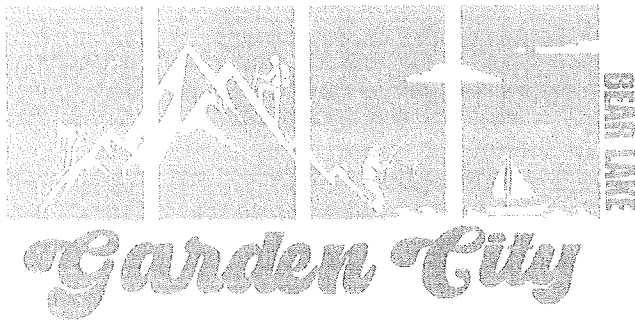




* updated Application *

Town of Garden City

69 N. Paradise Parkway, Bldg B.

P.O. Box 207

Garden City, UT 84028

Phone: (435) 946-2901

Email: office@gardencityutah.gov

Garden City Project Checklist

A complete application packet must be filed with the Garden City Town Clerk by the due date listed on the "Procedure for Submittal Poster" for the meeting when your project will be considered. Incomplete packets will not be accepted. Subdivisions, PUD/PRUD, and Condominium projects are required to follow the Subdivision/PUD/PRUD Process, an AEG pre-meeting before turning in this packet is encouraged.

INCOMPLETE APPLICATION PACKETS WILL NOT BE ACCEPTED.

PLEASE REFER TO ORDINANCES FOR A LIST OF REQUIRED DOCUMENTS TO BE INCLUDED WITH THE FOLLOWING PROJECT APPLICATIONS:

- ☒ **Subdivision Plat:** \$3,000 Deposit * 11E
 Preliminary Plat: \$500 per plat + \$10 per lot 11E-400
 Final Plat: \$500 per plat + \$10 per lot 11E-500
 Amended Plat: \$300 per plat
 Subdivision packets must include A, 20 of B, 4 of C, D, E, & F for each plat
- ☐ **Condominium Plat:** \$3000 Deposit * Must follow Subdivision Ordinance, Chapter 11E and/or Planned Unit Development Ordinance, Chapter 11F and:
 Condominium Plat: \$500 per plat + \$10 per lot 11E-524
 Townhouse Plat: \$500 per plat + \$10 per lot 11E-525
 Condominium packets must include A, 15 of B, 4 of C, D, E, & F for each plat
- ☐ **Planned Unit Development or Planned Residential Development (PUD or PRUD):**
 \$3,000 Deposit * 11C-1950, 11F & 11 E
 Preliminary PUD Development Plan: \$1,000 11F-103
 Final Development Plan: \$1,000 11F-107
 PUD/PRUD packets must include A, 20 of B, 4 of C, D, E, & F for each plat
- ☐ **Readjustment of Lot Lines or Lot Splits:** \$250 11E-506
 Packets must include A, B, C, D, E, & F, Also, a deed for each lot
- ☐ **Vacation of Subdivision:** \$300 11E-523
 Packets must include A, 20 of B, 1 each of C, D, E, & F
- ☒ **Amended Subdivision:** \$300
 Packets must include A, B, C, D, E & F
- ☐ **Conditional Use Permit:** \$300
 CUP packets must include A, 9 of B, D, E, & F
- ☐ **Variance:** \$250 11B-308
 Variance Packets must include A, B, D, E, & F
- ☐ **Annexation:** \$300 for first acre or less, \$20 per acre for each additional acre (Maximum of \$1,000) 11A-300
 Annexation packets must include A, 20 of B, 4 of C, D, E, & F

- ☐ **Zone Change:** \$300 for first acre or less, \$20 per acre for each additional acre
(Maximum of \$1,000) 11A-302
Zone Change packets must include A, 20 of B, 1 each of C, D, E, & F
- ☐ **Encumbrance:** \$250
Encumbrance Packets must include A, B (only 9), D, E, & F
- ☐ **Un-Encumbrance:** \$250
Un-Encumbrance Packets must include A, B (only 9), D, E, & F
- ☐ **Appeal:** \$250
Appeal Packets must include A and a letter from the property owner outlining the reason for the appeal.
- ☐ **Extension of Time:**
Extension of Time Packets must include A, and a letter from the Developer explaining the reason for the extension request.
- ☐ **Other Land Use Permits:** \$50
Packets must include A, B, D, E, & F
- ☐ **Water Share Transfer:**
Water Share Transfer Packets must include A
- ☐ **PID:** \$2000
Review the Garden City PID Policy for requirements. 9 copies of the required.
- ☐ **AEG Meeting, (Affected Entity Group):** \$350 Deposit
Packets must include A, 10 of B

Note:

* The \$3,000 deposit is used to cover engineer costs, attorney costs, recording fees, etc. The balance will be refunded to the developer.

** Land Use Fees are set by Resolution (Garden City Resolution 23-03). Applicants are responsible for paying application fees and any Garden City attorney, engineering, and administrative costs not covered by the application fee.

PACKET DOCUMENTATION REQUIREMENTS

- A. Completed Garden City "Application for Project Review" form.
- B. 11"x14" or 11"x17" plot plan showing lot dimensions and area, and the location, uses dimensions, and set backs of all existing and proposed buildings. Any right-of-ways or easements must be shown if applicable. **Provide 20 readable copies.**
- C. A "D" size (22" x 34") plot plan showing lot dimensions and area, and the location, uses, dimensions, and set backs of all existing and proposed buildings. When appropriate, include the same information for property from which a new lot is being created. Plot at appropriate scale (e.g. 1"=50' or 1"=100')
- D. A legal description and current ownership plat of the property.
- E. A current Title Report or Preliminary Title Report showing ownership. Must match legal description on plat.
- F. An electronic copy of plat.

Please review Garden City ordinances for requirements for each type of project. Garden City ordinances can be found at www.gardencityut.us.

Application for Project Review Garden City, Utah

This application must be accompanied with the necessary and appropriate materials, as stated on the project checklist, before it will be accepted for processing. The date upon which the project will appear on an agenda is determined by the notification schedule required by the State of Utah. The project will be scheduled for the next meeting for which a legal notice has not yet been prepared, after an application is accepted as complete by the Town Staff.

Type of Application (check all that apply):

Ordinance Reference:

- | | |
|---|---|
| ☐ Annexation | 11A-301 |
| ☐ Appeal | 11B-400 |
| ☐ Conditional Use Permit | 11C-500 |
| ☐ Condominium/Townhouse | 11E-524 or 11E-525 |
| ☐ Encumbrance | |
| ☐ Extension of Time | Subdivision 11E-503/PUD or PRUD 11F-107-A-2 |
| ☐ Lot Split/Lot Line Adjustment | 11E-506 |
| ☐ Plat Amendment (Subdivision) | |
| ☐ PUD Development Plan | 11C-1950, 11E-100, and 11F-100 |
| ☐ PUD Phase Approval/Preliminary or Final | 11C-1950, 11E-100, and 11F-100 |
| ☐ PRUD Conceptual | 11C-1950, 11E-100, and 11F-100 |
| ☐ PRUD Phase Approval/Preliminary or Final | 11C-1950, 11E-100, and 11F-100 |
| ☒ Subdivision | 11E-100 |
| ☐ Vacation of Subdivision | 11E-523 |
| ☐ Variance | 11B-308 |
| ☐ Water Transfer | 13A-1300 |
| ☐ Zone Change | |
| ☐ AEG Meeting, (Affected Entity Group) | |
| ☐ Public Infrastructure District | Garden City PID Policy |
| ☐ Other Land Use Permit _____ | |

Project Name: Sweetwater Resort SFR Current Zone: C4 Proposed Zone: C4

Property Address: Pickleville Parkway & Sweetwater Parkway

Parcel # 36-04-00-055

Contact Person: Eric Thomas Phone #: 801-430-1882

E-mail address: ethomas@regencyx.com

Mailing Address: 2637 N. 400 E., Ste. 127, North Ogden UT 84414

Applicant (if different): Genneva Blanchard Phone #: 802-375-4057

Mailing Address: 2637 N. 400 E., Ste. 127, North Ogden UT 84414

Property Owner of Record (if different): Bear Lake Tours, LLC Phone #: 801-430-1882

Mailing Address: 2637 N. 400 E., Ste. 127, North Ogden UT 84414

Project Start date: Fall 2026 Completion date: Summer 2027

Describe the proposed project as it should be presented to the hearing body and in the public notices.

Changing a portion of the originally approved project to Single Family lots to allow for diversified product types and increased project success for a better overall community.

Lot Size in acres or square feet: 20.652 Number of dwellings or lots: 64 lots

Non-residential building size: N/A

I certify that the information contained in this application and supporting materials is correct and accurate. I have read and understand the requirements and deadlines associated with this application.

Genevra Blanchard

Signature of Applicant

I certify that I am the Owner of Record of the subject property and that I consent to the submittal of this application. Owner of Record MUST sign the application prior to submitting to Garden City.

Eric Thomas

Signature of Owner of Record

Signature of Owner of Record

Signature of Owner of Record

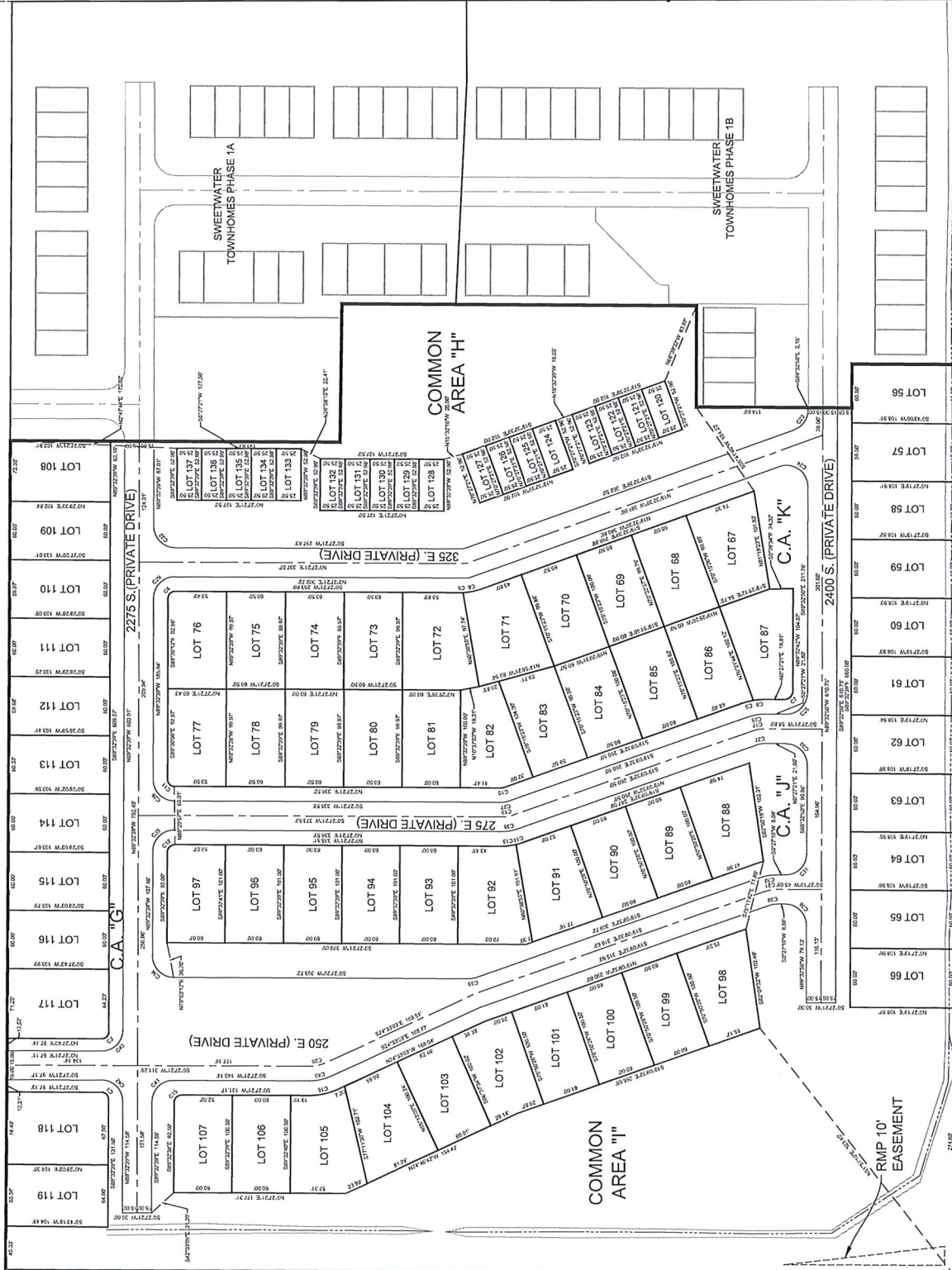
Office Use Only

Date Received: _____

Fee: _____

By: _____

SWEETWATER TOWNHOMES PHASE 2 LOCATED IN THE NORTHEAST QUARTER OF SECTION 4, TOWNSHIP 13 NORTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, GARDEN CITY, RICH COUNTY, UTAH, JUNE, 2026



SWEETWATER TOWNHOMES PHASE 2
LOCATED IN THE NORTHEAST QUARTER OF SECTION 4,
TOWNSHIP 13 NORTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN,
GARDEN CITY, RICH COUNTY, UTAH, JUNE, 2026

CURVE TABLE				
CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING
C1	11.00	7.01	90°00'04"	S45° 27' 47"W 9.91
C2	11.01	7.01	90°00'00"	N44° 32' 30"W 9.91
C3	11.01	7.02	89°47'31"	S44° 35' 14"E 9.91
C4	3.46	52.86	9°44'51"	S0° 35' 38"E 3.46
C5	19.23	64.43	17°05'04"	S11° 00' 22"E 19.16
C6	14.14	9.00	89°59'59"	N44° 32' 38"W 12.73
C7	11.98	70.00	9°48'25"	N4° 35' 52"W 11.97
C8	11.98	70.00	9°48'25"	S14° 15' 12"E 11.97
C9	3.42	10.00	19°35'33"	N9° 21' 05"W 3.41
C10	11.00	7.00	89°59'48"	N45° 27' 24"E 9.90
C11	12.57	8.00	90°00'00"	S44° 32' 39"E 11.31
C12	18.24	70.00	13°17'47"	S6° 11' 33"E 18.21
C13	14.14	9.00	89°59'59"	S1° 10' 59"E 14.14
C14	7.72	70.00	61°09'08"	S15° 59' 59"E 7.72
C15	12.55	8.00	89°52'35"	S44° 36' 32"E 11.30
C16	30.75	60.94	25°11'34"	S12° 07' 59"E 30.50
C17	13.69	40.00	19°35'33"	S9° 21' 05"E 13.63
C18	34.57	22.00	89°45'00"	S45° 24' 22"W 31.14
C19	13.69	40.00	19°35'33"	S9° 21' 05"E 13.63
C20	17.62	40.00	25°14'54"	S12° 09' 41"E 17.47
C21	13.69	40.00	19°35'42"	S9° 21' 11"E 13.62
C22	34.58	22.00	90°00'00"	S45° 27' 21"W 31.11
C23	26.88	22.00	70°00'11"	S54° 32' 44"E 25.24
C24	42.24	22.00	109°59'49"	N35° 27' 18"E 36.04
C25	34.56	22.00	90°00'11"	S44° 32' 44"E 31.11
C26	18.83	55.00	19°35'33"	S9° 21' 05"E 18.74
C27	8.56	25.00	19°35'33"	S9° 21' 05"E 8.52
C28	34.58	22.00	90°00'00"	S45° 27' 21"W 31.11
C29	34.58	22.00	90°00'00"	N44° 32' 39"W 31.11
C30	34.58	22.00	89°59'49"	N45° 27' 18"E 31.11
C31	34.58	22.00	90°00'00"	S44° 32' 59"E 31.11
C32	18.83	55.00	19°35'42"	S9° 21' 11"E 18.73
C33	8.56	25.00	19°37'04"	S9° 21' 00"E 8.52
C34	34.73	22.00	90°27'21"	S45° 13' 40"W 31.24
C35	34.58	22.00	90°00'00"	N44° 32' 39"W 31.11
C36	18.83	55.00	19°35'33"	N9° 21' 05"W 18.74
C37	8.56	25.00	19°35'33"	N9° 21' 05"W 8.52
C38	34.58	22.00	90°00'00"	S45° 27' 10"W 31.11
C39	8.56	25.00	19°35'42"	S9° 21' 11"E 8.52
C40	24.19	55.00	25°12'33"	S12° 08' 40"E 24.00
C41	34.58	22.00	90°00'00"	S44° 32' 39"E 31.11
C42	34.58	22.00	90°00'00"	S45° 27' 21"W 31.11
C43	34.58	22.00	90°00'00"	N44° 32' 39"W 31.11

LOT NUMBER	ADDRESS	AREA	LOT NUMBER	ADDRESS	AREA	LOT NUMBER	ADDRESS	AREA
56		6616 SQ. FT.	85		6027 SQ. FT.	114		6217 SQ. FT.
57		6453 SQ. FT.	86		6102 SQ. FT.	115		6224 SQ. FT.
58		6535 SQ. FT.	87		6470 SQ. FT.	116		6231 SQ. FT.
59		6535 SQ. FT.	88		6514 SQ. FT.	117		7403 SQ. FT.
60		6536 SQ. FT.	89		6000 SQ. FT.	118		7757 SQ. FT.
61		6536 SQ. FT.	90		6000 SQ. FT.	119		6658 SQ. FT.
62		6537 SQ. FT.	91		6853 SQ. FT.	120		1351 SQ. FT.
63		6537 SQ. FT.	92		6930 SQ. FT.	121		1351 SQ. FT.
64		6537 SQ. FT.	93		6060 SQ. FT.	122		1351 SQ. FT.
65		6538 SQ. FT.	94		6060 SQ. FT.	123		1351 SQ. FT.
66		6538 SQ. FT.	95		6060 SQ. FT.	124		1351 SQ. FT.
67		6450 SQ. FT.	96		6060 SQ. FT.	125		1351 SQ. FT.
68		6014 SQ. FT.	97		6053 SQ. FT.	126		1351 SQ. FT.
69		6021 SQ. FT.	98		6555 SQ. FT.	127		1351 SQ. FT.
70		6049 SQ. FT.	99		6030 SQ. FT.	128		1351 SQ. FT.
71		6975 SQ. FT.	100		6030 SQ. FT.	129		1351 SQ. FT.
72		7061 SQ. FT.	101		6130 SQ. FT.	130		1351 SQ. FT.
73		6048 SQ. FT.	102		6282 SQ. FT.	131		1351 SQ. FT.
74		6023 SQ. FT.	103		6130 SQ. FT.	132		1351 SQ. FT.
75		6048 SQ. FT.	104		7090 SQ. FT.	133		1351 SQ. FT.
76		6034 SQ. FT.	105		6998 SQ. FT.	134		1351 SQ. FT.
77		6034 SQ. FT.	106		6030 SQ. FT.	135		1351 SQ. FT.
78		6048 SQ. FT.	107		6016 SQ. FT.	136		1351 SQ. FT.
79		6048 SQ. FT.	108		7425 SQ. FT.	137		1351 SQ. FT.
80		6048 SQ. FT.	109		6178 SQ. FT.	COMMON AREA "G"		
81		6004 SQ. FT.	110		6184 SQ. FT.	COMMON AREA "H"		
82		6059 SQ. FT.	111		6187 SQ. FT.	COMMON AREA "I"		
83		6074 SQ. FT.	112		6199 SQ. FT.	COMMON AREA "J"		
84		6049 SQ. FT.	113		6226 SQ. FT.	COMMON AREA "K"		

DEVELOPER:
OLYMPIUS CONSTRUCTORS
1000 N. 1000 E. SUITE 100
NORTH OGDEN, UTAH

S3
3

COUNTY RECORDER
ENTRY NO. _____ FEE PAID _____
FILED FOR AND RECORDED
AT _____ IN BOOK _____ OF OFFICIAL
RECORDS, PAGE _____ RECORDED
FOR _____
COUNTY RECORDER
BY _____

GARDNER
ENGINEERING
CIVIL • LAND PLANNING
1000 3RD. EAST SUITE 100
NORTH OGDEN, UTAH 84401
P 801.476.0221 F 801.476.0446

Tyson Lund

From: Josh Whitney <josh@gordongeotech.com>
Sent: Wednesday, June 14, 2023 3:14 PM
To: Susan Neeley; Tyson Lund
Cc: Patrick Emery
Subject: Re: Bear Lake Towns

Hi Tyson,

Thank you for the project update.

It is our understanding that the Proposed Construction originally presented in the Geotechnical Study dated September 29, 2022 (538-006-22) is unchanged. A representative of Gordon Geotechnical Engineering, Inc. collected follow-up groundwater readings and performed infiltration tests today (6/14/23).

The discussions and recommendations presented in the September 29, 2022 geotechnical study remain applicable for the proposed development. A supplemental letter with the follow-up groundwater readings and infiltration results will be completed in the next week or two.

If you have any questions or require additional information, please do not hesitate to contact us.

Respectfully submitted,
Gordon Geotechnical Engineering, Inc.
Joshua M. Whitney
Senior Engineer

From: Susan Neeley <susan@gordongeotech.com>
Sent: Thursday, September 29, 2022 1:45 PM
To: Tyson Lund <tyson@regencyx.com>
Cc: Josh Whitney <josh@gordongeotech.com>; Patrick Emery <pat@gordongeotech.com>
Subject: Bear Lake Towns

Pat Emery asked that I email the attached geotechnical report.
Stamped hard copies will be sent by US Mail.

Thanks

Susan



Susan Neeley - Office Manager
Gordon Geotechnical Engineering, Inc.
4426 South Century Drive, Suite 100
Salt Lake City, Utah 84123

Tel.: 801-327-9600



**GORDON
GEOTECHNICAL
ENGINEERING, INC.**

**REPORT
GEOTECHNICAL STUDY
PROPOSED BEAR LAKE TOWNS
2300 SWEET WATER PARKWAY
GARDEN CITY, UTAH**

September 29, 2022

Job No. 538-006-22

Prepared for:

Regency Excavation
1384 North Washington Boulevard
Ogden, Utah 84404

Prepared by:

Gordon Geotechnical Engineering, Inc.
4426 South Century Drive, Suite 100
Salt Lake City, Utah 84123
Tel: 801-327-9600
Fax: 801-327-9601
www.gordongeotech.com

September 29, 2022
Job No. 538-006-22

Regency Excavation
1384 North Washington Boulevard
Ogden, Utah 84404

Attention: Mr. Tyson Lund

Ladies and Gentlemen:

Re: Report
Geotechnical Study
Proposed Bear Lake Towns
2300 Sweet Water Parkway
Garden City, Utah

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical study performed at the site of the proposed Bear Lake Towns, which will be located at 2300 Sweet Water Parkway in Garden City, Utah. The general location of the site with respect to major topographic features and existing facilities, as of 1986 and 1998, is presented on Figure 1, Vicinity Map. A detailed location of the site showing existing roadways, surrounding facilities, on an air photograph base, is presented on Figure 2, Area Map. The locations and alignments of photographs taken of the site during the field portion of study are also presented on Figure 2. A more detailed layout of the site showing the proposed structures and parking areas is presented on Figure 3, Site Plan. The test pit locations excavated in conjunction with this study are also presented on Figure 3.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of our study were planned in discussions between Mr. Tyson Lund of Regency Excavation and Mr. Patrick Emery of Gordon Geotechnical Engineering, Inc. (G²).

In general, the objectives of this study were to:

1. Accurately define and evaluate the subsurface soil and groundwater conditions across the site.
2. Provide appropriate earthwork, foundation, floor slabs, pavement, and geoseismic recommendations to be utilized in the design and construction of the proposed development.

In accomplishing these objectives, our scope has included the following:

1. A field program consisting of the excavating, logging, and sampling of 14 test pits to depths of 12 to 15 feet.
2. A laboratory testing program.
3. An office program consisting of the correlation of available data, engineering analyses, and the preparation of this summary report.

1.3 AUTHORIZATION

Authorization was provided by returning a signed copy of our Professional Services Agreement No. 22-0827 dated August 16, 2022 and authorized on August 17, 2022.

1.4 PROFESSIONAL STATEMENTS

Supporting data upon which our recommendations are based are presented in subsequent sections of this report. Recommendations presented herein are governed by the physical properties of the soils encountered in the exploration test pits, measured and projected groundwater conditions, and the layout and design data discussed in Section 2., Proposed Construction, of this report. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, G² must be informed so that our recommendations can be reviewed and amended, if necessary.

Our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time.

2. PROPOSED CONSTRUCTION

A residential subdivision consisting of 207 townhome units is planned for the 23.8-acre site. The proposed structures are anticipated to be two to three levels in height and of wood-frame construction established slab-on-grade.

It is anticipated that the maximum anticipated column and wall loads will be in the range of 60 to 90 kips and 2 to 3 kips per lineal foot, respectively.

Site development will require a minor amount of earthwork in the form of site grading. It is estimated that maximum cuts and fills to achieve design grades will be on the order of two to three feet.

Paved surface parking areas will also be part of the overall development. Traffic over the pavements will consist of a light to moderately light volume of automobiles and light trucks, and some medium-weight trucks. In roadways, the traffic will be somewhat higher.

3. INVESTIGATIONS

3.1 FIELD PROGRAM

In order to define and evaluate the subsurface soil and groundwater conditions across the site, 14 test pits were excavated to depths ranging from 12 to 15 feet below existing grade. Locations of the test pits are presented on Figure 3.

The field portion of our study was under the direct control and continual supervision of an experienced member of our geotechnical staff. During the course of the excavation operations, a continuous log of the subsurface conditions encountered was maintained. In addition, relatively undisturbed and small disturbed samples of the typical soils encountered were obtained for subsequent laboratory testing and examination. The soils were classified in the field based upon visual and textural examination. These classifications have been supplemented by subsequent inspection and testing in our laboratory. Detailed graphical representation of the subsurface conditions encountered is presented on Figures 4A through 4N, Log of Test Pits. Soils were classified in accordance with the nomenclature described on Figure 5, Unified Soil Classification System.

Disturbed bag samples were collected from the soils brought up by the backhoe bucket.

Following completion of excavating and logging, each test pit was backfilled. Although an effort was made to compact the backfill with the backhoe, backfill was not placed in uniform lifts and compacted to a specific density. Consequently, settlement of the backfill with time is likely to occur.

Following completion of drilling operations, one and one-quarter-inch diameter slotted PVC pipe was installed in the majority of the test pits in order to provide a means of monitoring the groundwater fluctuations.

3.2 LABORATORY TESTING

3.2.1 General

In order to provide data necessary for our engineering analyses, a laboratory testing program was performed. The program included: moisture and density, partial gradation, consolidation, Atterberg limits, and chemical tests. The following paragraphs describe the tests and summarize the test data.

3.2.2 Moisture and Density Tests

To aid in classifying the soils and to help correlate other test data, moisture and density tests were performed on selected undisturbed samples. The results of these tests are presented on the test pit logs, Figures 4A through 4N.

3.2.3 Partial Gradation Tests

To aid in classifying the soils and to provide general index parameters, a partial gradation test was performed upon four representative samples of the soils encountered in the exploration test pits. The results of the test are tabulated below:

Test Pit No.	Depth (feet)	Percent Passing No. 200 Sieve	Soil Classification
TP-3	10.0	95.0	CL
TP-4	8.0	96.0	CL
TP-6	8.0	77.2	CL
TP-9	6.0	99.3	CL

3.2.4 Consolidation Tests

To provide data necessary for our settlement analyses, a consolidation test was performed on two representative samples of the fine-grained cohesive soils encountered in the exploration test pits. The results of these tests indicate that the natural silty clays are slightly to moderately over-consolidated and will exhibit moderate compressibility characteristics when loaded below the preconsolidation pressure. Detailed results of the tests are maintained within our files and can be transmitted to you, at your request.

3.2.5 Atterberg Limits Tests

To further aid in classifying the site soils, an Atterberg limits tests was performed on three selected samples. Results of the tests are tabulated below:

Test Pit No.	Depth (feet)	Liquid Limit (percent)	Plastic Limit (percent)	Plasticity Index (percent)	Soil Classification
TP-1	4.0	50	17	33	CL
TP-3	10.0	42	15	27	CL
TP-6	8.0	36	15	21	CL

3.2.6 Chemical Tests

To determine if the site soils will react detrimentally with concrete, chemical tests were performed on a representative sample of the natural soils. The results of the chemical tests are tabulated below:

Test Pit No.	Depth (feet)	Soil Classification	pH	Total Water Soluble Sulfate (mg/kg-dry)
TP-1	4.0	CL	9.0	1,540

4. SITE CONDITIONS

4.1 SURFACE

The site consists of a rectangular-parcel containing approximately 23.8-acres of vacant land. The undeveloped site is currently covered by grasses and weeds. Historical photographs indicate that agricultural and earthwork operations have previously occurred at the site. The surficial soils are plow-disturbed.

The site is bordered by similar undeveloped land to the north, east, south, and west.

The overall topography across the site slopes down to the east with up to two to three feet of relief.

Representative photographs of the site area are shown on Figure 6, Photographs.

4.2 SUBSURFACE SOIL

In order to evaluate the subsurface soil and groundwater conditions across the site, 14 test pits were excavated to depths ranging from 12 to 15 feet below surrounding grades. Subsurface conditions encountered at the test pit locations were relatively consistent. At the surface in Test Pits TP-1 through TP-14 and extending to a depth of one foot, non-engineered fill/plow-disturbed soil was encountered. The fill consists of clayey silt. The fill varies in density and is anticipated to exhibit variable, and most likely poor engineering characteristics.

In general, underlying the surficial fill/plow-disturbed soil, natural soils were encountered the extend to the depths explored of 12 to 15 feet. The natural soils consist of clay that is medium stiff to soft, brown, slightly moist to moist, and is anticipated to exhibit moderate strength and compressibility characteristics under the anticipated loading range.

The lines designating the interface between soil types on the test pit logs generally represent approximate boundaries. In-situ, the transition between soil types may be gradual.

4.3 GROUNDWATER

Immediately following excavation operations, the groundwater was measured in each test pit. Groundwater measurements are tabulated on the following page.



Test Pit No.	Groundwater Depth (feet)	
	September 8, 2022	September 27, 2022
TP-1	12.8*	11.5
TP-2	11.5*	**
TP-3	11.0*	**
TP-4	10.3*	8.5
TP-5	12.0*	**
TP-6	10.0*	**
TP-7	12.1*	10.2
TP-8	10.0*	**
TP-9	11.0*	**
TP-10	12.0*	**
TP-11	9.3*	6.9
TP-12	11.0*	**
TP-13	7.0*	7.3
TP-14	10.0*	**

* During excavating; not stabilized

** PVC pipe not installed.

Seasonal and longer-term groundwater fluctuations on the order of one to two feet are projected, with the highest seasonal levels generally occurring during the late spring and early summer months.

5. DISCUSSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

The proposed structures may be supported upon conventional spread and continuous wall foundations over suitable natural soils and/or structural fill extending to suitable natural soils.

The most significant geotechnical aspects of the site are:

1. The non-engineered fill encountered at Test Pits TP-1 through TP-14 to a depth of one foot below existing grade. Additionally, historical photographs indicate that agricultural and earthwork operations have previously occurred at the site. Non-engineered fills must be completely removed from beneath the building footprints and rigid pavement areas.
2. The water table was measured at a depth of 6.9 to 11.5 feet below existing grade. Considering seasonal and long-term groundwater fluctuations, we recommend that a design groundwater table of 4.9 to 9.5 feet below existing grade be utilized in the design. We recommend that all habitable floor slabs be established a minimum of two feet above the design water table.

Due to the variable nature of the non-engineered fills encountered, a qualified geotechnical engineer from our staff must aid in verifying that all non-engineered fills have been completely removed prior to the placement of structural site grading fills, footings, or foundations.

Detailed discussions pertaining to earthwork, foundations, floor slabs, pavement, and the geoseismic setting of the site are discussed in the following sections.

5.2 EARTHWORK

5.2.1 Site Preparation

Preparation of the site must consist of the removal of all non-engineered fills, loose surficial soils, topsoil, debris, and other deleterious materials from beneath an area extending at least three feet beyond the perimeter of the proposed building, rigid pavement, and exterior flatwork areas.

The non-engineered fills may remain in flexible pavement areas as long as they are properly prepared. Proper preparation will consist of scarifying and moisture conditioning the upper eight inches and recompacting to the requirements of structural fill. However, it should be noted that compaction of fine-grained soils (clays and silts) as structural site grading fill will be very difficult, if not impossible, during wet and cold periods of the year. As an option for proper preparation and recompaction, the upper eight inches of the non-engineered fills may be removed and replaced with granular subbase over proofrolled subgrade. Even with proper preparation, flexible pavements established on non-engineered fills may experience some long-term movements. If the possibility of these movements is not acceptable, these non-engineered fills must be completely removed.

Subsequent to the above operations and prior to the placement of footings, structural site grading fill, or floor slabs, the exposed natural subgrade must be proofrolled by passing

moderate-weight rubber tire-mounted construction equipment over the surface at least twice. If any loose, soft, or disturbed zones are encountered, they must be completely removed in footing and floor slab areas and replaced with granular structural fill. If removal depth required is greater than two feet, G² must be notified to provide further recommendations. In pavement areas, unsuitable soils encountered during recompaction and proofrolling must be removed to a maximum depth of two feet and replaced with compacted granular structural fill.

5.2.2 Excavations

Temporary construction excavations through fine-grained cohesive soils, not exceeding four feet in depth, above or below the groundwater table, may be constructed with near-vertical sideslopes. Temporary excavations up to eight feet deep in fine-grained cohesive soils and above or below the water table may be constructed with sideslopes no steeper than one-half horizontal to one vertical (0.5H:1.0V). Temporary excavations up to eight feet deep in granular soils above or below the water table may be constructed with sideslopes no steeper than one horizontal to one vertical (1.0H:1.0V).

Trench excavations must be constructed in accordance with OSHA trench safety guidelines.

All excavations must be inspected periodically by qualified personnel. If any signs of instability or excessive sloughing are noted, immediate remedial action must be initiated.

5.2.3 Structural Fill

Structural fill is defined as all fill which will ultimately be subjected to structural loadings, such as imposed by footings, floor slabs, pavements, etc. Structural fill will be required as backfill over foundations and utilities, as site grading fill, and in some areas, as replacement fill below footings. All structural fill must be free of sod, rubbish, topsoil, frozen soil, and other deleterious materials. Structural site grading fill is defined as fill placed over fairly large open areas to raise the overall site grade. For structural site grading fill, the maximum particle size should generally not exceed four inches; although, occasional larger particles, not exceeding six inches in diameter may be incorporated if placed randomly in a manner such that "honeycombing" does not occur and the desired degree of compaction can be achieved. The maximum particle size within structural fill placed within confined areas should generally be restricted to two inches.

The on-site non-engineered fills and underlying natural soils may be utilized as structural site grading fill. It should be noted that unless moisture control is maintained, utilization of fine-grained (silt or clay) soils as structural site grading fill will be very difficult, if not impossible, during wet and cold periods of the year. Only granular soils are recommended as structural fill in confined areas, such as around foundations and within utility trenches.

To stabilize soft subgrade conditions or where structural fill is required to be placed below a level one foot above the water table at the time of construction, a mixture of coarse gravels and cobbles and/or one and one-half- to two-inch gravel (stabilizing fill) should be utilized.

Non-structural site grading fill is defined as all fill material not designated as structural fill and may consist of any cohesive or granular soils not containing excessive amounts of degradable material.

5.2.4 Fill Placement and Compaction

Structural fill shall be placed in lifts not exceeding eight inches in loose thickness. Structural fills shall be compacted in accordance with the percent of the maximum dry density as determined by the AASHTO¹ T-180 (ASTM² D-1557) compaction criteria in accordance with the following table:

Location	Total Fill Thickness (feet)	Minimum Percentage of Maximum Dry Density
Beneath an area extending at least 3 feet beyond the perimeter of the structure	0 to 8	95
Outside area defined above	0 to 6	90
Outside area defined above	6 to 8	92
Road base	-	96

Structural fills greater than eight feet thick are not anticipated at the site.

Subsequent to stripping and prior to the placement of structural site grading fill, the subgrade must be prepared as discussed in Section 5.2.1, Site Preparation, of this report. In confined areas, subgrade preparation should consist of the removal of all loose or disturbed soils.

Non-structural fill may be placed in lifts not exceeding 12 inches in loose thickness and compacted by passing construction, spreading, or hauling equipment over the surface at least twice.

Coarse gravel and cobble mixtures (stabilizing fill), if utilized, shall be end-dumped, spread to a maximum loose lift thickness of 15 inches, and compacted by dropping a backhoe bucket onto the surface continuously at least twice. As an alternative, the fill may be compacted by passing

¹ American Association of State Highway and Transportation Officials

² American Society for Testing and Materials

moderately heavy construction equipment or large self-propelled compaction equipment over the surface at least twice. Subsequent fill material placed over the coarse gravels and cobbles shall be adequately placed so that the “fines” are “worked into” the voids in the underlying coarser gravels and cobbles.

5.2.5 Utility Trenches

All utility trench backfill material below structurally loaded facilities (flatwork, floor slabs, roads, etc.) should be placed at the same density requirements established for structural fill. If the surface of the backfill becomes disturbed during the course of construction, the backfill should be proofrolled and/or properly compacted prior to the construction of any exterior flatwork over a backfilled trench. Proofrolling may be performed by passing moderately loaded rubber tire-mounted construction equipment uniformly over the surface at least twice. If excessively loose or soft areas are encountered during proofrolling, they should be removed to a maximum depth of two feet below design finish grade and replaced with structural fill.

Most utility companies and City-County governments are now requiring that Type A-1 or A-1-a (AASHTO Designation – basically granular soils with limited fines) soils be used as backfill over utilities. These organizations are also requiring that in public roadways the backfill over major utilities be compacted over the full depth of fill to at least 96 percent of the maximum dry density as determined by the AASHTO T-180 (ASTM D-1557) method of compaction. We recommend that as the major utilities continue onto the site that these compaction specifications are followed.

The natural sand and gravel soils (and surficial granular fills) may be suitable for use as trench backfill provided it meets the requirements of Type A-1 or A-1-a soils.

5.3 SPREAD AND CONTINUOUS WALL FOUNDATIONS

5.3.1 Design Data

The proposed structures may be supported upon conventional spread and continuous wall foundations established upon suitable natural soils and/or structural fill extending to suitable natural soils. Under no circumstances shall footings be placed overlying non-engineered fills.

For design, the following parameters are provided with respect to the projected loading discussed in Section 2., Proposed Construction, of this report:

Minimum Recommended Depth of Embedment for Frost Protection	- 30 inches
Minimum Recommended Depth of Embedment for Non-frost Conditions	- 15 inches
Recommended Minimum Width for Continuous Wall Footings	- 18 inches
Minimum Recommended Width for Isolated Spread Footings	- 24 inches
Recommended Net Bearing Pressure for Real Load Conditions	
For footings on suitable <u>natural soils</u> and/or structural fill extending to suitable <u>natural soils</u>	- 2,000 pounds per square foot
Bearing Pressure Increase for Seismic Loading	- 50 percent*

- * Not applicable for edge bearing pressure when the footings are established upon granular soil. Use 25 percent for overturning or other inclined loading.

The term "net bearing pressure" refers to the pressure imposed by the portion of the structure located above lowest adjacent final grade. Therefore, the weight of the footing and backfill to the lowest adjacent final grade need not be considered. Real loads are defined as the total of all dead plus frequently applied live loads. Total load includes all dead and live loads, including seismic and wind.

5.3.2 Installation

Under no circumstances shall the footings be established upon non-engineered fills, loose or disturbed soils, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water. If unsuitable soils are encountered, they must be completely removed and replaced with compacted structural fill.

The width of structural replacement fill below footings should be equal to the width of the footing plus one foot for each foot of fill thickness.

5.3.3 Settlements

Settlements of foundations designed and installed in accordance with the above recommendations and supporting maximum projected structural loads are anticipated to be on the order of one inch or less. Settlements are expected to occur rapidly with approximately 60 to 70 percent of the settlements occurring during construction.

5.4 LATERAL PRESSURES

The lateral pressure parameters, as presented within this section, assume that the backfill extending at least five feet from the back of the wall be properly placed and compacted natural granular soil. The lateral pressures imposed upon subgrade facilities will, therefore, be basically dependent upon the relative rigidity and movement of the backfilled structure. For active walls, such as retaining walls which can move outward (away from the backfill), granular backfill may be considered equivalent to a fluid with a density of 35 pounds per cubic foot in computing lateral pressures. For more rigid basement walls, granular backfill may be considered equivalent to a fluid with a density of 45 pounds per cubic foot. For very rigid non-yielding walls, granular backfill should be considered equivalent to a fluid with a density with at least 55 pounds per cubic foot. The above values assume that the surface of the soils slope behind the wall is horizontal, that the granular fill has been placed and lightly compacted, not as structural fill. If the fill is placed as a structural fill the values should be increased to 45 pounds per cubic foot, 60 pounds per cubic foot, and 120 pounds per cubic foot, respectively.

Recommended average uniform seismic lateral pressure for various height walls are tabulated below and assume a granular wall backfill with a horizontal grade above the wall. It should be noted that the lateral pressures as quoted assume that the backfill materials will not become saturated. If the backfill becomes saturated, the above values may be decreased by one-half; however, full hydrostatic water pressures will have to be included.

Wall Height (feet)	Uniform Seismic Lateral Pressure* (psf)
4	56

* Maximum short-term pressures, they are not sustained loads.

Note that the pressures presented in this section do not include surcharge loadings, such as floor slabs, adjacent footings, etc.

5.5 LATERAL RESISTANCE

Lateral loads imposed upon foundations may be resisted by the development of passive earth pressures and friction between the base of the footings and the supporting soils. In determining

frictional resistance on granular soils, a coefficient of 0.45 should be utilized. In determining frictional resistance on fine-grained soils, a coefficient of 0.40 should be utilized. Passive resistance provided by properly placed and compacted granular structural fill above the water table may be considered equivalent to a fluid with a density of 300 pounds per cubic foot. Below the water table, this granular soil should be considered equivalent to a fluid with a density of 150 pounds per cubic foot.

A combination of passive earth resistance and friction may be utilized provided that the friction component of the total is divided by 1.5.

5.6 FLOOR SLABS

Floor slabs may be established upon suitable undisturbed natural soils, and/or upon structural fill extending to suitable natural soils. Non-engineered fills and topsoil are not considered suitable. It is recommended that floor slabs be directly underlain by at least four inches of "free-draining" fill, such as "pea" gravel or three-quarters- to one-inch minus clean gravel. Settlements of lightly to moderately loaded floor slabs are anticipated to be minor.

5.7 PAVEMENTS

The properly prepared non-engineered fills will exhibit poor engineering characteristics when saturated or nearly saturated. Non-engineered fills may remain in flexible pavement areas if properly prepared, as stated previously in this report. Rigid pavements shall not be placed overlying non-engineered fills, even if properly prepared. Considering the existing non-engineered soils as the subgrade soils and the projected traffic, the pavement sections on the following pages are recommended.



Parking Areas

(Light Volume of Automobiles and Light Trucks,
Occasional Medium-Weight Trucks,
and No Heavy-Weight Trucks)
[1 equivalent 18-kip axle load per day]

Flexible:

2.5 inches	Asphalt concrete
8.0 inches	Aggregate base
Over	Properly prepared natural soils, properly prepared existing non-engineered fill, and/or structural site grading fill extending to suitable stabilized natural soils.

Rigid:

5.0 inches	Portland cement concrete (non-reinforced)
4.0 inches	Aggregate base
Over	Properly prepared natural soils, and/or structural site grading fill extending to suitable stabilized natural soils.*

- * Rigid pavements shall not be placed over non-engineered fills, even if properly prepared.



Primary Roadway Areas

(Moderate Volume of Automobiles and Light Trucks,
Light Volume of Medium-Weight Trucks,
and Occasional Heavy-Weight Trucks)
[5 equivalent 18-kip axle loads per day]

Flexible:

3.0 inches	Asphalt concrete
8.0 inches	Aggregate base
Over	Properly prepared natural soils, properly prepared existing non-engineered fill, and/or structural site grading fill extending to suitable stabilized natural soils.

Rigid:

5.5 inches	Portland cement concrete (non-reinforced)
5.0 inches	Aggregate base
Over	Properly prepared natural soils, and/or structural site grading fill extending to suitable stabilized natural soils.*

- * Rigid pavements shall not be placed over non-engineered fills, even if properly prepared.

For dumpster pads, we recommend a pavement section consisting of six and one-half inches of Portland cement concrete, four inches of aggregate base, over properly prepared natural stabilized subgrade or site grading structural fills.

These above rigid pavement sections are for non-reinforced Portland cement concrete. Concrete should be designed in accordance with the American Concrete Institute (ACI) and joint details should conform to the Portland Cement Association (PCA) guidelines. The concrete should have a minimum 28-day unconfined compressive strength of 4,000 pounds per square inch and contain 6 percent $\pm$ 1 percent air-entrainment.

5.8 GEOSEISMIC SETTING

5.8.1 General

As of July 2019, the State of Utah has adopted the International Building Code (IBC) 2018. The IBC 2018 determines the seismic hazard for a site based upon 2014 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC and are also available based on latitude and longitude coordinates (grid points).

Depending on the structure's occupancy class and the applicable building code, the structures must either be designed in accordance with Section 1613, Earthquake Loads, of the 2018 IBC.

5.8.2 Faulting

Based on our review of available literature, no active faults are known to pass through or immediately adjacent to the site.

5.8.3 Soil Class

Based on the soils encountered and our knowledge of the underlying geology, we recommend that the Site Class D - Stiff Soil Profile as defined in Table 20.3-1, Site Classification, of ASCE 7-16 be utilized for dynamic structural analysis.

5.8.4 Ground Motions

The IBC 2018 code is based on 2008 USGS mapping, which provides values of short and long period accelerations for Site Class B for the Maximum Considered Earthquake (MCE). Site Class B represents a hypothetical bedrock surface and must be corrected for local soil conditions. The following table summarizes the peak ground and short and long period accelerations for a MCE event and incorporates a soil amplification factor for a Site Class D soil profile in the second column. Based on the site latitude and longitude (41.9037 degrees north and -111.3840 degrees west, respectively), the values for this site are tabulated on the following page.

Spectral Acceleration Value, T Seconds	Site Class B Boundary [mapped values] (% g)	Site Class D [adjusted for site class effects] (% g)
Peak Ground Acceleration	44.4	51.3
0.2 Seconds, (Short Period Acceleration)	$S_S = 101.0$	$S_{MS} = 110.7$
1.0 Seconds (Long Period Acceleration)	$S_1 = 33.4$	$S_{M1} = *$

* See Section 11.4.8 of ASCE 7-16 for requirements on site-specific ground motion studies.

The IBC 2018 code design accelerations (S_{DS} and S_{D1}) are based on multiplying the above accelerations (adjusted for site class effects) for the MCE event by two-thirds.

5.8.5 Liquefaction

Liquefaction is defined as the condition when saturated, loose, finer-grained sand-type soils lose their support capabilities because of excessive pore water pressure which develops during a seismic event.

Due to the fine grained nature of saturated soils encountered, our analysis indicates liquefaction is not anticipated during the design seismic event. However, a deep boring for liquefaction analysis was beyond the scope of this study.

Calculations were performed using the procedures described in the 2008 Soil Liquefaction During Earthquakes Monograph by Idriss and Boulanger³.

5.9 SITE OBSERVATIONS

As stated previously, due to the variable nature of the non-engineered fills encountered, a qualified geotechnical engineer from our staff must aid in verifying that all non-engineered fills have been completely removed prior to the placement of structural site grading fills, footings, or foundations.

³ Idriss, I. M., and Boulanger, R. W. (2008), Soil liquefaction during earthquakes: Monograph MNO-12, Earthquake Engineering Research Institute, Oakland, CA, 261 pp.

5.10 DESIGN WATER TABLE

As stated previously, the water table was measured at a depth of 6.9 to 11.5 feet below existing grade. Considering seasonal and long-term groundwater fluctuations, we recommend that the design groundwater table of 4.9 to 9.5 feet below existing grade be utilized in the design. We recommend that all habitable floor slabs be established a minimum of two feet above the design water table.

5.11 CEMENT TYPES

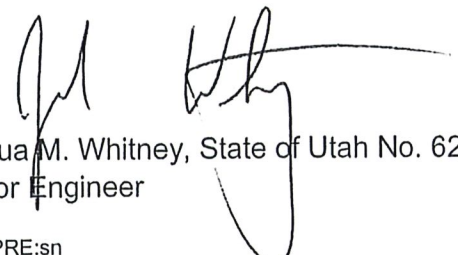
The laboratory tests indicate that the natural soils tested contain a moderate amount of water-soluble sulfates. Based on our test results, concrete in contact with the on-site soil will have a low potential for sulfate reaction (ACI 318, Table 4.3.1). Therefore, all concrete which will be in contact with the site soils may be prepared using Type II cement.

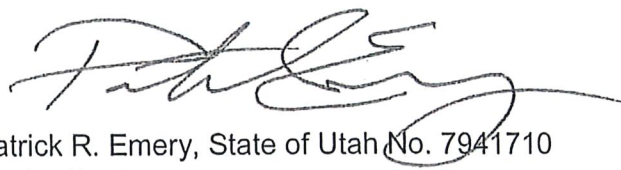
We appreciate the opportunity of providing this service for you. If you have any questions or require additional information, please do not hesitate to contact us.

Respectfully submitted,

Gordon Geotechnical Engineering, Inc.

Reviewed by:


Joshua M. Whitney, State of Utah No. 6252902
Senior Engineer

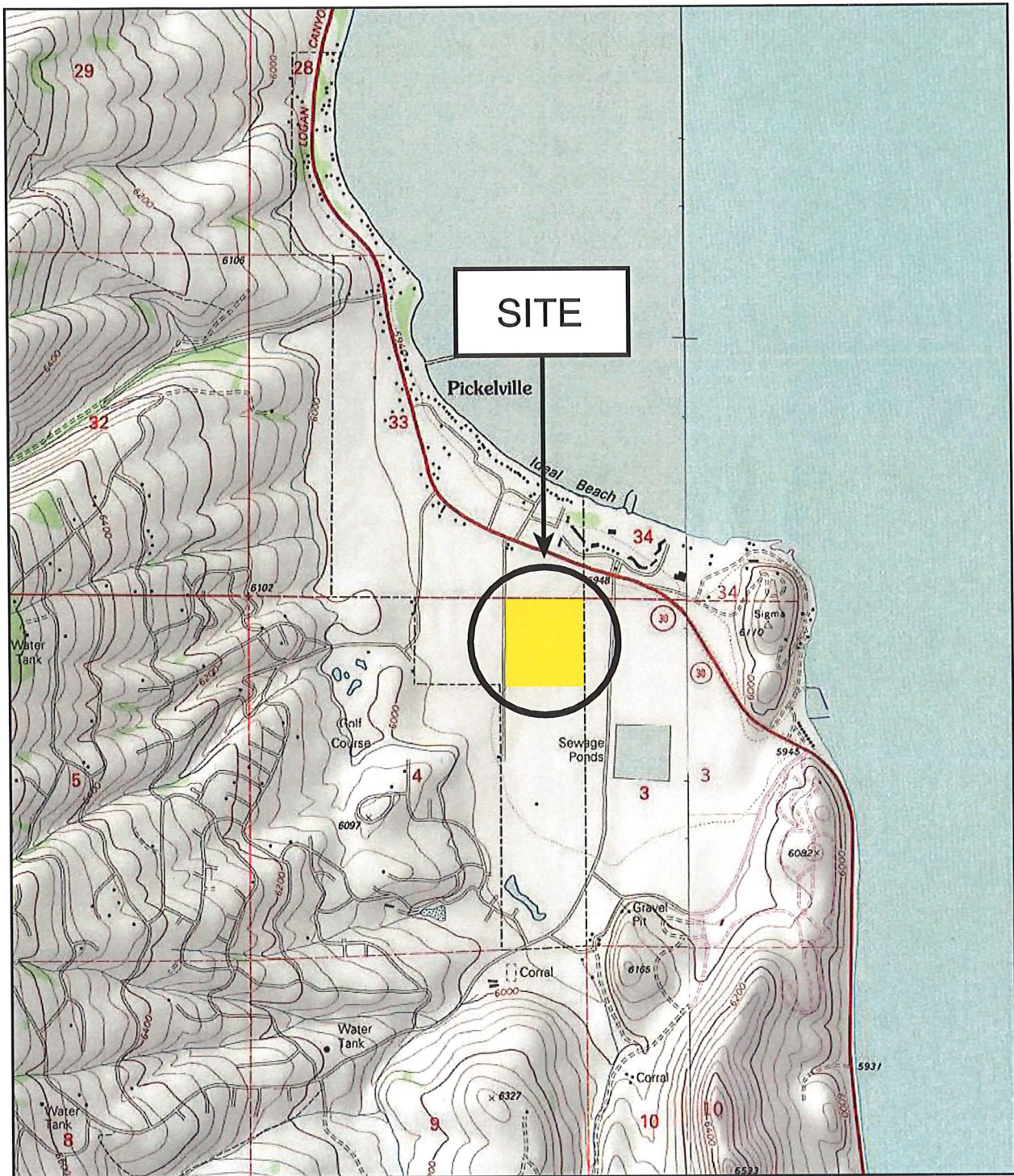

Patrick R. Emery, State of Utah No. 7941710
Senior Engineer

JMW/PRE:sn

- Encl. Figure 1, Vicinity Map
Figure 2, Area Map
Figure 3, Site Plan
Figures 4A through 4N, Log of Test Pits
Figure 5, Unified Soil Classification System
Figure 6, Photographs

Addressee (3 + email)





SCALE IN FEET
1000 0 1000 2000

REFERENCE:
USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS
TITLED "BEAR LAKE SOUTH, UTAH", DATED 1986 AND
"GARDEN CITY, UTAH / IDAHO", DATED 1998

FIGURE 1
VICINITY MAP

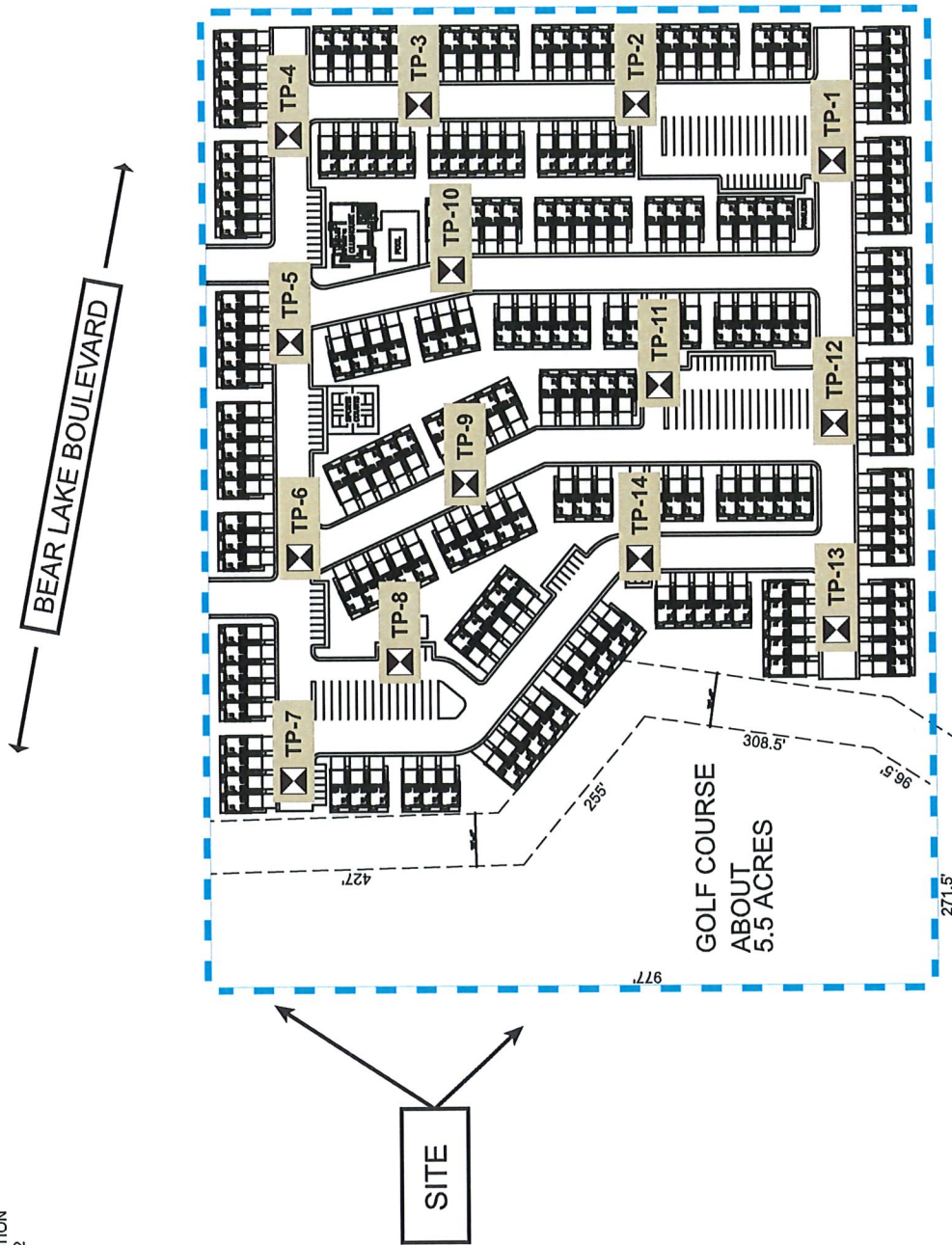


**FIGURE 2
AREA MAP**

see Figure 6, Photographs

REFERENCE:
ADAPTED FROM AERIAL PHOTOGRAPH
DOWNLOADED FROM GOOGLE EARTH
IMAGERY DATED SEPTEMBER 14, 2018

Google Earth



**FIGURE 3
SITE PLAN**

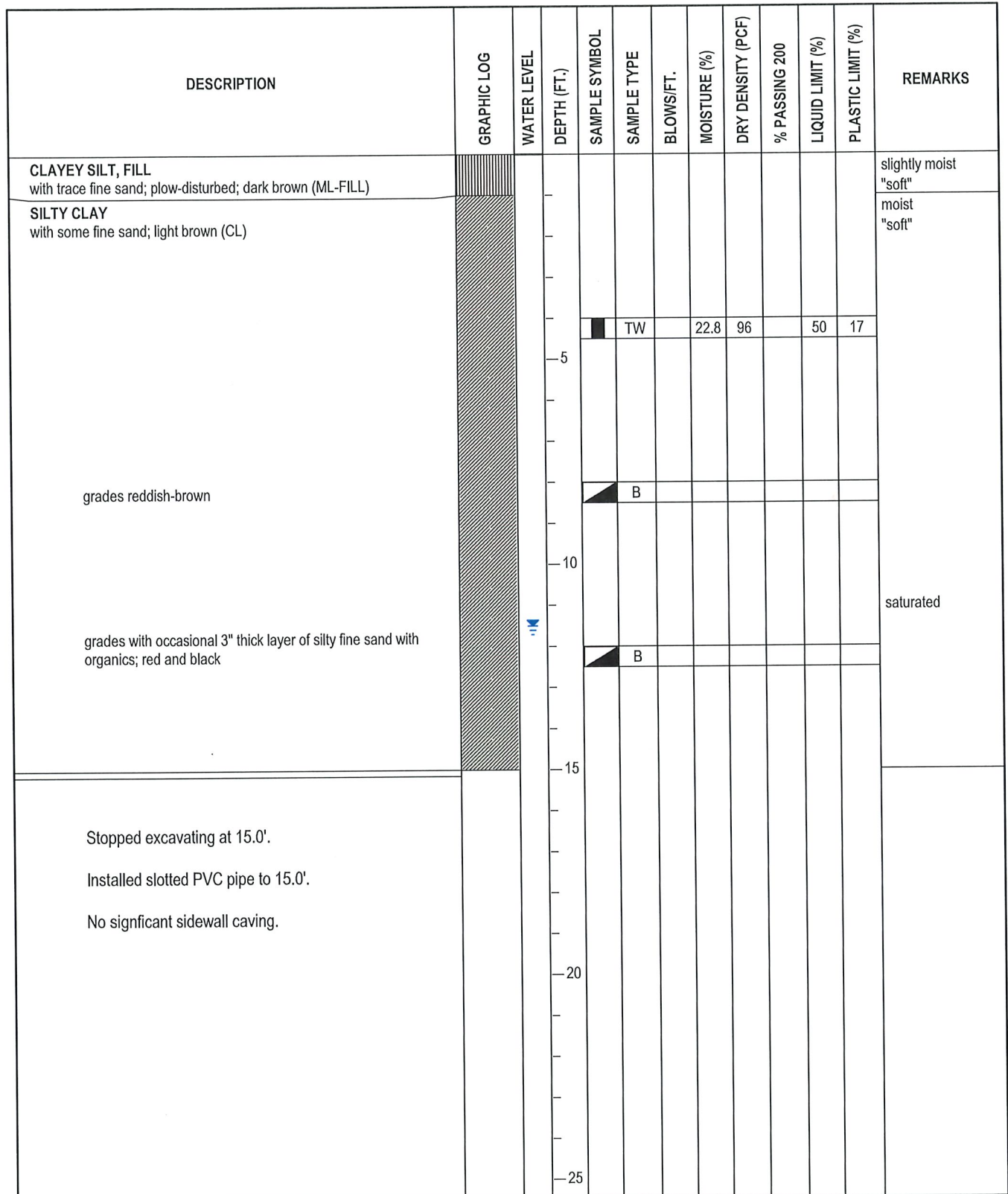
NOT TO SCALE

REFERENCE:
ADAPTED FROM DRAWING ENTITLED
"BEAR LAKE SITE PLAN" PROVIDED BY CLIENT,
DATED AUGUST 3, 2022



Project Name: Proposed Bear Lake Towns
Location: 2300 Sweet Water Parkway, Garden City, Utah
Excavating Method: Mini-Excavator
Elevation: ---
Remarks: _____

Project No.: 538-006-22
Client: Regency Excavation
Date Excavated: 09-08-22
Water Level: 11.0' (09-08-22), 12.8" (09-08-22 - stabilized), 11.5' (09-27-22)



The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4A

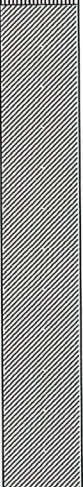
Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 11.5' (09-08-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												moist "soft"
			5									
grades with mottling					B							
			10									
grades with occasional 3" thick layer of silty fine sand; red and black												saturated
Stopped excavating at 12.0'. No significant sidewall caving.			15									
			20									
			25									

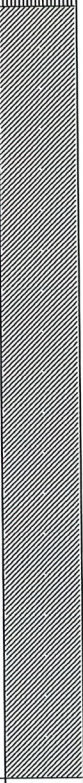
Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 11.0' (09-08-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)					B							slightly moist "soft"
grades with mottling			5									moist
grades with occasional 3" thick layer of silty fine sand and organics; red and black			10		B		29.0		95.0	42	15	saturated
Stopped excavating at 12.0'. No significant sidewall caving.			15									
			20									
			25									

Project Name: Proposed Bear Lake Towns
Location: 2300 Sweet Water Parkway, Garden City, Utah
Excavating Method: Mini-Excavator
Elevation: ---
Remarks: _____

Project No.: 538-006-22
Client: Regency Excavation
Date Excavated: 09-08-22
Water Level: 11.5' (09-08-22), 10.3' (09-08-22 - stabilized), 8.5' (09-27-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "soft"
			5		TW							
grades with oxidation mottling												
					TW		29.0		96.0			moist
			10									
					B							saturated
			15									
Stopped excavating at 15.0'. No significant sidewall caving. Installed slotted PVC pipe to 15.0'.			20									
			25									

Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 12.0' (09-08-22)

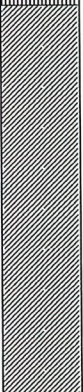
DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "soft"
			5		B							
grades with oxidation mottling												
grades with old roots			10									
					B							saturated
Stopped excavating at 12.0'.			15									
No significant sidewall caving.			20									
			25									

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4E

Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 10.0' (09-08-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "soft"
grades with oxidation mottling			5									
					B		26.1		77.2	36	15	moist
			10									
grades with trace fine to coarse sand					B							saturated "very soft"
Stopped excavating at 12.0'. No significant sidewall caving.			15									
			20									
			25									

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4F

Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 10.0' (09-08-22), 12.1' (09-08-22 - stabilized), 10.2' (09-27-22)

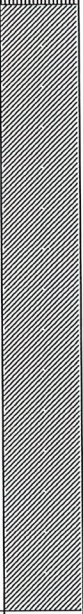
DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "medium stiff"
grades with oxidation mottling			5									
					TW							
			10									saturated
			15		B							
Stopped excavating at 15.0'. No significant sidewall caving. Installed slotted PVC pipe to 15.0'.			20									
			25									

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4G

Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 10.0' (09-08-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "medium stiff"
			5		B							
grades with oxidation mottling												
					B							moist
			10									saturated
grades with trace fine sand; red and black												
Stopped excavating at 12.0'. No significant sidewall caving.			15									
			20									
			25									

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4H

Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 11.0' (09-08-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; brown (CL)												slightly moist "stiff"
			5									
grades with oxidation mottling					B		14.1		99.3			
grades with trace fine sand; red and black			10		B							
												saturated
Stopped excavating at 12.0'.												
No significant sidewall caving.			15									
			20									
			25									



Project Name: Proposed Bear Lake Towns
Location: 2300 Sweet Water Parkway, Garden City, Utah
Excavating Method: Mini-Excavator
Elevation: ---
Remarks: _____

Project No.: 538-006-22
Client: Regency Excavation
Date Excavated: 09-08-22
Water Level: 12.0' (09-08-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
CLAYEY SILT with some fine sand; light brown (CL)												slightly moist "soft"
			5		B							moist
grades with oxidation mottling			10									"medium stiff"
					B							moist/sat
Stopped excavating at 12.0'. No significant sidewall caving.			15									
			20									
			25									

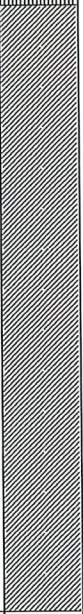
Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 11.0' (09-08-22), 9.3' (09-08-22 - stabilized), 6.9' (09-27-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "stiff"
				■	TW		12.9	98				
grades with oxidation mottling			5									
				▲	B							
grades with trace fine sand; reddish-brown			10									saturated
grades brown												
Stopped excavating at 15.0'. No significant sidewall caving. Installed slotted PVC pipe to 15.0'.			15									
			20									
			25									

Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 11.0' (09-08-22)

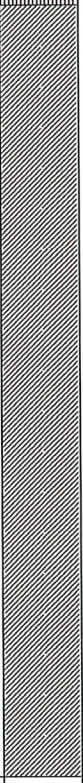
DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "stiff"
			5									
					B							"medium stiff"
grades with oxidation mottling												
			10									
					B							saturated "soft"
Stopped excavating at 12.0'.												
No significant sidewall caving.												
			15									
			20									
			25									

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4L

Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 9.0' (09-08-22), 7.0' (09-08-22 - stabilized), 7.3' (09-27-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "stiff"
			5		TW							
grades with oxidation mottling												
			10		B							saturated
			15									
Stopped excavating at 15.0'. No significant sidewall caving. Installed slotted PVC pipe to 15.0'.			20									
			25									

Project Name: Proposed Bear Lake Towns
 Location: 2300 Sweet Water Parkway, Garden City, Utah
 Excavating Method: Mini-Excavator
 Elevation: ---
 Remarks: _____

Project No.: 538-006-22
 Client: Regency Excavation
 Date Excavated: 09-08-22
 Water Level: 10.0' (09-08-22)

DESCRIPTION	GRAPHIC LOG	WATER LEVEL	DEPTH (FT.)	SAMPLE SYMBOL	SAMPLE TYPE	BLOWS/FT.	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	REMARKS
CLAYEY SILT, FILL with trace fine sand; plow-disturbed; dark brown (ML-FILL)												slightly moist "soft"
SILTY CLAY with some fine sand; light brown (CL)												slightly moist "soft"
grades with oxidation mottling			5									
					B							moist "medium stiff"
			10									saturated
Stopped excavating at 12.0'.												
No significant sidewall caving.			15									
			20									
			25									

UNIFIED SOIL CLASSIFICATION SYSTEM															
FIELD IDENTIFICATION PROCEDURES						GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS							
COARSE GRAINED SOILS More than half of material is larger than No. 200 sieve size.  (The No. 200 sieve size is about the smallest particle visible to the naked eye)	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size. (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.				GW	Well graded gravels, gravel-sand mixtures, little or no fines.							
		GRAVELS WITH FINES (Appreciable amount of fines)	Predominantly one size or a range of sizes with some intermediate sizes missing.					GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.						
	Non-plastic fines (for identification procedures see ML below).				GM	Silty gravels, poorly graded gravel-sand-silt mixtures.									
	Plastic fines (for identification procedures see CL below).				GC	Clayey gravels, poorly graded gravel-sand-clay mixtures.									
	SANDS More than half of coarse fraction is smaller than No. 4 sieve size. (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size.)	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes.				SW	Well graded sands, gravelly sands, little or no fines.							
			Predominantly one size or a range of sizes with some intermediate sizes missing.				SP	Poorly graded sands, gravelly sands, little or no fines.							
	SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).				SM	Silty sands, poorly graded sand-silt mixtures.								
		Plastic fines (for identification procedures see CL below).				SC	Clayey sands, poorly graded sand-clay mixtures.								
FINE GRAINED SOILS More than half of material is smaller than No. 200 sieve size. (The No. 200 sieve size is about the smallest particle visible to the naked eye)	IDENTIFICATION PROCEDURES ON FRACTION SMALLER THAN No. 40 SIEVE SIZE														
	SILTS AND CLAYS Liquid limit less than 50	DRY STRENGTH (CRUMBLED CHARACTERISTICS)	DILATANCY (REACTION TO SHAKING)	TOUGHNESS (CONSISTENCY NEAR PLASTIC LIMIT)	ML								Inorganic silts and very fine sands, rock flour, silty or clayey fine sand with slight plasticity.		
		None to slight	Quick to slow	None									CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
		Medium to high	None to very slow	Medium										OL	Organic silts and organic silt-clays of low plasticity.
	SILTS AND CLAYS Liquid limit greater than 50	Slight to medium	Slow	Slight	MH								Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.		
		Slight to medium	Slow to none	Slight to medium									CH	Inorganic clays of high plasticity, fat clays.	
		High to very high	None	High	OH									Organic clays of medium to high plasticity.	
	Medium to high	None to very slow	Slight to medium	Pt									Peat and other highly organic soils.		
	HIGHLY ORGANIC SOILS				Readily identified by color, odor, spongy feel and frequently by fibrous texture.										

Boundary classifications—Soils possessing characteristics of two groups are designated by combinations of group symbols. For example GW-GC, well graded gravel-sand mixture with clay binder.

All sieve sizes on this chart are U.S. standard.

1. Boundary classifications—Soils possessing characteristics of two groups are designated by combinations of group symbols. For example GW-GC, well graded gravel-sand mixture with clay binder.
2. All sieve sizes on this chart are U.S. standard.

GENERAL NOTES

- In general, Unified Soil Classification Designations presented on the logs were evaluated by visual methods only. There rare, actual designations (based on laboratory testing) may differ.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.
- Logs represent general soil conditions observed at the point of exploration on the date indicated.
- No warranty is provided as to the continuity of soil conditions between individual sample locations.

LOG KEY SYMBOLS

	Bulk / Bag Sample		Thin Wall
	Standard Penetration Split Spoon Sampler		No Recovery
	Rock Core		3-3/4" ID D&M Sampler
	Water Level		3" ID D&M Sampler
			California Sampler

COARSE-GRAINED SOIL

APPARENT DENSITY	SPT (blows ft)	RELATIVE DENSITY (%)	FIELD TEST
Very Loose	<4	0 - 15	Easily penetrated with 1/2" reinforcing rod pushed by hand
Loose	4 - 10	15 - 35	Difficult to penetrated with 1/2" reinforcing rod pushed by hand
Medium Dense	10 - 30	35 - 65	Easily penetrated a foot with 1/2" reinforcing rod driven with 5-lb hammer
Dense	30 - 50	65 - 85	Difficult to penetrated a foot with 1/2" reinforcing rod driven with 5-lb hammer
Very Dense	>50	85 - 100	Penetrated only a few inches with 1/2" reinforcing rod driven with 5-lb hammer

STRATIFICATION

DESCRIPTION	THICKNESS
SEAM	1/16 - 1/2"
LAYER	1/2 - 12"
Occasional	One or less per foot of thickness
Frequent	More than on per foot of thickness

CEMENTATION

DESCRIPTION	DESCRIPTION
Weakly	Crumbles or breaks with handling of slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or breaks with finger pressure

MODIFIERS

DESCRIPTION	%
Trace	<5
Some	5 - 12
With	>12

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible water, usually soil below Water Table

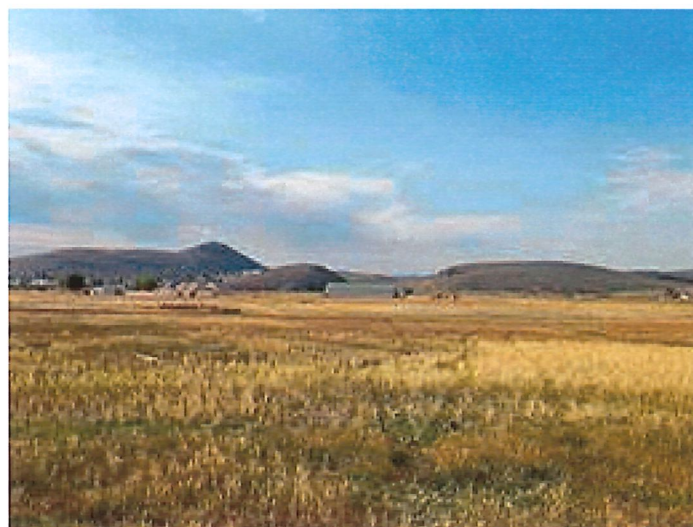
FIGURE 5



#1 Looking north.



#2 Looking east.



#3 Looking south.



#4 Looking west.

FIGURE 6 PHOTOGRAPHS