CANYON COUNTY COMMISSIONERS

Leslie Van Beek District I | **Keri K. Smith** District II | **Pam White** District III

1115 Albany ❖ Caldwell, Idaho 83605 ❖ Telephone: (208) 454-7507 ❖ Fax: (208) 454-7336

March 17, 2022

HCD Inc. Commercial Construction
1012 4th Street North
Nampa, ID 83686
(208) 941-1975

HMH Construction
3516 N Black Butte Ct.
Nampa, ID 83687
(833)-464-2667

JDM Construction Inc.
P.O. Box 116
Caldwell, ID 83606
(208) 453-8678

Radix Construction
4865 E. Franklin Rd. Ste. #100
Nampa, ID 83687
(208) 442-7106

Wright Brothers
779 E State St.
PO Box 877
Eagle, ID 83616
208-938-6000

Re: FY2022 Pickles Butte Sanitary Landfill Dust Control System Project

Dear Licensed Public Works Contractor:

Canyon County and its Department of Solid Waste hereby solicits bids from qualified contractors for construction of facilities related to a Dust Control System. The project will be referred to as FY2022 Pickles Butte Sanitary Landfill Dust Control System Project. The project includes the following elements:

1. Mobilization and demobilization
2. Provide and install a pre-cast pump house
3. Provide and install a buried, pre-cast, 15,000-gallon water tank
4. Provide and install a buried HDPE pipe from an existing well to the buried tank
5. Provide and install a pre-manufactured, J-stand for loading water into water trucks
6. Provide and install interior piping and appurtenances
7. Design, provide and install all electrical and control equipment to operate the system.

Additional information about the requirements and more particularly described in the County's detailed specifications and drawings are provided in Attachment 1 attached hereto. Engineering and construction oversight for the project will be provided by Tetra Tech.

The Dust Control Project is planned in undeveloped areas of County property adjacent to the current landfill as shown on the drawing in Attachment 1. The area is currently unused. The County and the County's engineering subcontractor will be on site intermittently to assist the Contractor as necessary during construction.

A copy of the geotechnical report containing additional details and specifications are provided in Attachment 1. The report covers two separate projects, please refer to the section related to the dust control system only.

In addition to a demonstrated ability to professionally meet the specifications contained herein, the selected contractor must offer the lowest responsive bid, using the Bid Form affixed hereto as Attachment 2, and:

- Furnish satisfactory evidence that contractor has paid or secured all taxes for which contractor or contractor's property is liable then due or delinquent;
- Obtain and maintain all other necessary licenses (including that of a public works contractor), permits, and other authorizations necessary to perform the required work;
- Provide performance bond and payment bond, each in the full contract amount;
- Maintain worker's compensation and employer's liability insurance in an amount equal to, or in excess of, statutory limits;
- Maintain comprehensive and liability insurance in the amount of $1,000,000.00 on all vehicles operated in furtherance of the project and name Canyon County as an additional insured on the insurance policy;
- Maintain commercial general liability insurance in the amount of $1,000,000.00 per occurrence and $2,000,000.00 in the aggregate and name Canyon County as an additional insured on the insurance policy;
- Agree to and comply with Canyon County's Contract for FY2022 Pickles Butte Sanitary Landfill Dust Control System, affixed hereto as Attachment 3 and incorporated by reference;
- Warrant its labor, and materials used, for one year, beginning from the day of acceptance of the dust control system and operation by the County;
- Have the ability to complete the project by August 31, 2022;
- Provide a written history to Canyon County detailing any judgment, claim or suit pending or outstanding against your firm; and
- Provide for any sub-contracting necessary and provide the County copies of such sub's licensure (including that of a public works contractor).

A project walk-through will be held on Thursday, March 31, 2022, beginning at 10:00 a.m., at the Pickles Butte Landfill Office located at 15500 Missouri Avenue, Nampa, Idaho 83686.

Any questions about the project should be directed in writing to:

David Loper, Director
Canyon County Solid Waste
15500 Missouri Avenue

Nampa, Idaho 83686
Or via electronic mail to: David.Loper@canyoncounty.id.gov.

Telephone questions will not be accepted.

Questions about, or objections to, the specifications or bid procedures must be received in writing or email by Friday, April 8, 2022, at 9:00 a.m.

Bids and any objections must be directed to the Canyon County Board of Commissioners via direct delivery or email at commissioner@canyoncounty.id.gov.

Bids must be identified with the subject line "Pickles Butte Sanitary Landfill Dust Control System Project" and must be received by Thursday, April 21, 2022 at 9:00 a.m.

Questions about the bid process must be directed to David Loper, Landfill Director, at (208) 614-5005 or David.Loper@canyoncounty.id.gov.

Although the County intends to accept the responsive bid proposing the lowest, it reserves the right to reject any or all bids or to otherwise act in the best interest of the County. Payment for services at the approved completion of the work will be made in accordance with the contract.

This Solicitation of Bids will also be posted on the Canyon County website Legal Notices section: https://www.canyonco.org/elected-officials/commissioners/legal-notices/.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
CANYON COUNTY, IDAHO

Leslie Van Beek, Commissioner

Keri K. Smith, Commissioner

Pam White, Commissioner

Attest: CHRIS YAMAMOTO, CLERK

Deputy Clerk
Attachments

ATTACHMENT 1
Dust Control System

1. Introduction

Canyon County (COUNTY) is seeking bids from qualified general contractors for constructing a Dust Control System at the Pickles Butte Sanitary Landfill in rural Canyon County, south of Nampa, Idaho. The scope of work includes installing piping, placing an underground water tank, an above ground pre-cast pump building, a pre-manufactured water delivery stand, installing pump in the tank with electrical and controls, and associated excavation, backfill and compaction.

Proper equipment and materials handling, and the use of clean (decontaminated) equipment is important to prevent contaminants from being introduced at the site.

2. Scope of Work

The general scope of work includes is described above. Details for each for the work items are presented below. The general Contractor (hereafter referred to as CONTRACTOR) will provide a bid per the provisions in Section 4 and the scope of work described in Section 6.

3. General Provisions

3.1 Scope of Responsibility

CONTRACTOR shall furnish all labor, equipment (including mobilization/ demobilization), and materials for completing the work described in these specifications.

3.2 Permits and Notifications

CONTRACTOR shall be responsible for obtaining all applicable permits and notifications and shall maintain a copy of all permits on the project site during construction.

3.3 Access

CONTRACTOR will have access to the site to perform the work described herein during normal landfill operating hours (Monday through Saturday, 7:30 am to 5:30 pm, major holidays excluded). Site access is off Deer Flat Road. The County will be responsible for construction of on onsite roads, which may not be completed before the project is initiated. Assume access is on dirt roads onsite.

3.4 Security

CONTRACTOR will be responsible to securing their equipment and supplies at the end of each work shift. COUNTY will not be responsible for losses by vandalism, theft, weather, or natural disasters. CONTRACTOR shall secure their work areas and barricade or cover excavation to ensure public safety and to prevent the entry of foreign material (solids and liquids) whenever work is interrupted by such events as overnight shutdown or weather delays.

3.5 Spills or Chemical Releases

CONTRACTOR shall be responsible for addressing and immediately responding to any spill (at contractor's expense and in a manner satisfactory to the COUNTY) that may occur from CONTRACTOR's activities and equipment. This may include,

but is not limited to, immediately controlling the spill, notifying the Solid Waste Director, and taking corrective action.

3.6 Health and Safety

CONTRACTOR is responsible for the Health and Safety of the contractor's crew and support personnel. COUNTY may request a copy of CONTRACTOR'S project Health and Safety plan prior to beginning site activities. In addition, the CONTRACTOR must comply with the current recommendations as issued by the CDC and state of Idaho, as well as any requirements of Canyon County during the COVID-19 pandemic.

3.7 Compliance With Rules

Notwithstanding the text of this Request for Bid, CONTRACTOR must conduct and complete the work in accordance with all applicable state, federal and local regulations.

4. Specific Work Details

4.1 Mobilization

CONTRACTOR shall perform the preparatory work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to the site. This work item includes preparing, moving, and setting up all buildings and equipment for onsite facilities; Site security; establishing and decommissioning the staging area(s) and Contractor's facilities; removal of all buildings, garbage, equipment, leftover materials, and incidentals from the site; and Site Cleanup. CONTRACTOR'S cost for all materials, equipment, and personnel required by Contractor for the Work is included in this work item. Mobilization and demobilization costs for subcontracted work shall be included in this Bid Item. Contractor's cost for administration, bonding, insurance, site documents, and submittals is included in this work item. The bit item price for this work item may not exceed 10% of the total contract price.

4.2 Buried 2" Dia. SDR-13.5 HDPE Pipe

CONTRACTOR shall supply, install, fuse and pressure test the HDPE pipe at the locations and to the lines and grades shown on the Drawings. Engineer shall provide CONTRACTOR with AutoCAD compatible coordinates and elevation (.xml format). This pipeline will be utilized for transferring water from an existing well to a proposed buried tank.

Work for this item shall also include excavation where necessary; providing, placing, and compacting Type I Bedding (or approved borrow material) around the HDPE pipe; and placing and compacting native material from excavation and existing ditch spoils.

Type I Bedding shall consist of material free of rocks larger than two inches in diameter as measured along any axis, contain no organic material, sod, roots, muck, or other deleterious material. **Providing, placing, and compacting Type I Bedding is incidental to this bid item and no additional measurement or payment shall be made.**

Trench excavation spoils generally meeting the specifications of Type I Bedding may be substituted for bedding around the HDPE pipe with Engineer's approval of

materials. Vegetative borrow material generally meeting the specifications of Type I Bedding may be substituted around the HDPE pipe with Engineers approval.

If excess material from pipe excavation occurs, it shall be stockpiled at a location designated by the owner. **Stockpiling is incidental to this bid item and no additional payment shall be made.**

4.3 Tank Pump

CONTRACTOR shall provide and install the Tank Pump as shown on the drawings. CONTRACTOR shall place the Tank Pump by lowering it through the roof of the Pump Building prior to placing the roof on the building.

4.4 Pump Building Interior Piping

CONTRACTOR shall supply and install all the piping shown on the interior of the pump building including valves, gages, and meters. All interior piping shall consist of Ductile Iron (DI) Class 50. All penetrations through the floor of the pump building shall be sealed with non-shrink grout.

4.5 Pump Building Install

The CONTRACTOR shall provide and install the pre-cast pump building built to the dimensions shown on the drawings. Work for this item shall consist of any excavation, gravel and backfill necessary to place the building. CONTRACTOR shall submit the pre-cast manufacturer's drawings for the building to the ENGINEER for approval prior to ordering. CONTRACTOR shall closely coordinate the delivery and installation of the pump building with installation of piping, electrical connections, and tanks under the pump building.

4.6 J Stand

The CONTRACTOR shall supply and install the J-STAND as shown on the drawings. Work for this item shall also include grading, placing the gravel pad under the J-stand, supplying and placing concrete jersey barriers, pouring a concrete sidewalk adjacent to the J-STAND and anchoring the J-STAND with reinforced concrete curb block sections. Exterior piping from outside the pumphouse to the J-STAND is also included in this work item.

4.7 Buried Underground Tank

The CONTRACTOR shall supply and install a pre-cast, reinforced concrete underground tank as shown on the drawings. Work for this item shall include submitting manufacturer's plans for the tank to the ENGINEER for approval prior to ordering, shipping, unloading and otherwise preparing the tank for installation.

4.8 Buried Tank Installation

The CONTRACTOR shall install the buried concrete tank as shown on the drawings. Work for this item will also include excavation and temporary stockpiling, providing and placing gravel base course, placing and assembling the tank sections, placing and compacting backfill and stockpiling excess excavation at a location to be designated by the OWNER. All pipe penetrations through the tank shall be sealed with non-shrink grout. At least five days prior to installation CONTRACTOR shall submit a plan to the ENGINEER for approval describing installation methods.

4.9 Electrical and Controls

The CONTRACTOR shall provide all electrical power and controls to run the system as described in the attached Scope of Work for Electrical and Controls.

4.10 Optional Road Construction

The Owner may choose to add Road Construction to this Contract depending on bid price, available funding and other factors. The CONTRACTOR shall excavate, backfill, compact and grade the roadbed; provide, place and compact l base course and asphalt; and provide and place a 12” diameter corrugated metal pipe (CMP) culvert as shown on the Drawings.

Attachment 1

Electrical and Controls Scope of Work

All electrical and controls to comply with national, state and local codes.

Provide power drops, panels, switches, alarms, lighting, heating and programming to interact with level and flow controls as described below:

1. Pump Building
    a. Interior lighting with wall mounted hand on-off switch.
    b. Electric baseboard heating with sufficient wattage to maintain a building internal temperature of 50 °F with wall mounted thermostat to control heaters.
    c. Through the wall or through the floor electrical conduits to supply power and controls to panels for well operation and tank pumping.
    d. Provide at least two 110 V outlets for supplying miscellaneous power tools and other apparatus during operation.
2. Well pump operation
    a. Well pump shall be Goulds 45GS100 with a 10 HP motor (220V, 3-Phase).
    b. Well pump to be operated by Franklin Electric Starter SPS3R-S1/K-G30-18 as supplied by Hiddleston Drilling.
    c. Well pump to be operated at a maximum of 20 gallons per minute (gpm). Control rate by operating gate valve and monitoring flow at the pump building.
    d. Well pump to operate only when the well water level is above 490 feet below ground surface (bgs) as reported by the existing in-well level transducer.
    e. Well pump low alarm to be activated when the well water level is below 495 feet bgs as reported by the in-well level transducer.
    f. Well pump to operate only when the tank water level is below elevation 2733.0 feet as reported by the level controls supplied with the tank pump.
    g. Provide a separate, wall-mounted panel in the pump building to affect the well controls described above and any relays, switches, and alarms as necessary.
3. Tank pump operation
    a. Pump shall be Flowserve 2E6x4SP-10HRV with 10HP motor (190 V, 3 phase) and nominal operating point of 700 gpm at 20 feet total dynamic head (TDH).
    b. Tank pump to be operated at 700 gpm with a maximum of 750 gpm. Control rate by operating gate valve and monitoring flow at the pump building.
    c. Tank pump to operate only when tank water level elevation is 2726.0 feet or higher as reported by the level controls supplied by with the pump.
    d. Tank high alarm when the water level is above elevation 2733.1 feet as reported by the level controls supplied with the pump.
    e. Tank low alarm when the water level is below elevation 2725.8 feet as reported by the water level controls supplied with the pump.
    f. Tank pump to be operated by water truck operators using a hand on-off switch in the pump house.
    g. Provide a separate, wall mounted panel in the pump building to affect the well controls described above and any relays, switches, and alarms as necessary.

Attachment 1

PICKLES BUTTE LANDFILL
DUST CONTROL WELL PUMP STATION AND STORAGE TANK

3380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030
www.tetratech.com

TETRA TECH

SHEET INDEX

LEGEND

EXISTING

- EXISTING GROUND MAJOR CONTOUR & ELEVATION LABEL (2700)
- EXISTING GROUND MINOR CONTOUR
- EXISTING PAVED ROAD
- EXISTING GUARD RAIL
- EXISTING UNPAVED ROAD
- EXISTING PARKING AREA
- EXISTING TRAIL
- EXISTING VEGETATION
- EXISTING UNTILITY POLE
- EXISTING FENCE
- EXISTING CULVERT
- EXISTING WELL
- EXISTING UNIDENTIFIED UTILITY

PROPOSED

- PROPOSED EXCAVATION BOUNDARY
- FINAL GRADE MAJOR CONTOUR & ELEVATION LABEL (2700)
- FINAL GRADE MINOR CONTOUR
- PROPOSED UNDERGROUND TANK
- PROPOSED CONCRETE PAD
- PROPOSED PIPE
- PROPOSED PIPELINE CENTERLINE (W)
- PROPOSED DRAINAGE CENTERLINE
- PROPOSED CULVERT
- PROPOSED ROAD CENTERLINE
- PROPOSED ROAD EDGE

PROFESSIONAL ENGINEER LICENSED 16021 STATE OF IDAHO MAUREEN A. McGRAW
1/27/22

PROJECT LOCATION:
16241 DEER FLAT ROAD
CALDWELL, IDAHO 83607

CLIENT INFORMATION:
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVENUE
NAMPA, IDAHO 83686

Tt PROJECT No.:
114-571-040-2022

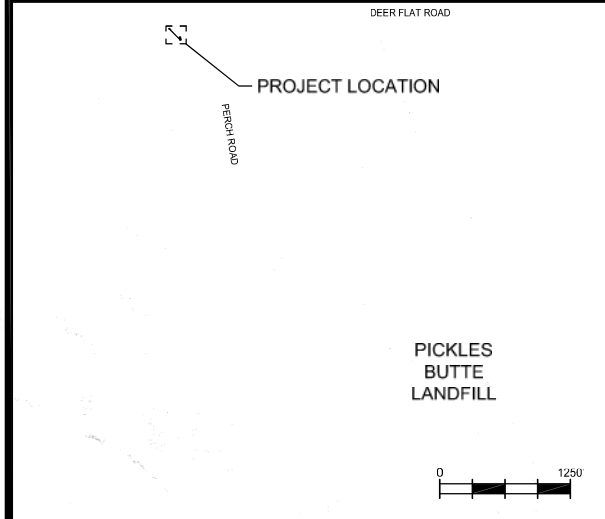
PROJECT DESCRIPTION / NOTES:
DUST CONTROL WELL PUMP
STATION, STORAGE TANK, AND ACCESS ROAD

CANYON COUNTY IDAHO 1892

ISSUED:

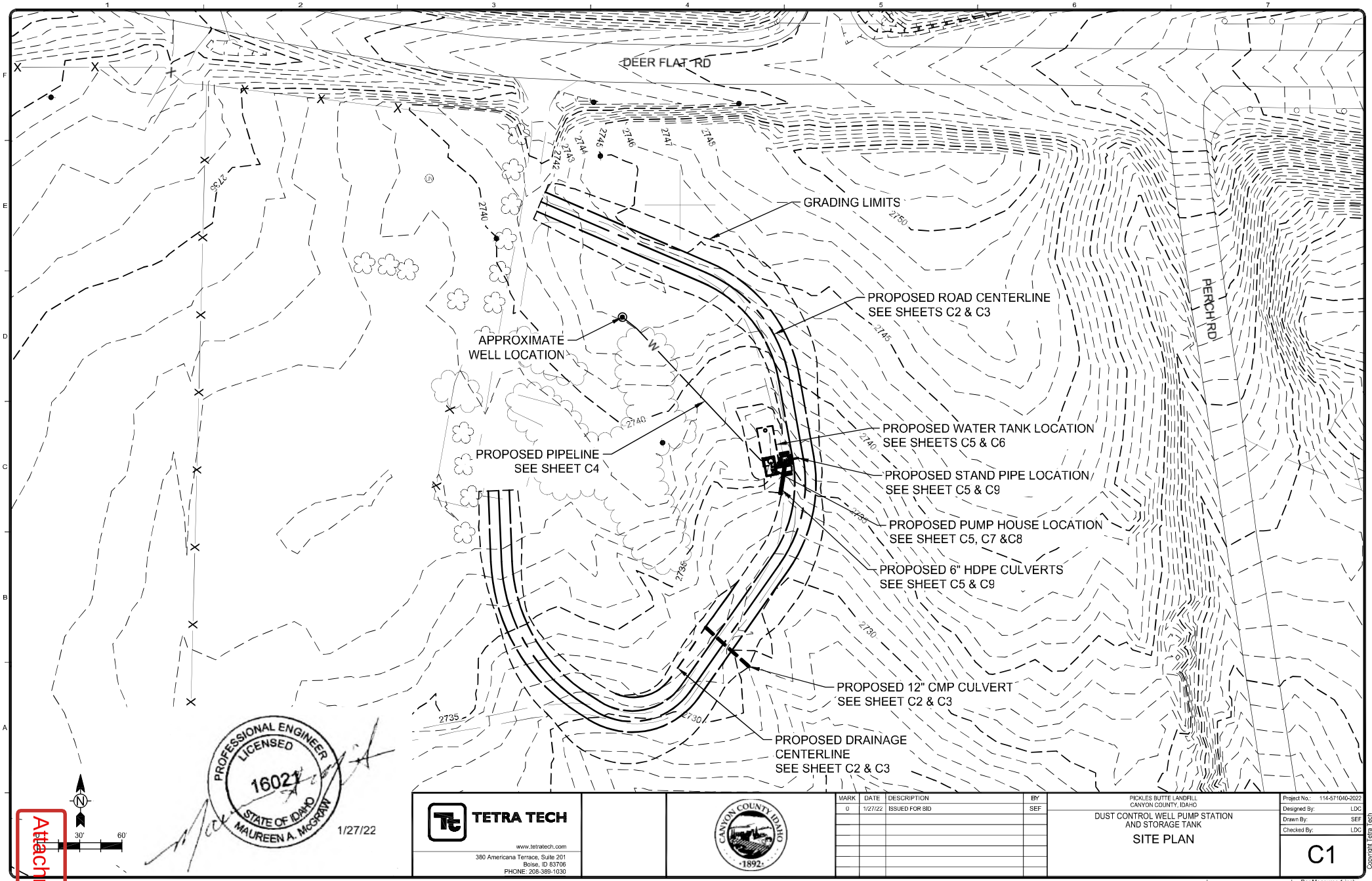
1/27/2022 ISSUED FOR BID

VICINITY MAP:



Attachment 1

PICKLES BUTTE LANDFILL DUST CONTROL WELL PUMP STATION AND STORAGE TANK



PROFESSIONAL ENGINEER LICENSED 16021 STATE OF IDAHO MAUREEN A. McGRAW 1/27/22

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO

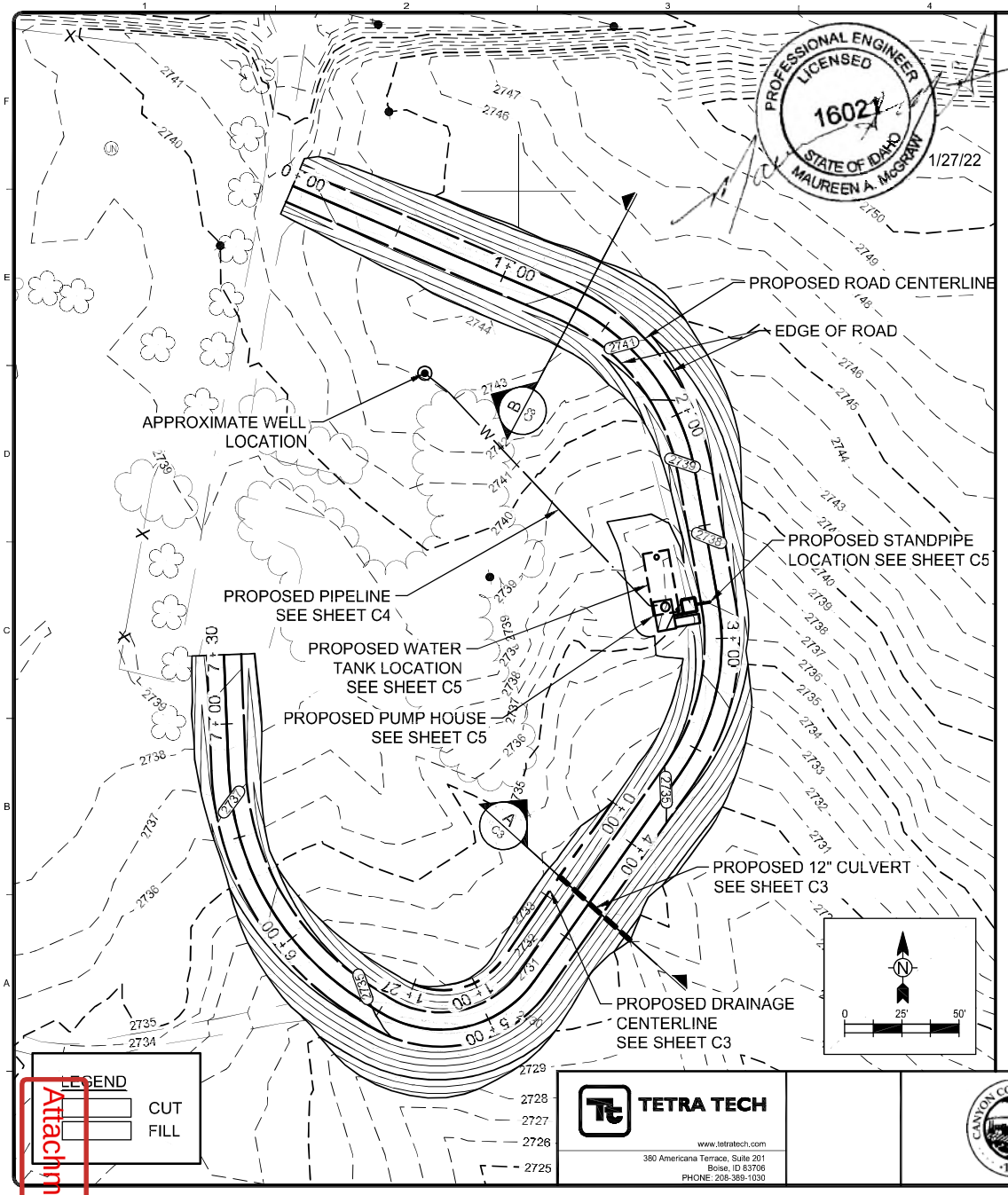
DUST CONTROL WELL PUMP STATION
AND STORAGE TANK

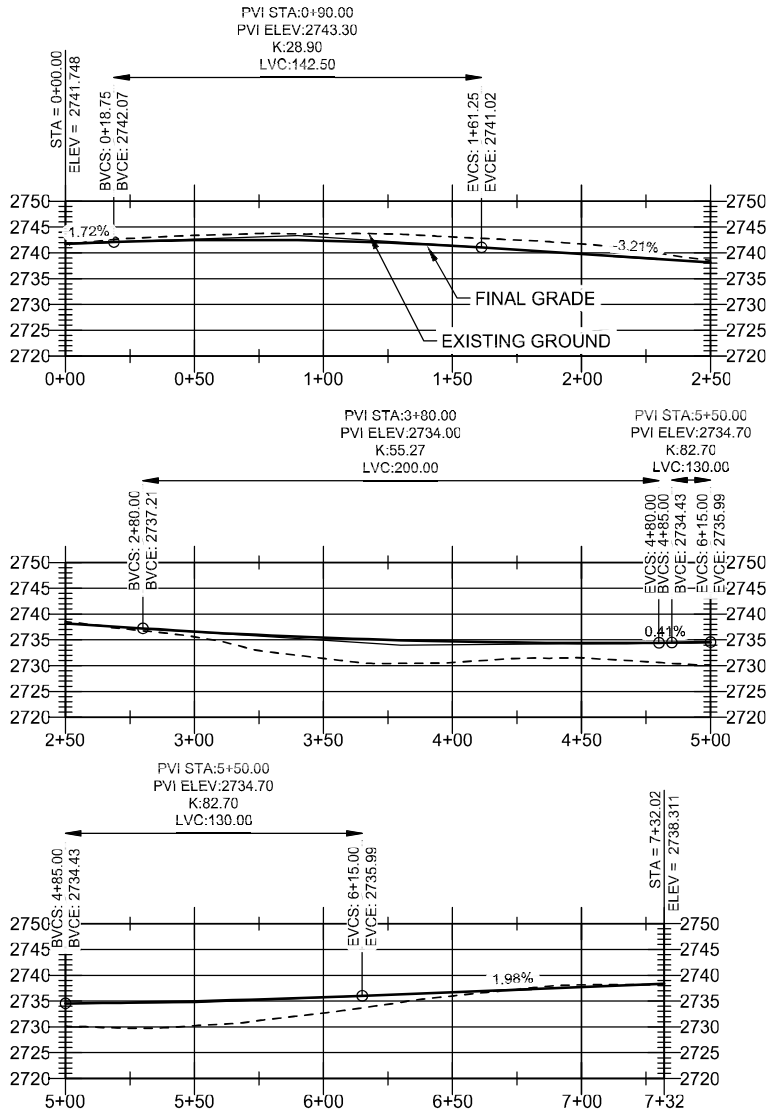
SITE PLAN

Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

C1

Bar Measures 1 inch





PROPOSED ROAD CENTERLINE PROFILE

MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO
DUST CONTROL WELL PUMP STATION AND STORAGE TANK
ROAD
PLAN & PROFILE

Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

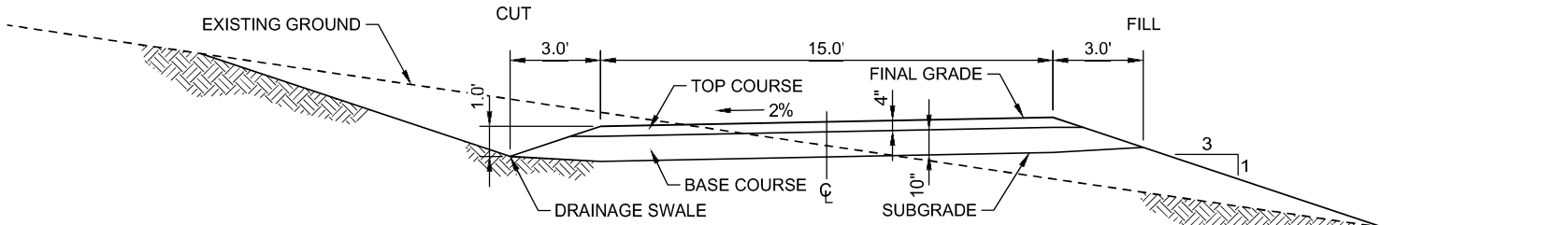
C2

Copyright Tetra Tech

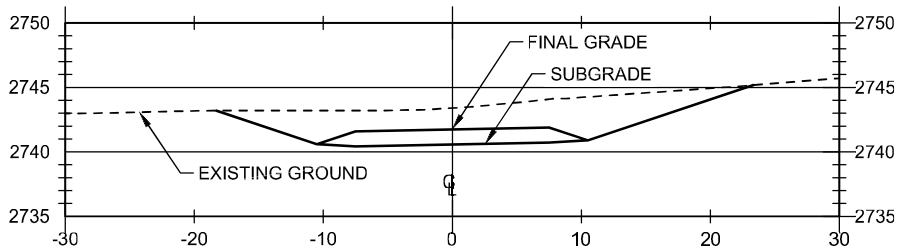
Bar Measures 1 Inch

1/27/2022 12:14 PM - O:\T-Z\TIMISSOULA\114-571040-2020 - PICKLES BUTTE LANDFILL 2020\07-CAD\SHEETFILES\C2-3-ROAD PLAN AND PROFILE.DWG

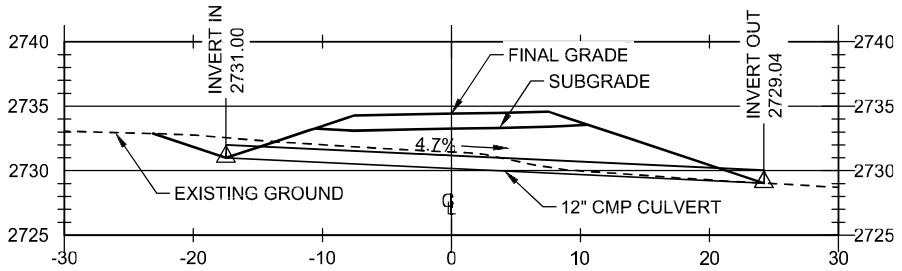
Attachment 1



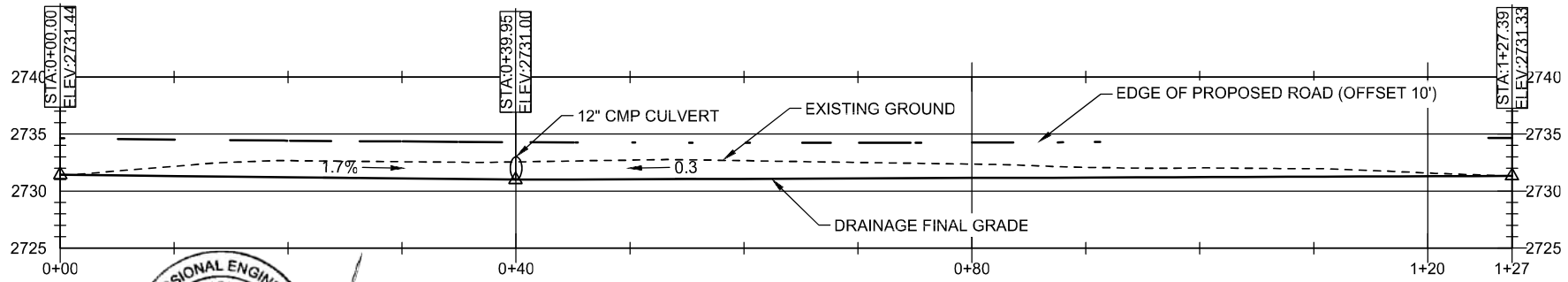
2 C2 TYPICAL ROAD SECTION
SCALE: 1"=4'



A C2 SECTION STA 0+40
SCALE: 1"=10'



B C2 SECTION STA 4+32
SCALE: 1"=10'



PROPOSED ROAD DRAINAGE CENTERLINE PROFILE
SCALE: 1"=10'

PROFESSIONAL ENGINEER LICENSED 16021 STATE OF IDAHO MAUREEN A. McGRAW
1/27/22

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

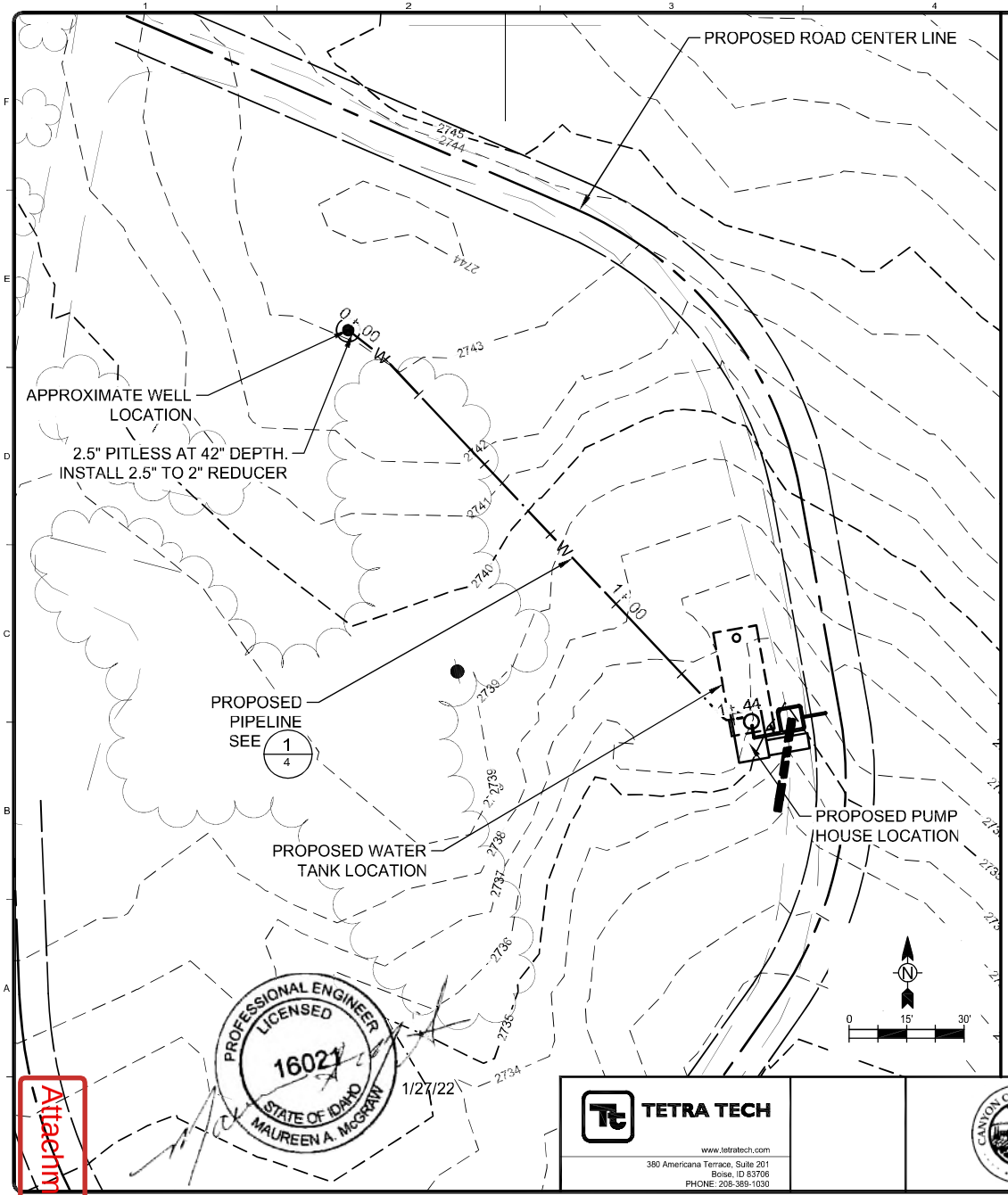
PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO
DUST CONTROL WELL PUMP STATION AND STORAGE TANK
ROAD SECTIONS AND DRAINAGE PROFILE

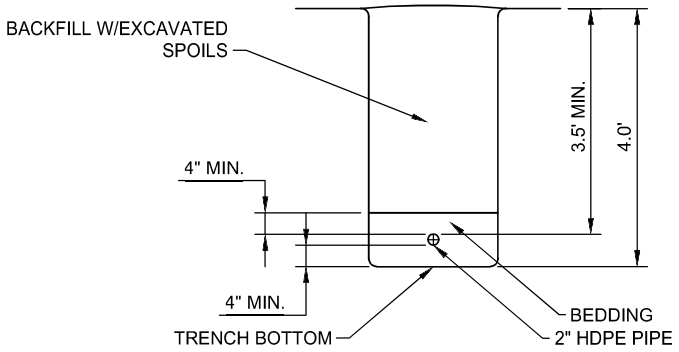
Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

C3

Bar Measures 1 inch

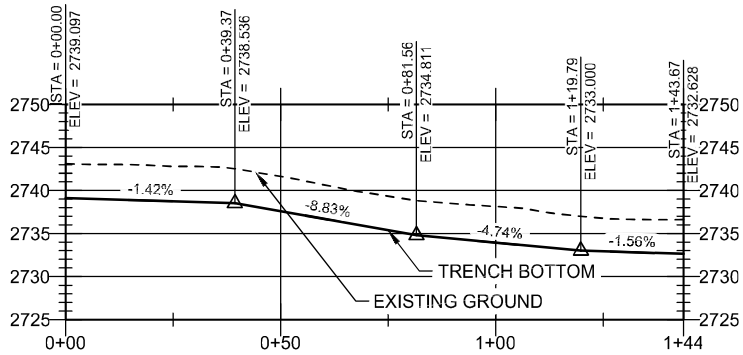
Attachment 1





1/4 TYPICAL TRENCH BACKFILL DETAIL

SCALE: NTS



PIPELINE TRENCH CENTERLINE PROFILE

PROFESSIONAL ENGINEER LICENSED 16021 STATE OF IDAHO MAUREEN A. McGRAW 1/27/22

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO

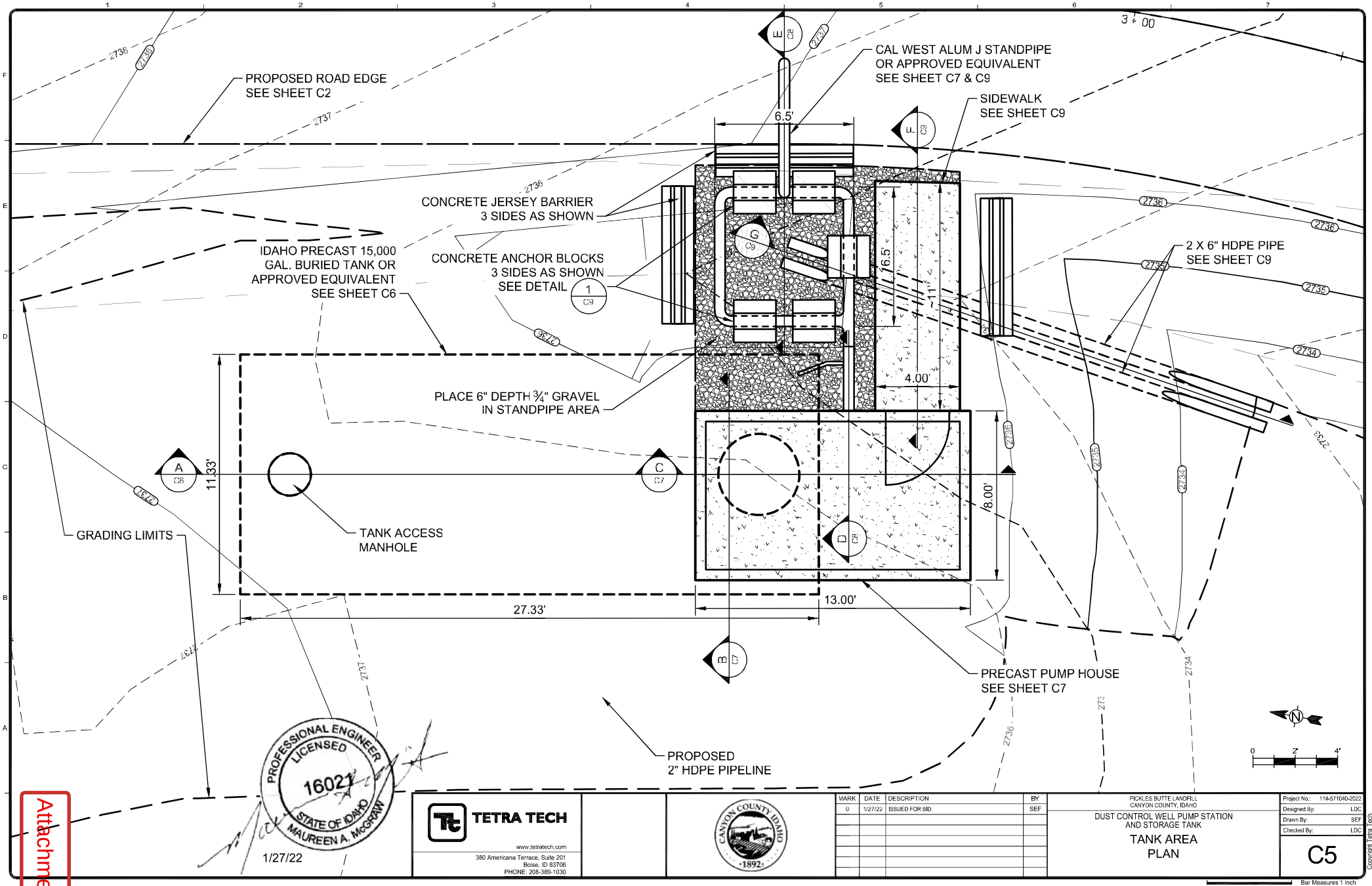
DUST CONTROL WELL PUMP STATION AND STORAGE TANK

PIPELINE
PLAN & PROFILE

Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

C4

Bar Measures 1 Inch



PROFESSIONAL ENGINEER LICENSED 16021 STATE OF IDAHO MAUREEN A. McGRAW

1/27/22

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO

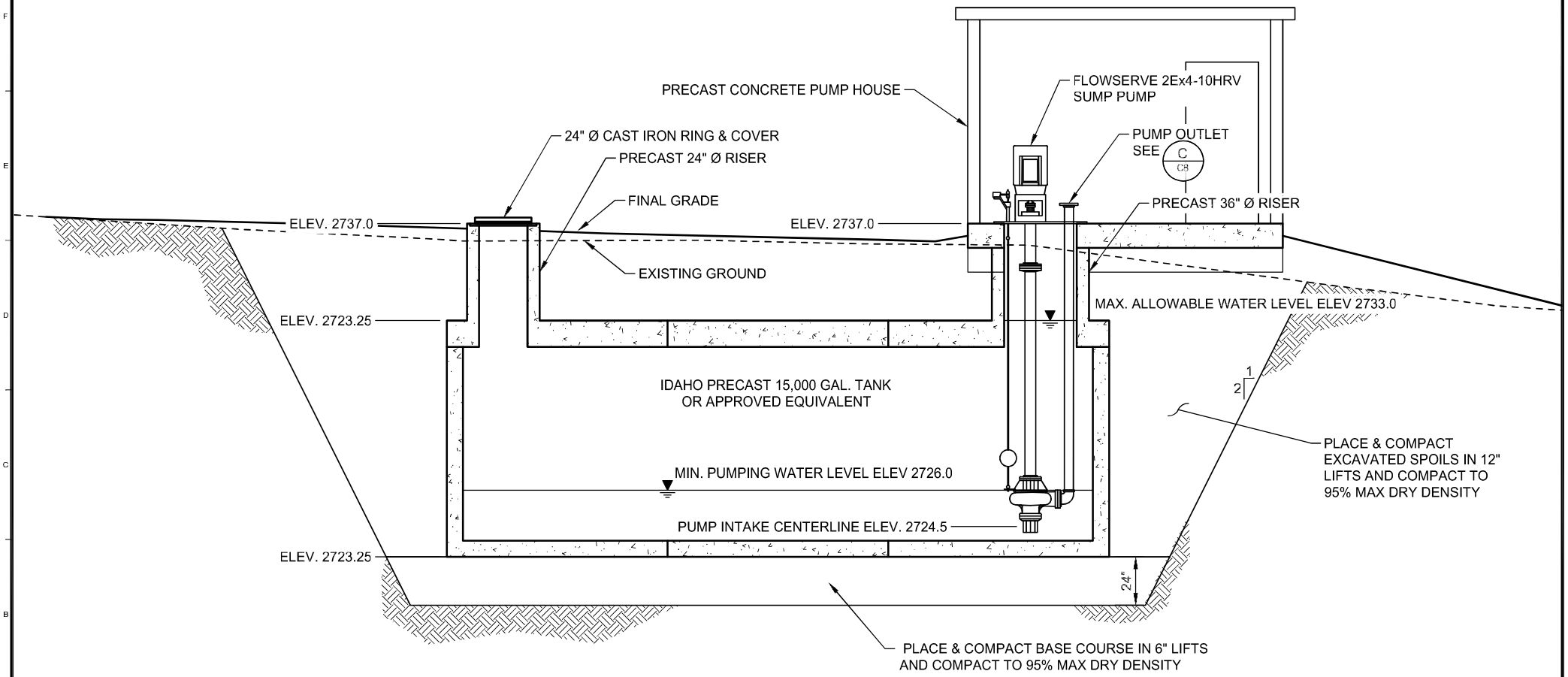
DUST CONTROL WELL PUMP STATION
AND STORAGE TANK

TANK AREA
PLAN

Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

C5

Bar Measures 1 inch



A C5 SECTION A
SCALE: 1"=4'-0"

PROFESSIONAL ENGINEER LICENSED 16021 STATE OF IDAHO MAUREEN A. McGRAW
1/27/22

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

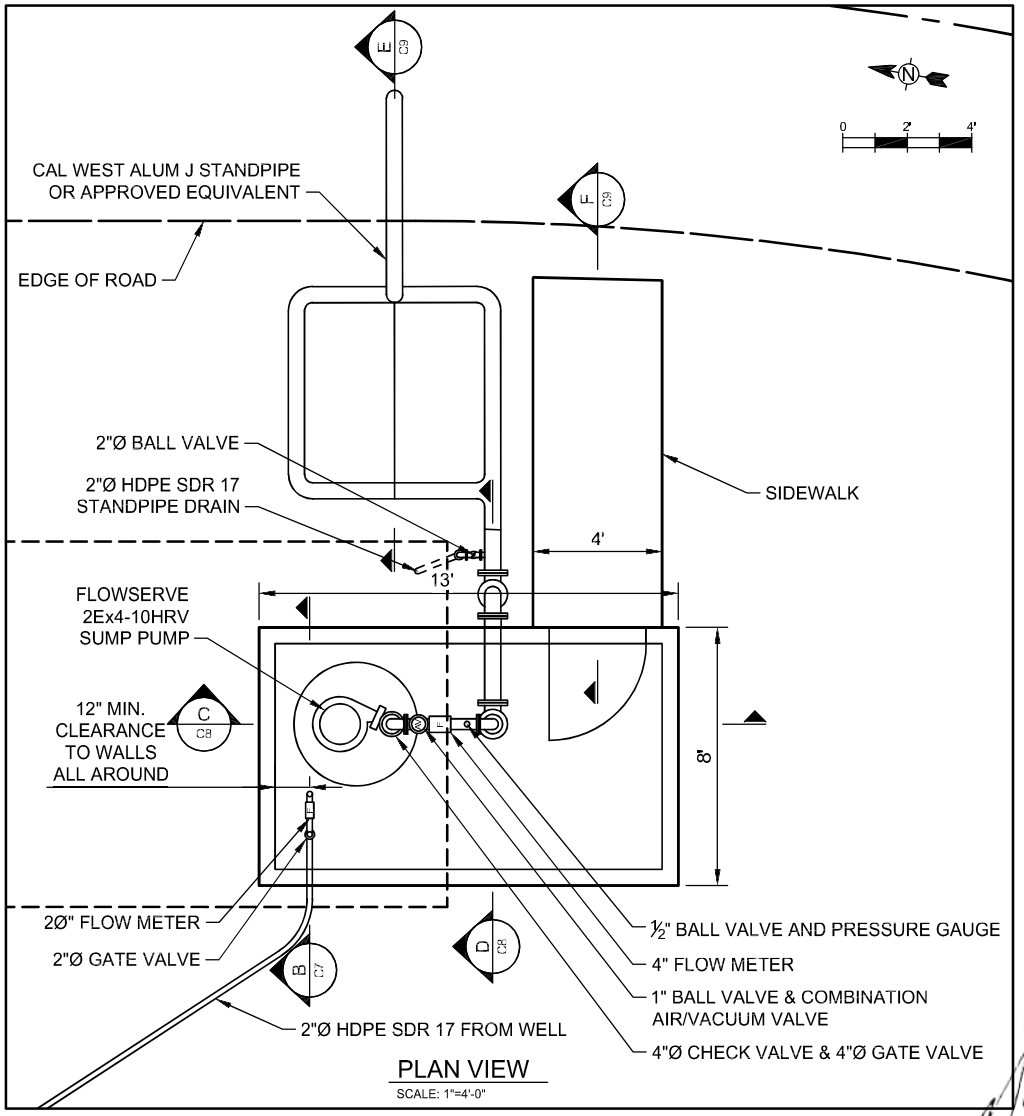
MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO
DUST CONTROL WELL PUMP STATION
AND STORAGE TANK
WATER TANK
SECTION

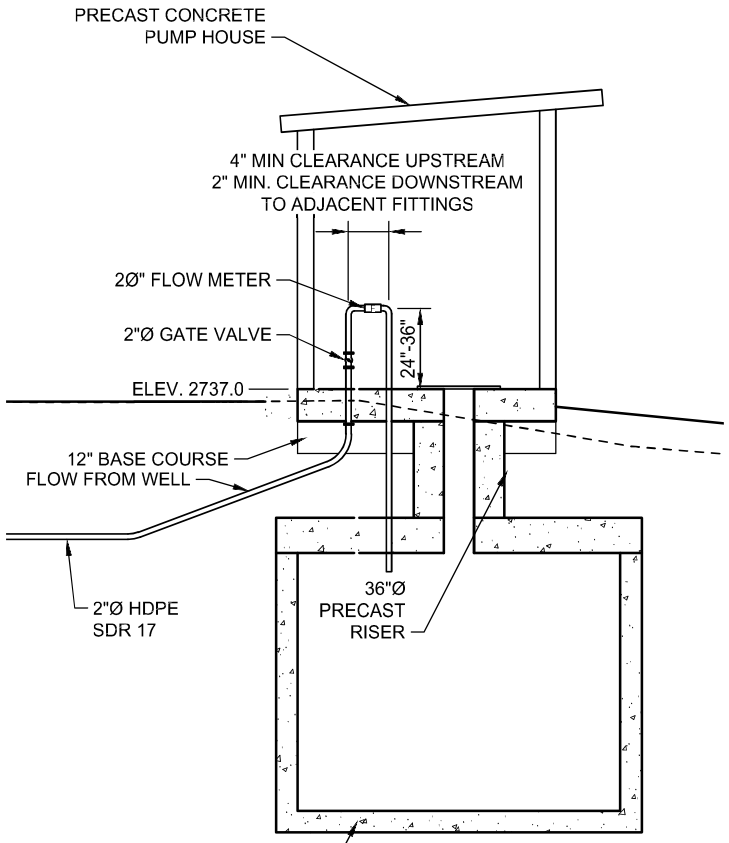
Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

C6

Bar Measures 1 inch



PLAN VIEW
SCALE: 1"=4'-0"



B C5,7 SECTION B
SCALE: 1"=4'-0"

NOTE:

1. ALL PIPING IN PUMP HOUSE INTERIOR TO CONSIST OF DUCTILE IRON CL 150.

PROFESSIONAL ENGINEER LICENSED 16021 STATE OF IDAHO MAUREEN A. McGRAW
1/27/22

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

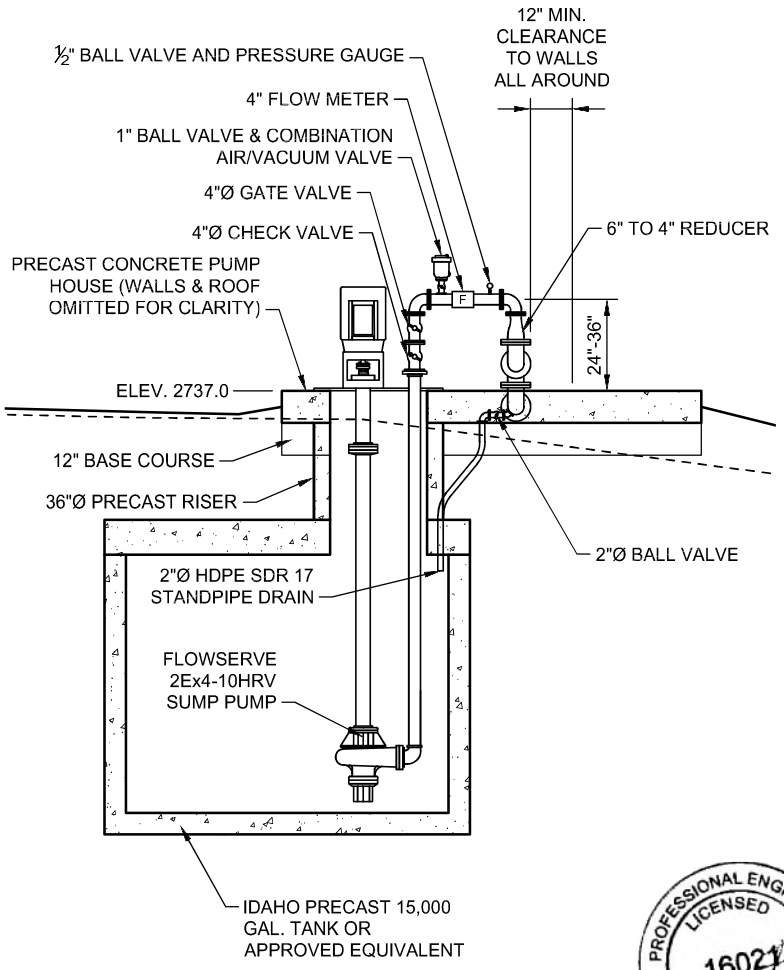
PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO
DUST CONTROL WELL PUMP STATION
AND STORAGE TANK
PUMP HOUSE PLAN
AND SECTIONS

Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

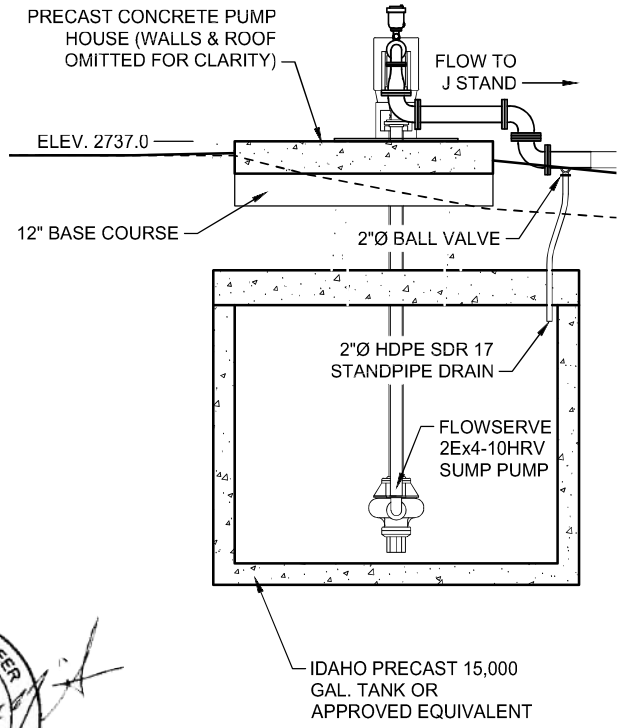
C7

Bar Measures 1 inch

Attachment 1



C C5,C7 SECTION C
SCALE: 1"=4'-0"



D C5,C7 SECTION D
SCALE: 1"=4'-0"

PROFESSIONAL ENGINEER LICENSED 16021 STATE OF IDAHO MAUREEN A. McGRAW

1/27/22

NOTE:

1. ALL PIPING IN PUMP HOUSE INTERIOR TO CONSIST OF DUCTILE IRON CL 150.

PUMP HOUSE NOTES:

1. PUMP HOUSE SHALL CONSIST OF A PRECAST STRUCTURE WITH BASE, WALLS, AND SLOPING (1:12 MIN SLOPE) ROOF. MINIMUM INTERIOR DIMENSIONS SHALL BE 8' x 8' CLEAR WITH A MINIMUM EAVE HEIGHT OF 7'.
2. WALL AND ROOF PANELS SHALL CONSIST OF PRECAST PANELS WITH A SANDWICH LAYER OF INSULATION. THE R-VALUE FOR THE WALL SYSTEM SHALL BE R14 OR HIGHER.
3. PUMP HOUSE SHALL BE SUPPLIED EITHER WITH SEPARATE ROOF PANELS OR WITH A 48" x 48" REMOVABLE HATCH ON THE ROOF OVER THE PROPOSED PUMP VAULT FOR THE PURPOSE OF LOWERING THE PUMP INTO THE VAULT.
4. PUMP HOUSE SHALL BE EQUIPPED WITH A VENTILATING SYSTEM. HEATING SYSTEM SHALL CONSIST OF ELECTRIC BASE BOARD HEATING AND SHALL BE CAPABLE OF MAINTAINING INTERNAL TEMPERATURE OF 50°F.
5. PUMP HOUSE SHALL BE EQUIPPED WITH AT LEAST ONE INTERNAL AND ONE EXTERNAL LIGHT CONTROLLED BY A WALL MOUNTED INTERIOR SWITCH.PUMP HOUSE SHALL ALSO INCLUDE AT LEAST 4 INTERIOR ELECTRICAL OUTLETS TO SUPPLY 110V POWER.
6. PUMP HOUSE SHALL BE EQUIPPED WITH ONE MAN DOOR WITH MINIMUM WIDTH OF 3'. NO WINDOWS ARE ALLOWED.
7. PUMP HOUSE SHALL INCLUDE A FLOOR DRAIN SYSTEM THAT DRAINS TO THE UNDERLYING TANK.
8. PUMP HOUSE TO BE SUPPLIED WITH ELECTRICAL CHASES AND WALL & FLOOR PENETRATIONS FOR ELECTRICAL POWER, PIPING, PUMPS, ETC.
9. PUMP HOUSE TO COMPLY WITH ALL APPLICABLE PLUMBING, ELECTRICAL AND BUILDING CODES.
10. PUMP HOUSE SUGGESTED SUPPLIER: MOUNTAIN WEST PRECAST, BRIGHAM CITY, UTAH.

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO

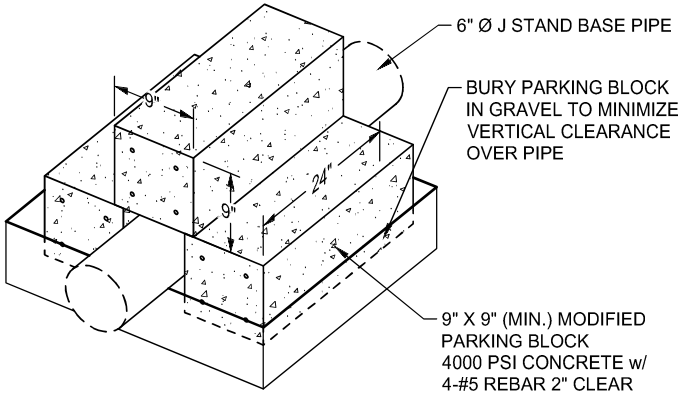
DUST CONTROL WELL PUMP STATION AND STORAGE TANK

PUMP HOUSE SECTIONS

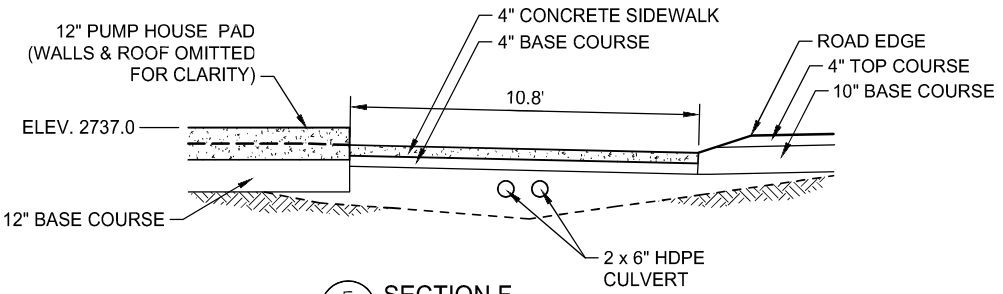
Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

C8

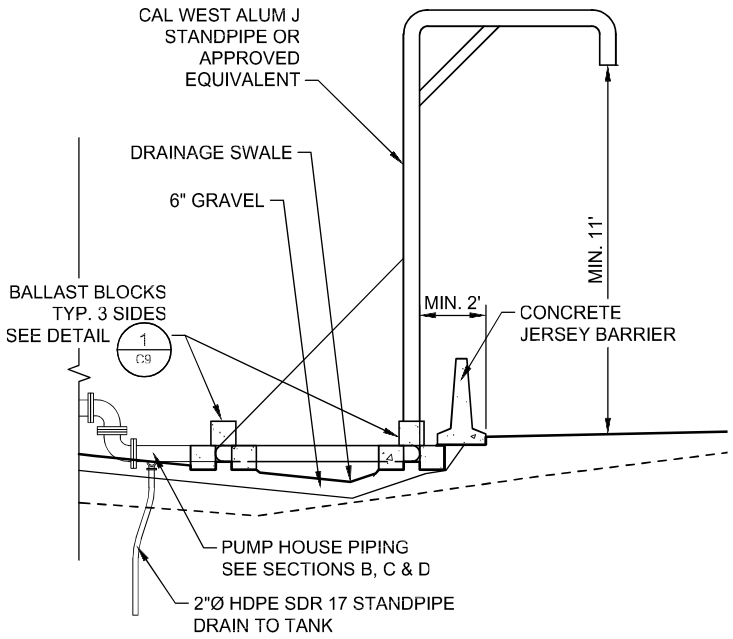
Bar Measures 1 inch



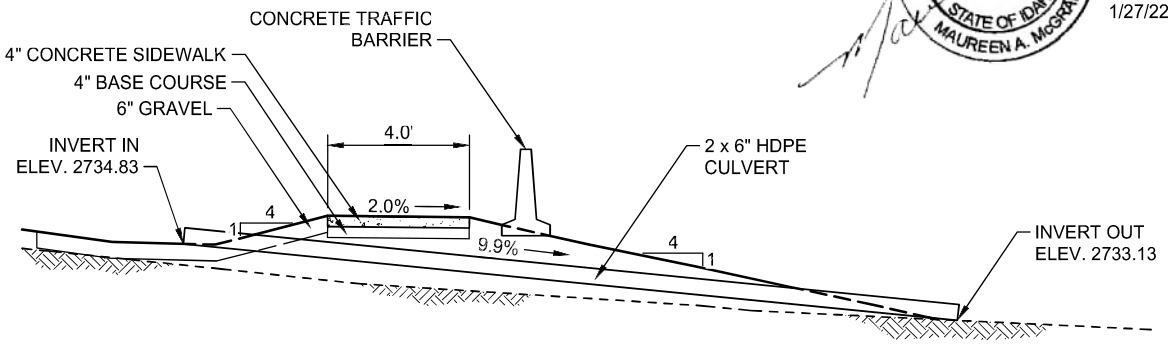
1 / C5 J STAND BALLASTING
NTS



F / C5 SECTION F
SCALE: 1"=4'-0"



E / C5,C7 SECTION E
SCALE: 1"=4'-0"



G / C5 SECTION G
SCALE: 1"=4'-0"

Attachment 1

TETRA TECH
www.tetratech.com
380 Americana Terrace, Suite 201
Boise, ID 83706
PHONE: 208-389-1030

CANYON COUNTY IDAHO 1892

MARK	DATE	DESCRIPTION	BY
0	1/27/22	ISSUED FOR BID	SEF

PICKLES BUTTE LANDFILL
CANYON COUNTY, IDAHO

DUST CONTROL WELL PUMP STATION AND STORAGE TANK

STAND PIPE AND SIDEWALK SECTIONS

Project No.:	114-571040-2022
Designed By:	LDC
Drawn By:	SEF
Checked By:	LDC

C9

Bar Measures 1 inch

Report of Geotechnical Investigation
Pickles Butte Sanitary Landfill
Dust Control System and Landfill Gas System Flare
Nampa, Idaho

Tetra Tech Project No. 114-571040-2022
January 25, 2022

PRESENTED TO

Pickles Butte Sanitary Landfill
Canyon County Solid Waste
15500 Missouri Avenue
Nampa, ID 83686

PRESENTED BY

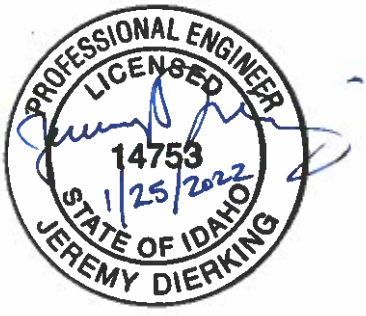
Tetra Tech
2525 Palmer Street
Suite 2
Missoula, MT 59808

P +1-406-543-3045
F +1-406-543-3088
tetratech.com

Prepared by:

Matt Adams, E.I.
Staff Geotechnical Engineer

Reviewed by:



Jeremy Dierking, P.E.
Geotechnical Operations Manager

Attachment 1

CONTENTS

Attachment 1

APPENDIX

- **Appendix A: Miscellaneous Drawings and Details**
  - Important Information About Your Geotechnical Engineering Report (Published by ASFE/GBA)
  - Boring Log Descriptive Terminology Key to Soil Symbols and Terms
  - Classification of Soils for Engineering Purposes
  - Drawings 1001-1 & 1001-2 - Boring Location Diagram
- **Appendix B: Logs of Exploratory Borings**
  - Figures 1 through 3
- **Appendix C: Laboratory Testing**
  - Figures 4 through 9

Attachment 1

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AASHTO	American Association of State Highway and Transportation Officials
ASCE	American Society of Civil Engineers
A_s	Acceleration Coefficient
ASTM	American Society for Testing and Materials
C_c	Coefficient of Curvature
C_u	Uniformity Coefficient
F_a	Spectral Acceleration Site Coefficient
F_{PGA}	Peak Ground Acceleration Site Coefficient
F_v	Spectral Acceleration Site Coefficient
IBC	International Building Code
LL	Liquid Limit
ksf	Kilo-pounds per square feet
O.D.	Outer Diameter
OSHA	Occupational Safety and Health Administration
USGS	United State Geological Survey
PGA	Peak Ground Acceleration
PI	Plasticity Index
PL	Plasticity Limit
psf	Pounds per square foot
S_1	Spectral Acceleration Coefficient
S_s	Spectral Acceleration Coefficient

1.0 EXECUTIVE SUMMARY

The proposed project sites are located at the existing Pickles Butte Sanitary Landfill off Missouri Avenue in Canyon County, south of Nampa, Idaho. The first project is the construction of a dust control system that includes an underground water tank, an above ground pre-cast pump building, a pre-manufactured water delivery stand. The dust control system will be constructed just southwest of Deer Flat Road and Perch Road. The second project is part of a landfill gas system that will include a blower and candlestick flare mounted on a slab-on-grade concrete slab. The flare station will be located west of the main office and Perch Road.

The subsurface profile encountered in borings B20201-1 and B20201-2 for the dust control system generally consists of less than 0.5 feet of topsoil overlying alternating layers of silty sand and poorly graded sand with silt extending to the depths explored (31.5 feet). The subsurface profile encountered in boring B20201-8 for the landfill gas system pad encountered approximately 10 feet of silt with sand overlying silty to poorly graded sand extending to the depth explored (21.5 feet). Subsurface water was not encountered in any of the borings at the time of drilling (November 2021).

The native silt and sand can be used as exterior foundation wall backfill, over-lot site fill, and as a subgrade for paved areas provided any deleterious/organic material is removed. All fill should be placed under controlled moisture and density conditions.

The soils within the structure footprints for both projects consisted of very loose to medium dense silty and sandy soils. Considering the combination of structural loads and the potential settlement characteristics of the soils, the natural soils are not suitable to support the structural loads on conventional spread footing foundations, or floor slabs, without potentially damaging settlement. Based on the subsurface conditions encountered within the borings, structural loads should be supported using conventional spread footings bearing on a minimum 2-foot thickness of structural fill and designed for an allowable bearing pressure of 3 kilopounds per square feet (ksf). Concrete slabs for the dust control system and landfill gas flare structures should be supported on a conventional open-graded gravel leveling course bearing on a minimum of one foot of structural gravel fill. A layer of high-strength geotextile should be placed between the natural silty subgrade on the bottom and sides of the structural fill to prevent intrusion of fines into the fill and improve constructability.

This executive summary has been prepared solely to provide a general overview and should not be relied upon for any purpose except for that for which it was prepared. The full geotechnical report must be referenced for information about findings, recommendations and other concerns.

2.0 PURPOSE AND SCOPE OF STUDY

Tetra Tech conducted a field exploration program consisting of two exploration borings within the proposed dust control system footprint and one boring at the proposed landfill gas system flare location to obtain information on subsurface soil conditions at the project site in Canyon County, Idaho (Drawing Nos. 1001-1 and 1001-2, **Appendix A**). This investigation was performed in accordance with Tetra Tech's proposal and subsequent agreement with Canyon County Solid Waste.

Samples obtained during the field investigations were tested in Tetra Tech's AASHTO Materials Reference Laboratory (AMRL) accredited laboratory to determine the physical and engineering characteristics of the on-site soils. This report summarizes the field data and presents conclusions and recommendations for design and construction of the structure foundations and pavement sections based on the proposed construction and subsurface conditions encountered. This geotechnical engineering report also includes design parameters and geotechnical engineering considerations related to construction.

3.0 PROPOSED CONSTRUCTION

The first project includes construction of a dust control system with an underground water tank, an above ground pre-cast pump building, a pre-manufactured water delivery stand. The proposed 15,000-gallon precast concrete water tank will have an approximately 11 feet by 23 feet footprint and be installed approximately 14 feet below grade. The pre-cast concrete pump building will be slab-on-grade and have an approximately 8 feet by 13 feet footprint. The dust control system will be constructed just southwest of Deer Flat Road and Perch Road.

The second project is part of a landfill gas system that will include a blower and candlestick flare mounted on a slab-on-grade concrete slab. The flare station will be located west of the main office and Perch Road.

If locations or conditions are significantly different from those described above, Tetra Tech should be notified to conduct a geotechnical review of the project and perform additional analysis as required.

4.0 FIELD EXPLORATION

The field exploration was conducted November 15th, 2021. Two borings were drilled within the proposed dust control system footprint and one boring was drilled within the proposed landfill gas flare station footprint. Locations of the exploration borings were marked in the field by landfill personnel based on the map provided by Tetra Tech and are depicted in Drawing Nos. 1001-1 and 1001-2. Borings were advanced through the overburden soils with a track-mounted sonic drill rig equipped with 6-inch diameter hollow core barrel and were logged by Tetra Tech's field engineer.

Samples of the subsurface materials were taken with a 2-inch outside diameter (O.D.) split-spoon sampler. The sampler was driven into the various strata using a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler each successive 6-inch increment was recorded; the total number of blows required to advance the sampler the second and third 6-inch increments is the standard penetration resistance test - SPT (N value) described by American Society for Testing and Materials (ASTM) Method D1586. Penetration resistance values indicate the relative density or consistency of the soils. Bulk samples of soil were obtained from the hollow-stem augers cuttings at select locations. The depth at which the samples were taken, and the penetration resistance values are shown on the logs of the exploration borings (**Appendix B**).

5.0 LABORATORY TESTING

Samples obtained during the field explorations were taken to Tetra Tech's laboratory in Missoula, Montana, where they were observed and visually classified in accordance with ASTM D2488, which is based on the Unified Soil Classification System. Representative samples were selected for testing to determine the engineering and physical properties of the soils in general accordance with ASTM or other approved procedures. The following list describes the laboratory testing performed for this investigation.

Tests Conducted:	To Determine:
Grain-Size Distribution	Size and distribution of soil particles (i.e., clay, silt, sand, and gravel).
Atterberg Limits	The plasticity and degree of expansiveness of fine-grained soils
Natural Moisture Content	Moisture content representative of field conditions at the time samples were taken.
Moisture Density Test	The relationship between the laboratory maximum dry density in pounds per cubic foot and moisture content in percent, of a soil compacted to a standard laboratory compactive effort.
Consolidation/Swell	The amount of soil sample compresses with loading and influence of wetting on its behavior. For use in settlement analysis, determining expansive potential and foundation design.
Water Soluble Sulfates	Potential of soils to deteriorate normal strength, Type I/II cement concrete.
pH/Resistivity	The potential of soil to corrode metal structures in contact with it.

This data, along with the field information, was used to prepare the exploration boring logs on Figures 1 through 3 (**Appendix B**). Field and laboratory test results are summarized on Figures 4 through 9 (**Appendix C**).

6.0 SITE CONDITIONS

The proposed project site is located at the existing Pickles Butte Sanitary Landfill in rural Canyon County, south of Nampa, Idaho. The site topography varies greatly across the site and is gently to moderate sloping around the boring locations. Site vegetation consists of sparse grasses, weeds and sage brush. The site includes an existing landfill office, maintenance/shop buildings, scale house, existing landfill cells, and access roads.

6.1 SEISMIC DESIGN PARAMETERS

National Seismic Hazard Maps prepared by the United States Geological Survey (USGS) depict probabilistic strong ground motions and short and long spectral accelerations with 10, 5, and 2 percent probabilities of exceedance in any 50-year period for the conterminous United States. The International Building Code (IBC) 2018 and American Society of Civil Engineers (ASCE) 7-16 design criteria are based on a 2 percent probability of exceedance, or in other words, a 98 percent probability of not being exceeded in a 50-year period. Based on the ASCE 7 Hazard Tool web application which queries applicable data from USGS, the project sites modified peak ground acceleration having a 2 percent probability of exceedance in any 50-year period is estimated to be 0.119 g.

The USGS database presents spectral response acceleration data in bedrock for short (0.2 second) periods (S_s) and for long (1 second) periods (S_1) for similar probability and 50-year return periods. According to IBC 2018 design procedures, these acceleration data are then adjusted upward or amplified depending on soil classification to reflect magnification effects as the earthquake wave energies pass from bedrock into soil.

The values are then reduced by a factor that accounts for partial damping of the wave energy by the structure. The final values obtained (known as S_{DS} and S_{D1}) become the basis for the structural design and in this case, at the project site, are estimated as 0.233g (S_{DS}) and 0.10g (S_{D1}). The data is summarized in the table below.

The methods of IBC 2018 and ASCE 7-16 require that the properties of the soil at the proposed site be classified as one of several site classes. The seismic design parameters for this site include a seismic zone soil profile type of (C), in accordance with the above referenced standard. Site Class C corresponds to a very dense soil profile with average undrained shear strengths greater than 2,000 pounds per square foot (psf) and standard penetration resistance values averaging greater than 50 blows per foot in the upper 100 feet. This classification is based on the laboratory test data, exploratory boring information, and knowledge of the local geology.

Earthquake and Site-Specific Seismic Design Parameters

Site	Latitude (North)	Longitude (West)	PGA	S_s	S_1	Site Class	F_{PGA}	F_a	F_v	PGA_M	S_{DS}	S_{D1}
Pickles Butte Landfill	43.489672°	-116.70334°	0.119	0.269	0.10	C	1.281	1.3	1.5	0.152	0.233	0.10

Notes:
PGA = Peak Ground Acceleration
S_1 = 1.0 sec. Spectral Acceleration Coefficient
F_v = 1.0 sec. Spectral Acceleration Site Coefficient
A_s = Acceleration Coefficient
Time period = 50 years
S_s = 0.2 sec. Spectral Acceleration Coefficient
F_a = 0.2 sec. Spectral Acceleration Site Coefficient
F_{PGA} = Peak Ground Acceleration Site Coefficient
Return period = 2%

7.0 SUBSURFACE CONDITIONS

The subsurface profile encountered in borings B20201-1 and B20201-2 for the dust control system generally consists of less than 0.5 feet of topsoil overlying alternating layers of silty sand and poorly graded sand with silt extending to the depths explored (31.5 feet). The subsurface profile encountered in Boring B20201-8 for the landfill gas system blower and flare encountered approximately 10 feet of silt with sand overlying silty to poorly graded sand extending to the depth explored (21.5 feet).

The boring logs (**Appendix B**) should be referenced for complete descriptions of the soil types and their estimated depths. A characterization of the subsurface profile includes grouping soils with similar physical and engineering properties into a number of distinct layers. The representative subsurface layers at the site are presented below, starting at the ground surface.

7.1 SILT

Silt with sand was encountered in the soil boring B2021-8 in the area for the proposed the landfill gas system concrete slab below a thin topsoil layer extending to a depth of 10.1 feet. Standard Penetration Test (SPT) N values in the fill vary from 17 to 29 blows per foot, indicating very stiff relative density soil stratum. Laboratory testing indicates the silt has natural moisture contents ranging from 11 to 12 percent. Moisture density relationship testing of the silt with sand indicates a laboratory maximum dry density of 97.2 pounds per cubic foot (pcf) with an optimum moisture content of 17.9 percent (Figure 8, **Appendix C**).

The combination of pH (7.95) and resistivity (3,300 ohm-cm) indicate the potential for corrosion of buried metal is low. The concentration of water-soluble sulfates measured on a typical sample of the silt resulted

in a concentration of 0.12 percent, indicating moderate attack potential to normal strength Portland Cement concrete exposed to the silt material. Type II cement should be used for concrete in contact with the silt soils.

7.2 SAND

Alternating layers of silty sand and poorly graded sand with silt were encountered in all of the soil borings at varying depths. Standard Penetration Test (SPT) N values in the sand vary from 2 to over 50 blows per foot, indicating a very loose to very dense relative density soil stratum. The N values generally increased with depth. Laboratory testing indicates the sand has natural moisture contents ranging from 3 to 9 percent. Moisture density relationship testing of the sand indicated a laboratory maximum dry density of 109.9 pcf at an optimum moisture content of 10.5 percent (Figure 7, **Appendix C**).

One-dimensional consolidation testing indicates the poorly graded sand with silt at 25 feet is slightly compressible, settling on the order of 2 percent under conditions of wetting and normal loading (Figure 9, **Appendix C**). The combination of pH (8.42) and resistivity (10,000 ohm-cm) indicate the potential for corrosion of buried metal is low. The concentration of water-soluble sulfates measured on a typical sample of the sand near the surface resulted in a concentration of less than 0.01 percent, indicating negligible attack potential to normal strength Portland Cement concrete exposed to the sand material.

7.3 GROUNDWATER

Groundwater was not encountered in any of the borings at the time of drilling (November 2021). Groundwater levels may perch on top of relatively impermeable layers during periods of heavy seasonal precipitation in the area. Typically, groundwater elevations fluctuate with seasonal precipitation and river flows, and local irrigation practices. Numerous factors contribute to groundwater fluctuations, and evaluation of such factors is beyond the scope of this report.

8.0 ENGINEERING ANALYSIS AND RECOMMENDATIONS

8.1 SITE GRADING

Site grading plans for the Dust Control System indicate cut and fill depths on the order of 5 feet or less to construct the access road, level the sites for construction, and provide positive drainage away from new foundations. The on-site silt and sand are not suitable for use as structural fill within structure footprints, but only as exterior wall backfill, below pavements, and over-lot site fill to achieve site grading and provided it does not contain any organics or debris and is moisture-conditioned and compacted in accordance with the provisions listed below.

Imported fill as specified below in this report can be used to raise site grade as needed and as foundation backfill when placed in uniform lifts under controlled moisture and density conditions. The recommendations contained in this report assume that structural fill will be placed according to the specifications presented herein. If site grading significantly differs from what is described herein, the recommendations of this report must be reviewed and revised as necessary to reflect the final grading plan.

It is anticipated that foundation excavations will generally be in the natural silt and sand encountered in the exploratory borings. Excavation of the soils to the proposed depths can be accomplished with most heavy-duty earth excavating equipment. Based on the drilling information, groundwater was not encountered during drilling and consequently was below anticipated excavation depths.

Freezing temperatures have the potential to impact construction. Prolonged periods of cold weather in the months of November through February may be difficult for construction since it is difficult to properly install concrete in subfreezing temperatures. Fill should not be placed during freezing temperatures, especially during winter months unless construction practices are altered to adjust to these conditions. Under no circumstances should foundations be constructed on frozen materials.

Site grading plans must include drainage features to rapidly drain surface run-off away from new structures. All grades must provide effective drainage away from the structures during and after construction. Water permitted to pond next to structures can result in greater soil movements than those discussed in this report. These greater movements can result in unacceptable differential movements and piping connection problems. Estimated movements described in this report are based on effective drainage for the life of each structure and cannot be relied upon if effective drainage is not maintained.

Careful attention should be given to weather conditions during preparation of the subgrade to prevent excess moisture from collecting on or penetrating and possibly saturating the subgrade before and after compaction. The subgrade should be temporarily sloped to provide drainage into a low area of the excavation and excess water should be pumped from the excavation into a nearby drainage sump. In the event that areas of subgrade become excessively saturated, the wet area should be excavated, replaced with moisture conditioned soil, and compacted. Such collection and discharge must be in compliance with the Contractor's site-specific storm water pollution prevention plan (SWPPP).

Design and construction criteria presented below should be observed for site preparation purposes and when preparing project contract documents.

1. All topsoil, organic material and any surficial debris or fill should be removed from the proposed construction areas.

2. Prior to placing new site grading fill, the stripped subgrade should be moisture conditioned, compacted, and proof-rolled with large compaction equipment. If loose or soft areas are encountered during the proof-rolling, the soft or loose soil should be over-excavated, replaced, and compacted in accordance with the specification in Item 3 below.

3. All Structural Fill gravel, site fill and any backfill should be approved by the geotechnical engineer, moisture-conditioned to within 2 percent of optimum moisture content and placed in uniform lifts of suitable thickness for the compaction equipment. It should then be compacted to the following minimum dry densities as determined by ASTM D698.

Location	ASTM D698 (%)
Below Paved Areas	95
Below Floor Slabs and Flatwork	98
Below Foundations	98
Foundation Wall Backfill	98
Utility Trench Backfill	97
All Other Fill	95

4. Imported granular material placed as Structural Fill gravel within the building footprint, should meet the following grading limits and be compacted in accordance with item 3 above.

Sieve or Screen size	Percent Passing
3-Inch	90 – 100
No. 4	25 – 60
No. 40	10 – 25
No. 200	0 – 15

In addition, Structural Fill gravel shall have a maximum Liquid Limit of 25 percent and a maximum Plasticity Index of 6 and be composed of hard durable particles, with a maximum LA Abrasion Wear of 50 percent at 500 revolutions.

5. The on-site native silt and sand is suitable for use as over-lot site fill, exterior foundation wall backfill, utility trench backfill, or pavement subgrade provided it is placed under controlled moisture and density conditions in accordance with Item 3 above and does not contain appreciable amounts of debris or organics or material larger than 3 inches.

6. Use of a geotextile separator is recommended to improve constructability by preventing intrusion of the silty soils into the structural fill gravel and pavement section base course. The geotextile fabric should be placed on top of the subgrade and below structural fill gravel or granular base course. The following minimum average roll values for critical properties are recommended for selection of a suitable geotextile product.

Minimum Average Roll Values

PROPERTY	ASTM TEST METHOD	Minimum Values (Non-woven)
Grab Strength (lbs.)	D4632	205
Elongation	D4632	50%
Tear Strength (lbs.)	D4533	80
Puncture Strength (lbs.)	D6241	525
Min. Permittivity, $sec.^{-1}$	D4491	1.4
Max. Apparent Opening Size (mm)	D4751	0.18

7. The contractor is responsible for providing safe working conditions in connection with underground excavations. Temporary construction excavations that workers will enter will be governed by Occupational Safety and Health Administration (OSHA) guideline 1926.6542, Appendix B to subpart P. For planning purposes, subsoils encountered in the exploration borings classify as Type C.

8. The ground surface adjacent to the exterior foundations should be sloped to drain away from the foundation in all directions. A minimum slope of at least 6 inches in the first 10 feet in recommended.

8.2 UTILITY TRENCHES

8.2.1 Utility Trench Excavation and Backfill

In general, soils encountered within the exploratory borings to the depths necessary for new utility service lines consist of silt and sand. The site soils encountered within the exploratory borings are generally suitable for trench backfill provided they are placed under controlled moisture and density conditions. Compaction

in narrow utility trenches can be difficult to achieve given the anticipated physical space limitations; therefore, consideration should be given to utilizing a vibratory compactor or a sheep's foot wheel on the end of a backhoe arm to compact in these tight spaces to minimize the potential for future settlement. Based on laboratory testing, the excavated soil will have in-place natural moisture contents that will likely be below optimum. Depending on the season and precipitation patterns, the natural moisture content in the excavated soils will likely need to be moisture conditioned to compact to the required specifications.

All trench backfill material should be moisture conditioned to within 2 percent of optimum moisture content and compacted to at least 97 percent of the maximum dry density as determined by ASTM D698. A representative of the geotechnical engineer should test the placement of all fill and backfill. The in-place density testing frequency should meet local Public Works Standard Specifications.

If the trench excavations encounter wet or unstable material, one to two feet of granular bedding may be needed to replace unsuitable material encountered in the trench bottom. However, Type 2 Pipe Bedding should only be placed as directed by the Engineer and should be separated from the natural soil with a separation/stabilization geotextile fabric.

8.2.2 Trench Stability

Trench stability is very important for worker safety, as well as protection of nearby utilities and/or private property. The Contractor is responsible for maintaining excavations for worker safety. This will be governed by OSHA Regulations (29 CFR 1926, Subpart P).

The contractor is responsible for providing safe working conditions in connection with underground excavations. Temporary construction excavations that workers will enter will be governed by OSHA guideline 1926.6542, Appendix B to subpart P. For planning purposes, subsoils encountered in the exploration borings classify as Type C.

During pipe installation, various construction practices (e.g., stockpiling excavated soil immediately adjacent to the excavation or operating equipment next to the trench walls) may contribute to trench instability. These construction procedures create a surcharge load to the sides of the excavation that the soil might not be capable of supporting. Consequently, attention should be paid to construction practices.

8.2.3 Pipe Bedding

Granular pipe bedding material is recommended in accordance with local Public Works Standard Specifications. Pipe zone bedding material shall be installed only as directed by the Engineer. Bedding material should also meet the requirements of the pipe manufacturer.

8.2.4 Soil Properties

Lateral earth pressure is a function of the natural and backfill soil types and acceptable thrust block movements, which affect soil strain and mobilize the shear strength of the soil. The lowest lateral earth pressure against a thrust block for a given soil type is the active condition. When no soil strain is allowed by the block, this is the at-rest condition which creates pressures between the active and passive condition. The soil properties in the lateral earth pressures section (8.3.4) below should be considered for thrust blocks.

8.3 FOUNDATIONS

The soils within the structure footprints consisted of very loose to medium dense silty and sandy soils. Considering the combination of structural loads and the potential settlement characteristics of the soils, the natural soils are not suitable to support the structural loads on conventional spread footing foundations, or floor slabs, without potentially damaging settlement.

In order to provide a uniform bearing condition beneath all foundations and limit settlement to within acceptable tolerable limits, the subgrade at foundation elevation should be subexcavated below footings and floor slabs and replaced with compacted structural fill.

8.3.1 Spread Footings

Based on the subsurface conditions encountered within the borings and the anticipated structural loads, a foundation system consisting of conventional spread footings bearing on a zone of 2 feet of compacted structural fill is recommended to support the proposed structures. The zone of structural fill should extend a minimum of 2 feet below bottom of footing elevation and should extend laterally beyond the edge of the footings for an equal horizontal distance to its depth but no less than 2 feet. The zone of structural fill will provide a uniform bearing platform for foundations across the structure footprint. Depending on the spacing of column lines, it may be more economical to place structural fill under the entire structure footprint using large earthmoving equipment rather than excavating isolated footing locations.

Calculations indicate column spread footings bearing on the zone of structural fill can be proportioned for an allowable bearing pressure of 3,000 psf. Settlement analysis assuming a bearing pressure of 3,000 psf indicates total settlement beneath column and spread footings will be less than 1 inch. Differential settlement across the structure foundation is estimated to be approximately one-half of the total settlement.

The lateral resistance of spread footings is controlled by a combination of sliding resistance between the footing and the foundation materials and passive earth pressure against the side of the footing. Criteria for calculating the lateral resistance are presented below. The following design and construction criteria should be observed for a conventional spread footing foundation. The following construction details should be considered when preparing the project documents.

1. In preparation for construction of the spread footings, the subgrade at the foundation elevations should be moisture conditioned to within 2 percent of optimum, graded level, and compacted in accordance with Item 3 in *Site Grading*.
2. Interior and exterior footings should be supported on a zone of 2 feet of structural fill and can be designed for a maximum allowable bearing pressure of 3,000 psf. The zone of structural fill should extend beyond and below the outside footing edges at a one horizontal to one vertical projection or flatter.
3. Exterior footings should be placed at least 36 inches below final exterior grade for frost protection or in accordance with applicable building codes, whichever is deeper.
4. The minimum width of column footings should be at least 24 inches and at least 16 inches for continuous spread footings, or in accordance with applicable building codes, whichever is more restrictive.
5. Footing lateral loads may be resisted by friction between the footing base and supporting soil, and lateral bearing pressure against the sides of footings. For design purposes, a friction coefficient of 0.42 and a lateral bearing pressure of 400 psf per foot of depth for the structural fill is appropriate, and a lateral bearing pressure of 280 psf per foot for the natural silt and sand backfill is appropriate.

6. A representative of the geotechnical engineer should observe all footing excavations prior to placement of concrete forms and test the placement of all fill and backfill.

8.3.2 Floor Slabs

Performance of slab-on-grade construction is dependent on having a relatively uniform subgrade beneath the slab. Floor slabs should be supported on a zone of at least 1 foot of structural fill placed and compacted in accordance with Item 3 in the *Site Grading* section. It is also customary to provide a gravel-leveling course beneath floor slabs to act as a capillary break.

The following recommendations should be considered for concrete slab-on-grade construction.

1. Floor slabs should be supported on a minimum of 1 foot of structural fill placed and compacted in accordance with item 3 in the *Site Grading* section.
2. A minimum 4-inch thick layer of free-draining gravel should be placed between the floor slabs and the re-compacted subgrade as a leveling course. This material should consist of minus 3/4-inch aggregate with less than 60 percent passing the No. 4 sieve and less than 10 percent passing the No. 200 sieve. This layer can be included as part of the structural fill layer.
3. 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. Floor slab control joints should be used to reduce damage due to shrinkage cracking. The requirements for slab reinforcement should be established by the designer based on experience and the intended slab use.
4. In addition, all electrical and/or mechanical lines which pass through the floor slab should also be provided with a positive bond break so that they can move independently from the floor slab.
5. Floor slabs should not be placed on frozen subgrade or frozen structural fill.
6. Concrete floor slabs supported on structural fill as described above should be designed using a modulus of subgrade reaction of 250 pounds per square inch (psi) per inch.

8.3.3 Exterior Concrete Flatwork

Natural soil disturbed by construction activities should be moisture conditioned and compacted in accordance with Item 3 in the *Site Grading* section. Localized soft areas should be over-excavated to a minimum depth of 12 inches and replaced with structural fill and compacted in accordance with Item 3 in the *Site Grading* section. A minimum of 6 inches of structural fill should be placed beneath flatwork, placed and compacted in accordance with Item 3 in the *Site Grading* section. Flatwork at door openings intended for egress or ingress into the buildings must be tied to the foundation or underlain by structural fill to reduce the magnitude of differential movement between the slab and structure. In addition, placement of landscaping adjacent to the building is discouraged due to the potential to induce water into these subgrade soils or fill by the irrigation system.

8.3.4 Lateral Earth Pressures

Below grade and retaining walls will be subjected to horizontal loading due to lateral earth pressure and, in some cases, additional pressure due to traffic loading. The lateral earth pressure is a function of the natural and backfill soil types and acceptable wall movements, which affect soil strain and mobilize the shear strength of the soil. More soil movement is required to develop greater internal shear strength and lower the lateral pressure on the wall. Soil strain and allowable wall rotation must be greater to mobilize full strength and reduce lateral pressures for clay soils than for cohesion-less granular soils.

Attachment 1

Distribution of the lateral earth pressures on the structure depends on soil type and wall movements or deflection. Design for lateral earth pressures should be computed on the basis of the lateral earth pressure coefficients provided in the table below. Resistance to overturning and sliding can be provided by passive earth pressure and sliding friction. Compacted fill placed against the side of the footing and building to resist lateral loads should meet the compaction and grading specifications in the *Site Grading* section. Conventional safety factors used in structural analysis for items such as overturning moments and sliding should be used in the design.

Lateral Earth Parameters

Design Parameter		Soil Type	
		Natural Silt/Sand	Imported Backfill (Gravel)
Unfactored Lateral Earth Pressure Coefficients	K_o (at-rest)	0.58	0.47
	K_a[1] (active)	0.41	0.31
	K_p[1] (passive)	2.46	3.25
Unit Weight (pcf)		110	125
Cohesion (psf)		--	--
Coefficient of Friction Between Soil and Concrete Foundation[2]		0.31	0.42
Soil Angle of Internal Friction		25	32

Notes:

Assumptions: Wall slope = vertical
Friction angle between concrete wall and Gravel/Sand = 30 degrees

[1] Wall rotation or translation

*Wall rotation of translation = δ/H where δ is horizontal deformation of the wall and H is the wall height. (Negative values indicate movement away from backfill; positive values indicate movement toward backfill.)

[2] Factor of Safety = 1.5 applied

Translation or Wall Rotation* (Horizontal Backfill)	
Active	Passive
-0.002H	+0.02H

It is imperative that heavy compaction equipment is not used any closer than 4 feet from the below grade walls. In addition, care should be taken not to over-compact the backfill as it could cause excessive lateral pressure on the walls.

8.4 PAVEMENTS

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. A uniformly compacted subgrade is vital for good pavement performance.

Pavement design procedures are based on strength properties of the subgrade and pavement materials, along with the design traffic conditions. For pavement thickness design, soils are represented by means of a CBR value. For design purposes, the natural silt and sand soils are assumed to be the limiting subgrade type. Based on the laboratory testing and previous experience with these types of soils, a CBR value of 3 percent or less was used for the pavement calculations. Average traffic loading was estimated from the type of vehicles expected to use this site. Traffic is anticipated to consist primarily of 10 water trucks per

day. If anticipated traffic loads differ from what is described above, Tetra Tech should be notified to re-evaluate our recommendations.

The design and construction criteria presented below should be observed for the pavement sections. The following construction details should be considered when preparing the project documents.

1. Prior to placement of the gravel base course, the subgrade should be prepared by scarifying to a depth of 8 inches, moisture conditioning the soil to within 2 percent of optimum, and compacting to at least 95 percent of the maximum dry density in accordance with ASTM D698. A proof roll should be conducted prior to placement of the geotextile separator fabric and gravel base course. Localized soft areas should be over-excavated to a minimum depth of 12 inches and replaced with structural fill and compacted in accordance with Item 3 in the *Site Grading* section.
2. Use of a geotextile separator is recommended between the silty subgrade and the gravel subbase to improve constructability and extend the pavement's service life. The following minimum average roll values for critical properties are recommended for selection of a suitable product.

Minimum Average Roll Values

Property	ASTM Test Method	Non-Woven Geotextile
Grab Strength (lbs.)	D4632	300
Grab Elongation (%)	D4632	50
Trapezoidal Tear (lbs.)	D4533	115
CBR Puncture (lbs.)	D241	825
Apparent Opening Size (US Sieve)	D4751	100
Permittivity, $sec.^{-1}$	D4491	1.0
Water Flow Rate (gpm/ft^2)	D4491	75
UV Resistance (% Retained @ 500 hrs.)	D4355	70

3. The following pavement sections or an approved equivalent should be used for the access roads.

Material	Asphalt Pavement Section (inches)
Pavement Section	4
¾ or 1 ½ inch Crushed Aggregate Base Course	10
Total	14

Notes: CBR value of 3 for existing subgrade material.

Attachment 1

9.0 CONTINUING SERVICES

Two additional elements of geotechnical engineering service are important to the successful completion of this project.

1. **Consultation with Tetra Tech during the design phase.** This is essential to ensure that the intent of our recommendations is incorporated in design decisions related to the project and that changes in the design concept consider geotechnical aspects.
2. **Observation and monitoring during construction.** Tetra Tech should be retained to observe the earthwork phases of the project, including the site grading and excavations, to determine that the subsurface conditions are compatible with those described in our analysis. In addition, if environmental contaminants or other concerns are discovered in the subsurface, our personnel are available for consultation.

10.0 LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering practices in the region where the work was conducted. The conclusions and recommendations submitted in this report are based upon project information provided to Tetra Tech and data obtained from the exploratory borings drilled at the locations indicated. The nature and extent of subsurface variations across the site may not become evident until construction. Tetra Tech should be on site during construction, to verify that actual subsurface conditions are consistent with those described herein.

This report has been prepared exclusively for the addressed client and project. This report and the data included herein shall not be used by any third party without the express written consent of both the client and Tetra Tech. Tetra Tech is not responsible for technical interpretations by others. As the project evolves, Tetra Tech should provide continued consultation and field services during construction to review and monitor the implementation of the recommendations and verify that the recommendations have been appropriately interpreted. Significant design changes may require additional analysis or modifications of the recommendations presented herein. On-site observation of excavations and foundation bearing strata and testing of fill should be performed by a representative of the geotechnical engineer.

APPENDIX A

Important Information About Your Geotechnical Engineering Report (Published by ASFE/GBA)

Boring Log Descriptive Terminology Key to Soil Symbols and Terms

Classification of Soils for Engineering Purposes

Drawing No. 1001-1 & 1001-2 – Boring Location Diagram

Attachment 1

IMPORTANT INFORMATION
ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

More construction problems are caused by site subsurface conditions than any other factor. As troublesome as subsurface problems can be, their frequency and extent have been lessened considerably in recent years, due in large measure to programs and publications of ASFE/The Association of Engineering Firms Practicing in the Geosciences.

The following suggestions and observations are offered to help you reduce the Geotechnical-related delays, cost-overruns and other costly headaches that can occur during a construction project.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

A Geotechnical engineering report is based on a subsurface exploration plan designed to incorporate a unique set of project-specific factors. These typically include: the general nature of the structure involved, its size and configuration; the location of the structure on the site and its orientation; physical concomitants such as access roads, parking lots, and underground utilities, and the level of additional risk which the client assumed by virtue of limitations imposed upon the exploratory program. To help avoid costly problems, consult the geotechnical engineer to determine how any factors which change subsequent to the date of the report may affect its recommendations.

Unless your consulting Geotechnical engineer indicates otherwise, *your Geotechnical engineer report should not be used:*

- When the nature of the proposed structure is changed, for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one;
- when the size or configuration of the proposed structure is altered;
- when the location or orientation of the proposed structure is modified:
- when there is a change of ownership, or
- for application to an adjacent site.

Geotechnical engineers cannot accept responsibility for problems which may develop if they are not consulted after factors considered in their reports' development have changed.

MOST GEOTECHNICAL "FINDINGS" ARE PROFESSIONAL ESTIMATES

Site exploration identifies actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing are extrapolated by Geotechnical engineers who then render an opinion about overall subsurface conditions, their likely reaction to proposed conditions, their likely reaction to proposed construction activity, and appropriate foundation design. Even under optimal circumstances actual conditions may differ from those inferred to exist, because no Geotechnical engineer, no matter how qualified, and not subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be fare more gradual or abrupt than a report indicates. Actual conditions in areas not sampled may differ from predictions. *Nothing can be done to prevent the unanticipated, but steps can be taken to help minimize their impact.* For this reason, *most experienced owners retain their Geotechnical consultants through the construction stage*, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

SUBSURFACE CONDITIONS CAN CHANGE

Subsurface conditions may be modified by constantly-changing natural forces. Because a Geotechnical engineering report is based on conditions which existed at the time of subsurface exploration, *construction decisions should not be based on a Geotechnical engineering report whose adequacy may have been affected by time.* Speak with the Geotechnical consultant to learn if additional tests are advisable before construction starts.

Construction operations at or adjacent to the site and natural events such as flood, earthquakes or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical report. The geotechnical engineer should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND PERSONS

Geotechnical engineers' reports are prepared to meet the specific needs of specific individuals. A report prepared for a consulting civil engineer may not be adequate for a construction contractor, or even some other consulting civil engineer. Unless indicated otherwise, this report was prepared expressly for the client involved and expressly for purposes indicated by the client. Use by any other persons for any purpose, or by the client for a different purpose, may result in problems. *No individual other than the client should apply this report for its intended purpose without first conferring with the*

Attachment 1

geotechnical engineer. No person should apply this report for any purpose other than that originally contemplated without first conferring with the geotechnical engineer.

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Costly problems can occur when other design professionals develop their plants based on misinterpretations of a geotechnical engineering report. To help avoid these problems, the geotechnical engineer should be retained to work with other appropriate design professionals to explain relevant geotechnical findings and to review the adequacy of their plans and specifications relative to geotechnical issues.

BORING LOGS SHOULD NOT BE SEPARATED FROM THE ENGINEERING REPORT

Final boring logs are developed by geotechnical engineers based upon their interpretation of field logs (assembled by site personnel) and laboratory evalution of field samples. Only final boring logs customarily are included in geotechnical engineering reports. *These logs should not under any circumstances be redrawn* for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to minimize the possibility of contractors misinterpreting the logs during bid preparation. When this occurs, delays, disputes and unanticipated costs are the all-too-frequent result.

To minimize the likelihood of boring log misinterpretation, *give contractors ready access to the complete geotechnical engineering report* prepared or authorized for their use. Those who do not provide such access may proceed under the *mistaken* impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes which aggravate them to disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY

Because geotechnical engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against geotechnical consultants. To help prevent this problem, geotechnical engineers have developed model clauses for use in written transmittals. These are *not* exculpatory clauses designed to foist geotechnical engineers' liabilities onto someone else. Rather, they are definitive clauses which identify where geotechnical engineers' responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your geotechnical engineering report, and you are encouraged to read them closely. your geotechnical engineer will be pleased to give full and frank answers to your questions.

OTHER STEPS YOU CAN TAKE TO REDUCE RISK

Your consulting geotechnical engineer will be pleased to discuss other techniques which can be employed to mitigate risk. In addition, ASFE as developed a variety of materials which may be beneficial. Contact ASFE for a complimentary copy of its publications directory.

Published by

ASFE
THE ASSOCIATION OF ENGINEERING FIRMS PRACTICING IN THE GEOSCIENCES

8811 Colesville Road/Suite G106/Silver Spring, Maryland 20910/(301)565-2733

Attachment 1

Tetra Tech Boring Log Descriptive Terminology
Key to Soil Symbols and Terms

12/06/12

TETRA TECH

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVEL AND GRAVELLY SOILS (MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE)	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	Well-graded gravels, gravel sand mixtures, little or no fines.
				GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	Silty gravels, gravel-sand-silt mixtures.
				GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS (MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE)	CLEAN SANDS (LITTLE OR NO FINES)		SW	Well-graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands, gravelly sands, little or no fines.
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	Silty sands, sand-silt mixtures.
				SC	Clayey sands, sand-clay mixures.
FINE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS (LIQUID LIMIT LESS THAN 50)			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils.

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Order of Descriptors

- Group Name
- Consistency or Relative Density
- Moisture Condition
- Color
- Particle size descriptor(s) (coarse grained soils only)
- Angularity of coarse grained soils
- Other relevant notes

Criteria For Descriptors

Consistency of Fine Grained Soils

Consistency	N-Value (uncorrected)
Very Soft	< 2
Soft	2 - 4
Medium Stiff	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	> 30

Apparent Density of Coarse Grained Soils

Relative Density	N-Value (uncorrected)
Very Loose	< 4
Loose	4 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

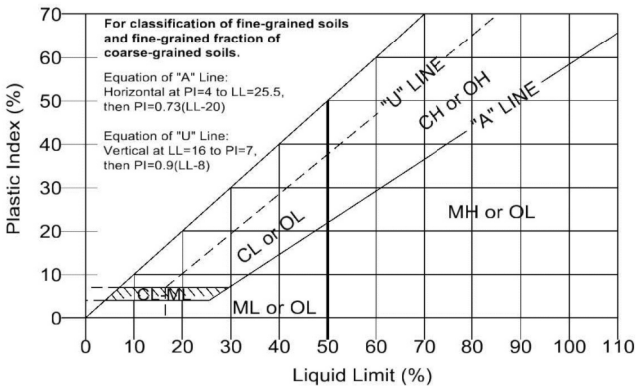
Moisture Condition

Dry	-Absence of moisture, dusty, dry to the touch.
Moist	-Damp, but no visible water.
Wet	-Visible free water.

Definition of Particle Size Ranges

Soil Component	Size Range
Boulder	> 12 in (300 mm)
Cobble	3 in (75 mm) - 12 in (300 mm)
Gravel	No. 4 Sieve (4.75 mm) to 3 in (75 mm)
Sand	No. 200 (0.075 mm) to No. 4 Sieves (4.75 mm)
Silt	< No. 200 Sieve (0.075 mm)*
Clay	< No. 200 Sieve (0.075 mm)*

*Atterberg limits and chart below to differentiate between silt and clay.



Notes

See Soil Boring Information Special Provision.

SPT (Standard Penetration Test-ASTM D1586):
The number of blows of a 140 lb (63.6 kg) hammer falling 2.5 ft (750 mm) used to drive a 2 in (50 mm) O.D. Split Spoon sampler for a total of 1.5 ft (0.45 m) of penetration.
Written as follows:
first 0.5 ft (0.15 m) - second 0.5 ft (0.15 m) - third 0.5 ft (0.15 m) (ex: 1-3-9)
Note: if the number of blows exceeds 50 before 0.5 ft (0.15 m) of penetration is achieved, the actual penetration rounded to the nearest 0.1 ft (0.03 m) follows the number of blows in parentheses (ex: 12-24-50 (0.09 m), 34-50 (0.4 ft), or 100 (0.3 ft)).WR denotes a zero blow count with the weight of the rods only.
WH denotes a zero blow count with the weight of the rods plus the weight of the hammer.

MC=Moisture Content, LL=Liquid limit, PL=Plastic Limit
-200%=percent soil passing 200 sieve, DD=Dry Density

Soil Classifications are Based on the Unified Soil Classification System, ASTM D2487 and D2488. Also included are the AASHTO group classifications (M145). Descriptions are based on visual observation, except where they have been modified to reflect results of laboratory tests as deemed appropriate.

Angularity of Coarse-Grained Particles

Angular	-Particles have sharp edges and relative plane sides with unpolished surfaces.
Subangular	-Particles are similar to angular description, but have rounded edges.
Subrounded	-Particles have nearly plane sides, but have no edges.
Rounded	-Particles have smoothly curved sides and well-rounded corners and edges.

Example soil description: Sandy FAT CLAY (CH), soft, wet, brown, (A-7)

Attachment 1

Tetra Tech Boring Log Descriptive Terminology
Key to Rock Symbols and Terms

12/06/12

TETRA TECH

Rock Type	Symbol	Rock Type	Symbol	Rock Type	Symbol
Argillite		Dolomite		Quartzite	
Basalt		Gneiss		Rhyolite	
Bedrock (other)		Granitic		Sandstone	
Breccia		Limestone		Schist	
Claystone		Siltstone		Shale	
		Conglomerate			

Order of Descriptors

- Rock Type
- Color
- Grain size (if applicable)
- Stratification/Foliation (as applicable)
- Field Hardness
- Other relevant notes

Criteria For Descriptors

Grain Size

Description	Characteristic
Coarse Grained	-Individual grains can be easily distinguished by eye
Fine Grained	-Individual grains can be distinguished with difficulty

Stratum Thickness

Thickly Bedded	3-10 ft (1-3 m)
Medium Bedded	1-3 ft (300 mm - 1 m)
Thinly Bedded	2-12 in (50-300 mm)
Very Thinly Bedded	< 2 in (50 mm)

Rock Field Hardness

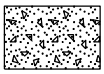
Very Soft	-Can be carved with knife. Can be excavated readily with point of rock hammer. Can be scratched readily by fingernail.
Soft	-Can be grooved or gouged readily by knife or point of rock hammer. Can be excavated in fragments from chips to several inches in size by moderate blows of the point of a rock hammer.
Medium	-Can be grooved or gouged 0.05 in (2 mm) deep by firm pressure of knife or rock hammer point. Can be excavated in small chips to pieces about 1 in (25 mm) maximum size by hard blows of the point of a rock hammer.
Moderately hard	-Can be scratched with knife or pick. Gouges or grooves to 0.25 in (6 mm) can be excavated by hard blow of rock hammer. Hand specimen can be detached by moderate blows.
Hard	-Can be scratched with knife or pick only with difficulty. Hard hammer blows required to detach hand specimen.
Very Hard	-Cannot be scratched with knife or sharp rock hammer point. Breaking of hand specimens requires several hard blows of a rock hammer.

Notes:

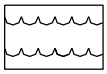
UCS = Unconfined Compressive Strength obtained from laboratory testing at the given depth.

See Soil Boring Information Special Provision.

Miscellaneous Soil/Rock Symbols and Terms

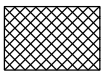

Concrete

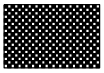

Asphalt

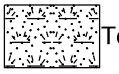

Water


Boulders and Cobbles


Coal


Fill


Millings


Topsoil

Explanation of Text Fields In Boring Logs:

Material Description: Lithologic Description of soil or rock encountered.

Remarks: Comments on drilling, including method, bit type, and problems encountered.

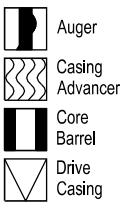
Unless stated on logs as being surveyed by district survey, all locations are considered approximate.

General Notes

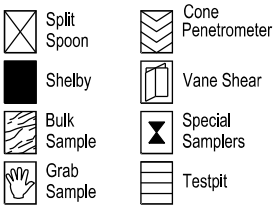
- Descriptions on these boring logs apply only at the specific boring, and at the time the time the borings were made. These logs are not warranted to be representative of subsurface conditions at other locations or times.
- Water level observations apply only at the specific boring, and at the time the borings were made. Due to the variability of groundwater measurements given the type of drilling used, and the stratification of the soil in the boring, these logs are not warranted to be representative of groundwater conditions at other locations or times.
- Other terms may be used as descriptors, as defined by the profession.

-Soil and Rock descriptions are based on visual observation, except where they have been modified to reflect results of laboratory tests as deemed appropriate.

Operation Types:



Sample Types:



Example Rock Log

SANDSTONE, gray, fine grained, thickly bedded, hard field hardness

Attachment 1

TETRA TECH

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 – 83

(Based on Unified Soil Classification System)

MAJOR DIVISIONS				GROUP SYMBOL	GROUP NAME
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines	Cu ≥ 4 and 1 ≤ Cc ≤ 3[E]	GW	Well graded gravel [F]
			Cu < 4 and/or 1 > Cc > 3[E]	GP	Poorly graded gravel [F]
		Gravels with Fines More than 12% fines	Fines classify as ML or MH	GM	Silty gravel [F G H]
			Fines classify as CL or CH	GC	Clayey gravel [F G H]
	Sands 50% or more of coarse faction passes No. 4 sieve	Clean Sands Less than 5% fines	Cu ≥ 6 and 1 ≤ Cc ≤ 3[E]	SW	Well-graded sand [I]
			Cu < 6 and/or 1 > Cc > 3[E]	SP	Poorly graded sand [I]
		Sands with Fines More than 12% fines	Fines classify as ML or MH	SM	Silty Sand [G H I]
			Fines classify as CL or CH	SC	Clayey sand [G H I]
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line	CL	Lean clay [K L M]
			PI < 4 or plots below "A" line	ML	Silt [K L M]
		Organic	Liquid limit – oven dried / Liquid limit – not dried < 0.75	OL	Organic clay [K L M N] Organic silt [K L M O]
	Silts and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay [K L M]
			PI plots below "A" line	MH	Elastic silt [K L M]
		Organic	Liquid limit – oven dried / Liquid limit – not dried < 0.75	OH	Organic clay [K L M O] Organic silt [K L M O]
Highly organic soils	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

[D] Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $Cc=(D_{30})^2 / (D_{10} \times D_{90})$

[F] If soil contains ≥15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥15% gravel, add "with gravel" to group name.
If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.

[K]. If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.

[L] If solid contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.

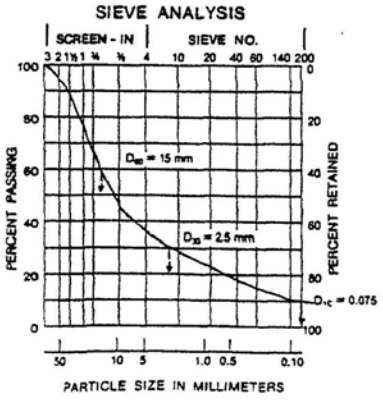
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

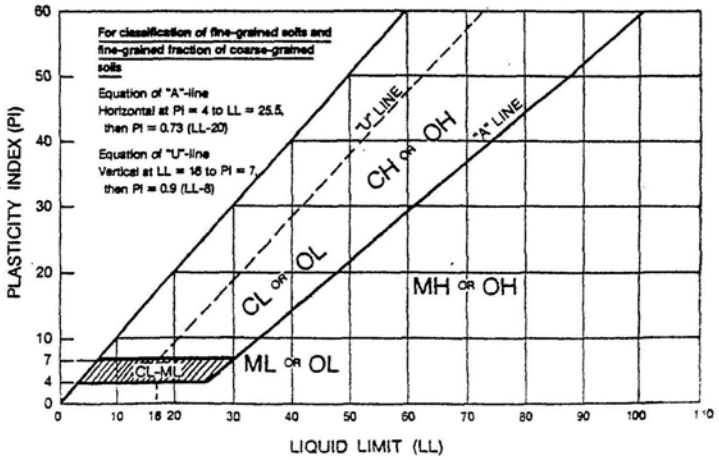
[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A: line.

[P] PI plots on or above "A: line.

[Q] PI plots below "A: line.





$C_u = \frac{D_{50}}{D_{1e}} = \frac{15}{0.075} = 200$ $C_c = \frac{(D_{30})2}{D_{12} \times 10_{36}} + \frac{(2.5)-}{0.075 \times 15} = 5.6$

Attachment 1

TETRA TECH
www.tetratech.com
2525 Palmer St. Suite 2
Missoula, MT 59808
Phone: (406) 543-3045

Client: Canyon County

Canyon County Landfill
Nampa ID

LOCATION OF EXPLORATORY BORINGS

Project No.:	114-571040-2022
Date:	January 2022
Drawn By:	M. Adams
Drawing Number	1001-1

Attachment 1

TETRA TECH
www.tetratech.com
2525 Palmer St. Suite 2
Missoula, MT 59808
Phone: (406) 543-3045

Client: Canyon County

Canyon County Landfill
Nampa ID

LOCATION OF EXPLORATORY BORINGS

Project No.:	114-571040-2022
Date:	January 2022
Drawn By:	M. Adams
Drawing Number	1001-2

APPENDIX B: Logs of Exploratory Borings

Figures 1 through 3

Attachment 1

2525 Palmer St, Suite 2
Missoula, Montana 59808
Phone: 406.543.3045
Fax: 406.543.3088

Figure No. 1

LOG OF BORING

Boring B2021-1

TETRA TECH

Project: Pickles Butte Sanitary Landfill - Canyon County, ID		**Rig:** TS150 Crawler **Hammer:** Auto	**Boring Location Coordinates** N: 43.502927 E: -116.624204
Project Number: 114-571040-2022		**Boring Diameter:** 6 in	**System:** Decimal Degrees **Datum:** NAD83
Date Started: 11/15/21	**Date Finished:** 11/15/21	**Drilling Fluid:**	**Abandonment Method:** Grout
Driller: Holt Services **Logger:** Matt Adams		**Location:** Refer to site map.	

Top of Boring Elevation:

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
							TOPSOIL, moist.	0.3						
			100		3 - 3 - 4		Poorly-Graded SAND with silt (SP-SM), loose, moist, brown to gray, subangular.		9					
			100		2 - 3 - 3					NV	NP	12		
5			100		2 - 3 - 5									
			100		3 - 6 - 9		Poorly-Graded SAND (SP), loose to medium dense, moist, gray to tan, subangular to angular.	5.3	8					
			100		9 - 13 - 13									
10			100		8 - 11 - 13				6					
							Silty SAND (SM), medium dense, moist, gray to tan, Pockets of clay.	11.2						
							Poorly-Graded SAND (SP), medium dense, slightly moist, gray, subangular to angular, Small pockets of grey clay.	14.1	5					
15			100		10 - 13 - 15									
20			100		10 - 12 - 13									
							Poorly-Graded SAND with silt (SP-SM), dense to very dense, slightly moist, gray.	24.1						
25			100							NV	NP	6	113	Cc= 0.03
			100		13 - 21 - 23									
30			100		13 - 25 - 34			31.5						

Boring Depth: 31.5 ft, *Elevation:*

Water Level Observations

During Drilling: Not Encountered

After Drilling: Not Recorded

After Drilling: Not Recorded

Remarks:

Attachment 1

2525 Palmer St, Suite 2
Missoula, Montana 59808
Phone: 406.543.3045
Fax: 406.543.3088

Figure No. 2

LOG OF BORING

Boring B2021-2

TETRA TECH

Project: Pickles Butte Sanitary Landfill - Canyon County, ID		**Rig:** TS150 Crawler **Hammer:** Auto	**Boring Location Coordinates** N: 43.501658 E: -116.713829
Project Number: 114-571040-2022		**Boring Diameter:** 6 in	**System:** Decimal Degrees **Datum:** NAD83 **Top of Boring Elevation:**
Date Started: 11/16/21	**Date Finished:** 11/16/21	**Drilling Fluid:**	**Abandonment Method:** Grout
Driller: Holt Services **Logger:** Matt Adams		**Location:** Refer to site map.	

Depth (ft) Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
			100		2 - 1 - 3		Silty SAND (SM), very loose, slightly moist, brown, subangular to angular.		7					
			100		2 - 1 - 1			2.3						
5			100		3 - 3 - 4		Poorly-Graded SAND with silt (SP-SM), very loose to very dense, slightly moist to moist, brown to gray, angular to subangular.		3					
			100		2 - 4 - 6									
			100		7 - 10 - 14				3					
10			100		10 - 15 - 20									
15			100		7 - 11 - 17				5					
20			150		11 - 17 - 21				3					
25			100		11 - 16 - 21									
30			100		15 - 25 - 34			31.5						

Boring Depth: 31.5 ft, *Elevation:*

Water Level Observations		Remarks:
During Drilling: Not Encountered		
After Drilling: Not Recorded	After Drilling: Not Recorded	

Attachment 1

TT LOG OF BORING - MDT_REVISED_2009+.GDT - 1/24/22 10:35 - N:\GEOTECH\REPORTS\REPORT 2022\PICKLES BUTTE LANDFILL\LAB_LOGS\BORING LOGS.GPJ

2525 Palmer St, Suite 2
Missoula, Montana 59808
Phone: 406.543.3045
Fax: 406.543.3088

Figure No. 3

LOG OF BORING

Boring B2021-8

TETRA TECH

Project: Pickles Butte Sanitary Landfill - Canyon County, ID		**Rig:** TS150 Crawler **Hammer:** Auto	**Boring Location** N: 43.48988 **Coordinates** E: -116.703147
Project Number: 114-571040-2022		**Boring Diameter:** 6 in	**System:** Decimal Degrees **Datum:** NAD83
Date Started: 11/15/21	**Date Finished:** 11/15/21	**Drilling Fluid:**	**Abandonment Method:** Grout
Driller: Holt Services **Logger:** Matt Adams		**Location:** Refer to site map.	

Top of Boring Elevation:

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
			100		5 - 5 - 12		TOPSOIL, moist.	0.6	11					
							SILT with sand (ML), very stiff, slightly moist to moist, tan.			NV	NP	84		
			100		10 - 16 - 13									
5			100		8 - 8 - 10				11					
			100						12					
10								10.1						
			100		7 - 9 - 11		Silty SAND (SM), medium dense, slightly moist, tan to gray, subangular, scattered gravel.		6					
15			87		6 - 7 - 9				5					
20								20.0						
			87		9 - 13 - 15		Poorly-Graded SAND (SP), medium dense, slightly moist, tan to yellow, subangular to angular.	21.5	5					

Boring Depth: 21.5 ft, *Elevation:*

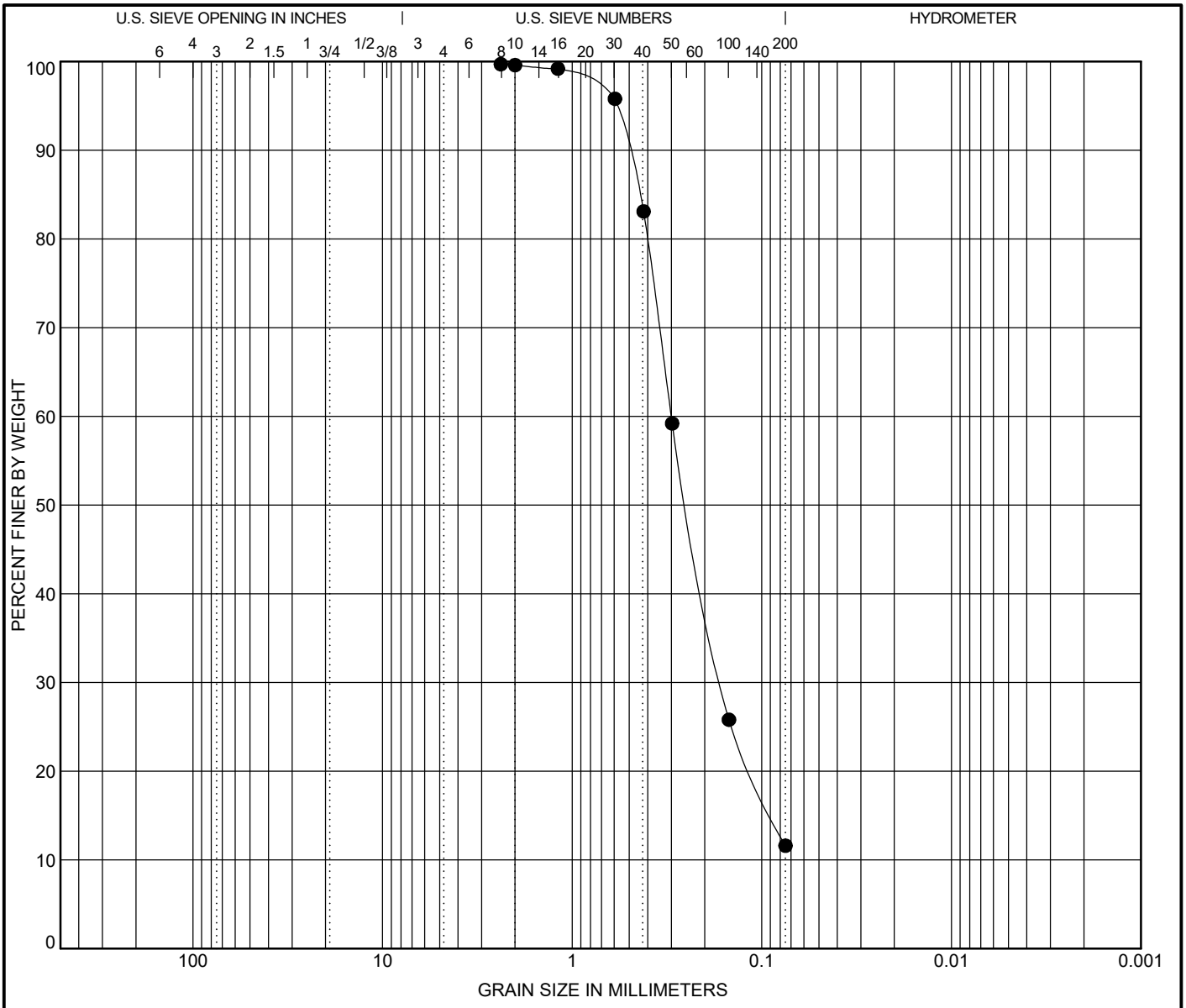
Water Level Observations		Remarks:
During Drilling: Not Encountered		
After Drilling: Not Recorded	After Drilling: Not Recorded	

Attachment 1

APPENDIX C: Laboratory Testing

Figures 4 through 9

Attachment 1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

SIEVE SIZE	% PASSING
No. 8	99.7
No. 10	99.6
No. 16	99.2
No. 30	95.8
No. 40	83.1
No. 50	59.2
No. 100	25.8
No. 200	11.6

Specimen Identification
B2021-1 - (3 - 6 ft)

Classification	LL	PL	PI	Cc	Cu
POORLY GRADED SAND with SILT(SP-SM)	**NV**	**NV**	**NP**	**1.27**	**4.33**

% Gravel	% Sand	% Silt	% Clay
0	88	12	

D100	D60	D30	D10
2.38	0.3	0.163	

GRAIN SIZE DISTRIBUTION

TETRA TECH

Project: Pickles Butte

Location:B20221-1

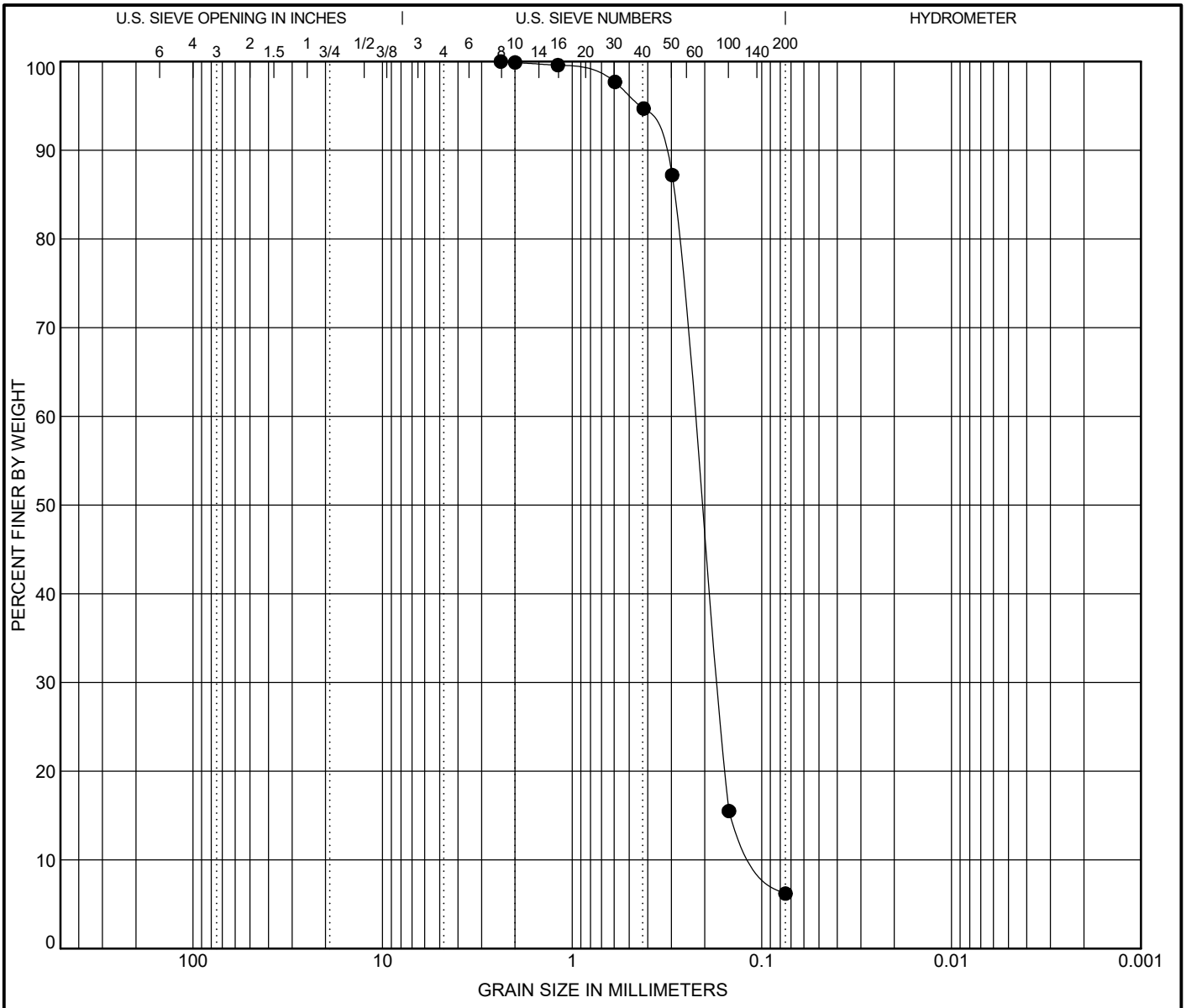
Number: 114-571040-2022

Attachment 1

Figure No. 4

BORING LOGS.GPJ ` 1-18-22 ` ` TT_US GRAIN SIZE (SIEVE DATA)

Revised 1-23-08 (MAT)



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

SIEVE SIZE	% PASSING
No. 8	100
No. 10	99.9
No. 16	99.6
No. 30	97.7
No. 40	94.7
No. 50	87.2
No. 100	15.5
No. 200	6.2

Specimen Identification
B2021-1 - (25 - 27 ft)

Classification	LL	PL	PI	Cc	Cu
POORLY GRADED SAND with SILT(SP-SM)	**NV**	**NV**	**NP**	**1.29**	**2.30**

% Gravel	% Sand	% Silt	% Clay
0	94	6	

D100	D60	D30	D10
2.38	0.229	0.171	0.099

TETRA TECH

GRAIN SIZE DISTRIBUTION

Project: Pickles Butte

Location: B20201-1

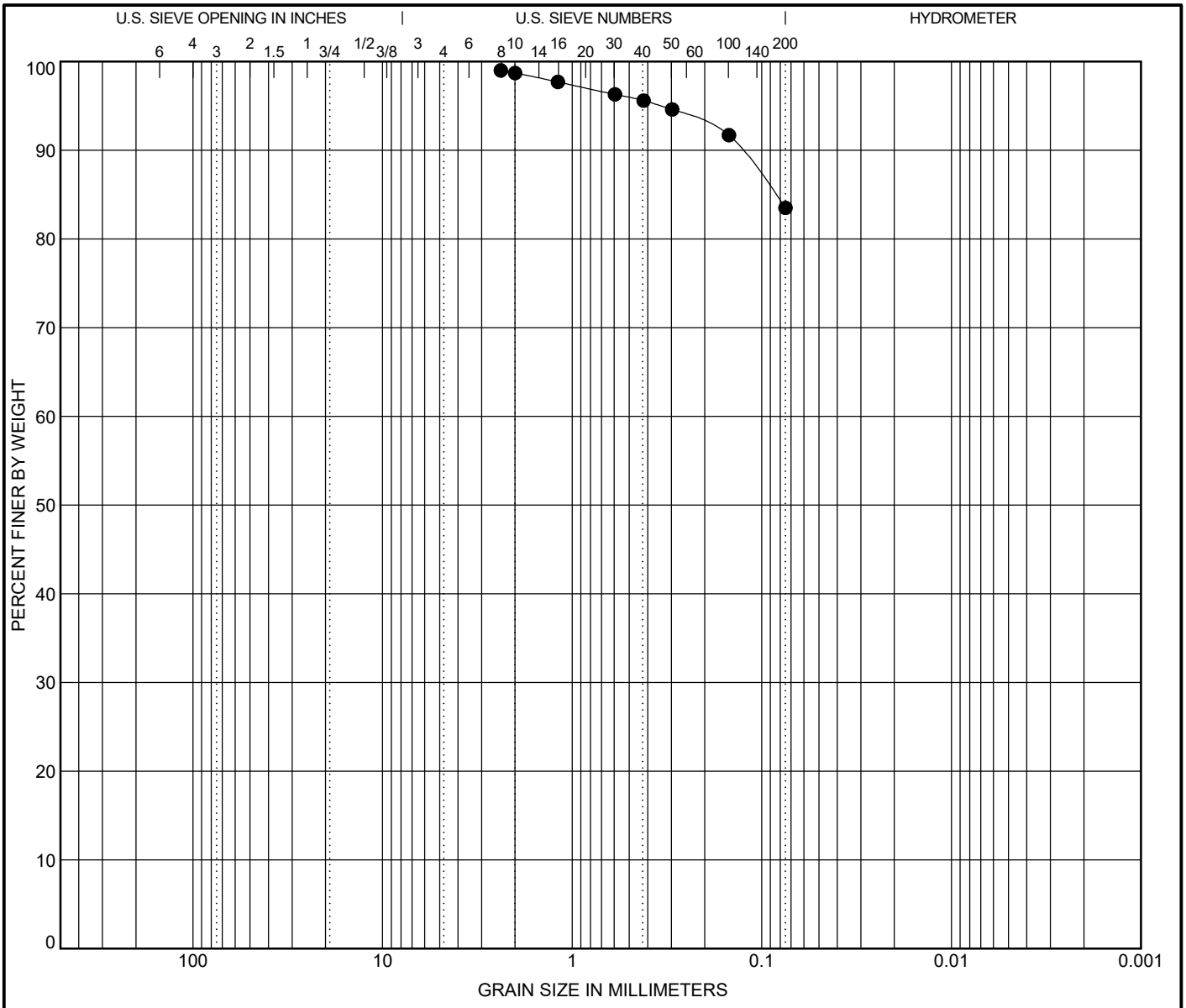
Number: 114-571040-2022

Attachment 1

Figure No. 5

BORING LOGS.GPJ ` 1-18-22 ` ` TT_US GRAIN SIZE (SIEVE DATA)

Revised 1-23-08 (MAT)



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

SIEVE SIZE	% PASSING
No. 8	99
No. 10	98.7
No. 16	97.7
No. 30	96.3
No. 40	95.6
No. 50	94.6
No. 100	91.7
No. 200	83.5

Specimen Identification
B2021-8 - (1 - 4 ft)

Classification	LL	PL	PI	Cc	Cu
SILT with SAND(ML)	**NV**	**NV**	**NP**		

% Gravel	% Sand	% Silt	% Clay
0	15	84	

D100	D60	D30	D10
2.38			

TETRA TECH

GRAIN SIZE DISTRIBUTION

Project: Pickles Butte

Location: B2021-8

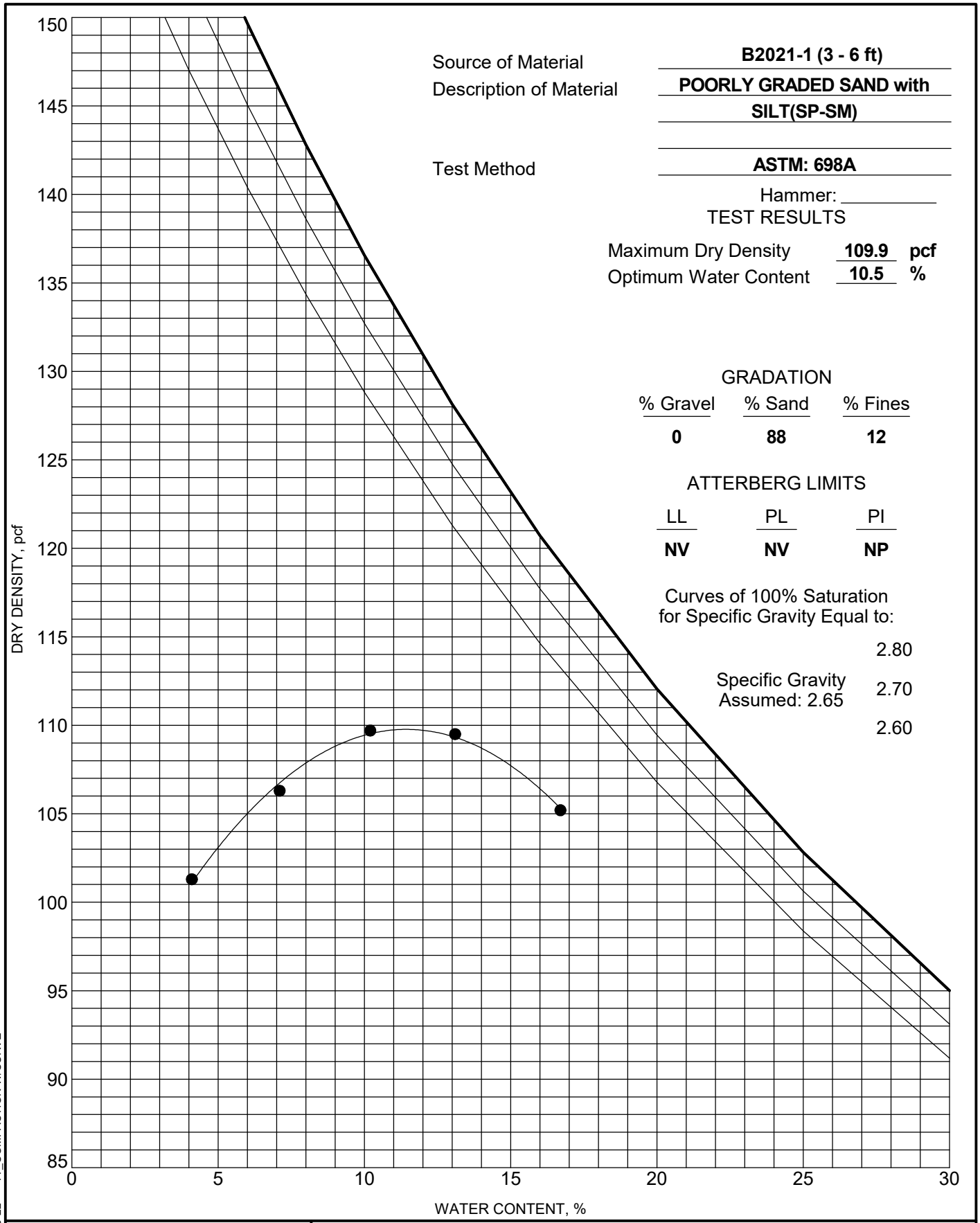
Number: 114-571040-2022

Attachment 1

Figure No. 6

BORING LOGS.GPJ ` 1-18-22 ` ` TT_US GRAIN SIZE (SIEVE DATA)

Revised 1-23-08 (MAT)



Source of Material: **B2021-1 (3 - 6 ft)**

Description of Material: **POORLY GRADED SAND with SILT(SP-SM)**

Test Method: **ASTM: 698A**

Hammer: _____

TEST RESULTS

Maximum Dry Density	**109.9**	**pcf**
Optimum Water Content	**10.5**	**%**

GRADATION

% Gravel	% Sand	% Fines
0	**88**	**12**

ATTERBERG LIMITS

LL	PL	PI
NV	**NV**	**NP**

Curves of 100% Saturation for Specific Gravity Equal to:

Specific Gravity Assumed: 2.65

2.80

2.70

2.60

MOISTURE-DENSITY RELATIONSHIP

TETRA TECH

Project: Pickles Butte

Location:B2021-1

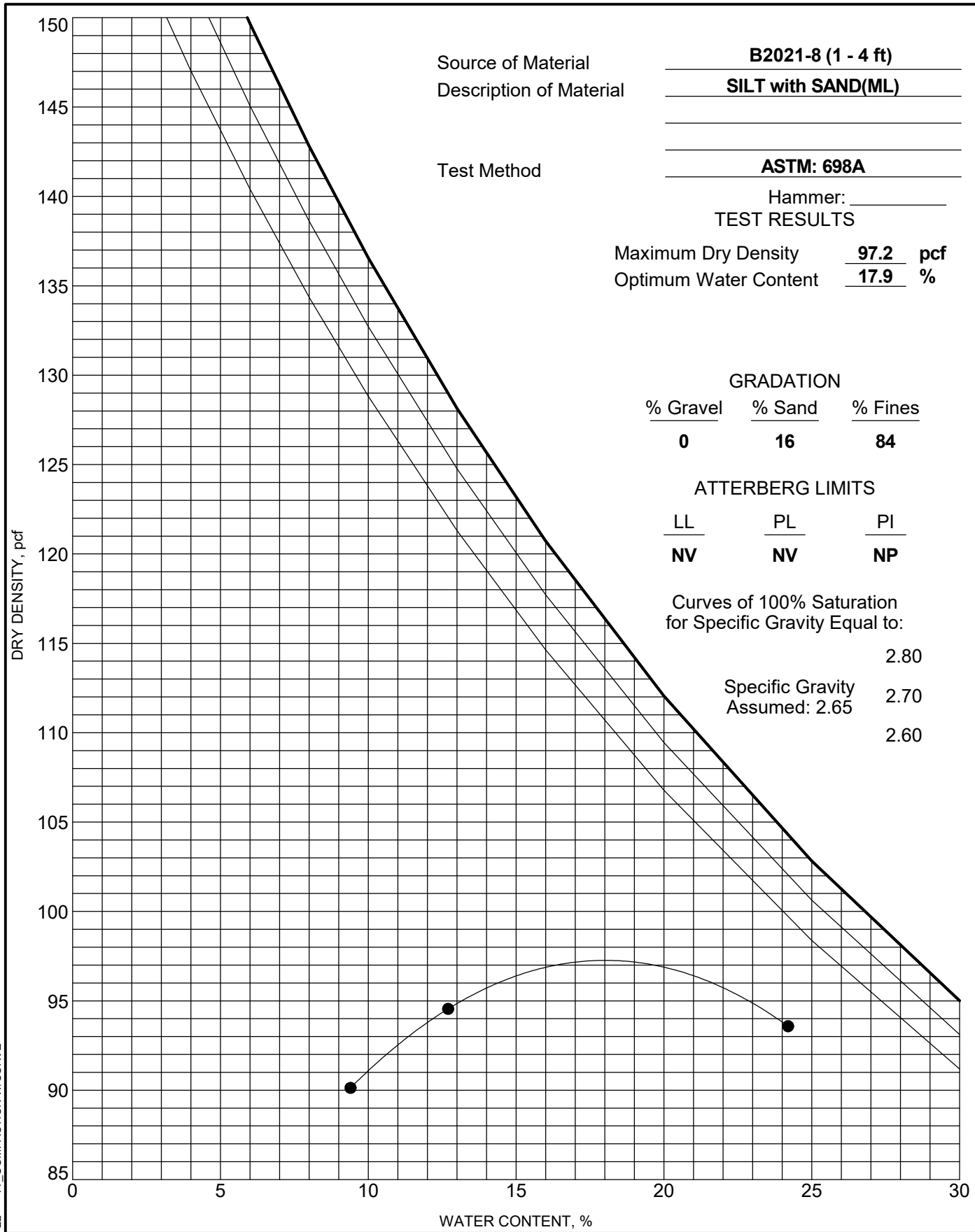
Number: 114-571040-2022

Attachment 1

Figure No. 7

BORING LOGS.GPJ ` 1-18-22 ` ` TT_COMPACTION W/CURVE

Revised 1-23-08 (MAT)



Source of Material: **B2021-8 (1 - 4 ft)**

Description of Material: **SILT with SAND(ML)**

Test Method: **ASTM: 698A**

Hammer: _____

TEST RESULTS

Maximum Dry Density	**97.2**	**pcf**
Optimum Water Content	**17.9**	**%**

GRADATION

% Gravel	% Sand	% Fines
0	**16**	**84**

ATTERBERG LIMITS

LL	PL	PI
NV	**NV**	**NP**

Curves of 100% Saturation for Specific Gravity Equal to:

Specific Gravity Assumed: 2.65

2.80

2.70

2.60

TETRA TECH

MOISTURE-DENSITY RELATIONSHIP

Project: Pickles Butte

Location:B2021-8

Number: 114-571040-2022

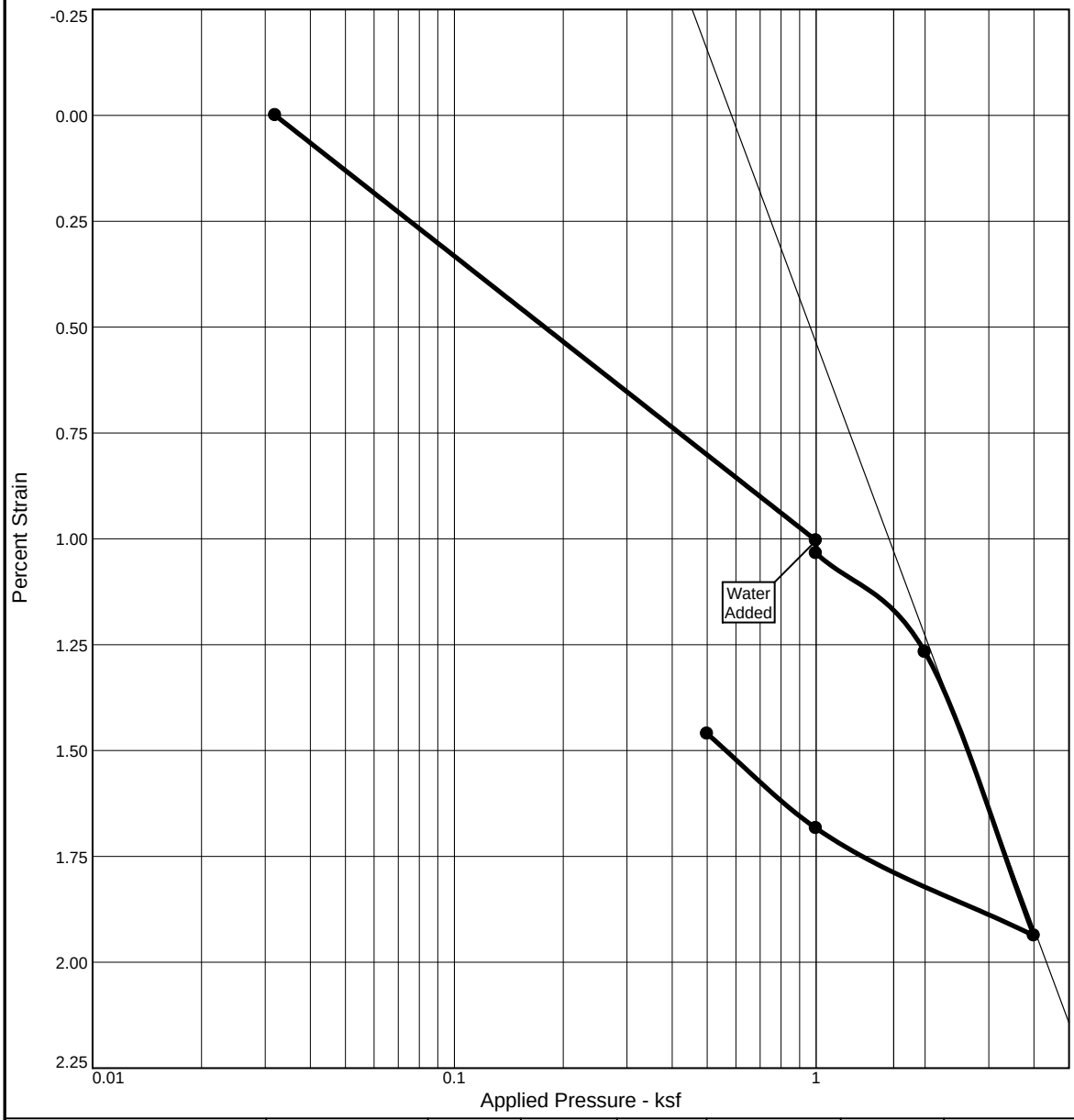
Attachment 1

Figure No. 8

BORING LOGS.GPJ ` 1-18-22 ` ` TT_COMPACTION W/CURVE

Revised 1-23-08 (MAT)

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	P_c (ksf)	C_c	Initial Void Ratio
Saturation	Moisture							
37.8 %	7.3 %	112.6	NV	NV	2.65	1.9	0.03	0.509

MATERIAL DESCRIPTION	USCS	AASHTO
POORLY GRADED SAND with SILT	(SP-SM)	

Project No. 114-571040-2022 **Client:**

Project: Pickles Butte

Location: BH-1 **Depth:** 25-27 ft

Tetra Tech

Missoula, MT

Remarks:

Figure No. 9

Attachment 1

CONTRACTOR'S BID FORM
FY22 PICKLES BUTTE SANITARY LANDFILL
DUST CONTROL SYSTEM PROJECT

NAME OF BIDDER: _____

Bidder's Public Works Contractor's License #_____

TO: Board of County Commissioners
Canyon County Courthouse
1115 Albany Street
Caldwell, Idaho 83605

Bid: Use attached bid form, affixed hereto as the "Bid Proposal".

1. Scope of Work

The undersigned bidder, having familiarized itself with the local conditions affecting the cost of the work, and with the contract documents, detailed specifications, blueprints, special provisions and any addenda on file in the office of the CANYON COUNTY BOARD OF COMMISSIONERS, First Floor, Canyon County Courthouse, 1115 Albany, Caldwell, Idaho 83605, does hereby propose to perform everything required to be performed, to provide and furnish all the labor, materials, necessary tools, expendable equipment, and all utility and transportation services necessary to perform, and to complete in a workmanlike manner, all of the work required as noted in the Solicitation of Bids, contract and specifications for the Landfill Dust Control System Project for the bid amount noted on the bid schedule.

2. Addenda

Bidder hereby expressly acknowledges receipt of Addendum(s) No. _____.

3. Time of Completion

The undersigned agrees to commence work on the Project in compliance with the Notice to Proceed and to complete the Project in accordance with the contract requirements and the Project Schedule.

4. Right to Reject Bids

In submitting this bid, and in accordance with the Solicitation for Bids, it is understood that the right to reject any and all bids is reserved by the County. It is agreed that this bid may not be withdrawn for a period of sixty (60) days from the opening thereof. The contractor understands that the County retains the right to waive compliance with any bidding informalities and accept the bid that is most beneficial to the County.

5. Bidder's Declaration and Understanding

Bidder certifies and agrees as follows:

This bid is genuine and is not made in the interests of or on behalf of any undisclosed person, firm, or corporation. Bidder has not directly or indirectly induced or solicited any other prospective Bidder to submit a false or sham bid; Bidder has not solicited or induced any person, firm, or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other prospective Bidder or over County.

Bidder certifies that none of its principals are related within the second degree of kindred to a member of the Canyon County Board of Commissioners or any other Canyon County elected official.

By submitting this bid, Bidder certifies it is licensed and qualified to do the proposed work in Idaho.

By submitting this bid, Bidder agrees that the costs for developing its submittal are entirely the responsibility of the Bidder.

The Bidder has visited the site or otherwise has become familiar with local conditions under which the work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed contract documents. Failure to visit the site prior to the bid opening shall in no way relieve the successful bidder from necessity of furnishing all material or performing all work that may be required to complete the work in accordance with contract documents without additional cost to the County. Each bidder is solely responsible to inform him/herself fully of all conditions relating to the bid documents and the work prior to submitting a Bid. A Bidder may withdraw a bid at any time prior to the time scheduled for the opening of bids.

The bid is based upon the materials, equipment and systems required by the bidding documents without exception. Materials and equipment for which there is no installation procedure noted in the specifications shall be installed in conformance with the manufacturer's written instructions.

Bidder has carefully examined the Solicitation for Bids, and addenda and exhibits issued and attached to the specifications, and fully informed themselves as to the existing conditions and limitations, and they included in the bid a sum to cover the cost of all items contemplated by the Solicitation. By making a bid, the Bidder represents that it has read and understands the bidding and contract documents, has become familiar with local conditions under which the work is to be performed, and has correlated the Bidder's personal observations with the requirements of the contract documents.

Bidders shall include in their bids all taxes which are levied by federal, state, or municipal governments upon labor and for material entering into the work, and the Contractor shall pay all such taxes and show evidence of payment if required prior to final payment. Bidders must, as a

condition precedent to entering into the construction contract, have reviewed and complied with Idaho Code § 63-1502.

The Contractor shall assume the work in the condition as found and shall take all necessary measures to conduct all work required to complete the necessary elements of the project, as per detailed specifications and blueprints.

The Bidder is authorized, pursuant to Idaho Code § 67-2310 to report, and does here so report, the anticipated participation on this Project of the following subcontractors:

a. Name and Contractor's License Number of _____ Subcontractor:

_____

b. Name and Contractor's License Number of _____ Subcontractor:

_____

c. Name and Contractor's License Number of _____ Subcontractor:

_____

BID PROPOSAL

The bid price shall include all equipment, materials, and labor to complete the Scope of Work described in the attached Request for Bid document. The prices are to be listed in US dollars.

Total bid amount for:

1. Mobilization and demobilization
2. Provide and install a pre-cast pump house
3. Provide and install a buried, pre-cast, 15,000-gallon water tank
4. Provide and install a buried HDPE pipe from an existing well to the buried tank
5. Provide and install a pre-manufactured, J-stand for loading water into water trucks
6. Provide and install interior piping and appurtenances
7. Design, provide and install all electrical and control equipment to operate the system.

$_____

Time estimated to complete the work: _____working days.

_____
Name of Company

_____ _____
Signature of Authorized Representative Date Signed

_____
Company Street Address

_____
City, State, Zip Code

_____
Contact Information (phone number or email)

IN WITNESS HERETO the undersigned has set his (its) hand this ____ day of _____, 2022.

NAME OF FIRM: **ADDRESS:**

_____ _____

_____

By: _____
(Signature)

_____
Title

_____
(Printed Name)

CONTRACTOR'S IDAHO PUBLIC WORKS LICENSE NO. _____

STATE OF IDAHO)
) ss.
County of _____)

On this_____day of_____, 2022, before me, a notary public, personally appeared_____, known or identified to me to be the _____for_____, whose name is subscribed to the within instrument, and acknowledged to me that said corporation executed the same.

(S E A L)

_____
Notary Public for Idaho
Residing at:_____
My Commission Expires: _____

FY22 PICKLES BUTTE SANITARY LANDFILL
DUST CONROL SYSTEM PROJECT AGREEMENT

THIS AGREEMENT is made this day of _____2022, between, _____ _____ having a local address of _____ (hereinafter "CONTRACTOR") and Canyon County, a political subdivision of the State of Idaho, having offices at 1115 Albany St. Caldwell, Idaho 83605 (hereinafter "COUNTY").

WHEREAS, COUNTY issued a Solicitation for Bids pursuant to procedures provided by Idaho Code Section 67-2805 for the purpose of identifying the lowest responsive bid for the FY2022 Pickles Butte Sanitary Landfill Dust Control System Project (hereinafter "Project"); and

WHEREAS, COUNTY has determined that CONTRACTOR's bid to provide said construction services was the lowest responsive bid received and that funds sufficient to complete such construction have been duly appropriated for expenditure in FY22.

NOW THEREFORE, in consideration of the mutual promises contained herein, the Parties hereby understand and agree as follows:

1. **PURPOSE:**

1.1 COUNTY hereby employs CONTRACTOR as an independent contractor to complete and perform the following project and work:

1. Mobilization and demobilization
2. Provide and install a pre-cast pump house
3. Provide and install a buried, pre-cast, 15,000-gallon water tank
4. Provide and install a buried HDPE pipe from an existing well to the buried tank
5. Provide and install a pre-manufactured, J-stand for loading water into water trucks
6. Provide and install interior piping and appurtenances
7. Design, provide and install all electrical and control equipment to operate the system.

1.2 CONTRACTOR agrees to provide all materials and services for the project as requested by the COUNTY and in accordance with Attachment 1 and CONTRACTOR's bid, attached hereto as Attachment 2 and incorporated fully by reference.

2. **CONTRACTOR REPRESENTATIONS:**

2.1 CONTRACTOR has visited the Site and become familiar with and satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the project.

2.2 CONTRACTOR is a duly licensed public works contractor and complex installer, familiar with and satisfied as to all federal, state, and local laws and regulations that may affect

cost, progress, and performance of the project. CONTRACTOR agrees to comply with all federal, state, city, and local laws, rules and regulations.

2.3 The project specifications and this contract sufficiently detail the work required and convey understanding of all terms and conditions for performance and furnishing of the work.

2.4 CONTRACTOR warrants that all materials and goods supplied under this Agreement shall be of good merchantable quality and that all services will be performed in a good workmanlike manner. CONTRACTOR acknowledges that it will be liable for any breach of this warranty.

2.5 CONTRACTOR represents that neither it nor any of its principals is related to a County Commissioner or other Canyon County official by blood or marriage within the second degree of kindred. CONTRACTOR agrees to comply with all federal, state, city, and local laws, rules and regulations.

2.6 CONTRACTOR understands that COUNTY is exempt from payment of Federal Excise Tax under Certificate No. 82-6000-290 and none shall be charged to COUNTY.

2.7 I.C. § 63-1503 statement: CONTRACTOR, in consideration of securing the business of erecting or constructing public works in this state, recognizing that the business in which he is engaged is of a transitory character, and that in the pursuit thereof, his property used therein may be without the state when taxes, excises, or license fees to which he is liable become payable, agrees:

(1) To pay promptly when due all taxes, (other than on real property), excises and license fees due to the state, its subdivisions, and municipal and quasi-municipal corporations therein, accrued or accruing during the term of this contract, whether or not the same shall be payable at the end of such term;

(2) That if the said taxes, excises, and license fees are not payable at the end of said term, but liability for the payment thereof exists, even though the same constitute liens upon his property, to secure the same to the satisfaction of the respective officers charged with the collection thereof; and

(3) That, in the event of his default in the payment or securing of such taxes, excises, and license fees, to consent that the department, officer, board, or taxing unit entering into this contract may withhold from any payment due him hereunder the estimated amount of such accrued and accruing taxes, excises, and license fees for the benefit of all taxing units to which said contractor is liable.

3. **COMPENSATION:**

3.1 COUNTY agrees to pay CONTRACTOR as compensation:

The sum of _____dollars ($_____), payable in installments proportional to the work completed and issued not more frequently than monthly.

Prior to the first payment, the CONTRACTOR shall submit to the County an initial schedule of values allocated to the work that shall be used as a basis for reviewing invoices. Invoices shall certify that payment is for work, materials, equipment or supplies actually performed or actually installed in furtherance of the dust control project, and shall reflect a five percent (5%) retainage to be paid upon project completion and acceptance.

3.2 CONTRACTOR shall submit their invoices to:

Director David Loper
Pickles Butte Sanitary Landfill
15500 Missouri Avenue
Nampa, ID 83868
(208) 466-7288

3.3 Subject to Article 8, sections 3 and 4 of the Idaho Constitution and all other non-appropriation law in relation thereto, COUNTY will duly and punctually pay the amounts to satisfy its obligations required under this Agreement, recognizing that time is of the essence. If non-appropriation occurs, this Agreement shall automatically terminate and all future rights and liabilities of the parties hereto shall thereupon cease upon CONTRACTOR's receipt of original notice from COUNTY informing CONTRACTOR of that event.

4. **TIME OF PERFORMANCE:**

4.1 Time is of the essence in the performance of the work as specified in this Agreement.

4.2 The parties intend the project to take_____weeks, with a tentative starting date of _____, to be complete by _____. However, the COUNTY understands and agrees that CONTRACTOR requires a preparatory term of _____ working days after the COUNTY completes its security background checks of CONTRACTOR's personnel assigned to this project before the start date and _____ week completion time begins.

4.3 If CONTRACTOR fails to deliver the subject matter of this Agreement in accordance with this time schedule, liquidated damages shall accrue to COUNTY as follows: CONTRACTOR shall pay COUNTY the sum of Five Hundred Dollars ($500.00) per day for each and every calendar day of unexcused delay. Liquidated damages shall not be charged when the delay arises out of causes beyond the control of CONTRACTOR.

5. **INSURANCE:**

5.1 CONTRACTOR agrees to obtain and keep in force during its acts under this Agreement insurance as required by the solicitation for bids, including but not limited to a

comprehensive general liability insurance policy in the minimum amount of $1,000,000.00 per occurrence and $2,000,000.00 in the aggregate, which shall name as additional insured and protect COUNTY, and its officers, agents and employees, from and against any and all claims, losses, actions, and judgments for damages or injury to persons or property arising out of or in connection with CONTRACTOR 's acts.

5.2 CONTRACTOR shall provide proof of liability coverage as set forth above to COUNTY prior to commencing its performance as herein provided, and require notify COUNTY ten (10) days prior to cancellation of said policy.

5.3 CONTRACTOR shall maintain in full force and effect worker's compensation for CONTRACTOR and any agents, employees, and staff that CONTRACTOR may employ, and provide proof to COUNTY of such coverage or that such worker's compensation insurance is not required under the circumstances.

6. **INDEMNIFICATION:**

CONTRACTOR agrees to indemnify, defend, and hold harmless COUNTY, and its officers, agents and employees, from and against any and all claims, losses, actions, or judgments for damages or injury to persons or property arising out of or in connection with the acts and/or any performances or activities of CONTRACTOR, CONTRACTOR's agents, employees, or representatives under this Agreement.

7. **INDEPENDENT CONTRACTOR:**

7.1 The parties agree that CONTRACTOR is the independent contractor of COUNTY and in no way an employee or agent of COUNTY and is not entitled to worker's compensation or any benefit of employment with COUNTY.

7.2 COUNTY shall have no control over the performance of this Agreement by CONTRACTOR or its employees, except to specify the time and place of performance, and the results to be achieved. COUNTY shall have no responsibility for security or protection of CONTRACTOR supplies or equipment.

8. **PERSONNEL AND SECURITY REQUIREMENTS:**

8.1 CONTRACTOR reserves the right to designate its resources and personnel for installation in every situation. Notwithstanding the above, CONTRACTOR shall provide a list of the individuals assigned to the project team to COUNTY.

8.2 COUNTY shall have the right to direct removal of a CONTRACTOR employee for cause, if in the opinion of COUNTY, such employee demonstrates non-performance or inappropriate conduct, which jeopardizes security, safety, or other Agreement requirements, or fails to pass the initial background check. COUNTY shall provide CONTRACTOR with written justification as to the reason(s) for the directed removal.

9. **PERFORMANCE BOND/PAYMENT BOND:**

9.1 Pursuant to Idaho Code Section 54-1926, CONTRACTOR shall provide and maintain at all times a valid Contractor's Performance Bond in any amounts sufficient to cover performance of this Agreement. The Performance Bond shall be issued for a period of not less than one (1) year and must be renewed annually for the term of this Agreement, and CONTRACTOR shall provide a new Bond, or evidence satisfactory to COUNTY of renewability, at least sixty (60) calendar days before the Bond then in effect expires. The Performance Bond shall be for the use and benefit of COUNTY, with a Surety company authorized to do business in the State of Idaho and acceptable to COUNTY. Said Performance Bond shall cover CONTRACTOR's failure to faithfully perform all of the provisions of this Agreement. Said Performance Bond shall obligate the Surety to undertake or cause to be undertaken the work required to be performed pursuant to this Agreement for the term of the Bond. Such Bond shall be submitted to, and subject to approval of, the Board of Canyon County Commissioners prior to its effective date.

9.2 Pursuant to Idaho Code Section 54-1926, CONTRACTOR shall provide and maintain at all times a valid Payment Bond in any amounts sufficient to cover CONTRACTOR's payment obligations arising under each phase of this Agreement. The Payment Bond shall be issued for a period of not less than one (1) year and must be renewed annually for the term of this Agreement, and CONTRACTOR shall provide a new Payment Bond, or evidence satisfactory, to COUNTY of renewability at least sixty (60) calendar days before the Payment Bond then in effect expires. The Payment Bond shall be for the use and benefit of COUNTY, with a Surety company authorized to do business in the State of Idaho and acceptable to COUNTY. Said Payment Bond shall be submitted to, and subject to approval of, the Board of Canyon County Commissioners prior to its effective date.

9.3 CONTRACTOR is required to furnish the performance and payment bonds to COUNTY on or before the date of the execution of this Agreement. The performance bond must guarantee CONTRACTOR's performance from the date of the Agreement execution up to and including the project acceptance and completion of Agreement and the payment bond must guarantee CONTRACTOR's payment obligations arising from this Agreement from the date of the Agreement execution up to and including the system acceptance testing and completion of Agreement.

10. **MISCELLANEOUS:**

10.1 CONTROLLING LAW: The Agreement shall be interpreted, and rights of the Parties determined, under the laws of the State of Idaho. The venue of any claim, litigation, or cause of action between the Parties shall be in the Third Judicial District Court of the State of Idaho in Canyon County.

10.2 LEGISLATIVELY MANDATED CERTIFICATION CONCERNING BOYCOTT OF ISRAEL: CONTRACTOR must select and initial at least one of the following certifications:

[__] Pursuant to Idaho Code § 67-2346, Contractor certifies that it "is not currently engaged in, and will not for the duration of the contract engage in, a boycott of goods or services from Israel or territories under its control." The terms in this section defined in Idaho Code § 67-2346 shall have the meaning defined therein.

[__] Contractor certifies that County's payments under the Contract will not exceed One Hundred Thousand Dollars ($100,000).

[__] Contractor certifies that Contractor does not employ more than nine persons.

10.3 SEVERABILITY: The terms of this Agreement are severable. Should a court of competent jurisdiction decide that any portion of this Agreement is unlawful or invalid, said decision shall only affect those specific sections and the remaining portions of this Agreement shall remain in full force and effect.

10.4 ENTIRE AGREEMENT: This is the entire agreement of the parties and can only be modified or amended in writing by the parties.

IN WITNESS WHEREOF, the parties have executed this Agreement.

CONTRACTOR

_____
Signature

_____
Printed name

_____
Company name

_____
Title

STATE OF IDAHO)
) ss.
County of _____)

On the _____ day of _____, 2022, before me, the undersigned Notary Public, personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that s/he executed the same.

IN WITNESS WHEREOF, I have set my hand and seal the day and year as above written.

_____
Notary Public for _____
Residing at _____
Commission Expires: _____

CANYON COUNTY BOARD OF COUNTY COMMISSIONERS

DATED this _____ day of _____, 2022.

_____ Motion Carried Unanimously
_____ Motion Carried/Split Vote Below
_____ Motion Defeated/Split Vote Below

	Yes	No	Did Not Vote
_____ Commissioner Leslie Van Beek	_____	_____	_____
_____ Commissioner Keri K. Smith	_____	_____	_____
_____ Commissioner Pam White	_____	_____	_____

ATTEST: CHRIS YAMAMOTO, CLERK

By: _____
Deputy Clerk

CANYON COUNTY PICKLES BUTTE SANITARY LANDFILL

_____
David Loper

STATE OF IDAHO)
) ss.
County of)

On the _____ day of _____, 2022, before me, the undersigned Notary Public, personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that s/he executed the same.

IN WITNESS WHEREOF, I have set my hand and seal the day and year as above written.

_____
Notary Public for _____
Residing at _____
Commission Expires: _____