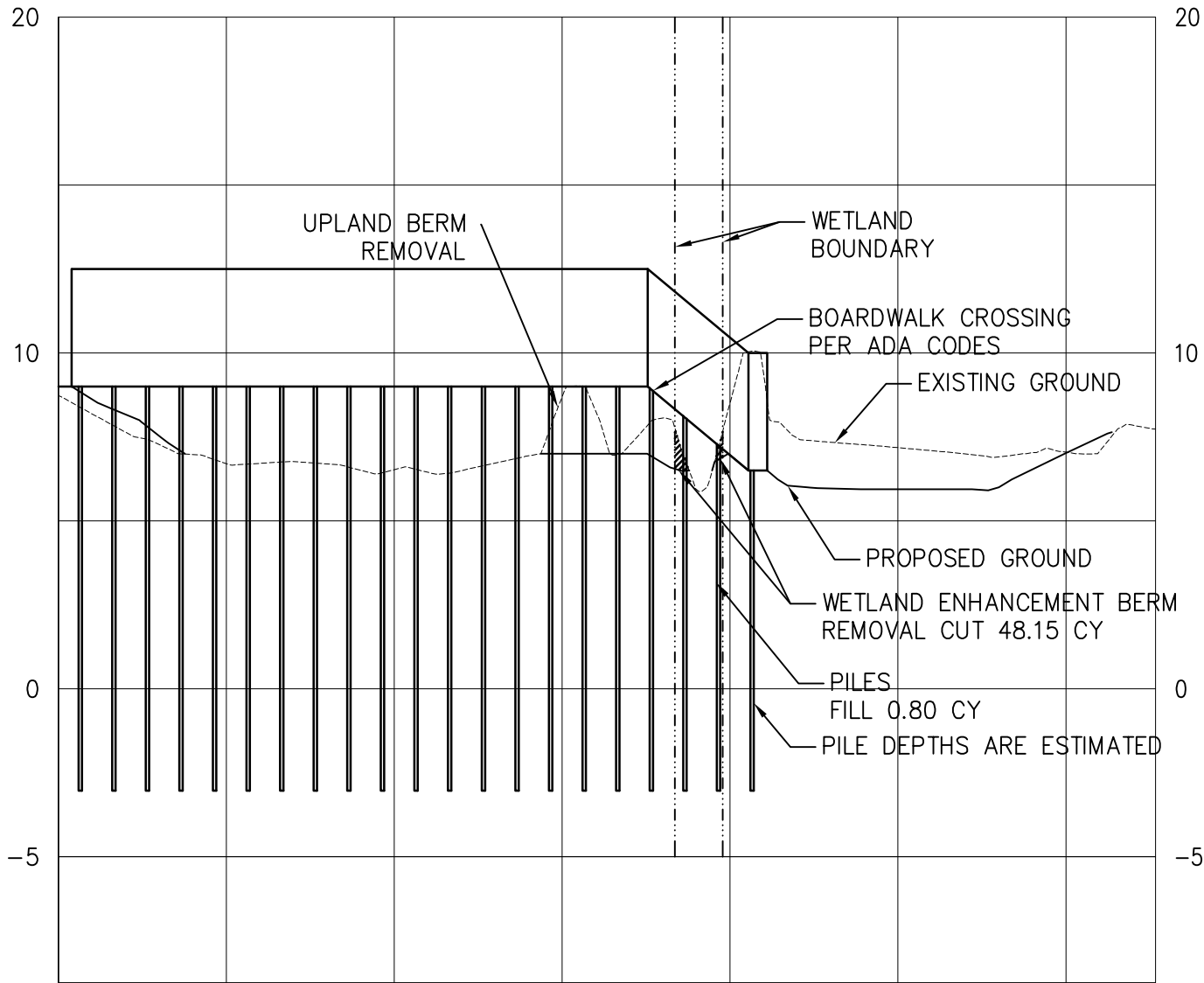
BAGDAD
MILL SITE PARK

ATKINS
www.atkinsglobal.com
2114 Airport Boulevard, Suite 1450 Pensacola, FL
32504-6988 Tel: +1(850) 478 9944
Certificate of Authorization No. 24

12/20/11
EX-40

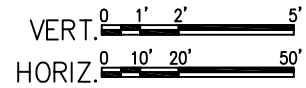


ATKINS www.atkinsglobal.com 2114 Airport Boulevard, Suite 1450 Pensacola, FL 32504-6988 Tel: +1(850) 478 9944 Certificate of Authorization No. 24	BAGDAD MILL SITE PARK	FISHING PIER PROFILE	
12/20/11	EX-41		



1
EX-42

BOARDWALK TO KAYAK LAUNCH PROFILE



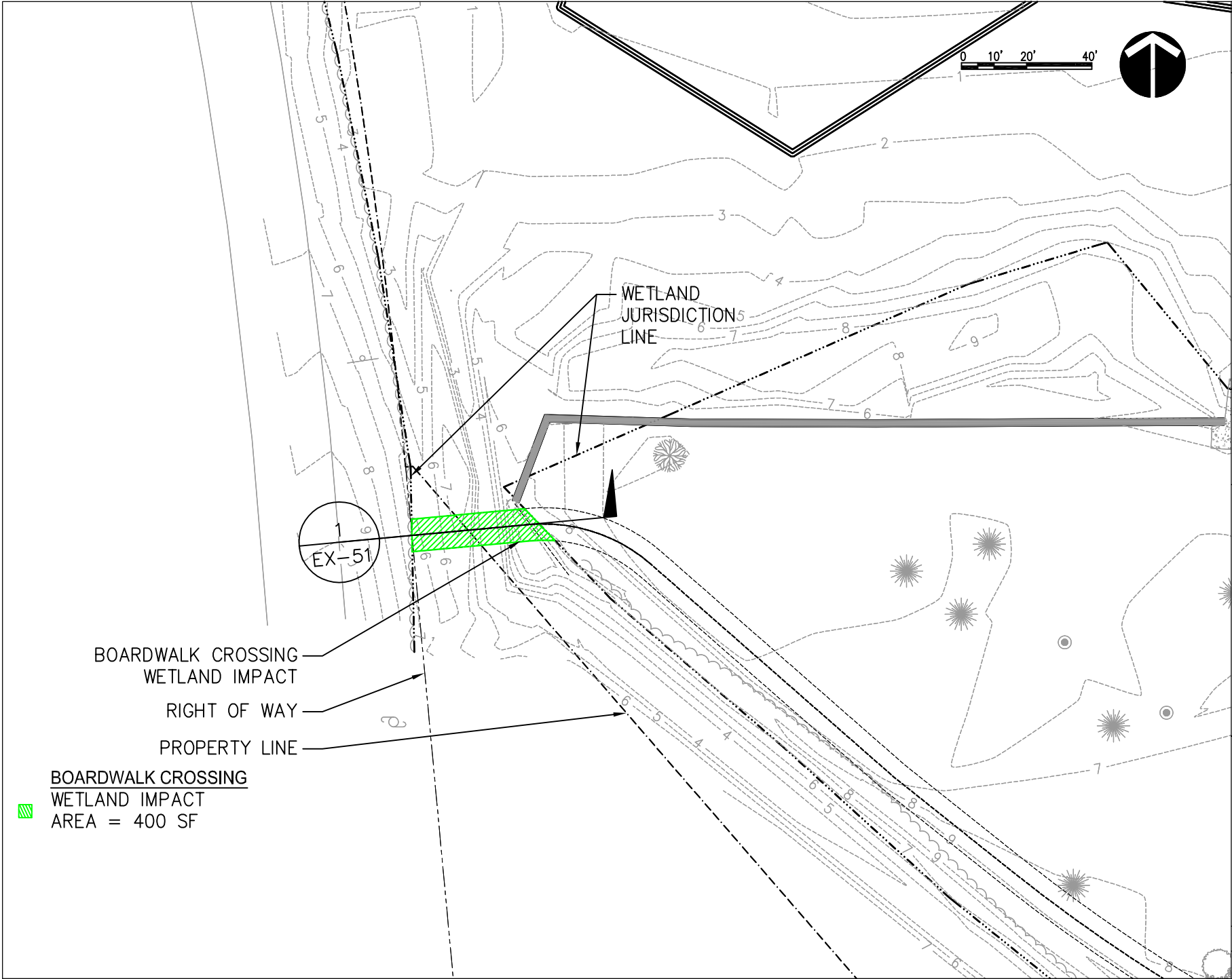
BOARDWALK TO KAYAK LAUNCH PROFILE

BAGDAD
MILL SITE PARK

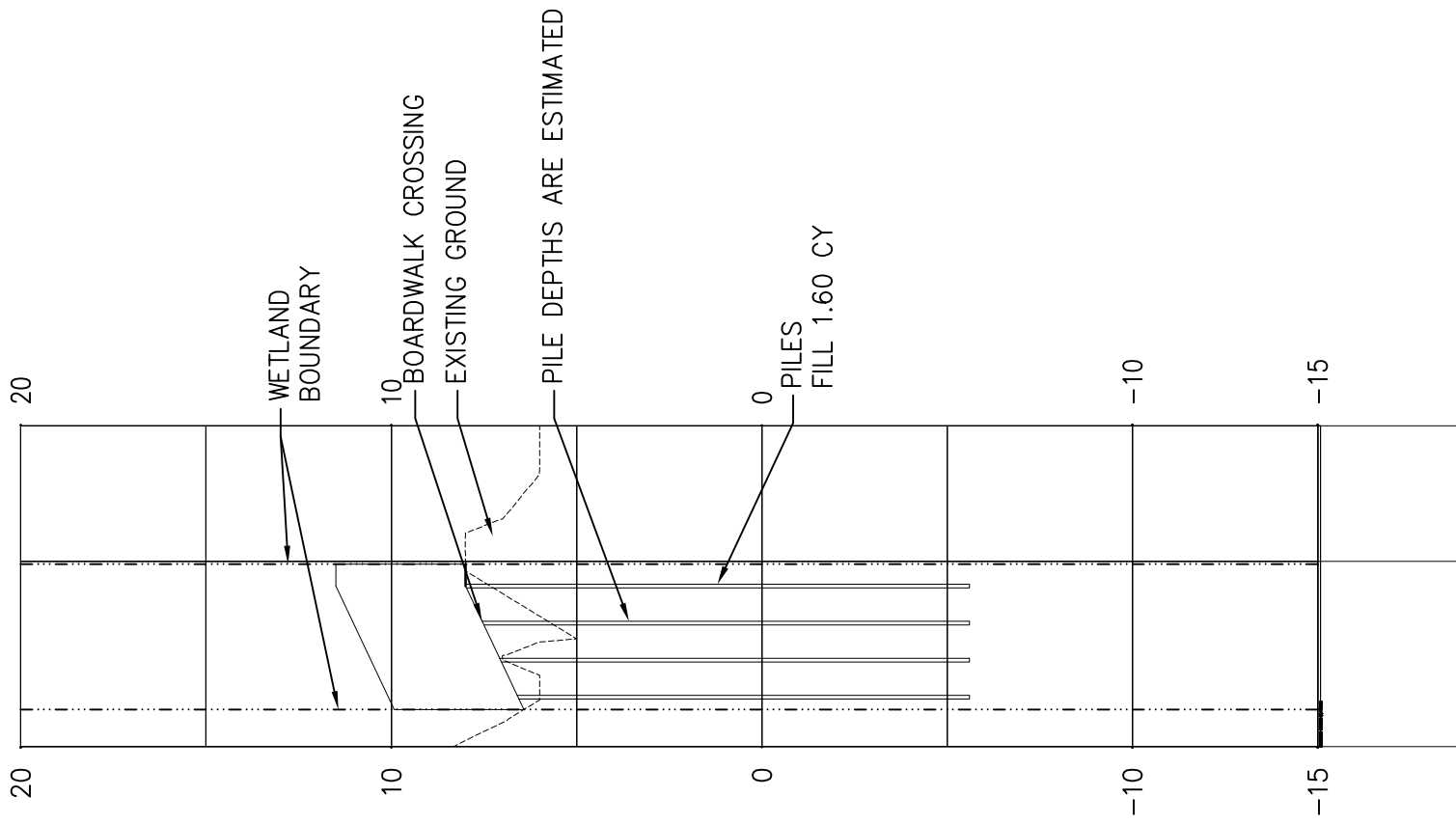
ATKINS
www.atkinsglobal.com
2114 Airport Boulevard, Suite 1450 Pensacola, FL
32504-6988 Tel: +1(850) 478-9944
Certificate of Authorization No. 24

12/20/11

EX-42



BOARDWALK CROSSING PLAN	BAGDAD MILL SITE PARK	ATKINS www.atkinsglobal.com 2114 Airport Boulevard, Suite 1450 Pensacola, FL 32504-6988 Tel: +1(850) 478 9944 Certificate of Authorization No. 24
12/20/11		EX-50

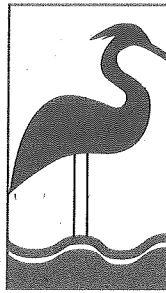


1
EX-51

VERT. 0 1' 2' 5'
HORIZ. 0 10' 20' 50'

BOARDWALK CROSSING PROFILE

12/20/11	BAGDAD MILL SITE PARK	FISHING PIER PROFILE
EX-51		



Edmisten &
Associates
Ecological Consultants

September 12, 2011

Mr. Chris Phillips
Santa Rosa County Engineering
6501 Old Bagdad Hwy.
Milton, FL 32583

RE: Species and vegetative communities' information

Dear Mr. Phillips:

Edmisten & Associates has completed a re-assessment of the jurisdictional wetlands on your 20.5-acre parcel on Black water River in Santa Rosa, Florida. This assessment included an analysis of plant communities, wetland hydrology indicators and soils in accordance with federal and state procedural guidelines. These analyses resulted in the identification of wetland within the jurisdiction of both the US Army Corps of Engineers (COE) and the Florida Department of Environmental Protection (FDEP). The boundary of this jurisdictional area was identified in the field with red surveyors' flagging.

As a result of our previous meeting you had asked for assistance in describing the current species and vegetative community types found within this project. As it relates to protected listed and endangered species none were observed or expected to be present on-site. This is mainly due to the historic use of this property as an industrial site.

There are two major vegetative community types as identified by the Florida Land Use, Cover and forms classification system (FLUCCS), they are Wetland forested mixed (630) and Disturbed land (740). The vegetation within the wetland forested mixed area includes mixed wetland forest communities in which neither hardwoods or conifers achieve a 66 percent dominance of the crown canopy composition. The disturbed land within the upland and wetland portion of the property consists of areas which have been changed due primarily to industrial activities associated with the Bagdad Mill and recent concrete manufacturing. The vegetation is highly disturbed and has little to no species habitat value.

The areas within the submerged portion of the site have been highly impacted due to shoreline hardening and industrial usage. Sparse to little submerged vegetation occur within this area and is limited to small extant populations. The main species would be Vallisneria Americana with some shoreline emergents such as black needle rush (*Juncus roemerianus*), broadleaf arrowhead (*Sagittaria latifolia*), and saw grass (*Cladium jamaicense*).

We appreciate this opportunity to be of service. If you have any questions about this property or wetland issues in general, we will be happy to assist.

Respectfully,
Edmisten & Associates

Sean O'Toole
Ecological Consultant
General Partner

Updated via email
dated 1-30-12

1047.003\report for vegetative community descriptions

Ripley, Jason T

From: sean o'toole [otoole@edmisten.com]
Sent: Monday, January 30, 2012 11:31 AM
To: Ripley, Jason T
Subject: Bagdad Mill Site

Jason; I have expanded the FLUCCS identification to cover the freshwater marsh area and the ditch crossing.

There are four major vegetative community types as identified by the Florida Land Use, Cover and forms classification system (FLUCCS) , they are Wetland forested mixed (630), Freshwater marshes (641), Ditches (513), and Disturbed land (740). The vegetation within the wetland forested mixed area includes mixed wetland forest communities in which neither hardwoods or conifers achieve a 66 percent dominance of the crown canopy composition. The vegetation within the freshwater marsh area is comprised of vegetation such as Vallisneria Americana with some shoreline emergents such as black needle rush (*Juncus roemerianus*), broadleaf arrowhead (*Sagittaria latifolia*), and saw grass (*Cladium jamaicense*). The vegetation within the Ditch area is highly variable due to the level of disturbance. The disturbed land within the upland and wetland portion of the property consists of areas which have been changed due primarily to industrial activities associated with the Bagdad Mill and recent concrete manufacturing. The vegetation is highly disturbed and has little to no species habitat value.

Please let me know if you need any further information.

Respectfully

Sean O'Toole

This message has been checked for all known viruses by MessageLabs.