August 30, 2023

J·R ENGINEERING

Real Estate Equities Development, LLC
1303 Corporate Center Drive, Suite 400
Eagan, MN 55121

Re: Traffic Letter for The Village Cooperative Erie – Senior Housing Development
A Supplement to Lot 5 Block 1 of Vista Ridge Filing No. 11 in Erie, CO

To Whom It May Concern:

This Traffic Compliance Letter has been prepared to provide a supplement to the *Vista Ridge Filing No. 11 – Lot 5 Block 1 Minor Subdivision* application dated May 29, 2008, which was prepared by Scott, Cox & Associates, Inc. The scope of this letter is to evaluate the estimated trip generation for the newly proposed senior housing development as it relates to the previous land uses.

The plat used in the minor subdivision application (dated May 2, 2008) includes Lots 5A, 5B, and 5C. The Land Use Application states in the project description: "One (1) 8,000 SF Child Care Center, one (1) 24,000 SF Retail and Office Building and one (1) 10,000 SF Retail Building". The Goddard School of Erie day care center has been built on Lot 5A, but Lots 5B and 5C remain vacant.

The latest senior housing site layout is on Lots 5B and 5C, titled *The Village Cooperative Erie* and prepared by JR Engineering on July 27, 2023. As shown in the Land Use Application dated August 24, 2023, the development is proposed to contain 64 adult/senior residential units.

JR Engineering used the Institute of Transportation Engineers' (ITE) *Trip Generation Manual 10th Edition* to estimate the site generated traffic for the previous office/retail land use and the current senior housing land use. As shown below, the estimated traffic is greatly reduced with the senior housing land use:

- Weekday Average Daily Trips: reduced from 2,283 trips to 232 trips
- Weekday AM Peak Hour: reduced from 201 trips to 13 trips
- Weekday PM Peak Hour: reduced from 192 trips to 18 trips

Because the site generated traffic is greatly reduced, a full traffic impact study is not recommended for *The Village Cooperative Erie* development.

7200 South Alton Way, Suite C400, Centennial, CO 80112
303-740-9393 • Fax: 303-721-9019 • www.jrengineering.com

If you have any questions or comments, please feel free to contact me at efarney@jrengineering.com or 303-267-6183.

Sincerely,
JR Engineering, LLC

Eli Farney, PE, PTOE
Client Manager – Public Works

Attachments:
Vista Ridge Filing No. 11 Lot 5 Minor Subdivision Land Use Application dated May 1, 2008
Vista Ridge Filing No. 11, Lot 5, Block 1, Minor Subdivision Plat dated May 20, 2008
Office/Retail trip generation report

Village Cooperative of Erie Land Use Application dated August 24, 2023
The Village Cooperative Erie Site Layout dated July 27, 2023
Senior Housing trip generation report

TOWN OF ERIE
Community Development Department – Planning Division
645 Holbrook Street – PO Box 750 – Erie, CO 80516
Tel: 303.926.2770 – Fax: 303.926.2706 – Web: www.erieco.gov

LAND USE APPLICATION

Please fill in this form completely. Incomplete applications will not be processed.

STAFF USE ONLY

FILE NAME:

FILE NO: DATE SUBMITTED: FEES PAID:

PROJECT/BUSINESS NAME: Vista Ridge Filing No. 11 Lot 5 Minor Subdivision

PROJECT ADDRESS: Northwest corner of the intersection of State Highway 7 and Mountain View Boulevard

PROJECT DESCRIPTION: One (1) 8,000 SF Child Care Center, one (1) 24,000 SF Retail and Office Building and one (1) 10,000 SF Retail Building, associated parking improvements,water, sewer, dry utilities, landscaping, drainage and sidewalks. Three (3) buildings total. 4.3 acre lot.

LEGAL DESCRIPTION *(attach legal description if Metes & Bounds)*

Subdivision Name: Vista Ridge

Filing #:11 Lot #: 5 Block #:1 Section:32 Township: 1N Range:68W

OWNER *(attach separate sheets if multiple)*

Name/Company: Right Sky Properties, LLC
Contact Person: Mr. Brian Maslowsky
Address: 8493 Baseline Road
City/State/Zip: Boulder, CO 80303
Phone: 303.665.6836 Fax:
E-mail: bmaslowsky@earthlink.net

AUTHORIZED REPRESENTATIVE

Company/Firm: Scott, Cox & Associates, Inc.
Contact Person: Donald P. Ash, P.E.
Address: 1530 55th Street
City/State/Zip: Boulder, CO 80303
Phone:303.444.3051 Fax: 303.444.3387
E-mail: ash@scottcox.com

MINERAL RIGHTS OWNER *(attach separate sheets if multiple)*

Name/Company:
Address:
City/State/Zip:

MINERAL LEASE HOLDER *(attach separate sheets if multiple)*

Name/Company:
Address:
City/State/Zip:

LAND-USE & SUMMARY INFORMATION

Present Zoning: PD
Proposed Zoning: PD
Gross Acreage:4.3
Gross Site Density (du/ac): n/a
Lots/Units Proposed:2 lots proposed thru a minor sub.
Gross Floor Area:40,000 SF

SERVICE PROVIDERS

Electric: UNITED POWER
Metro District:
Water *(if other than Town):*
Gas: Xcel
Fire District:
Sewer *(if other than Town):*

PAGE TWO MUST BE SIGNED AND NOTARIZED

DEVELOPMENT REVIEW FEES			
ANNEXATION		**SUBDIVISION**	
☐ Major (10+ acres)	$ 4000.00	☐ Sketch Plan	$ 1000.00 + 10.00 per lot
☐ Minor (less than 10 acres)	$ 2000.00	☐ Preliminary Plat	$ 2000.00 + 40.00 per lot
☐ Deannexation	$ 1000.00	☐ Final Plat	$ 2000.00 + 20.00 per lot
COMPREHENSIVE PLAN AMENDMENT		☑ Minor Subdivision Plat	$ 2000.00
☐ Major	$ 3000.00	☐ Minor Amendment Plat	$ 1000.00 + 10.00 per lot
☐ Minor	$ 1200.00	☐ Road Vacation (constructed)	$ 1000.00
ZONING/REZONING		☐ Road Vacation (paper)	$ 100.00
☐ Rezoning	$ 1700.00 + 10.00 per acre	**SITE PLAN**	
☐ PUD Rezoning	$ 1700.00 + 10.00 per acre	☐ Residential	$ 1400.00 + 10.00 per unit
☐ PUD Amendment	$ 1700.00 + 10.00 per acre	☐ Non-Resi. (>10,000 sq. ft.)	$ 2200.00
☐ Major PD Amendment	$ 3700.00 + 10.00 per acre	☐ Non-Resi. (>2,000 sq. ft.)	$ 1000.00
☐ Minor PD Amendment	$ 500.00	☐ Non-Resi. (<2,000 sq. ft.)	$ 200.00
SPECIAL REVIEW USE		☐ Amendment (major)	$ 1100.00
☐ Major	$ 1000.00	☐ Amendment (minor)	$ 350.00
☐ Minor	$ 400.00	**VARIANCE**	$ 600.00
☐ Oil & Gas	$ 1200.00	**SERVICE PLAN**	$ 10,000.00
*All fees **include** both Town of Erie Planning & Engineering review. These fees **do not include** referral agency review fees, outside consultant review fees, or review fees incurred by consultants acting on behalf of staff. See Town of Erie Municipal Code, Title 2-10-5 for all COMMUNITY DEVELOPMENT FEES.*			

The undersigned is fully aware of the request/proposal being made and the actions being initiated on the referenced property. The undersigned understand that the application must be found to be complete by the Town of Erie before the request can officially be accepted and the development review process initiated. The undersigned is aware that the applicant is fully responsible for all reasonable costs associated with the review of the application/request being made to the Town of Erie. Pursuant to Chapter 7 (Section 7.2.B.5) of the Unified Development Code (UDC) of the Town of Erie, applicants shall pay all costs billed by the Town for legal, engineering and planning costs incurred by staff, including consultants acting on behalf of staff, necessary for project review. By this acknowledgement, the undersigned hereby certify that the above information is true and correct.

Owner: _____ Date: 5/1/08

Owner: _____ Date: _____

Applicant: _____ Date: _____

STATE OF COLORADO)
) ss.
County of Boulder)

The foregoing instrument was acknowledged before me this 01 day of MAY, 2008, by BRIAN MASLOWSKY.

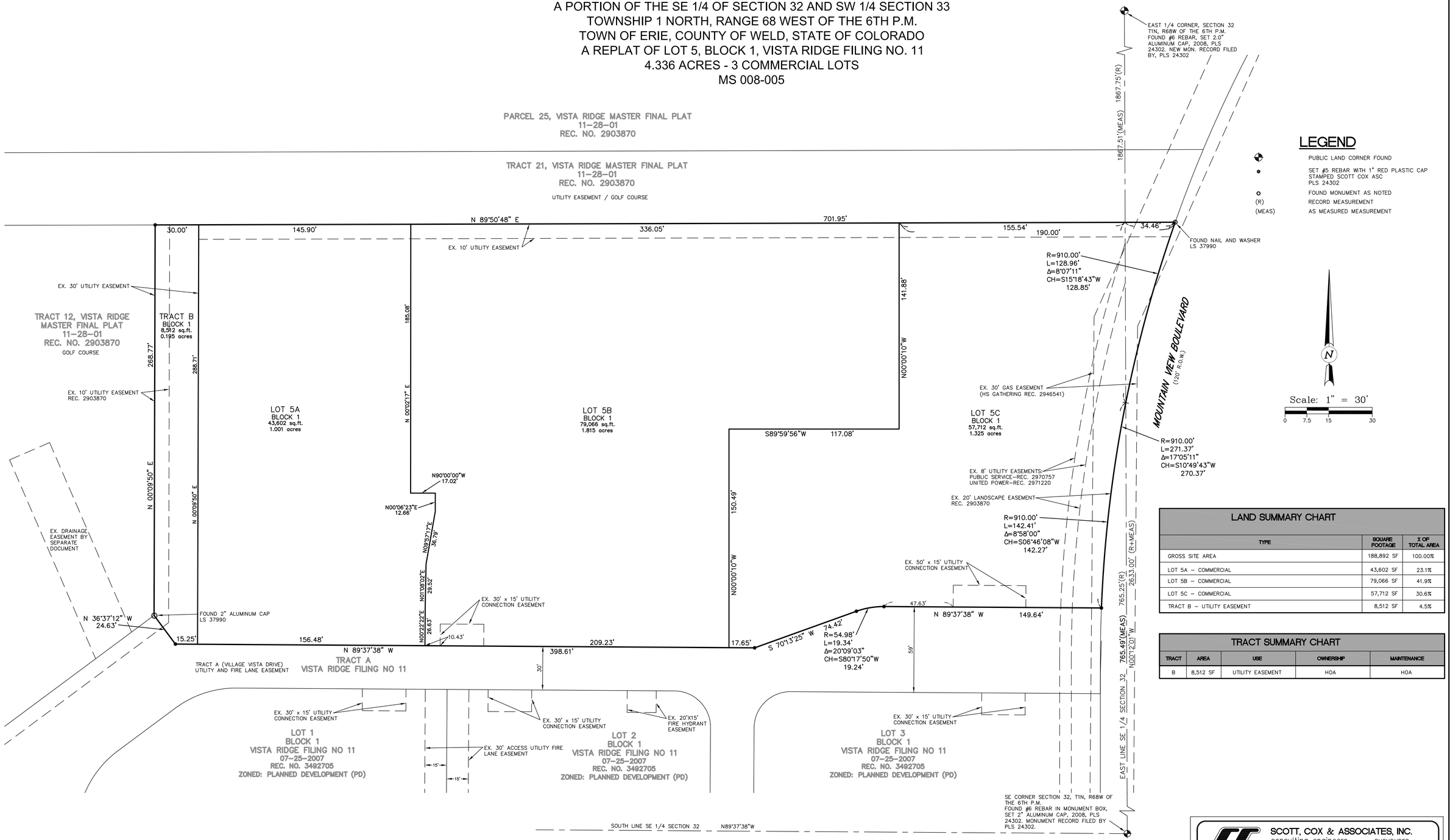
My commission expires: 11/19/11.
Witness my hand and official seal.

TAMARA J. SIMMONS NOTARY PUBLIC STATE OF COLORADO

Notary Public

VISTA RIDGE FILING NO. 11, LOT 5, BLOCK 1, MINOR SUBDIVISION

A PORTION OF THE SE 1/4 OF SECTION 32 AND SW 1/4 SECTION 33
TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M.
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
A REPLAT OF LOT 5, BLOCK 1, VISTA RIDGE FILING NO. 11
4.336 ACRES - 3 COMMERCIAL LOTS
MS 008-005



LEGEND

- PUBLIC LAND CORNER FOUND
- SET #5 REBAR WITH 1" RED PLASTIC CAP STAMPED SCOTT COX ASC PLS 24302
- FOUND MONUMENT AS NOTED
- (R) RECORD MEASUREMENT
- (MEAS) AS MEASURED MEASUREMENT

Scale: 1" = 30'
0 7.5 15 30

LAND SUMMARY CHART

TYPE	SQUARE FOOTAGE	% OF TOTAL AREA
GROSS SITE AREA	188,892 SF	100.00%
LOT 5A – COMMERCIAL	43,602 SF	23.1%
LOT 5B – COMMERCIAL	79,066 SF	41.9%
LOT 5C – COMMERCIAL	57,712 SF	30.6%
TRACT B – UTILITY EASEMENT	8,512 SF	4.5%

TRACT SUMMARY CHART

TRACT	AREA	USE	OWNERSHIP	MAINTENANCE
B	8,512 SF	UTILITY EASEMENT	HOA	HOA

SCOTT, COX & ASSOCIATES, INC.
consulting engineers • surveyors
1530 55th Street • Boulder, Colorado 80303
(303) 444 – 3051

Designed by	Date	Scale	Drawing no.	Sheet
AJB	05/02/08	1"=30'	08143D-1	2 of 2
Drawn by JAS	Revision	Description	Date	Project no.
Checked by AJB	1	TOWN COMMENTS	05/20/08	08143D

Trip Generation Summary

Alternative: Retail and Office
Phase:
Project: The Village Cooperative Erie

Open Date: 8/28/2023
Analysis Date: 8/28/2025

ITE	Land Use		Weekday Average Daily Trips *	Enter	Exit	Total	Weekday AM Peak Hour of Adjacent Street Traffic *	Enter	Exit	Total	Weekday PM Peak Hour of Adjacent Street Traffic *	Enter	Exit	Total
710	General Office			68	68	136		33	5	38		2	13	15
	12	1000 Sq. Ft. GFA												
820	Shopping Center			1074	1073	2147		101	62	163		85	92	177
	22	1000 Sq. Ft. GLA												
Unadjusted Volume				1142	1141	2283		134	67	201		87	105	192
Internal Capture Trips				0	0	0		2	2	4		4	4	8
Pass-By Trips				0	0	0		0	0	0		29	29	58
Volume Added to Adjacent Streets				1142	1141	2283		132	65	197		54	72	126

Total Weekday Average Daily Trips Internal Capture = 0 Percent
Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 2 Percent
Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 4 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TOWN OF ERIE
Planning & Development – Planning Division
645 Holbrook Street – PO Box 750 – Erie, CO 80516
Tel: 303.926.2770 – Website: www.erieco.gov

LAND USE APPLICATION

Please fill in this form completely. Incomplete applications will not be processed. Application fees must accompany application.

STAFF USE ONLY

FILE NAME:

FILE NO: DATE SUBMITTED: FEES PAID:

PROJECT/BUSINESS NAME: Village Cooperative of Erie

PROJECT ADDRESS: 3010/3020 Village Vista Dr, Erie, CO 80516

PROJECT DESCRIPTION: The building will be a 64-unit multi-family senior living cooperative with underground parking and three story wood framed structure above. Surface parking will be available with associated site infrastructure.

LEGAL DESCRIPTION *(attach legal description if Metes & Bounds)*

Subdivision Name: Vista Ridge

Filing #: 11 Lot #: 5B/5C Block #: 1 Section: 32 Township: 1 Range: 68

OWNER *(attach separate sheets if multiple)*

Name/Company: Northern Ridge Baptist Church
Contact Person: Jared Kidder
Address: 3100 Ridgeview Dr.
City/State/Zip: Erie, CO 80516
Phone: 720 939 2416 Fax:
E-mail: Jared.Kidder@NorthernRidge.org

[ ] Check here if Owner is responsible for Application Billing

AUTHORIZED REPRESENTATIVE

Company/Firm: REE Holdings-Erie, LLC
Contact Person: Austin Allen
Address: 1303 Corporate Center Drive
City/State/Zip: Eagan, MN 55121
Phone: 651.760.8307 Fax:
E-mail: aallen@reedevelopment.com

[X] Check here if Authorized Representative is responsible for Application Billing

MINERAL RIGHTS OWNER *(attach separate sheets if multiple)*

Name/Company: N/A
Address:
City/State/Zip:

MINERAL LEASE HOLDER *(attach separate sheets if multiple)*

Name/Company: N/A
Address:
City/State/Zip:

LAND-USE & SUMMARY INFORMATION

Present Zoning: Planned Development
Proposed Zoning: Planned Development
Gross Acreage: 3.14
Gross Site Density (du/ac): 20.38
Lots/Units Proposed: 64
Gross Floor Area: 0.219

SERVICE PROVIDERS

Electric: Xcel
Metro District: Vista Ridge
Water *(if other than Town)*:
Gas: Xcel
Fire District: North Metro Fire
Sewer *(if other than Town)*:

PAGE TWO MUST BE SIGNED AND NOTARIZED

DEVELOPMENT REVIEW FEES

ANNEXATION/DE-ANNEXATION	
☐ Major (40+ acres)	$ 2000.00
☐ Minor (20 acres to 40 acres)	$ 1000.00
☐ Minor (up to 20 acres)	$500.00
COMPREHENSIVE PLAN AMENDMENT	
☐ Major (40+ acres)	$ 1000.00
☐ Minor (Less than 40 acres)	$ 200.00
ZONING/REZONING	
☐ Planned Development (PD)	$ 5000.00 + 10.00 per acre
☒ Planned Dev (PD/PUD Amdt)	$ 1500.00 + 10.00 per acre
☐ All Other Zoning/Rezoning	$ 500.00 + 10.00 per acre
☐	
SPECIAL REVIEW USE	
☐ Oil & Gas	$1200.00
☐ All Other Types	$500.00
MISCELLANEOUS	
☐ Temporary Use Permit	$50.00
☐ Architectural Review w/o Subd or Site Plan	$300/model
OTHER FEES	
☐ 3rd Party Review of Any App (incl. Legal Review)	Cost to Town (Chargeback)
☐	

SUBDIVISION	
☐ Sketch Plan	$ 500.00 + 5.00 per lot
☐ Preliminary Plat	$ 1000.00 + 20.00 per lot
☐ Final Plat	$ 1000.00 + 10.00 per lot
☐ Minor Subdivision Plat	$1000.00
☐ Annexation Plat	$ 200.00
☐ Minor Amendment	$200.00
☐ Vacation ROW or Easement	$200.00
VARIANCE	$300.00
METRO DIST SERVICE PLAN	Cost to Town - $10000.00 Deposit
SITE PLAN	
☐ Residential	$ 200.00 + 10.00 per unit
☐ Non-Resi. (>10,000 sq. ft.)	$ 1000.00
☐ Non-Resi. (<10,000 sq.ft.)	$500.00
☐ Residential Amdt	$ 200.00 + 10.00 per unit
☐ Non Res Amdt (major)	$500.00
☐ Non Res Amdt (minor)	$100.00
WIRELESS COMMUNICATION	
☐ Wireless Facility - Admin	$250.00
☐ Wireless Facility - Planning Commission	$500.00

*All fees **include** both Town of Erie Planning & Engineering review. These fees **do not include** referral agency review fees, outside consultant review fees, or review fees incurred by consultants acting on behalf of staff.*

The undersigned is fully aware of the request/proposal being made and the actions being initiated on the referenced property. The undersigned understand that the application must be found to be complete by the Town of Erie before the request can officially be accepted and the development review process initiated. **The undersigned is aware that the applicant is fully responsible for all reasonable costs associated with the review of the application/request being made to the Town of Erie. Pursuant to Title 10, Section 7.2.B.5 of the Town of Erie Municipal Code, applicants shall pay all costs billed by the Town for legal, engineering and planning costs incurred by staff, including consultants acting on behalf of the Town, necessary for project review. In addition, the undersigned is aware that the applicant is responsible for all recording and publication costs associated with this application. By this acknowledgement, the undersigned hereby certify that the above information is true and correct. An application is not deemed accepted by the Town until the Town acknowledges in writing that the application materials and fees submitted are complete.**

Owner: _____ Date: 8/24/23

Owner: _____ Date: _____

Applicant: _____ Date: 8/24/23

STATE OF ~~COLORADO~~ Minnesota)
) ss.
County of Dakota)

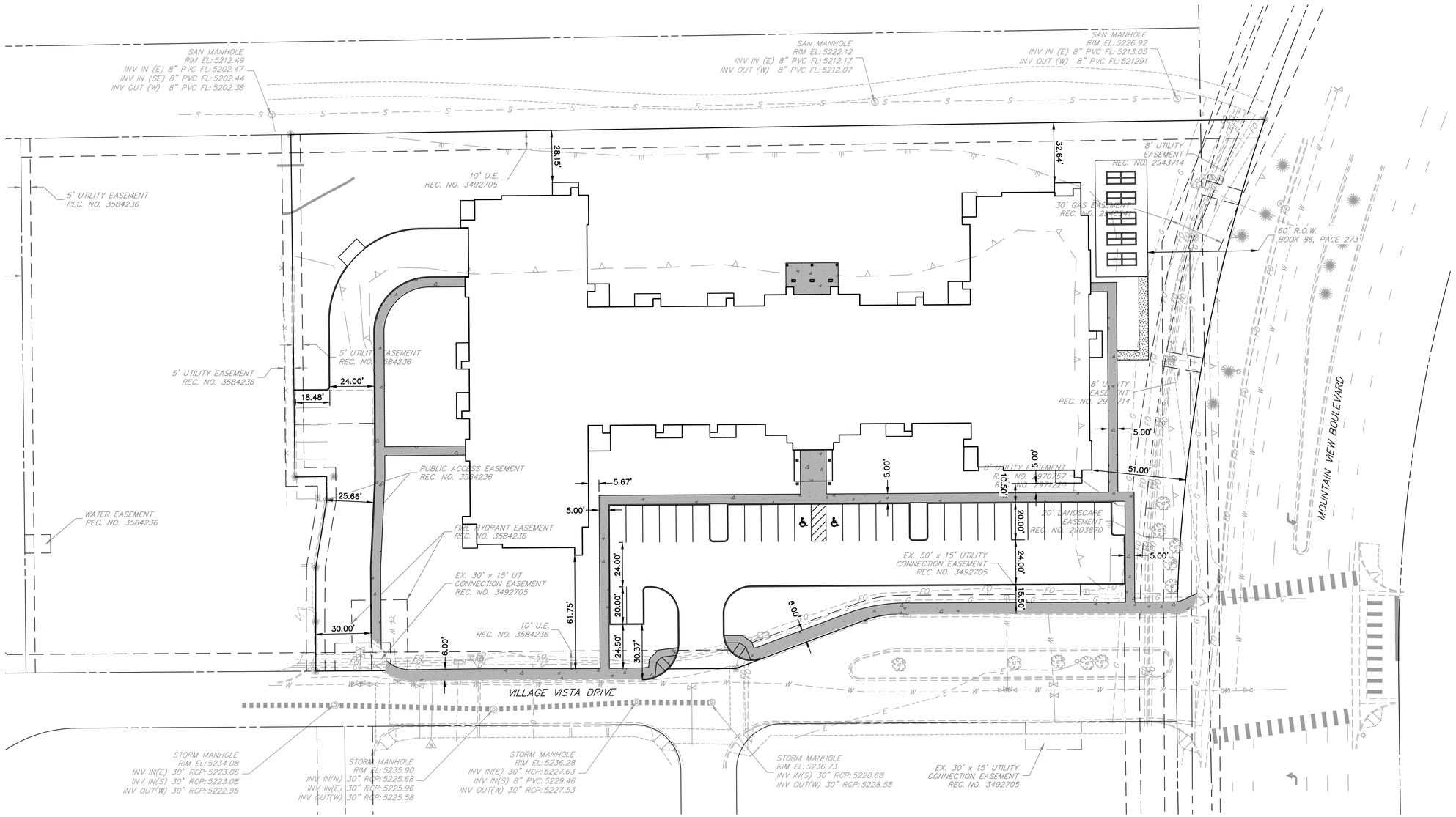
The foregoing instrument was acknowledged before me this 24th day of August, 2023, by _____.

My commission expires: 01/31/2028.

Witness my hand and official seal.

DEBORAH K JENSEN
Notary Public
Minnesota
My Commission Expires
Jan 31, 2028

_____
Notary Public



Know what's below. Call before you dig.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
REAL ESTATE EQUITIES DEVELOPMENT, LLC
1303 CORPORATE CENTER DRIVE
SUITE 400
EAGAN, MN 55121
CONTACT: AUSTIN ALLEN
AALLEN@REDEVELOPMENT.COM

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1"=30'
V-SCALE	N/A
DATE	7/27/23
DESIGNED BY	JP
DRAWN BY	JP
CHECKED BY	

THE VILLAGE COOPERATIVE ERIE

SITE LAYOUT

SHEET 1 OF 1

JOB NO. 16162.00

Trip Generation Summary

Alternative: Senior Housing
Phase:
Project: The Village Cooperative Erie

Open Date: 8/30/2023
Analysis Date: 8/30/2025

ITE	Land Use		Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic		
		*	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
252	Senior Adult Housing - Attached		116	116	232	5	8	13	10	8	18
	64 Dwelling Units										
Unadjusted Volume			116	116	232	5	8	13	10	8	18
Internal Capture Trips			0	0	0	0	0	0	0	0	0
Pass-By Trips			0	0	0	0	0	0	0	0	0
Volume Added to Adjacent Streets			116	116	232	5	8	13	10	8	18

Total Weekday Average Daily Trips Internal Capture = 0 Percent
Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent
Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

Best Engineering Solutions and Technologies

GEOTECHNICAL ENGINEERING STUDY
3010 & 3020 VILLAGE VISTA DRIVE
ERIE, COLORADO
80516

PROJECT NUMBER 23-1142
JULY 31, 2023
REVISED OCTOBER 3, 2023

PREPARED FOR

REAL ESTATE EQUITIES DEVELOPMENT
SPENCER HAROLD
1303 CORPORATE CENTER DRIVE, SUITE #400
EAGAN, MINNESOTA
55121

Prepared By:

Nawal A. Obaid
Staff Engineer

Reviewed By:

COLORADO LICENSED
Cuong Quoc Vu
44493
10/3/2023
PROFESSIONAL ENGINEER

Cuong Vu, PhD, P.E.
Project Engineer

Table of Contents

Address: 1393 South Inca Street, Denver, Colorado 80223 ▪ Psalm 20 ▪ Phone: 303-238-1770
Office@BestEngineeringUSA.com

EXECUTIVE SUMMARY

Best Engineering Solutions and Technologies, LLC (BEST) completed a geotechnical engineering study for the project located at 3010 & 3020 Village Vista Drive in Erie, Colorado. Design parameters and a discussion of geotechnical engineering considerations related to construction of the proposed residences are included in this report. A summary of the findings includes:

1. Subsurface explorations encountered man-placed fill consisted of sandy clay to clayey sand underlain by native sandy clay to clayey sand over bedrock to the maximum depths explored. Groundwater was encountered during excavation of the test borings 2, 3, 7, 8, 9, 15, 16, and 18 at depths of 19, 18, 17, 19, 29, 17, 16, and 10 feet, Below Existing Grade (BEG), respectively, and was at 13, 13, 5, 19 ,20, 12, 9, 10, and 8 feet BEG in borings 2, 3, 5, 9, 11, 15, 16, 17, and 18 respectively, when measured 3 days later. Fluctuations of the groundwater may occur seasonally or with precipitation events.

2. Based on the subsurface conditions encountered in the test borings and the nature of the proposed construction, we recommend deep foundation or shallow foundation for the proposed structures.

    i. We recommend the proposed structures be founded on straight shaft drilled piers drilled into competent soil/rock. The drilled piers should be designed for allowable end bearing pressure of 25,000 psf and allowable side shear resistance of 2,500 psf for the portion of pier penetrating bedrock. The piers should also be designed for a minimum dead load pressure of 5,000 psf based on pier end area. The piers should penetrate at least 5 feet into competent bedrock and have a minimum length of 25 feet.

    ii. As an alternative to piers the proposed structures may be on spread footings bearing on **four feet of imported non-expansive granular or structural fill.** Shallow spread footings bearing as recommended should be designed for an allowable bearing pressure of 2,500 pounds per square foot (psf) with a required minimum deadload of 1,000 psf. A minimum 4-inch void material should be placed below grade beams in locations where minimum deadload cannot be achieved.

3. **Four feet of imported non-expansive granular or structural fills are suitable for support of concrete slab-on-grade construction. The interior floors could be structurally supported.**

4. A representative of our office should observe the construction operations discussed in this report.

5. Protect all exposed soils from excessive drying or wetting during the construction process.

6. Detailed recommendations are made throughout this report. These must be reviewed to assure proper consideration in the design.

Address: 1393 South Inca Street, Denver, Colorado 80223 ▪ Psalm 20 ▪ Phone: 303-238-1770
Office@BestEngineeringUSA.com

PURPOSE AND SCOPE OF WORK

This report presents the results of a geotechnical engineering study for the project located at 3010 & 3020 Village Vista Drive in Erie, Colorado. The project site is shown on Figure 1. The study was conducted to provide foundation design and support of slab-on-grade recommendations.

Field exploration consisted of twenty-one exploratory borings completed to collect information on the subsurface conditions. Samples of the soils collected during the field exploration were tested in the laboratory to determine their classification and engineering characteristics. The results of the field exploration and laboratory testing were analyzed to develop recommendations for foundation types, depths, and allowable soil bearing pressures for the proposed building foundations.

This report has been prepared to summarize the data obtained during this study and to present our conclusions and recommendations based on the proposed construction and the subsurface conditions encountered. Design parameters and a discussion of geotechnical engineering considerations related to construction of the proposed residence are included in this report.

PROPOSED CONSTRUCTION

We understand that the proposed construction will consist of the construction of a multi-family building with a below-grade garage. Conventional wood frame construction, with column loads expected to be low to moderate and typical of this type of structure, will be used above grade with cast-in-place concrete foundations below grade. Site development is expected to include sidewalk and landscaped areas. Local utilities will generally be underground, except for surface storm runoff and overhead electric.

If the loadings, locations, or grading plans for the structure change significantly from those described above, we should be notified to re-evaluate the recommendations contained in this report.

SITE CONDITIONS

At the time of our field exploration, the property consisted of a vacant lot. The site is bounded by residential single-family homes and commercial buildings. The topography in the area slopes toward the north and west and is at an approximate elevation ranging from 5,233 to 5,238 feet MSL.

FIELD EXPLORATION

The exploratory borings were drilled on June 29 and 30, 2023, and July 5, 6, and 10, 2023, approximately at the location shown on Figure 2 to evaluate the subsurface conditions. The borings were drilled using trailer-mounted and truck-mounted drill rigs and was logged by a representative of BEST. Samples of the soils were obtained using relatively undisturbed sampling methods and the depth of the borings and samples are shown on the Boring Logs, Figure 3 and Legend and Notes, Figure 4.

SUBSURFACE CONDITIONS

Boring 1 encountered man-placed fill consisted of clay with sand to the maximum explored depth of 10 feet BEG. **Boring 2** encountered man-placed fill consisted of clay with sand to a depth of 7 feet BEG. Native, very stiff, sandy clay to clay with sand was encountered to a depth of 15 feet BEG. Hard to very hard sandy claystone bedrock was encountered to the maximum explored depth of 20 feet BEG. **Boring 3** encountered man-placed fill consisted of clay with sand to a depth of 14 feet BEG. Native, medium dense, clayey sand was encountered to a depth of 19 feet BEG. Medium hard, sandy claystone bedrock was encountered to the maximum explored depth of 20 feet BEG. **Boring 4** encountered man-placed fill consisted of sandy clay to

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clay, to a depth of 10 feet BEG. Medium hard, weathered claystone was encountered to a depth of 12 feet BEG. Medium hard to very hard, claystone bedrock was encountered to the maximum explored depth of 25 feet BEG. **Boring 5** encountered man-placed fill consisted of sandy clay to clay with sand, to a depth of 15 feet BEG. Hard to very hard, claystone bedrock was encountered to the maximum explored depth of 20 feet BEG. **Boring 6** encountered man-placed fill consisted of clayey sand to clay, to a depth of 18 feet BEG. Native, very stiff, sandy clay to clay with sand was encountered to the maximum explored depth of 20 feet BEG. **Boring 7** encountered man-placed fill consisted of sandy clay to clay, to a depth of 13 feet BEG. Native, medium dense, clayey sand was encountered to a depth of 20 feet BEG. Medium hard, claystone bedrock was encountered to the maximum explored depth of 25 feet BEG. **Boring 8** encountered man-placed fill consisted of clayey sand to sandy clay, to a depth of 12.5 feet BEG. Native, very stiff, sandy clay to clay with sand was encountered to the maximum explored depth of 20 feet BEG. **Boring 9** encountered man-placed fill consisted of clay with sand to clay, to a depth of 12 feet BEG. Native, very stiff, sandy clay to clay with sand was encountered to a depth of 19 feet BEG. Medium hard, weathered claystone was encountered to a depth of 22 feet BEG. Medium hard, claystone was encountered to a depth of 29 feet BEG. Medium hard, sandstone bedrock was encountered to the maximum explored depth of 39 feet BEG. **Boring 10** encountered man-placed fill consisted of clayey sand to clay with sand, to a depth of 17 feet BEG. Native, very stiff, sandy clay to clay with sand was encountered to a depth of 22 feet BEG. Medium hard, weathered claystone bedrock was encountered to the maximum explored depth of 25 feet BEG. **Boring 11** encountered man-placed fill consisted of clay with sand to a depth of 7 feet BEG. Native, very stiff, sandy clay to clay with sand was encountered to a depth of 17.5 feet BEG. Medium hard, weathered sandy claystone was encountered to a depth of 20 feet BEG. Hard to very hard, claystone bedrock was encountered to the maximum explored depth of 40 feet BEG. **Boring 12** encountered man-placed fill consisted of sandy clay to clay, to a depth of 15 feet BEG. Native, hard clay was encountered to a depth of 19.5 feet BEG. Medium hard, claystone bedrock was encountered to the maximum explored depth of 20 feet BEG. **Boring 13** encountered man-placed fill consisted of clay with sand to clay, to a depth of 12 feet BEG. Native, medium dense, clayey sand was encountered to a depth of 17 feet BEG. Native, stiff sandy clay to clay with sand was encountered to the maximum explored depth of 20 feet BEG. **Boring 14** encountered man-placed fill consisted of clay to a depth of 14 feet BEG. Native, stiff sandy clay to clay with sand was encountered to the maximum explored depth of 20 feet BEG. **Boring 15** encountered man-placed fill consisted of clay with sand to a depth of 11 feet BEG. Native, very stiff sandy clay to clay with sand was encountered to the maximum explored depth of 20 feet BEG. **Boring 16** encountered man-placed fill consisted of sandy clay to clay, to a depth of 12 feet BEG. Native, very stiff, sandy clay to clay with sand was encountered to a depth of 21 feet BEG. Medium hard, weathered sandy claystone was encountered to a depth of 23 feet BEG. Medium hard, claystone bedrock was encountered to the maximum explored depth of 25 feet BEG. **Boring 17** encountered man-placed fill consisted of clay with sand, to a depth of 7 feet BEG. Native, very stiff, sandy clay to clay with sand was encountered to a depth of 20 feet BEG. Medium hard, claystone bedrock was encountered to the maximum explored depth of 25 feet BEG. **Boring 18** encountered man-placed fill consisted of sandy clay to clay with sand to a depth of 16 feet BEG. Medium hard, claystone bedrock was encountered to the maximum explored depth of 20 feet BEG. **Boring 19** encountered man-placed fill consisted of clay with sand to clay, to a depth of 14 feet BEG. Medium hard, claystone bedrock was encountered to the maximum explored depth of 20 feet BEG. **Boring 20** encountered man-placed fill consisted of clayey sand to clay with sand to clay, to a depth of 19 feet BEG. Medium hard, claystone bedrock was encountered to the maximum explored depth of 20 feet BEG. **Boring 21** encountered man-placed fill consisted of clay with sand to clay, the maximum explored depth of 10 feet BEG. Groundwater was encountered during excavation of the test borings 2, 3, 7, 8, 9, 15, 16, and 18 at depths of 19, 18, 17, 19, 29, 17, 16, and 10 feet BEG, respectively, and was at 13, 13, 5, 19 ,20, 12, 9, 10, and 8 feet BEG in borings 2, 3, 5, 9, 11, 15, 16, 17, and 18 respectively, when measured 3 days later. Fluctuations of the groundwater may occur seasonally or with precipitation events.

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Samples taken from the exploratory borings were retained for laboratory testing and visually classified by a project engineer. The results of the tests performed on the samples obtained from the test borings are shown on Table 1. Laboratory testing included index property tests, such as moisture content and density, water soluble sulfate, and minus #200 sieve analysis. The testing was performed on relatively undisturbed drive samples and were in general conformance with recognized test procedures, primarily, ASTM and Colorado Department of Transportation (CDOT).

FOUNDATION DESIGN RECOMMENDATIONS

Based on the subsoil conditions encountered in the exploratory boring and the nature of the proposed construction, we recommend deep foundation or shallow foundation for the proposed structures.

DRILLED PIERS

The design and construction criteria presented below should be observed for a straight-shaft pier foundation system.

1. Piers should be designed for an allowable end bearing pressure of 25,000 psf and a skin friction of 2,500 psf for the portion of the pier in bedrock. Uplifting due to structural loadings on the piers can be resisted by using 75% of the allowable skin friction value plus an allowance for pier weight.

2. Piers should also be designed for a minimum dead load pressure of 5,000 psf based on pier end area only. Application of dead load pressure is the most effective way to resist foundation movement due to swelling soils. However, if the minimum dead load requirement cannot be achieved and the piers are spaced as far apart as practical, the pier length should be extended beyond the minimum bedrock penetration and minimum length to mitigate the dead load deficit. This can be accomplished by assuming one-half of the skin friction given above acts in the direction to resist uplift caused by swelling soil and/or bedrock near the top of the pier. The owner should be aware of an increased potential for foundation movement if the recommended minimum deadload pressure is not met.

3. Piers should penetrate at least 10 feet into the competent bedrock with a minimum pier length of 25 feet recommended. The requirements for minimum penetration and minimum pier length should be met.

4. All piers shall be reinforced their full length with steel rebar. The pier reinforcing shall be designed to resist the tension resulting from the maximum uplift pressures. No less than 1% of the steel based on the pier end area shall be used. The pier reinforcing steel shall extend into the foundation wall a sufficient distance to fully develop the bars in tension.

5. The drilled piers should be a minimum of 12 inches in diameter. The pier length to diameter ratio should not exceed 30:1. The recommended diameter must be maintained at the top of each pier hole. We recommend the use of cylindrical cardboard forms to maintain the diameter of the top of the pier hole and to prevent mushrooming.

6. The drilled pier holes shall be cleaned of all loose material and filled immediately with the designed piers to prevent sloughing of loose soil or infiltration of water. Based on the exploratory borings we do not anticipate encountering water during drilling of the piers. However, if water is encountered during the drilling it should be removed prior to placement of the concrete. If the water cannot be removed or prevented with the use of temporary casing and/or dewatering equipment prior to placement of concrete,

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the tremie method should be used after the hole has been cleaned. In no case should concrete be placed in more than 3 inches of water unless placed through an approved tremie method.

7. Concrete used in the piers should be a fluid mix with sufficient slump, so it will fill the void between reinforcing steel and the pier hole. We recommend a concrete slump in the range of 5 to 8 inches be used. The concrete should be designed with a minimum 28-day compressive strength of 3,000 psi.

8. A representative of the geotechnical engineer should observe pier drilling operations on a full-time basis to assist in identification of adequate bedrock strata and monitor pier construction procedures.

9. A minimum five-inch void form shall be placed under the foundation grade beam walls between the drilled piers.

SPREAD FOOTINGS

The onsite native soils and man-place fill are not suitable to support lightly to moderately loaded building foundations due to their expansive nature. Based on the soil conditions encountered in the exploratory boring and the nature of the proposed construction, we recommend that the structures be founded on spread footings bearing on **four feet of imported non-expansive granular or structural fill.** The design and construction criteria presented below should be observed for a spread footing foundation system.

1. Footings and strip footings placed on imported non-expansive granular or structural fill may be designed for an allowable soil bearing pressure of 2,500 pounds per square foot (psf) with a required minimum deadload of 1,000 psf. A minimum 4-inch void material should be placed below grade beams in locations where minimum deadload cannot be achieved. Based on experience it is expected that total settlement of the footings, designed and constructed as discussed in this section, would be approximately 1.5-inches or less. Differential settlement is estimated to be approximately ½ to ¾ of the total settlement. Most of this settlement will occur during the construction phase.

2. Based on experience it is expected that total settlement of the footings, designed and constructed as discussed in this section, would be approximately 1.5-inches or less. Differential settlement is estimated to be approximately ½ to ¾ of the total settlement. Most of this settlement will occur during the construction phase.

3. Spread footings placed on imported non-expansive granular or structural fill should have a minimum footing width of 18 inches for continuous footings and 24 inches for isolated pads. Imported non-expansive granular or structural fill should placed in uniform lifts not to exceed 10 inches thick and compacted to at least 98% of the standard Proctor (ASTM D 698) maximum dry density and within 2 percentage points of the optimum moisture content)

4. Exterior footings and footings beneath unheated areas should be provided with adequate soil cover above their bearing elevation for frost protection. Placement of foundations at least 36 inches below exterior grade is required by the City of Erie.

5. Continuous foundation walls should be reinforced top and bottom to span local anomalies by assuming an unsupported length of at least 10 feet.

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6. All loose or soft soils should be removed, and the footings placed on properly compacted imported structural fill. The disturbed surface of the native soils should be 98% compacted prior to concrete placement.

7. A BEST representative should observe all footing excavations prior to concrete placement to evaluate bearing conditions.

GENERAL FOUNDATION RECOMMENDATIONS

1. A grounding system (Ufer Ground) may be installed where the grounding system is contained within the exterior building wall and the concrete foundation wall. This is in place of having a copper ground rod installed adjacent to the foundation wall.

2. Based on the soil characteristics, the at-rest lateral pressures on the walls can be calculated using an equivalent fluid density of 45 psf per foot of depth. The active lateral earth pressures should use an equivalent fluid density of about 30 psf per foot of depth. The resistance to sliding can be calculated based on a coefficient of friction of 0.55. Passive pressure against the sides of the footings can be calculated using an equivalent fluid unit weight of 445 pounds per cubic foot (pcf). These lateral resistance values are working values.

3. Interior backfill should consist of imported non-expansive granular or structural fill and should be placed in uniform lifts not to exceed 10 inches thick and compacted to at least 98% of the standard Proctor (ASTM D 698) maximum dry density and within 2 percentage points of the optimum moisture content. Interior backfill should extend laterally beyond the edges of the grade beam at a distance at least equal to the depth of the fill below the grade beam subgrade. Prior to the fill placement, any loose subgrade soils should be compacted. Any wet and soft subgrade soils should be removed prior to fill placement. The backfill material should be free of snow and ice, vegetation, topsoil, organics, trash, construction debris, oversized rocks greater than 8 inches in diameter, and other deleterious material.

4. Exterior backfill may consist of the onsite native soils or imported non-expansive granular or structural fill and should be properly placed and compacted to reduce the risk of settlement and distress. Onsite backfill material placed on the exterior of the structure should be placed and compacted to at least 95% of the standard Proctor (ASTM D 698) maximum dry density within 0 to 4 percentage points of the optimum moisture content. The backfill material should be free of snow and ice, vegetation, topsoil, organics, trash, construction debris, oversized rocks greater than 8 inches in diameter, and other deleterious material.

5. Backfill in pavement and walkway areas should also be compacted to at least 95% of the standard Proctor (ASTM D 698) maximum dry density and within 0 to 4 percentage points of the optimum moisture content. Care should be taken when compacting around the foundation walls and underground structure to avoid damage to the structure. Hand compaction procedures may be used to prevent excessive lateral pressures from exceeding the design values.

6. Backfill in landscaped areas may consist of native onsite soils. It should be placed in uniform lifts and compacted to at least 90% of the standard Proctor (ASTM D 698) maximum dry density within 2 percentage points of the optimum moisture content.

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7. Utility backfill should be compacted as appropriate for the proposed surface uses (landscape, building, pavement, etc.).

8. All foundation and retaining structure should be designed for appropriate hydrostatic and surcharge pressures, such as adjacent footings, traffic, construction materials, and equipment. The buildup of water behind a wall or an upward sloping backfill surface will increase the lateral pressure imposed on a foundation wall or retaining structure. An underdrain system should be provided to prevent hydrostatic pressure buildup behind the walls. The lateral resistance values identified in Number 2 assume drained conditions behind the walls and a horizontal backfill surface. Refer to the Underdrain System section for further information.

9. Based on our testing, we recommend all concrete exposed to the onsite materials meet the cement requirements for Class 0 exposure of sulfate attack on concrete as presented in ACI 318-14. Alternatively, the concrete could meet the CDOT requirements for Class 0 exposure as presented in Section 601.04 of the CDOT Standard Specifications for Road and Bridge Construction (2019).

10. Depending upon depth of excavation and seasonal conditions, groundwater may be encountered within excavations on the site. Pumping from sumps may be utilized to control water within excavations, if necessary. BEST is available to provide further dewatering recommendations if this issue arises.

FLOOR SLABS

The native soils are not suitable to support lightly to moderately loaded slab-on-grade construction due to their expansive nature. **Slab-on-grade shall be placed on 4 feet of compacted imported non-expansive granular or structural fill.** To reduce the effects of differential movement, floor slabs should be separated from all bearing walls and columns with expansion joints, which allow unrestrained vertical movement. Interior non-bearing partitions resting on floor slabs should be provided with slip joints so that, if the slabs move, the movement cannot be transmitted to the interior structure. This detail is also important for wallboards, stairways and door frames. Slip joints which will allow at least 1.5 inches of vertical movement are recommended.

Floor slab control joints should be used to reduce damage due to shrinkage cracking. Joint spacing is dependent on slab thickness, concrete aggregate size, and slump, and should be consistent with recognized guidelines such as those of the Portland Cement Association (PCA) and American Concrete Institute (ACI). The joint spacing and slab reinforcement should be established by the designer based on experience and the intended slab use.

Fill placed beneath floor slabs may consist of an imported structural fill, or non-expansive, predominantly granular material. The geotechnical engineer should evaluate the suitability of fill materials prior to placement.

Slab performance is greatly dependent on the amount of moisture introduced to the underlying soils, which could result in potential excessive movement causing uneven slabs and cracking. Proper surface grading and foundation drain installation will help to reduce water infiltration in the sub-slab soils. Recommendations within the Surface Drainage and the Underdrain System sections below, should be followed. Recommendations provided in this section are meant to reduce the possible distress caused by slab movement but will not completely eliminate risk. A structurally supported floor system should be used if the owner cannot tolerate potential movement.

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STRUCTURAL FLOOR

We recommend interior floors be structurally supported if depth foundations will be used. For construction of a structural floor, it is recommended that a four (4) mil thick impermeable plastic sheet be placed over the ground surface to reduce moisture migration. The sheet should be secured to the interior of foundation walls. There should be a minimum of 1-foot of side lap between sheets and a minimum 2-feet of end lap. If used, structural wood floor members should be treated to reduce or eliminate the propensity for mold or mildew to form.

The ground surface should be sloped to the perimeter drain system and be free of depressions or divots that could allow water to pond. Trenching below the structural floor area is not recommended, apart from trenching for interior drain or sump installation. Prior to the placement of the plastic sheeting, the interior ground surface should be free of standing and ponding water, overly moist soils, snow and ice, vegetation, topsoil, organics, trash, construction debris, oversized rocks greater than 8 inches in diameter, and other deleterious material.

Isolated slab-on-grade pads may be used for utility appliances (hot water heater, furnace, water treatment appliances, etc.). This system is appropriate provided flexible and collapsible connections are used and provide allowance for up to 4-inches of differential movement between floor/slab mounted appliances and fixed pipes or ducts attached to structural elements of the building. In addition, all plumbing and sewer lines should be isolated from the ground surface or foundation walls by at least 4-inches.

OVER-EXCAVATION

Due to the presence of expansive clay soils with moderate swell potential, we recommend that the structure footprint be over-excavated to a minimum of 4 feet below the proposed bottom of footing elevation and slab-on-grade elevation. The excavated materials should be replaced with an imported, non-expansive, predominately granular structural fill may be placed. The fill should be placed in uniform lifts not to exceed 8 inches thick and compacted to at least 98% of the standard Proctor (ASTM D 698) maximum dry density and within 2 percentage points of the optimum moisture content. The geotechnical engineer should evaluate the suitability of fill materials prior to placement.

The over-excavation boundaries should extend a minimum of 4 feet beyond the edges of the proposed structure footings. Prior to the fill placement, any soft, loose, and/or wet subgrade soils should be compacted to 98% of the standard proctor. The backfill material should be free of snow and ice, vegetation, topsoil, organics, trash, construction debris, oversized rocks greater than 3-inches in diameter, and other deleterious material. A representative of BEST should observe the structural fill placement and moisture/density testing should be completed to assure compliance with the recommendations provided herein.

Foundation performance is greatly dependent on the amount of moisture introduced to the underlying soils which could result in excessive movement of the structure. Proper surface grading and foundation drain installation will help to reduce water infiltration in the subsoils. Recommendations within the Surface Drainage and the Underdrain System sections below, should be followed. Recommendations provided in this section are meant to reduce potential settlement, but even properly placed structural fill will not completely eliminate the risk of settlement. A drilled pier, grade beam and structurally supported floor system should be used if the owner cannot tolerate potential movement.

GROUNDWATER MANAGEMENT

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The water table lies within the proposed footing elevations; therefore, we anticipate that groundwater (5 feet at B1; 10 feet at B11; 9 feet at B16) may be encountered during excavation and foundation construction activities. Seasonal fluctuations in precipitation may result in a temporary perched condition and actual groundwater levels may vary from what was encountered during our subsurface exploration.

We recommend the site be dewatered using both an interior and exterior underdrain system as outlined above. Groundwater dewatering shall meet the current city and county regulations. Discharge shall not be allowed to cross property lines or the public Right-of-Way, unless Public Works approval is obtained for the installation of a hard-piped system within public Right-of-Way.

A full groundwater management plan is beyond the scope of this report. BEST is available to assist in preparing a groundwater management plan and performing additional studies, if necessary.

SEISMIC CONSIDERATIONS

This area of Erie is located in Seismic Design Category "B". The soil at the foundation level has a very dense soil profile. The average soil profile in the top one-hundred feet provides an overall "stiff soil" profile, which provides a Site Class of "D". Based on the subsurface profile, site seismicity, and the anticipated ground conditions; liquefaction is not a design consideration.

SURFACE DRAINAGE

Proper surface drainage is very important for acceptable performance of the slab-on-grade during construction and after the construction has been completed. The following recommendations should be used as guidelines and changes should be made only after consultation with the geotechnical engineer.

1. Prevent wetting or drying of the excavation and underslab areas should be avoided during construction.

2. The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 12 inches in the first 10 feet in unpaved areas and a minimum slope of 3 inches in the first 10 feet in paved areas. Free-draining wall backfill should be capped with approximately 2 feet of the onsite finer graded soils to facilitate surface drainage. Site drainage beyond the 10-foot zone should be designed to promote runoff and reduce infiltration. These slopes may be changed as required for handicap access points in accordance with the Americans with Disabilities Act.

3. Xeriscaping should be considered with limited irrigation within 4 feet of the foundation walls. Roof downspouts and drains should discharge well beyond the limits of all backfill and onto splash blocks.

PAVEMENT RECOMMENDATIONS

Pavement design is based on the engineering properties of the subgrade and pavement materials, the assumed design traffic conditions, and the Erie pavement regulations. A pavement section is a layered system designed to distribute concentrated traffic loads to the subgrade. Performance of the pavement structure is directly related to the physical properties of the subgrade soils and traffic loadings. Soils are represented for pavement design purposes by means of a resilient modulus (MR) for flexible pavements and a modulus of subgrade reaction (k) for rigid pavements. Both values are empirically related to strength.

HOT MIX ASPHALT (HMA)

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1. Subgrade Materials – Based on the results of the field exploration and laboratory test data, the pavement subgrade materials at the site classify as A-7-6 soil. In accordance with the American Association of State Highway and Transportation Officials (AASHTO) classification system. The R-value of the onsite material (estimated to be 5) was converted to resilient modulus (MR) values of psi, using CDOT and AASHTO methods for conversion. Based on this, we have selected an MR of 3,020psi for pavement thickness design calculations.

2. Design Traffic – It appears that daily traffic at the site will be generally limited to automobiles that will utilize the facility along with delivery and trash trucks on a routine basis. At the time of the report, traffic data was not available. Therefore, we have estimated traffic usage based on similar facilities. We have assumed an 18-kip equivalent single axle loading (ESAL) of 36,500 for areas restricted to automobile parking.

   If the assumptions indicated above appear to be different than actual traffic values for the site, we should be notified to reevaluate the pavement thickness requirements.

3. Pavement Sections – The pavement sections were calculated using the Weld County Transportation Design & Construction Manual pavement design procedures. For flexible pavement design, an initial serviceability of 4.5 and 2.5, respectively, were selected with a reliability of 70 percent. If other design parameters are preferred, we should be contacted to reevaluate the recommendations presented in this report.

   A minimum of 6.5 inches of full-depth asphalt or as an alternative to the full-depth asphalt recommendation, a composite section consisting of 4.0 inches of asphalt over 8.0 inches of aggregate base course may be used for drive isles and/or parking.

4. Pavement Material Recommendations – The asphalt mix should meet the latest requirements of the CDOT Standard Specifications for Road and Bridge Construction. The asphalt placed for the project should be designed in accordance with the SuperPave gyratory mix design method. The mix should meet Grading S or SX requirements. A SuperPave gyratory design revolution (NDES) of 75 should be used in the design process. A PG 64-22 asphalt binder should be used for the mix.

5. Subgrade Preparation – **The pavement subgrade (native soils) should be over excavated to a depth of 3 feet, adjusted to a moisture content within 0 to 4 percentage points of the optimum moisture content and recompacted to at least 95% of the standard Proctor maximum dry density (ASTM D 698).** Over excavation should extend to 1 foot beyond the back of sidewalk or curb (for detached sidewalks). Subgrade should not contain organic matter or other deleterious substances. Lime or other chemical treatment, mechanical stabilization using geogrids or geotextiles or other methods of subgrade preparation may also be required dependent upon the results of the final pavement design report.

   The pavement subgrade should be proof-rolled with a heavily loaded pneumatic-tired vehicle of a heavy, smooth drum compactor. Pavement design procedures assume a stable subgrade. Areas that deform excessively under a heavy wheel load are not stable and should be removed and replaced to achieve a stable subgrade prior to paving. The contractor should be aware that the clay soils, including onsite and imported materials, may become somewhat unstable and deform under wheel loads if placed near the upper end of the moisture range.

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6. Paving should only be performed when subgrade temperatures are above 40° F and air temperature is at least 40° F and rising.

7. HMA should not be placed at a temperature lower than 245° F for mixes containing PG 64-22 asphalt, and 290° F for mixes containing polymer modified asphalt. The breakdown compaction should be completed before the mixture temperature drops 20° F.

8. The maximum compacted lift should be 3.0 inches and joints should be staggered. No joints should be placed within wheel paths.

9. HMA should be compacted to between 92 and 96 percent of Maximum theoretical Density, the surface shall be sealed with a finish roller prior to the mix cooling to 185° F.

10. Placement and compaction of HMA should be observed and tested by a representative of our firm. Placement should not commence until the subgrade is properly prepare, tested and proof rolled.

11. Drainage – The collection and diversion of surface drainage away from paved areas is extremely important to the satisfactory performance of the pavement structure. Drainage design should provide for the removal of water from paved areas and prevent the wetting of the subgrade soils.

PORTLAND CEMENT CONCRETE (PCC)

1. Drive aisle, truck loading areas, dumpster pads, and other areas where truck turning movements are concentrated should be paved with a minimum of 6 inches of Portland cement concrete. All concrete pavement areas on the site should contain sawed or formed joints to ¼ of the depth of the slab at a maximum distance of 12 feet on center.

2. Portland cement concrete should have a minimum compressive strength of 4,500 psi at 28 days and a minimum modulus of rupture (flexural strength) of 650 psi. A CDOT approved Class P mix design is also acceptable. A job mix design is recommended and periodic checks on the job site should be made to verify compliance with specifications.

3. Portland cement should be Type I/II “low alkali” and should conform to ASTM C 150. Portland cement should conform to ASTM C 150.

4. Portland cement concrete should not be placed when the subgrade or air temperature is below 40° F.

5. Free water should not be finished into the concrete surface and finishers should not use a steel trowel on the surface. Atomizing nozzle pressure sprayers for applying finishing compounds are recommended whenever the concrete surface becomes difficult to finish.

6. Curing of the portland cement concrete should be accomplished by the use of a curing compound. The curing compound should be applied in accordance with manufacturer recommendations.

7. Curing procedures should be implemented, as necessary, to protect the pavement against moisture loss, rapid temperature change, freezing, and mechanical injury.

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8. Construction joints, including longitudinal joints and transverse joints, should be formed during construction or sawed after the concrete has begun to set, but prior to uncontrolled cracking.

9. All joints should be properly sealed using a rod back-up and approved epoxy sealant.

10. Traffic should not be allowed on the pavement until it has properly cured and achieved at least 80 percent of the design strength, with saw joints already cut.

11. Placement of portland cement concrete should be observed and tested by a representative of our firm. Placement should not commence until the subgrade is properly prepared and tested.

SURFACE DRAINAGE

Proper surface drainage is very important for acceptable performance of the slab-on-grade during construction and after the construction has been completed. The following recommendations should be used as guidelines and changes should be made only after consultation with the geotechnical engineer.

1. Excessive wetting or drying of the excavation and underslab areas should be avoided during construction.

2. The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 12 inches in the first 10 feet in unpaved areas and a minimum slope of 3 inches in the first 10 feet in paved areas. Free-draining wall backfill should be capped with approximately 2 feet of the onsite finer graded soils to facilitate surface drainage. Site drainage beyond the 10-foot zone should be designed to promote runoff and reduce infiltration. These slopes may be changed as required for handicap access points in accordance with the Americans with Disabilities Act.

3. Xeriscaping should be considered with limited irrigation within 4 feet of the foundation walls. Roof downspouts and drains should discharge well beyond the limits of all backfill and onto splash blocks.

UNDERDRAIN SYSTEM

The basement level should be protected from wetting and hydrostatic pressure buildup by interior and exterior underdrain system. In addition, any interior slabs-on grade should be protected with a plastic barrier. It is recommended that an impermeable plastic sheet be placed beneath the floor slab to reduce moisture migration through the concrete slab. The sheet should be secured to the interior of the foundation walls. A minimum one-foot side lap and at least two feet of end lap shall be provided.

The underdrain system should consist of a layer of free-draining granular material with a perforated drainpipe (around the perimeter of the interior and exterior foundation and elevator pit connected to a sump pit with a drainpipe to the exterior of the residence. The gravel layer should be encased in a non-woven geotextile fabric. The free-draining granular material used in the drain system should contain less than 5% passing the No. 200 sieve, less than 30% passing the No. 4 sieve and have a maximum size of 2 inches.

The drains should consist of flexible or rigid perforated drainpipe placed in the bottom of a trench and surrounded above the invert level with free-draining granular material. The free-draining gravel should extend up to the top of the footing. The drain lines should be placed at least 12 inches below the floor level and graded to sumps at a minimum slope of 0.5%. The granular underdrain system should be sloped to a sump

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where water can be removed by pumping. Sprayed on waterproofing should be used on the exterior of the foundation to reduce infiltration of water. The geotechnical engineer should observe the underdrain and/or water proofing prior to backfill placement.

OWNER PRECAUTIONS

All new construction has an adjustment period after construction is completed. Exterior and interior observation should be performed on a regular basis. The exterior backfill should be checked for positive drainage away from the foundation. No ponding of water should be observed. Roof downspouts and splash blocks should direct water away from the foundation. The discharge of any sump should be free of blockage and discharge away from the foundation.

DESIGN AND CONSTRUCTION SUPPORT SERVICES

Please consider retaining BEST to provide the following services:

1. Review of the project plans and specifications for conformance with the recommendations provided in this report.

2. Observation and testing to document that the intent of this report and that the requirements of the plans and specifications are being followed during construction.

3. Identification of possible variations in subsurface conditions from those encountered in this study, so that recommendations can be re-evaluated, if needed.
4. Preparation of a shoring plan, if necessary, for the protection of adjacent structures.

BEST is also available to assist the design team in preparing specifications for the geotechnical aspects of the project and performing additional studies, if necessary, to accommodate possible changes in the proposed construction.

LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering practices in this area for exclusive use by the client for design purposes. Copying of this report or portions of this report without the express written permission of Best Engineering Solutions and Technologies, LLC (BEST), is specifically prohibited. We make no warranty either express or implied. The conclusions and recommendations submitted in this report are based upon data obtained from the exploratory test borings at the locations indicated on Fig. 2, and the proposed construction. This report may not reflect subsurface variations that occur between the explorations. The nature and extent of variations across the site may not become evident until site grading and excavations are performed. If fill, soil, rock or water conditions appear to be different from those described herein, BEST should be advised at once so that a re-evaluation of the recommendations presented in this report can be made. BEST is not responsible for liability associated with interpretation of subsurface data by others.

The scope of services for this project does not include any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. In addition, this study does not include determination of the presence, prevention, or possibility of mold or other biological contaminants developing in the future. If the owner is concerned about the potential for such contamination, other studies should be undertaken.

Address: 1393 South Inca Street, Denver, Colorado 80223 ▪ Psalm 20 ▪ Phone: 303-238-1770
Office@BestEngineeringUSA.com

TABLE 1.1
SUMMARY OF LABORATORY TEST RESULTS

PROJECT: 3000 Village Vista Drive **PROJECT NO:** 23-1142 **DATE:** August 22, 2023
LOCATION: Erie, CO **SOURCE:** Field Test Boring / Lab Testing

Boring No.	Depth (ft)	Sample Type (Note 1)	Nat. Dry Density (PCF)	Natural Moist. (%)	ATTERBERG LIMITS		GRADATION			% Swell and Consolidation	Additional Test Results (Note 3)	Soil Description
					LL	PI	% Gravel +No. 4	% Sand -No. 4 +No. 200	% Fines -No. 200			
1	1	CA	113	13					82	SW= 1.7		Fill, clay with sand
1	4	CA	118	11					81	SW= 8.0		Fill, clay with sand
1	9	CA	117	12					80	SW= 7.1		Fill, clay with sand
2	4	CA	120	12	43	34				SW= 9.5		Fill, clay with sand
2	9	CA	122	10					74	SW= 4.5		Clay with sand
2	14	CA	119	13					68	SW= 0.1		Sandy clay
2	19	CA	117	14					79	SW= 0.0		Sandy claystone
2	24	CA	117	13					65	SW= 0.0		Sandy claystone
3	4	CA	120	12	38	29				SW= 11.7		Fill, clay with sand
3	9	CA	120	11					79	SW= 4.5		Fill, clay with sand
3	14	CA	121	11					40	CT= 0.1		Clayey sand

NOTE 1- Sample Type
BS=Bag Sample
AS=Auger Sample
ST=Shelby Tube
CA=California Sample
RM=Remolded Sample
HD=Hand Drive
AD=Air Dried
SS=Split Spoon Sample

NOTE 2-Shear Strength Tests
C1= Unconfined Compression
C2=Miniature Compression
C3=Pocket Penetrometer
C4=Pocket Value

NOTE 3- Additional Test Results
TT=Triaxial Test
PT=Proctor
CT=Consolidation Test
RA=Radon Testing (pCi/L)
pH = pH of soil
OR = Organic content of soil
WSS=Water Soluble Sulfates

TABLE: 1.1

Address: 1393 South Inca Street, Denver, Colorado 80223 • Psalm 20 • Phone: 303-238-1770
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TABLE 1.2
SUMMARY OF LABORATORY TEST RESULTS

PROJECT: 3000 Village Vista Drive **PROJECT NO:** 23-1142 **DATE:** August 22, 2023
LOCATION: Erie, CO **SOURCE:** Field Test Boring / Lab Testing

Boring No.	Depth (ft)	Sample Type (Note 1)	Nat. Dry Density (PCF)	Natural Moist. (%)	ATTERBERG LIMITS		GRADATION			% Swell and Consolidation	Additional Test Results (Note 3)	Soil Description
					LL	PI	% Gravel +No. 4	% Sand -No. 4 +No. 200	% Fines -No. 200			
3	19	CA	116	16					51	CT= 0.1		Sandy claystone
4	4	CA	112	17					58	SW= 0.4		Fill, sandy clay
4	9	CA	100	23					96	SW= 1.9		Fill, clay
4	14	CA	108	19					99	SW= 7.3		Claystone
5	4	CA	111	18					67	CT= 0.4		Fill, sandy clay
5	9	CA	112	17					81	SW= 0.5		Fill, clay with sand
5	19	CA	118	14					99	SW= 4.5		Claystone
6	1	CA	115	15	40	29				SW= 3.1		Fill, clayey sand
6	4	CA	124	5					36	SW= 3.1		Fill, clayey sand
6	9	CA	116	16					88	SW= 2.9		Fill, clay
6	19	CA	114	16					74	SW= 0.5		Clay with sand

NOTE 1- Sample Type
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NOTE 2-Shear Strength Tests
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OR = Organic content of soil
WSS=Water Soluble Sulfates

TABLE: 1.2

Address: 1393 South Inca Street, Denver, Colorado 80223 • Psalm 20 • Phone: 303-238-1770
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TABLE 1.3
SUMMARY OF LABORATORY TEST RESULTS

PROJECT: 3000 Village Vista Drive **PROJECT NO:** 23-1142 **DATE:** August 22, 2023
LOCATION: Erie, CO **SOURCE:** Field Test Boring / Lab Testing

Boring No.	Depth (ft)	Sample Type (Note 1)	Nat. Dry Density (PCF)	Natural Moist. (%)	ATTERBERG LIMITS		GRADATION			% Swell and Consolidation	Additional Test Results (Note 3)	Soil Description
					LL	PI	% Gravel +No. 4	% Sand -No. 4 +No. 200	% Fines -No. 200			
7	4	CA	119	13					91	SW= 8.3		Fill, clay
7	9	CA	115	14					63	SW= 0.1		Fill, sandy clay
7	14	CA	110	18					48	CT= 0.1		Clayey sand
8	4	CA	114	11					72	SW= 2.8		Fill, clayey sand
8	9	CA	117	14					56	CT= 0.1		Fill, sandy clay
8	19	CA	116	17					78	SW= 0.8		Clay with sand
9	4	CA	111	14					87	SW= 4.1		Fill, clay
9	9	CA	113	15					80	SW= 2.1		Fill, clay with sand
9	14	CA	120	13					68	SW= 1.3		Sandy clay
10	4	CA	120	11					73	SW= 4.9		Fill, clay with sand
10	9	CA	120	12					72	SW= 1.3		Fill, clay with sand

NOTE 1- Sample Type
BS=Bag Sample
AS=Auger Sample
ST=Shelby Tube
CA=California Sample
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HD=Hand Drive
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SS=Split Spoon Sample

NOTE 2-Shear Strength Tests
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NOTE 3- Additional Test Results
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pH = pH of soil
OR = Organic content of soil
WSS=Water Soluble Sulfates

TABLE: 1.3

Address: 1393 South Inca Street, Denver, Colorado 80223 • Psalm 20 • Phone: 303-238-1770
GeoAdmin@BestEngineeringUSA.com

TABLE 1.4
SUMMARY OF LABORATORY TEST RESULTS

PROJECT: 3000 Village Vista Drive **PROJECT NO:** 23-1142 **DATE:** August 22, 2023
LOCATION: Erie, CO **SOURCE:** Field Test Boring / Lab Testing

Boring No.	Depth (ft)	Sample Type (Note 1)	Nat. Dry Density (PCF)	Natural Moist. (%)	ATTERBERG LIMITS		GRADATION			% Swell and Consolidation	Additional Test Results (Note 3)	Soil Description
					LL	PI	% Gravel +No. 4	% Sand -No. 4 +No. 200	% Fines -No. 200			
10	14	CA	122	10					36			Fill, clayey sand
11	4	CA	116	11					76	SW= 7.5		Fill, clay with sand
11	9	CA	115	16					50	CT= 0.1		Sandy clay
11	14	CA	116	16					76	SW= 0.5		Clay with sand
11	19	CA	113	16					80	SW= 7.3		Weathered sandy claystone
12	1	CA	110	17	47	37				SW= 9.7		Fill, clay
12	4	CA	111	14					88	SW= 3.5		Fill, clay
12	9	CA	108	17					93	SW= 3.2		Fill, clay
12	14	CA	120	12					57	SW= 1.2		Fill, sandy clay
12	19	CA	106	20					89	SW= 5.1		Clay
13	4	CA	114	15					94	SW= 5.9		Fill, clay

NOTE 1- Sample Type
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C4=Pocket Value

NOTE 3- Additional Test Results
TT=Triaxial Test
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CT=Consolidation Test
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OR = Organic content of soil
WSS=Water Soluble Sulfates

TABLE: 1.4

Address: 1393 South Inca Street, Denver, Colorado 80223 • Psalm 20 • Phone: 303-238-1770
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TABLE 1.5
SUMMARY OF LABORATORY TEST RESULTS

PROJECT: 3000 Village Vista Drive **PROJECT NO:** 23-1142 **DATE:** August 22, 2023
LOCATION: Erie, CO **SOURCE:** Field Test Boring / Lab Testing

Boring No.	Depth (ft)	Sample Type (Note 1)	Nat. Dry Density (PCF)	Natural Moist. (%)	ATTERBERG LIMITS		GRADATION			% Swell and Consolidation	Additional Test Results (Note 3)	Soil Description
					LL	PI	% Gravel +No. 4	% Sand -No. 4 +No. 200	% Fines -No. 200			
13	9	CA	119	13					82	SW= 4.4		Fill, clay with sand
13	14	CA	125	7					29	CT= 0.1		Clayey sand
13	19	CA	115	16					52	SW= 0.0		Sandy clay
14	4	CA	119	13	45	36				SW= 4.3		Fill, clay
14	9	CA	114	15					87	SW= 3.2		Fill, clay
14	14	CA	116	13					67	SW= 0.3		Sandy clay
15	4	CA	119	11					85	SW= 3.2		Fill, clay with sand
15	9	CA	117	17					77	SW= 0.3		Fill, clay with sand
15	19	CA	114	16					77	SW= 0.9		Clay with sand
16	4	CA	121	11					87	SW= 5.9		Fill, clay
16	9	CA	117	14					59	SW= 0.1		Fill, sandy clay

NOTE 1- Sample Type
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NOTE 2-Shear Strength Tests
C1= Unconfined Compression
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C4=Pocket Value

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OR = Organic content of soil
WSS=Water Soluble Sulfates

TABLE: 1.5

Address: 1393 South Inca Street, Denver, Colorado 80223 • Psalm 20 • Phone: 303-238-1770
GeoAdmin@BestEngineeringUSA.com

TABLE 1.6
SUMMARY OF LABORATORY TEST RESULTS

PROJECT: 3000 Village Vista Drive **PROJECT NO:** 23-1142 **DATE:** August 22, 2023
LOCATION: Erie, CO **SOURCE:** Field Test Boring / Lab Testing

Boring No.	Depth (ft)	Sample Type (Note 1)	Nat. Dry Density (PCF)	Natural Moist. (%)	ATTERBERG LIMITS		GRADATION			% Swell and Consolidation	Additional Test Results (Note 3)	Soil Description
					LL	PI	% Gravel +No. 4	% Sand -No. 4 +No. 200	% Fines -No. 200			
16	14	CA	115	15					66	SW= 0.0		Sandy clay
17	4	CA	121	9					74	SW= 1.6		Fill, clay with sand
17	9	CA	100	23					81	SW= 0.0		Clay with sand
17	14	CA	118	15					68	SW= 0.1		Sandy clay
18	4	CA	99	24					77	SW= 0.3		Fill, clay with sand
18	9	CA	114	15					64	SW= 0.3		Fill, sandy clay
18	19	CA	112	17					94	SW= 3.6		Claystone
19	1	CA	110	16	51	42				SW= 7.1		Fill, clay
19	4	CA	112	15					92	SW= 5.3		Fill, clay
19	9	CA	115	15					79	SW= 0.1		Fill, clay with sand
19	14	CA	106	22					98	SW= 2.9		Claystone

NOTE 1- Sample Type
BS=Bag Sample
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pH = pH of soil
OR = Organic content of soil
WSS=Water Soluble Sulfates

TABLE: 1.6

Address: 1393 South Inca Street, Denver, Colorado 80223 • Psalm 20 • Phone: 303-238-1770
GeoAdmin@BestEngineeringUSA.com

TABLE 1.7
SUMMARY OF LABORATORY TEST RESULTS

PROJECT: 3000 Village Vista Drive **PROJECT NO:** 23-1142 **DATE:** August 22, 2023
LOCATION: Erie, CO **SOURCE:** Field Test Boring / Lab Testing

Boring No.	Depth (ft)	Sample Type (Note 1)	Nat. Dry Density (PCF)	Natural Moist. (%)	ATTERBERG LIMITS		GRADATION			% Swell and Consolidation	Additional Test Results (Note 3)	Soil Description
					LL	PI	% Gravel +No. 4	% Sand -No. 4 +No. 200	% Fines -No. 200			
19	19	CA	105	20					100	SW= 4.9		Claystone
20	1	CA	116	11	45	35				SW= 0.7		Fill, clay
20	4	CA	117	13					93	CT= 4.8		Fill, clay
20	9	CA	117	14					76	SW= 0.3		Fill, clay with sand
20	14	CA	125	14			19	42	39			Fill, clayey sand
20	19	CA	118	14					96	SW= 7.1		Claystone
21	1	CA	114	15					76	SW= 1.9		Fill, clay with sand
21	4	CA	115	14					94	SW= 5.7		Fill, clay
21	9	CA	112	16					73	SW= 0.0		Fill, clay with sand

NOTE 1- Sample Type
BS=Bag Sample
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HD=Hand Drive
AD=Air Dried
SS=Split Spoon Sample

NOTE 2-Shear Strength Tests
C1= Unconfined Compression
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C3=Pocket Penetrometer
C4=Pocket Value

NOTE 3- Additional Test Results
TT=Triaxial Test
PT=Proctor
CT=Consolidation Test
RA=Radon Testing (pCi/L)
pH = pH of soil
OR = Organic content of soil
WSS=Water Soluble Sulfates

TABLE: 1.7

Address: 1393 South Inca Street, Denver, Colorado 80223 • Psalm 20 • Phone: 303-238-1770
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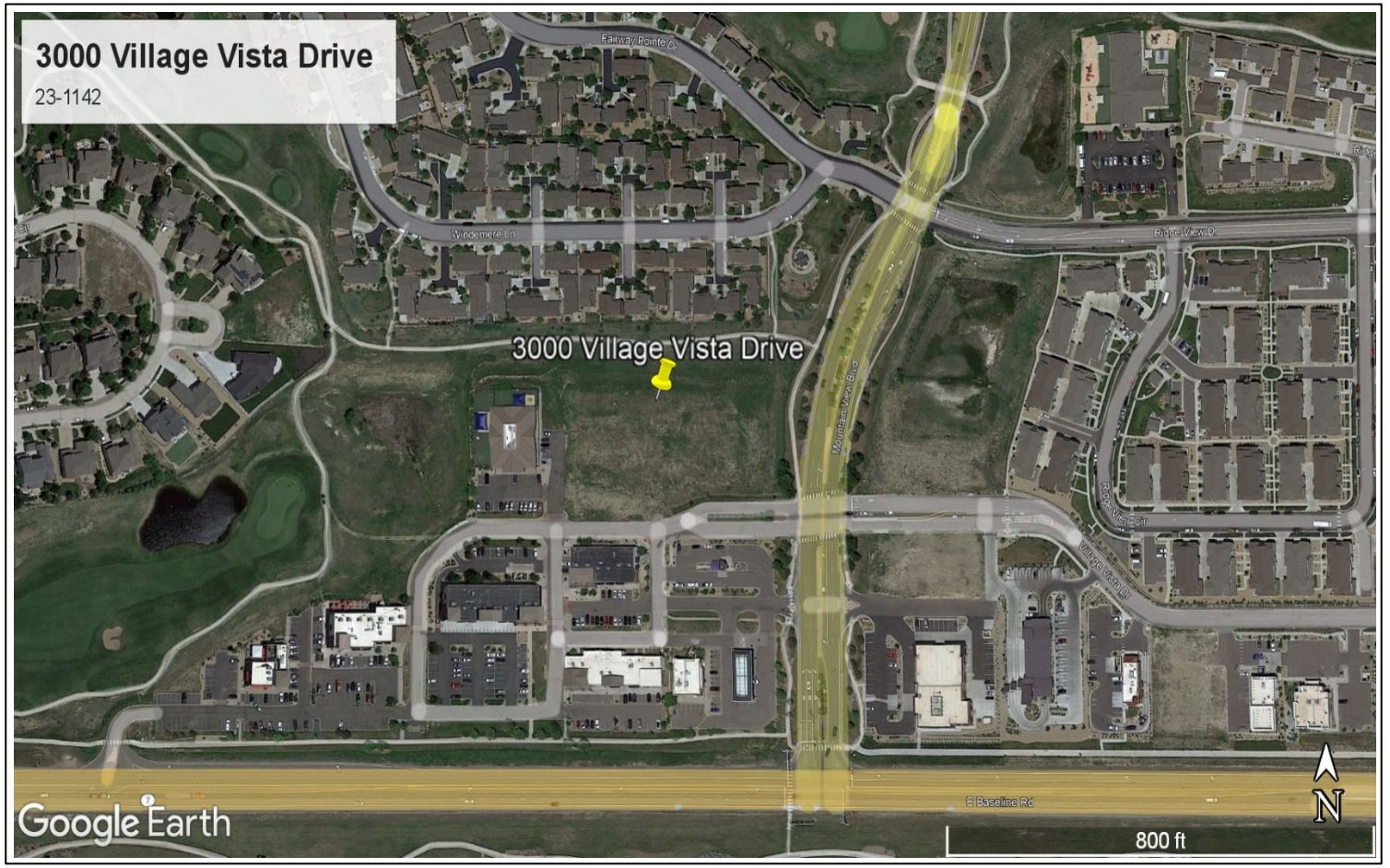
SITE MAP



N

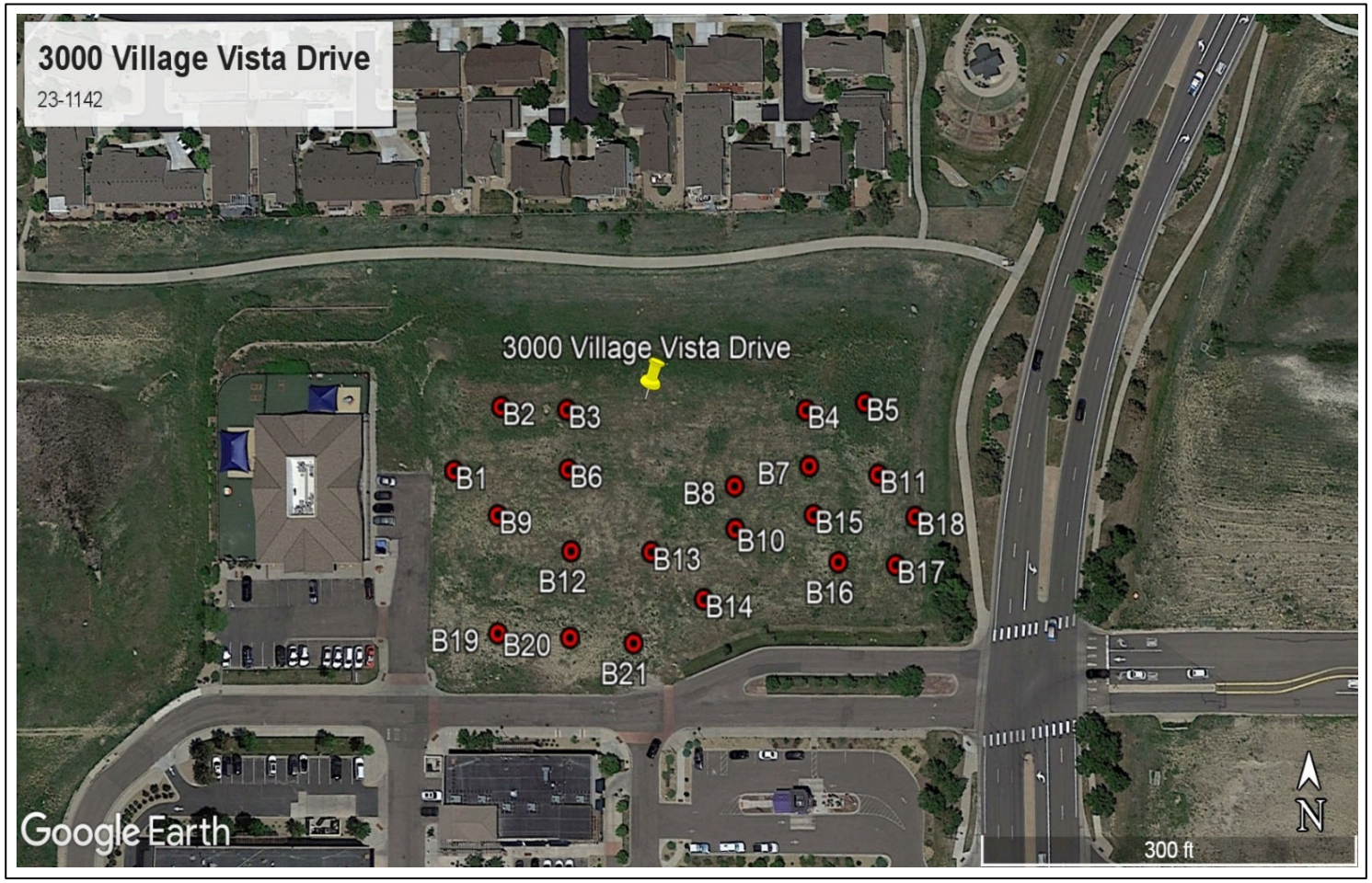
Not to Scale

Project Number 23-1142

Figure 1

Address: 1393 South Inca Street, Denver, Colorado 80223 ● Psalm 20 ● Phone: 303-238-1770
GeoAdmin@BestEngineeringUSA.com

BORING LOCATION



N

Not to Scale

LEGEND: B-1 – Indicates approximate location of exploratory boring

Project Number 23-1142

Figure 2

Address: 1393 South Inca Street, Denver, Colorado 80223 ● Psalm 20 ● Phone: 303-238-1770
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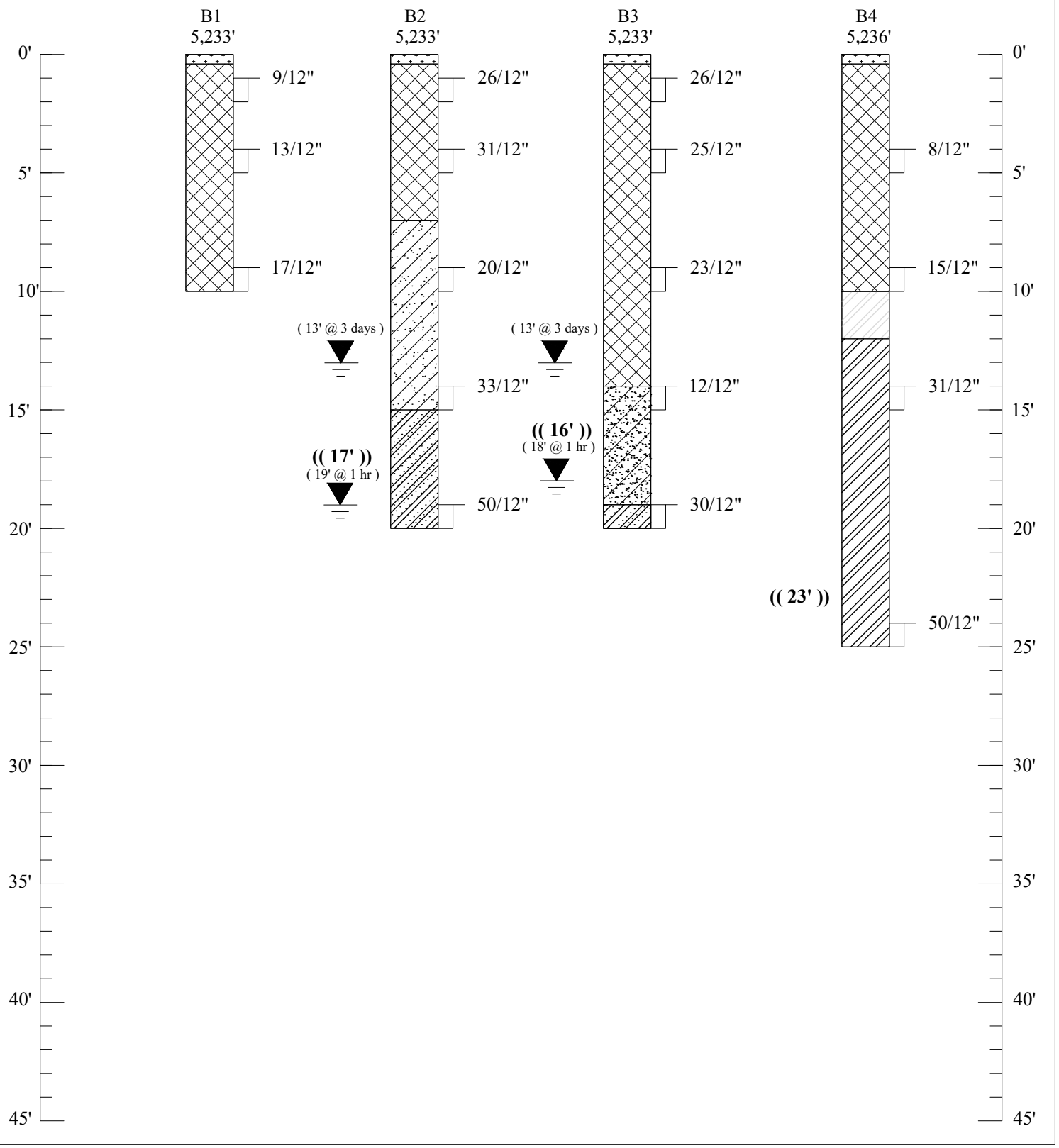


BORING LOG

Best Engineering Solutions and Technologies

Address:
1393 South Inca Street
Denver, Colorado 80223

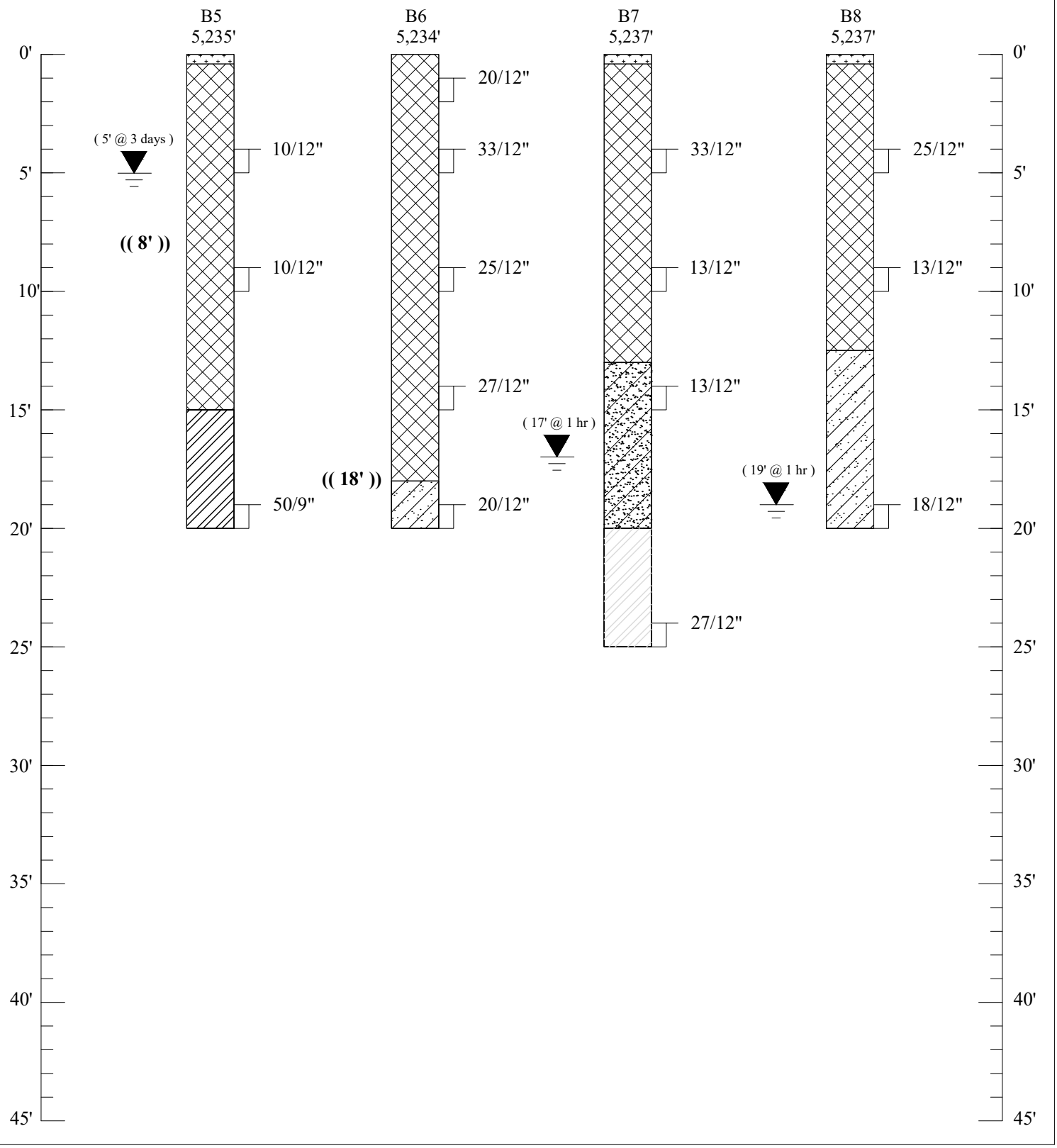
Project Location:
3000 Village Vista Drive
Erie, Colorado

DRAWN BY: NAO
REVIEWED BY: CV
DATE: August 22, 2023

SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 23-1142

FIGURE: 3A



BORING LOG

Best Engineering Solutions and Technologies

Address:
1393 South Inca Street
Denver, Colorado 80223

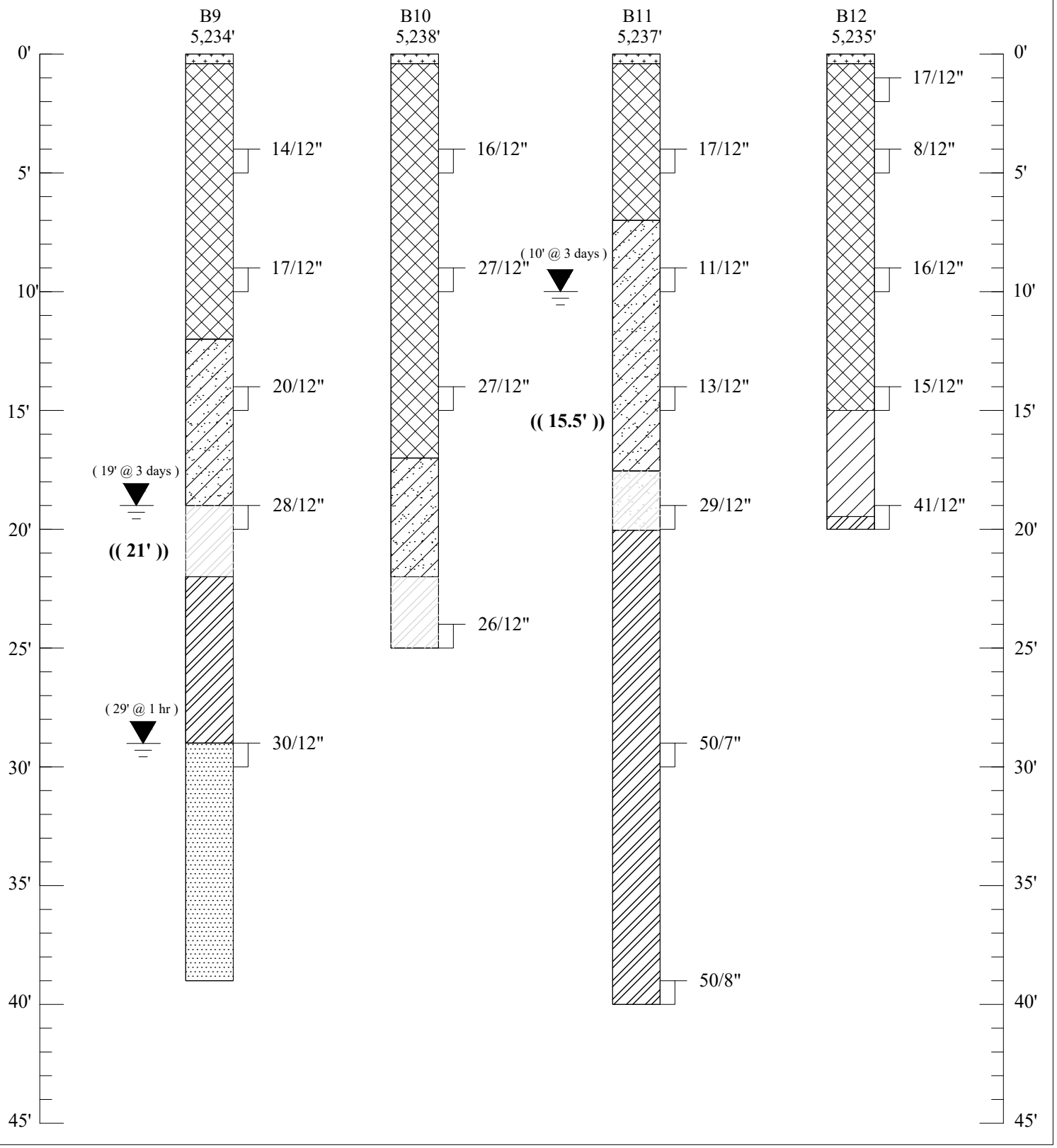
Project Location:
3000 Village Vista Drive
Erie, Colorado

DRAWN BY: NAO
REVIEWED BY: CV
DATE: August 22, 2023

SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 23-1142

FIGURE: 3B



BORING LOG

Best Engineering Solutions and Technologies

Address:
1393 South Inca Street
Denver, Colorado 80223

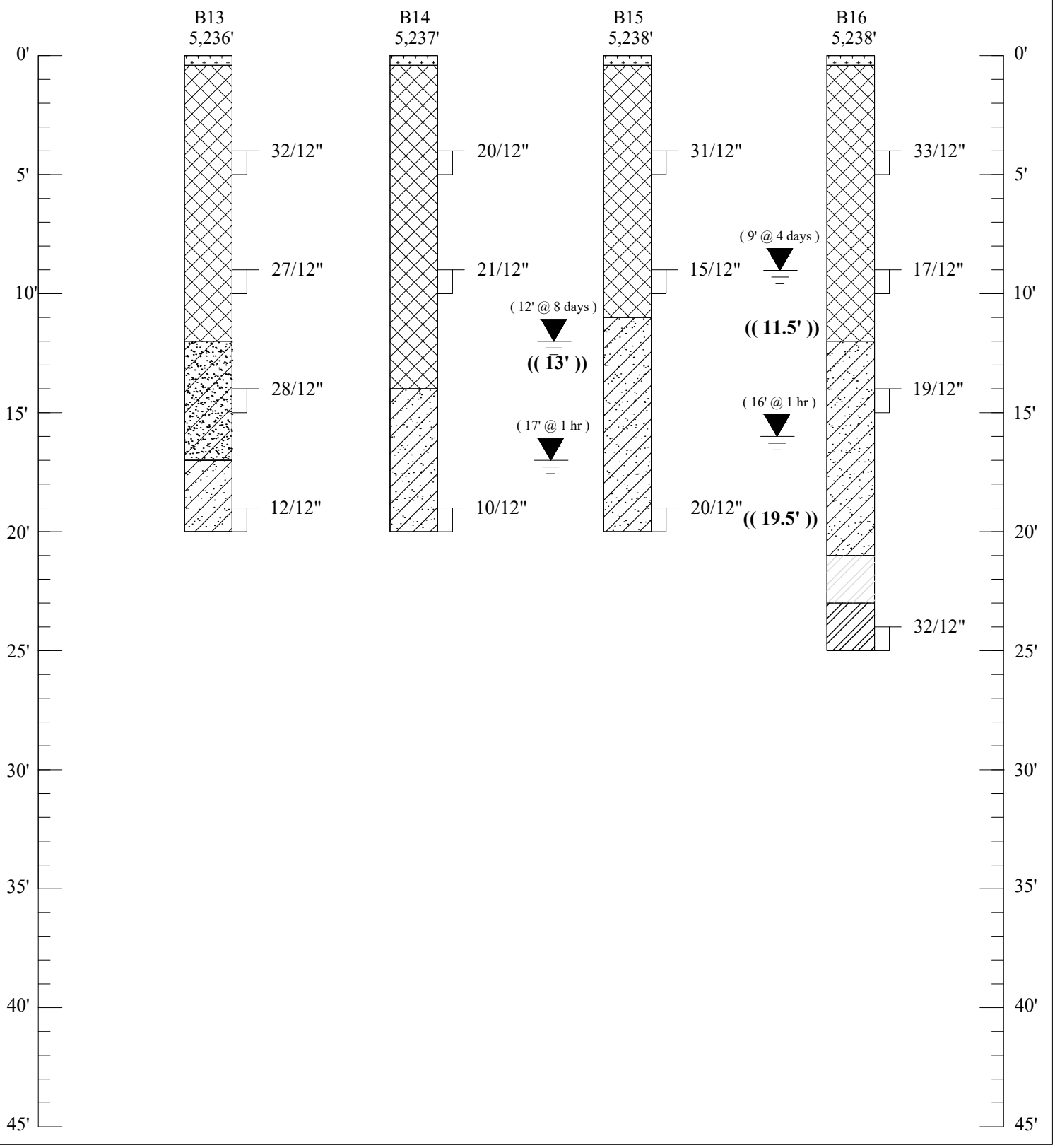
Project Location:
3000 Village Vista Drive
Erie, Colorado

DRAWN BY: NAO
REVIEWED BY: CV
DATE: August 22, 2023

SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 23-1142

FIGURE: 3C



BORING LOG

Best Engineering Solutions and Technologies

Address:
1393 South Inca Street
Denver, Colorado 80223

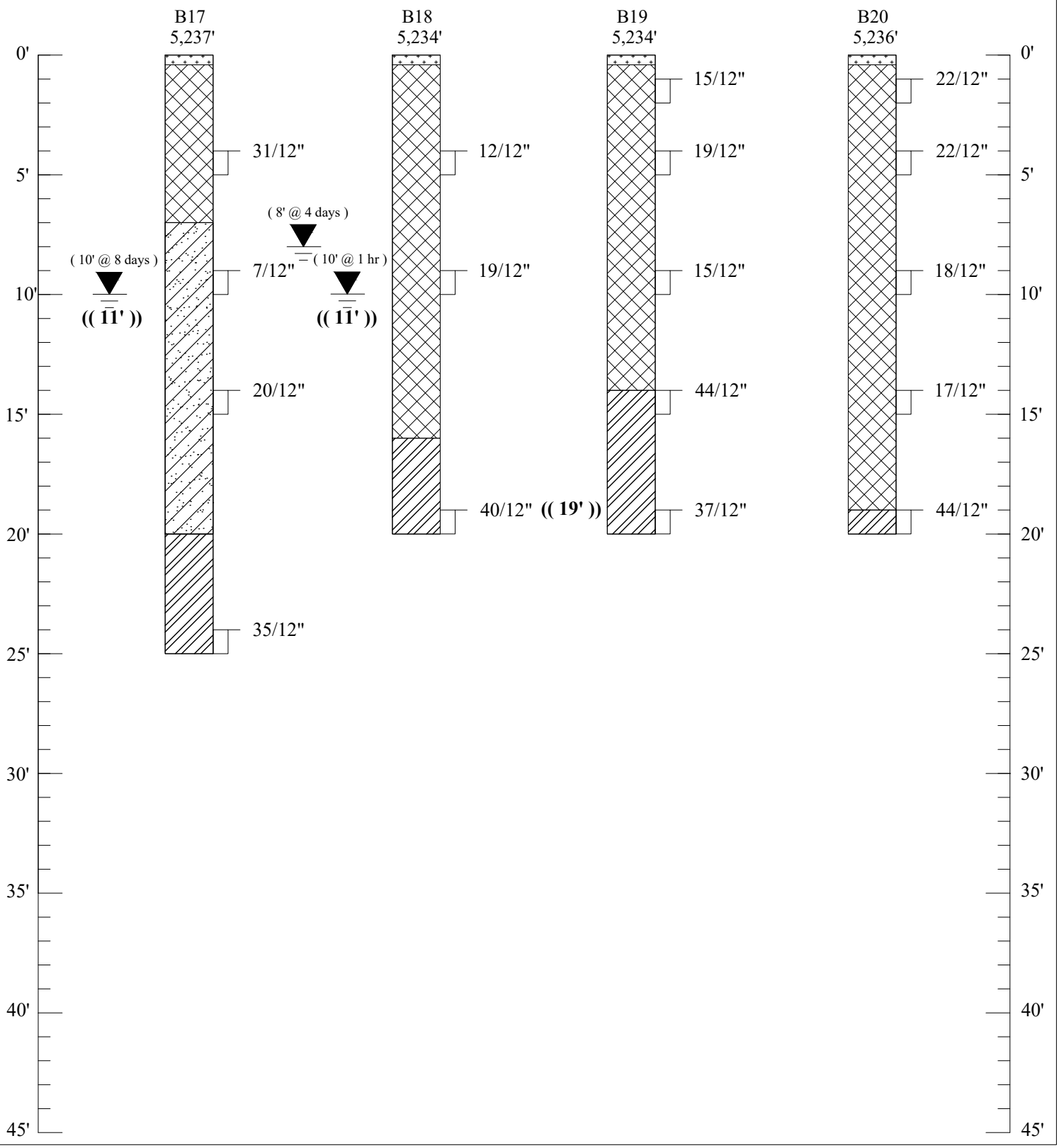
Project Location:
3000 Village Vista Drive
Erie, Colorado

DRAWN BY: NAO
REVIEWED BY: CV
DATE: August 22, 2023

SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 23-1142

FIGURE: 3D



BORING LOG

Best Engineering Solutions and Technologies

Address:
1393 South Inca Street
Denver, Colorado 80223

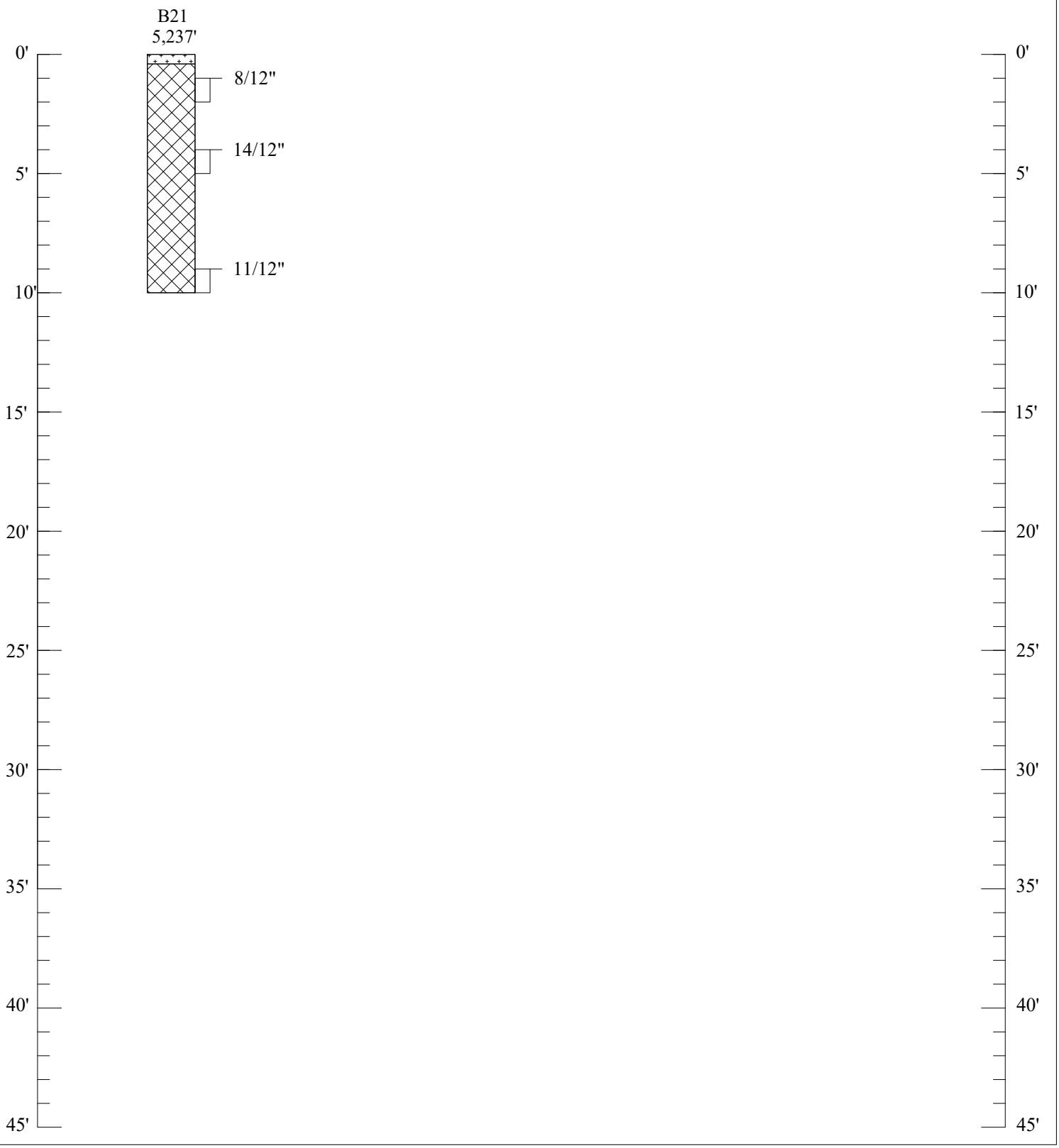
Project Location:
3000 Village Vista Drive
Erie, Colorado

DRAWN BY: NAO
REVIEWED BY: CV
DATE: August 22, 2023

SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 23-1142

FIGURE: 3E



BORING LOG

Best Engineering Solutions and Technologies

Address:
1393 South Inca Street
Denver, Colorado 80223

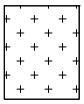
Project Location:
3000 Village Vista Drive
Erie, Colorado

DRAWN BY: NAO
REVIEWED BY: CV
DATE: August 22, 2023

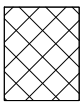
SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 23-1142

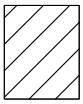
FIGURE: 3F



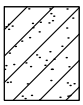
Topsoil



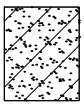
Fill, clayey sand to sandy clay to clay, brown, slightly moist to moist



Clay, hard, brown, moist



Sandy clay to clay with sand, soft to hard, brown to gray, moist to wet, calcareous



Clayey to silty sand, medium dense, brown, very moist to wet

Water Level, Time After Drilling (0 = At Time of Drilling)

Disturbed Sample Collected

Undisturbed Sample Collected

X/12" Blow Counts; Number of Blows to Drive the Sampler 12-Inches (ASTM D-1586)

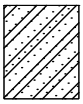
((X)) Depth of Caving Soils

Practical Auger Refusal

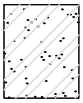
NOTES:

1. The samples were collected on June 29 and 30, 2023, and July 5, 6, and 10, 2023 with truck-mounted and trailer-mounted drill rigs and 4” solid flight auger.
2. The stratification lines represent the approximate boundary between soil types and the transition may be gradual.
3. The boring log(s) show subsurface conditions at the dates and locations indicated, and it is not warranted that they are representative of subsurface conditions at other locations or times.
4. Elevations are provided by Google Earth© and are considered approximate.

BORING LOG	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, Colorado	**DRAWN BY:** NAO **REVIEWED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical: N/A Horizontal: N/A
	PROJECT NO: 23-1142	**FIGURE: 4A**

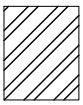


Sandy to silty claystone, medium hard to very hard, brown to olive, moist, rusty

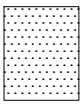


Weathered sandy claystone, medium dense, gray, moist, rusty

Weathered claystone, medium dense, gray, moist, rusty



Claystone, medium hard to very hard, brown to gray, moist to wet, rusty



Sandstone, medium hard, brown, wet, rusty

Water Level, Time After Drilling (0 = At Time of Drilling)

Disturbed Sample Collected

Undisturbed Sample Collected

X/12" Blow Counts; Number of Blows to Drive the Sampler 12-Inches (ASTM D-1586)

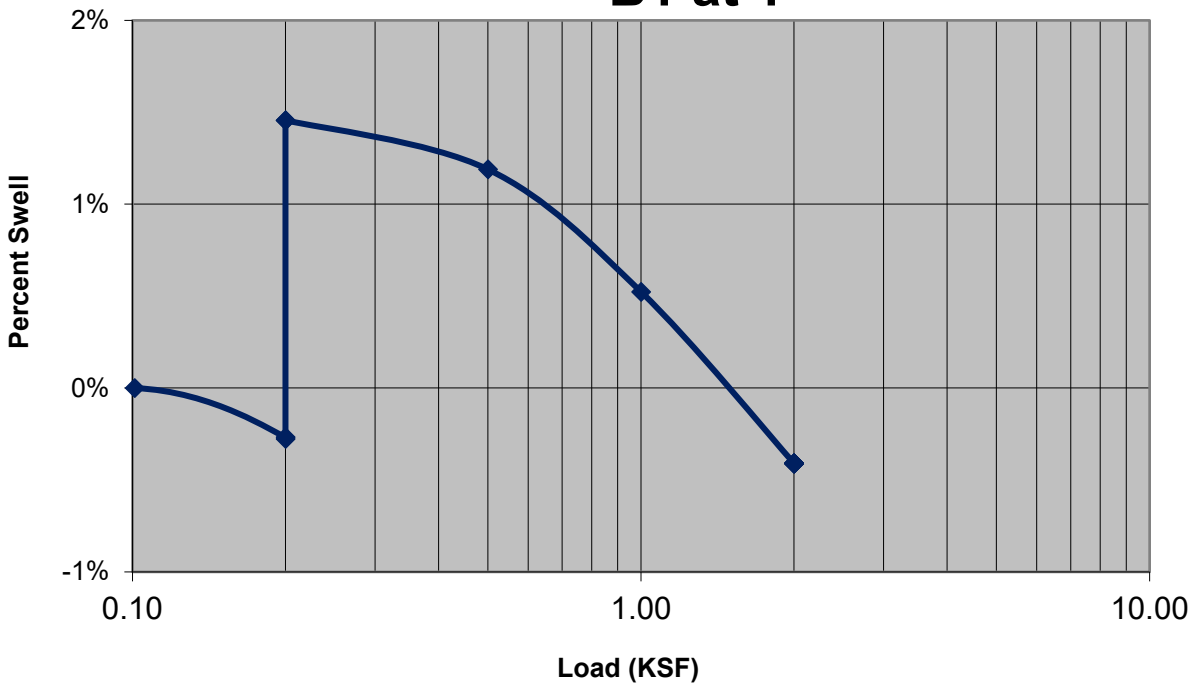
((X)) Depth of Caving Soils

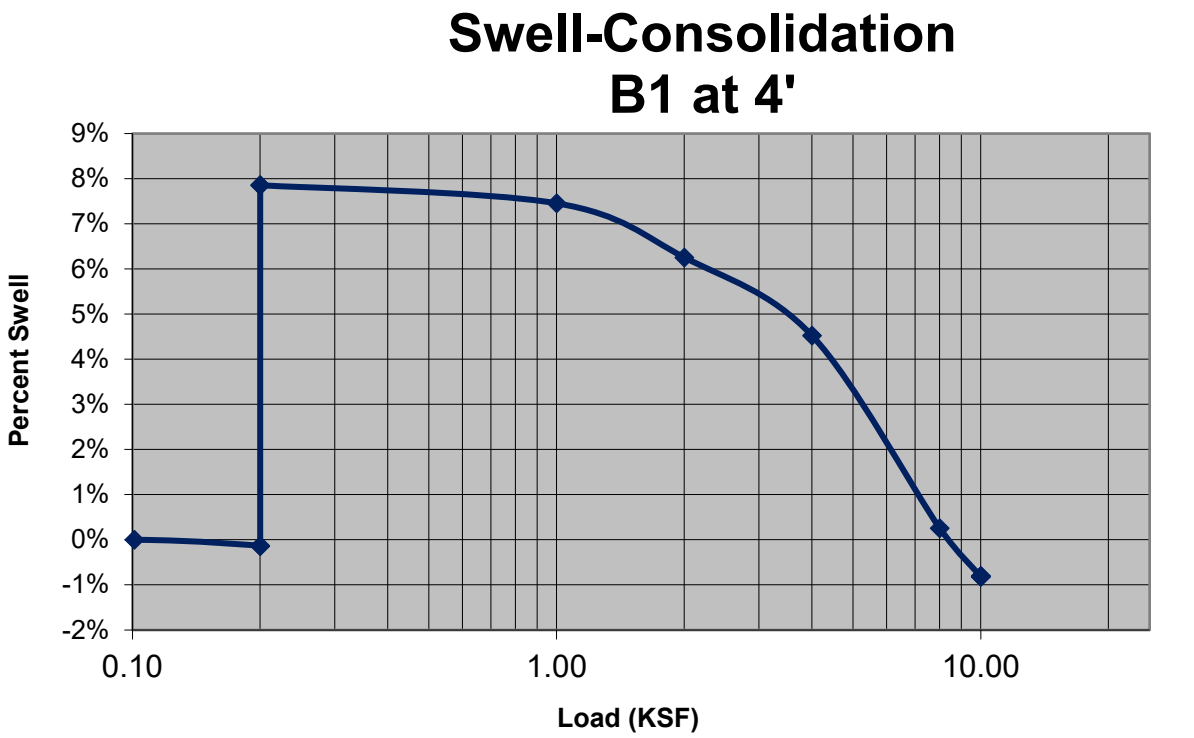
Practical Auger Refusal

NOTES:

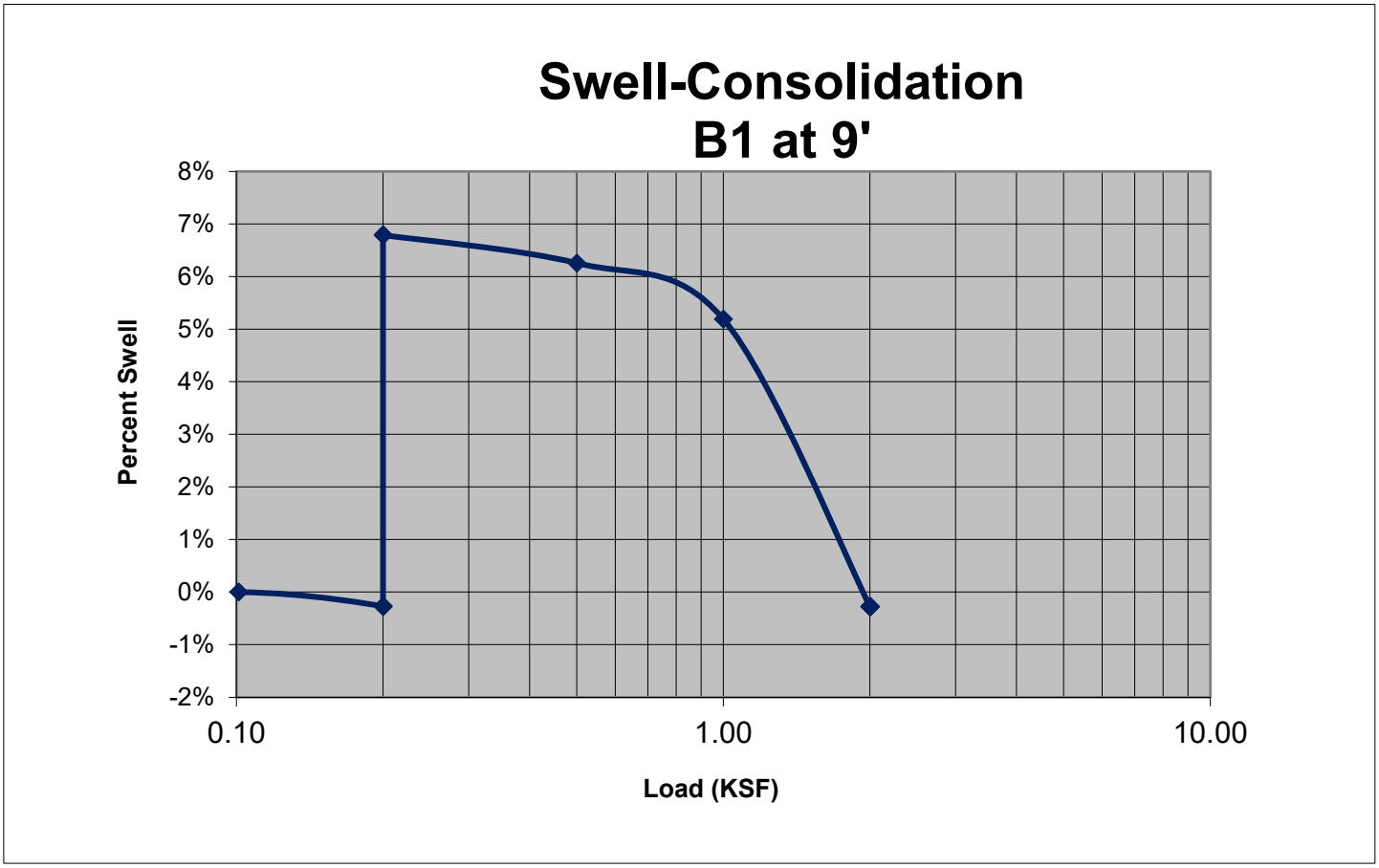
1. The samples were collected on June 29 and 30, 2023, and July 5, 6, and 10, 2023 with truck-mounted and trailer-mounted drill rigs and 4" solid flight auger.
2. The stratification lines represent the approximate boundary between soil types and the transition may be gradual.
3. The boring log(s) show subsurface conditions at the dates and locations indicated, and it is not warranted that they are representative of subsurface conditions at other locations or times.
4. Elevations are provided by Google Earth© and are considered approximate.

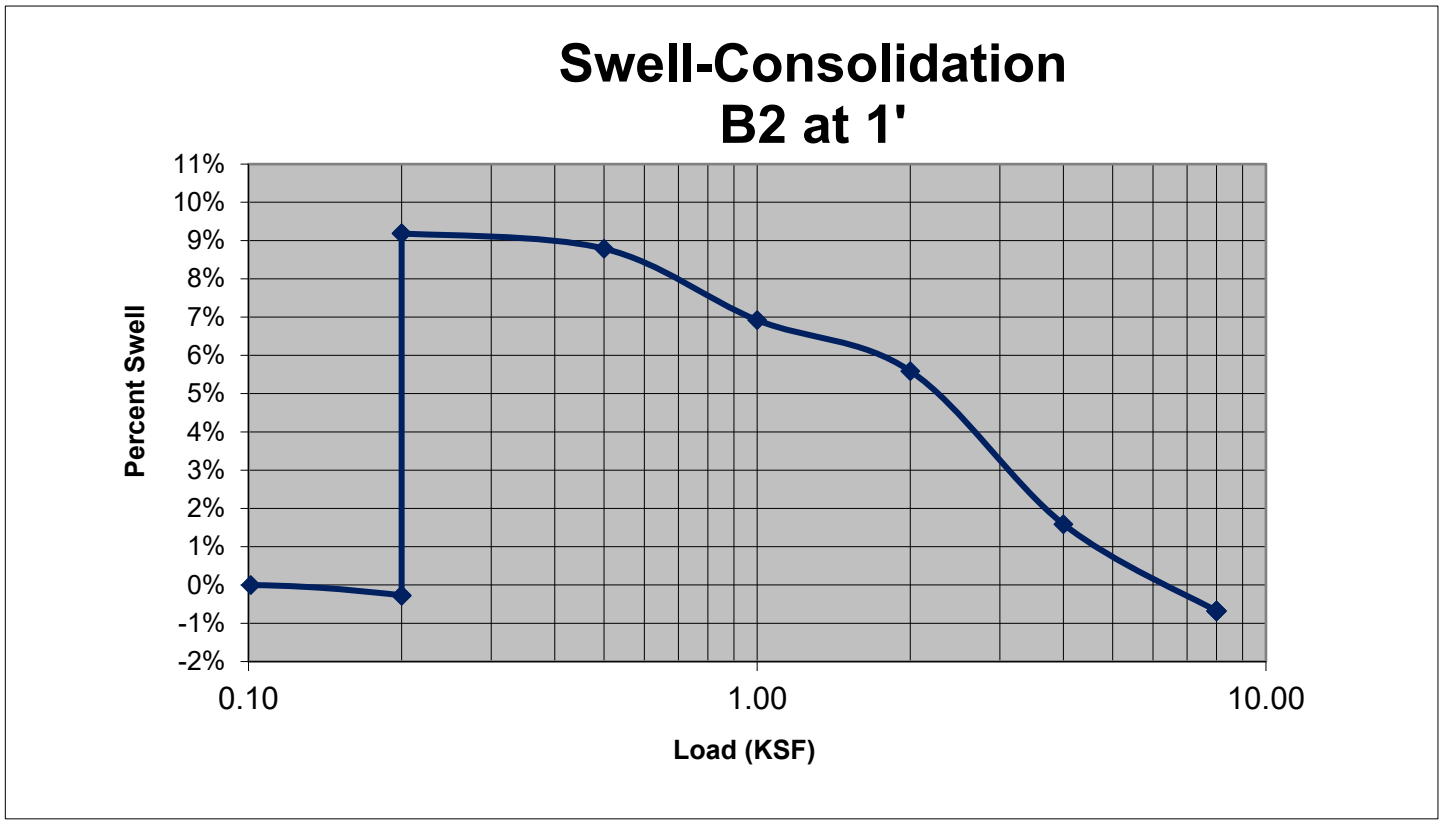
BORING LOG	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, Colorado	**DRAWN BY:** NAO **REVIEWED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical: N/A Horizontal: N/A
	PROJECT NO: 23-1142	**FIGURE: 4B**



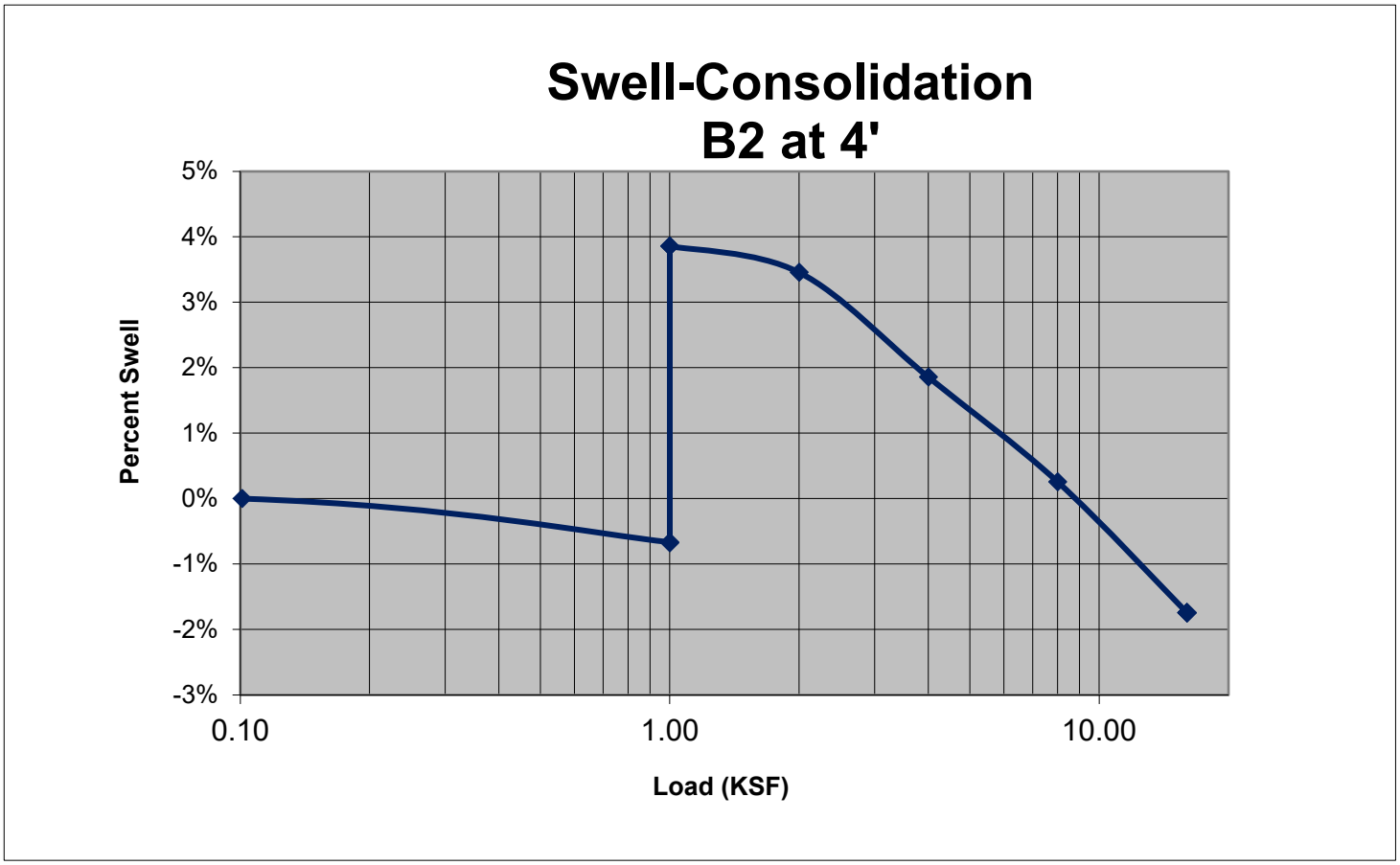


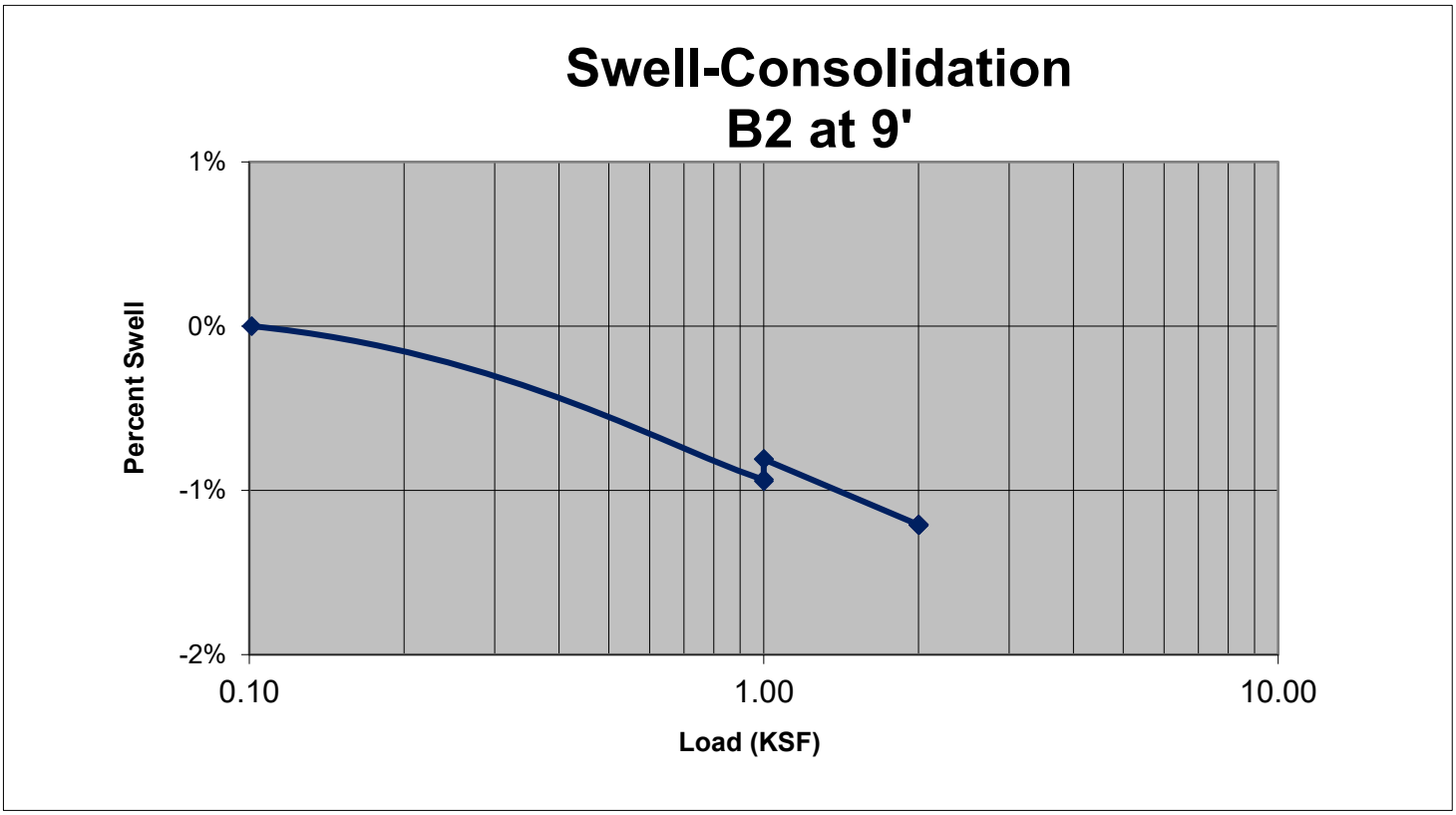
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-1



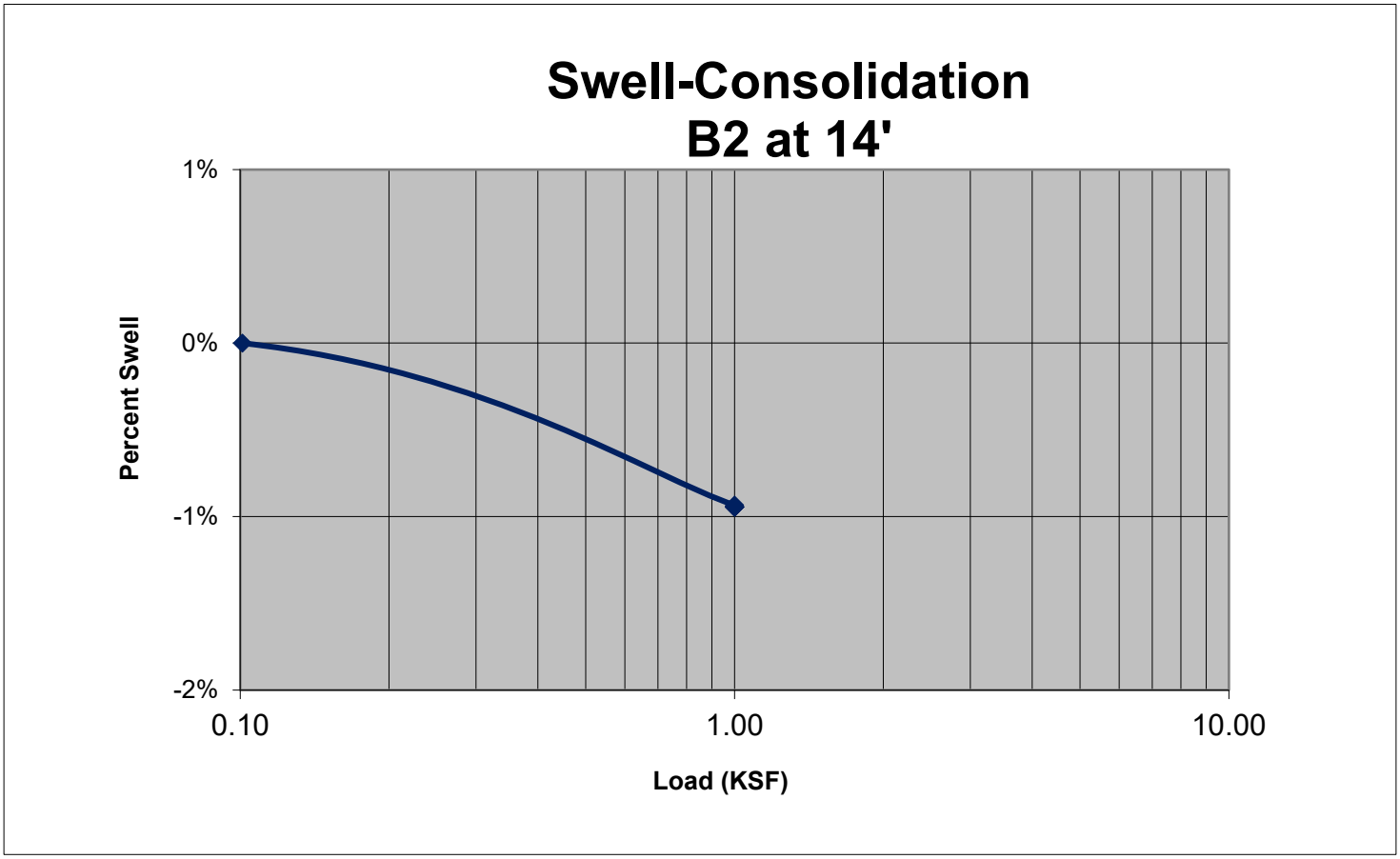


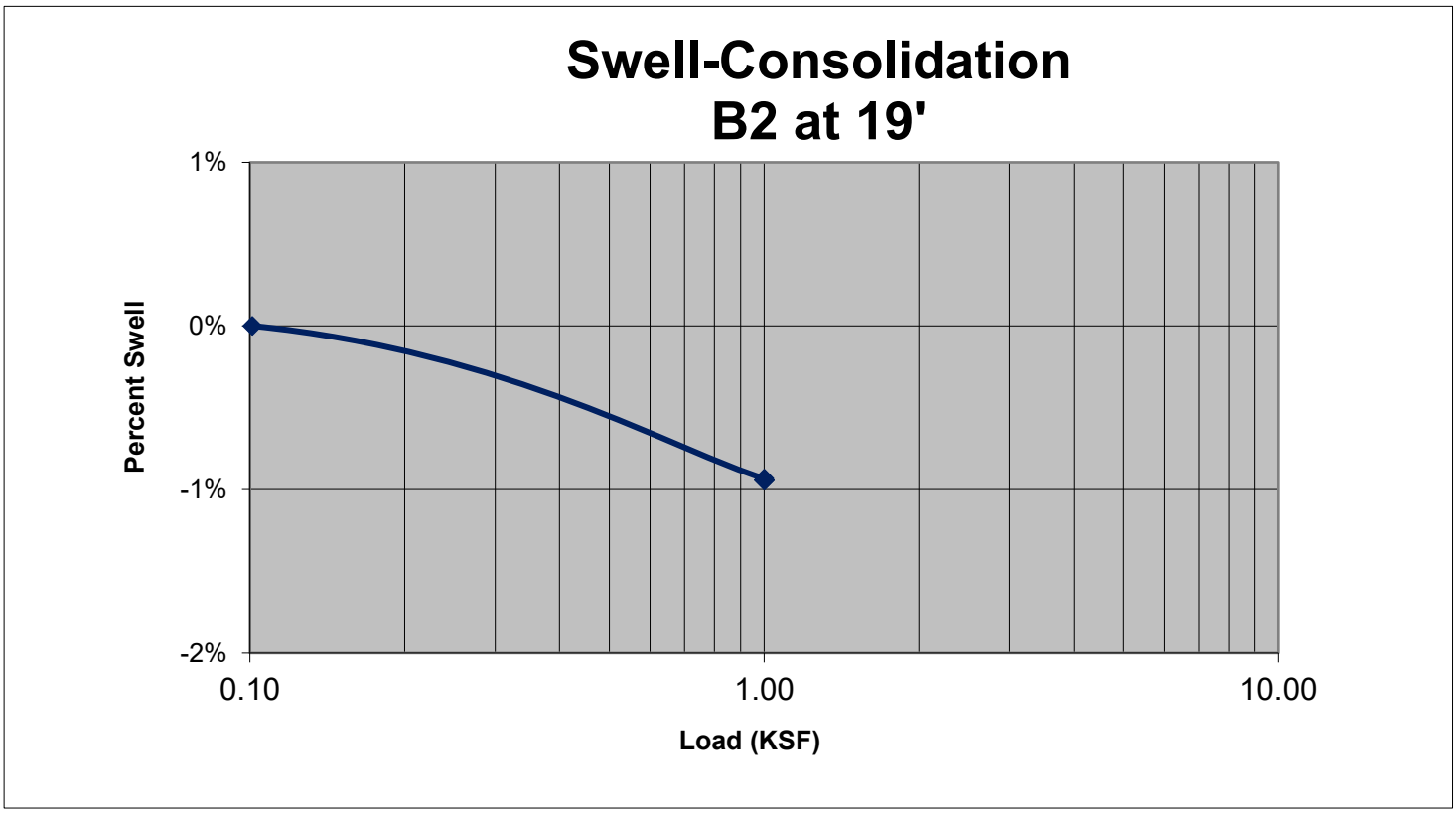
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-2



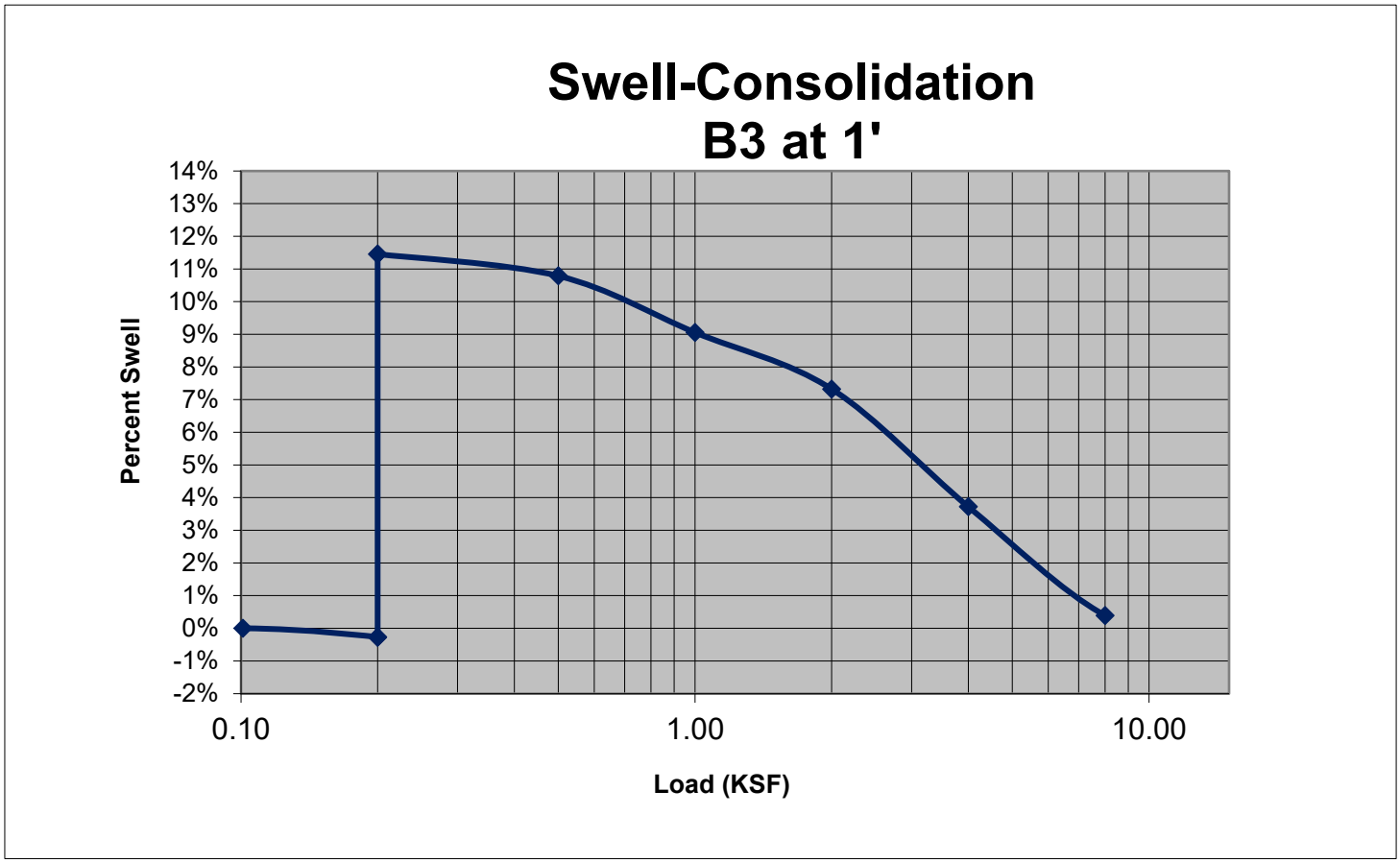


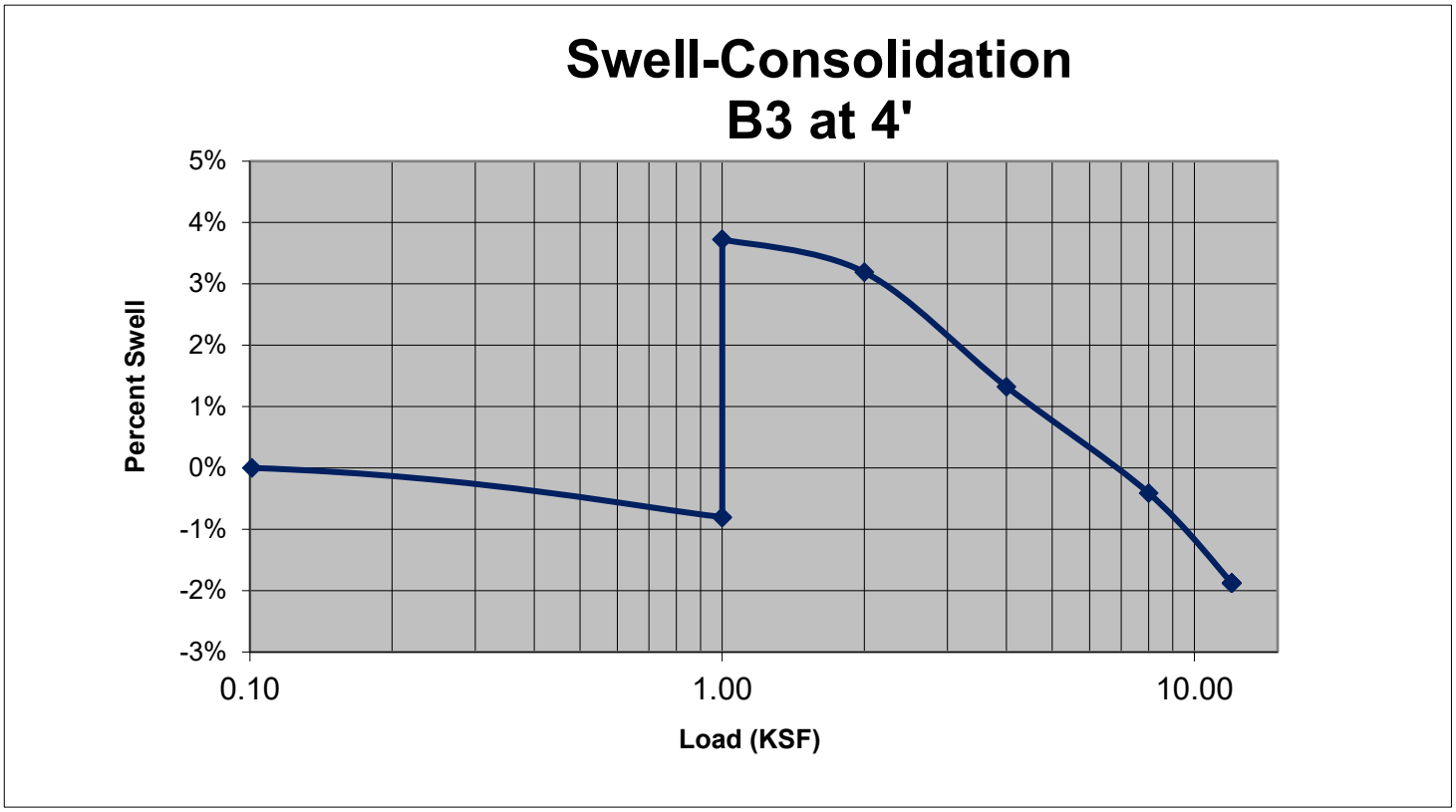
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-3



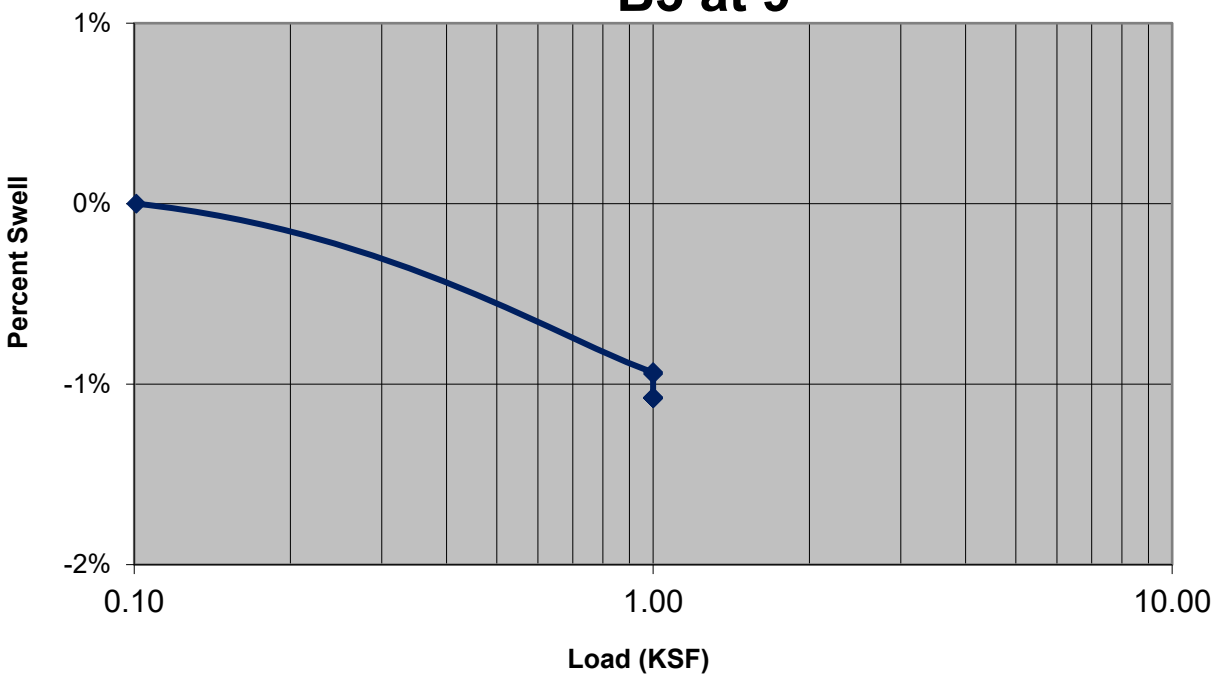


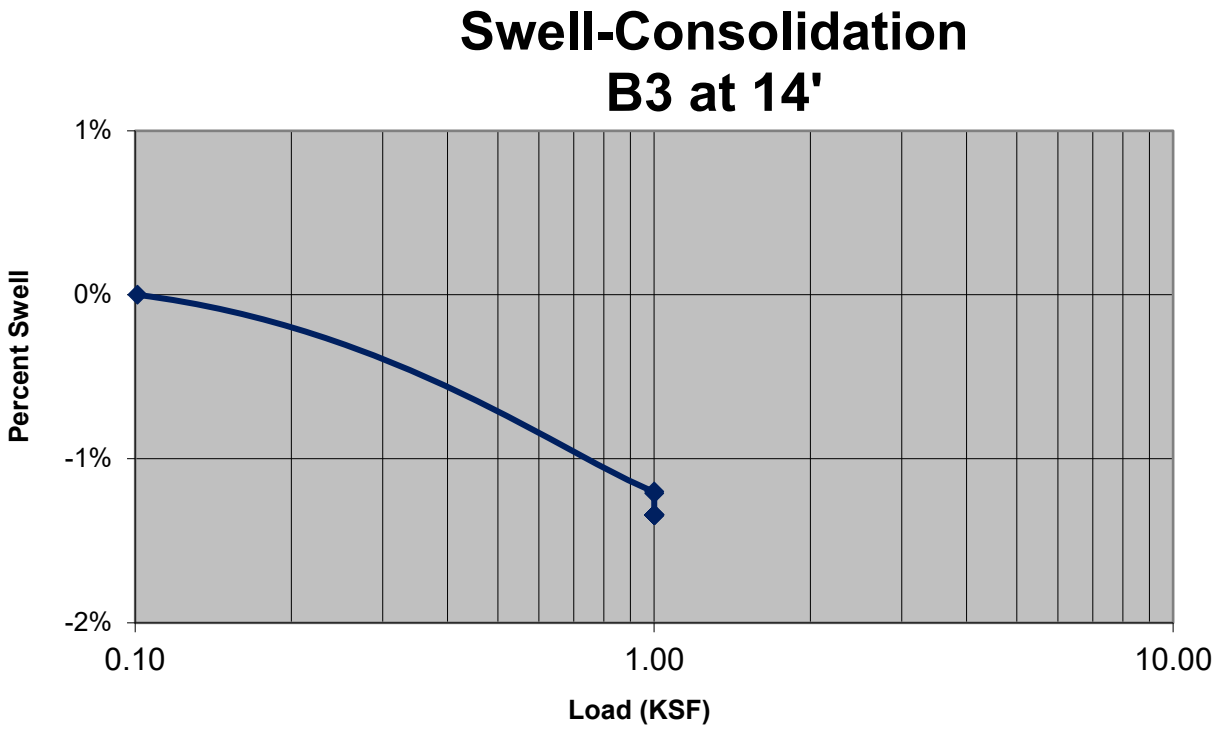
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-4



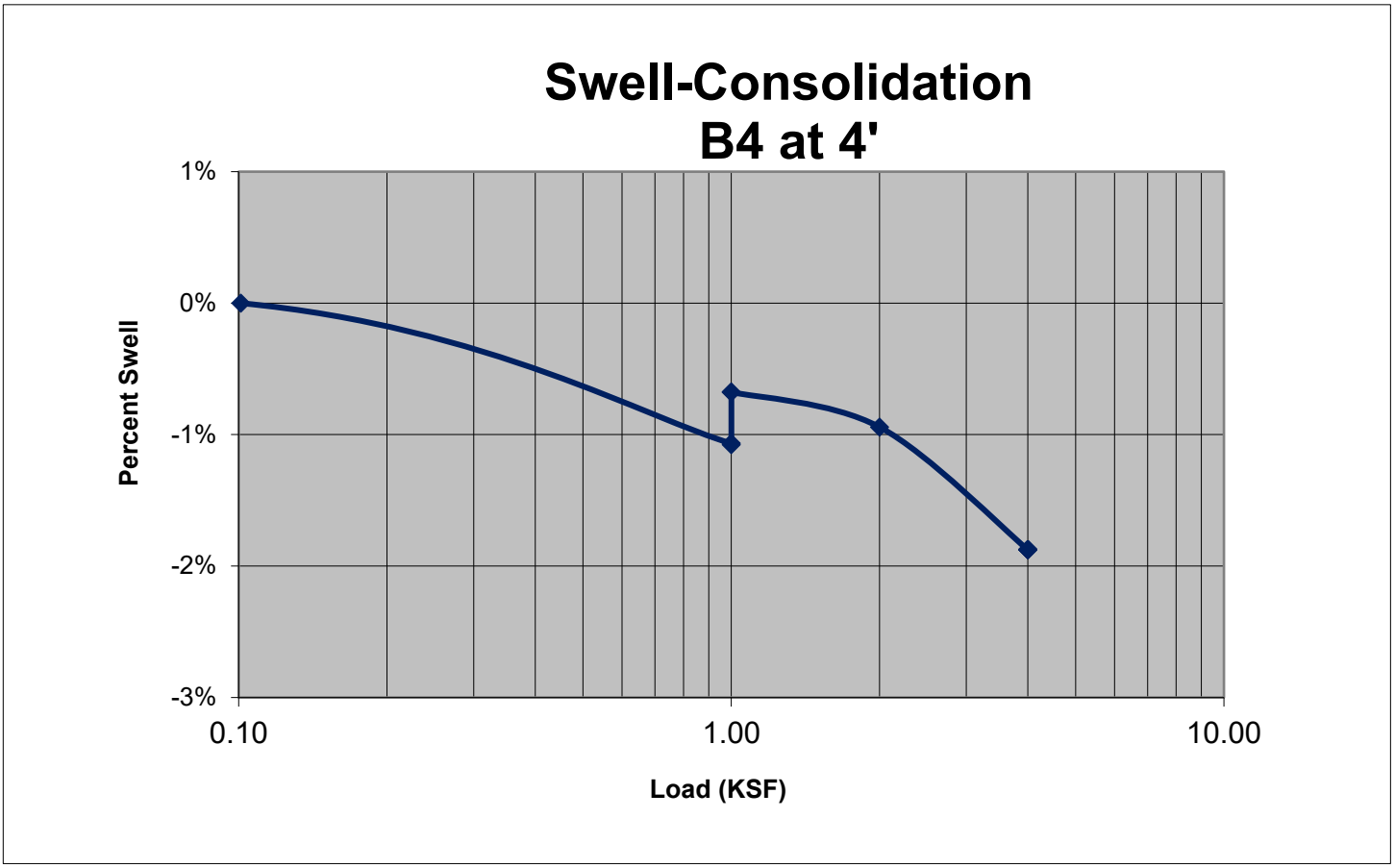


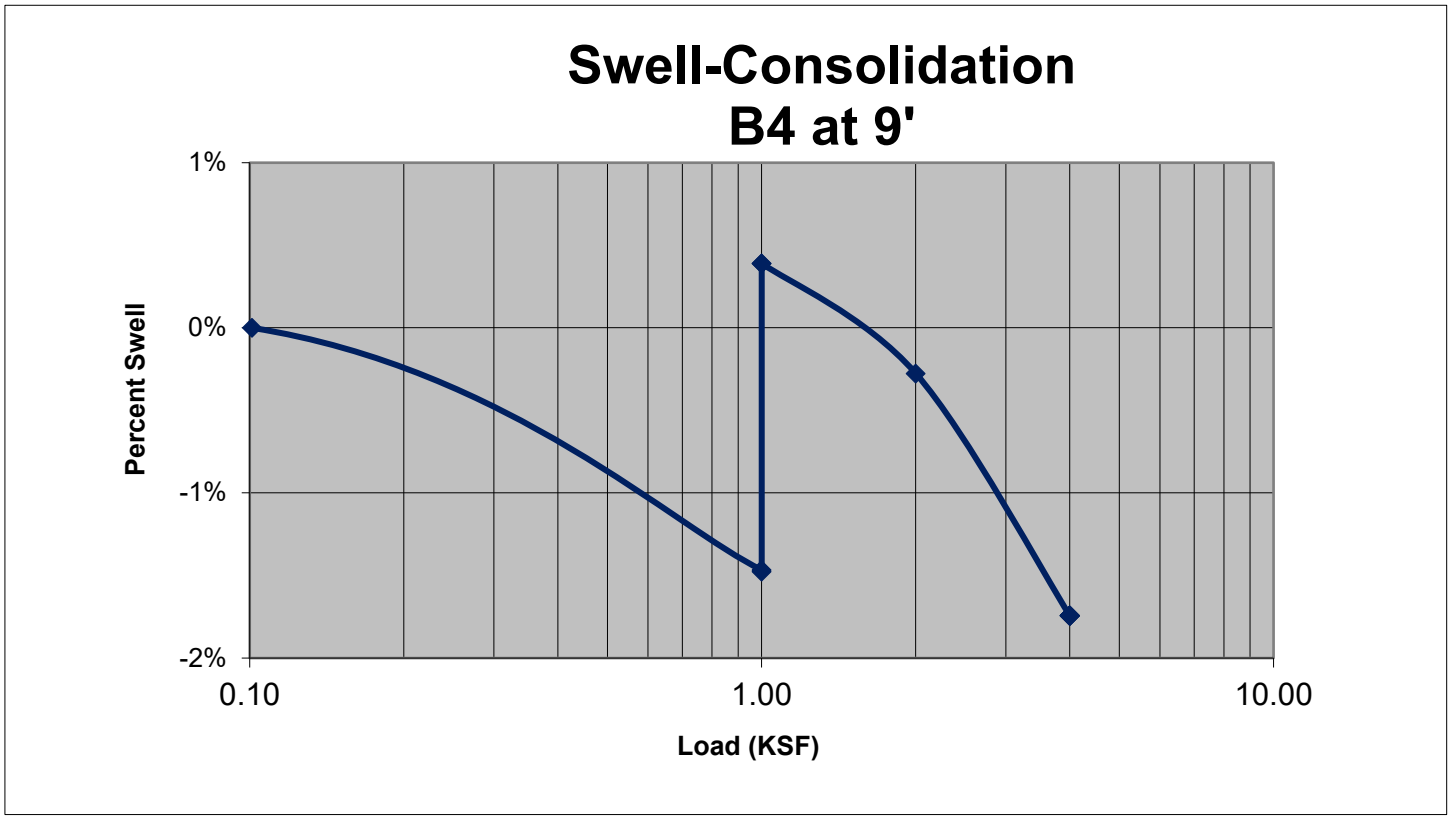
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-5



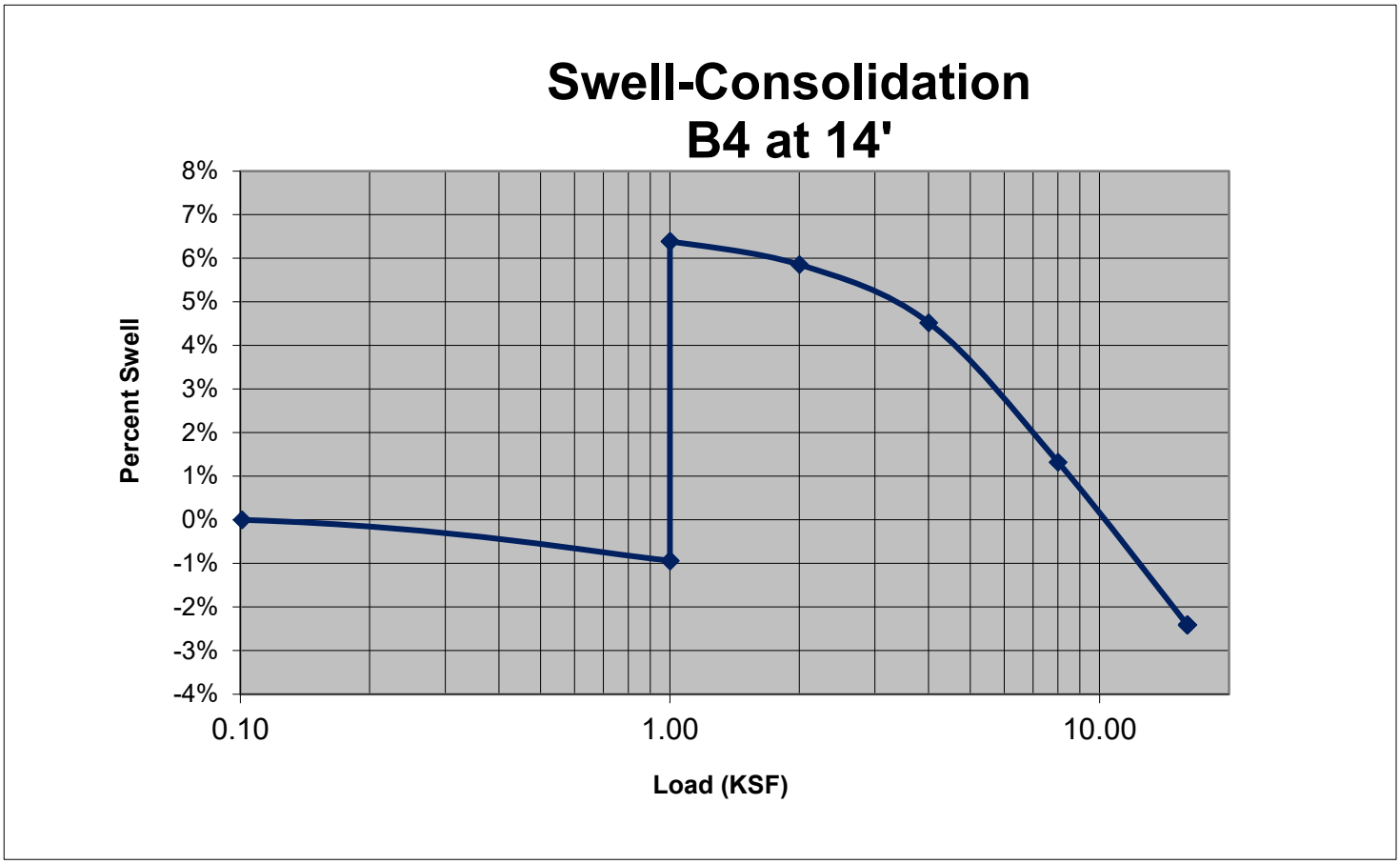


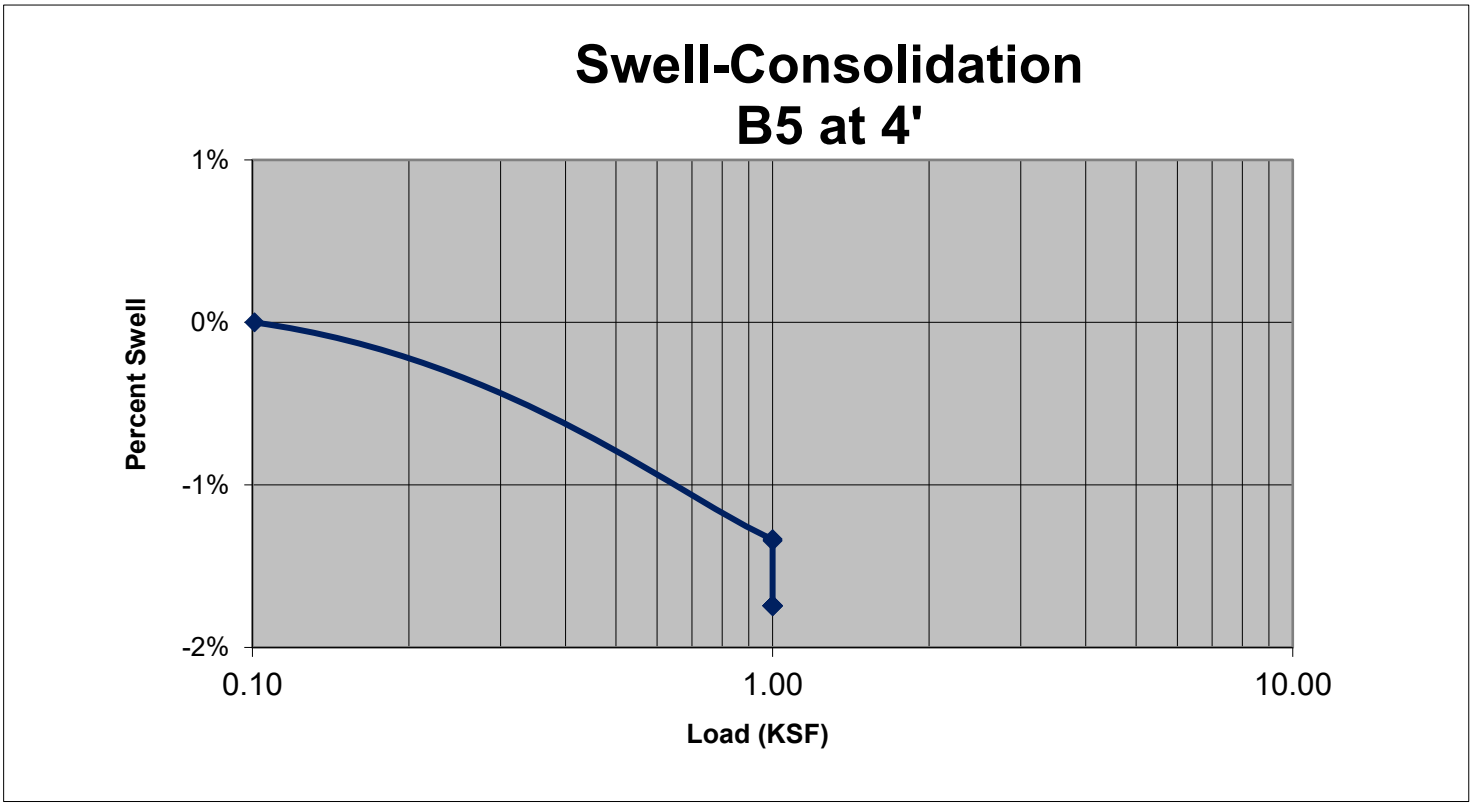
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-6



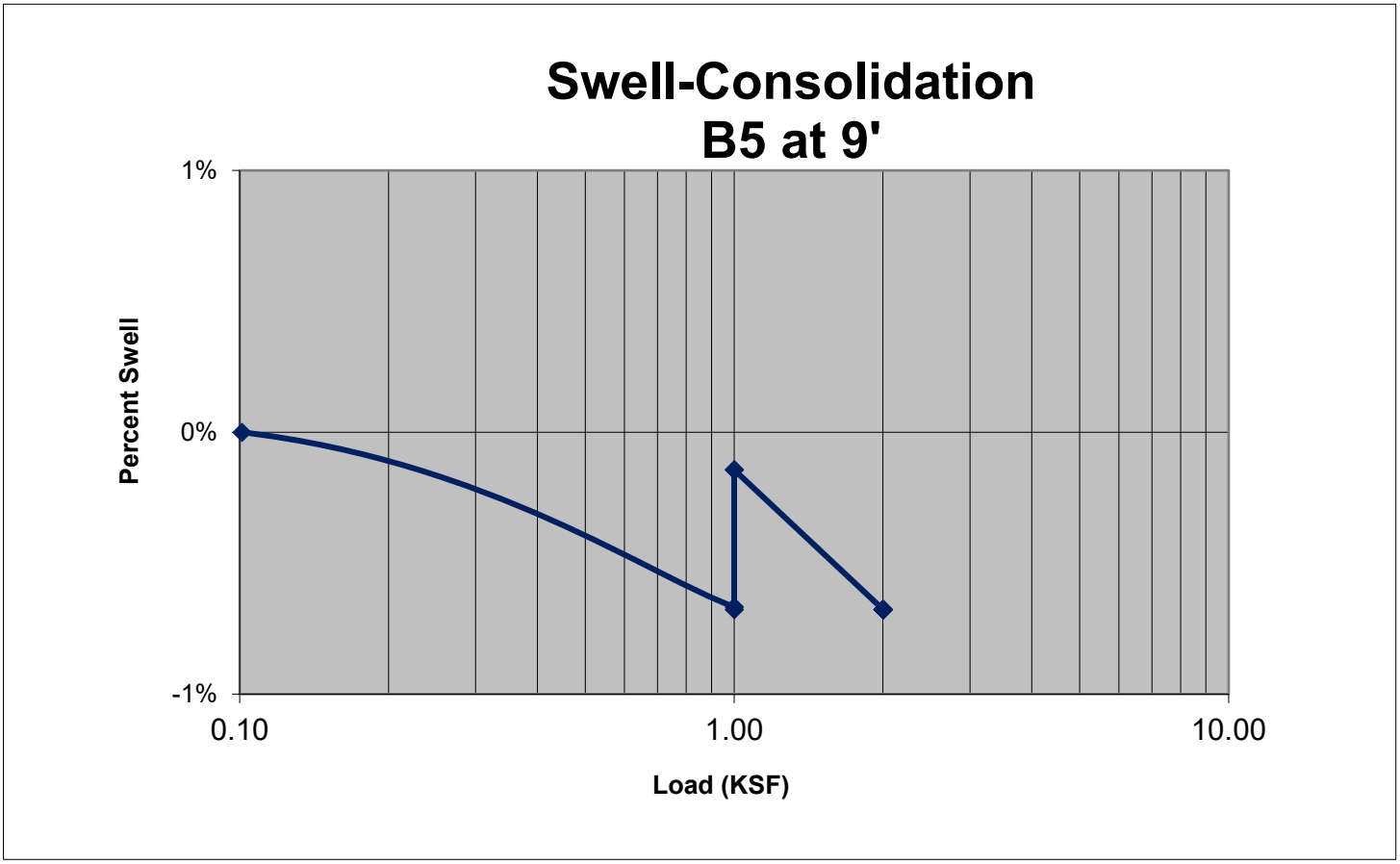


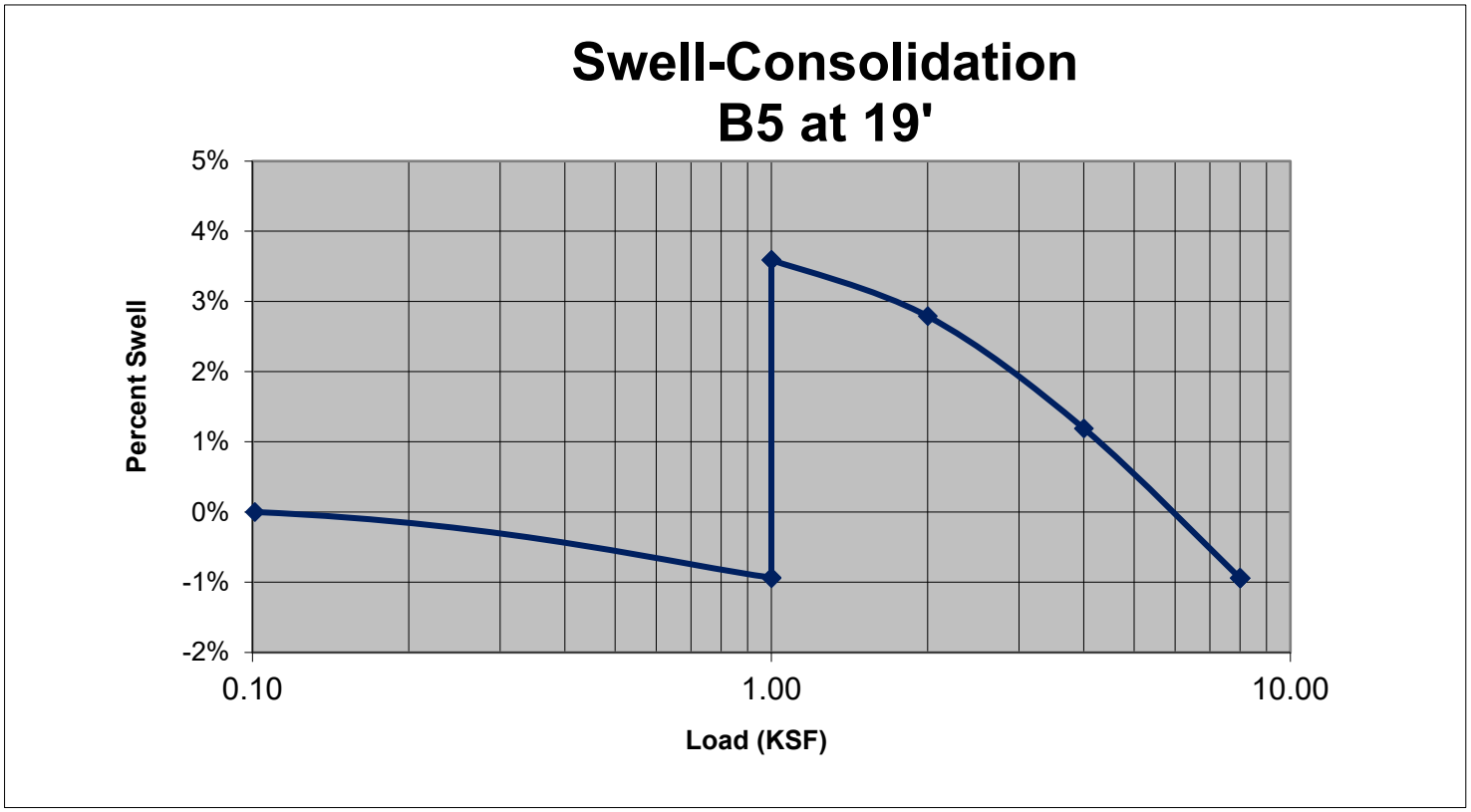
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-7



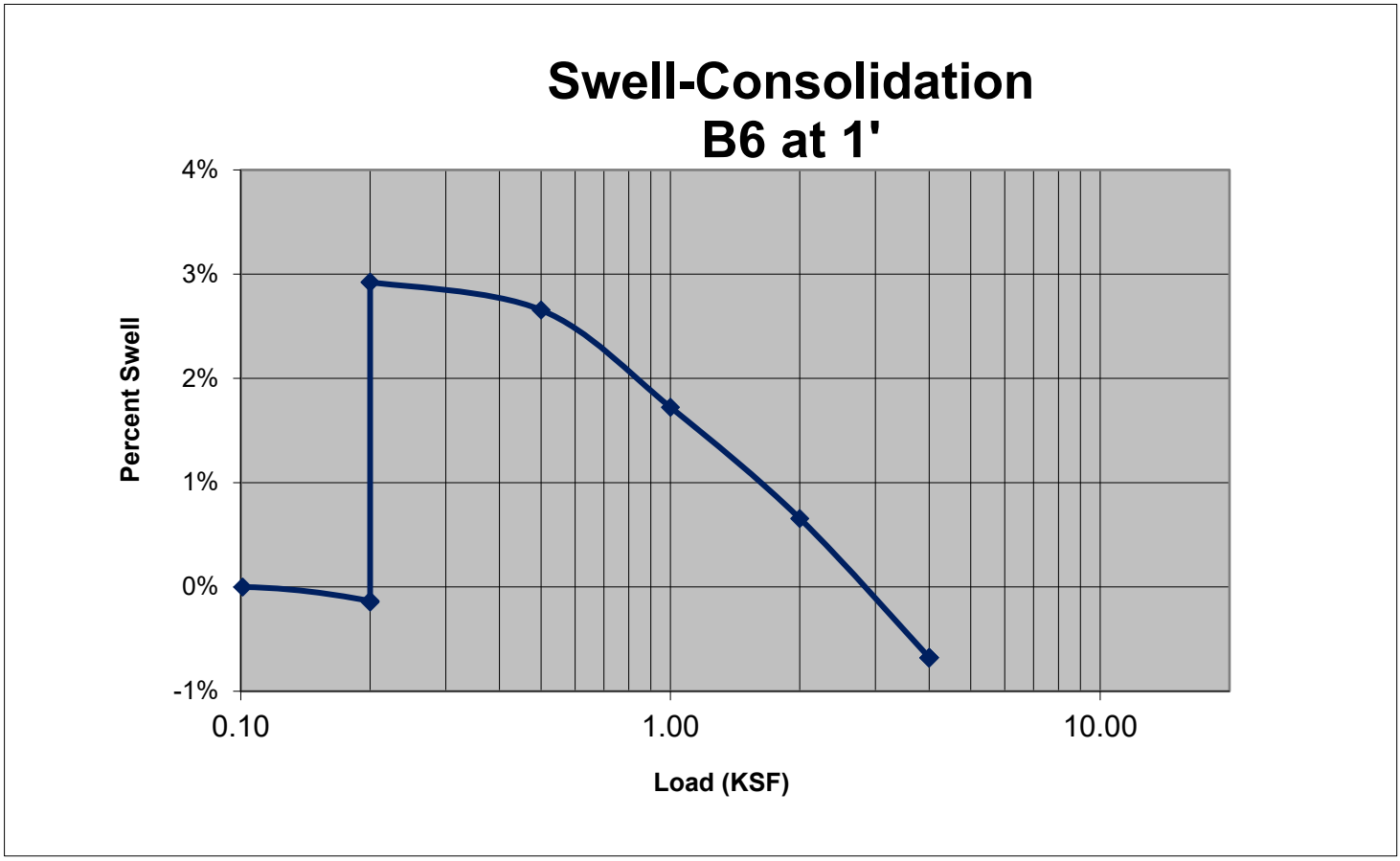


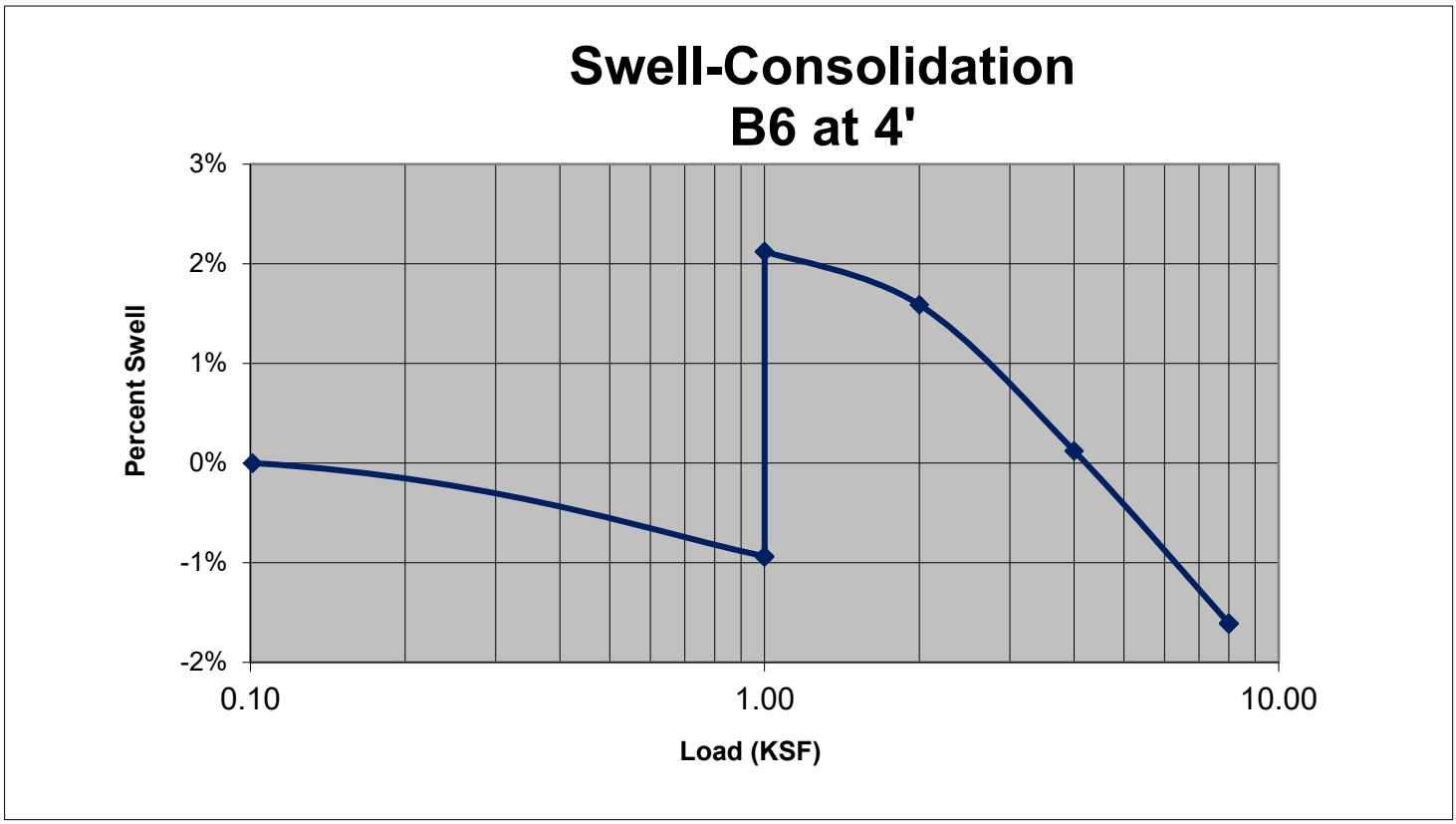
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-8



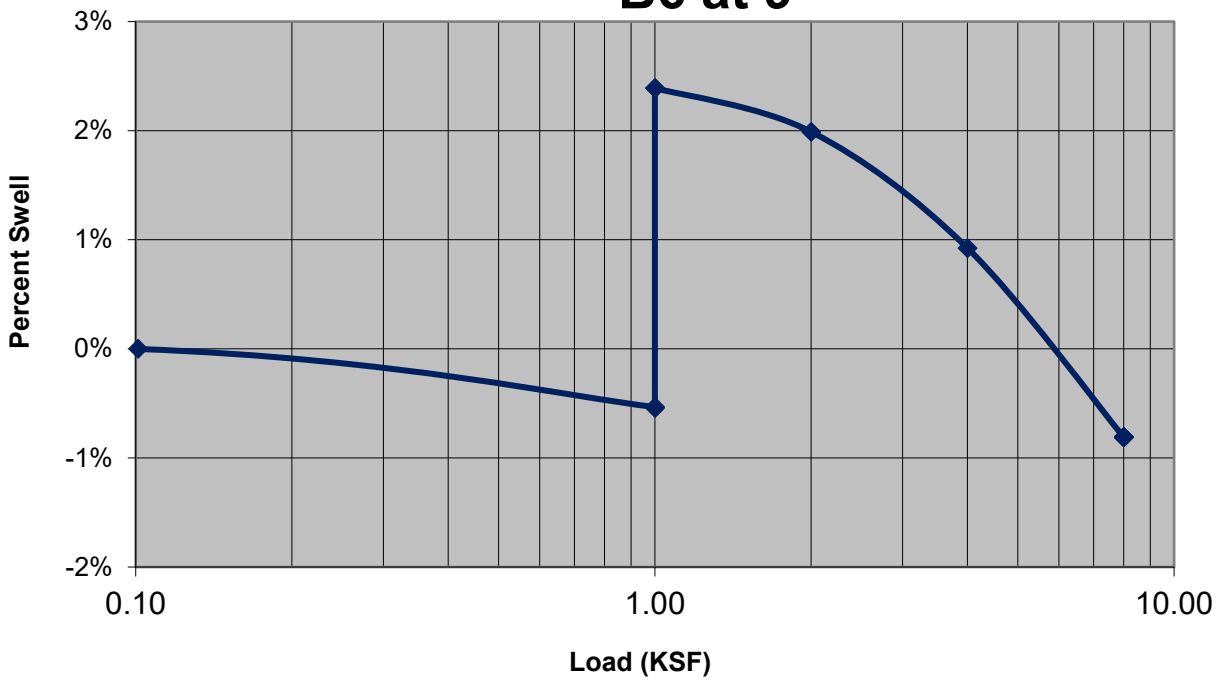


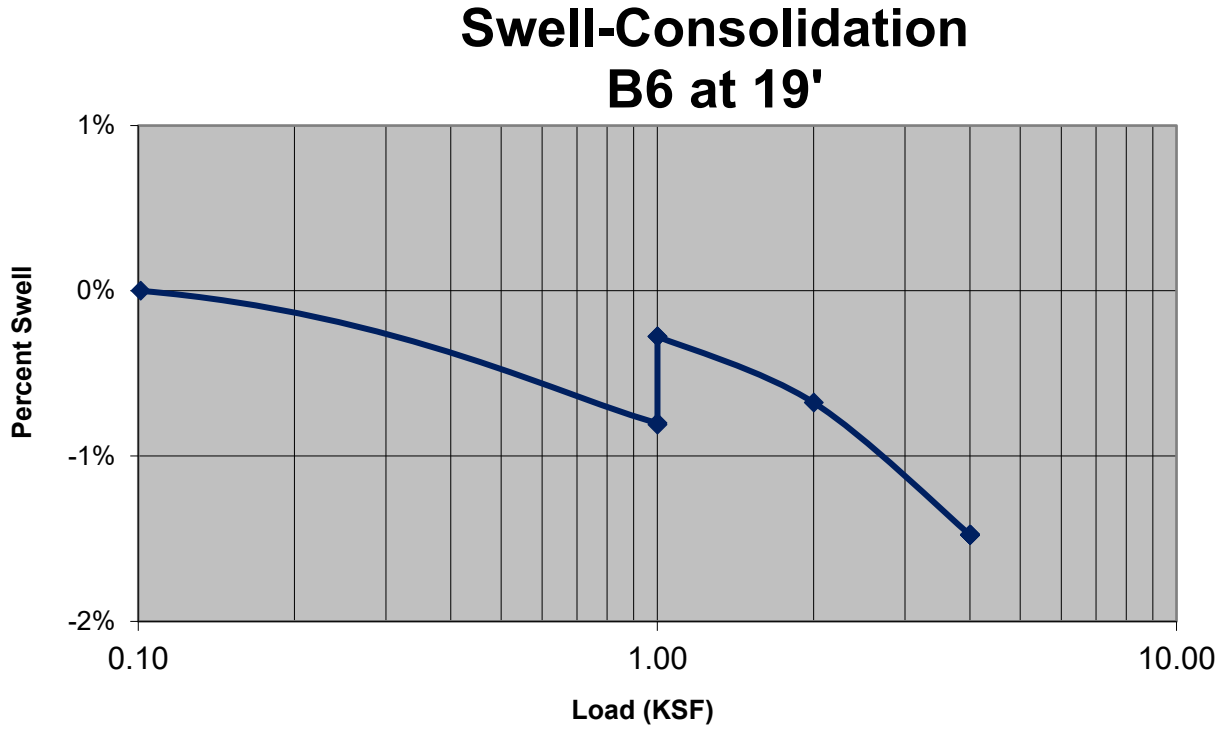
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-9



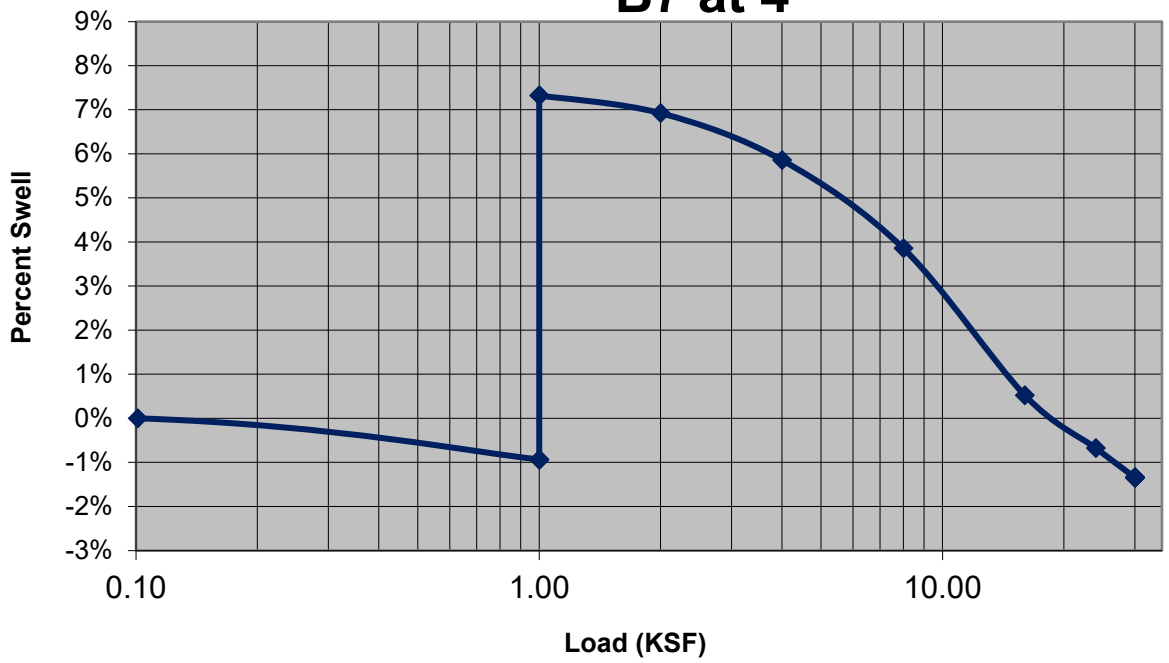


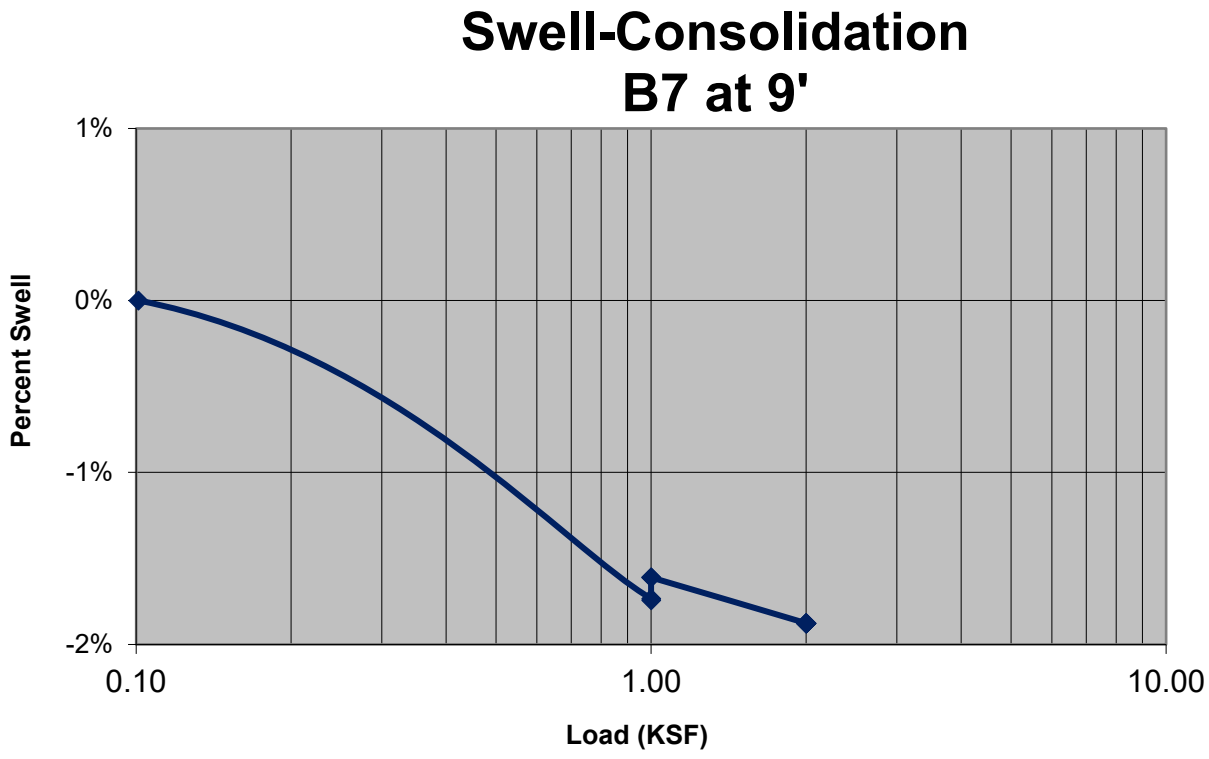
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-10



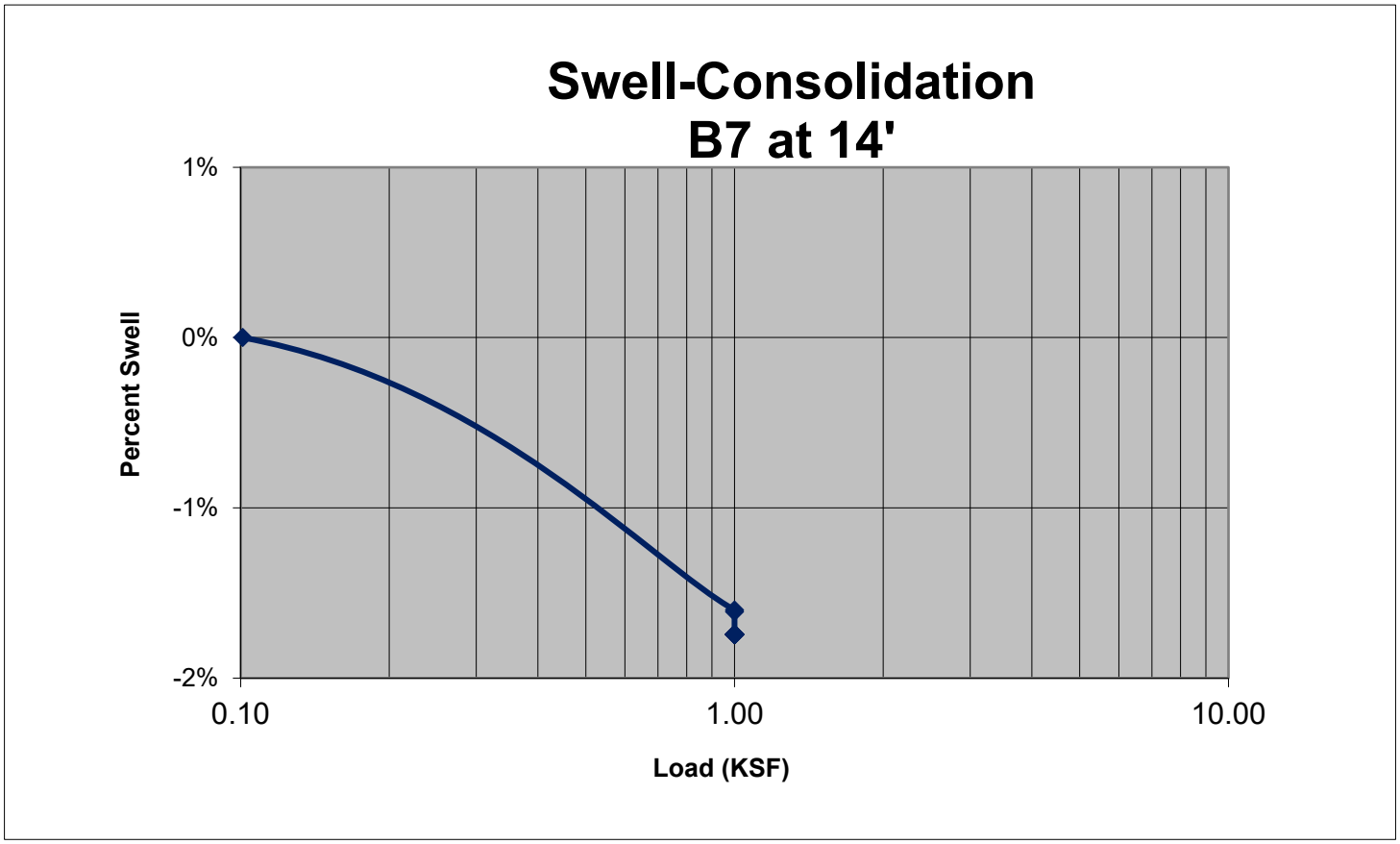


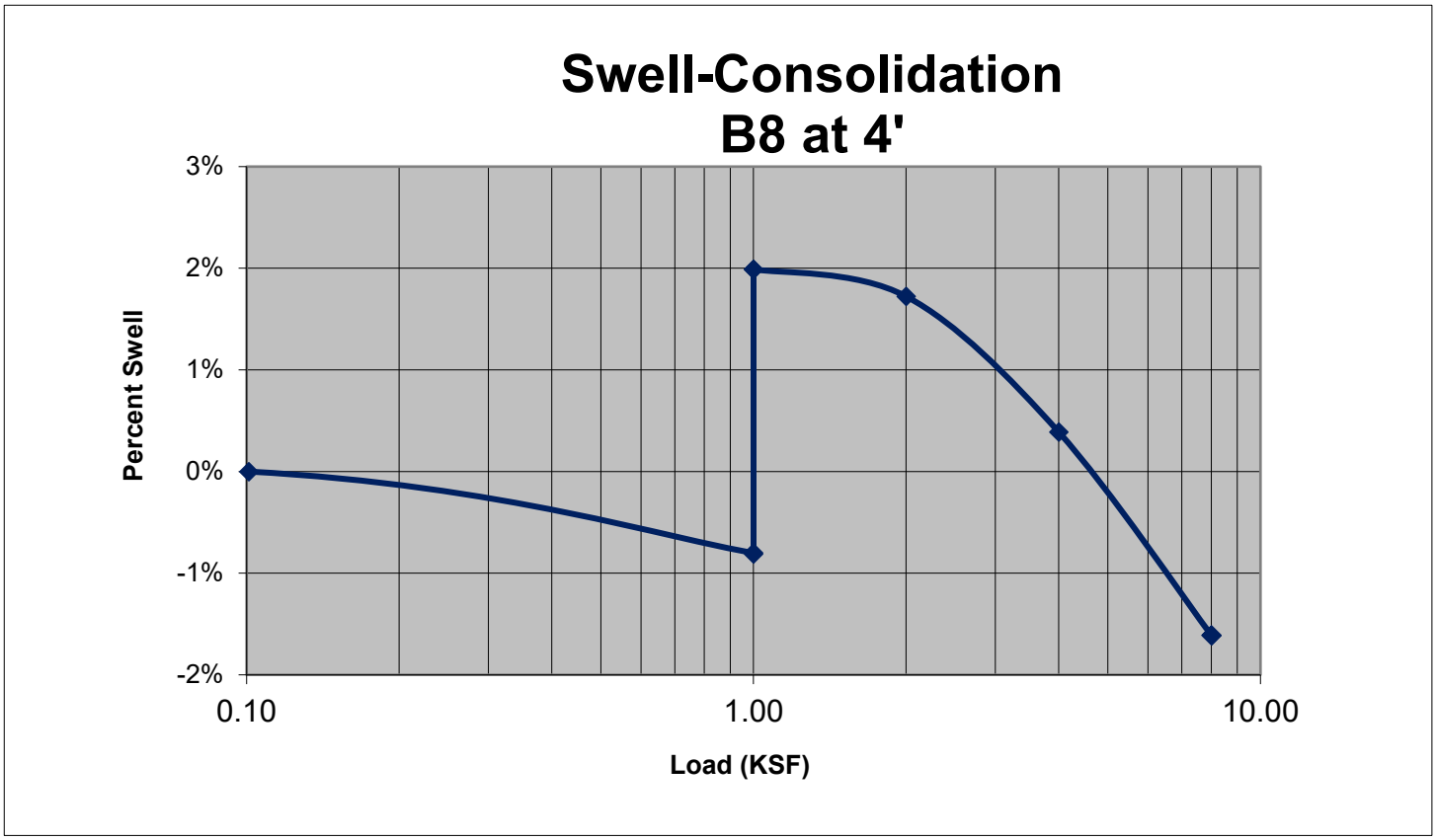
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-11



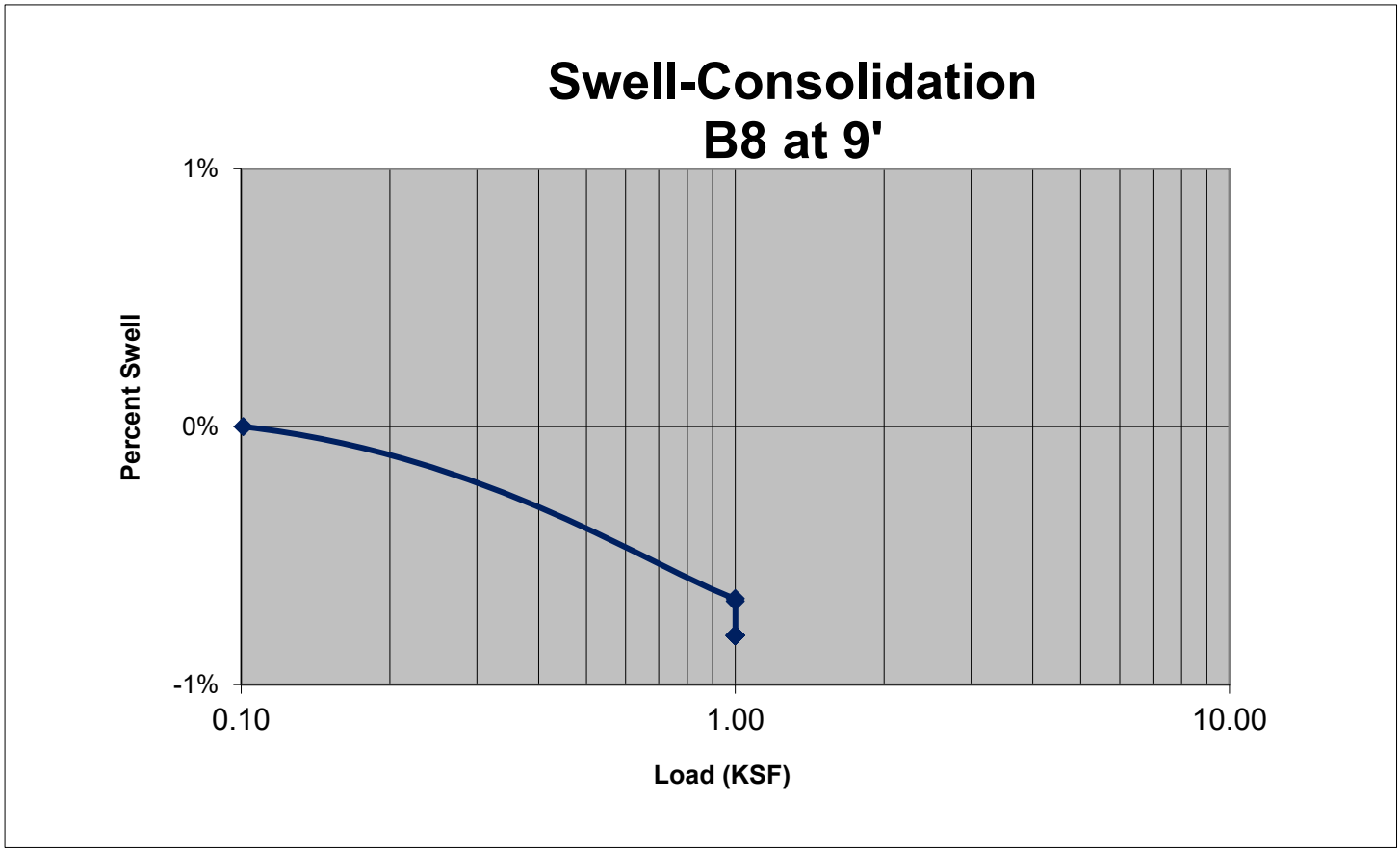


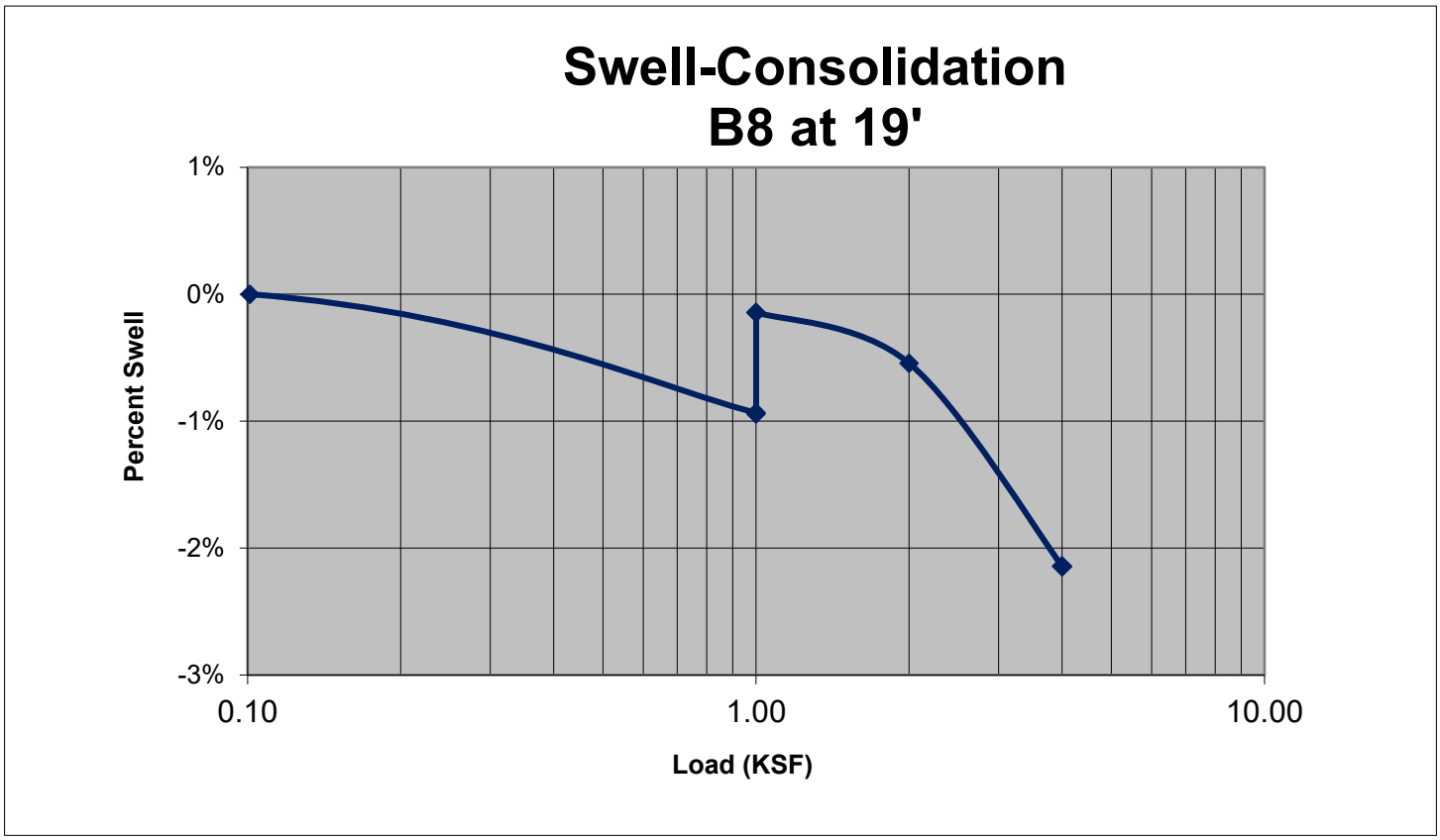
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-12



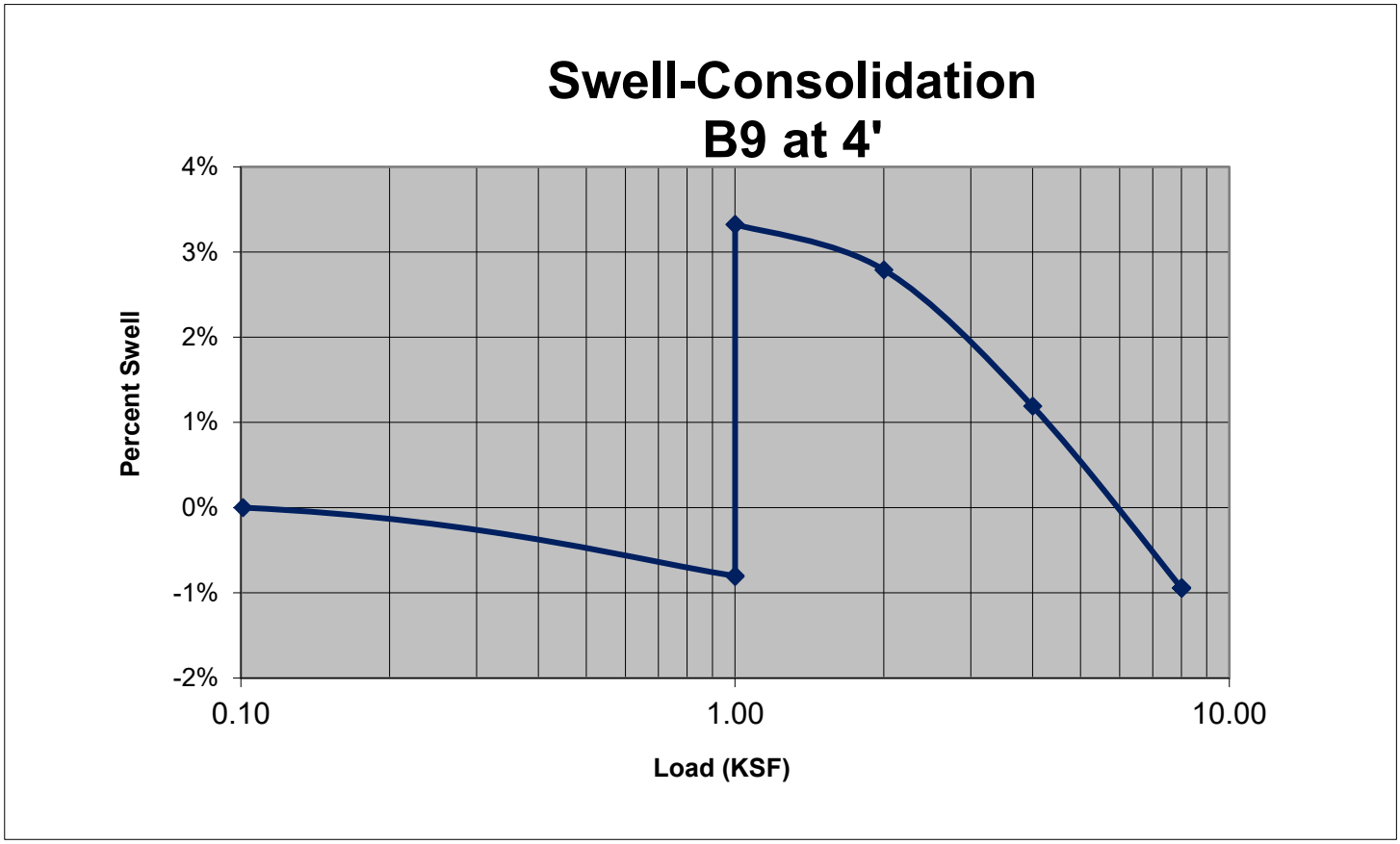


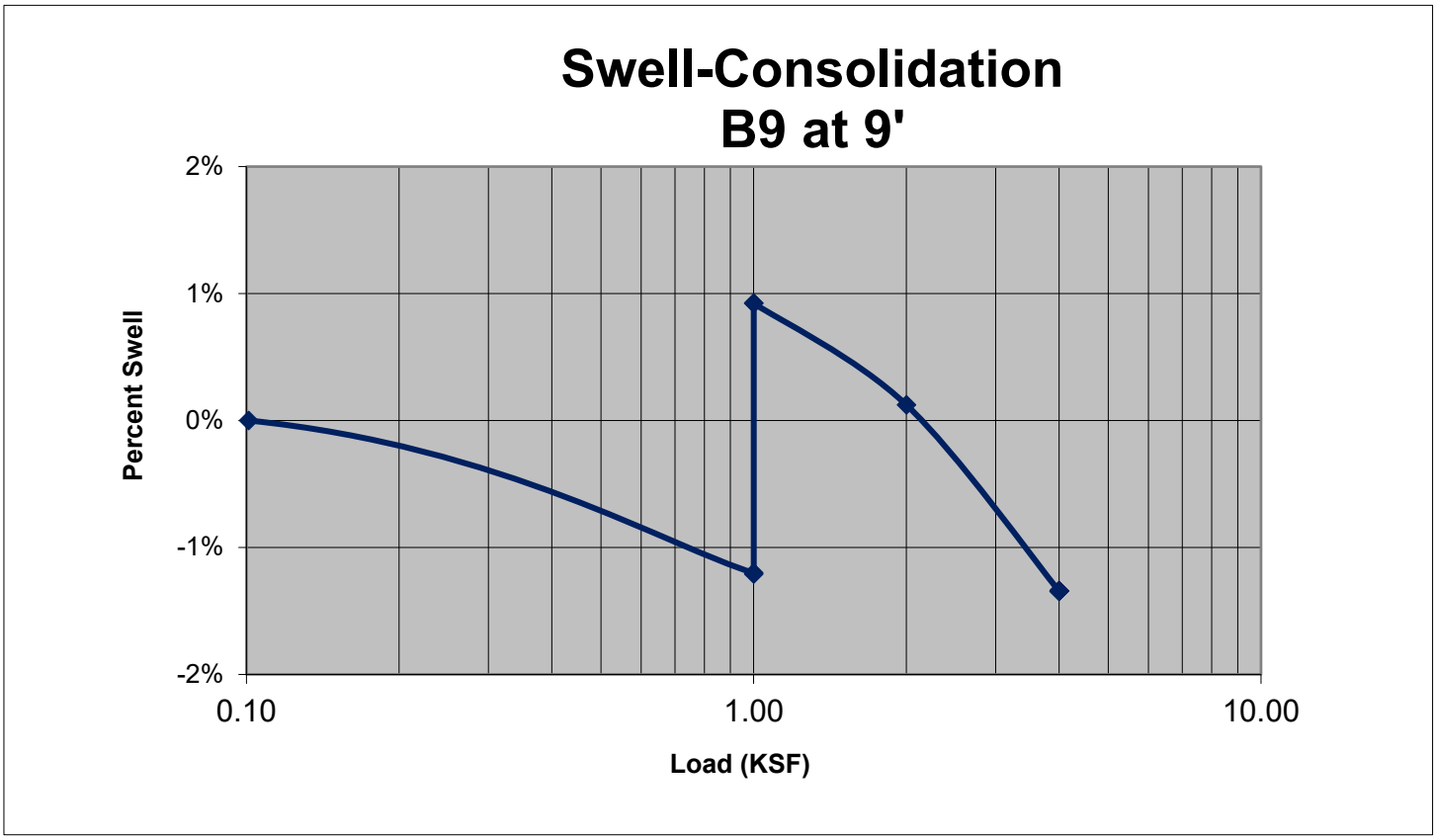
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-13



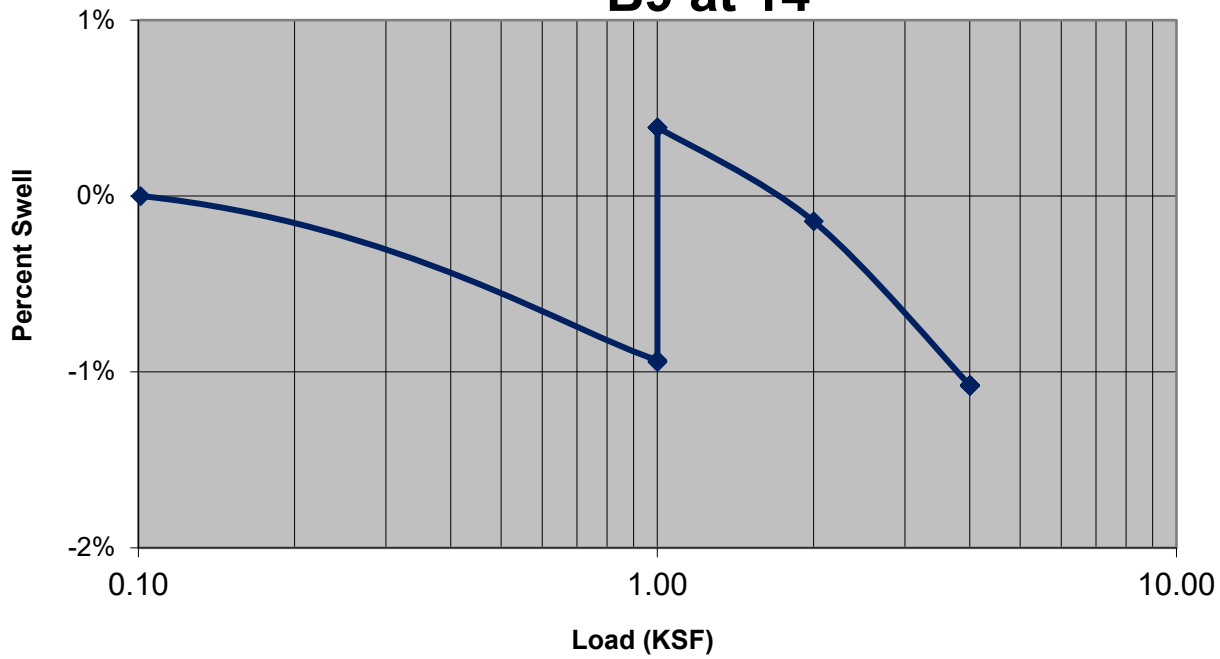


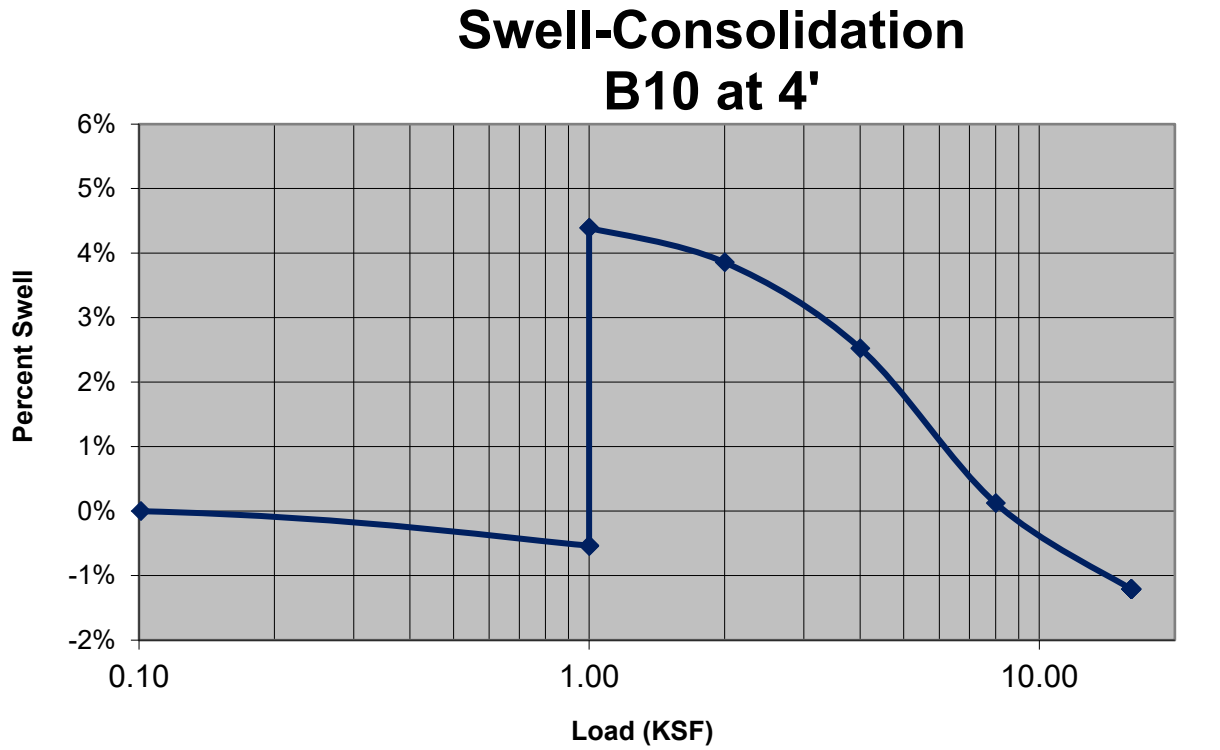
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-14



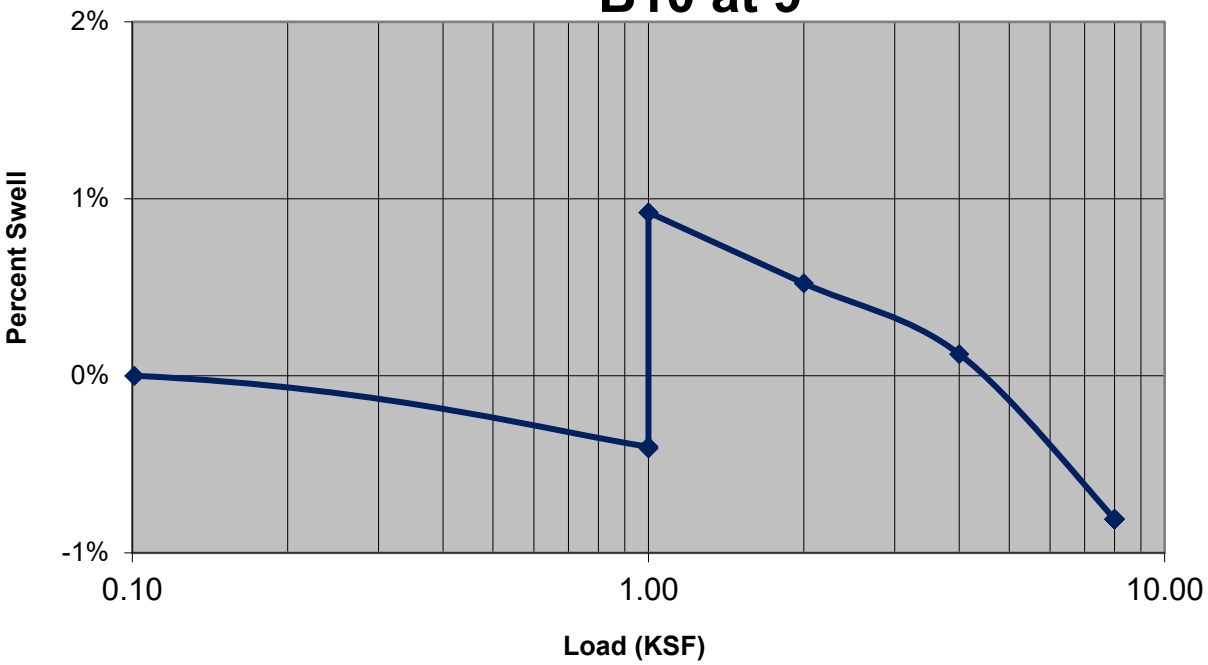


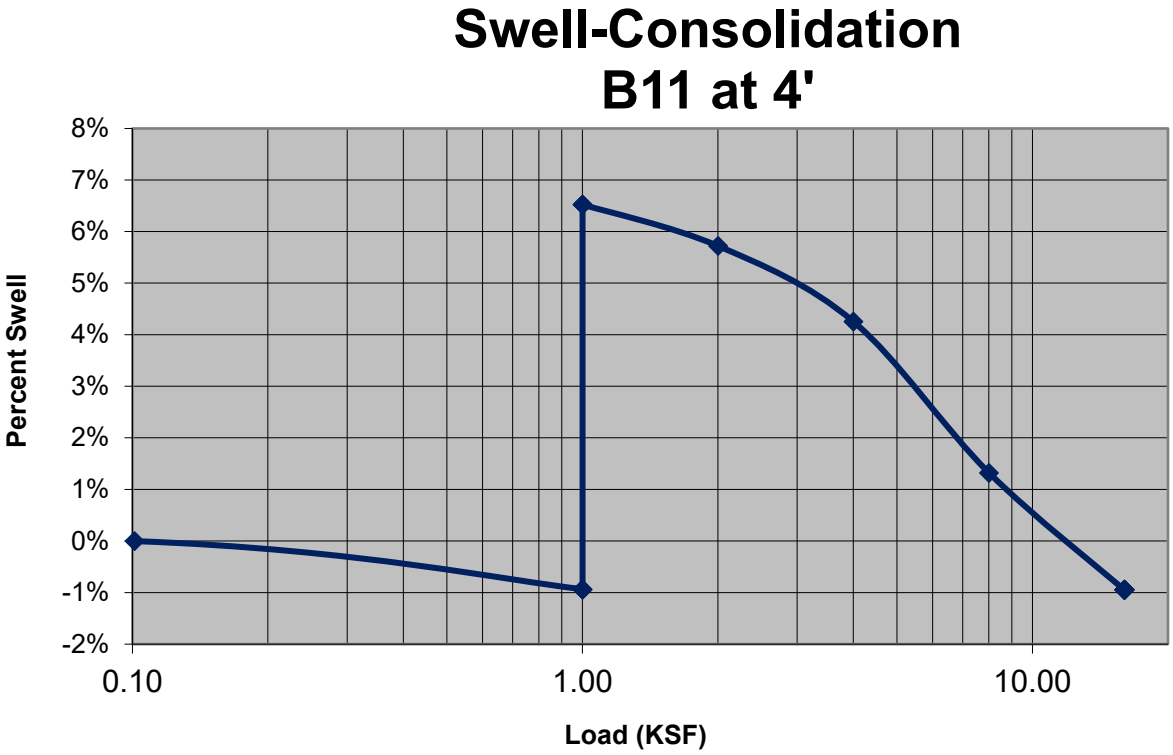
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-15



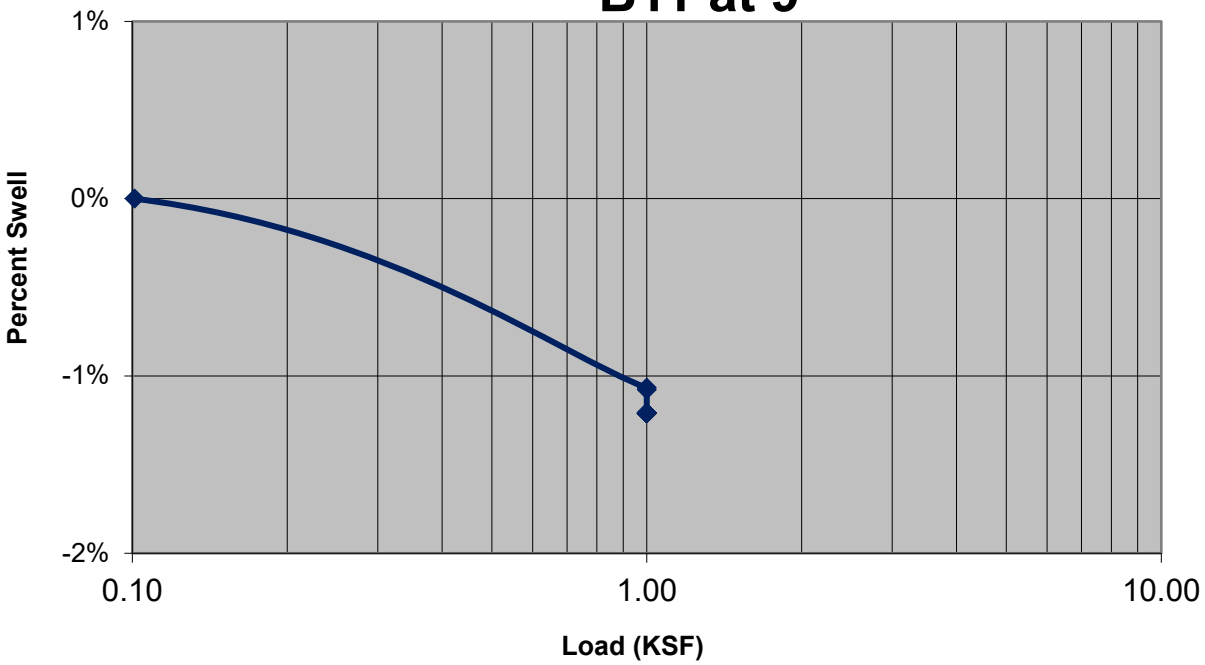


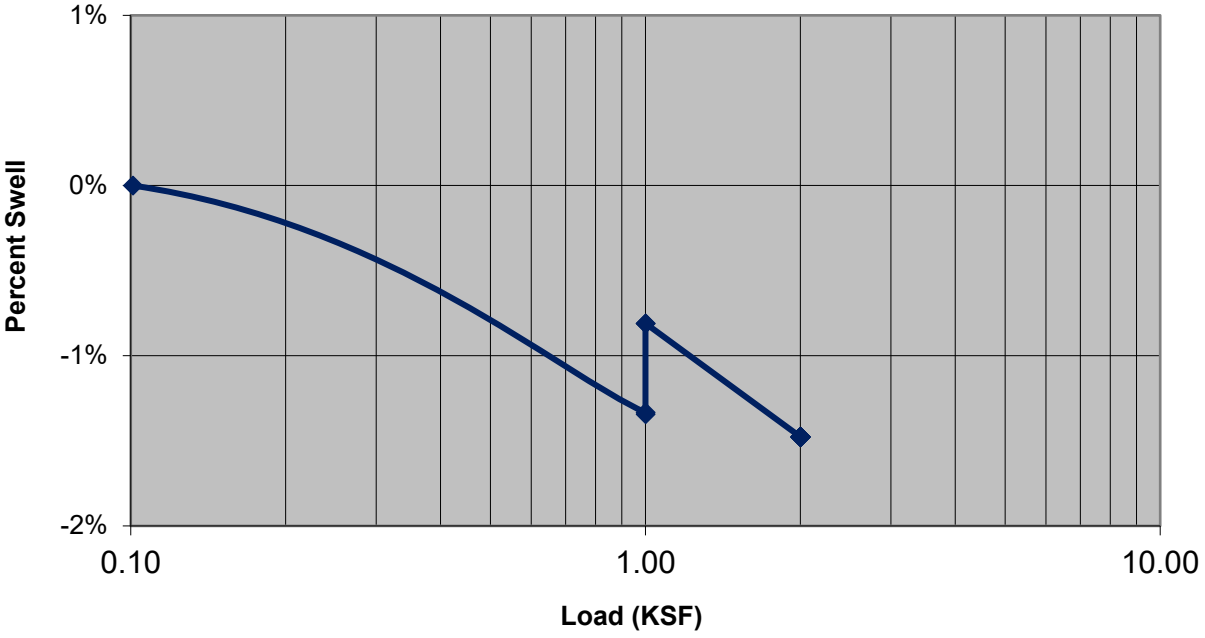
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-16



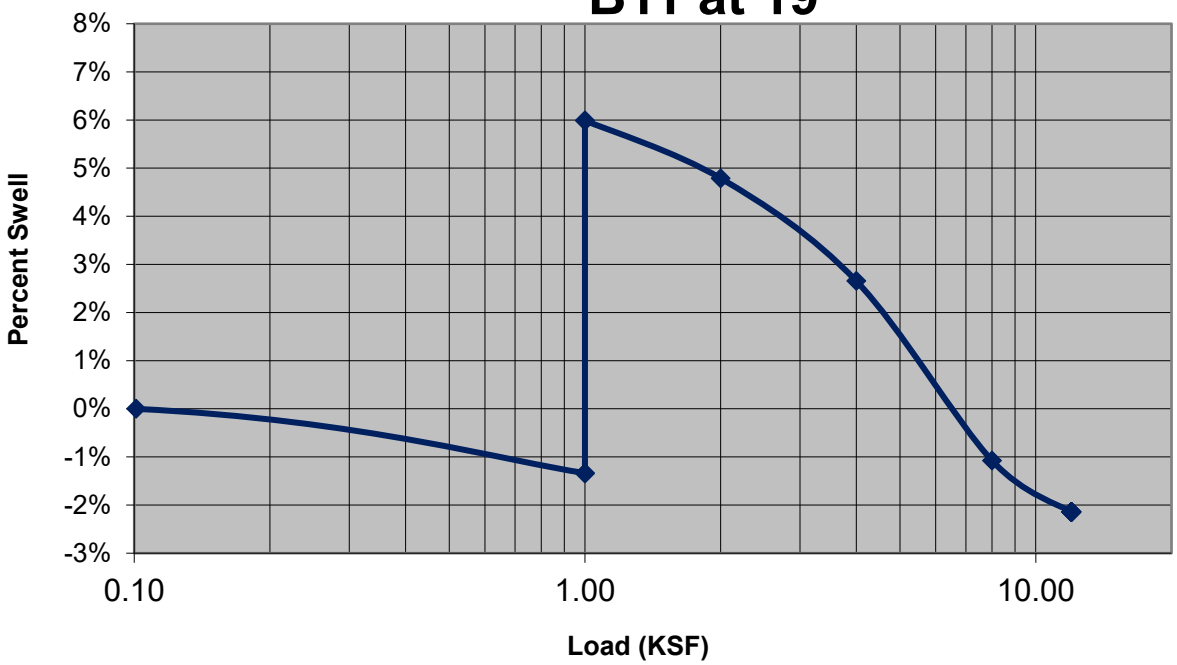


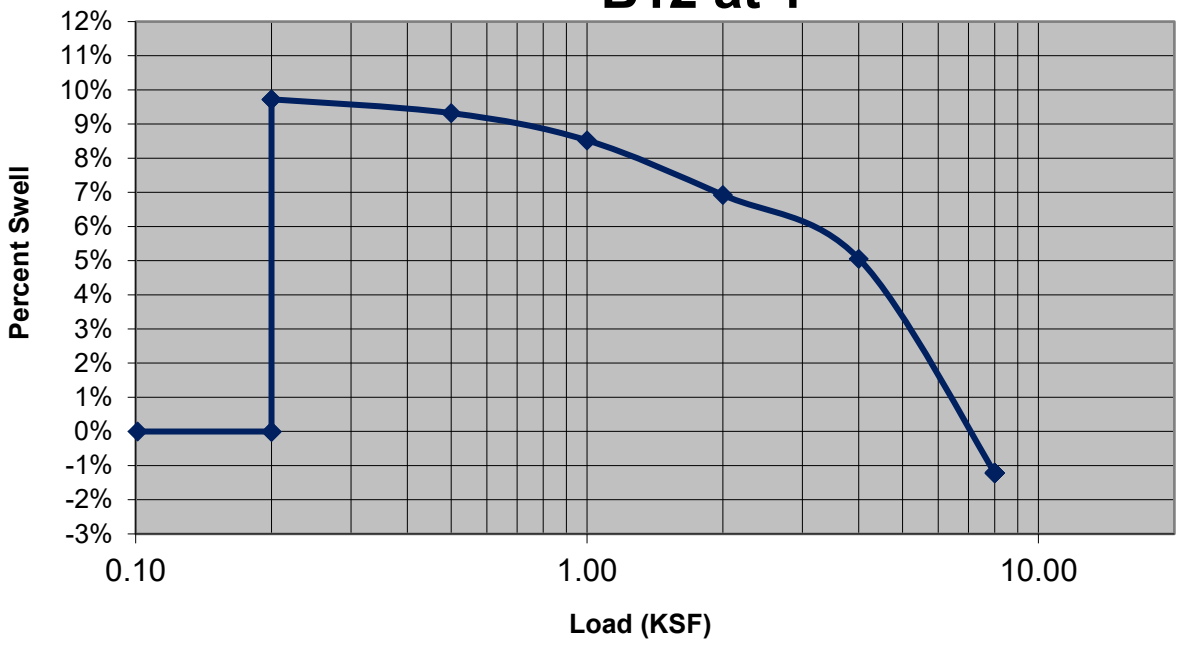
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-17



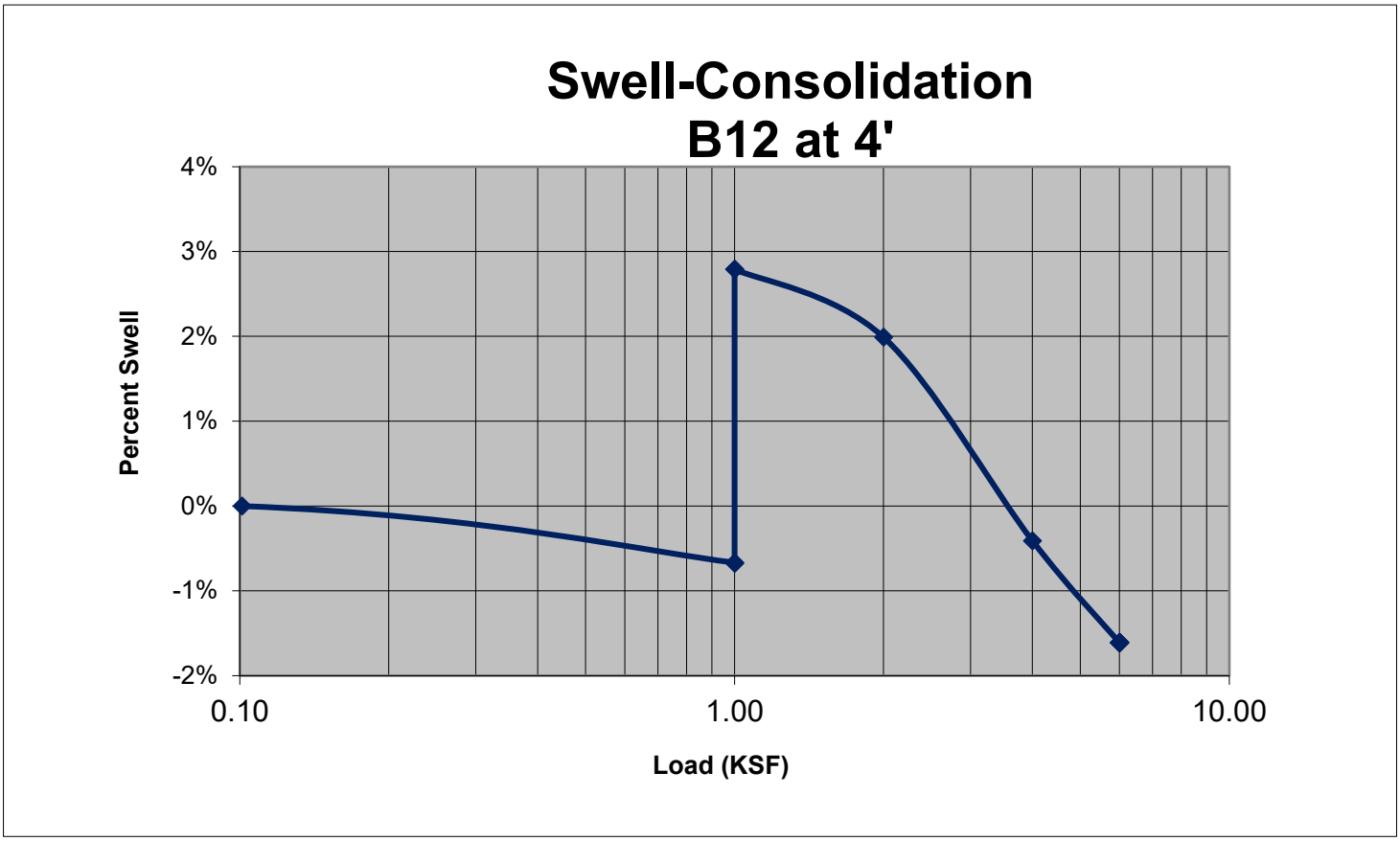


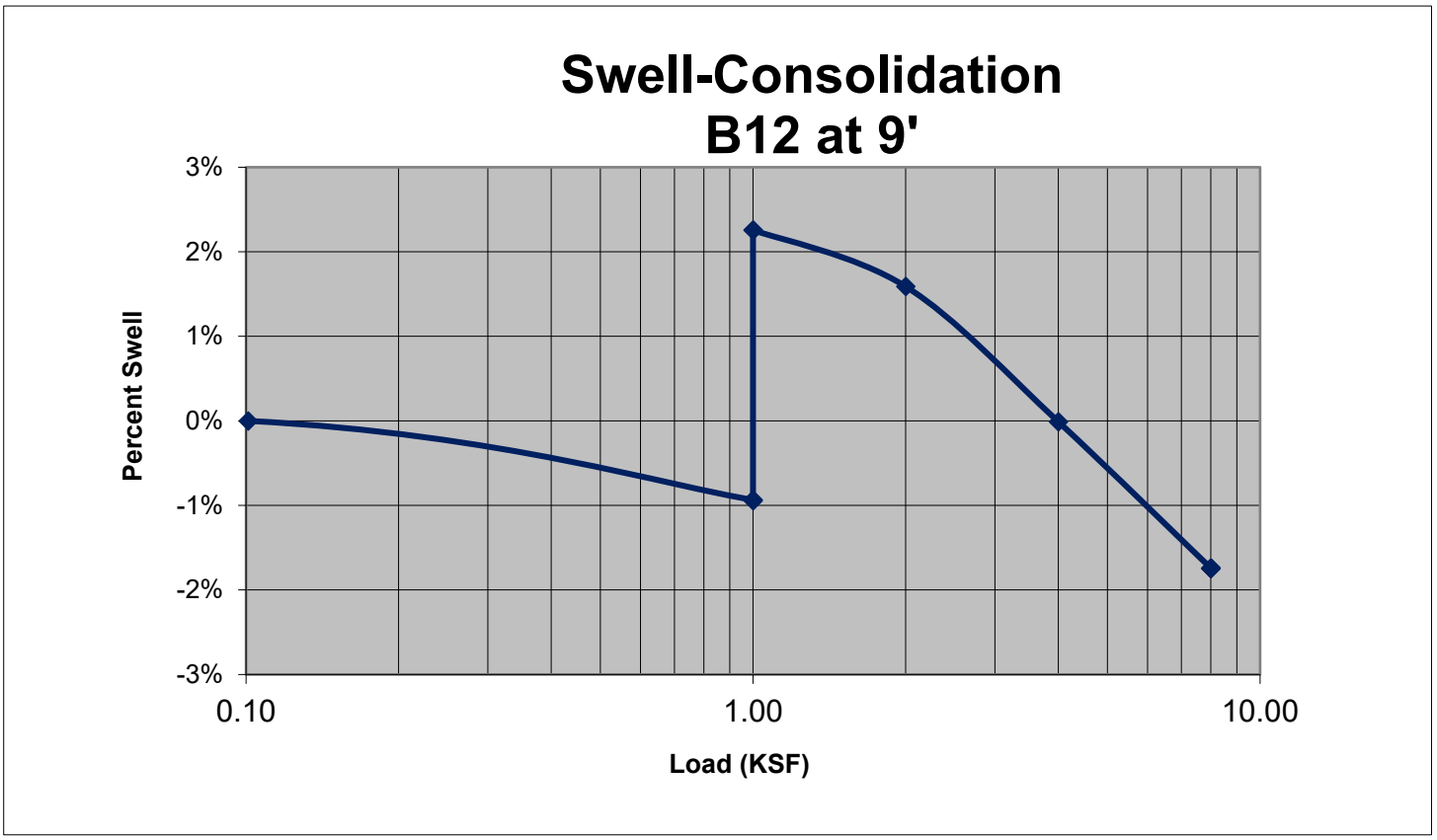
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-18



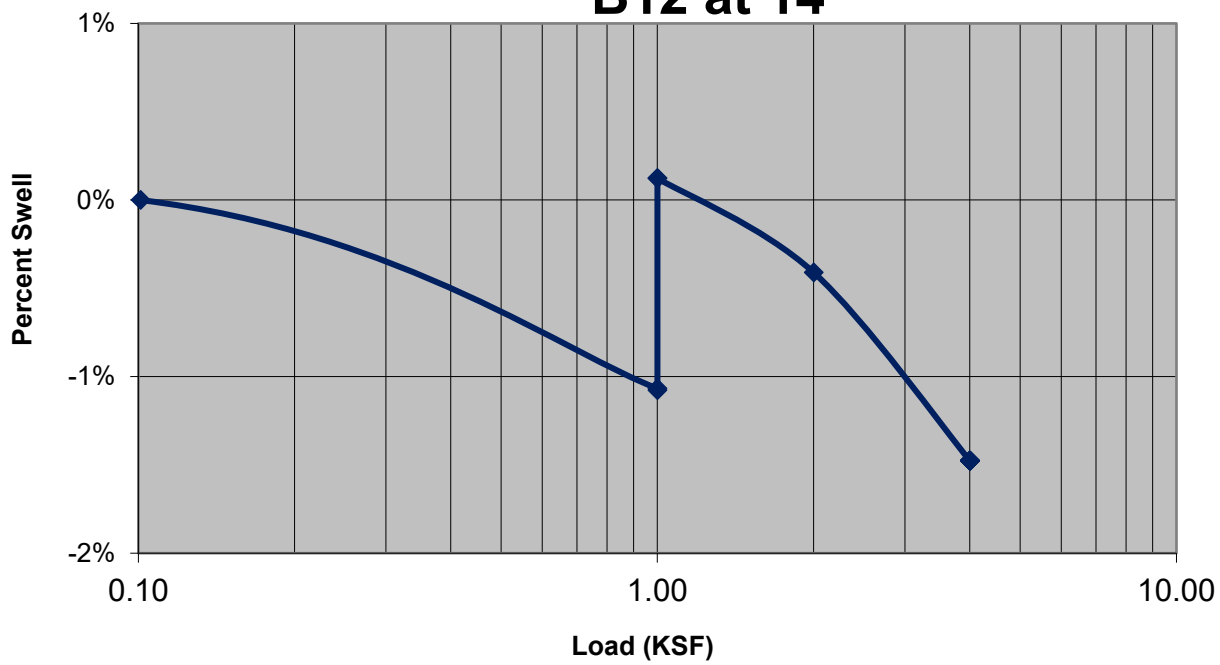


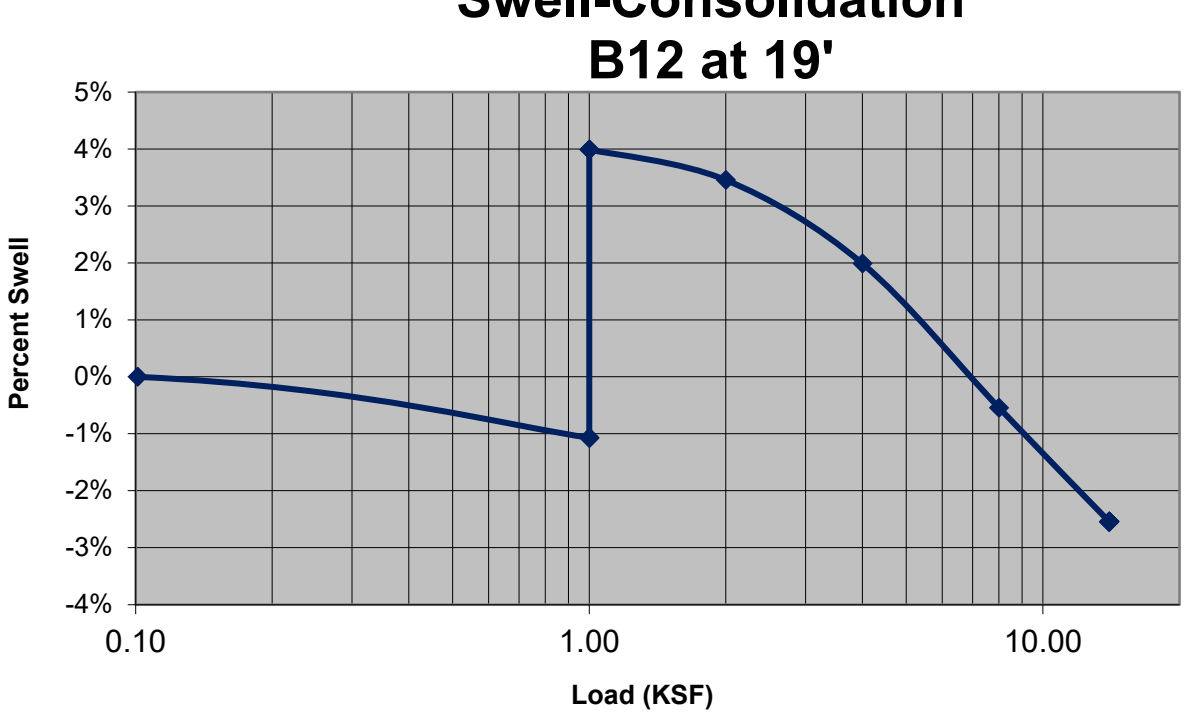
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-19



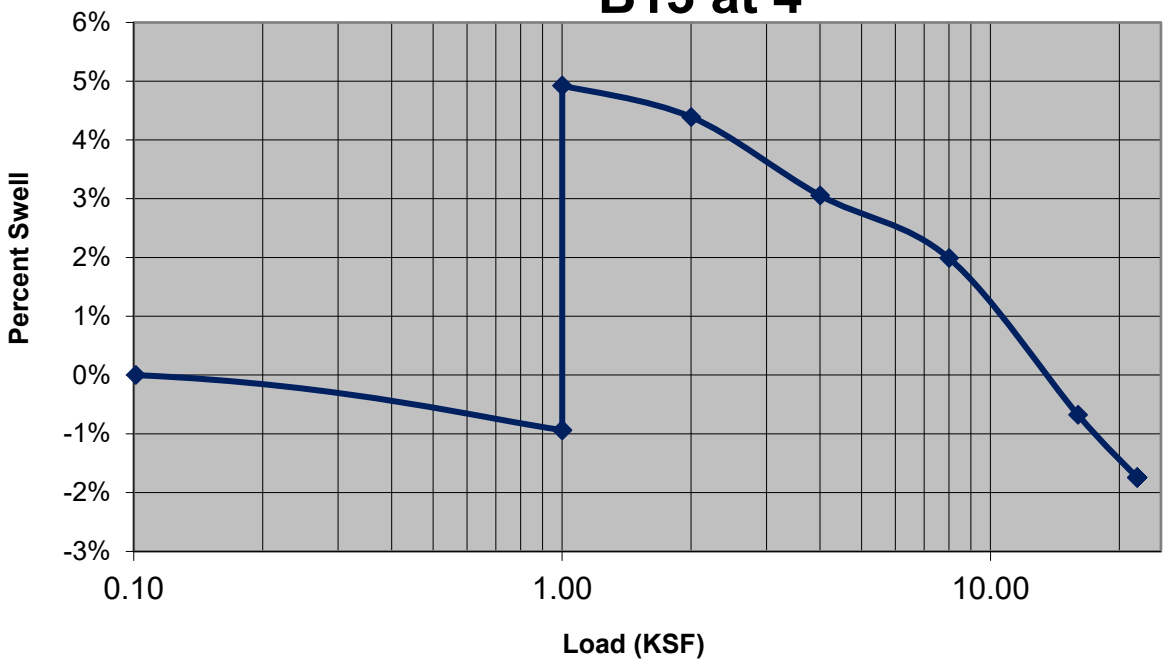


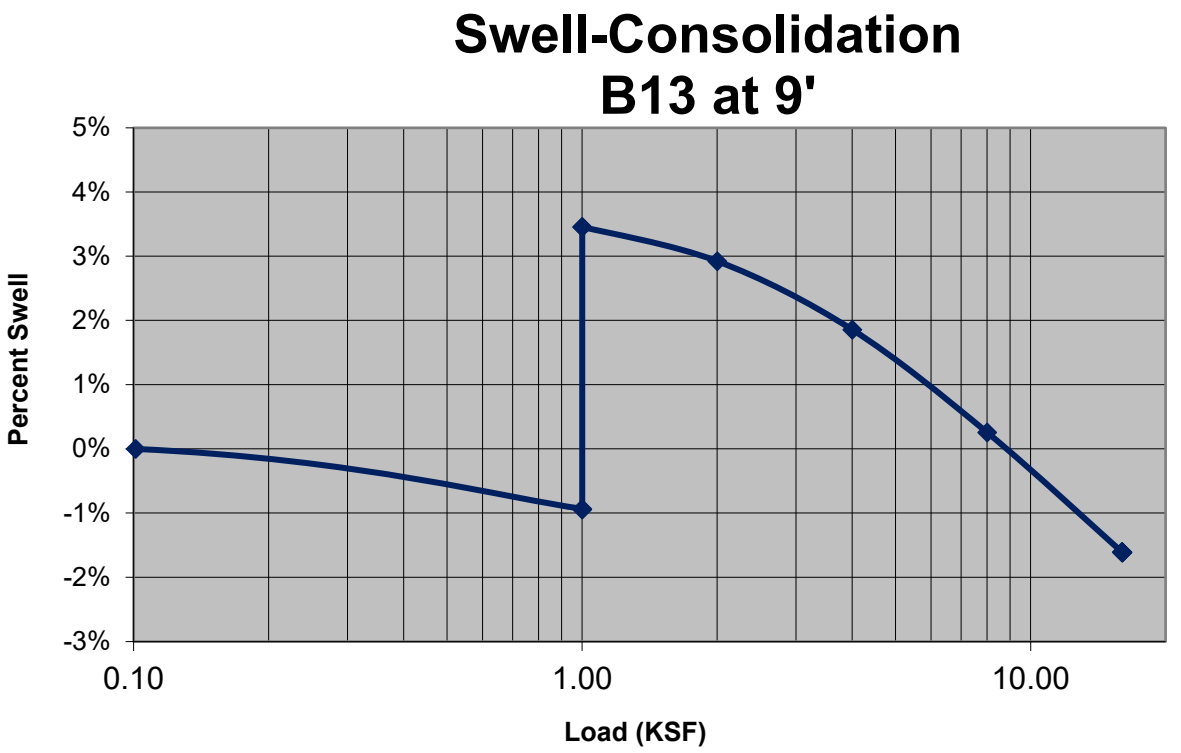
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-20





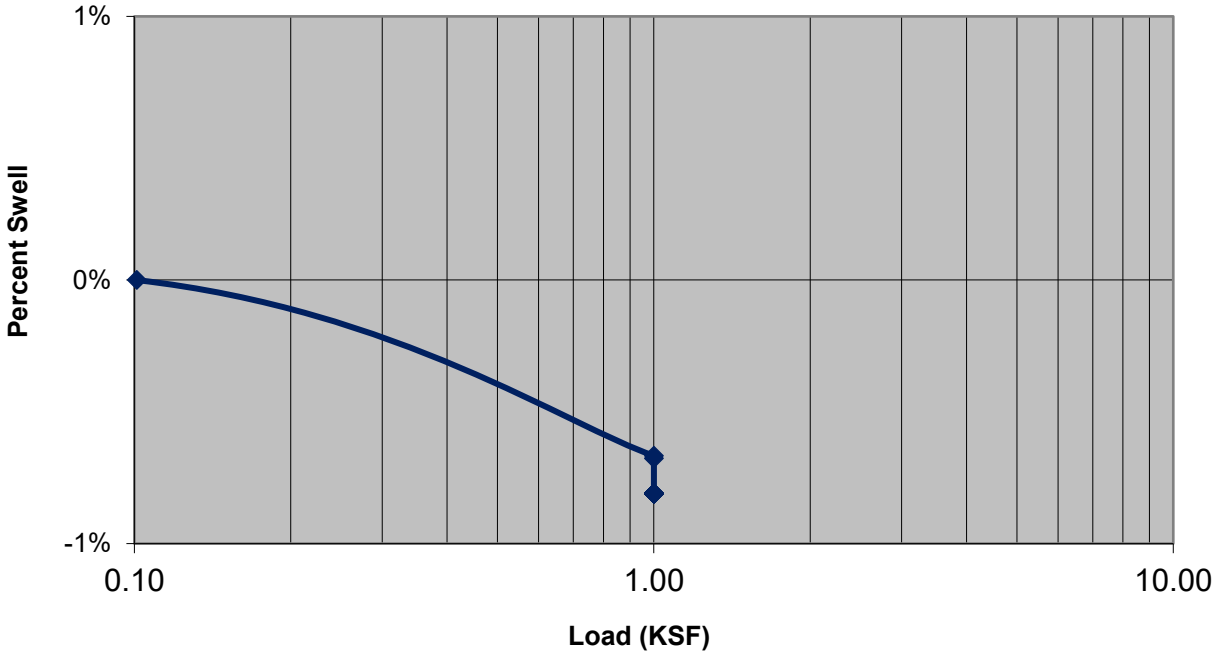
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-21



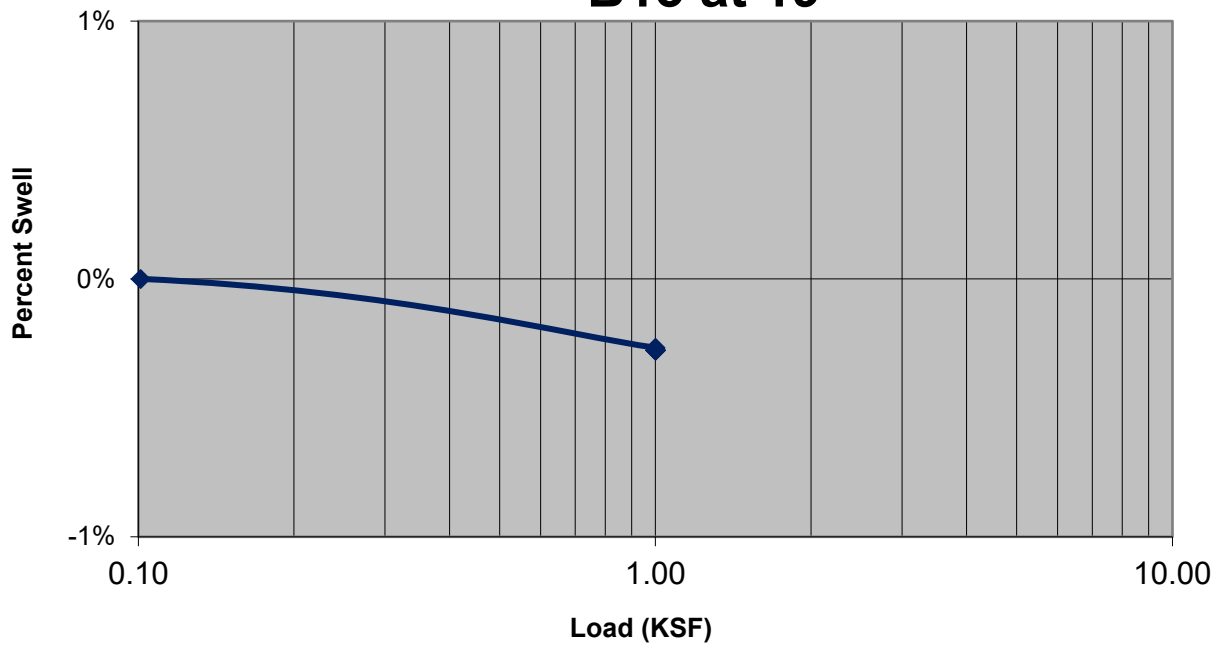


Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-22

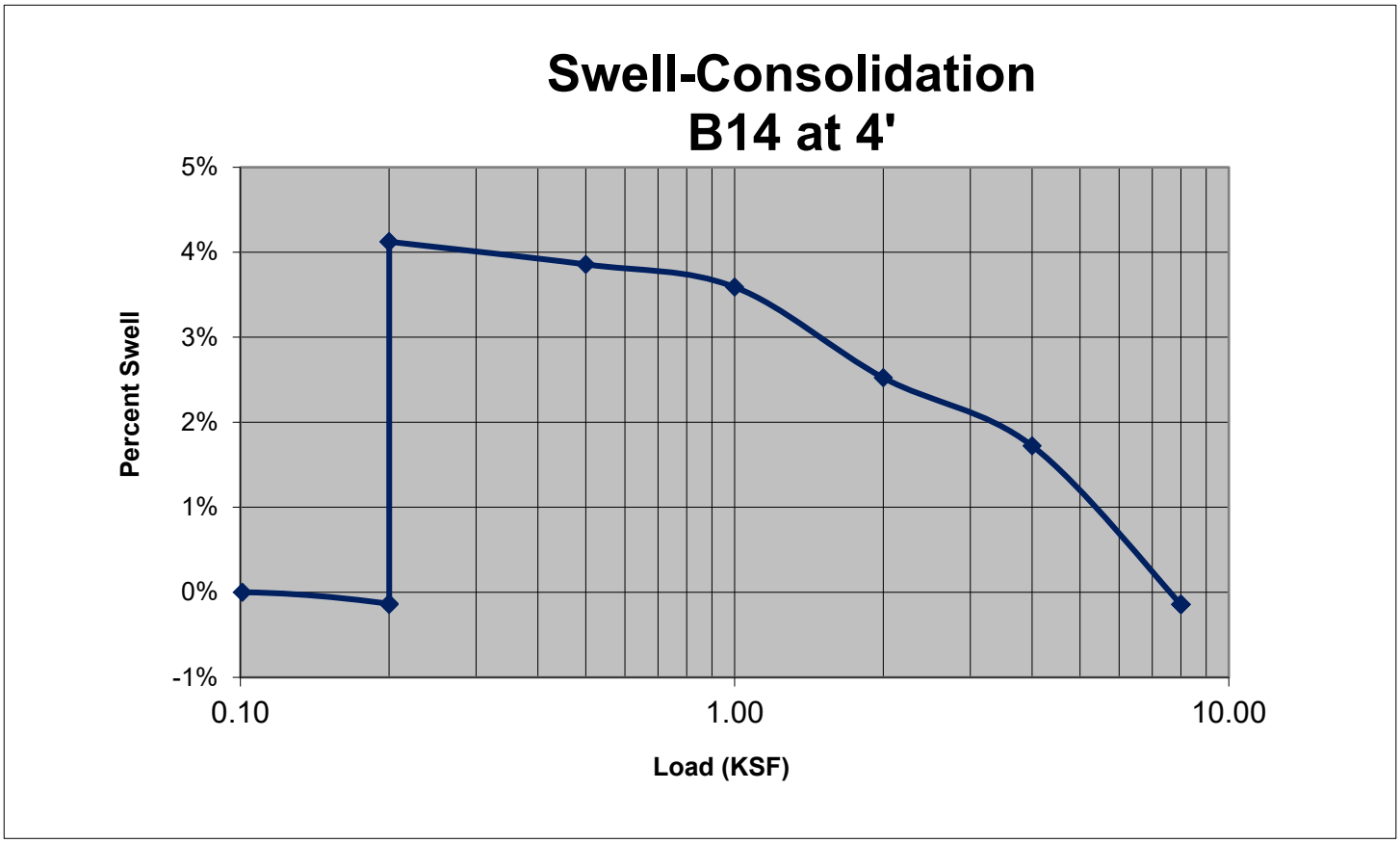
Swell-Consolidation
B13 at 14'

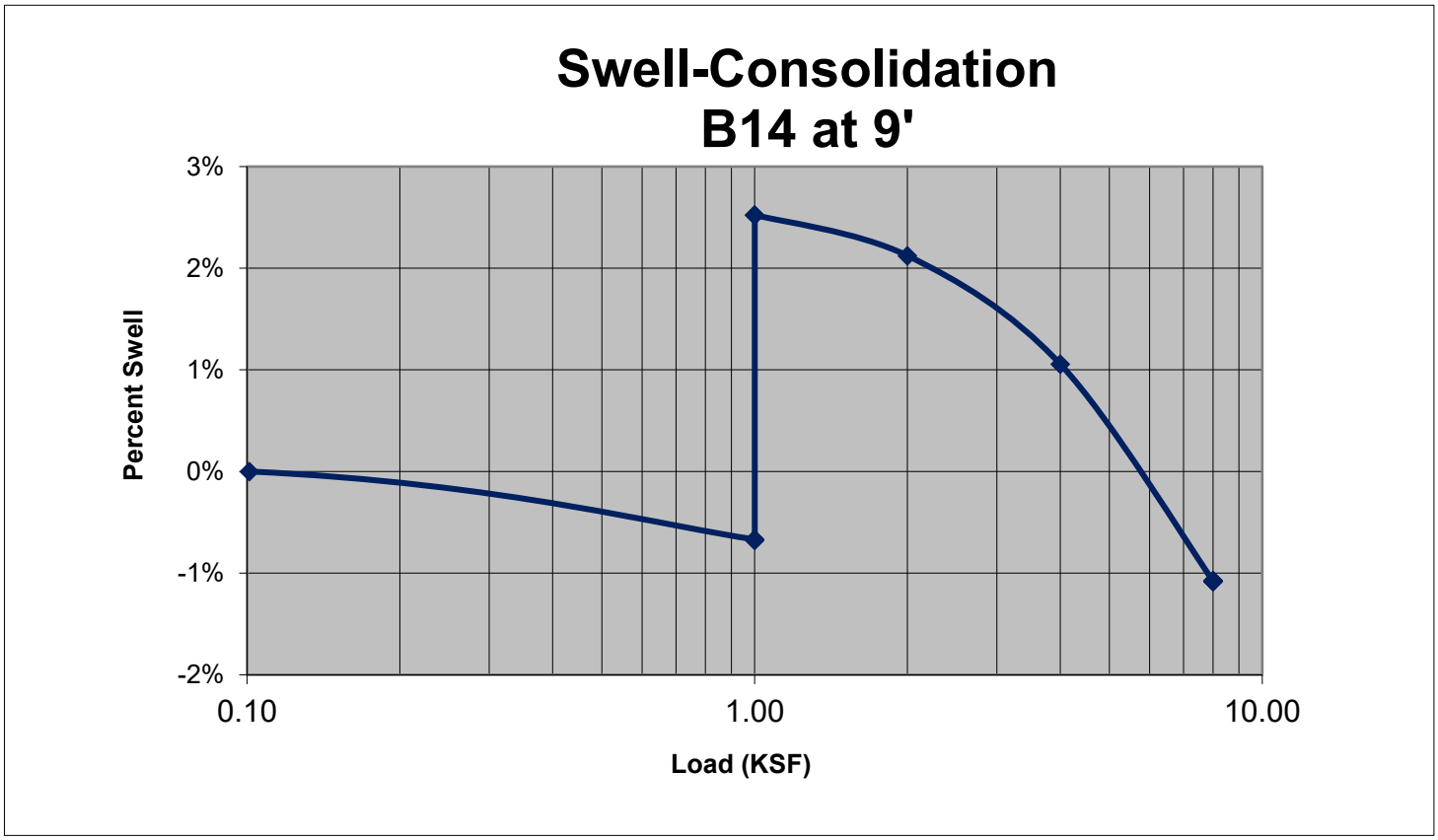


Swell-Consolidation
B13 at 19'

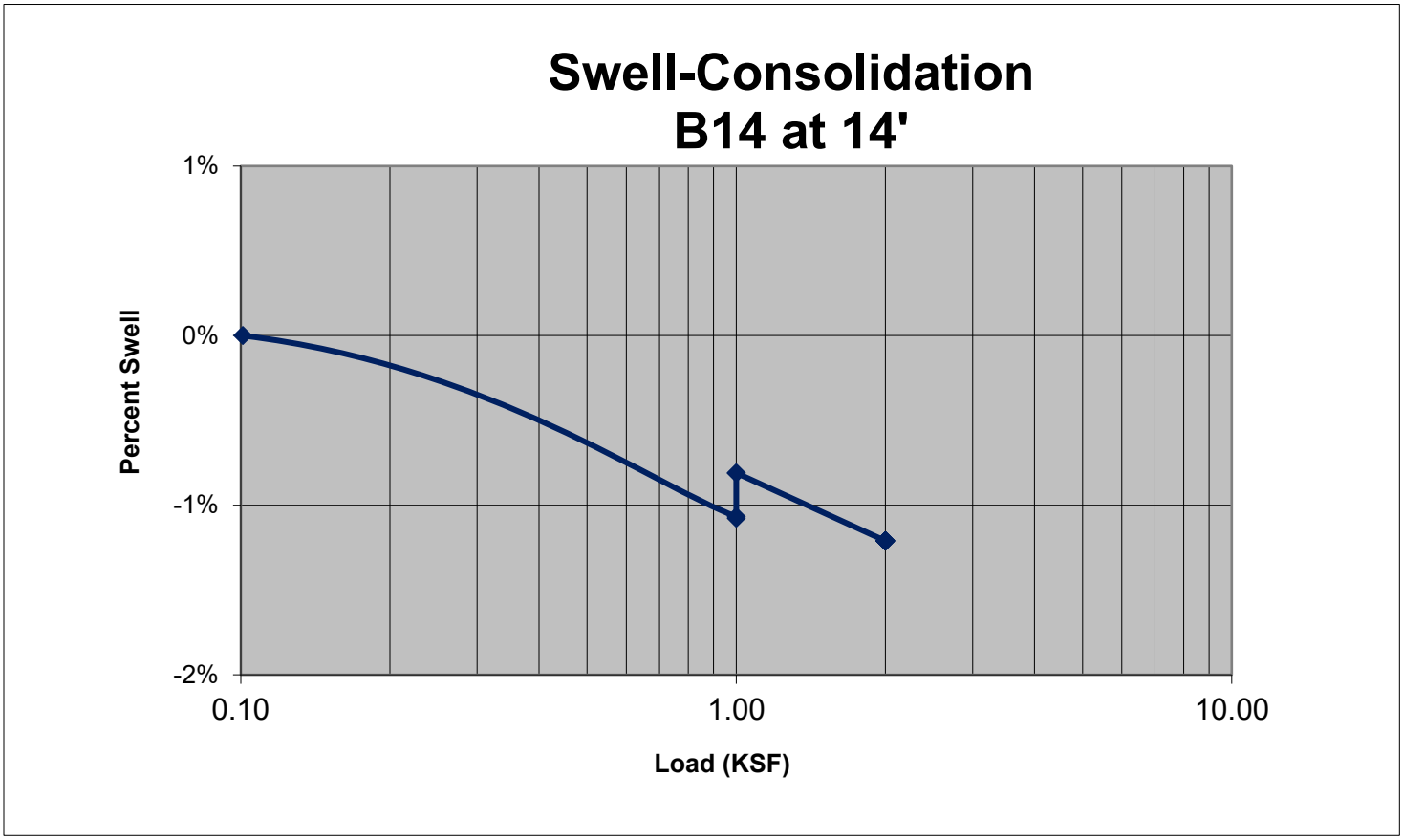


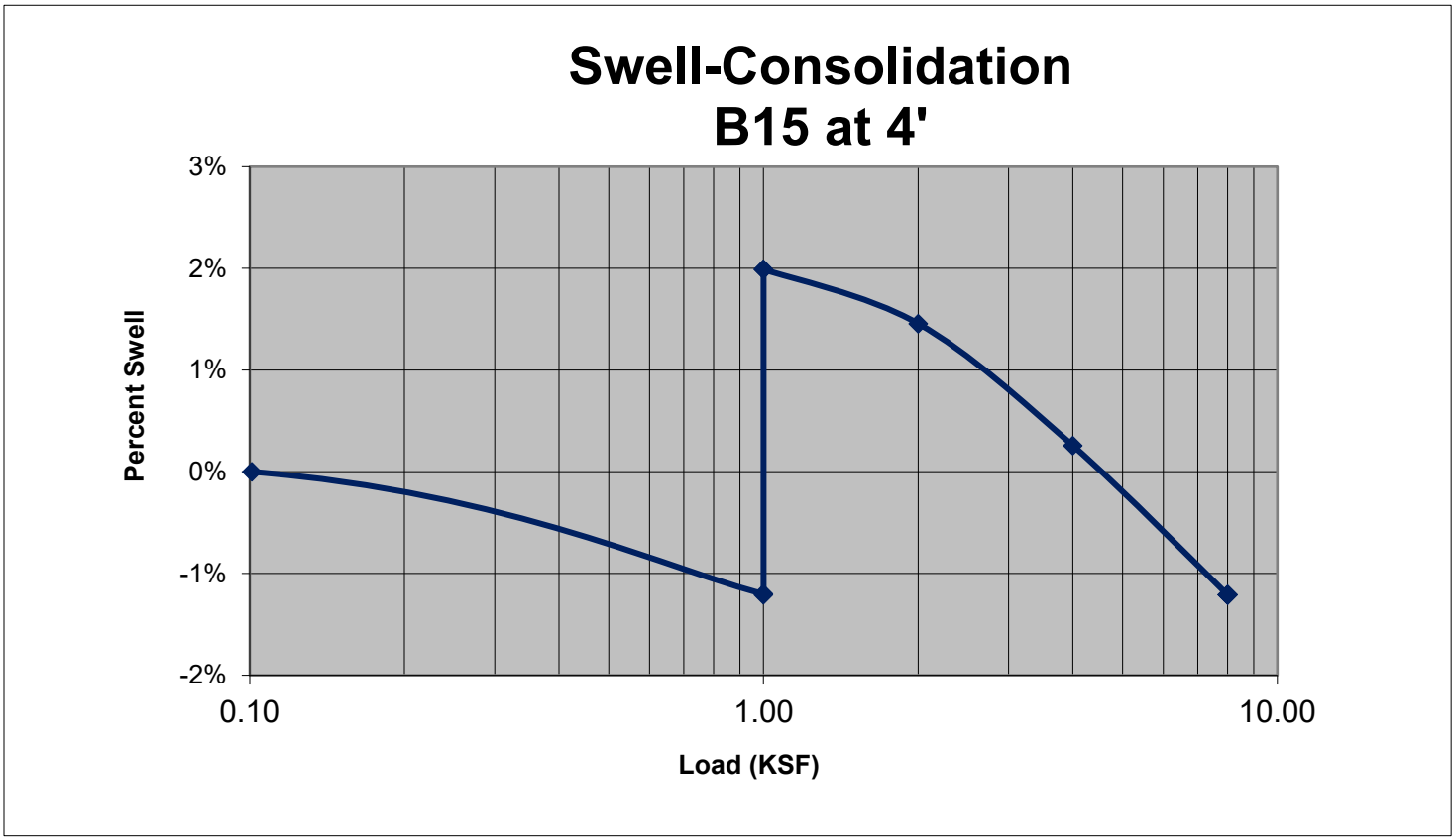
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-23



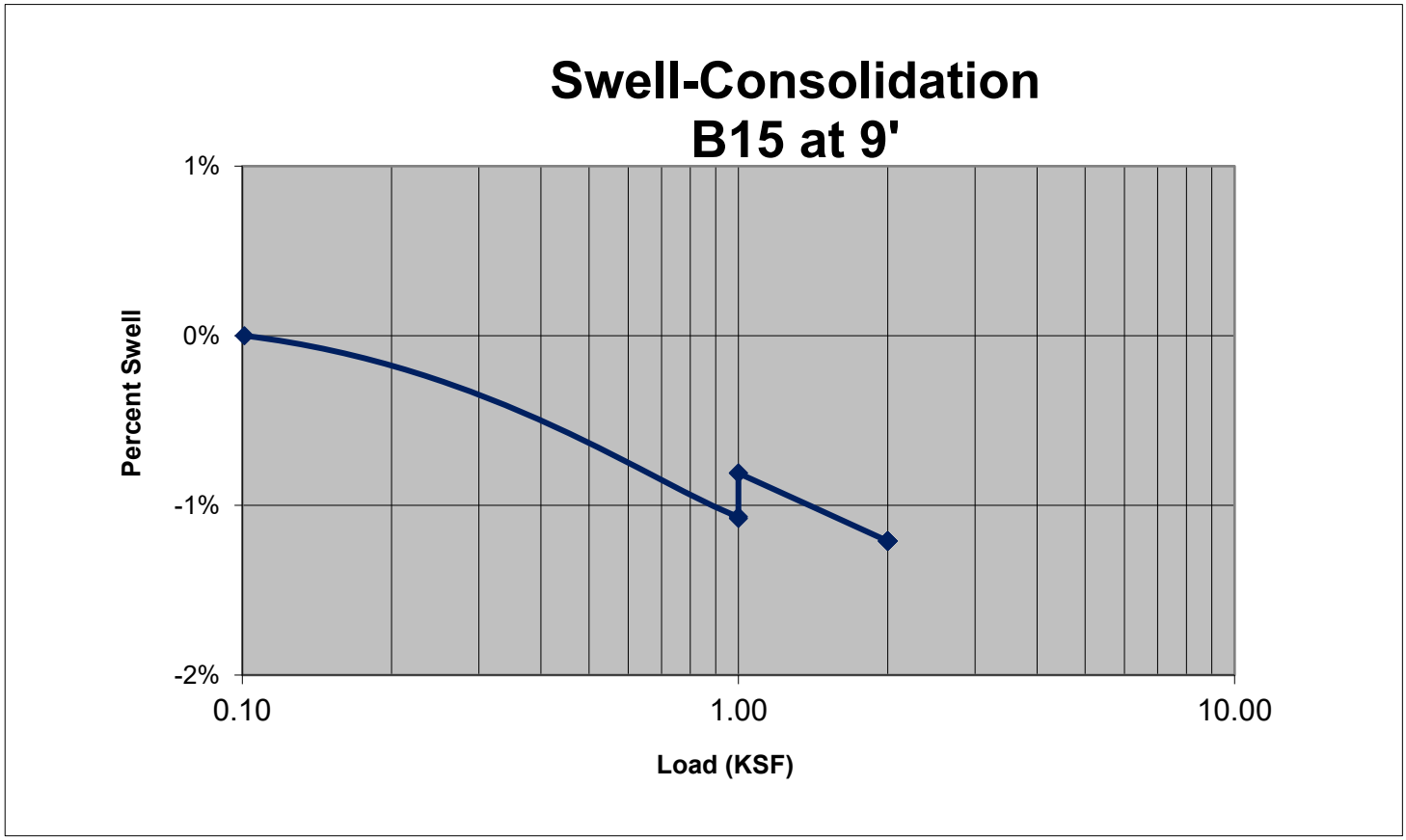


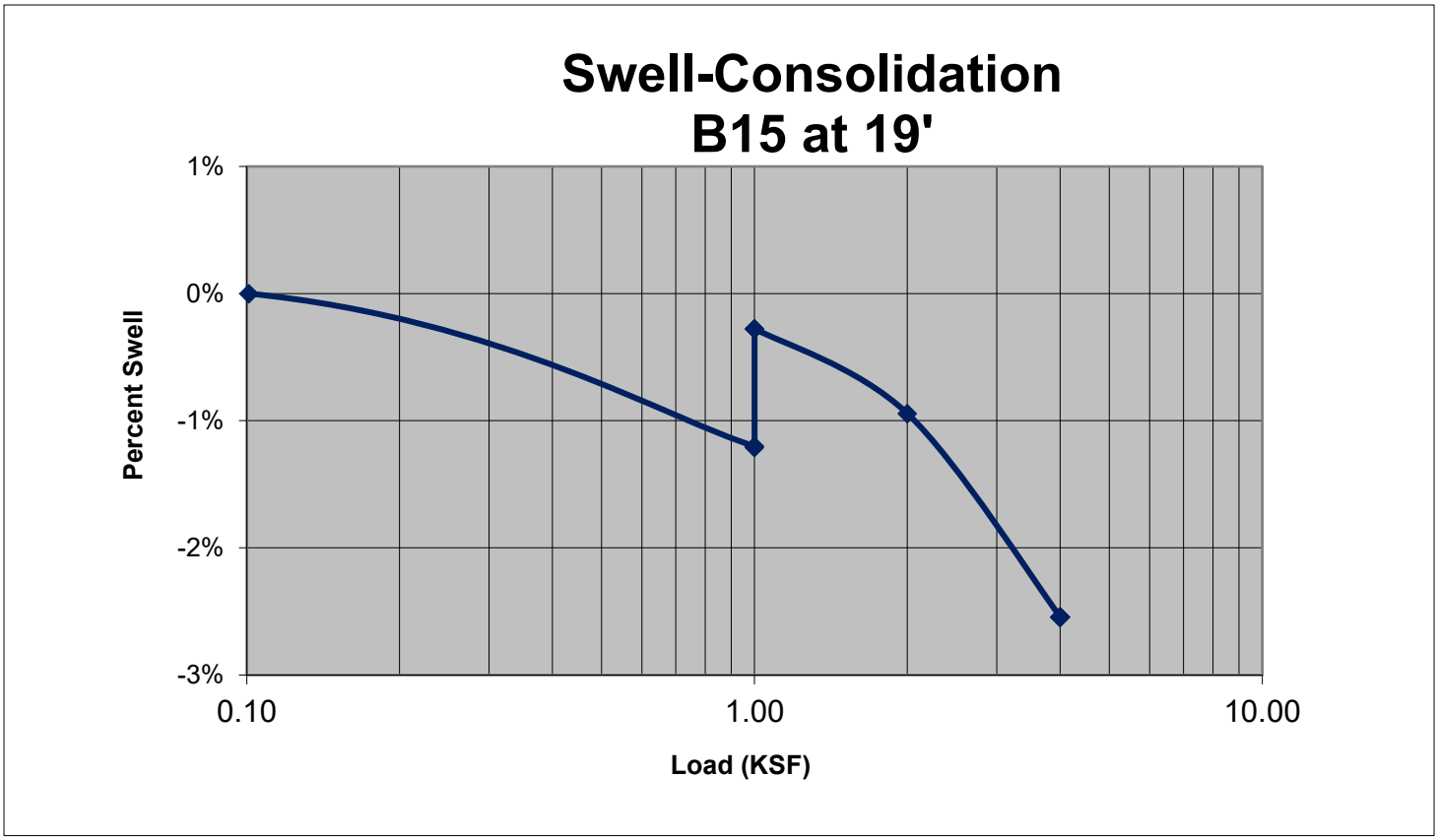
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-24



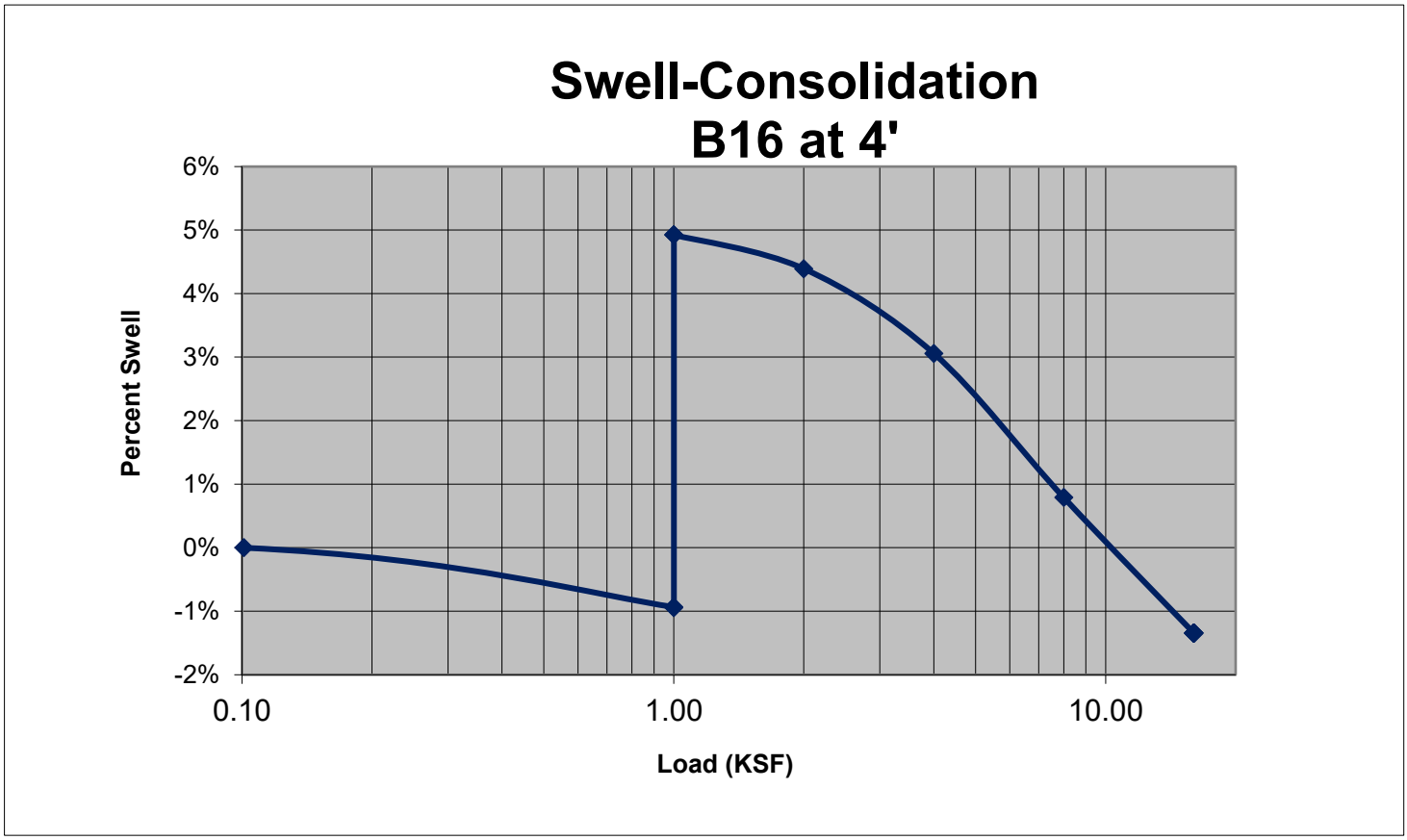


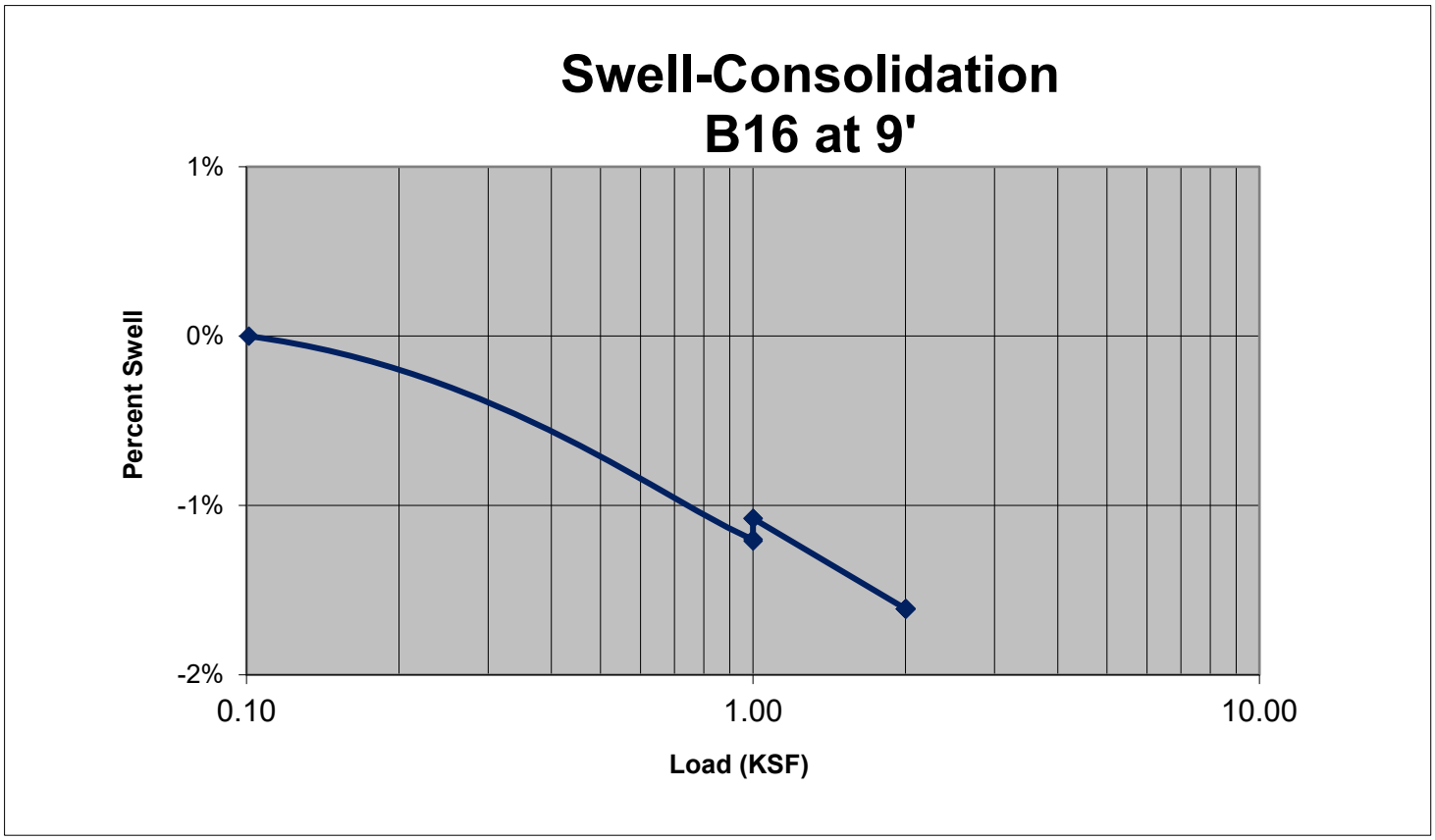
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-25



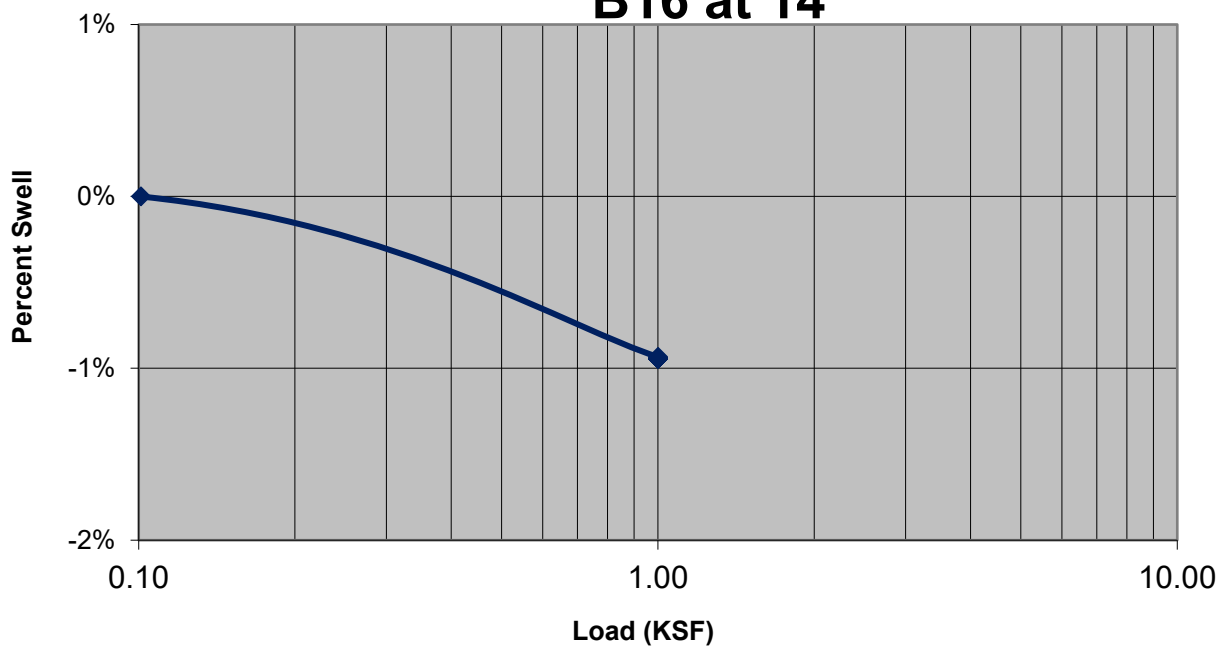


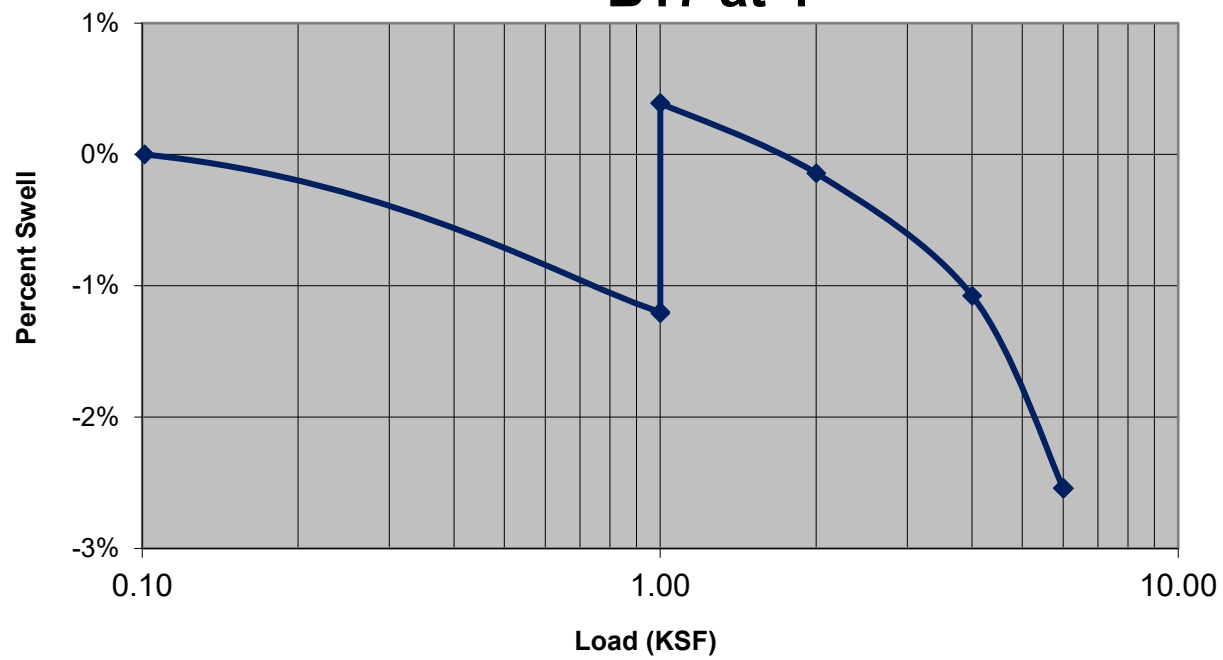
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-26



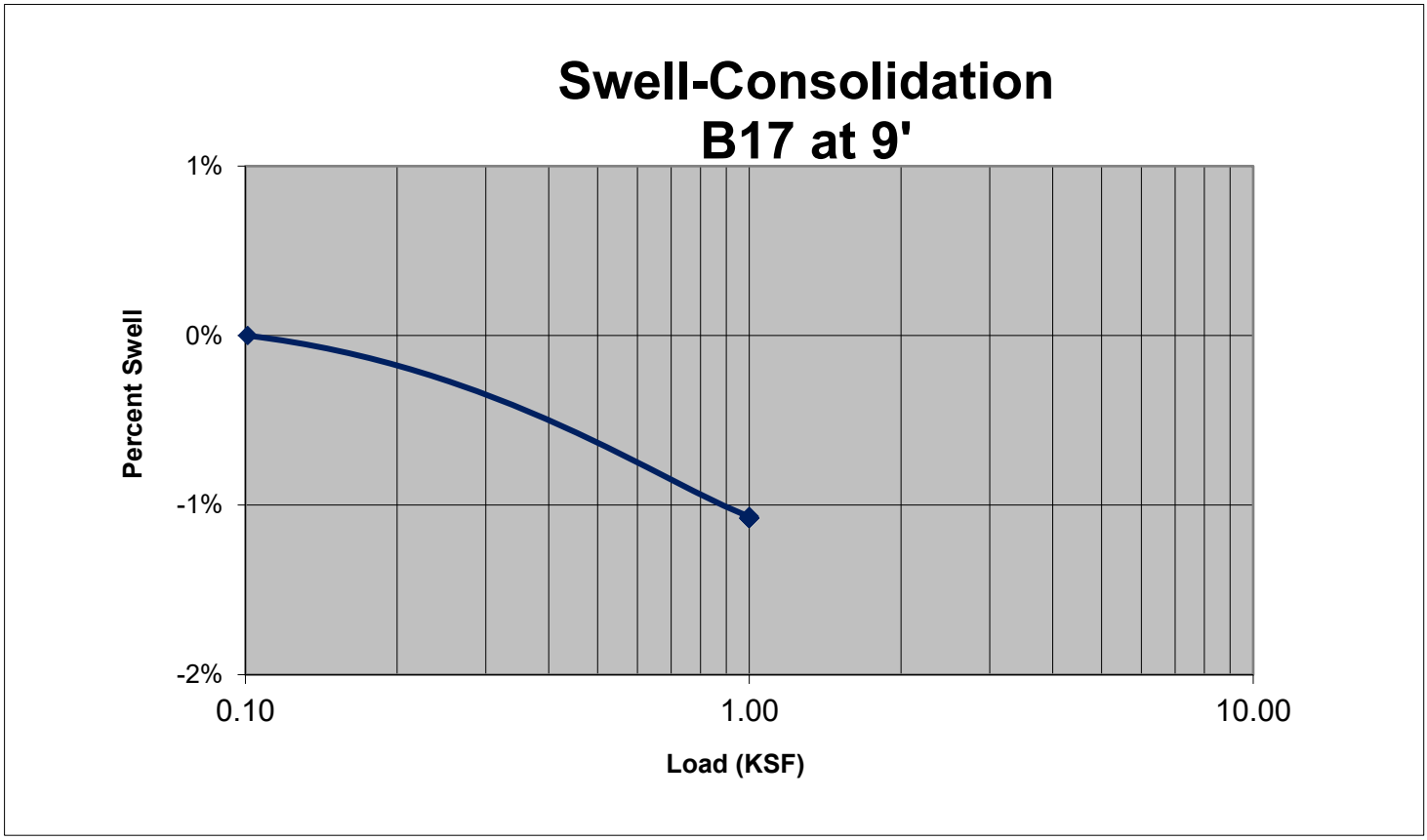


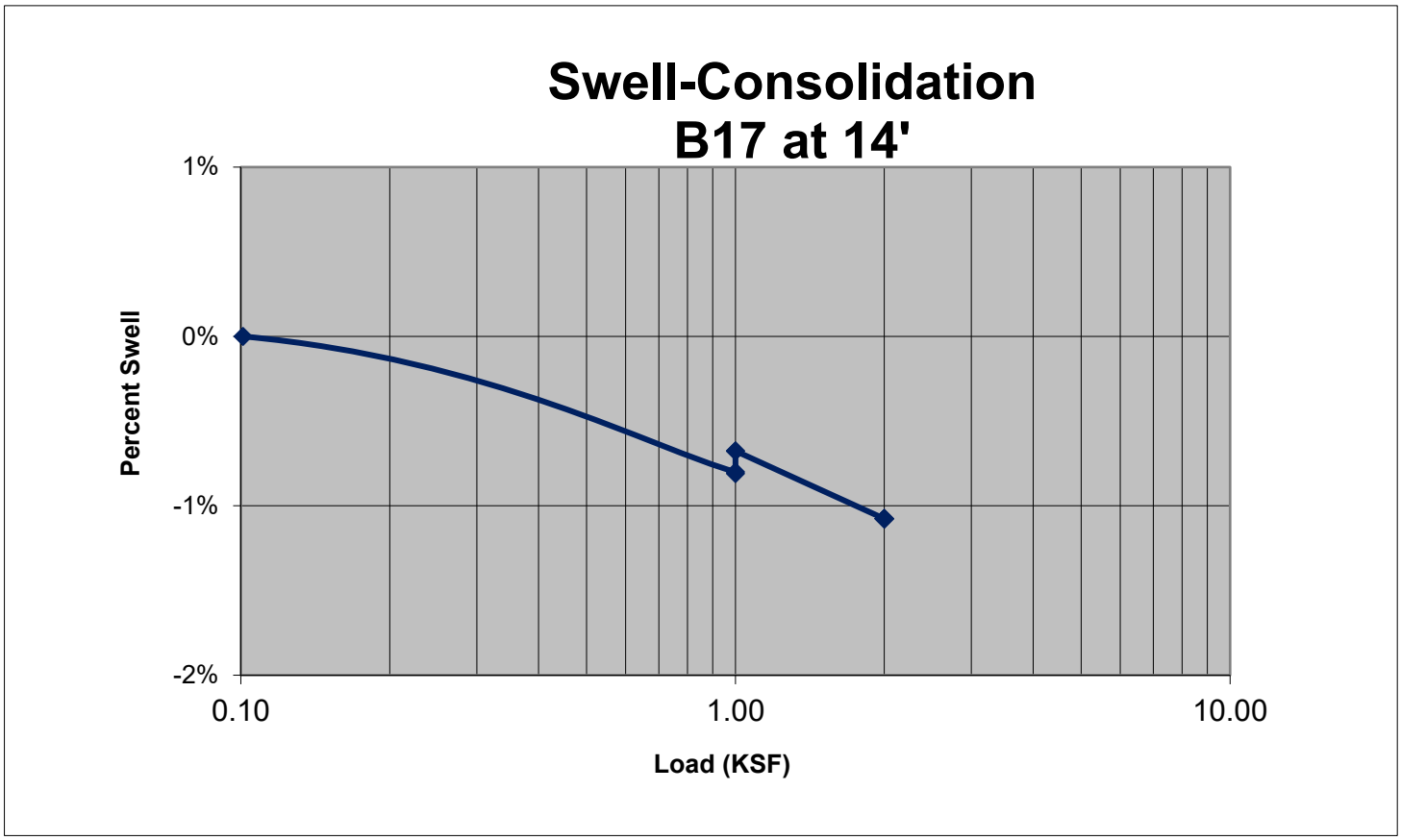
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-27



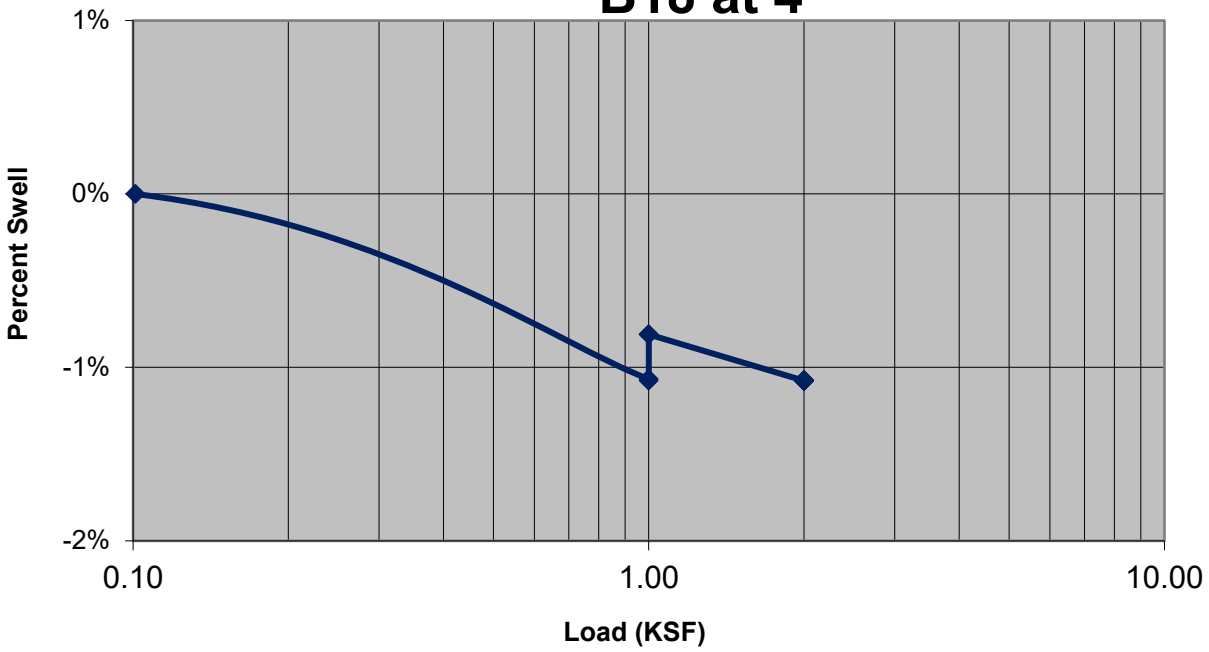


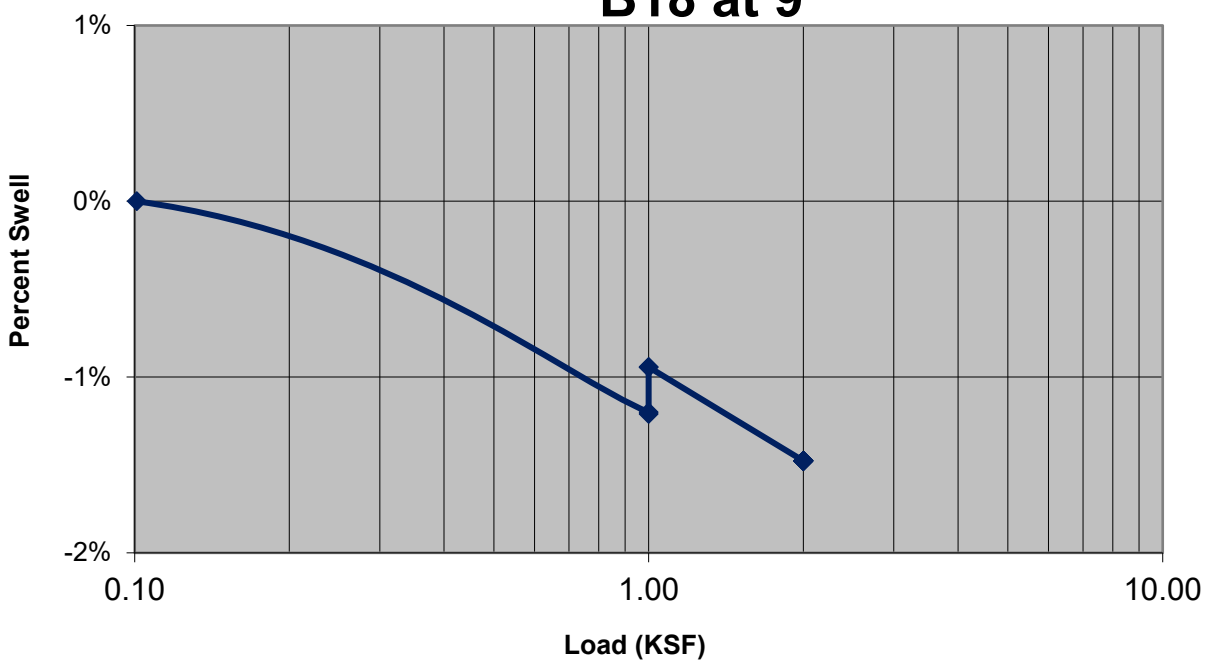
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-28



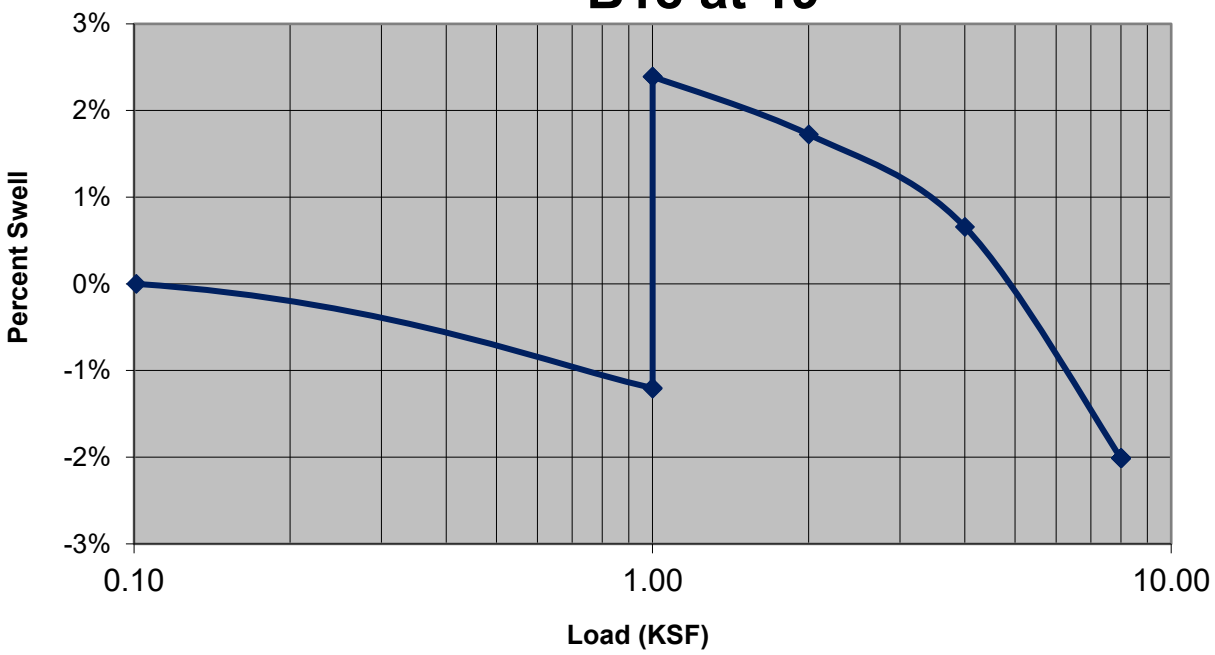


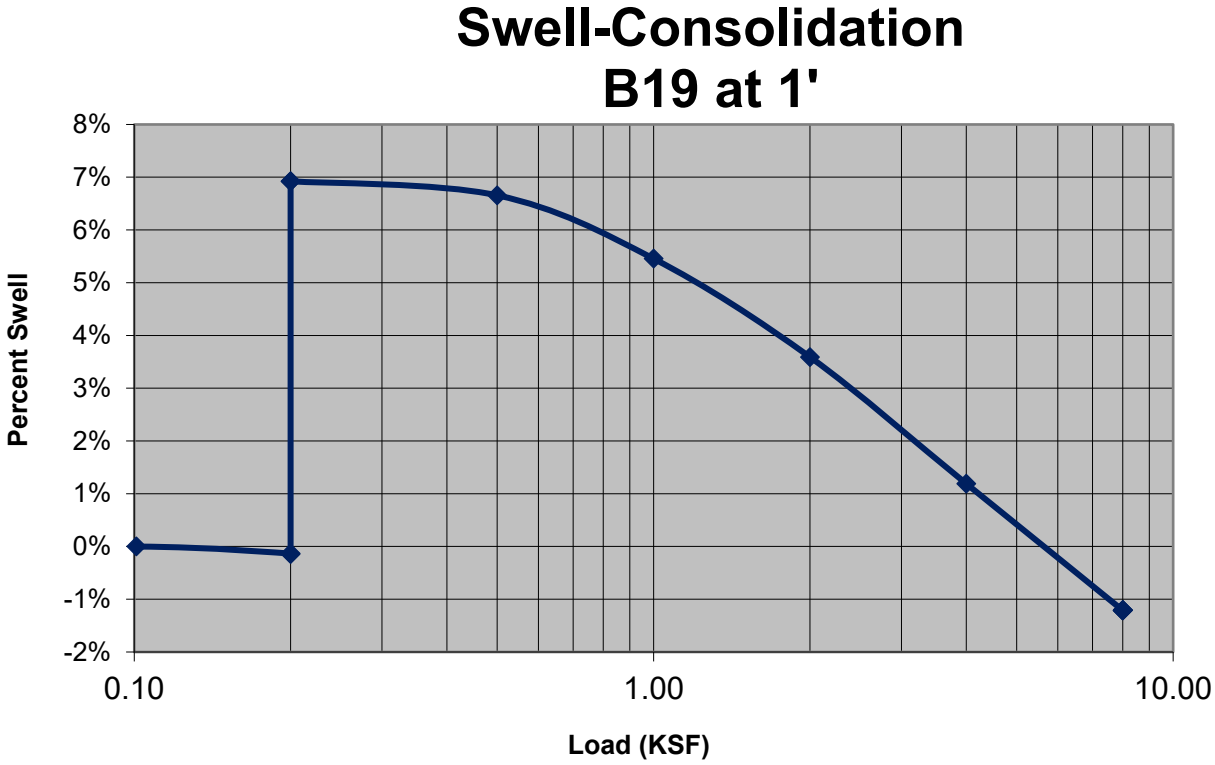
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-29



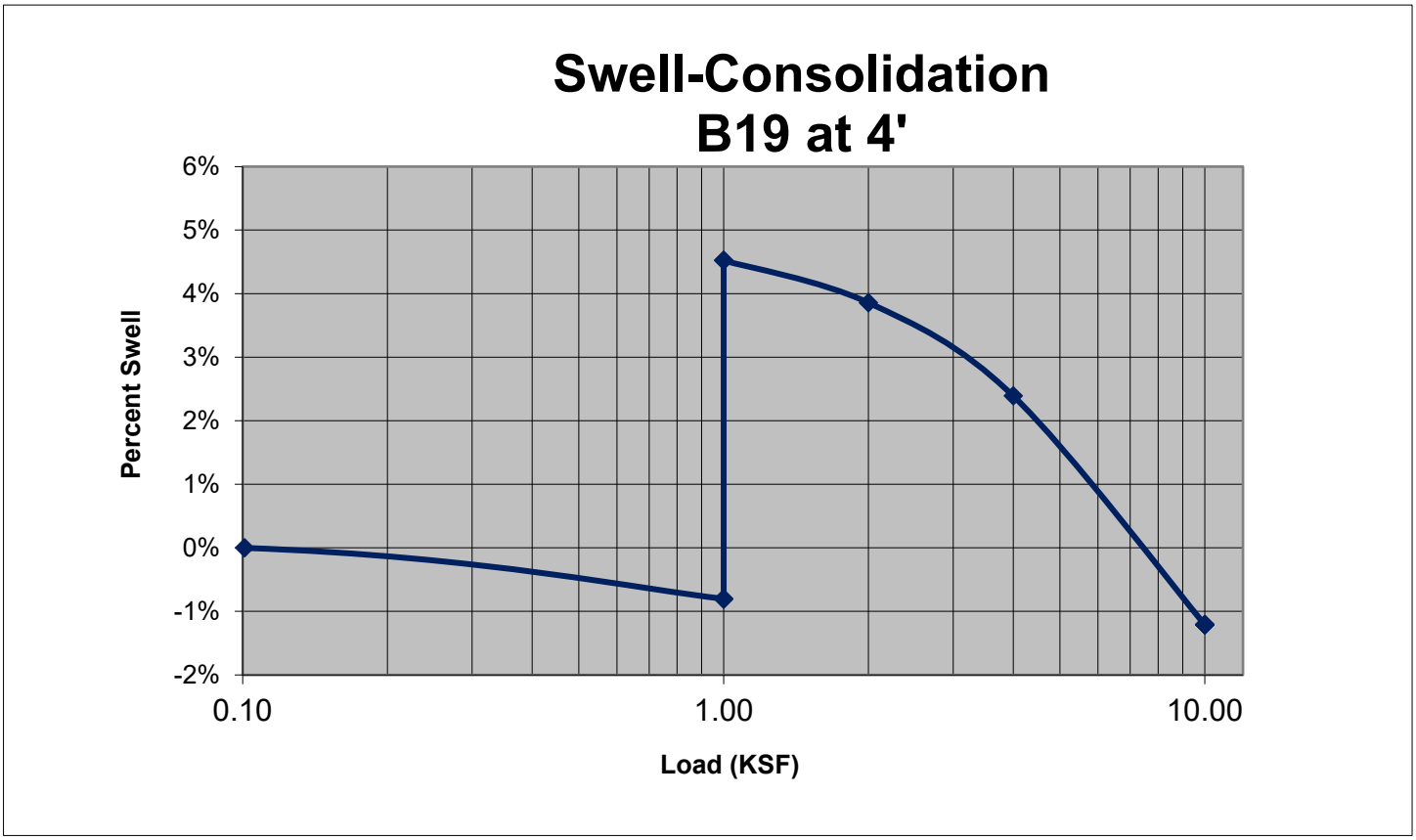


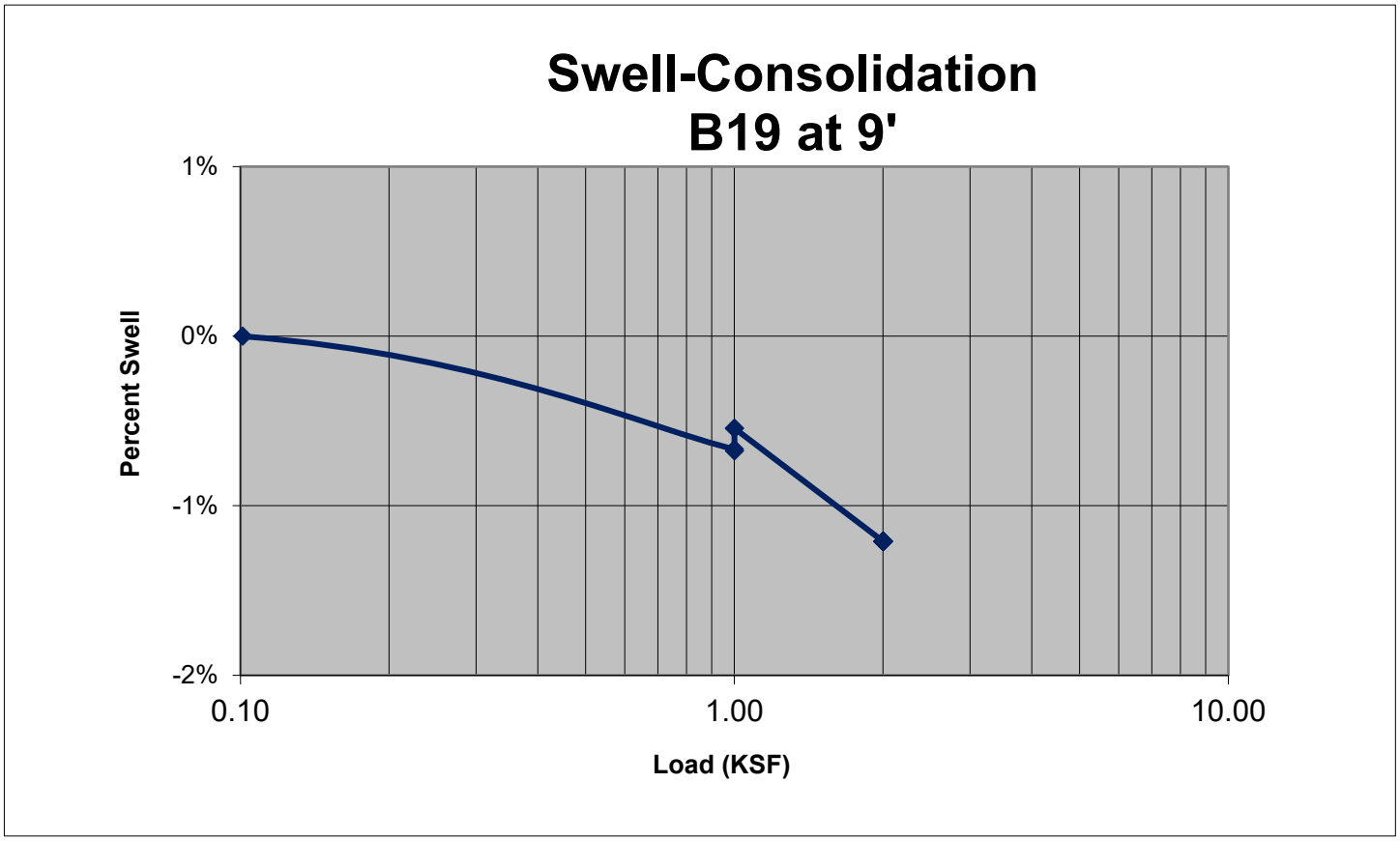
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-30



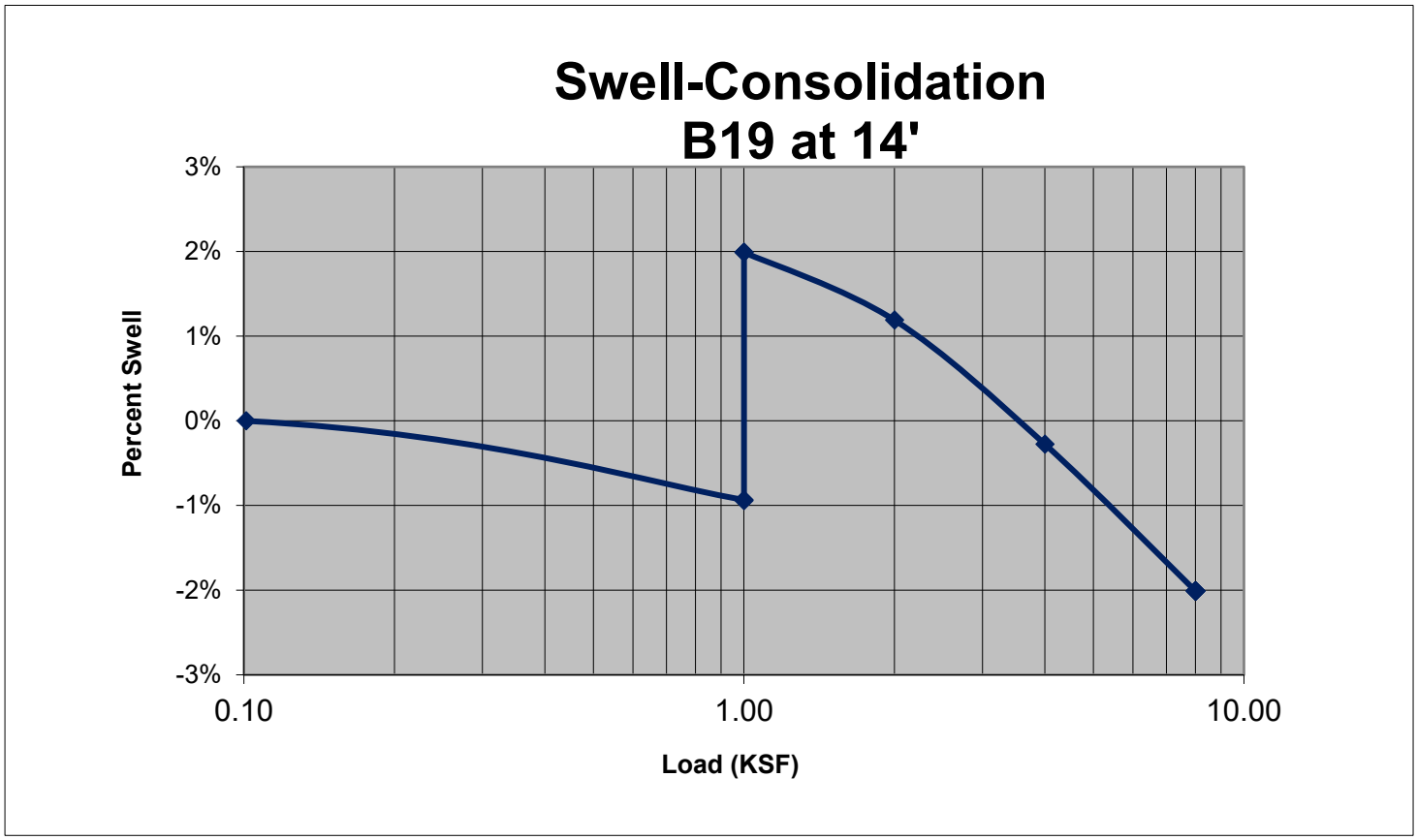


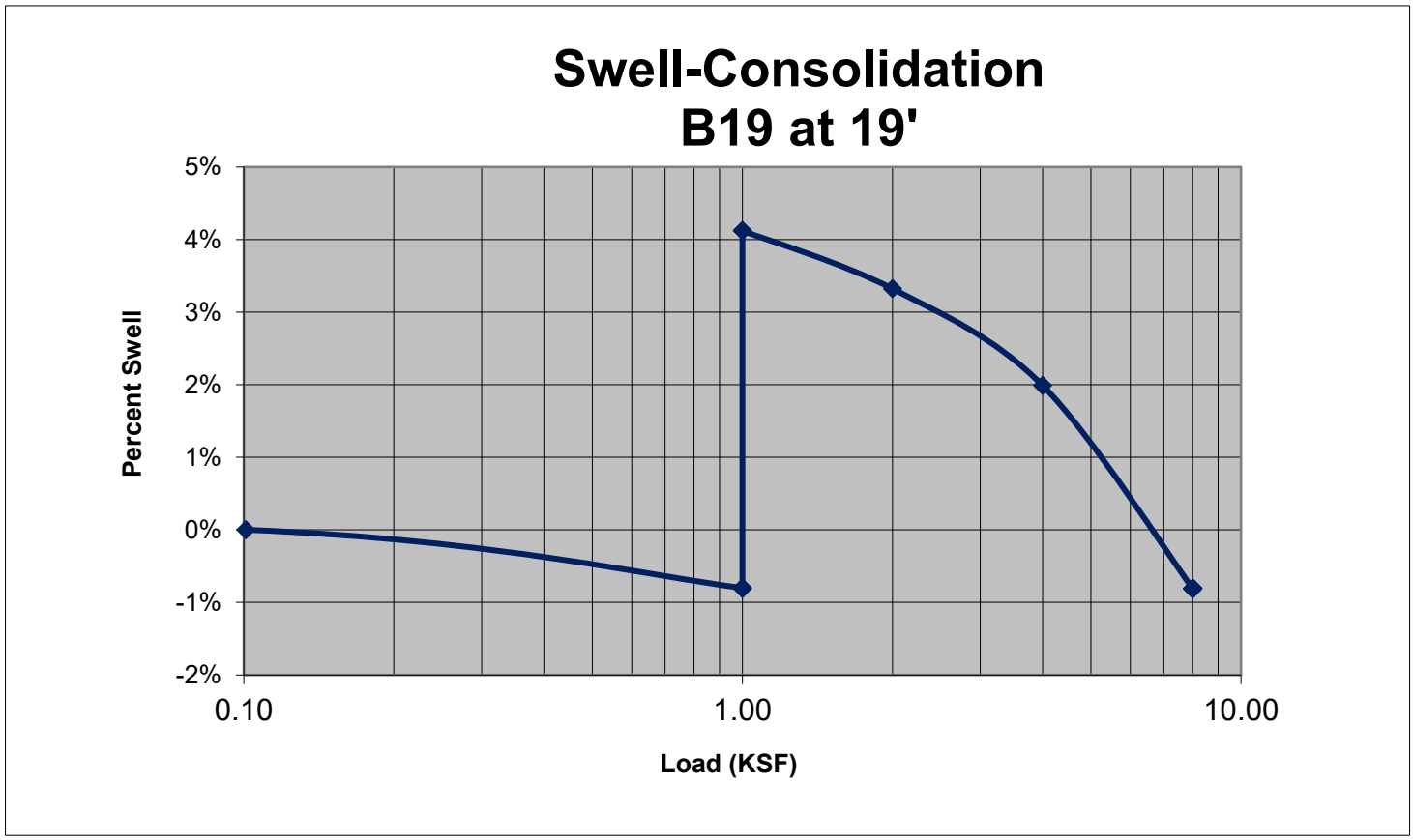
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-31



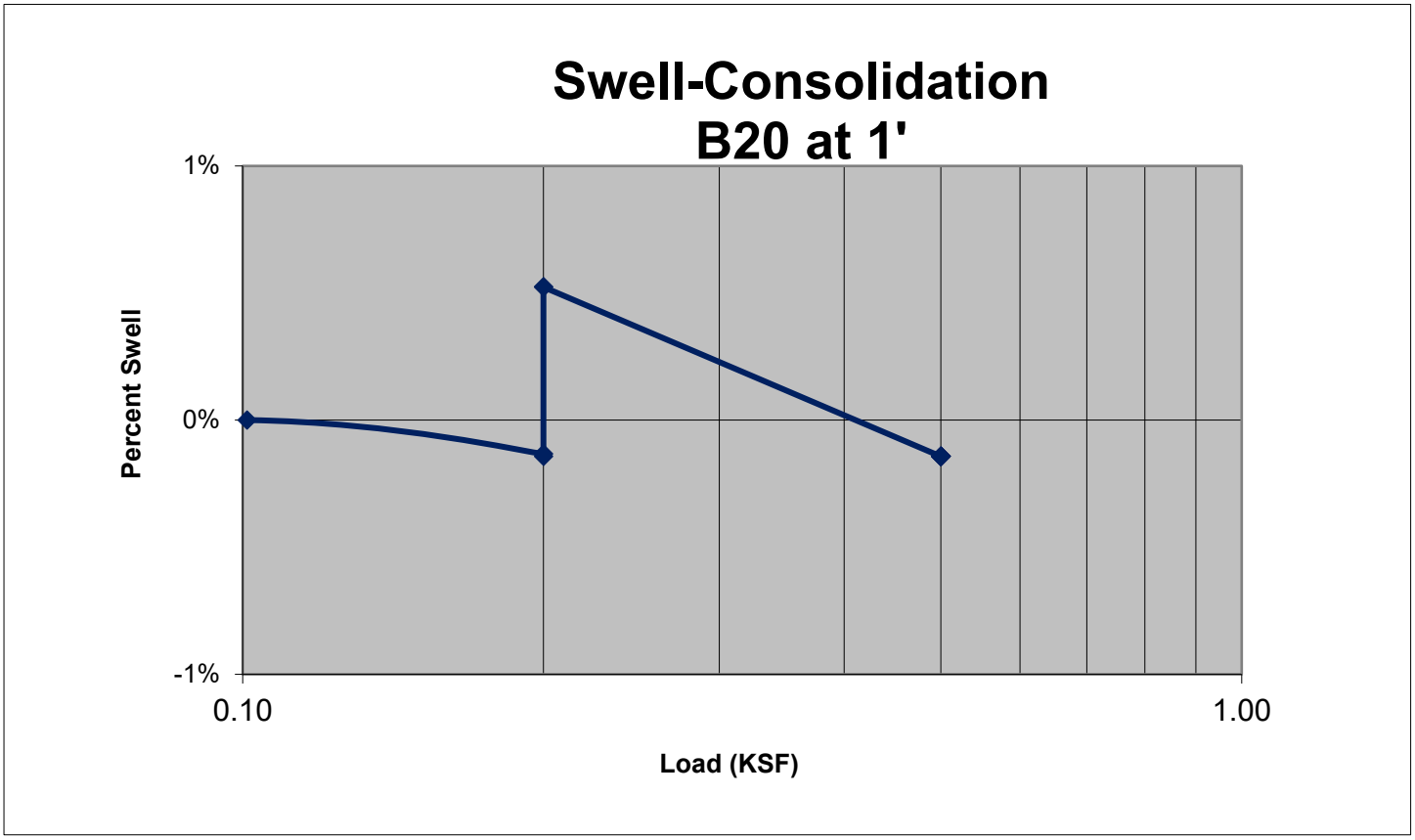


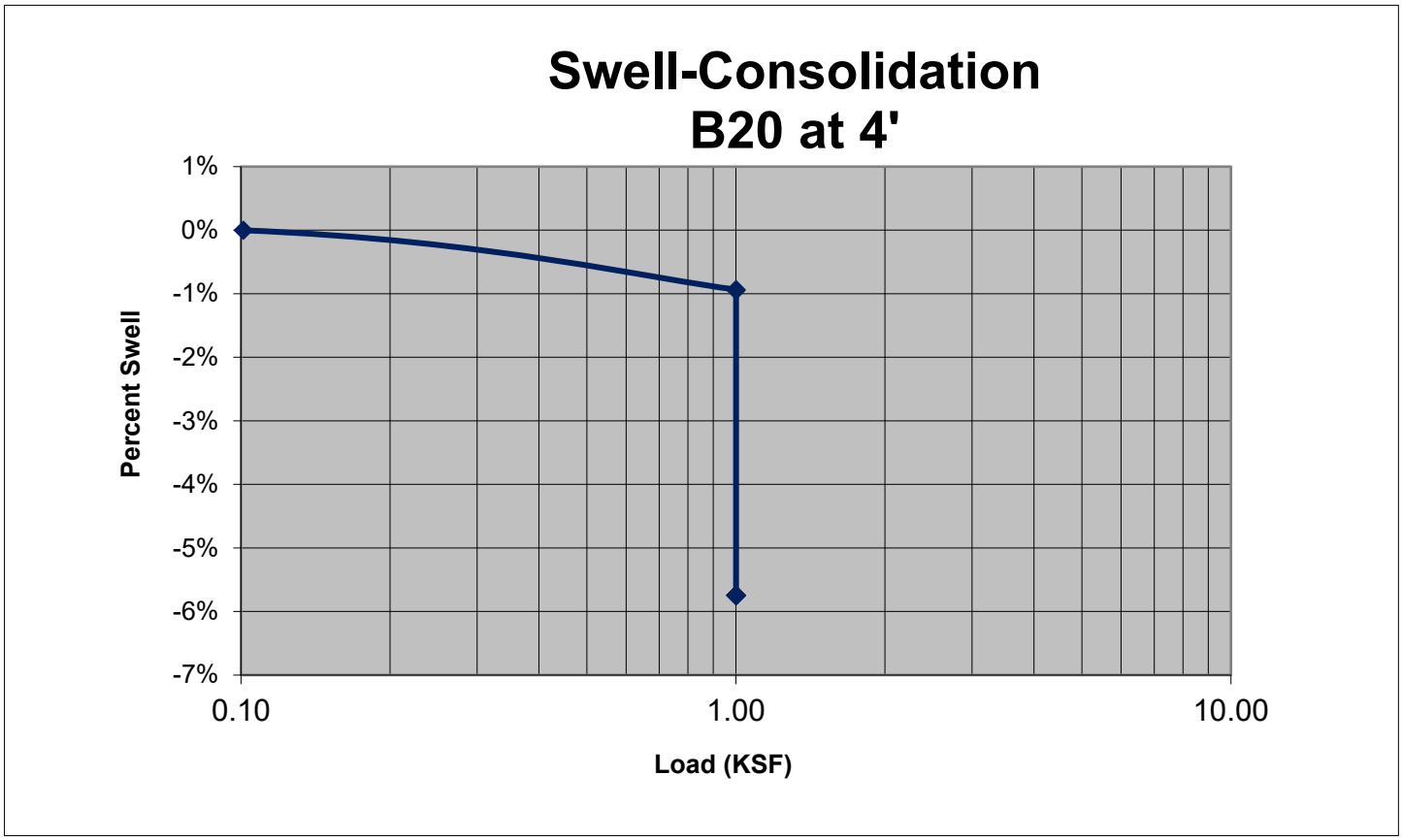
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-32



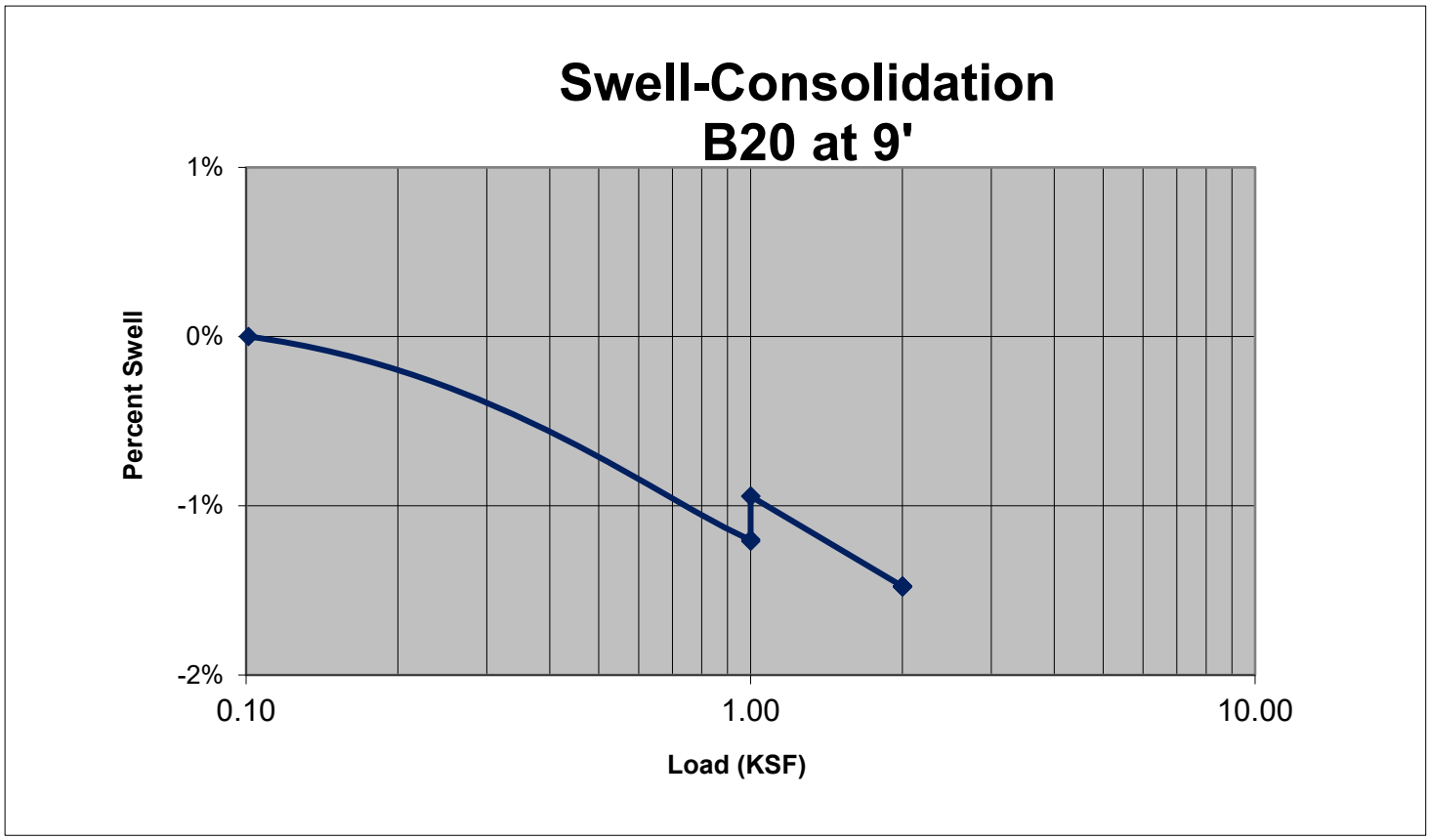


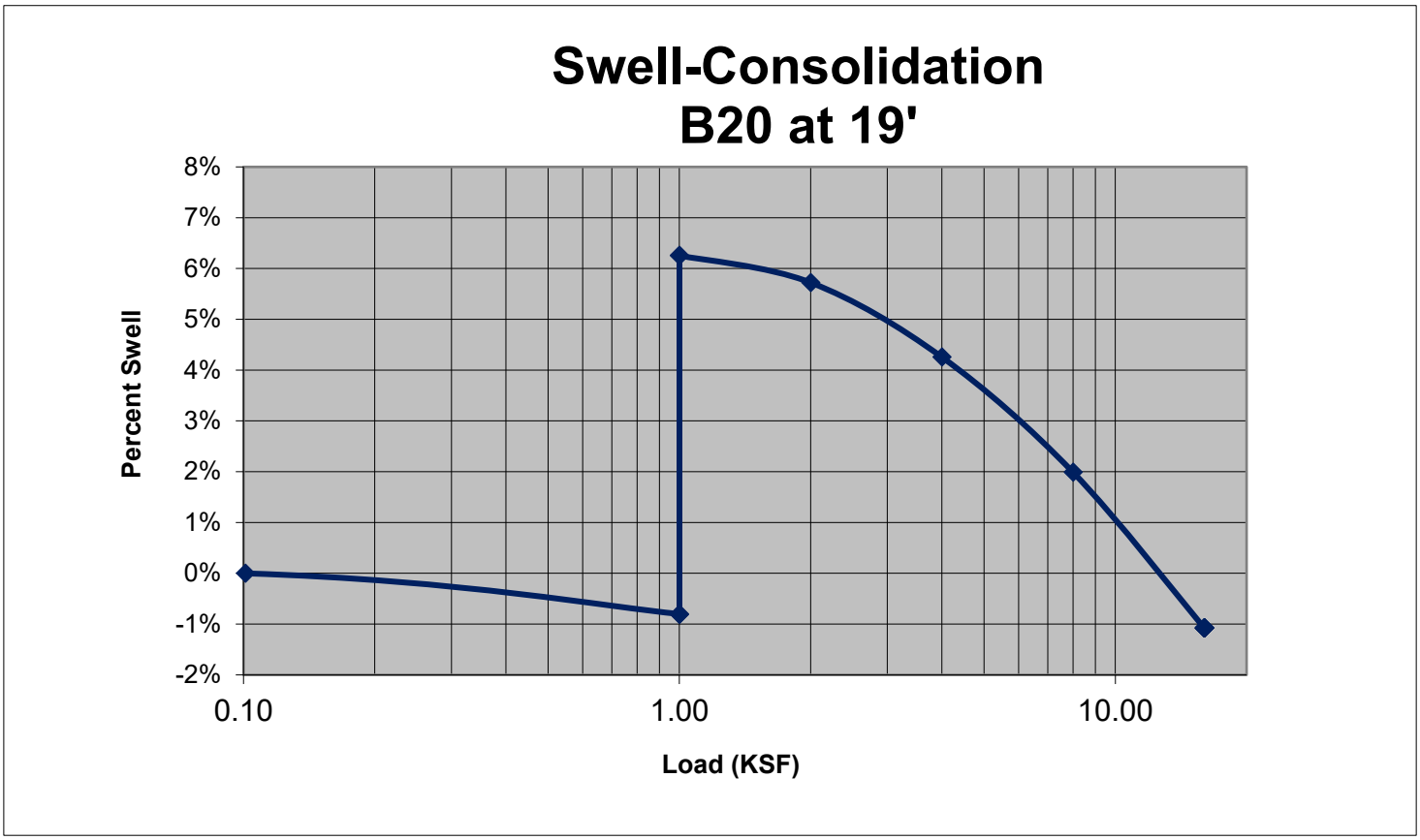
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023 **PROJECT NO:** 23-1142	**SCALE:** Vertical NA Horizontal FIGURE: 5-33



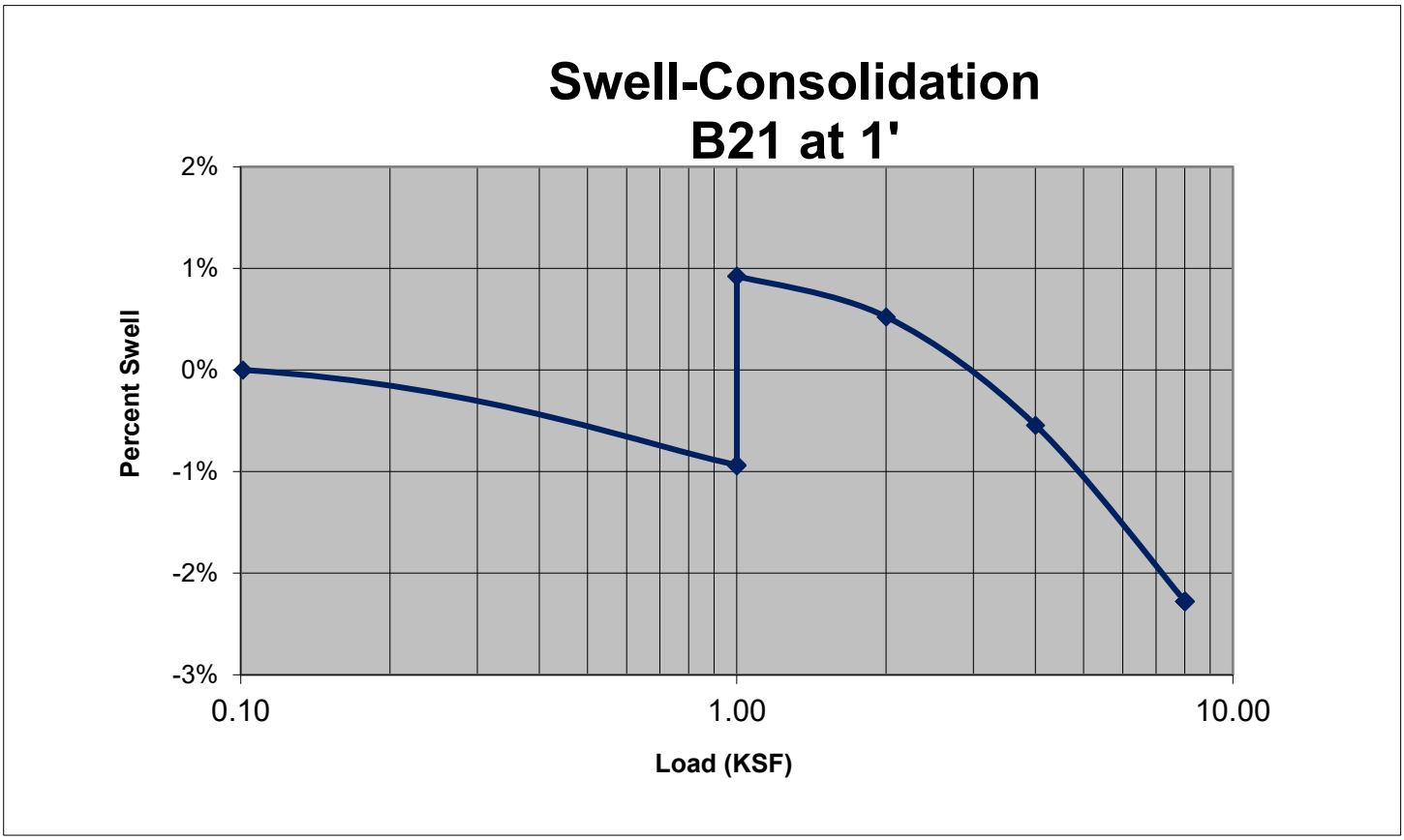


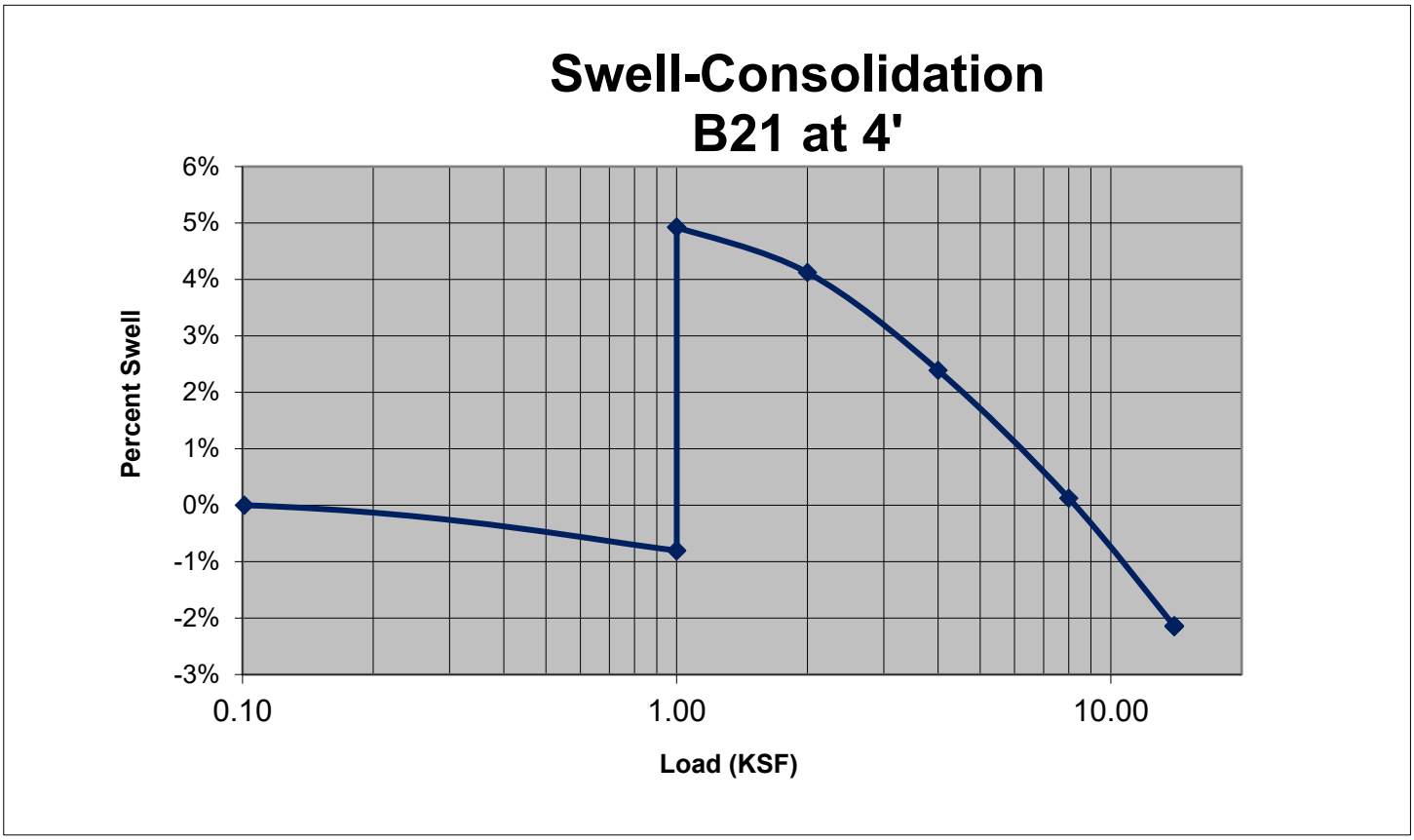
Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-34



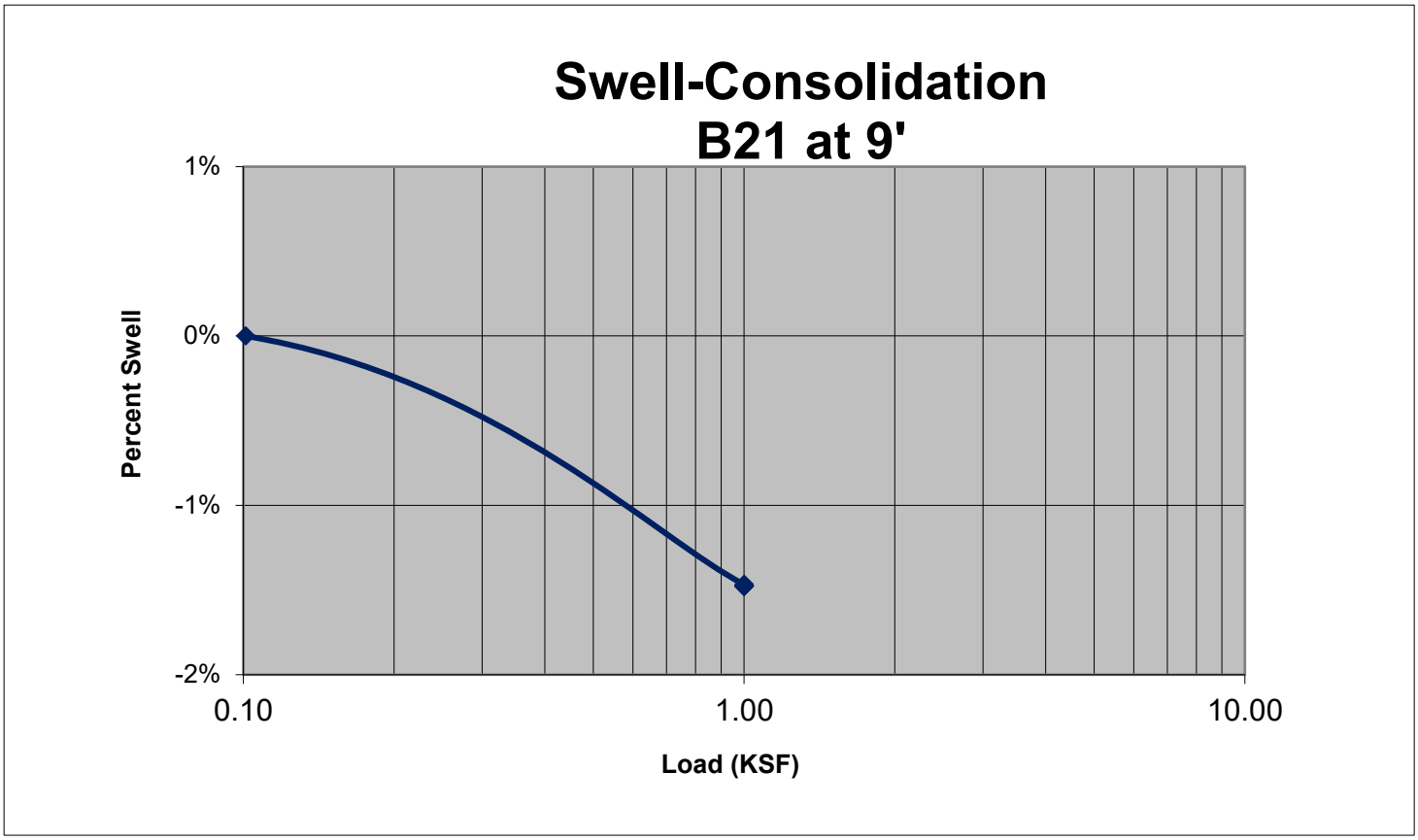


Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-35





Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-36



Swell-Consolidation Tests	Best Engineering Solutions and Technologies	*Address:* *1393 South Inca Street* *Denver, Colorado 80223*
Project Location: 3000 Village Vista Drive Erie, CO	**DRAWN BY:** NAO **CHECKED BY:** CV **DATE:** August 22, 2023	**SCALE:** Vertical NA Horizontal
	PROJECT NO: 23-1142	FIGURE: 5-37

ALTA/NSPS LAND TITLE SURVEY

LOTS 5B AND 5C, BLOCK 1, VISTA RIDGE FILING NO. 11, BLOCK 1, LOT 5 MINOR SUBDIVISION
LOCATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 32, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

LEGAL DESCRIPTION:

LOTS 5B AND 5C, BLOCK 1,
VISTA RIDGE FILING NO. 11, BLOCK 1, LOT 5 MINOR SUBDIVISION
COUNTY OF WELD,
STATE OF COLORADO.

TITLE COMMITMENT NOTES:

THIS LAND SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY JR ENGINEERING, LLC TO DETERMINE OWNERSHIP OF THIS TRACT, VERIFY THE DESCRIPTION SHOWN, VERIFY THE COMPATIBILITY OF THIS DESCRIPTION WITH THAT OF ADJACENT TRACTS, OR VERIFY EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHT-OF-WAY OR TITLE OF RECORD, JR ENGINEERING, LLC RELIED UPON TITLE FILE NO. 2300310168 REVISION NO. 2, PREPARED BY STEWART TITLE GUARANTY COMPANY, DATED JUNE 30, 2023 AT 5:30 P.M.

THE FOLLOWING COMMENTS ARE IN REGARDS TO THE ABOVE-REFERENCED TITLE FILE. THE NUMBERS IN OUR COMMENTS CORRESPOND TO THE NUMBERING SYSTEM USED IN THE TITLE FILE.

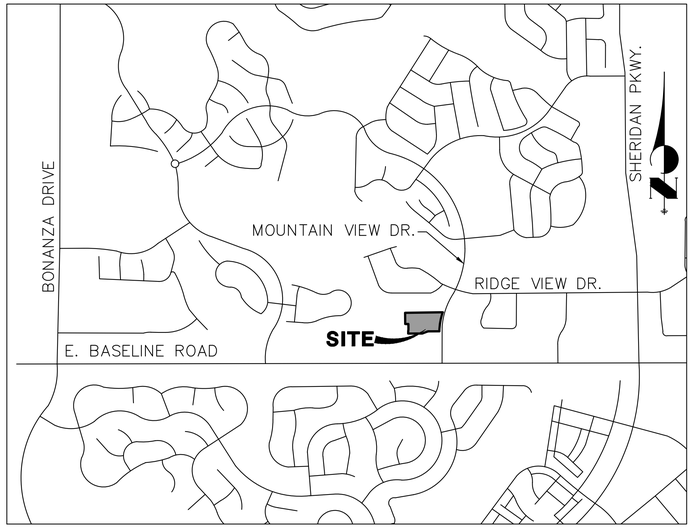
SCHEDULE B - SECTION 2 (EXCEPTIONS)

ITEM **COMMENT**

1. VISIBLE AND APPARENT EVIDENCE OF RIGHTS OR CLAIMS OF PARTIES IN POSSESSION ARE SHOWN HEREON TO THE BEST OF OUR KNOWLEDGE AND BELIEF.
2. VISIBLE AND APPARENT EVIDENCE OF EASEMENTS OR CLAIMS OF EASEMENTS ARE SHOWN HEREON TO THE BEST OF OUR KNOWLEDGE AND BELIEF.
3. VISIBLE AND APPARENT DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGES IN AREA AND ENCROACHMENTS ARE SHOWN HEREON TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

4., 5., 6., 7., 8. JR ENGINEERING, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS.

9. THE RIGHT OF WAY FOR COUNTY ROADS 30 FEET ON EITHER SIDE OF SECTION AND TOWNSHIP LINES RECORDED IN BOOK 86 AT PAGE 273 AFFECTS A PORTION OF THE SUBJECT PROPERTY AND IS SHOWN HEREON.
10. THE OIL AND GAS LEASES RECORDED UNDER RECEPTION NO. 2243722 AND AT RECEPTION NO. 2243723, THE MEMORANDUM OF GAS DEDICATION RECORDED UNDER RECEPTION NO. 2362503, THE NOTICE OF CONCURRENT USE AGREEMENT RECORDED UNDER RECEPTION NO. 3078175 AND RECEPTION NO. 3095082, AFFECT THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
11. THIS ITEM WAS INTENTIONALLY DELETED.
12. THE CERTIFICATE OF ORGANIZATION FOR THE NORTHWEST PARKWAY PUBLIC HIGHWAY AUTHORITY RECORDED UNDER RECEPTION NO. 2706363 AND RECORDED UNDER RECEPTION NO. 2733705 AFFECTS THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
13. THE TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE NO. 696 RECORDED UNDER RECEPTION NO. 2790549 AFFECT THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
14. THE TERMS, CONDITIONS, AND PROVISIONS OF ORDINANCE NO. 704 ANNEXING VISTA RIDGE INTO THE TOWN OF ERIE RECORDED UNDER RECEPTION NO. 2790550, AND THE VISTA RIDGE ANNEXATION MAPS RECORDED UNDER RECEPTION NO. 2793937, RECEPTION NO. 2793938, AND RECEPTION NO. 2793939 AFFECT THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
15. THE TERMS, CONDITIONS, AND PROVISIONS OF THE VISTA RIDGE ANNEXATION AGREEMENT RECORDED UNDER RECEPTION NO. 2793930 AND RERECORDED UNDER RECEPTION NO. 2812291 AFFECT THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
16. THE TERMS, CONDITIONS AND PROVISIONS OF THE VISTA RIDGE DEVELOPMENT PLAN RECORDED UNDER RECEPTION NO. 2793940, THE VISTA RIDGE DEVELOPMENT PLAN MINOR AMENDMENT NO. 1 RECORDED UNDER RECEPTION NO. 2928673, THE VISTA RIDGE DEVELOPMENT PLAN AMENDMENT NO. 3 RECORDED UNDER RECEPTION NO. 3501718, THE VISTA RIDGE DEVELOPMENT PLAN AMENDMENT NO. 4 RECORDED UNDER RECEPTION NO. 3753956, THE VISTA RIDGE DEVELOPMENT PLAN AMENDMENT NO. 5 RECORDED AT RECEPTION NO. 3890727 AND THE VISTA RIDGE DEVELOPMENT PLAN AMENDMENT NO. 6 RECORDED UNDER RECEPTION NO. 3980214 AFFECT THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
17. THE ORDER AND DECREE CREATING DISTRICT IN THE ORGANIZATION OF VISTA RIDGE METROPOLITAN DISTRICT RECORDED AT RECEPTION NO, 2817763, RECEPTION NO. 3396125, RECEPTION NO. 3719463, RECEPTION NO. 3832301, RECEPTION NO. 3933756, RECEPTION NO. 4002991, RECEPTION NO. 4039682, RECEPTION NO. 4061805, RECEPTION NO. 4221172, AND RESOLUTION NO 2016-11-02 RECORDED UNDER RECEPTION NO. 4279108, AND RESOLUTION 2018-10-04 RECORDED UNDER RECEPTION NO. 4442712 AFFECTS THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
18. THE ORDER INCLUDING PROPERTY INTO THE NORTH METRO FIRE RESCUE DISTRICT RECORDED UNDER RECEPTION NO. 2895963 AFFECTS THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
19. THE TERMS, CONDITIONS, AND PROVISIONS OF THE VISTA RIDGE DEVELOPMENT AGREEMENT RECORDED UNDER RECEPTION NO. 2905896 AFFECTS THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)
20. THE MASTER DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR VISTA RIDGE RECORDED UNDER RECEPTION NO. 2909244, THE FIRST AMENDMENT TO MASTER DECLARATION OF COVENANTS, CONDITIONS RESTRICTIONS FOR VISTA RIDGE RECORDED UNDER RECEPTION NO. 3027600, THE DECLARATION OF ANNEXATION AND AMENDMENT TO THE DECLARATION RECORDED UNDER RECEPTION NO. 3220083 AND THE DECLARATION OF ADDRESS FOR FORECLOSURE NOTIFICATION RECORDED UNDER RECEPTION NO. 4239473 AFFECT THE ENTIRE SUBJECT PROPERTY. (NOT A SURVEY MATTER)



VICINITY MAP
SCALE: 1" = 1000'

SCHEDULE B - SECTION 2 (EXCEPTIONS) CONTINUED:

ITEM **COMMENT**

21. THE RIGHT OF WAY GRANT RECORDED UNDER RECEPTION NO. 2943714 AFFECTS A PORTION OF THE SUBJECT PROPERTY AND IS SHOWN HEREON.
22. THE RIGHT OF WAY GRANT RECORDED UNDER RECEPTION NO. 2946541 AFFECTS A PORTION OF THE SUBJECT PROPERTY AND IS SHOWN ON MAP AS APPROXIMATE.(LEGAL NOT SUFFICIENT FOR PLOTTING PURPOSES)
23. THE PUBLIC SERVICE COMPANY OF COLORADO EASEMENT RECORDED UNDER RECEPTION NO. 2970757 AFFECTS A PORTION OF THE SUBJECT PROPERTY AND IS SHOWN HEREON.
24. THE RIGHT OF WAY GRANT RECORDED UNDER RECEPTION NO. 2971220 AFFECTS A PORTION OF THE SUBJECT PROPERTY AND IS SHOWN HEREON.
25. THE EASEMENTS, NOTES, RESTRICTIONS AND RIGHT-OF-WAY SET FORTH ON THE VISTA RIDGE MASTER PLAT RECORDED UNDER RECEPTION NO. 2903870, THE PLAT OF VISTA RIDGE FILING NO. 11 RECORDED UNDER RECEPTION NO. 3492705, AND VISTA RIDGE FILING NO. 11, BLOCK 1, LOT 5 MINOR SUBDIVISION RECORDED UNDER RECEPTION NO. 3584236 AFFECT THE ENTIRE SUBJECT PROPERTY AND ARE SHOWN HEREON.
26. THE GRANT OF EASEMENT RECORDED UNDER RECEPTION NO. 3497053 AFFECTS THE ENTIRE SUBJECT PROPERTY AND CANNOT BE SHOWN HEREON AS THEY ARE BLANKET IN NATURE.
27. THE DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE VILLAGE AT VISTA RIDGE RECORDED UNDER RECEPTION NO. 3582006 AND IT'S AMENDMENT RECORDED UNDER RECEPTION NO. 3589344 AFFECT THE ENTIRE SUBJECT PROPERTY.(NOT A SURVEY MATTER)
28. JR ENGINEERING, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.
29. JR ENGINEERING, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.
30. JR ENGINEERING, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.

AREAS OF CONCERN NOTES:

JR ENGINEERING, LLC FOR THE BENEFIT OF THE PARTY REQUESTING THE SURVEY, NOTES THE FOLLOWING MATTERS, WHICH MAY AFFECT THE STATUS OF TITLE TO THE SURVEYED PROPERTY. JR ENGINEERING, LLC AND THE SURVEYOR OF RECORD DO NOT WARRANT OR REPRESENT THAT ALL MATTERS THAT MAY AFFECT TITLE ARE NOTED BELOW. THE NUMBERS IN THE FOLLOWING COMMENTS CORRESPOND TO THE NUMBERS SHOWN ON OUR ALTA/NSPS LAND TITLE SURVEY.

1. ASPHALT PARKING EXTEND BEYOND THE PUBLIC ACCESS EASEMENT RECORDED UNDER RECEPTION NO. 3584236. JR ENGINEERING, LLC WAS NOT PROVIDED WITH AND DID NOT RESEARCH ANY PUBLIC DOCUMENTS DEFINING OR GRANTING THIS USE, CREATING AN AREA OF CONCERN.
2. RETAINING WALLS EXTEND BEYOND THE RECORD TITLE LINES. JR ENGINEERING, LLC WAS NOT PROVIDED WITH AND DID NOT RESEARCH ANY PUBLIC DOCUMENTS DEFINING OR GRANTING THIS USE, CREATING AN AREA OF CONCERN.
3. LOCATED GAS UTILITY LINES ARE LOCATED OUTSIDE THE DEDICATED GAS EASEMENT RECORDED UNDER RECEPTION NO. 2946541. JR ENGINEERING, LLC WAS NOT PROVIDED WITH AND DID NOT RESEARCH ANY PUBLIC DOCUMENTS DEFINING OR GRANTING THIS USE, CREATING AN AREA OF CONCERN.
4. LOCATED ELECTRIC AND FIBER OPTIC UTILITY LINES LIE WITHIN AND EXTEND BEYOND THE DEDICATED 8-FOOT UTILITY EASEMENT RECORDED UNDER RECEPTION NO. 2970757 AND RECEPTION NO. 2971220. JR ENGINEERING, LLC WAS NOT PROVIDED WITH AND DID NOT RESEARCH ANY PUBLIC DOCUMENTS DEFINING OR GRANTING THIS USE, CREATING AN AREA OF CONCERN.

GENERAL NOTES:

1. PER THE BYLAWS AND RULES OF THE STATE BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS, CERTIFICATION IS DEFINED AS A STATEMENT THAT INCLUDES THE FOLLOWING: (A) IS SIGNED AND/OR SEALED BY A PROFESSIONAL LAND SURVEYOR REPRESENTING THAT THE SURVEYING SERVICES ADDRESSED THEREIN HAVE BEEN PERFORMED BY THE PROFESSIONAL LAND SURVEYOR OR UNDER THE PROFESSIONAL LAND SURVEYOR IN RESPONSIBLE. (B) IS BASED UPON THE PROFESSIONAL LAND SURVEYOR'S KNOWLEDGE, INFORMATION AND BELIEF. (C) IS IN ACCORDANCE WITH APPLICABLE STANDARDS OF PRACTICE. (D) IS NOT A GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED.
2. PER C.R.S. 18-04-508, ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR.
3. PER C.R.S. 38-51-106, "ALL LINEAL UNITS DEPICTED ON THIS LAND SURVEY PLAT ARE U.S. SURVEY FEET. ONE METER EQUALS 39.37/12 U.S. SURVEY FEET, EXACTLY ACCORDING TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY."
4. ALL REFERENCES HEREON TO BOOKS, PAGES, MAPS AND RECEPTION NUMBERS ARE PUBLIC DOCUMENTS FILED IN THE RECORDS OF WELD COUNTY, COLORADO.
5. EASEMENTS AND PUBLIC DOCUMENTS SHOWN OR NOTED HEREON WERE EXAMINED AS TO LOCATION AND PURPOSE AND WERE NOT EXAMINED AS TO RESERVATIONS, RESTRICTIONS, CONDITIONS, OBLIGATIONS, TERMS, OR AS TO THE RIGHT TO GRANT THE SAME.
6. BURIED UTILITIES AND/OR PIPELINES ARE SHOWN PER VISIBLE AND APPARENT SURFACE EVIDENCE OR RECORD DRAWINGS OF THE CONSTRUCTED UTILITY LINES. IF MORE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES ARE REQUIRED, THE UTILITY WILL HAVE TO BE VERIFIED BY FIELD POTHOLING. JR ENGINEERING, LLC AND THE SURVEYOR OF RECORD SHALL NOT BE LIABLE FOR THE LOCATION OF OR THE FAILURE TO NOTE THE LOCATION OF NON-VISIBLE UTILITIES.
7. THE BASIS OF BEARINGS IS THE SOUTHERLY LINE OF LOTS 5A AND 5B VISTA RIDGE FILING NO. 11 BLOCK 1, LOT 5 MINOR SUBDIVSION RECORDED UNDER RECEPTION NO. 3584236. BEING MONUMENTED AT BOTH ENDS BY A NAIL AND SHINER WITH ILLEGIBLE STAMPING, SAID LINE BEARING S89°30'16"E AS REFERENCED TO COLORADO STATE PLANE NORTH ZONE GRID BEARINGS.
8. THE LAST FIELD INSPECTION OF THIS SITE WAS ON JULY 5, 2023.
9. THIS SITE IS WITHIN AN AREA OF MINIMAL FLOOD HAZARD, AS DETERMINED BY THE FLOOD INSURANCE RATE MAP FOR TOWN OF ERIE, COLORADO, MAP NUMBER 08013C0444J, EFFECTIVE DATE 12/18/2012.
10. THERE ARE NO BUILDINGS ON THE SUBJECT PROPERTY.
11. THERE IS NO EVIDENCE OF RECENT EARTHWORK ON THE SUBJECT PROPERTY.
12. THERE ARE 5 PARKING AREAS ON THE SUBJECT PROPERTY.
13. THIS SITE CONTAINS A CALCULATED AREA OF 136,777 SQUARE FEET OR 3.1400 ACRES.
14. THE BENCHMARK USED FOR THIS SITE IS TOWN OF ERIE CONTROL POINT 65, BEING MONUMENTED BY A 3.5" ALUMINUM CAP IN A RANGE BOX STAMPED LS 28656, LOCATED AT THE NORTHEAST CORNER OF WELD ROAD 4 AND HAMILTON ROAD.
ELEVATION = 5183.50 (NAVD 88 DATUM).

SURVEYOR'S STATEMENT:

TO REE HOLDINGS-ERIE, LLC, A MINNESOTA LIMITED LIABILITY COMPANY; NORTHERN RIDGE BAPTIST CHURCH, A COLORADO NONPROFIT CORPORATION; VILLAGE COOPERATIVE OF ERIE; GUARANTY COMMERCIAL TITLE, INC.; AND STEWART TITLE GUARANTEE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 8, 11(a), 11(b), 16, 17, 18, AND 19 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON JULY 5, 2023.

DATE OF MAP OR PLAT

DEREK LEE VAGIAS, PROFESSIONAL LAND SURVEYOR
COLORADO P.L.S. NO.38578
FOR AND ON BEHALF OF JR ENGINEERING, LLC

NOTICE:

PER C.R.S. 13-80-105, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM

NO.	REVISION	BY	DATE
4			
3			
2			
1	TITLE REVISION/ COMMENTS	BTO	7/19/2023

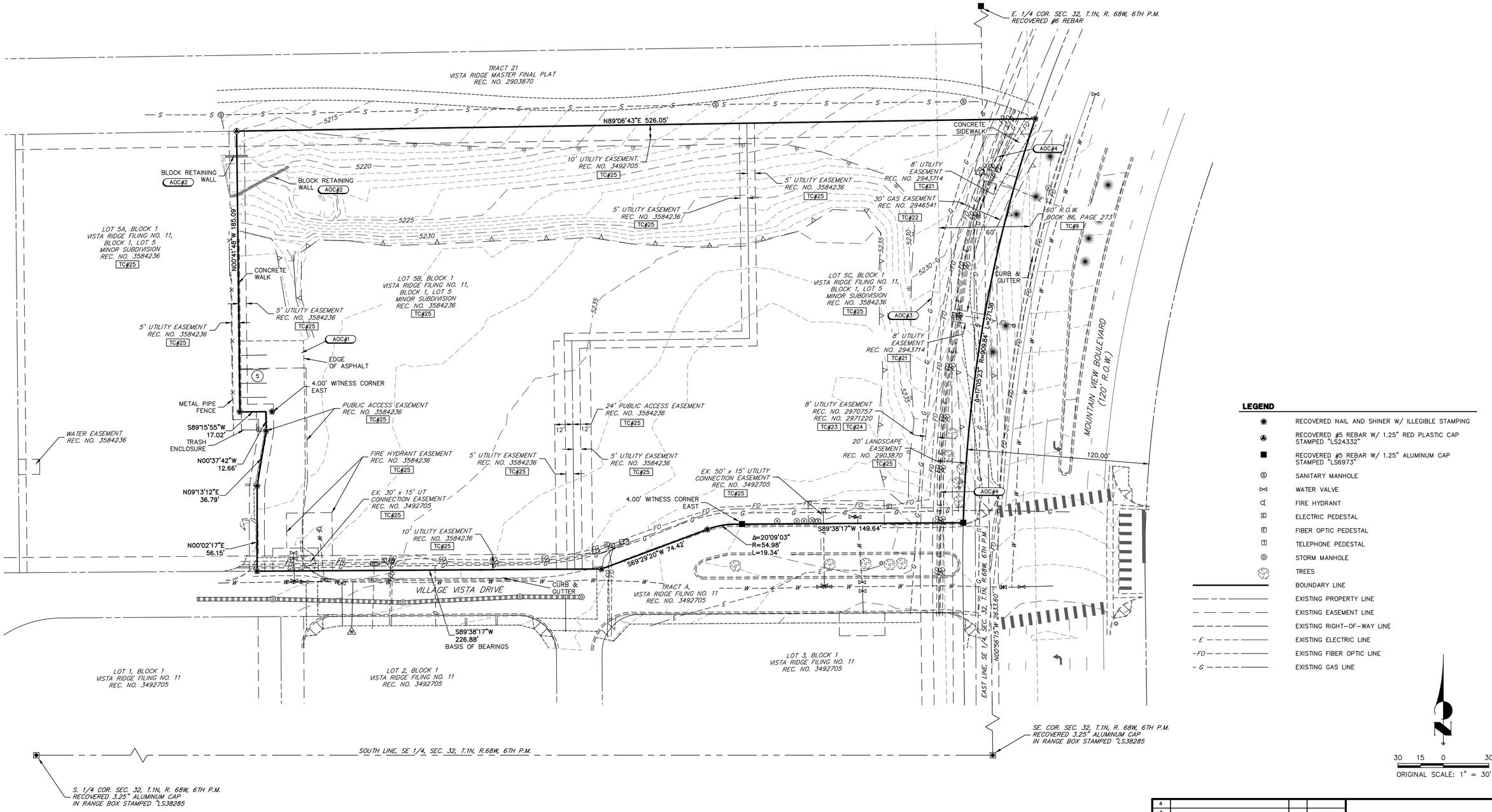
DWN. BY BTO	CHK. BY DV
SCALE 1" = 30'	DATE JULY 5, 2023
JOB NO. 16162.00	SHT. 1 OF 2

ALTA/NSPS LAND TITLE SURVEY
ERIE CO-OP

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

ALTA/NSPS LAND TITLE SURVEY

LOTS 5B AND 5C, BLOCK 1, VISTA RIDGE FILING NO. 11, BLOCK 1, LOT 5 MINOR SUBDIVISION
LOCATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 32, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO



LEGEND

- RECOVERED NAIL AND SHINER W/ ILLEGIBLE STAMPING
- RECOVERED #5 REBAR W/ 1.25" RED PLASTIC CAP STAMPED "LS24332"
- RECOVERED #5 REBAR W/ 1.25" ALUMINUM CAP STAMPED "LS6973"
- SANITARY MANHOLE
- WATER VALVE
- FIRE HYDRANT
- ELECTRIC PEDESTAL
- FIBER OPTIC PEDESTAL
- TELEPHONE PEDESTAL
- STORM MANHOLE
- TREES
- BOUNDARY LINE
- EXISTING PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING RIGHT-OF-WAY LINE
- EXISTING ELECTRIC LINE
- EXISTING FIBER OPTIC LINE
- EXISTING GAS LINE

30 15 0 30

ORIGINAL SCALE: 1" = 30'

NO.	REVISION	BY	DATE
4			
3			
2			
1	TITLE REVISION/ COMMENTS	BTO	7/19/2023

ALTA/NSPS LAND TITLE SURVEY
ERIE CO-OP

DWN. BY BTO | CHK. BY DV
SCALE 1"=30' | DATE JULY 5, 2023
JOB NO. 16162.00 | SHT. 2 OF 2

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