JonesEdmunds

GSE

STUDIO MJG

MANLEY DESIGN

CAMPBELL SPELLICY ENGINEERING

BOULWARE SPRINGS NATURE PARK
PARK AND BUILDING REVITALIZATION

City of Gainesville: Wild Spaces Public Places| April 2023

BOULWARE SPRINGS NATURE PARK

PARK AND BUILDING REVITALIZATION

Prepared for:

City of Gainesville: Wild Spaces Public Places

Thomas Center, Building B

306 NE Sixth Ave

Gainesville, Florida 32601

Prepared by:

Jones Edmunds & Associates, Inc.

730 NE Waldo Road

Gainesville, Florida 32641

Certificate of Engineering Authorization #1841

and

Manley Design, LLC

3462 NW 13th Avenue

Gainesville, FL 32605

and

Studio MJG, LLC

5206 SW 91st Terrace, Suite A

Gainesville, FL 32608

and

GSE Engineering & Consulting, Inc. 5590 SW 64th Street, Suite B Gainesville, Florida 32608

Jones Edmunds Project No.: 07100-038-01

April 2023

TABLE OF CONTENTS

ATTACHMENTS

EXECUTIVE SUMMARY

The City of Gainesville Wild Spaces and Public Places (WSPP) identified a need to renovate the Boulware Springs Nature Park and historic Water Works building. The nature park is one of the most popular nature parks in the City due to its proximity to the Gainesville-Hawthorne trail. The water works building is listed on the National Register of Historic Places but is currently vacant and has been vandalized.

The Jones Edmunds team worked with City Staff to complete a limited master planning process that explored potential uses, design options, and phasing for buildout. This report documents that planning effort.

The Jones Edmunds Team conducted preliminary investigations at the site to characterize existing conditions, identify necessary modifications, and identify constraints on potential uses. The work products from the preliminary investigations will support the City's public stakeholder outreach. The preliminary investigations included the following:

- Discussions with City staff (Attachment 1).
- Site surface water and wetland delineation.
- Utility, tree, and topographic survey (Attachment 2).
- Geotechnical investigation at the building (Attachment 3).
- Site visits for landscape, architectural, structural, and building system assessments (this report).

The Team used the results of the preliminary investigations to develop the following:

- Conceptual future site layout (Attachment 4).
- Conceptual master plan poster (Attachment 5).
- Conceptual building renovation plan (Attachment 6).

WSPP intends to use these materials to support public outreach and development of the park improvement plan.

1 BACKGROUND

The City of Gainesville Wild Spaces and Public Places (WSPP) identified a need to renovate the Boulware Springs Nature Park and historic Water Works building. The nature park is one of the most popular nature parks in the City due to its proximity to the Gainesville-Hawthorne trail. The water works building is listed on the National Register of Historic Places but is currently vacant and has been vandalized.

WSPP wants to better integrate the nature park, historic building, parking area, and trailhead to improve the park entry and overall experience, enhance the springs area, and address stormwater and erosion issues. WSPP also intends to renovate the building to return it to a condition suitable for multiple uses such as rental for meetings and events and use as an educational facility. The building will be managed by the City's Parks Department and the property will be managed by the City's Nature Operations Department (NOD).

The Jones Edmunds team worked with City Staff to complete a limited master planning process that explored potential uses, design options, and phasing for buildout. This report documents that planning effort.

2 PRELIMINARY DESIGN GOALS AND OUTREACH PLAN

An initial stakeholder meeting was held to determine potential design goals and a public stakeholder outreach plan. The meeting discussion is summarized below. The meeting agenda and minutes are provided as Attachment 1.

The stakeholders identified environmental and cultural education as important elements of site use and would like to celebrate the cultural history of the Waterworks building the and the sensitive natural resources of the area. Potential users of the facilities include City Departments, area neighbors, and nature-oriented activity groups. The group anticipated that the Waterworks building will be a popular destination for weddings, dance groups, environmental groups, small classes, community gatherings or meetings, and family events once redeveloped.

There is a desire to get more of the park space activated. Additional restroom and hydration facilities will be added close to the Gainesville-Hawthorn trail trailhead. Selective vegetation removal will improve sight lines. Educational signage can be used to convey historical and cultural information. Upgrades and additions to the facilities will be consistent with the character of the Waterworks building and the surrounding nature park area.

Site operations and rentals will be performed by City Parks staff. Rental polices used at Depot Park will apply to the Boulware Springs Nature Park with modifications where needed based on the facilities and applicable codes. Public outreach will occur following completion of preliminary investigations that will better define the potential opportunities, constraints, and costs associated with upgrade scenarios. City staff plan to notify potentially interested groups and area neighbors through social media and public announcements. The primary public outreach event will be an open house meeting held near the trail head on a weekend day.

3 PRELIMINARY INVESTIGATIONS

The Jones Edmunds Team conducted preliminary investigations at the site to characterize existing conditions, identify necessary modifications, and identify constraints on potential uses. The work products from the preliminary investigations will support the City's public stakeholder outreach.

3.1 SITE CIVIL, UTILITIES, AND LANDSCAPING ASSESSMENT

Jones Edmunds performed a wetland and surface water delineation and prepared scopes of work for survey (topographic, utility, tree, and boundary) and geotechnical investigations. WSPP used the scopes to contract for these services. The resulting geotechnical report and site survey are attached to this report (Attachments 2 and 3).

Jones Edmunds and Manley Design, LLC performed site visits and reviewed existing data for Boulware Springs Nature Park. We considered facilities and features found in other City parks, current uses of Boulware Springs Nature Park and the goals and suggestions discussed with City staff at the kickoff meeting. We prepared a conceptual future site layout (Attachment 4) based on the findings and discussions. A conceptual master plan poster was then developed based on the site layout (Attachment 5).

3.1.1 SITE LAYOUT

The existing Boulware Springs Nature Park site layout consists of discrete elements developed at different times and for different purposes. The site lacks overall cohesiveness and connectedness.

3.1.1.1 Roadways and Parking areas

Boulware Springs Nature Park currently has two entrances that lead to separate, adjacent, paved and unpaved parking areas – a northern one closer to the Gainesville-Hawthorn Trail trailhead, the other closer to the Waterworks building. The paved parking areas are connected by a walkable trail; however, vegetation obscures the view between the two areas. The separate access creates confusion for visitors. During a site visit on October 18, 2021 we observed a park user park near the Waterworks building, unload a bike, and pedal towards the trailhead. They returned within about five minutes to load their bike back in their car and drove around to the other parking lot which is closer to the trailhead.

The trailhead parking area was developed in 1991 and consists of a paved parking area with an unpaved equestrian parking area occasionally used for overflow parking. The paved parking area contains 26 parking spaces, two of which are American with Disabilities Act (ADA) designated parking spaces. The equestrian parking area does not currently appear to be used by the equestrian community. Discussion at the kickoff meeting included speculation that equestrian use decreased as the Gainesville-Hawthorn Trail use increased following paving of the Trail. The trailhead parking area fills to overflowing during some events held at the park.

It is not known when the Waterworks access and parking area was developed. Stormwater is eroding the access road base and causing the road edge to crack in places along the northern edge. The guard rail along this section is too low. The paved parking area consists of two separate sections. The eastern section contains eight spaces, and the western section

contains four paved spaces and four unpaved spaces. There is a separate ADA designated parking space closer to the Waterworks building. This parking area has uneven and awkward grades and was likely not designed as a public access parking area.

Recommendations

- Improve overall site access and connectivity by connecting the two parking areas to create a loop.
- Reconfigure the southern Waterworks access to create a more defined entry and drop-off area and improve traffic flow. This could include a new parking area close to the street in the flat open area where the caretaker house was.
- Add a curb and potentially a flume to direct stormwater along the northern edge of the existing access drive.
- Replace the guardrail along the northern edge of the existing access drive.
- Reconfigure the existing Waterworks parking are to create a single drive-through parking area with additional parking spaces.
- Create additional parking spaces at the trailhead by paving the existing equestrian parking area. This paved area could serve as part of the connection to the Waterworks parking area.

3.1.1.2 Stormwater Control

The trailhead access road does not have stormwater treatment provided. The trailhead parking area drains to a stormwater treatment area. This treatment area could potentially accommodate the stormwater treatment requirements if the equestrian parking area is paved. The edge of the parking area adjacent to the stormwater treatment area is eroding.

The Waterworks access road and parking area do not receive stormwater treatment before draining into a wetland area north of the access road. That wetland area drains into the spring pool adjacent to the Waterworks via a pipe that runs beneath the Waterworks building. This stormwater discharge from the parking lot and wetland is a potential source of sediment in the spring pool.

The Waterworks building was apparently constructed with minimal stormwater controls. Stormwater runoff from the adjacent eastern slope appears to saturate the ground along the east side of the Waterworks building, which may be affecting the paint on the building and internal moisture. Runoff from the eastern side of the building appears to be causing erosion as it routes itself overland around the southeastern corner of the building and into the spring pools.

Recommendations

- Provide stormwater treatment for the Waterworks parking area using the downhill portion of the existing parking area to intercept water before it discharges into the wetland.
- Consider adding a French drain to intercept runoff and seepage running towards the building from the slope east of the building and route the water around to the south of the building in a controlled and non-erosive way. The drainage from the parking lot could potentially be routed through the French drainpipe and avoid routing it under the Waterworks building.

3.1.1.3 Picnic areas and Landscaping

There are currently the following picnic areas at the site:

- Trailhead pavilion
- Near the southern entrance on former shuffleboard courts
- Waterworks Building pavilion

The Trailhead pavilion appears to be the most heavily used, especially during special events such as running and biking events starting at the trailhead. This pavilion abuts the natural park area that is being restored. Park staff indicated that protection of the natural area is important and that occasionally event participants encroached into the natural area.

The picnic area near the southern entrance appears to be underutilized – potentially because it is somewhat disconnected from the rest of the park area with no connecting walkways.

The Waterworks Building pavilion appears to be frequently used and could potentially be expanded. The slope between the Waterworks pavilion and the spring pools is eroding, covered with weedy vegetation, and is a potential fall risk. The Waterworks Building pavilion and parking area is not visible from the Trailhead pavilion and parking area due to presence of relatively low-quality underbrush vegetation. Clearing some of the underbrush and improving the walkway connectivity between the Trailhead pavilion and the Waterworks Building would likely increase foot traffic and visits to the building.

Recommendations

- Clear the non-native and weedy vegetation between the parking areas to improve sight lines and visibility between the Trailhead and the Waterworks building parking areas.
- Consider adding a second pavilion at the Trailhead and moving the existing welcome sign.
- Consider reconfiguring the Waterworks pavilion to improve viewing and create a photogenic viewshed.
- Consider terracing the slope adjacent to the spring pools to mitigate erosion and provide protected areas for vegetation planting.
- Consider adding a playground in the flat area north of the spring pools.

3.2 Building Structural Assessment

During the initial stakeholder meeting and site visit in June 2022 Monrad Thue, P.E. of GSE, Inc. visually assessed the Waterworks building for general structural integrity, and to identify deficiencies or signs of compromised structural integrity. He made the following observations:

- Cracking was observed within the perimeter concrete masonry unit (CMU) walls on the west side of the building near the pond area. The cracks are considered cosmetic at this time but need to be filled and properly maintained by park staff. This cracking is due to settlement related movement that should be evaluated by a geotechnical engineer. Improvements to the soils in this area are most likely required to stabilize these soils and mitigate further settlement.

- The overall condition of the CMU walls is good.
- The roof framing was observed from the floor level and appears to be in good condition. Due to the height of the roof above finished floor, GSE recommends closer observations to confirm the wood has no age-related deterioration, and that connections are in good condition.
- The team discussed modifying or eliminating the main interior wall running east-west. Eliminating this wall is not recommended by GSE, and modifications will require significant retrofitting/reinforcing of the wall. The existing double door opening could potentially be expanded to encompass the adjacent single doorways and open the connection between the adjacent spaces. Reinforcing elements would need to be added to the wall to enable this kind of modification.

GSE recommended consideration of performing the following structural investigations:

- A geotechnical investigation should be performed along the west side of the building to determine the type and condition of soils in the area where settlement is apparent. This investigation will most likely include soil borings, hand augers, test pits, or a combination of some or all of these.
- Access to the roof framing with a ladder or lift is recommended to assess the condition of the bolted joints and tie-downs, better assess the condition of the wood, and to remove and observe/test a representative sample of bolts used in connections.

3.3 Building Condition and Architectural Assessment

Michael Gilfilen and Anna Zamolodskaya of Studio MJG attended the June 2022 site visit and building review. They identified pertinent architectural code, guidelines, and requirements to be followed for restoration. They also identified existing issues relative to the code, guidelines, and requirements.

Based on the 2020 Florida Building Code chapter 12 This is a historic structure and any repairs, alterations, restorations, changes of occupancy, additions and relocations shall be guided by the recommended approaches in rehabilitation set forth in the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.

Based on the 2020 FBC Building Code it is our understanding that this structure would be used as a location for corporate or private events. This use would qualify as an Assembly A-2 occupancy.

Based on the A-2 occupancy the restrooms will need to be renovated to meet the 2020 FBC – Plumbing Code fixture counts.

The users requested an addition of a "Brides Room" to better meet the needs of potential wedding rentals.

The existing kitchen is in very poor condition. We recommend all casework and equipment be demolished and a new warming kitchen be constructed to better facilitate future events within the space.

The exterior of the building appears to be double or triple width masonry construction. The state of the building envelope is questionable. The exterior windows appear to be wood

framed with single panel glazing. The roof structure and metal roofing is visible from the interior of the building. No roof insulation is visible. Based on the 2020 FBC Energy Code this structure is historic and is exempt from complying with this section of the code.

Studio MJG prepared a conceptual building renovation plan (Attachment 6) based on their findings and discussions with City staff during the June 2022 site and building visit. This conceptual plan includes two options for reconfiguring the restroom area. Both options contain the following items based on discussions with City staff:

- Widening the connecting doorway openings between the main meeting space and the smaller space near the restrooms.
- Creating a changing area for use during weddings or other functions.
- Updating the kitchen area.
- Creating a storage area where the pumps are currently housed.

3.4 BUILDING SYSTEMS ASSESSMENT

During the initial stakeholder meeting and site visit in June 2022 Kevin Spellicy of Campbell Spellicy Engineering assessed the systems within the Waterworks building. He made the following observations and recommendations:

The existing electrical service infrastructure for the building is functional but very old. Some newer components exist, but in general the service will need to be replaced along with any major renovation since the equipment is beyond its economic service life. Additionally, the existing electrical equipment is very challenging to find breakers for and likely undersized for the desired use of the building and new loads. The existing lighting is partially functional but would be replaced with newer LED technology under any renovation.

There is no existing telecom or wireless internet infrastructure present, and no internet/audiovisual/television service, which might be needed for many proposed usages of the building.

The existing HVAC systems are residential split DX units which are well past their economic service life and likely underperforming. Any new use of the building will require new systems, which should include the necessary outside air (ventilation) capabilities necessary for large assembly usages with capability for humidity control. The specifics of any envelope upgrades (weather sealing, insulation values, new glazing) would determine the final system type and sizing. Insulation could be added at the time of roof replacement if the roof is replaced as part of the renovations. Paint peeling on the existing wooden roof ventilation stack was observed from the ground. Wood replacement may be required. There are sections of exposed ductwork that could be reused, but the extent of reuse would be heavily driven by the final architectural layout and unit locations.

The existing plumbing services appear to be functional, but the condition of the existing underground sanitary piping and domestic water service infrastructure/well would need to be confirmed prior to reuse with any new function. The existing restrooms would likely be renovated/reconfigured, which would necessitate new fixtures and piping modifications. The existing small kitchen space has sufficient services for reuse as a small catering kitchen. All existing above-grade piping would be targeted for replacement due to its age, with new

branches as required for additional fixtures required such as water coolers, hose bibbs, and any other site water needs.

The building does not currently have a fire suppression sprinkler system. We do not anticipate any of the proposed occupancies/usages triggering a need to add sprinklers to the building.

Attachment 1

Stakeholder Meeting Agenda and Minutes

MEETING AGENDA

PROJECT:	Wild Spaces & Public Places Boulware Springs Nature Park Planning
PROJECT NO.:	07100-038-01
MEETING DATE:	June 22, 2022
SUBJECT:	Kickoff Meeting
PARTICIPANTS:	City of Gainesville – Betsy Waite, Linda Demetropoulos, Cully Lord, Don Musen, Tiffany Coogan, Jody Romani, Peter McNiece, David Risor, Leslie Ladenhorf, Roxy Gonzalez Jones Edmunds – Alan Foley, Amy Godden Manley Design – Elisabeth Manley Studio MJG – Michael Gilfilen, Anna Zamolodskaya

1. **Introductions**

2. **Project Objective** – Complete a limited master planning process for the Boulware Springs Nature Park to explore potential uses, design options, and phasing for buildout.

3. **Meeting Objective** – Review the site and building. Determine potential design goals and a public stakeholder outreach plan.

4. **Project Scope and Schedule**
   - Task 1 – Preliminary design goals and outreach plan (20 days).
   - Task 2 – Preliminary investigations (90 days).
     - Wetland and surface water delineation.
     - Topographic, utility, tree, and boundary survey scope preparation.
     - Geotechnical assessment scope preparation.
     - Site civil, utilities, and landscaping assessment.
     - Building structural assessment.
     - Building condition and architectural assessment.
     - Building systems assessment.
   - Task 3 – Master planning and public outreach (30 days).

5. **Design Goals and Outreach Plan**
   - Desired end uses and user groups (e.g., trail users, meetings, educational programs).
     - Site requirements for utilities, bathrooms, and vehicle types.
     - Frequency of use for different uses/users.
     - Compatibility between uses.
   - Potential stakeholders and representatives to engage and methods of engagement.

6. **Site and Building Tour**

7. **Discussion and Next Steps**

Meeting Minutes

Note – action items in **bold**.

General Use Discussion

1. All agreed that the unique feature about this site is importance of the Waterworks building and equipment in the history of Gainesville's development. Proposed recreational uses should be resource-based, considering both the cultural resources of the Waterworks building and the natural resources of the Hawthorne Trail trailhead and environmentally sensitive spring run at the Waterworks building.
2. Linda noted that some of the City property was purchased with grants that may have stipulations on property use or modifications. **City staff to review language for grants used to purchase the property.**
3. The following potential users were discussed:
    a. City Departments – using the building as a meeting space; potentially for events like annual awards.
    b. Area neighbors – there is a desire for the park to have a positive economic impact in the area.
        i. Rental by the public for various events like baby showers, birthdays, and weddings.
        ii. Single day events such as 5K runs – the space is already being used for this. Some previous events highlighted issues to be addressed – such as defining the maximum number of users allowable under the Florida Building Code. This will be based factors including the building area, number of parking spaces, and restroom fixture count.
    c. Nature oriented activity groups – e.g. Kids in the Woods, summer camps, Scouts.
        i. It was suggested that nature uses and policies be coordinated with the State Park.
4. Environmental and cultural education will be important at this site. The City would like to continue its partnership with UF regarding programming related to these items. Signs with QR codes would also be helpful. It is anticipated that school groups will frequent the site. Team to look to information at the Mattheson Museum for historical information about the Waterworks facility.
5. Food vending via machine or concession was discussed.
    a. The financial viability of a private vendor such as a café was discussed. Based on experiences at Depot Park, it is anticipated that a food vendor at this site would likely not be able to cover costs from food sales alone.
    b. Concerns with noise from generators, litter from customers, and general staff management needs led to the recommendation of not allowing food trucks nor vending machines at this site. Only water (ideally chilled) will be provided via water fountain(s) and bottle filling station(s).
6. **Team to check the Fire Marshall standards and other possible City regulations and requirements for event sizes.**
7. Site operations and rentals will be performed by City Parks staff – sharing staff with Depot Park.
8. Rental policies used at Depot Park will carry over to Boulware Springs Nature Park with modifications where needed based on the facilities and codes.

Site Discussion

9. Betsy pointed out that there are a number of underutilized areas within the Boulware Springs and Trailhead sites that could be redeveloped more efficiently to address existing issues such as erosion control and stormwater while also providing needed resource-based recreation. Don reminded the group that existing improvements at both sites were developed a while ago (e.g., shuffleboard courts), so the team should evaluate what existing items are still needed and fit the proposed resource-based strategy.
10. Parking.
    a. Some previous large events held on this site resulted in undesired impacts with parking in natural areas. There are 80 possible parking spaces, including within the equestrian area. If no additional parking will be provided, then event size should be based on this parking capacity.
    b. The existing equestrian parking area was discussed. More research is needed to determine if the Hawthorne Trail is still an appealing destination for riders, given the trails popularity/heavy use and the proximity of the equestrian trail to the paved trail for much of the route. If it is determined that the trail is a wanted destination for equestrian users, then the Working Group (client plus design team)

should evaluate the existing equestrian parking area to determine what is needed to create an appealing and safe transition space that meets anticipated demand. If it is determined that the trail is not a preferred equestrian destination, then the Working Group should evaluate how to best repurpose the existing equestrian parking area.

   c. **City and Team to determine means of outreach to equine groups to determine if the equestrian parking area is still being used and desirable.**

11. Leslie recommended that if additional pavilions or structures are needed to support proposed programming, then those should emulate the architectural character of the existing Waterworks building.
12. The group reviewed the trailhead area. It was recommended that the paved trail extension north of the equestrian parking area could be removed if a new proposed paved or stabilized/ADA trail is added from the trailhead to the Waterworks parking area. This 'connector trail' is needed to provide ADA access between these parking areas; however, the existing trail is an indirect route between the trailhead and building and trail traffic has created a more direct alternative trail.
13. A prefabricated restroom (CXT 'Cortez double flush toilet building') is desired at the Trailhead. Include a chilled water bottle filler and pet drinking fountain, if possible. The location of the proposed restroom is not yet known and will be determined as part of the conceptual site layout.
14. A bike repair station was suggested for placement at the trailhead.
15. Educational signage could be added along the proposed connector trail to help tie the two sites together and provide educational opportunities along a main use area. Lighting should be able to be controlled by a photocell that can be overrun by staff during events. A webcam may be needed at the restroom. The trailhead's hours will remain dawn to dusk.
16. Selective tree and underbrush removal is needed along this proposed trail to open sight lines for better general visibility, use, and safety. Lighting is likely also needed along this proposed trail given the trailhead's use as an overflow parking area for evening events for the Waterworks building. Possible utility connections were discussed including water and wastewater to the proposed restroom and hose bibs at the existing pavilion. A new grill is desired at the pavilion.
17. Some trees were already marked by City staff for trimming or removal. Some trees in the picnic area to the east of the building will be removed to provide GRU access for installation of a new light.
18. Linda requested the placement of fencing or some form of demarcation to prevent people from parking in the natural area adjacent to the parking lot.
19. The group reviewed the spring run area. Sedimentation from stormwater outfalls is an issue. Jody and Don reviewed existing stormwater connections and recent stormwater improvements and maintenance by GRU, including creation of an expanded swale along SE 15th St. at the trailhead entry drive. Suggestions were made to reroute some of the proposed stormwater conveyance to address sedimentation and erosion issues. Erosion around the spring run area was noted. The group discussed the possibility of terracing the embankment with low retaining/seawalls as one solution and to provide an amphitheater type space oriented toward the back of the Waterworks building.
20. The old caretaker area was discussed. This area is cleared, relatively flat, visible from SE 15th St., and has existing utility service. It could be considered for future amenities.
21. GRU recently upgraded existing drive lighting along the Boulware Springs entry drive and parking area to LED lights.
22. GRU mows and generally maintains the site and will continue to do so until Oct. 2022, at which time it will be passed to the City.
23. The deck area has deteriorated to the point of being closed because of safety concerns. The deck area needs to be repaired.
24. The railings around the stairway and deck are not compliant with current code and should be replaced. A powder coated metal would likely hold up better and would be more consistent with the character of the building.

Building Discussion

25. Possible uses of the Waterworks building were discussed. Alan pointed out a comparable example of the St. Augustine Waterworks building on San Marco Avenue that has been redeveloped as a theater and community meeting space. It is anticipated that the Waterworks building will be a popular destination for weddings, dance groups, environmental groups (the Springs Institute group was mentioned), small classes and community gatherings or meetings, or family events once redeveloped. The appeal of the building as a photo destination was discussed.
26. Possible outdoor spaces to support inside events were discussed including the back deck area. The team should plan for multiple events of separate groups possibly going on simultaneously and how to best layout proposed elements to successfully accommodate this situation. An exterior pavilion and potentially an altar or space that could be used as an altar would be beneficial for wedding rentals.
27. Roxy suggested reconfiguring the openings in the wall separating the large northern room from the deck entry area to create a larger connected space. Monrad noted that it may be possible to enlarge the opening, thought the wall likely provides wind load support.
28. The bathrooms are small and limiting the building capacity (two single-use restroom facilities).
29. The space between the bathrooms and the larger room could be reconfigured to better use the space. The interior stairway on the east side of the building appears to be a recent modification and could be removed to open more space. A bridal room could be created in this area.
30. The kitchen could be reconfigured to be a catering preparation space, which would require only half the existing cabinets and counter space.
31. There is currently no roof insulation – just metal sheathing on the trusses. This led to a discussion of the building envelope and potential for interior condensation on the windows. Ideally insulation could be added as part of the roof assembly above the trusses to keep the open look and feel.
32. The existing windows are single pane and some of them need to be replaced.
33. It was suggested that the pump equipment be removed from the pump room and placed somewhere outside as an exhibit. Relocating the pumps would increase their visibility and would free up storage space for the building.

Attachment 2

Geotechnical Report

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF A GEOTECHNICAL SITE EXPLORATION

BOULWARE SPRINGS IMPROVEMENTS GAINESVILLE, ALACHUA COUNTY, FLORIDA

GSE PROJECT NO. 15752

Prepared For:

WILD SPACES & PUBLIC PLACES | CITY OF GAINESVILLE

OCTOBER 2022

GSE Engineering & Consulting, Inc.

October 7, 2022

Betsy Waite, P.E., CPRP
Director
Wild Spaces & Public Places | City of Gainesville
12 SE 1st Street
Gainesville, Florida 32601

Subject: Summary Report of a Geotechnical Site Exploration
Boulware Springs Improvements
Gainesville, Alachua County, Florida
GSE Project No. 15752

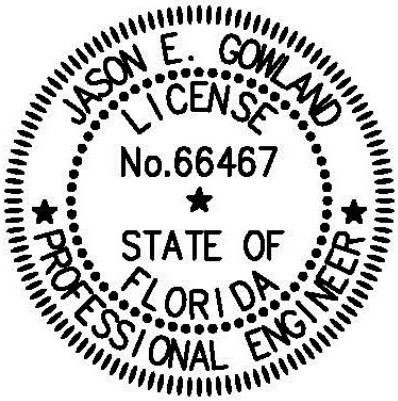
GSE Engineering & Consulting, Inc. (GSE) is pleased to submit this geotechnical site exploration report for the above referenced project.

Presented herein are the findings and conclusions of our exploration, including the geotechnical parameters and recommendations to assist with building foundation, foundation stabilization, retaining wall, pavement, and stormwater management designs.

GSE appreciates this opportunity to have assisted you on this project. If you have any questions or comments concerning this report, please contact us.

Sincerely,

GSE Engineering & Consulting, Inc.



This item has been digitally signed and sealed by

on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Kevin P. Fisher, E.I.
Staff Engineer

Jason E. Gowland, P.E.
Senior Engineer
Florida Registration No. 66467

KPF / JEG: hmp
Q:\Projects\15752 Boulware Springs Improvements\15752.docx

Distribution: Addressee (1 - Electronic)
File (1)

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
(352) 377-3233 Phone ◆ (352) 377-0335 Fax
www.gseengineering.com

TABLE OF CONTENTS

LIST OF FIGURES

Figure

1.0 INTRODUCTION

1.1 General

GSE Engineering & Consulting, Inc. (GSE) has completed this geotechnical exploration for the proposed Boulware Springs Improvements located in Gainesville, Alachua County, Florida. This exploration was performed in accordance with GSE Proposal No. 2022-406 dated August 12, 2022. The City of Gainesville authorized our services on August 22, 2022 with Purchase Order No. PO-002196-0.

1.2 Project Description

We understand the City of Gainesville Wild Spaces and Public Places (WSPP) identified a need to renovate the Boulware Springs Nature Park and historic Water Works building. The nature park is one of the most popular nature parks in the City due to its proximity to the Gainesville-Hawthorne trail. The water works building is listed on the National Register of Historic Places but is currently vacant and has been vandalized.

WSPP wants to better integrate the nature park, historic building, parking area, and trailhead to improve the park entry and overall experience, enhance the springs area, and address stormwater and erosion issues. WSPP also intends to renovate the building to return it to a condition suitable for multiple uses such as rental for meetings and events and use as an educational facility.

The building and property are currently owned by Gainesville Regional Utilities (GRU) and managed by the City of Gainesville's Nature Operations Department (NOD). GRU plans to transfer the property and building to the City of Gainesville for continued management by the City and NOD.

Mrs. Amy L. Goodden, PE, ENV SP with Jones Edmunds (JE) provided information about the project and site plans illustrating the locations of the proposed improvements and requested boring locations and depths.

A recent aerial photograph of the site was obtained. The site plan and aerial photograph were used in preparation of this exploration and report.

1.3 Purpose

The purpose of this geotechnical exploration was to determine the general subsurface conditions, evaluate these conditions with respect to the proposed construction, and prepare geotechnical parameters and recommendations to assist with building foundation, foundation stabilization, retaining wall, stormwater management, and pavement designs.

2.0 FIELD AND LABORATORY TESTS

2.1 General Description

The procedures used for field sampling and testing are in general accordance with industry standards of care and established geotechnical engineering practices for this geographic region. This exploration consisted of performing one (1) Standard Penetration Test (SPT) boring to a depth of 40 feet below land surface (bls) as close as possible to the existing water works building, two (2) SPT borings to depths of 15 feet bls within the proposed restroom building location, four (4) auger borings to depths of 5 feet bls within the proposed pavement/roadway areas, three (3) auger borings to depths of 15 feet bls within the proposed stormwater management facility, and three (3) auger borings to depths of 10 feet bls near the slope adjacent to the spring pool/retaining wall.

The soil borings were performed at the approximate locations as shown on Figure 2. The borings were located at the site using the provided site plan and obvious site features as reference. The boring locations should be considered approximate. The soil borings were performed from September 19 through 27, 2022.

2.2 Auger Borings

The auger borings were performed in accordance with ASTM D1452. The borings were performed with flight auger equipment that was rotated into the ground in a manner that reduces soil disturbance. After penetrating to the required depth, the auger was retracted and the soils collected on the auger flights were field classified and placed in sealed containers. Representative samples of each stratum were retained from the auger boring. Results from the auger borings are provided in Section 5.1.

2.3 Standard Penetration Test Borings

The soil borings were performed with a drill rig employing flight auger and mud rotary drilling techniques and Standard Penetration Testing (SPT) in accordance with ASTM D1586. The SPTs were performed continuously to 10 feet and at 5-foot intervals thereafter. Soil samples were obtained at the depths where the SPTs were performed. The soil samples were classified in the field, placed in sealed containers, and returned to our laboratory for further evaluation.

After drilling to the sampling depth and flushing the borehole, the standard two-inch O.D. split-barrel sampler was seated by driving it 6 inches into the undisturbed soil. Then the sampler was driven an additional 12 inches by blows of a 140-pound hammer falling 30 inches. The number of blows required to produce the next 12 inches of penetration were recorded as the penetration resistance (N-value). These values and the complete SPT boring logs are provided in Section 5.2.

Upon completion of the sampling, the boreholes were abandoned in accordance with Water Management District guidelines.

2.4 Soil Laboratory Tests

The soil samples recovered from the soil borings were returned to our laboratory, and examined to confirm the field descriptions. Representative samples were then selected for laboratory testing. The laboratory tests consisted of twelve (12) percent soil fines passing the No. 200 sieve determinations, twelve (12) natural moisture content determinations, four (4) Atterberg Limits tests, and four (4) constant head hydraulic conductivity tests. These tests were performed in order to aid in classifying the soils and to further evaluate their engineering properties. The laboratory tests are provided in Section 5.3.

3.0 FINDINGS

3.1 Surface Conditions

Mr. Kevin P. Fisher, E.I. with GSE visited the site on September 1, 2022 to observe the site conditions and mark the boring locations.

The site is a developed nature park with parking lots, trails, and existing buildings. The site is bordered by SE 15th Street to the east.

The topography at the site is gently to moderately sloping down toward the spring pool in the southeast from the north. Regional topography is gently sloping towards the south from the north. The Alachua County Growth Management website indicates the ground surface elevations at the site are near elevations 82 to 114 feet[1].

3.2 Subsurface Conditions

The locations of the auger and SPT borings are provided on Figure 2. Complete logs for the borings are provided in Sections 5.1 and 5.2. Descriptions for the soils encountered are accompanied by the Unified Soil Classification System symbol (SM, SP-SM, etc.) and are based on visual examination of the recovered soil samples and the laboratory tests performed. Stratification boundaries between the soil types should be considered approximate, as the actual transition between soil types may be gradual.

The auger borings located in the proposed stormwater management facility indicate the soils across these areas are relatively consistent. The auger borings initially penetrated 12 to 15 feet of a near-surface sandy stratum consisting of sand with silt (SP-SM). This was underlain by clayey sand and clay (SC, CL/CH) to the explored depths of 15 feet bls in soil boring P-1.

The auger borings located in the proposed pavement/roadway areas generally encountered a near-surface sandy stratum consisting of poorly graded sand and sand with silt (SP, SP-SM) to the explored depths of 5 feet bls. Soil boring R-1 encountered 1 feet of limerock overlying the sandy soils.

The auger boring located at the top of the slope adjacent to the spring pool/retaining wall encountered a near-surface sandy stratum consisting of sand with silt (SP-SM) to a depth of 6.5 feet bls. This was underlain by sandy clay and clay with sand (CL/CH) to the explored depth of 10 feet bls.

The auger boring located at the bottom of the slope adjacent to the spring pool/retaining wall encountered very clayey sand with trace limestone (SC/CL) to the refusal depth of 3.5 feet bls.

The auger boring located between the water works building and the spring pool/retaining wall encountered silty sand with rocks (SM) to the refusal depth of 2 feet bls.

The SPT borings within the proposed restroom building location generally encountered a sandy stratum consisting of poorly graded sand, sand with silt, and sand with clay (SP, SP-SM, SP-SC) to the explored depths of 15 feet bls. This sandy stratum in SPT borings B-1 and B-2 is generally in a very loose to loose condition with N-values ranging from 4 to 9 blows per foot.

[1] Alachua County Growth Management website, http://mapgenius.alachuacounty.us/.

The SPT boring located adjacent to the existing water works building generally encountered 12.5 feet of sand with silt, silty sand, and silty clayey sand (SP, SM, SM/SC) with wood debris interbedded in the silty sand from 6 to 7.5 feet bls. This was underlain by clayey to very clayey sand and clay (SC, SC/CL, CL/CH) to the explored depth of 40 feet bls.

The surficial sand with silt, silty sand, and silty clayey sand (SP-SM, SM, SM/SC) is generally in a very loose to loose condition with N-values ranging from 2 to 7 blows per foot. The underlying clayey to very clayey sand (SC, SC/CL) is generally in a medium dense to very dense condition with N-values ranging from 24 to 65 blows per foot. The clay (CL/CH) is generally in a hard to very hard condition with N-values ranging from 48 to 73 blows per foot.

The groundwater table was encountered in the auger and SPT borings at depths ranging from 1.5 to 9.5 feet bls at the time of our investigation.

3.3 Review of Published Data

The site is mapped as one soil series by the Soil Conservation Service (SCS) Soil Survey for Alachua County[2]. The following soil description is from the Soil Survey.

Lake sand, 0 to 5 percent slopes **-** This is a nearly level to gently sloping, excessively drained soil that has sandy texture to a depth of more than 80 inches. Slopes are nearly smooth to convex. The soil is in irregularly shaped areas on the gently rolling uplands. The individual areas are both small and large in size and range from about 20 to 300 acres.

Typically, the surface layer is dark grayish brown sand about 8 inches thick. The underlying layer is sand to a depth of 82 inches or more. The upper 33 inches is yellowish brown, the next 28 inches is strong brown, and the lower 13 inches is yellowish brown and has thin streaks of light gray, clean sand grains.

Included with this soil in mapping are small areas of Arredondo, Candler, Gainesville, and Tavares soils. Also included are a few small areas of Lake soils that have 5 to 8 percent slopes. About 10 acres mapped as this soil along the Santa Fe River is occasionally flooded. Total included areas are about 15 percent or less.

Available water capacity in this Lake soil is very low to low. Permeability is rapid to very rapid. Organic matter content and natural fertility are low. Surface runoff is very slow. The water table is more than 72 inches below the surface.

3.4 Laboratory Soil Analysis

Selected soil samples recovered from the soil borings were analyzed for the percent soil fines passing the No. 200 sieve, natural moisture content, Atterberg Limits, and hydraulic conductivity. Samples selected for laboratory testing were collected at depths ranging from 0.5 to 20 feet bls. These tests were performed to confirm visual soil classification and evaluate their engineering properties. The complete laboratory report is provided in Section 5.3.

[2] Soil Survey of Alachua County, Florida. Soil Conservation Service, U.S. Department of Agriculture.

The laboratory tests indicate the tested soils consist of sand with silt, clayey sand, very clayey sand, and clay with sand. The tested sand with silt (SP-SM) contains approximately 5.2 to 9.5 percent soil fines passing the No. 200 sieve with natural moisture contents of about 4.3 to 6.1 percent. The tested clayey sand (SC) contains approximately 20 percent soil fines passing the No. 200 sieve with a natural moisture content of about 15 percent. The tested very clayey sand (SC/CL) contains approximately 33 to 42 percent soil fines passing the No. 200 sieve with natural moisture contents of about 18 to 24 percent. The tested clay with sand (CL/CH) contains approximately 74 percent soil fines passing the No. 200 sieve with a natural moisture content of about 36 percent.

Atterberg Limits tests indicate the tested very clayey sand (SC/CL) has Liquid Limit (LL) values of 38 to 47, Plastic Limit (PL) values of 16 to 17, and Plasticity Index (PI) values of 22 to 31. This corresponds to a material with low (LL < 50 and PI < 25) to marginal ($50 \leq LL \leq 60$ and $25 \leq PI \leq 35$) potential for expansive behavior[3]. The tested clay with sand (CL/CH) has an LL value of 111, PL value of 36, and PI value of 75. This corresponds to a material with high potential (LL > 60 and PI > 35) for expansive behavior.

Although not tested, the sandy clay and clay are expected to have a high potential for expansive behavior. It is our experience that clay-rich soils in this area of Alachua County having more than about 40 percent soil fines passing the No. 200 sieve have a high potential for expansive behavior.

The constant head hydraulic conductivity test results indicate the near-surface sand with silt (SP-SM) has hydraulic conductivity values of 11 to 21 feet per day. Tests were not conducted on the deeper clayey sand due to the limitations of the test method on soils having moderate to high fines content, but these soils are expected to have permeability values at least one order of magnitude lower than the sandy soils.

[3] U.S. Department of the Army USA, 1983, Foundations in Expansive Soils, TM 5-818-7, p. 4-1.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General

The following recommendations are made based upon our understanding of the proposed construction, a review of the attached soil borings and laboratory test data, and experience with similar projects and subsurface conditions. If plans or the location of proposed construction changes from those discussed previously, GSE requests the opportunity to review and possibly amend our recommendations with respect to those changes.

The final design of a foundation system is dependent upon adequate integration of geotechnical and structural engineering considerations. Consequently, GSE must review the final foundation design in order to evaluate the effectiveness and applicability of our initial analyses, and to determine if additional recommendations may be warranted. Without such a review, the recommendations presented herein could be misinterpreted or misapplied resulting in potentially unacceptable performance of the foundation system.

The performance of site improvements may be sensitive to their post-construction relationship to site groundwater levels, seepage zones, or soil/rock characteristics exposed at final site grades. GSE recommends that use of boring information for final design of all site improvements be predicated on proper horizontal and vertical control of borings.

In this section of the report, we present our geotechnical parameters and recommendations to assist with building foundation, foundation stabilization, retaining wall, stormwater management, and pavement designs as well as our general site preparation guidelines.

4.2 Groundwater

The groundwater table was encountered in the borings at depths ranging from 1.5 to 9.5 feet bls at the time of our exploration. You should expect the seasonal high water table to be at or near the encountered water table after periods of heavy and seasonal rainfall.

4.3 Restroom Building Foundations

The soil borings near the proposed restroom building footprint indicate the soils at the site are relatively consistent. The borings generally encountered a sandy stratum consisting of poorly graded sand, sand with silt, and sand with clay (SP, SP-SM, SP-SC) to the explored depths of 15 feet bls.

Based upon the soil conditions encountered and our limited understanding of the structural loads and site grading, we recommend the building be supported by conventional, shallow strip and/or spread foundations. We recommend the shallow foundations be designed for a maximum allowable gross bearing pressure of 2,000 psf. The gross bearing pressure is defined as the soil contact pressure that can be imposed from the maximum structural loads, weight of the concrete foundations, and weight of the soil above the foundations. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

The foundations should be embedded a minimum of 18 inches below the lowest adjacent grade. Interior foundations or thickened sections should be embedded a minimum of 12 inches. The foundations should have minimum widths of 18 inches for strip footings, and 24 inches for columns, even though the maximum soil bearing pressure may not be fully developed.

Due to the mostly sandy nature of the majority of the near-surface soils, we expect settlement to be mostly elastic in nature. The majority of the settlement will occur on application of the loads, during and immediately following construction. Using the recommended maximum bearing pressure, the assumed maximum structural loads, and the field and laboratory test data which we have correlated into the strength and compressibility characteristics of the subsurface soils, we estimate the total settlements of the structure to be 1 inch or less, with approximately half of it occurring upon load application (during construction).

Differential settlement results from differences in applied bearing pressures and the variations in the compressibility characteristics of the subsurface soils. For the building pad prepared as recommended, we anticipate differential settlement of less than 1/2 inch.

Post-construction settlement of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics of the bearing soils; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundation; (3) site preparation and earthwork construction techniques used by the contractor, and (4) external factors, including but not limited to vibration from off-site sources and groundwater fluctuations beyond those normally anticipated for the naturally-occurring site and soil conditions which are present.

Our settlement estimates for the structure are based upon our limited understanding of the structural loads and site grading and the use of successful adherence to the site preparation recommendations presented later in this report. Any deviation from our project understanding and/or our site preparation recommendations could result in an increase in the estimated post-construction settlement of the structure.

4.4 Water Works Building Foundation Stabilization

GSE recommends the water works building foundations be stabilized using underpinning piles. These piles are installed into the subsurface that bear on competent materials, and a steel bracket attaches the piles to the foundation. A hydraulic ram is typically used to jack the foundation against the piles, which transfers the foundation load to the pile tips. The piles are then permanently attached to the bracket, and the rams are removed.

GSE recommends helical piles be used to underpin the existing foundations. The actual locations should be confirmed in the field and adjusted as necessary. Continuous monitoring of the structure elevation should be undertaken by the contractor during the pile installation process to identify and prevent unnecessary upward movement of the structure.

GSE anticipates the depth of the underpinning piles will range from approximately 15 to 20 feet in depth and bear on very hard clay-rich soils with trace limestone. Pre-drilling may be required due to refusal conditions encountered at 2 feet in the hand auger boring adjacent to the Water Works building. An average depth of 20 feet should be assumed for cost evaluation purposes. Due to the anticipated variability in the depth to competent material, deeper and shallower piles could occur and should be anticipated. The underpinning piles need to be standard helical piles with a 2-7/8 inch outside diameter galvanized steel shaft with a 10/12 double helix configuration. These piles should be drilled to bear on competent material at depth and reach a minimum torque value of 4,000 ft-lb and produce an axial capacity of 36 kips. Alternate pile installation methods must be submitted to the geotechnical engineer for approval.

GSE recommends all underpinning operations be performed under the observation of the geotechnical engineer. The contractor should submit the proposed pile systems and proposed installation methods to the geotechnical engineer for approval.

4.5 Slope and Retaining Wall Soil Parameters

The soil borings in the area of the slope adjacent to the spring pool/retaining wall encountered relatively variable soil conditions.

Auger boring A-1 is located at the top of the slope adjacent to the spring pool/retaining wall and encountered a near-surface sandy stratum consisting of sand with silt (SP-SM) to a depth of 6.5 feet bls. This was underlain by sandy clay and clay with sand (CL/CH) to the explored depth of 10 feet bls.

Auger boring A-2 is located at the bottom of the slope adjacent to the spring pool/retaining wall and encountered very clayey sand with trace limestone (SC/CL) to the refusal depth of 3.5 feet bls.

Auger boring A-3 is located between the water works building and the spring pool/retaining wall and encountered silty sand with rocks (SM) to the refusal depth of 2 feet bls.

Based on the results of our exploration, the following soil parameters should be considered for design and construction of the slope and retaining walls. The cohesion, c, was estimated using a pocket penetrometer test on the disturbed sample.

Table 1. Soil Parameters (A-1)

Depth Range (ft)	Angle of Internal Friction (φ)	Moist Unit Weight (γ, pcf)1	Saturated Unit Weight (γ', pcf)2, 3	Cohesion (c, ksf)	Coefficient of Active Earth Pressure (Ka)	Coefficient of Passive Earth Pressure (Kp)	Coefficient of At-Rest Earth Pressure (Ko)	Hydraulic Conductivity (ft/day)
0 - 6.5	29	90	95	0	0.35	2.88	0.52	11.0 - 21.0
6.5 - 10.0	0	120	125	1.0	1.00	1.00	1.00	< 0.1

Table 2. Soil Parameters (A-2)

Depth Range (ft)	Angle of Internal Friction (φ)	Moist Unit Weight (γ, pcf)1	Saturated Unit Weight (γ', pcf)2, 3	Cohesion (c, ksf)	Coefficient of Active Earth Pressure (Ka)	Coefficient of Passive Earth Pressure (Kp)	Coefficient of At-Rest Earth Pressure (Ko)	Hydraulic Conductivity (ft/day)
0 - 3.5	34	125	130	0	0.28	3.54	0.44	< 0.5

Table 3. Soil Parameters (A-3)

Depth Range (ft)	Angle of Internal Friction (φ)	Moist Unit Weight (γ, pcf)1	Saturated Unit Weight (γ', pcf)2, 3	Cohesion (c, ksf)	Coefficient of Active Earth Pressure (Ka)	Coefficient of Passive Earth Pressure (Kp)	Coefficient of At-Rest Earth Pressure (Ko)	Hydraulic Conductivity (ft/day)
0 - 2.0	29	90	95	0	0.35	2.88	0.52	1.0 - 2.0

Notes:

1. Natural condition, above the water table.
2. Saturated condition, below the water table.
3. Submerged or buoyant unit weight = Saturated unit weight – Unit weight of water.

4.6 Flexible Pavement

Overall soil conditions encountered by our borings at this site are suitable for supporting conventional limerock base and asphalt wearing surface pavements. We have not been provided the anticipated traffic loading conditions; therefore, the following pavement component recommendations should be used only as guidelines. The below recommendations are intended to be minimums. Increasing base course and asphalt thicknesses would increase the design life of the pavement.

Surficial limerock was encountered from the ground surface to 1 feet bls at boring location R-1. Upon stripping of the pavement area, this surficial limerock can be crushed and compacted and reused if it meets gradation requirements as described in Section 4.6.2 below. A roadway grading plan is not available at this time.

4.6.1 Stabilized Subgrade

If a crushed limerock or recycled concrete base is used, we recommend a stabilized subgrade be located beneath the base. The stabilized subgrade should have a minimum Limerock Bearing Ratio (LBR) of 40, with minimum thicknesses of 6 inches for automobile parking areas and 12 inches for driveways.

The stabilized subgrade can be imported material or a mixture of imported and on-site material. If a mix is proposed, a mix design should be performed to determine the optimum mix proportions. The stabilized subgrade should be compacted to a minimum of 98 percent of the Modified Proctor maximum dry density (ASTM D1557) for soils with less than 15 percent fines content. Soils with 15 percent or greater fines content should be compacted to 100 percent of the Standard Proctor maximum dry density (ASTM D698).

4.6.2 Base Course

The base course can consist of either crushed limerock, soil cement, or recycled concrete. If you should use a soil cement base course, a stabilized subgrade is not required.

Limerock should have a LBR of at least 100, be obtained from a FDOT approved source and meet FDOT gradation requirements. The base course thickness should be a minimum of 6 inches in automobile parking areas, and 8 inches in driveway areas. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557). We recommend a minimum 24 inches separation between the bottom of the limerock base course and the estimated seasonal high-water table. If site grading does not allow for this separation, we recommend underdrains be considered.

Soil cement can consist of an imported material or a blend of the on-site soils and cement. A mix design should be performed to determine the optimum cement content. We recommend the soil cement have a minimum 28-day compressive strength of 500 psi. Soil cement can be blended off-site (in a pug mill) or on site. Soil cement pills should be cast from each day's production to verify the recommended compressive strength has been achieved at 28 days. We recommend the soil cement base course be a minimum of 8 inches thick throughout the project. We recommend a minimum 18 inches separation between the bottom of the soil cement base course and the estimated seasonal high water table. If site grading does not allow for this separation, we recommend underdrains be considered.

Recycled concrete should have an LBR of at least 150, be obtained from a FDOT approved source and meet FDOT gradation requirements. The base course thickness should be a minimum of 8 inches. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557). We recommend a minimum 12 inches separation between the bottom of the recycled concrete base course and the estimated seasonal high water table. If site grading does not allow for this separation, we recommend underdrains be considered.

4.6.3 Wearing Surface

The asphalt-wearing surface should consist of an FDOT Type SP Hot Mix Asphalt mixture. For automobile parking areas, the thickness should be a minimum of 1.5 inches. For driveway areas, the thickness should be a minimum of 2 inches. The asphalt-wearing surface should consist of an SP-12.5 mix. The asphalt should be compacted to at least 95 percent of the mix design density.

The constructability of differing asphalt thicknesses may be difficult, and having a uniform 2-inch thick asphalt wearing surface may be more practical.

4.7 Rigid Pavement

Concrete pavement is a rigid pavement that results in smaller load transfers to the subgrade soils than flexible pavement. For concrete pavement subgrade, we recommend using the existing surficial sands or recommended clean sand (SP) fill, compacted to at least 98 percent of the Modified Proctor maximum dry density without additional stabilization with the following stipulations:

1. Subgrade soils must be compacted to at least 98 percent of Modified Proctor maximum dry density to a depth of at least 2 feet prior to placement of concrete.
2. The surface of the subgrade soils must be smooth and any disturbances or wheel rutting corrected prior to placement of the concrete.
3. The subgrade soils must be moistened prior to placement of concrete.
4. Concrete pavement thickness should be uniform throughout, with the exception of thickened edges (curb or footing).
5. The bottom of the pavement should be separated from the estimated seasonal high groundwater level by at least 18 inches.
6. Limerock or any other impermeable base is not suitable unless it meets the minimum recommended permeability of 10 ft/day.
7. The upper 12 inches of subgrade underlying the base course must also be “free-draining” and water that enters the base and subgrade must be allowed to seep out by gravity or if this is not possible, underdrains must be incorporated into the subgrade. A “bathtub” condition within the base/subgrade must be avoided.

Our recommendations for slab thickness for heavy-duty concrete pavements is based on a.) subgrade soils are compacted to 98 percent of the Modified Proctor maximum dry density, b.) modulus of subgrade reaction (k) of 200 pounds per cubic inch, c.) a 20-year design life, and d.) previously stated design parameters. For an anticipated heavy-duty traffic group, a minimum pavement thickness of 8 inches is recommended, using Table 3.4 from the FDOT *Rigid Pavement Design Manual*, January 2019.

We recommend using concrete with a minimum 28-day compressive strength of 4,000 pounds per square inch and a minimum 28-day flexural strength (modulus of rupture) of at least 600 pounds per square inch based on the third point loading of concrete beam test samples. Minimum control joint spacing of 15 by 15 feet is suggested. Layout of sawcut control joints should form square panels, and the depth of sawcut joint should be at least 1/4 of the concrete slab thickness (a minimum 2-inch sawcut control joint depth for the recommended 8-inch slab thickness). The joints should be sawed within six hours of concrete placement or as soon as the concrete has developed sufficient strength to support workers and equipment.

For further details on concrete pavement construction, refer to "Guide to Jointing Non-reinforced Concrete Pavements" published by the Florida Concrete and Products Associates, Inc. and "Building Quality Concrete Parking Areas", published by the Portland Cement Association.

4.8 Site Preparation

The soils at this site should be suitable for supporting the proposed construction using normal, good practice site preparation procedures. The following recommendations are our general guidelines for site preparation.

4.8.1 Stripping

Strip the construction limits and 10 feet beyond the perimeter of all grass, roots, topsoil, pavement, and other deleterious materials. You should expect to strip to depths of 12 or more inches. Deeper stripping will likely be necessary due to major root systems present at the site.

4.8.2 Dewatering

Temporary dewatering may be necessary for this project. If needed, we anticipate dewatering can be accomplished with sumps placed near the construction area, or with underdrains connected to a vacuum pump.

In any case, the site should always be graded to promote runoff and limit the amount of ponding. Localized ponding of stormwater is expected without proper grading during construction, and could render previously acceptable surfaces unacceptable.

4.8.3 Proof-Rolling

Proof-roll the subgrade with heavy rubber-tired equipment, such as a loaded front-end loader or dump truck, to identify any loose or soft zones not found by the soil borings. The proof-rolling should be monitored by a geotechnical engineer or qualified technician. Undercut or otherwise treat these zones as recommended by the geotechnical engineer in this report.

4.8.4 Proof Compaction

Compact the subgrade to a density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). The specified compaction should be obtained to a depth of 1 foot below the foundation bottoms and the existing grade prior to placing fill. Vibratory roller equipment should not be used within approximately 100 feet of existing structures. Lighter "walk-behind" compaction equipment may be used to achieve the degree of compaction.

Should clayey sand be encountered at the bearing surface, this material should be probed and visually confirmed to be unyielding in the upper 12 inches in lieu of density testing. If the foundation excavations penetrate the clayey sand, the excavation should be performed in a manner that reduces soil disturbance. Clayey sand soils (with fines content in excess of 15 percent) that are removed and replaced or appreciably disturbed need to be re-compacted to 98 percent of the Standard Proctor maximum dry density (ASTM D698).

4.8.5 Fill Placement

Imported fill placed to raise the site grades should consist of clean sand having less than 10 percent passing the No. 200 sieve. On-site soils meeting the requirements of Section 4.11 may also be used as structural fill. The fill should be placed in maximum 12-inch loose lifts that are compacted to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). If lighter "walk-behind" compaction equipment is used, this may require lifts of 4 inches or less to achieve the required degree of compaction.

4.9 Quality Control and Construction Materials Testing

It should be noted that the geotechnical engineering design does not end with the advertisement of the construction documents. As the geotechnical engineer of record, GSE is the most qualified to perform the construction materials testing that will be required for this project. The benefits of having the geotechnical engineer of record also perform the construction materials testing are numerous. If GSE continues to be involved with the project through construction, we will be able to constantly re-evaluate and possibly alter our geotechnical recommendations in a timely and cost effective manner once final design and construction techniques are developed. This often results in cost savings for the project.

We recommend performing compaction testing beneath the concrete floor slab and the building foundations. We recommend one test be performed every 50 linear feet of continuous footing and every other column footing, per foot depth of fill or native material. We recommend a compaction test be performed for each 2,500 square feet of floor area or 10,000 square feet of pavement area per foot of fill or native material, or a minimum of three tests each, whichever is greater. Test all footing excavations to a depth of 12 inches at the frequencies stated above.

4.10 Stormwater Management

The soil conditions at the stormwater management facility are relatively consistent; initially penetrating 12 to 15 feet of a near-surface sandy stratum consisting of sand with silt (SP-SM). This was underlain by clayey sand and clay (SC, CL/CH) to the explored depths of 15 feet bls in soil boring P-1.

The water table was encountered in the auger borings at depths ranging from 4.4 to 6 feet bls at the time of our exploration. We anticipate the seasonal high water table to be at or near the encountered water table after periods of heavy and seasonal rainfall.

The laboratory permeability tests indicate the surficial layer of sand with silt (SP-SM) has hydraulic conductivity values of 11 to 21 feet per day. The underlying clayey sand and clay are expected to be confining soils.

Based upon our findings and test results, our recommended soil parameters for the stormwater management design in the explored areas are presented below. The recommended parameters consider the results of the permeability tests, wash 200 determinations, and our experience with these types of soils. The parameters below do not consider a factor of safety.

Proposed Stormwater Management Facility

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to 14 feet bls.
2. Unsaturated vertical infiltration rate of 10 feet per day.
3. Horizontal hydraulic conductivity equal to 14.5 feet per day.
4. Specific yield (fillable porosity) of 25 percent.
5. Average seasonal high groundwater table depth equal to 4.5 feet bls.

In areas where clay-rich soils are present at the basin bottom, we recommend these soils be undercut a minimum of 2 feet and backfilled with the on-site sands and sands with silt (SP, SP-SM) having a maximum of 12 percent soil fines passing the No. 200 sieve. The intent of this undercutting and replacement is to provide a more uniform sand "blanket" at the basin bottom that allows the migration of water to the deeper deposits of sand. This sand blanket will also reduce the potential for clay-fines leaching out of the soils when water is present in the basin that can result in a thin layer of confining type material on the basin bottom that can reduce the effectiveness of the basin.

4.11 Fill Suitability

The soils encountered at this site within the explored depths range from sands (SP) to clays (CL/CH). A discussion of the suitability for reuse as structural fill for each soil classification according to the Unified Soil Classification System (USCS) designation is provided below.

SP, SP-SM – Sands (SP) and sand with silt (SP-SM) have less than 5 percent and 12 percent soil fines passing the No. 200 sieve, respectively, and are typically well draining soils that are suitable for reuse as structural fill. The sands with silt may require moisture conditioning (drying) to make the material more workable. These soils will require stockpiling and drying before they are reused if they are excavated from below the water table.

SM – Silty sands (SM) can have between 12 percent and 50 percent soil fines passing the No. 200 sieve. Silty sands are typically non-plastic or have low plasticity, and can be reused as structural fill with precautions. Silty sands can be moisture sensitive and difficult to work and compact and can rut if the moisture content is near or above the optimum moisture content. We recommend these soils be moisture conditioned (dried) so that the moisture content during use is at or below the optimum moisture content. Aerating and exposure to the sun is typically the most effective methods of drying these soils. It may not be practical to reuse these materials during the wet season, as frequent rain showers may not allow these soils to dry to a workable moisture content. Suitable silty sands are limited to soil having less than 30 percent soil fines passing the No. 200 sieve. Silty sands with more than 30 percent soil fines are especially moisture sensitive, and are not recommended for reuse as structural fill. These soils will behave more as sandy silt, and for this reason, very silty sands having more than 30 percent soil fines passing the No. 200 sieve have been assigned a dual classification of SM/ML. Silty sand soils that are excavated from below the water table are not recommended for reuse as structural fill due to the amount of time that will be required to dry these soils to a workable condition.

SC – Clayey sand (SC) soils can have between 12 percent and 50 percent soil fines passing the No. 200 sieve. Clayey sands can have a high range of plasticity, varying from a PI of 7 or greater and plotting above the A-line to highly plastic. Friable clayey sands are typically suitable for use as structural fill with precautions. Clayey sands will be moisture sensitive and difficult to work and compact and can rut during placement if the moisture content is near or above the natural moisture content. We recommend these soils be moisture conditioned (dried) so that the moisture content during use is at or below the optimum moisture content. Aerating and exposure to the sun is typically the most effective methods of drying these soils. It may not be practical to reuse these materials during the wet season, as frequent rain showers may not allow these soils to dry to a workable moisture content. Suitable clayey sands are limited to soil having less than 30 percent soil fines passing the No. 200 sieve. Clayey sands with more than 30 percent soil fines passing the No. 200 sieve are especially moisture sensitive and are typically highly plastic, and are not recommended for reuse as structural fill. These soils will behave more as sandy clay, and for this reason, very clayey sands having more than 30 percent soil fines passing the No. 200 sieve have been assigned a dual classification of SC/CH or SC/CL. Clayey sand soils that are excavated from below the water table are not recommended for reuse as structural fill due to the amount of time that will be required to dry these soils to a workable condition.

ML, MH, CL, CH – Silts and clays are not suitable materials for reuse as structural fill.

When using on-site soils as fill materials, we recommend the silty and clayey sand soils (SM, SC) be used in the lower depths of the fill. Sand and sand with silt (SP, SP-SM) should be used in the upper portions of the fill. We recommend a minimum of 2 feet of sand (SP, SP-SM) cover the silty and clayey sand fill materials to reduce the potential for soggy surface conditions due to the low permeability characteristics of the silty and clayey sand materials.

4.12 Surface Water Control and Landscaping

Roof gutters should be considered to divert runoff away from the building. The gutter downspouts should discharge a minimum of 10 feet from the structure to reduce the amount of water collecting around the foundations. Where possible, the gutter downspouts should discharge directly into the storm sewer system or onto the asphalt paved areas in order to reduce the amount of water collecting around the foundations. Grading of the site should be such that water is diverted away from the building on all sides to reduce the potential for erosion and water infiltration along the foundation.

With respect to landscaping, it is recommended that existing and planted trees and large "tree-like" shrubbery with potential for developing large root systems be planted a minimum distance of half their mature height, and preferably their expected final height, away from the structure. The purpose of this is to reduce the potential for foundation or slab movements from the growth of root systems as the landscaping matures. Consideration should also be given to using landscaping that has a low water demand, so that excessive irrigation is not conducted around the structures.

5.0 FIELD DATA

5.1 Auger Boring Logs

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida

DATE PERFORMED 9/19/2022 **BORING NUMBER A-1**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING NE CHECKED BY KPF
▽ ESTIMATED SEASONAL HIGH 6.0 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0			(SP-SM) Brown SAND with silt
		AU 1 PS	*%PASS-200 = 5.2* *MC = 5.0* *k_h = 11 $^{ft}/_{day}$*
6.5			(CL/CH) Green and orange CLAY with sand
		AU 2	*%PASS-200 = 74* *MC = 36* *LL = 111 ; PL = 36 ; PI = 75*
9.0			(CL/CH) Green sandy CLAY
		AU 3	
10.0			Bottom of borehole at 10.0 feet.

DATE PERFORMED 9/19/2022 **BORING NUMBER A-2**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING NE CHECKED BY KPF
▽ ESTIMATED SEASONAL HIGH >3.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SC/CL) Gray and brown very clayey SAND with trace limestone *%PASS-200 = 33* *MC = 18* *LL = 38 ; PL = 16 ; PI = 22*
3.5			Bottom of borehole at 3.5 feet. *Boring terminated at 3.5 ft due to auger refusal on impenetrable material.*

(Continued Next Page)

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida

DATE PERFORMED 9/27/2022 **BORING NUMBER A-3**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING 1.5 ft CHECKED BY KPF
ESTIMATED SEASONAL HIGH 1.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0			(SM) Gray silty SAND with rocks
		AU 1	
2.0			Bottom of borehole at 2.0 feet.

Boring terminated at 2.0 ft due to auger refusal on impenetrable materal.

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida

DATE PERFORMED 9/19/2022 **BORING NUMBER P-1**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING 4.4 ft CHECKED BY KPF
ESTIMATED SEASONAL HIGH 4 ft
NOTES

DATE PERFORMED 9/19/2022 **BORING NUMBER P-2**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING 4.8 ft CHECKED BY KPF
ESTIMATED SEASONAL HIGH 4.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0			(SP-SM) Brown SAND with silt
2.5		AU 1 PS	*%PASS-200 = 7.4* *MC = 5.5* *k_h = 12 $^{ft}/_{day}$*
5.0			▼
7.5		AU 2	
10.0			
12.5		AU 3	
			12.0
			(SC) Brown clayey SAND with lenses of green clay *%PASS-200 = 20* *MC = 15*
			14.5
15.0		AU 4	(CL/CH) Green CLAY
			15.0
			Bottom of borehole at 15.0 feet.

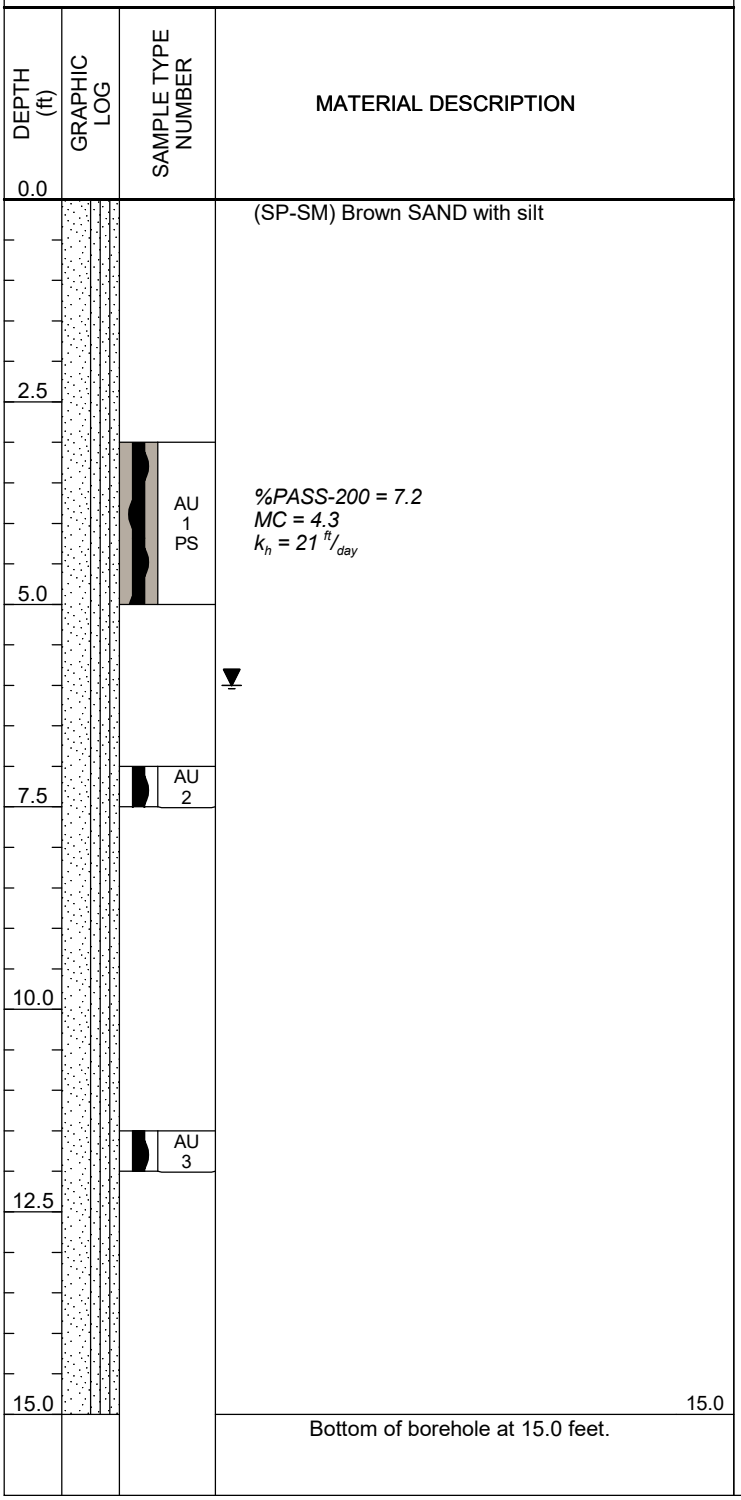
DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0			(SP-SM) Brown SAND with silt
2.5		AU 1 PS	*%PASS-200 = 8.3* *MC = 5.2* *k_h = 11 $^{ft}/_{day}$*
5.0			▼
7.5		AU 2	
10.0			
12.5		AU 3	
15.0			15.0
			Bottom of borehole at 15.0 feet.

(Continued Next Page)

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida

DATE PERFORMED 9/19/2022 **BORING NUMBER P-3**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING 6.0 ft CHECKED BY KPF
▽ ESTIMATED SEASONAL HIGH 5.5 ft
NOTES



GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida

DATE PERFORMED 9/19/2022 **BORING NUMBER R-1**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING NE CHECKED BY KPF
ESTIMATED SEASONAL HIGH >5.0 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0			LIMEROCK
1.0			(SP-SM) Brown SAND with silt
		AU 1	*%PASS-200 = 9.5* *MC = 4.9*
2.5			
5.0			Bottom of borehole at 5.0 feet.

DATE PERFORMED 9/19/2022 **BORING NUMBER R-2**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING NE CHECKED BY KPF
ESTIMATED SEASONAL HIGH >5.0 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0			(SP) Brown SAND
		AU 1	
2.5			
5.0			Bottom of borehole at 5.0 feet.

5.2 Standard Penetration Test Soil Boring Logs

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

BORING NUMBER B-1

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida
DATE STARTED 9/20/22 **COMPLETED** 9/20/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 9.5 ft
LOGGED BY WDI **CHECKED BY** KPF
▽ **ESTIMATED SEASONAL HIGH** 9.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0		(SP-SM) Very loose to loose brown SAND with silt									20 40 60 80
				SPT 1	1-2-3 (5)				8.3	6.1	
				SPT 2	3-2-2 (4)						
5				SPT 3	1-2-2 (4)						
				SPT 4	1-2-2 (4)						
				SPT 5	2-3-4 (7)						
10		▼		SPT 6	2-3-4 (7)						
15			15	SPT 7	2-3-5 (8)						
		Bottom of borehole at 15.0 feet.									

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

BORING NUMBER B-2

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida
DATE STARTED 9/20/22 **COMPLETED** 9/20/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 8.5 ft
LOGGED BY WDI **CHECKED BY** KPF
▽ **ESTIMATED SEASONAL HIGH** 8.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0		(SP-SM) Loose brown and gray SAND with silt and trace limestone		SPT 1	3-4-4 (8)				8.3	6.1	
			2.5	SPT 2	3-3-3 (6)						
5		(SP) Very loose to loose brown SAND		SPT 3	3-2-2 (4)						
				SPT 4	3-3-3 (6)						
				SPT 5	3-4-4 (8)						
10		▼		SPT 6	4-4-5 (9)						
			12								
		(SP-SC) Loose pale brown SAND with clay									
				SPT 7	2-3-3 (6)						
15			15								
		Bottom of borehole at 15.0 feet.									

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

BORING NUMBER B-3

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida
DATE STARTED 9/20/22 **COMPLETED** 9/20/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 5.0 ft
LOGGED BY WDI **CHECKED BY** KPF
▽ **ESTIMATED SEASONAL HIGH** 5.0 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0		(SP-SM) Very loose to loose brown and gray SAND with silt and trace limestone		SPT 1	2-3-4 (7)						20 40 60 80
				SPT 2	3-2-2 (4)						
5		▼	5	SPT 3	1-1-1 (2)						
		(SM) Very loose silty SAND	6	SPT 4	1-1-1 (2)						
		Wood Debris	7.5	SPT 5	1-2-1 (3)						
		(SM) Very loose to loose brown and gray silty SAND	9	SPT 6	1-2-3 (5)						
10		(SM/SC) Loose gray and brown silty clayey SAND with trace limestone	12.5								
		(SC/CL) Medium dense green and orange very clayey SAND with trace limestone		SPT 7	6-10-14 (24)	47	16	31	42	24	
15			18.5								
		(SC/CL) Dense to very dense green and brown very clayey SAND		SPT 8	12-19-23 (42)	47	17	30	42	21	
20											

(Continued Next Page)

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

BORING NUMBER B-3

CLIENT City of Gainesville
PROJECT NAME Boulware Springs Improvements
PROJECT NUMBER 15752
PROJECT LOCATION Gainesville, Alachua County, Florida

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)
20	(SC/CL) Dense to very dense green and brown very clayey SAND *(continued)*			
			SPT 9	14-28-30 (58)
25		28.5		
	(CL/CH) Hard to very hard green CLAY with trace limestone		SPT 10	15-22-26 (48)
30				
			SPT 11	17-33-40 (73)
35		38.5		
	(SC) Very dense green clayey SAND		SPT 12	20-30-35 (65)
40		40		
	Bottom of borehole at 40.0 feet.			

LIQUID LIMIT, % | PLASTIC LIMIT, % | PLASTICITY INDEX | PERCENT PASS NO. 200 SIEVE | MOISTURE CONTENT, %

▲ SPT N VALUE ▲
20 40 60 80

5.3 Laboratory Results

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 15752

Project Name: Boulware Springs Improvements

Boring Number	Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Organic Content (%)	Hydraulic Conductivity (ft/day)	Unified Soil Classification
B-1	1-2.5	Very loose to loose brown SAND with silt	6.1				8.3			SP-SM
B-2	1-2.5	Loose brown and gray SAND with silt and trace limestone	6.1				8.3			SP-SM
B-3	13.5-15	Medium dense green and orange very clayey SAND with trace limestone	24	47	16	31	42			SC/CL
B-3	18.5-20	Dense to very dense green and brown very clayey SAND	21	47	17	30	42			SC/CL
A-1	3-5	Brown SAND with silt	5.0				5.2		11	SP-SM
A-1	7.5-8	Green and orange CLAY with sand	36	111	36	75	74			CL/CH
A-2	0.5-1	Gray and brown very clayey SAND with trace limestone	18	38	16	22	33			SC/CL
P-1	2-4	Brown SAND with silt	5.5				7.4		12	SP-SM
P-1	12.5-13	Brown clayey SAND with lenses of green clay	15				20			SC
P-2	2-4	Brown SAND with silt	5.2				8.3		11	SP-SM
P-3	3-5	Brown SAND with silt	4.3				7.2		21	SP-SM
R-1	0.5-1	Brown SAND with silt	4.9				9.5			SP-SM

5.4 Key to Soil Classification

KEY TO SOIL CLASSIFICATION CHART

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				SYMBOLS		GROUP NAME
				GRAPHIC	LETTER	
COARSE-GRAINED SOILS	Gravels	Clean Gravels	Cu ≥ 4 and 1 ≤ Cc ≤ 3		**GW**	Well graded GRAVEL
More than 50% retained on No. 200 sieve	More than 50% of coarse fraction retained on No. 4 sieve	Less than 5% fines	Cu < 4 and/or 1 > Cc > 3		**GP**	Poorly graded GRAVEL
		Gravels with fines	Fines classify as ML or MH		**GM**	Silty GRAVEL
		More than 12% fines	Fines classify as CL or CH		**GC**	Clayey GRAVEL
	Sands	Clean Sands	Cu ≥ 6 and 1 ≤ Cc ≤ 3		**SW**	Well graded SAND
	50% or more of coarse fraction passes No. 4 sieve	Less than 5% fines	Cu < 6 and/or 1 > Cc > 3		**SP**	Poorly graded SAND
		Sand with fines	Fines classify as ML or MH		**SP-SM**	SAND with silt
		5% ≤ fines < 12%	Fines classify as CL or CH		**SP-SC**	SAND with clay
		Sand with fines	Fines classify as ML or MH		**SM**	Silty SAND
		12% ≤ fines < 30%	Fines classify as CL or CH		**SC**	Clayey SAND
		Sand with fines	Fines classify as ML or MH		**SM**	Very silty SAND
		30% fines or more	Fines classify as CL or CH		**SC**	Very clayey SAND
FINE-GRAINED SOILS	Clays	inorganic	50% ≤ fines < 70%		**CL/CH**	Sandy CLAY
50% or more passes the No. 200 sieve			70% ≤ fines < 85%		**CL/CH**	CLAY with sand
			fines ≥ 85%		**CL/CH**	CLAY
	Silts and Clays	inorganic	PI > 7 and plots on/above "A" line		**CL**	Lean CLAY
	Liquid Limit less than 50		PI < 4 or plots below "A" line		**ML**	SILT
		organic	Liquid Limit - oven dried / Liquid Limit - not dried < 0.75		**OL**	Organic clay / Organic silt
	Silts and Clays	inorganic	PI plots on or above "A" line		**CH**	Fat CLAY
	Liquid Limit 50 or more		PI plots below "A" line		**MH**	Elastic SILT
		organic	Liquid Limit - oven dried / Liquid Limit - not dried < 0.75		**OH**	Organic clay / Organic silt
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor				**PT**	PEAT

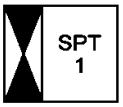
CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	No. OF BLOWS, N	RELATIVE DENSITY
	0 - 4	Very Loose
	5 - 10	Loose
SANDS:	11 - 30	Medium dense
	31 - 50	Dense
	OVER 50	Very Dense

	No. OF BLOWS, N	CONSISTENCY
	0 - 2	Very Soft
SILTS	3 - 4	Soft
&	5 - 8	Firm
CLAYS:	9 - 15	Stiff
	16 - 30	Very Stiff
	31 - 50	Hard
	OVER 50	Very Hard

	No. OF BLOWS, N	RELATIVE DENSITY
	0 - 8	Very Soft
	9 - 18	Soft
LIMESTONE:	19 - 32	Moderately Hard
	33 - 50	Hard
	OVER 50	Very Hard

SAMPLE GRAPHIC TYPE LEGEND



Location of SPT Sample

Location of Auger Sample

PARTICLE SIZE IDENTIFICATION

BOULDERS:		Greater than 300 mm
COBBLES:		75 mm to 300 mm
GRAVEL:	Coarse -	19.0 mm to 75 mm
	Fine -	4.75 mm to 19.0 mm
SANDS:	Coarse -	2.00 mm to 4.75 mm
	Medium -	0.425 mm to 2.00 mm
	Fine -	0.075 mm to 0.425 mm
SILTS & CLAYS:		Less than 0.075 mm

LABORATORY TEST LEGEND

LL	=	Liquid Limit, %
PL	=	Plastic Limit, %
PI	=	Plasticity Index, %
% PASS - 200	=	Percent Passing the No. 200 Sieve
MC	=	Moisture Content, %
ORG	=	Organic Content, %
k_h	=	Horizontal Hydraulic Conductivity, ft/day

6.0 LIMITATIONS

6.1 Warranty

This report has been prepared for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

6.2 Auger and SPT Borings

The determination of soil type and conditions was performed from the ground surface to the maximum depth of the borings, only. Any changes in subsurface conditions that occur between or below the borings would not have been detected or reflected in this report.

Soil classifications that were made in the field are based upon identifiable textural changes, color changes, changes in composition or changes in resistance to penetration in the intervals from which the samples were collected. Abrupt changes in soil type, as reflected in boring logs and/or cross sections may not actually occur, but instead, be transitional.

Depth to the water table is based upon observations made during the performance of the auger and SPT borings. This depth is an estimate and does not reflect the annual variations that would be expected in this area due to fluctuations in rainfall and rates of evapotranspiration.

6.3 Site Figures

The measurements used for the preparation of the figures in this report were made using the provided site plan and by estimating distances from existing structures and site features. Figures in this report were not prepared by a licensed land surveyor and should not be interpreted as such.

6.4 Unanticipated Soil Conditions

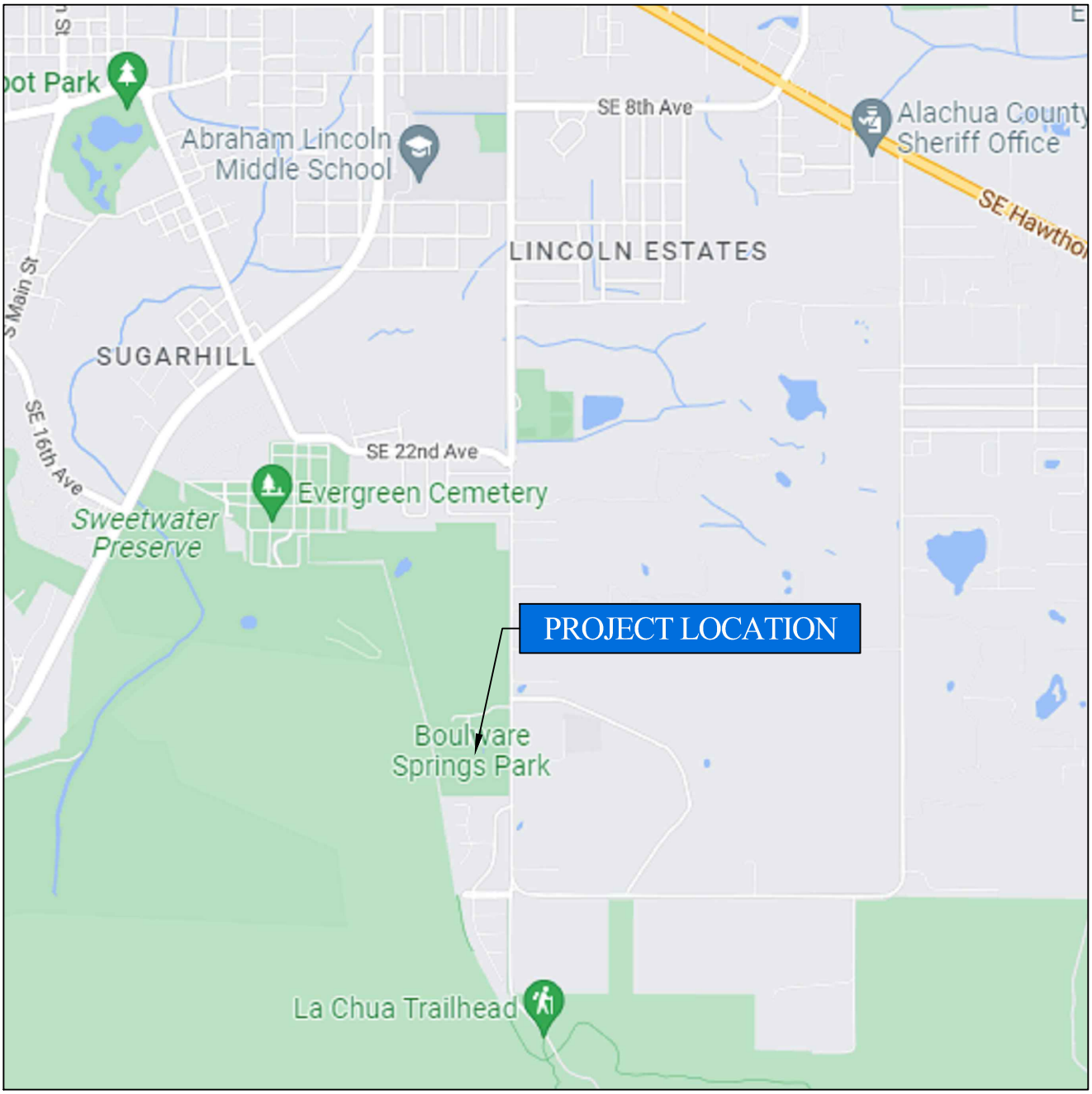
The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on Figure 2. This report does not reflect any variations that may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

6.5 Misinterpretation of Soil Engineering Report

GSE Engineering & Consulting, Inc. is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If others make the conclusions or recommendations based upon the data presented, those conclusions or recommendations are not the responsibility of GSE.

FIGURES



NORTH

NOT TO SCALE

BOULWARE SPRINGS IMPROVEMENTS GAINESVILLE, ALACHUA COUNTY, FLORIDA GSE PROJECT NO. 15752	PROJECT SITE LOCATION MAP		
	DESIGNED BY: KPF CHECKED BY : KLH DRAWN BY : JNM	GSE Engineering & Consulting, Inc.	FIGURE 1

LEGEND:

SPT BORING

AUGER BORING

NORTH

0 200'

SCALE: 1" = 200' APPROX.

BOULWARE SPRINGS IMPROVEMENTS
GAINESVILLE, ALACHUA COUNTY, FLORIDA
GSE PROJECT NO. 15752

SITE PLAN SHOWING APPROXIMATE LOCATIONS OF FIELD TESTS

DESIGNED BY: KPF
CHECKED BY : KLH
DRAWN BY : JNM

GSE Engineering & Consulting, Inc.

FIGURE 2

Attachment 3

Site Survey

MAP SHOWING TOPOGRAPHIC SURVEY OF:

BOULWARE SPRINGS NATURE PARK
LYING IN SECTION 16 TOWNSHIP 10 SOUTH, RANGE 20 EAST,
CITY OF GAINESVILLE, ALACHUA COUNTY, FLORIDA

SURVEYOR'S NOTES:

1) THIS IS A TOPOGRAPHIC SURVEY ONLY AND DOES NOT PURPORT TO BE A BOUNDARY SURVEY.

2) ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVE 88), AS DERIVED FROM BENCHMARKS A574, (PID DG4609), ELEVATION 128.11'.

3) THE COORDINATES SHOWN HEREON ARE REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM (NORTH ZONE), NORTH AMERICAN DATUM OF 1983 (NAD83(2011)), U.S. SURVEY FEET. THE PLANE COORDINATES WERE DERIVED USING REAL TIME KINEMATIC (RTK) GPS WITH DIRECT OBSERVATIONS TO FLORIDA PERMANENT REFERENCE NETWORK STATION "CRAIG" (KREG).

4) UNDERGROUND UTILITIES, FOUNDATIONS, OR OTHER IMPROVEMENTS, IF ANY, WERE NOT LOCATED EXCEPT AS SHOWN.

5) JURISDICTIONAL WETLANDS FLAGS SHOWN HEREON WERE PLACED IN THE FIELD BY JONES, EDMUNDS & ASSOCIATES.

7) THE UTILITIES SHOWN HEREON WERE DESIGNATED BY DEGROVE SURVEYORS, INC. THE EXTENT AND LIABILITY OF THIS INFORMATION IS LIMITED TO THE STANDARDS FOR QUALITY LEVEL -- B UTILITY INVESTIGATION AS DEFINED BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) PUBLICATION 38-02.

8) THE LOCATION OF THE RIGHTS OF WAY LINES ARE APPROXIMATE.

9) TREES 8" IN DIAMETER (DBH) WERE LOCATED. INVASIVES WERE NOT LOCATED.

10) THE SURVEY WAS DELIVERED IN DIGITAL FORMAT AND HAS AN INTENDED SCALE OF 1"=20'.

LEGEND:

BC	BACK OF CURB ELEVATION
	BACKFLOW PREVENTER
EP	EDGE OF ASPHALT ELEVATION
FL	FLOW LINE ELEVATION
CMP	CORRREGATED METAL PIPE
	CLEANOUT
DI	DUCTILE IRON PIPE
E	ELECTRIC CABINRT & METER
EM	ELECTRIC METER
	FIBER OPTIC CABLE MARKER
FO	FIBER OPTIC HANDHOLE
	GAS VALVE
	GUY ANCHOR
HB	HOSE BIB
INV.	INVERT ELEVATION
HDP	PLASTIC PIPE
	POST
	LIGHT POLE
MH	MANHOLE
	MAST ARM SIGNAL POLE
PVC	POLYVINYL CHLORIDE PIPE
	WOOD POWER POLE
RCP	REINFORCED CONCRETE PIPE
	SIGN
T	TELEPHONE MANHOLE
TR	TRAFFIC HANDHOLE
WM	WATER METER
WV	WATER VALVE
	CONCRETE POWER POLE
VC	VITRIFIED CLAY PIPE
GAS	BURIED GAS LINE
FM	BURIED FORCE MAIN
W	BURIED WATER LINE
UGE	BURIED ELECTRIC LINE
OE	OVERHEAD UTILITY LINE
WF	WETLANDS FLAG
	FIRE HYDRANT

SURVEY DATE: OCTOBER 10, 2022	
FIELD BOOK 907, PAGE(S) 4	DRAWING SCALE: 1" = 20'
DRAFTED BY: GRN	REVISION DATE:
CHECKED BY: MTN	
COMPUTER FILE: 2022221 BOULWARE.DWG	
JOB FILE No. 2022221	

2131 CORPORATE SQUARE BOULEVARD,
JACKSONVILLE, FL 32216
904-722-0400
FAX 904-722-0402
DEGROVE@DEGROVE.COM
LICENSED BUSINESS NUMBER L.B.4603

DEGROVE
SURVEYORS, INC.
SURVEYING AND MAPPING CONSULTANTS

THIS SURVEY MEETS THE STANDARDS OF PRACTICE FOR PROFESSIONAL SURVEYORS AND MAPPERS IN THE STATE OF FLORIDA PURSUANT TO CHAPTER 5J-17.051 & 5J-17.052, F.A.C.

GORDON R. NILES, P.S.M., FLORIDA CERTIFICATION NO. 4112

NOTICE:
NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

CERTIFIED TO:

GORDON R. NILES License Number 4112 STATE OF FLORIDA Professional Surveyor and Mapper

CITY OF GAINESVILLE

GRAPHIC SCALE
0 10 20 40
SCALE IN FEET

SURVEY CONTROL POINT
2" IRON PIPE – "TRAV LB 4603"
NORTHING: 232987.1814'
EASTING: 2665200.3326'
ELEVATION: 114.55'

SURVEY CONTROL POINT
2" IRON PIPE – "TRAV LB 4603"
NORTHING: 233063.6435'
EASTING: 2665612.6760'
ELEVATION: 108.70'

S.E. 15TH STREET

ASPHALT

CONCRETE SIDEWALK

CATCH BASIN
GRATE: 106.66'
INVERT: 103.63'

CONCRETE HEADWALL
INVERT: 104.51'

MITERED END SECTION
INVERT: 104.22'

MITERED END SECTION
INVERT: 104.11'

MITERED END SECTION
INVERT: 106.47'

SURVEY CONTROL POINT
1" IRON PIPE – "TRAV PT LB 4603"
NORTHING: 232664.8820'
EASTING: 2665440.0713'
ELEVATION: 109.23'

S.E. 15TH STREET

GRAPHIC SCALE
0 10 20 40
SCALE IN FEET

SURVEY CONTROL POINT
NAIL & DISK – "BENCHMARK LB 4603"
NORTHING: 232659.0550'
EASTING: 2664544.9049'
ELEVATION: 111.56'

GAINESVILLE – HAWTHORNE TRAIL

FRAME ROOF OVER CONCRETE SLAB

PARK HQ (231)

CONCRETE SIDEWALK

ASPHALT

24" CURB & GUTTER

COVERED BENCH & SIGN CONCRETE PAD (312)

CONCRETE 9" DIAM.

-N-

GRAPHIC SCALE
0 10 20 40
SCALE IN FEET

-N-

GRAPHIC SCALE

0 10 20 40

SCALE IN FEET

GAINESVILLE – HAWTHORNE TRAIL

ASPHALT

CONCRETE SIDEWALK

24" CURB & GUTTER

ASPHALT

16" ELM

24" CURB & GUTTER

ASPHALT

PARK HC

(231)

CONCRETE SIDEWALK

FRAME ROOF OVER CONCRETE SLAB

ASPHALT

CONCRETE

MITERED END SECTION
INVERT: 106.19'

18" PIPE

CONCRETE

MITERED END SECTION
INVERT: 106.47'

ASPHALT

Attachment 4

Conceptual Future Site Layout

N

GRAPHIC SCALE
0 20 40 80
SCALE IN FEET

EXISTING STORM POND (UNDISTURBED)

PROBABLE TREE REMOVAL (2) MAX 9"

PROPOSED ASPHALT PARKING LOT (28) SPACES

PROPOSED RESTROOM BUILDING

10' PEDESTRIAN PATH

(9) 9'X25' PARKING SPACES

PROBABLE TREE REMOVAL (2) MAX 15"

PROBABLE TREE REMOVAL (5) MAX 19"

10' PEDESTRIAN PATH

24'

PROBABLE TREE REMOVAL (3) MAX 13"

POTENTIAL SEDIMENT BASIN LOCATION

(10) 9'X25' PARKING SPACES

DROP OFF AREA

HANDICAP RAMP

CONNECT FRENCH DRAIN TO EXISTING 15" RCP

RETAINING WALL PLANTERS

PROPOSED FRENCH DRAIN

BENCH SEATING

6' SIDEWALK

MAINTENANCE SHED

UNPAVED PARKING LOT (32) SPACES

POSSIBLE TREE REMOVAL (16")

POSSIBLE TREE REMOVAL (18")

OPEN GRASS AREA

STABILIZED GRASS PARKING LOT (21) SPACES

POSSIBLE TREE REMOVAL (3) MAX 24"

S.E. 15TH STREET

CITY OF GAINESVILLE
WILD SPACES AND PUBLIC PLACES
BOULWARE SPRINGS NATURE PARK IMPROVEMENTS
SCHEMATIC DRAWING

JonesEdmunds

Attachment 5

Conceptual Site Master Plan Poster

A. TRAILHEAD

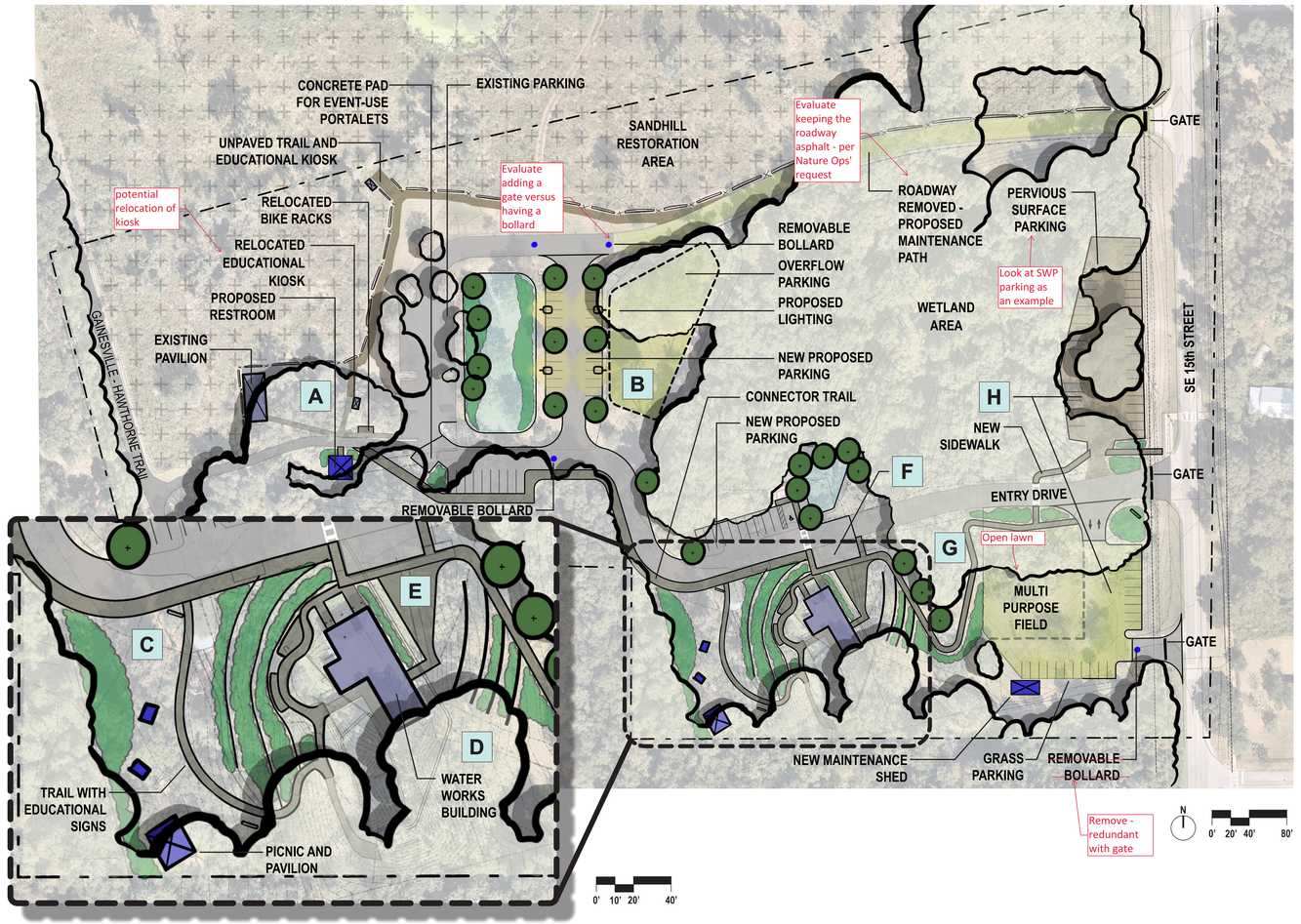
- Existing picnic pavilion to remain
- Existing educational kiosk moved to more central, visible location
- Bike racks moved to main access route
- New restroom building
- New split-rail fencing along restoration areas to the north and west
- New unpaved trail along and into restoration area, with new kiosk

B. TRAILHEAD PARKING

- Existing trailhead parking to remain
- Existing dry stormwater area to remain
- Existing equestrian parking re-purposed to new paved parking and overflow parking
- New parking south of existing stormwater
- New trail between trailhead and Water Works area
- New plantings as required
- New lighting of easternmost parking

C. PARK TRANSITION / PICNIC

- New loop trail through this picnic/passive use area to connect parking, picnic, and areas along the back of Water Works Building.
- New picnic pavilion and tables
- Educational signs
- Native plantings



E. WATER WORKS ENTRY

- An intimate gather spacing at the Water Works Building entry to welcome and provide accessible, multi-purpose space for small events
- Accessible walks to Water Works Building
- Educational signs

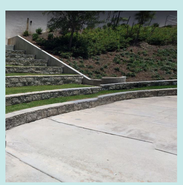
F. WATER WORKS DROP-OFF & PARKING

- New drop off for easy access to Water Works Building entry
- New paved parking
- New stormwater treatment for paved parking
- New trail and walk connections

G. WATER WORKS APPROACH

- New paved accessible walk from multi-use parking
- New retaining walls to support existing grade, prevent erosion, and avoid drainage issues into Water Works Building

D. WATER WORKS EXTERIOR USE AREAS



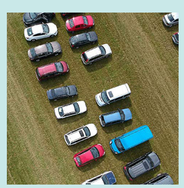
- New walk and handrail to replace existing along springs run edge
- New minor plaza space at spring head for gathering and educational use
- New retaining terrace walls to stabilize slope and prevent erosion. Bottom-most terrace wall along spring edge to double as seating.
- Native plantings between other terrace walls
- Educational signage

VISION FOR REDEVELOPMENT - Proposed uses should...

- **Be resource-based**, considering the historical resources of the Water Works Building, the natural resources of the Hawthorne Trail trailhead, and the environmentally sensitive spring run at the Water Works Building.
- **Create a positive economic and community impact** for park users, surrounding neighborhoods, special event or special use groups, and the City of Gainesville at large.
- **Encourage education** through various communication approaches focusing on the site's unique points of interest. Potential topics include the cultural history of this area, the importance of the springs run ecosystem, the historical significance of the Water Works Building, and surrounding natural lands management and restoration.
- **Offer multi-purpose areas** that are flexible and of the appropriate scale to support both typical daily use and special events.
- **Celebrate the existing Water Works Building's historical architectural character** through proposed pavilion, sign, and other vertical element design.
- **Improve and maintain existing City assets** such as the Trailhead facility and Water Works Building.
- **Consider safety in park elements** by creating clear view lines and view-sheds, adding lighting where appropriate to proposed uses and adjacent natural areas, using trail and parking design best practices, and increasing positive use.

H. MULTI-USE PARKING

- Existing unpaved parking to remain
- New stabilized grass parking for Water Works Building, event, or Trailhead overflow parking in general location of previous care-givers homestead and positioned so as to not impact existing Live Oaks
- Pervious parking in approximate area of existing unpaved parking along 15th St.
- Native plantings to buffer and define parking



BOULWARE SPRINGS

NATURE PARK & HISTORIC WATER WORKS BUILDING RENOVATIONS

Final Master Plan - Draft for Review

April 05, 2023

JonesEdmunds

MANLEY DESIGN, LLC

Attachment 6

Conceptual Building Renovation Plan

Boulware Springs

1 LOCATION MAP
1" = 1'-0"

SHEET INDEX

STUDIO MJG, LLC
5206 SW 91ST TERRACE, SUITE A
GAINESVILLE, FLORIDA 32608
WWW.STUDIOMJG.COM

Boulware Springs

3300 SE 15th St.
Gainesville, FL 32641

CONCEPT SCHEMATIC DESIGN

Michael J. Gilfilen
AR94453

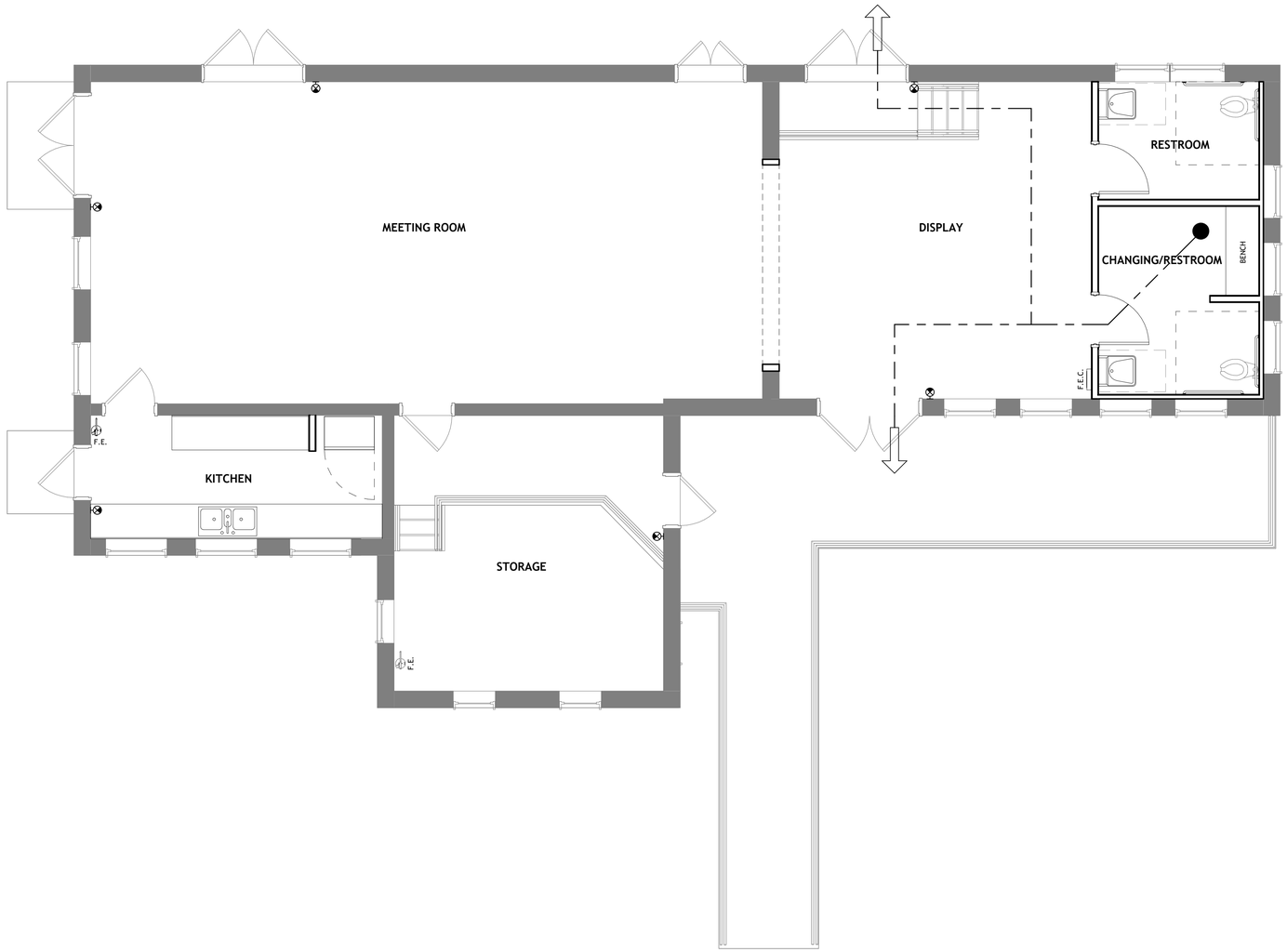
No.	DESCRIPTION	DATE

PROJECT NUMBER:	22003
ISSUE DATE:	December 15, 2022
CREATED BY:	JM
CHECKED BY:	MJG

G100

COVER SHEET

12/14/2022 5:59:32 PM



1 LIFE SAFETY FIRST FLOOR PLAN
1/4" = 1'-0"

EXISTING BUILDING CODE SUMMARY

OCCUPANCY CLASSIFICATION	OCCUPANCY = A -2
EXISTING CONSTRUCTION TYPE	BUILDING TYPE = TYPE II B
FIRE SUPPRESSION SYSTEM	NON-SPRINKLERED
PORTABLE FIRE EXTINGUISHERS	PROVIDE 75 FT. MAX.

PROJECT SQUARE FOOTAGE

MEETING ROOM & DISPLAY	(NET) 1,099 SQFT
KITCHEN	130 SQFT
STORAGE	269 SQFT

OCCUPANT LOAD

MEETING ROOM	"A" ASSEMBLY 1,099 / 15 NET = 74
KITCHEN	165 / 200 GROSS = 1
STORAGE	315 / 300 GROSS = 2

FIRST FLOOR EGRESS REQUIREMENTS

MINIMUM CORRIDOR WIDTH	77 OCC. X 0.2 INCH = 15.4 (44" MIN.)
MAXIMUM TRAVEL DISTANCE	200' (NON-SPRINKLERED)
COMMON PATH OF TRAVEL	75' (NON-SPRINKLERED)
MAXIMUM DEAD END CORRIDOR	20' (NON-SPRINKLERED)

CODE REFERENCE

FFPC		FLORIDA FIRE PREVENTION CODE 7th EDITION - 2020
NFPA	1	FIRE CODE - 2018
NFPA	101	LIFE SAFETY CODE - 2018
NFPA	10	STANDARD FOR PORTABLE FIRE EXTINGUISHERS - 2018
NFPA	13	STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS - 2016
NFPA	70	NATIONAL ELECTRICAL CODES - 2017
NFPA	72	NATIONAL FIRE ALARM AND SIGNALING CODE - 2016
NFPA	90A	INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS - 2018
FBC		FLORIDA BUILDING CODE, BUILDING - 2020
FBC		FLORIDA BUILDING CODE, EXISTING BUILDING - 2020
FBC		FLORIDA BUILDING CODE, MECHANICAL - 2020
FBC		FLORIDA BUILDING CODE, PLUMBING - 2020

FLORIDA ADMINISTRATIVE CODE (FAC) AND FLORIDA STATUES AS AMENDED, INCLUDING BUT NOT LIMITED TO:
A. STATE OF FLORIDA ENERGY CONSERVATION CODE (FLEET ANALYSIS PROGRAM)
B. RULES AND REGULATIONS OF THE STATE FIRE MARSHAL (TITLE 4A)
C. RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

LIFE SAFETY LEGEND

	EGRESS EXIT	F.E.C.	FIRE EXTINGUISHER CABINET
	PATH OF TRAVEL	F.E.	WALL MOUNTED FIRE EXTINGUISHERS
	1HR FIRE RATING		EXIT SIGN
	2HR FIRE RATING	EXIT	TACTILE EXIT SIGNAGE PER FBCB 1013.4, & NFPA 101 - 7.10.1.3.

STUDIO MJG, LLC
5206 SW 91ST TERRACE, SUITE A
GAINESVILLE, FLORIDA 32608
WWW.STUDIOMJG.COM

Boulware Springs

3300 SE 15th St.
Gainesville, FL 32641

CONCEPT SCHEMATIC DESIGN

Michael J. Gilfilen
AR94453

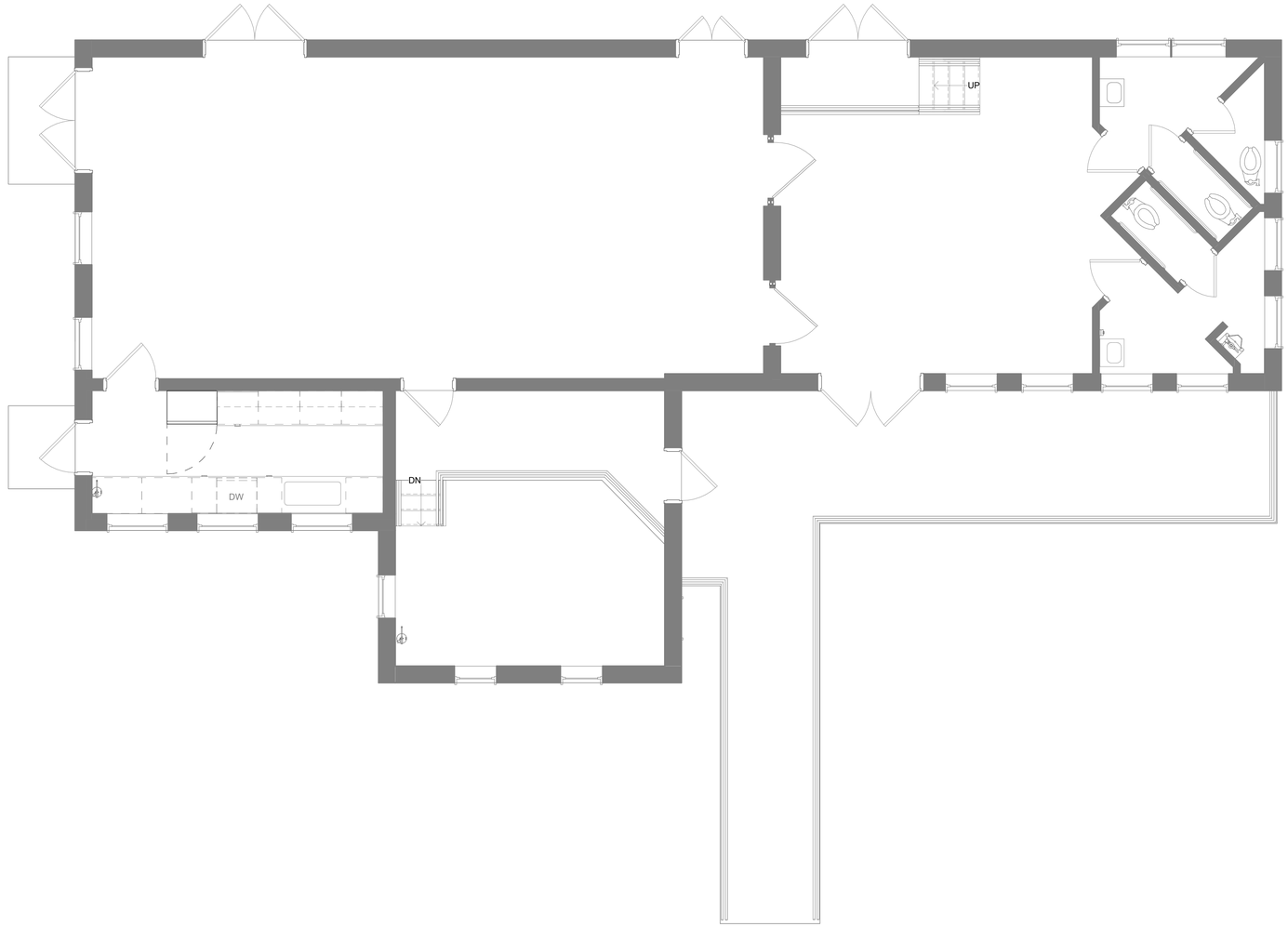
No.	DESCRIPTION	DATE

PROJECT NUMBER:	22003
ISSUE DATE:	December 15, 2022
CREATED BY:	JM
CHECKED BY:	MJG

LS110

LIFE SAFETY FLOOR PLAN AND BUILDING CODE SUMMARY

12/14/2022 5:59:32 PM



1 ARCHITECTURAL FIRST FLOOR EXISTING PLAN
1/4" = 1'-0"

WALL TYPE LEGEND

- EXISTING WALLS
- WALLS TO BE REMOVED
- NEW CONSTRUCTION

STUDIO MJG, LLC
5206 SW 91ST TERRACE, SUITE A
GAINESVILLE, FLORIDA 32608
WWW.STUDIOMJG.COM

Boulware Springs

3300 SE 15th St.
Gainesville, FL 32641

CONCEPT
SCHEMATIC DESIGN

Michael J. Gilfilen
AR94453

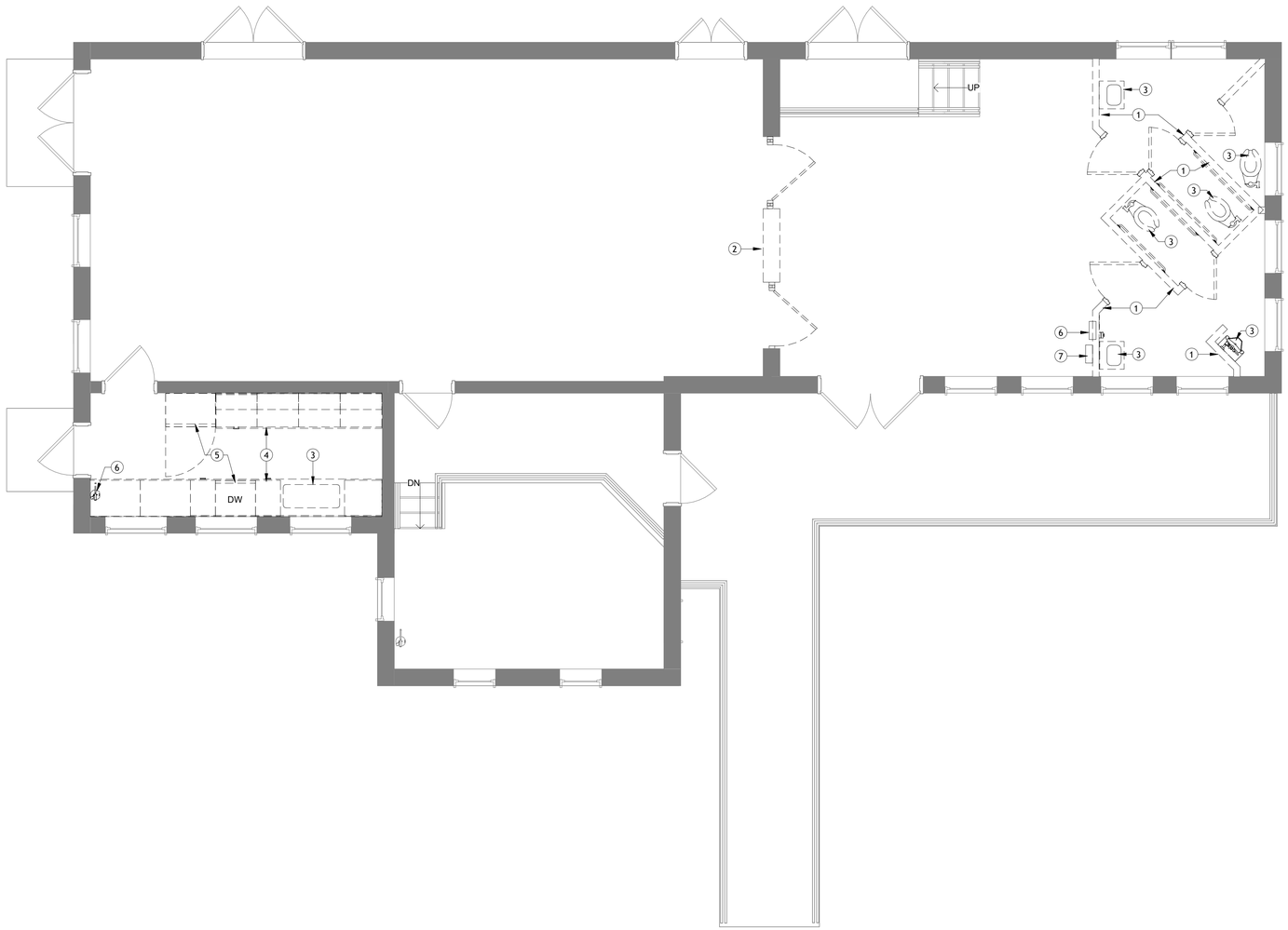
No.	DESCRIPTION	DATE

PROJECT NUMBER:	22003
ISSUE DATE:	December 15, 2022
CREATED BY:	JM
CHECKED BY:	MJG

A100

ARCHITECTURAL
FIRST FLOOR
EXISTING PLAN

12/14/2022 5:59:33 PM



1 ARCHITECTURAL FIRST FLOOR DEMOLITION PLAN
1/4" = 1'-0"

GENERAL DEMOLITION NOTES

A. UNLESS OTHERWISE NOTED, ALL DASHED LINES INDICATE EXISTING PARTITIONS, DOORS AND FRAMES TO BE REMOVED.

B. SEE DEMOLITION REFLECTED CEILING PLAN FOR SECTIONS OF CEILING GRID AND FRAMING TO BE REMOVED.

C. PATCH GWB WHERE DEVICES ARE REMOVED FROM WALLS EXISTING TO REMAIN.

D. REMOVE ALL EXISTING FLOOR FINISHES THROUGHOUT THE PROJECT AREA.

E. REMOVE AND SALVAGE ALL EXISTING BASE FROM REMOVED WALLS FOR REUSE.

DEMOLITION KEYNOTES

1. REMOVE EXISTING WALL AND DOOR. PATCH AND REPAINT ADJACENT WALL AS REQUIRED
2. REMOVE SECTION OF EXISTING WALL AND DOORS AND PREP FOR NEW OPENING (SEE RENOVATION PLAN AND ELEVATION)
3. REMOVE ALL EXISTING PLUMBING FIXTURES (SEE PLUMBING)
4. REMOVE EXISTING CASEWORK
5. REMOVE ALL EXISTING KITCHEN APPLIANCES
6. REMOVE, SALVAGE AND RELOCATE EXISTING FIRE EXTINGUISHER (SEE RENOVATION PLAN)
7. REMOVE, SALVAGE AND RELOCAT EXISTING ELECTRIC WATER COOLER (SEE RENOVATION PLAN)

WALL TYPE LEGEND

EXISTING WALLS
WALLS TO BE REMOVED
NEW CONSTRUCTION

STUDIO MJG, LLC
5206 SW 91ST TERRACE, SUITE A
GAINESVILLE, FLORIDA 32608
WWW.STUDIOMJG.COM

Boulware Springs

3300 SE 15th St.
Gainesville, FL 32641

CONCEPT
SCHEMATIC DESIGN

Michael J. Gilfilen
AR94453

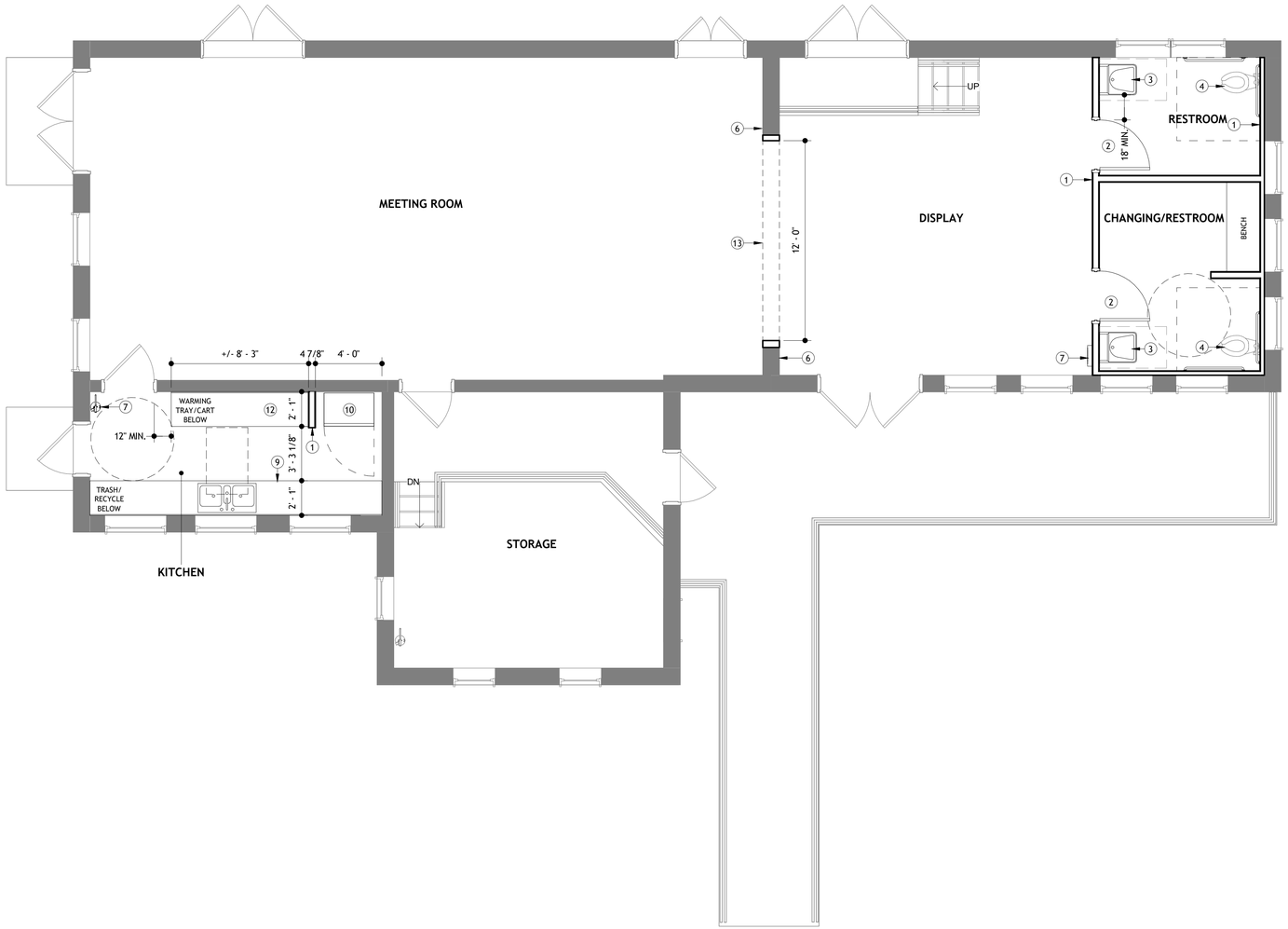
No.	DESCRIPTION	DATE

PROJECT NUMBER:	22003
ISSUE DATE:	December 15, 2022
CREATED BY:	JM
CHECKED BY:	MJG

A101

ARCHITECTURAL
FIRST FLOOR
DEMOLITION PLAN

12/14/2022 5:59:34 PM



1 ARCHITECTURAL FIRST FLOOR RENOVATION PLAN - OPTION 1
1/4" = 1'-0"

WALL TYPE LEGEND

- EXISTING WALLS
- WALLS TO BE REMOVED
- NEW CONSTRUCTION

GENERAL RENOVATION NOTES

A. PATCH AND REPAINT ALL EXISTING WALLS AND BASE TO MATCH EXISTING COLORS.

B. INSTALL NEW FLOORING AS SPECIFIED (SEE ROOM SCHEDULE AND FINISH LEGEND).

C. PROVIDE NEW ROOF INSULATION.

RENOVATION KEYNOTES

1. PAINT ON 5/8" GWB BOTH SIDES ON 3 5/8" METAL STUD WALL
2. NEW 3070 DOOR, FRAME, AND HARDWARE
3. NEW WALL MOUNT SINK (SEE PLUBMING)
4. NEW FLOOR MOUNT TOILET (SEE PLUBMING)
5. NEW GRAB BARS
6. PAINT ON EXISTING WALL CORNER TO CORNER
7. RELOCATED FIRE EXTINGUISHER OR F.E. CABINET (SEE FIRE PROTECTION)
8. RELOCATED ELETRIC WATER COOLER (SEE ELECTRICAL)
9. NEW COUNTER TOP, CASEWORK, STAINLESS UNDERMOUNT SINK AND FAUCET
10. NEW REFRIGERATOR (O.F.C.I.)
11. PAINT ON 5/8" GWB ON 1 1/2" METAL STUD WALL
12. NEW COUNTER TOP AT 42" AFF. WITH SUPPORT BRACKET
13. FINISHED ARCH OPENING

STUDIO MJG, LLC
5206 SW 91ST TERRACE, SUITE A
GAINESVILLE, FLORIDA 32608
WWW.STUDIOMJG.COM

Boulware Springs

3300 SE 15th St.
Gainesville, FL 32641

CONCEPT
SCHEMATIC DESIGN

Michael J. Gilfilen
AR94453

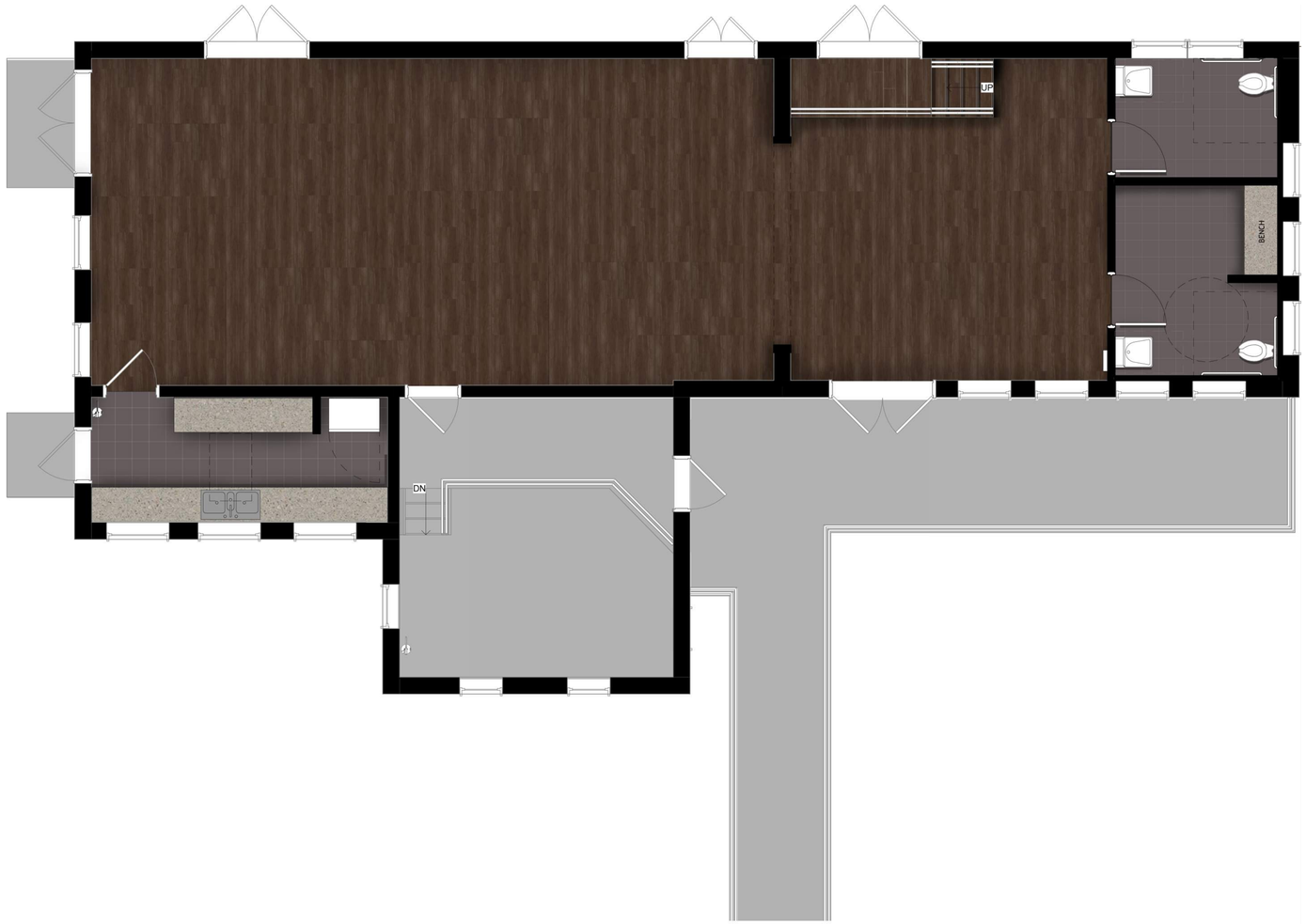
No.	DESCRIPTION	DATE

PROJECT NUMBER:	22003
ISSUE DATE:	December 15, 2022
CREATED BY:	JM
CHECKED BY:	MJG

A110

ARCHITECTURAL FIRST FLOOR RENOVATION PLAN - OPTION 1

12/14/2022 5:59:34 PM



1 ARCHITECTURAL FIRST FLOOR FINISH PLAN - OPTION 1
1/4" = 1'-0"

STUDIO MJG, LLC
5206 SW 91ST TERRACE, SUITE A
GAINESVILLE, FLORIDA 32608
WWW.STUDIOMJG.COM

Boulware Springs

3300 SE 15th St.
Gainesville, FL 32641

CONCEPT
SCHEMATIC DESIGN

Michael J. Gilfilen
AR94453

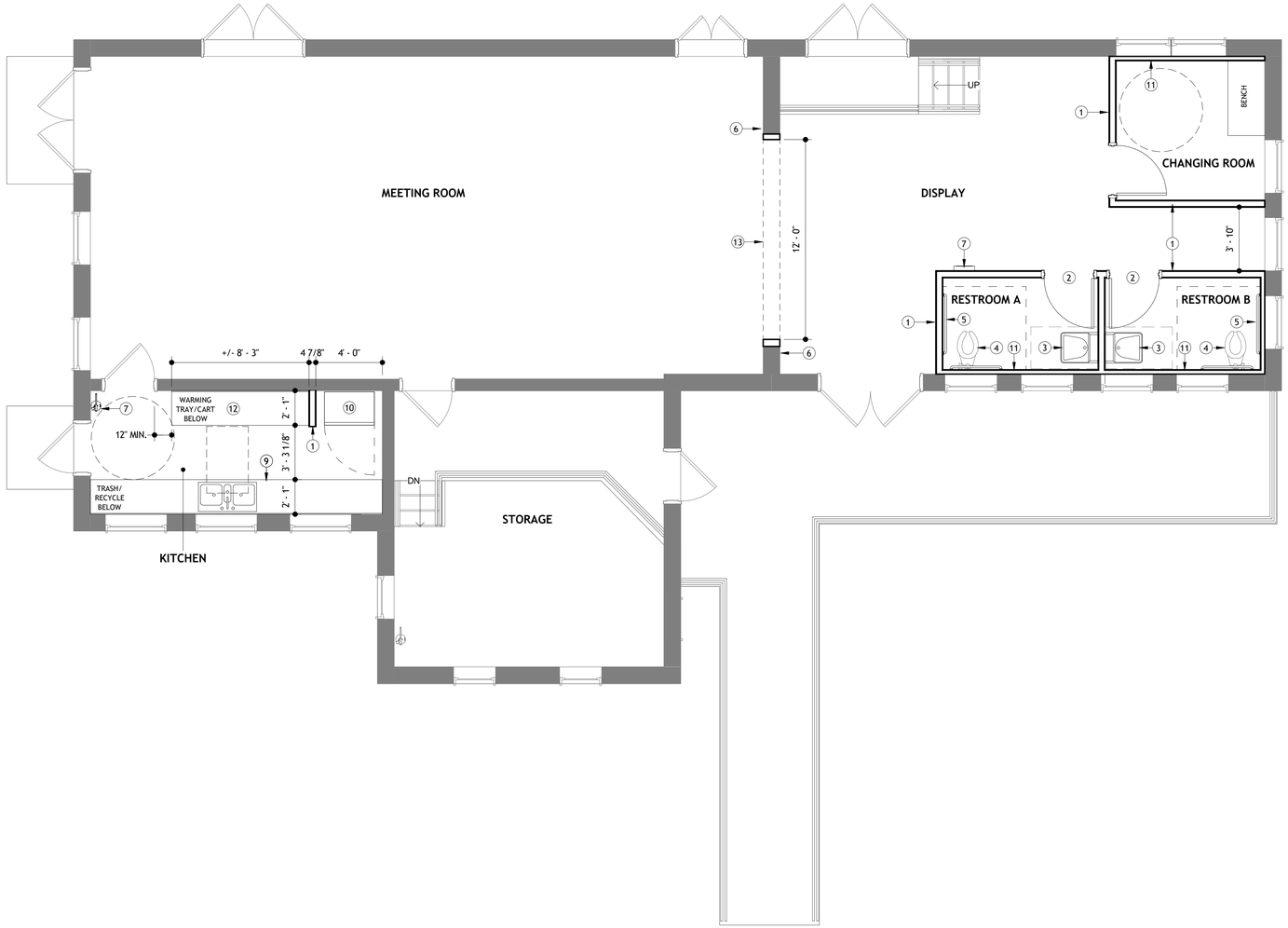
No.	DESCRIPTION	DATE

PROJECT NUMBER:	22003
ISSUE DATE:	December 15, 2022
CREATED BY:	JM
CHECKED BY:	MJG

A111

ARCHITECTURAL
FIRST FLOOR FINISH
PLAN - OPTION 1

12/14/2022 5:59:34 PM



1 ARCHITECTURAL FIRST FLOOR RENOVATION PLAN - OPTION 2
1/4" = 1'-0"

WALL TYPE LEGEND

- EXISTING WALLS
- WALLS TO BE REMOVED
- NEW CONSTRUCTION

GENERAL RENOVATION NOTES

A. PATCH AND REPAINT ALL EXISTING WALLS AND BASE TO MATCH EXISTING COLORS.

B. INSTALL NEW FLOORING AS SPECIFIED (SEE ROOM SCHEDULE AND FINISH LEGEND).

C. PROVIDE NEW ROOF INSULATION.

RENOVATION KEYNOTES

1. PAINT ON 5/8" GWB BOTH SIDES ON 3 5/8" METAL STUD WALL
2. NEW 3070 DOOR, FRAME, AND HARDWARE
3. NEW WALL MOUNT SINK (SEE PLUBMING)
4. NEW FLOOR MOUNT TOILET (SEE PLUBMING)
5. NEW GRAB BARS
6. PAINT ON EXISTING WALL CORNER TO CORNER
7. RELOCATED FIRE EXTINGUISHER OR F.E. CABINET (SEE FIRE PROTECTION)
8. RELOCATED ELETRIC WATER COOLER (SEE ELECTRICAL)
9. NEW COUNTER TOP, CASEWORK, STAINLESS UNDERMOUNT SINK AND FAUCET
10. NEW REFRIGERATOR (O.F.C.I.)
11. PAINT ON 5/8" GWB ON 1 1/2" METAL STUD WALL
12. NEW COUNTER TOP AT 42" AFF. WITH SUPPORT BRACKET
13. FINISHED ARCH OPENING

STUDIO MJG, LLC
5206 SW 91ST TERRACE, SUITE A
GAINESVILLE, FLORIDA 32608
WWW.STUDIOMJG.COM

Boulware Springs

3300 SE 15th St.
Gainesville, FL 32641

CONCEPT
SCHEMATIC DESIGN

Michael J. Gilfilen
AR94453

No.	DESCRIPTION	DATE

PROJECT NUMBER:	22003
ISSUE DATE:	December 15, 2022
CREATED BY:	JM
CHECKED BY:	MJG

A112

ARCHITECTURAL FIRST FLOOR RENOVATION PLAN - OPTION 2

12/14/2022 5:59:35 PM

1 ARCHITECTURAL FIRST FLOOR FINISH PLAN - OPTION 2
1/4" = 1'-0"

STUDIO MJG, LLC
5206 SW 91ST TERRACE, SUITE A
GAINESVILLE, FLORIDA 32608
WWW.STUDIOMJG.COM

Boulware Springs

3300 SE 15th St.
Gainesville, FL 32641

CONCEPT
SCHEMATIC DESIGN

Michael J. Gilfilen
AR94453

No.	DESCRIPTION	DATE

PROJECT NUMBER:	22003
ISSUE DATE:	December 15, 2022
CREATED BY:	JM
CHECKED BY:	MJG

A113

ARCHITECTURAL
FIRST FLOOR FINISH
PLAN - OPTION 2

12/14/2022 5:59:35 PM