MARKSHEFFEL ROAD SEGMENT M3 CDRs

STORMWATER MANAGEMENT PLAN

All Terrain Engineering Project No: 24013

El Paso County Review No: CDR2413

November 2026

Applicant:

Turkey Canyon Quarry Inc.

Contact: Jim Morley

20 Boulder Crescent Street, Suite 200

Colorado Springs, Co 80903

Prepared By:

All Terrain Engineering LLC

Contact: Nicholas Q. Jokerst

njokerst@allterraineng.com

QUALIFIED STORMWATER MANAGER

Name: TBD prior to pre-Con Meeting

Company:

Address:

CONTRACTOR

Name: TBD prior to Pre-Con Meeting

Company:

Address:

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C. GEC Plans
D. GEC Administrator Certification
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PREPARING ENGINEER:

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Company: All Terrain Engineering

Title: Project Manager

Phone Number: (203) 577-8656

Address: 1004 West Van Buren Street, Colorado Springs, CO 80907

PERMITTEE:

Name: Jim Morley

Company: Turkey Canyon Quarry Inc.

Title: Owner/Developer

Phone Number: (719) 491-3024

Address: 20 Boulder Crescent Street, Suite 200, Colorado Springs, Co 80903

APPLICANT'S STATEMENT

The Stormwater Management Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County and State for Stormwater Management Plans.

Engineer of Record and/or Qualified Stormwater Manager Date

REVIEW ENGINEER

The Stormwater Management Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request.

Review Engineer Date

I. Site Location & Description

The Marksheffel Road Segment M3 CDRs (hereby referred to as the "site") is a proposed construction project with a total disturbed area of approximately 56 acres.

The site is in the south half of Section 32, Township 12 South, Range 65 West of the Sixth Principal Meridian in the County of El Paso, State of Colorado. The site is located to the west of the Vollmer Road and Marksheffel Road intersection. The site is bounded by Holiday Hills Filing No.1 to the north, by Vollmer Road to the east, by the Trails at Forest Meadows Filing No. 3 to the south, and by proposed Brush Top Road extension to the west. The parcel is planned to be platted after approval of the Preliminary Plan. Refer to the vicinity map in Appendix A for additional information.

The site is approximately 96.8 acres and ~37 acres will be disturbed. The existing condition of the undeveloped site consists of 60% native grass coverage and open space, determined via field observation. In general, the site slopes southwesterly towards Trails at Forest Meadows Filing 3. Onsite elevations range from 6990' - 7034' with slopes ranging 1 – 10%. Per a NRCS soil survey, the site soil is comprised of Blakeland Loamy Sand (Type A) and Columbine gravelly sandy loam (Type A). Type A soils have a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission. Blakeland Loamy Sand has a K Factor of 0.1 and a T Factor of 5, Columbine gravelly sandy loam has a K Factor of 0.17 and a T Factor of 2. The NRCS soil survey is presented in Appendix A.

Cottonwood Creek traverses the site along the western boundary. The ultimate stormwater outfall for the site is Cottonwood Creek & Sand Creek. Stormwater will be captured in a series of inlets and piped to a permanent water quality and detention pond, located east of Brush Top Road. Discharge from concrete washout areas is anticipated as an allowable non-stormwater discharge per the COR400000 Permit.

II. Construction Phasing

The construction activity associated with this SWMP is the grading of the Stonebridge parcel, construction of a permanent full spectrum water quality and detention pond, utility main extensions including storm sewer, sanitary sewer and water and the construction of Marksheffel Road and Brush Top Road. There are no control measures located outside the construction limits. The proposed sequence of major construction activities and Construction Control Measures for the project as are follows:

1. Install VTC, SSA and other perimeter erosion and stormwater control measures (i.e. silt fence, construction fence etc.) (Spring 2027)
2. Construct permanent water quality & detention pond and outfall (Summer 2027)

3. Clear, grub and grade site for improvements. Install SCL and ECB per GEC plans. (Summer 2027)
4. Excavate and install improvements including underground piping and drainage structures. (Fall 2027)
5. Asphalt paving & curb and gutter installation. (Fall 2027)
6. Landscaping, restoration and final stabilization. Ensure final stabilization achieved prior to site closure. (Fall 2027)

III. Self-Inspections

Self-inspections of the Construction Control Measures must be completed by the certified GEC Administrator. The below provides the minimum to satisfy the El Paso County self-inspection requirements. A more frequent self-inspection schedule may be required to ensure Control Measures are operating in compliance with the approved GEC plan.

1. Inspection Schedules:
    a. The GEC Administrator shall make a thorough inspection of the Control Measures:
        i. At least once every fourteen (14) calendar days.
        ii. Within 24 hours following any precipitation event (i.e. rain, snow, hail etc.) that causes surface erosion.
            - Alternatively, the GEC Administrator can perform a thorough inspection of the Control Measures once every seven (7) days and forego post-precipitation inspections.
    b. For sites where construction activities have completed and final stabilization measures installed but final stabilization has not yet been achieved, the GEC Administrator shall make a thorough inspection of the Control Measures:
        i. At least once every 30 calendar days
        ii. Within 72 hours following any precipitation event that causes surface erosion
            - Note: Post-storm inspections are not required for sites awaiting final stabilization by EPC or the COR400000 permit
2. Inspection Procedures:
    a. Site Inspection & Observation Items:
        i. Limits of disturbance perimeter and stormwater discharge points
        ii. All disturbed areas to ensure necessary Construction Control Measures are in placeto control potential stormwater runoff
        iii. Areas used for material/waste storage
        iv. Any areas having a signification potential for storm water pollution (i.e site entrances, concrete washout areas etc.)

v. All Construction Control Measures identified on the GEC plans.

b. Inspection Requirements:
   i. Determine any locations, or potential locations, where pollutants and stormwater may be exiting the site/entering the receiving waters
   ii. Evaluate Construction Control measures and determine if they are constructed in accordance with the latest revision of the approved GEC plan and operating effectively
   iii. Provide recommendations for the need of additional Construction Control measures and the maintenance of existing measures in disrepair to ensure complication with the El Paso County Stormwater Construction Manual.

c. Construction Control Measure Maintenance/Replacement:
   i. The GEC administrator shall ensure sediment has been removed from perimetercontrols and relocated to an area without the potential for sediment to discharge from thesite
   ii. The GEC administrator shall ensure diversion ditches and temporary sedimentponds have not accumulated excess sediment that impedes their functionality.
   iii. The GEC administrator shall ensure that failed Control Measures are repaired/reinstalled within three (3) calendar days, according to the El Paso County Stormwater Control Measure details, to ensure pollutants and/or sediment do not discharge from the site. GEC details are provided in Appendix B.

d. Documentation:
   i. The SWMP should be viewed as a "living document" that is continuously being reviewed and modified as part of the overall process of evaluating and managing stormwater quality issues at the site. The Qualified Stormwater Manager shall amend the SWMP when there is a change in design, construction, O&M of the site which would required the implementation of new or revised BMPs or fi the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity or when BMPs are no longer necessary and are removed. The Qualified Stormwater Manager shall maintain a record of amendments made to the SWMP that includes the date and identification of the changes.
   ii. Update the GEC plan to document the installation/revision of Control Measures
   iii. Identify Control Measure deficiencies and that noncompliance is resolved within three (3) calendar days.
   iv. Identify Self-Inspection schedule in most recent inspection form
   v. Complete Self-Inspection forms & provide copies on site for EPC inspector review. Self-Inspection forms may be provided to inspector electronically.
   vi. Ensure Self-Inspection reports, the entire SWMP document & the current GEC map are available, either on-site or electronically, throughout the

duration of the project

vii. Self-Inspection Repost shall contain at least the following:
    1. Inspection Date
    2. Name and title of the GEC Administrator performing inspection
    3. Location(s) of illicit discharges of stormwater, sediment or pollutants from the site
    4. Location(s) of Construction Control Measures in need of maintenance/repair
    5. Location(s) of Construction Control Measures that failed to operate asdesigned or proved inadequate
    6. Location(s) of additional Construction Control Measures not shown on the latest, approved revision of the GEC plan
    7. Any deviations from the minimum inspection schedule

IV. Materials Handling

1. General Materials Handling Practices:
    a. Potential pollutants shall be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practical, material storage areas should be located away from storm drain inlets and should be equipped with covers, roofs or secondary containment as required to prevent stormwater from contacting stored materials. Chemicals that are not compatible shall be stored in segregated areas so that spill materials cannot combine and react.
    b. Disposal of materials shall be in accordance with the manufacturer'sinstructions and applicable local, state, and federal regulations.
    c. Materials no longer required for construction shall be removed from the site as soon as possible.
    d. Adequate garbage, construction waste, and sanitary waste handling and disposal facilities shall be provided as necessary to keep the site clear of obstruction and Control Measures clear and functional.
2. Specific Materials Handling Practices:
    e. All pollutants, including waste materials and demolition debris, that occur onsiteduring construction shall be handled in a way that does not contaminate stormwater.
    f. All chemicals including liquid products, petroleum products, water treatment chemicals,and wastes stored onsite shall be covered and protected from vandalism.
    g. Maintenance, fueling, and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operation, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants, shall be conducted under cover during wet weather and on an impervious surface to prevent release of contaminants onto the ground. Materials spilled during

maintenance operations shall be cleaned up immediately and properly disposed of.

h. Wheel wash water shall be settled and discharged onsite by infiltration.
i. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturer's recommendations for application rates and procedures.
j. pH-modifying sources shall be managed to prevent contamination of runoff and stormwater collected onsite. The most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, wastestreams generated from concrete grinding and sawing, exposed aggregate

V. Spill Prevention & Response Plan

1. The primary objective in responding to a spill is to quickly contain the material and prevent or minimize their mitigation into stormwater runoff and conveyance systems. If the release has impacted onsite stormwater, it is critical to contain the released materials onsite and prevent their release into receiving waters.
2. Spill Response Procedures:
    a. Notify site superintendent immediately when a spill, or the threat of a spill, is observed.The superintendent shall assess the situation and determine the appropriate response
    b. If spills represent an imminent threat of escaping onsite facilities and entering the receiving waters, site personnel shall respond immediately to contain the release and notify the superintendent once the situation has stabilized.
    c. The site superintendent shall be responsible for completing a spill reporting form and for reporting the spill to the appropriate agency.
    d. Spill response equipment shall be inspected and maintained as necessary to replaceany materials used in spill response activities.
3. Spill kits shall be on-hand at all fueling sites. Spill kit locations shall be reported to the GEC administrator.
4. Absorbent materials shall be on-hand at all fueling areas for use in containing advertent spills. Containers shall be on-hand at all fueling sites for disposal of used absorbents.
5. Recommended components of spill kits include the following:
    a. Oil absorbent pads
    b. Oil absorbent booms
    c. 55-gallon drums
    d. 9-mil plastic bags
    e. Personal protective equipment including gloves and goggles
6. Concrete wash water: unless confined in a pre-defined, bermed containment area, the cleaning of concrete truck delivery chutes is prohibited at the job site.
7. Notification procedures:

e. In the event of an accident or spill, the GEC administrator shall be notified.
f. Depending on the nature of the spill and material involved, the Colorado Department of Public Health and Environment, downstream water users, or other agencies may also need to be notified.
g. Any spill of oil which 1) violates water quality standards, 2) produces a "sheen" on a surface water, or 3) causes a sludge or emulsion, or any hazardous substance release, or hazardous waste release which exceeds the reportable quantity, must be reported immediately by telephone to the National Response Center Hotline at (800) 424-8802.

VI. Potential Sources of Pollution

1. Potential sources of pollution from construction activities include
    a. Disturbed or stored soils
    b. Vehicle tracking of sediment
    c. Loading & unloading operations
    d. Outdoor Storage activities
    e. Vehicle and Equipment Maintenance/Fueling
    f. Dust or Particulate Generating Processes
    g. Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents etc.
    h. On-site waste management (waste piles, liquid wastes, dumpsters)
    i. Concrete truck/equipment washing (washing truck chute and associated fixtures)
    j. Non-industrial waste (worker trash and portable toilets)

VII. Implementation of Control Measures

Stormwater control measures must be installed according to El Paso County design specifications, presented in Appendix D, and the approved Grading and Erosion Control plan this report supports. Within the context of this CSWMP's construction activities the following control measures, at a minimum, are required:

- Perimeter Silt Fence
- Vehicle Tracking Control
- Stabilized Staging Area
- Sediment Control Logs
- Rock Socks
- Concrete Washout Area
- Inlet Protection
- Erosion Control Blanket
- Temporary Sediment Basin
- Seeding & Mulching

Additional control measures may be required at the discretion of the County Stormwater Inspector.

VIII. Final Stabilization & Long Term Stormwater Management Plan

Temporary seeding and mulching will be installed to provide interim stabilization prior to final landscaping installation. Final stabilization will be achieved at time of final landscaping. See approved landscaping plans for final stabilization details. Final stabilization is met when 70% of pre disturbance levels, not including noxious weeds, are stabilized. Final stabilization must be achieved prior to removal of temporary stormwater control measures. Anticipated date of final stabilization is Spring 2027; however this is subject to change. Long term stormwater management will be provided in the onsite, private full spectrum detention pond. See the Permanent Control Measure Plans for construction details of the permanent full spectrum detention pond. See below for seeding and mulching details:

a. Prior to seeding, fill any eroded rills and gullies with topsoil.
b. Ensure all areas are seeded and mulched per the City Stormwater Construction Manual.
c. Self-inspections at sites awaiting final stabilization are to be conducted at least once every 30 calendar days to ensure proper function of final stabilization methods and the stormwater management system. If repairs are needed, repair, re-seed and re-mulch as needed.
d. Control noxious weeds in a manner acceptable to the County inspector.
e. Seed Mix: See Appendix E for approved seed mixes.
f. Seeding Requirements:
    i. Drill seed whenever possible, seed depth must be 1/3 to ½ inch when drill-seeding. Cross drilling should be used whenever possible with the seed divided between the two operations. The second drilling should be perpendicular to the first.
    ii. When drill seeding is not possible or on slopes greater than 3:1, hydro-seeding with tackifier may be substituted at the discretion of the County inspector. Hydro-seeding must be lightly raked into soil. Seeding rates are presented in Appendix E.
    iii. All seeded areas must be mulched.
g. Mulching Requirements:
    i. Mulching shall be completed as soon as practical after seeding but no more than fourteen (14) days after planting. Erosion control blanket can be used in place of the below mulching methods.
    ii. Hay or straw mulch:
        1. Only certified weed-free and certified-seed free mulch may be used. Mustbe applied at 2 tons/acre and adequately secured.
        2. Crimping shall not be used no slopes greater than 3:1, tackifier must be used in place.
    iii. Hydraulic mulching
        1. Allowable on steep slopes or areas with limited access

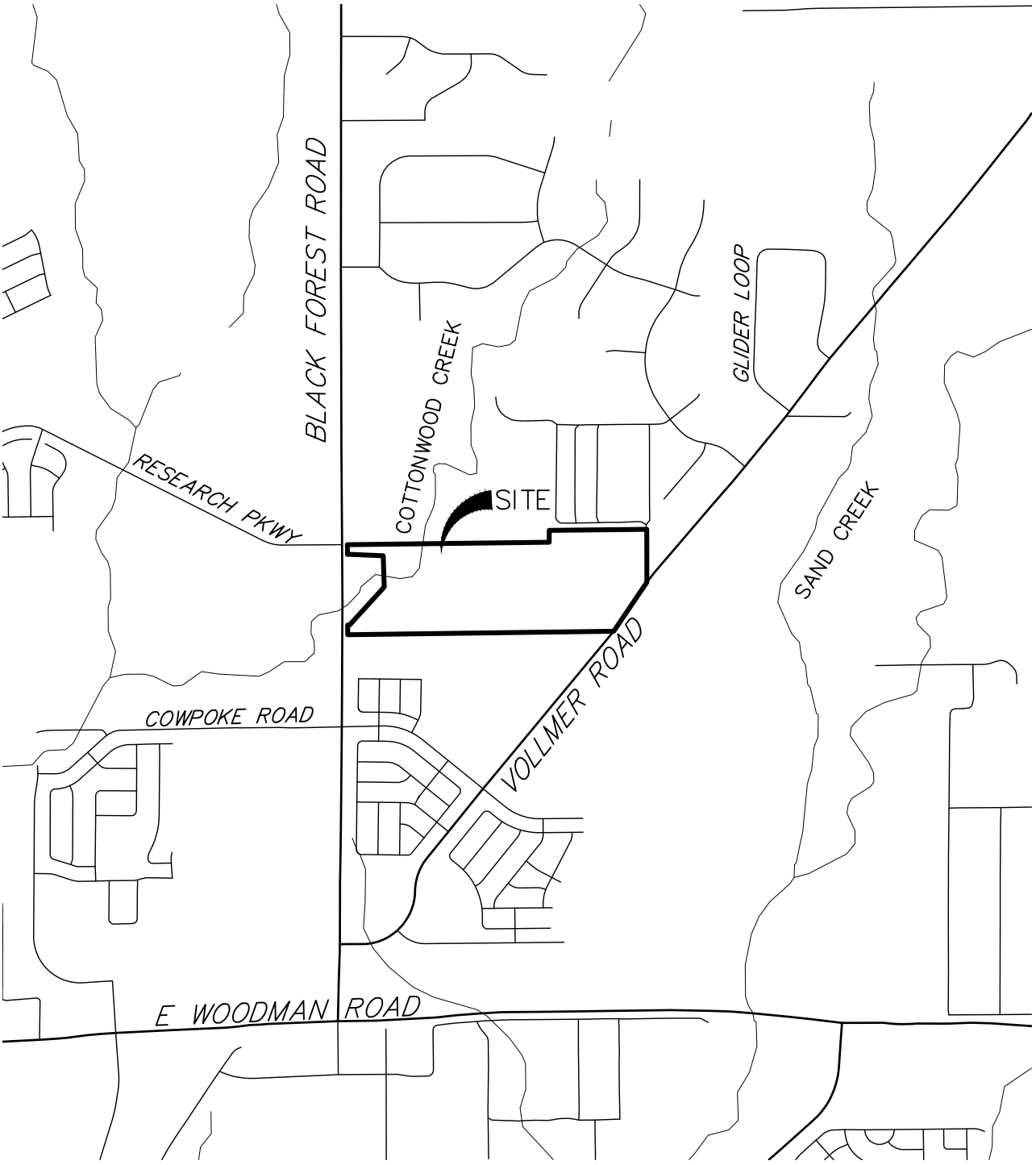
2. If hydro-seeding is used, mulching must be applied secondly.
3. Wood cellulose fibers mixed with water must be applied at a rate of2,000-2,500 lbs/acre, and tackifier applied at a rate of 100 lbs/acre.

IX. References

Drainage Criteria Manual of El Paso County, Colorado, as amended.

Colorado Springs Stormwater Construction Manual – December 2020

APPENDIX A – VICINITY MAP, FEMA & NRCS WEB SOIL SURVEY



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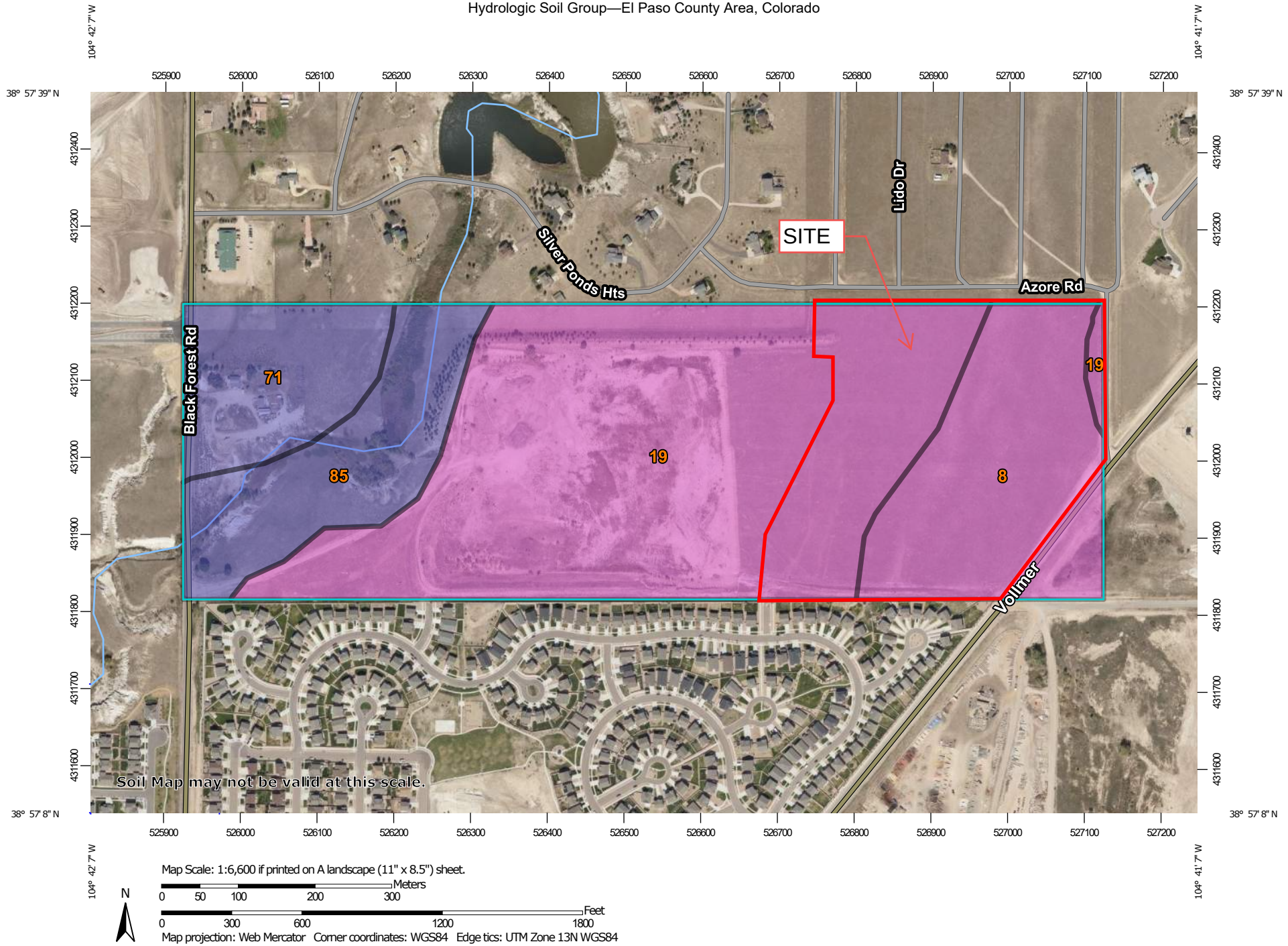
2000 1000 0 2000

ORIGINAL SCALE: 1" = 2000'

VICINITY MAP
SCHMIDT PARCEL
JOB NO. 25188.13
03/31/2022
SHEET 1 OF 1

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Hydrologic Soil Group—El Paso County Area, Colorado



Map Scale: 1:6,600 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

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 Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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: El Paso County Area, Colorado
Survey Area Data: Version 19, Aug 31, 2021

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

Date(s) aerial images were photographed: Aug 19, 2018—Sep 23, 2018

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	A	22.3	19.5%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	A	64.2	56.2%
71	Pring coarse sandy loam, 3 to 8 percent slopes	B	12.1	10.6%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	B	15.6	13.6%
Totals for Area of Interest			**114.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

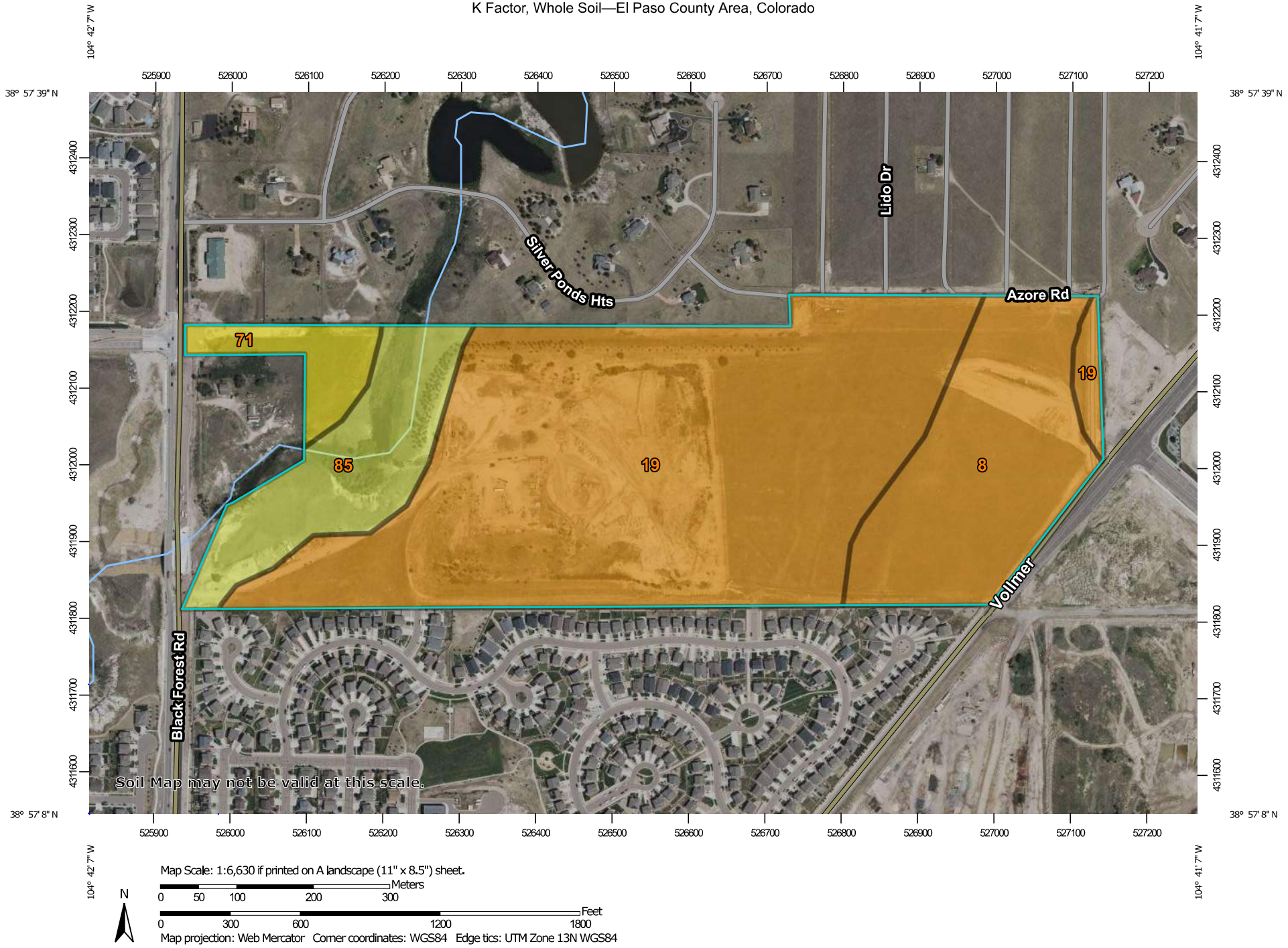
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Map Scale: 1:6,630 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

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 Rating Polygons
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Lines
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Points
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

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: El Paso County Area, Colorado
Survey Area Data: Version 24, Sep 1, 2026

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

Date(s) aerial images were photographed: Jul 23, 2024—Aug 4, 2024

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.

K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	.10	20.3	19.9%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	.10	64.7	63.5%
71	Pring coarse sandy loam, 3 to 8 percent slopes	.17	4.3	4.2%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	.20	12.6	12.4%
Totals for Area of Interest			**101.8**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

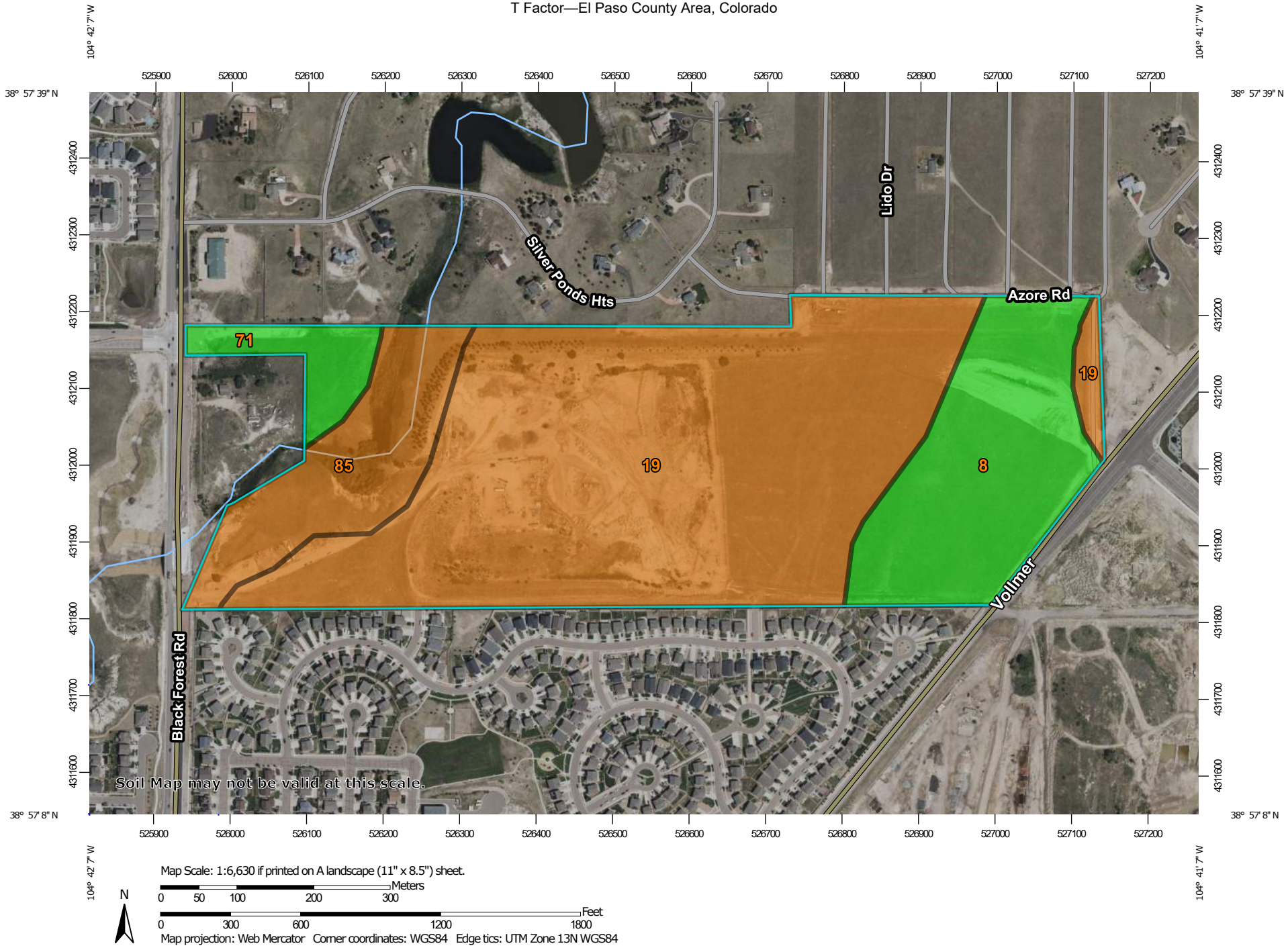
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)



Map Scale: 1:6,630 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

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 Rating Polygons

- 1
- 2
- 3
- 4
- 5
- Not rated or not available

Soil Rating Lines

- 1
- 2
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- 5
- Not rated or not available

Soil Rating Points

- 1
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- 3
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- Streams and Canals

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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.

T Factor

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	5	20.3	19.9%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	2	64.7	63.5%
71	Pring coarse sandy loam, 3 to 8 percent slopes	5	4.3	4.2%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	2	12.6	12.4%
Totals for Area of Interest			**101.8**	**100.0%**

Description

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Rating Options

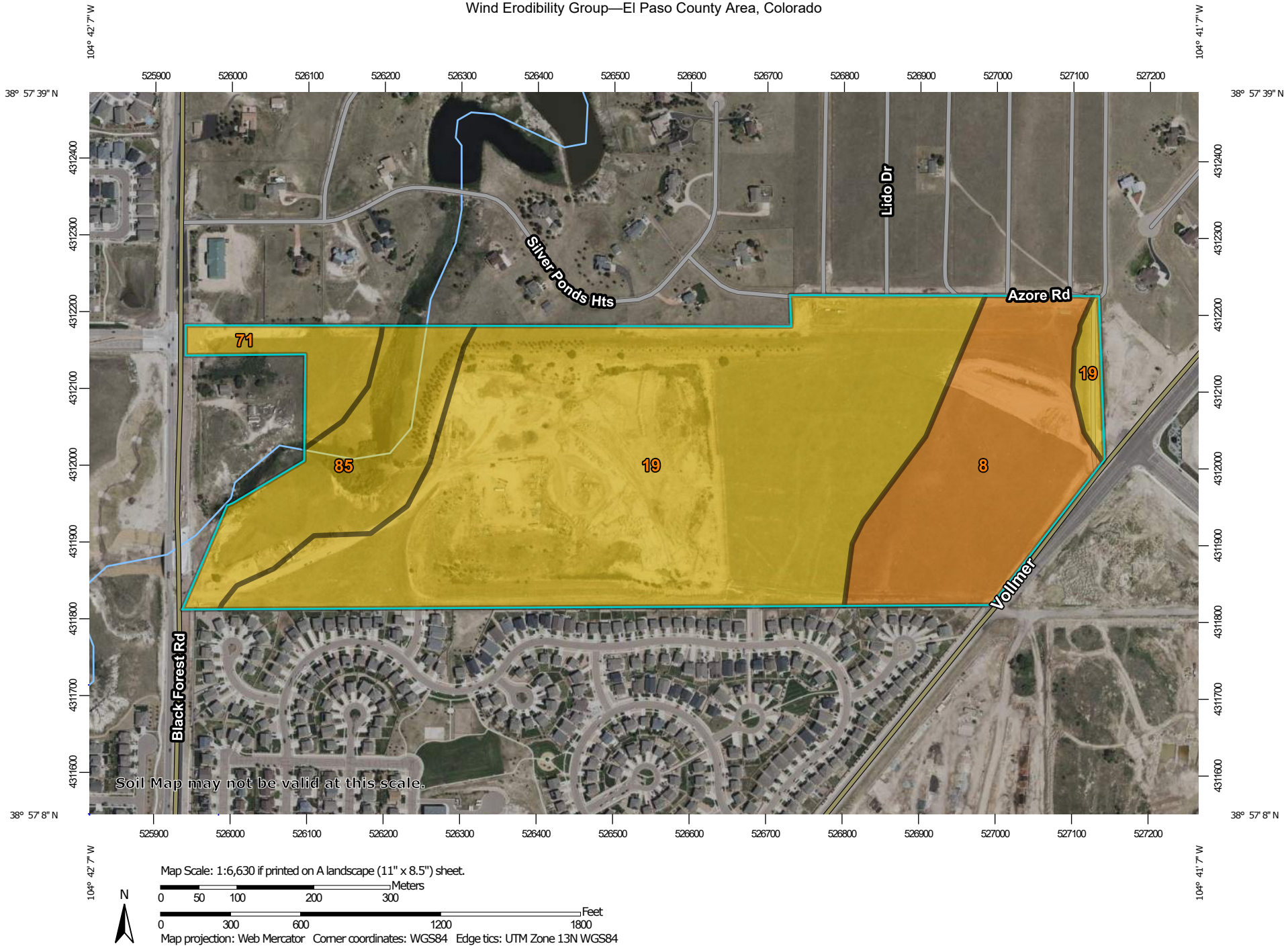
Units of Measure: tons per acre per year

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No



Map Scale: 1:6,630 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

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 Rating Polygons

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Lines

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Points

1
2
3
4
4L
5
6
7
8
Not rated or not available

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: El Paso County Area, Colorado
Survey Area Data: Version 24, Sep 1, 2026

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

Date(s) aerial images were photographed: Jul 23, 2024—Aug 4, 2024

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.

Wind Erodibility Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	2	20.3	19.9%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	3	64.7	63.5%
71	Pring coarse sandy loam, 3 to 8 percent slopes	3	4.3	4.2%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	3	12.6	12.4%
Totals for Area of Interest			**101.8**	**100.0%**

Description

A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–El Paso County Area, Colorado

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
8—Blakeland loamy sand, 1 to 9 percent slopes								
Blakeland	98	—	A	.10	5	85.3	9.2	5.5
19—Columbine gravelly sandy loam, 0 to 3 percent slopes								
Columbine	97	—	A	.17	2	63.9	30.6	5.5
71—Pring coarse sandy loam, 3 to 8 percent slopes								
Pring	85	—	B	.17	5	66.5	18.5	15.0
85—Stapleton-Bernal sandy loams, 3 to 20 percent slopes								
Stapleton	55	—	B	.20	2	65.9	19.1	15.0
Bernal	44	—	D	.28	1	65.9	19.1	15.0

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 24, Sep 1, 2026

APPENDIX B – GEOTECH REPORT

ENTECH
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505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
PHONE (719) 531-5599

SOILS AND GEOLOGY STUDY
SCHMIDT PHASE 1 – DISTRICT INFRASTRUCTURE
MARKSHEFFEL ROAD AND BRUSHTOP ROAD
EL PASO COUNTY, COLORADO

Prepared for:
Turkey Canyon Quarry, Inc.
20 Boulder Crescent Street, 1st Floor
Colorado Springs, Colorado 80903

Attn: Mark Morley

March 7, 2025

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Logan L. Langford, P.G.
Sr. Geologist

Reviewed by:

COLORADO LICENSED
JOSEPH COLLIN GOODE
23725
PROFESSIONAL ENGINEER

Digitally signed by Joseph C Goode Jr.
Date: 03/07/25

Joseph C. Goode, Jr., P.E.
President

LLL:JCG/ed

PCD No.

Entech Job No. 231875

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1 SUMMARY

Project Location

The project lies in a portion of the SE¼ of Section 32, Township 12 South, Range 65 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located in El Paso County just north of the Colorado Springs city limits.

Project Description

The proposed site development consists of the construction of district infrastructure, including the extension of Marksheffel Road, future Brush Top Road, and a full-spectrum water quality and detention pond to support future development of the site. The development will utilize Falcon Area Water and Wastewater Authority (FAWWA) for sewer and water.

Scope of Report

This report presents the results of our geologic evaluation and engineering geologic hazards study for the planned infrastructure improvements.

Land Use and Engineering Geology

This site was found to be suitable for the proposed development; however, geologic conditions in certain areas will impose some minor constraints on development and land use. These include areas of artificial fill, loose collapsible soils, and potential seasonally shallow groundwater areas. These conditions will be discussed in greater detail in the report.

In general, it is our opinion that the development can be achieved if the observed geologic conditions on site are either properly mitigated or avoided. All recommendations are subject to the limitations discussed in the report.

2 GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION

The site is located in a portion of the SE¼ of Section 32, Township 12 South, Range 65 West of the 6th Principal Meridian in El Paso County, Colorado, just north of the Colorado Springs city limits and west of the intersection of Marksheffel and Vollmer Roads. The approximate location of the project site is shown on the Vicinity Map (Figure 1).

The site topography gradually slopes to the south-southwest. A minor drainage swale is located along the eastern and southern sides of the site. Flowing water was not observed at the time of our field mapping. The site boundaries are indicated on the USGS Map (Figure 2). Previous land uses included grazing and pasture land with a former quarry site located west of the planned infrastructure improvements. The site primarily contains field grasses, weeds, yuccas, and cacti. Site photographs, taken January 13, 2025, are included in Appendix A.

The proposed site development consists of the construction of district infrastructure, including the extension of Marksheffel Road, future Brush Top Road, and a full-spectrum water quality and detention pond to support future development of the site. The development will utilize Falcon Area Water and Wastewater Authority (FAWWA) for sewer and water. The proposed site grading is indicated in the Site and Exploration Plan (Figure 3). The detention pond will be located in the southwestern portion of the site to the east of future Brush Top Road.

3 SCOPE OF THE REPORT

The scope of the report includes a general geologic analysis utilizing published geologic data. Detailed site-specific mapping was conducted to obtain general information with respect to major geographic and geologic features, geologic descriptions, and their effects on the development of the property.

4 FIELD INVESTIGATION

Our field investigation consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The site was also evaluated using the Web Soil Survey from the Natural Resource Conservation Service (NRCS), formerly known as the Soil Conservation Service (SCS). The position of mappable units within the subject property is shown on the Geologic Map. Our mapping procedures involved both field reconnaissance and measurements and air photo reconnaissance and interpretation. The same mapping procedures have also been utilized to produce the Geology/Engineering Geology Map (Figure 6) that identified pertinent geologic conditions affecting development. The field mapping was performed by Entech personnel on January 13, 2025.

Four (4) test borings were drilled on the site as part of the Soil and Geology Study to determine general soil and bedrock characteristics. The locations of the test borings are indicated on the

Site and Exploration Plan (Figure 3). The Test Boring Logs are presented in Appendix B. Results of this testing will be discussed later in this report.

Laboratory testing was also performed on select soil samples to classify and determine the engineering characteristics of the soil. Laboratory tests included Grain-Size Analysis (ASTM D422) and Atterberg Limits testing (ASTM D4318). Sulfate testing was performed on select samples to evaluate the potential for below-grade concrete degradation due to sulfate attack. Results of the laboratory testing are included in Appendix C, and the Summary of Laboratory Test Results is presented in Table C-1.

Previous site investigations for the Schmidt Property include the Entech *Preliminary Geotechnical Report,* dated January 10, 2024 (Reference 1, Appendix D), and the A.G. Wassenaar *Geotechnical Site Development Study, Proposed Residential Development, Schmidt Property,* dated October 12, 2021 (Reference 2). Information from these reports was also used to evaluate the site. Three of the previously completed test borings by Entech were placed along Brush Top Road (TB-13 through TB-15).

5 SOIL, GEOLOGY, AND ENGINEERING GEOLOGY

5.1 General Geology

The site lies in the western portion of the Great Plains Physiographic Province. A major structural feature known as the Rampart Range Fault lies approximately 11 miles to the west. This fault marks the boundary between the Great Plains Physiographic Province and the Southern Rocky Mountain Province. The site exists within the southeastern edge of a large structural feature known as the Denver Basin.

Bedrock was encountered in two of the test borings, which were drilled to depths of 20 to 25 feet, at depths of 17 and 21 feet below ground surface (bgs). Bedrock in the area tends to gently dip in a northerly direction (Reference 3). The bedrock in the area of the site is sedimentary and typically Tertiary to Upper Cretaceous in age. The bedrock underlying the site consists of the Dawson Formation. Overlying this formation are unconsolidated deposits of recent man-made fill and alluvial and eolian sediments of the Holocene and Pleistocene Ages. The site's stratigraphy will be discussed in more detail in Section 5.3.

5.2 Soil Conservation Survey

The Natural Resource Conservation Service (Reference 4), previously the Soil Conservation Service (Reference 5), has mapped two soil types on the site (Figure 4). In general, the soils classified as loamy sand. The soils are described as follows:

Type	Description
8	Blakeland loamy sand, 1 to 9% slopes
19	Columbine gravelly sandy loam, 0 to 3% slopes

Complete descriptions of each soil type are presented in Appendix E. The soils have generally been described to have moderate to moderately rapid permeabilities. Possible hazards with soil erosion are present on the site. The erosion potential can be controlled with vegetation. The majority of the soils are described as having moderate to high erosion hazards.

5.3 Site Stratigraphy

The Geologic Map of the Falcon Northwest Quadrangle showing the site is presented in Figure 5 (Reference 6). The Geology Map prepared for the site is presented in Figure 6. Three mappable units were identified on this site and are described as follows:

Qaf **Artificial Fill of Holocene Age:** These recent man-made deposits are associated with fill stockpiles located on the site.

Qes **Eolian Sand of Middle and Early Holocene and Late Pleistocene Age:** These deposits are fine to medium grained soil deposited on the site by the action of prevailing winds from the west and northwest. They typically occur as large dune deposits or narrow ridges. These soil types are typically tan to brown in color, tend to have very uniform or well-sorted gradation, and tend to have a relatively high permeability and low density.

Qao_1 **Old Alluvium One of Late-Middle Pleistocene Age:** This material is a water-deposited alluvium, typically classified as a silty to well-graded sand, brown to dark brown in color, and of moderate density. The Old Alluvium One can sometimes be very highly stratified and contain thin layers of very silty and clayey soil. This unit correlates to the Louviers Alluvium in the Denver area.

5.4 Soil Conditions

The soils encountered in the test borings can be grouped into four general soil types. The soils were classified using the Unified Soil Classification System (USCS).

Soil Type 1 classified as clayey sand, gravelly silty sand, and sand with silt (SC, SW-SM) and was encountered in all the borings at depths ranging from the existing ground surface to 17 feet bgs (TB-2) and extended to the termination of the test borings (20 feet). These soils were encountered in loose to dense states and in dry to moist conditions. The majority of the soils were encountered in medium dense states.

Soil Type 2 classified as completely weathered clayey sandstone, or clayey sand when classified as a soil (SC). The sandstone was encountered in TB-2 at 17 feet bgs and extended to the termination of the boring (20 feet). The sandstone was encountered in very dense states and in moist conditions.

A Summary of Laboratory Test Results and the Test Boring Logs are presented in Appendix B.

5.5 Groundwater

Groundwater was encountered in three of the four recent test borings at depths of 18 to 18.5 feet and was previously encountered in TB-13 through TB-15 at depths of 13 to 17 feet (Reference 1). Water was not encountered in TB-4, which was drilled to 20 feet. Groundwater was encountered at a depth of 18 feet in the proposed detention pond (TB-1). Fluctuation in groundwater conditions may occur due to variations in rainfall and other factors not readily apparent at this time. Areas of seasonal shallow groundwater associated with a detention pond and drainage in the western and southern portions of the site are discussed further in the following sections.

It should be noted that some groundwater conditions might be encountered due to the variability in the soil profile of the sandy materials on site. Isolated sand and gravel layers within the soils, sometimes only a few feet in thickness and width, can carry water in the subsurface. Groundwater may also flow on top of the underlying bedrock. Builders and planners should monitor potential occurrences of such subsurface water features during construction on-site and mitigate as necessary at the time of construction.

6 ENGINEERING GEOLOGY – IDENTIFICATION AND MITIGATION OF GEOLOGIC HAZARDS

As mentioned previously, detailed mapping has been performed on this site to produce an Engineering Geology Map (Figure 6). This map shows the location of various geologic conditions the developers should monitor during the planning, design, and construction stages of the project. Hazards include areas of artificial fill, loose collapsible soils, expansive soils, seasonally shallow groundwater areas, and areas of erosion. These hazards and the recommended mitigation techniques include:

Artificial Fill – Constraint

These are recent man-made fill deposits associated with existing fill stockpiles located on the site. Recent roadway fill was also placed on the site.

Mitigation: The overlot fill is suitable to support the proposed roadway. The stockpiles and any uncontrolled fill or loose soil encountered will require removal and recompaction at a minimum of 95% of the Modified Procter (ASTM D1557) maximum dry density.

Collapsible Soils – Constraint

The majority of the soils encountered on-site do not exhibit collapsible characteristics; however, areas of loose soils were encountered in the test borings drilled on-site. Additionally, areas mapped as Qes (eolian sand) have the potential for hydrocompation.

Mitigation: Should loose or collapsible soils be encountered beneath foundations, recompaction and moisture conditioning of the upper 2 to 3 feet of soil at 95% of the Modified Procter (ASTM D1557) maximum dry density will be required. Exterior flatwork and parking areas may also experience movement. Proof rolling and recompaction of soft areas should be performed during site work.

Expansive Soils – Constraint

Expansive soils were not encountered in the test borings drilled on site; however, the potential for isolated clay or claystone lenses in the sand and sandstone exists across the site. These occurrences are typically sporadic; therefore, none have been indicated on the maps. Expansive clays or claystones, if encountered at foundation grade, can cause differential movement in structures. These occurrences should be identified and mitigated on an individual basis.

Mitigation Should expansive soils be encountered beneath foundations, mitigation will be necessary. Expansive soils in roadways may require moisture conditioning. Mitigation of

expansive soils will require special foundation design. Overexcavation and replacement with nonexpansive soils at a minimum of 95% of the Modified Procter (ASTM D1557) maximum dry density is a suitable mitigation that is common in the area. Slabs or flatwork on expansive soils should be expected to experience movement. Overexcavation and replacement have been successful in minimizing slab movements.

Groundwater and Floodplain Areas – Constraint

Groundwater was encountered in three of the four recent test borings at depths of 18 to 18.5 feet and was previously encountered in TB-13 through TB-15 at depths of 13 to 17 feet (Reference 1). Groundwater is not anticipated to affect the construction of the proposed roadways, infrastructure, and detention pond. The site is not mapped within floodplain zones according to the FEMA Map Nos. 08041C0529G and 08041C0533G (Figure 7, Reference 9). Cottonwood Creek is located west of the site, and a minor drainage swale was observed along the southeastern side of the site. Water was not observed during our field mapping. Groundwater was encountered in the proposed detention pond location (TB-1) at a depth of 18 feet. The proposed pond will have minimal cutting and is not anticipated to be affected by the groundwater.

Potential Seasonally Shallow Groundwater – Constraint

In these areas, we would anticipate the potential for periodically high subsurface moisture conditions and possible frost heave potential, depending on the soil conditions. The area mapped with this constraint is the minor drainage swale currently located in the southeastern portion of the site. This area will be filled during the grading of the site and construction of the detention pond.

Mitigation In these locations, foundations in areas subject to severe frost heave potential should penetrate sufficient depth so as to discourage the formation of ice lenses beneath foundations. At this location and elevation, a foundation depth for frost protection of 2.5 feet is recommended. In areas where high subsurface moisture conditions are anticipated periodically, a subsurface perimeter drain will be necessary to help prevent the intrusion of water into areas located below grade. Additionally, swales should be created to intercept surface runoff and carry it safely around and away from structures. The proposed site grading completed for the development mitigates the drainage issue.

Radon – Hazard

Radon is a colorless, tasteless radioactive gas with a United States Environmental Protection Agency (EPA) -specified action level of 4.0 picocuries per liter (pCi/L) of air. Radon gas has a

very short half-life of 3.8 days. Radon levels for the area have been reported by the Colorado Geologic Survey in the open file, Report No. 91-4 (Reference 10). The average Radon level for the 80908 zip code is 3.40 pCi/l. The following is a table of radon levels in this area:

Average Radon Levels for the 80908 Zip Code	
0 < 4 pCi/L	50.00%
4 < 10 pCi/L	50.00%
10 < 20 pCi/L	0.00%
> 20 pCi/L	0.00%

Mitigation The potential for high radon levels is present for the site. Build-up of radon gas can usually be mitigated by providing increased ventilation of basement and crawlspace and sealing joints. Specific requirements for mitigation should be based on site specific testing.

6.1 Relevance of Geologic Conditions to Land Use Planning

It is our opinion that the existing geologic and engineering geologic conditions will impose some minor constraints on the proposed roadways and detention pond. The most significant problems affecting development will be those associated with the artificial fill and loose or collapsible soils. Other hazards on site can be satisfactorily mitigated through proper engineering design and construction practices.

The medium dense to dense granular soils will provide good support for the proposed roadways and infrastructure improvements. Loose soils or uncontrolled fill, if encountered at or near roadway or utility subgrade depth, will require mitigation. Excavation of the site sand materials is anticipated to be moderate with rubber-tired equipment and difficult for the dense sandstone. Expansive layers may also be encountered in the soil and bedrock on this site. Areas of expansive soils encountered on site are sporadic; therefore, none have been indicated on the maps. Expansive soils, if encountered, will require special foundation design and/or overexcavation. These soils will not prohibit development.

Areas of potential seasonally shallow groundwater are associated with a minor drainage swale in the southeastern portion of the site. This area will be filled during the grading of the site and construction of the detention pond.

In summary, development of the site can be achieved if the items mentioned above are mitigated. These items can be mitigated through proper design and construction or avoidance. Investigation of each lot is recommended prior to construction.

Trench backfill placement should be performed in accordance with El Paso County specifications. All excavation and excavation shoring/bracing should be performed in accordance with OSHA guidelines.

7 ECONOMIC MINERAL RESOURCES

Some of the sandy materials on site could be considered low-grade sand resources. According to the *El Paso County Aggregate Resource Evaluation Map* (Reference 11), the area is not mapped with any aggregate deposits. According to the *Atlas of Sand, Gravel and Quarry Aggregate Resources, Colorado Front Range Counties* distributed by the Colorado Geological Survey (Reference 12), areas of the site are not mapped with any resources. According to the *Evaluation of Mineral and Mineral Fuel Potential* (Reference 13), the area of the site has been mapped as “Fair” for industrial minerals. However, considering the predominately silty nature of these materials, the abundance of similar materials throughout the region, and the proximity to developed land, they would be considered to have little significance as an economic resource.

According to the *Evaluation of Mineral and Mineral Fuel Potential of El Paso County State Mineral Lands* (Reference 13), the site is mapped within the Denver Basin Coal Region. However, the site area mapped has been designated as “Poor” for coal resources. No active mines have been mapped in the area of the site, but several inactive mines are located approximately 4 to 5 miles south and southeast of the site. No metallic mineral resources have been mapped onsite (Reference 13).

The site has been mapped as “Fair” for oil and gas resources (Reference 13). No oil or gas fields have been discovered in the site area. The sedimentary rocks in the area may lack the geologic structure for trapping oil or gas; therefore, it may not be considered a significant resource. Hydraulic fracturing is a new method that is being used to extract oil and gas from rocks. It utilizes pressurized fluid to extract oil and gas from rocks that would not normally be productive. The area of the site has not been explored to determine if the rocks underlying the site would be commercially viable utilizing hydraulic fracturing. The practice of hydraulic fracturing has come under review due to concerns about environmental impacts, health, and safety.

8 EROSION CONTROL

The soil types observed on the site are moderately to highly susceptible to wind erosion and moderately to highly susceptible to water erosion. A minor wind erosion and dust problem may be created for a short time during and immediately after construction. Should the problem be considered severe enough during this time, watering of the cut areas or the use of chemical palliative may be required to control dust. However, once construction has been completed and vegetation re-established, the potential for wind erosion should be considerably reduced.

With regard to water erosion, loosely compacted soils will be the most susceptible to water erosion; residually weathered soils become increasingly less susceptible to water erosion. For the typical soils observed on site, allowable velocities or unvegetated and unlined earth channels would be on the order of 3 to 4 feet/second, depending upon the sediment load carried by the water. Permissible velocities may be increased through the use of vegetation to something on the order of 4 to 7 feet/second, depending upon the type of vegetation established. Should the anticipated velocities exceed these values, some form of channel lining material may be required to reduce erosion potential. These might consist of some of the synthetic channel lining materials on the market or conventional riprap. In cases where ditch-lining materials are still insufficient to control erosion, small check dams or sediment traps may be required. The check dams will serve to reduce flow velocities, as well as provide small traps for containing sediment. The determination of the amount, location, and placement of ditch linings, check dams, and special erosion control features should be performed by or in conjunction with the drainage engineer, who is more familiar with the flow quantities and velocities.

Cut and fill slope areas will be subjected primarily to sheetwash and rill erosion. Unchecked rill erosion can eventually lead to concentrated flows of water and gully erosion. The best means to combat this type of erosion is, where possible, the adequate revegetation of cut and fill slopes. Cut and fill slopes having gradients more than three (3) horizontal to one (1) vertical become increasingly more difficult to revegetate successfully. Therefore, recommendations pertaining to the vegetation of the cut and fill slopes may require input from a qualified landscape architect and/or the Soil Conservation Service.

9 ROADWAY, EMBANKMENT, and STORMWATER FACILITY CONSTRUCTION RECOMMENDATIONS

In general, the site soils are suitable for the proposed roadways and detention pond. Groundwater is not anticipated to affect the roadway or detention pond construction. If road or utility excavations encroach on the groundwater level, unstable soil conditions may be encountered. Excavation of saturated soils will be difficult with rubber-tired equipment. Stabilization using shot rock or geogrids may be necessary.

A minor drainage swale that has been identified as a potential seasonally shallow groundwater area on the Geology/Engineering Geology Map (Figure 6) is located within the proposed detention pond. The proposed grading plans indicated the swale will be filled during the site work and construction of the detention pond embankment. Groundwater was encountered at 18 feet in TB-1, which was placed in the detention pond. Based on the soil types and the gradual existing slopes near the detention pond, lining of the detention pond is not necessary.

Any areas to receive fill should have all topsoil, organic material, or debris removed. Entech should observe the subgrade prior to fill placement. Fill must be properly benched and compacted to minimize potentially unstable conditions in slope areas. Fill slopes should be 3:1 or flatter. The subgrade should be scarified, moisture conditioned, and compacted to a minimum of 95% of the Modified Proctor (ASTM D1557) maximum dry density at +/-2% prior to placing new fill. Granular fill should be compacted to a minimum of 95% of the Modified Proctor (ASTM D1557) maximum dry density at +/-2% of optimum moisture content.

New fill should be placed in thin lifts not to exceed 6 inches after compaction while maintaining a minimum of 95% of the Modified Proctor (ASTM D1557) maximum dry density at +/-2%. The placement and compaction of fill should be observed and tested by Entech during construction. Entech should approve any import materials prior to placing or hauling them to the site. Additional investigation will be required for pavement designs once roadway grading is completed and utilities are installed.

10 CLOSURE

It is our opinion that the existing geologic engineering and geologic conditions will impose some constraints on the development and construction of the site. The majority of these conditions can be mitigated through proper engineering design and construction practices. The proposed development and use are consistent with anticipated geologic and engineering geologic conditions.

Due to the variable nature of data obtained by random sampling of non-homogeneous materials such as soil and rock, it is important that Entech be informed of any differences observed between surface and subsurface conditions encountered in construction and those assumed in this report. Individual investigations for building sites will be required prior to construction. Construction and design personnel should be made familiar with the contents of this report.

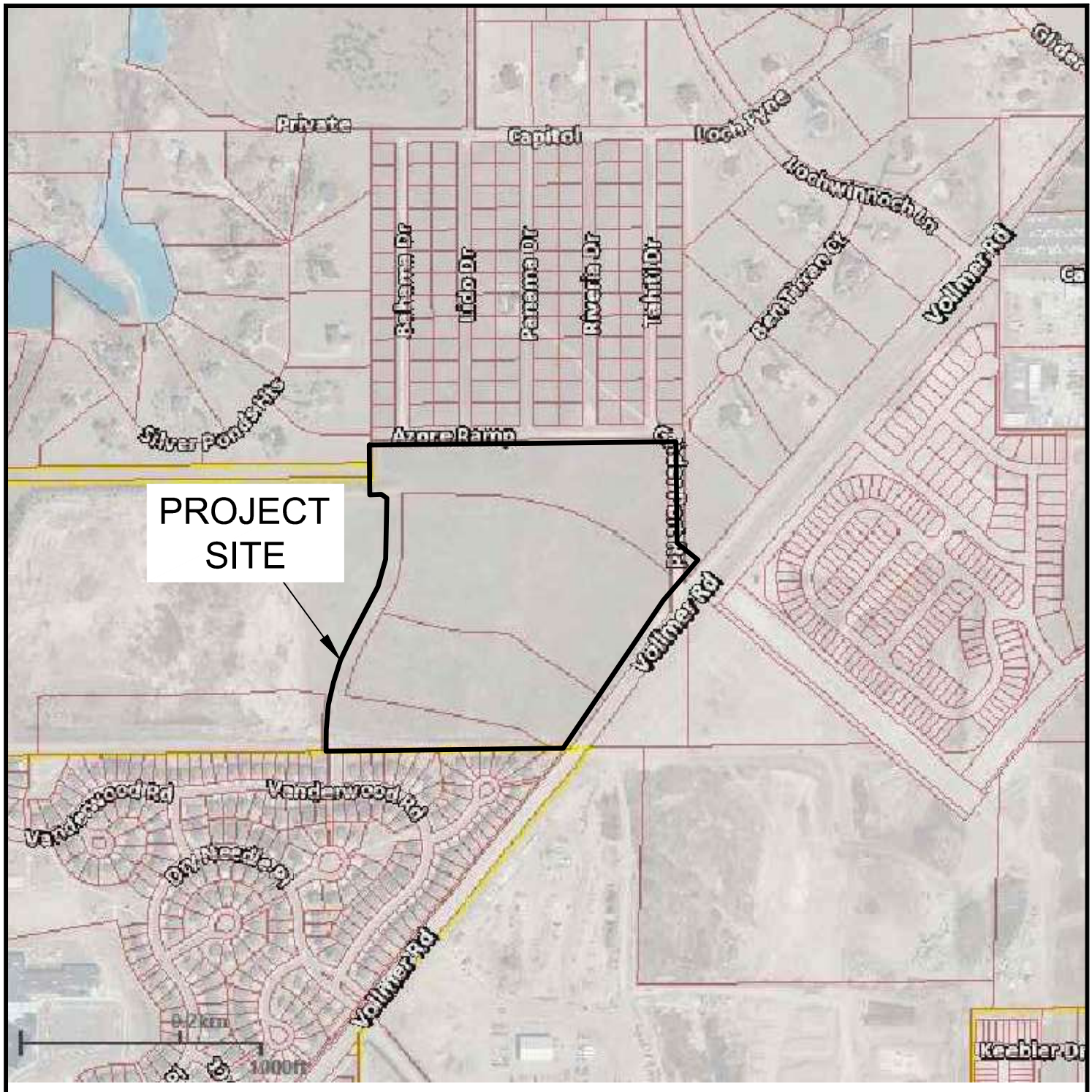
This soils and geology report has been prepared for Turkey Canyon Quarry, Inc., with application to the planned district infrastructure improvements for Schmidt Phase 1, located at Marksheffel Road and Vollmer Road in El Paso County, Colorado. In conducting the soils and geology investigation, laboratory testing, engineering evaluation, and reporting, Entech Engineering, Inc. endeavored to work in accordance with generally accepted professional geotechnical and geologic practices and principles consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in the same locality and under similar conditions. No other warranty, expressed or implied, is made. During final design and/or construction, if conditions are encountered that appear different from those described in this report, Entech Engineering, Inc. requests to be notified so that the evaluation and recommendations presented herein can be reviewed and modified as appropriate.

If there are any questions regarding the information provided herein, or if Entech Engineering, Inc. can be of further assistance, please do not hesitate to contact us.

11 REFERENCES

1. Entech Engineering, Inc. dated January 10, 2024. *Preliminary Geotechnical Report, Schmidt Property, Turkey Canyon Quarry, Colorado Springs, Colorado.* Entech Job No. 231875.
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FIGURES



N

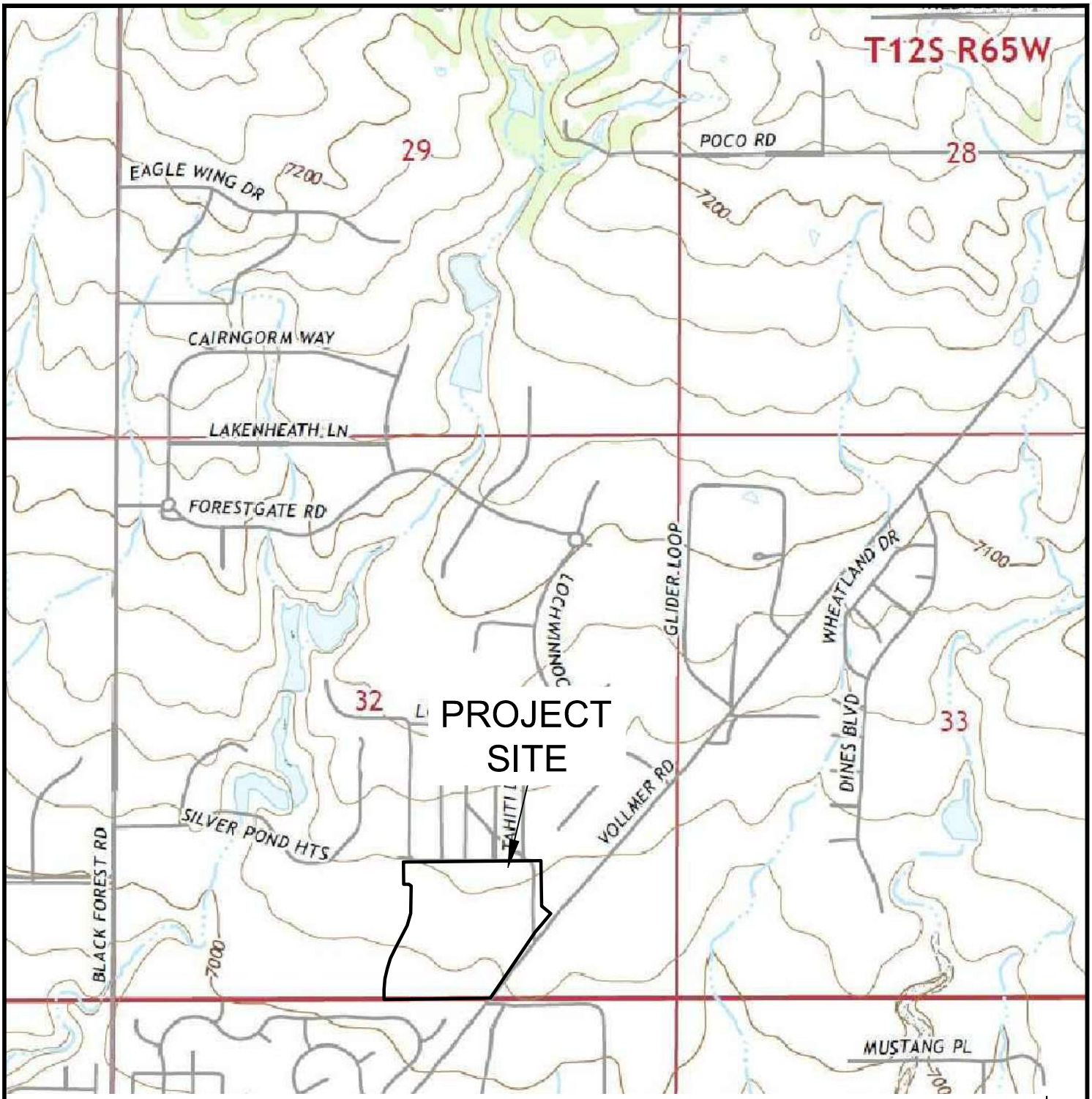
ENTECH ENGINEERING, INC.

VICINITY MAP

SCHMIDT PHASE 1 - DISTRICT INFRASTRUCTURE
TURKEY CANYON QUARRY, INC.

JOB NO.
231875

FIG. 1



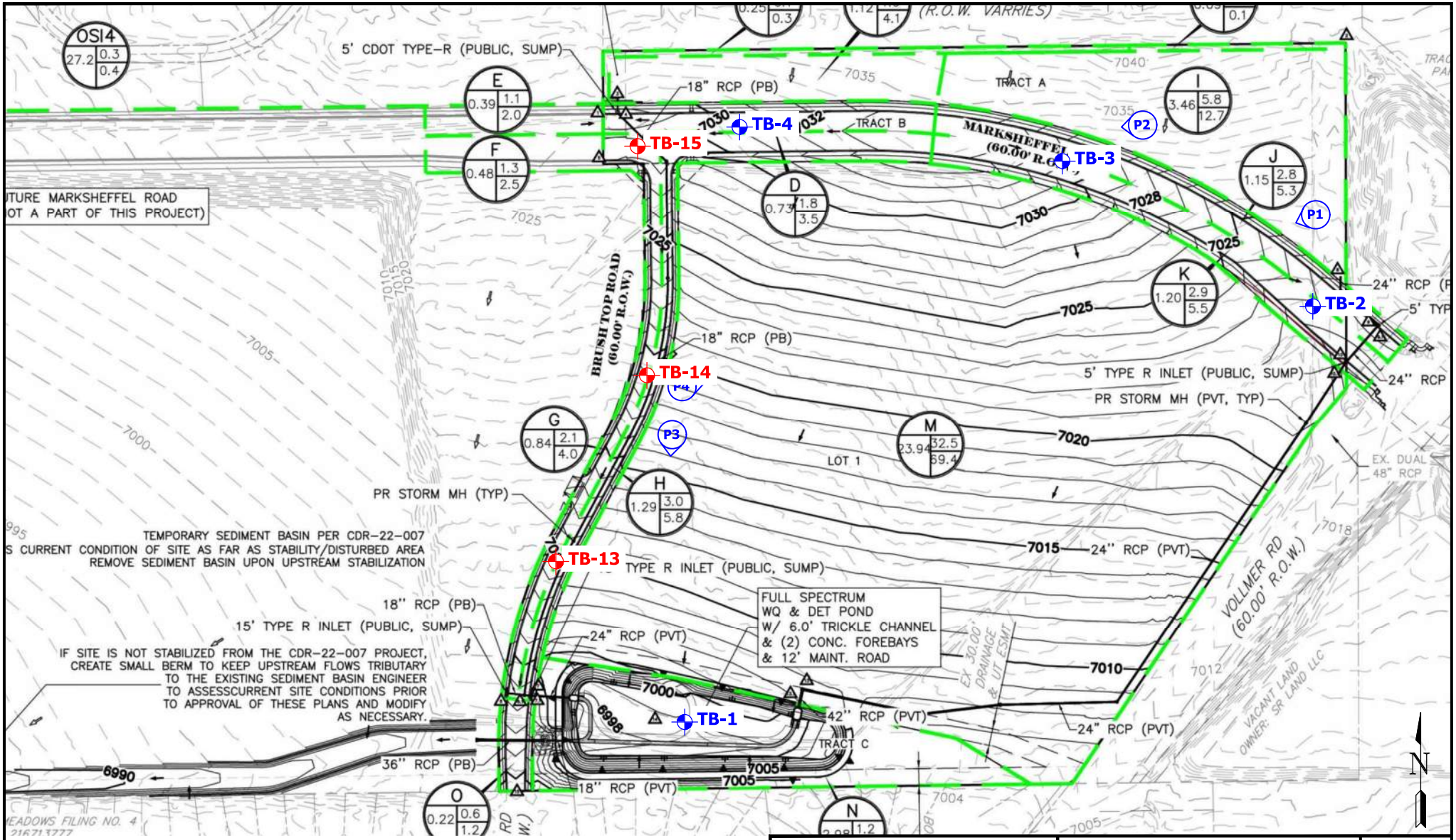
ENTECH ENGINEERING, INC.

USGS TOPOGRAPHY MAP

SCHMIDT PHASE 1 - DISTRICT INFRASTRUCTURE
TURKEY CANYON QUARRY, INC.

JOB NO. 231875

FIG. 2



TB- APPROXIMATE TEST BORING LOCATION AND NUMBER

TB- APPROXIMATE TEST BORING LOCATION AND NUMBER (2023 TEST BORINGS)

P2 - APPROXIMATE PHOTOGRAPH LOCATION AND NUMBER

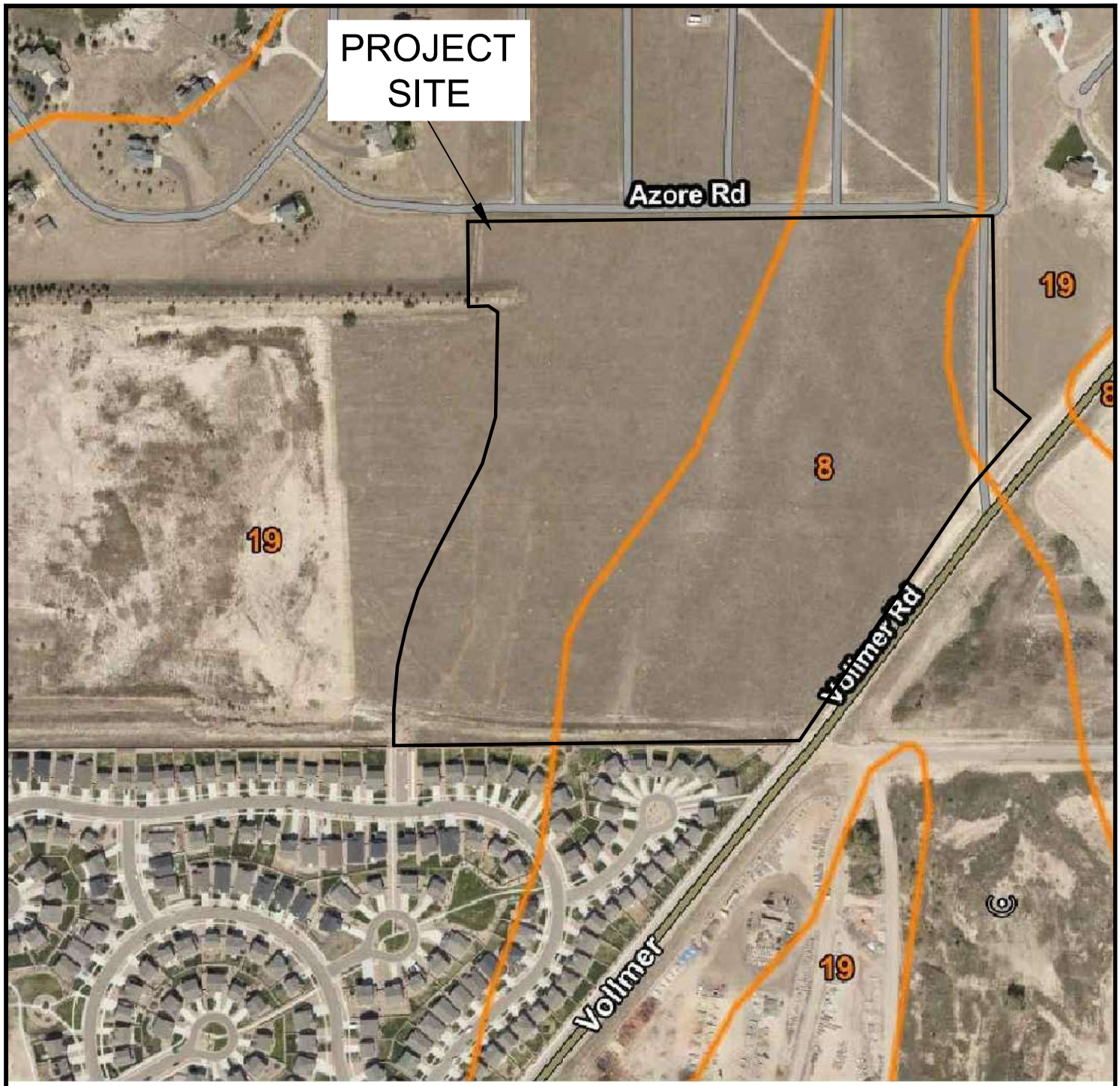
ENTECH ENGINEERING, INC.

SITE AND EXPLORATION PLAN

SCHMIDT PHASE 1 - DISTRICT INFRASTRUCTURE
TURKEY CANYON QUARRY, INC.

JOB NO. 231875

FIG. 3



N

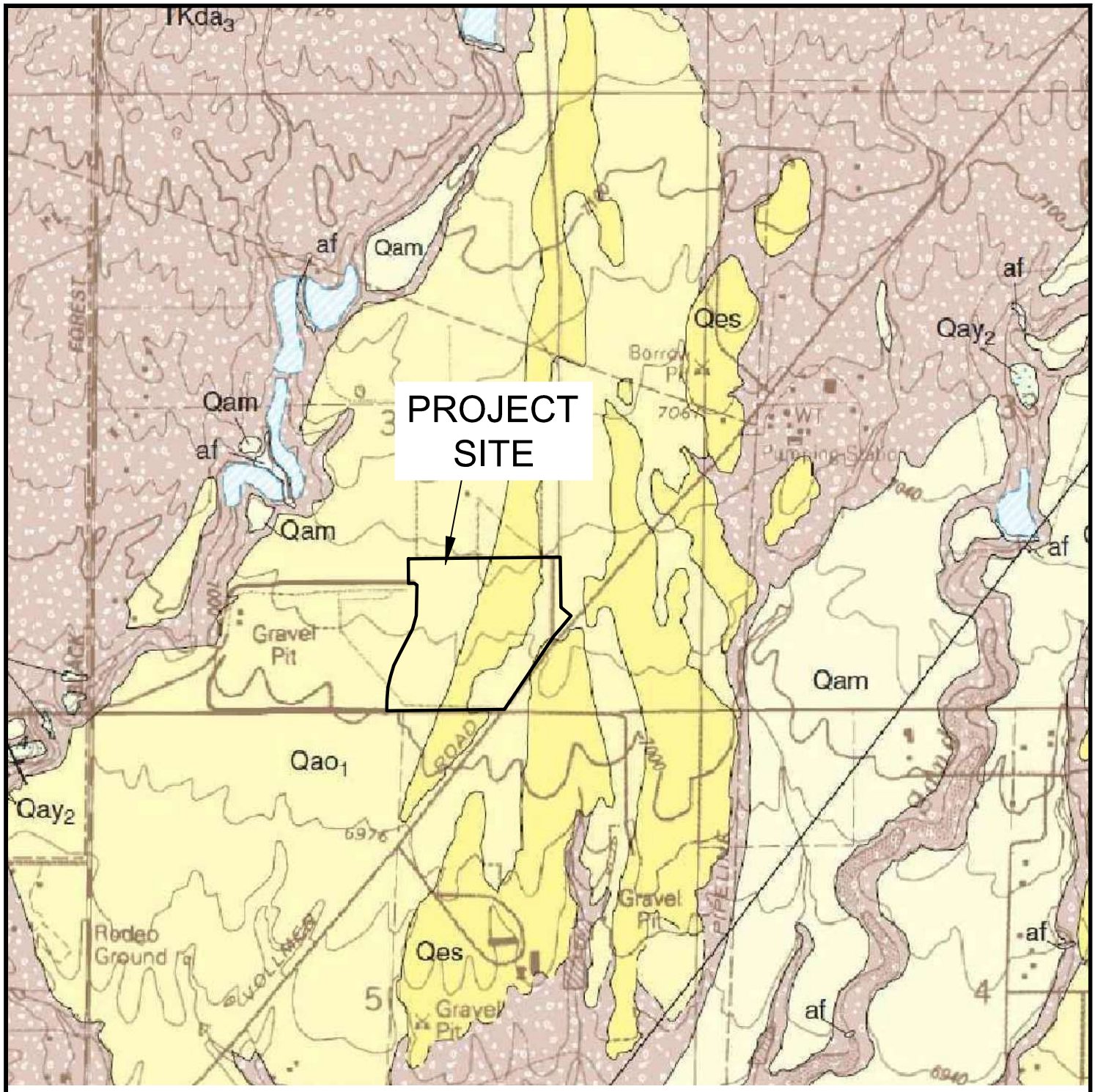
ENTECH ENGINEERING, INC.

USDA SOIL MAP

SCHMIDT PHASE 1 - DISTRICT INFRASTRUCTURE
TURKEY CANYON QUARRY, INC.

JOB NO.
231875

FIG. 4



ENTECH ENGINEERING, INC.

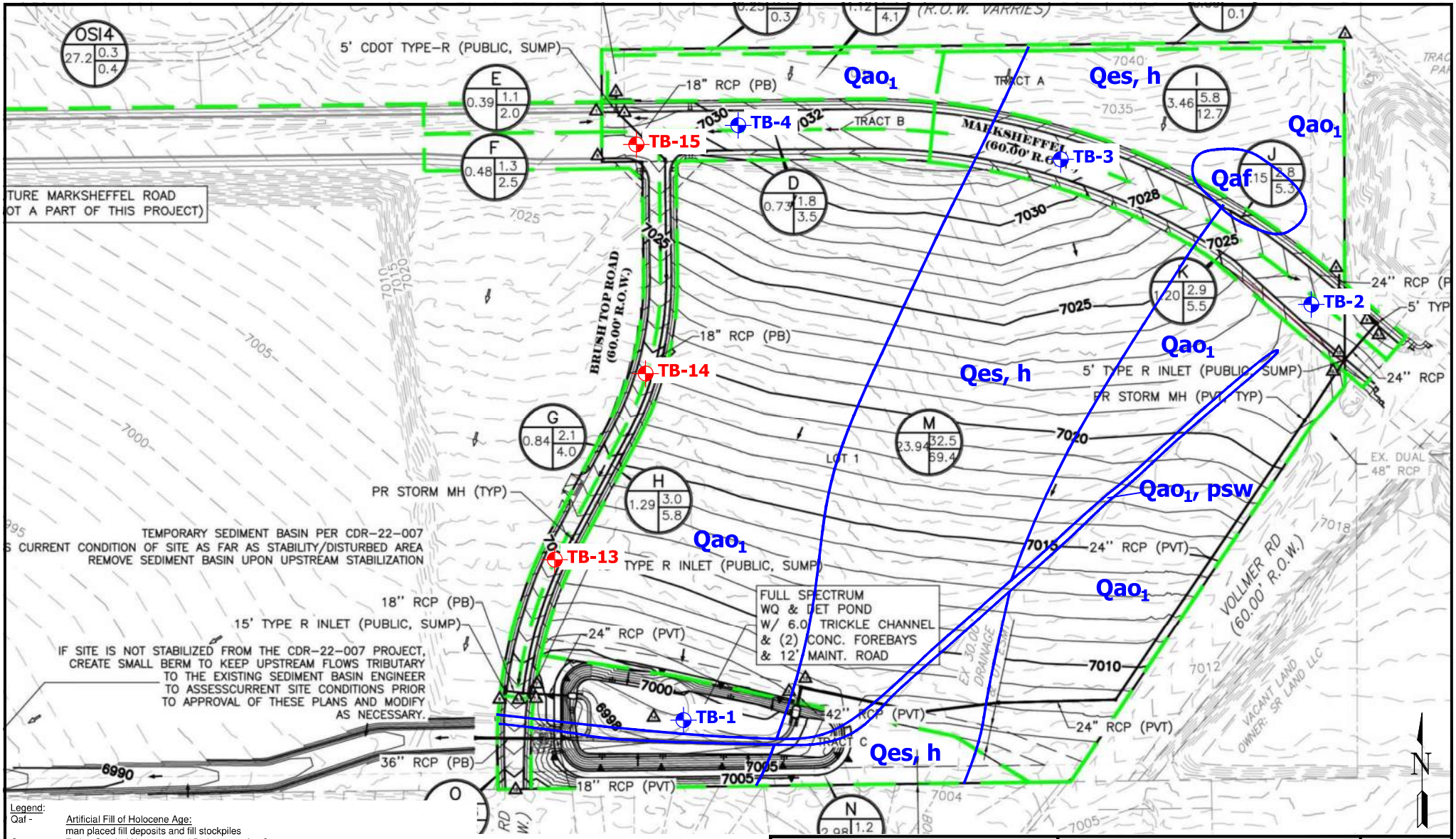
GEOLOGIC MAP OF THE FALCON NW QUADRANGLE

SCHMIDT PHASE 1 - DISTRICT INFRASTRUCTURE

TURKEY CANYON QUARRY, INC.

JOB NO. 231875

FIG. 5



Legend:

Qaf -	Artificial Fill of Holocene Age: man placed fill deposits and fill stockpiles
Qes -	Eolian Sand of Holocene and Pleistocene Age?: wind blown sand deposits
Qao_1 -	Old Alluvium one late-middle Pleistocene Age: terrace deposited sands and gravels
h -	hydrocompaction
psw -	potential seasonally shallow groundwater area

ENTECH ENGINEERING, INC.

GEOLOGY / ENGINEERING MAP

SCHMIDT PHASE 1 - DISTRICT INFRASTRUCTURE
TURKEY CANYON QUARRY, INC.

JOB NO. 231875

FIG. 6



N

ENTECH ENGINEERING, INC.

FEMA FLOODPLAIN MAP

SCHMIDT PHASE 1 - DISTRICT INFRASTRUCTURE
TURKEY CANYON QUARRY, INC.

JOB NO.
231875

FIG. 7

APPENDIX A: Site Photographs



1

Looking west from the eastern side of the site.

January 13, 2025



2

Looking west from the northeastern side of the site.

January 13, 2025

Job No. 231875



3

Looking south from the western side of the site.

January 13, 2025



4

Looking east from the western side of the site.

January 13, 2025

Job No. 231875

APPENDIX B: Test Boring Logs

TABLE B-1

DEPTH TO BEDROCK

TEST BORING	DEPTH TO GROUNDWATER (ft.)	DEPTH TO BEDROCK (ft.)
1	18	>20
2	18.5	17
3	>20	>20
4	18	>20

TEST BORING 1
DATE DRILLED 1/6/2025

REMARKS

WATER @ 18', 1/13/25

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			19	2.7	1	SAND, GRAVELLY, SILTY, BROWN to LIGHT BROWN, MEDIUM DENSE, DRY to MOIST
5			28	4.4	1	
10			18	6.8	1	SAND, CLAYEY, LIGHT BROWN, MEDIUM DENSE to DENSE, MOIST
15			14	7.7	1	
20			42	13.1	1	

TEST BORING 2
DATE DRILLED 1/6/2025

REMARKS

WATER @ 18.5', 1/13/25

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			39	5.5	1	SAND, CLAYEY, LIGHT BROWN, DENSE to MEDIUM DENSE, MOIST
5			22	6.0	1	
10			18	4.9	1	
15			16	6.5	1	
20			50/10"	9.5	2	SANDSTONE, VERY WEAK, BROWN, COMPLETELY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON

JOB NO.
231875

FIG. B-1

TEST BORING 3
DATE DRILLED 1/6/2025

REMARKS

DRY TO 19', 1/13/25

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			6	4.3	1	SAND, WITH SILT, LIGHT BROWN to BROWN, LOOSE to DENSE, MOIST
5			15	7.7	1	
10			16	4.0	1	
15			14	5.8	1	
20			42	11.7	1	

TEST BORING 4
DATE DRILLED 1/6/2025

REMARKS

WATER @ 18', 1/13/25

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			11	1.6	1	SAND, WITH SILT, LIGHT BROWN to BROWN, MEDIUM DENSE, DRY to MOIST
5			19	2.8	1	
10			22	6.8	1	
15			18	7.8	1	
20			14	16.1	1	

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TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON

JOB NO.
231875

FIG. B-2

APPENDIX C: Laboratory Testing Results

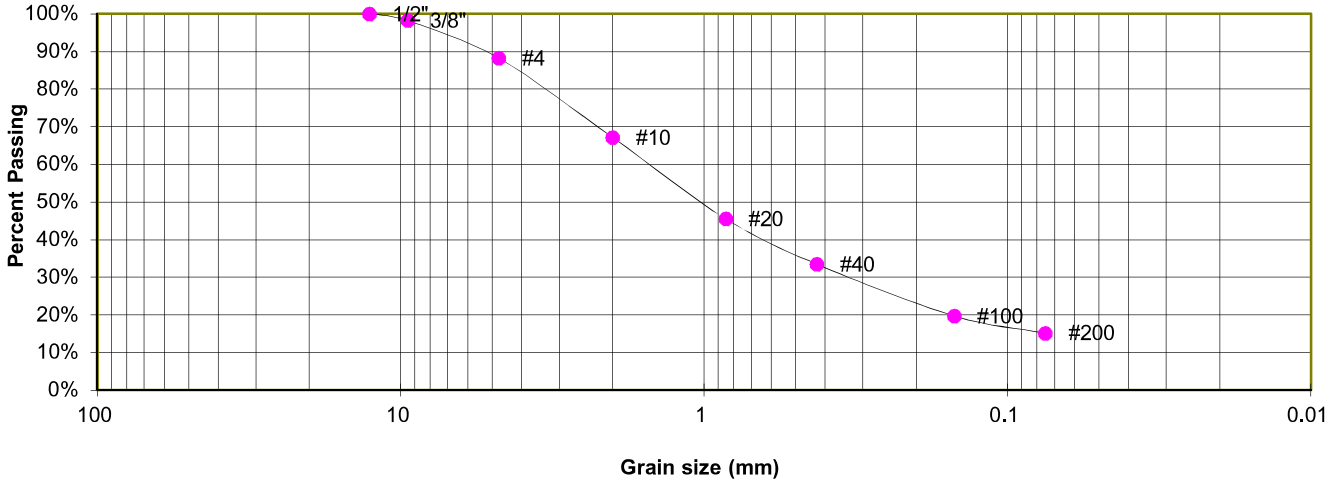
ENTECH ENGINEERING, INC.

TABLE C-1
SUMMARY OF LABORATORY TEST RESULTS

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SULFATE (WT %)	USCS	SOIL DESCRIPTION
1	1	5	15.2	26	17	9	<0.01	SC	SAND, CLAYEY
1	3	10	6.6					SW-SM	SAND, WITH SILT
1	4	5	8.8					SW-SM	SAND, WITH SILT
2	2	20	16.2	26	18	8	<0.01	SC	SANDSTONE (SAND, CLAYEY)

Project: Schmidt Property
Client: Turkey Canyon
Job No: 231875

TEST BORING	1	SOIL DESCRIPTION	SAND, CLAYEY
DEPTH (FT)	5	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.2%
4	88.2%
10	67.2%
20	45.6%
40	33.5%
100	19.7%
200	15.2%

ATTERBERG LIMITS

Plastic Limit	17
Liquid Limit	26
Plastic Index	9

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC

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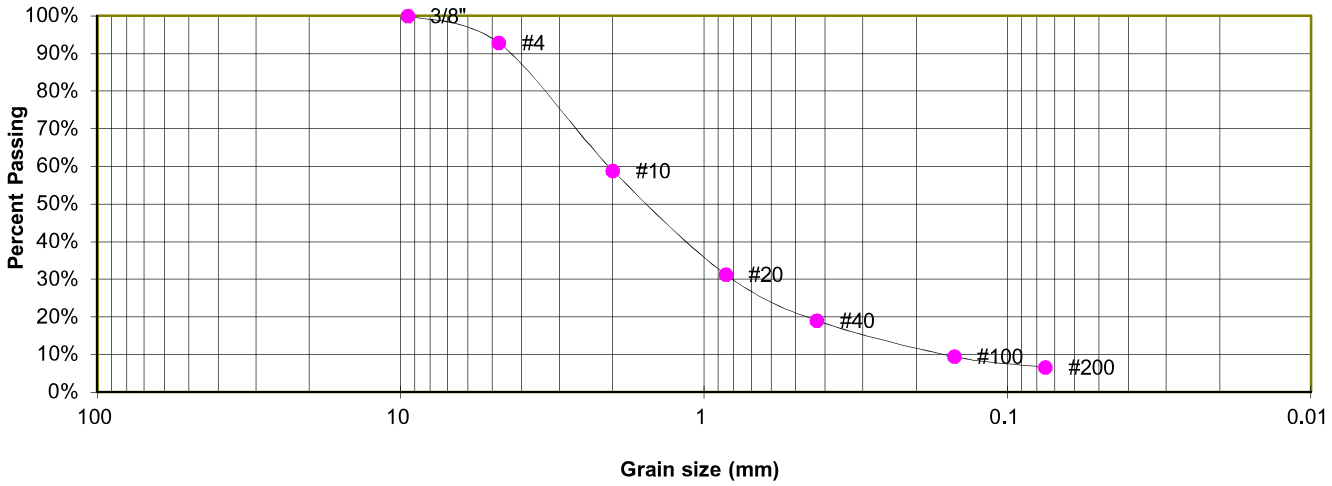
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON

JOB NO.
231875

FIG. C-1

TEST BORING	3	SOIL DESCRIPTION	SAND, WITH SILT
DEPTH (FT)	10	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	92.8%
10	58.9%
20	31.3%
40	19.0%
100	9.5%
200	6.6%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

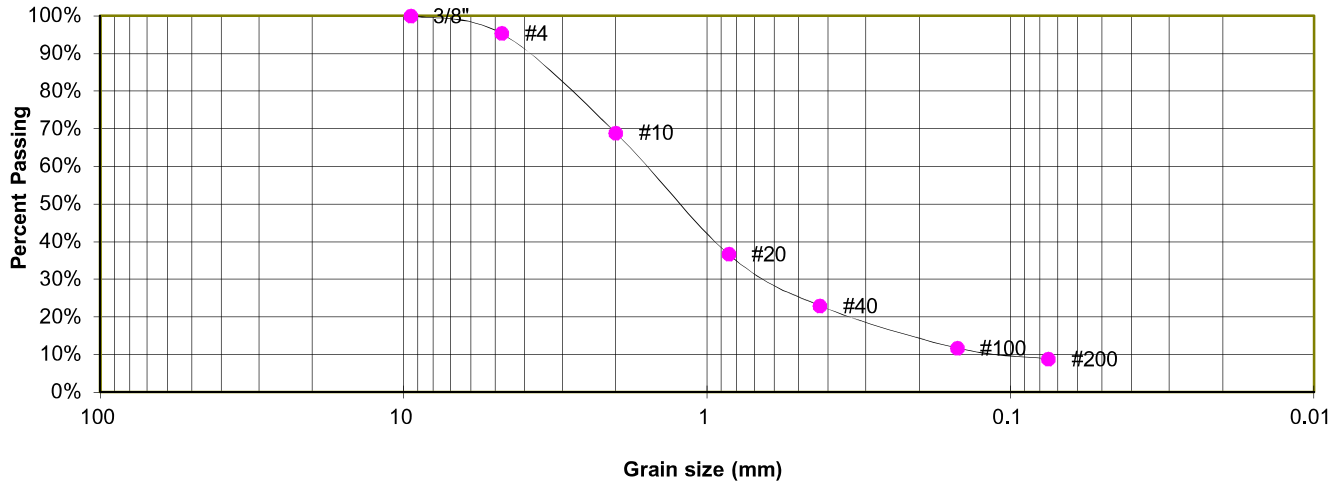
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON

JOB NO. 231875

FIG. C-2

TEST BORING	4	SOIL DESCRIPTION	SAND, WITH SILT
DEPTH (FT)	5	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	95.3%
10	68.9%
20	36.7%
40	23.0%
100	11.8%
200	8.8%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

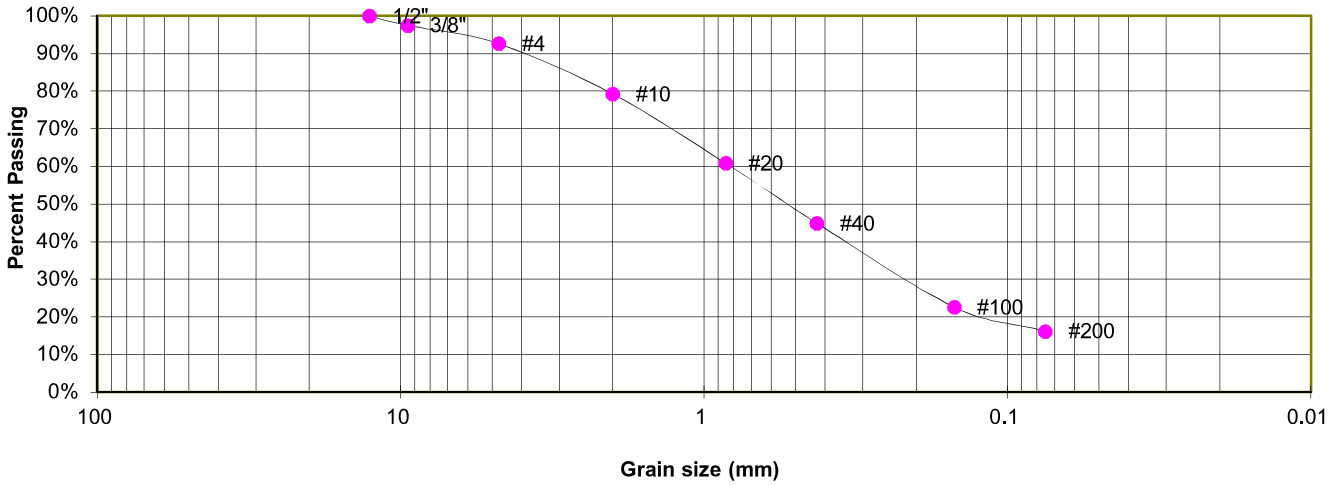
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON

JOB NO. 231875

FIG. C-3

TEST BORING	2	SOIL DESCRIPTION	SANDSTONE (SAND, CLAYEY)
DEPTH (FT)	20	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	97.5%
4	92.6%
10	79.2%
20	60.9%
40	44.9%
100	22.6%
200	16.2%

ATTERBERG LIMITS

Plastic Limit	18
Liquid Limit	26
Plastic Index	8

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC

ENTECH ENGINEERING, INC.

LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON

JOB NO. 231875

FIG. C-4

APPENDIX D: EEI, Preliminary Geotechnical Report, Schmidt Property, Job No. 231875

ENTECH
ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
PHONE (719) 531-5599

January 10, 2024

Turkey Canyon Quarry, Inc.
20 Boulder Crescent Street, 1st Floor
Colorado Springs, Colorado 80903

Attn: Mark Morley

Re: Preliminary Geotechnical Report
Schmidt Property
Turkey Canyon Quarry
Colorado Springs, Colorado
Entech Job No. 231875

Dear Mr. Morley:

Entech Engineering, Inc. (Entech) completed this preliminary geotechnical report for the above referenced site in Colorado Springs, Colorado. This report describes the subsurface exploration program and laboratory testing program, and provides preliminary recommendations for construction future residential development of the site. Our services were completed for Turkey Canyon Quarry. Grading plans were not available at the time of this report.

SITE AND PROJECT DESCRIPTION

The project is to consist of the development of the site for residential use. The site is located between Black Forest Road and Vollmer Road, south of Silver Pond Heights in Colorado Springs, Colorado. The site is indicated on the Vicinity Map, Figure 1. The site was previously utilized as a borrow quarry and is now being utilized as a storage laydown construction yard (located near the western central portion of the quarry). At the time of our subsurface exploration program a large stockpile was located near the center of the site with some placed fill in the area around the stockpile. Additional fill piles are scattered throughout the site and steep slopes and fill berms surround the property. The perimeter berms were placed as part of the quarry operations as a visual barrier. A low wet area is located near the southeast corner of the quarry. Residential neighborhoods are located to the north and south and undisturbed pastureland is located to the east. Vegetation consists of field grasses, weeds and brush, trees, and some reeds near the wetland area. A row of trees has been planted along the fill berm to the north and northwest.

FIELD INVESTIGATION AND LABORATORY TESTING:

The subsurface conditions on this site were investigated by drilling fifteen exploratory test borings, designated TB-1 through TB-15 spaced across the site. The borings were drilled to depths of 20 to 25 feet on December 6, December 7, and December 11, 2023. Two test pits were excavated on December 7, 2023, designated TP-1 and TP-2, to analyze the condition of the existing recently placed fill. Borings TB-13, TB-14, and TB-15 were drilled east of the quarry area and the upper granular soils had not been remove. The approximate locations of the test borings and pits are indicated on the Site and Exploration Plan, Figure 2. Results of the Standard Penetration Tests are shown on the Test Boring Logs. The Test Boring Logs are presented in Appendix A. Moisture Content, ASTM D2216, was obtained in the laboratory for the recovered samples. Grain-Size Analysis, ASTM D422, and determination of Atterberg Limits, ASTM D4318, were performed on samples for the purposes of classification. FHA swell testing and Swell/Consolidation testing, ASTM D4546, was performed to determine the soils

expansive or compressive characteristics. Laboratory test results are summarized in Table 1 and presented in Appendix B.

SOIL AND GROUNDWATER CONDITIONS:

Two primary soil types and two bedrock types were observed during drilling which consisted of Type 1A: clayey sand to sandy clay fill (SC, CL), Type 1: native silty to clayey sand or sand with silt (SM, SC, SW-SM) Type 2: native clay with sand to sandy clay (CL), Soil Type 3: sandstone bedrock and Soil Type 4: claystone/shale bedrock. Each soil type was classified in accordance with the Unified Soil Classification System (USCS) using the laboratory testing results and the observations made during drilling.

Soil Type 1A classified as clayey sand to sandy clay fill (SC, CL). The stiff to medium stiff sandy clay fill and medium dense clayey sand was encountered in TB-7 and TB-8 and TP-1 and TP-2 at the ground surface and extended to depths of 7 to 9 feet below ground surface (bgs). Swell/Consolidation testing on the clay fill resulted in a volume change of 0.5% which indicates a low expansion potential. FHA swell testing on a sample of clayey sand fill resulted in a swell pressure of 450 pounds per square foot (psf), indicating a low expansion potential.

Soil Type 1 classified as native silty to clayey sand to sand with silt (SM, SC, SW-SM). The very loose to dense native sand was encountered in nine of the test borings at the ground surface (TB-3) or below the fill at a depth of 7 feet bgs and extended to 3 to 21 feet bgs or to the depths explored (20 feet) bgs. The native sand is anticipated to exhibit a low expansion potential.

Soil Type 2 classified as native clay with sand to sandy clay (CL). The stiff to hard clay was encountered in eight of the test borings either the ground surface or below the Type 1 sand at 4 to 19 feet and extended to 3 feet or to the termination of the boring at 20 feet bgs. Swell/Consolidation testing on the native clay resulted in volume changes of 0.3% indicating a low expansion potential. FHA swell testing resulted in a swell pressure of 940 psf indicating a low expansion potential.

Soil Type 3 classified as sandstone bedrock, or when classified as a soil very dense to dense silty to clayey sand (SM, SC). The sandstone was encountered in ten of the test borings at depths of 3 to 17 feet bgs and extended to 18 feet or to the full depth of the borings at 20 feet bgs. The sandstone bedrock is anticipated to exhibit a low expansion potential.

Soil Type 4 classified as claystone to shale bedrock or hard sandy clay (CL) when classified as a soil. The claystone/shale bedrock was encountered in nine of the test borings at depths of 3 to 21 feet and extended to 8 feet or to termination of the borings at 20 to 25 feet bgs. Swell/Consolidation testing on the claystone/shale bedrock resulted in volume changes of -0.9 to +2.4% indicating a low potential for consolidation and a moderate expansion potential.

Groundwater was encountered in nine of the test borings at depths between 3.5 and 17 feet subsequent to drilling (see Table A-1). Shallow water was primarily in the north east portion of the quarry area. We anticipate that the groundwater may affect grading activities and may affect residential construction depending on final site grading. Fluctuations in precipitation or runoff may create unstable conditions in excavations and stabilization with shot rock and/or geofabric may be required.

PRELIMINARY DEVELOPMENT CONSIDERATIONS AND RECOMMENDATIONS:

The recently placed fill was explored by boring TB-7 as well as test pits TP-1 and TP-2. Fill was encountered to depths of 6 to 9 feet. A layer of dark organics was also encountered at the base of the fill. Standard Penetration Testing and compaction testing in the test pits indicated the fill was not placed in a controlled, compacted manner. Refer to Appendix C for density testing results. A layer of highly organic soil was encountered below the fill in the test pits indicating the vegetation was not properly stripped before fill placement. Any fill will require removal and recompaction to native soils prior placing additional fill. In addition, the organics layer will require removal.

Wet soft soils encountered in the vicinity of TB-12 need to be mitigated prior to placing new any new fill. Ponded water should be drained from low lying areas and soft or loose soils should be overexcavated to a dense and unyielding subgrade. If the overexcavation encroaches on the water table, and stabilization with shot rock and geofabric may be necessary.

As discussed above, subsurface soil conditions encountered in the test borings consisted of sandy clay to clayey sand fill over native sand, sandy clay, sandstone and claystone bedrock. Shallow foundations bearing on controlled structural fill, medium dense or recompacted on-site sand or undisturbed sandstone bedrock are feasible for structures on this site. Shallow bedrock (less than 10 feet) was encountered in eleven of the test borings across the site (see Table A-1). Overexcavation of clay soils or claystone bedrock and replacement with structural fill is also anticipated where clay/claystone is encountered close to foundation grades. Overexcavation depths of 4 to 5 feet are anticipated in areas of claystone bedrock.

Groundwater will likely affect the construction of shallow foundations or utility trenches proposed for development of this site. Development of this and adjacent properties as well as seasonal precipitation changes and runoff may affect groundwater elevations.

PRELIMINARY CONCRETE RECOMMENDATIONS:

Sulfate solubility testing was conducted on select soil samples recovered from the test borings to evaluate the potential for sulfate attack on concrete placed at or below surface grade. Test results indicate 0.01 to less than 0.01 percent soluble sulfate (by weight), refer to Appendix B. These tests results indicate that the sulfate component of the site soils present negligible exposure threats to concrete degradation.

SITE GRADING:

Any areas to receive fill should have all uncontrolled fill, topsoil, organic material or debris removed. Fill must be properly benched and compacted to minimize potentially unstable conditions in slope areas. Completed slopes should be 3H:1V (horizontal to vertical) or flatter if constructed without geosynthetic reinforcements. Flatter slopes may be necessary if ground water is present. Grading that approaches the water table will encounter unstable conditions. The surface to receive fill should be scarified a minimum 8 inches, and moisture conditioned to within +/-2% of optimum moisture content and compacted to a minimum of 95% of its maximum Standard Proctor Dry Density, ASTM D-698 for cohesive soils (clay) and 95% of its maximum Modified Proctor Dry Density, ASTM D1557 for cohesionless soils (sand), prior to placing new fill.

New fill should be placed in thin lifts not to exceed 6 inches after compaction while adhering to the same specifications listed above. The placement and compaction of fill should be observed and tested by Entech during construction. Entech should approve any import materials prior to hauling them to the site.

ADDITIONAL GEOTECHNICAL EXPLORATIONS:

Additional geotechnical investigation is recommended when the development plans are finalized, subdivision lots are staked and overlot grading is completed in order to provide final design and construction recommendations.

CLOSURE:

The preliminary subsurface exploration program, geotechnical evaluation, and recommendations presented in this report are intended for use by Turkey Canyon Quarry, Inc. with application to the proposed development of the Schmidt Property. The borings were located to provide preliminary recommendations, variations in site subsurface conditions not indicated on the borings should be anticipated.

In conducting the preliminary subsurface exploration program, laboratory testing, engineering evaluation and reporting, Entech Engineering, Inc. endeavored to work in accordance with generally accepted professional geotechnical and geologic practices and principles consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in same locality and under similar conditions. No other warranty, expressed or implied is made.

If there are any questions regarding the information provided herein or if Entech can be of further assistance, please do not hesitate to contact us.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Stuart Wood

SW:JCG
Entech Job No. 231875

Reviewed by:

COLORADO LICENSED
JOSEPH C GOODE III
52381
PROFESSIONAL ENGINEER

Digitally signed by Joseph C Goode III
Date: 2024.01.10 14:34:40 -07'00'

Joseph C. Goode III, P.E.
Sr. Engineer

AAProjects/2023/231875 - pgr



ENTECH ENGINEERING, INC.

VICINITY MAP

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO.
231875

FIG. 1



TB- APPROXIMATE TEST BORING LOCATION AND NUMBER

TP- APPROXIMATE TEST PIT LOCATION AND NUMBER

N

ENTECH ENGINEERING, INC.

SITE AND EXPLORATION PLAN

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO.
231875

FIG. 2

APPENDIX A: Test Boring Logs

ENTECH ENGINEERING, INC.

TABLE A-1

DEPTH TO GROUNDWATER & BEDROCK

TEST BORING	DEPTH TO GROUNDWATER (ft.)	DEPTH TO BEDROCK (ft.)
1	>20	3
2	>20	3
3	>20	7
4	>20	4
5	>20	9
6	>20	3
7	16.5	14
8	17.5	8
9	7	3
10	3.5	8
11	3.5	9
12	11	10
13	13	21
14	16	>20
15	17	>20

TEST BORING 1
DATE DRILLED 12/11/2023

REMARKS

DRY TO 19', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			30	8.3	1
5			50/11"	10.1	3
10			50	11.4	3
15			50/11"	13.0	3
20			50/6"	11.6	3

SAND, SILTY, OLIVE, DENSE, MOIST

SANDSTONE, VERY WEAK, GRAY, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

TEST BORING 2
DATE DRILLED 12/11/2023

REMARKS

DRY TO 18', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			40	4.6	1
5			50/11"	8.6	4
10			50/9"	11.0	3
15			42	10.6	3
20			50/9"	10.9	4

SAND, SILTY, BROWN, DENSE, MOIST

CLAYSTONE, VERY WEAK, OLIVE, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)

SANDSTONE, VERY WEAK, GRAY to OLIVE, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE to DENSE, MOIST)

CLAYSTONE, VERY WEAK, GRAY, MODERATELY WEATHERED (CLAY, SANDY, HARD, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. A-1

TEST BORING 3
DATE DRILLED 12/11/2023

REMARKS

DRY TO 19', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			32	6.3	1	SAND, SILTY, OLIVE, DENSE, MOIST
5			40	7.9	1	
						SANDSTONE, VERY WEAK, OLIVE, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)
10			50/9"	10.7	3	
15			50/10"	9.7	3	
20			50/9"	12.2	4	CLAYSTONE, VERY WEAK, GRAY, MODERATELY WEATHERED (CLAY, SANDY, HARD, MOIST)

TEST BORING 4
DATE DRILLED 12/11/2023

REMARKS

DRY TO 19.5', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			11	18.3	2	CLAY, SANDY, GRAY, STIFF, MOIST
5			50/11"	12.0	4	CLAYSTONE, VERY WEAK, OLIVE, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)
10			50/9"	11.6	4	
						SANDSTONE, VERY WEAK, OLIVE to GRAY, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)
15			50/9"	7.0	3	
20			50/7"	7.8	3	

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. A-2

TEST BORING 5
DATE DRILLED 12/11/2023

REMARKS

DRY TO 19', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			24	5.0	1
			14	17.6	2
5					
			50/9"	9.0	4
10					
			50/6"	11.2	3
15					
			50/6"	8.3	3
20					

SAND, SILTY, BROWN, MEDIUM DENSE, MOIST

CLAY, WITH SAND, GRAY, STIFF, MOIST

CLAYSTONE, VERY WEAK, DARK GRAY, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)

SANDSTONE, WEAK, OLIVE, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

TEST BORING 6
DATE DRILLED 12/11/2023

REMARKS

DRY TO 19.5', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			20	10.4	2
			50/10"	9.9	4
5					
			50/8"	11.1	4
10					
			50/8"	15.0	4
15					
			50/6"	8.5	3
20					

CLAY, SANDY, GRAY, VERY STIFF, MOIST

CLAYSTONE, VERY WEAK, GREEN-GRAY, MODERATELY WEATHERED (CLAY, SANDY, HARD, MOIST)

SANDSTONE, WEAK, GRAY, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. A-3

TEST BORING 7
DATE DRILLED 12/11/2023
REMARKS

WATER @ 16.5', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			10	16.8	1A
5			5	14.4	1A
10			38	8.8	1
15			50/10"	10.6	3
20			50/7"	8.1	3

FILL 0-7', CLAY, SANDY, STIFF to MEDIUM STIFF, MOIST

SAND, SILTY, LIGHT BROWN to GRAY, DENSE, MOIST

SANDSTONE, WEAK, GRAY, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

TEST BORING 8
DATE DRILLED 12/11/2023
REMARKS

WATER @ 17.5', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			15	9.8	1A
5			10	10.7	1A
10			50/11"	11.3	3
15			50/7"	14.6	3
20			50/7"	12.0	3

FILL 0-8', SAND, CLAYEY, TAN, MEDIUM DENSE, MOIST

SANDSTONE, WEAK, GRAY, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. A-4

TEST BORING 9
DATE DRILLED 12/7/2024

REMARKS

WATER @ 7', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			24	13.4	2
5			50/9"	6.5	3
10			50/9"	10.9	3
15			50/10"	11.9	3
20			50/9"	10.1	3

CLAY, SANDY, BROWN, VERY STIFF, MOIST

SANDSTONE, WEAK, GRAY, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

TEST BORING 10
DATE DRILLED 12/7/2024

REMARKS

WATER @ 3.5', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			13	9.6	1
5			22	15.1	2
10			45	14.6	4
15			50/7"	9.9	4
20			50/6"	11.3	4

SAND, CLAYEY TAN, MEDIUM DENSE, MOIST

CLAY, SANDY, GRAY, VERY STIFF, MOIST

CLAYSTONE, WEAK, GRAY, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. A-5

TEST BORING 11
DATE DRILLED 12/7/2024
REMARKS
WATER @ 3.5', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	CLAY, SANDY, BROWN, VERY STIFF to HARD, MOIST				
			25	15.2	2
5			47	16.3	2
10			44	12.7	2
	SHALE, WEAK, GRAY, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)				
15			50/7"	11.0	4
20			50/7"	10.5	4

TEST BORING 12
DATE DRILLED 12/11/2024
REMARKS
WATER @ 11', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	CLAY, SANDY, OLIVE to GREEN-GRAY, MEDIUM STIFF to VERY STIFF, MOIST		6	17.0	2
5			27	8.4	2
10	SANDSTONE, VERY WEAK, OLIVE, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)		50/11"	9.9	3
15			50/7"	10.2	3
20	CLAYSTONE, WEAK, GRAY, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)		50/6"	10.3	4

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. A-6

TEST BORING 13
DATE DRILLED 12/11/2024

REMARKS

WATER @ 13', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	SAND, CLAYEY, BROWN to OLIVE, MEDIUM DENSE to VERY LOOSE, MOIST to WET		28	3.1	1
5			10	6.8	1
10			16	8.2	1
15			16	6.8	1
20			1	14.9	1
	CLAYSTONE, WEAK, GREEN-GRAY, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)				
25			50/8"	14.9	4

TEST BORING 14
DATE DRILLED 12/11/2024

REMARKS

WATER @ 16', 12/12/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	SAND, WITH SILT, BROWN to OLIVE, LOOSE to MEDIUM DENSE, MOIST to WET		5	4.0	1
5			11	16.3	1
10			20	9.4	1
15			19	12.9	1
20	CLAY, WITH SAND, GREEN-GRAY, VERY STIFF, MOIST		26	21.0	2

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

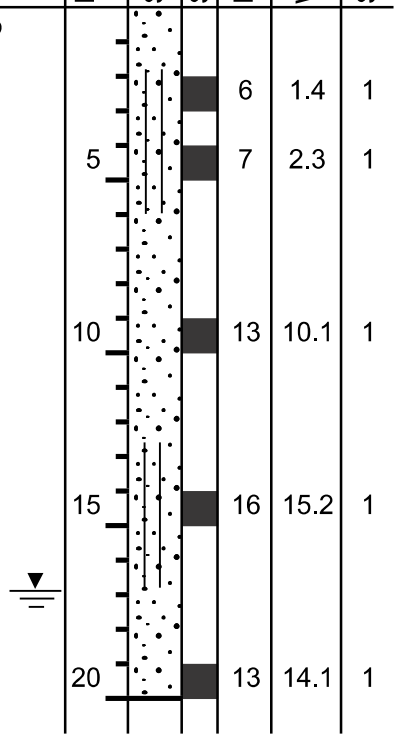
FIG. A-7

TEST BORING 15

DATE DRILLED 12/11/2024

REMARKS

WATER @ 17', 12/12/23



Depth (ft)	Samples	Blows per foot	Watercontent %	Soil Type
		6	1.4	1
5		7	2.3	1
10		13	10.1	1
15		16	15.2	1
20		13	14.1	1

SAND, WITH SILT, BROWN to OLIVE, LOOSE to MEDIUM DENSE, DRY to WET

ENTECH ENGINEERING, INC.

TEST BORING LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. A-8

TEST PIT 1
DATE DRILLED 12/7/2024

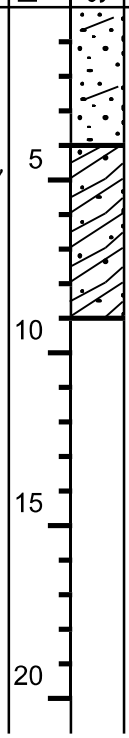
REMARKS

DRY TO 9', 12/7/23

FILL 0-9', SAND, CLAYEY, BROWN, MEDIUM DENSE, MOIST

FILL, CLAY, SANDY, BROWN, STIFF, MOIST

ORGANICS LAYER AT 9'



TEST PIT 2
DATE DRILLED 12/7/2024

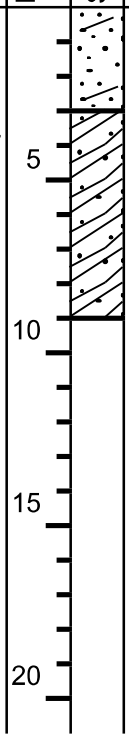
REMARKS

DRY TO 9', 12/7/23

FILL 0-9', SAND, CLAYEY, BROWN, MEDIUM DENSE, MOIST

FILL, CLAY, SANDY, BROWN, STIFF, MOIST

ORGANICS LAYER AT 9'



ENTECH ENGINEERING, INC.

TEST PIT LOGS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. A-9

APPENDIX B: Laboratory Test Results

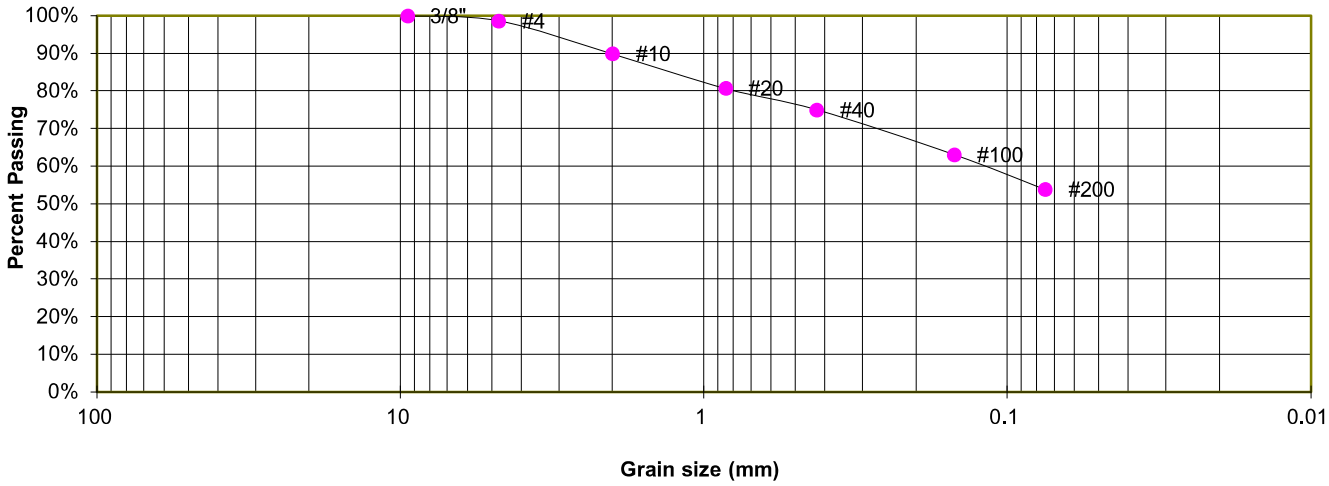
ENTECH ENGINEERING, INC.

TABLE B-1
SUMMARY OF LABORATORY TEST RESULTS

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SULFATE (WT %)	FHA SWELL (PSF)	SWELL/ CONSOL (%)	USCS	SOIL DESCRIPTION
1A	7	2-3	15.9	109.1	53.9						0.5	CL	FILL, CLAY, SANDY
1A	8	5			21.5					450		SC	FILL, SAND, CLAYEY
1	1	2-3			17.7	NV	NP	NP	<0.01			SM	SAND, SILTY
1	7	10			19.8							SM	SAND, SILTY
1	13	20			30.4	25	13	12				SC	SAND, CLAYEY
1	14	5			5.7							SW-SM	SAND, WITH SILT
1	15	10			8.5	NV	NP	NP				SW-SM	SAND, WITH SILT
2	5	5	20.5	105.8	83.4	36	20	16	<0.01		0.3	CL	CLAY, WITH SAND
2	6	2-3			66.0					940		CL	CLAY, SANDY
2	9	2-3	11.9	113.1	60.3	34	17	17	<0.01		0.3	CL	CLAY, SANDY
2	14	20			82.1							CL	CLAY, WITH SAND
3	3	10			20.0	NV	NP	NP	<0.01			SM	SANDSTONE (SAND, SILTY)
3	8	20			14.0							SM	SANDSTONE (SAND, SILTY)
3	12	10			42.2							SC	SANDSTONE (SAND, CLAYEY)
4	2	5	10.0	110.4	61.0	27	17	10	<0.01		-0.9	CL	CLAYSTONE (CLAY, SANDY)
4	4	5	12.3	119.5	63.5						0.4	CL	CLAYSTONE (CLAY, SANDY)
4	10	10	14.6	116.0	54.9				<0.01		2.4	CL	CLAYSTONE (CLAY, SANDY)
4	11	20	10.6	123.5	55.1	33	20	13	0.01		1.7	CL	SHALE (CLAY, SANDY)
4	13	25	11.6	121.4	65.3						0.4	CL	CLAYSTONE (CLAY, SANDY)

Project: Schmidt Property
Client: Turkey Canyon Quarry
Job No: 231875

TEST BORING	7	SOIL DESCRIPTION	FILL, CLAY, SANDY
DEPTH (FT)	2-3	SOIL TYPE	1A



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.6%
10	89.9%
20	80.7%
40	75.0%
100	63.1%
200	53.9%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

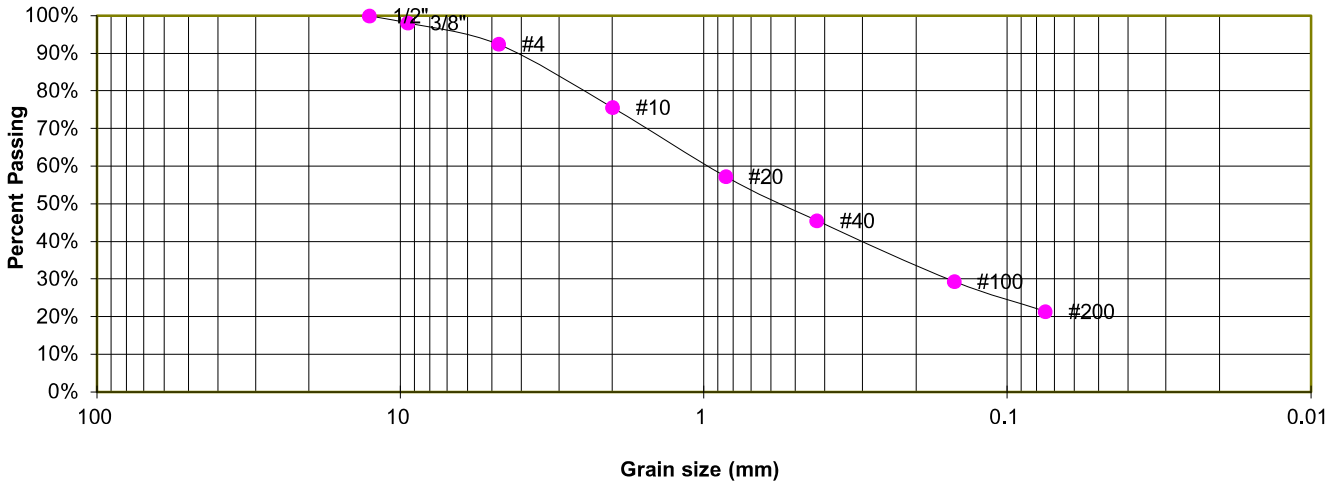
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-1

TEST BORING	8	SOIL DESCRIPTION	FILL, SAND, CLAYEY
DEPTH (FT)	5	SOIL TYPE	1A



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.1%
4	92.4%
10	75.6%
20	57.3%
40	45.6%
100	29.4%
200	21.5%

FHA SWELL

Moisture at start	7.8%
Moisture at finish	15.1%
Moisture increase	7.4%
Initial dry density (pcf)	108
Swell (psf)	450

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC

ENTECH ENGINEERING, INC.

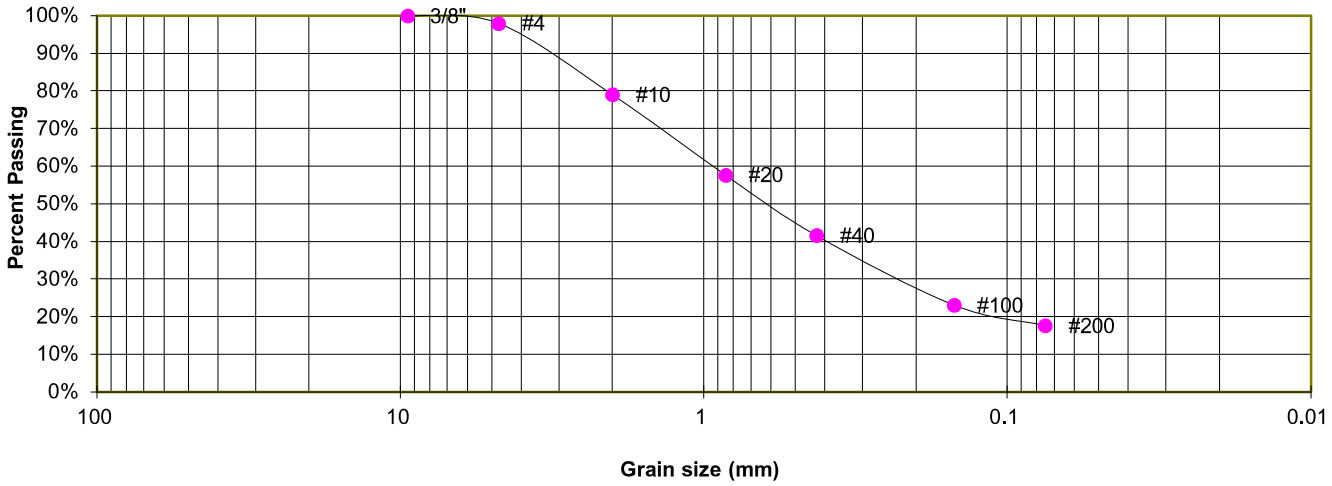
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-2

TEST BORING	1	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	2-3	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.0%
10	79.0%
20	57.7%
40	41.6%
100	23.1%
200	17.7%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

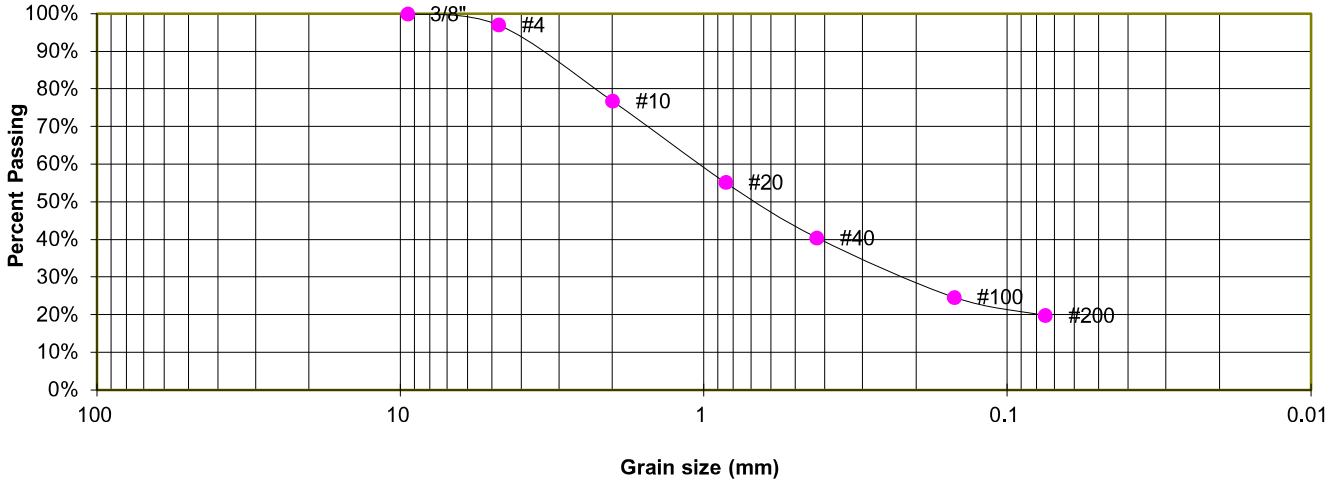
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-3

TEST BORING	7	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	10	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	97.1%
10	76.8%
20	55.2%
40	40.5%
100	24.7%
200	19.8%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

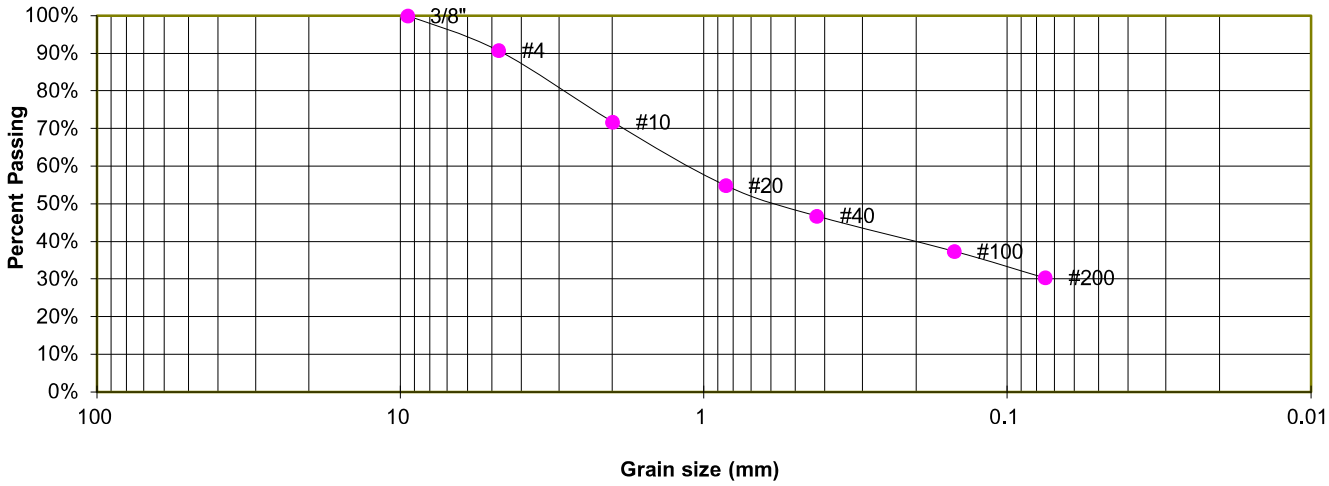
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-4

TEST BORING	13	SOIL DESCRIPTION	SAND, CLAYEY
DEPTH (FT)	20	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	90.7%
10	71.7%
20	54.9%
40	46.8%
100	37.4%
200	30.4%

ATTERBERG LIMITS

Plastic Limit	13
Liquid Limit	25
Plastic Index	12

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC

ENTECH ENGINEERING, INC.

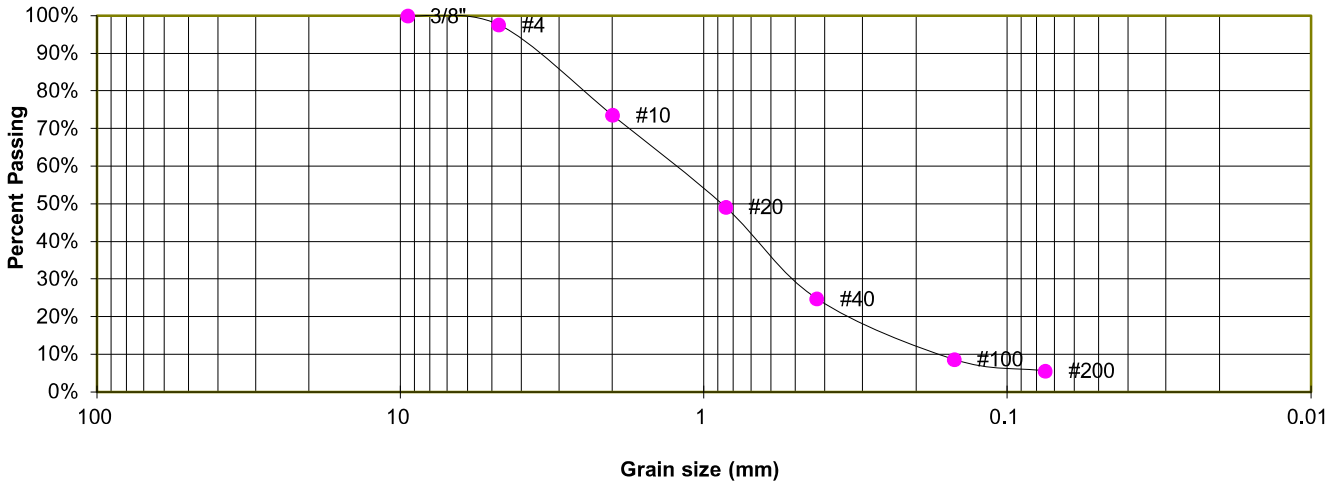
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-5

TEST BORING	14	SOIL DESCRIPTION	SAND, WITH SILT
DEPTH (FT)	5	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	97.6%
10	73.6%
20	49.2%
40	24.8%
100	8.7%
200	5.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

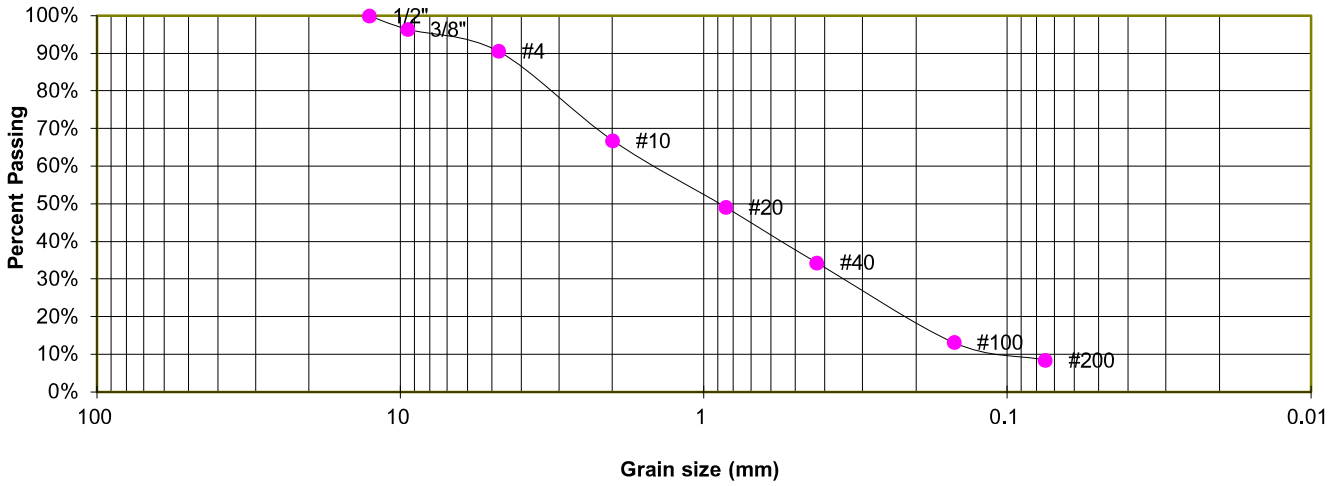
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-6

TEST BORING	15	SOIL DESCRIPTION	SAND, WITH SILT
DEPTH (FT)	10	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	96.4%
4	90.6%
10	66.9%
20	49.2%
40	34.4%
100	13.2%
200	8.5%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

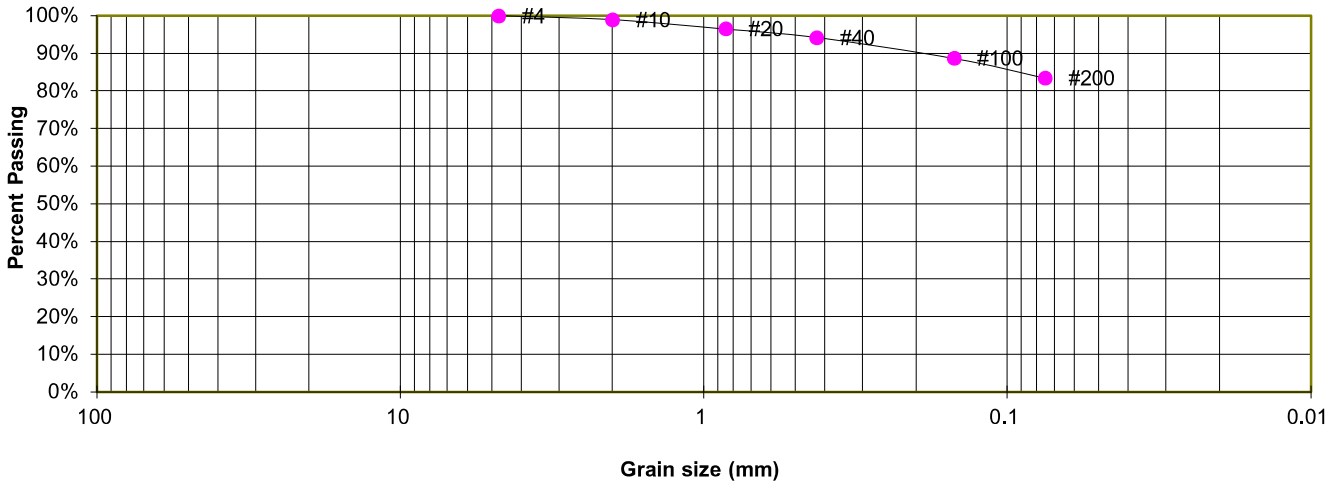
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-7

TEST BORING	5	SOIL DESCRIPTION	CLAY, WITH SAND
DEPTH (FT)	5	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.0%
20	96.5%
40	94.2%
100	88.7%
200	83.4%

ATTERBERG LIMITS

Plastic Limit	20
Liquid Limit	36
Plastic Index	16

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

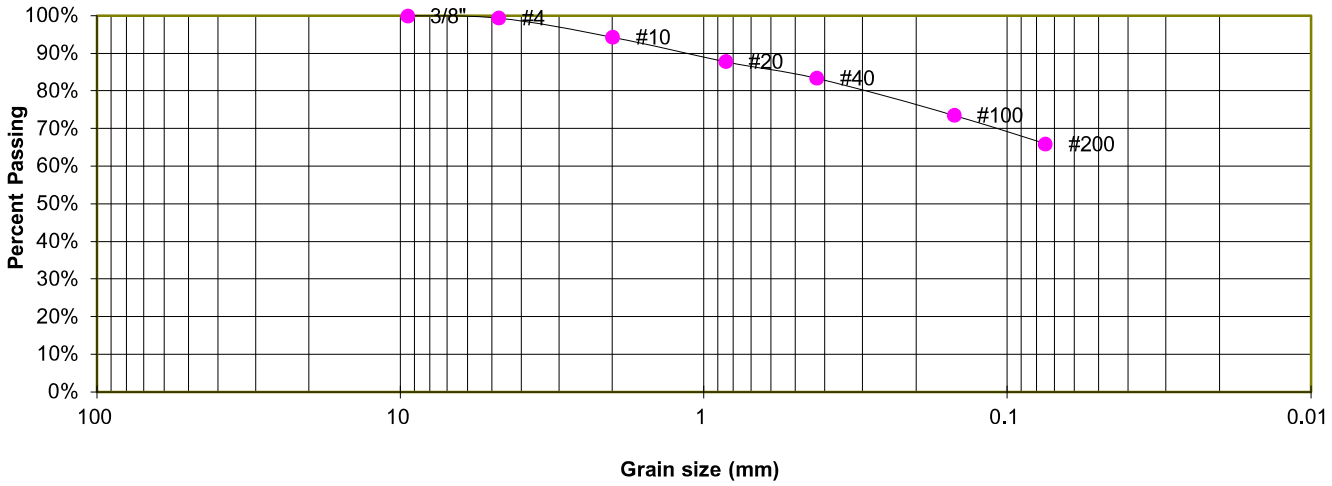
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-8

TEST BORING	6	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	2-3	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.4%
10	94.3%
20	87.8%
40	83.4%
100	73.6%
200	66.0%

FHA SWELL

Moisture at start	10.3%
Moisture at finish	17.0%
Moisture increase	6.8%
Initial dry density (pcf)	111
Swell (psf)	940

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

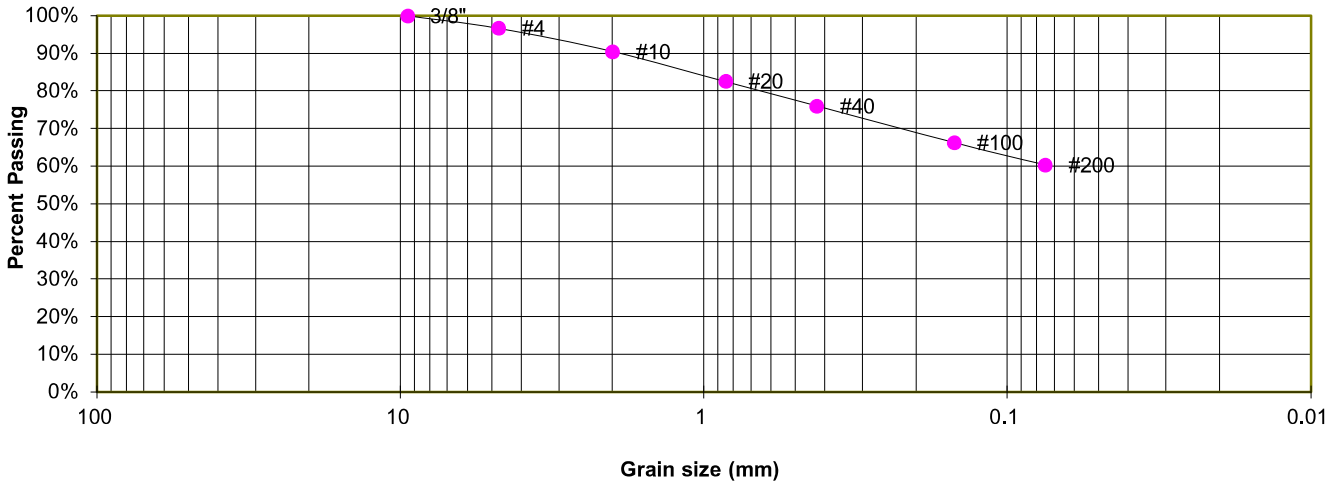
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-9

TEST BORING	9	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	2-3	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.7%
10	90.5%
20	82.6%
40	76.1%
100	66.3%
200	60.3%

ATTERBERG LIMITS

Plastic Limit	17
Liquid Limit	34
Plastic Index	17

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

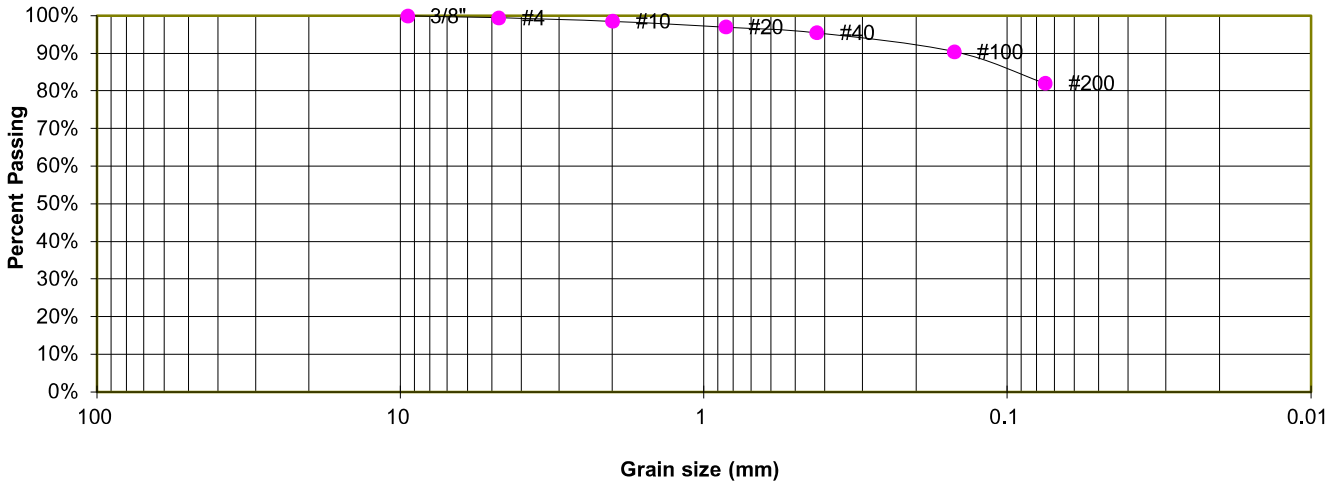
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-10

TEST BORING	14	SOIL DESCRIPTION	CLAY, WITH SAND
DEPTH (FT)	20	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.5%
10	98.6%
20	97.0%
40	95.5%
100	90.5%
200	82.1%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

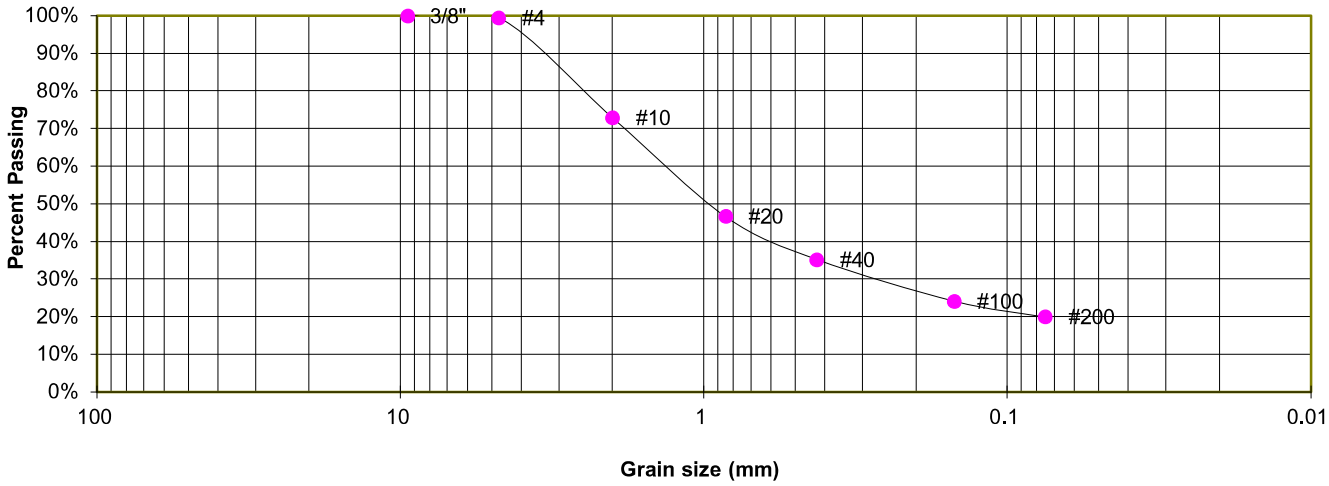
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-11

TEST BORING	3	SOIL DESCRIPTION	SANDSTONE (SAND, SILTY)
DEPTH (FT)	10	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.5%
10	72.9%
20	46.7%
40	35.2%
100	24.2%
200	20.0%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

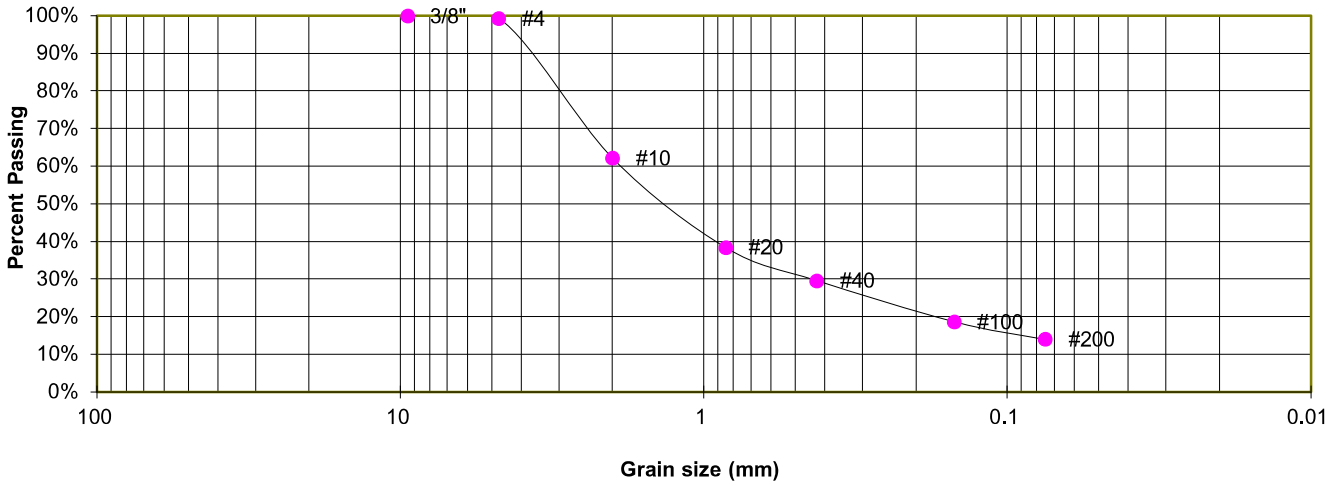
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-12

TEST BORING	8	SOIL DESCRIPTION	SANDSTONE (SAND, SILTY)
DEPTH (FT)	20	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.3%
10	62.1%
20	38.5%
40	29.6%
100	18.7%
200	14.0%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

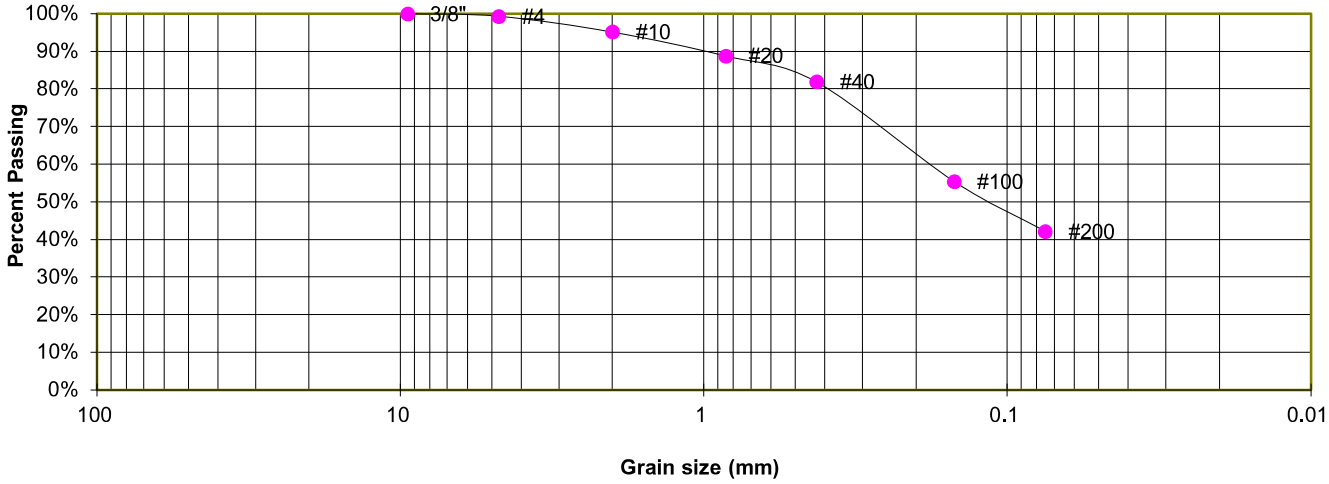
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-13

TEST BORING	12	SOIL DESCRIPTION	SANDSTONE (SAND, CLAYEY)
DEPTH (FT)	10	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.3%
10	95.2%
20	88.8%
40	81.9%
100	55.5%
200	42.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC

ENTECH ENGINEERING, INC.

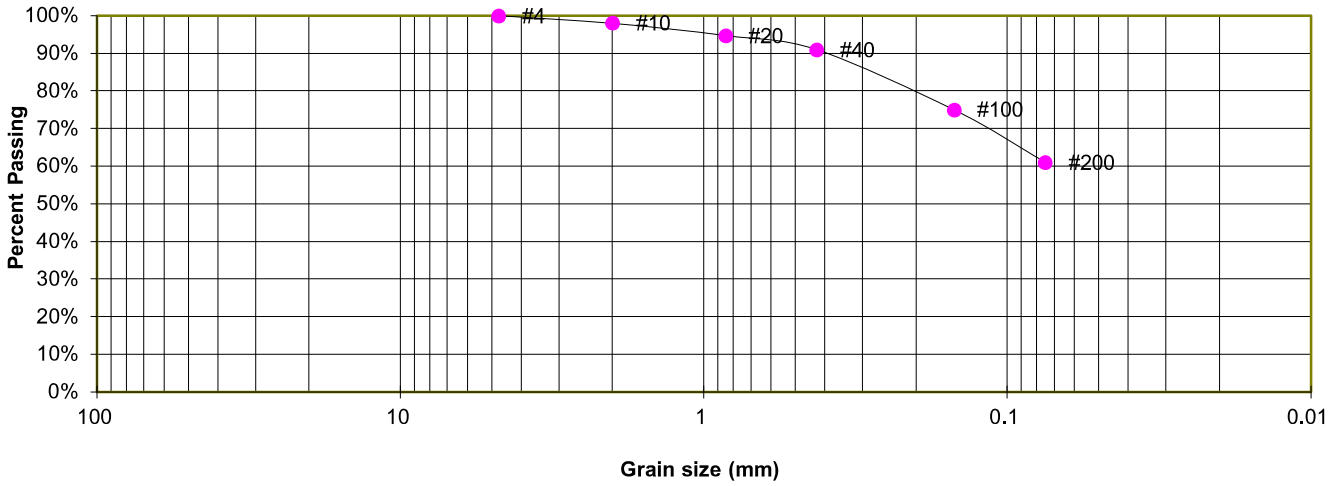
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-14

TEST BORING	2	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	5	SOIL TYPE	4



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	98.1%
20	94.8%
40	91.0%
100	75.1%
200	61.0%

ATTERBERG LIMITS

Plastic Limit	17
Liquid Limit	27
Plastic Index	10

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

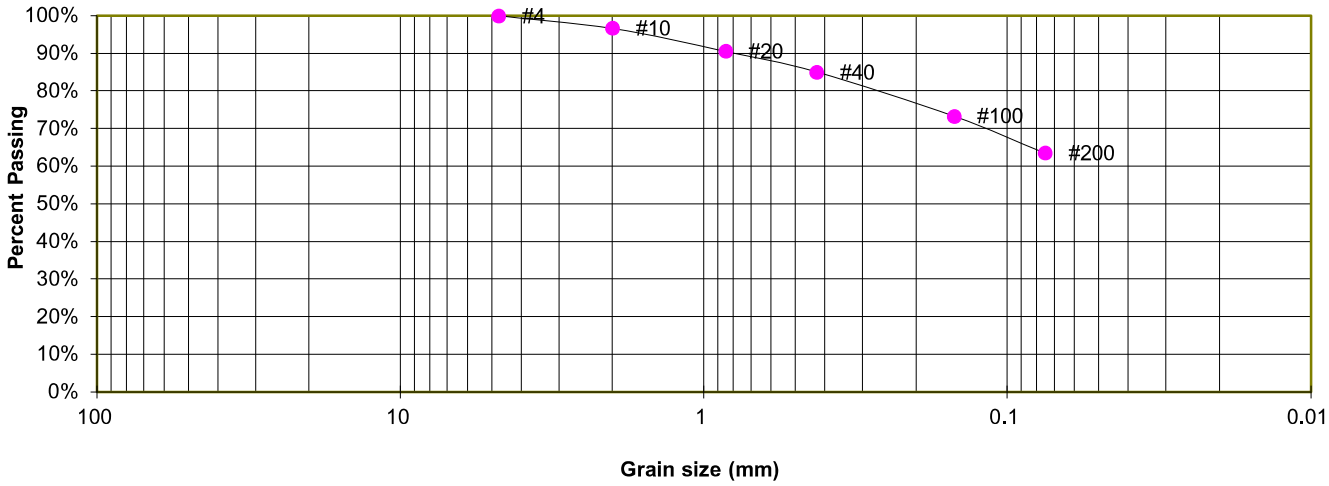
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-15

TEST BORING	4	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	5	SOIL TYPE	4



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	96.7%
20	90.6%
40	85.1%
100	73.3%
200	63.5%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

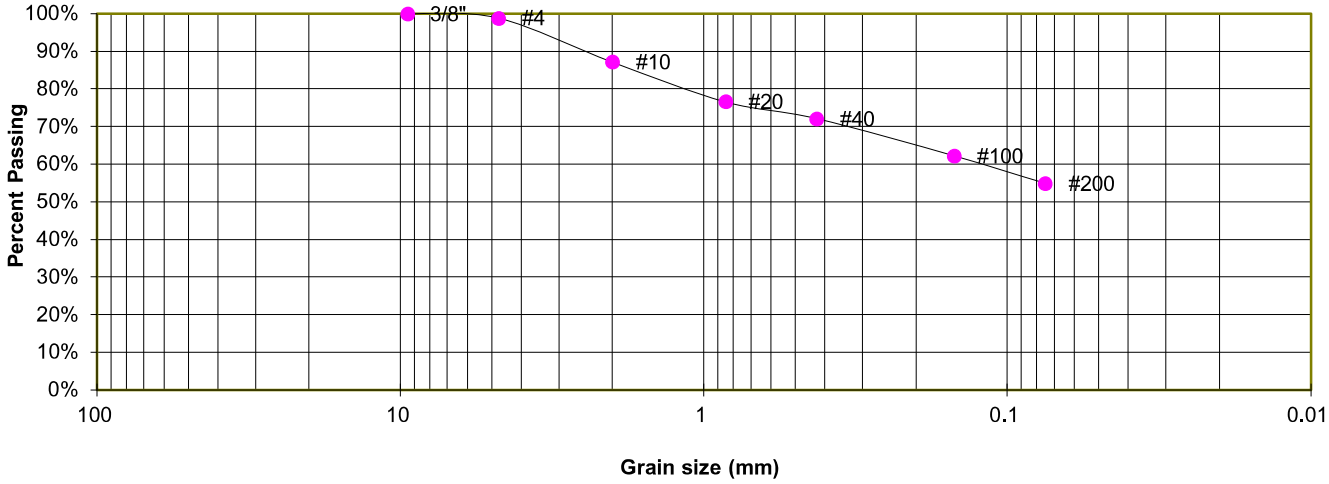
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-16

TEST BORING	10	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	10	SOIL TYPE	4



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.9%
10	87.1%
20	76.6%
40	72.1%
100	62.3%
200	54.9%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

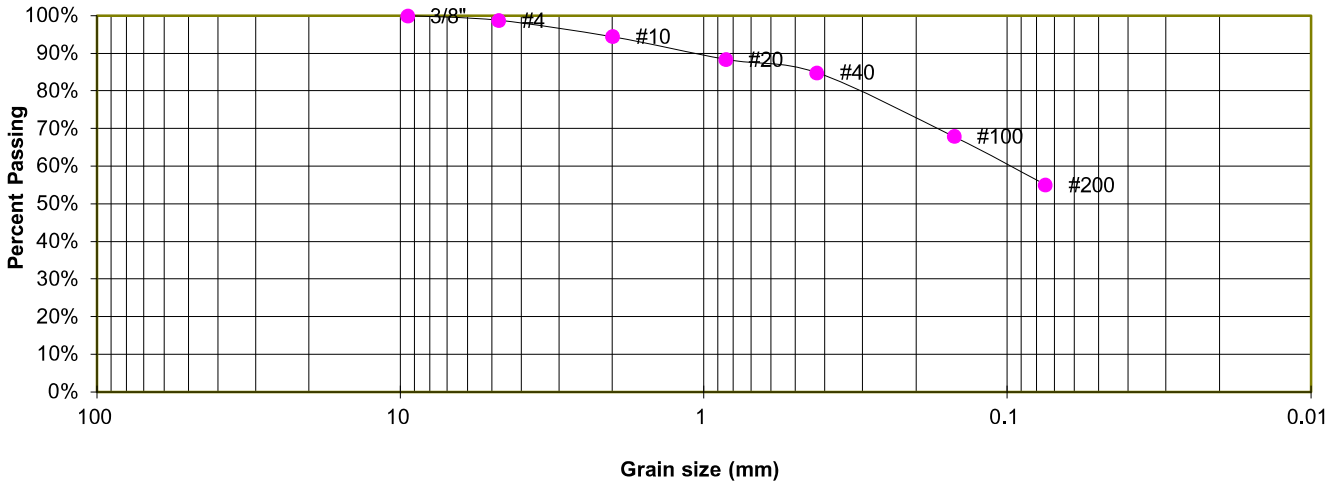
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-17

TEST BORING	11	SOIL DESCRIPTION	SHALE (CLAY, SANDY)
DEPTH (FT)	20	SOIL TYPE	4



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.8%
10	94.5%
20	88.5%
40	84.9%
100	67.9%
200	55.1%

ATTERBERG LIMITS

Plastic Limit	20
Liquid Limit	33
Plastic Index	13

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

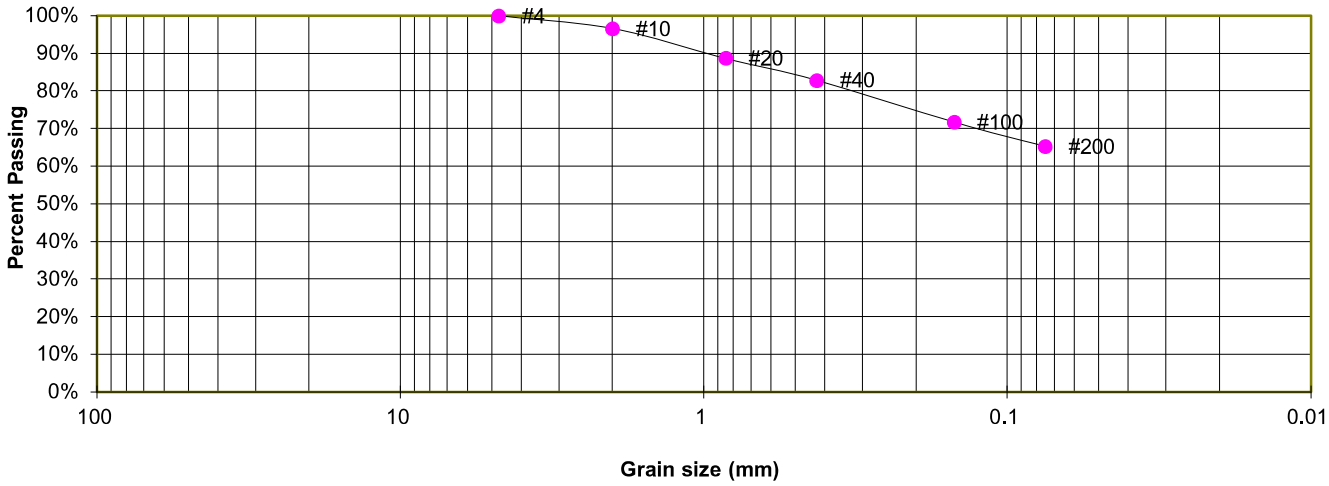
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-18

TEST BORING	13	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	25	SOIL TYPE	4



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	96.6%
20	88.7%
40	82.9%
100	71.8%
200	65.3%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

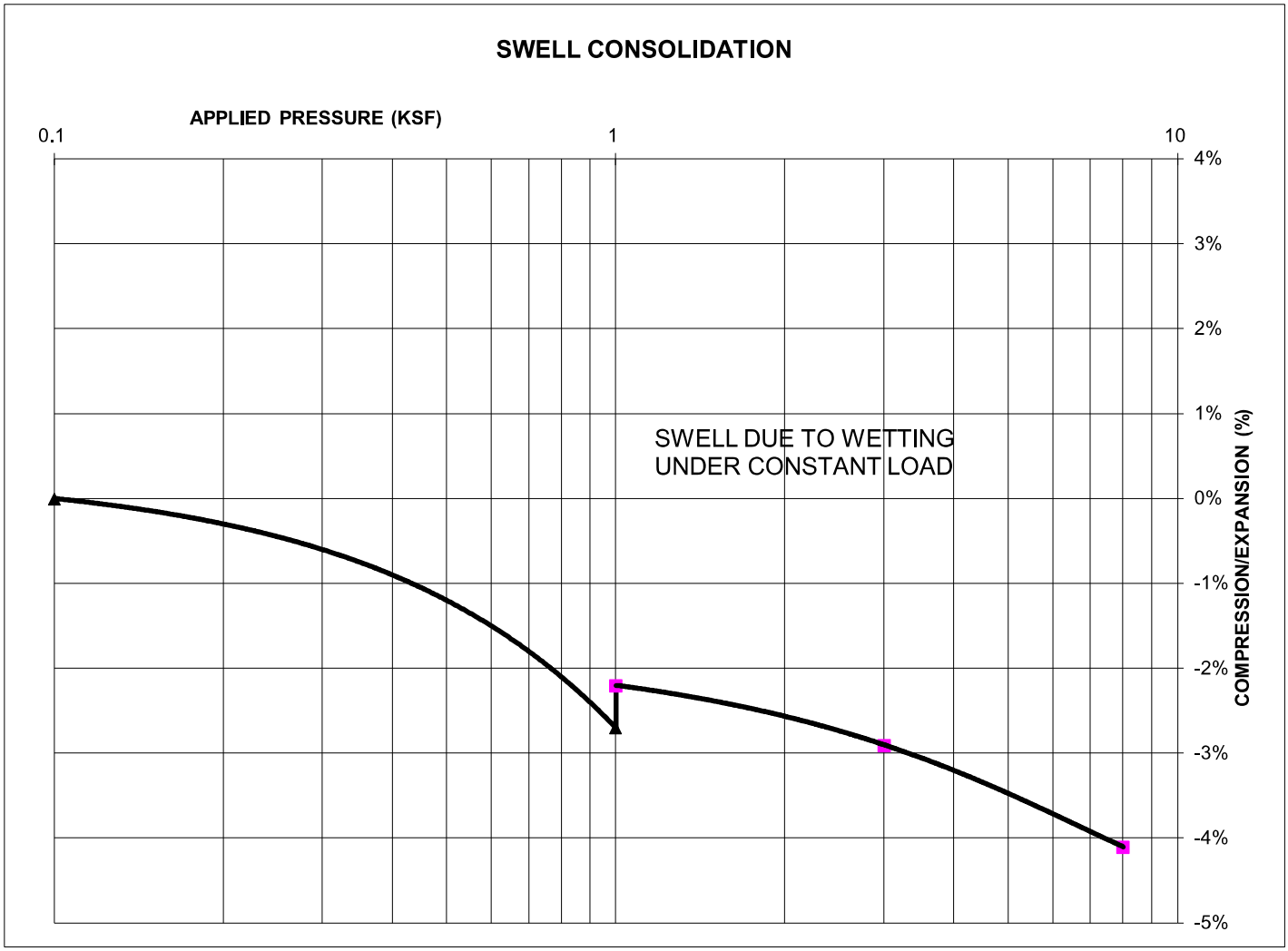
LABORATORY TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-19

TEST BORING	7	SOIL DESCRIPTION	FILL, CLAY, SANDY
DEPTH (FT)	2-3	SOIL TYPE	1A



SWELL/CONSOLIDATION TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF):	109
NATURAL MOISTURE CONTENT:	15.9%
SWELL/CONSOLIDATION (%):	0.5%

ENTECH ENGINEERING, INC.

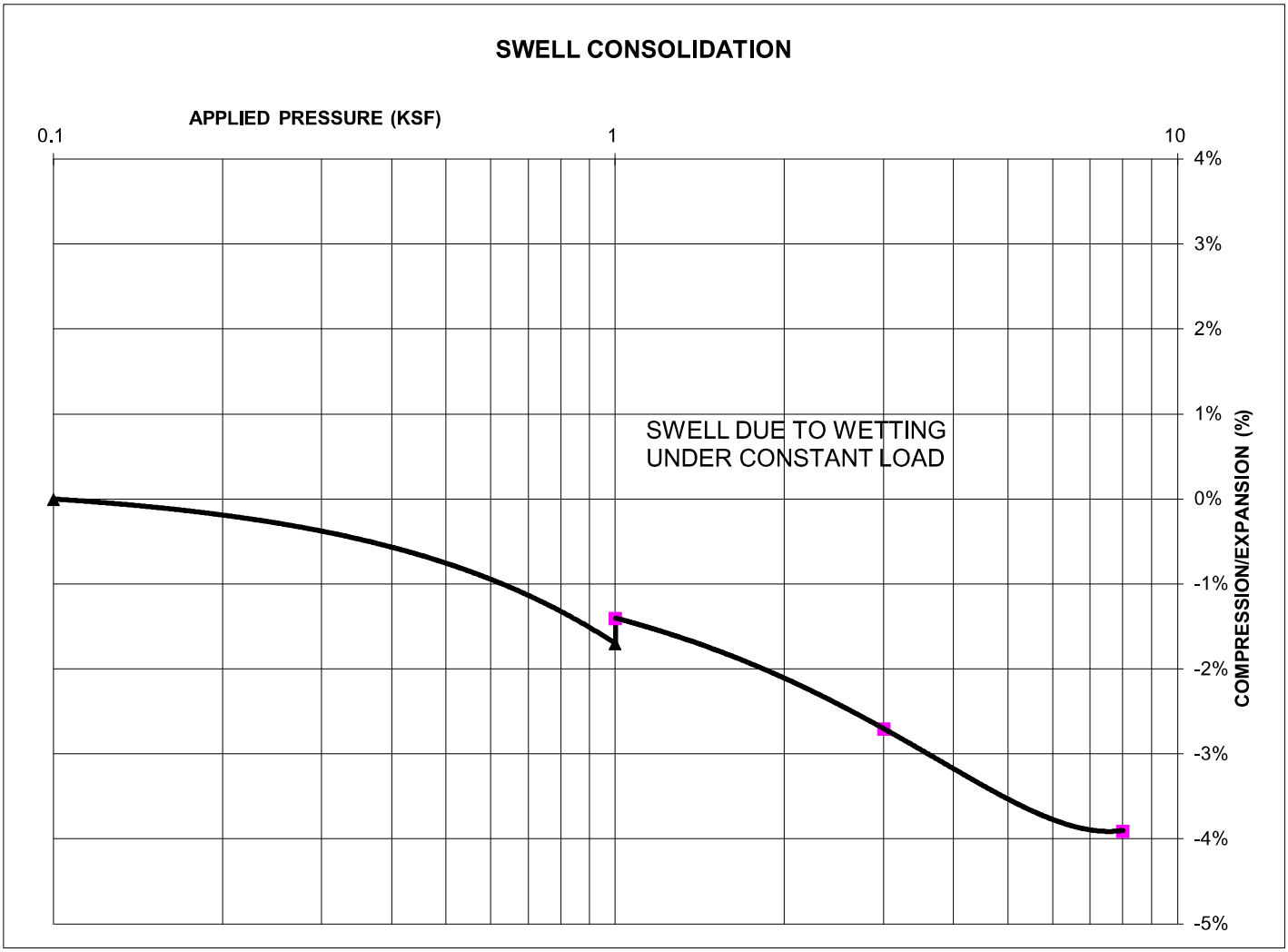
SWELL/CONSOLIDATION TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-20

TEST BORING	5	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	5	SOIL TYPE	2



SWELL/CONSOLIDATION TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF):	106
NATURAL MOISTURE CONTENT:	20.5%
SWELL/CONSOLIDATION (%):	0.3%

ENTECH ENGINEERING, INC.

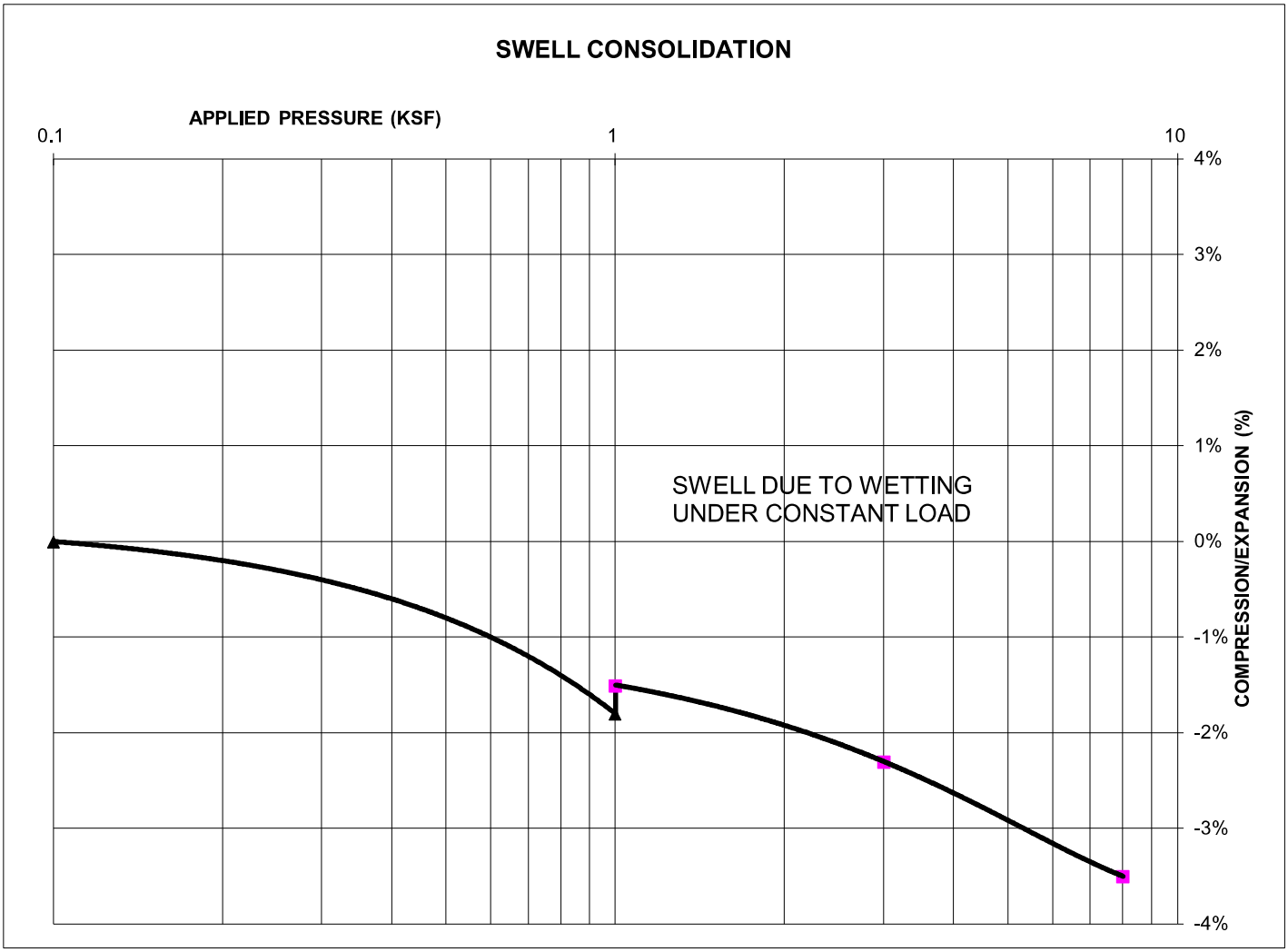
SWELL/CONSOLIDATION TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-21

TEST BORING	9	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	2-3	SOIL TYPE	2



SWELL/CONSOLIDATION TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 113
NATURAL MOISTURE CONTENT: 11.9%
SWELL/CONSOLIDATION (%): 0.3%

ENTECH ENGINEERING, INC.

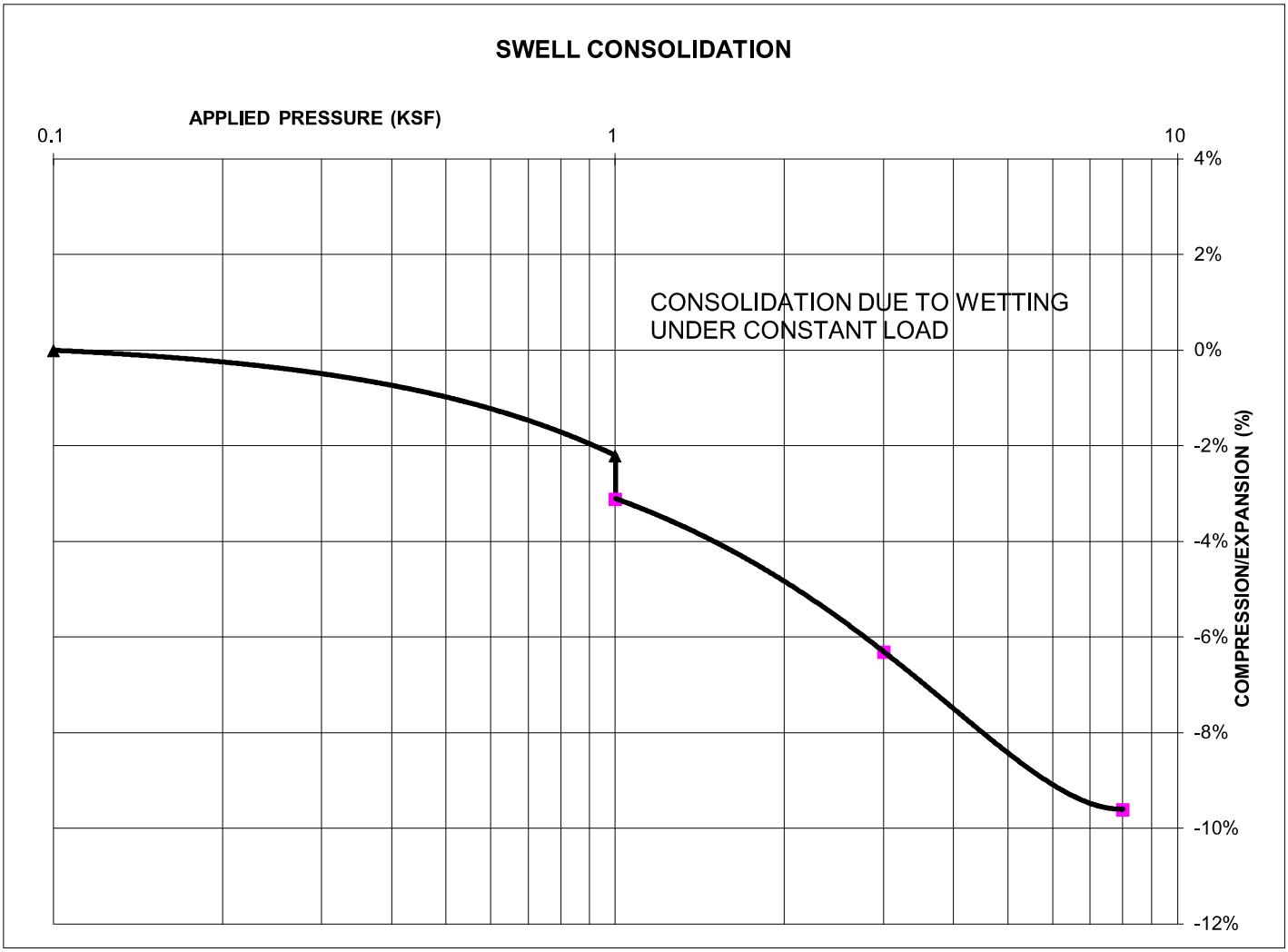
SWELL/CONSOLIDATION TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-22

TEST BORING	2	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	5	SOIL TYPE	4



SWELL/CONSOLIDATION TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 110
NATURAL MOISTURE CONTENT: 10.0%
SWELL/CONSOLIDATION (%): -0.9%

ENTECH ENGINEERING, INC.

SWELL/CONSOLIDATION TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-23

TEST BORING	4	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	5	SOIL TYPE	4



SWELL/CONSOLIDATION TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF):	119
NATURAL MOISTURE CONTENT:	12.3%
SWELL/CONSOLIDATION (%):	0.4%

ENTECH ENGINEERING, INC.

SWELL/CONSOLIDATION TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-24

TEST BORING	10	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	10	SOIL TYPE	4



SWELL/CONSOLIDATION TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF):	116
NATURAL MOISTURE CONTENT:	14.6%
SWELL/CONSOLIDATION (%):	2.4%

ENTECH ENGINEERING, INC.

SWELL/CONSOLIDATION TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-25

TEST BORING	11	SOIL DESCRIPTION	SHALE (CLAY, SANDY)
DEPTH (FT)	20	SOIL TYPE	4



SWELL/CONSOLIDATION TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 123
NATURAL MOISTURE CONTENT: 10.6%
SWELL/CONSOLIDATION (%): 1.7%

ENTECH ENGINEERING, INC.

SWELL/CONSOLIDATION TEST RESULTS

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-26

TEST BORING	13	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	25	SOIL TYPE	4



SWELL/CONSOLIDATION TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 121
NATURAL MOISTURE CONTENT: 11.6%
SWELL/CONSOLIDATION (%): 0.4%

ENTECH ENGINEERING, INC.

SWELL/CONSOLIDATION TEST RESULTS

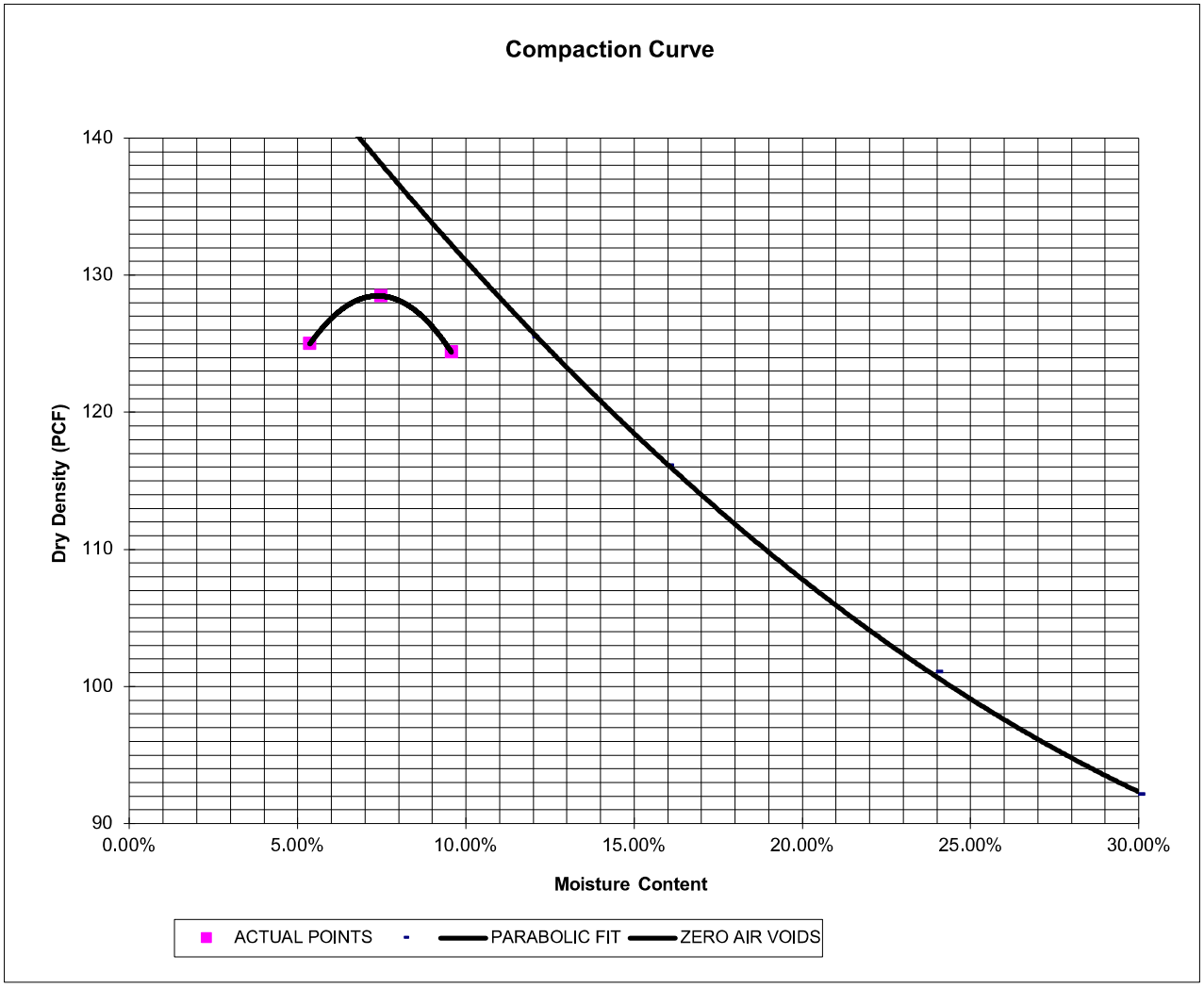
SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-27

PROJECT	SCHMIDT PROPERTY	CLIENT	TURKEY CANYON QUARRY
SAMPLE LOCATION	TB-1 @ 2-3'	JOB NO.	231875
SOIL DESCRIPTION	SAND, CLAYEY, BROWN	DATE	12/07/23

IDENTIFICATION	SC	PROCTOR TEST #	1
TEST DESIGNATION / METHOD	ASTM D-1557-A	TEST BY	DK
MAXIMUM DRY DENSITY (PCF)	128.5	OPTIMUM MOISTURE	7.5%



ENTECH ENGINEERING, INC.

MOISTURE DENSITY RELATION

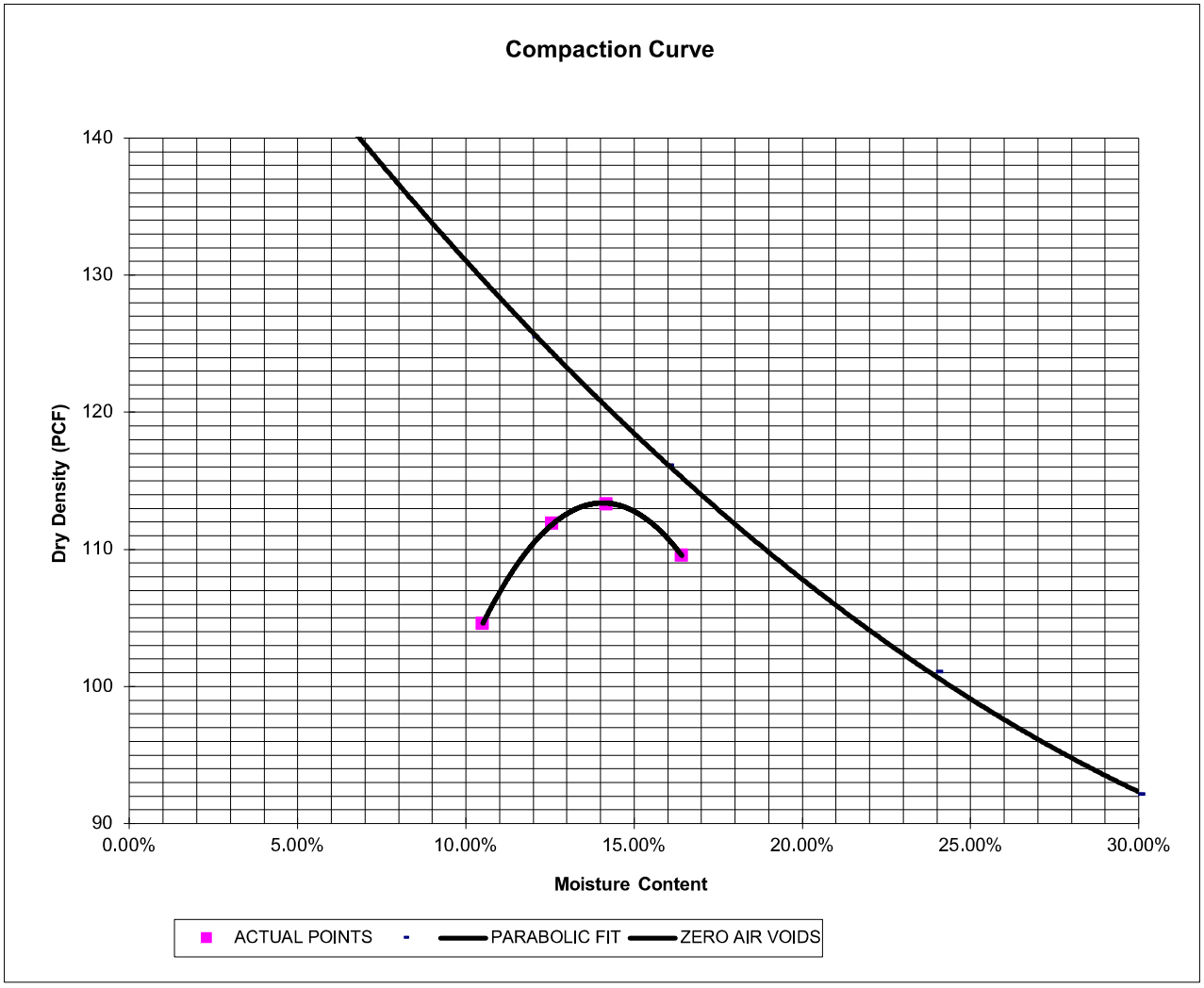
SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-28

PROJECT	SCHMIDT PROPERTY	CLIENT	TURKEY CANYON QUARRY
SAMPLE LOCATION	TB-2 @ 4'	JOB NO.	231875
SOIL DESCRIPTION	CLAY, SANDY, BROWN	DATE	12/12/23

IDENTIFICATION	CL	PROCTOR TEST #	2
TEST DESIGNATION / METHOD	ASTM D-698-A	TEST BY	DK
MAXIMUM DRY DENSITY (PCF)	113.4	OPTIMUM MOISTURE	14.1%



ENTECH ENGINEERING, INC.

MOISTURE DENSITY RELATION

SCHMIDT PROPERTY
TURKEY CANYON QUARRY

JOB NO. 231875

FIG. B-29

APPENDIX C: Density Testing

Client:	Turkey Canyon Quarry, Inc.	**Entech Job #:**	231875.5	**Proctor Value Key:**	**M = modified, ASTM D-1557**
Project:	Schmidt Property	**Tested By:**	S. Wood		**S = standard, ASTM D-698**
Subject:	Miscellaneous	**Report Date:**	12-26-2023		**T = AASHTO, T-180**

Test #	Test Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail ☑ = Fail
1	Test at Pit 2, 1.5' below grade.	12/7/2023	84	95	12.5	SC	M - 128.5 @ 7.5	☑
2	Test at Pit 2, 3' below grade.	12/7/2023	81	95	15.0	SC	M - 128.5 @ 7.5	☑
3	Test at Pit 2, 4.5' below grade.	12/7/2023	82	95	16.3	CL	S - 113.4 @ 14.1	☑
4	Test at Pit 1, 1' below grade.	12/7/2023	86	95	12.6	SC	M - 128.5 @ 7.5	☑
5	Test at Pit 1, 3' below grade.	12/7/2023	82	95	18.7	CL	S - 113.4 @ 14.1	☑
6	Test at Pit 1, 4.5' below grade.	12/7/2023	82	95	20.4	CL	S - 113.4 @ 14.1	☑

Comments:

Scope of Observation: PERIODIC; CONTRACTOR'S OR CLIENT'S REPRESENTATIVE ADVISED

All dimensions are approximate. CL = Centerline

ENTECH
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FIELD DENSITY RESULTS

Joseph C. Goode, Jr., P.E.

APPENDIX E: A.G. Wassenaar, Inc., Schmidt Property Boring Logs, Project No. 213542

AGW

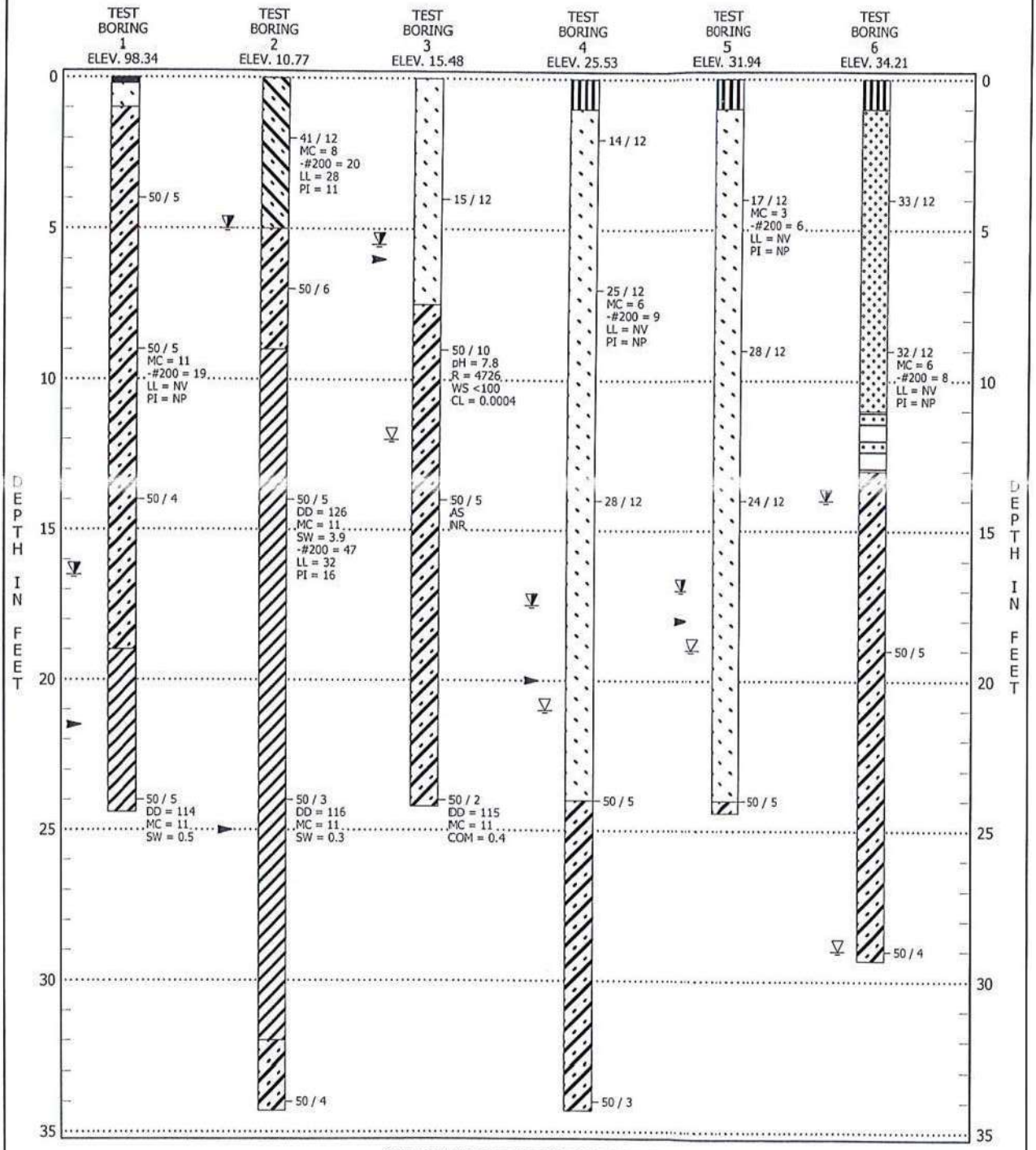
A.G. WASSENAAR, INC.

CLIENT AMH Development, LLC

PROJECT NAME Schmidt Property

PROJECT NUMBER 213542

PROJECT LOCATION Colorado Springs, Colorado



SEE FIGURE 7 FOR LEGEND AND NOTES

TEST BORING LOGS

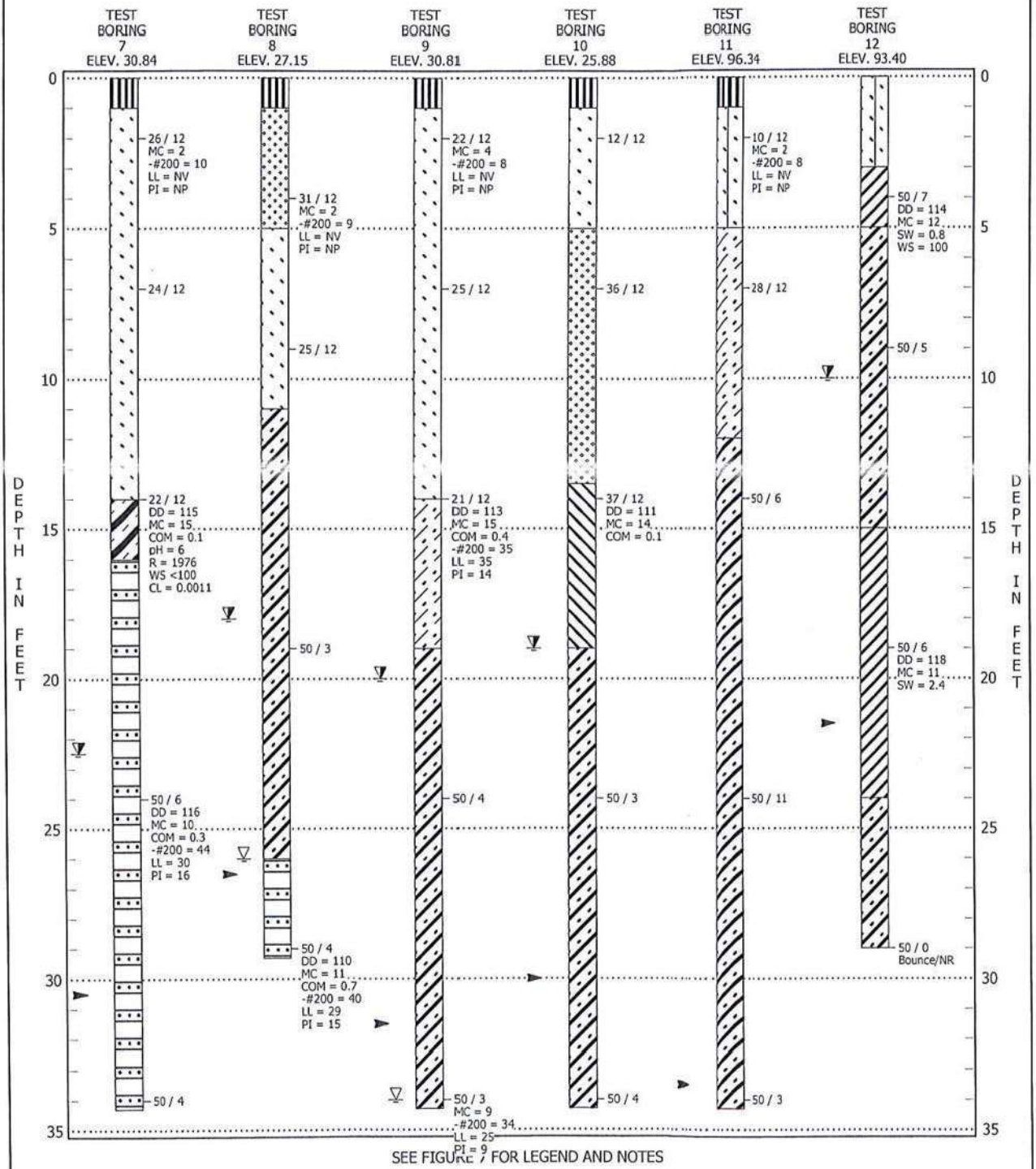
FIGURE 2

AGW

A.G. WASSENAAR, INC.

CLIENT AMH Development, LLC **PROJECT NAME** Schmidt Property

PROJECT NUMBER 213542 **PROJECT LOCATION** Colorado Springs, Colorado



SEE FIGURE 7 FOR LEGEND AND NOTES

TEST BORING LOGS

FIGURE 3

AGW

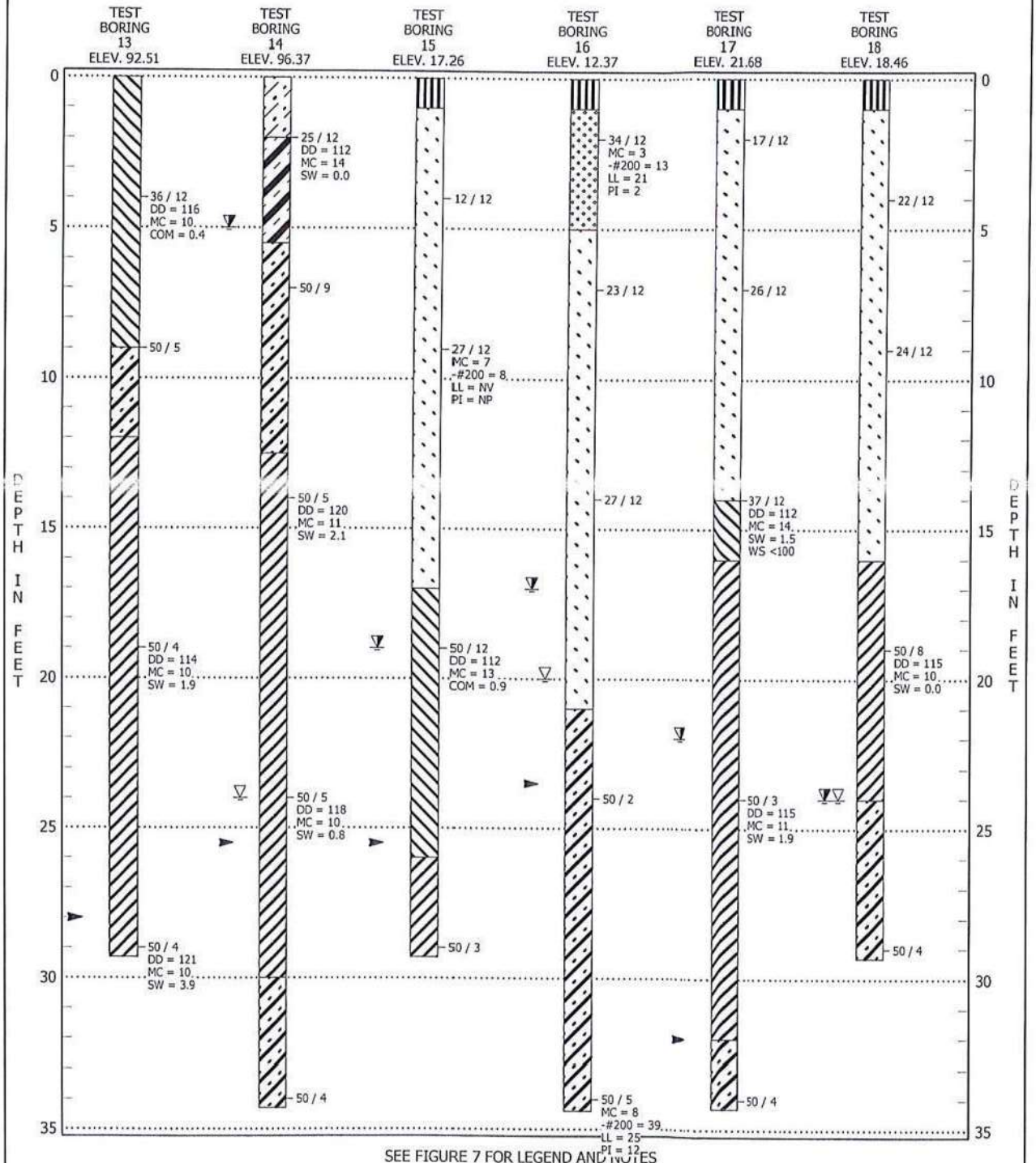
A.G. WASSENAAR, INC.

CLIENT AMH Development, LLC

PROJECT NAME Schmidt Property

PROJECT NUMBER 213542

PROJECT LOCATION Colorado Springs, Colorado



SEE FIGURE 7 FOR LEGEND AND NOTES

TEST BORING LOGS

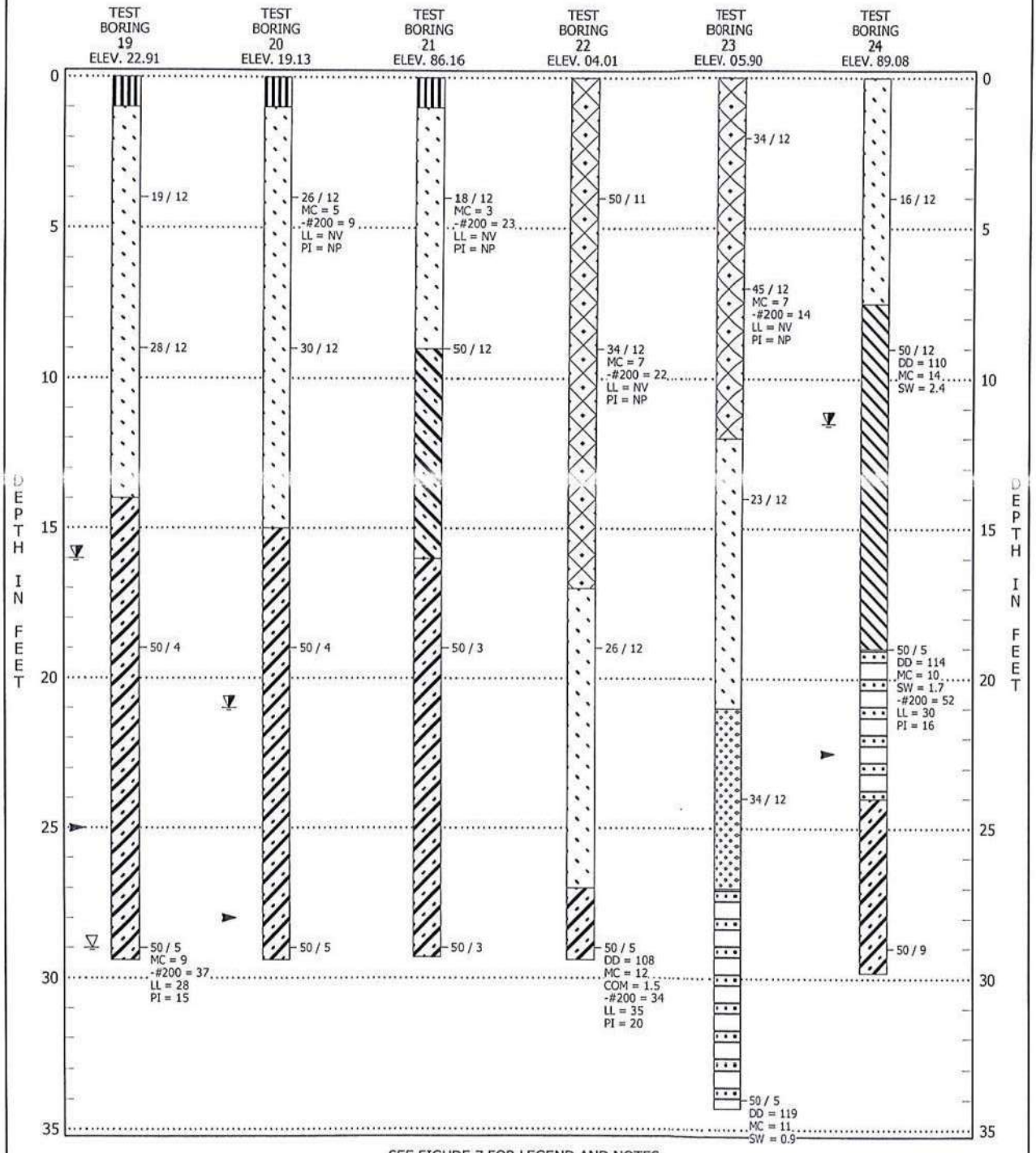
FIGURE 4

AGW

A.G. WASSENAAR, INC.

CLIENT AMH Development, LLC **PROJECT NAME** Schmidt Property

PROJECT NUMBER 213542 **PROJECT LOCATION** Colorado Springs, Colorado



SEE FIGURE 7 FOR LEGEND AND NOTES

TEST BORING LOGS

FIGURE 5

AGW

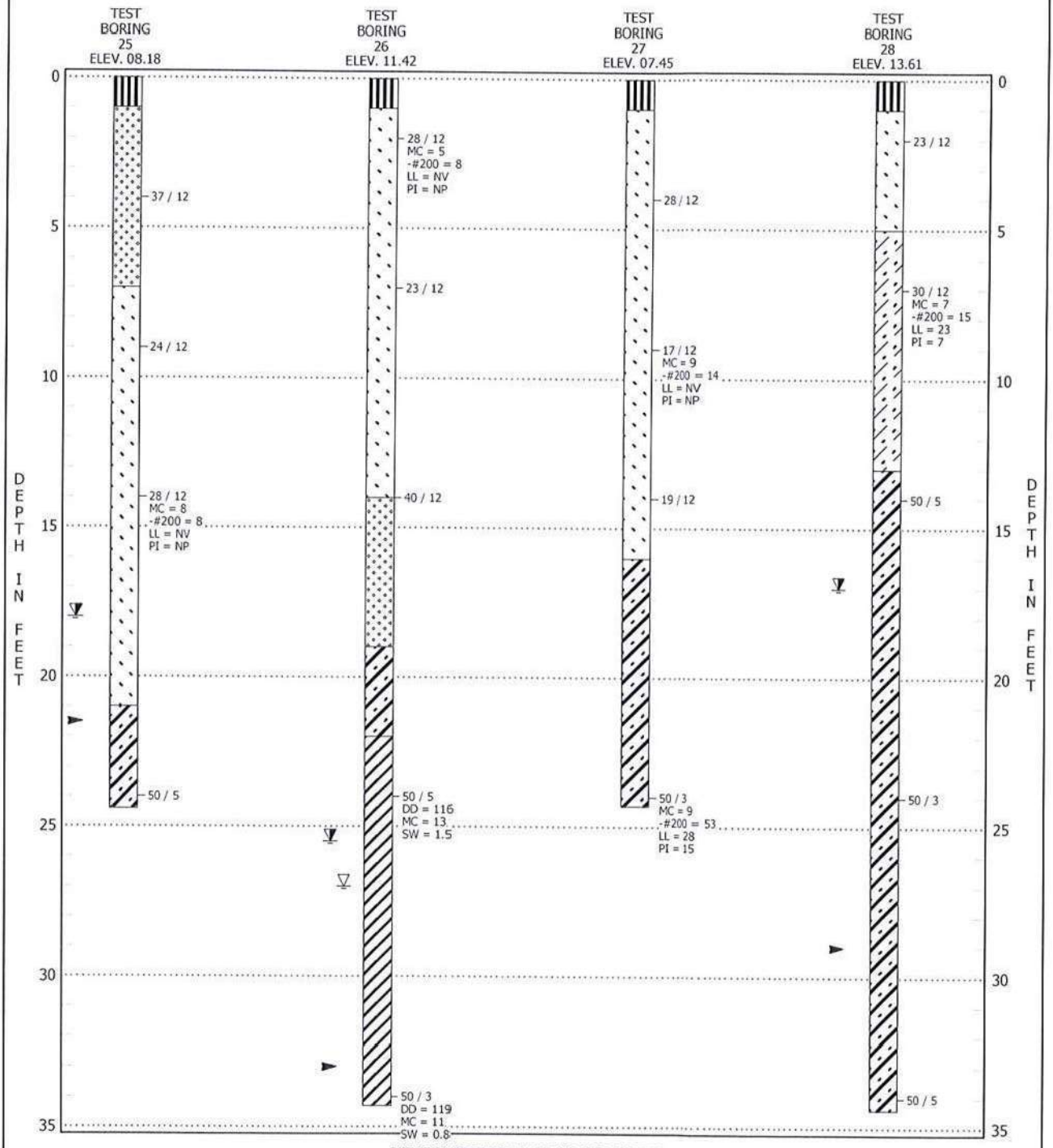
A.G. WASSENAAR, INC.

CLIENT AMH Development, LLC

PROJECT NAME Schmidt Property

PROJECT NUMBER 213542

PROJECT LOCATION Colorado Springs, Colorado



SEE FIGURE 7 FOR LEGEND AND NOTES

TEST BORING LOGS

FIGURE 6

AGW

A.G. WASSENAAR, INC.

CLIENT AMH Development, LLC

PROJECT NAME Schmidt Property

PROJECT NUMBER 213542

PROJECT LOCATION Colorado Springs, Colorado

SOIL DESCRIPTIONS

- Asphalt
- Fill, sand, medium dense, silty, clayey
- Topsoil, clay, sandy, organic
- Sand, loose
- Sand, medium dense, silty
- Sand, medium dense, silty, clayey
- Sand, dense to very dense, silty
- Clay (weathered claystone), medium stiff to stiff
- Claystone (Bedrock), firm to medium hard
- Claystone (Bedrock), hard to very hard
- Sandstone (Bedrock), firm to medium hard
- Sandstone (Bedrock), hard to very hard
- Claystone/Sandstone (Bedrock), interbedded, hard to very hard

ABBREVIATIONS

DD	Dry density of sample in pounds per cubic foot (pcf)
MC	Moisture content as a percentage of dry weight of soil (%)
SW	Percent swell under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
COM	Percent compression under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
UC	Unconfined compressive strength in pounds per square foot (psf)
-#200	Percent passing the Number 200 sieve (%)
LL	Liquid Limit
PI	Plasticity Index
NP	Non-Plastic
NV	No Value
pH	Acidity or alkalinity of sample in pH units
R	Resistivity in ohms.cm
WS	Water soluble sufates in parts per million (ppm)
CL	Chlorides in percent (%)
x/y	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.5-inch outside diameter sampler Y inches
x/y SS	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.0-inch outside diameter sampler Y inches
C-x	Depth of cut to grade (rounded to the nearest foot)
F-x	Depth of fill to grade (rounded to the nearest foot)
FG	Finished grade (rounded to the nearest foot)
NR	No sample recovered
Bounce	Sampler bounced during driving
B	Bulk sample
AS	Auger sample
	Moderately to well cemented layer
—	Approximate depth of cut
	Depth at which practical drilling refusal was encountered
	Water level at time of drilling
	Caved depth at time of drilling
	Water level 1 to 5 day(s) after drilling
	Caved depth 1 to 5 day(s) after drilling

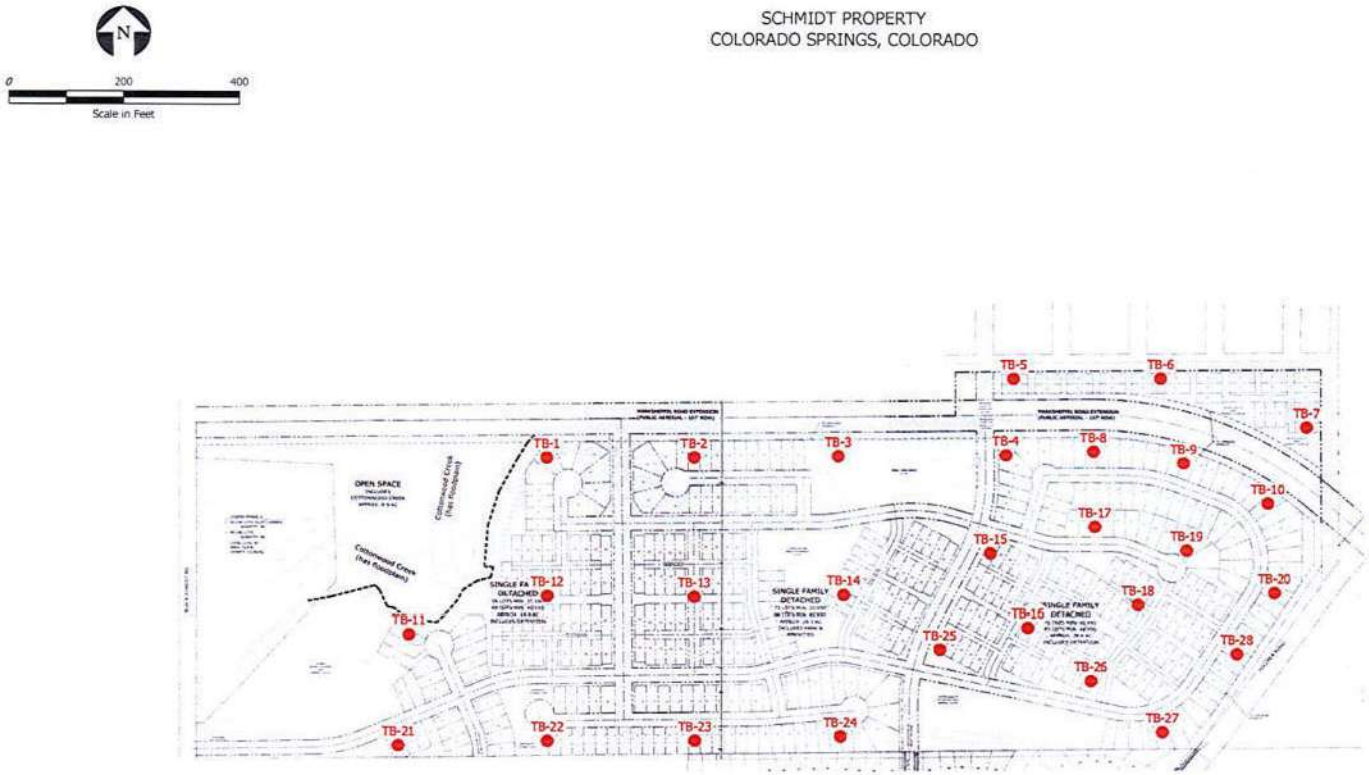
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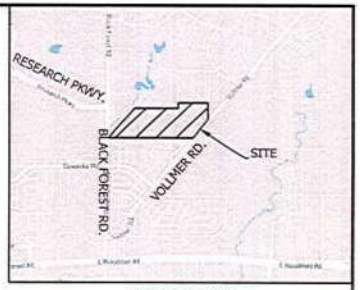
1. Test borings were drilled August 11, 2021 to August 16, 2021.
2. Location of the test borings were staked by others at locations chosen by this firm.
3. The horizontal lines shown on the logs are to differentiate materials and represent the approximate boundaries between materials. The transitions between materials may be gradual.
4. Elevations were obtained from staking provided by others and have been rounded to the nearest foot.
5. Boring logs shown in this report are subject to the limitations, explanations, and conclusions of this report.

LEGEND AND NOTES

FIGURE 7

SCHMIDT PROPERTY
COLORADO SPRINGS, COLORADO





VICINITY MAP
NOT TO SCALE

NOTES:
1. TEST BORINGS ARE OVERLAID ON THE "CONCEPTUAL LAYOUT PLANS", PREPARED BY NES, DATED FEBRUARY 6, 2021.
2. ALL LOCATIONS ARE APPROXIMATE.

AGW
A.G. WASSENAAR, INC.

SITE PLAN AND VICINITY MAP	PROJECT NO. 213542 FIGURE 1

APPENDIX F: Soil Survey Descriptions

El Paso County Area, Colorado

8—Blakeland loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369v
Elevation: 4,600 to 5,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blakeland and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Flats, hills
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 22, Sep 3, 2024

El Paso County Area, Colorado

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Fans, fan terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

Percent of map unit: 1 percent

Landform: Swales
Hydric soil rating: Yes

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 22, Sep 3, 2024

APPENDIX C – GEC PLANS

MARKSHEFFEL ROAD - SEGMENT M3

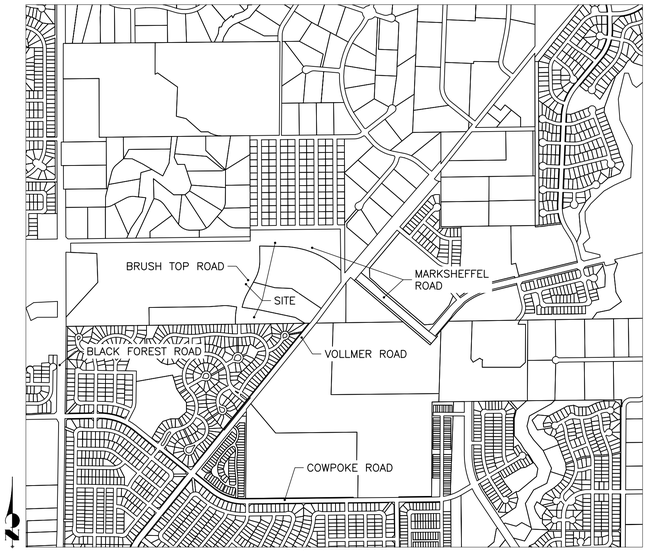
COUNTY OF EL PASO, STATE OF COLORADO

GRADING AND EROSION CONTROL PLANS

GRADING AND EROSION CONTROL STANDARD NOTES

1. (EPC) STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE (LDC), THE ENGINEERING CRITERIA MANUAL (ECM), THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME 1 AND 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
2. A PRECONSTRUCTION MEETING BETWEEN THE PERMIT HOLDER(S) AND EL PASO COUNTY SHALL BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES. IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER(S) TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF. NO LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES BEYOND THE INSTALLATION OF THE INITIAL CONSTRUCTION CONTROL MEASURES (CCMS), AS INDICATED ON THE APPROVED GEC PLAN OR CDS WITH GEC PLANS, MAY OCCUR PRIOR TO RECEIVING A NOTICE TO PROCEED (NTP) ISSUED BY THE ECM ADMINISTRATOR. FAILURE TO OBTAIN A NOTICE TO PROCEED PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES MAY RESULT IN AN IMMEDIATE STOP WORK ORDER (SWO).
3. CONSTRUCTION CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. STORMWATER RUNOFF FROM ALL DISTURBED AREAS AND SOIL STORAGE AREAS MUST UTILIZE OR FLOW TO ONE OR MORE CCM(S) TO MINIMIZE EROSION OR SEDIMENT IN THE DISCHARGE. THE CCM(S) MUST CONTAIN OR FILTER FLOWS IN ORDER TO PREVENT THE BYPASS OF FLOWS WITHOUT TREATMENT AND MUST BE APPROPRIATE FOR STORMWATER RUNOFF FROM DISTURBED AREAS AND FOR THE EXPECTED FLOW RATE, DURATION, AND FLOW CONDITIONS (E.G., SHEET OR CONCENTRATED FLOW).
4. ALL CCMS SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL FINAL STABILIZATION IS ACHIEVED. THE QUALIFIED STORMWATER MANAGER (QSM) SHALL ASSESS THE ADEQUACY OF CCMS AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CCMS ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CCMS.
5. PRIOR TO CONSTRUCTION THE PERMIT HOLDER(S) SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
6. MANAGEMENT OF THE STORMWATER MANAGEMENT PLAN (SWMP) DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QSM. THE SWMP SHALL BE LOCATED ON-SITE OR DIGITALLY ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES AND MUST BE IMPLEMENTED AS WRITTEN FROM THE START OF CONSTRUCTION ACTIVITY UNTIL FINAL STABILIZATION IS ACHIEVED. THE QSM SHALL AMEND THE SWMP WHEN THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE SITE WHICH WOULD REQUIRE THE IMPLEMENTATION OF NEW OR REVISED CCMS OR IF THE SWMP PROVES TO BE INEFFECTIVE IN CONTROLLING POLLUTANTS IN STORMWATER RUNOFF ASSOCIATED WITH CONSTRUCTION ACTIVITY OR WHEN CCMS ARE NO LONGER NECESSARY AND ARE REMOVED. THE QSM SHALL MAINTAIN A RECORD OF AMENDMENTS MADE TO THE SWMP THAT INCLUDES THE DATE AND IDENTIFICATION OF THE CHANGES.
7. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A RECEIVING WATER UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED. IN ADDITION TO MAINTAINING 50 HORIZONTAL FEET OF PRE-EXISTING VEGETATION UPGRADIENT OF A RECEIVING WATER (UNLESS INFEASIBLE AND APPROVED), THE PERMIT HOLDER(S) MUST INSTALL CCMS UPGRADIENT OF THE VEGETATIVE BUFFER.
8. TEMPORARY STABILIZATION MEASURES SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
9. EROSION CONTROL BLANKET (ECB) OR OTHER APPROVED CONTROL MEASURE(S) SHALL BE USED ON SLOPES STEEPER THAN 3:1.
10. VEHICLE TRACKING CONTROLS (VTC) MUST BE IMPLEMENTED TO MINIMIZE VEHICLE TRACKING OF SEDIMENT FROM DISTURBED AREAS. VTCS MUST INCLUDE A STRUCTURE CONTROL MEASURE (E.G., TRACKING PAD) AND MAY INCLUDE A NON-STRUCTURAL CONTROL MEASURE (E.G., SWEEPING). MATERIAL TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
11. ANY TEMPORARY OR PERMANENT CONTROL MEASURE DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
12. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER, PERMANENT CONTROL MEASURES (PCMS), OR DITCHES EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
13. ALL PCMS SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PCMS MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
14. SOIL COMPACTION MUST BE MINIMIZED IN AREAS WHERE INFILTRATION PCMS WILL BE INSTALLED OR IN AREAS WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION PCMS SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF SOIL COMPACTION DOES OCCUR IN AREAS WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER OR IN AREAS WHERE INFILTRATION PCMS WILL BE INSTALLED, DECOMPACTION OF THE SOIL MUST BE COMPLETED PRIOR TO PLANTING OR INSTALLATION OF THE PCM(S). AN INFILTRATION TEST MUST BE CONDUCTED FOR ALL INFILTRATION PCMS AND THE INFILTRATION TEST RESULTS SUBMITTED TO EL PASO COUNTY PRIOR TO PRELIMINARY ACCEPTANCE (PA).
15. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND PERMANENT STABILIZATION METHODS ARE COMPLETE. WHEN USING VEGETATIVE COVER AS A PERMANENT STABILIZATION METHOD, THE VEGETATION SHALL BE EVENLY DISTRIBUTED PERENNIAL VEGETATION AND OF THE VARIETY AND SPECIES FOUND IN THE COUNTY-APPROVED SEED MIXES OR IN THE APPROVED GEC PLAN. VEGETATION COVERAGE SHALL BE, AT A MINIMUM, EQUAL TO 70% OF WHAT WOULD HAVE BEEN PROVIDED BY NATIVE VEGETATION IN A LOCAL, UNDISTURBED AREA OR ADEQUATE REFERENCE SITE. ALL TEMPORARY CCMS SHALL BE REMOVED UPON FINAL STABILIZATION AND PRIOR TO STORMWATER PERMIT TERMINATION.
16. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
17. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO BE DISCHARGED OFFSITE OR TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR CONTROL MEASURES. CONCRETE WASHOUT AREAS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK, OR STREAM.
18. DURING CONSTRUCTION DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON SITE IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT'S (CDPHE) LOW RISK DISCHARGE GUIDANCE POLICY FOR DISCHARGES OF UNCONTAMINATED GROUNDWATER TO LAND. IF CONSTRUCTION DEWATERING OPERATIONS ARE UNABLE TO MEET ALL CRITERIA, CONDITIONS, AND CONTROL MEASURE REQUIREMENTS OF THE LOW RISK DISCHARGE GUIDANCE POLICY, A COLORADO DISCHARGE PERMIT SYSTEM (CDPS) GENERAL PERMIT COG080000 WILL BE REQUIRED.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTE FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES, OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
20. THE PERMIT HOLDER(S) SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
21. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
22. MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. APPROPRIATE CMS SHALL BE UTILIZED BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
23. BULK STORAGE (I.E., INDIVIDUAL CONTAINERS OF 55 GALLONS OR GREATER) OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT, OR EQUIVALENT PROTECTION, TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM, OR OTHER FACILITIES.
24. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
25. ON AREAS OF EXPOSED SOIL, MINIMIZE DUST THROUGH THE APPROPRIATE APPLICATION OF WATER OR OTHER DUST SUPPRESSION TECHNIQUES. WATER APPLICATION MUST BE CONDUCTED IN A MANNER TO PREVENT DISCHARGE OFFSITE UNLESS AUTHORIZED BY A CDPS OR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT.
26. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
27. FOR SITES WHERE A SOILS REPORT IS REQUIRED, THE APPROVED SOILS REPORT FOR THIS SITE SHALL BE CONSIDERED A PART OF THESE PLANS. SEE THE SOILS AND GEOLOGY STUDY FILED UNDER THIS EPC PROJECT NUMBER.
28. PERMIT HOLDER(S) AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUME 2, AND ENGINEERING CRITERIA MANUAL. ALL APPLICABLE LOCAL, STATE, AND FEDERAL PERMITS MUST BE OBTAINED PRIOR TO CONSTRUCTION. IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE OR LESS THAN 1 ACRE AND PART OF A LARGER COMMON PLAN OF DEVELOPMENT OR SALE THAT WOULD DISTURB 1 OR MORE ACRES, THE PERMIT HOLDER(S) SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE (COR400000 PERMIT) TO THE CDPHE WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A SWMP, OF WHICH THIS GEC PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530 ATTN: PERMITS UNIT



VICINITY MAP
SCALE: 1"=1000'

AGENCIES

OWNER/DEVELOPER:	TURKEY CANON QUARRY, LLC 20 BOULDER CRESCENT, SUITE 201 COLORADO SPRINGS, CO 80903 JAMES F. MORLEY (719) 471-1742	WATER & WASTEWATER:	FALCON AREA WATER & WASTEWATER AUTHORITY ENGINEERS - RESPEC 5540 E. TECH CENTER DR. COLORADO SPRINGS, CO 80919 719.227.0072
CIVIL ENGINEER:	ALL TERRAIN ENGINEERING LLC 1004 WEST VAN BUREN STREET COLORADO SPRINGS, CO 80907 RYAN BURNS P.E. 203.577.8656	FIRE DISTRICT:	BLACK FOREST FIRE PROTECTION DISTRICT 11445 TEACHOUT ROAD COLORADO SPRINGS, CO 80908 CHIEF BRYAN JACK (719) 495-4300
COUNTY ENGINEERING:	EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, CO 80910 (719) 520-6300	GAS DEPARTMENT:	COLORADO SPRINGS UTILITIES 7710 DURANT DR. COLORADO SPRINGS, CO 80947 TIM WENDT (719) 668-3556
TRAFFIC ENGINEERING:	EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 (719) 520-6300	ELECTRIC DEPARTMENT:	MOUNTAIN VIEW ELECTRIC 11140 E. WOODMEN ROAD FALCON, CO 80831 (719) 495-2283

BASIS OF BEARINGS

THE NORTH LINE OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 5, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 5 BY A 3-1/4" ALUMINUM CAP STAMPED "LS 10376" AND AT THE NORTH QUARTER CORNER BY A 3-1/4" ALUMINUM CAP STAMPED "LS 4842 1996", BEARING S89°14'13"W.

BENCHMARKS (NGVD 29)

1.THE TOP OF AN ALUMINUM SURVEYORS CAP, STAMPED "9853", AT THE SOUTHEAST BOUNDARY CORNER OF BARBARICK SUBDIVISION
NORTHING = 411416.273
EASTING = 235167.071
ELEVATION = 7023.42

2.THE TOP OF A RED PLASTIC SURVEYORS CAP, ILLEGIBLE, AT THE NORTHWEST BOUNDARY CORNER OF PAWNEE RANCHEROS SUBDIVISION
NORTHING = 410095.404
EASTING = 235052.131
ELEVATION = 7000.40

3.THE TOP OF A RED PLASTIC SURVEYORS CAP, STAMPED "38141", AT THE SOUTHWEST BOUNDARY CORNER OF BARBARICK SUBDIVISION
NORTHING = 411399.962
EASTING = 233849.817
ELEVATION = 7030.82

SHEET INDEX

1	–	COVER SHEET
2	–	LEGEND
3-5	–	INITIAL-FINAL GEC
6-8	–	GEC DETAILS

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS:

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   a. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   b. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   c. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
   d. CDOT M & S STANDARDS
4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (PCD) - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
12. SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY PCD AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DPW, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

DISTRICT APPROVALS

THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED FOR STORM DRAIN AND ASSOCIATED UTILITY SERVICE CONSTRUCTION.

FOR AND ON BEHALF OF THE STONEBRIDGE METRO DISTRICT DATE

EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JOSHUA J. PALMER, P.E. DATE

COUNTY ENGINEER/ECM ADMINISTRATOR

OWNER/DEVELOPER STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

JIM MORLEY DATE

TURKEY CANON QUARRY LLC
20 BOULDER CRESCENT, SUITE 200
COLORADO SPRINGS, CO 80903

ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THESE PLANS.

COLORADO REGISTERED RYAN E. BURNS 54412 PROFESSIONAL ENGINEER

RYAN E. BURNS, P.E. DATE
COLORADO P.E. 54412
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

ALL TERRAIN ENGINEERING

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

REV	DESCRIPTION	DATE

JOB NO: 24013
LOCATION: EPC

MARKSHEFFEL ROAD - SEGMENT M3

COVER SHEET

DESIGN: REB
REVIEW: NQJ
DATE: 11/04/2026
H-SCALE: 1"=1000'
V-SCALE: NA

SHEET
1 OF 8

PLANEMETRICS

	EXISTING	PROPOSED
SECTION LINE		
RIGHT–OF–WAY		
PARCEL LINE		
EASEMENT LINE		
BOUNDARY LINE		
CENTER LINE		

CONSTRUCTION

	EXISTING	PROPOSED
C&G		
EDGE OF ASPHALT		
CONCRETE		
SIDE WALK		
CROSS PAN		
PARKING LOT STRIPING		
ROADWAY STRIPING – DASHED		
ROADWAY STRIPING – DOTTED		
GUARDRAIL		
FENCE		
SOUNDWALL		
DEMO		
GRAVEL		
RIPRAP		
DIRT		
TRAIL/PATH		
RAIL LINE		

GRADING

	EXISTING	PROPOSED
CONTOUR INTERMEDIATE		
CONTOUR INDEX		
TOP OF SLOPE		
TOE OF SLOPE		
CUT/FILL BOUNDARY		
LIMITS OF GRADING		LOG LOG LOG LOG LOG
LIMITS OF DISTURBANCE		

UTILITIES

	EXISTING	PROPOSED
SANITARY SEWER		SS
SANITARY SEWER SERVICE		SS
POTABLE WATER MAIN	W	W
POTABLE WATER SERVICE	W	W
RAW WATER MAIN	RAW	RAW
IRRIGATION MAIN		
SANITARY FORCE MAIN	FM	FM
UNDER–DRAIN	UD	UD
GAS PIPE	G	G
HIGH PRESSURE GAS	HPG	HPG
OIL/PETROLEUM LINE	O	O
UNDER–GROUND ELECTRIC	UGE	UGE
OVER–HEAD ELECTRIC	OHU	OHU
FIBER OPTIC	FO	FO
COMMUNICATION LINES MISC.	COM	COM
STORM PIPE		
HGL MINOR		
HGL MAJOR		

DRAINAGE

	EXISTING	PROPOSED
BASE FLOOD ELEVATION		
100–YR FLOOD PLAIN	100YR	100YR
500–YR FLOOD PLAIN	500YR	500YR
FLOODWAY	FLOOD	FLOOD
SWALE/DITCH		
THALWEG (STREAM/CREEK)		
LIMITS OF WETLANDS		
EDGE OF WATER		
SILT FENCE		
CONSTRUCTION FENCE/MARKERS		CF

UTILITY SYMBOLS

	EXISTING	PROPOSED
STORM SEWER		
MANHOLE		
STORM INLET		
AREA INLET – SQUARE		
AREA INLET – ROUND		
FLARED END SECTION		

TRAFFIC

	EXISTING	PROPOSED
TRAFFIC SIGNAL BOX		
TRAFFIC SIGNAL POLE		
SIGN		
STREET LIGHT		
STREET LIGHT – SINGLE		
STREET LIGHT – DOUBLE		
LUMINAIRE		

LANDSCAPE

	EXISTING	PROPOSED
TREE – CONIFEROUS		
TREE – DECIDUOUS		
SHRUB/BUSH		
SHRUBS AND BUSHES		
IRRIGATION BOX		
IRRIGATION SPRINKLER		
IRRIGATION VALVE		
BOLLARD		
FLAGPOLE	FP	

UTILITY SYMBOLS

	EXISTING	PROPOSED
SANITARY		
LINE MARKER	Mkr San	
SERVICE MARKER		
CLEAN–OUT		
MANHOLE	S	
WATER		
LINE MARKER	Mkr W	
SERVICE MARKER		
FIRE HYDRANT		
FIRE CONNECTION		
MANHOLE	W	
BEND		
BLOW–OFF VALVE		
WELL	WELL	WELL
METER		
VALVE		
REDUCER		
THRUST BLOCK		
CROSS		
PLUG W/ THRUST BLOCK		
TEE		
REVERSE ANCHOR		
ANODE		
AIR & VACUUM VALVE ASSEMBLY		
GAS		
MARKER	Mkr G	
SERVICE MARKER		
METER		
DRY UTILITIES		
CABLE TV MARKER	Mkr TV	
CABLE TELEVISION PEDESTAL	TV	
ELECTRIC MARKER	Mkr E	
ELECTRIC SERVICE MARKER		
ELECTRICAL PEDESTAL	E	
ELECTRICAL METER	E	
ELECTRICAL MANHOLE	E	
FIBER–OPTIC MARKER	Mkr FO	
IRRIGATION PEDESTAL		
TELEPHONE MARKER	Mkr T	
TELEPHONE PEDESTAL	T	
TELEPHONE MANHOLE	T	
UTILITY POLE		
GUY ANCHOR		
GUY POLE		
MISC. UTILITIES		
VENT PIPE	VP	VP
TEST HOLE DESIGNATOR	TH# FIRM FIRM/AGENCY	

ABBREVIATIONS:

ASCE – AMERICAN SOCIETY OF CIVIL ENGINEERS
BLDG – BUILDING
BW – BOTTOM OF WALL
CG – CURB AND GUTTER
CIP – CAST IRON PIPE
CL – CENTERLINE
CMP – CORRUGATED METAL PIPE
CONC – CONCRETE
DIP – DUCTILE IRON PIPE
DS – DOWNSPOUT
EL – ELEVATION
ESMT – EASEMENT
EX – EXISTING
FES – FLARED END SECTION
FL – FLOWLINE
GB – GRADE BREAK
HP – HIGH POINT
HYD – HYDRANT
INV – INVERT ELEVATION
LF – LINEAR FEET
LP – LOW POINT
MH – MANHOLE
MIN – MINIMUM
OH – OVERHEAD
PB – PUBLIC
PC – POINT OF CURVATURE
PCC – POINT OF COMPOUND CURVATURE
PCR – POINT OF CURB RETURN
PR – PROPOSED
PRC – POINT OF REVERSE CURVATURE
PVC – POLYVINYL CHLORIDE PIPE
PVT – PRIVATE
PT – POINT OF TANGENCY
P.U.E – PUBLIC UTILITY EASEMENT
P.U.A.E – PUBLIC UTILITY & ACCESS EASEMENT
P.U.D.E – PUBLIC UTILITY & DRAINAGE EASEMENT
P.I.E – PUBLIC IMPROVEMENT EASEMENT
R – RADIUS
RIM – RIM ELEVATION
STM – STORM
TBC – TOP BACK OF CURB
TW – TOP OF WALL
TYP – TYPICAL
UD – UNDERDRAIN
UT – UTILITY
WTR – WATER
XPAN – CROSSPAN

ENGINEER'S STATEMENT

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COLORADO REGISTERED RYAN E. BURNS 54412 PROFESSIONAL ENGINEER

RYAN E. BURNS, P.E. — DATE
COLORADO P.E. 54412
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

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PAM F. BURNS, PE
719.377.1656 – PAM@ATERRAINENG.COM

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JOB NO. 24013 LOCATION: EPC

REV	DESCRIPTION	DATE

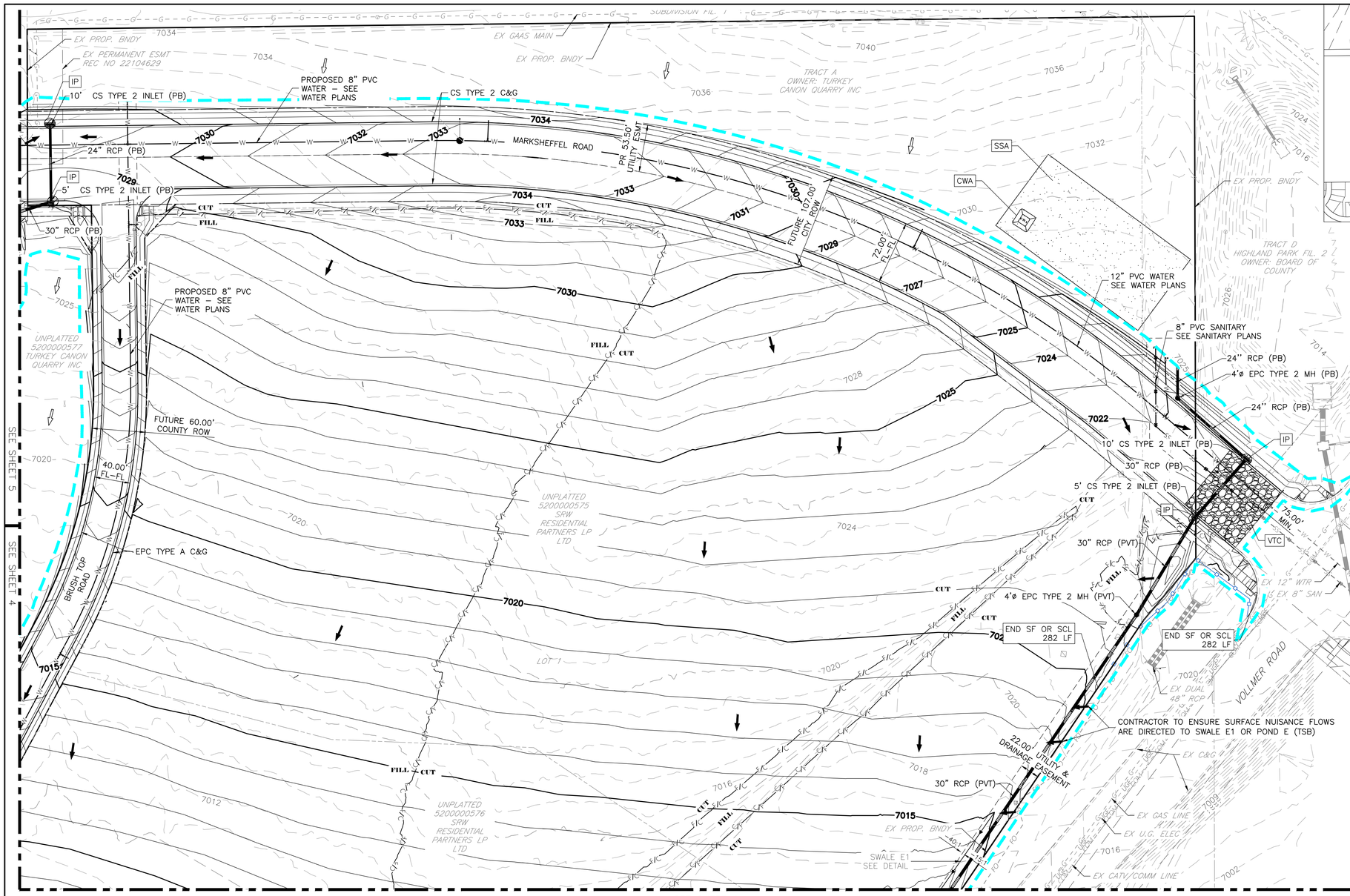
MARKSHEFFEL ROAD - SEGMENT M3

LEGEND

DESIGN: REB
REVIEW: NQJ
DATE: 11/04/2026

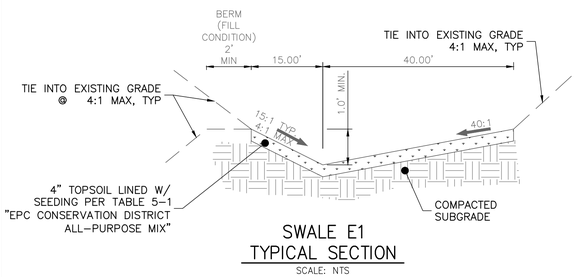
H-SCALE: 1" = 50'
V-SCALE: 1" = 5'

SHEET 2 OF 8



GEC LEGEND:

- CULVERT PROTECTION
- CWA — CONCRETE WASHOUT AREA
- INLET PROTECTION
- EX FLOW DIRECTION
- PR FLOW DIRECTION
- SEDIMENT CONTROL LOG
- DIVERSION DITCH
- SILT FENCE
- LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY
- STABILIZED STAGING AREA
- STOCKPILE PROTECTION
- VEHICLE TRACKING CONTROL
- SEEDING & MULCHING
- EROSION CONTROL BLANKET
- DO NOT DISTURB



SWALE E1
TYPICAL SECTION
SCALE: NTS

GRADING & EROSION CONTROL PLAN NOTES:

1. THE VERTICAL PHASE OF CONSTRUCTION IS NOT INCLUDED IN THESE PLANS. WHEN VERTICAL CONSTRUCTION COMMENCES, BUILDER AND/OR DEVELOPER SHALL SUBMIT BESQCP APPLICATION & AMEND THIS PLAN ACCORDINGLY.
2. EXISTING VEGETATION: SITE IS VEGETATED INCONSISTENTLY WITH GRASSES, SHRUBBERY, & TREES. EXTENTS OF VEGETATION NOT SHOWN ON PLAN. DISTURBED AREA FROM CDR227 HAS BEEN CLEARED.
3. NO CONCRETE OR BATCH PLANTS ARE ANTICIPATED ON–SITE.
4. ALL DISTURBED AREAS THAT ARE NOT OTHERWISE STABILIZED, SHALL BE SEEDED AND MULCHED TO 70% OF PRE–DISTURBANCE VEGETATION LEVELS.
5. ROW AND ASSOCIATED EASEMENTS SHOWN ON THESE PLANS ACROSS PARCEL 5200000577 SHALL BE CREATED PER THE IGA (DA251). EASEMENTS ACROSS OTHER PARCELS SHALL BE CREATED BY SEPARATE INSTRUMENT.

INITIAL PHASE TCM:

- INSTALL VEHICLE TRACKING CONTROL
- ESTABLISH STABILIZED STAGING AREA
- INSTALL PERIMETER CONTROLS I.E. SILT FENCE, CONSTRUCTION FENCING, ETC.
- INSTALL TEMPORARY SEDIMENT BASIN

INTERIM PHASE TCM:

- INSTALL EROSION CONTROL BLANKET ON 3:1 SLOPES
- PROVIDE CULVERT & INLET PROTECTION

FINAL PHASE TCM:

- SEED & MULCH DISTURBED AREAS
- ONCE FINAL STABILIZATION ACHIEVED (70% OF PRE–DISTURBANCE), REMOVE TEMPORARY CONTROL MEASURES
- REMOVE TEMPORARY SEDIMENT BASIN(S) & COMPLETE FULL SPECTRUM WATER QUALITY & DETENTION POND CONSTRUCTION PER POND GRADING PLAN & DETAILS INCLUDED HEREIN.

Know what's below. Call before you dig.

60 30 0 60 120
ORIGINAL SCALE: 1" = 60'

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ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF ALL TERRAIN ENGINEERING

RYAN E. BURNS, P.E.
COLORADO P.E. 54412
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING LLC

DATE

ALL TERRAIN ENGINEERING
RYAN E. BURNS, PE
719.377.6656 – RYAN@ALLTERRAINENG.COM
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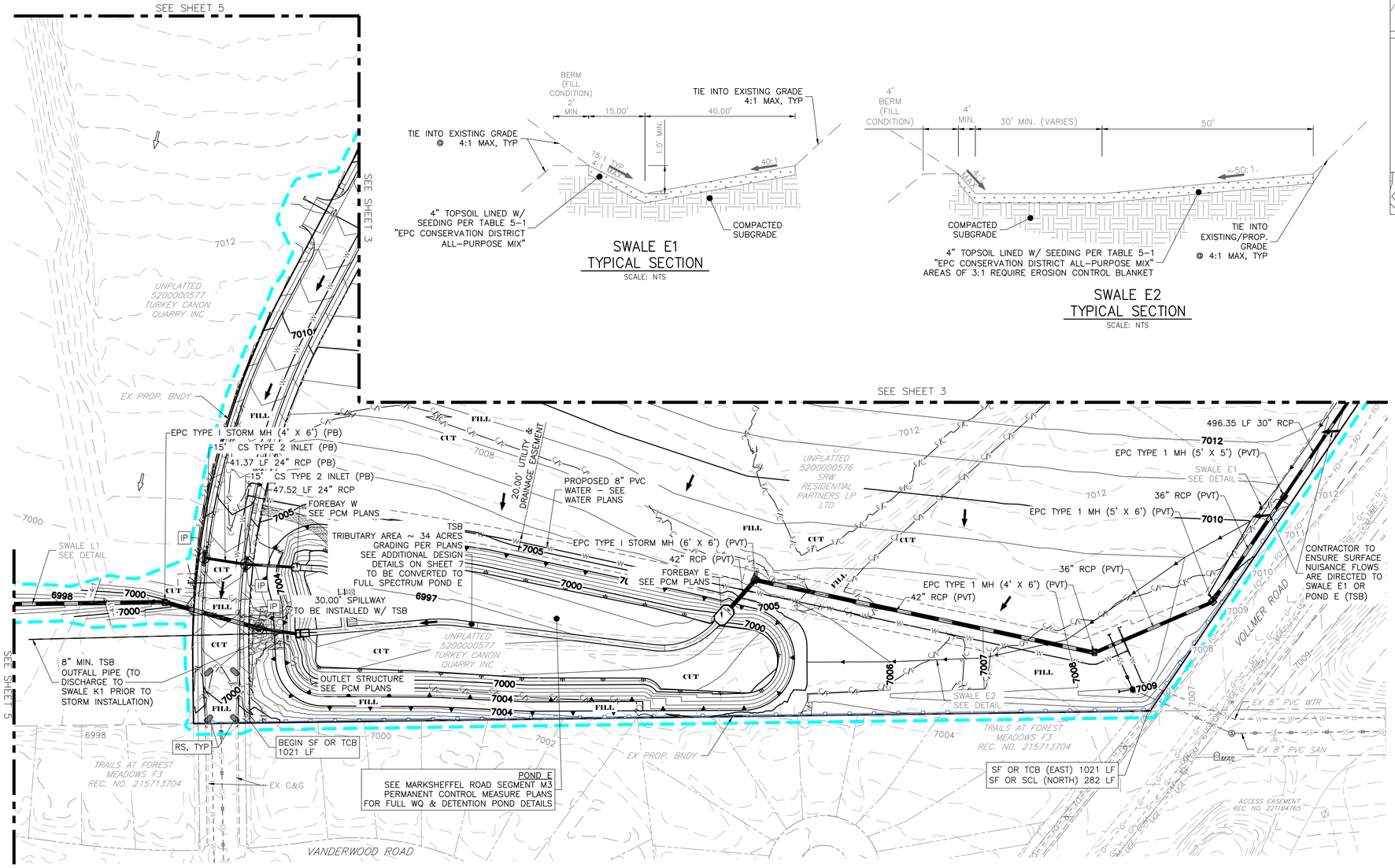
REV	DESCRIPTION	DATE

MARKSHEFFEL ROAD - SEGMENT M3

INITIAL-FINAL GEC

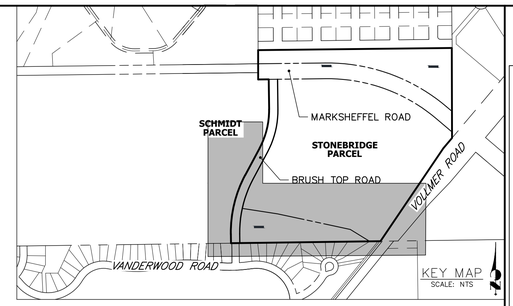
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SHEET 3 OF 8



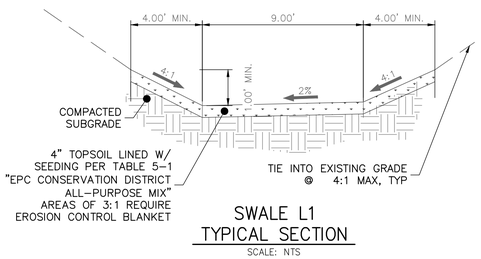
SWALE E1
TYPICAL SECTION
SCALE: NTS

SWALE E2
TYPICAL SECTION
SCALE: NTS



GEC LEGEND:

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TYPICAL SECTION
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DATE

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SHEET
4 OF 8

ALL TERRAIN ENGINEERING

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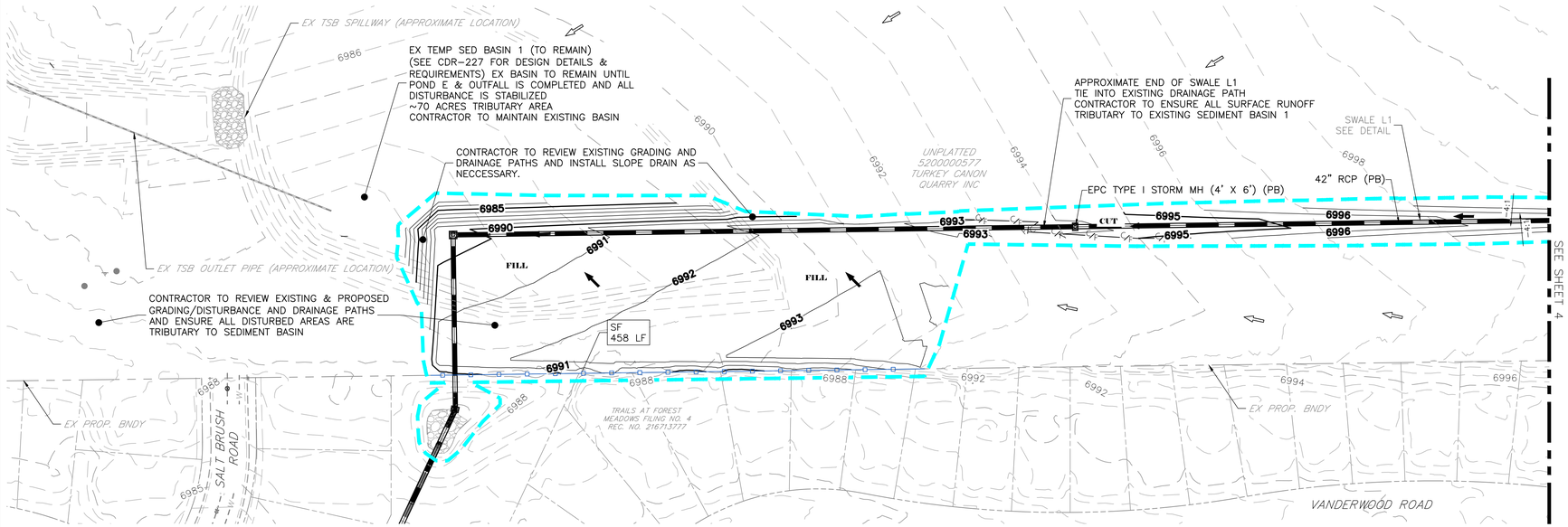
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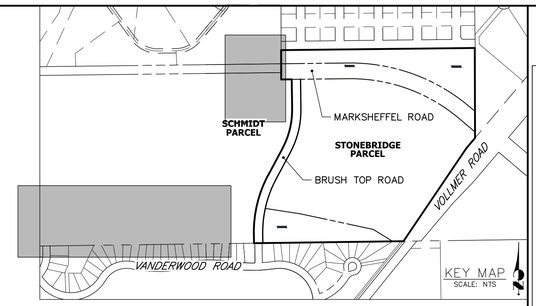
JOB NO: 24013 LOCATION: EPC

REV	DESCRIPTION	DATE

MARKSHEFFEL ROAD - SEGMENT M3

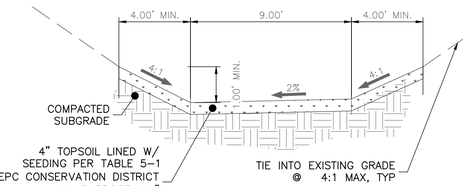
INITIAL-FINAL GEC



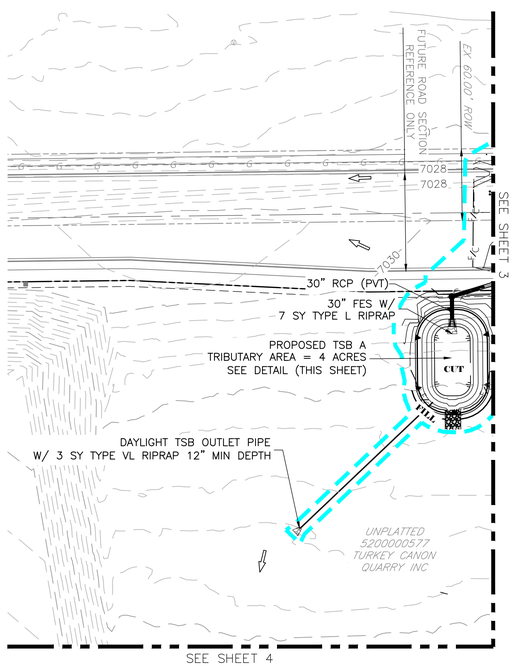


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SWALE L1
TYPICAL SECTION
SCALE: NTS



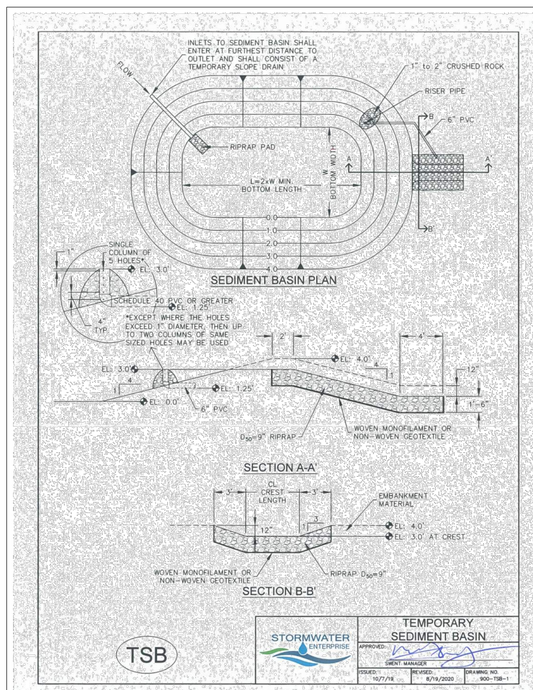


TABLE SB-1, SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

UPSTREAM DRAINAGE AREA (ROUNDED TO NEAREST ACRE), (AC)	BASIN BOTTOM WIDTH (W), (FT)	SPILLWAY CREST LENGTH (CL), (FT)	HOLE DIAMETER (HD), (IN)
1	12½	2	9/32
2	21	3	11/64
3	28	4	1/4
4	33½	6	9/64
5	38½	8	17/64
6	43	9	7/32
7	47¼	11	23/64
8	51	12	27/64
9	55	13	1/8
10	58½	15	19/64
11	61	16	7/32
12	64	18	1/4
13	67½	19	11/64
14	70½	21	13/64
15	73¼	22	11/64

INSTALLATION NOTES:
1. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
2. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE No. 200 SIEVE.
3. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-698.
4. PIPE SCHEDULE 40 OR GREATER SHALL BE USED.
5. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES. DESIGN CALCULATIONS MUST BE APPROVED PRIOR TO IMPLEMENTATION.

MAINTENANCE NOTES:
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN CONTROL MEASURE EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW SPILLWAY CREST).
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SEDIMENT BASIN REMOVAL.

TSB
STORMWATER ENTERPRISE
TEMPORARY SEDIMENT BASIN
APPROVED:
SWMP MANAGER
ISSUED: 10/7/19
REVISED: 8/19/2020
DRAWING NO.: 900-TSB-2

GRADING & EROSION CONTROL PLAN NOTES:

1. THE VERTICAL PHASE OF CONSTRUCTION IS NOT INCLUDED IN THESE PLANS. WHEN VERTICAL CONSTRUCTION COMMENCES, BUILDER AND/OR DEVELOPER SHALL SUBMIT BESQCP APPLICATION & AMEND THIS PLAN ACCORDINGLY.
2. EXISTING VEGETATION: SITE IS VEGETATED INCONSISTENTLY WITH GRASSES, SHRUBBERY, & TREES. EXTENTS OF VEGETATION NOT SHOWN ON PLAN. DISTURBED AREA FROM CDR227 HAS BEEN CLEARED.
3. NO CONCRETE OR BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. ALL DISTURBED AREAS THAT ARE NOT OTHERWISE STABILIZED, SHALL BE SEEDED AND MULCHED TO 70% OF PRE-DISTURBANCE VEGETATION LEVELS.
5. ROW AND ASSOCIATED EASEMENTS SHOWN ON THESE PLANS ACROSS PARCEL 5200000577 SHALL BE CREATED PER THE IGA (DA251). EASEMENTS ACROSS OTHER PARCELS SHALL BE CREATED BY SEPARATE INSTRUMENT.

INITIAL PHASE TCM:

- INSTALL VEHICLE TRACKING CONTROL
- ESTABLISH STABILIZED STAGING AREA
- INSTALL PERIMETER CONTROLS I.E. SILT FENCE, CONSTRUCTION FENCING, ETC.
- INSTALL TEMPORARY SEDIMENT BASIN

INTERIM PHASE TCM:

- INSTALL EROSION CONTROL BLANKET ON 3:1 SLOPES
- PROVIDE CULVERT & INLET PROTECTION

FINAL PHASE TCM:

- SEED & MULCH DISTURBED AREAS
- ONCE FINAL STABILIZATION ACHIEVED (70% OF PRE-DISTURBANCE), REMOVE TEMPORARY CONTROL MEASURES
- REMOVE TEMPORARY SEDIMENT BASIN(S) & COMPLETE FULL SPECTRUM WATER QUALITY & DETENTION POND CONSTRUCTION PER POND GRADING PLAN & DETAILS INCLUDED HEREIN.

N

60 30 0 60 120

ORIGINAL SCALE: 1" = 60'

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF ALL TERRAIN ENGINEERING

RYAN E. BURNS, P.E.
COLORADO P.E. 54412
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING LLC

DATE

THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

811 Know what's below. Call before you dig.

ALL TERRAIN ENGINEERING
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RYAN J. BURNS, P.E.
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PREPARED FOR:
TURKEY CANON QUARRY INC.
20 BOULDER CRESCENT ST. STE 100
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ATTN: JIM MORLEY
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UNTIL SUCH TIME AS THESE DRAWIGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, ALL TERRAIN ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

JOB NO.: 24013 LOCATION: EPC

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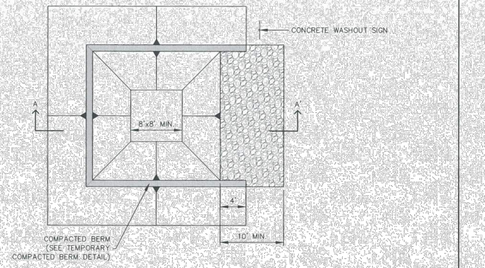
MARKSHEFFEL ROAD - SEGMENT M3

INITIAL-FINAL GEC

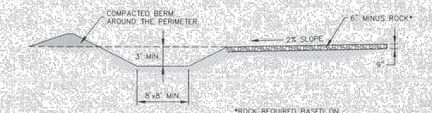
DESIGN: REB
REVIEW: NQJ
DATE: 11/04/2026

H-SCALE: 1" = 60'
V-SCALE: 1" = 6'

SHEET
5 OF 8



CONCRETE WASHOUT AREA PLAN



SECTION A-A'

*ROCK REQUIRED BASED ON SITE CONDITIONS AT THE DISCRETION OF THE GEC INSPECTOR

CWA

STORMWATER ENTERPRISE

CONCRETE WASHOUT AREA

APPROVED:

CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CWA-1

INSTALLATION NOTES:

1. SEE PLAN VIEW FOR:
   - LOCATION OF CONCRETE WASHOUT AREA
2. LOCATE AT LEAST 50' AWAY FROM STATE WATERS MEASURED HORIZONTALLY.
3. AN IMPERMEABLE LINER (16 MIL MINIMUM THICKNESS) IS REQUIRED IF CONCRETE WASH AREA IS LOCATED WITHIN 400' OF STATE WATERS OR 1000' OF WELLS OR DRINKING WATER SOURCES.
4. DO NOT LOCATE IN AREAS WHERE SHALLOW GROUNDWATER MAY BE PRESENT.
5. THE CONCRETE WASH AREA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
6. CONCRETE WASH AREA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8'.
7. BERM SURROUNDING SIDES AND BACK OF CONCRETE WASH AREA SHALL HAVE A MINIMUM HEIGHT OF 2 FEET.
8. CONCRETE WASH AREA ENTRANCE SHALL BE SLOPED 2% TOWARDS THE CONCRETE WASH AREA.
9. SIGNS SHALL BE PLACED AT THE CONCRETE WASH AREA.
10. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. THE CONCRETE WASH AREA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF ⅓ THE HEIGHT OF THE CONCRETE WASH AREA.
3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
4. THE CONCRETE WASH AREA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
5. PERMANENTLY STABILIZE AREA AFTER CONCRETE WASH AREA IS REMOVED.

CWA

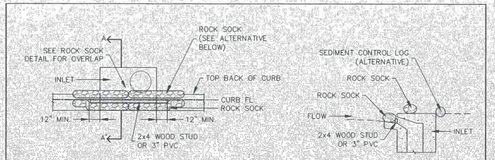
STORMWATER ENTERPRISE

CONCRETE WASHOUT AREA

APPROVED:

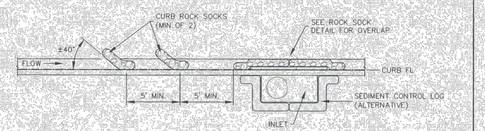
CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CWA-2



CURB INLET PROTECTION PLAN

SECTION A-A'



CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

INSTALLATION NOTES:

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE ROCK SOCK SHALL BE APPROXIMATELY 40 DEGREES FROM THE CURB.
3. ROCK SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5' APART.
4. AT LEAST TWO CURB ROCK SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADIENT INLETS.
5. ADDITIONAL ROCK SOCKS MAY BE REQUIRED AT GEC INSPECTOR'S DISCRETION.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA BEHIND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-1

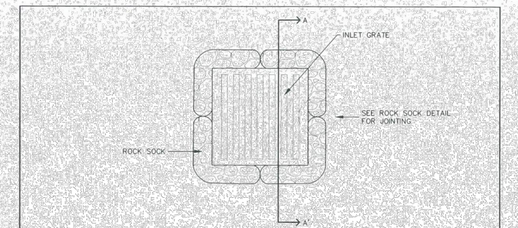
STORMWATER ENTERPRISE

ON-GRADE INLET PROTECTION

APPROVED:

CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-1



ROCK SOCK SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES:

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.
3. CONTROL MEASURES MUST BE WRAPPED AROUND INLET AS TIGHTLY AS POSSIBLE.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-2

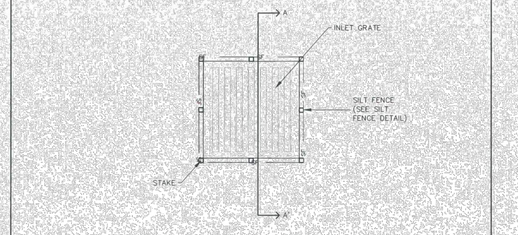
STORMWATER ENTERPRISE

SUMP INLET PROTECTION

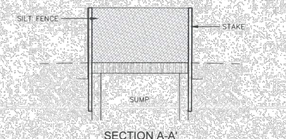
APPROVED:

CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-2



SILT FENCE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES:

1. SEE SILT FENCE DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF THREE FEET.
3. SILT FENCE FABRIC SHOULD HAVE A FLOW RATE IN EXCESS OF 30 GALLONS PER MINUTE PER SQUARE YARD SO AS TO ALLOW SOME WATER FLOW AND NOT DAM THE WATER. STANDARD, LOW-FLOW SILT FENCE FABRIC WILL NOT BE ALLOWED.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER SILT FENCE IS REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-3

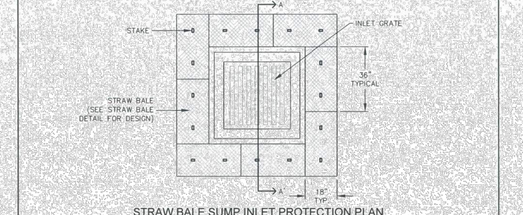
STORMWATER ENTERPRISE

SUMP INLET PROTECTION

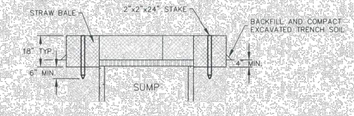
APPROVED:

CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-3



STRAW BALE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES:

1. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE ENDS OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
4. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
5. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT THE BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S).
6. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKED SHALL BE 2"x2"x24" (MIN.). WOODEN STAKES SHALL BE DRIVEN A MINIMUM OF 6" INTO THE GROUND.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. STRAW BALES MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER STRAW BALES ARE REMOVED WHEN REMOVAL IS APPROPRIATE.
5. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN OR DAMAGED BEYOND REPAIR.

IP-4

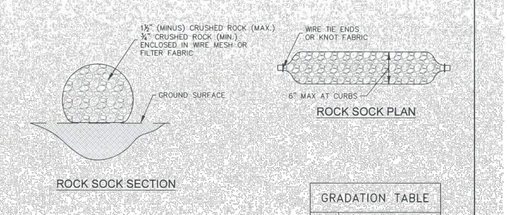
STORMWATER ENTERPRISE

SUMP INLET PROTECTION

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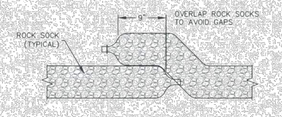
CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-4



ROCK SOCK PLAN

ROCK SOCK SECTION



ROCK SOCK OVERLAP

GRADATION TABLE

	MASS PERCENT PASSING SQUARE MESH SIEVES
	No. 4
2"	100
1½"	90-100
1"	20-55
¾"	0-15
⅜"	0-5

MATCHES SPECIFICATIONS FOR No. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M-43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.

INSTALLATION NOTES:

1. CRUSHED ROCK SHALL BE BETWEEN MAX. 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET AND MIN. ¾" CRUSHED ROCK.
2. WIRE MESH SHALL HAVE OPENINGS SMALLER THAN THE SMALLEST SIZE ROCK.
3. WIRE MESH SHALL BE SECURED USING 'HOG RINGS' OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2' CENTERS ON ENDS OF SOCKS.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED BEYOND REPAIR.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH REACHES ½ OF THE HEIGHT OF THE ROCK SOCK.
4. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL DISTURBED AREA IS STABILIZED.
5. PERMANENTLY STABILIZE AREA AFTER ROCK SOCKS HAVE BEEN REMOVED.

RS

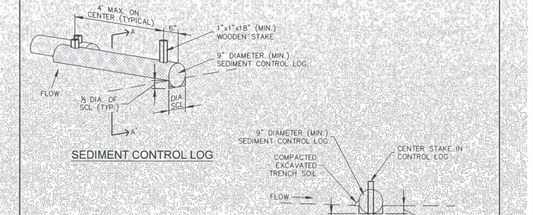
STORMWATER ENTERPRISE

ROCK SOCK

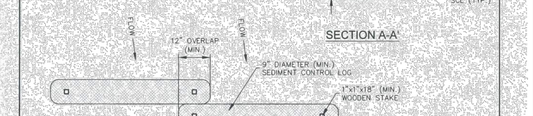
APPROVED:

CMENT MANAGER

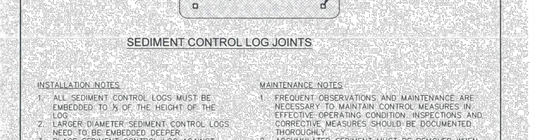
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-RS



SEDIMENT CONTROL LOG



SECTION A-A'



SEDIMENT CONTROL LOG JOINTS

INSTALLATION NOTES:

1. ALL SEDIMENT CONTROL LOGS MUST BE EMBEDDED TO ⅓ OF THE HEIGHT OF THE LOG.
2. LARGER DIAMETER SEDIMENT CONTROL LOGS NEED TO BE EMBEDDED DEEPER.
3. PLACE SEDIMENT CONTROL LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.
4. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE FROM ANY NOXIOUS WEED SEEDS OF DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
5. IF USING AS SLOPE PROTECTION, INSTALL SEDIMENT CONTROL LOGS ALONG THE CONTOUR.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
3. PERMANENTLY STABILIZE AREA AFTER SEDIMENT CONTROL LOGS HAVE BEEN REMOVED.

SCL

STORMWATER ENTERPRISE

SEDIMENT CONTROL LOGS

APPROVED:

CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SCL

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

COLORADO REGISTERED PROFESSIONAL ENGINEER RYAN E. BURNS 0054412

0054412

RYAN E. BURNS, P.E. DATE
COLORADO P.E. 0054412
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING LLC

ALL TERRAIN ENGINEERING

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JOB NO: 24013 LOCATION: EPC

REV	DESCRIPTION	DATE

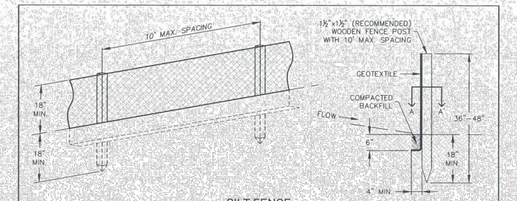
MARKSHEFFEL ROAD - SEGMENT M3

GEC DETAILS

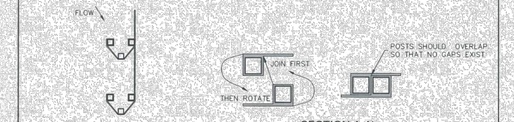
DESIGN: REB
REVIEW: NQJ
DATE: 11/04/2026

H-SCALE: N/A
V-SCALE: N/A

SHEET
6 OF 8



SILT FENCE



J-HOOK INSTALLATION

SECTION A-A'

INSTALLATION NOTES:

1. SILT FENCE MUST BE PLACED ON A FLAT SURFACE 2'-5' AWAY FROM TOE OF THE SLOPE TO ALLOW FOR PONDING AND DEPOSITION.
2. COMPACT THE TRENCH USING A JUMPING JACK OR WHEEL ROLLING TO THE POINT THAT THE FENCE RESISTS BEING PULLED OUT OF THE GROUND BY HAND.
3. SILT FENCE SHALL BE TAUT WITH NO SAGS AFTER IT HAS BEEN ANCHORED.
4. FABRIC SHALL BE ATTACHED TO POSTS WITH 4" HEAVY DUTY STAPLES OR 1" NAILS. THESE SHOULD BE PLACED VERTICALLY DOWN THE POST, 3" APART.
5. THE PREFERRED INSTALLATION METHOD USES A TRENCHER OR SILT FENCE INSTALLATION DEVICE.
6. INSTALL SILT FENCE ALONG THE CONTOUR OF THE SLOPES OR IN A MANNER TO AVOID CREATING CONCENTRATED FLOW (SUCH AS A "J-HOOK") INSTALLATION.

MAINTENANCE NOTES:

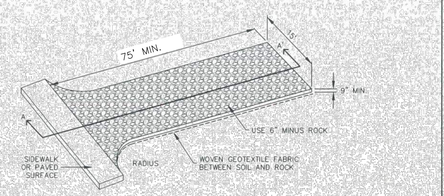
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN HEIGHT OF THE SILT FENCE.
3. SILT FENCE MUST REMAIN UNTIL THE DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SILT FENCE IS REMOVED.

SF

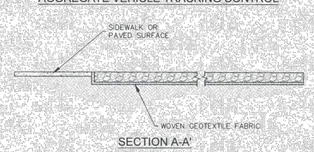
STORMWATER ENTERPRISE — SILT FENCE

APPROVED: CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.:
10/7/19	8/19/2020	900-SF



AGGREGATE VEHICLE TRACKING CONTROL



SECTION A-A'

INSTALLATION NOTES:

1. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHOULD BE LOCATED AT ALL POINTS WHERE VEHICLES EXIT THE CONSTRUCTION SITE TO ADJACENT ROADWAY.
2. STABILIZED CONSTRUCTION ENTRANCE/EXITS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
3. RADIUS MUST BE ADEQUATE FOR INTENDED CONSTRUCTION VEHICLE TURNING.
4. ROCK SHOULD CONSIST OF 6" MINUS ROCK.
5. INSTALL CONSTRUCTION FENCE ON BOTH SIDES OF VEHICLE TRACKING CONTROL PAD WHEN NEEDED OR REQUIRED BY INSPECTOR.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT TRACKED ONTO THE ADJACENT ROAD SHALL BE REMOVED DAILY, BY SWEEPING OR SHOVELING, AND NEVER WASHED DOWN STORM DRAINS.
3. ROUGHEN, REPLACE AND/OR ADD ROCK AS NEEDED TO MAINTAIN CONSISTENT DEPTH AND TO PREVENT SEDIMENT TRACKING ONTO ADJACENT STREET.
4. PERMANENTLY STABILIZE AREA AFTER VEHICLE TRACKING CONTROL IS REMOVED.

VTC

STORMWATER ENTERPRISE — VEHICLE TRACKING CONTROL

APPROVED: CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.:
10/7/19	8/19/2020	900-VTC

SEEDING & MULCHING

ALL SOIL TESTING, SOILS AMENDMENT AND FERTILIZER DOCUMENTATION, AND SEED LOAD AND BAG TICKETS MUST BE ADDED TO THE CSWMP.

SOIL PREPARATION:

1. IN AREAS TO BE SEEDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRIABLE CONDITION. LESS THAN 85% STANDARD PROCTOR DENSITY IS ACCEPTABLE. AREAS OF COMPACTION OR GENERAL CONSTRUCTION ACTIVITY MUST BE SCARIFIED TO A DEPTH OF 6 TO 12 INCHES PRIOR TO SPREADING TOPSOIL TO BREAK UP COMPACTED LAYERS AND PROVIDE A BLENDING ZONE BETWEEN DIFFERENT SOIL LAYERS.
2. AREAS TO BE PLANTED SHALL HAVE AT LEAST 4 INCHES OF TOPSOIL SUITABLE TO SUPPORT PLANT GROWTH.
3. THE CITY RECOMMENDS THAT EXISTING AND/OR IMPORTED TOPSOIL BE TESTED TO IDENTIFY SOIL DEFICIENCIES AND ANY SOIL AMENDMENTS NECESSARY TO ADDRESS THESE DEFICIENCIES. SOIL AMENDMENTS AND/OR FERTILIZERS SHOULD BE ADDED TO CORRECT TOPSOIL DEFICIENCIES BASED ON SOIL TESTING RESULTS.
4. TOPSOIL SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD TO RETAIN ITS STRUCTURE, AVOID COMPACTION, AND TO PREVENT EROSION AND CONTAMINATION. STRIPPED TOPSOIL MUST BE STORED IN AN AREA AWAY FROM MACHINERY AND CONSTRUCTION OPERATIONS, AND CARE MUST BE TAKEN TO PROTECT THE TOPSOIL AS A VALUABLE COMMODITY. TOPSOIL MUST NOT BE STRIPPED DURING UNDESIRABLE WORKING CONDITIONS (E.G. DURING WET WEATHER OR WHEN SOILS ARE SATURATED). TOPSOIL SHALL NOT BE STORED IN SWALES OR IN AREAS WITH POOR DRAINAGE.

SEEDING:

1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
2. SEED SHOULD BE DRILL-SEEDED WHENEVER POSSIBLE.
   - SEED DEPTH MUST BE ¼ TO ½ INCHES WHEN DRILL-SEEDING IS USED.
3. BROADCAST SEEDING OR HYDRO-SEEDING WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
   - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO-SEEDING.
   - BROADCAST SEEDING MUST BE LIGHTLY HAND-RAKED INTO THE SOIL.

MULCHING:

1. MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING. HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.
2. MULCHING REQUIREMENTS INCLUDE:
   - HAY OR STRAW MULCH:
     - ONLY CERTIFIED WEED-FREE AND CERTIFIED SEED-FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 1.2 TONS/ACRE AND ADEQUATELY SECURED BY CRIMPING AND/OR TACKIFIER.
     - CRIMPING MUST NOT BE USED ON SLOPES GREATER THAN 3:1 AND MULCH FIBERS MUST BE TUCKED INTO THE SOIL TO A DEPTH OF 3 TO 4 INCHES.
     - TACKIFIER MUST BE USED IN PLACE OF CRIMPING ON SLOPES STEEPER THAN 3:1.
   - HYDRAULIC MULCHING:
     - HYDRAULIC MULCHING IS AN OPTION ON STEEP SLOPES OR WHERE ACCESS IS LIMITED.
     - IF HYDRO-SEEDING IS USED, MULCHING MUST BE APPLIED AS A SEPARATE, SECOND OPERATION.
     - WOOD CELLULOSE FIBERS MIXED WITH WATER MUST BE APPLIED AT A RATE OF 2,000 TO 2,500 POUNDS/ACRE, AND TACKIFIER MUST BE APPLIED AT A RATE OF 100 POUNDS/ACRE.
   - EROSION CONTROL BLANKET
     - EROSION CONTROL BLANKET MAY BE USED IN PLACE OF TRADITIONAL MULCHING METHODS.

SM

STORMWATER ENTERPRISE — SEEDING & MULCHING

APPROVED: CMENT MANAGER

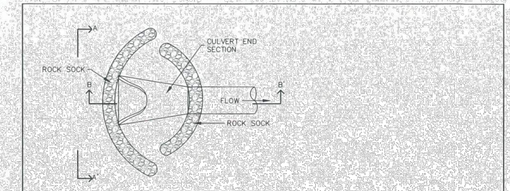
ISSUED:	REVISED:	DRAWING NO.:
10/7/19	8/19/2020	900-VTC

Table 5-1. El Paso County Conservation District All-Purpose Mix for Upland, Transition and Permanent Control Measure Areas

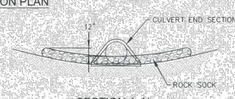
Common Name	Scientific Name	Growth Season / Form	% of Mix	Pounds PLS		
				• Irrigated broadcast • Irrigated hydroseeded	• Non-Irrigated broadcast • Non-Irrigated hydroseeded • Irrigated drilled	• Non-Irrigated drilled
				80 seeds/sq ft	40 seeds/sq ft	20 seeds/sq ft
Bluestem, big	*Andropogon gerardii*	Warm, sod	20	4.4	2.2	1.1
Grama, blue	*Bouteloua gracilis*	Warm, bunch	10	0.5	0.25	0.13
Green needlegrass[2]	*Nassella viridula*	Cool, bunch	10	2	1	0.5
Wheatgrass, western[2]	*Pascopyrum smithii*	Cool, sod	20	6.4	3.2	1.6
Grama, sideoats	*Bouteloua curtipendula*	Warm, bunch	10	2	1	0.5
Switchgrass[2]	*Panicum virgatum*	Warm, bunch/sod	10	0.8	0.4	0.2
Prairie sandreed	*Calimovilfa longifolia*	Warm, sod	10	1.2	0.6	0.3
Yellow indiangrass[2]	*Sorghastrum nutans*	Warm, sod	10	2	1	0.5
		Seed rate (lbs PLS/acre)		19.3	9.7	4.8

[1]For portions of facilities located near or on the bottom or where wet soil conditions occur. Planting of potted nursery stock wetland plants 2-foot on-center is recommended for sites with wetland hydrology.

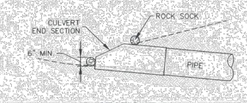
[2]Species that will do well in the bottom of pond areas.



CULVERT INLET PROTECTION PLAN



SECTION A-A'



SECTION B-B'

INSTALLATION NOTES:

1. SEE ROCK SOCK DETAIL.

MAINTENANCE NOTES:

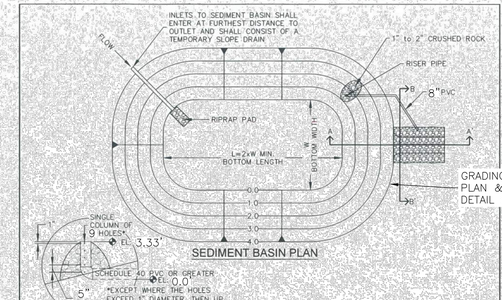
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ HEIGHT OF THE ROCK SOCK.
3. CULVERT INLET PROTECTION SHALL REMAIN UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.

CIP

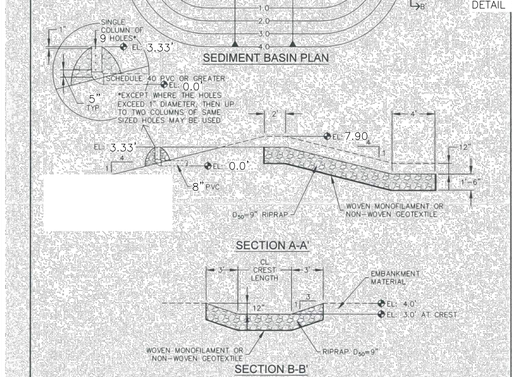
STORMWATER ENTERPRISE — CULVERT INLET PROTECTION

APPROVED: CMENT MANAGER

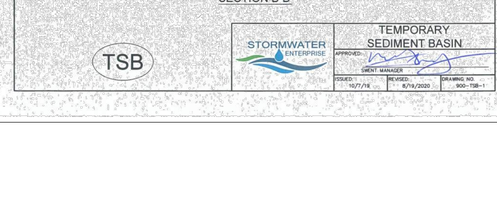
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10/7/19	8/19/2020	900-CIP



SEDIMENT BASIN PLAN



SECTION A-A'



SECTION B-B'

TSB

STORMWATER ENTERPRISE — TEMPORARY SEDIMENT BASIN

APPROVED: CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.:
10/7/18	8/19/2020	900-TSB-1

TABLE SB-1, SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

UPSTREAM DRAINAGE AREA (ROUNDED TO NEAREST ACRE), (AC)	BASIN BOTTOM WIDTH (W), (FT)	SPILLWAY CREST LENGTH (CL), (FT)	HOLE DIAMETER (HD), (IN)
1	12½	2	3/32
2	21	3	1/16
3	28	5	3/32
4	33½	6	3/16
5	38½	8	7/32
6	43	9	7/32
7	47¾	11	7/32
8	51	12	7/32
9	55	13	¼
10	58½	15	15/64
11	61	16	15/64
12	64	18	⅜
13	67½	19	13/32
14	70½	21	13/32
15	73½	22	13/32
34	PLAN	PLAN	1 1/4

GRADING SHALL BE PER PLAN & NOT PER THIS DETAIL SEE SHEET 3

INSTALLATION NOTES:

1. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
2. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES, AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE No. 200 SIEVE.
3. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-698.
4. PIPE SCHEDULE 40 OR GREATER SHALL BE USED.
5. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES. DESIGN CALCULATIONS MUST BE APPROVED PRIOR TO IMPLEMENTATION.

MAINTENANCE NOTES:

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN CONTROL MEASURE EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW SPILLWAY CREST).
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SEDIMENT BASIN REMOVAL.

TSB

STORMWATER ENTERPRISE — TEMPORARY SEDIMENT BASIN

APPROVED: CMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.:
10/7/19	8/19/2020	900-TSB-2

ALL TERRAIN ENGINEERING
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COLORADO SPRINGS, CO 80903
ATTN: JIM MORLEY
(719) 491-3024
JMORLEY.MORLEYCOS@GMAIL.COM

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

JOB NO: 24013 LOCATION: EPC

REV	DESCRIPTION	DATE

MARKSHEFFEL ROAD - SEGMENT M3

GEC DETAILS

DESIGN: REB
REVIEW: NQJ
DATE: 11/04/2026
H-SCALE: N/A
V-SCALE: N/A

SHEET
7 OF 8

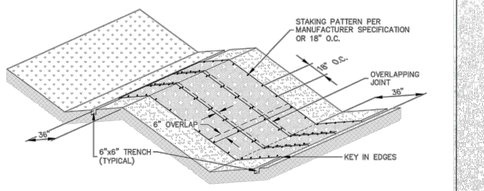
ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

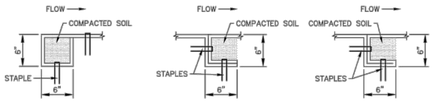
RYAN E. BURNS
0054412
PROFESSIONAL ENGINEER
COLORADO

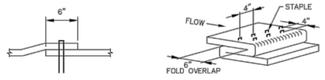
0054412

RYAN E. BURNS, P.E. — DATE
COLORADO P.E. 0054412
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC



EROSION CONTROL BLANKET





ECB

STORMWATER ENTERPRISE

EROSION CONTROL BLANKET

APPROVED: CHIEF ENGINEER

ISSUED:	REVISED:	DRAWING NO.
10/1/19	8/19/2020	900-ECB-1

INSTALLATION NOTES

1. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE REQUIRED FOR EROSION CONTROL BLANKETS. TRM PRODUCTS MAY BE USED WHERE APPROPRIATE AS DESIGNATED BY THE ENGINEER.
2. IN AREAS WHERE EROSION CONTROL BLANKETS ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO EROSION CONTROL BLANKET INSTALLATION, AND THE EROSION CONTROL BLANKET SHALL BE IN FULL CONTACT WITH THE SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
3. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
4. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL EROSION CONTROL BLANKETS.
5. INTERMEDIATE CHECK SLOT OR STAPLE CHECK SHALL BE INSTALLED EVERY 15' DOWN SLOPES. IN DRAINAGEWAYS, INSTALL CHECK SLOTS EVERY 25' PERPENDICULAR TO FLOW DIRECTION.
6. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER FOR EROSION CONTROL BLANKETS ON SLOPES.
7. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKETS SHALL CONFORM TO TABLE ECB-1.
8. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKETS SHALL BE RESEEDED AND MULCHED.
9. STRAW EROSION CONTROL BLANKETS SHALL NOT BE USED WITHIN STREAMS AND DRAINAGE CHANNELS.
10. COMPACT ALL TRENCHES.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. EROSION CONTROL BLANKETS SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE. TRM MUST BE REMOVED AT THE DISCRETION OF THE GEC INSPECTOR.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS, SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

TABLE ECB-1, EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING
STRAW	–	100%	–	DOUBLE/ NATURAL
STRAW-COCONUT	30% MIN.	70% MAX.	–	DOUBLE/ NATURAL
COCONUT	100%	–	–	DOUBLE/ NATURAL
EXCELSIOR	–	–	100%	DOUBLE/ NATURAL

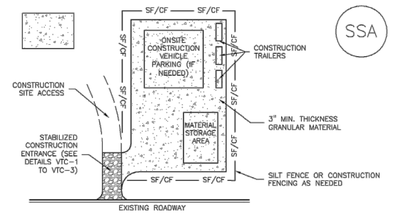
ECB

STORMWATER ENTERPRISE

EROSION CONTROL BLANKET

APPROVED: CHIEF ENGINEER

ISSUED:	REVISED:	DRAWING NO.
10/1/19	8/19/2020	900-ECB-2



SSA-1, STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF STAGING AREA(S).
   –CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. 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.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

COLORADO REGISTERED RYAN E. BURNS 0054412 PROFESSIONAL ENGINEER

RYAN E. BURNS, P.E. DATE
COLORADO P.E. 0054412
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING LLC

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

JOB NO: 24013 LOCATION: EPC

REV	DESCRIPTION	DATE

MARKSHEFFEL ROAD - SEGMENT M3

GEC DETAILS

DESIGN: REB
REVIEW: NQJ
DATE: 11/04/2026
H-SCALE: N/A
V-SCALE: N/A

SHEET
8 OF 8

APPENDIX D – GEC ADMINISTRATOR CERTIFICATION

PROVIDED WITH ESQCP & PRIOR TO NTP

APPENDIX E – CONSTRUCTION CONTROL MEASURE DETAILS

Table 5-1. El Paso County Conservation District All-Purpose Mix for Upland, Transition and Permanent Control Measure Areas

Common Name	Scientific Name	Growth Season / Form	% of Mix	Pounds PLS		
				• Irrigated broadcast • Irrigated hydroseeded 80 seeds/sq ft	• Non-irrigated broadcast • Non-irrigated hydroseeded • Irrigated drilled 40 seeds/sq ft	• Non-irrigated drilled 20 seeds/sq ft
Bluestem, big	*Andropogon gerardii*	Warm, sod	20	4.4	2.2	1.1
Grama, blue	*Bouteloua gracilis*	Warm, bunch	10	0.5	0.25	0.13
Green needlegrass[2]	*Nassella viridula*	Cool, bunch	10	2	1	0.5
Wheatgrass, western[2]	*Pascopyrum smithii*	Cool, sod	20	6.4	3.2	1.6
Grama, sideoats	*Bouteloua curtipendula*	Warm, bunch	10	2	1	0.5
Switchgrass[2]	*Panicum virgatum*	Warm, bunch/sod	10	0.8	0.4	0.2
Prairie sandreed	*Calimovilfa longifolia*	Warm, sod	10	1.2	0.6	0.3
Yellow indiangrass[2]	*Sorghastrum nutans*	Warm, sod	10	2	1	0.5
		Seed rate (lbs PLS/acre)		19.3	9.7	4.8

[1]For portions of facilities located near or on the bottom or where wet soil conditions occur. Planting of potted nursery stock wetland plants 2-foot on-center is recommended for sites with wetland hydrology.

[2]Species that will do well in the bottom of pond areas.

CHECK DAM

CD



1.0 DESCRIPTION

- Check dams are small temporary rock dams constructed across a swale or drainage ditch.

2.0 PURPOSE

- Used to slow down the velocity of concentrated flow to limit erosion and to promote sedimentation.
- Placed in areas of concentrated flow, such as a ditch or swale.

3.0 IMPLEMENTATION

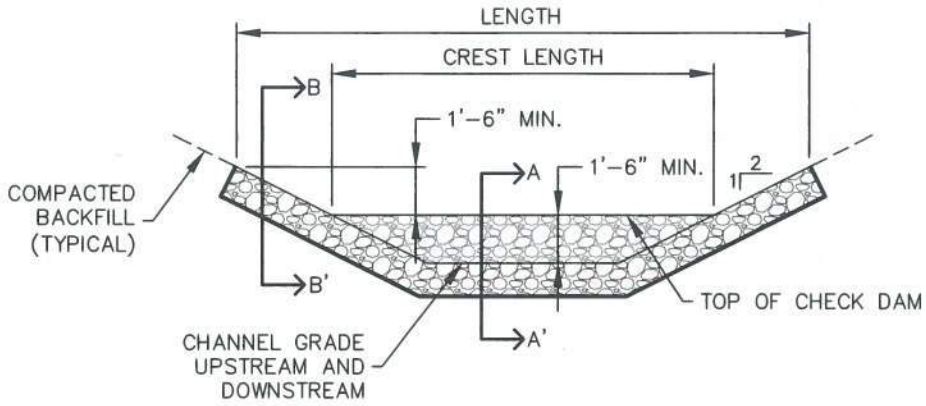
- Place check dams at regular intervals perpendicular to the direction of flow.
- Use check dams on mild or moderately steep slopes.
- Install wide enough check dams to reach from bank to bank of the ditch or swale.
- In general, the maximum spacing between check dams should be such that the toe of the upstream check dam is at the same elevation as the top of the downstream check dam.
- During installation, place rock mechanically or by hand.

4.0 TIMING

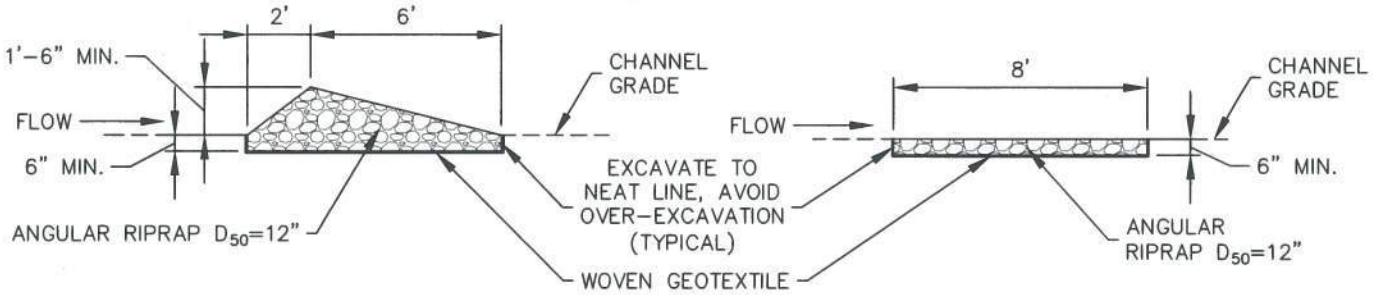
- Install prior to land disturbing activities.
- Remove after surrounding area has been permanently stabilized, or immediately prior to installation of a non-erodible lining. Permanently stabilize bare areas caused by check dams after removal.

5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the check dam crest.
- Replace missing rocks causing voids in the check dam.
- Inspect for erosion along the ends of check dams and repair when necessary.

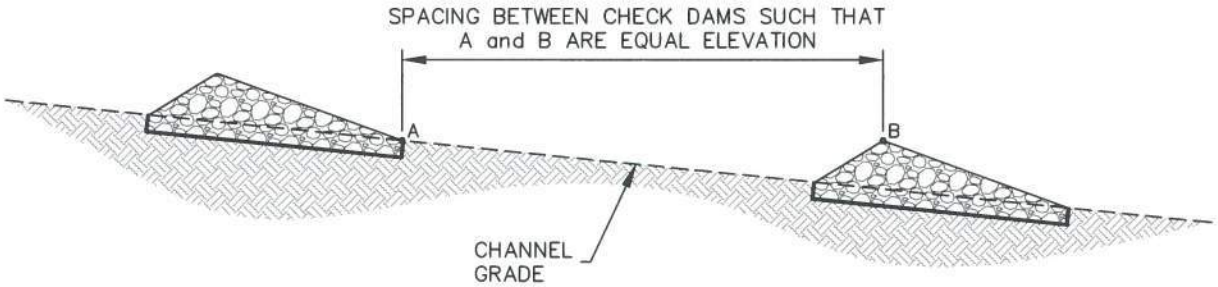


CHECK DAM ELEVATION VIEW



SECTION A-A'

SECTION B-B'



PROFILE

INSTALLATION NOTES

1. CHECK DAMS SHOULD BE INSTALLED BEFORE UPSTREAM LAND DISTURBING ACTIVITIES.
2. RIPRAP PAD SHOULD BE TRENCHED INTO GROUND BY A MINIMUM OF 6".

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ THE HEIGHT OF THE CHECK DAM CREST.
3. CHECK DAMS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER CHECK DAMS ARE REMOVED IF REMOVAL IS REQUIRED.

CD

STORMWATER ENTERPRISE

CHECK DAM

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CD

CULVERT INLET PROTECTION

CIP



1.0 DESCRIPTION

- Culvert inlet protection consists of a permeable sediment barrier installed upstream of a flared end section entrance to a culvert or storm sewer.

2.0 PURPOSE

- Used to prevent sediment and debris from entering a culvert or storm drainage system prior to permanent stabilization of the contributing disturbed area.
- Culvert inlet protection slows down runoff velocity to filter runoff and to promote sedimentation prior to entry into a culvert or storm drainage system.

3.0 IMPLEMENTATION

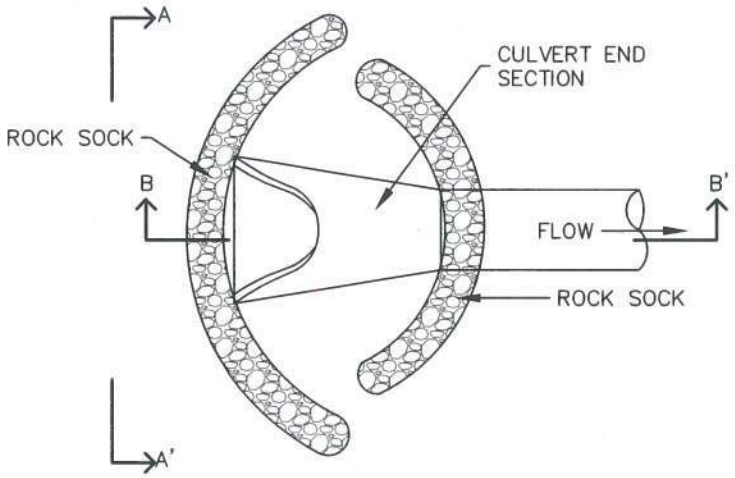
- Install culvert inlet protection at flared end section inlets to culverts and storm sewers that are operable and receiving runoff from disturbed areas during construction.
- Culvert inlet protection is not a stand-alone control measure and should be used in conjunction with other upgradient control measures. Culvert inlet protection with a contributing drainage area including of one acre or more of disturbed area must be part of a treatment train.

4.0 TIMING

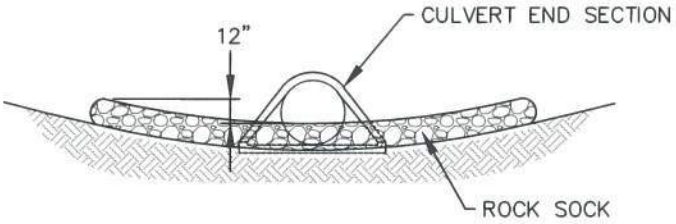
- Install prior to land disturbing activities, or immediately after pipe installation.
- Remove and properly dispose of culvert inlet protection after the contributing drainage area has been permanently stabilized.

5.0 MAINTENANCE

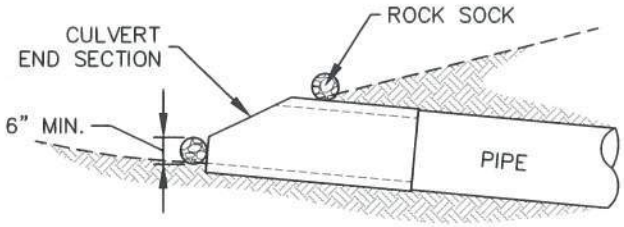
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the rock sock.
- Inspect for displaced rock socks that are no longer protecting the inlet.



CULVERT INLET PROTECTION PLAN



SECTION A-A'



SECTION B-B'

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ HEIGHT OF THE ROCK SOCK.
3. CULVERT INLET PROTECTION SHALL REMAIN UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.

CIP

STORMWATER ENTERPRISE

CULVERT INLET PROTECTION

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CIP

CONCRETE WASHOUT AREA

CWA



1.0 DESCRIPTION

- Concrete washout areas consist of either an excavated pit or a prefabricated haul-away container designed to contain concrete and concrete waste water.

2.0 PURPOSE

- Used to contain concrete and concrete waste water when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery.
- Concrete washout areas consolidate solids for easier disposal and prevent runoff of concrete waste water, which is alkaline and contains high levels of chromium.

3.0 IMPLEMENTATION

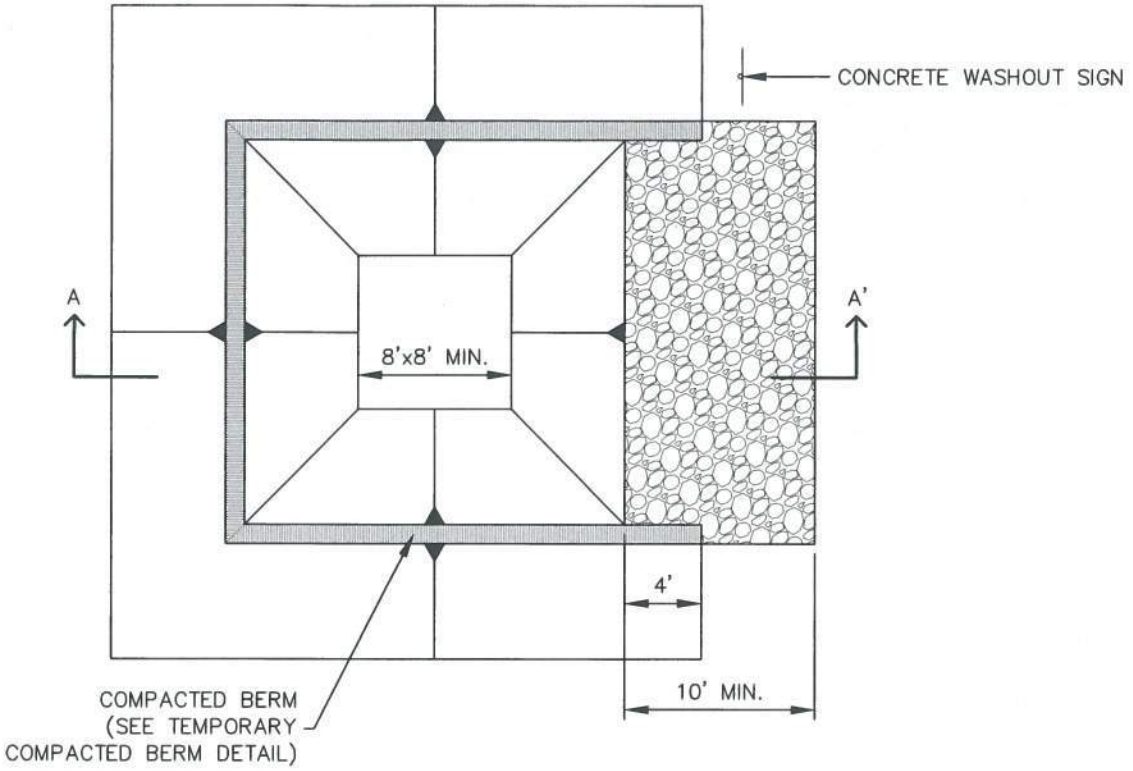
- Locate at least 50 feet away from State Waters, measured horizontally. Unlined concrete washout areas must be located at least 400 feet away from State Waters, and at least 1000 feet away from wells or drinking water sources.
- Do not locate in areas where shallow groundwater may be present, such as near natural drainages, springs, or wetlands.
- Do not place in areas subject to run-on.
- Label areas with appropriate signage.
- The addition of solvents, flocculents, or acid to wash water is prohibited.

4.0 TIMING

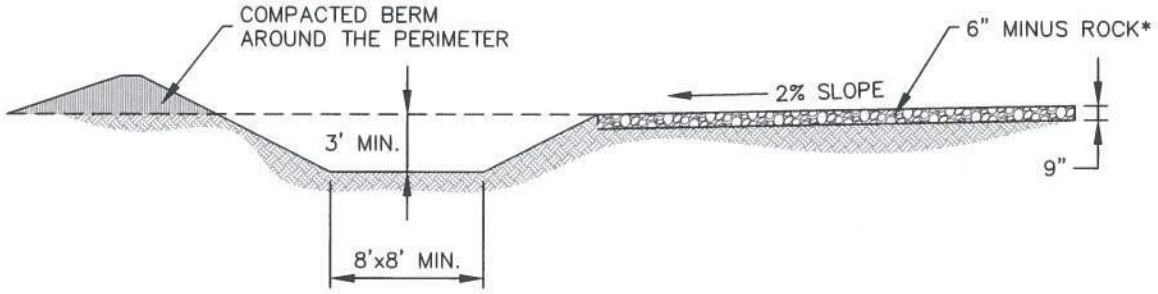
- Install prior to concrete activities.
- Remove after concrete activities have concluded.

5.0 MAINTENANCE

- Clean out facilities once they are 2/3 full, or construct new facilities for additional capacity.
- Concrete waste must be permanently disposed of off-site in an appropriate manner.



CONCRETE WASHOUT AREA PLAN



SECTION A-A'

*ROCK REQUIRED BASED ON SITE CONDITIONS AT THE DISCRETION OF THE GEC INSPECTOR

CWA

STORMWATER ENTERPRISE

CONCRETE WASHOUT AREA

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CWA-1

INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONCRETE WASHOUT AREA
2. LOCATE AT LEAST 50' AWAY FROM STATE WATERS MEASURED HORIZONTALLY.
3. AN IMPERMEABLE LINER (16 MIL. MINIMUM THICKNESS) IS REQUIRED IF CONCRETE WASH AREA IS LOCATED WITHIN 400' OF STATE WATERS OR 1000' OF WELLS OR DRINKING WATER SOURCES.
4. DO NOT LOCATE IN AREAS WHERE SHALLOW GROUNDWATER MAY BE PRESENT.
5. THE CONCRETE WASH AREA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
6. CONCRETE WASH AREA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8'.
7. BERM SURROUNDING SIDES AND BACK OF CONCRETE WASH AREA SHALL HAVE A MINIMUM HEIGHT OF 2 FEET.
8. CONCRETE WASH AREA ENTRANCE SHALL BE SLOPED 2% TOWARDS THE CONCRETE WASH AREA.
9. SIGNS SHALL BE PLACED AT THE CONCRETE WASH AREA.
10. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. THE CONCRETE WASH AREA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF ⅔ THE HEIGHT OF THE CONCRETE WASH AREA.
3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.
4. THE CONCRETE WASH AREA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
5. PERMANENTLY STABILIZE AREA AFTER CONCRETE WASH AREA IS REMOVED.

CWA

STORMWATER ENTERPRISE

CONCRETE WASHOUT AREA

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–CWA–2

EROSION CONTROL BLANKET

ECB



City of Colorado Springs
Stormwater Enterprise

ECB-i

Construction Control Measures
December 2020

1.0 DESCRIPTION

- Woven blankets made of natural and biodegradable materials placed on disturbed areas and secured to the ground with staples or stakes.

2.0 PURPOSE

- Used to control erosion, retain sediment resulting from sheet flow, and protect newly seeded areas.

3.0 IMPLEMENTATION

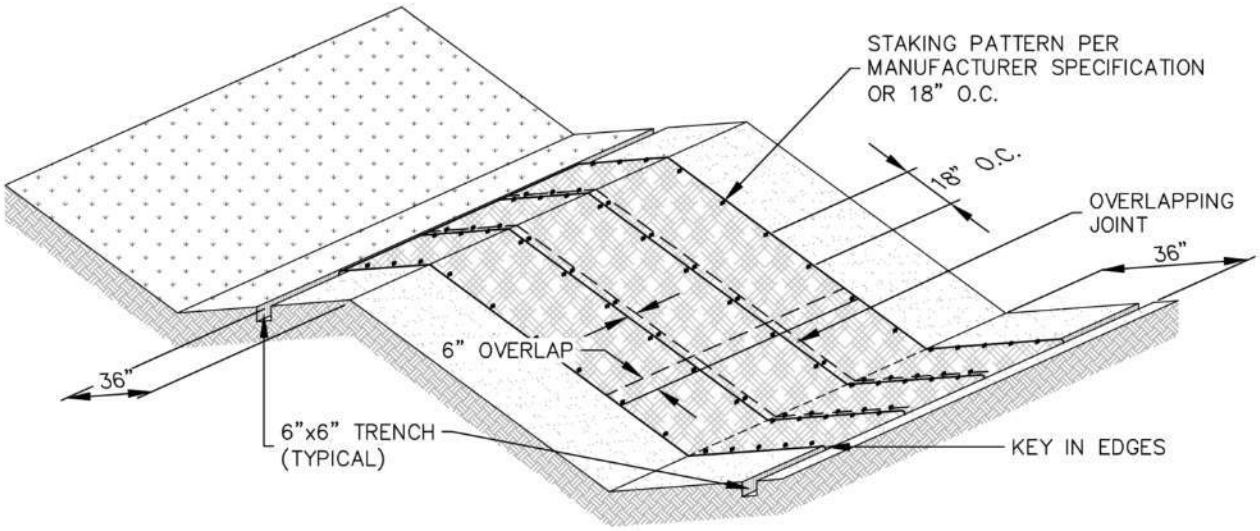
- Install erosion control blankets over uniform surfaces, with no large rocks, vegetation, or rills.
- Properly prepare topsoil and apply seed prior to blanket installation.
- Erosion control blankets must be made from 100% natural and biodegradable materials.
- Turf reinforcement mats may be used in place of erosion control blankets when specified by engineer.

4.0 TIMING

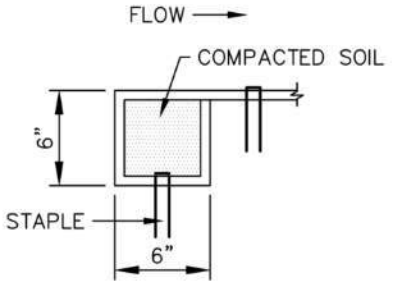
- Install in disturbed areas after final grading and seeding has been completed.
- Leave erosion control blankets in place to biodegrade, or remove if required by the GEC Inspector.

5.0 MAINTENANCE

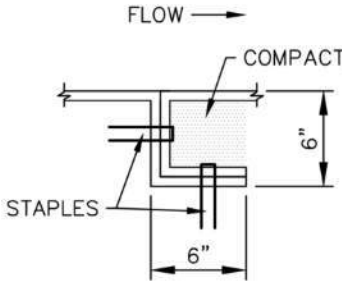
- Any erosion control blanket pulled out, torn, or otherwise damaged shall be repaired or reinstalled.
- Any subgrade areas below the geotextile that have eroded to create a void under the blanket, or that remain devoid of grass shall be repaired, reseeded and mulched and the erosion control blanket reinstalled.
- Broken or damaged staking must be repaired immediately when identified.



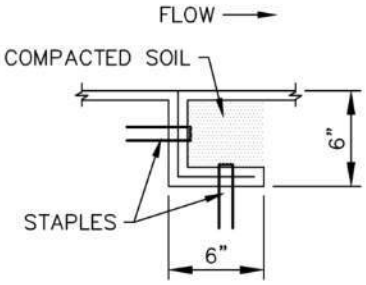
EROSION CONTROL BLANKET



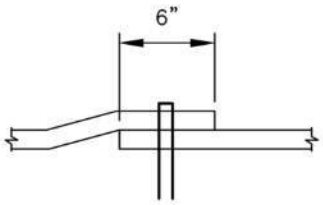
PERIMETER
ANCHOR TRENCH



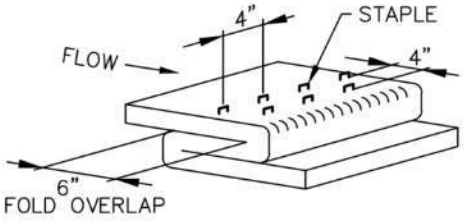
JOINT
ANCHOR TRENCH



INTERMEDIATE
CHECK SLOT



OVERLAPPING
JOINT



STAPLE CHECK

TO BE USED ON SLOPE EVERY 15 FEET

ECB

STORMWATER ENTERPRISE

EROSION CONTROL BLANKET

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-ECB-1

INSTALLATION NOTES

1. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE REQUIRED FOR EROSION CONTROL BLANKETS. TRM PRODUCTS MAY ME USED WHERE APPROPRIATE AS DESIGNATED BY THE ENGINEER.
2. IN AREAS WHERE EROSION CONTROL BLANKETS ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO EROSION CONTROL BLANKET INSTALLATION, AND THE EROSION CONTROL BLANKET SHALL BE IN FULL CONTACT WITH THE SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
3. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
4. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL EROSION CONTROL BLANKETS.
5. INTERMEDIATE CHECK SLOT OR STAPLE CHECK SHALL BE INSTALLED EVERY 15' DOWN SLOPES. IN DRAINAGEWAYS, INSTALL CHECK SLOTS EVERY 25' PERPENDICULAR TO FLOW DIRECTION.
6. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER FOR EROSION CONTROL BLANKETS ON SLOPES.
7. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKETS SHALL CONFORM TO TABLE ECB–1.
8. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKETS SHALL BE RESEEDED AND MULCHED.
9. STRAW EROSION CONTROL BLANKETS SHALL NOT BE USED WITHIN STREAMS AND DRAINAGE CHANNELS.
10. COMPACT ALL TRENCHES.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. EROSION CONTROL BLANKETS SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE. TRM MUST BE REMOVED AT THE DISCRETION OF THE GEC INSPECTOR.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

TABLE ECB–1, EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING
STRAW	–	100%	–	DOUBLE/ NATURAL
STRAW–COCONUT	30% MIN.	70% MAX.	–	DOUBLE/ NATURAL
COCONUT	100%	–	–	DOUBLE/ NATURAL
EXCELSIOR	–	–	100%	DOUBLE/ NATURAL

ECB

STORMWATER ENTERPRISE

EROSION CONTROL BLANKET

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–ECB–2

INLET PROTECTION

IP



1.0 DESCRIPTION

- Inlet protection consists of a permeable sediment barrier installed around a storm inlet.

2.0 PURPOSE

- Used to minimize the amount of sediment and debris entering a storm drainage system prior to permanent stabilization of the contributing disturbed area.
- Inlet protection slows down runoff velocity to filter runoff and to promote sedimentation prior to entry into a storm drainage system.

3.0 IMPLEMENTATION

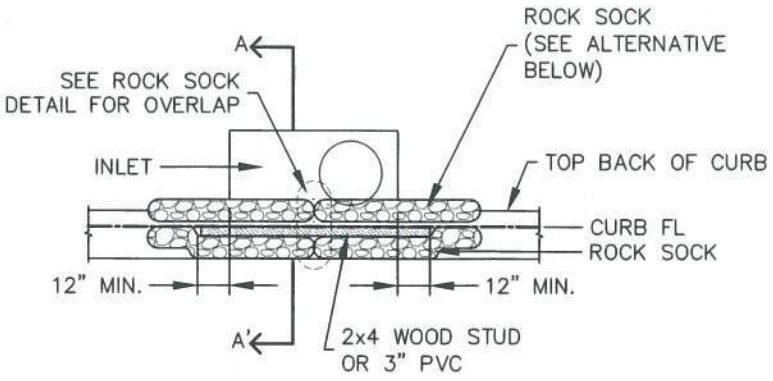
- Install inlet protection at storm sewer inlets that are operable and receiving runoff from disturbed areas during construction.
- Place inlet protection to allow the inlet to function without completely blocking flows into the inlet in a manner than causes localized flooding.
- Inlet protection is not a stand-alone control measure and should be used in conjunction with other upgradient control measures. Inlet protection in areas with a contributing drainage area of one acre or larger must be part of a treatment train.
- When selecting the type of inlet protection, consider factors such as type of inlet, traffic, anticipated flows, ability to secure the inlet protection, safety, and other site-specific conditions.

4.0 TIMING

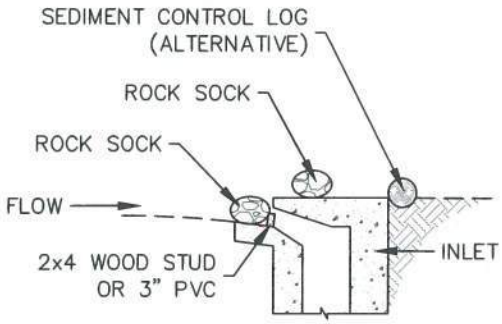
- Install prior to land disturbing activities, or immediately after inlet installation.
- Remove and properly dispose of inlet protection after the contributing drainage area has been permanently stabilized.

5.0 MAINTENANCE

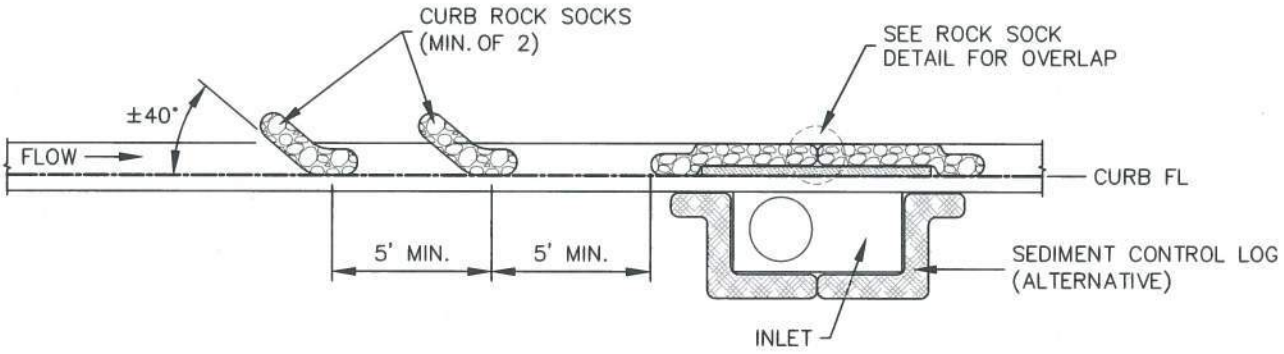
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the design depth of the inlet barrier.
- Inspect for holes or tears that can result in sediment directly entering the inlet.
- Inspect for displaced inlet protection that is no longer protecting the inlet.



CURB INLET PROTECTION PLAN



SECTION A-A'



CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE ROCK SOCK SHALL BE APPROXIMATELY 40 DEGREES FROM THE CURB.
3. ROCK SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5' APART.
4. AT LEAST TWO CURB ROCK SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADIENT INLETS.
5. ADDITIONAL ROCK SOCKS MAY BE REQUIRED AT GEC INSPECTOR'S DISCRETION.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA BEHIND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-1

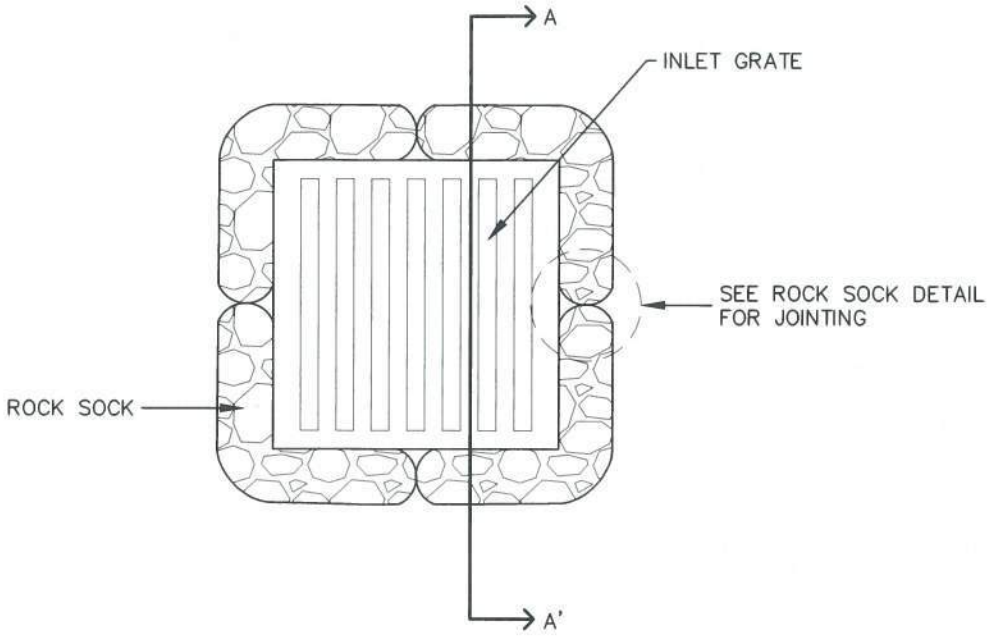
STORMWATER ENTERPRISE

ON-GRADE INLET PROTECTION

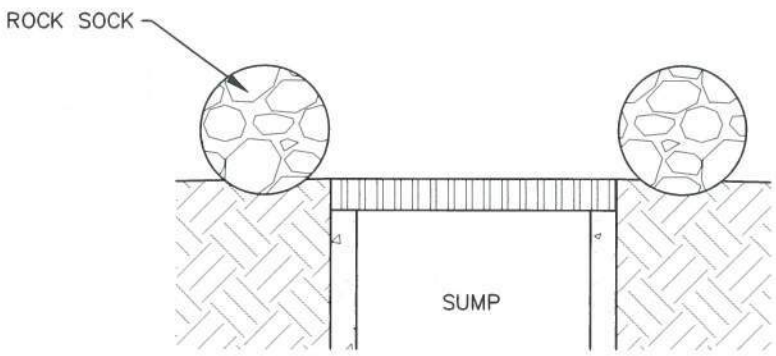
APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-1



ROCK SOCK SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL
3. CONTROL MEASURES MUST BE WRAPPED AROUND INLET AS TIGHTLY AS POSSIBLE.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

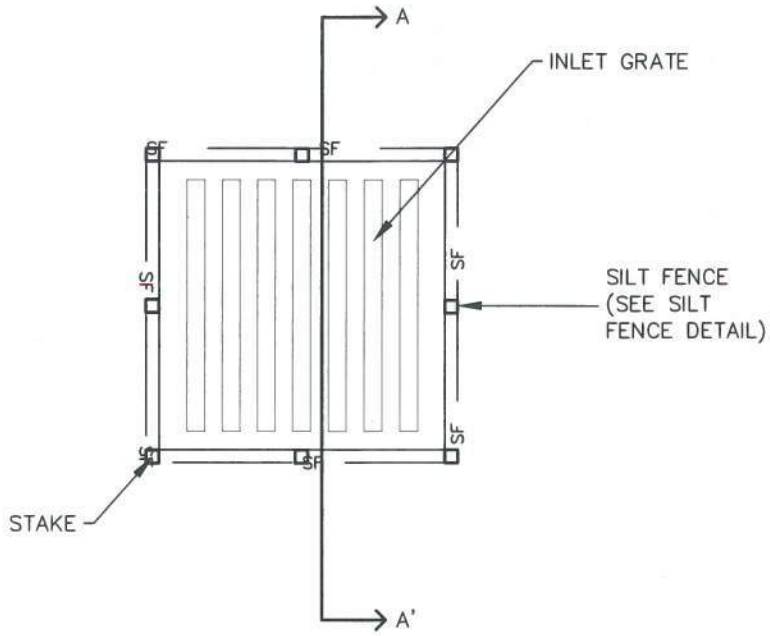
IP-2

STORMWATER ENTERPRISE

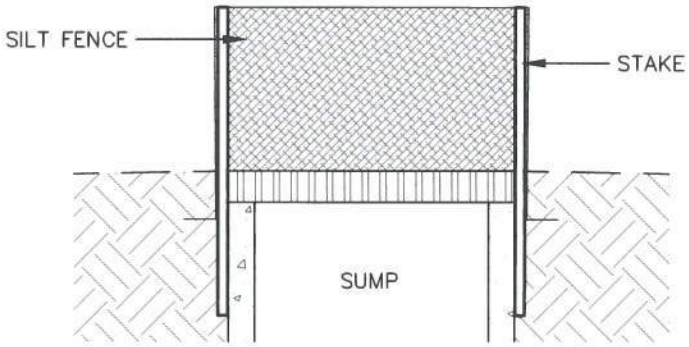
SUMP INLET PROTECTION

APPROVED: SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-2



SILT FENCE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. SEE SILT FENCE DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF THREE FEET.
3. SILT FENCE FABRIC SHOULD HAVE A FLOW RATE IN EXCESS OF 30 GALLONS PER MINUTE PER SQUARE YARD SO AS TO ALLOW SOME WATER FLOW AND NOT DAM THE WATER. STANDARD, LOW-FLOW SILT FENCE FABRIC WILL NOT BE ALLOWED.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER SILT FENCE IS REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-3

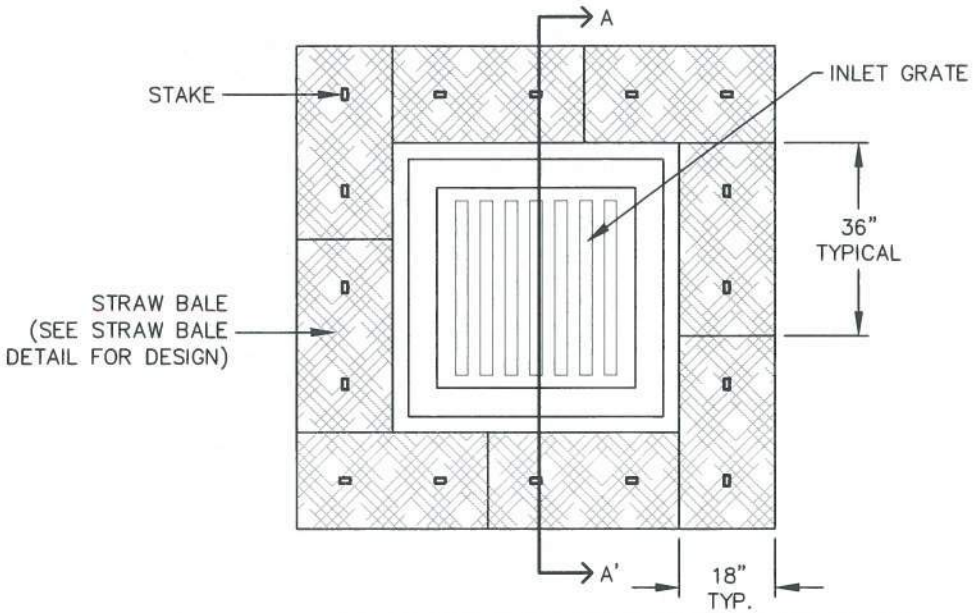
STORMWATER ENTERPRISE

SUMP INLET PROTECTION

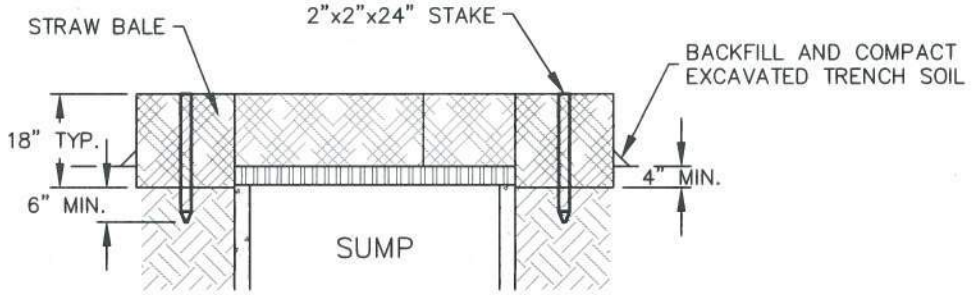
APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-3



STRAW BALE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE ENDS OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
4. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
5. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PACED SO THAT THE BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S).
6. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKED SHALL BE 2"x2"x24 (MIN.)". WOODEN STAKES SHALL BE DRIVEN A MINIMUM OF 6" INTO THE GROUND.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. STRAW BALES MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER STRAW BALES ARE REMOVED WHEN REMOVAL IS APPROPRIATE.
5. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN OR DAMAGED BEYOND REPAIR.

IP-4

STORMWATER ENTERPRISE

SUMP INLET PROTECTION

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-4

PORTABLE TOILET

PT



1.0 DESCRIPTION

- The portable toilet detail provides requirements for portable toilet use on construction sites.

2.0 PURPOSE

- Used to minimize the risk of pollutant migration to State Waters.

3.0 IMPLEMENTATION

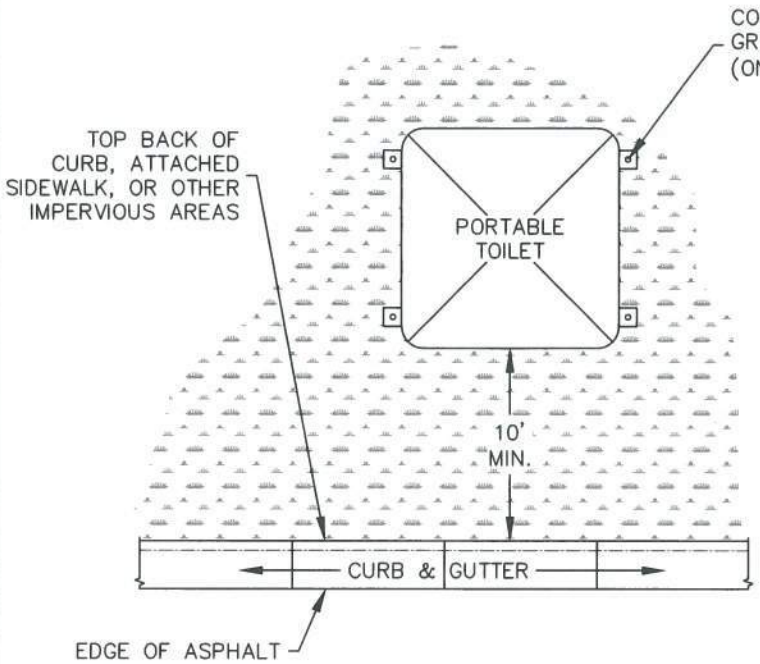
- Place portable toilet a minimum of 10 feet from the back of curb or on a trailer for road projects or sites that are mostly paved.
- Anchor portable toilet to the ground, at a minimum of two opposing corners (on a diagonal) using U-shaped rebar stakes.

4.0 TIMING

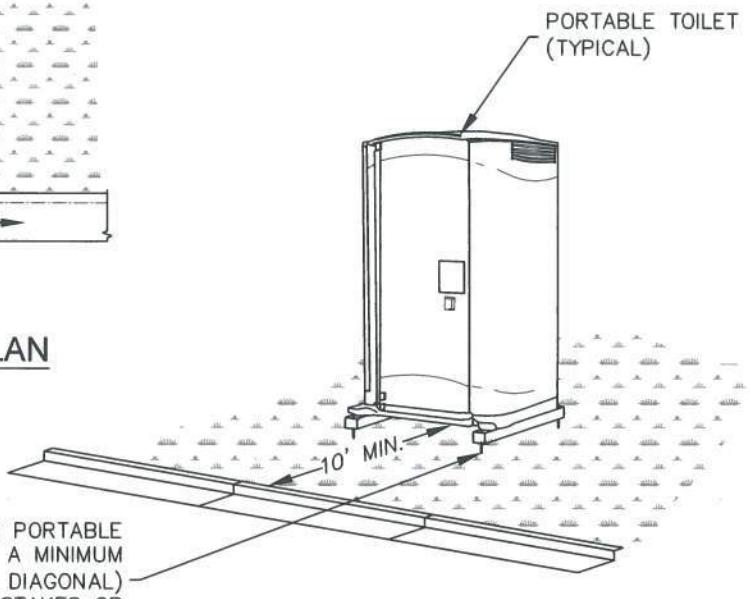
- Install as needed.
- Remove prior to the end of construction. Permanently stabilize any disturbed areas associated with the installation, maintenance, and/or removal of the toilets.

5.0 MAINTENANCE

- Portable toilets shall be serviced at the necessary intervals to eliminate the possibility of overflow.



PORTABLE TOILET PLAN



ISOMETRIC

INSTALLATION NOTES

1. PORTABLE TOILETS SHALL BE PLACED A MINIMUM OF 10 FEET BEHIND ALL CURBS, SIDEWALKS, AND OTHER IMPERVIOUS AREAS; 50 FEET FROM STORM INLETS, AND 100 FEET FROM WATERWAYS.
2. PORTABLE TOILETS IN THE RIGHT-OF-WAY ARE REQUIRED TO BE PLACED ON MOBILE TRAILERS AND MUST BE ANCHORED OR WEIGHTED DOWN. PORTABLE TOILETS MAY BE INSTALLED IN ACCORDANCE WITH NOTE #1 IN STAGING AREAS/YARDS.
3. PORTABLE TOILETS SHALL BE SECURELY ANCHORED TO THE GROUND USING U-SHAPED REBAR STAKES, OR OTHER EFFECTIVE ANCHORING.
4. ANCHORING SHALL BE POSITIONED ON AT LEAST TWO OPPOSING (DIAGONAL) CORNERS.
5. TOILET CONTAINMENT PANS MAY BE USED IN PLACE OF A TRAILER AT THE GEC INSPECTOR'S DISCRETION. TOILET CONTAINMENT PANS MUST BE ANCHORED IN PLACE AND MUST NOT BE USED WITHIN THE CITY R.O.W.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. PORTABLE TOILETS SHALL BE SERVICED AT THE NECESSARY INTERVALS TO ELIMINATE THE POSSIBILITY OF OVERFLOW.
3. WHEN THE PORTABLE TOILETS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE TOILETS MUST BE PERMANENTLY STABILIZED.

PT

PORTABLE TOILET

APPROVED: SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
2/19/19	8/19/2020	900-PTM

ROCK SOCK

RS



1.0 DESCRIPTION

- A rock sock consists of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter.

2.0 PURPOSE

- Used to slow down the velocity of runoff to filter runoff and to promote sedimentation.
- Rock socks are typically used as either perimeter control or as a part of inlet protection.

3.0 IMPLEMENTATION

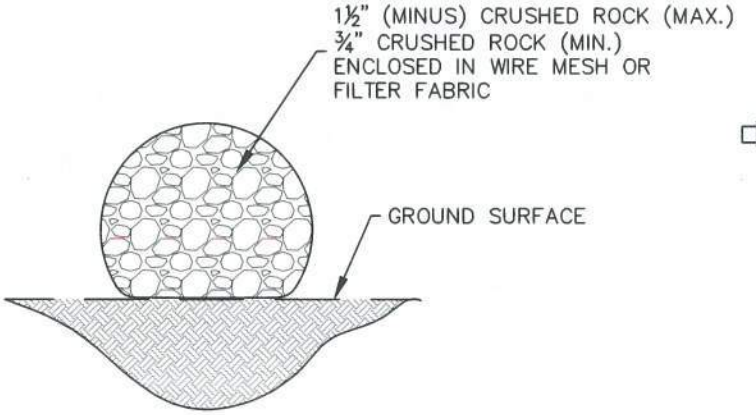
- Rock socks do not require trenching or staking, and are able to be placed on hard surfaces where trenching or staking would be impossible.
- The maximum tributary drainage area per 100 liner feet of rock socks is 1/4 acre.
- When placed in a gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely.
- Proprietary rock socks can be used in place of wire mesh rock socks.

4.0 TIMING

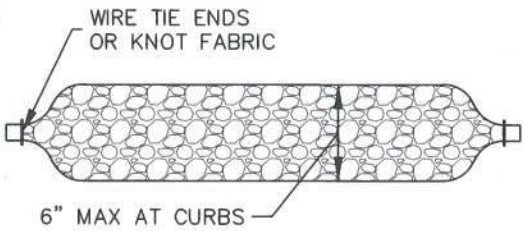
- Install prior to land disturbing activities, or immediately after inlet installation.
- Remove and properly dispose of inlet protection after the contributing drainage area has been permanently stabilized.

5.0 MAINTENANCE

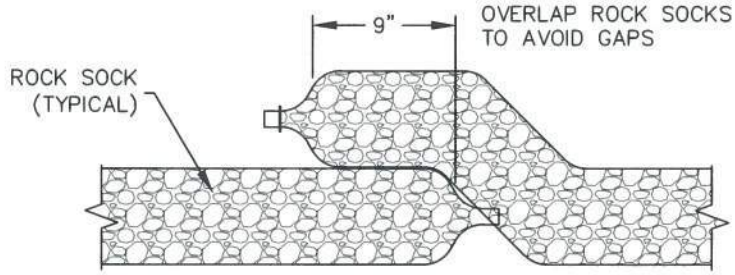
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the rock sock.
- Inspect for and replace damaged or displaced rock socks.



ROCK SOCK SECTION



ROCK SOCK PLAN



ROCK SOCK OVERLAP

GRADATION TABLE	
	MASS PERCENT PASSING SQUARE MESH SIEVES
	No. 4
2"	100
1½"	90–100
1"	20–55
¾"	0–15
⅜"	0–5
MATCHES SPECIFICATIONS FOR No. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M–43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES	

INSTALLATION NOTES

1. CRUSHED ROCK SHALL BE BETWEEN MAX. 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET AND MIN. ¾" CRUSHED ROCK.
2. WIRE MESH SHALL HAVE OPENINGS SMALLER THAN THE SMALLEST SIZE ROCK.
3. WIRE MESH SHALL BE SECURED USING 'HOG RINGS' OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED BEYOND REPAIR.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH REACHES ½ OF THE HEIGHT OF THE ROCK SOCK.
4. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL DISTURBED AREA IS STABILIZED.
5. PERMANENTLY STABILIZE AREA AFTER ROCK SOCKS HAVE BEEN REMOVED.

RS

STORMWATER ENTERPRISE

ROCK SOCK

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–RS

SEDIMENT CONTROL LOG

SCL



1.0 DESCRIPTION

- A sediment control log is a temporary sediment barrier consisting of a linear roll of natural materials such as straw, compost, excelsior or coconut fiber.

2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.
- Placed on long slopes to slow down flows.

3.0 IMPLEMENTATION

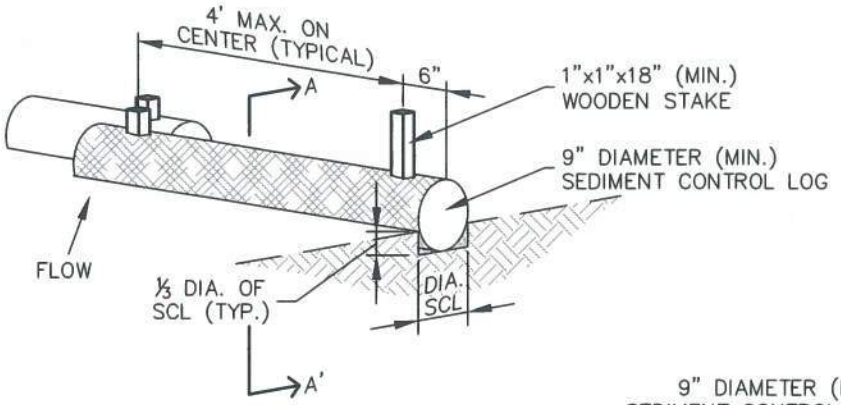
- Install sediment control logs to intercept sheet flow runoff from disturbed areas.
- Install sediment control logs along the contour of slopes or in a manner to avoid creating concentrated flow.
- Place sediment control logs against sidewalk or back of curb when adjacent to these features.
- The maximum tributary drainage area per 100 liner feet of sediment control logs is 1/4 acre.
- Sediment control logs shall consist of straw, compost, excelsior or coconut fiber, and shall be free from any noxious weed seeds or defects.

4.0 TIMING

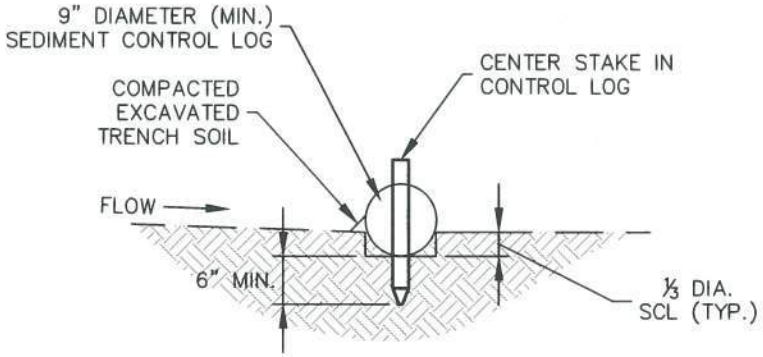
- Install prior to land disturbing activities.
- Remove sediment control logs after the upstream area has been permanently stabilized.

5.0 MAINTENANCE

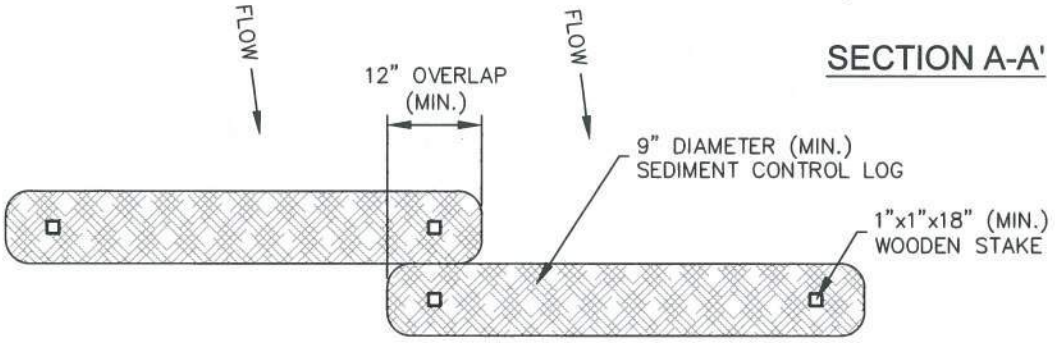
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the exposed sediment control log.
- Inspect for and repair or replace damaged sediment control logs.



SEDIMENT CONTROL LOG



SECTION A-A'



SEDIMENT CONTROL LOG JOINTS

INSTALLATION NOTES

1. ALL SEDIMENT CONTROL LOGS MUST BE EMBEDDED TO ⅓ OF THE HEIGHT OF THE LOG
2. LARGER DIAMETER SEDIMENT CONTROL LOGS NEED TO BE EMBEDDED DEEPER.
3. PLACE SEDIMENT CONTROL LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.
4. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BR FREE FROM ANY NOXIOUS WEED SEEDS OF DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
5. IF USING AS SLOPE PROTECTION, INSTALL SEDIMENT CONTROL LOGS ALONG THE CONTOUR.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
3. PERMANENTLY STABILIZE AREA AFTER SEDIMENT CONTROL LOGS HAVE BEEN REMOVED.

SCL

STORMWATER ENTERPRISE

SEDIMENT CONTROL LOGS

APPROVED: SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SCL

SILT FENCE

SF



1.0 DESCRIPTION

- Silt fence is a temporary sediment barrier consisting of woven geotextile fabric attached to supporting posts and trenched into the soil.

2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.

3.0 IMPLEMENTATION

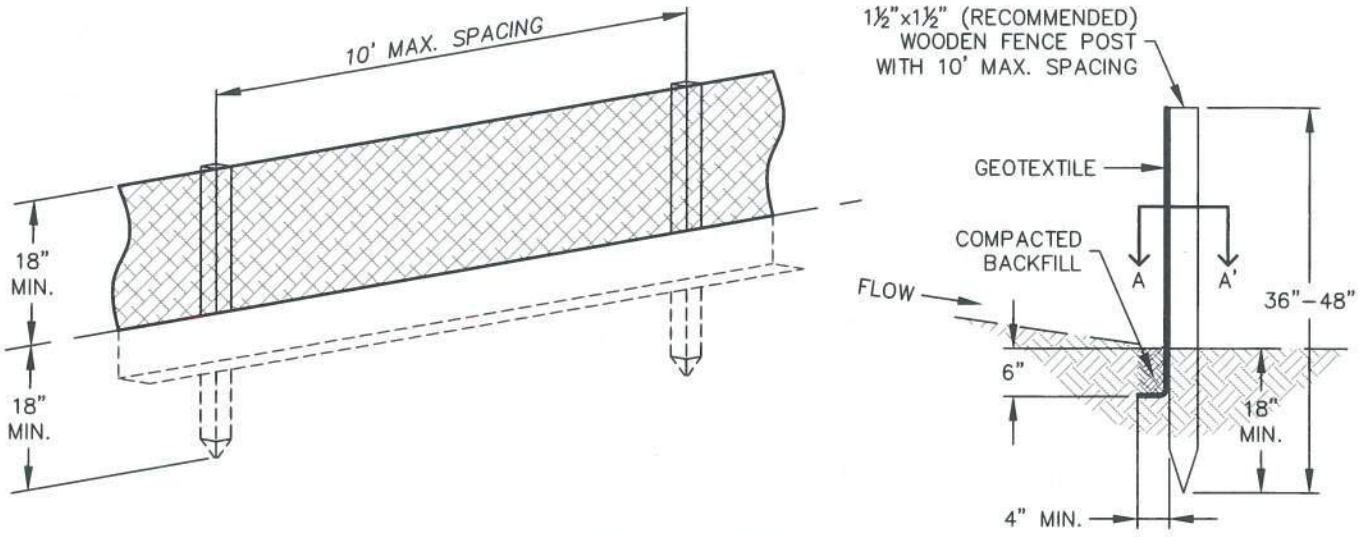
- Install silt fence to intercept sheet flow runoff from disturbed areas.
- Silt fence is not designed to be used as a filter fabric.
- Do not install silt fence across streams, channels, swales, ditches, or other drainageways.
- Install silt fence along the contour of slopes or in a manner to avoid creating concentrated flow (i.e. "J-hook" installation).
- The maximum tributary drainage area per 100 liner feet of silt fence is 1/4 acre.
- Properly installed silt fence should not be easily pulled out by hand and there should be no gaps between the ground and fabric.

4.0 TIMING

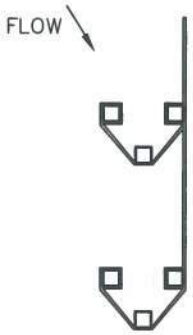
- Install prior to land disturbing activities.
- Remove silt fence after the upstream area has been permanently stabilized.

5.0 MAINTENANCE

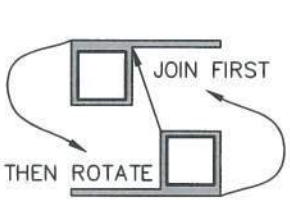
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the exposed silt fence.
- Inspect for and repair or replace damaged silt fence.

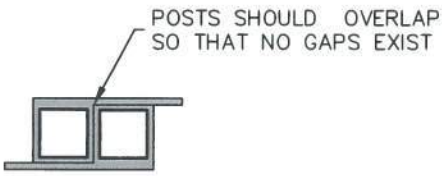


SILT FENCE



J-HOOK INSTALLATION





SECTION A-A'

INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED ON A FLAT SURFACE 2'–5' AWAY FROM TOE OF THE SLOPE TO ALLOW FOR PONDING AND DEPOSITION.
2. COMPACT THE TRENCH USING A JUMPING JACK OR WHEEL ROLLING TO THE POINT THAT THE FENCE RESISTS BEING PULLED OUT OF THE GROUND BY HAND.
3. SILT FENCE SHALL BE TAUT WITH NO SAGS AFTER IT HAS BEEN ANCHORED.
4. FABRIC SHALL BE ATTACHED TO POSTS WITH 1" HEAVY DUTY STAPLES OR 1" NAILS. THESE SHOULD BE PLACED VERTICALLY DOWN THE POST, 3" APART.
5. THE PREFERRED INSTALLATION METHOD USES A TRENCHER OR SILT FENCE INSTALLATION DEVICE.
6. INSTALL SILT FENCE ALONG THE CONTOUR OF THE SLOPES OR IN A MANNER TO AVOID CREATING CONCENTRATED FLOW (SUCH AS A "J–HOOK" INSTALLATION).

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN HEIGHT OF THE SILT FENCE.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SILT FENCE IS REMOVED.

SF

STORMWATER ENTERPRISE

SILT FENCE

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–SF

SEEDING AND MULCHING

SM



1.0 DESCRIPTION

- The preparation of soil, application of much, and application of seed to disturbed areas.

2.0 PURPOSE

- Used to control runoff and erosion on disturbed areas by establishing vegetative cover.
- Reduces erosion and sediment loss.
- Provides permanent stabilization in disturbed areas.

3.0 IMPLEMENTATION

- All soil testing, soil amendment and fertilizer documentation, and seed load and bag tickets must be added to the CSWMP.
- Properly prepare soil prior to seeding and mulching.
- Apply seed mixes as specified in the City of Colorado Springs Stormwater Construction Manual. Alternative seed mixes are acceptable if included in an approved Landscaping Plan.
- Mulch seeded areas using hay or straw mulch, hydraulic mulching, or install erosion control blanket.

4.0 TIMING

- Seed and mulch disturbed areas after final grading.
- Seeding and mulching may also be used as a temporary erosion control measure during construction.

5.0 MAINTENANCE

- Repair and reseed bare areas as necessary.
- Restrict vehicle access to seeded areas.

SEEDING & MULCHING

ALL SOIL TESTING, SOILS AMENDMENT AND FERTILIZER DOCUMENTATION, AND SEED LOAD AND BAG TICKETS MUST BE ADDED TO THE CSWMP.

SOIL PREPARATION

1. IN AREAS TO BE SEEDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRIABLE CONDITION. LESS THAN 85% STANDARD PROCTOR DENSITY IS ACCEPTABLE. AREAS OF COMPACTION OR GENERAL CONSTRUCTION ACTIVITY MUST BE SCARIFIED TO A DEPTH OF 6 TO 12 INCHES PRIOR TO SPREADING TOPSOIL TO BREAK UP COMPACTED LAYERS AND PROVIDE A BLENDING ZONE BETWEEN DIFFERENT SOIL LAYERS.
2. AREAS TO BE PLANTED SHALL HAVE AT LEAST 4 INCHES OF TOPSOIL SUITABLE TO SUPPORT PLANT GROWTH.
3. THE CITY RECOMMENDS THAT EXISTING AND/OR IMPORTED TOPSOIL BE TESTED TO IDENTIFY SOIL DEFICIENCIES AND ANY SOIL AMENDMENTS NECESSARY TO ADDRESS THESE DEFICIENCIES. SOIL AMENDMENTS AND/OR FERTILIZERS SHOULD BE ADDED TO CORRECT TOPSOIL DEFICIENCIES BASED ON SOIL TESTING RESULTS.
4. TOPSOIL SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD TO RETAIN ITS STRUCTURE AVOID COMPACTION, AND TO PREVENT EROSION AND CONTAMINATION. STRIPPED TOPSOIL MUST BE STORED IN AN AREA AWAY FROM MACHINERY AND CONSTRUCTION OPERATIONS, AND CARE MUST BE TAKEN TO PROTECT THE TOPSOIL AS A VALUABLE COMMODITY. TOPSOIL MUST NOT BE STRIPPED DURING UNDESIRABLE WORKING CONDITIONS (E.G. DURING WET WEATHER OR WHEN SOILS ARE SATURATED). TOPSOIL SHALL NOT BE STORED IN SWALES OR IN AREAS WITH POOR DRAINAGE.

SEEDING

1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
2. SEED SHOULD BE DRILL–SEEDED WHENEVER POSSIBLE
   - SEED DEPTH MUST BE ⅓ TO ½ INCHES WHEN DRILL–SEEDING IS USED
3. BROADCAST SEEDING OR HYDRO–SEEDING WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
   - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO–SEEDING
   - BROADCAST SEEDING MUST BE LIGHTLY HAND–RAKED INTO THE SOIL

MULCHING

1. MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING, HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.
2. MULCHING REQUIREMENTS INCLUDE:
   - HAY OR STRAW MULCH
     - ONLY CERTIFIED WEED–FREE AND CERTIFIED SEED–FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 2 TONS/ACRE AND ADEQUATELY SECURED BY CRIMPING AND/OR TACKIFIER.
     - CRIMPING MUST NOT BE USED ON SLOPES GREATER THAN 3:1 AND MULCH FIBERS MUST BE TUCKED INTO THE SOIL TO A DEPTH OF 3 TO 4 INCHES.
     - TACKIFIER MUST BE USED IN PLACE OF CRIMPING ON SLOPES STEEPER THAN 3:1.
   - HYDRAULIC MULCHING
     - HYDRAULIC MULCHING IS AN OPTION ON STEEP SLOPES OR WHERE ACCESS IS LIMITED.
     - IF HYDRO–SEEDING IS USED, MULCHING MUST BE APPLIED AS A SEPARATE, SECOND OPERATION.
     - WOOD CELLULOSE FIBERS MIXED WITH WATER MUST BE APPLIED AT A RATE OF 2,000 TO 2,500 POUNDS/ACRE, AND TACKIFIER MUST BE APPLIED AT A RATE OF 100 POUNDS/ACRE.
   - EROSION CONTROL BLANKET
     - EROSION CONTROL BLANKET MAY BE USED IN PLACE OF TRADITIONAL MULCHING METHODS.

SM

STORMWATER ENTERPRISE

SEEDING & MULCHING

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–SM

STOCKPILE PROTECTION

SP



1.0 DESCRIPTION

- Perimeter control placed around stockpiles of soil and other erodible materials.

2.0 PURPOSE

- Used to avoid the migration of sediment and other materials from stockpiles.

3.0 IMPLEMENTATION

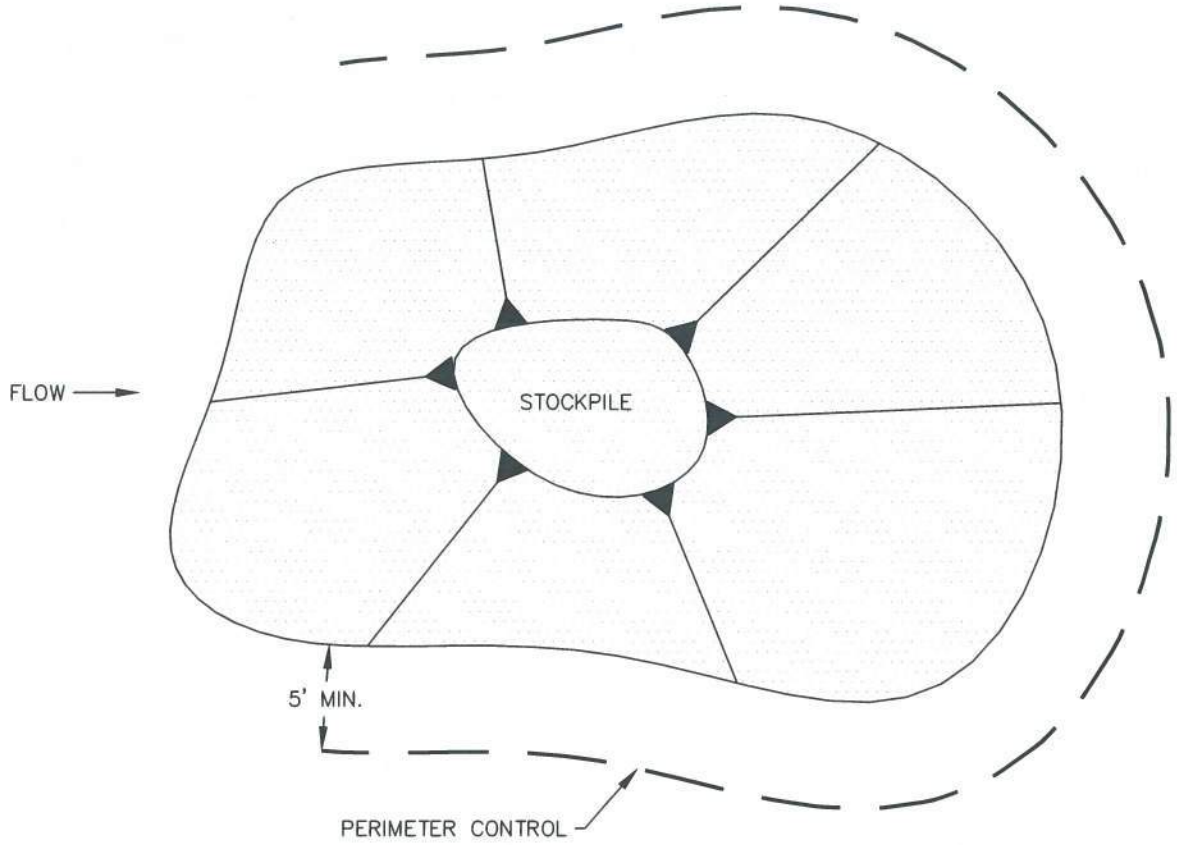
- Install perimeter control around stockpile on downgradient side.
- Stockpile perimeter controls may not be required for stockpiles on the interior portion of a construction site where other downgradient controls including perimeter control are in place.

4.0 TIMING

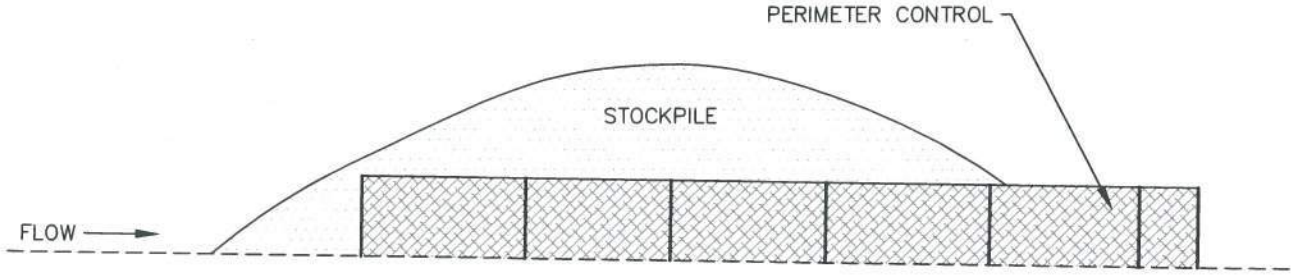
- Install immediately after stockpile has formed or limits are known, whichever occurs first.
- Remove stockpile protection after the stockpile has been removed.

5.0 MAINTENANCE

- Remove and properly dispose of sediment according to the perimeter control detail.
- If perimeter controls must be moved to access stockpile, replace perimeter controls by the end of the work day.
- Inspect for and repair and/or replace perimeter controls as needed to maintain functionality.



STOCKPILE PROTECTION PLAN



STOCKPILE PROTECTION ELEVATION

INSTALLATION NOTES

1. INSTALL PERIMETER CONTROL AROUND STOCKPILE ON DOWNGRADIENT SIDE. PERIMETER CONTROL MUST BE SUITABLE TO SITE CONDITIONS AND INSTALLED ACCORDING TO THE RELEVANT DETAIL.
2. FOR STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS INCLUDING PERIMETER CONTROL ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. IF PERIMETER CONTROLS MUST BE MOVED TO ACCESS STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORK DAY.
3. ACCUMULATED SEDIMENT MUST BE REMOVED ACCORDING TO PERIMETER CONTROL DETAIL.

SP

STORMWATER ENTERPRISE

STOCKPILE PROTECTION

APPROVED:
SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SP

SURFACE ROUGHENING

SR



1.0 DESCRIPTION

- Surface roughening is a practice where the soil surface is roughened by the creation of grooves and depressions that run parallel to the contour of the land.

2.0 PURPOSE

- Used to create variations in the soil surface that slow down the velocity of runoff, increase infiltration, reduce erosion, and trap soil.
- May be used to help establish vegetative cover by reducing runoff velocity and giving seed an opportunity to take hold.

3.0 IMPLEMENTATION

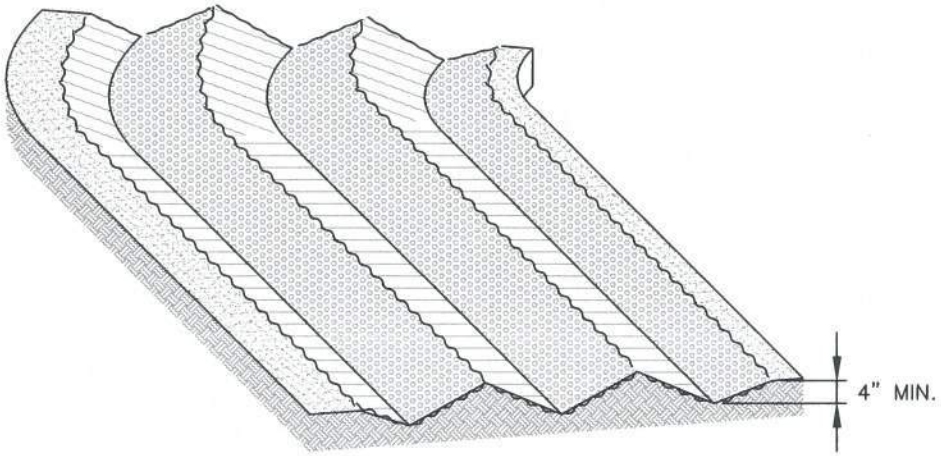
- Roughen soil in areas flatter than 3:1.
- Surface roughening may be completed by furrowing, scarifying, ripping, or disking soil.
- Grooves must be installed along contours to avoid concentrating flow.
- Do not use in areas with extremely sandy or rocky soils.

4.0 TIMING

- Install after overlot grading activities when area is in an interim condition or at final grade.
- Remove prior to permanent stabilization during soil preparation.

5.0 MAINTENANCE

- Inspect roughened areas for signs of erosion. Repeat surface roughening as needed.
- Do not allow vehicles to drive over surface roughened areas.



SURFACE ROUGHENING

INSTALLATION NOTES

1. SURFACE ROUGHENING MAY BE USED IN AREAS FLATTER THAN 3:1. INSTALL FURROWS ALONG CONTOUR TO INTERCEPT SHEET FLOW.
2. SURFACE ROUGHENING MAY BE ACCOMPLISHED BY FURROWING, SCARIFYING, RIPPING OR DISKING THE SOIL.
3. FURROWS MUST BE A MINIMUM OF 4" IN DEPTH.
4. SURFACE ROUGHENING SHALL NOT BE USED ON EXTREMELY SANDY OR ROCKY SOILS.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.

SR

STORMWATER ENTERPRISE

SURFACE ROUGHENING

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SR

SLOPE TRACKING

ST



1.0 DESCRIPTION

- Slope tracking is a practice where construction equipment is used to create grooves and depressions that run parallel to the contour of the land on slopes.

2.0 PURPOSE

- Used to create variations in the soil surface that slow down the velocity of runoff, increase infiltration, reduce erosion, and trap soil.

3.0 IMPLEMENTATION

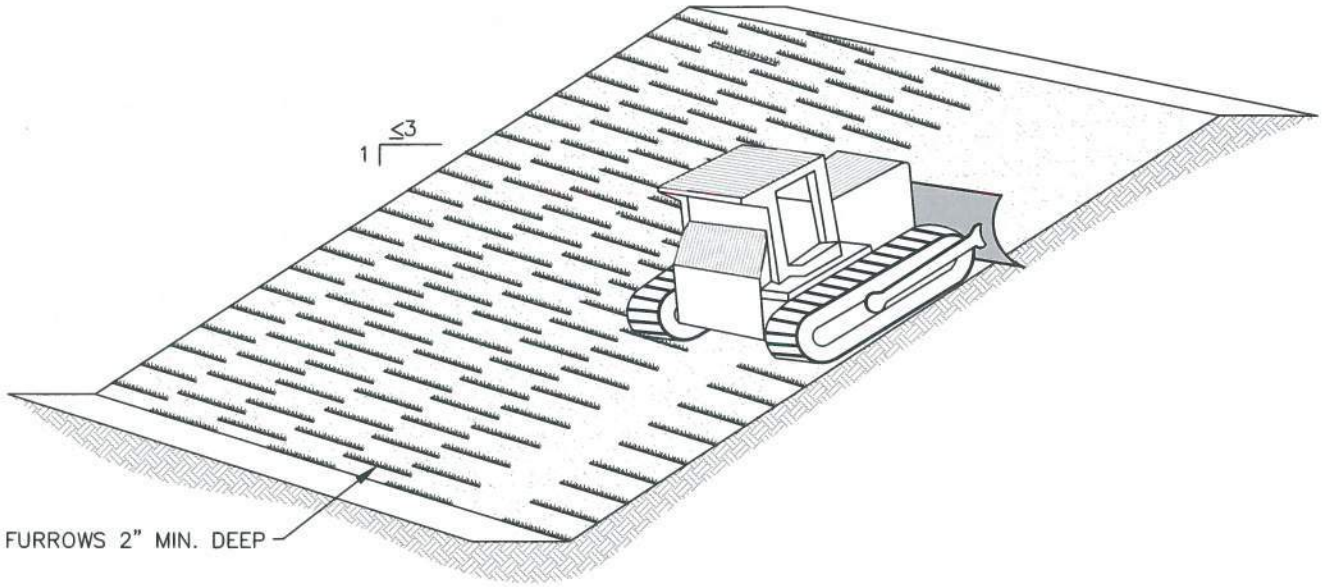
- Use slope tracking on slopes 3:1 or steeper.
- Grooves must be installed along contours to avoid concentrating flow.
- Do not use in areas with extremely sandy or rocky soils.

4.0 TIMING

- Install after land disturbing activities when area is in an interim condition or at final grade.
- Remove prior to permanent stabilization during soil preparation.

5.0 MAINTENANCE

- Inspect areas with tracking for signs of erosion. Repeat slope tracking as needed.
- Do not allow vehicles to drive over tracked areas.



SLOPE TRACKING

INSTALLATION NOTES

1. SLOPE TRACKING MAY BE USED ON SLOPES 3:1 OR STEEPER.
2. TRACKING GROOVES SHALL BE PERPENDICULAR TO THE SLOPE.
3. SLOPE TRACKING SHALL NOT BE USED ON EXTREMELY SANDY OR ROCKY SOILS.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SLOPE TRACKED.

ST

STORMWATER ENTERPRISE

SLOPE TRACKING

APPROVED:
SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-ST

TEMPORARY COMPACTED BERM

TCB



1.0 DESCRIPTION

- A temporary compacted berm is a compacted ridge that slows and diverts stormwater from disturbed areas.

2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.
- Placed on long slopes to slow down flows.

3.0 IMPLEMENTATION

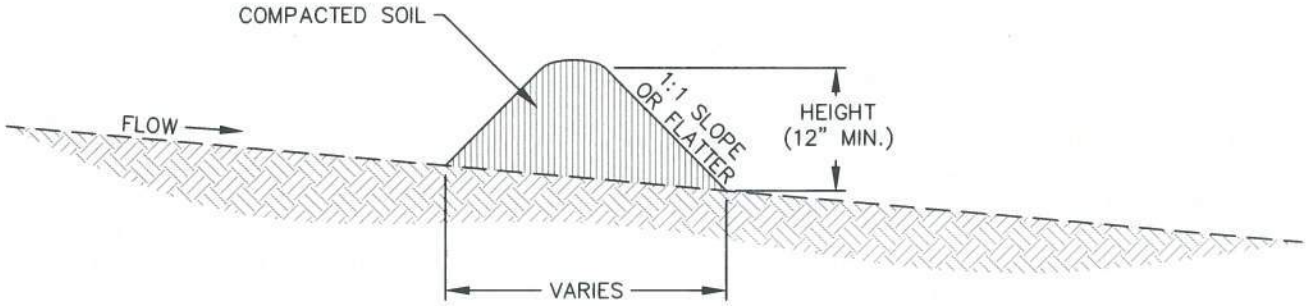
- Compacted berms must be a minimum height of one foot.
- Adequately compact berms. Not all soils are suitable for compacted berms. Soils may need to be adequately watered down to facilitate compaction.
- Install compacted berms along the contour of slopes or in a manner to avoid creating concentrated flow.
- The maximum tributary drainage area per 100 liner feet of an installed compacted berm is 1/4 acre.

4.0 TIMING

- Install prior to land disturbing activities.
- Remove compacted berms after the upstream area has been permanently stabilized. Permanently stabilize area after compacted berms have been removed.

5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the compacted berm.
- Inspect for and repair damaged compacted berms.
- Do not allow vehicles to drive over berms.



TEMPORARY COMPACTED BERM

INSTALLATION NOTES

1. COMPACTED BERM MUST BE A MINIMUM HEIGHT OF ONE FOOT. BASE WIDTH IS DETERMINED BY HEIGHT.
2. COMPACTED BERMS MUST BE ADEQUATELY COMPACTED. NOT ALL SOILS ARE SUITABLE FOR COMPACTED BERMS.
3. INSTALL COMPACTED BERMS ALONG CONTOUR; DO NOT INSTALL PERPENDICULAR TO SLOPE.
4. THE MAXIMUM TRIBUTARY DRAINAGE AREA PER 100 LINEAR FEET OF COMPACTED BERMS SHALL BE ¼ ACRE.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE BERM.

TCB

STORMWATER ENTERPRISE

TEMPORARY COMPACTED BERM

APPROVED: SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-TCB

TEMPORARY SEDIMENT BASIN

TSB



1.0 DESCRIPTION

- Temporary sediment basins are small impoundments of water with a small outlet structure built on a construction site.

2.0 PURPOSE

- Used to capture and slowly release runoff prior to discharge from a construction site to allow sediment to settle out.

3.0 IMPLEMENTATION

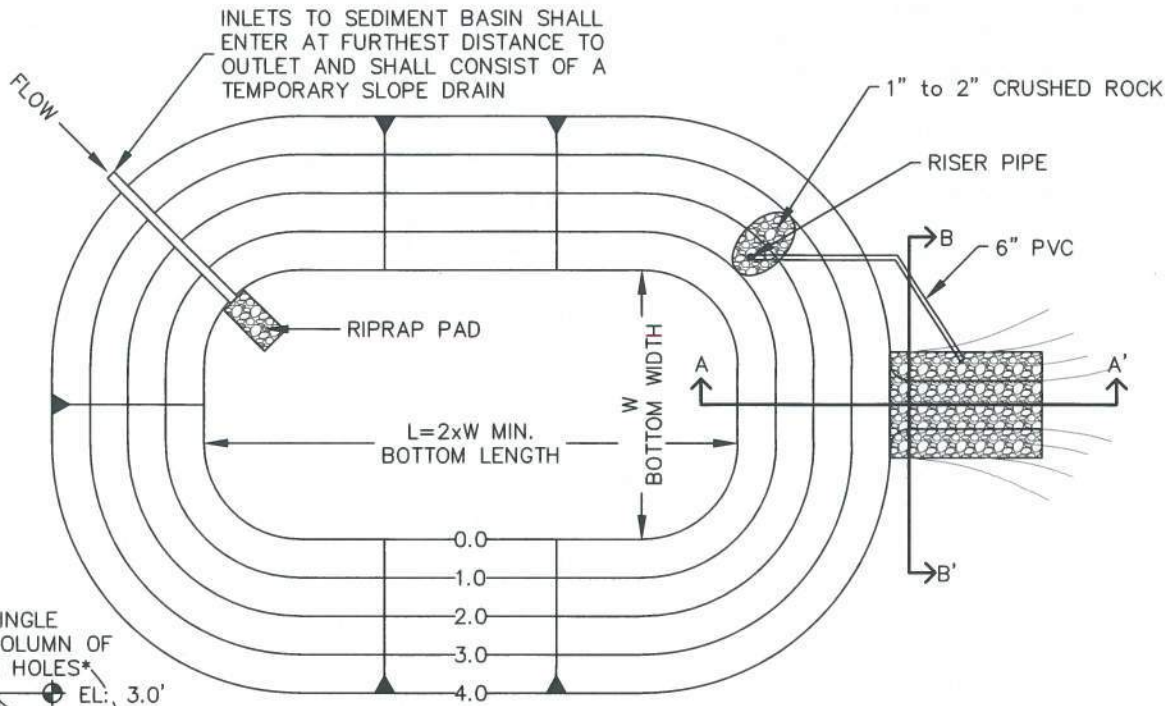
- Temporary sediment basins for drainage areas larger than 15 acres must be individually designed by engineer.
- Erosion and other sediment controls should be implemented upstream of temporary sediment basins.

4.0 TIMING

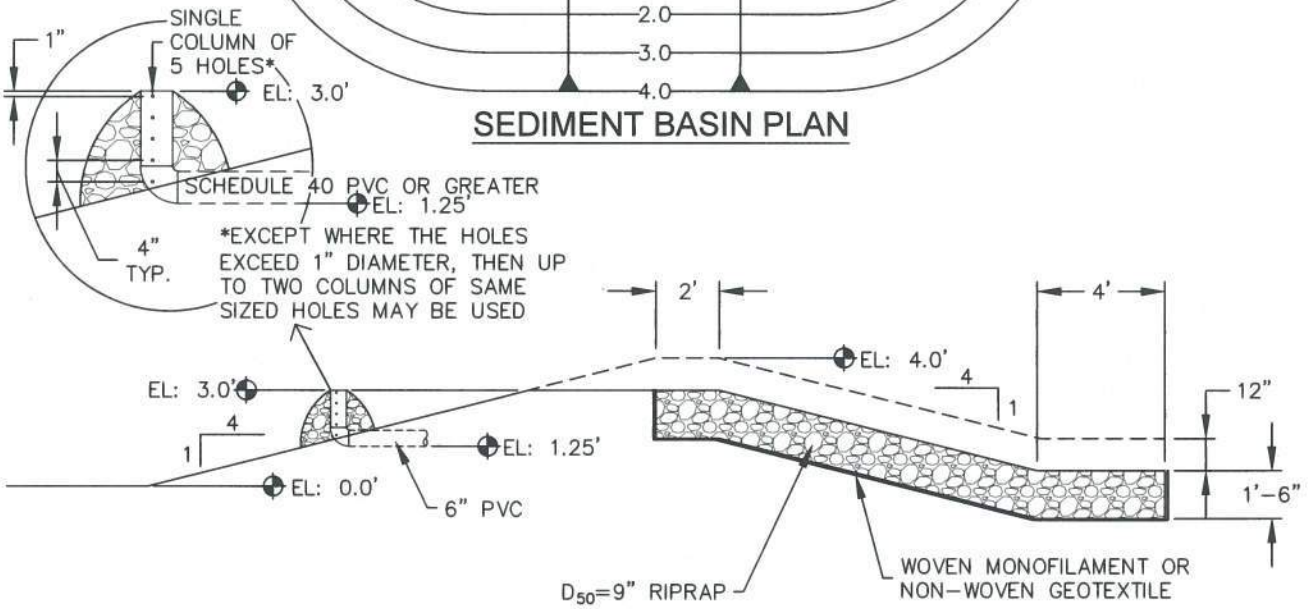
- Install prior to upstream land disturbance.
- Remove temporary sediment basin after upstream area has been stabilized. Permanently stabilize area after basin has been removed.

5.0 MAINTENANCE

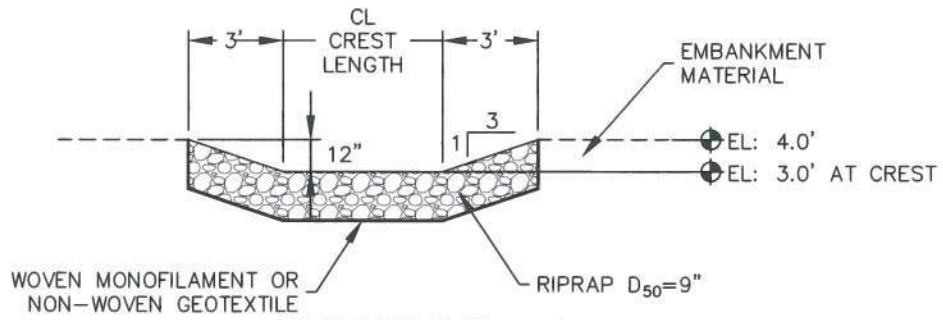
- Remove sediment from basin as needed to maintain the effectiveness of the temporary sediment basin. This is typically when sediment depth reaches one foot.
- Inspect sediment basin embankments for stability and seepage.
- Inspect the inlet and outlet of the basin, repair damage, and remove debris.



SEDIMENT BASIN PLAN



SECTION A-A'



SECTION B-B'

TSB

STORMWATER ENTERPRISE

TEMPORARY SEDIMENT BASIN

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-TSB-1

TABLE SB–1, SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

UPSTREAM DRAINAGE AREA (ROUNDED TO NEAREST ACRE), (AC)	BASIN BOTTOM WIDTH (W), (FT)	SPILLWAY CREST LENGTH (CL), (FT)	HOLE DIAMETER (HD), (IN)
1	12½"	2	9/32
2	21	3	13/16
3	28	5	½
4	33½	6	9/16
5	38½	8	21/32
6	43	9	21/32
7	47¼	11	25/32
8	51	12	27/32
9	55	13	⅞
10	58¼	15	15/16
11	61	16	31/32
12	64	18	1
13	67½	19	1 1/16
14	70½	21	1⅛
15	73¼	22	1 3/16

INSTALLATION NOTES

1. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
2. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES, AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE No. 200 SIEVE
3. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D–698.
4. PIPE SCHEDULE 40 OR GREATER SHALL BE USED.
5. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES. DESIGN CALCULATIONS MUST BE APPROVED PRIOR TO IMPLEMENTATION.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN CONTROL MEASURE EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW SPILLWAY CREST).
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SEDIMENT BASIN REMOVAL.

TSB

STORMWATER ENTERPRISE

TEMPORARY SEDIMENT BASIN

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–TSB–2

TEMPORARY SLOPE DRAIN

TSD



1.0 DESCRIPTION

- A temporary slope drain is a flexible conduit for stormwater that extends down the length of a disturbed slope to divert stormwater and serve as a temporary outlet.

2.0 PURPOSE

- Used to convey runoff during construction without causing erosion on or at the bottom of a slope.

3.0 IMPLEMENTATION

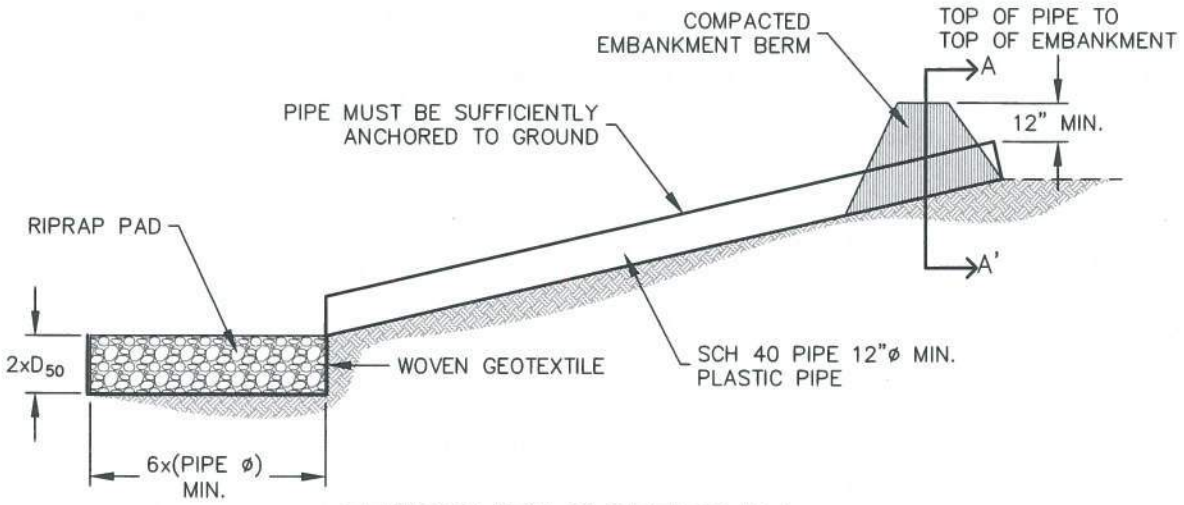
- Direct runoff into flexible pipe using a temporary compacted embankment berm.
- Anchor pipe to slope.
- Install riprap pad at pipe outlet.

4.0 TIMING

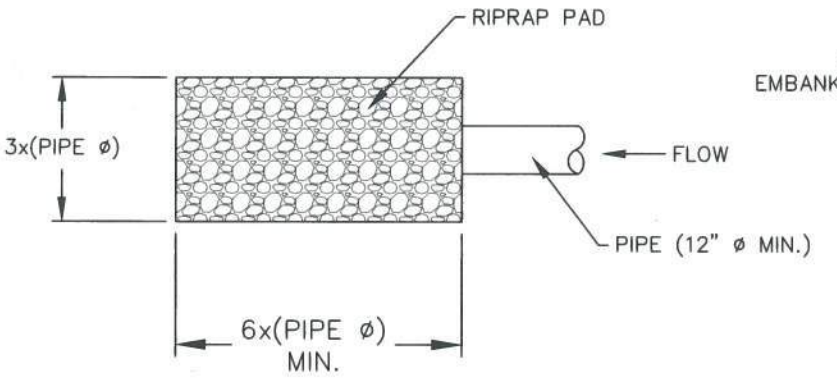
- Install prior to upstream land disturbing activities.
- Remove temporary slope drain prior to the end of construction after the contributing drainage area has been permanently stabilized.

5.0 MAINTENANCE

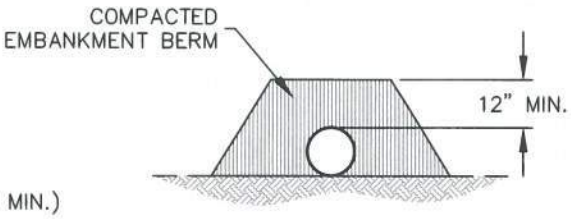
- Inspect for erosion and accumulated debris at the inlet and outlet.
- Breaches in pipes should be repaired as soon as feasibly possible.



TEMPORARY SLOPE DRAIN



RIPRAP PAD PLAN



SECTION A-A'

INSTALLATION NOTES

1. THE LISTED DIMENSIONS ARE CONSIDERED A MINIMUM; LARGER DRAINS CAN BE IMPLEMENTED BY THE CONTRACTOR.
2. DETAILS SHOW MINIMUM COVER; INCREASE COVER AS NECESSARY.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. INSPECT INLETS AND OUTLETS AFTER STORMS TO PREVENT EXCESS CLOGGING. BREACHES IN PIPES SHOULD BE REPAIRED AS SOON AS FEASIBLY POSSIBLE.
3. INSPECT RIPRAP PAD AT OUTLET FOR SIGNS OF EROSION. IF SIGNS OF EROSION EXIST, ADDITIONAL ARMORING MAY BE INSTALLED.
4. TEMPORARY SLOPE DRAINS SHOULD REMAIN UNTIL THEY ARE NOT NEEDED, BUT SHOULD BE REMOVED BEFORE THE END OF CONSTRUCTION.
5. PERMANENTLY STABILIZE AREA AFTER TEMPORARY SLOPE DRAINS ARE REMOVED.

TSD

STORMWATER ENTERPRISE

TEMPORARY SLOPE DRAIN

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-TSD

VEHICLE TRACKING CONTROL

VTC



City of Colorado Springs
Stormwater Enterprise

VTC-i

Construction Control Measures
December 2020

1.0 DESCRIPTION

- Vehicle tracking control consists of a pad of coarse stone aggregate placed on a geotextile filter fabric.

2.0 PURPOSE

- Used to reduce the tracking of sediment onto roadways by construction vehicles.
- As vehicles drive over the VTC device, mud and sediment is removed from the tires.

3.0 IMPLEMENTATION

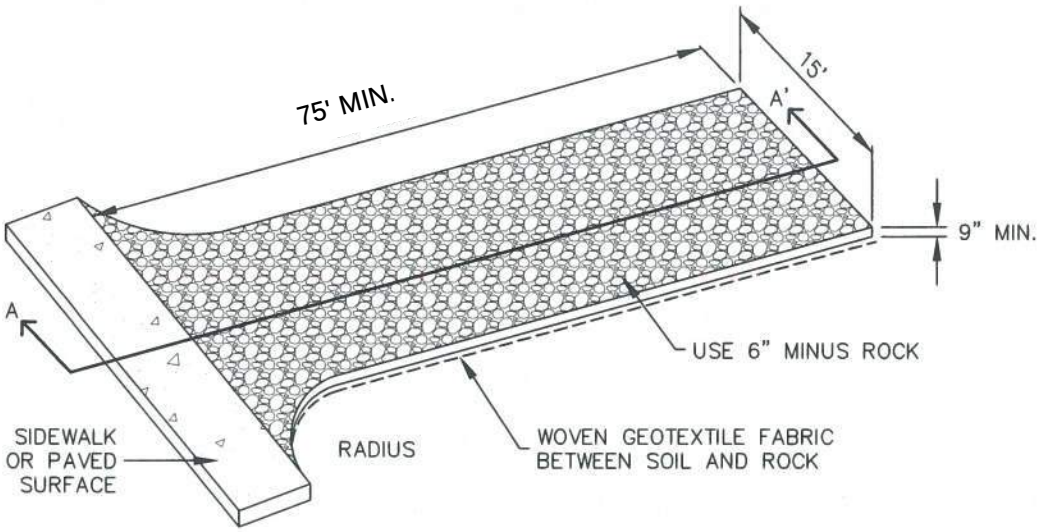
- Locate at construction entrance/exit.
- Organize site to ensure that all vehicles use the vehicle tracking control device.
- Where possible, grade VTC device to drain to construction site rather than to street.
- Proprietary VTC devices may be used if approved as an alternative Construction Control Measure.

4.0 TIMING

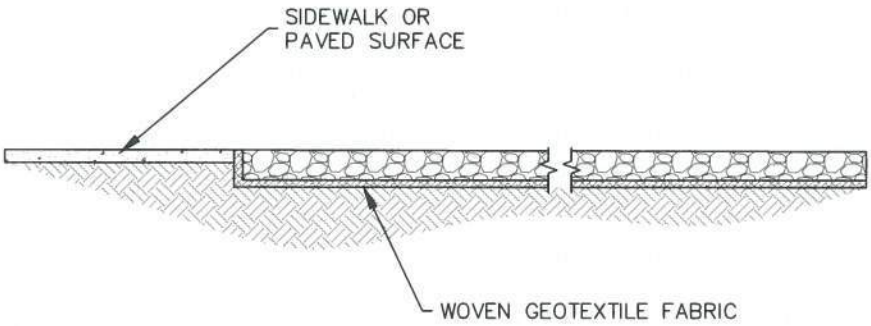
- Install prior to land disturbing activities.
- Remove when the potential for sediment migration onto adjacent roadways no longer exists (typically after site has been stabilized). Permanently stabilized area after vehicle tracking control is removed.

5.0 MAINTENANCE

- Roughen, replace, and/or add rock as needed to maintain a consistent depth and to prevent sediment tracking onto adjacent street.
- Sediment tracked onto the adjacent road shall be removed daily, by sweeping or shoveling, and never washed down storm drains.



AGGREGATE VEHICLE TRACKING CONTROL



SECTION A-A'

INSTALLATION NOTES

1. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHOULD BE LOCATED AT ALL POINTS WHERE VEHICLES EXIT THE CONSTRUCTION SITE TO ADJACENT ROADWAY.
2. STABILIZED CONSTRUCTION ENTRANCE/EXITS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
3. RADIUS MUST BE ADEQUATE FOR INTENDED CONSTRUCTION VEHICLE TURNING.
4. ROCK SHOULD CONSIST OF 6" MINUS ROCK.
5. INSTALL CONSTRUCTION FENCE ON BOTH SIDES OF VEHICLE TRACKING CONTROL PAD WHEN NEEDED OR REQUIRED BY INSPECTOR.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT TRACKED ONTO THE ADJACENT ROAD SHALL BE REMOVED DAILY, BY SWEEPING OR SHOVELING, AND NEVER WASHED DOWN STORM DRAINS.
3. ROUGHEN, REPLACE AND/OR ADD ROCK AS NEEDED TO MAINTAIN CONSISTENT DEPTH AND TO PREVENT SEDIMENT TRACKING ONTO ADJACENT STREET.
4. PERMANENTLY STABILIZE AREA AFTER VEHICLE TRACKING CONTROL IS REMOVED.

VTC

STORMWATER ENTERPRISE

VEHICLE TRACKING CONTROL

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-VTC