GEOTECHNICAL INVESTIGATION

SOUTH HOLLY STREET SANITARY SEWER REPLACEMENT PROJECT
SOUTH HOLLY STREET BETWEEN EAST YALE AVENUE AND SOUTH LEYDEN STREET
DENVER, UNINCORPORATED ARAPAHOE COUNTRY, COLORADO

Prepared for:

W2 ENGINEERS, LLC
c/o BOWMAN
7245 West Alaska Drive, Suite 210
Lakewood, Colorado 80226

Attention:

Nicholaus P. Marcotte, P.E., Director of Water and Wastewater – Bowman

Project No. DN52,778.000-125-R1

May 18, 2026

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SCOPE

This report presents the results of our Geotechnical Investigation for the South Holly Street Sanitary Sewer Replacement Project planned between East Yale Avenue and South Leyden Street in Denver, Colorado (Fig. 1). The purpose of our investigation was to evaluate subsurface conditions and provide geotechnical design and construction criteria for the proposed sanitary sewer pipeline replacement. The scope was described in our Service Agreement (DN 25-0489) dated October 16, 2025.

This report was prepared based on our understanding of the planned construction, subsurface conditions found in our exploratory borings, results of field and laboratory tests, engineering analysis, and our experience. It includes our opinions and recommendations regarding design criteria for the trench excavation and other design and construction details influenced by the subsurface conditions. The report was prepared for the exclusive use of W2 Engineers, LLC c/o Bowman in design and construction of the proposed improvements. Changes to the proposed construction may require revisions of this report and the recommended design criteria. A summary of our conclusions and recommendations follows. Detailed design criteria are presented within the report.

SUMMARY OF CONCLUSIONS

1. Strata encountered in the exploratory borings consisted of about 3 to 8 inches of asphalt over 5½ to 13½ feet of sandy clay and clayey sand fill underlain by weathered and comparatively unweathered claystone bedrock to the maximum explored depth of 25 feet. The clayey fill and claystone bedrock are variably expansive. The sandy fill is judged to be non-expansive.

2. Groundwater was not encountered during drilling. The holes were backfilled and patched after drilling and delayed groundwater measurements could not be obtained. Groundwater is not expected to influence construction as currently planned. Groundwater levels may fluctuate seasonally and rise in response to development, precipitation, landscape irrigation, changes in land-use and flow in nearby waterways.

3. Trenches will require to be sloped in accordance with OSHA requirements. The overburden soils are predominantly comprised of sandy clay. Stability of excavation slopes is a major consideration.

4. Trenches and excavations should be designed to resist lateral earth pressures. Equivalent fluid densities of 50 pcf for the “active” condition, 70 pcf for the “at rest” condition, and 290 pcf for passive restraint are discussed in the report.

5. Pavement sections consisting of about 3 to 8 inches of asphalt were measured at our boring locations. Pavement patches should match the section thicknesses outlined in the original pavement design for the subject street(s).

SITE CONDITIONS AND PROPOSED CONSTRUCTION

The South Holly Street Sanitary Sewer Replacement Project is planned between East Yale Avenue and South Leyden Street in Denver, Colorado (Fig. 1 and Photo 1). We understand the project will consist of removal and/or abandonment of existing sanitary sewer lines and replacement with approximately 3,500 feet of new sanitary sewer line in South Holly Street, South Holly Place, South Ivanhoe Place, South Jasmine Place, and East Dickenson Place. Buried utilities such as water and gas lines are also present in the subject streets. The streets are bordered mostly by residential development with a few commercial structures. South Holly Street slopes gently to the south with an estimated 6 feet of relief. The High Line Canal and High Line Canal Trail range from approximately 100 to 1,500 feet west of the project. Review of historical aerial photographs provided by Google Earth© indicates the site has remained generally unchanged since 1999.

We reviewed Figure 3 of *Current Sewer Pipe Material Vicinity Map Holly Hills Water and Sanitation District* dated July 2016 and Sheets 6 and 7 of the *South Holly Street 1956 Record Drawings* revised October 26, 1954. The existing sanitary line ranges from depths of 8 to about 21 feet below the existing ground surface. We understand the sanitary sewer line replacement project will be completed in three phases. The new sanitary line will have pipe invert depths of about 10 to 22 feet or approximate elevations 5458.5 to 5477.5 feet. Excavations are expected to be about 25 feet or less.

Photo 1 – Google Earth© Aerial Site Photo, October 2025. Project site outlined in red.

INVESTIGATION

Subsurface conditions were investigated on April 7, 2026, by drilling seven exploratory borings along or near the proposed sanitary sewer alignment in South Holly Street, South Holly Place, and South Jasmine Street. Permits and traffic control were required to drill in the public right-of-way. The approximate boring locations are shown on Fig. 1. Boring locations and elevations were determined with limited precision using a Leica GS18 GPS unit referencing the North American Datum of 1983 (NAD83). We contacted the Utility Notification Center of Colorado and local sewer and water districts prior to drilling to identify locations of buried utilities.

The borings were drilled to depths of 14 to 25 feet using 4-inch diameter, continuous-flight auger and truck-mounted CME-45 drill rig. We obtained samples at approximate 2 to 5 feet intervals using 2.5-inch diameter (O.D.) modified California barrel samplers driven by blows of an automatic 140-pound hammer falling 30 inches. Bulk samples of auger cuttings were also obtained. Our field representative was present to observe drilling, log the strata encountered and obtain samples. The borings were backfilled with sand, grout, and cold-patch after drilling was completed. Graphical summary logs of the exploratory borings, including results of field penetration resistance tests and a portion of laboratory test data are presented on Appendix A.

Samples were returned to our laboratory where they were examined, and testing was assigned. Laboratory tests included moisture content, dry density, Atterberg limits, sieve analysis, swell-consolidation and water-soluble sulfate concentration. Swell-consolidation tests were performed by wetting the samples under approximate overburden pressure (the pressure exerted by the overlying soils). Results of laboratory tests are presented in Appendix B and summarized on Table B-I.

SUBSURFACE CONDITIONS

Strata encountered in the exploratory borings consisted of about 3 to 8 inches of asphalt over 5½ to 13½ feet of sandy clay and clayey sand fill underlain by weathered and comparatively unweathered claystone bedrock to the maximum explored depth of 25 feet. Some pertinent engineering characteristics of the soil and bedrock are described in the following paragraphs.

Fill

Fill was encountered below the asphalt pavement to depths of about 6 to 14 feet below the existing ground surface. The fill is likely associated with installation of the existing sanitary sewer and construction of the surrounding development. The depth of fill shown on the logs is based upon drilling observations, examination of the soil samples, and review of historical imagery.

The fill consisted primarily of sandy clay and lesser amounts of clayey sand. The fill was medium stiff to very stiff (clay) or medium dense (sand) based on field penetration resistance tests. Two fill samples swelled 0.7 and 1.3 percent when wetted. Ten samples contained 37 to 80 percent silt and clay-sized particles (passing No. 200 sieve) and exhibited low to high plasticity. A standard Proctor (ASTM D 698, AASHTO T99) was performed on a combined bulk sample from the upper 5 feet of borings TH-1, TH-2, TH-3, TH-4, TH-6, and TH-7. The composite sample contained 52 percent fines, exhibited moderate plasticity, and had a maximum Proctor dry density of 108.2 pcf and optimum moisture content of 16.6 percent. The fill is low swelling or non-expansive.

Bedrock

Weathered and comparatively unweathered claystone bedrock was encountered below the fill at depths of about 6 to 13 feet below the existing ground surface in six borings (approximate elevations 5468.5 to 5485 feet). TH-2 was requested to be drilled directly over the top of the existing sanitary line and thus consisted exclusively of trench backfill and no bedrock was encountered. The claystone was silty at times. The comparatively unweathered bedrock was medium hard to very hard. Four claystone samples swelled 0.5 to 1.2 percent when wetted. Twelve samples contained 65 to 96 percent fines and exhibited moderate to high plasticity. The claystone is judged to be low swelling.

Groundwater

Groundwater was not encountered during drilling. The holes were backfilled and patched after drilling and delayed groundwater measurements could not be obtained. Groundwater is not expected to influence construction as currently planned. Groundwater levels may fluctuate seasonally and rise in response to development, precipitation, landscape irrigation, changes in land-use and flow in nearby waterways.

SITE PREPARATION

Demolition

A section of the existing pavements and utilities will be abandoned or demolished and removed as part of the proposed construction. Demolition should include the removal of all existing flatwork, pavements, utilities, and backfill associated with the areas being renovated and improved. Utilities, structures and debris should be removed and replaced with moisture-conditioned, compacted fill. If backfill is poorly compacted, improvements supported by the backfill may experience damaging settlement. A representative from our firm should be present on site to observe placement procedures and test compaction of the fill.

Excavation

Excavations for the pipeline will vary in depth between about 10 to 25 feet. We believe the soils encountered during this investigation can be excavated with typical heavy-duty excavation equipment.

We recommend the owner and the contractor become familiar with applicable local, state and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. The contractor should be aware that in no case should slope height, inclinations, excavations or depths including utility trench excavations exceed those specified in local, state, and federal safety regulations. Specifically, the current "OSHA Health and Safety Standards for Excavations" should be followed.

Based on our investigation and OSHA standards, we anticipate the clay and claystone will classify as Type B soils and the sand will classify as Type C soil based on OSHA Standards governing excavations published in 29 CFR, Part 1926. Type B soil requires 1H:1V (horizontal:vertical) and Type C requires 1.5H:1V for temporary excavations in dry conditions. If groundwater is encountered or if there is seeping from the slopes, other precautions may be required.

Our preliminary soil classification is based on the materials encountered in our exploratory borings at widely spaced locations. The soil penetrated by the proposed excavation will vary across the site. The contractor's "competent person" is required to identify the soils encountered in the excavations and refer to OSHA standards to determine appropriate slopes. If an excavation (including a utility trench) is extended to a depth of more than 20 feet, it will be necessary to have the side slopes designed by a professional engineer. Vehicles and soil stockpiles should be kept a minimum lateral distance from the crest of the trench slope equal to one-half the trench depth. The exposed slope face should also be protected against the elements. As an alternative to temporary slopes, vertical excavations can be temporarily braced.

Bracing

Bracing or "trench box" construction may be necessary in order to limit the width of excavations and reduce the amount of surface disturbance. Bracing systems include driven sheet piling, soldier piles and lagging, and others. Lateral loading of bracing depends on the depth of excavation, slope of excavation above the bracing, soil stockpiles and other surface loads, hydrostatic pressures, and allowable movement.

For bracing allowed to move enough to mobilize the strength of the soils with associated settlement and cracking of the ground surface, “active” earth pressure conditions are appropriate for design. If movement is not tolerable, “at rest” earth pressures are appropriate. Lateral load can be calculated using an equivalent fluid density of 50 pcf and 70 pcf for the “active” and “at rest” conditions, respectively. Hydrostatic pressure and surcharge loads should be accounted for, where applicable. The OSHA construction standard provides recommendations for timber bracing. We are also available to assist further with bracing design if desired.

Pipe Support

Pipe Bedding

We believe pipe is normally bedded in manufactured granular material in accordance with the pipe manufacturer specifications. We believe angular crushed rock conforming to CDOT #67 specifications is usually acceptable bedding material. Squeegee or sand can be considered, but issues with compaction below and around the pipe should be considered. Maximum particle size depends on selected piping material according to ASTM and AWWA and should be verified with the pipe manufacturer. We do not recommend the natural soils encountered be used as bedding material. We recommend bedding material, thickness and compaction meet current jurisdictional specifications and be confirmed with the pipe manufacturer.

Recent research (primarily for rigid pipe) has shown placement of pipe bedding in a looser state (for example 85 percent of maximum Proctor dry density) will result in a more uniform stress distribution along the bottom of the pipe. The looser bedding appears to allow enough movement of the pipe to develop support pressure in the haunch area. Typically, this results in a reduction of stress concentrations and damage to the pipe. However, not all municipal guidelines allow this method.

Pipe Cover

Due to some comparatively deep invert elevations, special considerations should be made to ensure an appropriate cushion zone (bedding thickness) above the pipe is provided with proper maximum particle sizes to limit damage to the pipe from backfill compaction and overburden loading. A minimum of 12 inches of soil cover should be provided above pipes prior to initiating compaction efforts.

TRENCH BACKFILL AND SUBGRADE PREPARATION

Trench backfill should be placed in thin lifts and observed and tested by a representative of our firm during construction. All compacted fill should be expected to undergo some amount of future settlement. Settlements of up to 1 to 2 percent of the fill depth should be expected. Compaction should be performed according to jurisdictional specifications for fill placement in the public right-of-way.

Compaction of trench backfill can have a significant effect on the life and serviceability of pavements, flatwork or other structures sensitive to movement that are constructed above the pipeline. We recommend trench backfill below paved areas be placed in thin, loose lifts, moisture conditioned to between plus or minus 2 percent of optimum moisture and compacted to at least 95 percent of standard Proctor maximum dry density for clay and 100 percent for sand (ASTM D 698). Fill not meeting the moisture requirement should be considered unacceptable. Drying of soil or addition of water may be required depending on the source of the fill material.

The on-site soils are suitable for reuse as new fill, provided they are free of debris, vegetation/organics and other deleterious materials. Soil particles larger than about 3 inches in diameter should not be used for fill unless broken down. Imported fill (if any) should have a maximum particle size of 3 inches, between 20 and 60 percent passing the No. 200 sieve, a liquid limit less than 40 and a plasticity index less than 20. Import soils consisting of material similar to those found on-site may also be considered. Potential fill materials should be submitted to our office for approval prior to import.

If loose or soft fill/soils are encountered during construction, they should be removed and replaced with compacted fill or stabilized. Stabilization can likely be accomplished by crowding 1.5-inch to 3-inch nominal size crushed rock into the soft subsoils until the base of the excavation does not deform significantly when compactive effort (a full-sized loader with full load) is applied.

PAVEMENTS

Some of the existing pavement will be removed in order to install the new sanitary sewer line. We measured pavement sections consisting of about 3 to 8 inches of asphalt at our boring locations. Pavement patches should match the section thicknesses outlined in the original pavement design for the subject street(s) (if available). If the original pavement design is unavailable, the patches should match the adjacent pavement section or jurisdictional minimum pavement sections should be applied in accordance with roadway type, whichever is thicker. Subgrade and pavement should be prepared and placed in accordance with jurisdictional specifications.

CONCRETE

Concrete in contact with soil can be subject to sulfate attack. We measured water-soluble sulfate concentrations of less than 0.01 to 0.04 percent in three samples from this investigation, with an average of 0.03 percent. As indicated in our tests and ACI 318-19, the sulfate exposure class is *Not Applicable* or *S0.* Sulfate concentrations less than 0.1 percent indicate negligible exposure to sulfate attack for concrete which comes into contact with the subsoils according to the American Concrete Institute (ACI). ACI indicates Type I or Type II cement can be used for concrete which comes into contact with the subsoils. In our experience, superficial damage can occur to the exposed surfaces of highly permeable concrete, even though sulfate levels are less than 0.1 percent. To control this, the water to cement ratio should not exceed 0.50 for concrete in contact with soils which are likely to stay moist due to surface drainage or high water tables.

CONSTRUCTION OBSERVATIONS

This report has been prepared for the exclusive use of W2 Engineers, LLC c/o Bowman and your team for the purpose of providing geotechnical design and construction criteria for the planned improvements. The information, conclusions, and recommendations presented herein are based upon consideration of many factors including, but not limited to, the type of structures proposed, the geologic setting, and the subsurface conditions encountered. The conclusions and recommendations contained in the report are not valid for use by others. Standards of practice evolve in geotechnical engineering. The recommendations provided are appropriate for about three years. If the proposed buildings are not constructed within about three years, we should be contacted to determine if we should update this report.

We recommend CTL|Thompson, Inc. provide construction observation services to allow us the opportunity to confirm whether soil conditions are consistent with those found during this investigation. If others perform these observations, they must accept responsibility to judge whether the recommendations in this report remain appropriate.

GEOTECHNICAL RISK

The concept of risk is an important aspect with any geotechnical evaluation, primarily because the methods used to develop geotechnical recommendations do not comprise an exact science. We never have complete knowledge of subsurface conditions. Our analysis must be tempered with engineering judgment and experience. Therefore, the recommendations presented in any geotechnical evaluation should not be considered risk-free. Our recommendations represent our judgment of those measures that are necessary to increase the chances that the improvements will perform satisfactorily. It is critical that all recommendations in this report are followed during construction. Owners or property managers must assume responsibility for maintaining the improvements and use appropriate practices regarding drainage, landscaping and maintenance.

LIMITATIONS

Our borings were spaced to obtain a reasonably accurate characterization of subsurface conditions at this site. The borings are representative of conditions encountered only at the locations drilled. Subsurface variations not indicated by the borings are possible.

We believe this investigation was conducted in a manner consistent with the level of care and skill ordinarily used by geotechnical engineers practicing under similar conditions. No warranty, express or implied, is made. If we can be of further service in discussing the contents of this report, or in the analysis of the influence of the subsurface conditions on the design of the structures or any other aspect of the proposed construction, please call.

CTL | THOMPSON, INC.

Deon Waldmeier, E.I.T.
Staff Engineer

Reviewed by:

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RYAN E LICKTEIG
55118
PROFESSIONAL ENGINEER

Ryan Lickteig, P.E.
Sr. Associate Engineer

5/18/2026

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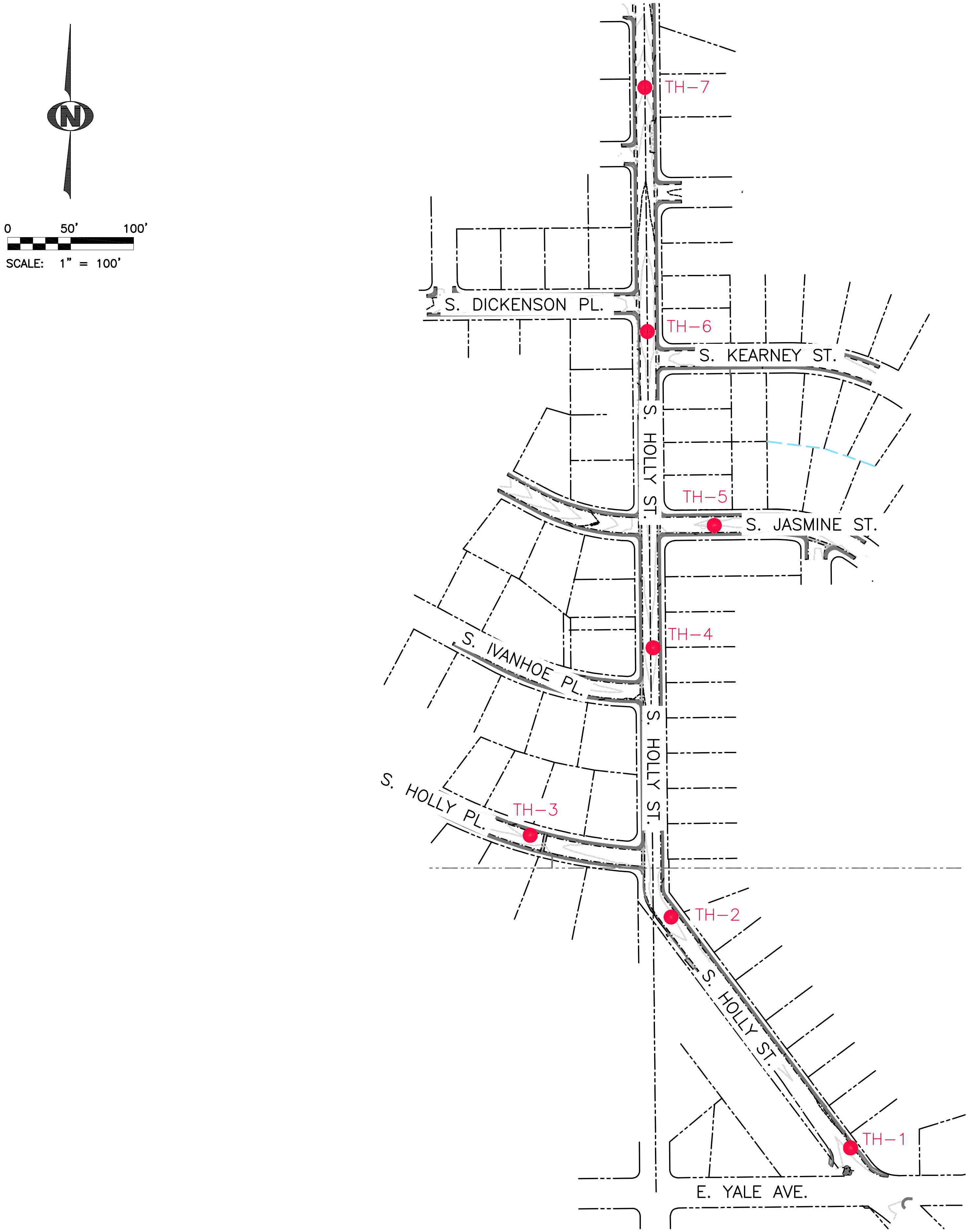
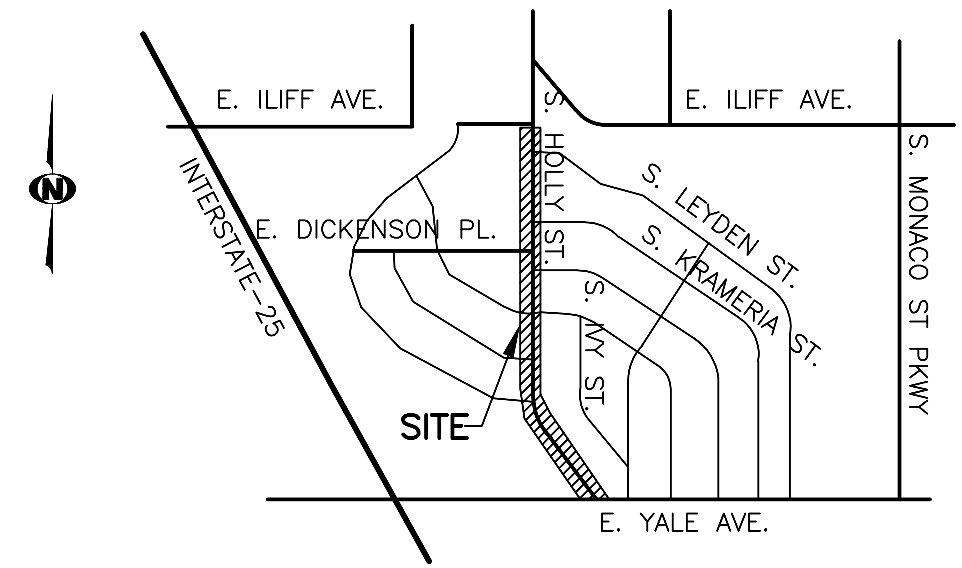




VICINITY MAP
NOT TO SCALE

LEGEND:

TH-1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING

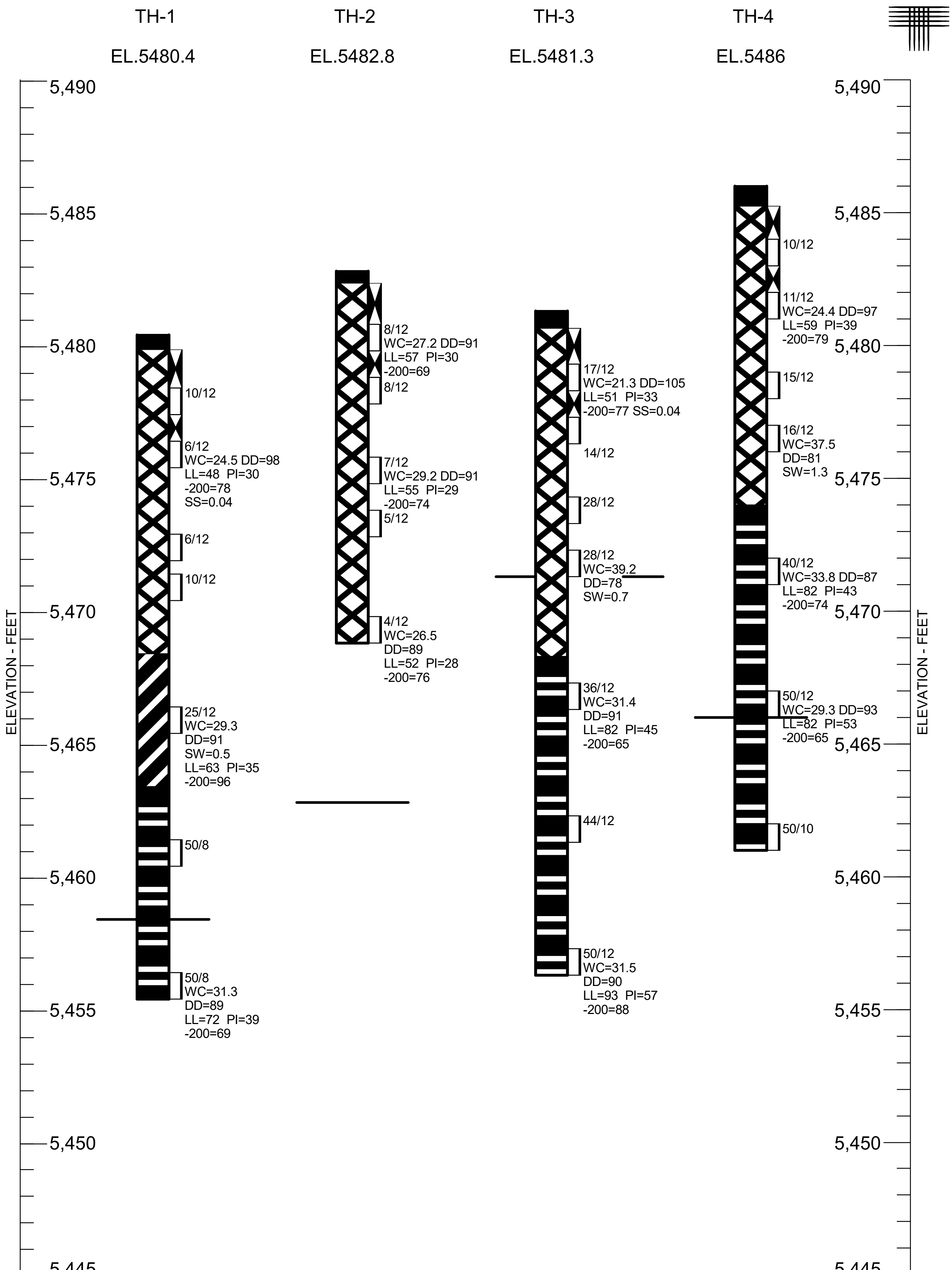
W2 ENGINEERS, LLC
SOUTH HOLLY STREET SANITARY SEWER REPLACEMENT PROJECT
CTL|T Project No. DN52,778-125-R1

Locations of Exploratory Borings

Fig. 1

APPENDIX A

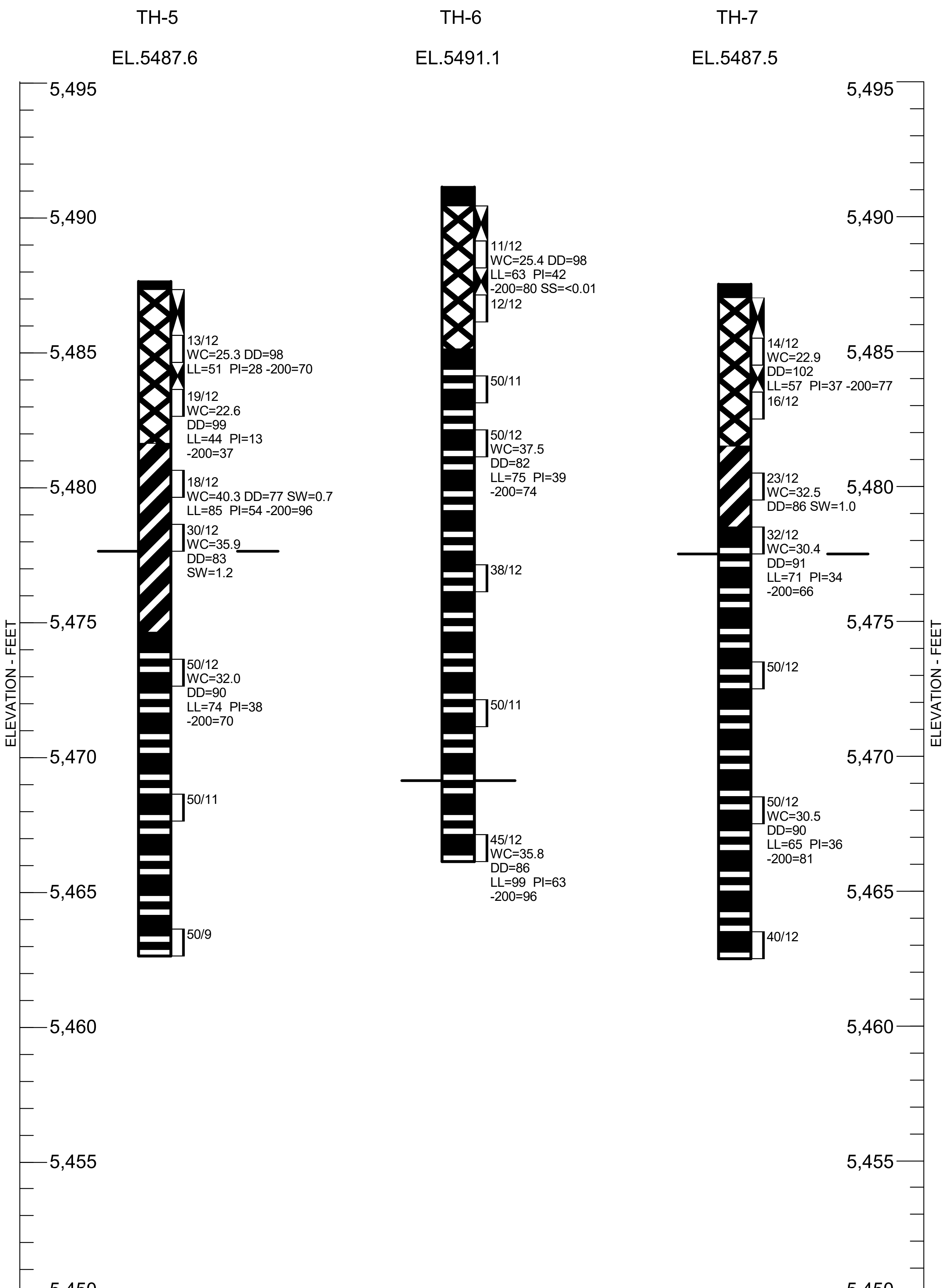
SUMMARY LOGS OF EXPLORATORY BORINGS



SUMMARY LOGS OF EXPLORATORY BORINGS

W2 ENGINEERS, LLC
SOUTH HOLLY STREET SANITARY SEWER REPLACEMENT PROJECT
CTL|T PROJECT NO. DN52,778-125-R1

FIG. A-1



SUMMARY LOGS OF EXPLORATORY BORINGS

LEGEND:

- ASPHALT PAVEMENT (3 TO 8 INCHES THICK).
- FILL, CLAY, SANDY OR SAND, CLAYEY, MEDIUM STIFF TO VERY STIFF OR MEDIUM DENSE, SLIGHTLY MOIST TO MOIST, DARK BROWN, LIGHT BROWN, YELLOWISH BROWN, REDDISH BROWN, LIGHT GRAY, WHITE.
- WEATHERED BEDROCK, CLAYSTONE, MOIST, YELLOWISH BROWN, PALE BROWN, LIGHT GRAY, WHITE.
- BEDROCK, CLAYSTONE, SILTY AT TIMES, MEDIUM HARD TO HARD, MOIST, DARK BROWN, LIGHT BROWN, YELLOWISH BROWN, REDDISH BROWN, GRAY, BLACK, WHITE.
- DRIVE SAMPLE. THE SYMBOL 10/12 INDICATES 10 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2.5-INCH O.D. SAMPLER 12 INCHES.
- INDICATES BULK SAMPLE OBTAINED FROM AUGER CUTTINGS.
- APPROXIMATE PIPE INVERT ELEVATION (FEET).

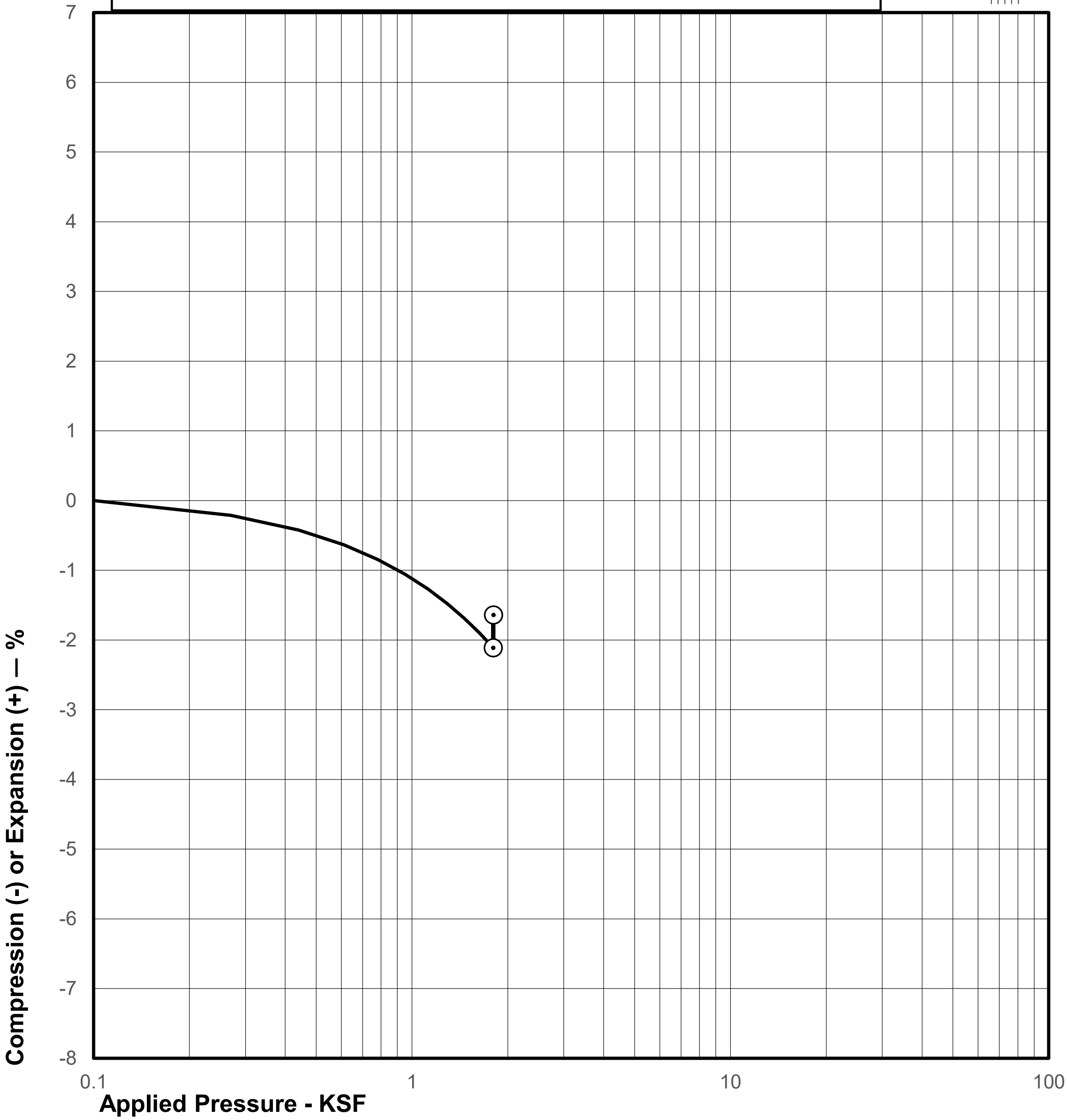
NOTES:

1. THE BORINGS WERE DRILLED APRIL 7, 2026 USING A 4-INCH DIAMETER, CONTINUOUS-FLIGHT SOLID-STEM AUGER AND TRUCK-MOUNTED CME-45 DRILL RIG.
2. BORING LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND WERE DETERMINED BY A REPRESENTATIVE OF OUR FIRM USING A LEICA GS18 GPS UNIT REFERENCING THE NORTH AMERICAN DATUM OF 1983 (NAD83).
3. GROUNDWATER WAS NOT ENCOUNTERED DURING THIS INVESTIGATION.
4. WC - INDICATES MOISTURE CONTENT (%).
   DD - INDICATES DRY DENSITY (PCF).
   SW - INDICATES SWELL WHEN WETTED UNDER APPROXIMATE OVERBURDEN PRESSURE (%).
   LL - INDICATES LIQUID LIMIT.
   PI - INDICATES PLASTICITY INDEX.
   -200 - INDICATES PASSING NO. 200 SIEVE (%).
   SS - INDICATES WATER-SOLUBLE SULFATE CONTENT (%).
5. THESE LOGS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS, AND CONCLUSIONS AS CONTAINED IN THIS REPORT.

APPENDIX B

LABORATORY TEST RESULTS
TABLE B-I – SUMMARY OF LABORATORY TESTING

Sample exhibited expansion of 0.5 percent when wetted under an applied pressure of 1800 psf.

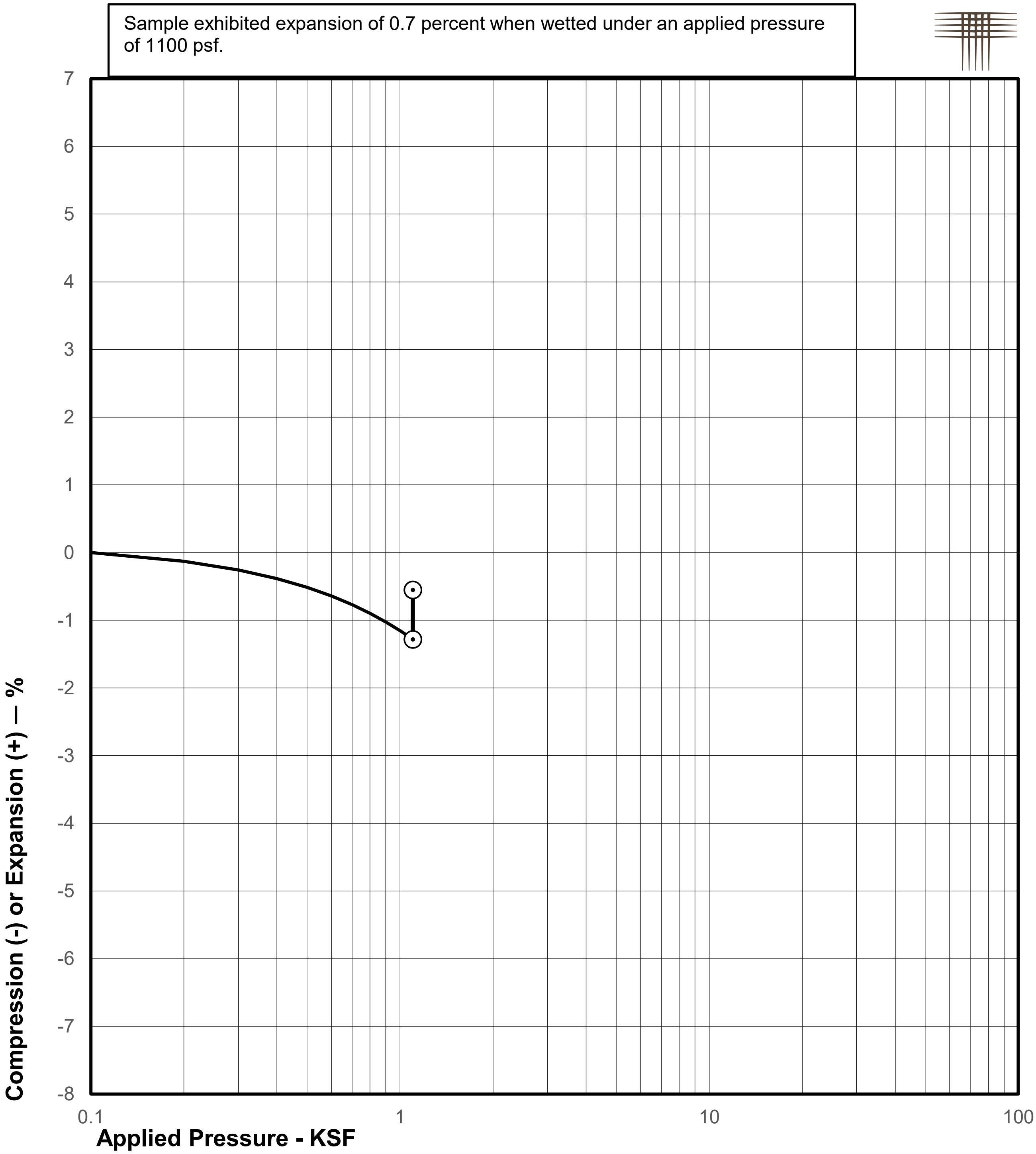


SAMPLE OF: WEATHERED CLAYSTONE

FROM: TH-1 AT 14 FEET

MOISTURE CONTENT:	29.3 %	LIQUID LIMIT:	63	SILT AND CLAY:	96 %
DRY UNIT WEIGHT:	91 pcf	PLASTICITY INDEX:	35	SOIL SUCTION:	pF

Swell Consolidation Test Results

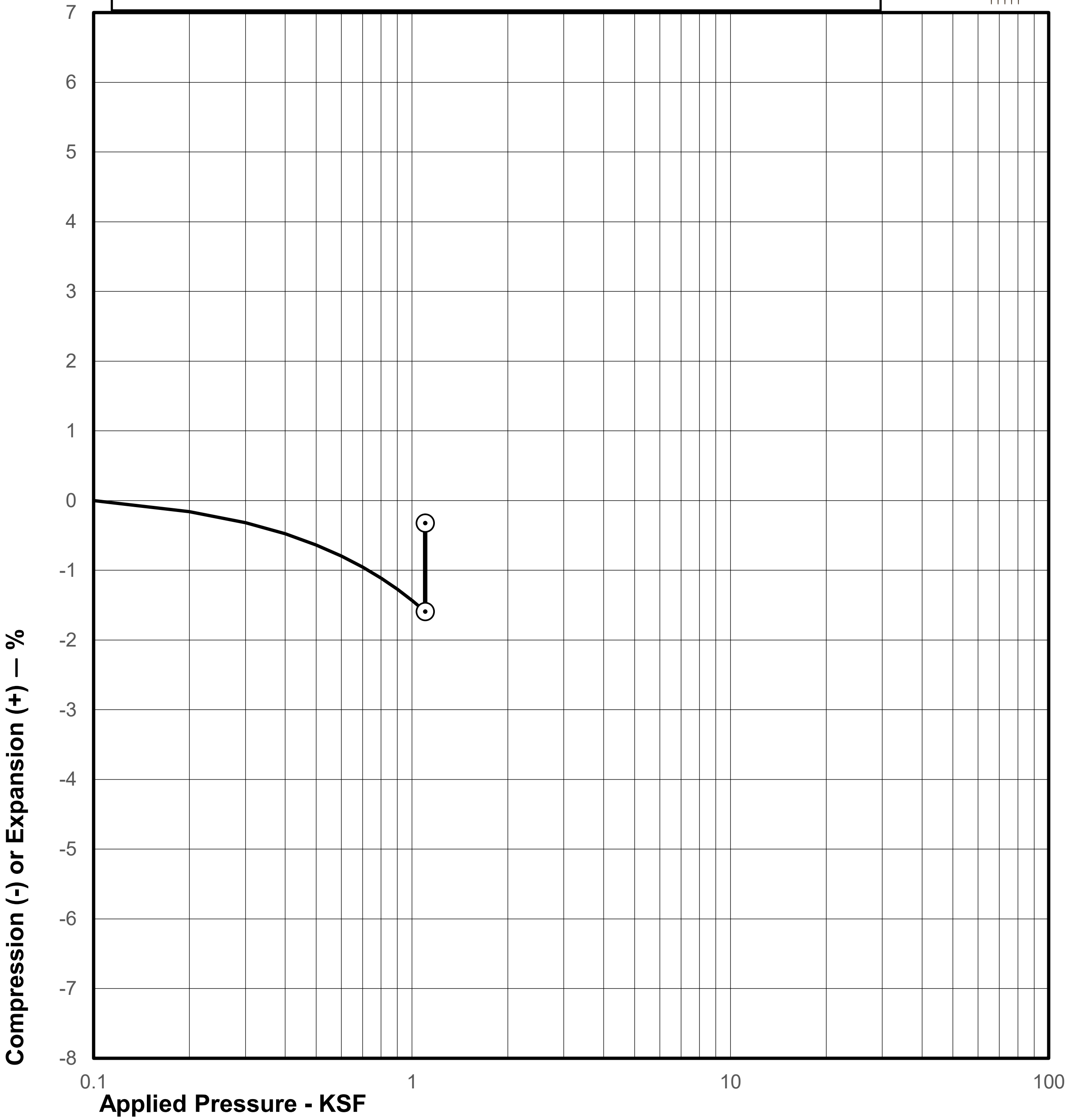


SAMPLE OF: FILL, CLAY, SANDY
FROM: TH-3 AT 9 FEET

MOISTURE CONTENT: 39.2 % LIQUID LIMIT: ____ SILT AND CLAY: ____ %
DRY UNIT WEIGHT: 78 pcf PLASTICITY INDEX: ____ SOIL SUCTION: ____ pF

Swell Consolidation Test Results

Sample exhibited expansion of 1.3 percent when wetted under an applied pressure of 1100 psf.

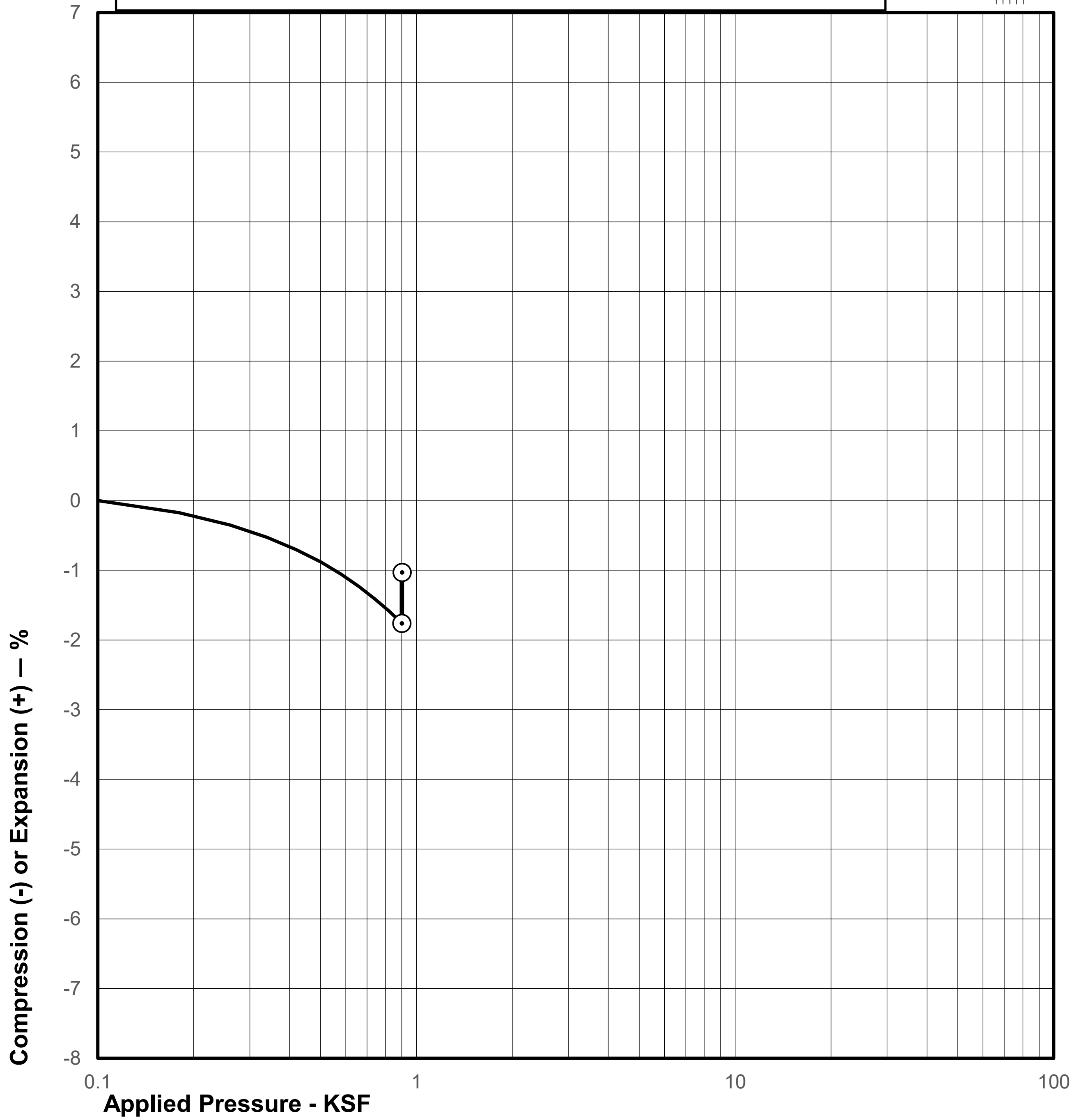


SAMPLE OF: FILL, CLAY, SANDY
FROM: TH-4 AT 9 FEET

MOISTURE CONTENT:	37.5 %	LIQUID LIMIT:		SILT AND CLAY:	%
DRY UNIT WEIGHT:	81 pcf	PLASTICITY INDEX:		SOIL SUCTION:	pF

Swell Consolidation Test Results

Sample exhibited expansion of 0.7 percent when wetted under an applied pressure of 900 psf.



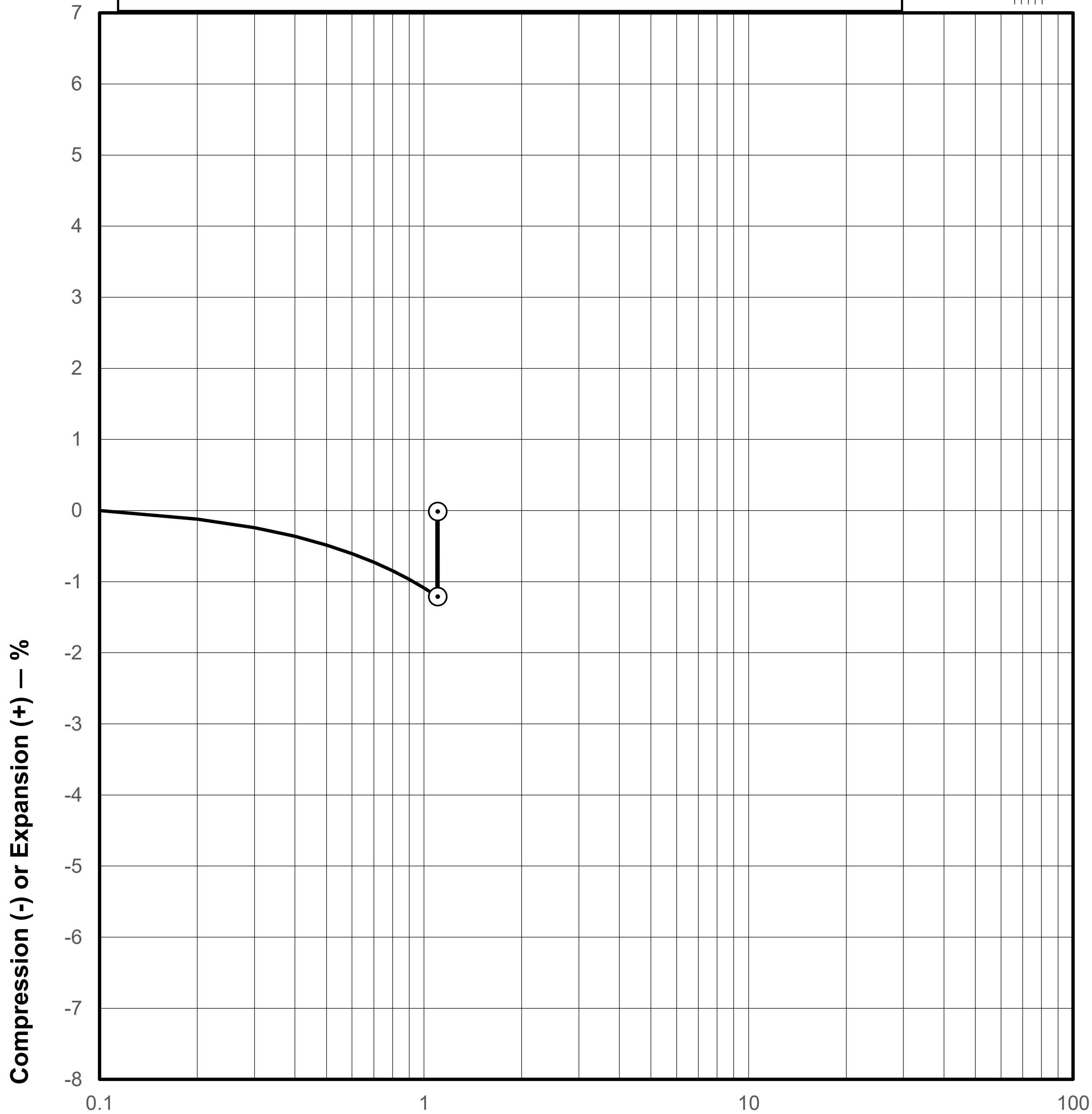
SAMPLE OF: WEATHERED CLAYSTONE

FROM: TH-5 AT 7 FEET

MOISTURE CONTENT:	40.3 %	LIQUID LIMIT:	85	SILT AND CLAY:	96 %
DRY UNIT WEIGHT:	77 pcf	PLASTICITY INDEX:	54	SOIL SUCTION:	pF

Swell Consolidation Test Results

Sample exhibited expansion of 1.2 percent when wetted under an applied pressure of 1100 psf.



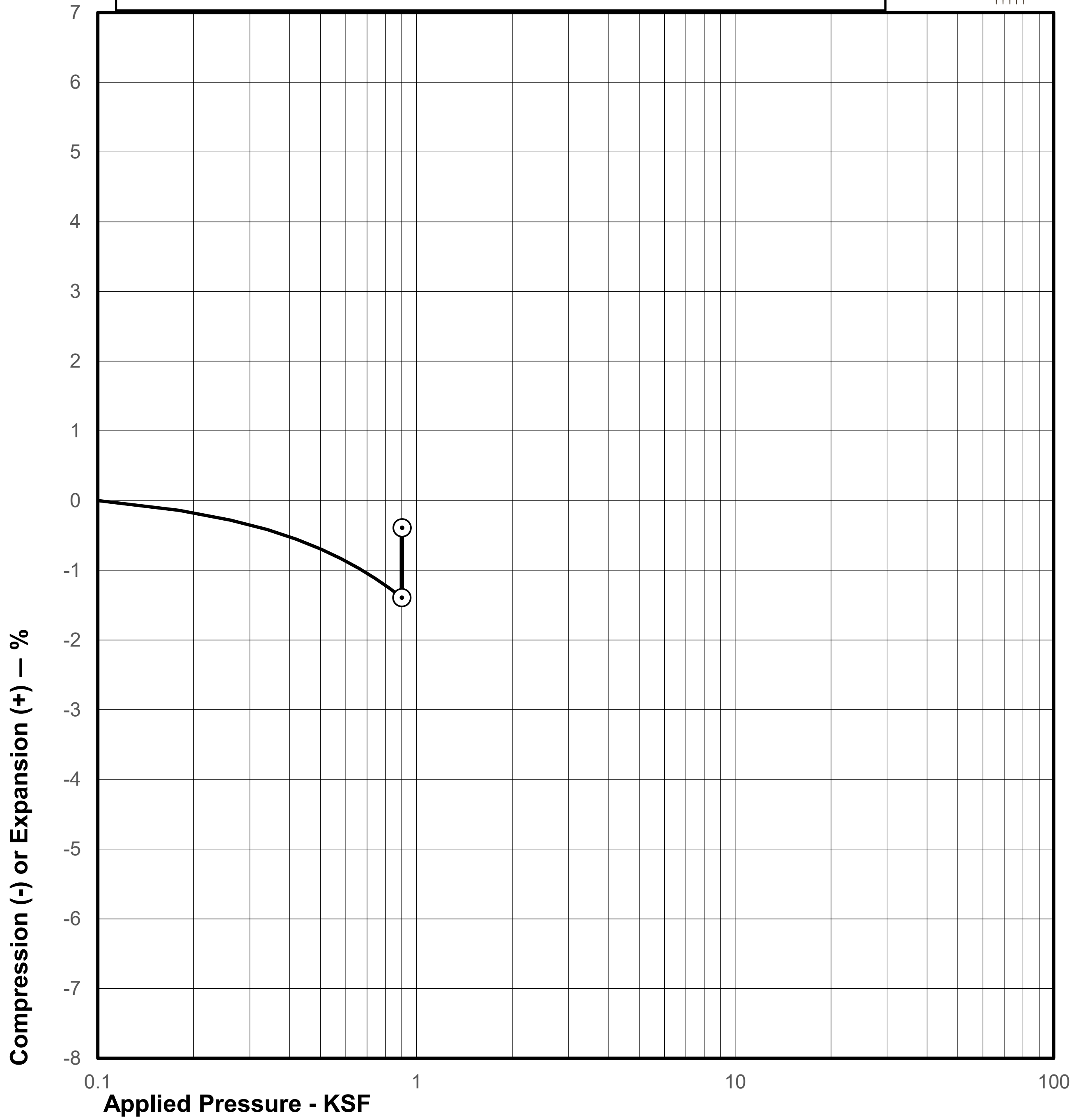
SAMPLE OF: WEATHERED CLAYSTONE

FROM: TH-5 AT 9 FEET

MOISTURE CONTENT:	35.9 %	LIQUID LIMIT:		SILT AND CLAY:		%
DRY UNIT WEIGHT:	83 pcf	PLASTICITY INDEX:		SOIL SUCTION:		pF

Swell Consolidation Test Results

Sample exhibited expansion of 1.0 percent when wetted under an applied pressure of 900 psf.



SAMPLE OF: WEATHERED CLAYSTONE

FROM: TH-7 AT 7 FEET

MOISTURE CONTENT:	32.5 %	LIQUID LIMIT:		SILT AND CLAY:	%
DRY UNIT WEIGHT:	86 pcf	PLASTICITY INDEX:		SOIL SUCTION:	pF

Swell Consolidation Test Results

CTL | THOMPSON
Founded in 1971

CTL Thompson, Inc. - Denver
1971 West 12th Avenue
Denver, CO 80204
(303) 825-0777
denver@ctlthompson.com

Proctor Report

Report ID: PTR:26-01976-01

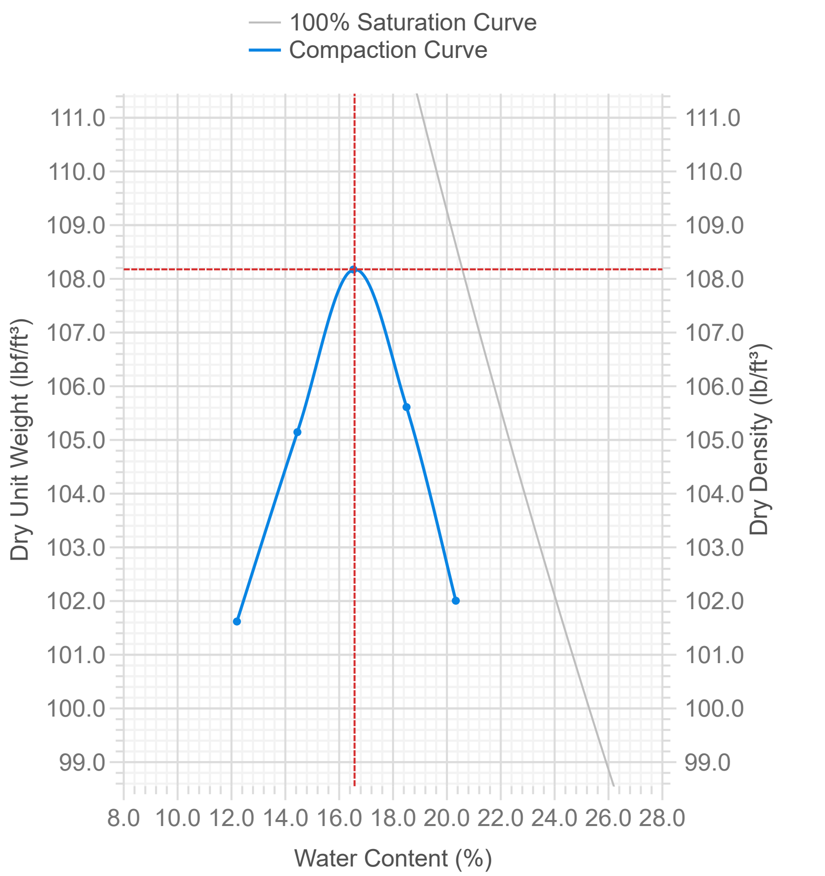
Client: W2 Engineers, LLC

Project: South Holly Street Sanitary Sewer Replacement Project
South Holly Street between East Yale Avenue and South Leyden Street, Denver CO 80222
DN52,778-125-R1

Sample Details

Sample ID: 26-01976-01
Date Sampled: 4/13/2026
Material: FILL, CLAY, SANDY
Sample Number:
Location: TH-1, TH-2, TH-3, TH-4, TH-6, TH-7

Dry Unit Weight - Water Content Relationship



Test Results

ASTM D698	
Std. Maximum Dry Unit Weight (lbf/ft³):	**108.2**
Std. Optimum Water Content (%):	**16.6**
Method:	A
Preparation Method:	Moist
Test Portion Specific Gravity:	2.70
Determined By:	Estimated
Tested By:	Adam Silverman
Date Tested:	4/20/2026
ASTM D4318	
Liquid Limit:	**39**
Plastic Limit:	**16**
Plasticity Index:	**23**
Tested By:	Jeffery Jones
Date Tested:	4/27/2026

Comments

TABLE B - I

SUMMARY OF LABORATORY TEST RESULTS

BORING	DEPTH (ft)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL TEST DATA SWELL (%)	APPLIED PRESSURE (psf)	ATTERBERG LIMITS LIQUID LIMIT	PLASTICITY INDEX	SOLUBLE SULFATE CONTENT (%)	PASSING NO. 200 SIEVE (%)	OPTIMUM MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	SOIL TYPE
BULK SAMPLE	0-5					39	23		52	16.6	108.2	FILL, CLAY, SANDY
TH-1	4	24.5	98			48	30	0.04	78			FILL, CLAY, SANDY
TH-1	14	29.3	91	0.5	1800	63	35		96			WEATHERED CLAYSTONE
TH-1	24	31.3	89			72	39		69			CLAYSTONE
TH-2	2	27.2	91			57	30		69			FILL, CLAY, SANDY
TH-2	7	29.2	91			55	29		74			FILL, CLAY, SANDY
TH-2	13	26.5	89			52	28		76			FILL, CLAY, SANDY
TH-3	2	21.3	105			51	33	0.04	77			FILL, CLAY, SANDY
TH-3	9	39.2	78	0.7	1100							FILL, CLAY, SANDY
TH-3	14	31.4	91			82	45		65			CLAYSTONE
TH-3	24	31.5	90			93	57		88			CLAYSTONE
TH-4	4	24.4	97			59	39		79			FILL, CLAY, SANDY
TH-4	9	37.5	81	1.3	1100							FILL, CLAY, SANDY
TH-4	14	33.8	87			82	43		74			CLAYSTONE
TH-4	19	29.3	93			82	53		65			CLAYSTONE
TH-5	2	25.3	98			51	28		70			FILL, CLAY, SANDY
TH-5	4	22.6	99			44	13		37			FILL, SAND, CLAYEY
TH-5	7	40.3	77	0.7	900	85	54		96			WEATHERED CLAYSTONE
TH-5	9	35.9	83	1.2	1100							WEATHERED CLAYSTONE
TH-5	14	32.0	90			74	38		70			CLAYSTONE
TH-6	2	25.4	98			63	42	<0.01	80			FILL, CLAY, SANDY
TH-6	9	37.5	82			75	39		74			CLAYSTONE
TH-6	24	35.8	86			99	63		96			CLAYSTONE
TH-7	2	22.9	102			57	37		77			FILL, CLAY, SANDY
TH-7	7	32.5	86	1.0	900							WEATHERED CLAYSTONE
TH-7	9	30.4	91			71	34		66			CLAYSTONE
TH-7	19	30.5	90			65	36		81			CLAYSTONE