DITTMER PAD TOPSOIL PROTECTION PLAN

Contents

Article I. Introduction

Location Information

This document provides site-specific information for the Dittmer Pad within the Dittmer Pad OGDP. The information in this document relates specifically to the time during the construction, drilling, completion, and production of the sixteen (16) proposed horizontal wells on this location.

The proposed location is dry cropland approximately 1,712' Southeast of the intersection of WCR 4 and North Main Street (WCR 27). The Pad will be in the NWNW Section 32, Township 1 North, Range 66 West, zoned agricultural within Weld County's Near-Urban planning area. A 1041 WOGLA is being filed concurrently as 1041WOGLA22-0042.

The proposed Pad will be 10.1 acres, reduced to 7 acres for interim reclamation. The working pad surface will be 6.2 acres. The Pad is on parcel #147132000026 owned by Dittmer Farm LLC and Blue Pill LLC. The location is currently used for grazing.

The proposed facility equipment for the Dittmer Pad will be located within the Working Pad Surface adjacent to the wells consisting of oil tanks, water tanks, compressors, meters, LACT unit, separators, vapor recovery towers (VRT), vapor recovery units (VRU), emission control devices (ECD), instrument air skid, and proposed electrical and/or solar equipment.

Phase	Duration (Days)	Estimated Start Date
Construction	14	1st Quarter (February) 2024
Drilling	106	1st Quarter (March) 2024
Completions (Prep and Frac)	115	2nd Quarter (June) 2024
Flowback (Drill Out and flowback)	60	3rd Quarter (September) 2024
Production	25 Years	4th Quarter (November) 2024
Interim Reclamation*	10	4th Quarter (November) 2024

**or the first favorable growing season.*

Article I. General Reclamation Regulations

Per Rule, 1001.a, Incline will ensure the protection of segregated topsoil and will return the land surface as nearly as practicable to its condition at the commencement of drilling operations. Within three (3) months of the commencement of drilling operations, the total footprint of the Dittmer Pad disturbed area will be reduced from approximately 10.1 acres to 7 acres.

Article II. Rule 1002. Site Preparation and Stabilization

Soil removal and segregation

Soil horizons will be removed and stored separately for use during future interim and final reclamation. Soil horizons will be segregated based on physical characteristics observed during topsoil removal. All stockpiled soils shall be protected from degradation due to contamination, compaction and, to the extent practicable, from wind and water erosion during drilling and production operations. Topsoil stockpiles will be located along the East side

of the proposed Oil and Gas Location as shown on the Facility Layout Drawings. The maximum height of topsoil stockpiles will be 7 feet.

Article III. General Recommendation Compliance

Experienced Persons

The attached Geotech Report was prepared by Inberg-Miller Engineers.

Soil Horizon Identification

Soil horizons will be identified based on physical characteristics to allow for proper stockpile segregation and storage. In the event there is a plow layer, the entire plow layer will be considered topsoil and will be salvaged. A plow layer is not planned for this location.

Standard Terminology

The attached Geotechnical Report labels do not use the standard terminology, but the actual stockpile labels will use this nomenclature.

Test Pit Locations

Test bore locations are identified and mapped as the Site Location Map of the attached Geotechnical Report.

NRCS Soil Types

An NRCS Soil Type aerial map is attached.

Soil Horizon Thicknesses and Evaluation

Soil Horizon Thickness and Evaluation data is included as Appendix A of the attached Geotechnical Report.

Narrative Description of Available Topsoil to be Salvaged

Per the attached Grading Plan site quantities, total available topsoil to be salvaged will be 6,357 cubic yards.

Method and Timeline for Seeding and Stabilizing Stockpiles

Operator will stabilize the topsoil stockpiles utilizing vehicle tracking perpendicular to slope angle for short term stabilization and drill seed/crimped straw mulch application for longer term stabilization will be utilized to prevent erosion.

Site-Specific BMP

- Per Rule, 1002.a, the drill site will be delineated by a perimeter stormwater ditch and berm BMP structure. The ditch and berm will be installed to specifications detailed in Incline's Stormwater Management Plan and in conjunction topsoil removal and segregation. The drill site is located in dry cropland and will be fenced on 3 sides.

- Typical erosion control practices include, but are not limited to, revegetation of disturbed areas, mulching, berms, diversion dikes, surface roughening, slope drains, check dams, and other comparable measures.

- An integrated weed management plan which includes mowing, spraying, and routine inspections will be utilized to prevent weed establishment.

- Establishment of diverse population of native plant species through seeding, as well as application of site-specific soil amendments will be utilized to maintain soil microbial activity.

- The Grading Plan prepared in conjunction with the Weld County 1041WOGLA22-042 is attached to this plan and estimates six inches of topsoil in its calculations. If the slot cuts described above indicate greater depths of topsoil, then those additional cubic yards will be calculated and stockpiled in the areas shown on the attached Grading Plan.

- **Fencing of drill sites and access roads on crop lands.** During drilling operations on crop lands, when requested by the surface owner, the operator shall delineate each drill site and access road on crop lands constructed after such date by berms, single strand fence, or other equivalent method in order to discourage unnecessary surface disturbances. During the production phase, the site will be fenced on 3 sides.

- **Fencing of well sites.** Subsequent to drilling operations, where livestock is in the immediate area and is not fenced out by existing fences, the operator will install a fence around the wellhead, pit, and production equipment to prevent livestock entry. Prior to drilling operations, the site will be wrapped in soundwalls on all 4 sides. During the production phase, the site will be fenced on 3 sides.

- Per Rule, 1002.b and 1002.c, soil horizons will be removed and stored separately for use during future interim and final reclamation. Soil horizons will be segregated based on physical characteristics observed during topsoil removal. All stockpiled soils shall be protected from degradation due to contamination, compaction and, to the extent practicable, from wind and water erosion during drilling and production operations.

- The assumed stockpile slopes will be 2:1 with a maximum slope of 2:1.

Article IV. **Exhibits/References/Appendices**

Geotechnical Report
Grading Plan
NRCS Soils Map

RAEJANNA CHURCH
Ascent Geomatics Solutions
8620 Wolff Court
Westminster, Colorado 80031

SUBSURFACE EXPLORATION AND GEOTECHNICAL DATA REPORT

DITTMER PAD
WELD COUNTY, COLORADO
NOVEMBER 10, 2022

INBERG-MILLER ENGINEERS
300 East 16th Street | Suite 305
Greeley, CO 80631
(970) 373-0009
www.inberg-miller.com

23081-FX

November 10, 2022 23081-FX

PDF REPORT EMAILED: RCHURCH@ASCENTGEOMATICS.COM
THIS CONSTITUTES THE ORIGINAL

Raejanna Church
Ascent Geomatics Solutions
8620 Wolff Court
Westminster, Colorado 80031

RE: SUBSURFACE EXPLORATION AND GEOTECHNICAL DATA REPORT
DITTMER PAD
WELD COUNTY, COLORADO

Dear Ms. Church:

This letter transmits our Subsurface Exploration and Geotechnical Data report for the above-referenced project. The work described in this report has been completed in accordance with our Statement of Work dated September 28, 2022.

It has been a pleasure participating in this project. Additional services we could provide include:

- environmental assessment
- plan and specification review
- construction materials testing
- observation of excavations and earthwork

If you have any questions or comments, please contact us at (970) 373-0009.

Sincerely,

INBERG-MILLER ENGINEERS

Rami Ksaibati, P.E., M.S.
Office Manager/Geotechnical Engineer

COLORADO LICENSED
RAMI KSAIBATI
60361
11/10/22
PROFESSIONAL ENGINEER

REVIEWED BY

Derek Baker, P.E.,P.G.
Vice President

RAK:DJB:bjs\\EgnyteDrive\Projects\23081-FX ASCENT GEOMATICS SOLUTIONS Dittmer Pad\Geotech\23081-FX Dittmer Pad Subsurface Data Report.docx

Enclosures as stated

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE OF SERVICE

Inberg-Miller Engineers was requested by Ascent Geomatics Solutions to perform a subsurface exploration and prepare this geotechnical data report for the purpose of obtaining subsurface soil and groundwater information for construction of the proposed Dittmer Pad. Details regarding permanent or temporary structures and utility of the pads were not provided to Inberg-Miller Engineers. Geotechnical engineering analyses and recommendations were not requested and are not part of our scope of services. Our specific scope of services is described by our Statement of Work dated September 28, 2022.

2.0 CONDITIONS

2.1 SITE DESCRIPTION

The proposed new pad is located approximately 700 feet southwest of the intersection of County Road 4 and East Crown Prince Boulevard in Weld County, Colorado. The overall existing ground surface of the pad site by visual observation is relatively flat. The pad site is bordered by undeveloped property and a storage yard adjacent to the northwest border; additionally, water storage ponds boarder the site to the south. The ground surface is covered by light growth of native grasses.

2.2 FIELD EXPLORATION

The fieldwork was performed using a CME-55 truck-mounted drilling rig at the site on October 10th and 12th, 2022. A total of 4 test borings were advanced to depths approximately 15 feet below ground surface (bgs). The test borings were advanced using 3.25 inch inside diameter, hollow-stem augers. The augers act as a continuously advancing, steel casing. The method prevents test holes from caving in above the levels to be tested

In addition to the test borings, one percolation test was performed within the proposed pad area. Approximate test boring and percolation test locations are shown on the Site Location Map included in Appendix A.

Drilling and field sampling were performed according to the following standard specifications:

a) "Standard Practice for Using Hollow-Stem Augers for Geotechnical Exploration and Soil Sampling," ASTM D6151.

b) Sampling with a 2-inch O.D., split-barrel (split-spoon) sampler per ASTM D1586, "Penetration Test and Split-Barrel Sampling of Soils." Standard penetration test blow counts were obtained by driving a 2.0-inch-diameter split-spoon sampler into the soil using an automatic hammer that drops a 140-pound hammer a distance of 30 inches. The SPT N-value is the blow count for 12 inches of sampler penetration. N-values are correlated to soil relative density, hardness, strength and a variety of other parameters.

c) Sampling with a 2.41-inch I.D., split-barrel Dames and Moore sampler per ASTM D3550 "Standard Practice for Thick Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils". Sampling was performed using an automatic hammer as described above. N-value shown on the test boring logs is the blow count for 12 inches of sampler penetration. SPT N-value is generally correlated to equal roughly 60% of the Ring-Lined Sampler N-value.

The soil samples were field classified by a geotechnical engineer visually in accordance with ASTM D2487, sealed in containers to prevent loss of moisture, and returned to our laboratory. They were then reviewed by the geotechnical engineer to assign appropriate laboratory testing prior to the preparation of this report. A field log was prepared for each boring during drilling.

2.3 LABORATORY TESTING PROGRAM

As requested, the following laboratory soil tests were performed:

	TESTS
1. Moisture Content (ASTM D2216)	25
2. In-Situ Density (ASTM D2937)	2
3. Sieve Analysis (ASTM D422)	6
4. Atterberg Limits (ASTM D4318)	6
5. Moisture-Density Relationship (ASTM D698)	1

A final log for each boring was prepared containing the work method, samples recovered, and a description of soils encountered. The sieve analyses and moisture-density relationship test results are presented graphically in Appendix B. All other test results are arrayed on the final logs in Appendix A.

2.4 SOIL/ROCK CONDITIONS

A summary of soil conditions that were encountered and recorded on the logs is provided below. For a more detailed description of conditions refer to the test boring logs and drilling plan presented in Appendix A.

Soil classification laboratory test results indicate a USDA hydrological soil classification of Soil Group A was encountered at our test boring locations. Hydraulic conductivity testing would be required to confirm this soil group is correct.

	TOPSOIL: Clayey SAND with Gravel	SAND with Gravel
USCS Classification	SC	SP, SP-SM, SW-SM
Density/Consistency	Medium Dense to Dense	Loose to Dense
Boring Occurrence	All	All
Vertical Limits Below Ground Surface	4" to 6" from ground surface See Logs	0.3' to 16½'

2.5 PERCOLATION TEST RESULTS

Percolation tests were performed at one location as requested. A 3.25-inch inside diameter hollow-stem auger was used to drill to a depth 5 feet for the percolation test, however due to the presence of dry, sandy soil, partial sloughing in the test hole occurred after removing the auger. A few inches of gravel was poured to the bottom of each test hole and the final depth was recorded. The average diameter of the test hole was approximately 8 inches. Water was introduced into the test holes and allowed to soak overnight.

The following day, approximately 12 to 18 inches of water was placed into the test hole and the water depth was measured every 4 minutes. With each measurement, the water surface "drops" as water flows out of the test hole. After three consecutive "drop" measurements within 1/8 inch were recorded, the test was considered complete. Water was replenished in the test hole between measurements. The percolation rate is calculated as the time interval divided by the final water surface drop distance. While the percolation rate has similar units to hydraulic conductivity, they are not equivalent. Correlations between percolation tests performed as described above and hydraulic conductivity exist in the literature if hydraulic conductivity is desired. Results of the percolation test is tabulated below. A time interval of just 4 minutes was selected due to the rapid drop of the water surface. In total, approximately 100 gallons of water was required to perform the percolation test due to the high permeability which is likely attributed to the higher subsurface sand and gravel content encountered at the site.

Percolation Test No.	Test Hole Depth (inches)	Time Interval Between Measurements (min)	Final Interval Drop (inches)	Percolation Rate (min/inch)
P-1	28	4	9.125	0.44

2.6 GROUNDWATER CONDITIONS

At the time of our subsurface exploration, no groundwater was observed in the test borings before they were backfilled. Groundwater may be present at the site within the range of exploration depth but may not have been observable for numerous reasons such as low soil permeability or impeded drainage.

Groundwater conditions could change with seasonal or long-term changes in climatic conditions and post-construction changes in irrigation and surface water runoff. Generally, developed sites have a significantly greater volume of water available to percolate into the ground due to irrigation and storm water runoff from hard surfaces. Localized, perched groundwater tables may develop above clay layers or bedrock, or within the foundation backfill zone.

2.7 SITE DRAINAGE

Consistent with the International Building Code (IBC), the ground surface adjacent to any proposed structure should be sloped a minimum of 5% away from foundations within 10 feet of the structure. Slope the ground surface beyond 10 feet of the structure at least 2% away to

pavement, ditch, or other positive drainage system. Negative drainage and improper management of near-surface water by not providing an effective grading and drainage design, can result in moisture entering structure subgrade soils. Sources of near surface water may include pressurized irrigation and water supply lines, rainwater, snowmelt, and roof drains. Backfill against the footings and exterior walls and in utility trenches should be well compacted to reduce the potential for moisture infiltration.

2.8 CONSTRUCTION CONSIDERATIONS

Excavations should be sloped, benched, shored, or made safe for entry by use of trench boxes as required by the standards of 29 CFR Part 1926. The contractor is solely responsible for designing and constructing stable excavations. Furthermore, the contractor's "responsible person" should continuously evaluate the soil exposed in the excavations, the geometry of the excavation slopes, and the protective equipment and procedures employed by his forces. For the sole purpose of project planning, we recommend that the sand with gravel encountered in our test borings be considered an OSHA Type C soil with a corresponding Maximum Allowable Slope of 1½H:1V. Excavations, including utility trenches, extending to depths of greater than 20 feet are required to have side slopes, trench boxes, or shoring designed by a professional engineer.

Exterior slabs and foundations are subject to frost heave due to formation of ice lenses in underlying frost susceptible soils. The frost line depth according to the Weld County Design Criteria is 30 inches.

Laboratory test results of average in-situ density when compared with 95% of the maximum dry density test result indicate a shrinkage of approximately 11% will occur from in-situ to post-compaction conditions. The actual shrinkage could vary significantly depending on actual post-compaction density achieved.

For estimating purposes, the Federal Highway Administration recommends assuming dry sand, similar to soils encountered at the site, will expand approximately 11% from in-situ density to loose density for transport or stockpiles.

3.0 TECHNICAL DATA

Our Sample and Data Collection Information, Drilling Plan, and Test Boring Logs are included in Appendix A.

4.0 STANDARD REPORT INFORMATION

Our Field and Laboratory Testing Program and Testing Data (laboratory reports) are included in Appendix B.

Our Standard Report Information, including Terms and Definitions, Limitations, and Comments Form are included in Appendix C.

5.0 CLOSURE

This report has been prepared for the exclusive use of our client, Ascent Geomatics Solutions, for evaluation of the site, design, and construction planning purposes of the described project. All information referenced in the Table of Contents, as well as any future written documents that address comments or questions regarding this report, constitute the "entire report." Inberg-Miller Engineers' conclusions, opinions, and recommendations are based on the entire report. This report may contain insufficient information for applications other than those herein described. Our scope of services was specifically designed for and limited to the specific purpose of providing geotechnical data for the design of the proposed Mancos-Lone Mesa Pad project. Consequently, this report may contain insufficient information for applications other than those herein described.

The readers of this geotechnical data report should realize that subsurface variations and anomalies can and will exist across the site and between the test borings. The readers should also realize that site conditions will change due to the modifying effects of seasonal, climatic and construction conditions.

We appreciate participating in your project. We can offer services under a separate contract to provide environmental engineering services, review final plans and specifications, field and laboratory construction materials testing, and observe excavations, as may be required. Please call us at (970) 373-0009 if you have any questions regarding this report.

Appendix A

SAMPLE AND DATA COLLECTION INFORMATION

Field-sampling techniques were employed in this exploration to obtain the data presented in the Final Logs and Report generally in accordance with ASTM D420, D1452, D1586 (where applicable), and D1587 (where applicable).

The drilling method utilized in most test borings is a dry-process, machine rotary auger type that advances hollow steel pipe surrounded by attached steel auger flights in 5-foot lengths. This method creates a continuously cased test hole that prevents the boring from caving in above each level of substrata to be tested. Sampling tools were lowered inside the hollow shaft for testing in the undisturbed soils below the lead auger. In some test borings, as appropriate to advance to the desired depth, air or wash rotary drilling methods were utilized. Air or wash rotary drilling methods allow for the extraction of rock core samples.

Samples were brought to the surface, examined by an IME field representative, and sealed in containers (or sealed in the tubes) to prevent a significant loss of moisture. They were returned to our laboratory for final classification per ASTM D2487 methods. Some samples were subjected to field or laboratory tests as described in the text of this report.

Groundwater observations were made in the open drill holes by IME field personnel at the times and dates stated on the Final Logs. Recorded groundwater levels may not reflect equilibrium groundwater conditions due to relatively low permeability of some soils. It must also be noted that fluctuations may occur in the groundwater level due to variations in precipitation, temperature, nearby site improvements, nearby drainage features, underdrainage, wells, severity of winter frosts, overburden weights, and the permeability of the subsoil. Because variations may be expected, final designs and construction planning should allow for the need to temporarily or permanently dewater excavations or subsoil.

A Final Log of each test pit or boring was prepared by IME. Each Final Log contains IME's interpretation of field conditions or changes in substrata between recovered samples based on the field data received, along with the laboratory test data obtained following the field work or on subsequent site observations. The final logs were prepared by assembling and analyzing field and laboratory data. Therefore, the Final Logs contain both factual and interpretive information. IME’s opinions are based on the Final Logs.

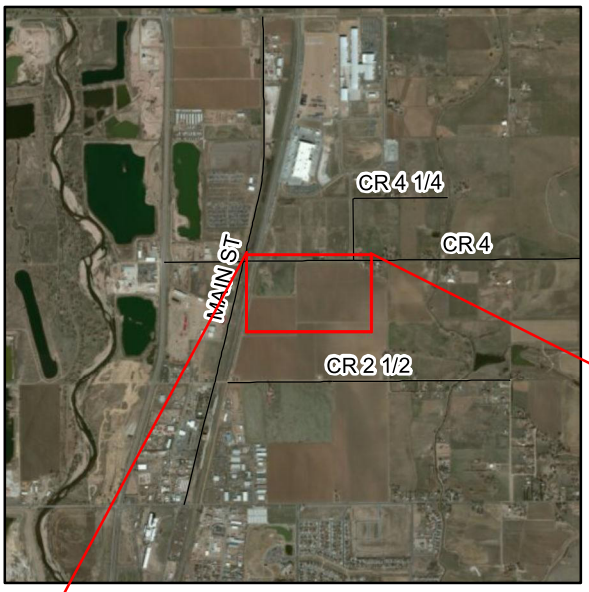
The Final Logs list boring methods, sampling methods, approximate depths sampled, amounts of recovery in sampling tools (where applicable), indications of the presence of subsoil types, and groundwater observations and measurements. Results of some laboratory tests are arrayed on the Final Logs at the appropriate depths below grade. The horizontal lines on the Final Logs designate the interface between successive layers (strata) and represent approximate boundaries. The transition between strata may be gradual.

We caution that the Final Logs alone do not constitute the report, and as such they should not be excerpted from the other appendix exhibits or from any of the written text. Without the written report, it is possible to misinterpret the meaning of the information reported on the Final Logs. If the report is

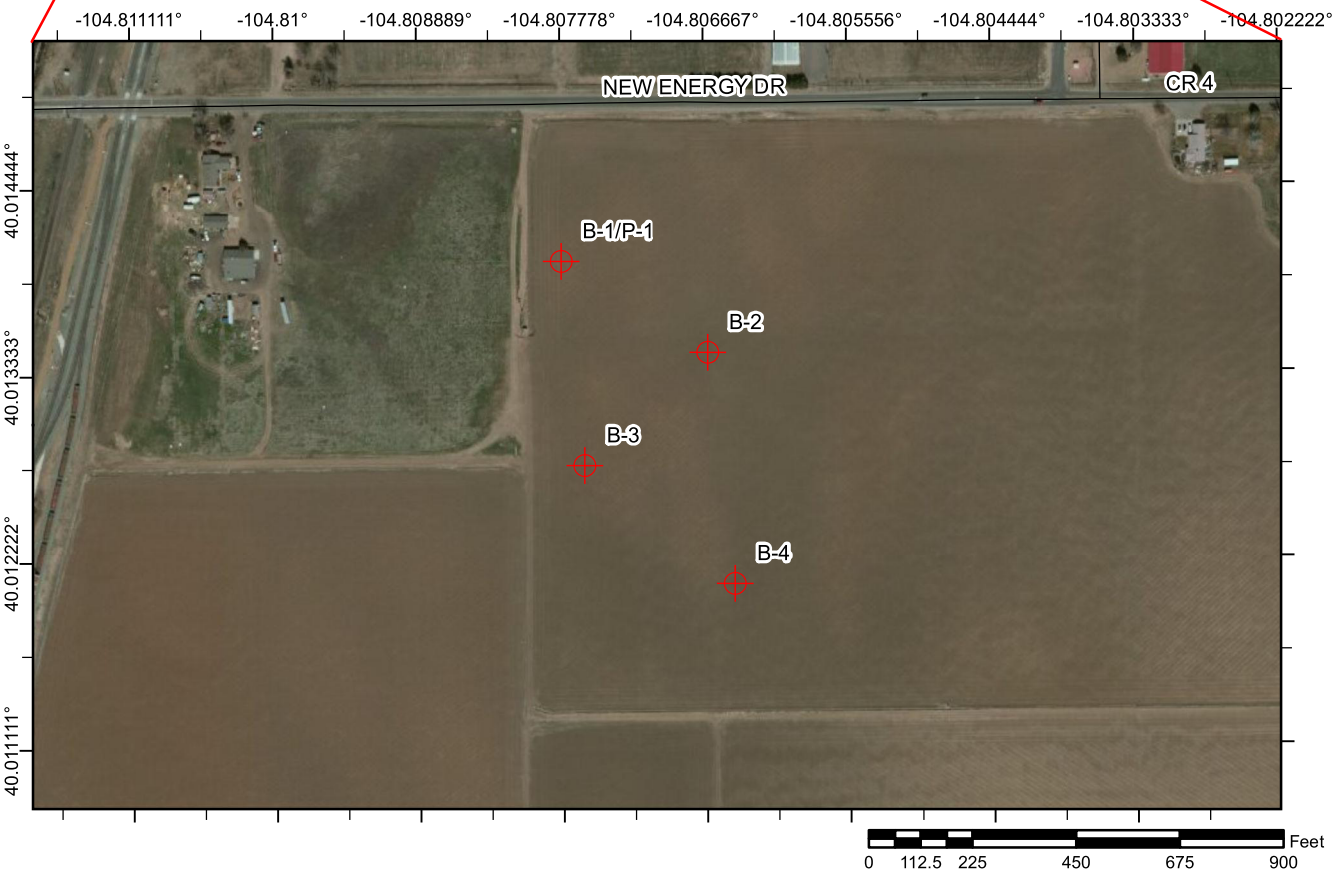
reproduced for reference purposes, the entire numbered report and appendix exhibits should be bound together as a separate document, or as a section of a specification booklet, including all drawings, maps, etc.

Pocket penetration tests taken in the field, or on samples examined in the laboratory are listed on the Final Logs in a column marked “qp." These tests were performed only to approximate unconfined strength and consistency when making comparisons between successive layers of cohesive soil. It is not recommended that the listed values be used to determine allowable bearing capacities. Bearing capacities of soil is determined by IME using test methods as described in the text of the report.

Site Location Map



0 0.2 0.4 0.8 1.2 1.6 Miles



0 112.5 225 450 675 900 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

TEST BORING B-1

Project: Dittmer Pad
Location: Weld County, Colorado
40.014°, -104.80778°

Job No.: 23081-FX
Client: Ascent Geomatics Solutions

ELEVATION	DEPTH (ft)	SOIL DESCRIPTION	GRAPHIC	SAMPLE TYPE RECOVERY	N BLOWS PER Ft	Qp (TSF)	% GRAVEL	% SAND	% -200	WATER CONTENT PL LL	OTHER TESTS AND NOTES
		Surface Elevation (Ft):			0 50 100					0 20 40 60	
	0	TOPSOIL: 4 INCHES Moist, Brown, Clayey SAND with gravel, with roots 0.3			21				5		
		Loose to Dense, Dry, Brown, SAND with gravel			9				1		
					16				1		Dry density = 111 pcf
	5				12	8	90	1	2		LL = NP PL = NP SP
	10	- moist, clayey sand layer between 10 and 15 feet			13				6	20	
	15	- grades very moist			33				12		
		16.5									

Remarks:

Date Begun:	10/12/22
Date Completed:	10/12/22
Termination Depth (ft):	16.5
Crew:	DL/TJM
Rig:	CME-55
Method:	Hollow-Stem Auger
Benchmark/Datum (Ft):	

SAMPLE TYPES

- Standard Penetration Test
- Drive Sampler, 2.41-I.D.

WATER LEVEL OBSERVATIONS

While Drilling (ft)	Dry
End of Drilling(ft)	Dry

Depth to Cave In (Ft): 8.3

LOG OF TEST BORING OR TEST PIT 23081-FX GINT PROJECT - COPY.GPJ INB_MLLR 6-23-10.GDT 11/10/22

TEST BORING B-2

INBERG-MILLER ENGINEERS — QUALITY SOLUTIONS THROUGH TEAMWORK

Project: Dittmer Pad
Location: Weld County, Colorado
40.01345°, -104.80665°

Job No.: 23081-FX
Client: Ascent Geomatics Solutions

ELEVATION	DEPTH (ft)	SOIL DESCRIPTION	GRAPHIC	SAMPLE TYPE RECOVERY	N BLOWS PER Ft	Qp (TSF)	% GRAVEL	% SAND	% -200	WATER CONTENT (PL — LL)	OTHER TESTS AND NOTES
		Surface Elevation (Ft):			0 50 100					0 20 40 60	
	0	TOPSOIL: 6 INCHES Moist, Brown, Clayey SAND with gravel, with roots (0.5)			26				8		
		Medium Dense, Dry, Brown, SAND with gravel									
		- becomes light brown between 2½ and 5 feet			19	32	63	5	2		LL = NP PL = NP
	5				20				2		
		- moist, clay layer between 8 and 10 feet			11	1	16	83	41		CH LL= 53 PL= 27 PI= 26
	10	- moist, silty sand layer between 10 and 13 feet			12				14		
	15	- grades wet			23				13		
		(16.5)									

Remarks:

Date Begun:	10/13/22
Date Completed:	10/13/22
Termination Depth (ft):	16.5
Crew:	DL/TJM
Rig:	CME-55
Method:	Hollow-Stem Auger
Benchmark/Datum (Ft):	

SAMPLE TYPES

- Standard Penetration Test
- Drive Sampler, 2.41-I.D.

WATER LEVEL OBSERVATIONS

While Drilling (ft)	Dry
End of Drilling(ft)	Dry

Depth to Cave In (Ft): 11.5

LOG OF TEST BORING OR TEST PIT 23081-FX GINT PROJECT - COPY.GPJ INB_MLLR 6-23-10.GDT 11/10/22

TEST BORING B-3

Project: Dittmer Pad
Location: Weld County, Colorado
40.01278°, -104.8076°

Job No.: 23081-FX
Client: Ascent Geomatics Solutions

ELEVATION	DEPTH (ft)	SOIL DESCRIPTION	GRAPHIC	SAMPLE TYPE RECOVERY	N BLOWS PER Ft	Qp (TSF)	% GRAVEL	% SAND	% -200	WATER CONTENT PL LL	OTHER TESTS AND NOTES
		Surface Elevation (Ft):			0 50 100					0 20 40 60	
	0	TOPSOIL: 5 INCHES Moist, Brown, Clayey SAND with gravel, with roots 0.4			34					6	
		Medium Dense to Dense, Dry, Brown, SAND with gravel			13					1	
	5				15					2	
					44	17	80	3		2	Dry density = 114.5 pcf SP LL = NP PL = NP
	10	- moist, sandy clay layer between 10 and 15 feet			11					29	
	15	- grades wet			35					11	
		16.5									

Remarks:

Date Begun:	10/13/22
Date Completed:	10/13/22
Termination Depth (ft):	16.5
Crew:	DL/TJM
Rig:	CME-55
Method:	Hollow-Stem Auger
Benchmark/Datum (Ft):	

SAMPLE TYPES

- Standard Penetration Test
- Drive Sampler, 2.41-I.D.

WATER LEVEL OBSERVATIONS

While Drilling (ft)	Dry
End of Drilling(ft)	Dry

Depth to Cave In (Ft): 9.8

LOG OF TEST BORING OR TEST PIT 23081-FX GINT PROJECT - COPY.GPJ INB_MLLR 6-23-10.GDT 11/10/22

TEST BORING B-4

Project: Dittmer Pad
Location: Weld County, Colorado
40.01208°, -104.80645°

Job No.: 23081-FX
Client: Ascent Geomatics Solutions

ELEVATION	DEPTH (ft)	SOIL DESCRIPTION	GRAPHIC	SAMPLE TYPE RECOVERY	N BLOWS PER Ft	Qp (TSF)	% GRAVEL	% SAND	% -200	WATER CONTENT PL LL	OTHER TESTS AND NOTES
		Surface Elevation (Ft):			0 50 100					0 20 40 60	
	0	TOPSOIL: 6 INCHES Moist, Brown, Clayey SAND with gravel, with roots (0.5)			18					10	
		Medium Dense, Dry, Brown, SAND with gravel			13					2	
	5				13	18	75	7		2	LL = NP PL = NP
					16					2	
	10	- moist, silty sand layer between 10½ and 13 feet			22					6	
		- moist, clay with gravel layer between 13 and 15½ feet									
	15	- grades wet			26					25	
		(16.5)									

Remarks:

Date Begun:	10/13/22
Date Completed:	10/13/22
Termination Depth (ft):	16.5
Crew:	DL/TJM
Rig:	CME-55
Method:	Hollow-Stem Auger
Benchmark/Datum (Ft):	

SAMPLE TYPES

- Standard Penetration Test
- Drive Sampler, 2.41-I.D.

WATER LEVEL OBSERVATIONS

- While Drilling (ft) Dry
- End of Drilling(ft) Dry

Depth to Cave In (Ft): 8.2

LOG OF TEST BORING OR TEST PIT 23081-FX GINT PROJECT - COPY.GPJ INB_MLLR 6-23-10.GDT 11/10/22

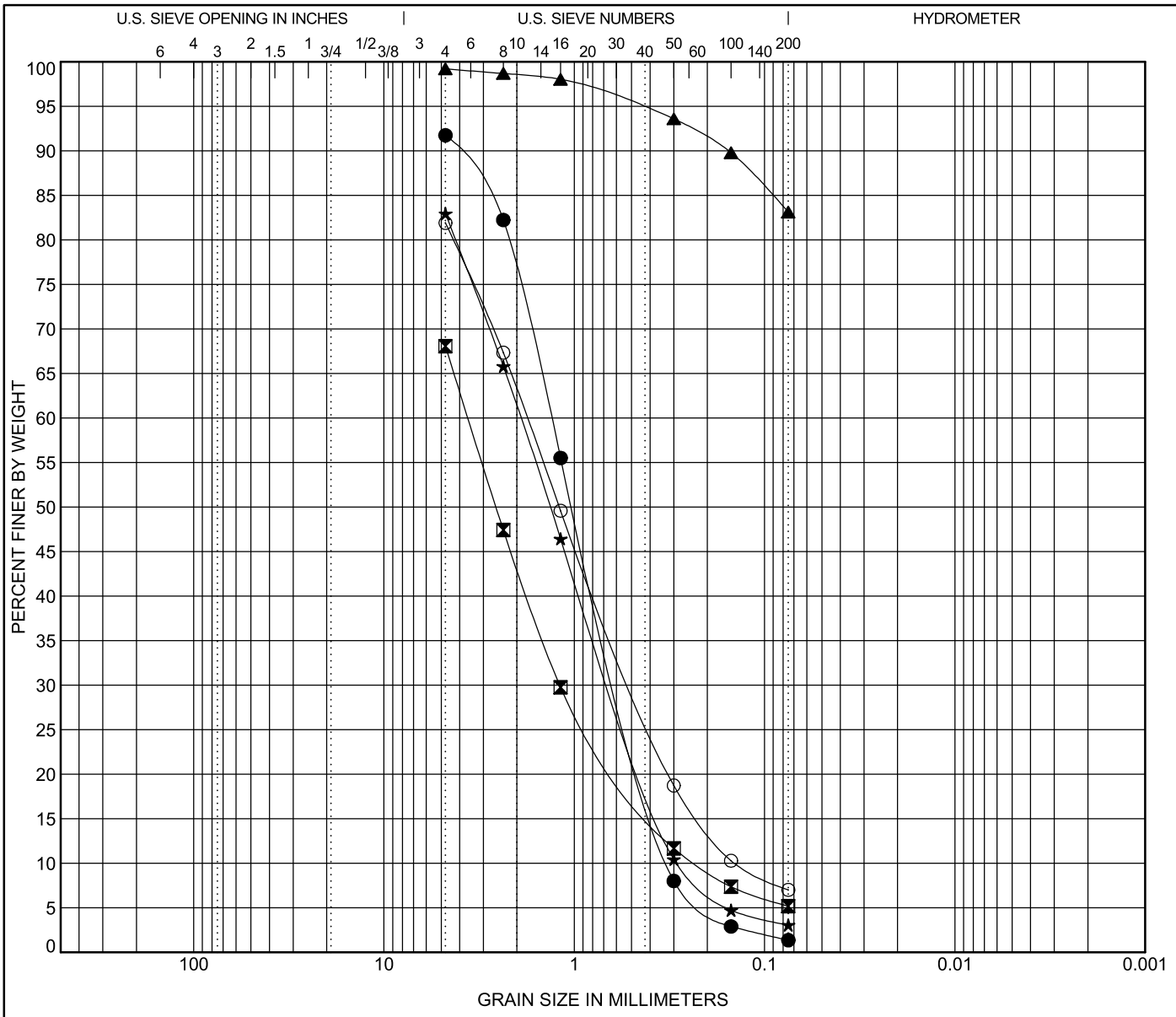
Appendix B

LABORATORY TESTING PROGRAM

Soil samples were transported to our laboratory where they were subject to further evaluation, which may include visual classification according to ASTM D2488 or other analysis to determine certain engineering properties. Tests were performed in accordance with the test methods listed below.

Laboratory Test	Test Method
Moisture Content	ASTM D2216
Liquid Limit, Plastic Limit and Plasticity Index	ASTM D4318
Sieve Analysis	ASTM C117
Sieve Analysis with Hydrometer	ASTM D422
Sieve Analysis (200 Sieve only)	ASTM D1140
Water Soluble Sulfate	Comparative
Unconfined Compressive Strength	ASTM D2166
Moisture-Density Relationship (Standard Proctor)	ASTM D698
Moisture-Density Relationship (Modified Proctor)	ASTM D1557
California Bearing Ratio (CBR)	ASTM D1883
Hydraulic Conductivity	ASTM D5084
Minimum Resistivity	AASHTO T288
pH	AASHTO T288
Tube Density	ASTM D2937
Direct Shear	ASTM D3080
Consolidation-Swell	ASTM D2435

Test results that are not displayed on the test boring logs are presented in Appendix B of this report.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-1	7.5	POORLY GRADED SAND(SP)	NP	NP	NP	0.76	4.17
⊠	B-2	2.5	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)	NP	NP	NP	1.71	15.76
▲	B-2	8.0	FAT CLAY with SAND(CH)	53	27	26		
★	B-3	7.5	POORLY GRADED SAND with GRAVEL(SP)	NP	NP	NP	0.73	6.74
⊙	B-4	5.0	POORLY GRADED SAND with SILT and GRAVEL(SP-SM)	NP	NP	NP	0.98	12.54

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	7.5	4.75	1.326	0.566	0.318	0.0	90.4	1.4	
⊠	B-2	2.5	4.75	3.616	1.191	0.229	0.0	62.9	5.2	
▲	B-2	8.0	4.75				0.0	16.1	83.1	
★	B-3	7.5	4.75	1.917	0.631	0.285	0.0	79.9	3.1	
⊙	B-4	5.0	4.75	1.772	0.495	0.141	0.0	74.9	7.0	

PROJECT: Dittmer Pad
JOB NO.: 23081-FX
CLIENT: Ascent Geomatics Solutions
TEST METHOD: ASTM D422

PARTICLE SIZE ANALYSES

INBERG-MILLER ENGINEERS

US_GRAIN_SIZE 23081-FX GINT PROJECT - COPY.GPJ US_LAB.GDT 11/10/22

Aggregate-Soil Testing Summary

Inberg-Miller Engineers
350 Parsley Boulevard
Cheyenne, WY 82007
Ph: (307) 635-6827
Fax: (307) 856-3851
cheyenne@inberg-miller.com

Celebrating 50 Years IME 1971 - 2021

Client:	ASCENT GEOMATICS SOLUTIONS	**IME Sample No:**	**23081-01**
Address:	8620 Wolff Court	**Sampled By:**	TM/DL
	Westminster CO, 80031	**Sample Date:**	10/12/2022
		Date Received in Lab:	10/13/2022
Attention:	Raejanna Church	**Type of Material:**	Native Subgrade
		Source:	Test Borings B-1 & B-2 Auger Cuttings @2.5'-7
IME Project No:	23081-FX	**Sample Description:**	Brown sand with gravel
Project Name:	Dittman Pad	**Sample MC (%):**	
Project Location:	County Road 4 and East Crown Prince Blvd		
	Weld County, Colorado		
Sample Location/ID:	B-1 and B-2 Bulk Sample Between 2.5'-7.5'		

Particle Size Analysis
ASTM C117, C136, D422, & D1140

Sieve	Passing	Specification	
2 1/2" (63.5mm)			GRAVEL
2" (50.8mm)			
1 1/2" (37.5mm)			
1" (25mm)			
3/4" (19mm)	97%		
1/2" (12.5mm)	92%		
3/8" (9.5mm)	88%		
No. 4 (4.75mm)	77%		SAND
No. 8 (2.36mm)	61%		
No. 16 (1.18mm)	43%		
No. 30 (600µm)	32%		
No. 40 (425µm)			
No. 50 (300µm)	21%		
No. 100 (150µm)	15%		
No. 200 (75µm)	12%		FINES
0.020 mm (20µm)			

Atterberg Limits
ASTM D4318

Test	Result	Specification
Liquid Limit:	NP	
Plastic Limit:	NP	
Plasticity Index:	NP	

Remarks:

Other Testing

Test	Result	Specifications /Notes	ASTM
Fineness Modulus:			C136
Moisture Content (%):			D2216
Compaction Properties			
Max. Dry Density (pcf)	137.3		D698 - C
Optimum Moisture (%)	8.0		D698 - C
Relative Density (pcf)			D4254
Minimum Density			
Maximum Density			
Sand Equivalent Value:			D2419
Organic Impurities:			C40
LA Abrasion % Loss:			C535/C131
no. of revolutions:			C535/C131
Sulfate Soundness:			
Fine loss (%)			C88
Coarse loss (%)			C88
Fractured Face:			
1 or more faces %			D5821
2 or more faces %			D5821
Specific Gravity	**Fine**	**Coarse**	
Absorption %			C128/C127
Bulk (Dry)			C128/C127
Bulk (SSD)			C128/C127
Apparent			C128/C127

Particle Size Analysis

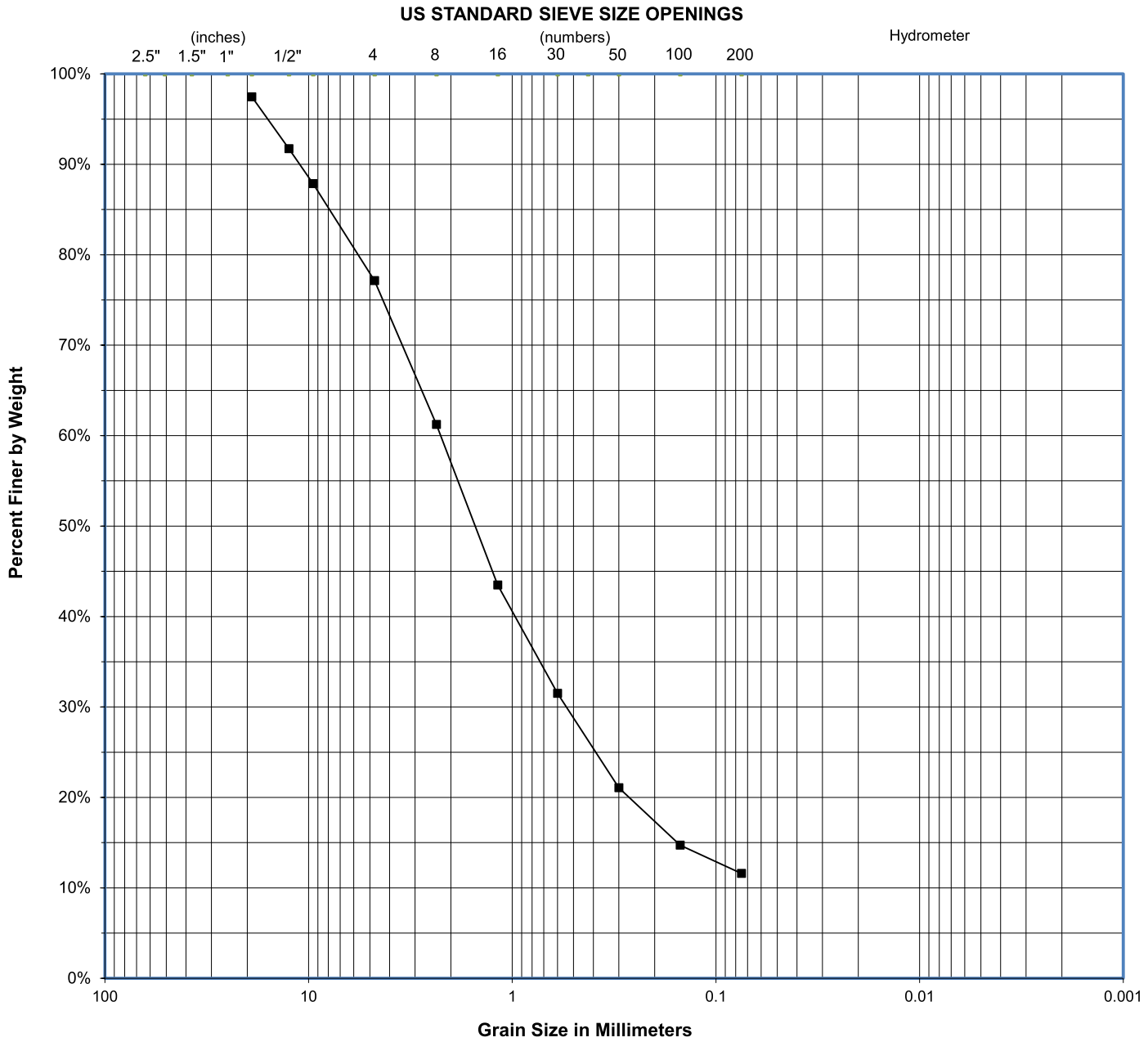
ASTM C136/C117/D422

Inberg-Miller Engineers
350 Parsley Boulevard
Cheyenne, WY 82007
Ph: (307) 635-6827
Fax: (307) 856-3851
cheyenne@inberg-miller.com

Celebrating 50 Years IME 1971 - 2021

Client:	ASCENT GEOMATICS SOLUTIONS
Address:	8620 Wolff Court
	Westminster CO, 80031
Attention:	Raejanna Church
IME Project No:	23081-FX
Project Name:	Dittman Pad
Project Location:	County Road 4 and East Crown Prince Blvd
	Weld County, Colorado
Sample Location/ID:	B-1 and B-2 Bulk Sample Between 2.5'-7.5'

IME Sample No:	**23081-01**
Sampled By:	TM/DL
Sample Date:	10/12/2022
Date Received in Lab:	10/13/2022
Type of Material:	Native Subgrade
Source:	Test Borings B-1 & B-2 Auger Cuttings @2.
Sample Description:	Brown sand with gravel
Tested By:	LJF
Test Date:	10/19/2022



gravel	coarse sand	medium sand	fine sand	silt	clay

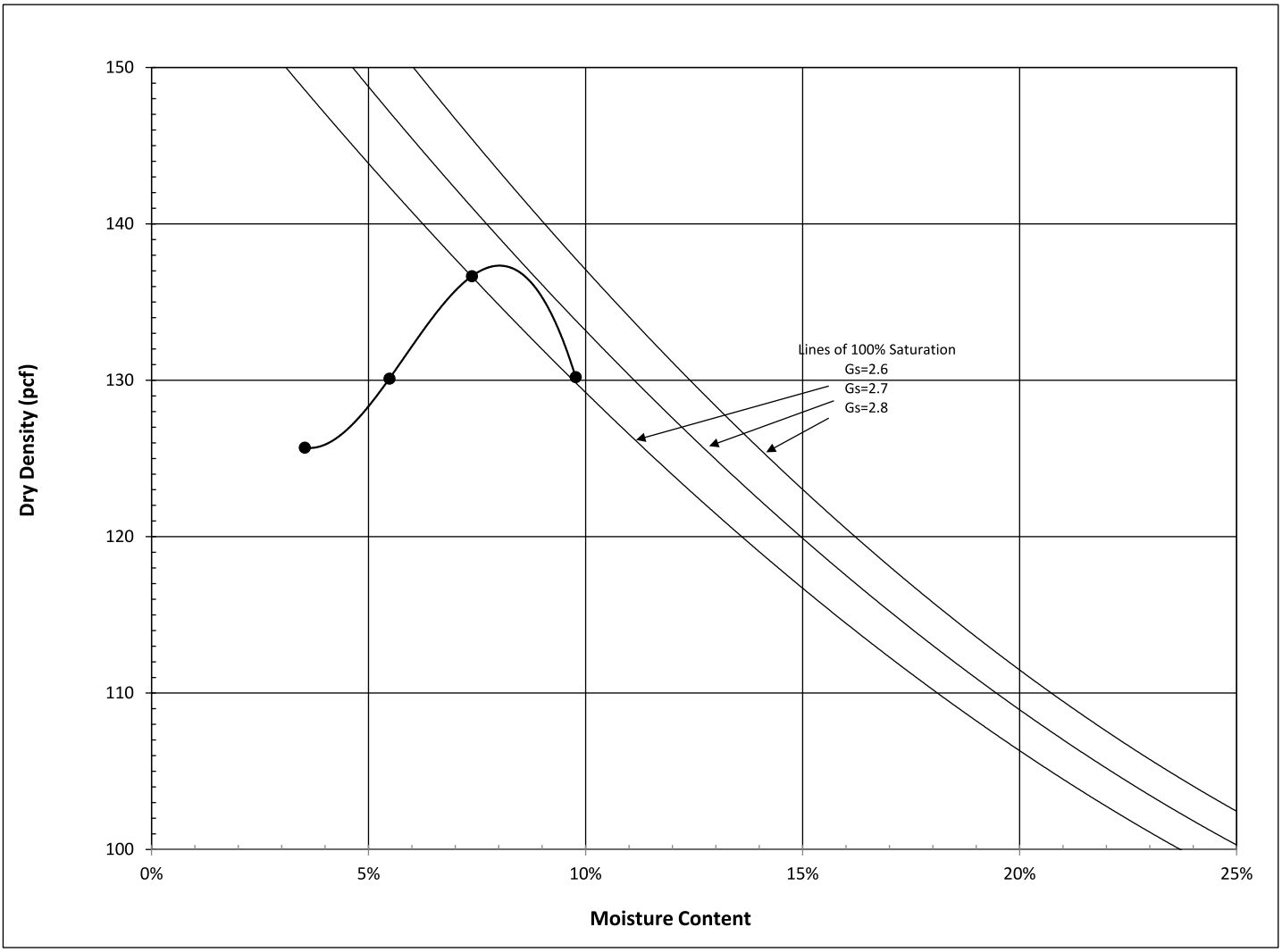
Unified Soil Classification System (ASTM D2487)

Moisture-Density Analysis

Inberg-Miller Engineers
350 Parsley Boulevard
Cheyenne, WY 82007
Ph: (307) 635-6827
Fax: (307) 856-3851
cheyenne@inberg-miller.com

Celebrating 50 Years IME 1971 - 2021

Client:	ASCENT GEOMATICS SOLUTIONS	**IME Sample No:**	**23081-01**
Address:	8620 Wolff Court	**Sampled By:**	TM/DL
	Westminster CO, 80031	**Sample Date:**	10/12/2022
		Date Received in Lab:	10/13/2022
Attention:	Raejanna Church	**Type of Material:**	Native Subgrade
		Source:	Test Borings B-1 & B-2 Auger Cuttings @2.5'-7.5'
IME Project No:	23081-FX	**Sample Description:**	Brown sand with gravel
Project Name:	Dittman Pad		
Project Location:	County Road 4 and East Crown Prince Blvd	**ASTM Method:**	D698 - C
	Weld County, Colorado	**Tested By:**	LJF
Sample Location/ID:	B-1 and B-2 Bulk Sample Between 2.5'-7.5'	**Test Date:**	10/19/2022



OPTIMUM MOISTURE CONTENT (%)	**8.0**
MAXIMUM DRY DENSITY (PCF)	**137.3**

Appendix C

GLOSSARY

Definition of certain words, terms or phrases that are used in this report are provided below, to help the reader to interpret the intent of Inberg Miller Engineers. These definitions:

1. *May differ from other published versions*
2. *Have not been vetted by any organization outside of Inberg-Miller Engineers*
3. *May not present a complete understanding of the term*

The reader is encouraged to seek additional interpretation of important terms and consult with Inberg- Miller Engineers as necessary where discrepancies may be discovered, or a definition has not been provided.

Active Lateral Soil Pressure – Horizontal pressure applied by soil to a wall that sufficiently yields or rotates about its base to allow the full soil shear strength to be mobilized

Allowable End Bearing Pressure – Recommended maximum pressure on soil or rock expressed as load per unit area that can be applied across the full bottom bearing surface of a pier or pile deep foundation within a given settlement tolerance

Allowable Skin Friction – Recommended maximum frictional resistance of soil or rock as load per unit area that can be applied over the vertical side surface of a pier or pile deep foundation within a given settlement tolerance.

Alluvium – Soil that has been transported and deposited in a moving water environment

At-Rest Lateral Soil Pressure - Horizontal pressure applied by soil to a wall or the vertical face of a structure that is restrained from movement and soil is not allowed to deform

Backfill – Soil that is used to replace some or all of soil that was excavated, and is usually subject to material specifications and density requirements

Base – Either 1: the bottom surface of a structure or excavation, or 2: soil or aggregate that is placed immediately below a structure or pavement

Bearing Elevation – A subsurface level where the base of foundations rest and transmit applied load to the soil or rock

Bearing Stratum – A specific soil layer defined by soil description and depth below ground surface, or elevation, to which foundations transmit applied load

Claystone – Consolidated sedimentary bedrock comprised chiefly of clay sized particles

Collapse – Loss of inter-particle soil friction, usually as a result of the effects of excessive moisture or water, and often leading to large subsidence or settlement of supported structures

Colluvium – Soil that has accumulated as a result of gravitional transport, commonly found near the base of slopes

Compaction/Compacted – Process or the result of a process where soil density is increased, soil voids are decreased, and usually resulting in an increased strength and reduced settlement potential

Compressibility – Relative term applied to soil or soil layer to describe how much it may yield to expected applied load or pressure

Conglomerate – A mixture of clay through gravel-size particles, commonly cemented with calcium carbonate

Consistency – Term applied to cohesive soils to describe relative stiffness, often defined by either ASTM D1586 Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils or as indicated by unconfined compressive strength

Continuous Footing – A long narrow footing usually supporting a linear structure such as a wall. Length to width ratio may vary but is commonly taken as 10.

Contraction Joints – Formed or sawn joints in concrete slabs or pavements used to control crack patterns that result from thermal contraction or shrinkage

Crushed Aggregate Base – Processed gravel at a specified grading and quantity of fractured faces, and sometimes certain durability requirements, that is used below slabs or pavements

Cut – Term applied to the volume or depth of soil that has been excavated to a certain design grade

Cut Slope – Soil or rock slope that results from cut or excavation

Density – The weight of soil for a unit volume, which may be stated in a dry condition, or a moist to saturated condition with weight of water included

Dewatering – Process of removing water from an excavation or lowering the groundwater elevation usually via drains or pumps

Differential Settlement – The difference in subsidence of a soil surface, or structure resting on soil, between two points spaced a certain distance apart

Disturbed Soil – Soil that has been loosened usually as a result of excavation activity, traffic, vibration

Embedment – The portion of a structure buried within a specific stratum, usually measured as a vertical distance

Engineered Fill – Soil that meets a specific gradation criteria and/or other quality requirements and that is placed at a specified thickness and moisture content and compacted to meet certain minimum density requirements, for the purpose of consistently obtaining certain minimum engineering properties for design

Envelope A – Specified gradation criteria that describes reasonably well graded sand and gravel mixtures, with less than 20 percent silt and clay.

ESAL – Criteria that describes traffic loading equivalent to a certain number of passes from an 18 kip single axle

Excavation Subgrade – The bottom of an excavation

Expansion Joints – Joints that are formed in a concrete pavement or slab that allow for thermal expansion of the concrete. Joints are usually filled with an elastic material to prevent entry of foreign particles

Factor of Safety – A multiplier for recommended allowable values that provides a margin for safety against failure, considering uncertainty and risk

Fill – Soil or rock that has been placed to raise the ground surface elevation

Footing/Foundation Subgrade – The surface of soil or rock to receive a structure which is usually a reinforced cast-in-place concrete

Friction Angle – A measure of physical resistance against sliding between soil or rock particles, usually ranging between 0 and 45 degrees

Frost Heave – A phenomenon that occurs in certain soil types where soil-moisture may concentrate and freeze as ice layers, causing upward swelling of the soil

Frost Protection – Any measure used to prevent frost-heave from affecting a structure

Frost Susceptibility – Soil types that are prone to frost heave

Geotechnical Engineer – An engineer trained through education and experience in soil mechanics and earth-structure systems

Grade Beam – A horizontal structural element that spans between foundations which may carry a portion of load from a structure above, but usually doesn't rely upon support from the soil below

Heave – The upward swelling of soil or rock, usually as a result of freezing or moisture adsorption

Helical Screw Pile/Pier – A foundation type that consists of a steel shaft with steel helices welded to the shaft, so that the system will pull itself into the ground when torque is applied

Hydraulic Conductivity – The rate at which water passes through soil under a certain pressure, usually expressed in the units of centimeters per second

Hydrostatic Pressure – The hydraulic pressure at a certain depth below the surface of a water body or water in saturated soil equivalent to the weight of water multiplied by the depth

Isolated Pad Footing – A single footing for the support of a leg, column, stanchion or other vertical structural element

Lifts – Layers of material that are placed as fill, backfill or pavement

Mat Foundation – A large, shallow spread footing that may support any combination of multiple point or area loads

Maximum Allowable Bearing Pressure – The recommended maximum pressure that may be applied to soil or rock, including a factor of safety, within estimated settlement tolerances

Maximum Dry Density – The peak soil density that is determined in a laboratory using a drop-hammer and mold over a range of varying moisture contents, expressed in terms of dry weight per unit volume

Moisture Sensitivity – A characteristic of soil that describes how the strength or compressibility is affected by increasing moisture content

Moisture Vapor Control – A design measure to limit the upward movement of soil moisture, usually through a concrete floor slab resting on the soil

Native Soil – Soil that is present naturally at a subject site

On-Site Fill – Soil used as fill or backfill that originates from a source located at the subject site

Optimum Moisture Content – The moisture content at which the maximum dry density is achieved in laboratory testing

Organic Materials – Matter contained in soil that is subject to decomposition

Overburden – Soil or rock that is present above an ore body, sedimentary bedrock or certain deposit such as gravel

Overexcavation – A process by which usually unsuitable or unwanted soil or rock is removed or excavated below the bottom of a structure or minimum required excavation limits

Passive Lateral Soil Pressure – Available resisting soil pressure when a structure is forced against the soil

Pavement Subbase – A specified soil type, often described by gradation that is placed below base, which in turn supports flexible or rigid pavement

Perched Groundwater – A subsurface condition where water collects above a relatively low permeability stratum

Permeability – The rate at which a liquid or gas may pass through soil, rock or other material

Pile/Pier Cap – A reinforced concrete block designed to distribute load from a structure to multiple deep foundation elements

Proof-Rolling – A process by which a subgrade is subjected to wheel loading to locate relative soft or yielding areas that might be repaired before covering with structures, soil, pavement etc.

Raft Foundation – See Mat Foundation

Residual Soil – Soil that has resulted from the in-place weathering of rock

Rigid Pavement – Usually reinforced or unreinforced Portland cement concrete, which when cured exhibits high compressive strength but is relatively inflexible

Sandstone - Sedimentary bedrock comprised chiefly of sand sized particles

Saturation – A condition where the pores of soil or rock are completely filled with water

Sedimentary Bedrock – Consolidated sediments of clay, silt or sand

Shrink-Swell Potential – Likelihood that soil or rock may increase or decrease in volume, usually as result of water adsorption and indicated by high plasticity index and/or measured response to inundation

Siltstone - Sedimentary bedrock comprised chiefly of silt sized particles

Site Fill – Soil used to raise the grade of all or a portion of a site to a design elevation, exclusive of structures or buildings

Slab Fill – Soil used to fill above the foundation bearing elevation to the bottom of any special subbase or base soil/aggregate that supports a concrete slab-on-grade

Slab Subbase – Soil that meets a specified gradation requirement or other criteria for placement below a base aggregate

Spread Footing/Foundations – A foundation type that usually consists of a reinforced, cast-in-place concrete that is formed in a round, square, rectangle or continuous strip shape for transferring structural loads to the soil and is placed at certain minimum depths for frost protection or confinement

Stripping Depth – The depth below ground surface that unsatisfactory soil or other materials should be removed before placement of engineered fill or structures

Structural Fill – Soil that meets a specified gradation or other quality or strength criteria for the purpose of raising the ground surface elevation or improving bearing conditions to receive a structure

Subgrade – Soil surface or substrate that will receive pavement, structure, engineered fill, backfill etc.

Synthetic Reinforcement – Specially manufactured fabric, usually as a woven or extruded plastic, used for the purpose of forming a composite with soil or aggregate and adding strength

Synthetic Separation - Specially manufactured fabric, usually as a woven plastic or non-woven fibrous plastic, used for the purpose creating a barrier for the migration of fine-grained soil

Topsoil – Soil that contains organic matter, usually as decayed vegetation and roots, in sufficient quantity that it is compressible, moisture sensitive, or subject to settlement with continued decay

Total Settlement – An estimate of the amount of settlement that may occur over the life of a structure as a result of compression of underlying soil due to the pressure imposed by the structure

Transient Loading – Short term loads applied to a structure, such as from seismic force or wind pressure.

Ultimate Bearing Capacity – An estimate of the bearing pressure applied to a soil stratum that would induce shear failure, without consideration of a factor of safety or limiting settlement

Undisturbed Soil – Soil that is allowed to remain in its natural state without changing moisture content or density

Void Form – A concrete form material for casting a structure which provides support long enough for the concrete to complete curing and gain sufficient strength for the structure to support itself, leaving a void when the form disintegrates with weathering and moisture.

Water Table – The surface of groundwater within saturated soil or rock layers

Weathered Bedrock – Native rock formation that has become delaminated or shows evidence of disintegration as determined and defined by the geotechnical engineer to distinguish a certain stratum for the purposes of the report

GENERAL NOTES - LOG OF TEST BORING/TEST PIT

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction		Particle Size	U.S. Standard Sieve Size
Boulders		Larger than 12"	Larger than 12"
Cobbles		3" to 12"	3" to 12"
Gravel:	Coarse	3/4" to 3"	3/4" to 3"
	Fine	4.76mm to ¾"	#4 to ¾"
Sand:	Coarse	2.00mm to 4.76mm	#10 to #4
	Medium	0.42mm to 2.00mm	#40 to #10
	Fine	0.074mm to 0.42mm	#200 to #40
Silt		0.005mm to 0.074mm	Smaller than #200
Clay		Smaller than 0.005mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay

Relative Density		Consistency	
Term	"N" Value*	Term	q_u-tons/sq. ft.
Very Loose	0-4	Very Soft	0.0 to 0.25
Loose	4-10	Soft	0.25 to 0.5
Medium Dense	10-30	Firm	0.5 to 1.0
Dense	30-50	Stiff	1.0 to 2.0
Very Dense	Over 50	Very Stiff	2.0 to 4.0
		Hard	Over 4.0

*Note: The penetration number, N, is the summation of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140-pound weight falling 30", and is seated to a depth of 6" before commencing the standard penetration test.

DESCRIPTIVE ROCK CLASSIFICATION

Engineering Hardness Description of Rock

(not to be confused with MOH's scale for minerals)

Very Soft	Can be carved with a knife. Can be excavated readily with point of pick. Pieces one inch or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Medium Soft	Can be grooved or gouged 1/16-inch deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1-inch-maximum size by hard blows of the point of a geologist's pick.
Medium Hard	Can be scratched with knife or pick. Gouges or grooves to ¼-inch deep. Can be excavated by hard blow of a geologist's pick. Hand specimens can be detached by moderate blow.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Very Hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.

NOMENCLATURE

Drilling and Sampling

SS	--	Split Barrel (spoon) Sampler
N	--	Standard Penetration Test Number, blows/foot*
ST	--	Thin-walled Tube (Shelby Tube) Sampler
DC	--	Thick-wall, ring lined, drive sampler
C	--	Coring
DP	--	Direct Push Sampler
CS	--	Continuous Sampler (used in conjunction with hollow stem auger drilling)
D	--	Disturbed Sample (auger cuttings, air/wash rotary cuttings, backhoe, shovel, etc.)

Laboratory Tests

USCS	--	Unified Soil Classification System (soil type)
W	--	Water Content (%)
LL	--	Liquid Limit (%)
PL	--	Plastic Limit (%)
PI	--	Plasticity Index (LL-PL) (%)
qu	--	Unconfined Strength, TSF
qp	--	Penetrometer Reading (estimate of unconfined strength), TSF
γm	--	Moist Unit Weight, PCF
γd	--	Dry Unit Weight, PCF
WSS	--	Water Soluble Sulfate (%)
Φ	--	Angle of Internal Friction (degrees)
c	--	Soil Cohesion, TSF
SG	--	Specific gravity of soil solids
S	--	Degree of Saturation (%)
e	--	Void Ratio
n	--	Porosity
k	--	Permeability (cm/sec)

Water Level Measurement

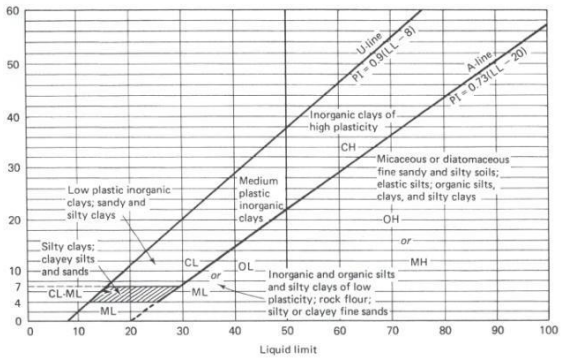
▼ -- Water Level at Time Shown

Note: Water level measurements shown on the boring logs represent conditions at the time indicated, and may not reflect static levels, especially in cohesive soils. The available water level information is given at the bottom of each log.

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D2487-69 and D2488-69 (Unified Soil Classification System)

Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria		
Coarse-Grained Soils (More than half of material is larger than No. 200 sieve size)	**Gravels** (More than half of coarse fraction is larger than No. 4 sieve size)	**Clean Gravels** (Little or no fines)	GW		Well graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 % GW, GP, SW, SP; More than 12% GM, GC, SM, SC	$C_U = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(C_{30})^2}{D_{10} \times D_{60}}$ between 1 & 3	
			GP		Poorly Graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels w/ Fines (Appreciable amount of fines)	GM[a]	d	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u			Atterberg limits below "A" line or P.I. greater than 7	
			GC		Clayey gravels, gravel-sand-clay mixtures			
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	**Clean Sands** (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines		$C_U = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 & 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands w/ Fines (Appreciable amount of fines)	SM[a]	d	Silty sands, sand-silt mixtures		Atterberg limits above "A" line or P.I. less than 4	Limits plotting in hatched zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u			Atterberg limits above "A" line or P.I. greater than 7	
			SC		Clayey sands, sand-clay mixtures			
Fine-Grained Soils (More than half 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	**Plasticity Chart**		
			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		P_t		Peat and other highly organic soils			



[a] Division of GM and SM groups into subdivision of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder.

Important Information about Your

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical-Engineering Report Is Based on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical-engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical-engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold-prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical-engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold-prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

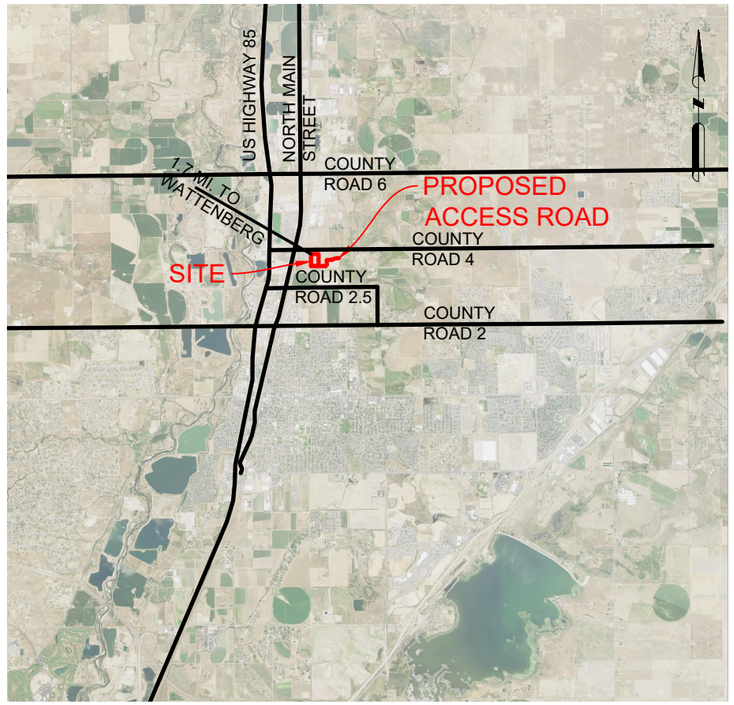
Rely, on Your GBA-Member Geotechncial Engineer for Additional Assistance

Membership in the GEOPROFESSIONAL BUSINESS ASSOCIATION exposes geotechnical engineers to a wide array of risk confrontaton techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your GBA-member geotechnical engineer for more information.

GEOPROFESSIONAL BUSINESS ASSOCIATION

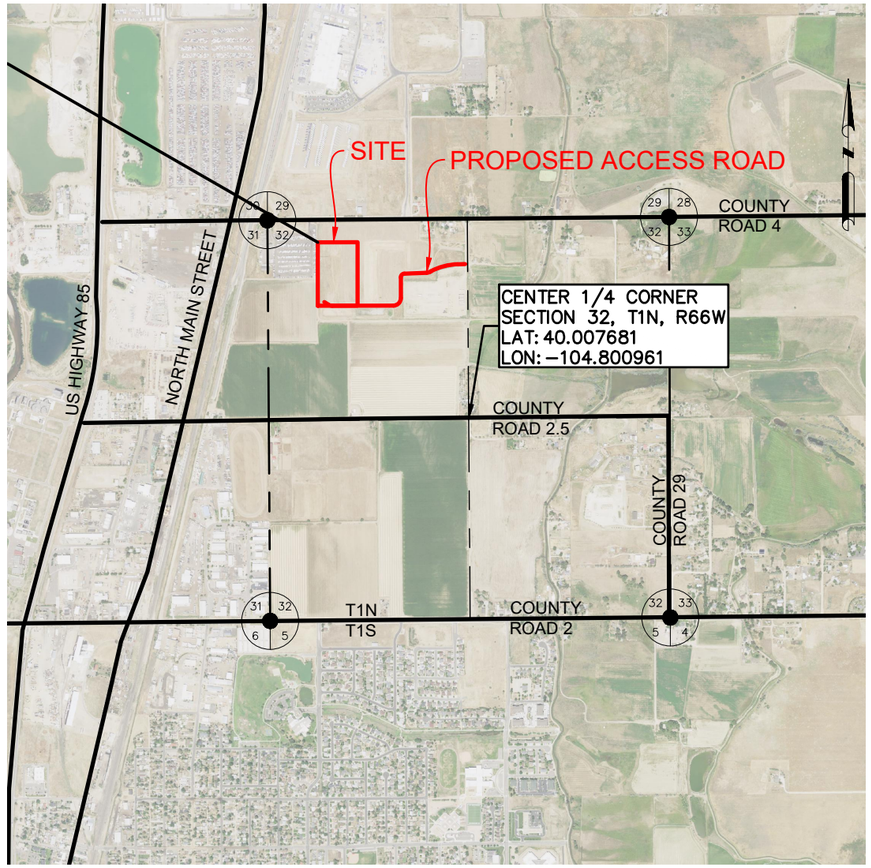
8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

DITTMER PAD
GRADING PLAN



REGIONAL MAP

N.T.S.



VICINITY MAP

N.T.S.

DRAWING INDEX		
SHEET NO.	TITLE	REV.
1	COVER SHEET	2
2	GENERAL NOTES	0
3	CONSTRUCTION LAYOUT	0
4	CROSS SECTIONS	0
5	RIG LAYOUT	0
6	WELL COMPLETIONS AND STIMULATION LAYOUT	0
7	FLOWBACK LAYOUT	0
8	PRODUCTION LAYOUT	2
9	INTERIM–RECLAMATION LAYOUT	2
10	EROSION & SEDIMENT CONTROL – INITIAL	0
11	EROSION & SEDIMENT CONTROL – INTERIM	0
12	EROSION & SEDIMENT CONTROL – FINAL	1
13	EROSION & SEDIMENT CONTROL NOTES	0
14	EROSION & SEDIMENT CONTROL DETAILS	0
15	EROSION & SEDIMENT CONTROL DETAILS	0
16	POND DETAILS	0

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:

INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME: COVER SHEET

SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23
1	ISSUED FOR CONSTRUCTION	AMS	2/23/23
2	ISSUED FOR CONSTRUCTION	AMS	2/27/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 1 OF 16

P:\INBP_B220001\PROD\Grading\1_Cover.dwg

DITTMER PAD
GRADING PLAN

GENERAL NOTES

1. SHOULD ARTIFACTS OF POTENTIAL HISTORICAL SIGNIFICANCE BE ENCOUNTERED DURING EXCAVATION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY CLIENT AND DISCONTINUE EXCAVATION IN THE AFFECTED AREA UNTIL OTHERWISE NOTIFIED BY THE CLIENT OR ENGINEER. ANY DAMAGE TO A DESIGNATED ARCHEOLOGICAL SITE AS A RESULT OF CONTRACTOR NEGLIGENCE SHALL BE THE SOLE RESPONSIBILITY OF CONTRACTOR.

2. DO NOT PERFORM ANY GRADING OR GRUBBING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS, OR INTO NATURAL WATERCOURSES.

3. THE CONTRACTOR SHALL NOT CHANGE OR DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE OWNER AND ENGINEER.

4. CONTRACTOR SHALL MAINTAIN A SET OF AS-BUILT DRAWINGS WITH ALL CHANGES IDENTIFIED. THE AS-BUILT FIELD DRAWINGS SHALL BE SUBMITTED TO CLIENT AT PROJECT COMPLETION.

SAFETY

5. THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY OF HIS OWN PERSONNEL, ALL VISITORS TO THE SITE, AND THE GENERAL PUBLIC. CONTRACTOR SHALL FOLLOW THE REQUIREMENTS OF ALL APPLICABLE HEALTH AND SAFETY STANDARDS INCLUDING, BUT NOT LIMITED TO, OSHA 29 CFR PARTS 1910 AND 1926 FOR GENERAL CONSTRUCTION.

6. CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF DUST CONTROL. CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL DURING ALL PHASES OF SITE PREP, EARTHWORKS AND GRADING.

7. UNLESS A SAFE EXCAVATION/TRENCH DEPTH IS SPECIFICALLY IDENTIFIED DURING THE PRECONSTRUCTION SAFETY ASSESSMENT BY QUALIFIED PERSONNEL, WHERE PERSONNEL ENTER EXCAVATIONS 4 FEET OR MORE IN DEPTH, PROTECT THE EXCAVATION WITH A SUPPORT SYSTEM OF SLOPING, SHORING, BRACING OR BY USE OF A TRENCH BOX MEETING OSHA SAFETY STANDARD; INSPECT SHORING AND/OR BRACING SYSTEMS DAILY AND AFTER RAINSTORMS OR OTHER HAZARD-INCREASING OCCURRENCE. ALSO PROVIDE SUCH PROTECTION IN EXCAVATIONS LESS THAN 4 FEET DEEP WHERE HAZARDOUS EARTH MOVEMENT MAY BE EXPECTED.

8. ALL CONTRACTORS PERFORMING SUBSURFACE EARTHWORKS MUST CONTACT 811 AT LEAST 3 BUSINESS DAYS PRIOR TO EXCAVATION AND AS REQUIRED BY LAW.

TOPSOIL, CLEARING AND GRUBBING

9. CONTRACTOR SHALL CLEAR AND GRUB PROJECT AREA PRIOR TO PERFORMING ANY EARTHWORKS. HOLES RESULTING FROM REMOVAL OF VEGETATION SHALL BE BACKFILLED, COMPACTED AND GRADED IN ACCORDANCE WITH THIS DRAWING PACKAGE, GENERAL NOTES AND SPECIFICATIONS WHERE APPLICABLE.

10. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL WASTE MATERIAL INCLUDING, BUT NOT LIMITED TO VEGETATION, ROCK, DEBRIS, EXCESS SOILS, DEMOLITION MATERIALS, AND CONSTRUCTION MATERIALS. ACQUISITION OF OFF-SITE DISPOSAL AREA IS THE RESPONSIBILITY OF THE CONTRACTOR UNLESS OTHERWISE INDICATED BY CLIENT.

11. PERFORM ALL CLEARING, GRUBBING AND EARTHWORKS IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS, INCLUDING REQUIREMENTS FOR HANDLING, REMOVING AND DISPOSING OF CONTAMINATED SOIL, IF APPLICABLE.

12. NO VEGETATION OVERHANGING THE CONSTRUCTION AREA, BUT ROOTED OUTSIDE SAID AREA, SHALL BE REMOVED WITHOUT APPROVAL FROM THE CLIENT OR CONSTRUCTION MANAGER.

13. SHOULD THE CONTRACTOR DISCOVER THAT THE DEPTH OF TOPSOIL EXCEEDS THE DEPTH INDICATED ON THE PLANS, CONTRACTOR SHALL NOTIFY THE CLIENT AND ENGINEER IN WRITING TO DETERMINE IF ANY REVISIONS TO THE EARTHWORKS QUANTITIES AND DESIGN ARE REQUIRED. UNDER SUCH CIRCUMSTANCES THE CONTRACTOR SHALL NOT PROCEED WITH TOPSOIL REMOVAL UNTIL DIRECTED TO DO SO BY THE CLIENT OR CONSTRUCTION MANAGER.

GRADING AND COMPACTION

14. WHERE A GEOTECHNICAL REPORT EXISTS FOR THIS PROJECT, CONTRACTOR IS RESPONSIBLE FOR REVIEWING AND ADHERING TO THE REQUIREMENTS OF THE REPORT. SHOULD A DISCREPANCY BETWEEN THE PROJECT SITE GEOTECHNICAL REPORT AND THESE PLANS EXIST, CONTRACTOR TO INFORM THE ENGINEER IN WRITING BEFORE PROCEEDING WITH EARTHWORKS ACTIVITIES. CONTRACTOR SHALL NOT PROCEED WITH EARTHWORKS ACTIVITIES UNTIL DIRECTED TO DO SO BY THE ENGINEER AND CLIENT.

15. CONTRACTOR SHALL PROPERLY DISPOSE OF EXCESS EXCAVATED MATERIAL OFF SITE UNLESS DIRECTED OTHERWISE BY THE CLIENT OR ENGINEER.

16. ONSITE EXCAVATED MATERIAL STORAGE SHALL BE IN THE LOCATION INDICATED BY THE CLIENT OR AS INDICATED ON THESE PLANS. CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES FOR THE SOIL STOCKPILES AS APPROPRIATE.

17. ANY ROCK UNEARTHED DURING EXCAVATION WITH A LONG AXIS LENGTH THAT EXCEEDS 5 INCHES AND IS NOT REQUIRED FOR SITE DEVELOPMENT, SHALL BE DISPOSED OF BY THE CONTRACTOR UNLESS INDICATED OTHERWISE BY THE CLIENT OR ENGINEER.

18. CONTRACTOR TO PROVIDE AND VERIFY THAT ADEQUATE COMPACTION HAS BEEN ACHIEVED PRIOR TO INDEPENDENT CONFIRMATION OF COMPACTION BY A QUALIFIED INSPECTOR. OPTIMUM MOISTURE CONTENT AND MAXIMUM COMPACTED DENSITY TO BE INDICATED IN THESE DRAWINGS OR IN THE ASSOCIATED GEOTECHNICAL REPORT. ON SPEC MATERIAL TO BE PLACED AND COMPACTED IN 6-INCH HORIZONTAL LIFTS.

19. COMPACTION TO BE VERIFIED BY NUCLEAR METHOD PER ASTM D-6938 OR BY AN EQUIVALENT METHOD APPROVED BY THE ENGINEER.

20. COMPACTION TESTING FREQUENCY FOR ROADS AND PARKING AREAS SHALL BE 1 TEST (ASTM D-6938) PER 12 FT. OF WIDTH PER 500 FT. OF LENGTH, OR FRACTION THEREOF PER 6" LIFT UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.

21. COMPACTION TEST FREQUENCY FOR AREAS UNDER STRUCTURAL FOUNDATIONS SHALL BE 1 TEST (ASTM D-6938) FOR EACH 1,000 FT^2 OR FRACTION THEREOF PER 6" LIFT, UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.

22. COMPACTION TEST FREQUENCY FOR DETENTION OR RETENTION POND FILL EMBANKMENTS OR ANY EMBANKMENT IMPOUNDING WATER SHALL BE A MINIMUM OF 1 TEST (ASTM D-6938) PER 2,500 FT^2 OR FRACTION THEREOF PER 6" LIFT UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.

23. COMPACTION TEST FREQUENCY FOR REMAINING AREAS (NOT INCLUDING STRUCTURAL FOUNDATIONS, ROADS AND DETENTION POND EMBANKMENTS) IN NON-HEAVY LOADING AREAS SHALL BE 1 SPOT CHECKS PER 40,000 FT^2 PER 6" LIFT IN FILL AREAS UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.

24. CONSTRUCTION MANAGER, INSPECTOR AND/OR ENGINEER MAY REQUIRE THAT MORE COMPACTION TESTS ARE NEEDED BASED ON FIELD OBSERVATIONS. THE RECOMMENDED NUMBER OF COMPACTION TESTS INDICATED IN THESE GENERAL NOTES CONSTITUTES THE MINIMUM NUMBER OF TESTS; MORE TESTS MAY BE WARRANTED BASED ON FINDINGS IN THE FIELD.

25. THE CONTRACTOR SHALL SCARIFY SUBGRADE 6" (MIN.) WITH A MOISTURE CONDITION AND COMPACT TO 95% MAXIMUM ACHIEVABLE DENSITY IN ACCORDANCE WITH ASTM D-698 UNLESS INDICATED OTHERWISE IN THESE PLANS.

26. HORIZONTAL LIFTS OF NON-GRAVEL MATERIAL TO BE COMPACTED IN 6" (MAX) LIFTS TO 95% MAXIMUM DENSITY (MINIMUM) AT OPTIMUM MOISTURE CONTENT (-2% TO +2%) TO ACHIEVE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698 UNLESS INDICATED OTHERWISE IN THESE PLANS. HORIZONTAL LIFTS OF GRAVEL MATERIAL TO BE COMPACTED IN 6" (MAX) LIFTS TO 90% MAXIMUM DENSITY (MINIMUM) AT OPTIMUM MOISTURE CONTENT (+ OR - 2%) TO ACHIEVE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557 UNLESS INDICATED OTHERWISE IN THESE PLANS. SHOULD A DISCREPANCY BETWEEN THE PROJECT SITE GEOTECHNICAL REPORT AND THESE PLANS EXIST, CONTRACTOR TO INFORM THE ENGINEER IN WRITING BEFORE PROCEEDING WITH SOIL LIFT PLACEMENT AND COMPACTION.

27. WHERE SUFFICIENT EXCAVATION MATERIAL IS NOT AVAILABLE FOR FILL AND "BORROW MATERIAL" IS REQUIRED; BORROW MATERIAL SHALL BE OBTAINED FROM SOURCES SHOWN IN THIS DRAWING PACKAGE OR OTHER SOURCES APPROVED BY THE ENGINEER. OVERBURDEN TO BE REMOVED FROM BORROW SITE PRIOR TO OBTAINING BORROW MATERIAL. ENGINEER APPROVED BMP AND EROSION CONTROL MEASURES TO BE PROVIDED BY CONTRACTOR FOR ANY BORROW LOCATIONS.

28. BLASTING IS NOT PERMITTED, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER AND CLIENT.

29. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATION PURPOSES ONLY. 6" OF TOPSOIL HAS BEEN REMOVED FROM THE EXISTING CAD SURFACE PRIOR TO PERFORMING EARTHWORKS CALCULATIONS UNLESS NOTED OTHERWISE IN THESE PLANS. CONTRACTOR AND SUBCONTRACTOR ARE RESPONSIBLE FOR DETERMINING ALL QUANTITIES.

30. THE CUT AND FILL VOLUMES PROVIDED IN THIS DRAWING PACKAGE ARE LISTED AS BANK (I.E. IN-SITU) VOLUMES UNLESS INDICATED OTHERWISE. UNLESS STATED ELSEWHERE IN THIS DRAWING PACKAGE OR IN THE APPLICABLE GEOTECHNICAL REPORT, CONTRACTOR TO ASSUME A 25% VOLUMETRIC CHANGE OF EXCAVATED SOILS (BULKING/SHRINKAGE FACTOR) FOR THE PURPOSES OF EARTHWORKS TRANSPORT, STORAGE AND STOCKPILING. SOIL MATERIAL PLACED AND COMPACTED PER THE REQUIREMENTS OF THESE PLANS IS ASSUMED TO BE HAVE A 1:1 RATIO FOR EXCAVATED (BANK) TO PLACED EARTHWORKS VOLUMES; ANY OBSERVED VOLUMETRIC CHANGE IN THE SOILS (EXPANSION AND/OR SHRINKAGE) OF THE PLACED AND COMPACTED MATERIALS THAT IS NOT AT A 1:1 RATIO SHALL BE REPORTED TO THE CLIENT AND ENGINEER BY THE CONTRACTOR.

31. ALL STOCKPILES SHOWN IN THESE PLANS ARE ASSUMED TO HAVE 2H:1V SIDE SLOPES. MAXIMUM STOCKPILE HEIGHT IS ASSUMED TO BE 10 FT. CONTRACTOR SHALL NOT CREATE STOCKPILES WITH SIDE SLOPES GREATER THAN 2:1 OR HEIGHTS GREATER THAN 10 FT. WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OR UNLESS INDICATED OTHERWISE IN THESE PLANS. THE STOCKPILE FOOTPRINTS SHOWN IN THESE PLANS ARE ASSUMED TO HAVE AN EXPANSION FACTOR OF 1.25.

32. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES IDENTIFIED SHALL BE BROUGHT TO THE INSPECTOR'S OR CONSTRUCTION MANAGER'S ATTENTION AND RECONCILED WITH THE ENGINEER PRIOR TO CONSTRUCTION.

33. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ALL EXISTING DISTURBED AREAS, FENCES, WALLS, SHEDS OR ANY OTHER STRUCTURES DAMAGED DURING CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER CONDITION. ANY DAMAGE TO ADJACENT PROPERTY OFF OF THE CLIENT'S PROPERTY SHALL BE REPORTED TO THE CLIENT'S REPRESENTATIVE FOR AUTHORIZATION PRIOR TO SAID REPAIRS.

34. ALL EARTHWORKS SHALL CONFORM TO ELEVATIONS AND GRADES DESIGNATED IN THIS DRAWING PACKAGE. ALLOWABLE TOLERANCES ARE ± 0.10 FEET OF FINISHED FINAL GRADE (FG) FOR ALL EARTHWORKS UNLESS INDICATED OTHERWISE IN THIS DRAWING PACKAGE OR BY THE ENGINEER.

35. CONTRACTOR TO PROVIDE BEST MANAGEMENT PRACTICES (BMP) FOR STORMWATER RUNOFF AND SEDIMENT CONTROL IN ACCORDANCE WITH STATE AND FEDERAL GOVERNMENT REQUIREMENTS. IN PARTICULAR, BMP SHALL CONFORM WITH THE FEDERAL CLEAN WATER ACT'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER REGULATIONS REQUIREMENTS. DO NOT PERFORM ANY GRADING OR GRUBBING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS, OR INTO NATURAL WATERCOURSES.

36. ALL PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO ANY OTHER EARTH DISTURBING ACTIVITY. ALL OTHER STRUCTURAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS SOON AS THE CONSTRUCTION ACTIVITIES, AROUND WHICH THEY ARE BASED, COMMENCE.

37. IMPORTED FILL TO MEET ASTM D-1241 SPECIFICATION FOR TYPE I, GRADE B MATERIAL AS FOLLOWS UNLESS INDICATED OTHERWISE IN THIS DRAWING PACKAGE:

    A. 100% SOIL MATERIAL FINER THAN 2-INCH SIEVE.
    B. 75% - 95% SOIL MATERIALS FINER THAN 1-INCH SIEVE.
    C. 40% - 75% SOIL MATERIALS FINER THAN NO. 3/8 SIEVE.
    D. 30% - 60% SOIL MATERIALS FINER THAN NO. 4 SIEVE.
    E. 20% - 45% SOIL MATERIALS FINER THAN NO. 10 SIEVE.
    F. 15% - 30% SOIL MATERIALS FINER THAN NO. 40 SIEVE.
    G. 5% - 15% SOIL MATERIALS FINER THAN NO. 200 SIEVE.
    H. MAXIMUM LIQUID LIMIT OF 25.
    I. PLASTICITY INDEX (PI) 6 (MAX).
    J. MAXIMUM EXPANSIVE POTENTIAL 0.5%.

38. THE SPOT CUT/FILL VALUES SHOWN ON THESE DRAWINGS (WHEN APPLICABLE) ARE FOR PROPOSED GROUND VS. SCRAPED (I.E. TOPSOIL REMOVED) GROUND (E.G. +0.7 MEANS THAT THE PROPOSED GROUND IS 0.7 FT ABOVE THE SCRAPED GROUND).

39. THE PREFERRED LOCATION(S) FOR PLACEMENT OF HEAVY LOADS ARE IN AREAS OF CUT. IF ANY HEAVY LOADS (E.G. MLVTS, MINION TANKS, ETC.) ARE INTENDED TO BE PLACED ON THE PAD IN FILL AREAS, THE LOAD(S) MUST BE PLACED A MINIMUM OF 30 LINEAR FEET FROM THE EDGE OF THE PAD. THIS REQUIREMENT IS TO PROVIDE ADEQUATE SPACING TO PROTECT AGAINST SLOPE STABILITY ISSUES AND TO PROVIDE SAFE WORKING CONDITIONS IN ACCORDANCE WITH ENGINEERING BEST PRACTICES. CONTRACTOR SHALL CONTACT ASCENT GEOMATICS SOLUTIONS ENGINEERING DEPARTMENT SHOULD A DISCREPANCY BETWEEN THIS REQUIREMENT AND THESE PLANS BE IDENTIFIED AND/OR IF THE CONTRACTOR SEEKS CLARIFICATION ON WHAT CONSTITUTES "HEAVY LOADS".

40. HORIZONTAL LIFTS OF FILL SOIL MATERIAL (NON-GRAVELS) DIRECTLY BENEATH AND WITHIN 5.0 FT OF THE WATER TANK TO BE COMPACTED IN 6" (MAX) LIFTS TO 95% MAXIMUM DENSITY (MINIMUM) AT OPTIMUM MOISTURE CONTENT (-2% TO +2%) TO ACHIEVE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557; A MINIMUM OF THREE (3) COMPACTION TESTS PER 6" LIFT (COMPACTED THICKNESS) SHALL BE PERFORMED FOR THE FILL AREAS DIRECTLY BENEATH AND WITHIN 5.0 FT OF THE WATER TANK TO CONFIRM THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.

FINAL GRADE AND ACCEPTANCE

41. FINAL GRADE TO MAINTAIN POSITIVE (I.E. OFFSITE) DRAINAGE ACROSS THE ENTIRE PROJECT SITE UNLESS SPECIFICALLY INDICATED OTHERWISE IN THIS DRAWING PACKAGE.

42. SETTLEMENT OR WASHING THAT OCCURS IN GRADED OR BACKFILLED AREAS PRIOR TO ACCEPTANCE OF THE WORK SHALL BE REPAIRED AND GRADES REESTABLISHED TO THE REQUIRED ELEVATIONS AND SLOPES AT NO ADDITIONAL CHARGE TO CLIENT.

43. FINAL SUBGRADE (AS APPLICABLE) TO BE PROOF ROLLED BY A TRUCK WITH A REAR AXLE LOAD OF APPROXIMATE 16,000 LBS./AXLE AND ACCEPTED BY THE INSPECTOR OR CONSTRUCTION MANAGER PRIOR TO FINAL ACCEPTANCE OF SUBGRADE AND PLACEMENT OF GRAVEL TOP LAYER. REMOVE AND REPLACE ANY SOFT MATERIAL WHICH EXHIBITS PERMANENT SUBGRADE DEFORMATION EXCEEDING 0.5".

SITE COORDINATES NOTES

44. SITE COORDINATES AND DESIGN ARE GRID VALUES BASED ON THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983, NORTH ZONE, U.S. SURVEY FOOT.

45. AZIMUTHS SHOWN ARE GRID AZIMUTHS. DISTANCES SHOWN ARE GRID DISTANCE.

46. CONTRACTOR TO FIELD VERIFY LOCAL BENCHMARKS /MONUMENTS BEFORE STARTING CONSTRUCTION. CONTRACTOR MAY BE REQUIRED TO RECTIFY TRUE COORDINATES TO MATCH THE NORTHINGS AND EASTINGS SHOWN IN THIS PLAN SET. ANY CONFLICTS WITH LOCAL COORDINATES SHALL BE DISCUSSED WITH FIELD ENGINEER.

GEOTECHNICAL REPORT

47. ALL GRADING AND EARTHWORKS TASKS TO BE IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL ENGINEERING REPORT TITLED "SUBSURFACE EXPLORATION AND GEOTECHNICAL DATA REPORT" BY INBERG-MILLER ENGINEERS DATED NOVEMBER 10, 2022.

TITLE REPORT

48. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

PROJECT SPECIFIC NOTES

49. PAD TO BE CAPPED WITH CDOT CLASS 5 AGGREGATE BASE COURSE (ABC) UNLESS INDICATED OTHERWISE IN THESE PLANS OR BY THE CLIENT. ABC TO BE COMPACTED IN 6" (MAX) LIFTS TO 95% MAXIMUM DENSITY (MINIMUM) AT OPTIMUM MOISTURE CONTENT (-2% TO +2%) TO ACHIEVE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698 UNLESS INDICATED OTHERWISE IN THESE PLANS.

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23

SHEET NAME: GENERAL NOTES

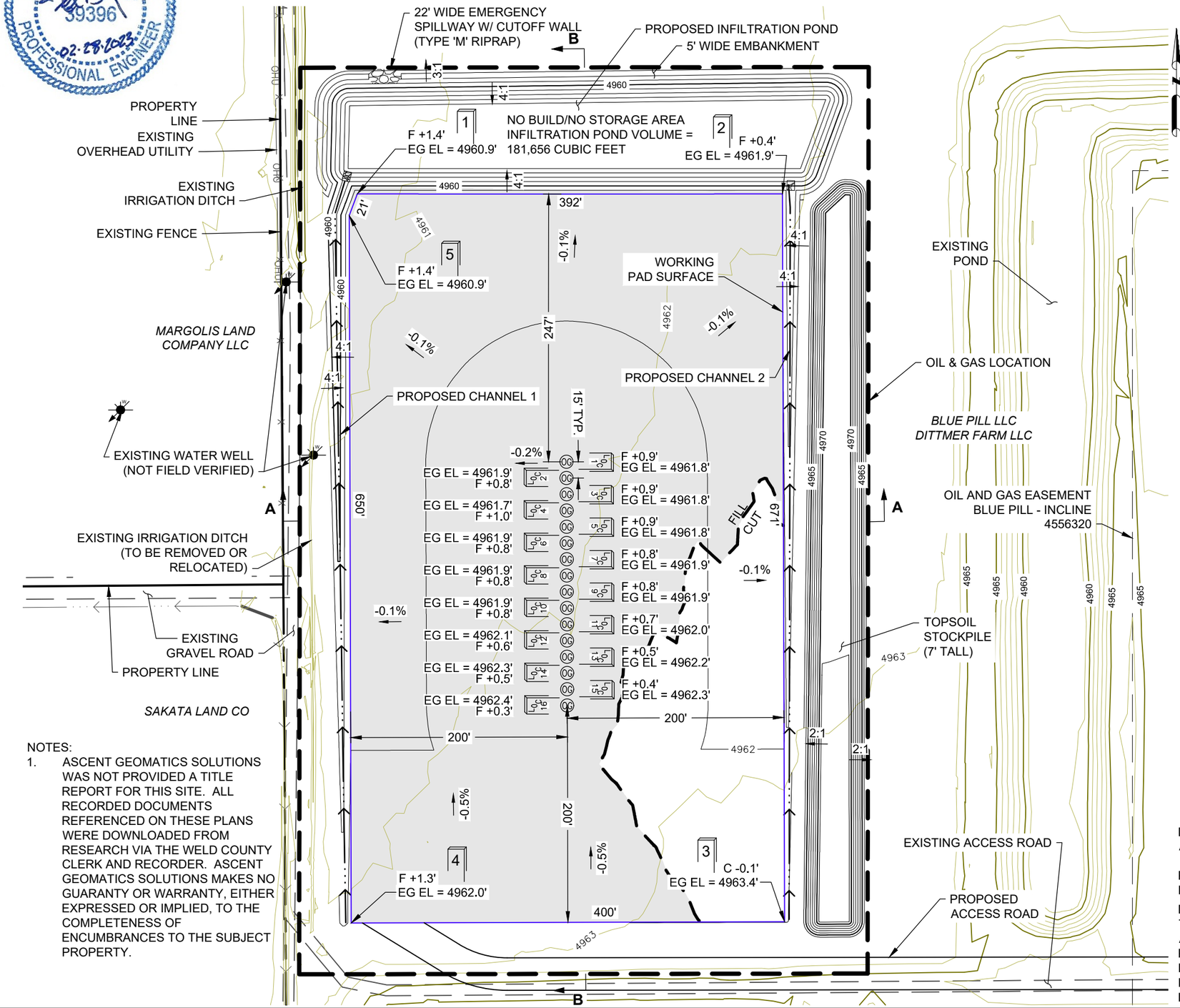
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 2 OF 16

P:\NBP_B220001\PROD\Grading\2_Notes.dwg

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

DITTMER PAD
GRADING PLAN

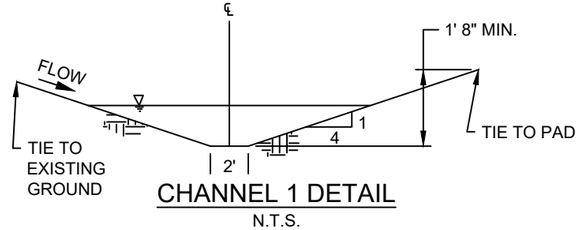


NOTES:
1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

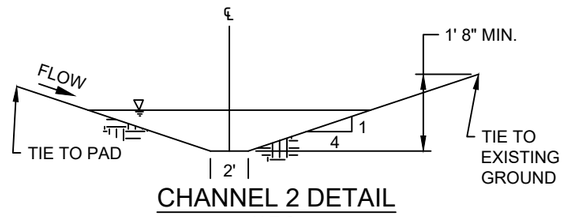
SITE QUANTITIES

FINISHED GRADE ELEVATION	4962.81' -	4963.80'
ROUGH GRADE ELEVATION	4961.81' -	4962.80'
TOTAL CUT FOR SITE	6,514	CY
TOTAL FILL FOR SITE	6,172	CY
NET EXCESS MATERIAL	342	CY
TOPSOIL (6" DEPTH)	6,357	CY
OIL & GAS LOCATION AREA	10.1	ACRES
WORKING PAD SURFACE AREA	6.2	ACRES
ACCESS ROAD DISTURBANCE AREA	2.2	ACRES

LOC 1	DITTMER 01H	LOC 9	DITTMER 09H
LOC 2	DITTMER 02H	LOC 10	DITTMER 10H
LOC 3	DITTMER 03H	LOC 11	DITTMER 11H
LOC 4	DITTMER 04H	LOC 12	DITTMER 12H
LOC 5	DITTMER 05H	LOC 13	DITTMER 13H
LOC 6	DITTMER 06H	LOC 14	DITTMER 14H
LOC 7	DITTMER 07H	LOC 15	DITTMER 15H
LOC 8	DITTMER 08H	LOC 16	DITTMER 16H



CHANNEL 1 DETAIL
N.T.S.



CHANNEL 2 DETAIL
N.T.S.

0 50 100
SCALE: 1"= 100'

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

ASCENT GEOMATICS SOLUTIONS
ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME: CONSTRUCTION LAYOUT

SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 3 OF 16

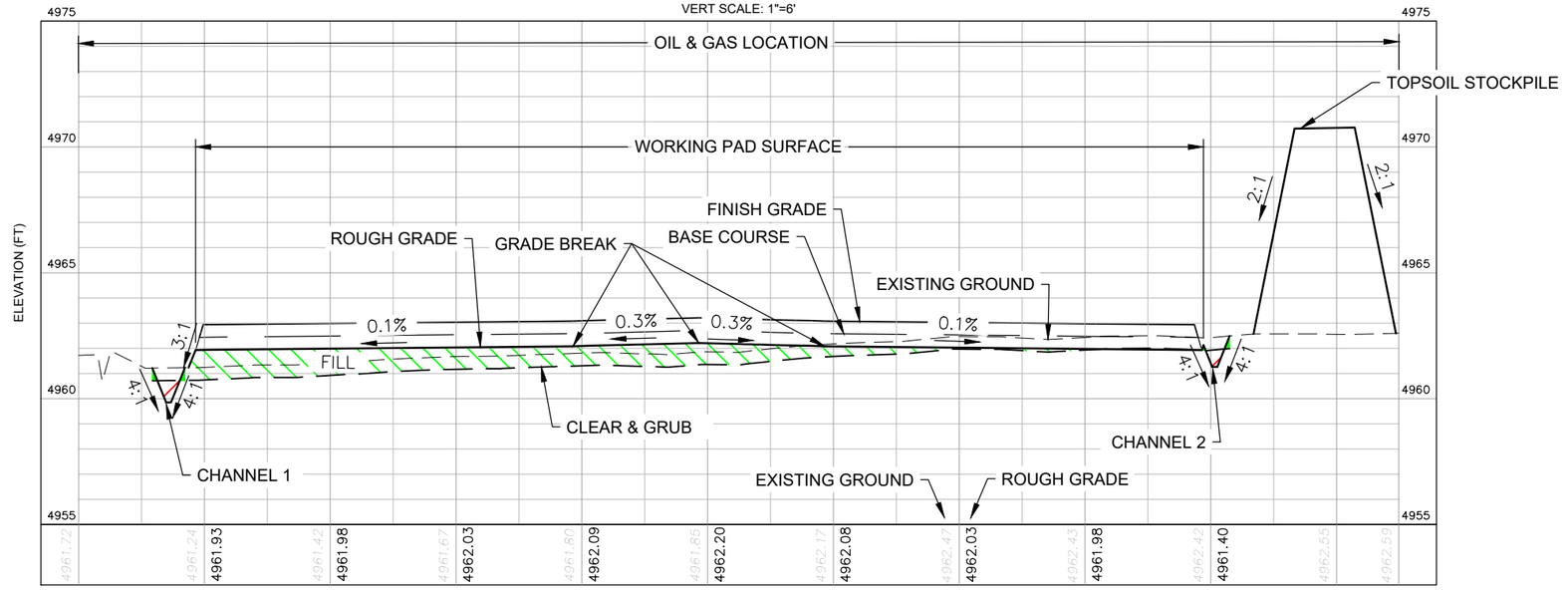
P:\NBP_B220001\PROD\Grading\3_PadLayout.dwg

DITTMER PAD
GRADING PLAN

WEST

HORIZ SCALE: 1"=60'
VERT SCALE: 1"=6'

EAST

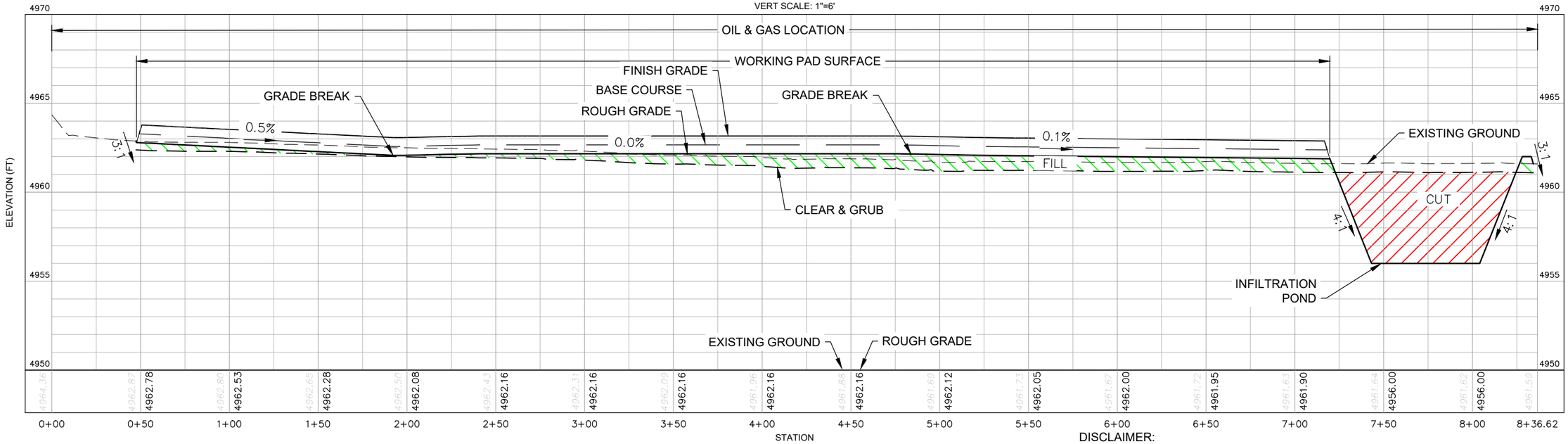


SECTION A - LOOKING NORTH

SOUTH

HORIZ SCALE: 1"=60'
VERT SCALE: 1"=6'

NORTH



SECTION B - LOOKING WEST

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:

INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23
		MS	2/14/23

SHEET NAME: CROSS SECTIONS

SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

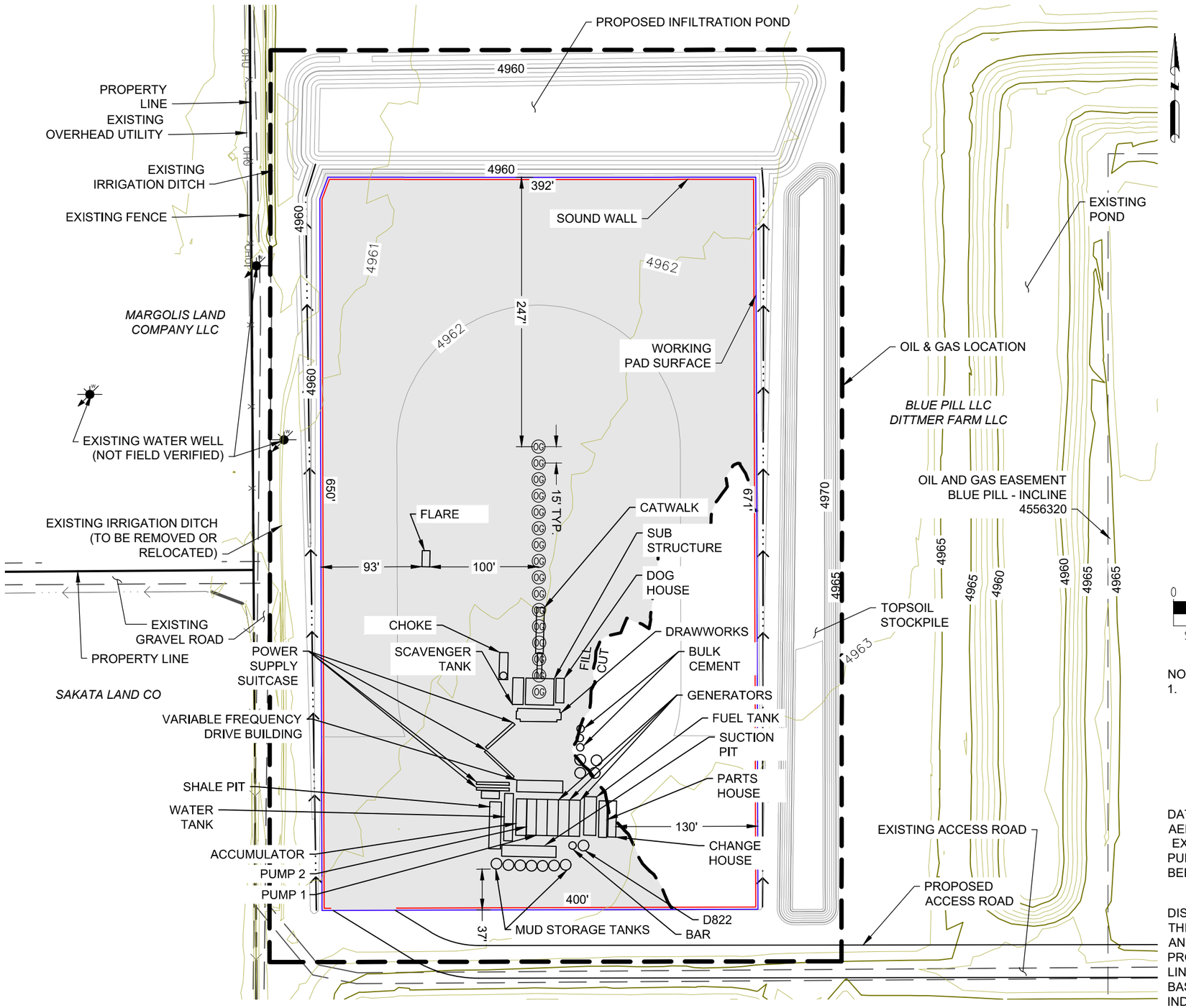
DRAWING DATE: 2/14/23

DRAFTED BY: AMS

SHEET NO. 4 OF 16

P:\NBP_B220001\PROD\Grading\4_CrossSections.dwg

DITTMER PAD
GRADING PLAN



0 50 100
SCALE: 1"= 100'

NOTES:
1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23

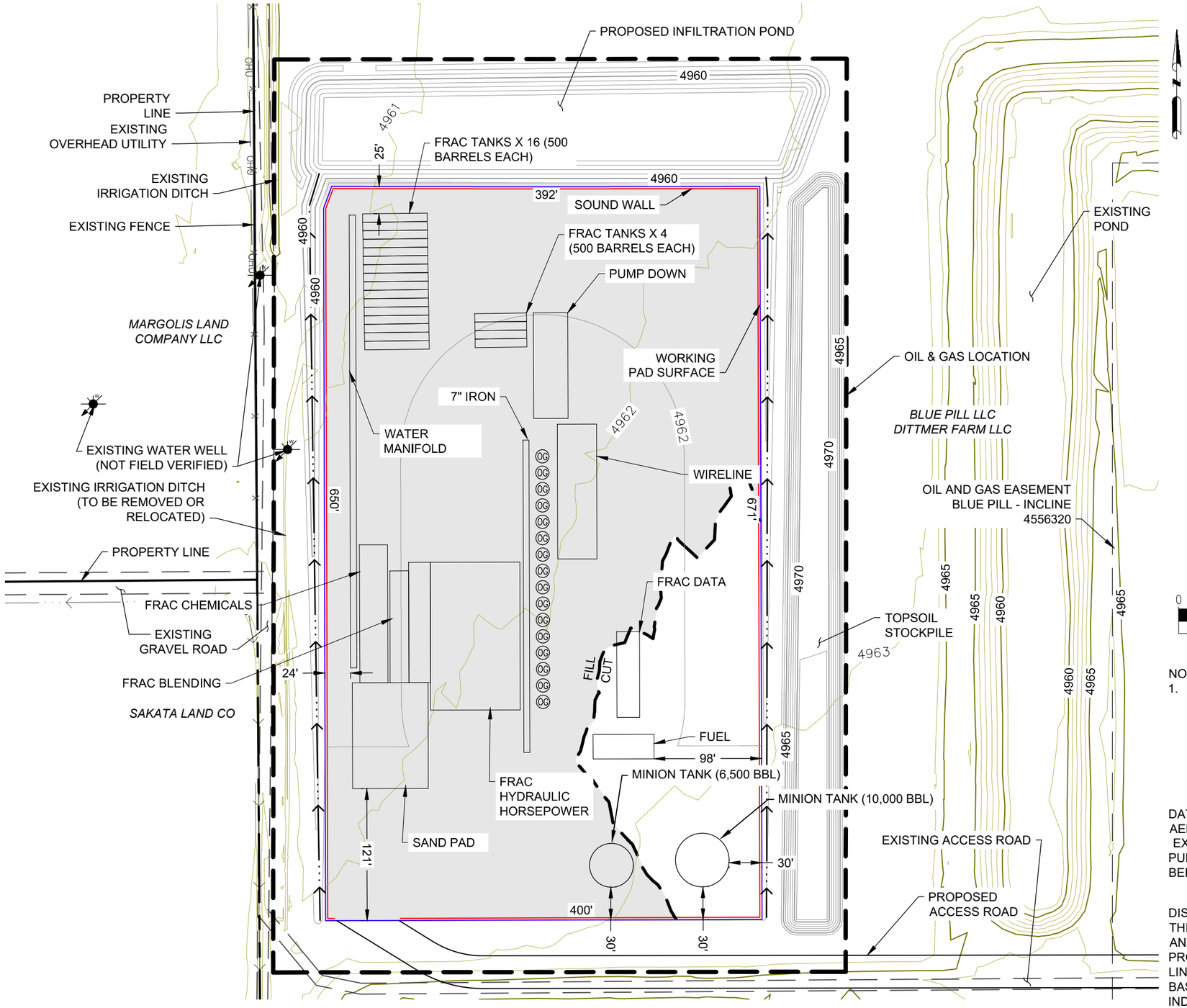
SHEET NAME: RIG LAYOUT

SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 5 OF 16

P:\NBP_B220001\PROD\Grading\5_RigLayout.dwg

DITTMER PAD
GRADING PLAN



0 50 100

SCALE: 1"= 100'

NOTES:

1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME:
WELL COMPLETIONS & STIMULATION LAYOUT

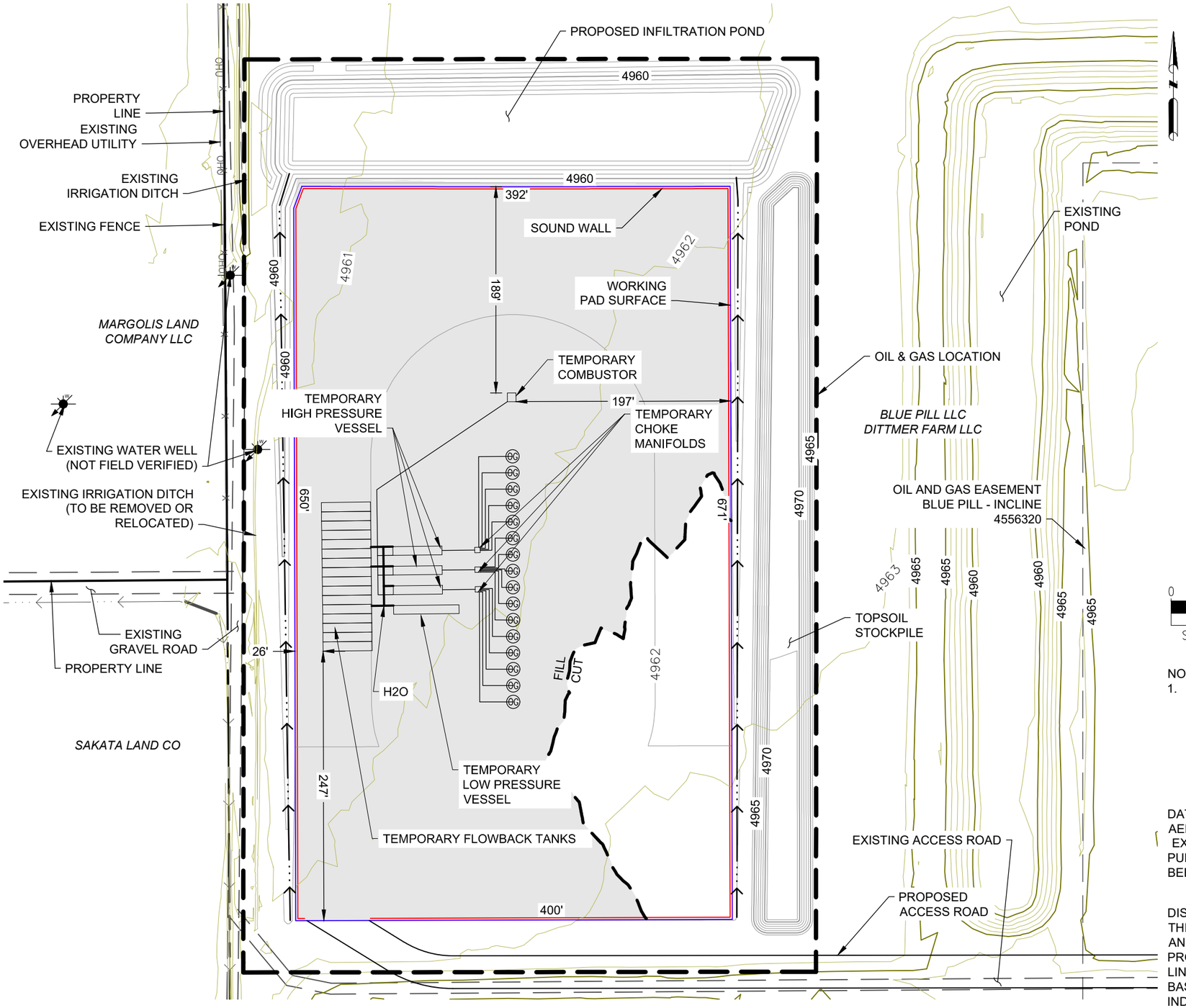
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 6 OF 16

P:\INBP_B220001\PROD\Grading\6_CompletionsLayout.dwg

DITTMER PAD
GRADING PLAN



0 50 100

SCALE: 1"= 100'

NOTES:
1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK A SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME: FLOWBACK LAYOUT

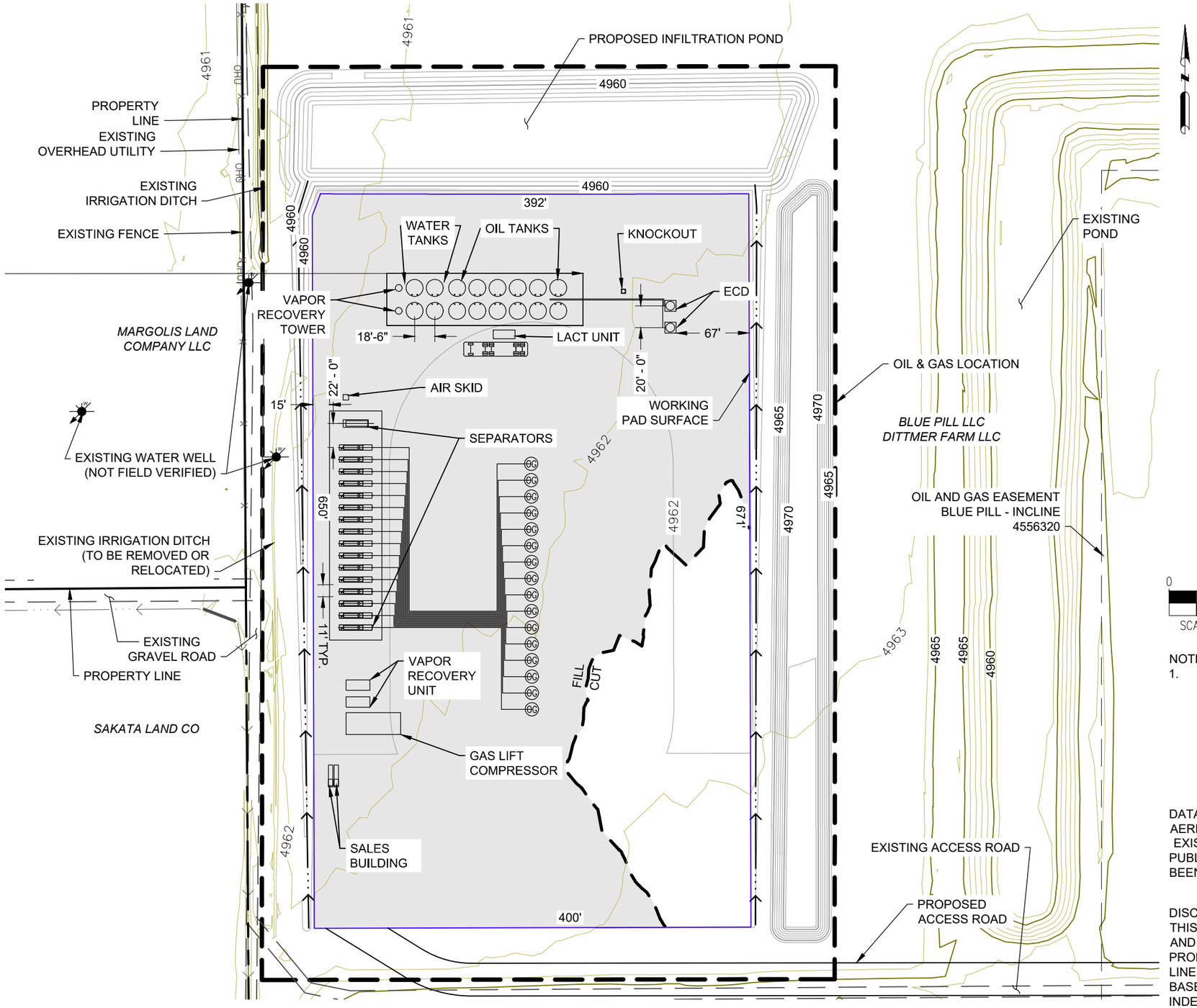
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23
		MS	2/14/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 7 OF 16

P:\NBP_B220001\PROD\Grading\7_FlowbackLayout.dwg

DITTMER PAD
GRADING PLAN



0 50 100
SCALE: 1"= 100'

NOTES:
1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME:
PRODUCTION LAYOUT

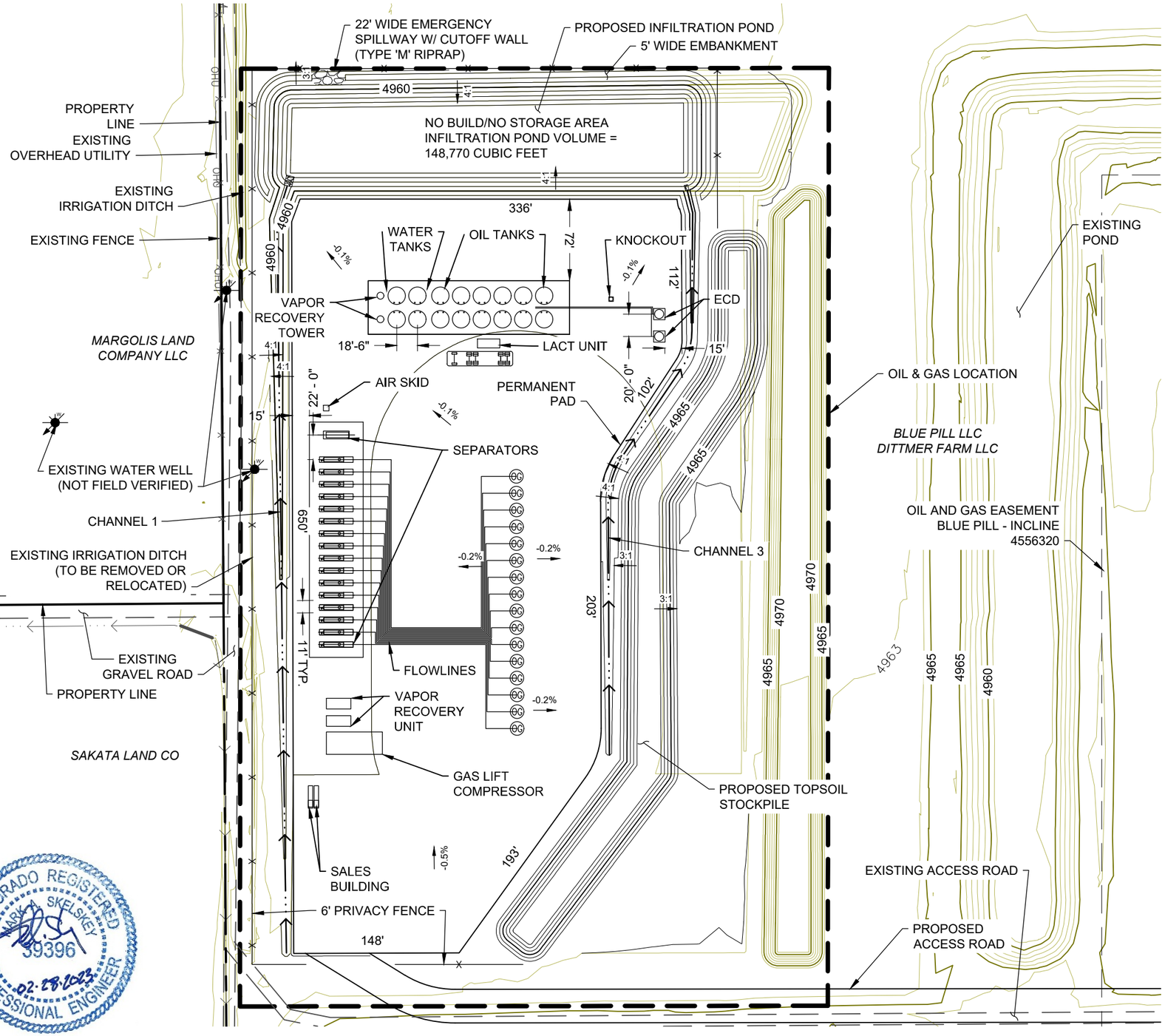
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23
1	ISSUED FOR CONSTRUCTION	AMS	2/23/23
2	ISSUED FOR CONSTRUCTION	AMS	2/27/23
		MS	2/14/23
		MS	2/23/23
		MS	2/27/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 8 OF 16

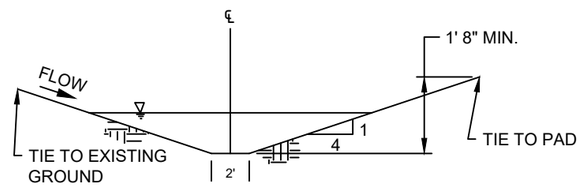
P:\INBP_B220001\PROD\Grading\8_ProductionLayout.dwg

DITTMER PAD
GRADING PLAN

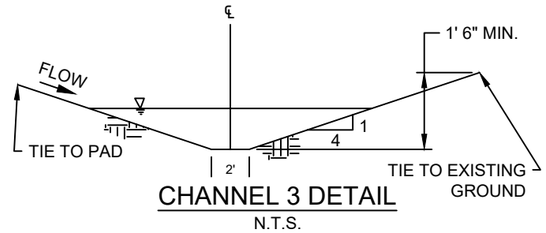


SITE QUANTITIES

TOTAL CUT FOR SITE	1,216	CY
TOTAL FILL FOR SITE	1,203	CY
NET EXCESS MATERIAL	13	CY
RECLAIMED AREA	3.1	ACRES
PERMANENT DISTURBANCE AREA	7.0	ACRES
OIL & GAS LOCATION AREA	10.1	ACRES
RECLAIMED ACCESS ROAD AREA	0.8	ACRES
PERMANENT ACCESS ROAD AREA	1.4	ACRES



CHANNEL 1 DETAIL
N.T.S.



CHANNEL 3 DETAIL
N.T.S.

0 50 100
SCALE: 1"= 100'

NOTES:
1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME:
INTERIM-RECLAMATION LAYOUT

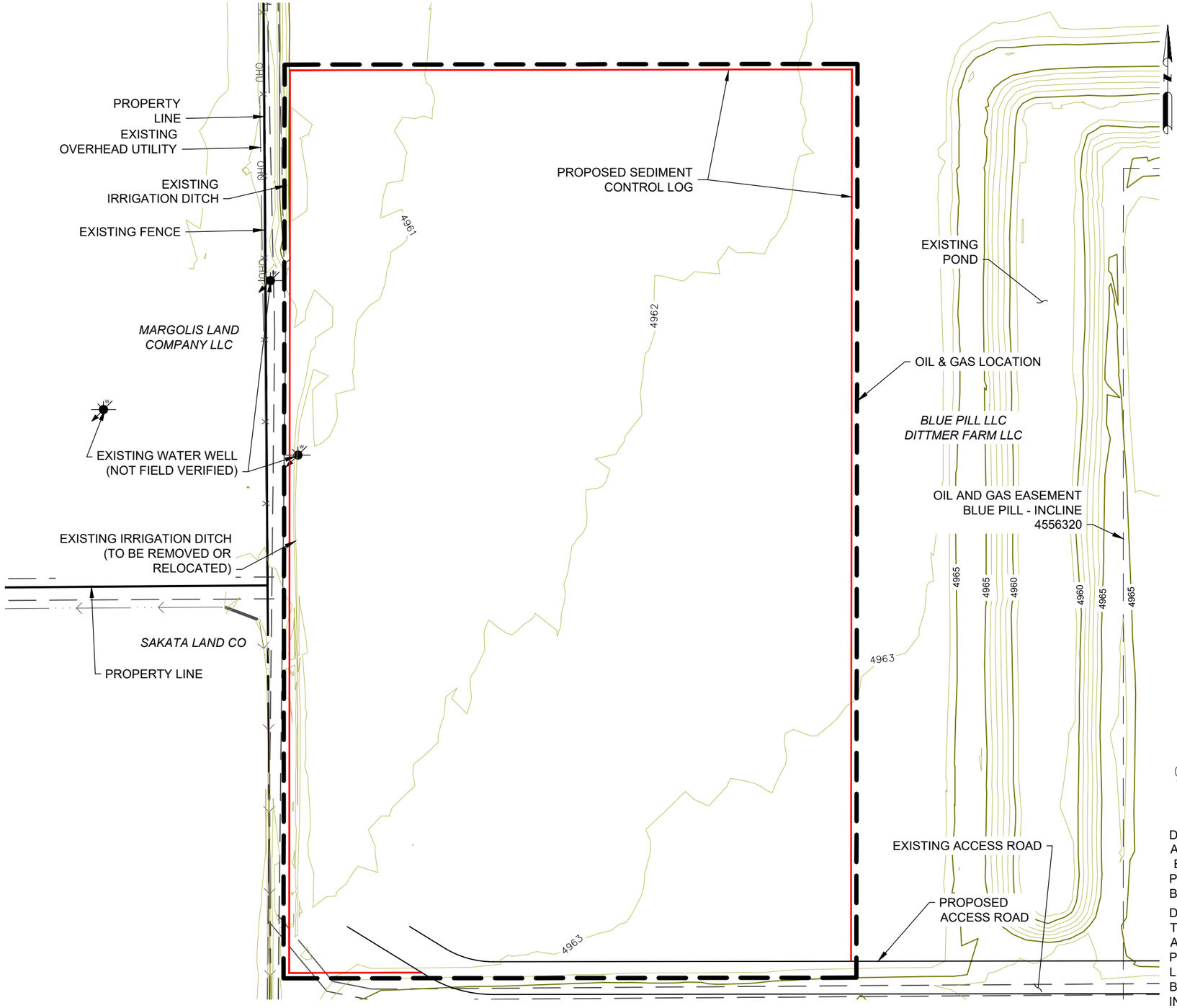
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23
1	ISSUED FOR CONSTRUCTION	AMS	2/23/23
2	ISSUED FOR CONSTRUCTION	AMS	2/27/23
		MS	4/25/23
		MS	4/27/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 9 OF 16

P:\INBP_B220001\PROD\Grading\9_ReclamationLayout.dwg

DITTMER PAD
GRADING PLAN



NOTES:
1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

0 50 100
SCALE: 1"= 100'

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK S. SKELSKEY
39396
02.28.2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME:
EROSION & SEDIMENT CONTROL - INITIAL

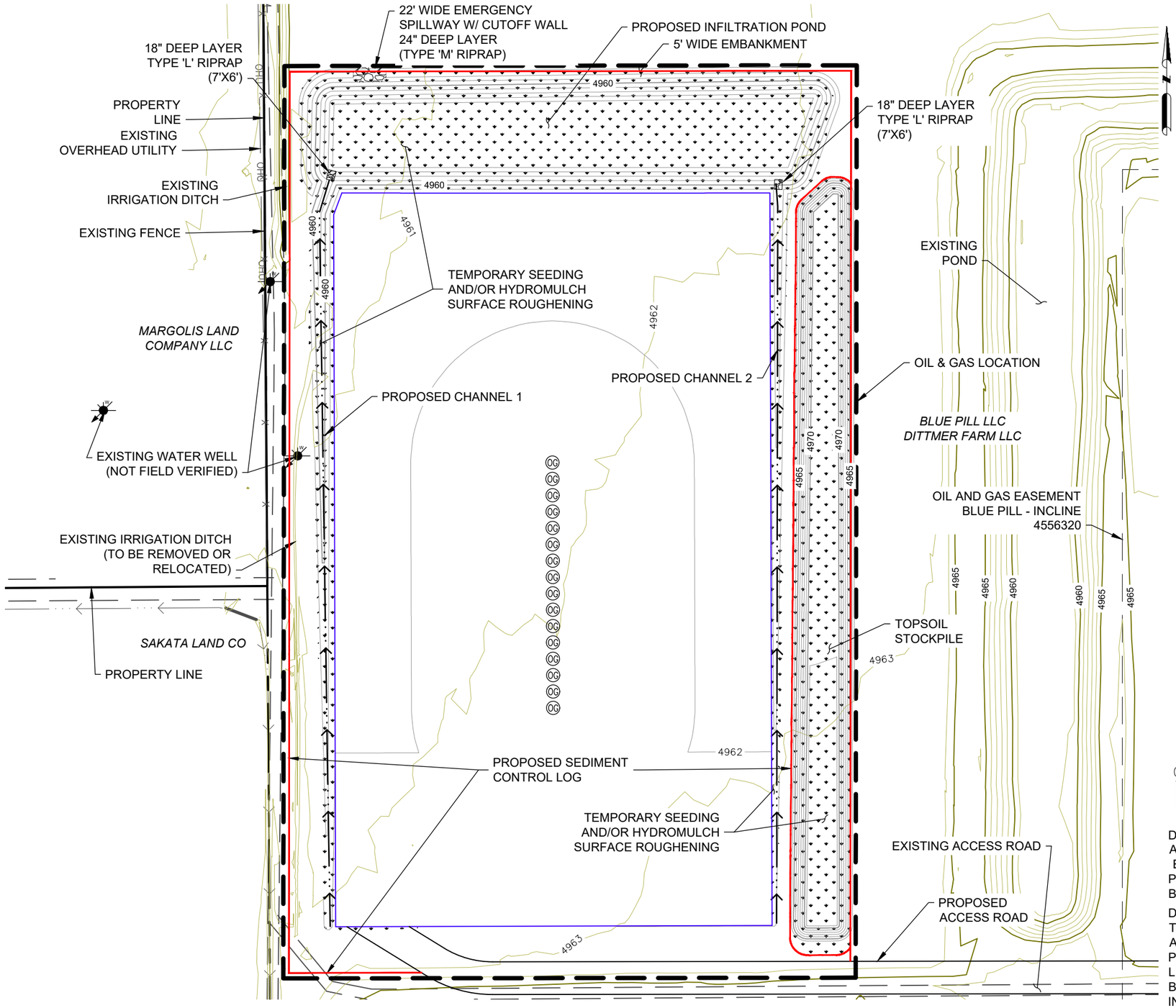
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

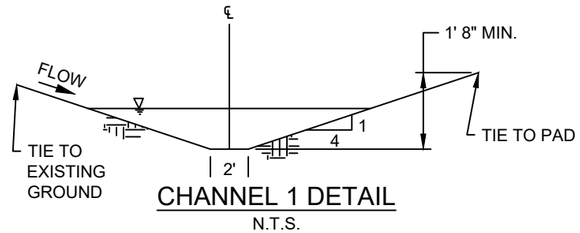
REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23
		MS	2/14/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 10 OF 16

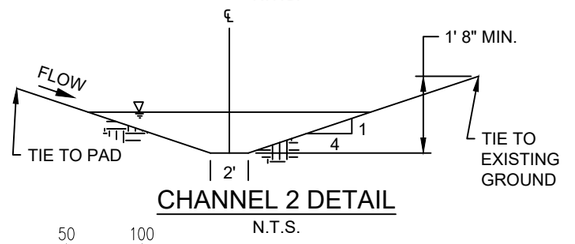
P:\NBP_B220001\PROD\Grading\10_ESC_Initial.dwg

DITTMER PAD
GRADING PLAN





CHANNEL 1 DETAIL
N.T.S.



CHANNEL 2 DETAIL
N.T.S.

0 50 100
SCALE: 1"= 100'

NOTES:
1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME:
EROSION & SEDIMENT CONTROL - INTERIM

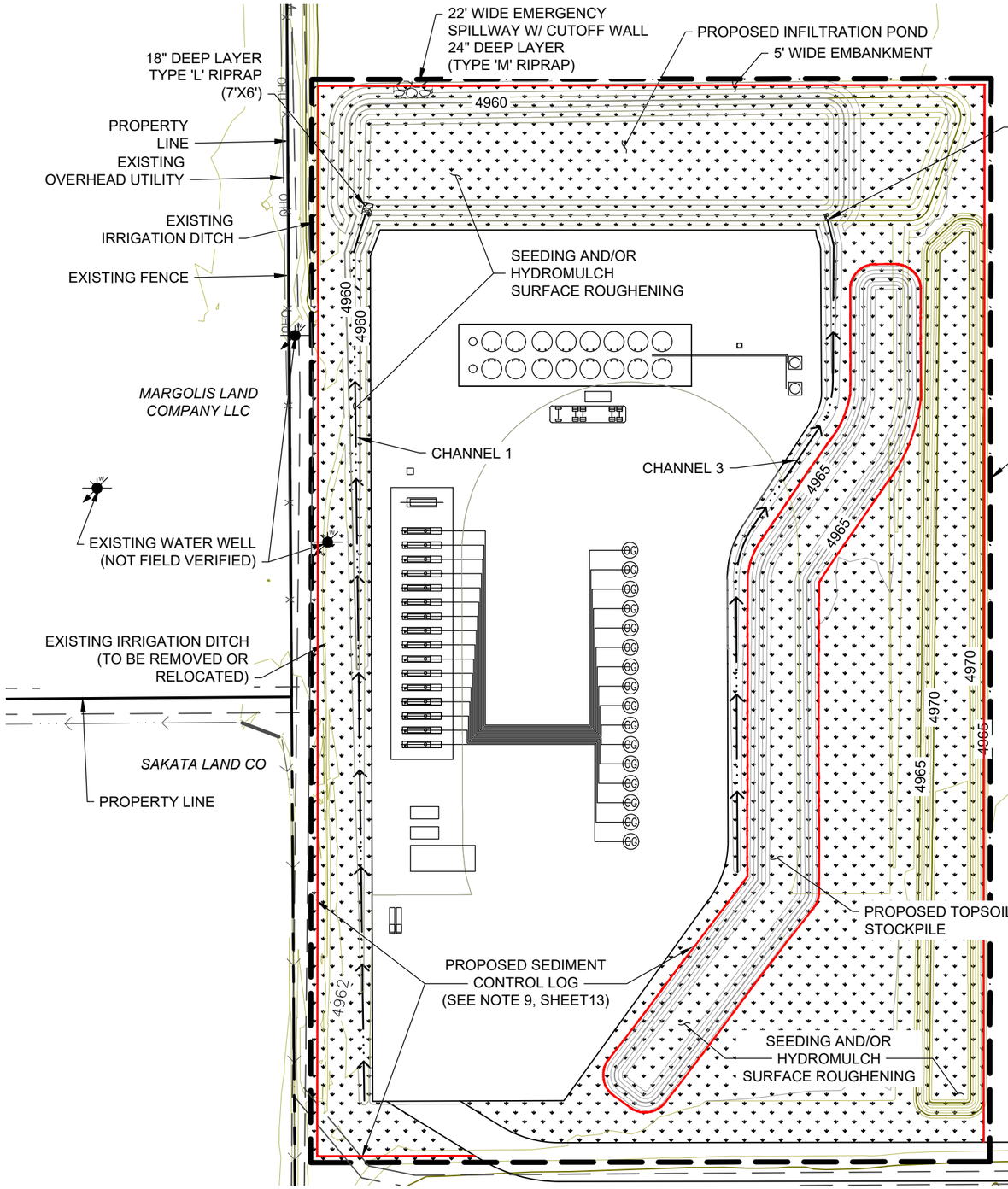
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

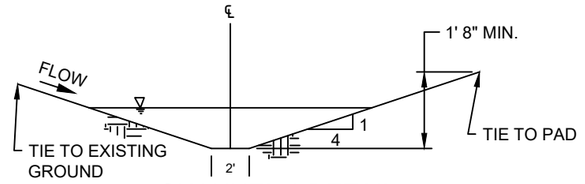
REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 11 OF 16

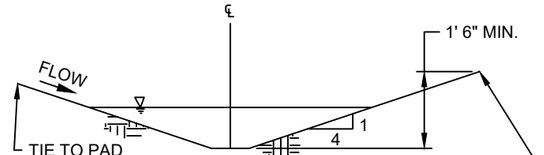
P:\INBP_B220001\PROD\Grading\10_ESC_Interim.dwg

DITTMER PAD
GRADING PLAN





CHANNEL 1 DETAIL
N.T.S.



CHANNEL 3 DETAIL
N.T.S.

0 50 100
SCALE: 1"= 100'

NOTES:
1. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

DATA SOURCE:
AERIAL IMAGERY: NAIP 2021
EXISTING WATER WELLS: DEPARTMENT OF WATER RESOURCES
PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

COLORADO REGISTERED
MARK A. SKELSKEY
39396
02-28-2023
PROFESSIONAL ENGINEER

ASCENT GEOMATICS SOLUTIONS
ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME:
EROSION & SEDIMENT CONTROL - FINAL

SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23
1	ISSUED FOR CONSTRUCTION	MS	4/25/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 12 OF 16

P:\NBP_B220001\PROD\Grading\12_ESC_Final.dwg

DITTMER PAD
GRADING PLAN

STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM WELD COUNTY PUBLIC WORKS.
3. CLEARING, GRUBBING, AND TOPSOIL STRIPPED SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THE E&S PLAN.
4. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
5. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAP(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN.
6. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY WELD COUNTY PUBLIC WORKS.
7. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
8. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
9. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
10. ALL SEDIMENT REMOVED FROM BMPS SHALL BE PLACED WITHIN THE RIGHT-OF-WAY EXCEPT IN WETLAND AREAS OR AS OTHERWISE DESCRIBED IN THE PLAN DRAWINGS.
11. AREAS WHICH ARE TO BE TOP SOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
12. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
13. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
14. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
15. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
16. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
17. IF EARTH DISTURBANCE ACTIVITIES ARE TO CEASE FOR MORE THAN 4 DAYS, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS. ACCESS AREAS THAT CONTINUE TO BE DISTURBED WILL BE STABILIZED ONCE ACTIVITY IS COMPLETE.
18. AT STREAM CROSSINGS, 50' BUFFER AREAS SHOULD BE MAINTAINED. ON BUFFERS, CLEARING, SOD DISTURBANCES, EXCAVATION, AND EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITIES SUCH AS STACKING LOGS, BURNING CLEARED BRUSH, DISCHARGING RAINWATER FROM TRENCHES, WELDING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE ACCOMPLISHED OUTSIDE OF BUFFERS.
19. MULCH WITH NETTING OR EROSION CONTROL MATS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER AND WITHIN 100' OF SPECIAL PROTECTION WATERS OR 50' OF SURFACE WATERS.
20. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.

ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:
INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME: EROSION & SEDIMENT CONTROL NOTES
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

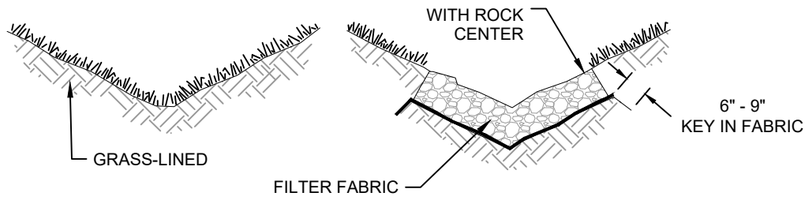
REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 13 OF 16

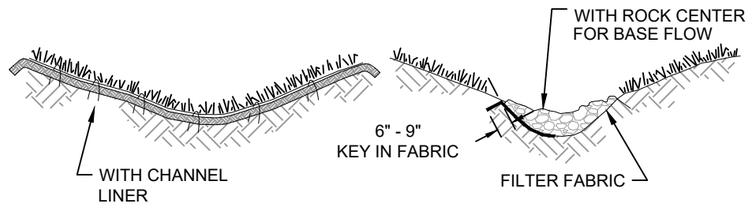
P:\INBP_B220001\PROD\Grading\13_ESC_Notes.dwg

DITTMER PAD
GRADING PLAN

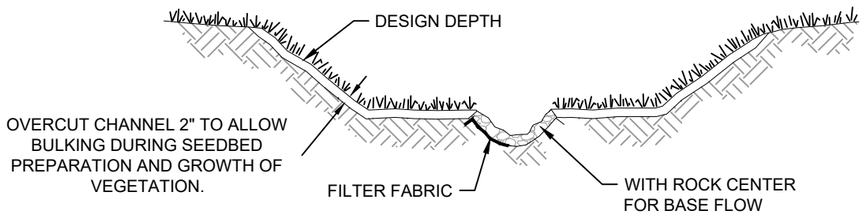
TYPICAL V-SHAPED CHANNEL CROSS-SECTION



TYPICAL PARABOLIC CHANNEL CROSS-SECTION

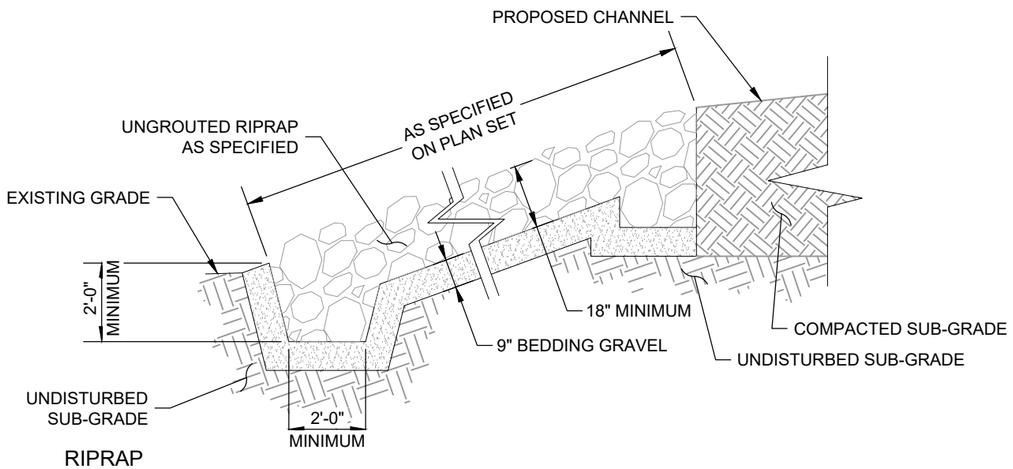


TYPICAL TRAPEZOIDAL CHANNEL CROSS-SECTION



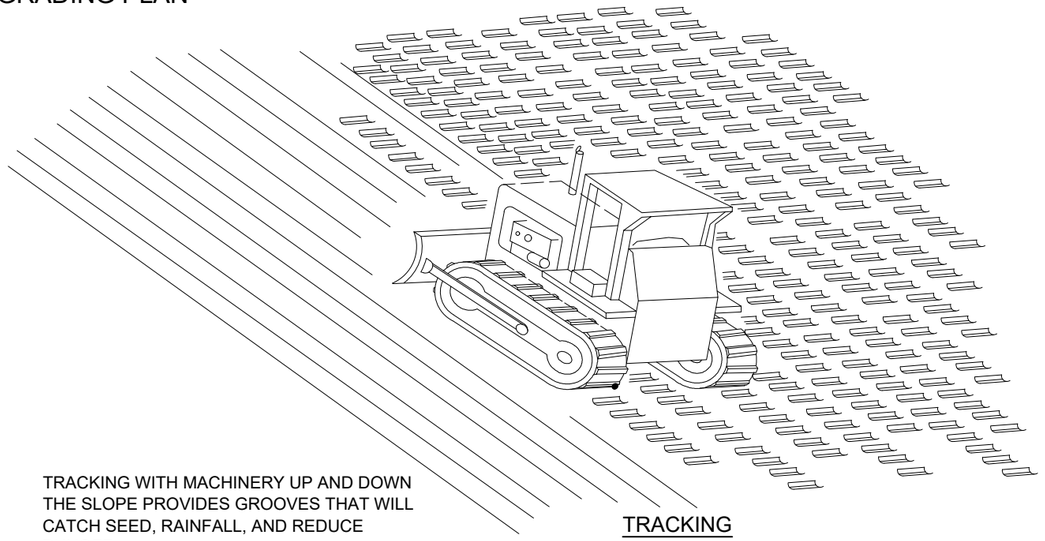
TYPICAL GRASS-LINED CHANNELS

SCALE: NOT TO SCALE



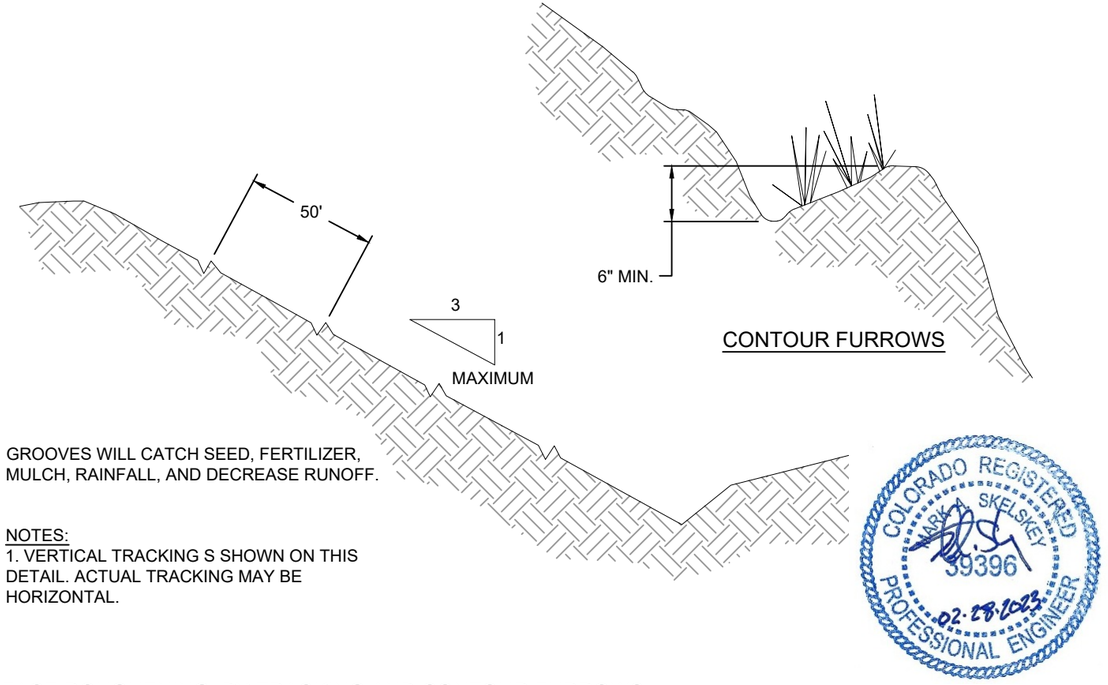
RIPRAP

SCALE: NOT TO SCALE



TRACKING WITH MACHINERY UP AND DOWN THE SLOPE PROVIDES GROOVES THAT WILL CATCH SEED, RAINFALL, AND REDUCE RUNOFF.

TRACKING



GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL, AND DECREASE RUNOFF.

NOTES:
1. VERTICAL TRACKING S SHOWN ON THIS DETAIL. ACTUAL TRACKING MAY BE HORIZONTAL.

CONTOUR FURROWS

SURFACE ROUGHENING BY TRACKING AND CONTOUR FURROWS

SCALE: NOT TO SCALE

COLORADO REGISTERED PROFESSIONAL ENGINEER
MARK A. SKELSKEY
39396
02.28.2023

ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:

INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME: EROSION & SEDIMENT CONTROL DETAILS

SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23
		MS	2/14/23

DRAWING DATE: 2/14/23

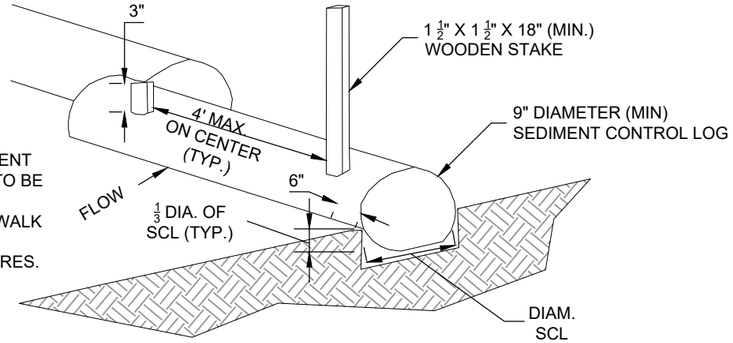
DRAFTED BY: AMS

SHEET NO. 14 OF 16

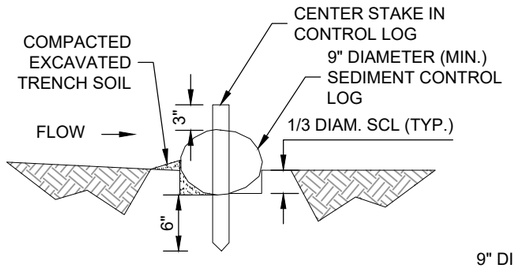
P:\INBP_B220001\PROD\Grading\14_ESC_Details.dwg

DITTMER PAD
GRADING PLAN

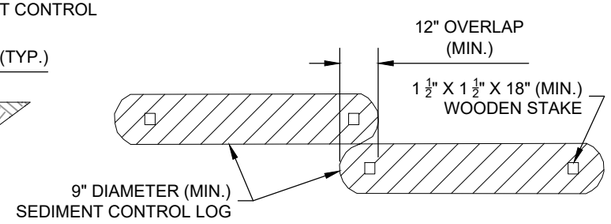
NOTES:
1. LARGER DIAMETER SEDIMENT CONTROL LOGS MAY NEED TO BE EMBEDDED DEEPER.
2. PLACE LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.



TRENCHED SEDIMENT CONTROL LOG



SECTION A
TRENCHED SEDIMENT CONTROL LOG

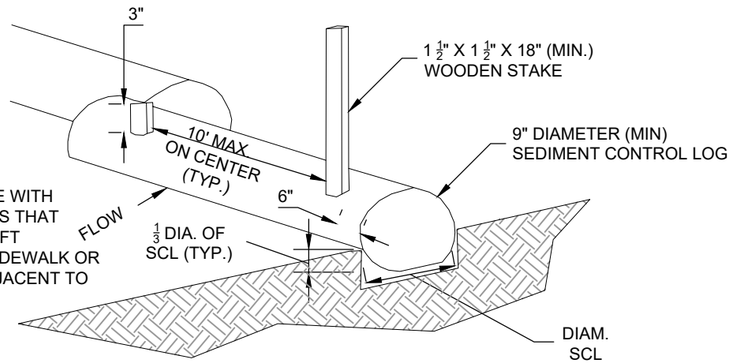


LOG JOINTS

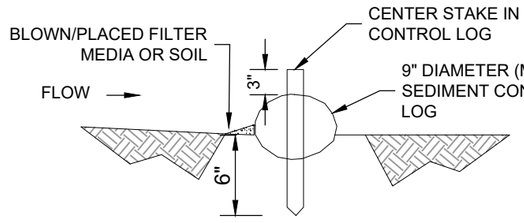
TRENCHED SEDIMENT CONTROL LOG

SCALE: NOT TO SCALE

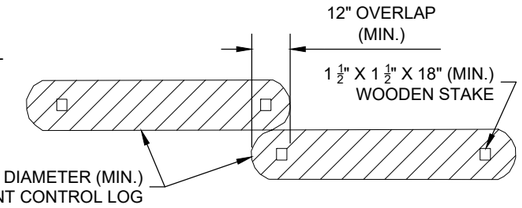
NOTES:
3. THIS DETAIL IS FOR USE WITH SEDIMENT CONTROL LOGS THAT AREA A MINIMUM OF 8 LB/FT
4. PLACE LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.



COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



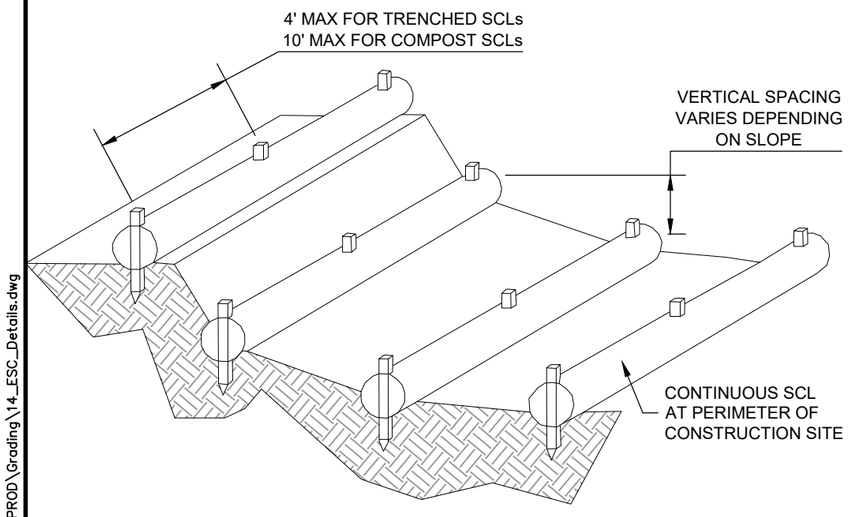
SECTION A
COMPOST SEDIMENT CONTROL LOG



LOG JOINTS

COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

SCALE: NOT TO SCALE



SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

SCALE: NOT TO SCALE

SEDIMENT CONTROL LOG INSTALLATION NOTES:

5. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
6. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.
7. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES, AND OBVIOUS WEAR.
8. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
9. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
10. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
11. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

SEDIMENT CONTROL LOG MAINTENANCE NOTES:

12. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
13. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
14. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
15. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
16. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACES AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:

INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME: EROSION & SEDIMENT CONTROL DETAILS

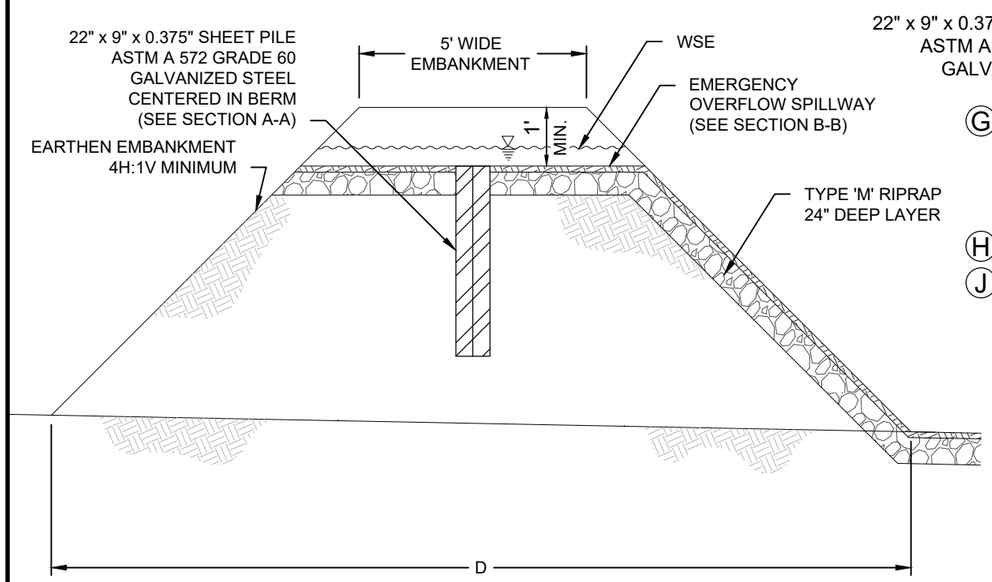
SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

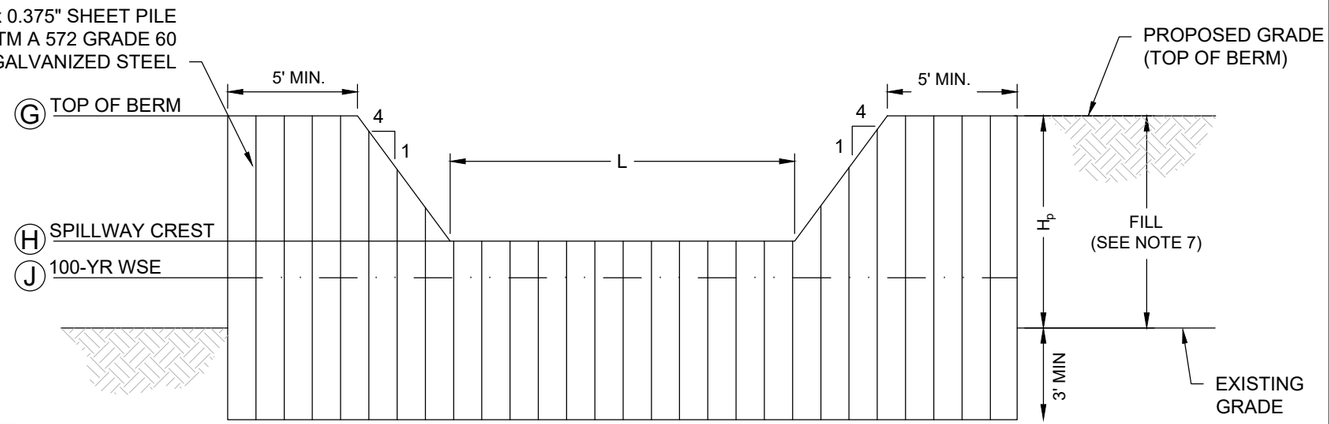
REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23

DRAWING DATE: 2/14/23
DRAFTED BY: AMS
SHEET NO. 15 OF 16

P:\INBP_B220001\PROD\Grading\14_ESC_Details.dwg

DITTMER PAD
GRADING PLAN

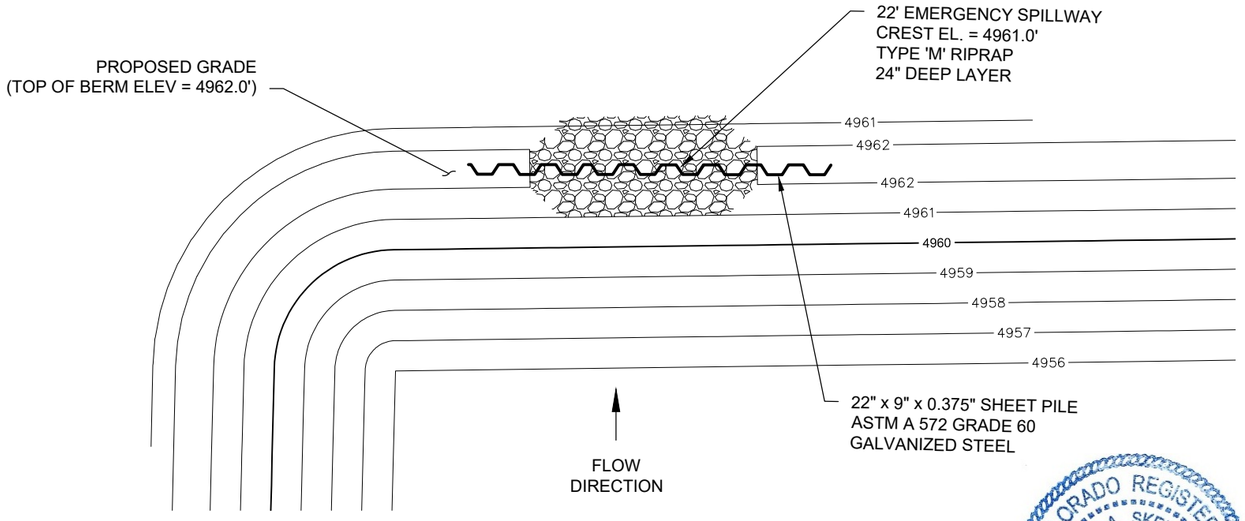




SPILLWAY DETAIL TABLE

TOP OF BERM ELEVATION (G)	SPILLWAY CREST SURFACE ELEVATION (H)	100-YR WATER ELEVATION (J)	CREST LENGTH (L)
4962.00'	4961.00'	4961.00'	22.00'

SECTION A-A



SECTION B-B

SPILLWAY DETAIL

SCALE: N.T.S.

ASCENT GEOMATICS SOLUTIONS
8620 WOLFF COURT
WESTMINSTER, CO 80031
(303) 928-7128

PREPARED FOR:

INCLINE ENERGY PARTNERS, LP
1528 WAZEE STREET
DENVER, CO 80202
(720) 467-1744

SHEET NAME:
POND DETAILS

SURFACE LOCATION
NW 1/4 NW 1/4 SECTION 32
T1N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	AMS	2/14/23

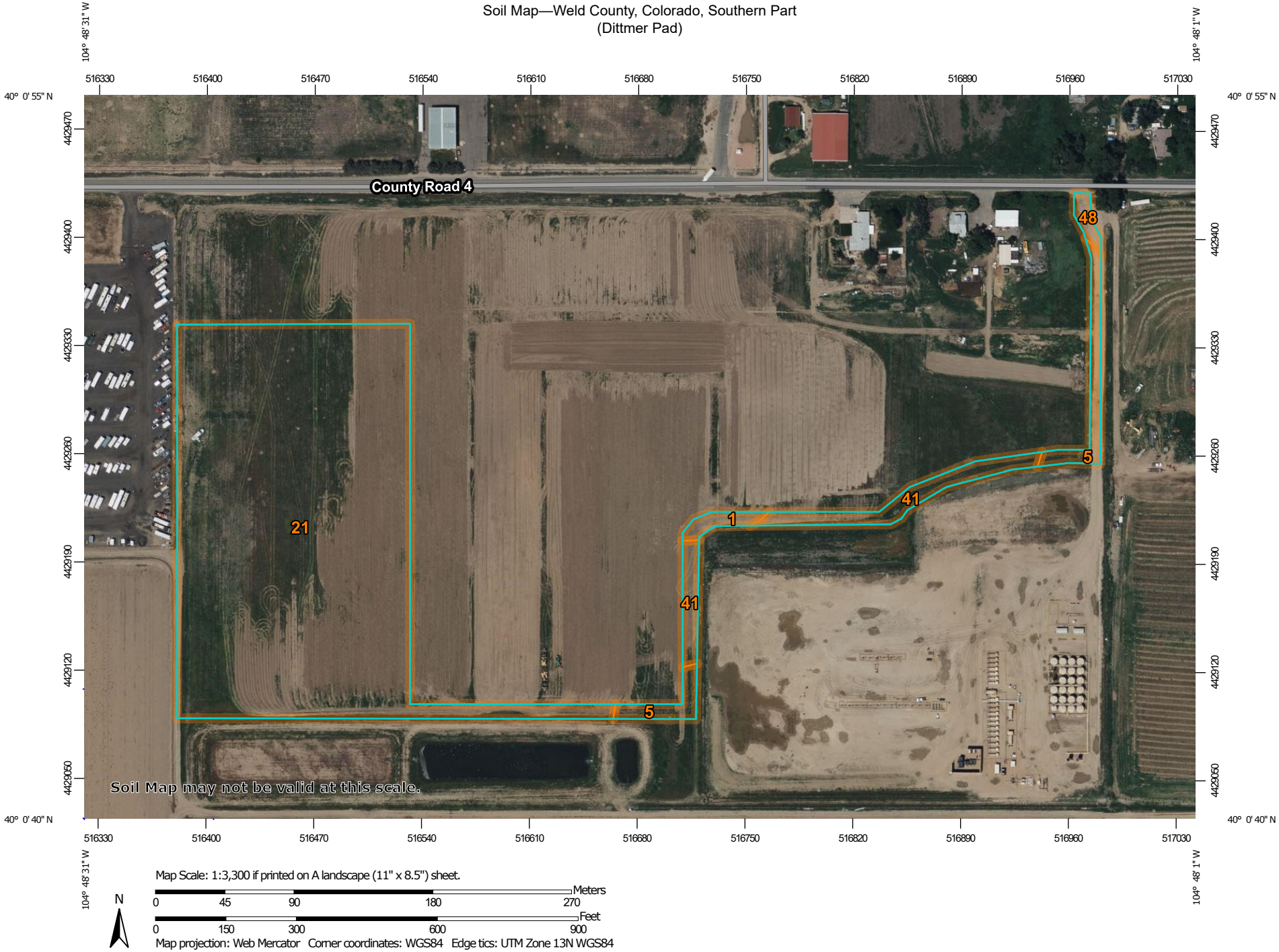
DRAWING DATE: 2/14/23

DRAFTED BY: AMS

SHEET NO. 16 OF 16

P: \INBP_B220001\PROD\Grading\15_Pond_Details.dwg

Soil Map—Weld County, Colorado, Southern Part
(Dittmer Pad)



Map Scale: 1:3,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 21, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2021—Jun 12, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Altvan loam, 0 to 1 percent slopes	0.1	1.1%
5	Ascalon sandy loam, 0 to 3 percent slopes	0.5	4.4%
21	Dacono clay loam, 0 to 1 percent slopes	9.9	88.0%
41	Nunn clay loam, 0 to 1 percent slopes	0.6	5.7%
48	Olney fine sandy loam, 3 to 5 percent slopes	0.1	0.8%
Totals for Area of Interest		**11.2**	**100.0%**

Weld County, Colorado, Southern Part

1—Altvan loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 361j
Elevation: 4,500 to 4,900 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 130 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Altvan and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Altvan

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Old alluvium

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 25 inches: clay loam
H3 - 25 to 60 inches: gravelly sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Minor Components

Cascajo
Percent of map unit: 9 percent
Hydric soil rating: No

Aquic haplustolls
Percent of map unit: 1 percent
Landform: Swales
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 21, Sep 1, 2022

Weld County, Colorado, Southern Part

5—Ascalon sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2swl3
Elevation: 3,870 to 5,960 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Ascalon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ascalon

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind-reworked alluvium and/or calcareous sandy eolian deposits

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt1 - 6 to 12 inches: sandy clay loam
Bt2 - 12 to 19 inches: sandy clay loam
Bk - 19 to 35 inches: sandy clay loam
C - 35 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Olnest

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Vona

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Data Source Information

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 21, Sep 1, 2022

Weld County, Colorado, Southern Part

21—Dacono clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 361y
Elevation: 4,550 to 4,970 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Dacono and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dacono

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 12 inches: clay loam
H2 - 12 to 21 inches: clay loam
H3 - 21 to 27 inches: clay loam
H4 - 27 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C

Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Minor Components

Heldt
Percent of map unit: 5 percent
Hydric soil rating: No

Nunn
Percent of map unit: 5 percent
Hydric soil rating: No

Altvan
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 21, Sep 1, 2022

Weld County, Colorado, Southern Part

41—Nunn clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tlng
Elevation: 4,100 to 5,700 feet
Mean annual precipitation: 14 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 152 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pleistocene aged alluvium and/or eolian deposits

Typical profile

Ap - 0 to 6 inches: clay loam
Bt1 - 6 to 10 inches: clay loam
Bt2 - 10 to 26 inches: clay loam
Btk - 26 to 31 inches: clay loam
Bk1 - 31 to 47 inches: loam
Bk2 - 47 to 80 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 7 percent
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 0.5
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Minor Components

Heldt

Percent of map unit: 10 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Wages

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Data Source Information

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 21, Sep 1, 2022

Weld County, Colorado, Southern Part

48—Olney fine sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 362w
Elevation: 4,600 to 5,200 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 125 to 175 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Olney and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Olney

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed deposit outwash

Typical profile

H1 - 0 to 10 inches: fine sandy loam
H2 - 10 to 20 inches: sandy clay loam
H3 - 20 to 25 inches: sandy clay loam
H4 - 25 to 60 inches: fine sandy loam

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B

Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Zigweid
Percent of map unit: 9 percent
Hydric soil rating: No

Vona
Percent of map unit: 6 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 21, Sep 1, 2022