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Our ref: 12613101-00 | Port Wentworth Recreation Complex

June 06, 2023

Mr. Steven Davis
City of Port Wentworth
7224 GA Highway 21
Port Wentworth, Georgia 31407

Subsurface Explorations and Geotechnical Evaluations

Dear Mr. Davis:

GHD is pleased to present this letter summarizing our subsurface explorations and geotechnical evaluations for the above referenced site. Our services were performed in general accordance with our proposal dated May 15, 2023.

1. Site Description / Project Understanding

GHD received project information via email and telephone correspondence with Mr. Kevin Smith, P.E. of Thomas & Hutton that included a document titled, 'Initial Geotech Boring Locations, Port Wentworth Park', prepared by Thomas & Hutton and dated April 28, 2023. The document provided to us indicates a new recreation park complex is planned for development within the City of Port Wentworth, Georgia. GHD previously provided a "Report of Limited Shallow Subsurface Investigation and Geotechnical Evaluation" (Reference No. 11122323, dated November 4, 2016), which was performed for a portion of the currently proposed recreation park site area. The provided document shows that the property is to include multiple additional parcels which expand the boundaries provided for our previous study of the site toward both the north and southeast which provides road frontages and site entrances along Georgia Highway 30 and Monteith Road, respectively.

It is our understanding that the subject of this investigation is to be select stormwater ponds and pavement areas within the future recreation park. The most recent document provides coordinates of the requested test pit and hand-auger boring locations within these areas.

The subject site extends west from the east side of the Seaboard Coast Line Railway right-of-way between Georgia Highway 30 and Monteith Road. The site can generally be described as having two primary upland areas separated by a wetland in the central portion of the site which also trends along the western site border of the norther upland area. An additional wetland meanders through the northern upland area. Additional site information gathered for the site is summarized below.

- An existing ditch holding stormwater traverses in the east-west direction through the wetland in the central portion of the site that separates the two main upland areas.
- An existing utility easement traverses generally in the north-south direction through the eastern portion of the site.
- Lidar included on the document provided indicates that the site gently undulates between low points in wetland areas to highpoints in upland areas. Our fieldwork found the site to have variable

vegetation but is primarily moderately to heavily wooded with a few narrow earthen paths within the southern upland acreage.

The purpose of our work was to provide geotechnical information concerning 1) the suitability of the on-site soils within the currently proposed stormwater detention pond areas for reuse as structural fill / backfill at the locations and to the depths explored, 2) the suitability of the near surface soils within the currently proposed roadways to remain in place as subbase soils for direct support of pavements, and 3) asphalt pavement section design and construction.

2. Subsurface Explorations / Laboratory Testing

The scope of our geotechnical field explorations included hand-auger borings at the requested locations within select future pavement areas and test pits at the requested locations within select proposed stormwater ponds. The approximate locations of the explorations are shown on **Figures 1 and 2**. A GHD professional transferred the coordinates on the provided documents to hand-held global positioning unit (GPS) devices and utilized in the field to locate the exploration locations. Given the method of locating the explorations in the field, the locations indicated on **Figures 1 and 2** should be considered approximate. Details of the explorations performed are provided in the sections that follow.

2.1 Hand-Auger Borings

Six hand-auger borings (designated HA-1 through HA-6) were performed at the requested locations to depths of approximately 48 inches below the existing ground surface on May 22, 2023. The soils at each hand-auger location were examined by manually twisting a steel auger into the soil and retrieving samples of the cuttings at regular depth intervals. Our personnel visually classified the soils encountered in the field. The logs of the hand-auger borings are presented as **Appendix A, Hand-Auger Boring Logs**.

2.2 Test Pits

Eight test pit excavations (designated TP-1 through TP-8) were performed at the requested locations within select stormwater ponds to depths of between approximately 14 to 17 feet below the existing ground surface on May 19, 2023. The soils encountered at each test pit location were examined during the excavation of each test pit. Our personnel visually classified the soils encountered in the field. The logs of the test pits are presented as **Appendix B, Test Pit Logs.**

2.3 Soil Sample Handling

The soil samples obtained from the explorations were placed in individual containers, properly sealed and marked for identification. The soils samples were then transported to our laboratory for analysis and classification by a GHD professional in general accordance with ASTM D2487 (Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)).

2.4 Laboratory Analyses

Selected samples of the soils collected from the explorations were tested in our laboratory to determine their percent fines (ASTM D1140), natural moisture content (ASTM D2216) and Atterberg limits (ASTM D4318). The laboratory data was used to aid in the classification of the soils in accordance with ASTM D2487 and to further define their engineering properties. The laboratory test results are presented on the logs in **Appendices A** and **B**.

3. Soil Stratigraphy / Groundwater

A GHD professional developed the final log information from the field logs (hand-auger borings and test pits) and visual review of the recovered soil samples in our laboratory. Similar soils were grouped into strata, with each stratum described in general accordance with the nomenclature used in ASTM D2487. Although indicated on the logs as distinct changes, the transition from one soil type or stratum to another may be gradual or may occur at slightly differing elevations than indicated between soil samples. Soil conditions may also vary from our findings at locations in areas of the site not explored.

For reference, a generalized stratigraphic profile developed from the test pit and hand-auger boring explorations is provided in **Table 1**. For a more detailed description, please refer to the **Appendices** to this report. The logs include the Unified Soil Classification System (USCS) symbols and groundwater levels at the time of our study.

Table 1 Generalized Stratigraphic Profile

Approximate Depth Below Ground Surface (feet)	Material Description
0 to 2	3 to 10 inches Topsoil and Ground Cover / Silty fine SAND (SM)
2 to 17	Variable: Silty, clayey and/or very clayey fine SAND (SM, SC) *and/or* Fine sandy CLAY (CL)

Groundwater was not encountered at our hand-auger boring locations at the time of exploration. When encountered at our test pit locations, groundwater infiltration depths ranged between 10 and 15 feet below the existing ground surface. We expect groundwater levels will fluctuate depending upon the season, recent rainfall quantities in the area, changing drainage patterns during and post-development of this and surrounding areas, as well as other factors.

4. Pavement Design and Construction

We have based our pavement design recommendations on the following assumptions:

- Heavy construction traffic loads will be part of the traffic using the pavement within the subject site following completion of infrastructure development that will continue until construction of the development is complete.
- The construction of the complete pavement section occurs at the time of road construction.
- Site preparation procedures, including removal and replacement of unsuitable or yielding soils, have been completed where necessary.
- All asphalt and concrete pavements should be constructed in accordance with the guidelines of the latest applicable edition of the Georgia of Transportation (GDOT) Standard Specifications.

Our pavement design and construction recommendations are provided below.

4.1 Asphalt Pavement Design Sections

We consider the entrance roadway in the area of our hand-auger location HA-6 a “primary route” as this route is anticipated to receive heavy truck traffic during the development of the various components of the park complex followed by post-development heavy truck traffic. Driveways and parking areas are anticipated to receive only vehicular traffic during and after the completion of development of the park complex. A third

section should be utilized for any routes within these vehicular areas that would receive occasional heavy truck traffic. Recommended asphalt pavement sections are summarized in **Table 2**.

Table 2 Asphalt Pavement Section Recommendations

Asphalt Pavement Location	Asphalt Surface Course	Asphalt Intermediate Course	Asphalt Base Course	Graded Aggregate Base Course	Sand Subbase [a]
Park Entrance Road					
Option 1	1½ inches	2 inches	6 inches	-	24 inches
Option 2	1½ inches	2 inches	-	10 inches	24 inches
Vehicular Routes / Parking [b]	2 inches	-	-	6 inches	24 inches
Routes with Occasional HeavyTrucks	1½ inches	2 inches	-	8 inches	24 inches

[a] Sand subbase should consist of inorganic, granular material with a maximum of 20 percent by weight passing the No. 200 sieve.

[b] We recommend that construction traffic be minimized on pavements constructed with this "light duty" pavement section to the extent practical, in an effort to minimize potential distress to this lighter duty pavement section.

4.2 Concrete Pavement Design Sections

4.2.1 Light Duty Concrete Pavement

Following completion of the site preparation procedures for paved areas as detailed in this report, we recommend minimum thicknesses of rigid concrete pavement of 6 inches bearing directly upon a 24-inch sand subbase (with a maximum of 20 percent by weight passing the No. 200 sieve) for locations receiving occasional truck traffic (e.g. dumpster pad entrances).

4.2.2 Heavy Duty Concrete Pavement

Following completion of the site preparation procedures for paved areas as detailed in this report, we recommend minimum thicknesses of rigid concrete pavement of 6 inches and 8 inches of graded aggregate base course over a 24-inch sand subbase (with a maximum of 20 percent by weight passing the No. 200 sieve) for locations receiving frequent fire truck traffic.

4.3 Site Preparation

4.3.1 Stripping / Grubbing

Site preparation should include the complete clearing, stripping and removal of grasses/weeds, underbrush, surficial topsoil, surficial and shallow subgrade soils containing significant quantities of organic material, stumps, and root systems of existing trees (roots larger than finger size), and other deleterious materials from within and to a minimum distance of three (3) feet beyond the perimeter of pavement areas. Although we encountered up to approximately 10 inches of surficial organic debris and topsoil in our explorations, it should be anticipated that removal of deleterious material to greater depths may be required due to major root systems of trees, as well as due to disturbance of the surface soils by site preparation equipment during stripping, grubbing, root raking, etc.

During site clearing and earthwork operations, and while excavating for site utilities, the excavated and exposed soils should be observed for the presence of excessive organic and/or deleterious materials and debris that could be detrimental to the pavements. We recommend that an experienced soils engineering

technician be present on site during the stripping and grubbing process in order to determine which surficial and/or shallow subgrade soils must be removed and replaced due to excessive organic content.

4.3.2 Subbase (Subgrade)

We recommend the use of at least 24 inch thick subbase consisting of inorganic sand having no more than 20 percent silt/clay content, compacted to a minimum of 98 percent of the soil's maximum dry density as determined by Modified Proctor test (ASTM D1557), or 100 percent of the maximum dry density as determined by the Standard Proctor test (ASTM D698). All fill / backfill below the 24-inch subbase layer should also consist of inorganic sand having no more than 20 percent silt/clay content, compacted to a minimum of 95 percent of the soil's maximum dry density as determined by Modified Proctor test (ASTM D1557), or 98 percent of the maximum dry density as determined by the Standard Proctor test (ASTM D698)

Immediately prior to placing the aggregate base course, the subgrade (subbase) soils should be moisture adjusted and recompacted, if necessary. The subgrade soils should be proofrolled to check for stable conditions.

4.3.3 Suitability of Shallow Subbase Soils for Impervious Pavement

The soils encountered at our hand-auger boring locations contain silt/clay contents in excess of the recommended maximum of 20 percent are anticipated to be encountered within the 24-inch subbase layer of the recommended roadways and pavements, such that removal and replacement should be anticipated if site elevating fill does not provide for the necessary 24-inch subbase thickness.

Careful consideration should be given to the potential for the moisture sensitive silty and clayey sands to become unstable due to moisture intrusion from inclement weather while exposed. Where this occurs, additional undercutting would likely be required to facilitate development. We recommend that a representative of GHD be contacted to evaluate the subbase soils during construction to verify areas requiring removal and replacement.

4.3.4 Aggregate Base Course / Prime Coat

The aggregate base course should comply with the GDOT Standard Specifications. The material should be compacted to at least 98 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D1557), or 100 percent of the maximum dry density as determined by the Standard Proctor test (ASTM D698).

The base course should be proofrolled to verify stable conditions prior to asphalt paving. We recommend the placement of a prime coat on the aggregate base course if the base will remain exposed to the elements for a period longer than 2 weeks prior to paving. A prime coat helps fill voids, stabilize the fines, protect the base course, and promotes bonding to the asphalt course.

4.3.5 Underdrains

We recommend 100 percent underdrains along the pavements within the development. The underdrain should be installed at a depth of 24 inches below the bottom of concrete or base course elevation. Backfill can be any granular material such as coarse sand, #57 stone or gravel. The anticipated volume of infiltrating stormwater should be evaluated to understand the effectiveness of coarse sand in lieu of more open-graded materials such as #57 stone, if that option is considered. The trench should be lined with a non-woven fabric to minimize the loss of soil fines into the trench. The purpose of the underdrain system is to minimize groundwater intrusion into the subbase section of the roadway thereby reducing the strength of the roadway soils. Therefore, the drain should be positioned above the normal water level of adjacent drainage features to avoid inundating the subbase soils with water on a regular basis.

5. Suitabilty of Pond Soils for Reuse as Structural Fill

Based on the visual classification of the soils, as well as the laboratory test results, we have included on the test pit logs in **Appendix B** color codes that provide a visual depiction of the general suitability of the soils for use as structural fill (assuming they are placed at or near the optimum moisture content). A summary of the suitability designations is provided below:

a) All-purpose fill – Soils designated for use as all-purpose fill consist of predominantly sandy soils with less than 20 percent by weight finer than the #200 sieve (i.e. silt/clay content). Soils in this grouping can be utilized as roadway subgrade/subbase, building pad fill, and utility backfill, are less sensitive to moisture fluctuations, and can be dried relatively quickly when excess moisture is present. Soils in this grouping are considered 'select fill'.

b) Building Pad Fill/Utility Backfill – Soils designated for this use consist of predominantly sandy soils, classified as silty sands or clayey sands, with 20 to 30 percent by weight finer than the #200 sieve (i.e. silt/clay content). Soils in this grouping can be utilized for any application other than the top 24 inches below the aggregate base course within roadways and are moderately sensitive to moisture fluctuations.

c) Marginal Fill – Soils designated for this use consist of predominantly sandy soils, classified as very silty sands or very clayey sands, with 30 to 50 percent by weight finer than the #200 sieve (i.e. silt/clay content). Soils in this grouping are sensitive to moisture fluctuations, which increases with fines content. These soils contain more than the typically recommended 30 percent maximum fines content for fill or backfill within building pad areas. The basis for the maximum fines content lies in the moisture sensitivity of these materials which makes them difficult to moisture adjust and adequately densify to meet project specifications during construction. Successful use of these soils is highly dependent on dry weather, and they will require significant additional effort to attain passing compaction.

d) Unsuitable – Soils designated for this use consist of silts / clays (soils having greater than 50 percent by weight finer than the #200 sieve. Soils in this grouping in this geographic areas are typically significantly wet of optimum moisture content and thus are deemed unsuitable for use as structural fill, and they should be placed in non-structural areas only.

We have summarized the results of our test pit explorations in terms of potential reuse in **Table 3**. Note that the soils considered suitable must be at least 2 feet in thickness to be considered retrievable without significant contamination by the overlying topsoil, and thus, they should not be included in reuse quantities.

Table 3 Summary of Potential Soil Reuse as Structural Fill

Test Pit	Depths Encountering All-Purpose Structural Fill (Sands having ≤ 20% Silt/Clay)	Depths Encountering Building Pad Fill and Utility Backfill [a] (Sands having ≤ 30 Silt/Clay)	Depths Encountering Marginal Fill / Utility Backfill [a] (Sands with 30 to 50% Silt/Clay)	Depths Encountering Soils Unsuitable for Reuse (Silt/Clay)
TP-1	8" – 3'	8" – 3'	3' – 9'	9' – 14'
TP-2	-	8" – 3'	3' - 10'	-
TP-3	11' – 14'	8" – 2' [c] / 5' – 14'	2' – 5'	14' – 15'
TP-4	-	10" – 2 [c]	2' – 9'	9' – 15'
TP-5	5' – 9'	6" – 3' / 9' – 14'	3' – 5'	-
TP-6	5' – 13'	6" – 3' / 5' – 17'	3' – 5'	-
TP-7	7' – 12'	10" – 4' / 7' – 14'	4' – 7'	-
TP-8	-	3" – 3' / 6' – 10'	3' – 6' / 10' – 14'	-

[a] Where silty, clayey and/or very clayey fine sands are to be reused as structural fill or as backfill in utility trench excavations, strict moisture control will need to be maintained during site preparation. It should be realized that much of these soils will be excavated in a wet condition, will retain moisture and will require additional effort to achieve the prescribed dry density and a stable condition. Failure to control moisture in these soils may result in undercutting of otherwise stable soils after placement.

6. Limitations

This report: has been prepared by GHD for City of Port Wentworth *and may only be used and relied on by City of Port Wentworth and the selected project consultants for the purpose agreed between GHD and City of Port Wentworth as set out in this report.*

GHD otherwise disclaims responsibility to any person other than City of Port Wentworth arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report). GHD disclaims liability arising from any of the assumptions being incorrect.

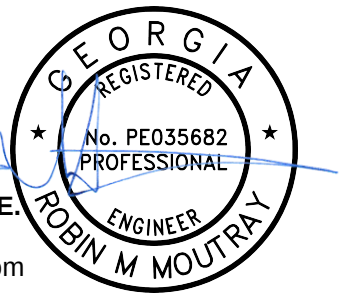
GHD's scope of work for this project has not included investigation, detection, or evaluation related to the presence of any biological pollutants. The term 'biological pollutants' includes, but is not limited to, mold, fungi, spores, bacteria, and viruses, and the by products of any such biological organisms. Further, evaluation or review to determine compliance with State and/or Federal regulatory requirements, assessment of potential contamination migration from or onto the subject site, and/or any similar environmental analyses were beyond the scope of this study.

This report has been prepared with the intent that it not be separated. Information from this report should not be distributed or made available to designers or contractors in partial form. This report should be made available to prospective contractors for information only, and not as a warranty of subsurface conditions.

7. Closure

We appreciate the opportunity to work with you on this project. We trust that the information provided in the report is clear and understandable. Should it require any clarification or amplification, however, please contact us at (912) 235-3021.

Regards



6-6-2023

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Enclosures

cc: Mr. Kevin Smith, P.E.; Thomas & Hutton

Appendix A

Hand-Auger Logs

Key to Soil Classification

Particle Size Identification
(Unified Classification System)

Boulders:	Diameter exceeds 8 inches
Cobbles:	3 to 8 inches diameter
Gravel:	**Coarse** - 3/4 to 3 inches diameter
	Fine - 4.76 mm to 3/4 inch diameter
Sand:	**Coarse** - 2.0 mm to 4.76 mm diameter
	Medium - 0.42 mm to 2.0 mm diameter
	Fine - 0.074 mm to 0.42 mm diameter
Silt and Clay:	Less than 0.07 mm (particles cannot be seen with naked eye)

Modifiers

The modifiers provide our estimate of the amount of silt, clay or sand size particles in the soil sample.

Approximate Content	Modifiers
≤ 5%:	Trace
5% to 12%:	Slightly silty, slightly clayey, slightly sandy
12% to 30%:	Silty, clayey, sandy
30% to 50%:	Very silty, very clayey, very sandy

Field Moisture Description	
Saturated:	Usually liquid; very wet, usually from below the groundwater table
Wet:	Semisolid; requires drying to attain optimum moisture
Moist:	Solid; at or near optimum moisture
Dry:	Requires additional water to attain optimum moisture

A-1 Log of Hand-Auger Borings

Project: Port Wentworth Recreation Complex Date: May 22, 2023

Personnel: W. Marshall Reference No: 12613101-00

Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Suitability as Subbase
HA-1	0 – 5”	Topsoil / Pine straw cover	
	5” – 17”	Gray silty fine SAND (SM)	
	17” – 28”	Tan silty fine SAND (SM)	
	28” – 36”	Gray and orange fine very sandy CLAY (CL) *<MC=8.9; -200=56.7>* *<Liquid Limit=38; Plasticity Index=23>*	
	36” – 48”	Orange and gray fine sandy CLAY (CL)	
HA-2	0 – 6”	Topsoil / Pine straw cover	
	6” – 12”	Dark brown silty fine SAND (SM)	
	12” – 30”	Tan silty fine SAND (SM) *<MC=0.9; -200=24.4>*	
	30” – 36”	Orange and gray clayey fine SAND (SC)	
	36” – 48”	Red and gray very clayey fine SAND (SC)	
HA-3	0 – 3”	Topsoil / Pine straw cover	
	3” – 12”	Gray silty fine SAND (SM)	
	12” – 18”	Tan silty fine SAND (SM)	
	18” – 30”	Orange very clayey fine SAND (SC)	
	30” – 48”	Tan very silty fine SAND (SM) with clay nodules *<MC=4.8; -200=37.2>*	
HA-4	0 – 5”	Topsoil / Pine straw cover	
	5” – 12”	Gray silty fine SAND (SM)	
	12” – 24”	Tan silty fine SAND (SM)	
	24” – 48”	Red and gray very clayey fine SAND (SC) *<MC=9.0; -200=44.3>* *<Liquid Limit=41; Plasticity Index=22>*	

Comments: MC = Moisture Content; -200 = Percent Silt / Clay; Yellow = Suitable as Subbase; Red = Not Suitable as Subbase

A-1 Log of Hand-Auger Borings

Project: Port Wentworth Recreation Complex Date: May 22, 2023

Personnel: W. Marshall Reference No: 12613101-00

Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Suitability as Subbase
HA-5	0 – 6”	Topsoil / Pine straw cover	
	6” – 12”	Gray silty fine SAND (SM) *<MC=2.3; -200=23.9>*	
	12” – 24”	Tan silty fine SAND (SM)	
	24” – 36”	Red and orange clayey fine SAND (SC)	
	36” – 48”	Red and gray clayey fine SAND (SC)	
HA-6	0 – 4”	Topsoil / Leave cover	
	4” – 14”	Dark brown silty fine SAND (SM)	
	14” – 36”	Tan and gray silty fine SAND (SM)	
	36” – 48”	Orange and gray very clayey fine SAND (SC) *<MC=6.8; -200=39.2>*	

Comments: MC = Moisture Content; -200 = Percent Silt / Clay; Yellow = Suitable as Subbase; Red = Not Suitable as Subbase

Appendix B

Log of Test Pits

B-1 Log of Test Pits

Project: Port Wentworth Recreation Complex
Date: May 19, 2023
Personnel: W. Marshall / W. Walston
Reference No: 12613101-00
Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Natural Moisture Content (%)	Percent Finer than #200 Sieve	Suitability
TP-1	0 – 8”	Topsoil			
	8” – 3’	Tan fine SAND (SP)			
	3’ – 9’	Gray and orange very clayey fine SAND (SC)	18.5	36.9	
	9’ – 14’	Dark gray and blue fine very sandy CLAY (CL) with sand seams	27.4	52.4	
Test pit terminated at 14’					

Suitability Key:

- All-Purpose Fill; Silt/Clay Content = 0 to 20% (SP, SP-SM, SP-SC, SM, SC)
- Building Pad Fill/Utility Backfill; Silt/Clay Content = 20 to 30% (SM, SC)
- Marginal Structural Use; Silt/Clay Content = 30 to 50% (SM, SC)
- Typically Unsuitable; Silt/Clay Content = >50% (CL, CH)

B-1 Log of Test Pits

Project: Port Wentworth Recreation Complex
Date: May 19, 2023
Personnel: W. Marshall / W. Walston
Reference No: 12613101-00
Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Natural Moisture Content (%)	Percent Finer than #200 Sieve	Suitability
TP-2	0 – 8”	Topsoil			
	8” – 3’	Tan silty fine SAND (SM)	8.0	20.2	
	3’ – 10’	Orange and gray very clayey fine SAND (SC)	17.5	38.0	
	10’ – 15’	Dark gray and blue very clayey fine SAND (SC) with sand seams and fine gravel <*Groundwater infiltration encountered at 15’*>	23.0	33.7	
Test pit terminated at 15’					

Suitability Key:

- All-Purpose Fill; Silt/Clay Content = 0 to 20% (SP, SP-SM, SP-SC, SM, SC)
- Building Pad Fill/Utility Backfill; Silt/Clay Content = 20 to 30% (SM, SC)
- Marginal Structural Use; Silt/Clay Content = 30 to 50% (SM, SC)
- Typically Unsuitable; Silt/Clay Content = >50% (CL, CH)

B-1 Log of Test Pits

Project: Port Wentworth Recreation Complex
Date: May 19, 2023
Personnel: W. Marshall / W. Walston
Reference No: 12613101-00
Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Natural Moisture Content (%)	Percent Finer than #200 Sieve	Suitability
TP-3	0 – 8”	Topsoil / Pine straw cover			
	8” – 2’	Tan silty fine SAND (SM)			
	2’ – 5’	Red and brown very clayey fine SAND (SC)	18.8	44.3	
	5’ – 11’	Red and gray clayey fine SAND (SC) <*Groundwater infiltration encountered at 11’*>	13.5	25.1	
	11’ – 14’	Gray slightly silty fine SAND (SP-SM)	25.6	7.9	
	14’ – 15’	Gray fine sandy CLAY (CL) with sand seams	44.4	81.7	
Test pit terminated at 15’					

Suitability Key:

- All-Purpose Fill; Silt/Clay Content = 0 to 20% (SP, SP-SM, SP-SC, SM, SC)
- Building Pad Fill/Utility Backfill; Silt/Clay Content = 20 to 30% (SM, SC)
- Marginal Structural Use; Silt/Clay Content = 30 to 50% (SM, SC)
- Typically Unsuitable; Silt/Clay Content = >50% (CL, CH)

B-1 Log of Test Pits

Project: Port Wentworth Recreation Complex
Date: May 19, 2023
Personnel: W. Marshall / W. Walston
Reference No: 12613101-00
Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Natural Moisture Content (%)	Percent Finer than #200 Sieve	Suitability
TP-4	0 – 10”	Topsoil			
	10” – 2’	Tan silty fine SAND (SM)			
	2’ – 5’	Gray and orange very clayey fine SAND (SC)	23.6	48.4	
	5’ – 9’	Brown and gray very clayey fine SAND (SC)	19.1	32.3	
	9’ – 15’	Gray and orange fine sandy CLAY (CL) with sand seams	47.4	85.3	
Test pit terminated at 15’					

Suitability Key:

- All-Purpose Fill; Silt/Clay Content = 0 to 20% (SP, SP-SM, SP-SC, SM, SC)
- Building Pad Fill/Utility Backfill; Silt/Clay Content = 20 to 30% (SM, SC)
- Marginal Structural Use; Silt/Clay Content = 30 to 50% (SM, SC)
- Typically Unsuitable; Silt/Clay Content = >50% (CL, CH)

B-1 Log of Test Pits

Project: Port Wentworth Recreation Complex
Date: May 19, 2023
Personnel: W. Marshall / W. Walston
Reference No: 12613101-00
Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Natural Moisture Content (%)	Percent Finer than #200 Sieve	Suitability
TP-5	0 – 6”	Pine straw cover / Topsoil			
	6” – 3’	Tan silty fine SAND (SM)			
	3’ – 5’	Red and gray very clayey fine SAND (SC)	15.2	36.9	
	5’ – 9’	Orange and gray clayey fine SAND (SC)	8.5	14.3	
	9’ – 14’	Tan and orange clayey fine SAND (SC) *<Groundwater infiltration encountered at 11’>*	26.8	25.2	
Test pit terminated at 14’					

Suitability Key:

- All-Purpose Fill; Silt/Clay Content = 0 to 20% (SP, SP-SM, SP-SC, SM, SC)
- Building Pad Fill/Utility Backfill; Silt/Clay Content = 20 to 30% (SM, SC)
- Marginal Structural Use; Silt/Clay Content = 30 to 50% (SM, SC)
- Typically Unsuitable; Silt/Clay Content = >50% (CL, CH)

B-1 Log of Test Pits

Project: Port Wentworth Recreation Complex
Date: May 19, 2023
Personnel: W. Marshall / W. Walston
Reference No: 12613101-00
Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Natural Moisture Content (%)	Percent Finer than #200 Sieve	Suitability
TP-6	0 – 6”	Topsoil / Pine straw cover			
	6” – 3’	Tan silty fine SAND (SM)			
	3’ – 5’	Orange and gray very clayey fine SAND (SC)	20.0	39.1	
	5’ – 13’	Orange and gray clayey fine SAND (SC) *<Groundwater infiltration encountered at 13’>*	14.1	17.9	
	13’ – 17’	Dark gray and blue silty fine SAND (SM)	33.3	28.7	
Test pit terminated at 17’					

Suitability Key:

- All-Purpose Fill; Silt/Clay Content = 0 to 20% (SP, SP-SM, SP-SC, SM, SC)
- Building Pad Fill/Utility Backfill; Silt/Clay Content = 20 to 30% (SM, SC)
- Marginal Structural Use; Silt/Clay Content = 30 to 50% (SM, SC)
- Typically Unsuitable; Silt/Clay Content = >50% (CL, CH)

B-1 Log of Test Pits

Project: Port Wentworth Recreation Complex
Date: May 19, 2023
Personnel: W. Marshall / W. Walston
Reference No: 12613101-00
Location: See Figure 1

Location	Depth Below Ground Surface	Soil Description	Natural Moisture Content (%)	Percent Finer than #200 Sieve	Suitability
TP-7	0 – 10”	Topsoil			
	10” – 4’	Tan silty fine SAND (SM)			
	4’ – 7’	Gray and orange very clayey fine SAND (SC)	16.4	30.7	
	7’ – 12’	Gray and orange clayey fine SAND (SC)	13.1	19.1	
	12’ – 14’	Gray silty fine SAND (SM) *<Groundwater infiltration encountered at 13’>*	29.7	29.0	
Test pit terminated at 14’					

Suitability Key:

- All-Purpose Fill; Silt/Clay Content = 0 to 20% (SP, SP-SM, SP-SC, SM, SC)
- Building Pad Fill/Utility Backfill; Silt/Clay Content = 20 to 30% (SM, SC)
- Marginal Structural Use; Silt/Clay Content = 30 to 50% (SM, SC)
- Typically Unsuitable; Silt/Clay Content = >50% (CL, CH)

B-1 Log of Test Pits

Project: Port Wentworth Recreation Complex
Date: May 19, 2023
Personnel: W. Marshall / W. Walston
Reference No: 12613101-00
Location: See Figure 1

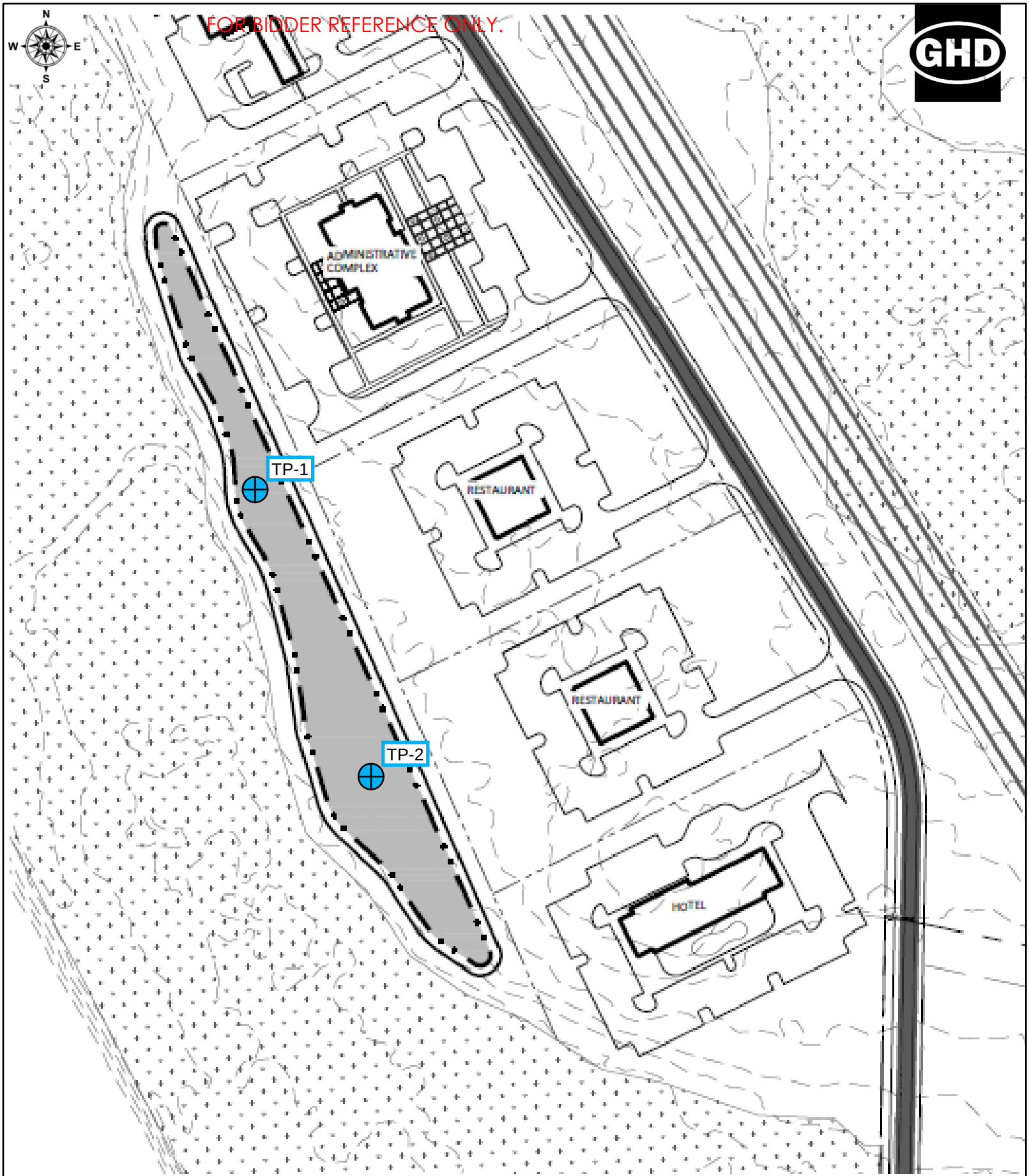
Location	Depth Below Ground Surface	Soil Description	Natural Moisture Content (%)	Percent Finer than #200 Sieve	Suitability
TP-8	0 – 3”	Topsoil / Grass cover			
	3” – 3’	Tan and dark brown silty fine SAND (SM)			
	3’ – 6’	Orange and gray very clayey fine SAND (SC)	17.4	32.1	
	6’ – 10’	Red and orange clayey fine SAND (SC) <*Rapid groundwater infiltration encountered at 10’*>	23.8	22.7	
	10’ – 14’	Gray and orange very clayey fine SAND (SC)	25.8	41.1	
Test pit terminated at 14’					

Suitability Key:

- All-Purpose Fill; Silt/Clay Content = 0 to 20% (SP, SP-SM, SP-SC, SM, SC)
- Building Pad Fill/Utility Backfill; Silt/Clay Content = 20 to 30% (SM, SC)
- Marginal Structural Use; Silt/Clay Content = 30 to 50% (SM, SC)
- Typically Unsuitable; Silt/Clay Content = >50% (CL, CH)

Appendix C

Figure



TP-# Designation / approximate location of Test Pits

Figure 1: Exploration Location Plan – Northern Area

Port Wentworth Recreation Complex

Prepared By: W. Marshall
Date: 6-5-2023

Checked By: R. Moutray
Date: 6-5-2023

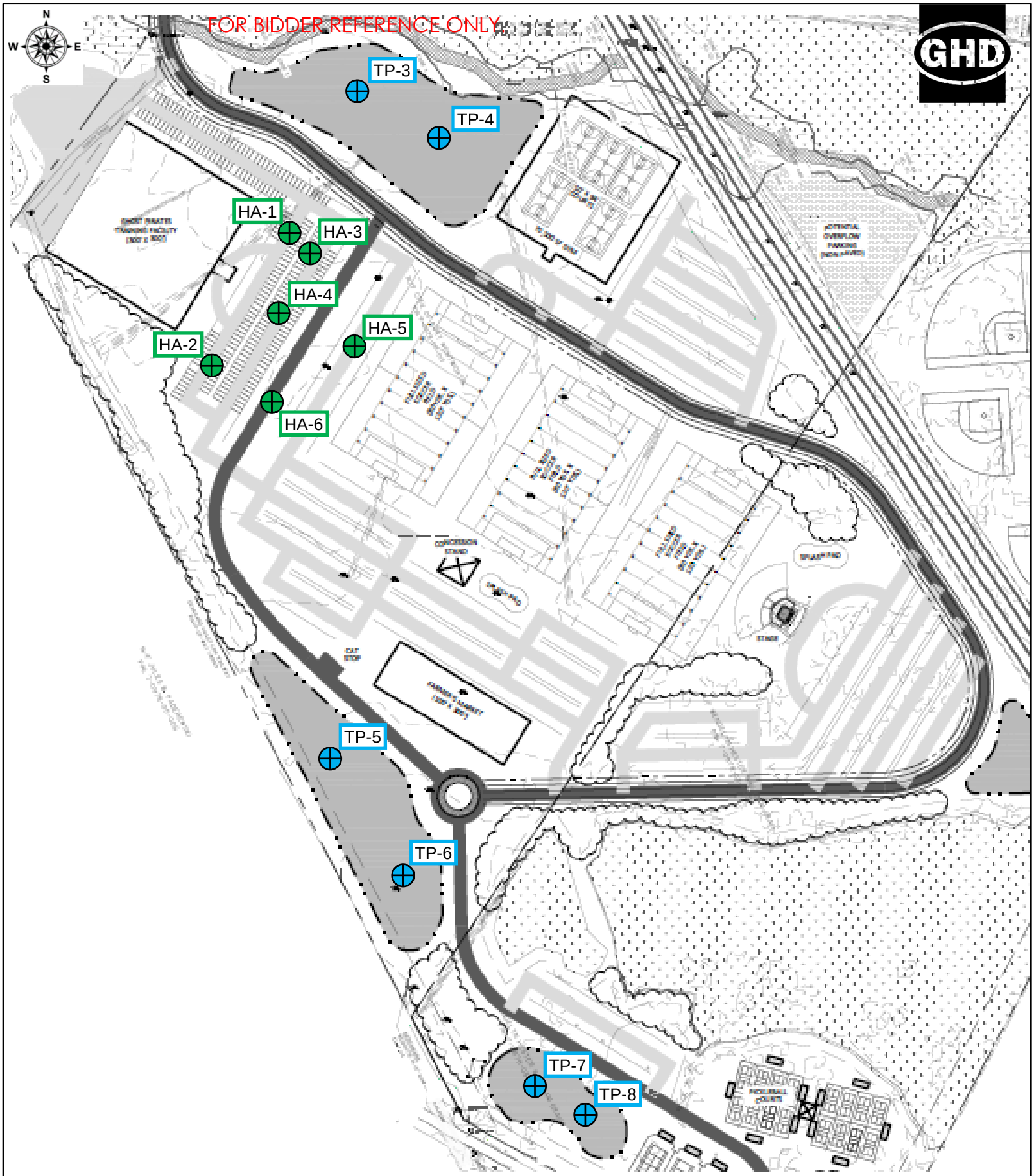


Figure 2: Exploration Location Plan – Southern Area

Port Wentworth Recreation Complex

Prepared By: W. Marshall
Date: 6-5-2023

Checked By: R. Moutray
Date: 6-5-2023