COUNTY OF ERIE

DEPARTMENT OF PARKS, RECREATION AND FORESTRY

JAMES K. MCDONALD
DEPUTY COMMISSIONER OF PARKS

TROY P. SCHINZEL
COMMISSIONER

NICOLE RUBERTO
DEPUTY COMMISSIONER OF RECREATION

CLARIFICATIONS

22 August 2025

Erie County Department of Parks, Recreation & Forestry ("Parks"): Design and Engineer Report Services to Identify Coastal Erosion Solutions for Wendt Beach Park RFP # 2025-035VF

On page 8 of the RFP this paragraph states "One (1) original and **three (2)** copies shall be submitted. Proposals MUST be signed. Unsigned proposals will be rejected". It should say "three (3)".

Section G, No. 9 of the RFP refers to a "Proposal Form" for the cost proposal. This form was never attached to the RFP and can be found as Attachment A of this document.

QUESTIONS & ANSWERS

1. **Question:** Was the stone along the dune on the lake side of the Mansion placed as part of erosion control? Can you tell us more about that?

   Answer: The stone was placed as part of a project completed in 1984 by the U.S. Army Corp. of Engineers. See Attachment B: "Operations and Maintenance Manual for Emergency Shore Protection Town of Evans", for more details.

2. **Question:** What information do you have on the manhole on the beach near the Mansion?

   Answer: The manhole in reference is connected to the pump station. See Attachment B: "Operations and Maintenance Manual for Emergency Shore Protection Town of Evans", for more details.

3. **Question:** Are there any paths through the dune we would like to maintain?

   Answer: None of the paths were built or maintained by Parks. No formalized trail design or engineering along or through the dunes is requested as part of this project.

4. **Question:** Can you provide a map of the project area?

   Answer: Yes, see Attachment C: "Wendt Beach Project Area and FEMA Map".

5. **Question:** Does the project area include the inland sections of the park?

   Answer: No, the primary focus of the project is shoreline stabilization and dune protection. Area inland from the dune edge is out of the project area.

6. **Question:** What is the renovation plan for the Mansion? Will the footprint or structure change?

Answer: Phase One of the Wendt Beach Mansion project is an exterior improvement project to include: new roof, windows, doors, structural improvements, siding, etc. The foundation of the mansion will not be changing.

7. **Question:** When is the grant end date?

   Answer: The Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grant partially funding this project ends May 14, 2026.

8. **Question:** Is WQIP another funder of the project?

   Answer: No, the Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grant received is part of New York State's Water Quality Improvement Program (WQIP).

9. **Question:** What is the other funding source?

   Answer: This project will be funded by a Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grant and Erie County Local Share.

10. **Question:** What is the total budget?

    Answer: The total budget is undetermined currently.

11. **Question:** Can you provide the waiver application for MWBE and SDVOB goals?

    Answer: The NYS DEC and ESD, not Erie County, can authorize a waiver for MWBE and SDVOB goals for Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grants. The company requesting a waiver must provide substantial evidence of its Good Faith Efforts (GFE), including documentation showing that all MWBE/SDVOB firms listed by NYS have been contacted and solicited. DEC will not approve any waiver without this documentation. Erie County Division of Equal Employment Opportunity is available to assist with searches, but the company must maintain records of all outreach efforts, including proof of contacts. The company would need to track the effort on an Erie County Solicitation Log and submit an ESD Waiver which can be found in Attachment D: "ESD - Office of Contractor and Supplier Diversity: Waiver Request Form".

12. **Question:** Is there ambivalence toward preventing further coastal erosion for any part of the property?

    Answer: No

13. **Question:** Has the beach sediment changed significantly over recent years (for example stoney to sandy)?

    Answer: No

14. **Question:** Has there been work done recently to move sediment or debris near the stream that drains from the wetland, across the beach, and to Lake Erie? Perhaps to alleviate flooding?

    Answer: Yes, a force main for the sewer was installed under the stream bed, the culvert was removed, and the banks were stabilized.

15. **Question:** Is there any existing environmental data for the property (soils, survey, field investigations, reports, etc)?

    Answer: A geotechnical report, see Attachment E: "Geotechnical Report for the Shoreline Trail", was created for the Wendt Beach Park shoreline trail section.

16. **Question:** Section G, No. 7 of the RFP requires that respondents provide a MWBE Utilization Plan; however, the form provided in Appendix E is a Staffing Plan, not a MWBE Utilization Plan. Is there a MWBE Utilization Plan that the County can provide, or should respondents fill out the Staffing Plan as provided?

    Answer: Please fill out the MWBE Staffing Plan in Attachment E of the RFP. This is the correct form required for the grant.

17. **Question:** Section G, No. 9 of the RFP refers to a "Proposal Form" for the cost proposal, but one is not included in the RFP. Will the County provide this form?

    Answer: See Attachment A: "Proposal Form".

18. **Question:** Section G, No. 9 of the RFP refers to a format provided in Schedule E – Rates of Service but a sample contract is not provided. Will the County provide this sample or should respondents use their own format that depicts titles and loaded rates as described in this section?

    Answer: Respondents should use their own format that depicts titles and loaded rates as described in this section.

19. **Question:** If possible, please summarize any known interventions on the beach or dune that Erie County Parks has implemented (e.g., placing stone, clearing debris, repositioning downed trees, etc.).

    Answer: There was a stabilization project completed in 1984 by the U.S. Army Corp. of Engineers. See Attachment B: "Operations and Maintenance Manual for Emergency Shore Protection Town of Evans", for more details.

20. **Question:** What type of contract will be released to the selected proposer (lump sum, T&M, etc.)?

    Answer: The fee is a lump sum that consultants will be providing. When consultants submit payment, they must provide detailed backup for each invoice based on their fee schedule.

21. **Question:** During the site visit it was shared that $50K have been secured for the report so far. Could you share an estimated projected total fee for this effort?

    Answer: The total project cost is to be determined. Submit accurate costs of completing the scope of work in the RFP.

22. **Question:** During the site visit it was mentioned non-point source panning grant would be used to fund the work. How about MS4 mapping grant? What amount of funds is expected to be secured for each grant type and will they be secured ahead of the start of the work?

    Answer: This project will be funded by a Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grant and Erie County Local Share. There is only one grant source of funding for this project with a total of $50,000 of state funding and a minimum of $5,000 of Erie County Local Share. The funds are already secured.

23. **Question:** Are there other parks in Erie County where similar projects would be of interest?

    Answer: Yes

24. **Question:** There is a groin on the beach to the north of the site and it looks like it has blocked sand from moving north and perhaps helped the beach at the park build out. Have they noticed this at all?

    Answer: No official groin was installed and there is no other additional information that can be provided.

25. **Question:** Have they noticed any recent severe storms that have caused erosion? What were the conditions like? Did wave overtopping occurred and reached the Mansion in the past?

    Answer: No, the waves has not over topped and reached the Mansion. See the picture below of the Wendt Beach Shoreline immediately after seiche events.

COUNTY OF ERIE

DEPARTMENT OF PARKS, RECREATION AND FORESTRY

JAMES K. MCDONALD
DEPUTY COMMISSIONER OF PARKS

TROY P. SCHINZEL
COMMISSIONER

NICOLE RUBERTO
DEPUTY COMMISSIONER OF RECREATION

RATH BUILDING • 95 FRANKLIN STREET, ROOM 1260 • BUFFALO, NY • 14202 • (716) 858-8355 • ERIE_COUNTY_PARKS@ERIE.GOV

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26. **Question:** Has ever been any consideration about moving the Mansion (is it even possible?) to allow for a higher degree of stabilization along the cost where the Mansion is located?

    Answer: No

27. **Question:** Could a hybrid option (combination of hard armoring and living shoreline concepts) be considered at the site? Have any solutions been proposed for the site before?

    Answer: Yes a hybrid option could be considered, and no solutions have been proposed.

28. **Question:** Is a cover page included in the 25-page limit?

    Answer: No

29. **Question:** Is the Table of Contents included in the 25-page limit?

    Answer: Yes

30. **Question:** Are individual resumes included in the 25-page limit?

    Answer: Yes

31. **Question:** Are a total of three copies required of both the technical proposal as well as the budget? If yes, should each of the three budget copies be in a separate envelope, or is one sealed envelope containing all three copies preferred?

    Answer: No, one copy of the budget is needed.

32. **Question:** For proposal content items #7 and #8, are the goal MWBE and SDVOB utilization percentages listed recommended or required for eligibility to submit a proposal?

    Answer: Goals are requirements from NYS DEC and ESD. A company can seek a waiver from the NYS DEC and ESD by providing a Good Faith Effort (GFE) of all necessary searches for any business that can help them meet the project requirements and demonstrate their outreach efforts (via email, phone, fax, etc.) or insufficient business participation being available, along with supporting documentation. NYS DEC and ESD will review all supporting documentation to determine if a waiver will be granted for either MWBE or SDVOB. Waivers for projects are not granted until the project's conclusion, as the NYS DEC and ESD require verification that the company maintains GFE throughout the project.

Sincerely,

Wendy Paterson

COUNTY OF ERIE

DEPARTMENT OF PARKS, RECREATION AND FORESTRY

JAMES K. MCDONALD
DEPUTY COMMISSIONER OF PARKS

TROY P. SCHINZEL
COMMISSIONER

NICOLE RUBERTO
DEPUTY COMMISSIONER OF RECREATION

Senior Environmental Compliance Specialist

Department of Parks, Recreation and Forestry

Cc: w/encl.

Troy Schinzel –Department of Parks, Recreation and Forestry Commissioner

COUNTY OF ERIE

DEPARTMENT OF PARKS, RECREATION AND FORESTRY

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ATTACHMENTS

Attachment A: "Proposal Form"

Attachment B: "Operations and Maintenance Manual for Emergency Shore Protection Town of Evans"

Attachment C: "Wendt Beach Project Area and FEMA Map"

Attachment D: "ESD - Office of Contractor and Supplier Diversity: Waiver Request Form"

Attachment E: "Geotechnical Report for Shoreline Trail"

Attachment A: “Proposal Form”

REQUEST FOR PROPOSAL FOR PROFESSIONAL SERVICES – PROPOSAL FORM

PROJECT NUMBER: 2025-035VF
PROJECT TITLE: Design & Engineer Report Services to Identify Coastal Erosion Solutions for Wendt Beach Park
DATE: July 14th, 2025
PROPOSAL DUE DATE: August 29th, 2025

TO: Erie County Dept. of Parks
Attn: RFP 2025-035VF
95 Franklin Street, Room 1260
Buffalo, NY 14202

PROJECT LOCATION:

Wendt Beach Park
7676 Lake Shore Road
Derby, NY 14047

PROPOSAL FORM:

A. Please provide fees per Phase as shown below including all labor, material, profit and overhead to provide the services identified within this Request For Proposal (RFP).

Phase I – Pre-Report Phase (Timeline, Current Condition Assessments, and Meetings)

_____

Phase II – Coastal Storm and Erosion Risk Management Engineering Design Report

_____

Phase II – 30% Design of a Shoreline Stabilization Project_____

Please provide estimated cost of reimbursables on the project. (provide an itemized list of anticipated lump sum expenses)
Lump Sum Expense (reimbursables) _____ _____

*** Consultant to provide list of all assumptions and exclusions for the Total Fee applicable to the project for the scope of work summarized within this RFP**

***** Phase I – Pre-Report is to be inclusive of all necessary site investigations including topo/utility survey, geotechnical evaluation, existing condition verification, etc., as applicable to the project and summarized within this RFP/ RFQ

TOTAL FEE (Phases I through III, including allowances and reimbursables above)_____

B. Acknowledgement of Addenda Received (List Addenda No. and date received): _____

C. Please provide an estimate of durations (in weeks) for the following phases of scope of work related to the base scope.
Phase I & II : _____
Phase III : _____

D. Certification: Proposal must be signed by an officer or employee having authority to legally bind the proposer.

FIRM NAME: _____

STREET ADDRESS: _____

CITY & STATE, ZIP: _____

AUTHORIZED REPRESENTATIVE (PRINT): _____**(SIGNATURE)**_____

TITLE: _____ **DATE:** _____

TELEPHONE: _____ **FAX:** _____ **TOLL FREE:** _____

E-MAIL ADDRESS: _____ **INTERNET URL:** _____

TAXPAYER IDENTIFICATION NUMBER: _____

Attachment B: “Operations and Maintenance Manual for Emergency Shore Protection Town of Evans”

NCBED-DD (25 October 1985) 1st Ind

SUBJECT: Operation and Maintenance Manuals for Emergency Shore Protection

DA, Buffalo District, CE, Buffalo, New York 14207 1 Nov 85

TO: Commander, North Central Division, ATTN: NCDCO-C

1. All NCD comments have been incorporated into the appropriate operation and maintenance manuals with the exception of comment 3a. concerning stonefill specifications. The wording used in paragraph 15d. of the manual was taken verbatim from the construction contract specifications. The reason gravel and slag are excluded is to insure that all stone used will be angular in shape and have fractured faces. This type of stone provides a more stable cover on a sideslope subject to wave action. Gravel, which usually comes from a riverbed, and slag are more rounded particles with a lower angle of internal friction. They would be less stable on the sideslope. Also, the density of slag is only approximately 90 pounds per cubic foot, which would make this material susceptible to movement by waves. Based on the above reasons, paragraph 15d of the Wendt Beach Park O&M Manual was not changed.

2. Enclosed are one copy each of the final manuals, for your files.

3. My point of contact pertaining to this matter is Mr. Michael Barton, of my Engineering Division, who can be contacted at commercial number 716-876-5454, extension 2242 or FTS 473-2242.

4. The Buffalo District -- Leadership in Engineering.

for Kenneth R Wallock

DANIEL R. CLARK
Colonel, Corps of Engineers
District Commander

3 Enclosures
as stated

DEPARTMENT OF THE ARMY
NORTH CENTRAL DIVISION, CORPS OF ENGINEERS
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

25 OCT 1985

NCDCO-C

SUBJECT: Operation and Maintenance Manuals for Emergency Shore Protection

Commander, Buffalo District
ATTN: NCBED-DD

1. The operation and maintenance manuals for the projects listed below are approved, subject to the incorporation of the comments in the following paragraphs.

a. Wendt Beach Park, Evans, New York
b. Euclid General Hospital, Euclid, Ohio
c. State Route 163, Marblehead, Ohio

2. The following comments apply to all three manuals.

a. Item "a" of paragraph 11, page 2 reads incorrectly. Should the word "of" or "for" be changed to "or"? The sentence should be revised as necessary.

b. Suggest revising paragraph 11c, page 2 to read as follows, "At such times deemed necessary by the Superintendent or the District Commander."

c. Throughout the manual "District Engineer" should be changed to "District Commander."

3. Wendt Beach Park, Evans, New York

a. Page 3, paragraph 15d calls for stonefill to meet NYSDOT specification and size 3A. Why is it that gravel and crushed stone are not acceptable?

b. Table 1 in page 4 should be titled "Physical Strength Requirements for Filter Cloth."

4. State Route 163, Marblehead, Ohio

a. Page 3, Paragraph 15a. Suggest revising to show consistency of armor stone sizes with those shown in the cross-sections. Stone sizes for the toe stone should also be provided.

b. Page 3, paragraphs 15b and 15c makes reference to plates 1 and 2.

Plate numbers to the gradation curves are not shown. Provide as required. Suggest reference to App. IV also in paragraphs 15b and 15c as that is the location of the plates.

c. Page I-5-4, Appendix I. All non-pertinent paragraphs of the ER-1130-2-203 should be crossed-out.

5. When revisions have been incorporated, furnish 1 copy of each final manual, for our files.

FOR THE COMMANDER:

CARL C. CABLE, P.E.
Chief, Construction-
Operations Division

3 Encls. (dup)
O&M Manuals

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207

NCBED-DD

18 JUN 1985

SUBJECT: Operation and Maintenance Manual for Emergency Shore Protection At Wendt Beach Park, Evans, N.Y.

Commander, North Central Division
ATTN: NCDCO-C and NCDED-T

1. Request approval of the enclosed subject manual in accordance with ER 1150-2-301, paragraph 11b. After approval, appropriate distribution will be made.

2. We will request approval of a formal transfer, in accordance with ER 1150-2-301, paragraph 9c, after coordination with the New York State Department of Environmental Conservation

3. My point of contact pertaining to this matter is Mr. Ambrose Andre, P.E., Chief, of my Design Section who can be contacted at commercial number 716-876-5454, extension 2238 or FTS 473-2238.

4. The Buffalo District -- Leadership in Engineering.

Deputy District Commander

ROBERT R. HARDIMAN
Colonel, Corps of Engineers
District Commander

1 Enclosure (trip)
as stated

DEPARTMENT OF THE ARMY
U.S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, NY 14207

Operation and Maintenance Manual
Emergency Shore Protection
Lake Erie
Wendt Beach Park
Evans, New York

Table of Contents

Table of Contents (Cont'd)

Emergency Shore Protection
Lake Erie
Wendt Beach Park
Evans, New York

PREFACE

The Wendt Beach Park emergency shore protection project has been completed. The project was designed and constructed under the supervision of the Corps of Engineers. The State of New York will accept the project upon transfer from the Federal Government.

This manual has been compiled to assist State and local officials in complying with the requirements for maintaining the protective works.

The manual contains a copy of the drawing and references pertaining to this project.

The project will protect parts of Wendt Beach Park grounds and buildings from erosion by Lake Erie. However, the successful functioning of the project will depend upon how it is maintained by local officials.

Erosion damage, which could result from failure of part of the project, can be prevented through careful inspection and proper maintenance.

Emergency Shore Protection
Lake Erie
Wendt Beach Park
Evans, New York

INTRODUCTION

1. PROJECT AUTHORIZATION

Construction of the emergency shore protection project at Wendt Beach Park on Lake Erie was accomplished under the authority of Section 14 of the 1946 Flood Control Act (Public Law 79-526, 24 July 1946) as amended.

2. LOCATION

The project is located on Old Lake Shore Road in the town of Evans, New York, approximately 20 miles southwest of Buffalo, NY, and 20 miles northeast of Dunkirk, NY, on the shore of Lake Erie.

3. DESCRIPTION

The original project consisted of a stone revetment 400 feet long. A stone fill to cover a raw sand slope from the top of the revetment to the top of the bank was later added. The revetment consists of armor and underlayer stone placed over a plastic filter cloth.

4. PROTECTION PROVIDED

The stone structure provides protection against wave damage from Lake Erie.

5. CONSTRUCTION HISTORY

The original project was completed in November 1982. Janik Paving & Construction, Inc., West Seneca, NY, constructed the revetment under Contract No. DACW4-9-82-C-0048 at a cost of $46,713. The additional work was completed in December 1983 by Ferry Construction Company, Inc., Depew, NY under Contract No. DACW49-84-C-0009 at cost of $6,672.47.

6. LOCAL COOPERATION

a. Requirements for the agreement for local cooperation provide, in part, that the State will maintain the revetment project and remaining embankment slope after completion. A copy of the agreement is included in this manual as Inclosure 1, Appendix I.

b. The maintenance regulations which generally apply to this project are:

(1) Title 33, Code of Federal Regulations, Section 208,10(a) (see Inclosure 2, Apendix I), and waiver of semi-annual reporting as required by paragraph (a) (6) thereto.

(2) Engineer Regulation No. 1130-2-303, Appendix I, Section 5, paragraph 5.11 - not enclosed, but applicable to the check sheet in Appendix II.

PROCEDURES

7. GENERAL

The following paragraphs detail the required rules for maintenance of this project and give more detailed suggestions for complying with the requirements.

8. DUTIES OF SUPERINTENDENT

The State of New York Department of Environmental Conservation, the cooperating agency for the project, shall designate a Superintendent from its personnel who will be responsible for maintenance of the completed project. In addition to specific duties mentioned in this manual, the Superintendent is responsible for developing and sustaining an organization to efficiently maintain the protective works.

9. IMPROVEMENTS OR ALTERATIONS IN THE PROJECT

Drawings or prints of proposed improvements or alterations shall be submitted in triplicate to the District Commander. They shall be submitted prior to the proposed starting date of construction to permit sufficient and adequate study of the effects of the work. Drawings in duplicate or reproducible prints, which show the "as constructed" improvements or alterations shall be furnished to the District Commander.

10. REPORT TO CORPS OF ENGINEERS

An annual report shall be submitted to the District Commander. The report shall cover inspection and maintenance of the protective works, and should include dated copies of the inspection check list or report sheets prepared during the period covered by the report. If either temporary or permanent repairs have been made, the nature and dates of such repairs shall be included. Photographic prints showing the project during high water periods are desired whenever available.

11. PERIODIC INSPECTIONS

Periodic inspections shall be made as required and at the following times:

a. Immediately following each major lake storm equivalent to onshore winds of 40 miles per hour for a period of 3 hours or waves exceeding 5 to 6 feet.

b. Otherwise at periods not exceeding 6 months.

c. At such times deemed necessary by the Superintendent or the District Commander.

12. JOINT INSPECTION

An annual joint inspection shall be made by the District Commander, or his authorized representative, and the Superintendent. Arrangements for such inspections will be made by the District Commander; an advance notice will be given to the Superintendent.

13. CHECK SHEETS

Appendix II contains a suggested form for check sheets, which will facilitate both routine and emergency inspections. This, or similar form, should be used at each inspection to insure that no feature of the protective works is overlooked. Any item needing repairs should be noted thereon; satisfactory items should be so indicated.

PROJECT FEATURES

14. GENERAL

The construction of the shore protection consists of armor and underlayer stone placed over a plastic filter cloth. A stone fill was later added to the raw bank from the top of the revetment to the top of bank.

15. STONE AND FILTER CLOTH SPECIFICATIONS

Stone was provided in the following gradations:

a. Armor Stone 150 pounds minimum
300 pounds maximum

b. Underlayer Stone:

Stone Size	Percent of Total by Weight
Smaller than 8 inches	90-100
Larger than 3 inches	50-100
Smaller than No. 10 sieve	0-10

c. Plastic Filter Cloth. The plastic filter cloth shall be provided with an Equivalent Opening Size (EOS) no finer than the U. S. Standard Sieve No. 100 and no coarser than No. 70. Table 1 indicates the strength requirements.

d. Stonefill: Stone fill shall meet NYSDOT specifications for coarse aggregate except that gravel, crushed gravel, or crushed slag will not be substituted. Stone fill shall be coarse aggregate Size 3A.

16. STONE AND FILTER CLOTH SOURCES

The stone sizes and type of filter cloth listed above will be required for any repair work. The armor stone was obtained from Genstar Stone Products, Lockport, NY. The underlayer stone was obtained from Spencer and Haley, Delavan, NY. The filter cloth, produced by Crown Zellerback, Camas, WA, was supplied by Pavilion Drainage, Pavilion, NY. The stone fill on the upper slope was obtained from Buffalo Crushed Stone, Buffalo Slag Division.

MAINTENANCE

17. GENERAL

The stone revetment shall be inspected periodically. In addition, the Superintendent shall take immediate action to remedy any adverse condition disclosed by such inspections. He shall provide periodic repairs and all adjustments that may be required to restore the revetments to their original "as constructed" condition. Providing new stone and filter cloth may be necessary.

Table 1 - Physical Strength Requirements for Filter Cloth

Physical Property	Test Procedure	Acceptable Test Results
Tensile Strength	ASTM D 1682 Grab Test Method using 1-inch square jaws and a travel rate of 12 inches per minute.	200-pound minimum in any principal direction.
Puncture Strength	ASTM D 751 Tension Testing Machine with Ring Clamp; steel ball replaced with a 5/16-inch diameter solid steel cylinder with a hemispherical tip centered within the ring clamp.	80-pound minimum.
Abrasion Resistance	ASTM D 1682 as above, after abraded as in ASTM D 1175 Rotary Platform, Double Head Method; rubber-base abrasive wheels equal to CS-17 "Calibrase" by Taber Instrument Co; one kilogram load per wheel; 100 revolutions.	55-pound minimum in any principal direction.
Bursting Strength	ASTM 0751 Diagram Bursting Tester	250 psi minimum,

OPERATION

18. GENERAL

There are no structures that require operation. However, the Superintendent should observe wave action during storms to note critical locations along the revetment which may be susceptible to damage. All damaged areas shall be repaired immediately to prevent accelerated future damage.

HIGH WATER LEVEL PERIODS

19. GENERAL

Due to the design and location of the project, high water levels, and storms that accompany the high water levels, will test the stone revetment. The Superintendent shall maintain the revetment as required so that its protective qualities are insured.

20. NATURAL DISASTER PROCEDURE

The Buffalo District has prepared standard operating procedures, in which the policy and procedure relative to activities, before, during, and after any natural disaster are outlined. The manual NCB Plan 500-1-1, includes information and organization for handling emergencies. Copies of the manual have been distributed to affected agencies including the Water Management Group, New York State Department of Environmental Conservation in Albany. Additional copies may be obtained from the Buffalo District, Corps of Engineers, 1776 Niagara Street, Buffalo, NY 14207. Upon request, Buffalo District can provide technical advice.

DEPARTMENT OF THE ARMY
U. S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, NY 14207

EMERGENCY SHORE PROTECTION
LAKE ERIE
WENDT BEACH PARK
EVANS, NEW YORK

OPERATION AND MAINTENANCE MANUAL

APPENDIX I

AGREEMENT FOR LOCAL COOPERATION

AND

REGULATION

AGREEMENT BETWEEN

THE UNITED STATES OF AMERICA

AND

THE STATE OF NEW YORK

FOR LOCAL COOPERATION FOR SHORELINE EROSION

ON LAKE ERIE AT EVANS, NY

WENDT BEACH PARK

THIS AGREEMENT, entered into this 18th day of March 1981, by and between the United States of America (hereinafter called the "Government"), represented by the Contracting Officer executing this Agreement, and the STATE OF NEW YORK, acting by and through the Department of Environmental Conservation (hereinafter called the "State") pursuant to Section 221 of the Flood Control Act of 1970, Public Law 91-611 approved 31 December 1970.

WITNESSETH THAT:

WHEREAS, shoreline protection construction on Lake Erie to prevent further erosion endangering the Main Building complex at Wendt Beach Park, Evans, New York, hereinafter called the "Project", was approved on 23 June 1981, in accordance with a Reconnaissance Report entitled "Section 14 of the 1946 Flood Control Act - Shoreline Erosion on Lake Erie, Evans, New York, Wendt Beach Park," dated 19 June 1980, revised 22 December 1980, under authority contained in Section 14 of the Flood Control Act approved 24 July 1946, (Public Law 526, 79th Congress) as amended, and

WHEREAS, said Section 14 of the Flood Control Act of 1946, as amended, limits the expenditure of Federal funds to an amount not to exceed $250,000.00 for any single project; and

WHEREAS, the said approved Reconnaissance Report as amended requires that certain items of local cooperation be furnished by non-Federal interests; and

WHEREAS, Congress enacted Public Law 91-646, approved 2 January 1971, entitled "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970," and

WHEREAS, the State hereby represents that it has the authority and capability to furnish the non-Federal cooperation required by said approved Reconnaissance Report and by applicable law.

NOW THEREFORE, the Parties hereto agree as follows:

1. The State agrees that, upon notification that the Government will commence construction of shore protection at Wendt Beach Park, Evans, New York, substantially in accordance with the said approved Reconnaissance Report as amended for Lake Erie, Evans, New York, Wendt Beach Park, under the authority of Section 14 of the Flood Control Act, approved 24 July 1946, (Public Law 526, 79th Congress), the State shall in consideration of the Government commencing construction of such project, fulfill the requirements of non-Federal cooperation, specified in said approved Report as amended and by applicable law to wit:

a. Provide necessary lands, easements, and rights-of-way required for the project without cost to the United States;

b. Hold and save the Government free from damages due to the construction and subsequent maintenance of the project, except for damages due to the fault or negligence of the United States or its Contractors;

c. Maintain the project after completion;

d. Assume responsibility for all costs in excess of the Federal limitation of $250,000.00.

e. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, in acquiring lands, easements, and rights-of-way for construction and subsequent maintenance of the project and inform affected persons of pertinent benefits, policies, and procedures in connection with said Act.

f. The state agrees to comply with Title VI of the Civil Rights Acts of 1964 (78 Stat. 241) and Department of Defense Directive 5500.11 issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations.

2. The State agrees, that in the event non-Federal funds are required pursuant to paragraph 1.d. herein, it will prior to award of any contract covering the work provide such non-Federal funds upon receipt of and in accordance with written directions from the undersigned Contracting Officer or his successor, to the Commissioner, New York Department of Environmental Conservation.

3. The State hereby gives the Government a right to enter, at reasonable times and in a reasonable manner, upon land which it owns or controls, for access to the Project, if such inspection shows that the State for any reason is failing to maintain the Project in accordance with the assurances hereunder and has persisted in such failure after a reasonable notice in writing by the Government delivered to the Commissioner, New York State Department of Environmental Conservation. No maintenance by the Government in such event shall operate to relieve the State of responsibility to meet its obligations as set forth in this Agreement or to preclude the Government from pursuing any other remedy at law or equity.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA

BY: _____
GEORGE P. JOHNSON
Colonel, Corps of Engineers
Commander and District Engineer
Contracting Officer

FOR THE SECRETARY OF THE ARMY

DATE: 5 April 1982

THE STATE OF NEW YORK, ACTING BY AND THROUGH ITS DEPARTMENT OF ENVIRONMENTAL CONSERVATION

APPROVED:

By: _____
Richard Torkelson
Assistant Commissioner
for Administration

DATE: _____

upon execution by a duly authorized representative of U.S.A.

CERTIFICATE OF AUTHORITY

I, Donald P. Hirshorn, hereby certify that I am an Assistant Attorney General of the State of New York authorized by Robert Abrams, Attorney General of the State of New York, to execute this certificate on his behalf.

I further certify that the State of New York Department of Environmental Conservation is a legally constituted public body with full authority and legal capability to perform the terms of the agreement between the United States of America and the State of New York Department of Environmental Conservation in connection with the Shoreline Erosion on Lake Erie at Evans, New York, Wendt Beach Park Project, and to pay damages, if necessary, in the event of failure to perform in accordance with Section 221 of Public Law 91-611 and that the person that has executed the contract on behalf of the State of New York Department of Environmental Conservation has acted within his statutory authority.

IN WITNESS WHEREOF, I have made and executed this Certificate this 18th day of March 1982.

ROBERT ABRAMS
Attorney General of the
State of New York

BY: Donald P. Hirshorn
Assistance Attorney General

Title 33, Code of Federal Regulations, Section 208.10(a)

§ 208.10 Local flood protection works; maintenance and operation of structures and facilities.

(a) *General.* (1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits.

(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of the Army, as required by law, shall appoint a permanent committee consisting of or headed by an official hereinafter called the "Superintendent," who shall be responsible for the development and maintenance of, and directly in charge of, an organization responsible for the efficient operation and maintenance of all of the structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.

(3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

(4) No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the rights-of-way for the protective facilities.

(5) No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the Department of the Army or his authorized representative that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable and permissible under the above determination shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work.

(6) It shall be the duty of the superintendent to submit a semiannual report to the District Engineer covering inspection, maintenance, and operation of the protective works.

(7) The District Engineer or his authorized representatives shall have access at all times to all portions of the protective works.

(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made.

(9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods.

(10) The Department of the Army will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under this part.

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207

NCBCO-MO

14 January 1980

SUBJECT: Maintenance Inspection and Reports.

THRU: Division Engineer, North Central
ATTN: NCDCO-MO

TO: HQDA (DAEN-CWO-M)
WASH DC 20515

1. Reference DAEN-CWO-M letter, dated 2 March 1977, SAB, granting authority to relieve the New York State Department of Environmental Conservation from the requirement in CFR 208.10, paragraph (a)(6); namely, that the Superintendant submit a semi-annual report to the District Engineer covering inspection, maintenance, and operation of the protective works.

2. Request the above waiver be extended indefinitely, subject to revocation at any time. Past experience has shown the State of New York to be conscientious in their maintenance efforts both on those projects on which they oversee maintenance by local communities and on those they maintain themselves. No decrease in the level of maintenance has been observed over the past three years.

3. In the event the waiver is granted, inspection reports will continue to be submitted no less frequently than annually.

FOR THE DISTRICT ENGINEER:

L.H. HAIR, Chief
Construction-Operations Division

NCBCO-MO (14 Jan 80) 1st Ind
SUBJECT: Maintenance Inspection and Reports

DA, North Central Division, Corps of Engineers, 536 South Clark Street, Chicago, Illinois 60605 18 January 1980

TO: HQDA (DAEN-CWO-M)
WASH DC 20314

Forwarded recommending extention as outlined in basic letter.

FOR THE DIVISION ENGINEER:

CARL C. CABLE, P.E.
Chief, Construction-Operations Division

Copy furnished:
DE, Buffalo

DAEN-CWO-E (14 Jan 80) 2nd Ind
SUBJECT: Maintenance Inspection and Reports

DA, Office of the Chief of Engineers, Washington, D.C. 20314 16 Apr 1980

TO: Division Engineer, North Central
ATTN: NCDEM

Extension of waiver is approved.

FOR THE CHIEF OF ENGINEERS:

GEORGE BRAZIER
Chief, Construction-Operations Division
Directorate of Civil Works

CF: Buffalo District
ATTN: NCBEM

NCDEM (14 Jan 80) 3rd Ind
SUBJECT: Maintenance Inspection and Reports

DA, North Central Division, Corps of Engineers, 536 South Clark Street, Chicago, Illinois 60605 23 April 1980

TO: District Engineer, Buffalo ATTN: NCBCO-MO

Forwarded for action.

FOR THE DIVISION ENGINEER:

for CARL C. CABLE, P.E.
Chief, Construction-Operations Division

Engineer Regulation No. 1130-2-303, Appendix I, Section 5,
Paragraph 5.11

5.11 Bank Protection General

Priority A (Annually), Priority B (Annually): Inspect upper bank protection visually for breaks, cracked or broken paving, disarranged stone, exposed banks, erosion or other damage. During the low-water season, determine the condition of the lower bank protection. Make soundings over the underwater area of the bank.

Priority A (Not Scheduled), Priority B (Not Scheduled): Any employee who has occasion to be at or near bank protection works should inspect for damage to the upper bank and for any indications of failures in the underwater area.

Repair and otherwise remedy failures, breaks, disarranged stone, exposed banks or other damage as required.

DEPARTMENT OF THE ARMY
U. S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, NY 14207

EMERGENCY SHORE PROTECTION
LAKE ERIE
WENDT BEACH PARK
EVANS, NEW YORK

OPERATION AND MAINTENANCE MANUAL

APPENDIX II

CHECK SHEET

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
EMERGENCY SHORE PROTECTION
WENDT BEACH PARK
EVANS, NY

CHECK SHEET FOR INSPECTION

Inspected by_____ Date_____

Type of Inspection (check only one)

( ) Emergency/disaster
( ) Annual
( ) Other (describe)

Item Description	Condition and Recommendations
REVETMENT	
Stone protection	
Erosion	
Debris	
Vegetation	
Encroachment	
Unauthorized changes	

Submitted by_____ Date_____
Project Superintendent

DEPARTMENT OF THE ARMY
U. S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, NY 14207

EMERGENCY SHORE PROTECTION
LAKE ERIE
WENDT BEACH PARK
EVANS, NEW YORK

OPERATION AND MAINTENANCE MANUAL

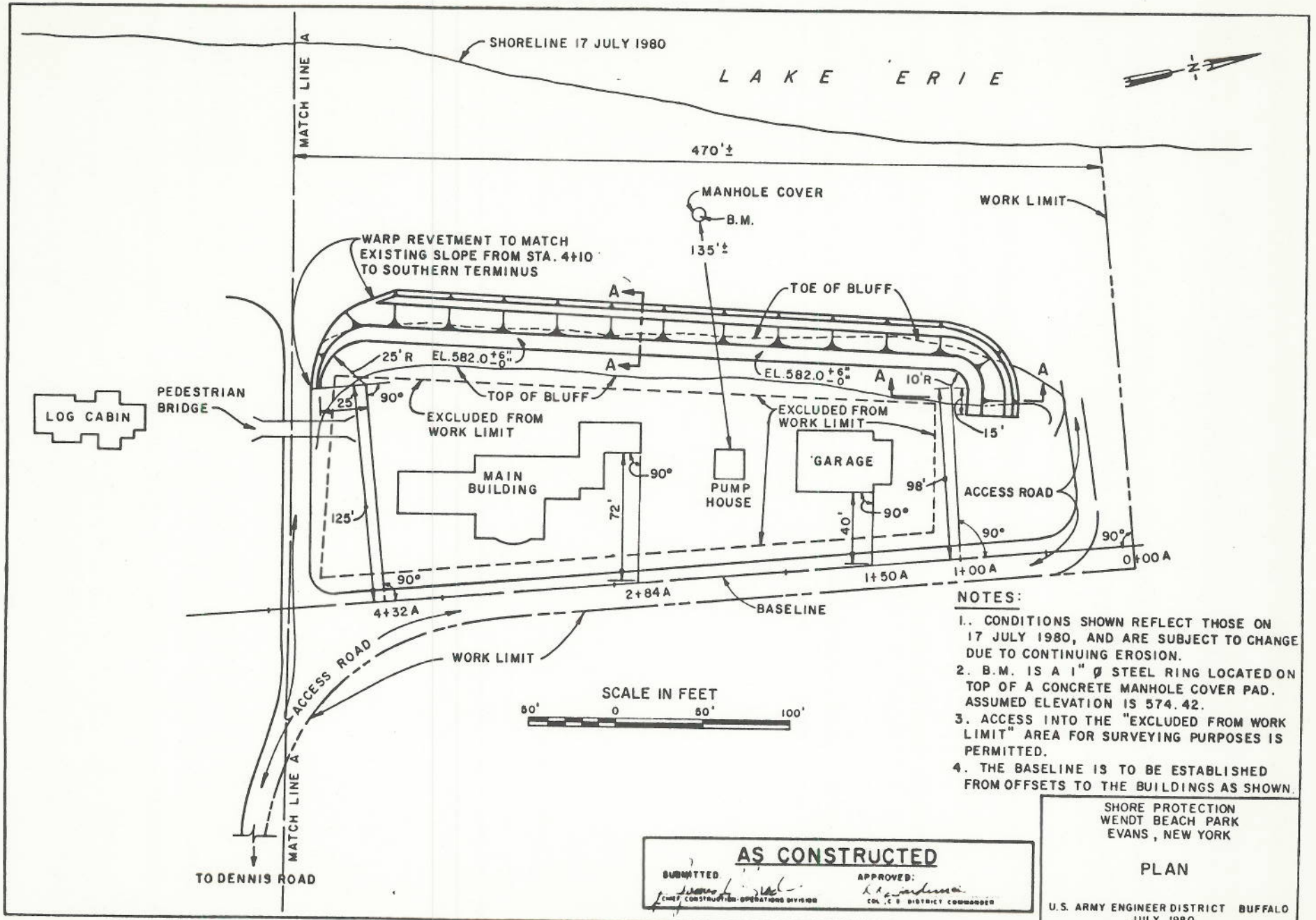
APPENDIX III

"AS CONSTRUCTED" DRAWINGS

AND

BEFORE AND AFTER

PHOTOGRAPHS



NOTES:

1. CONDITIONS SHOWN REFLECT THOSE ON 17 JULY 1980, AND ARE SUBJECT TO CHANGE DUE TO CONTINUING EROSION.
2. B.M. IS A 1" ø STEEL RING LOCATED ON TOP OF A CONCRETE MANHOLE COVER PAD. ASSUMED ELEVATION IS 574.42.
3. ACCESS INTO THE "EXCLUDED FROM WORK LIMIT" AREA FOR SURVEYING PURPOSES IS PERMITTED.
4. THE BASELINE IS TO BE ESTABLISHED FROM OFFSETS TO THE BUILDINGS AS SHOWN.

AS CONSTRUCTED

SUBMITTED: _____ CHIEF CONSTRUCTION-OPERATIONS DIVISION

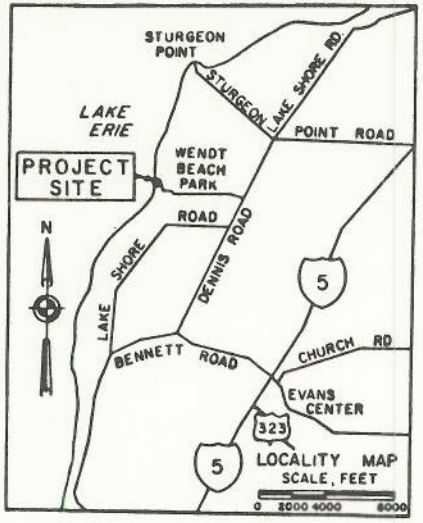
APPROVED: _____ COL., C E DISTRICT COMMANDER

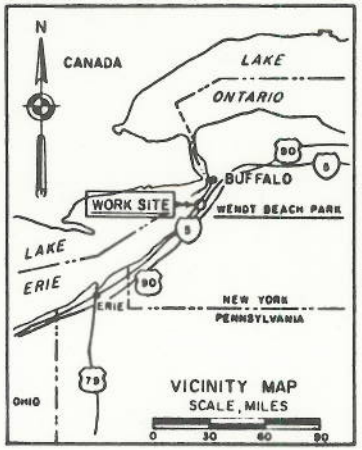
SHORE PROTECTION
WENDT BEACH PARK
EVANS, NEW YORK

PLAN

U.S. ARMY ENGINEER DISTRICT BUFFALO
JULY 1980

PLATE 1

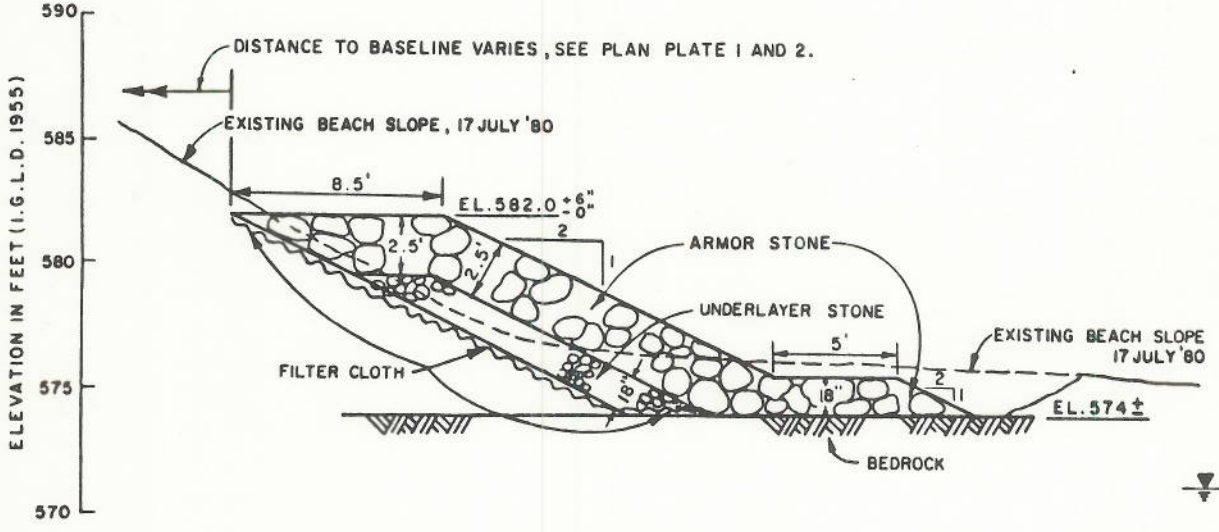




AS CONSTRUCTED

SUBMITTED: _____ CHIEF CONSTRUCTION-OPERATIONS DIVISION

APPROVED: _____ COL, C E DISTRICT COMMANDER



SECTION A-A

SCALE IN FEET

5' 0 5' 10'

NOTES:

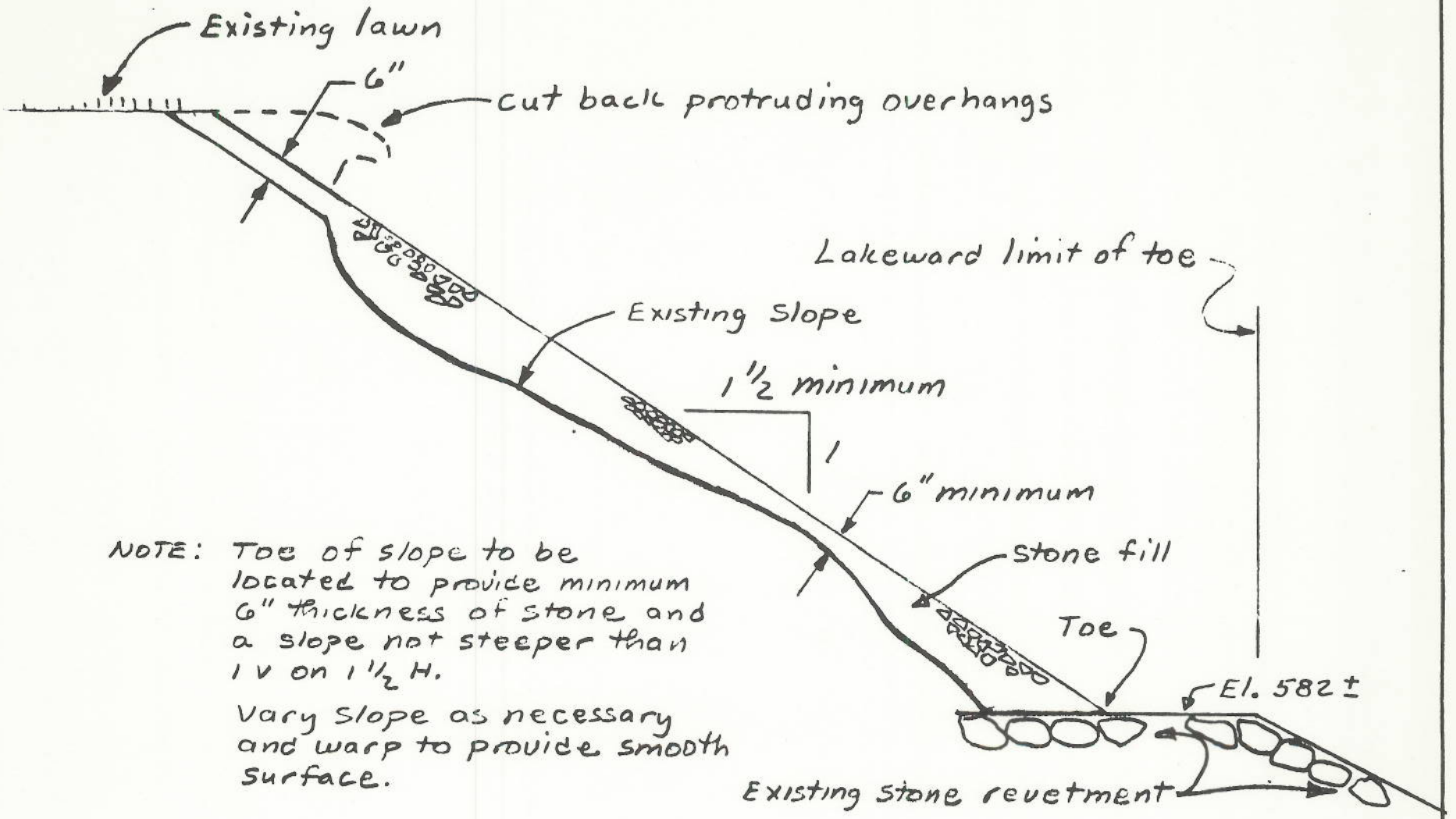
1. THIS SECTION SHALL BE USED FROM THE NORTHERN TERMINUS TO STATION 4+10A, AND FROM THE SOUTHERN TERMINUS TO STATION 1+00B.
2. EXCAVTION FOR THE BOTTOM OF THE REVETMENT SHALL BE TO BEDROCK WHICH VARIES FROM 574.4 TO 573.9 THROUGHOUT THE PROJECT, OR ELEV. 574 WHICH EVER IS HIGHER.
3. EXCAVATED SAND SHALL BE STOCKPILED AND UPON COMPLETION OF THE REVETMENT, BE PLACED OVER THE BERM, SHAPED TO MATCH EXISTING SLOPES, AS REQUIRED BY CONTRACTING OFFICER.

SHORE PROTECTION
WENDT BEACH PARK
EVANS, NEW YORK

SECTION

U S ARMY ENGINEER DISTRICT BUFFALO
JULY 1980

PLATE 2



NOTE: Toe of slope to be located to provide minimum 6" thickness of stone and a slope not steeper than 1 V on 1 1/2 H.

Vary slope as necessary and warp to provide smooth surface.

TYPICAL SECTION

SCALE: 1/4" = 1'-0"

AS CONSTRUCTED

SUBMITTED: _____ CHIEF CONSTRUCTION-OPERATIONS DIVISION

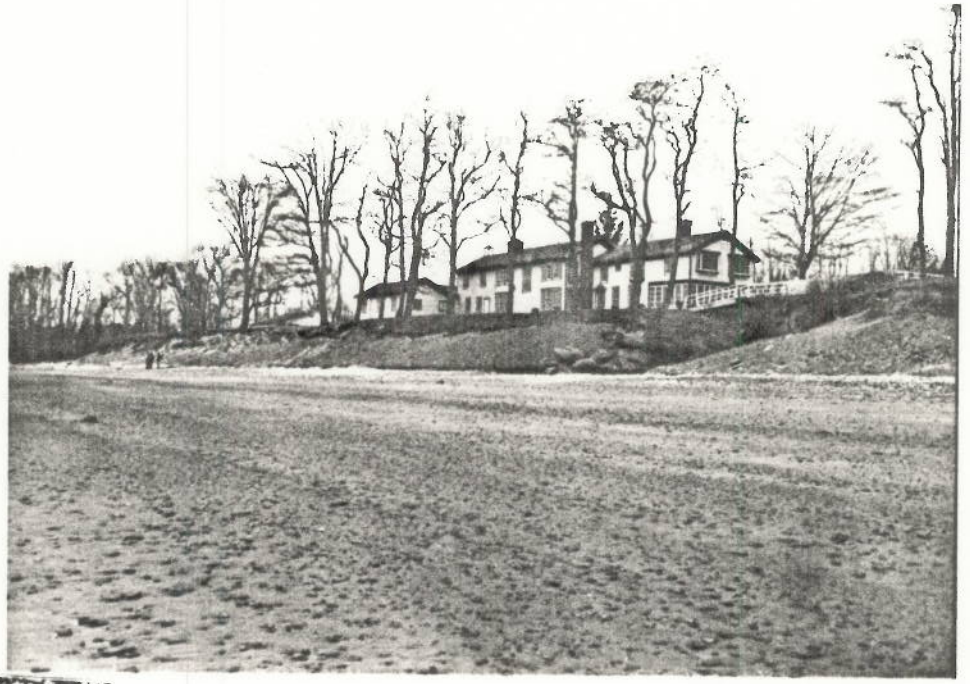
APPROVED: _____ COL, C E DISTRICT COMMANDER

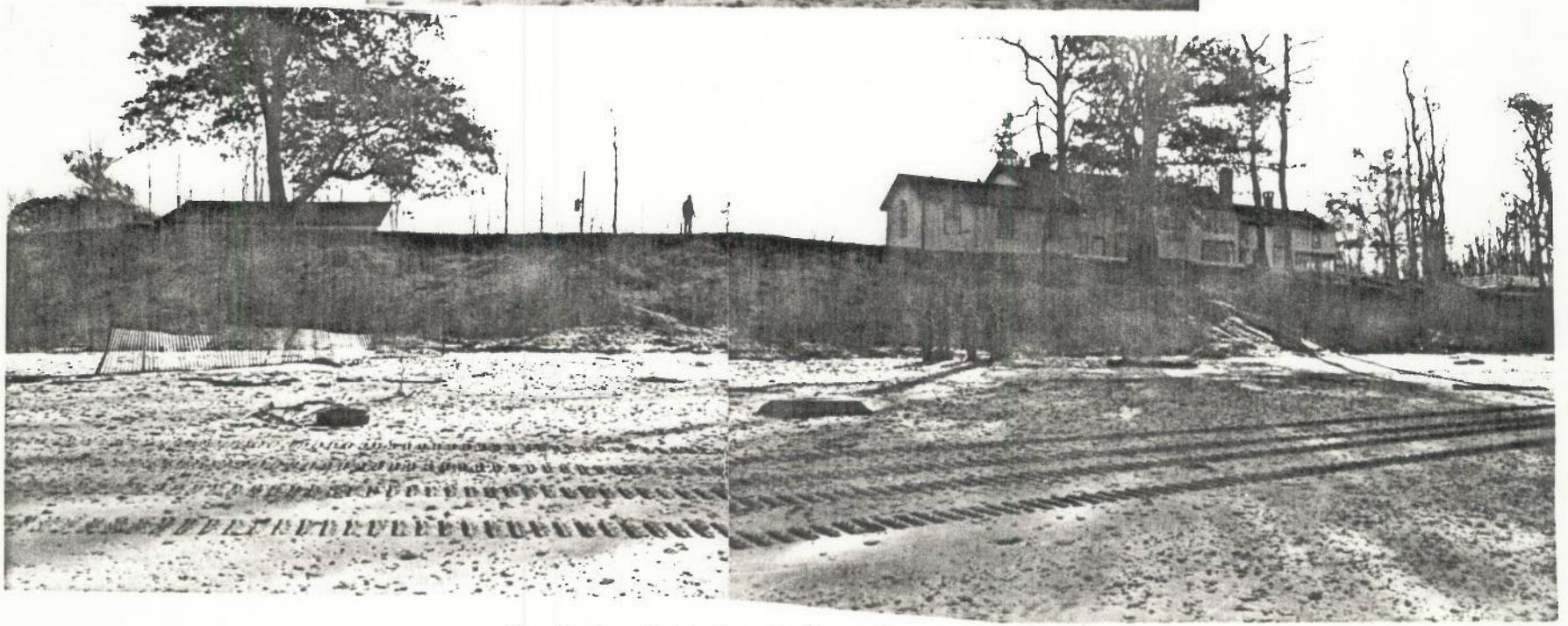
SHORE PROTECTION
WENDT BEACH PARK
EVANS, NEW YORK

SECTIONS

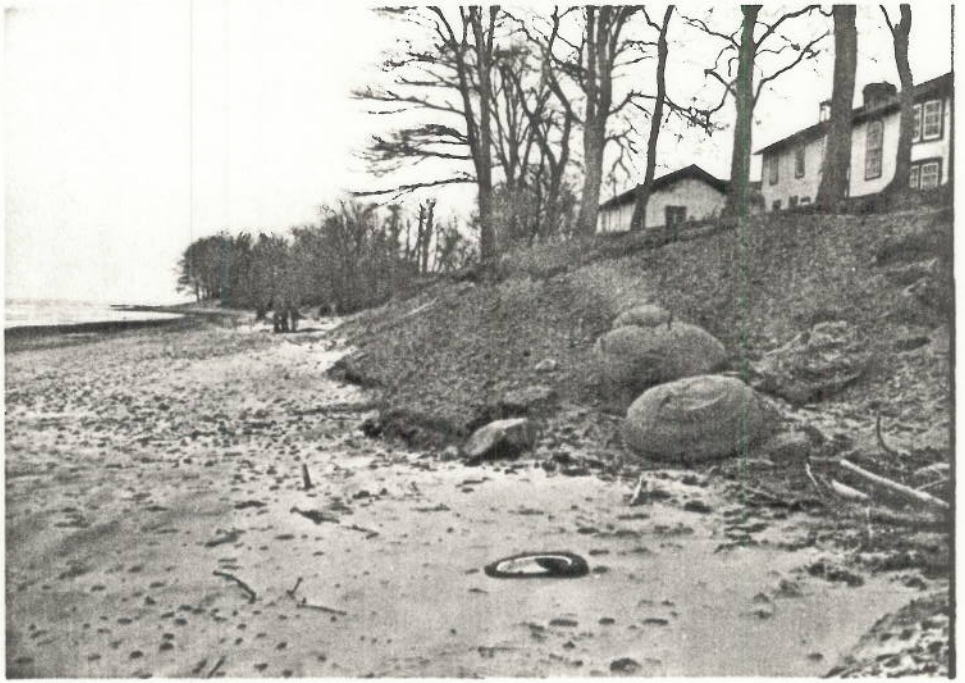
U S. ARMY ENGINEER DISTRICT BUFFALO
DECEMBER 1983

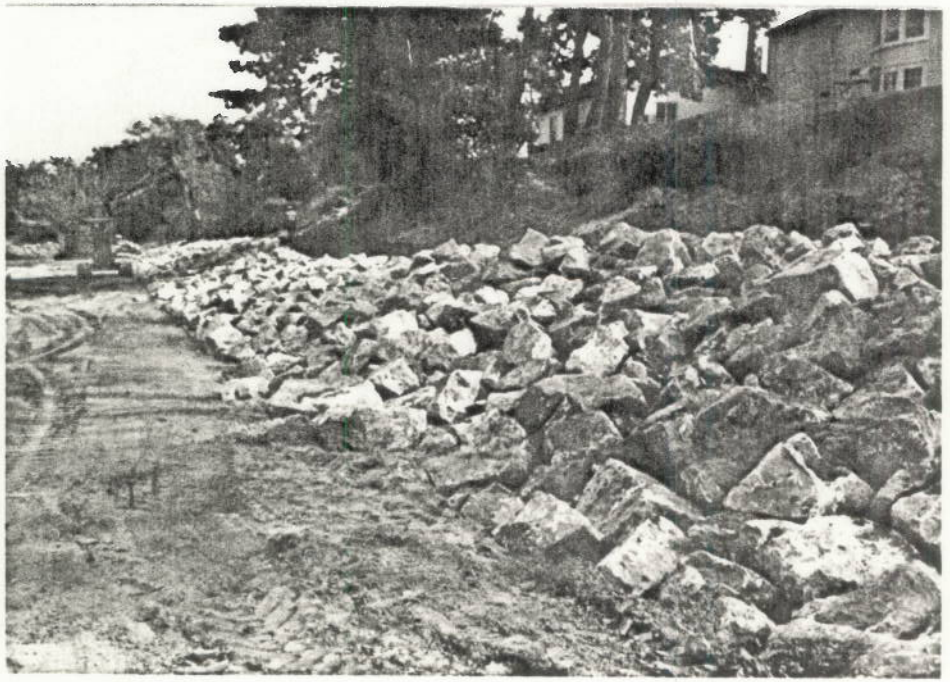
PLATE 3

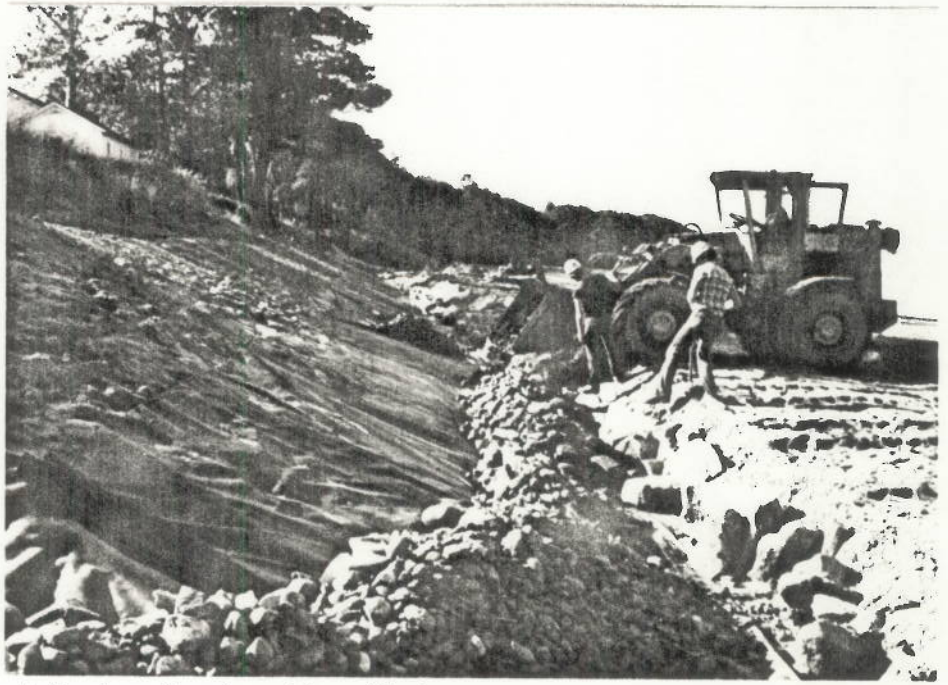




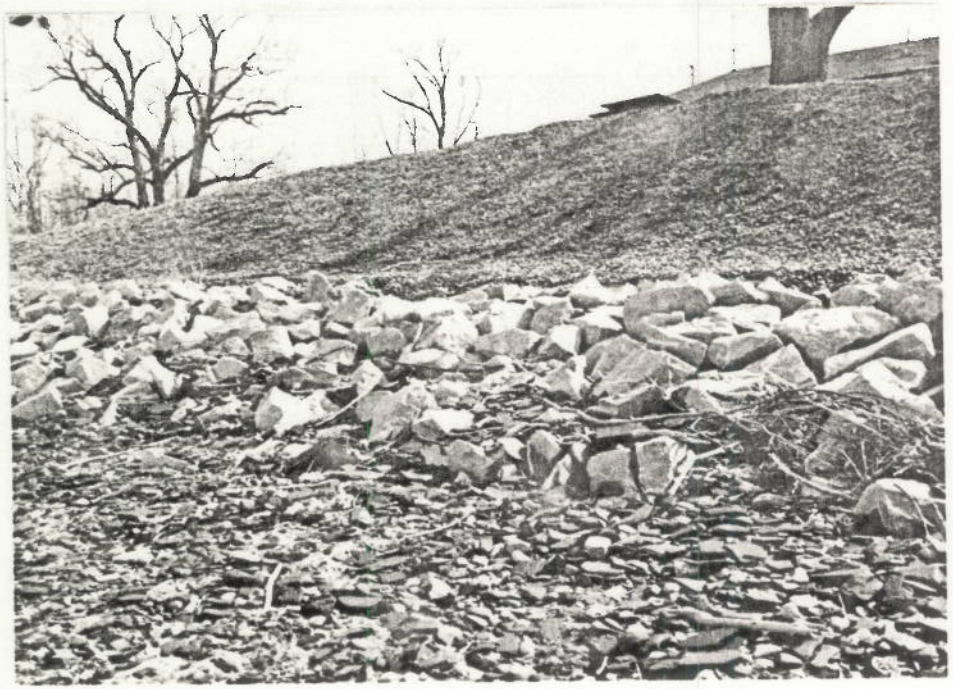
Wendt Beach Park - Before Construction Photos



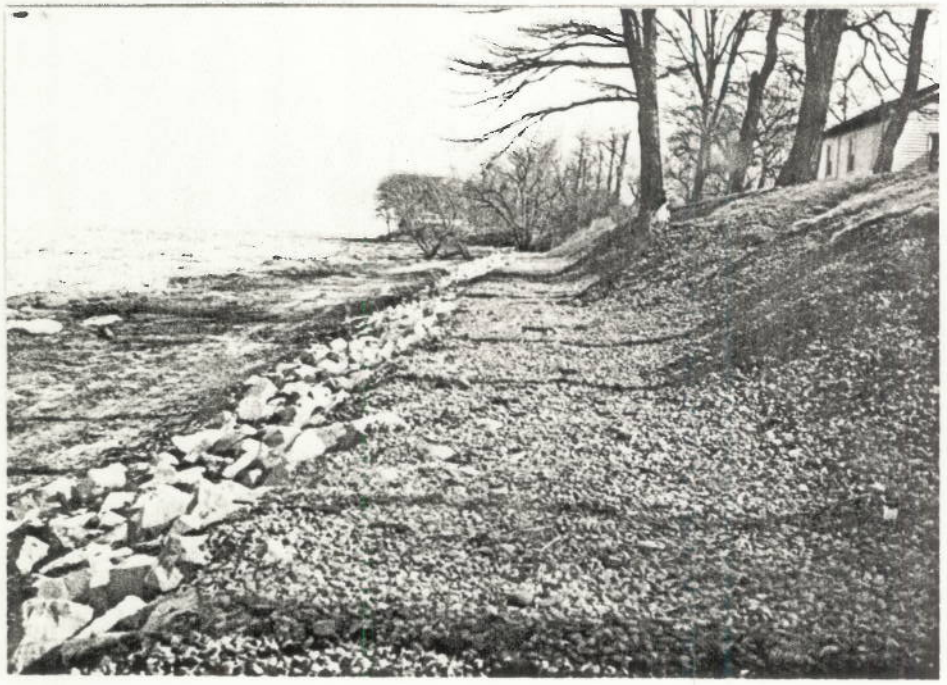


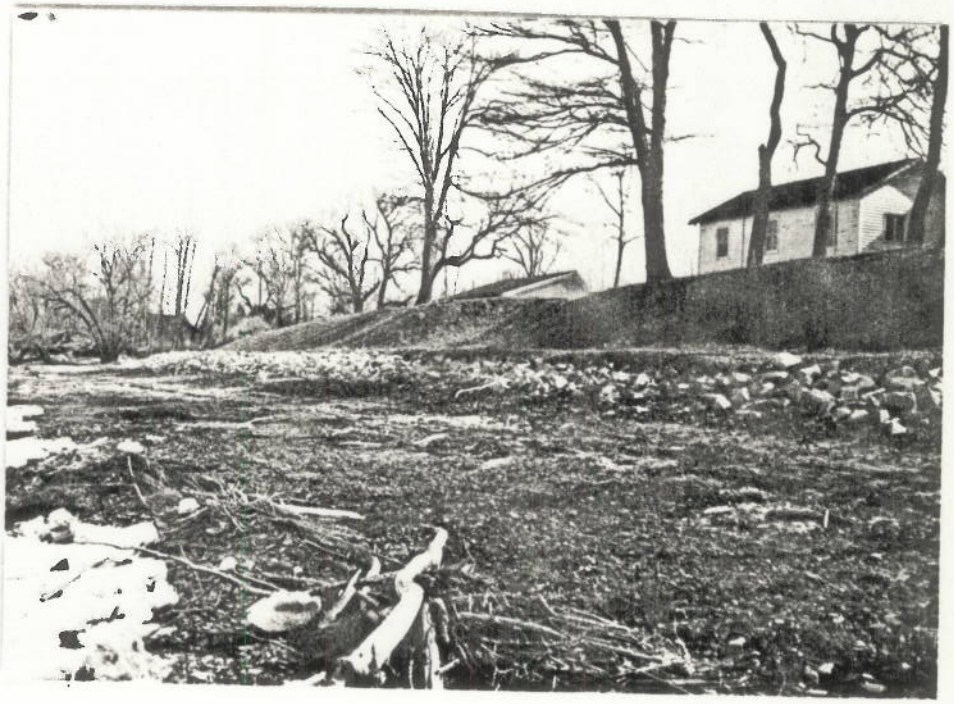


Wendt Beach Park - Before and During Construction Photos



Wendt Beach Park - After Construction Photos

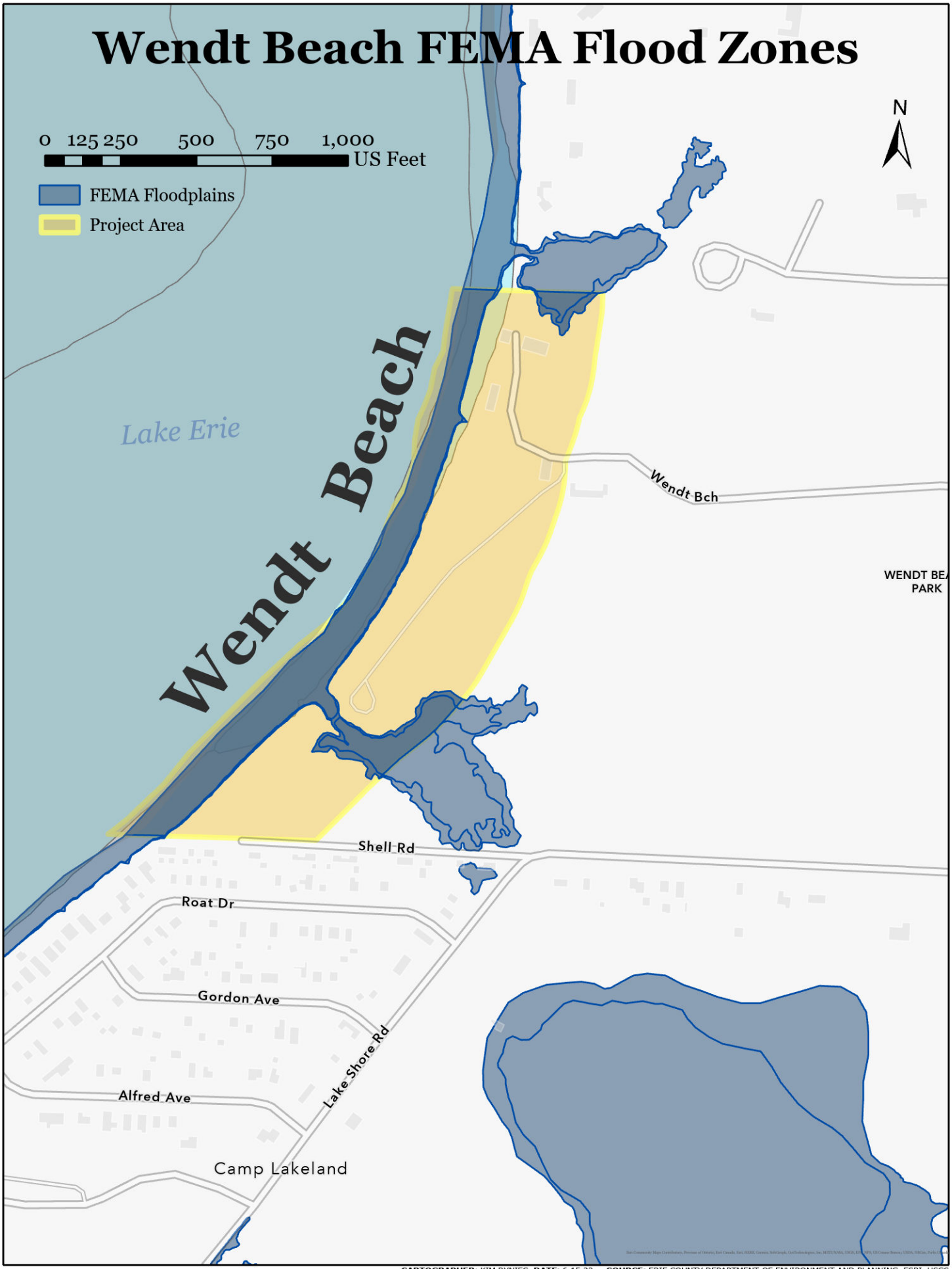




Wendt Beach Park - After Construction Photos

Attachment C: “Wendt Beach Project Area and FEMA Map”

Wendt Beach FEMA Flood Zones



CARTOGRAPHER: KIM RYNIEC **DATE:** 6-15-23 **SOURCE:** ERIE COUNTY DEPARTMENT OF ENVIRONMENT AND PLANNING, ESRI, USGS

Attachment D: “ESD - Office of Contractor and Supplier Diversity: Waiver Request Form”

NEW YORK STATE OF OPPORTUNITY. Empire State Development

OFFICE OF CONTRACTOR AND SUPPLIER DIVERSITY

OCSD-5

WAIVER REQUEST FORM

Request for Waiver	
Grantee / Contractor Name:	Fed ID No.:
Full Address:	Contract / Project Number:
Project Details (Project Name, Project Location):	Have you Previously submitted a Waiver Request? (YES/NO)
Current Contract Value:	MWBE Goal: MBE % + WBE % Overall MWBE Goal: % SDVOB Goal: **%**

By submitting this form and the required information, the Contractor certifies that every "Good Faith Effort" has been taken to promote MWBE and SDVOB participation pursuant to the MWBE and SDVOB requirements set forth under the contract. Review 5 NYCRR § 142.8 and 9 NYCRR § 252, Contractor's Good Faith Efforts, for the precise definition of "Good Faith Effort." Failure to adequately demonstrate Good Faith Efforts will result in a denial of your Waiver Request. It is the Contractor's responsibility to ensure that adequate, clear and complete information is presented to the Office of Contractor and Supplier Diversity ("OCSD").

***UTILIZATION VALUE MET:**

MBE: $_____ | **WBE**: $_____ **|** **SDVOB**: $_____

***CONTRACTOR IS REQUESTING :**

1. ☐ **MBE** Waiver – A waiver of the MBE Goal for this procurement is requested.
   REQUESTED MBE GOAL: _____%
2. ☐ **WBE** Waiver – A waiver of the WBE Goal for this procurement is requested.
   REQUESTED WBE GOAL: _____%
3. ☐ **OVERALL MWBE Waiver** – A waiver of the MWBE Goal for this procurement is requested.
   REQUESTED MWBE GOAL: _____%
4. ☐ **SDVOB Waiver** – A waiver of SDVOB Participation Goal for this procurement is requested.
   REQUESTED SDVOB GOAL: _____%

PREPARED BY (Signature): _____ Date: _____

SUBMISSION OF THIS FORM CONSTITUTES THE CONTRACTOR'S ACKNOWLEDGEMENT AND AGREEMENT THAT IT HAS MADE GOOD FAITH EFFORTS, PURSUANT TO 5 NYCRR §142.8 AND/OR 9 NYCRR §252, TO INCLUDE THE PARTICIPATION OF NEW YORK STATE CERTIFIED MINORITY AND WOMEN OWNED BUSINESSES AND SERVICE DISABLED VETERAN OWNED BUSINESSES IN THE ABOVE PROJECT OR CONTRACT. CONTRACTOR HEREBY AGREES TO PROVIDE ANY AND ALL RELEVANT DOCUMENTATION IN SUPPORT OF THE DEMONSTRATION OF ITS GOOD FAITH EFFORTS AND ACKNOWLEDGES THAT IT HAS PROVIDED WITH THIS WAIVER REQUEST ALL AVAILABLE DOCUMENTATION SUPPORTING ITS GOOD FAITH EFFORTS.

***Name and Title of Preparer:**	***Telephone Number:**	***Email:**

Contractor's Good Faith Efforts

(a) Contractors must document their good faith efforts toward utilizing certified firms, including but not limited to, those identified within a utilization plan. Such documented efforts, shall include, at a minimum:

(1) Copies of its solicitations of certified firms enterprises and any responses thereto;

(2) If responses to the contractor's solicitations were received, but a certified firm was not selected, the specific reasons that such firm was not selected;

(3) Copies of any advertisements for participation by certified firms timely published in appropriate general circulation, trade, MWBE and SDVOB oriented publications, together with the listing(s) and date(s) of the publication of such advertisements;

(4) The dates of attendance at any pre-bid, pre-award, or other meetings, if any, scheduled by the State agency awarding the State contract, with certified firms enterprises which the State agency determined were capable of performing the State contract scope of work for the purpose of fulfilling the contract participation goals;

(5) Information describing the specific steps undertaken to reasonably structure the contract scope of work for the purpose of subcontracting with, or obtaining supplies from, certified firms.

(b) In addition to the information provided by the contractor in subdivision (a) above, the State agency may also consider the following to determine whether the contractor has demonstrated good faith efforts:

(1) where applicable, whether the contractor submitted an amended utilization plan consistent with the subcontract or supplier opportunities in the contract;

(2) the number of certified firms in the region listed in the directory of certified businesses that could, in the judgment of the State agency, perform work required by the State contract scope of work;

(3) the actions taken by the contractor to contact and assess the ability of certified firms located outside of the region in which the State contract scope of work is to be performed to participate on the State contract;

(4) whether the contractor provided relevant plans, specifications or terms and conditions to certified firms sufficiently in advance to enable them to prepare an informed response to a contractor request for participation as a subcontractor or supplier;

(5) the terms and conditions of any subcontract or provision of suppliers offered to certified firms and a comparison of such terms and conditions with those offered in the ordinary course of the contractor's business and to other subcontractors or suppliers of the contractor;

(6) whether the contractor offered to make up any inability to comply with the certified firms goals in the subject State contract in other State contracts being performed or awarded to the contractor;

(7) the extent to which contractor's own actions, including but not limited to, any failure by contractor to discharge contractor's duties pursuant to this Part, Articles 15-A or 17-B of the Executive Law, contributed to contractor's inability to meet the maximum feasible portion of the contract goals;

(8) whether the contractor knowingly utilized one or more certified firms, in the performance of the subject State contract, that contractor knew or reasonably should have known could not perform a commercially useful function.

(9) whether the contractor submitted compliance reports, which identified certified firms that contractor knew or reasonably should have known did not perform a commercially useful function on a State contract on which goals were assigned. and

(10) any other information that is relevant or appropriate to determining whether the contractor has demonstrated a good faith effort.

Submit with the bid or proposal or if submitting after award submit to: **Empire State Development** **Office of Contractor and Supplier Diversity** **633 Third Avenue, 35th Floor** **New York, New York 10017**	***** FOR OCSD USE ONLY ***** **REVIEWED BY:** **DATE:** **Waiver Granted:** ☐ **YES** **MBE:** ☐ **WBE:** ☐ **SDVOB:** ☐ ☐ **Total Waiver** ☐ **Partial Waiver** ☐ ***Conditional** ☐ **Notice of Deficiency Issued** _____ * **Comments:**

Attachment E: “Geotechnical Report for Shoreline Trail”

EMPIRE GEO SERVICES, INC.
A SUBSIDIARY OF SJB SERVICES, INC.

June 8, 2016
Project No. BE-16-049

Mr. James D. MacKecknie, Project Manager
Ravi Engineering & Land Surveying, P.C.
2110 South Clinton Avenue, Suite 1
Rochester, New York 14618

Re: Geotechnical Evaluation Report for
Lakeshore Shoreline Trail - Phase 3
Wendt Beach Park
Town of Evans, Erie County, New York

Dear Mr. MacKecknie:

Empire Geo-Services, Inc. is pleased to submit two (2) copies of the enclosed Geotechnical Evaluation Report to Ravi Engineering & Land Surveying, P.C. for the above referenced project. We have also e-mailed an electronic copy (pdf file format) of this report to you and Wendel, for your use and for distribution, as appropriate.

Please contact me should you have any questions or wish to discuss this report. Thank you for considering Empire for this work and we look forward to working with you on this project, through its completion.

Sincerely,

EMPIRE GEO-SERVICES, INC.

John J. Danzer, P.E.
Senior Geotechnical Engineer

Enc.: Geotechnical Engineering Report (2 copies)

cc: Mr. Michael J. Barrett, Jr., P.E .- Wendel w/ pdf electronic file copy, via e-mail only

☒ CORPORATE/
BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

☐ ALBANY OFFICE
PO Box 2199
Ballston Spa, NY 12020

5 Knabner Road
Mechanicville, NY 12118
Phone: (518) 899-7491
Fax: (518) 899-7496

☐ CORTLAND OFFICE
60 Miller Street
Cortland, NY 13045
Phone: (607) 758-7182
Fax: (607) 758-7188

☐ ROCHESTER OFFICE
535 Summit Point Drive
Henrietta, NY 14467
Phone: (585) 359-2730
Fax: (585) 359-9668

EMPIRE GEO SERVICES, INC.
A SUBSIDIARY OF SJB SERVICES, INC.

CORPORATE/
BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

ALBANY OFFICE
PO Box 2199
Ballston Spa, NY 12020

5 Knabner Road
Mechanicville, NY 12118
Phone: (518) 899-7491
Fax: (518) 899-7496

CORTLAND OFFICE
60 Miller Street
Cortland, NY 13045
Phone: (607) 758-7182
Fax: (607) 758-7188

ROCHESTER OFFICE
535 Summit Point Drive
Henrietta, NY 14467
Phone: (585) 359-2730
Fax: (585) 359-9668

MEMBER
ACEC New York
American Council of Engineering Companies of New York

Geotechnical Evaluation Report for Lakeshore Shoreline Trail - Phase 3 Wendt Beach Park Town of Evans, Erie County, New York

Prepared For:

Ravi Engineering & Land Surveying, P.C.
2110 South Clinton Avenue, Suite 1
Rochester, New York 14618

Prepared By:

Empire Geo-Services, Inc.
5167 South Park Avenue
Hamburg, New York 14075

6/8/16

Project No. BE-16-049
June 2016

TABLE OF CONTENTS

FIGURES

APPENDICES

1.00 INTRODUCTION

1.10 GENERAL

This report presents the findings of a subsurface exploration, and a geotechnical evaluation completed by Empire Geo-Services, Inc. (Empire), for the the proposed Lakeshore Shoreline Trail - Phase 3 project, planned in the Wendt Beach Park area, in the Town of Evans, New York. The approximate location of the project site is shown on Figure 1.

Ravi Engineering & Land Surveying, P.C. (Ravi Engineering) retained Empire to complete this work, which was done in general accordance with our February 29th, 2016 proposal. SJB Services, Inc. (SJB), our affiliated subsurface exploration company, completed eleven (11) test borings at the project site as a basis for our evaluation and geotechnical recommendations.

This report summarizes the subsurface conditions encountered at the test boring location and presents geotechnical engineering recommendations for planning, design and construction of the pedestrian bridge foundations and support of the trail boardwalk structure through this area.

1.20 PROJECT AND SITE DESCRIPTION

An approximate 2,000 feet long portion of the proposed Lakeshore Shoreline Trail (Phase 3 Project) is located in the south portion of Wendt Beach Park, along and north of Shell Road. This portion of the park area is currently undeveloped and consists predominately of wet and heavily wooded terrain.

The proposed trail development through this area is planned as an elevated boardwalk structure, with a pedestrian bridge to be located across an un-named tributary flowing into Lake Erie, at the north end of the investigation area. We understand Ravi Engineering will design the pedestrian bridge, while Wendel will be responsible for the elevated boardwalk structure design.

A plan showing the proposed pedestrian bridge structure and elevated boardwalk structure area, along with the test boring locations is presented as Figure 2. Ten (10) test borings, designated as B-1 through B-10, were completed along the boardwalk segment. The boardwalk borings are spaced about 200 feet ± apart. One (1) additional boring designated as B-11, was located on the north side of the proposed pedestrian bridge.

Numerous areas of standing water and downed trees were present in this area making it generally inaccessible to conventional all terrain vehicle (ATV) mounted drilling equipment. Accordingly, the boardwalk structure borings, with the exception of boring B-2, were completed using a potable tri-pod drill apparatus. Boring B-2 and pedestrian bridge boring B-11 were completed using a conventional rubber tire, all terrain vehicle mounted drill rig, as discussed further below in Section 2.00.

The area of the proposed pedestrian bridge structure and elevated boardwalk structure, is relatively flat and level. Ground surface elevations (El.) at the test boring locations ranged between El. 97.8 feet (boring B-4) and El. 95.4 feet (boring B-3), which are based on the assumed benchmark described below.

2.00 SUBSURFACE EXPLORATION

The subsurface exploration consisted of a total of eleven (11) test borings, designated as B-1 through B-11, drilled by SJB between March 29th and April 1st, 2016. The approximate locations of the test borings are shown on Figure 2.

The test boring locations was initially established and plotted by Empire on an aerial photograph site plan provided by Wendel. SJB then established the GPS coordinates of test borings and staked their locations in the field, using a hand held GPS device.

The relative ground surface elevations at the test boring locations were also measured and recorded by SJB, using a laser survey level instrument. The ground surface elevations were referenced to the north rim of an existing manhole cover (benchmark established by SJB), which is located along the north side of Shell Road, in front of house number 459 Shell Road. The approximate location of the benchmark is shown on Figure 2. The benchmark was assigned an arbitrary elevation datum of 100.00 feet, by SJB.

Test borings B-1 through B-10 were completed along the boardwalk segment and test boring B-11, was located on the north side of the proposed pedestrian bridge. Test borings B-1 and B-3 through B-10 were completed using a potable tri-pod drill apparatus. Boring B-2 and pedestrian bridge boring B-11 were completed using a conventional Central Mine Equipment (CME) model 550X rubber tire, all terrain vehicle mounted drill rig

The test borings were advanced in the overburden soils and upper weathered shale bedrock using hollow stem auger and split spoon sampling techniques. Split spoon samples and Standard Penetration Tests (SPTs) were taken continuously from the ground surface until sample spoon or auger refusal were met at depths generally ranging between 4 feet and 6.2 feet, with the exception of boring B-2, which extended through soil to a depth of 12 feet, where it was terminated.

The split spoon samples and corresponding Standard Penetration Tests (SPTs) were completed in general accordance with *ASTM D1586 – "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils"*. We note the blow counts obtained using the tripod apparatus may not accurately represent the soil formation consistency/density due to methods used to advance this type of boring, which can cause friction between the soils and the drive rods.

The refusal material encountered in boring B-11 was cored using an NQ size double tube core barrel in accordance with *ASTM D 2113 – "Standard Practice for Rock core Drilling and Sampling of Rock for Site Investigation"*. The core sampling was advanced 10 feet into the bedrock at this location.

A geologist prepared the test boring logs based on visual observation of the recovered soil samples and bedrock core, along with review of the driller's field notes. The soil samples were described based on a visual/manual estimation of the grain size distribution, along with characteristics such as color, relative density, consistency, moisture, etc. The recovered rock core from boring B-11was also described, including characteristics such as color, rock type, hardness, weathering, bedding thickness, core recovery and rock quality designation (RQD). The test boring logs are presented in Appendix A, along with general information and a key of terms and symbols used to prepare the logs.

3.00 SUBSURFACE CONDITIONS

3.10 GENERAL

The general stratigraphy encountered by the test borings consisted of topsoil at the surface, with the exception of boring B-11, followed generally by a relatively thin stratum of indigenous soil, and then weathered Shale bedrock. Man-placed fill was not apparent at any of the test boring locations. The indigenous soil layer consisted predominately of silty clay and clayey silt type soils. The apparent top of the weathered Shale bedrock, as indicated by the sampler refusal, and the bedrock core at boring B-11, was generally encountered at depths ranging between about 4 feet and 5 feet. The exception, however, was at boring location B-2, where

indigenous soil deposits were encountered to the 12 feet depth of this boring, without encountering weathered Shale. The soil and bedrock stratigraphy encountered and the groundwater conditions observed are described in more detail in the following sections and on the test boring logs in Appendix A.

3.20 TOPSOIL

The driller noted the presence of topsoil at the surface of each of the test boring locations, with the exception of boring B-11. The thickness of the topsoil measured and reported by the driller at the boring locations typically ranged between about 2 to 3-inches. A distinct topsoil layer was not apparent to the driller at boring location B-11.

The topsoil observation / measurements made at the test boring locations are based on the interpretation of the driller. These measurements should be considered approximate, as the data is limited (i.e. widely spaced) and subject to interpretation, due to disturbance as the result of previous grading or reworking activities, which may have occurred on the site.

3.30 INDIGENOUS SOILS

The indigenous soils encountered beneath the topsoil, and from the surface of test boring B-11, consisted of predominately of cohesive silty clay and clayey silt soil, with varying amounts of intermixed sand and gravel and ocassional inclusions of organics and shale rock fragments. Within boring B-2 a layer of clayey silty sand soil was also encountered. The indigenous soils are generally classified as CL, ML and SM-SC group soils using the Unified Soil Classification System.

Standard Penetration Test (SPT) “N” values obtained within the indigenous soils ranged between 3 and 39. These SPT “N” values indicate the consistency of the cohesive fine grained silty clay / clayey soils varies from “soft” to “hard”, with the softer zones generally present within the upper 2 to3 feet.

3.40 BEDROCK

The apparent top of weathered Shale bedrock was encountered at depths ranging between about 4 feet and 5 feet below the existing ground surface at the test boring locations, as indicated by the sample spoon refusal encountered at these depths, as well as the recovery of rock fragments in the final split spoon sample. The exception, however, was at boring location B-2, where indigenous soil

deposits were encountered to the 12 feet depth of this boring, without encountering weathered Shale.

Following encountering auger refusal within test boring B-11 (pedestrian bridge boring), 10.0 feet of bedrock was cored. The recovered bedrock core consisted of gray, hard, sound, thinly bedded to bedded, Shale Rock, with some fractures. The core recoveries were 100% and 98% and the rock quality designation (RQD) values were 48% and 70%, indicating the recovered rock core has a “poor” to "fair" rock mass quality.

3.50 GROUNDWATER CONDITIONS

Water level measurements were made within the test borings following the completion of drilling and soil sampling, and are noted on the test boring logs in Appendix A. Freestanding water was present within test borings B-1, B-2 and B-3, at depths of ground surface, 5.7 feet and ground surface, respectively. At the remaining test borings, no free standing water was observed within the completed test boring. Given the generally fine grain and low permeability nature of the soils encountered, it is possible that groundwater in some cases, if present, may not have had sufficient time to accumulate in the boring holes within the time that had elapsed from the completion of drilling operations and the time of the observations / measurements. It is also noted that the area around borings B-1 and B-3 contained standing surface water at the time of our exploration.

The installation of a groundwater observation well(s) would help to better define the groundwater conditions present on the site, as well as its stabilized level. It should be expected that groundwater conditions will vary with location and with changes in soil conditions, precipitation and seasonal conditions. Also, given the nature of the site topography, areas of standing surface water can be expected based on precipitation and seasonal conditions, as well as site drainage conditions, and therefore may be present at the time of construction.

4.00 PEDESTRIAN BRIDGE GEOTECHNICAL CONSIDERATIONS AND RECOMMENDATIONS

4.10 GENERAL FOUNDATION CONSIDERATIONS

Considering the shallow depth to weathered bedrock encountered in test borings B-10 and B-11 (4 feet and 5 feet, respectively), it's our recommendation that the proposed pedestrian bridge structure be supported using a spread type foundation

system bearing on / within the weathered to more competent Shale bedrock. The spread type foundation system could consist of the following options.

- Spread footings, with individual pedestals extending up to the bridge support points;
- A continuous spread footing with a pedestal abutment type wall; or
- Individual short circular concrete piers extending up to the bridge support points.

4.20 FOUNDATION DESIGN

The bridge structure foundations should be designed to bear on the weathered Shale or if necessary on excavated bedrock subgrades, following removal of the topsoil, any fill soils, and the overburden soils, should they extend below the design bottom of foundation. It may also be desirable to level the bedrock bearing surface with a lean concrete (f'c at 28 days > 1,000 psi) fill or "mud mat", prior to construction of the foundations. Lean fill concrete should extend at least 12 inches horizontally beyond the foundation limits for its entire depth beneath the foundation.

We point out that subsurface conditions may vary away from the exploration locations and therefore could require adjustments in the suitable subgrade elevation based on actual conditions encountered at the time of construction. Accordingly, close inspection of the foundation bearing subgrades, by qualified geotechnical personnel, is recommended as the excavations are made at the time of construction.

Bearing Capacity Using Allowable Stress Design:

Spread and short pier type foundations constructed as described above, can be sized, using allowable stress design procedures, based on a maximum net allowable bearing pressure of 6,000 pounds per square foot (psf).

Foundation Design Using AASHTO LRFD Bridge Design Criteria:

Spread and short pier type foundations constructed on suitable bearing grades as described above, can sized in accordance with AASHTO Load and Resistance Factor Design (LRFD) Bridge Design criteria using the following parameters:

- Nominal Resistance (q_n) – 18,000 pounds per square foot (psf)
- Strength Limit State Bearing Resistance Factor (φ_b) – 0.50

- Strength Limit State Bearing Resistance (q_R), where ($q_{R} = q_n \times \varphi_b$) – 9,000 psf
- Service Limit State Bearing Resistance – 6,000 psf

Continuous wall and individual spread type footings should be at least 3.0 feet in width. Circular concrete pier type foundations should be a minimum of 24-inches in diameter. All foundations should have a minimum embedment depth of 4 feet below finished grade for frost protection. Erosion and scour protection should also be provided, as appropriate. Foundations, which are sized and constructed in accordance with our recommendations, should undergo total settlement of less than 3/4-inches.

4.30 LATERAL EARTH PRESSURES AND SLIDING RESISTANCE

Lateral earth pressures, for design of abutment type walls, can be computed using the following soil parameters where the wall backfill is a Structural Fill material, as described in Section 4.70.3, and provided the foundation wall contains a proper foundation drain(s) as described in Section 4.40.

Recommended Soil Parameters:

Coefficient of At-Rest Lateral Earth Pressure – 0.47

Coefficient of Active Lateral Earth Pressure – 0.31

Coefficient of Passive Lateral Earth Pressure – 3.25

Angle of Internal Friction – 32 Degrees

Moist Unit Weight of Soil – 135 pcf

Submerged Unit Weight of Soil – 73 pcf

Lateral Coefficient for Surcharge Loads – 0.50

For spread foundations bearing on suitable weathered shale subgrades, the sliding resistance can be computed based on a foundation/bearing subgrade interface friction factor of 0.50.

Water must not be allowed to collect against the backside of earth retaining abutment and wing walls. Therefore proper foundation wall drainage should be provided behind the wall, as appropriate.

4.40 FOUNDATION DRAINAGE

Abutment type walls should be constructed with foundation drains to intercept any groundwater that may tend to collect against the walls. The drainage system should be properly designed, installed and maintained for long-term performance. The design should include such features as clean-outs to properly maintain the system. The foundation wall drain system should extend to near the bottom of the exposed section of the wall and above the mean water elevation.

The foundation drainage system should include a geotextile, selected considering drainage and filtration, installed around drainage stone surrounding a slotted under-drain pipe. The drainage stone should be sized in accordance with the pipe slotting or perforations. A crushed aggregate conforming to NYSDOT Standard Specifications Section 703-02, Size Designation No. 1 (1/2- inch washed gravel or stone) is generally acceptable. The foundation drainage stone and surrounding geotextile should extend above the drainpipe a minimum of 2 feet.

A pervious granular backfill or a suitable geosynthetic drainage composite (i.e. Miradrain, Grace HydroDuct, DeltaMS, or suitable equivalent) should be placed behind the walls to intercept groundwater and allow drainage to the under-drain system. If a soil material is used it should have a minimum width of 2 feet. Concrete Sand, which meets the minimum requirements of NYSDOT Standard Specifications Section 703-07 (100 percent passing 3/8 inch sieve to maximum of 3 percent passing a No. 200 sieve), is generally acceptable.

It is recommended that the backfill placed behind the walls beyond the drainage system be a Structural Fill, as described in Section 4.70.3.

4.50 BUILDING CODE OF NYS SEISMIC DESIGN CRITERIA

Based on the subsurface conditions encountered in the test borings and our knowledge of the local geology, the site can be classified as Seismic Site Class "B" in accordance with Table 1613.5.2 of the Building Code of New York State (December 2010). In addition, the subsurface conditions encountered are not considered to be susceptible to potential liquefaction in the case of a seismic event. Therefore, seismic design may be based on this seismic site classification.

The spectral response accelerations in the project area were obtained by Empire using the United States Geological Survey (USGS) web site application (https://geohazards.usgs.gov/secure/designmaps/us/). The accelerations are based on the 2009 NEHRP Recommended Seismic Provisions, which makes use of the

2008 USGS seismic hazard data. The uniform hazard acceleration values obtained from this application were then adjusted, as recommended by the USGS, to obtain the 2% probability in 50 years mapped geometric mean accelerations, as presented in the NYS Building Code.

Using the site location within the Wendt Beach Park area of the Town of Evans, New York, the calculated spectral response accelerations for Site Class "B" soils are 0.190g for the short period (0.2 second) response (S_S) and 0.048g for the one second response (S_1).

The corresponding five percent damped design spectral response accelerations (S_{DS} and S_{D1}) are as follows:

- S_{DS} - 0.127g
- S_{D1} - 0.032g

4.60 AASHTO SEISMIC DESIGN CRITERIA

Similar to the Building Code of New York State seismic design criteria, the site can be classified as Seismic Site Class "B" in accordance with Table 3.10.3.1-1 in the *AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications*. Accordingly, seismic design using the AASHTO criteria can proceed based on these conditions.

The peak ground acceleration coefficient (PGA), the short period spectral acceleration coefficient (S_s), and the long period spectral acceleration coefficient (S_1), for Seismic Site Class "B", were determined using Figures 3.10.2.1-1, 3.10.2.1-2, and 3.10.2.1-3, within the *AASHTO LRFD Bridge Design Specifications*. These values are based on a 7% probability of exceedance in 75 years (i.e. an approximate 1,000 year return period) and include the following for the project site.

- PGA = 0.060
- S_s = 0.122
- S_1 = 0.031

For design purposes, these mapped coefficient values are to be modified using site factors F_{pga} (Table 3.10.3.2-1), F_a (Table 3.10.3.2-2), and F_v (Table 3.10.3.2-3). These site factors are dependent on the Seismic Site Class and the mapped coefficient values of PGA, S_s, and S_1, and include the following

- F_{pga} = 1.0
- F_a = 1.0
- F_v = 1.0

The modified PGA, S_s, and $S_{1,}$ for the 1,000 year return period based on the above Site Factors include the following.

- A_S = PGA x F_{pga} = 0.060 x 1.0 = 0.060.
- S_{DS} = S_s x F_a = 0.122 x 1.0 = 0.122
- S_{D1} = S_1 x F_v = 0.031 x 1.0 = 0.031

4.70 PEDESTRIAN BRIDGE SITE PREPARATION AND CONSTRUCTION RECOMMENDATIONS

4.70.1 Construction Dewatering

Existing stream flow and any localized perched groundwater near the surface will need to be addressed and controlled during excavation and construction of the bridge structure. The drainage ditch/tributary as well as possible perch groundwater seepage from the existing soils should be expected, and can fluctuate with seasonal and precipitation events. .

Proper dewatering procedures should be implemented prior to excavation and groundwater seepage should be intercepted and maintained from accumulating in the excavation bottom. It is anticipated that sump and pump methods of dewatering along with diversionary channels/ swales, should generally be adequate to control surface water flow and groundwater conditions for the structure construction.

4.70.2 Excavation and Subgrade Preparation for Foundation Construction

The excavation, site preparation work and foundation construction should be performed during seasonal dry periods to minimize potential degradation of the foundation bearing grades and additional undercuts which may be required to establish a stable base for construction. All topsoil, organics, any fill soils, and the indigenous soil material, beneath the proposed foundation bearing grades, should be undercut and removed Excavation to the proposed weathered Shale bearing grades for foundation construction should be performed using a method, which minimizes disturbance to the bearing subgrades.

It is recommended the excavated subgrades be observed and evaluated by a representative of Empire or other qualified geotechnical personnel, prior to placement of overlying lean fill concrete or the foundation structures.

The exposed bearing grades for foundation construction, should be protected from precipitation and surface water. Where construction of the foundations proceeds during seasonal wet periods and/or the foundations will not be constructed on the same day of the excavation, it may be desirable to place a 2 to 3 inch thick lean concrete "mud mat" in the excavation bottom to help protect the exposed subgrades and provide a suitable working surface for the foundation construction.

After completion of the foundation construction, the excavations should be backfilled as soon as possible and prior to construction of the superstructure. It is recommended the foundation excavations be backfilled with Structural Fill material, as described below in Section 4.70.3.

4.70.3 Structural Fill Material

Structural Fill placed as foundation backfill, should consist of crusher run stone, which should be free of clay, organics and friable or deleterious particles. As a minimum, the crusher stone should meet the requirements of New York State Department of Transportation, Standard Specifications, Item 304.12 – Type 2 Subbase, with the following gradation requirements.

Sieve Size Distribution	Percent Finer by Weight
2 inch	100
¼ inch	25-60
No. 40	5-40
No. 200	0-10

The crusher run stone backfill should be compacted to a visually dense and stable matrix. Placement of the fill should not exceed a maximum loose lift thickness of 6 to 8 inches. It may be necessary to reduce the loose lift thickness depending on the type of compaction equipment used so that proper compaction is attained. The crusher run stone should have a moisture content within two percent of the optimum moisture content at the time of compaction.

5.00 BOARDWALK STRUCTURE SUPPORT

5.10 DESIGN CONSIDERATIONS AND RECOMMENDATIONS

Various options can be considered for support of the proposed elevated boardwalk structure. These include:

- Wooden Post supports placed within holes, which are drilled into the subgrade soils;
- "Sono-Tube" and concrete filled small diameter piers, which are placed in holes drilled into the subgrade soils;
- Helical Piles (a.k.a. Helical Piers or Screw Piles); or
- Hydraulically Installed Push Piles

The Wooden Post foundation option should include layer of concrete or fine stone placed in the bottom of the drilled hole, with concrete or fine stone backfill placed to fill the annulus around the post. The use of Helical Piles or Push Piles appear would be better suited from a constructability standpoint where standing water or wet surface soil conditions are present.

Weathered Shale or very dense soil appears was encountered at most of the boardwalk test borings (B-1, and B-3 through B-10), at a depth of about 4 to 5 feet, with the exception of test boring B-2. Accordingly for most of the locations, the weathered Shale or very dense soil should provide a highly competent bearing stratum for the boardwalk support foundations.

At boring location B-2 generally stiff indigenous silty clay / clayey silt soil deposits were encountered to the 12 feet depth of this boring, without encountering weathered Shale (sampler refusal). Based on the less favorable conditions encountered at boring location B-2, a net allowable soil bearing capacity of about 2,500 pounds per square foot (psf) would be recommended for design of the Wood Post or "Sono-Tube" filled concrete pier foundations, if placed on these soils (anticipated between test borings B-1 and B-3). If Helical Piles or Push Piles are used, they could be extended to a more competent bearing stratum in this area to increase their capacity. The depth to a more competent bearing stratum, however, was not confirmed at boring B-2.

Wooden Post supports or "Sono-Tube" filled concrete piers, bearing on the more competent weathered Shale or very dense soil could be designed on the basis of a net allowable end bearing capacity of about 4,500 psf.

All foundations should be embedded a minimum of 4.0 feet below finished grades for frost protection.

Helical Pile or Push Pile foundation support systems would be designed and installed by a qualified and experienced Geotechnical Specialty Contractor, through a delegated design contract. Therefore, it is general practice for the Structural Engineer to develop a performance specification, based on the structure / foundation support layout and loads, and then have the Specialty Contractor provide a suitable pile design, which considers the logistics of the installation and the subsurface conditions. The foundation support system should be designed by a New York State Registered Professional Engineer, who is experienced in the type of foundation design selected and who is retained by the Specialty Contractor. We also recommend that a load testing program be implemented for Helical Pile or Push Pile foundation systems to verify the design assumptions are met.

It is estimated that the pier foundations will undergo total settlement of less than 1-inch, provided they are properly designed and constructed.

5.20 CONSTRUCTION CONSIDERATIONS

Dewatering should be implemented in conjunction with foundation installation work such that the work generally proceeds in the dry. Surface water should be diverted away from the work areas and prevented from accumulating in the open holes for the foundation supports. Alternatively, procedures for constructing the supports in open holes below groundwater, could be implemented. However, there is less control with construction in-the-wet, and therefore, there may be greater risk associated with this procedure. If this method is used, the hole should be stabilized and the concrete or stone be placed in a manner that displaces water from the hole, such as a tremie method.

Excavation (drilling) to the proposed subgrades for the foundation suports should be performed using a method, which reduces disturbance to the bearing grade soils. Where applicable, the soil bearing grades should be observed and evaluated by a qualified field representative, prior to placement of the foundation support. The foundation support excavations should be backfilled as soon as possible and prior to construction of the boardwalk superstructure.

Helical Piles or Push Piles should be installed in a smooth, continuous manner with sufficient pressure to advance the pile to the bearing stratum, and develop the support capacity. Alignment of the piles should be maintained within 1% of the total length. Qualified field personnel should observe all pile load testing and installations and should prepare a report summarizing the installation process, load testing results, torque / down pressure during installation, length of pile, etc.

6.00 CONCLUDING REMARKS

This report was prepared to assist in planning, design and construction of the proposed pedestrian bridge structure and elevated boardwalk structure planned as part of the Lakeshore Shoreline Trail - Phase 3 project in the Wendt Beach Park area, in the Town of Evans, New York. The report has been prepared for the exclusive use of Ravi Engineering & Land Surveying, P.C.; Wendel and other members of the design team, for specific application to this site and this project only.

The recommendations were prepared based on Empire Geo-Services, Inc.'s understanding of the proposed project, as described herein, and through the application of generally accepted soils and foundation engineering practices. No warranties, expressed or inferred, are made by the conclusions, opinions, recommendations or services provided.

Empire Geo-Services, Inc. should be informed of any changes to the planned construction so that it may be determined if any changes to the recommendations presented in this report are necessary. Empire Geo-Services, Inc. should also be retained to monitor the foundation construction and site work to verify that the recommendations were properly interpreted and implemented.

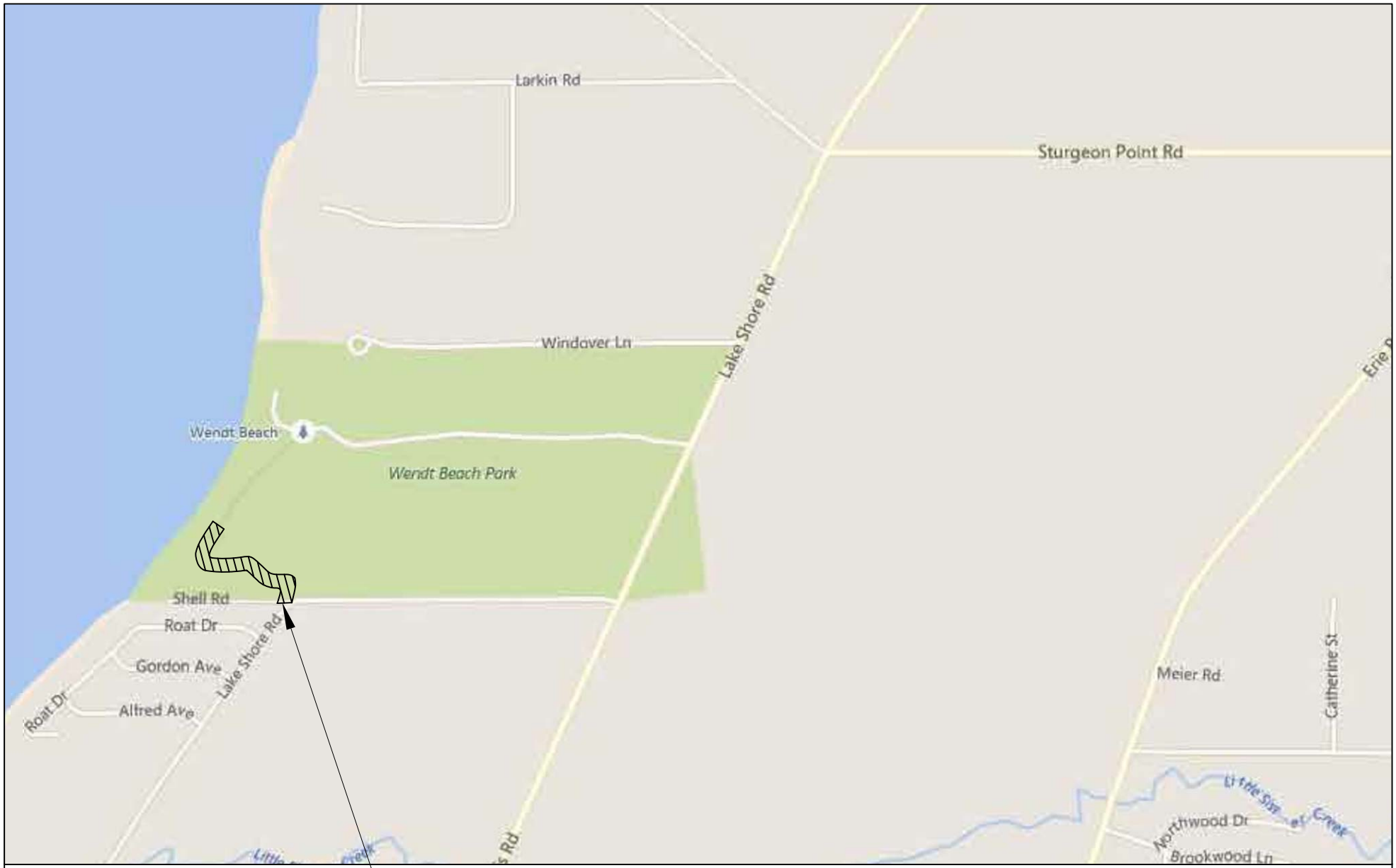
Additional information regarding the use and interpretation of this report is presented in Appendix B.

Respectfully Submitted:

EMPIRE GEO-SERVICES, INC.

John J. Danzer, P.E.
Senior Geotechnical Engineer

FIGURES



APPROXIMATE LOCATION OF PROJECT SITE

N

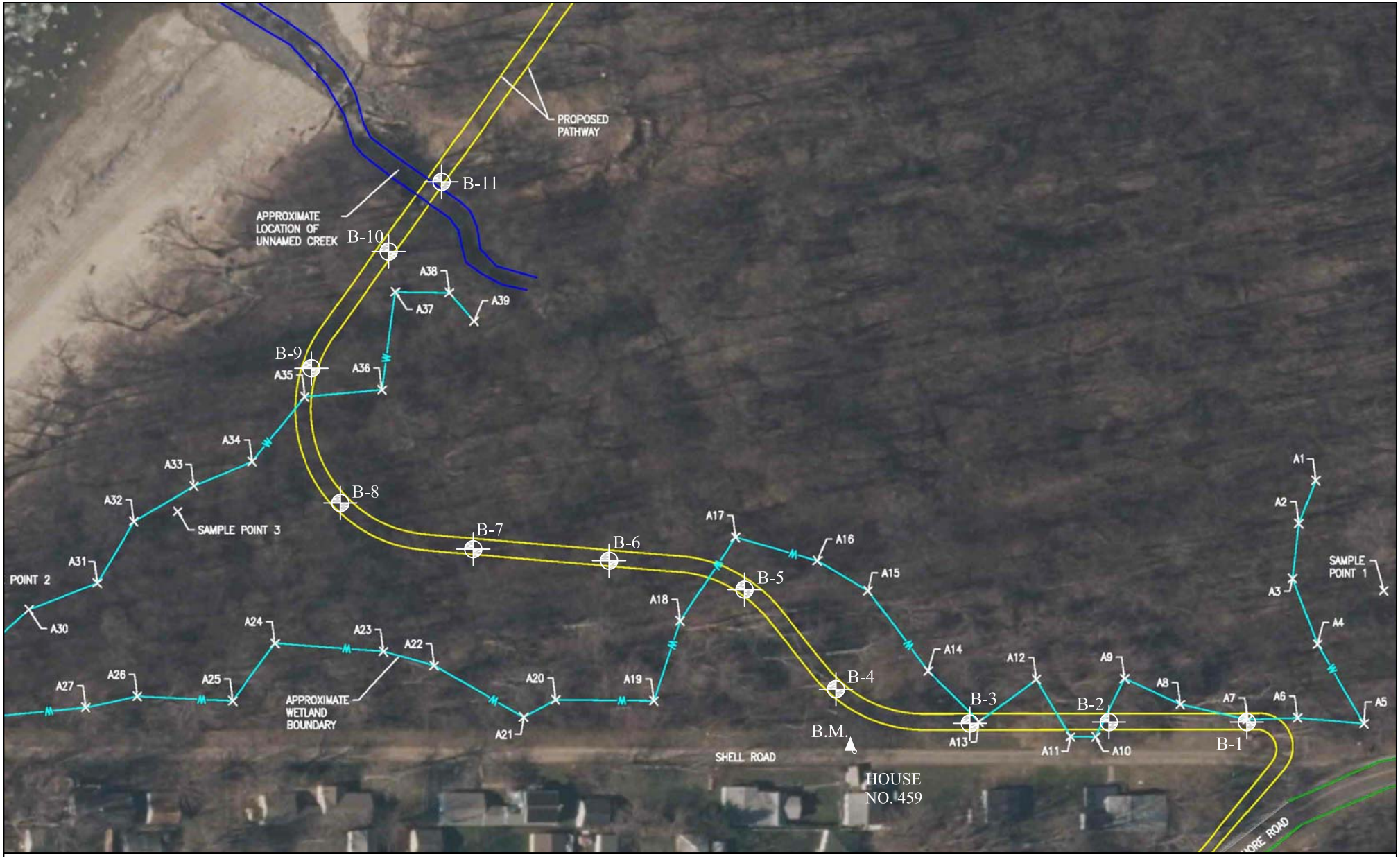
NOTE:
SITE LOCATION PLAN DEVELOPED
FROM BING MAPS © 2016 MICROSOFT

EMPIRE GEO SERVICES INC
a subsidiary of SJB Services, Inc.

PROPOSED SHORELINE TRAIL - PHASE 3
WENDT BEACH PARK
TOWN OF EVANS, ERIE COUNTY, NEW YORK

SITE LOCATION PLAN

DR BY: WMA	SCALE: NTS	PROJECT NO.: BE-16-049
CHKD BY: JJD	DATE: 06/06/16	FIGURE NO: 1



LEGEND:

B-1 ⊕ INDICATES APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING.

B.M. ▲ APPROXIMATE LOCATION OF BENCHMARK: NORTH RIM OF EXISTING MANHOLE COVER ON NORTH SIDE OF SHELL ROAD ACROSS FROM NO. 459 SHELL ROAD. ASSUMED ARBITRARY ELEVATION DATUM = 100.00 FEET.

N

NOTE:

FIGURE DEVELOPED FROM SITE PLAN PREPARED BY WENDEL.

EMPIRE GEO SERVICES INC
a subsidiary of SJB Services, Inc.

LAKESHORE SHORELINE TRAIL - PHASE 3
WENDT BEACH PARK
TOWN OF EVANS, ERIE COUNTY, NEW YORK

SUBSURFACE EXPLORATION PLAN	DR BY: WMA	SCALE: 1" ~ 200'	PROJECT NO.: BE-16-049
	CHKD BY: JJD	DATE: 06/07/16	FIGURE NO: 2

APPENDIX A

SUBSURFACE EXPLORATION LOGS

GENERAL INFORMATION & KEY TO SUBSURFACE LOGS

The Subsurface Logs attached to this report present the observations and mechanical data collected by the driller at the site, supplemented by classification of the material removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface condition between adjacent borings or between the sampled intervals. The data presented of the Subsurface Logs together with the recovered samples provide a basis for evaluating the character of the subsurface conditions relative to the project. The evaluation must consider all the recorded details and their procedures to more accurately evaluate the subsurface conditions. Any evaluation of the contents of this report and recovered samples must be performed by qualified professionals. The following information defines some of the procedures and terms used of the Subsurface Logs to describe the conditions encountered, consistent with the numbered identifiers shown on the Key opposite this page.

1. **The figures in the Depth column define the scale of the Subsurface Log.**
2. **The Samples column shows, graphically, the depth range from which a sample was recovered. See Table I for descriptions of the symbols used to represent the various types of samples.**
3. **The Sample No. is used for identification on sample containers and/or Laboratory Test Reports.**
4. **Blows on Sampler – shows the results of the "Penetration Test", recording the number of blows required to drive a split spoon sampler into the soil. The number of blows required for each six inches is recorded. The first 6 inches of penetration is considered a seating drive. The number of blows required for the second and third 6 inches of penetration is termed the penetration resistance, N.**
5. **Blows on Casing – Shows the number of blows required to advance the casing a distance of 12 inches. The casing size, hammer weight, and length of drop are noted at the bottom of the Subsurface Log. If the casing is advanced by means other than driving, the method of advancement will be indicated in the Notes column or under the Method of Investigation at the bottom of the Subsurface Log. Alternatively, sample recovery may be shown in this column or other data consistent with the column heading.**
6. **All recovered soil samples are reviewed in the laboratory by an engineering technician, geologist, or geotechnical engineer, unless noted otherwise. Visual descriptions are made on the basis of a combination of the driller's field descriptions and noted observations together with the sample as received in the laboratory. The method of visual classification is based primarily on the Unified Soil Classification System (ASTM D 2487) with regard to the particle size and plasticity (See Table No. II), and the Unified Soil Classification System group symbols for the soil types are sometimes included with the soil classification. Additionally, the relative portion, by weight, of two or more soil types is described for granular soils in accordance with "Suggested Methods of Test for Identification of Soils" by D.M. Burmister, ASTM Special Technical Publication 479, June 1970. (See Table No. III). Description of the relative soil density or consistency is based upon the penetration records as defined in Table No. IV. The description of the soil moisture is based upon the relative wetness of the soil as recovered and is described as dry, moist, wet, and saturated. Water introduced into the boring either naturally or during drilling may have affected the moisture condition of the recovered sample. Special terms are used as required to describe soil deposition in greater detail; several such terms are listed in Table V. When sampling gravelly soils with a standard two inch diameter split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders and large gravel is sometimes, but not necessarily, detected by an evaluation of the casing and sampler blows or through the "action" of the drill rig as reported by the driller.**
7. **Rock description is based on review of the recovered rock core and the driller's notes. Frequently used rock classification terms are included in Table VI.**
8. **The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Solid stratification lines delineate apparent changes in soil type, based upon review of recovered soil samples and the driller's notes. Dashed lines convey a lesser degree of certainty with respect to either a change in soil type or where such change may occur.**
9. **Miscellaneous observations and procedures noted by the driller are shown in this column, including water level observations. It is important to realize the reliability of the water level observations depends upon the soil type (water does not readily stabilize in a hole through fine grained soils), and that any drill water used to advance the boring may have influenced the observations. The ground water level will fluctuate seasonally, typically. One or more perched or trapped water levels may exist in the ground seasonally. All the available readings should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or groundwater observation wells.**
10. **The length of core run is defined as the length of penetration of the core barrel. Core recovery is the length of core recovered divided by the core run. The RQD (Rock Quality Designation) is the total length of pieces of NX core exceeding 4 inches divided by the core run. The size core barrel used is also noted in the Method of Investigation at the bottom of the Subsurface Log.**

DATE

STARTED _____

FINISHED _____

SHEET _____ OF _____

SJB SERVICES, INC.
SUBSURFACE LOG

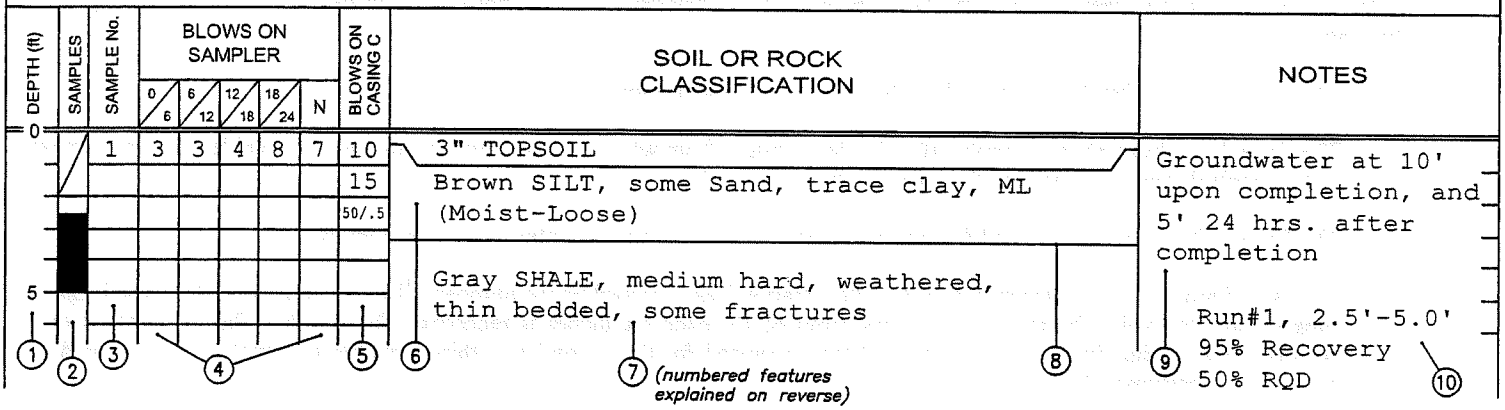
PROJ. No. _____

HOLE No. _____

SURF. ELEV. _____

G.W. DEPTH _____

PROJECT _____ LOCATION _____



(numbered features explained on reverse)

TABLE I

- Split Spoon Sample
- Shelby Tube Sample
- Geoprobe Macro-Core
- Auger or Test Pit Sample
- Rock Core

TABLE II

Identification of soil type is made on basis of an estimate of particle sizes, and in the case of fine grained soils also on basis of plasticity.

Soil Type	Soil Particle Size	
Boulder	>12"	Coarse Grained (Granular)
Cobble	3" - 12"	
Gravel - Coarse	3" - 3/4"	
- Fine	3/4" - #4	
Sand - Coarse	#4 - #10	
- Medium	#10 - #40	
- Fine	#40 - #200	
Silt - Non Plastic (Granular) Clay - Plastic (Cohesive)	<#200	Fine Grained

TABLE III

The following terms are used in classifying soils consisting of mixtures of two or more soil types. The estimate is based on weight of total sample.

Term	Percent of Total Sample
"and"	35 - 50
"some"	20 - 35
"little"	10 - 20
"trace"	less than 10

(When sampling gravelly soils with a standard split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter.)

TABLE IV

The relative compactness or consistency is described in accordance with the following terms:

Granular Soils		Cohesive Soils	
Term	Blows per Foot, N	Term	Blows per Foot, N
Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Firm	10 - 30	Medium	4 - 8
Compact	30 - 50	Stiff	8 - 15
Very Compact	>50	Very Stiff	15 - 30
		Hard	>30

(Large particles in the soils will often significantly influence the blows per foot recorded during the penetration test)

TABLE V

Varved	Horizontal uniform layers or seams of soil(s).
Layer	Soil deposit more than 6" thick.
Seam	Soil deposit less than 6" thick.
Parting	Soil deposit less than 1/8" thick.
Laminated	Irregular, horizontal and angled seams and partings of soil(s).

TABLE VI

Rock Classification Term		Meaning
Hardness	- Soft	Scratched by fingernail
	- Medium Hard	Scratched easily by penknife
	- Hard	Scratched with difficulty by penknife
	- Very Hard	Cannot be scratched by penknife
Weathering	- Very Weathered	Judged from the relative amounts of disintegration, iron staining, core recovery, clay seams, etc.
	- Weathered	
	- Sound	

Rock Classification Term		Meaning	
Bedding	- Laminated	(<1")	Natural breaks in Rock Layers
	- Thin Bedded	(1" - 4")	
	- Bedded	(4" - 12")	
	- Thick Bedded	(12" - 36")	
	- Massive	(>36")	

(Fracturing refers to natural breaks in the rock oriented at some angle to the rock layers)

DATE
START 3/30/2016
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SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-1
SURF. ELEV 96.8' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	4			TOPSOIL Gray and Brown Silty CLAY, tr.sand (moist, stiff, CL)	Driller notes approx. 2" of at the surface
		6	10		10		
	2	5	9				REF = Sample Spoon Refusal
		13	29		22	(v.stiff)	
5	3	50/0.1			REF	Weathered SHALE fragments	
						Boring Complete with Sampler Refusal at 4.1'	Free Standing Water recorded at surface at Boring Completion (Wet Surface Area)
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 3/29/2016
FINISH 3/29/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-2
SURF. ELEV 96.3' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	5			TOPSOIL Brown Silty CLAY, tr.sand, tr.organics Contains Shale fragments (moist, stiff, CL)	Driller notes approx. 2" of Topsoil at the surface
		7	7		12		
	2	2	2			Brown and Gray Silty CLAY, tr.sand, tr.organics (moist, stiff, CL)	
		7	7		9		
5	3	10	15			Gray f-m SAND, some Clayey SILT (wet, compact, SC-SM)	
		16	16		31		
	4	5	6			Gray Silty CLAY, tr.sand (moist, stiff, CL)	
		6	8		12		
	5	7	7			Gray Clayey SILT, little fine Sand (moist, stiff, ML)	
10		5	5		12		
	6	5	6			Gray Silty CLAY, tr.sand (moist, stiff, CL)	
		4	7		10		
						Boring Complete at 12.0'	Free Standing Water recorded at 5.7' at Boring Completion
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 3/30/2016
FINISH 3/30/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-3
SURF. ELEV 95.4' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
						TOPSOIL	Driller notes approx. 3" of Topsoil at the surface
	1	1	1			Gray Silty CLAY, tr.sand (moist, soft, CL)	
		3	5		4		
	2	4	7			Contains little f-c Sand (stiff)	
		8	5		15		REF = Sample Spoon Refusal
5	3	4	3			Contains tr.sand (moist-wet)	
		50/0.0			REF	Boring Complete with Sampler Refusal at 5.0'	Free Standing Water recorded at surface at Boring Completion (Wet Surface Area)
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 3/30/2016
FINISH 3/30/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-4
SURF. ELEV 97.8' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			TOPSOIL	Driller notes approx. 2" of Topsoil at the surface
		5	5		8	Gray and Brown Silty CLAY, tr.sand, tr.organics (moist, stiff, CL)	
	2	10	19			Contains SHALE fragments (hard)	REF = Sample Spoon Refusal
		17	23		36		
5	3	50/0.1			REF	Weathered SHALE fragments	
						Boring Complete with Sampler Refusal at 4.1'	No Free Standing Water encountered at Boring Completion
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 3/31/2016
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SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-5
SURF. ELEV 97.5' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	3			TOPSOIL Gray and Brown Silty CLAY, tr.sand, tr.organics (moist, stiff, CL)	Driller notes approx. 2" of Topsoil at the surface
		5	7		8		
	2	15	15				REF = Sample Spoon Refusal
		24	33		39		
5	3	50/0.1			REF	Weathered SHALE fragments	
						Boring Complete with Sampler Refusal at 4.1'	No Free Standing Water encountered at Boring Completion
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 3/31/2016
FINISH 3/31/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-6
SURF. ELEV 97.0' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			TOPSOIL Dark Brown Silty CLAY, little Organics, tr.sand (moist, soft, OH)	Driller notes approx. 2" of Topsoil at the surface.
		2	3		3		
	2	9	13			Brown-Gray Silty CLAY, some f-c Sand, little f-c Gravel (moist, hard, CL)	No Recovery Sample #3 REF = Sample Spoon Refusal
		21	50/0.1		34		
5	3	50/0.0			REF	Boring Complete with Sampler Refusal at 4.0'	No Free Standing Water encountered at Boring Completion
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 3/31/2016
FINISH 3/31/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-7
SURF. ELEV 97.7' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	4			TOPSOIL Gray and Brown Silty CLAY, tr.sand, tr.organics (moist, stiff, CL)	Driller notes approx. 3" of Topsoil at the surface
		5	7		9		
	2	13	10			Brown Clayey SILT, little f-c Sand, little f-c Gravel Contains Shale fragments (moist, hard, ML)	No Recovery Sample #3 REF = Sample Spoon Refusal
		21	50/0.3		31		
5	3	50/0.1			REF	Boring Complete with Sampler Refusal at 4.0'	No Free Standing Water encountered at Boring Completion
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 4/1/2016
FINISH 4/1/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-8
SURF. ELEV 97.5' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	4	7			TOPSOIL Brown Silty CLAY, little f-c Sand, tr.gravel (moist, v.stiff, CL)	Driller notes approx. 3" of Topsoil at the surface.
		9	9		16		
	2	10	15			Brown Clayey SILT, little f-c Sand, little f-c Gravel Contains Shale fragments (moist, hard, ML)	REF = Sample Spoon Refusal
		21	31		36		
5	3	50/0.3			REF	Weathered SHALE fragments	
						Boring Complete with Sampler Refusal at 4.3'	No Free Standing Water encountered at Boring Completion
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 4/1/2016
FINISH 4/1/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-9
SURF. ELEV 97.7' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	4			TOPSOIL	Driller notes approx. 2" of Topsoil at the surface.
		7	8		11	Gray and Brown Silty CLAY, tr.sand, tr.organics (moist, stiff, CL)	
	2	9	11			Brown Clayey SILT, little f-c Sand, tr.gravel	
		19	31		30	Contains Shale fragments (moist, hard, ML)	REF = Sample Spoon Refusal
5	3	50/0.2			REF	Weathered SHALE fragments	
						Boring Complete with Sampler Refusal at 4.2'	No Free Standing Water encountered at Boring Completion
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 4/1/2016
FINISH 4/1/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-10
SURF. ELEV 96.0' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	4			TOPSOIL Gray Brown Silty CLAY, tr.sand, tr.organics (moist, stiff, CL)	Driller notes approx. 3" of Topsoil at the surface
		5	6		9		
	2	9	15			Brown Clayey SILT, little f-c Sand, tr.gravel (moist, hard, ML) Contains Shale fragments	REF = Sample Spoon Refusal
		17	25		32		
5	3	50/0.2			REF	Weathered SHALE fragments	
						Boring Complete with Sampler Refusal at 4.2'	No Free Standing Water encountered at Boring Completion
10							
15							
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : TRIPOD

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 3/29/2016
FINISH 3/29/2016
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-11
SURF. ELEV 96.9' +/-
G.W. DEPTH See Notes

PROJECT: LAKESHORE SHORELINE TRAIL - PHASE 3 LOCATION: WENDT BEACH PARK
PROJ. NO.: BE-16-049 TOWN OF EVANS, NY

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			Brown Silty CLAY, little f-c Sand	
		7	13		10	Contains Shale fragments (moist, stiff, CL)	
	2	17	18			Brown f-c SAND, little f-c Gravel, tr.silty clay	
		15	15		33	Contains Shale fragments (moist, compact, SP)	
5	3	17	50/0.2		REF	Boulder fragments	Poor Recovery Sample #4
						Weathered SHALE fragments	NQ '2' Size Rock Core
	4	50/0.2			REF	Gray SHALE, hard, sound, thinly bedded to bedded, some fractures	RUN #1: 6.2' - 11.2' REC = 100% RQD = 48%
10							
							RUN #2: 11.2' - 16.2' REC = 98% RQD = 70%
15							
						Boring Complete at 16.2'	No Free Standing Water encountered prior to Rock Coring
20							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: D. DELUDE DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

APPENDIX B

GEOTECHNICAL REPORT LIMITATIONS

GEOTECHNICAL REPORT LIMITATIONS

Empire Geo-Services, Inc. (Empire) has endeavored to meet the generally accepted standard of care for the services completed, and in doing so is obliged to advise the geotechnical report user of our report limitations. Empire believes that providing information about the report preparation and limitations is essential to help the user reduce geotechnical-related delays, cost over-runs, and other problems that can develop during the design and construction process. Empire would be pleased to answer any questions regarding the following limitations and use of our report to assist the user in assessing risks and planning for site development and construction.

PROJECT SPECIFIC FACTORS: The conclusions and recommendations provided in our geotechnical report were prepared based on project specific factors described in the report, such as size, loading, and intended use of structures; general configuration of structures, roadways, and parking lots; existing and proposed site grading; and any other pertinent project information. Changes to the project details may alter the factors considered in development of the report conclusions and recommendations. *Accordingly, Empire cannot accept responsibility for problems which may develop if we are not consulted regarding any changes to the project specific factors that were assumed during the report preparation.*

SUBSURFACE CONDITIONS: The site exploration investigated subsurface conditions only at discrete test locations. Empire has used judgement to infer subsurface conditions between the discrete test locations, and on this basis the conclusions and recommendations in our geotechnical report were developed. It should be understood that the overall subsurface conditions inferred by Empire may vary from those revealed during construction, and these variations may impact on the assumptions made in developing the report conclusions and recommendations. *For this reason, Empire should be retained during construction to confirm that conditions are as expected, and to refine our conclusions and recommendations in the event that conditions are encountered that were not disclosed during the site exploration program.*

USE OF GEOTECHNICAL REPORT: Unless indicated otherwise, our geotechnical report has been prepared for the use of our client for specific application to the site and project conditions described in the report. *Without consulting with Empire, our geotechnical report should not be applied by any party to other sites or for any uses other than those originally intended.*

CHANGES IN SITE CONDITIONS: Surface and subsurface conditions are subject to change at a project site subsequent to preparation of the geotechnical report. Changes may include, but are not limited to, floods, earthquakes, groundwater fluctuations, and construction activities at the site and/or adjoining properties. *Empire should be informed of any such changes to determine if additional investigative and/or evaluation work is warranted.*

MISINTERPRETATION OF REPORT: The conclusions and recommendations contained in our geotechnical report are subject to misinterpretation. *To limit this possibility, Empire should review project plans and specifications relative to geotechnical issues to confirm that the recommendations contained in our report have been properly interpreted and applied.*

Subsurface exploration logs and other report data are also subject to misinterpretation by others if they are separated from the geotechnical report. This often occurs when copies of logs are given to contractors during the bid preparation process. *To minimize the potential for misinterpretation, the subsurface logs should not be separated from our geotechnical report and the use of excerpted or incomplete portions of the report should be avoided.*

OTHER LIMITATIONS: Geotechnical engineering is less exact than other design disciplines, as it is based partly on judgement and opinion. For this reason, our geotechnical report may include clauses that identify the limits of Empire's responsibility, or that may describe other limitations specific to a project. These clauses are intended to help all parties recognize their responsibilities and to assist them in assessing risks and decision making. Empire would be pleased to discuss these clauses and to answer any questions that may arise.