

**TOPSOIL PROTECTION PLAN**

Date: September 16, 2021

Location: WR OGD 2 / Wells Ranch CDP / A12-07 Facility

Legal Description: SWNE Section 12, Township 6 North, Range 64 West, Weld County, Colorado



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**Article I. Introduction**

*Location Information*

This document provides site-specific information for the A12-07 Facility within the WR OGD 2 of the Wells Ranch CDP. The information in this document relates specifically to the time during the construction of this location and the construction, drilling, completion, and production of the seventeen (17) proposed horizontal wells producing to this location.

The proposed location is rangeland northwest of the intersection of WCR 61 and WCR 70. The Pad will be in SWNE Section 12, Township 6 North, Range 64 West, zoned agricultural within the Weld County Near-Urban Planning Area. A 1041 WOGLA was filed for the CDP as 1041WOGLA19-0042 on 12/10/2019 and recorded at reception #4556398 on 1/8/2020. Site-specific supplemental information will be filed with Weld County prior to commencement of operations.

The proposed A12-07 Facility oil and gas location disturbance will be 7.4 acres which will not be reduced after interim reclamation. The proposed working pad surface will be 2.9 acres. The A12-07 Facility is on Parcel 80112100001 owned by Case P Gabel. The location is currently used for rangeland.

The proposed A12-07 Facility will accept production from wells on the A12-02 Pad and the A12-10 Pad. The proposed A12-07 Facility equipment will include separators, vapor recovery units (VRUs), gas compressor(s), VOC combustors, a maintenance tank, surge vessels, skid drain vaults, pump skids, and proposed electrical and/or solar equipment.

Phase	Duration (days)	Estimated Start Date
Construction	60 days	2nd Quarter, 2024
Drilling	35 days	3rd Quarter, 2024
Completion	35 days	4th Quarter, 2025
Flowback	N/A	Flowing back to production facility
Production	25 years	4th Quarter, 2025
Interim Reclamation	60 days	3rd Quarter, 2026

**Article II. Rule Reference**

*1002.c. **Protection of soils.** 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. Best management practices to prevent weed establishment and to maintain soil microbial activity shall be implemented.*

Per Rule, 1002.c, 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 north side of the proposed Oil and Gas Location as shown on the Facility Layout Drawings.

**Article III. Control Measures**

Stockpiled soils shall be protected from degradation due to contamination, compaction, as well as wind and water erosion to the best extent practicable by implementing control measures (CM's) described in Operator's "Field-Wide Stormwater Control Measure (CM) Manual For Construction Activities". Utilizing these CM's, as described, shall also aid in the prevention of weed establishment, and help maintain soil microbial activity by promoting vegetative growth. CM's will be implemented based upon site design, level of risk for soil degradation, as well as the anticipated duration for a stockpile to remain in place.

The Following CM's are anticipated to be used, where applicable, for protection of soils:

#### *Hydro-mulch (H)*

##### **Description**

**Fiber Matrix:** Fiber Matrix Hydro-mulch includes a wide range of soil binders, including Flexible Growth Medium (FGM) that provides temporary soil stabilization. Soil binders may be applied alone or as tackifiers in conjunction with mulching and seeding applications. The stabilizer is sprayed onto the surface of exposed soil to temporarily bind the soil in place and minimize erosion from runoff and wind. These materials are easily applied to the surface of the soil, can stabilize areas where vegetation cannot be established, and provide immediate protection. Soil binders are typically applied to disturbed areas requiring short-term temporary protection. Because soil binders can often be incorporated into the work, they may be a good choice for areas where grading activities will soon resume. Hydro-mulch can also be applied to stockpiles to prevent water and wind erosion.

**Posi-Shell®:** Posi-Shell® is a cover system that is more durable than a Fiber Matrix Hydro-mulch. Posi-shell creates a non-flexible, cohesive, hard surface comprised of a blend of clay binders, reinforcing fibers, and polymers. When mixed with water, this mix produces a spray-applied mortar forming a thin layer of durable stucco. This surface conforms and adheres to underlying topography and is more resistant to weather and precipitation and requires less re-application. For this reason, Posi-Shell is used in longer-term situations when standard Fiber Matrix Hydro-mulch is ineffective (i.e. steep slopes, sandy soils, etc.). Posi-shell is delivered through any spray application equipment like the Fiber Matrix Hydromulch.

##### **Applicability**

Use hydro-mulch alone in areas where other methods of stabilization are not effective because of environmental constraints or use them in combination with vegetative or perimeter practices to enhance control of erosion and sedimentation. Posi-Shell can be utilized to protect ditches, stabilize slopes, and cover stockpiles.

##### **Limitations**

- Soil binders are temporary in nature and may need reapplication.
- Soil binders require a minimum curing time until fully effective, as prescribed by the manufacturer, which may be 24 hours or longer. Soil binders may need reapplication after a storm event.
- Soil binders will generally experience spot failures during heavy rainfall events.
- Soil binders do not hold up to pedestrian or vehicular traffic across treated areas.
- Soil binders may not penetrate soil surfaces made up primarily of silt and clay, particularly when compacted.

- Some soil binders may not perform well with low relative humidity. Under rainy conditions, some agents may become slippery or leach out of the soil.
- Some soil binders may not cure if low temperatures occur within 24 hours of application.

### **Design Criteria**

- Closely follow the manufacturer's recommended application procedures to prevent the products from pooling and creating impervious areas where stormwater cannot infiltrate.
- Suitability to situation: Consider where the soil binder will be applied, if it needs a high resistance to leaching or abrasion, and whether it needs to be compatible with existing vegetation.
- Determine the length of time soil stabilization will be needed, and if the soil binder will be placed in an area where it will degrade rapidly.
- In general, slope steepness is not a discriminating factor.
- Soil types and surface materials: Fines and moisture content are key properties of surface materials.
- Consider a soil binder's ability to penetrate, likelihood of leaching, and ability to form a surface crust on the surface materials.
- Frequency of application: The frequency of application can be affected by subgrade conditions, surface type, climate, and maintenance schedule.

### **Maintenance Considerations**

Soil binders tend to break down due to natural weathering. Weathering rates depend on a variety of site-specific and product characteristics. Consult the manufacturer for recommended reapplication rates and reapply the selected soil binder as needed to maintain effectiveness. Inspect chemically stabilized areas regularly for signs of erosion, and if necessary, reapply the stabilizer. Soil binders can fail after heavy rainfall events and may require reapplication. In particular, soil binders will generally experience spot failures during heavy rainfall events. If runoff penetrates the soil at the top of a slope treated with a soil binder, it is likely that the runoff will undercut the stabilized soil layer and discharge at a point further down slope. Areas where erosion is evident should be repaired and soil binder or other stabilization reapplied, as needed. Care should be exercised to minimize the damage to protected areas while making repairs.

### **Removal**

Hydro-mulch does not need be removed. This includes the Posi-Shell<sup>®</sup>, which can be tracked into slopes when intermediate protection is no longer needed.

### *Seeding (S)*

#### **Description**

Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Permanent seeding should be used to stabilize areas where surface disturbance activities are complete and where the surface will not be otherwise stabilized. Effective seeding includes preparation of a seedbed, selection of an appropriate seed mixture, proper planting techniques, and protection of the seeded area with mulch, geotextiles, or other appropriate measures. This typically occurs in a multi-step process which includes: ripping, seeding, spreading a mulch layer such as straw, and, if applicable, crimping the straw into the soil. Seeding establishes vegetation that reduces erosion and sediment

displacement by stabilizing disturbed areas in a manner that is economical, adaptable to site conditions, and allows selection of the most appropriate plant material. Seeding also:

- Absorbs the impact of raindrops;
- Reduces the velocity of runoff;
- Reduces runoff volumes by increasing water percolation into the soil;
- Binds soil with roots;
- Protects soil from wind;
- Improves wildlife habitat; and
- Restores the site to a natural state.

### **Applicability**

Seeding is most effective on slopes no steeper than 2:1. Seeding may be implemented on steeper slopes, but care should be taken to mitigate erosion and loss of seed and topsoil. Seeding may be used as a permanent control or a temporary control in areas where exposed soil surfaces are not to be re-graded for extended periods. Such areas include temporarily idle areas, soil stockpiles, berms, temporary road banks, etc. Permanent seeding practices are applied to disturbed areas not otherwise stabilized with rock, road base, or similar.

### **Limitations**

The effectiveness of seeding can be limited by:

- High erosion potential during establishment;
- The need for stable soil temperature and soil moisture content during germination and early growth;
- The need to re-seed areas that fail to establish; and
- Limited seeding times depending on the season.
- Vegetation should not be established on slopes that are unsuitable due to inappropriate soil texture, poor internal structure or internal drainage, volume of overland flow, or excessive steepness, until measures have been taken to correct these problems.

Proper seedbed preparation and the use of quality seed are important in this practice. Failure to carefully follow sound agronomic recommendations will often result in an inadequate stand of vegetation that provides little or no erosion control. Seeding does not immediately stabilize soils. Maintain necessary erosion and sediment control practices, such as mulching, until vegetation is established.

### **Design Criteria**

Successful vegetation establishment can be maximized with proper planning, consideration of soil characteristics, selection of seeds mixes that are suitable for the site, adequate seedbed preparation, fertilization, timely planting; and regular maintenance. Seed mixes will be selected based on National Resource Conservation Service (NRCS) seed mixes and be approved by landowners. Landowners may require specified seed mixes.

### **When to Seed**

Areas to be stabilized with vegetation must be seeded or planted once grading is completed, unless temporary stabilization measures are in place. Temporary stabilization measures should be installed through “no growth” periods during winter months until the weather can support seed growth.

### **Seed Mix**

Climate, soils, and topography are major factors that dictate the suitability of plants for a particular site. Vegetation that has adapted to the site, has strong roots, and provides good ground cover should be used. Seed mixes will be selected based on National Resource Conservation Service (NRCS) seed mixes and must be approved by landowners.

### **Construction Specifications**

Prior to permanent seeding application ensure that areas to be revegetated have soil conditions capable of supporting vegetation by spreading preserved topsoil prior to planting. Topsoil should be segregated during grading operations and spread on areas prior to seeding. Topsoil should be viewed as an important resource to be utilized for vegetation establishment, due to its water-holding capacity, structure, texture, organic matter content, biological activity, and nutrient content. The rooting depth of most native grasses in the semi-arid Denver metropolitan area is 6 to 18 inches. Soils may also need to be amended to provide an appropriate plant-growth medium. Organic matter, such as well-digested compost, can be added to improve soil characteristics conducive to plant growth. Other treatments can be used to adjust soil PH conditions when needed. Soil testing may be completed to determine and optimize the types and amounts of amendments that are required. If the disturbed ground surface is compacted, the surface should be prepared by ripping the area to break up compaction. If adding compost to the existing soil, it can be mixed in after the ripping process.

- Add fertilizer and/or lime, if necessary. Lime and fertilizer may be incorporated into the top 2 to 4 inches of the soil if possible. The addition of lime is equally as important as applying fertilizer. Lime will modify the pH and supply calcium and magnesium. Its effect on pH makes other nutrients more available to the plant.
- The appropriate seed shall be evenly applied with a broadcast seeder, drill, cultipacker, or hydro-seeder. Seeding depth should be one-quarter to one-half inch.

### **Maintenance Considerations**

The frequency of inspections should be in accordance with the SWMP. Vegetation is considered established when a uniform density of at least 70% of pre-disturbance background levels has been reached. Seeded areas should be inspected for failure and any necessary repairs and re-seeding should be made within the same season if possible.

### *Soil Roughening – All Types (SR)*

#### **Description**

Soil roughening may be accomplished by ripping, furrowing, disking, or tracking the soil to create trenches and other variations in soil surface. Surface roughening is used as a temporary CM to reduce the speed of runoff, increase infiltration, traps sediment, and prepares the soil for seeding and planting by capturing moisture for seed. Soil roughening can be an effective CM for controlling wind erosion.

#### **Applicability**

Soil roughening can be applied in most areas and is most effective in areas that do not have steep slopes or in soils with a high concentration of clay that may prevent infiltration of stormwater. The surface roughening technique of ripping can be applied in most areas as either a primary or secondary control as part of a series of CMs. Ripping is best used in areas where sheet flow of stormwater occurs and when used in a series to produce a treatment train.

### **Limitations**

Depending on the surface and/or soil makeup, some areas might not be suitable for all ripping techniques, for example rock formations.

- Soil roughening is not appropriate for rocky slopes.
- Soil roughening does not work well in sandy soils.
- Soil compaction might occur when roughening with tracked machinery.
- Furrows, trenches, and tracking variations can easily become inundated with wind-blown sediment during high wind events.
- Soil roughening has limited effectiveness during heavy rains.
- If roughening is washed away in a heavy storm, the surface will have to be re-roughened.

### **Design Criteria**

Soil roughening should be used in conjunction with other CMs such as mulching, seeding, or tackifier applications and should be along the contour of slopes. Surface roughening should be completed by going against the natural contours to slow stormwater velocity. Depths of trenches and furrow may vary depending on soil type and the type of soil roughening equipment that is used. Soil roughening can be installed as a perimeter control and is often combined with other CMs such as diversion ditches. All underground utilities should be located prior to the installation of ripping or other roughening that penetrates the surface.

### **Construction Specifications**

Soil roughening should be completed by going against the natural contours to slow stormwater velocity. Ripped depths may vary depending on soil type and the distance between contours may be modified. Ripping should be installed at the outer perimeter of the construction area to avoid damage by vehicle traffic. All underground utilities should be located prior to installation of roughening that penetrates the surface.

- To slow erosion, roughening should be done as soon as possible after grading activities have ceased (temporary or permanently) in an area.
- Cut and fill slopes and soil stockpiles should be roughened whenever possible.
- Do not blade or scrape the final fill slope face after roughening.
- Excessive compacting of the soil surface should be avoided during roughening.
- When ripping, tool bar should have a minimum of three mounted rippers. Ripped depths should be at least 6 inches in depth and not to exceed 18 inches.

### **Maintenance Considerations**

The frequency of inspections should be in accordance with the SWMP. Roughening might need to be repeated after storm events or episodes of high wind.

### *Straw Mulching (SM)*

#### **Description**

Mulching consists of evenly applying straw, hay, shredded wood mulch, bark or compost to disturbed soils and securing the mulch by crimping. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be

reseeded due to seasonal constraints. Straw or hay mulch can be used to provide erosion control and promote germination for newly seeded areas. When installed correctly, the mulch is anchored in the ground, simulating a root system. This artificial root system provides wind and surface erosion control by stabilizing the soils. Germination is facilitated through moisture retention, from precipitation events or irrigation.

### **Applicability**

Mulch can be used during seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeded. Disturbed areas should be properly mulched and or seeded, promptly after disturbance activities are complete or when activities are idle for a prolonged period on portions of the site not otherwise stabilized.

### **Limitations**

Adequate soil preparation is needed to ensure proper and significant depth of crimping. If not installed correctly, mulch can be susceptible to wind or surface erosion. Mulch should not be installed during windy conditions.

### **Design Criteria**

Application rates need to be adjusted according to slope, soil conditions, season, and other factors that may require longer term cover and protection. A variety of mulches can be used effectively at construction sites. Clean, weed-free and seedfree straw should be applied evenly at a rate of 2 tons per acre and must be tacked or crimped by a method suitable for the condition of the site. Prior to mulching, surface-roughen areas by ripping, rolling with a crimping or punching type roller, or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

### **Construction Specifications**

Straw mulch must be anchored on the surface. This can be accomplished mechanically by crimping. Anchoring with a crimping implement is preferred and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to an ideal depth of 3 inches without cutting mulch strands. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically.

### **Maintenance Considerations**

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare areas.

### *Wind Erosion Control (WEC)*

### **Description**

Wind erosion and dust control CMs help to keep soil particles from entering the air as a result of land disturbing construction activities. These CMs include a variety of practices generally focused on either graded disturbed areas or construction roadways. For graded areas, practices such as seeding and mulching, use of soil binders, site watering, or other practices that provide prompt surface cover should be used. Soil roughening methods can be effective CMs controlling wind erosion.

### **Applicability**

Wind erosion controls CMs are suitable during the following construction activities:

- Construction vehicle traffic on unpaved roads;
- Drilling and blasting activities;
- Sediment tracking onto paved roads;
- Soils and debris storage piles;
- Batch drop from front-end loaders;
- Areas with un-stabilized soil; and
- Final grading/site stabilization.

### **Limitations**

- Watering prevents dust only for a short period and should be applied daily (or more often) to be effective;
- Over watering may cause erosion;
- Oil or oil-treated sub grade should not be used for dust control because the oil may migrate into drainage ways and/or seep into the soil;
- Effectiveness depends on soil, temperature, humidity, and wind velocity;
- Chemically treated sub grades may make the soil water repellent, interfering with long-term infiltration and the vegetation/re-vegetation on the site. Some chemical dust suppressants may be subject to freezing and may contain solvents and should be handled properly;
- Asphalt, as a mulch tack or chemical mulch, requires a 24-hour curing time to avoid adherence to equipment, worker shoes, etc. Application should be limited because asphalt surfacing may eventually migrate into the drainage system;
- In compacted areas, watering and other liquid dust control CMs may wash sediment or other constituents into the drainage system.

### **Design Criteria**

Many local agencies require dust control in order to comply with local laws, opacity laws (visibility impairment), and the requirements of the Clean Air Act. The following are measures that local agencies may have already implemented as requirements for dust control from contractors:

- Limit open area of disturbance when possible.
- Limit construction and grading activity during times where high winds are present.
- Apply water or synthetic stabilizers when necessary and alternative procedures do not provide desired results.

### **Construction Specifications**

Dust control CMs generally stabilize exposed surfaces and minimize activities that suspend or track dust particles. For heavily traveled and disturbed areas, wet suppression (watering), chemical dust suppression, gravel asphalt surfacing, temporary gravel construction entrances, equipment wash-out areas, and haul truck covers can be employed as dust control applications. Permanent or temporary vegetation and mulching can be employed for areas of occasional or no construction traffic. Preventive measures would include minimizing surface areas to be disturbed, limiting on-site vehicle traffic to 15 miles per hour and controlling the number and activity of vehicles on a site at any given time. For chemical stabilization, there are many products available for chemically stabilizing gravel roadways and

stockpiles. If chemical stabilization is used, the chemicals should not create any adverse effects on stormwater, plant life, or groundwater.

#### **Maintenance Considerations**

Inspect and verify that dust control practices and CMs are in place prior to the commencement of dust producing activities. Inspect routinely looking for excessive airborne dust from vehicle or construction activities. If noted, implement appropriate dust control CMs as needed. Check areas protected to ensure coverage. Most dust control CMs require frequent application and maintenance. Utilize practice-based controls such as limiting disturbance and limiting activity during high winds whenever possible.

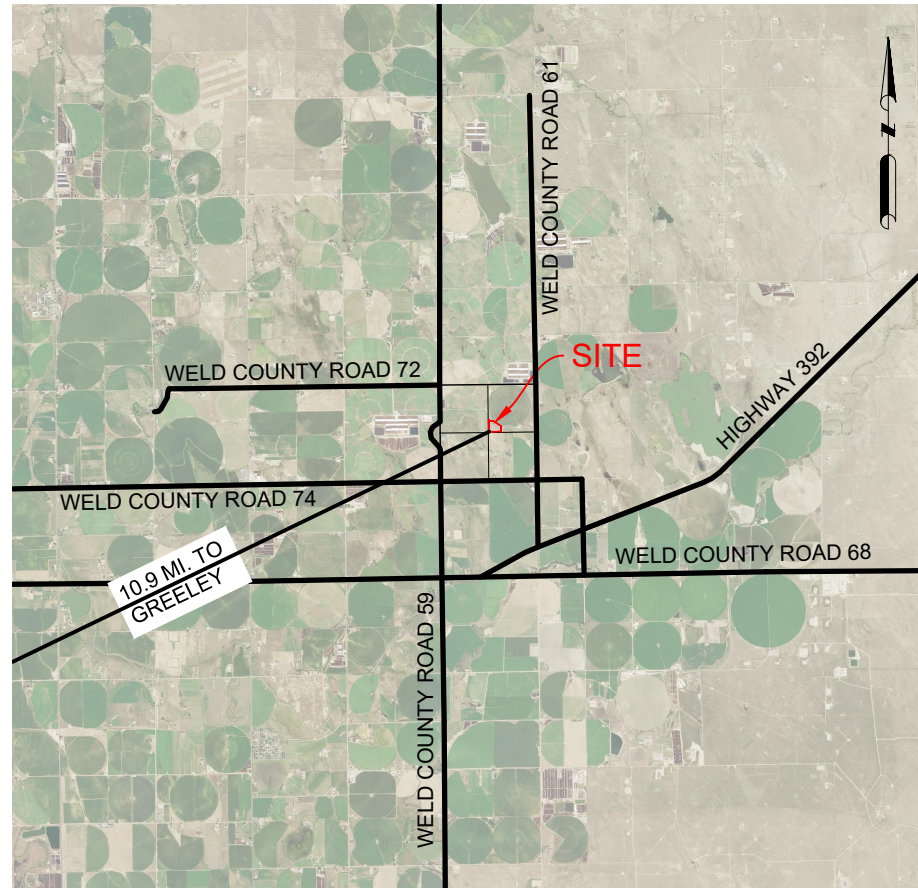
#### **Article IV.     Testing**

Topsoil depth inventories will be conducted in accordance with CDOT Topsoil Testing Procedures at areas determined by the person conducting the inventory.

#### **Article V.     Exhibits/References/Appendices**

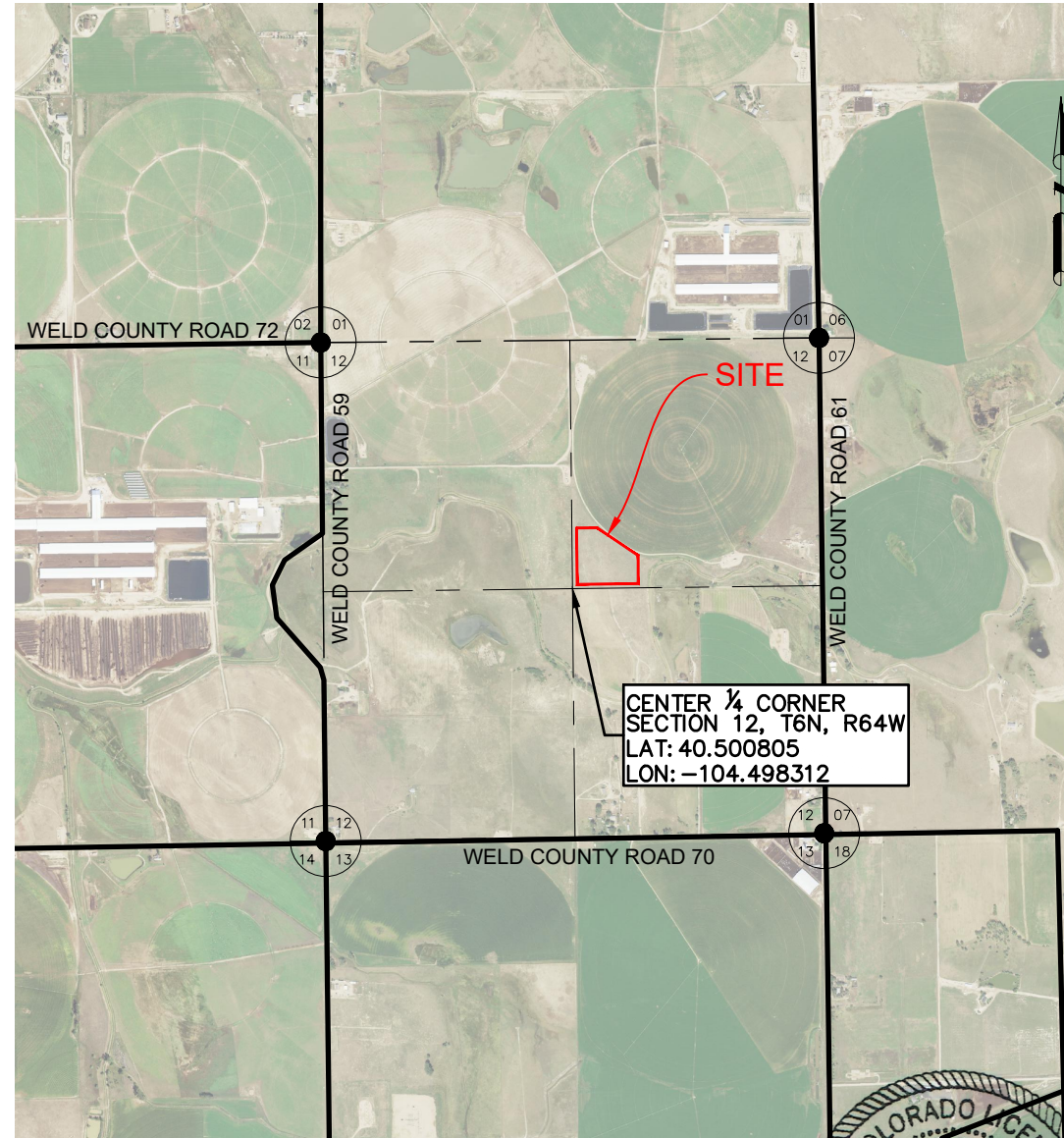
Layout Drawings

A12-07 FACILITY  
GRADING PLAN



**REGIONAL MAP**

N.T.S.



**VICINITY MAP**

N.T.S.

ITEM	SPECIFICATION	SIZE	UNIT	QUANTITY
RECLAIMED ROAD BASE			CY	2,349
AGGREGATE BASE COURSE	1-1/2" CRUSHED ANGULAR ROCK		CY	2,349
RIPRAP	TYPE 'L' (D50 = 9")		CY	1
RIPRAP	TYPE 'M' (D50 = 12")		CY	87
OUTLET PIPE	SCHEDULE 40 PVC	12"	LF	70
90° ELBOW	SCHEDULE 40 PVC	8"	EA	1
STAND PIPE	SCHEDULE 40 PVC	8"	LF	5
REDUCER	SCHEDULE 40 PVC	8" x 12"	EA	1
SEDIMENT CONTROL LOG			LF	2,235
SEED MIXTURE			SF	42,091

DRAWING INDEX		
SHEET NO.	TITLE	REV.
1	COVER SHEET	0
2	GENERAL NOTES	0
3	PAD LAYOUT	0
4	CROSS SECTIONS	0
5	PRODUCTION LAYOUT	0
6	EROSION & SEDIMENT CONTROL PLAN – INITIAL	0
7	EROSION & SEDIMENT CONTROL PLAN – FINAL	0
8	EROSION & SEDIMENT CONTROL – NOTES	0
9	EROSION & SEDIMENT CONTROL – DETAILS	0
10	EROSION & SEDIMENT CONTROL – DETAILS	0
11	EROSION & SEDIMENT CONTROL – DETAILS	0



DATA SOURCE:  
AERIAL IMAGERY: NAIP 2019

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:  
**noble energy**

NOBLE ENERGY, INC.  
1625 BROADWAY, SUITE 2200  
DENVER, CO 80202  
(303) 228-4000

SHEET NAME:  
**COVER SHEET**

SURFACE LOCATION  
A12-07 FACILITY  
SW 1/4 NE 1/4 SECTION 12  
T6N, R64W, 6TH P.M.  
WELD COUNTY, COLORADO

REV.	DATE	DESCRIPTION	INT.	AMS
0	09/20/21	ISSUED FOR CONSTRUCTION		

FIELD DATE:  
07/31/2019

DRAWING DATE:  
07/19/2021

DRAFTED BY:  
CSG

SHEET NO.  
01 OF 11

**GENERAL NOTES**

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

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

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

- 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.
- CONTRACTOR SHALL PROPERLY DISPOSE OF EXCESS EXCAVATED MATERIAL OFF SITE UNLESS DIRECTED OTHERWISE BY THE CLIENT OR ENGINEER.
- 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.
- 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.
- 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 COMPACTION DENSITY TO BE INDICATED IN THESE DRAWINGS OR IN THE ASSOCIATED GEOTECHNICAL REPORT. ON SPEC MATERIAL TO BE PLACED AND COMPACTIONED IN 6-INCH HORIZONTAL LIFTS.
- COMPACTION TO BE VERIFIED BY NUCLEAR METHOD PER ASTM D-6938 OR BY AN EQUIVALENT METHOD APPROVED BY THE ENGINEER.

**A12-07 FACILITY  
GRADING PLAN**

- 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.
- COMPACTION TEST FREQUENCY FOR AREAS UNDER STRUCTURAL FOUNDATIONS SHALL BE 1 TEST (ASTM D-6938) FOR EACH 1,000 FT<sup>2</sup> OR FRACTION THEREOF PER 6" LIFT, UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.
- 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<sup>2</sup> OR FRACTION THEREOF PER 6" LIFT UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.
- 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<sup>2</sup> PER 6" LIFT IN FILL AREAS UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.
- 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.
- 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.
- HORIZONTAL LIFTS OF NON-GRAVEL MATERIAL TO BE COMPACTIONED 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 COMPACTIONED 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.
- 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.
- BLASTING IS NOT PERMITTED, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER AND CLIENT.
- 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.
- 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 COMPACTIONED 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 COMPACTIONED MATERIALS THAT IS NOT AT A 1:1 RATIO SHALL BE REPORTED TO THE CLIENT AND ENGINEER BY THE CONTRACTOR.
- 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.
- 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.
- 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.
- 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.
- 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.

- 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.
- 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%.

- 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).
- 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".
- HORIZONTAL LIFTS OF FILL SOIL MATERIAL (NON-GRAVELS) DIRECTLY BENEATH AND WITHIN 5.0 FT OF THE WATER TANK TO BE COMPACTIONED 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 (COMPACTIONED 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**

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

- 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.
- AZIMUTHS SHOWN ARE GRID AZIMUTHS. DISTANCES SHOWN ARE GRID DISTANCE.
- 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**

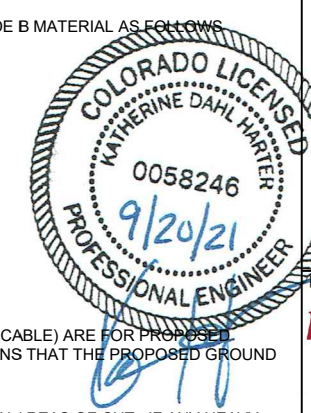
- ASCENT GEOMATICS WAS NOT PROVIDED WITH A GEOTECHNICAL REPORT TO AID IN THE PREPARATION OF THIS GRADING PLAN.

**TITLE REPORT**

- 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**

- PAD TO BE CAPPED WITH 6" OF 1-1/2" CRUSHED, ANGULAR STONE AGGREGATE TO BE COMPACTIONED 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.



**ASCENT**  
GEOMATICS SOLUTIONS

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

PREPARED FOR:

**noble energy**

NOBLE ENERGY, INC.  
1625 BROADWAY, SUITE 2200  
DENVER, CO 80202  
(303) 228-4000

SHEET NAME:

**GENERAL NOTES**

SURFACE LOCATION  
A12-07 FACILITY  
SW 1/4 NE 1/4 SECTION 12  
T6N, R64W, 6TH P.M.  
WELD COUNTY, COLORADO

REV.	DATE	DESCRIPTION	INT.
0	09/20/21	ISSUED FOR CONSTRUCTION	AMS

FIELD DATE: 07/31/2019

DRAWING DATE: 07/19/2021

DRAFTED BY: CSG

SHEET NO. 02 OF 11

# A12-07 FACILITY GRADING PLAN

## SITE QUANTITIES

FINISHED GRADE ELEVATION	4718.7' - 4720.8'
ROUGH GRADE ELEVATION	4717.7' - 4719.8'
TOTAL CUT FOR SITE (BANK)	7,268 CY
TOTAL FILL FOR SITE	6,686 CY
NET EXCESS MATERIAL (BANK)	583 CY
TOPSOIL	3,456 CY
OIL & GAS LOCATION AREA	7.4 ACRES
WORKING PAD SURFACE AREA	2.9 ACRES
ACCESS ROAD DISTURBANCE AREA	0.4 ACRES
FLOWLINE CORRIDOR AREA	1.7 ACRES



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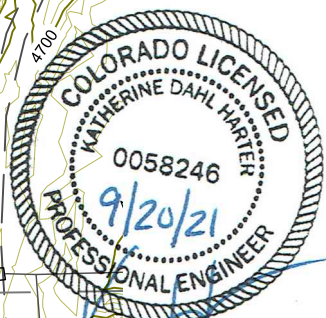
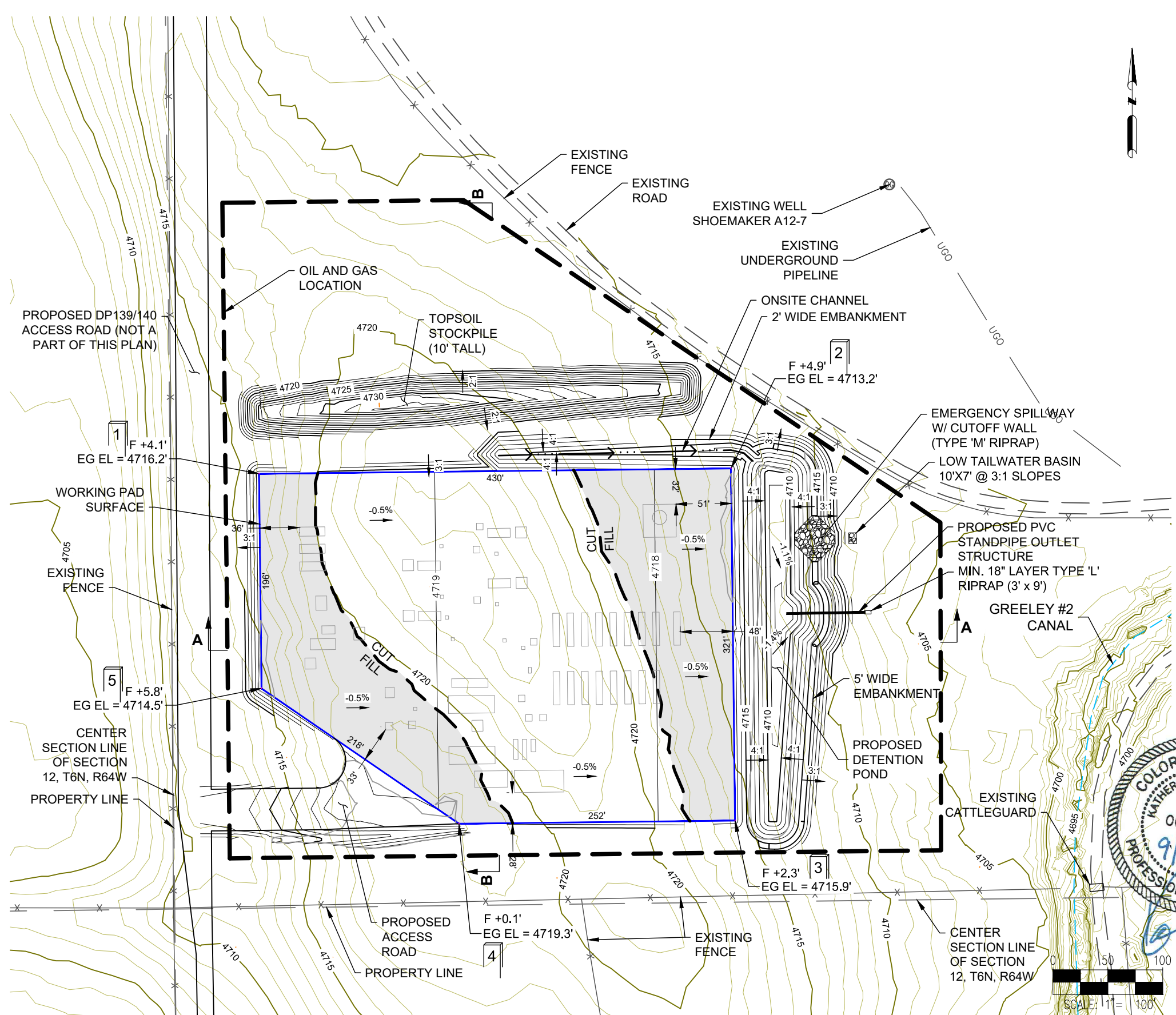


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(303) 228-4000

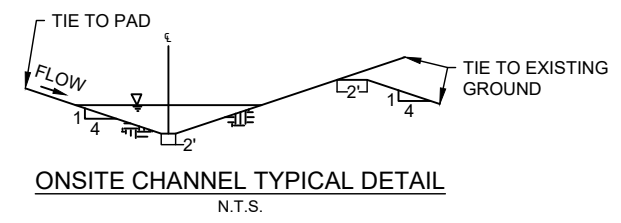
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SURFACE LOCATION  
A12-07 FACILITY  
SW 1/4 NE 1/4 SECTION 12  
T6N, R64W, 6TH P.M.  
WELD COUNTY, COLORADO

REV.	DATE	DESCRIPTION	INT.
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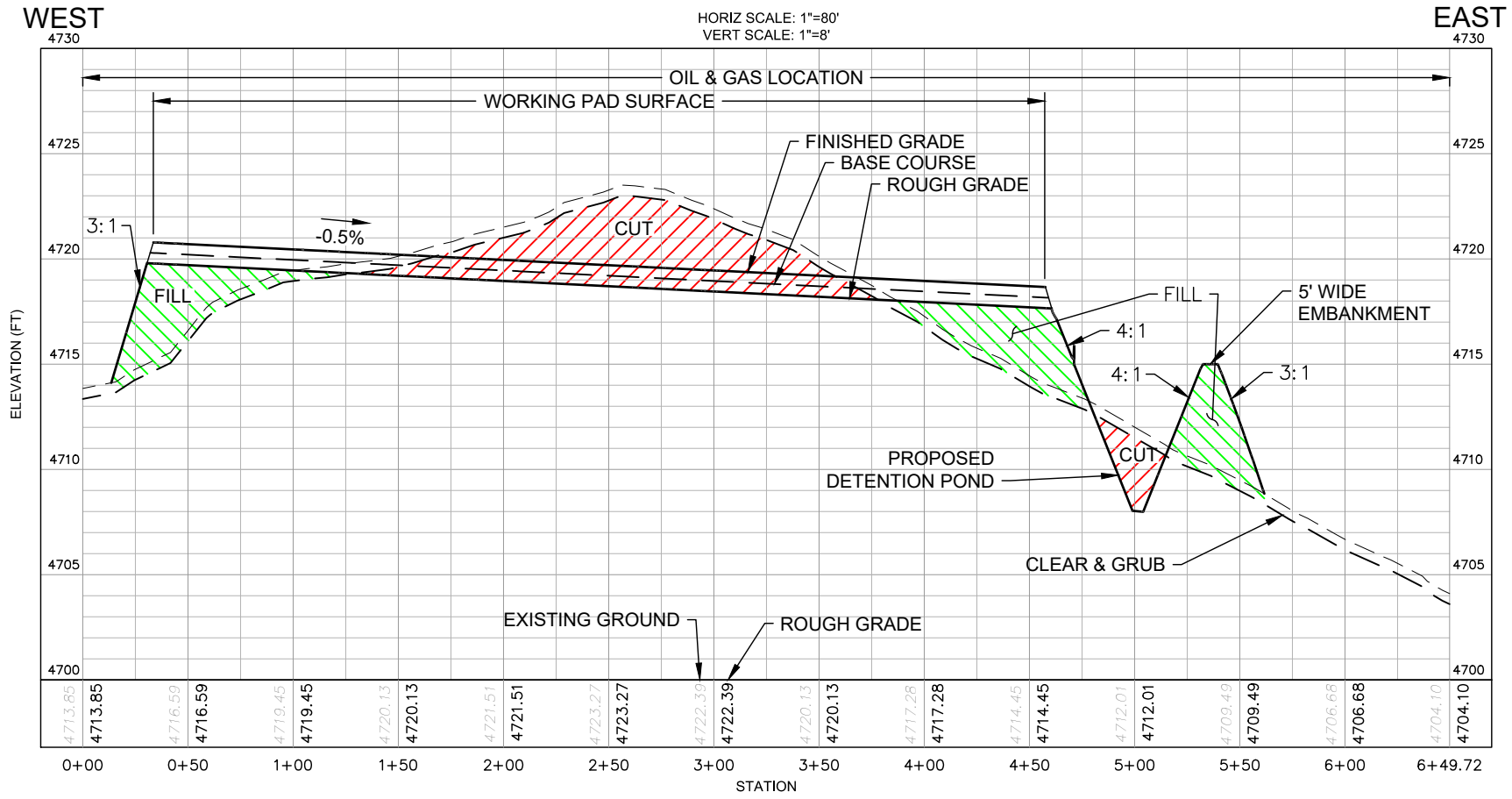
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SHEET NO. 03 OF 11



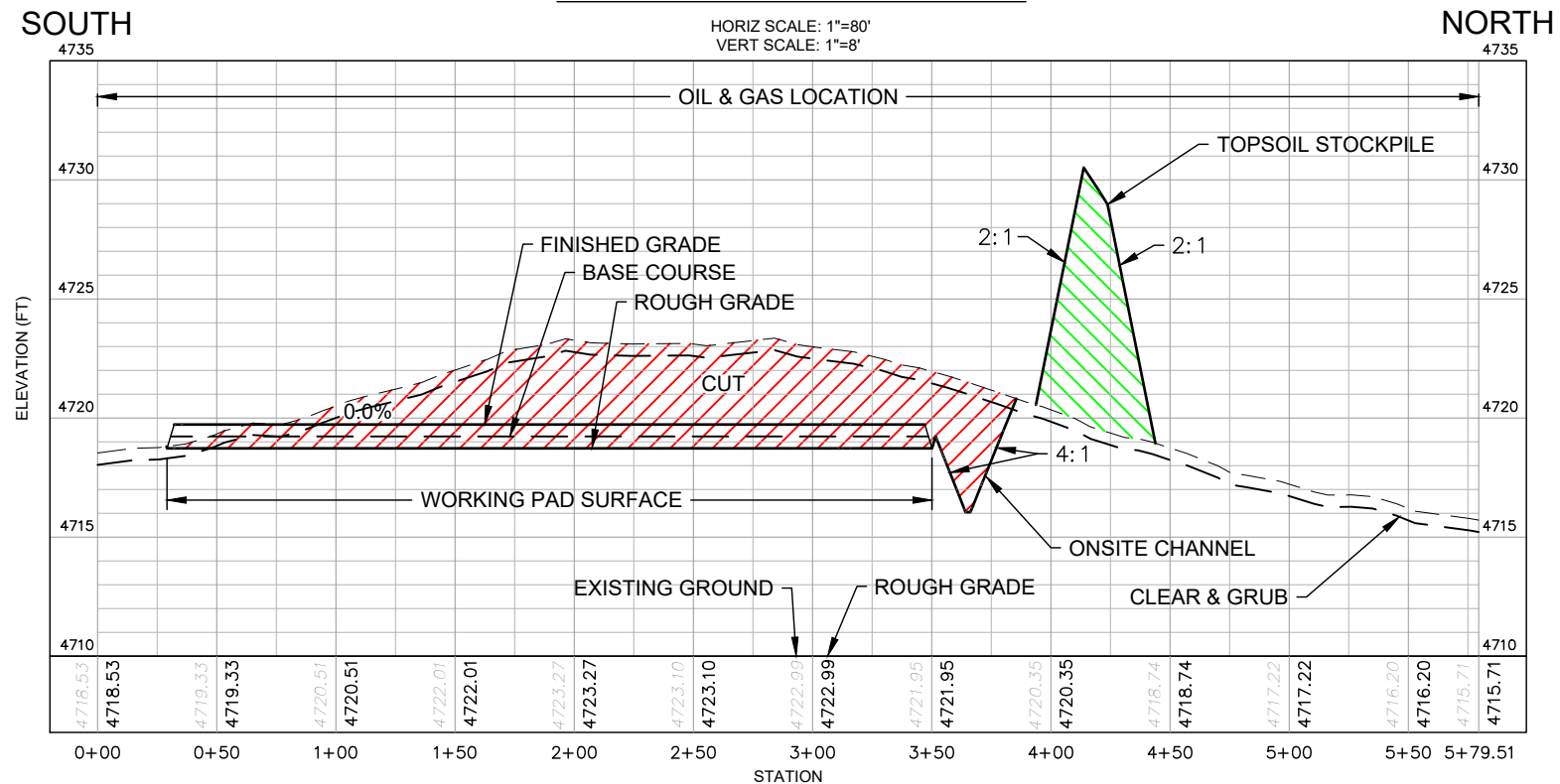
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# A12-07 FACILITY GRADING PLAN



SECTION A - LOOKING NORTH



SECTION B - LOOKING WEST

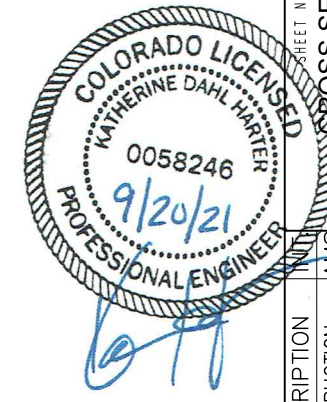
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WESTMINSTER, CO 80031  
(303) 928-7128



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DENVER, CO 80202  
(303) 228-4000



SHEET NAME: CROSS SECTIONS  
SURFACE LOCATION: A12-07 FACILITY SW 1/4 NE 1/4 SECTION 12 T6N, R64W, 6TH P.M. WELD COUNTY, COLORADO

REV.	DATE	REVISION DESCRIPTION	ISSUED FOR CONSTRUCTION	AMS	AMS	AMS	AMS
0	09/20/21						

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DRAWING DATE: 07/19/2021  
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# A12-07 FACILITY GRADING PLAN



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PREPARED FOR:



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1625 BROADWAY, SUITE 2200  
DENVER, CO 80202  
(303) 228-4000

SHEET NAME:  
**PRODUCTION LAYOUT**

SURFACE LOCATION  
**A12-07 FACILITY**  
SW 1/4 NE 1/4 SECTION 12  
T6N, R64W, 6TH P.M.  
WELD COUNTY, COLORADO

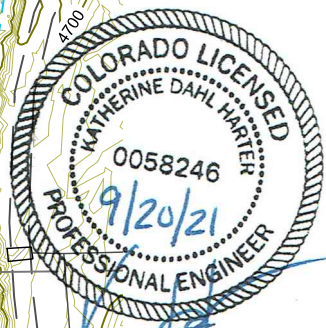
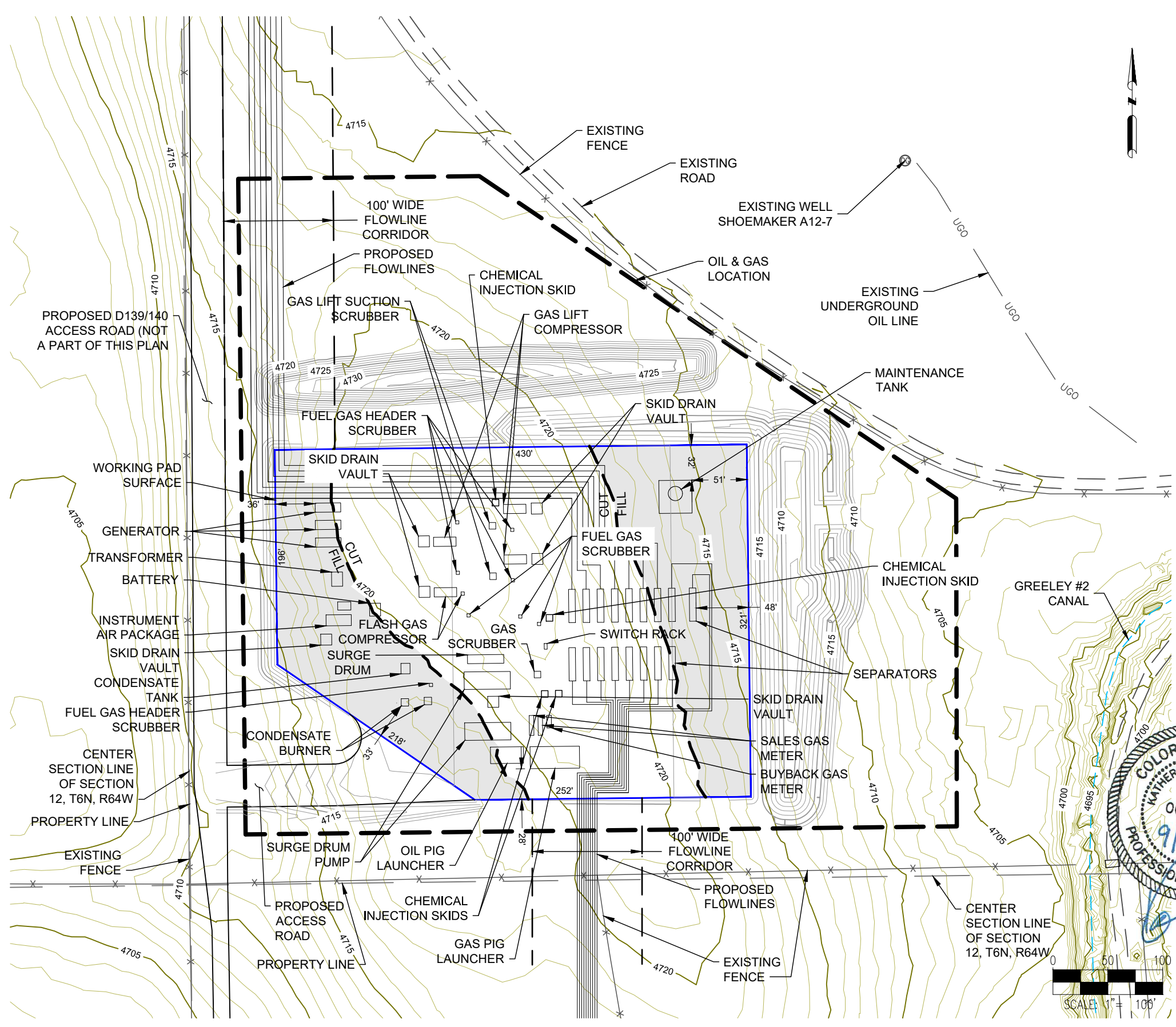
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FIELD DATE:  
07/31/2019

DRAWING DATE:  
07/19/2021

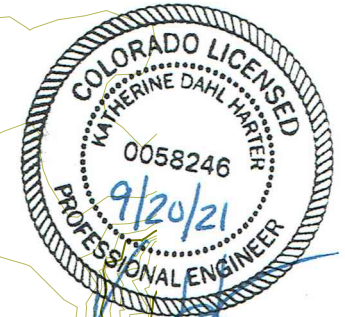
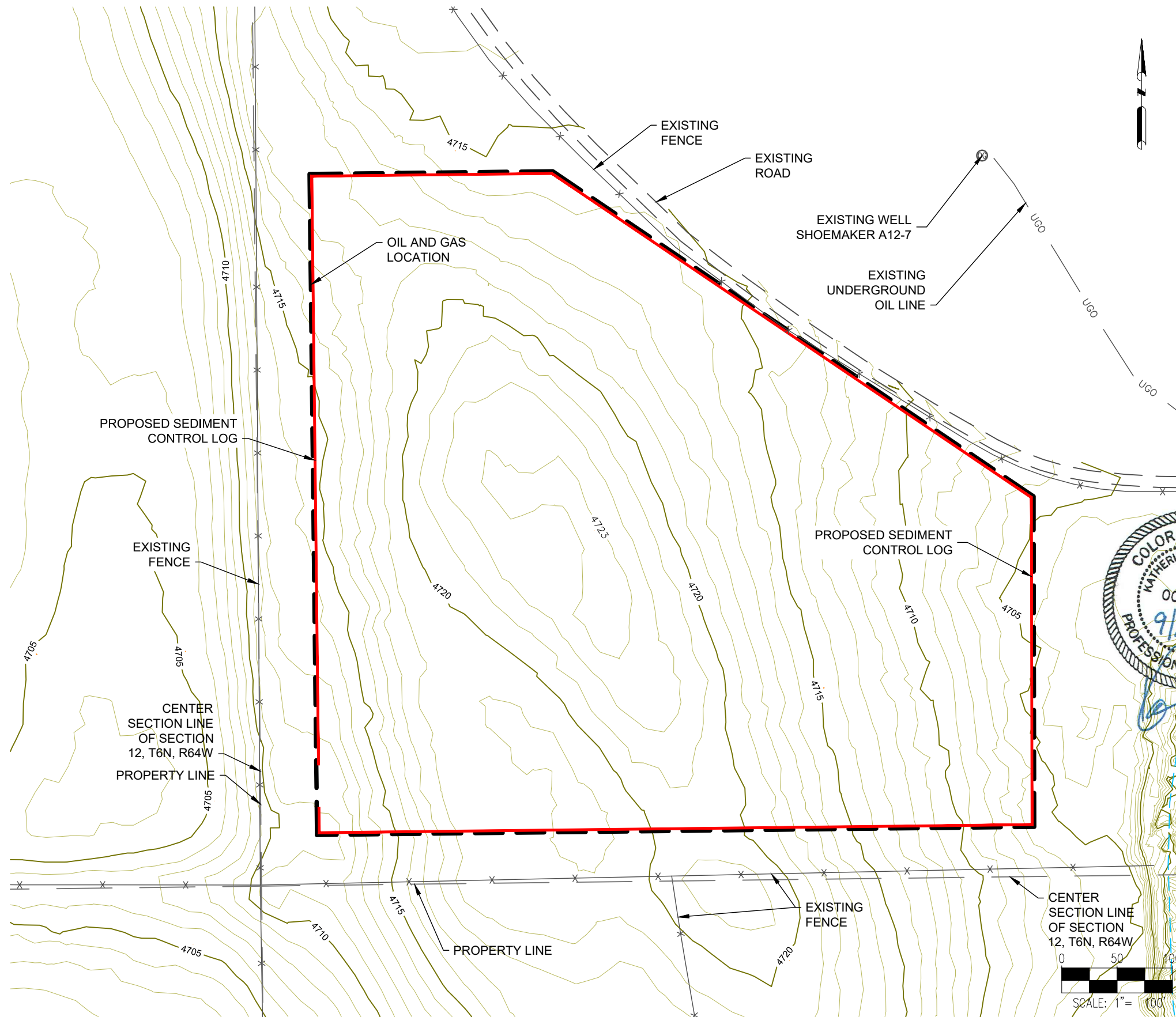
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DISCLAIMER:  
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# A12-07 FACILITY GRADING PLAN



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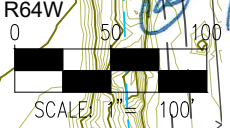
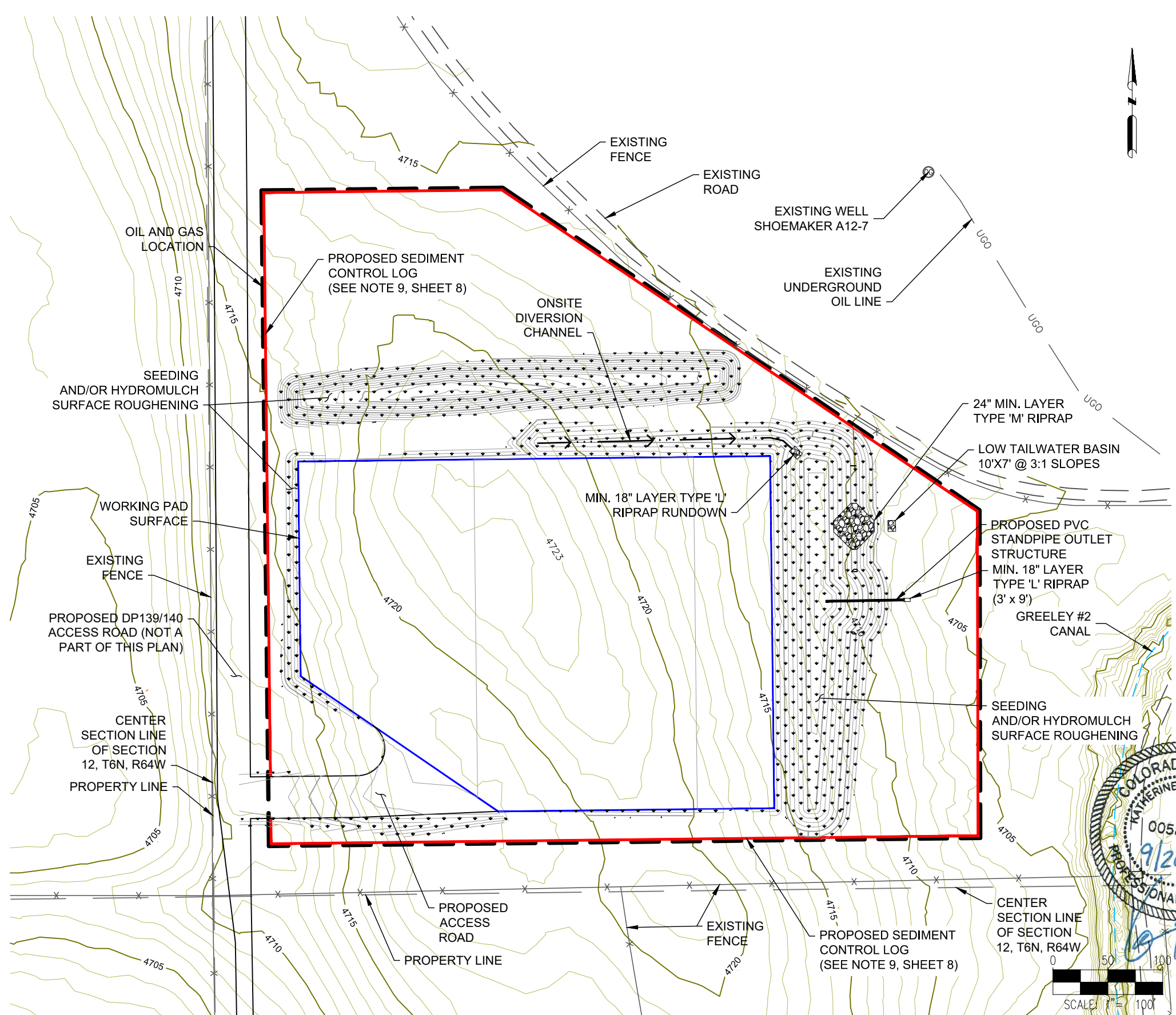
NOBLE ENERGY, INC.  
1625 BROADWAY, SUITE 2200  
DENVER, CO 80202  
(303) 228-4000

SHEET NAME:  
EROSION & SEDIMENT CONTROL PLAN - INITIAL  
SURFACE LOCATION  
A12-07 FACILITY  
SW 1/4 NE 1/4 SECTION 12  
T6N, R64W, 6TH P.M.  
WELD COUNTY, COLORADO

REV.	DATE	DESCRIPTION	INT.	AMS
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FIELD DATE:  
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DRAWING DATE:  
07/19/2021  
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CSG  
SHEET NO.  
06 OF 11

# A12-07 FACILITY GRADING PLAN



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:  
**noble energy**  
NOBLE ENERGY, INC.  
1625 BROADWAY, SUITE 2200  
DENVER, CO 80202  
(303) 228-4000

SHEET NAME:  
EROSION & SEDIMENT CONTROL PLAN - FINAL  
SURFACE LOCATION  
A12-07 FACILITY  
SW 1/4 NE 1/4 SECTION 12  
T6N, R64W, 6TH P.M.  
WELD COUNTY, COLORADO

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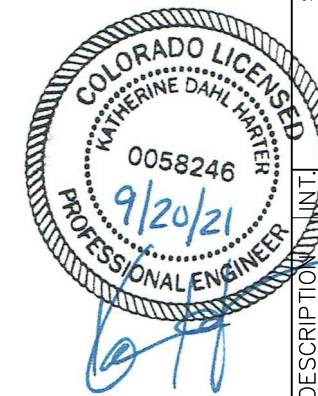
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SHEET NO. 07 OF 11


A12-07 FACILITY  
GRADING PLAN

STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES

1. THE OPERATOR HOLDS A CURRENT STORMWATER CONSTRUCTION PERMIT AND STORMWATER MANAGEMENT PLAN (SWMP) IN ACCORDANCE WITH COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT REQUIREMENTS. CONSTRUCTION, MATERIALS MANAGEMENT, AND BMP INSTALLING/MAINTENANCE WILL BE CONDUCTED ACCORDING THE SWMP. BMPS WILL BE ROUTINELY INSPECTED AS ESTABLISHED IN THE SWMP INSPECTION SCHEDULE. INSPECTION REPORTS, REPAIR LOGS, ETC. ARE MAINTAINED IN AN ONLINE DATABASE, AND AVAILABLE TO THE DEPARTMENT OR OTHER AGENCIES UPON REQUEST.
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. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, CONTRACTOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION.
6. 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 SWEEPED INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
7. 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.
8. 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.
9. 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.
10. 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.

11. 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.
12. 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.
13. 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.
14. 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.
15. 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

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1625 BROADWAY, SUITE 2200  
DENVER, CO 80202  
(303) 228-4000

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<p>SHEET NAME: <b>STANDARD EROSION &amp; SEDIMENT CONTROL NOTES</b></p>	<p>SURFACE LOCATION: A12-07 FACILITY SW 1/4 NE 1/4 SECTION 12 T6N, R64W, 6TH P.M. WELD COUNTY, COLORADO</p>
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REV.	DATE	DESCRIPTION	INT.	ISSUED FOR CONSTRUCTION	I	I	I
0	09/20/21						

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FIELD DATE: 07/31/2019

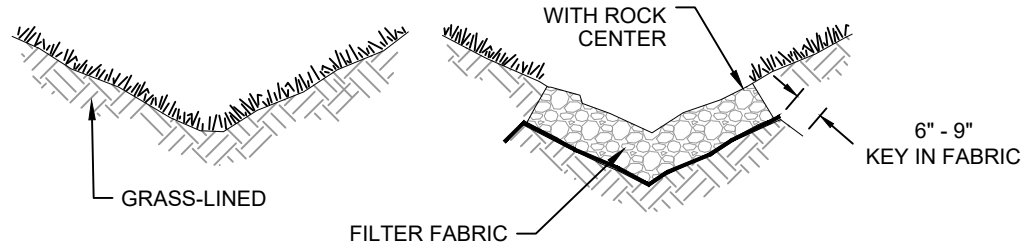
DRAWING DATE: 07/19/2021

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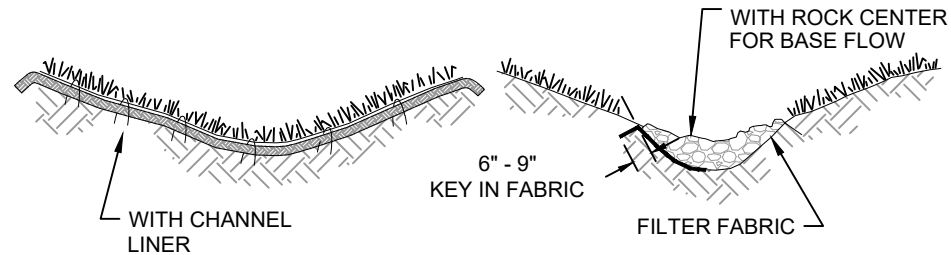
SHEET NO. 08 OF 11

A12-07 FACILITY  
GRADING PLAN

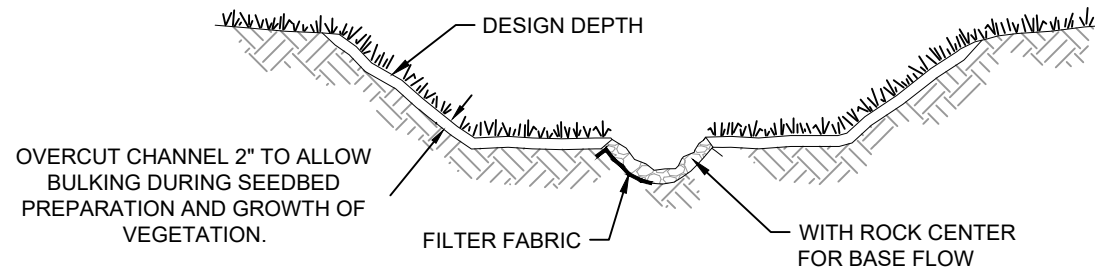
TYPICAL V-SHAPED CHANNEL CROSS-SECTION



TYPICAL PARABOLIC CHANNEL CROSS-SECTION

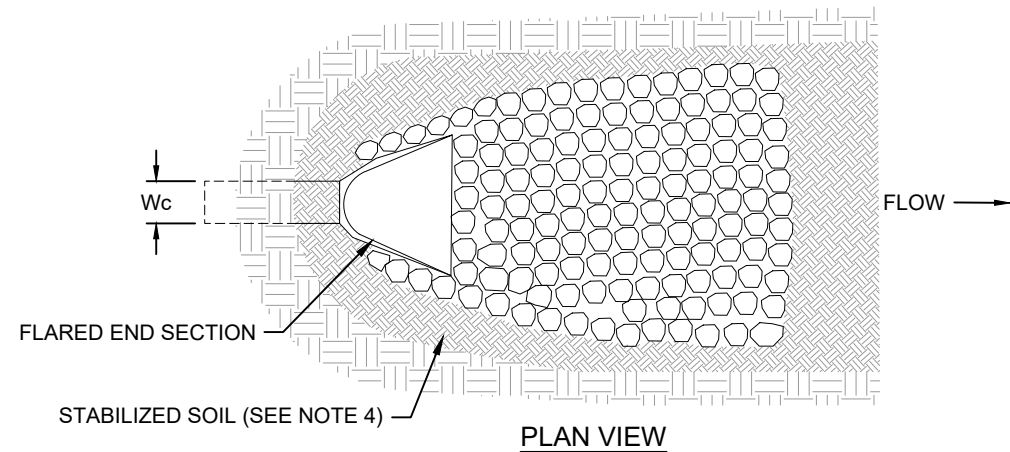


TYPICAL TRAPEZOIDAL CHANNEL CROSS-SECTION

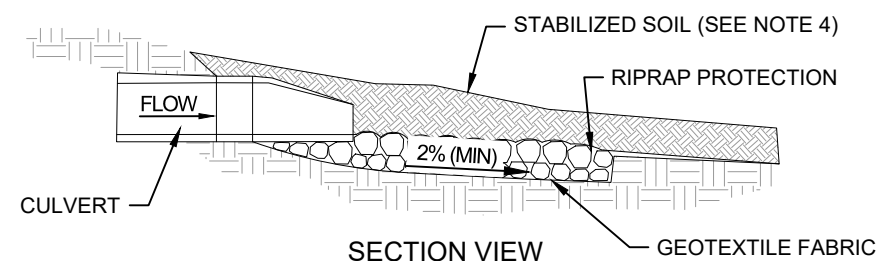


TYPICAL GRASS-LINED CHANNELS

SCALE: NOT TO SCALE



PLAN VIEW



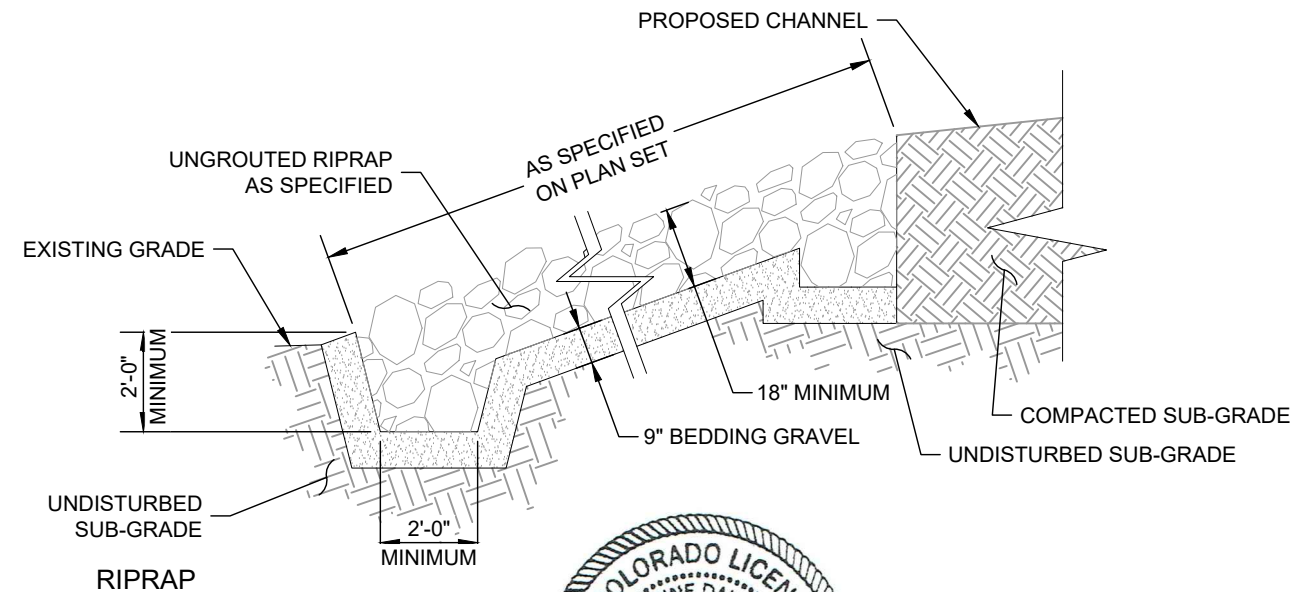
SECTION VIEW

OUTLET PROTECTION

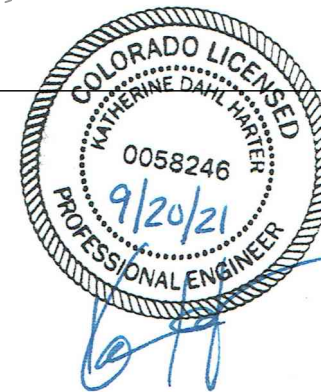
SCALE: NOT TO SCALE

OUTLET PROTECTION NOTES:

1. THE MINIMUM THICKNESS OF RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 4".
2. INSTALL FABRIC TO PREVENT SOIL EROSION BENEATH RIPRAP.
3. RIPRAP MAY BE INSTALLED USING MECHANICAL EQUIPMENT, AVOID DAMAGING FABRIC.
4. STABILIZED ALL DISTRIBUTED AREAS IMMEDIATELY AFTER CONSTRUCTION.
5. INSPECT RIPRAP OUTLET STRUCTURES AFTER HEAVY RAINS AND SPRING SNOWMELT. REPAIR AS REQUIRED.



SCALE: NOT TO SCALE



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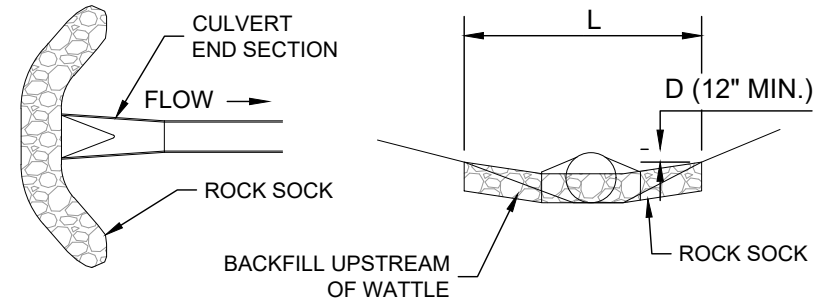
NOBLE ENERGY, INC.  
1625 BROADWAY, SUITE 2200  
DENVER, CO 80202  
(303) 228-4000

SHEET NAME: EROSION & SEDIMENT CONTROL DETAILS  
SURFACE LOCATION: A12-07 FACILITY SW 1/4 NE 1/4 SECTION 12 T6N, R64W, 6TH P.M. WELD COUNTY, COLORADO

REV.	DATE	DESCRIPTION	ISSUED FOR CONSTRUCTION	INT.	AMS
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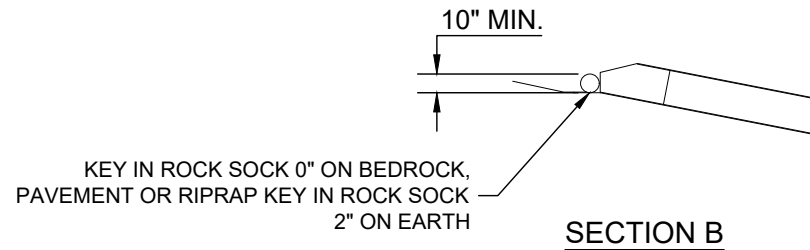
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DRAWING DATE: 07/19/2021  
DRAFTED BY: CSG  
SHEET NO. 09 OF 11

A12-07 FACILITY  
GRADING PLAN



CULVERT INLET PROTECTION PLAN

SECTION A



SECTION B

CULVERT INLET PROTECTION

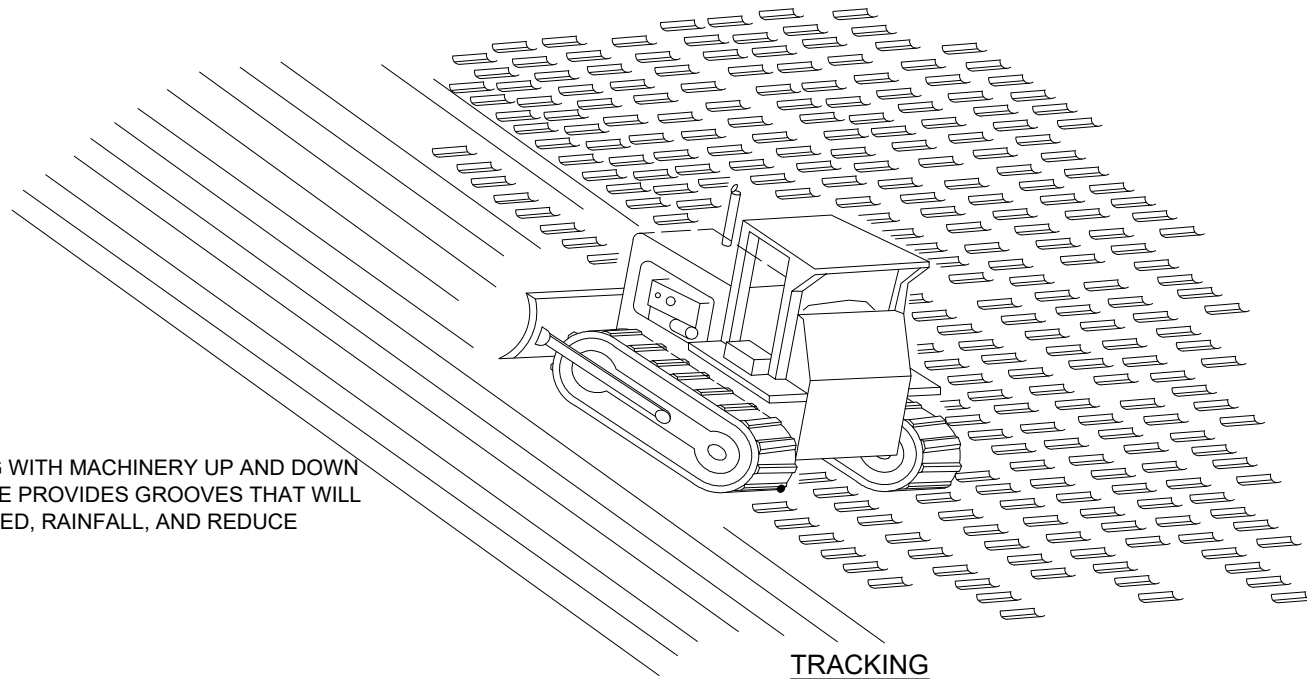
SCALE: NOT TO SCALE

GENERAL INLET PROTECTION INSTALLATION NOTES:

- SEE PLAN VIEW FOR:
  - LOCATION OF INLET PROTECTION.
  - TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6).
- INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

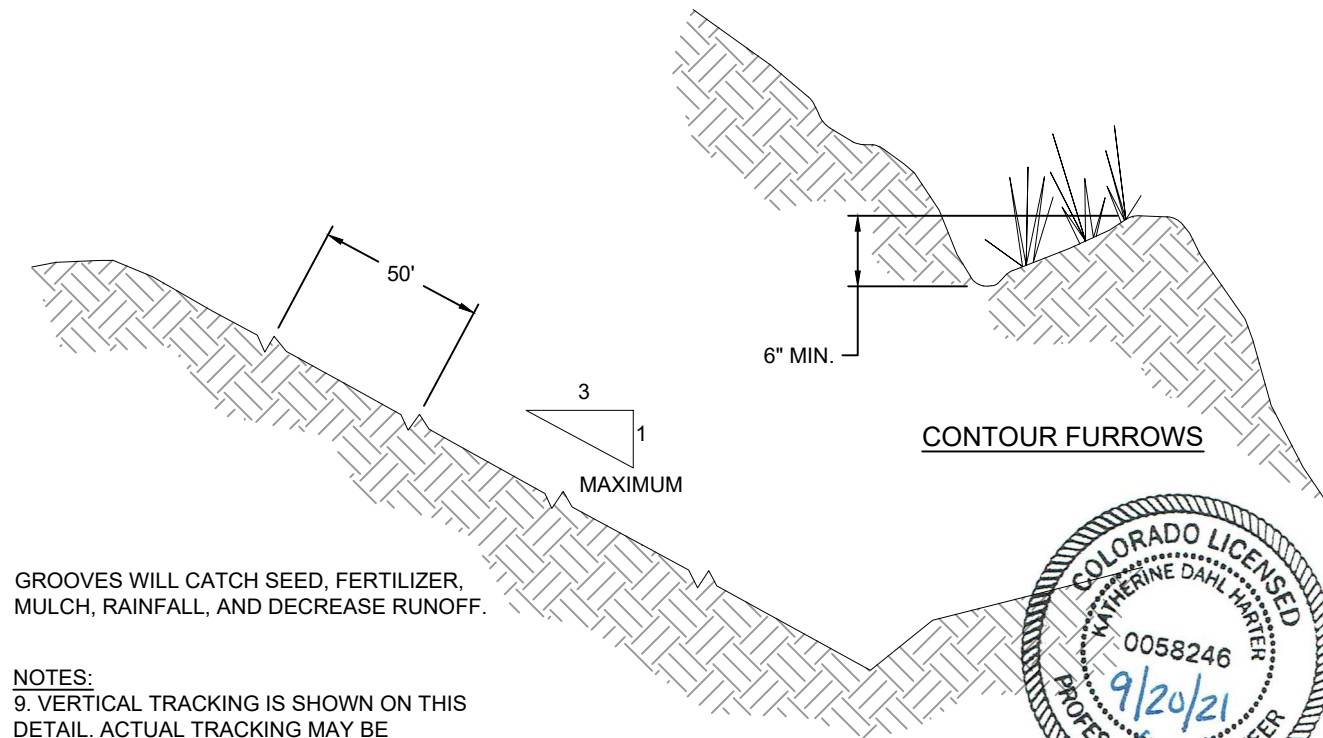
INLET PROTECTION MAINTENANCE NOTES:

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES.
- INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
- WHEN INLET PROTECTION AT AREA INLET IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.



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

TRACKING



CONTOUR FURROWS

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

NOTES:  
9. VERTICAL TRACKING IS SHOWN ON THIS DETAIL. ACTUAL TRACKING MAY BE HORIZONTAL.



SURFACE ROUGHENING BY TRACKING AND CONTOUR FURROWS

SCALE: NOT TO SCALE



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

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1625 BROADWAY, SUITE 2200  
DENVER, CO 80202  
(303) 228-4000

SHEET NAME:  
EROSION & SEDIMENT CONTROL DETAILS

SURFACE LOCATION  
A12-07 FACILITY  
SW 1/4 NE 1/4 SECTION 12  
T6N, R64W, 6TH P.M.  
WELD COUNTY, COLORADO

REV.	DATE	DESCRIPTION	INT.
0	09/20/21	ISSUED FOR CONSTRUCTION	AMS

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07/31/2019

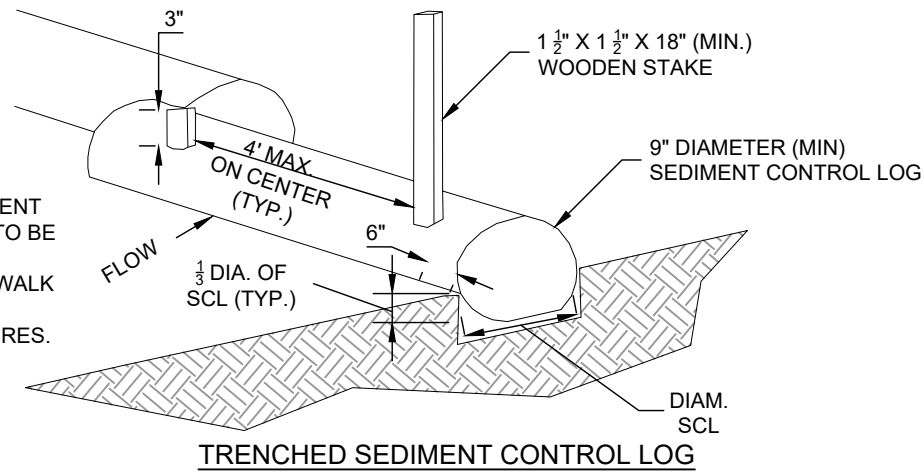
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CSG

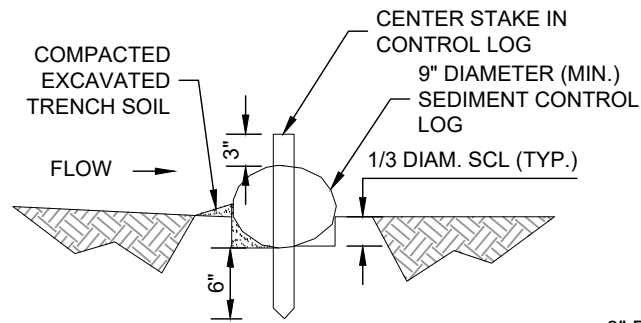
SHEET NO.  
10 OF 11

# A12-07 FACILITY GRADING PLAN

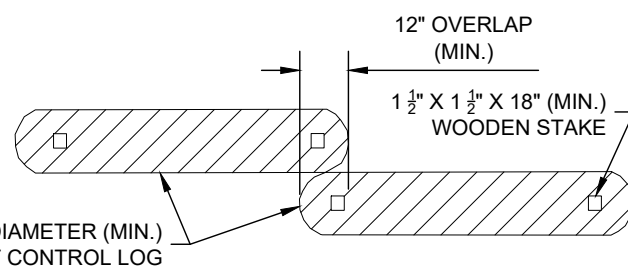
NOTES:  
1. LARGER DIAMETER SEDIMENT CONTROL LOGS MAY NEED TO BE EMBEDDED DEEPER.  
2. PLACE LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.



**TRENCHED SEDIMENT CONTROL LOG**

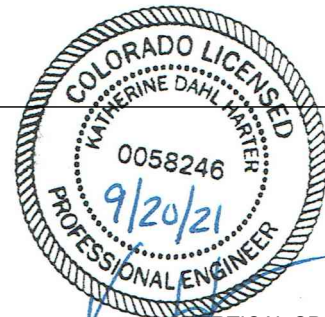


**SECTION A  
TRENCHED SEDIMENT CONTROL LOG**



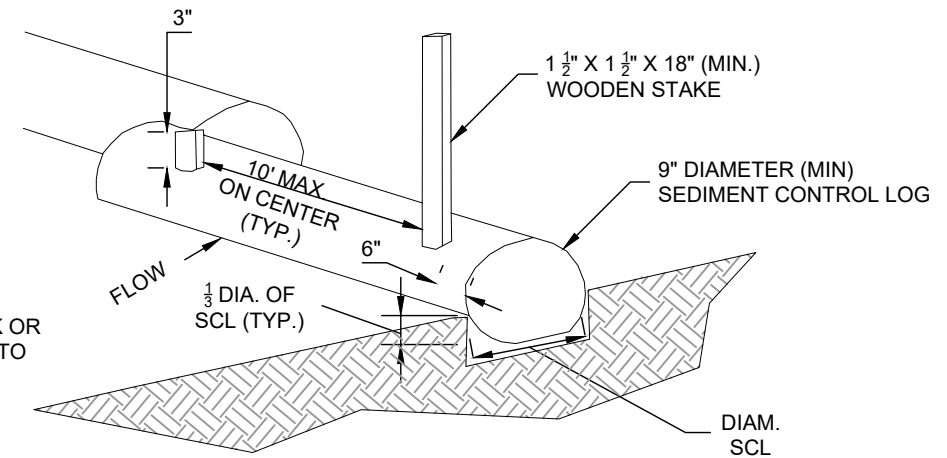
**LOG JOINTS**

**TRENCHED SEDIMENT CONTROL LOG**

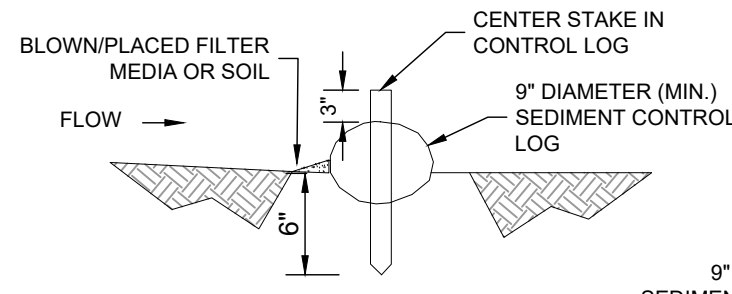


SCALE: NOT TO SCALE

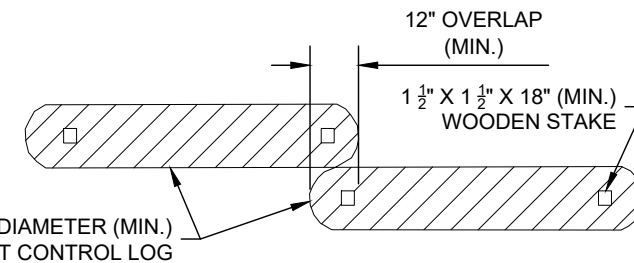
NOTES:  
3. THIS DETAIL IS FOR USE WITH SEDIMENT CONTROL LOGS THAT AREA A MINIMUM OF 8 LB/FT  
4. PLACE LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.



**COMPOST SEDIMENT CONTROL LOG  
(WEIGHTED)**



**SECTION A  
COMPOST SEDIMENT CONTROL LOG**



**LOG JOINTS**

**COMPOST SEDIMENT CONTROL LOG (WEIGHTED)**

SCALE: NOT TO SCALE

**SEDIMENT CONTROL LOG INSTALLATION NOTES:**

- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
- SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.
- 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.
- SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
- 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.
- 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.
- 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:**

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 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.
- 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.

4' MAX FOR TRENCHED SCLs  
10' MAX FOR COMPOST SCLs

VERTICAL SPACING  
VARIES DEPENDING  
ON SLOPE

CONTINUOUS SCL  
AT PERIMETER OF  
CONSTRUCTION SITE

**SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH**

SCALE: NOT TO SCALE



ASCENT GEOMATICS SOLUTIONS  
8620 WOLFF COURT  
WESTMINSTER, CO 80031  
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SHEET NAME:  
EROSION & SEDIMENT CONTROL DETAILS

SURFACE LOCATION

A12-07 FACILITY  
SW 1/4 NE 1/4 SECTION 12  
T6N, R64W, 6TH P.M.  
WELD COUNTY, COLORADO

REV.	DATE	DESCRIPTION	INT.	AMS
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FIELD DATE:  
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DRAFTED BY:  
CSG

SHEET NO.  
11 OF 11