

# STORMWATER MANAGEMENT PLAN (SWMP)

The Trails at Aspen Ridge  
El Paso County, Colorado

**COLA, LLC**  
555 Middle Creek Parkway, Suite 380  
Colorado Springs, Colorado 80921

September 2019



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# **STORMWATER MANAGEMENT PLAN (SWMP)**

## **The Trails at Aspen Ridge El Paso County, Colorado**

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COLA, LLC  
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**Attachments**

- SWMP Drawings
- SWMP Inspection and Maintenance Log
- Soil Survey of El Paso County Area Soils Map
- FEMA FIRM Floodplain Maps
- CDPHE General Permit

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## **1. GENERAL INFORMATION**

This Stormwater Management Plan (SWMP) is being submitted on behalf of COLA, LLC. for a tract of land known as The Trails at Aspen Ridge in El Paso County, Colorado. The purpose of this SWMP is to identify potential source areas that may contribute pollutants to stormwater and to identify Best Management Practices (BMP)s that will reduce or eliminate adverse water quality impacts. Development, implementation, and maintenance of this SWMP will provide the general contractor with the framework for reducing soil erosion and minimizing pollutants in stormwater during construction of the project site.

This SWMP has been prepared in accordance with engineering, hydrologic and pollution control practices and will cover this facility only (the extents of the Project construction site) using BMPs to reduce the pollutants in stormwater discharges as described in Section 2 of this SWMP. The SWMP will be administrated by the Qualified Stormwater Manager identified in Section 1.3. The Qualified Stormwater Manager's duties include the following:

- Implement the SWMP
- Oversee installation and maintenance of BMPs as identified in the SWMP
- Implement and oversee employee training
- Conduct or provide for inspection and monitoring activities
- Identify potential pollutant sources and make sure they are included in the SWMP
- Identify any deficiencies in the SWMP and make sure they are corrected
- Ensure that any changes in construction plans, phasing, or use of BMP's are addressed in the SWMP

The provisions of this SWMP must be implemented as they are written and updated, from the initiation of construction until final stabilization is complete. The Water Quality Control Division reserves the right to review the SWMP, and to require the permittee to develop and implement additional measures to prevent and control pollution as is needed.

### **1.1 Site Description**

The Trails at Aspen Ridge, located in Fountain, Colorado, is a 166-acre site which will consist of a 605 lot residential subdivision composed of single-family detached and multi-family attached homes. The site is located at Latitude: 38.756048 and Longitude: -104.676602 and is bounded to the north by existing Bradley Road and to the west by Powers Boulevard. Fontane Boulevard is south of the site and Marksheffel Road is east of the site.

**1.2 Site Location**



**1.3 Project Contact Information**

Contact Information/Responsible Parties			
<b>Owner</b>	Randy O’Leary COLA, LLC 555 Middle Creek Parkway Colorado Springs, CO 80921		roleary@desertviewhomes.com
<b>Project Manager/Site Supervisor</b>	Steven Schoonover COLA, LLC 555 Middle Creek Parkway, Suite 380 Colorado Springs, CO 80921		sschoonover@desertviewhomes.com
<b>Qualified Stormwater Manager</b>	Steven Schoonover COLA, LLC 555 Middle Creek Parkway, Suite 380 Colorado Springs, CO 80921		sschoonover@desertviewhomes.com
<b>SWMP Preparer</b>	April Lamar, EI Matrix Design Group 2435 Research Pkwy Suite 300 Colorado Springs, CO 80920	719-575-0100	April.Lamar@matrixdesigngroup.com

**1.4 Disturbance Area and Import/Export Volume**

The following is the total site area and the expected area of disturbance. Any changes to the area of disturbance (current disturbance) must be updated as changes occur.

Total Site Area	<b>166.66 acres</b>	Date: 09/18/2019
Initial Estimate of Disturbance Area	<b>124.1 acres</b>	Date: 09/18/2019
Import/Export Volume Estimate	<b>2,000 CY</b>	<input checked="" type="checkbox"/> Import <input type="checkbox"/> Export
Updated Disturbance Area		
Updated Disturbance Area		
Updated Disturbance Area		

**1.5 Construction Activities**

[Include clearing and grubbing, temporary stabilization, road grading, utility/storm installation, final grading, final stabilization, and removal of temporary control measures] Initial stabilization methods (BMPs) will be installed prior to construction. Following initial BMPs, construction will consist initially of site clearing and grubbing, temporary stabilization BMPs, initial grading, utility installation, road paving, final grading, followed by home construction on each lot. Open spaces will be maintained with the vegetation placed prior to commencement of construction. There will be no concrete or asphalt batched onsite. All concrete and asphalt will be imported from off-site batch plants. Final stabilization and removal of temporary control measure will be completed following placement of permanent landscaping and hardscaping.

**1.6 Construction Sequencing and Phasing**

Construction Schedule	Estimated Start Date	Estimated Completion Date
Anticipated Project Start Date	Sept 2019	
1. Install Initial BMPs	Sept 2019	Sept 2019
2. Clearing and Grubbing	Oct 2019	Nov 2019
3. Temporary Stabilization BMPs	Oct 2019	Oct 2020
4. Road Grading	Oct 2019	Nov 2019
5. Site Grading	Oct 2019	Mar 2020
6. Utility Installation	Nov 2019	Nov 2019
7. Curb and Gutter	June 2020	June 2020
8. Street Paving	June 2020	June 2020
9. Vertical Construction	Aug 2020	Oct 2020
10. Final Stabilization	Oct 2020	Oct 2020
11. Removal of Temporary Control Measures		Oct 2020
Anticipated Project End Date		Oct 2020

Construction Phase	Description and Conservation Measures
Install Initial BMPs	Silt Fencing (perimeter BMP) and perimeter control sediment control logs will be installed at designated locations (see Plan) as outlined in Section 2. Vehicle tracking control will be installed at the entrance/exit to any disturbed areas as work progresses as outlined in Section 2. All construction traffic must enter/exit the site at approved construction access points. Sediment basins shall be installed prior to any land-disturbing activities that will rely on the basin for stormwater control (Section 2).
Clearing and Grubbing	Clearing and Grubbing of the site will be the initial construction phase. BMPs outlined in Section 2 will be used to control erosion and sediment runoff.
Temporary Stabilization BMPs	Temporary stabilization measures to control erosion and sediment runoff will be implemented as outlined in Section 2.

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Site Grading	Erosion and sediment runoff during site grading will be controlled by BMPs outlined in Section 2.
Road Grading	Road grading will be completed using BMPs outlined in Section 2 to control erosion and sediment runoff.
Utility Installation	Following site grading, utility corridors will be constructed beginning with sewer and water and followed by storm sewer. Dry utilities will be constructed last. BMPs outlined in Section 2 will be used to control erosion and sediment runoff.
Curb and Gutter	Curb and Gutter will be installed following final road grading activities. BMPs outlined in Section 2 will be used to control erosion and sediment runoff.
Final Grading	Final grading will be completed following installation of curb and gutter at the site. BMPs outlined in Section 2 will be used to control erosion and sediment runoff.
Street Paving	Streets and roads will be paved following final site grading activities. BMPs outlined in Section 2 will be used to control erosion and sediment runoff.
Vertical Construction	<p>Vertical construction will be phased on a lot by lot basis as follows:</p> <p>BMPs outlined in Section 2 will be used to control erosion and sediment runoff prior to beginning vertical construction (<b>Initial Phase</b>).</p> <p>The <b>Interim Phase</b> of vertical construction includes foundation excavation and construction, construction of structural framing, exterior completion, and minor utility work. Inlet protection outlined in Section 2 should remain in place during the interim construction phase. Perimeter BMPs as outlined in Section 2 will remain in place. Temporary stabilization BMPs (Section 2) should be implemented on all disturbed areas that are not subject to active construction.</p> <p>The <b>Interim to Final Phase</b> of construction includes interior/exterior structure completion, concrete flatwork, and final lot grading activities. Inlet protection outlined in Section 2 should remain in place during this construction phase. Perimeter BMPs should be evaluated for effectiveness and maintained as needed. Temporary stabilization BMPs should be used on all disturbed areas not subject to active construction activities.</p> <p>Final site grading, cleanup, and landscaping is the <b>Final Phase</b> of vertical construction. In most cases, BMPs can be removed immediately prior to final grading, and landscaping activities. In areas where landscaping and hardscaping are not planned, BMPs should be maintained and temporary stabilization measures should remain in place. Sites should be monitored until stabilization requirements are met.</p>

Final Stabilization and Removal of Temporary BMPs	Once construction activity ceases, the area shall be stabilized with permanent landscaping and/or seed and mulch as outlined in Section 2. Final stabilization is complete when all ground disturbing activities are complete and all disturbed areas have either a uniform vegetative cover with an individual plant density of 70% of pre-disturbance levels, permanent hardscaping or paving is in place, or an equivalent permanent alternative stabilization method is implemented. Once stabilization is complete, all temporary sediment and erosion control measures shall be removed.
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**1.7 Soils**

The United States Department of Agriculture, Natural Resources Conservation Service (NRCS); Web Soil Survey of El Paso County Area, Colorado, published by the United States Department of Agriculture, dated August 2017, was utilized to investigate the existing general soil types within and surrounding the Project area. A soil map for this area is provided in the Attachments. Per the information given within the Soil Conservation Survey, hydrologic soil group “B” characteristics are predominant across the study area (an estimated 81.7% coverage area) as described in the following table.

Soil ID Number	Soil Type	Soil Description	Estimated Coverage Area	Hydrologic Classification
8	Blakeland Loamy Sand, 1% to 9% slopes	surface runoff is moderate, partially-draining soil, the hazard of erosion and soil blowing are moderate to high	4.9%	A
52	Manzanst Clay Loam, 0% to 3% slopes	Surface runoff is moderate, partially-draining soil, the hazard of erosion and soil blowing are moderate to high	13.4 %	C
56	Nelson-Tassel Fine Sandy Loams, 3% to 18% slopes	Surface runoff is moderate, partially-draining soil, the hazard of erosion and soil blowing are moderate to high	67.9 %	B
86	Stoneham Sandy Loam, 3% to 8% slopes	Surface runoff is moderate, partially-draining soil, the hazard of erosion and soil blowing are moderate to high	2.4%	B
108	Wiley Silt Loam, 3% to 9% slopes	Surface runoff is moderate, partially-draining soil, the hazard of erosion and soil blowing are moderate to high	11.4%	B

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Runoff coefficients outlined in the City of Colorado Springs Design Criteria Manual and are provided below:

Land Use	5-year	100-year
Historic Analysis	0.09	0.36
Residential, ¼ Acre	0.30	0.50
Paved	0.90	0.96

Runoff Coefficients for Rational Method from the Urban Drainage and Flood Control District (UDFCD 2001) are listed below:

Land Use or Surface Characteristics	Percent Impervious	Runoff Coefficients											
		2-year		5-year		10-year		25-year		50-year		100-year	
		HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D
<b>Business</b>													
Commercial Areas	95	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.87	0.87	0.88	0.88	0.89
Neighborhood Areas	70	0.45	0.49	0.49	0.53	0.53	0.57	0.58	0.62	0.60	0.65	0.62	0.68
<b>Residential</b>													
1/8 Acre or less	65	0.41	0.45	0.45	0.49	0.49	0.54	0.54	0.59	0.57	0.62	0.59	0.65
1/4 Acre	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
1/3 Acre	30	0.18	0.22	0.25	0.30	0.32	0.38	0.39	0.47	0.43	0.52	0.47	0.57
1/2 Acre	25	0.15	0.20	0.22	0.28	0.30	0.36	0.37	0.46	0.41	0.51	0.46	0.56
1 Acre	20	0.12	0.17	0.20	0.26	0.27	0.34	0.35	0.44	0.40	0.50	0.44	0.55
<b>Industrial</b>													
Light Areas	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Heavy Areas	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
<b>Parks and Cemeteries</b>													
Parks and Cemeteries	7	0.05	0.09	0.12	0.19	0.20	0.29	0.30	0.40	0.34	0.46	0.39	0.52
Playgrounds	13	0.07	0.13	0.16	0.23	0.24	0.31	0.32	0.42	0.37	0.48	0.41	0.54
Railroad Yard Areas	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
<b>Undeveloped Areas</b>													
Historic Flow Analysis-- Greenbelts, Agriculture	2	0.03	0.05	0.09	0.16	0.17	0.26	0.26	0.38	0.31	0.45	0.36	0.51
Pasture/Meadow	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Forest	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Exposed Rock	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Offsite Flow Analysis (when landuse is undefined)	45	0.26	0.31	0.32	0.37	0.38	0.44	0.44	0.51	0.48	0.55	0.51	0.59
<b>Streets</b>													
Paved	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Gravel	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
<b>Drive and Walks</b>													
Drive and Walks	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Roofs	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Lawns	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50

All exposed soil throughout the Project site will be landscaped and/or seeded with a locally approved seed mix as described in Section 2.2.

### **1.8 Vegetation**

The existing vegetation consists of native grasses and scrub oak. Based on site visits and a review of aerial photography, the vegetative cover at the Trails at Aspen Ridge is visually estimated at approximately 100%.

### **1.9 Allowable Non-Stormwater Discharges**

Uncontaminated groundwater may be discharged onsite, but may not leave the site in the form of surface runoff. Concrete washout areas will be used as described in Section 2.3.

### **1.10 Receiving Waters**

Ultimate Receiving Water(s): Fountain Creek

Stormwater Outfalls/Storm Sewer System Discharge:

*East Pond:*

- Discharge: 48" Reinforced Concrete Pipe (RCP)
- Location of Discharge: Southeast corner of site
- Receiving Conveyance: Existing swale to the West Fork of Jimmy Camp Creek then to Fountain Creek

*West Pond:*

- Discharge: 24" RCP
- Location of Discharge: west side of site adjacent to Powers Boulevard
- Receiving Conveyance: Existing Powers Boulevard ditch, to a 60" CMP across Powers Boulevard and into Big Johnson Reservoir

*Northeast Pond:*

- Discharge: 18" RCP
- Location of Discharge: Northeast corner of site adjacent to Bradley Road
- Receiving Conveyance: Existing Bradley Road ditch, to the Marksheffel Branch of Jimmy Camp Creek, to Fountain Creek

### **1.11 Stream Crossings within the Project Area**

No stream crossings are located within the Project Area.

### **1.12 Pollution Sources**

Pollutants that result from clearing, grading, maintenance, operations, and excavation have the potential to be present in stormwater runoff and are potential sources for stormwater contamination. The following is a description of potential source areas for pollutant that may be released during construction, maintenance, operation, and excavation activities:

**Source Area:**

1. Disturbed and stored soils, erosion.

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2. Vehicle tracking of sediments.
3. Management of contaminated soils.
4. Loading and unloading operations.
5. Outdoor storage activities (erodible building materials, fertilizers, chemicals, etc.).
6. Vehicle and equipment maintenance, cleaning, and fueling operations.
7. Significant dust or particulate generation activities.
8. Routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, etc.
9. Onsite waste management practices (waste piles, liquid wastes, dumpsters, chemical containers etc.).
10. Concrete truck/equipment washing
11. Dedicated asphalt, concrete batch plants and masonry mixing stations
12. Non-industrial waste sources (trash, portable toilets)

The following pollutants may impact stormwater runoff for each of the source areas listed above.

Potential Pollutant	Chemical/Physical Description	Stormwater Impacts	Potential Source Area (listed above)
Pesticides (insecticides, fungicides, herbicides, rodenticides)	Various colored to colorless liquid, powder, pellets, or grains	Chlorinated hydrocarbons, organophosphates, carbamates, arsenic	3, 4, 5, 8, 9
Fertilizer	Liquid or solid grains	Nitrogen, phosphorous	3, 4, 5, 8, 9
Cleaning solvents	Colorless, blue, or yellow-green liquid	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates	3, 4, 5, 6, 8, 9, 10, 11, 12
Concrete	White solid	Limestone, sand	3, 5, 9, 10, 11
Paints	Various colored liquid	Metal oxides, stoddard solvent, talc, calcium carbonate, arsenic	3, 5, 6, 9
Wood preservatives	Clear amber or dark brown liquid	Stoddard solvent, petroleum distillates, arsenic, copper, chromium	3, 5, 8
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon	Mineral oil	3, 4, 5, 6, 8, 9, 11
Gasoline	Colorless, pale brown or pink petroleum hydrocarbon	Benzene, ethyl benzene, toluene, xylene, MTBE	2, 3, 4, 5, 6, 8, 9, 10

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Diesel Fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil & grease, naphthalene, xylenes	2, 3, 4, 5, 6, 8, 9, 10
Kerosene	Pale yellow liquid petroleum hydrocarbon	Coal oil, petroleum distillates	5, 6, 8, 9
Antifreeze/coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)	2, 3, 4, 5, 6, 8, 9, 10
Particulates	Dust, airborne particulates	Sediment	1, 2, 4, 5, 6, 10, 11
Biological	Human/animal waste	Bacterial	12

The largest possible sources of non-stormwater pollution will be from trucks during equipment maintenance and refueling operations. The contractor shall be responsible for any spill cleanup during refueling operations in accordance with applicable city, county and state regulations. The contractor will also be responsible for cleanup of any off-site vehicle tracking on paved roads. Other sources of pollution such as vehicle washing, chemical storage or waste disposal are not anticipated. No recognized environmental conditions (REC) have been identified within Project site.

**1.13 Spill Prevention and Response Plan**

The Spill Prevention and Response Plan (SPRP) is designed to outline requirements for the handling and management of hazardous substances (pesticides, herbicides, fuels, cleaners, etc.) stored or used at the Project area.

**Materials Management and Handling**

- Chemicals that have the potential to be released in stormwater are to be used only where necessary and in a manner consistent with industry-standard uses and handling procedures.
- Ensure all hazardous materials are properly labeled.
- Store, dispense, and/or use hazardous substances in a way that prevents releases.
- Provide secondary containment when storing hazardous substances in bulk quantities (greater than 55-gallons).
- Maintain good housekeeping practices for chemicals stored onsite.
- Complete routine checks of hazardous substance storage areas.
- Provide monthly inspections of hazardous substance storage areas, secondary containment, and above ground and/or underground storage tanks.

### **Spill Containment and Reporting**

A release of any chemical, oil, petroleum product, sewage, etc. that has the potential to enter surface water, groundwater, dry gullies, or storm sewers leading to surface water must be reported to the CDPHE immediately (25-8-601 CRS). When a spill is identified, the proper spill response should be implemented:

1. Assess the area for any immediate dangers or health and safety concerns. If any immediate dangers are present, call 911.
2. Contain any spilled materials. Assess the size of the leak and immediate threat of the spill reaching storm drains or permeable surfaces. If there is an immediate threat and no safety concerns, attempt to block the spill from reaching storm drains or other impermeable surfaces.
3. Stop the source of the spill if possible.
4. Cleanup spill in a timely manner. Use adsorbent materials (cat litter) and/or sock booms or rags to clean up the spill. Dispose of used materials appropriately.
5. Report and record spills to Qualified Stormwater Manager. Once the spill has been contained and any immediate threat to storm drains or permeable surfaces has been minimized, contact the Qualified Stormwater Manager. If necessary, a specialized cleanup contractor should be used to clean up the remaining contamination.
6. Follow applicable Colorado Discharge Permit System (CDPS) terms and conditions regarding spill reporting and response.
7. Report spills to the Colorado Department of Public Health and Environment (CDPHE). For non-permitted activities or in the case of an activity where a permit does not address reporting of or response to a spill which may cause pollution of surface or subsurface waters of the State, notify the Environmental Release and Incident Reporting Line within 24 hours at **(877) 518-5608**. Reporting should include:
  - a. Name of responsible person or name of Qualified Stormwater Manager
  - b. An estimate of the date and time of the release
  - c. The location of the spill and its source (saddle tank, manhole, storage container, etc.),
  - d. The type of material spilled (untreated wastewater, petroleum products, etc.)
  - e. The estimated volume of the spill
  - f. The time and date the spill was controlled or stopped
  - g. If the spill is ongoing, the estimated rate of flow and when the spill is expected to be controlled/contained
  - h. Measures being taken to contain, reduce, and/or clean the spill
  - i. A list of potentially impacted areas and known downstream water uses that will be or have been notified
  - j. The phone number and email of the Qualified Stormwater Manager.
8. Any accidental discharge to the sanitary sewer system must be reported immediately to the local sewer authority and the affected wastewater treatment plant.
9. Written notification following a reportable spill shall be submitted to the CDPHE within five days (5 CCR 1002-31, Section 61.8(5)(d)).

## **2. BEST MANAGEMENT PRACTICES**

Best Management Practices (BMP's) encompass a wide range of erosion and sediment control practices, both structural and non-structural in nature, that are intended to reduce or eliminate any possible water quality impacts from stormwater leaving a construction site. The individual BMP's appropriate for a particular construction site are largely dependent on the types of potential pollutant sources present, the nature of the construction activity, and specific-site conditions.

Most of the BMP's referenced herein are widely used in the construction industry. They generally involve a simple and low-cost approach and can be very effective *when properly installed and maintained*. To prevent soil from washing into the public right-of-way or the undisturbed areas of the site, the following is a discussion of BMPs and an indication of which BMPs are expected to be implemented as part of this Project.

BMPs for all slopes, channels, ditches, or any disturbed land area shall be completed immediately after grading or earth disturbance has occurred. All temporary soil erosion control measures and BMP's shall be maintained until site reaches final stabilization and permanent soil erosion control measures are implemented.

The Stormwater Manager may modify the planned BMPs based on construction sequencing, site conditions, and/or other factors. The SWMP should be modified by field notes including dates of modifications and the purpose of the modification. The Grading and Erosion Control Plan should reflect what has been constructed or modified onsite. The Stormwater Manager will be responsible for documenting BMP's (including phasing of BMP implementation).

### **2.1 Structural BMPs**

Structural BMPs are used to minimize erosion and sediment transport and include but are not limited to: silt fencing, erosion control blankets, turf reinforcement mat, wattles/sediment control logs, earth dikes, drainage swales, sediment traps, gravel inlet protection, inlet/outlet protection, straw bales, concrete washout areas, and temporary or permanent sediment basins. Structural BMPs shall be coordinated with construction activities so the BMP is in place before construction begins. The structural BMPs outlined below are general definitions and guidelines. Project-specific specifications for selected BMPs are detailed in the SWMP Drawings included in the Attachments.

- Silt Fencing: A silt fence is a structural sediment control device that typically consists of a geotextile fabric attached to wooden stakes inserted into a ground trench and rising to a vertical height of approximately 18-inches. The silt fence is generally used as perimeter sediment control and as a primary containment around storage areas, staging areas, stockpiles, etc.

Used for this project?  Yes  No

*Application notes:* Temporary perimeter controls (e.g. silt fences) will be installed *before* any land disturbance including clearing and grading begins. The use of rebar, steel stakes, or steel fence posts to anchor silt fencing is prohibited. Once the site is cleaned and the surrounding disturbed areas are 70% established with vegetation, the silt fences around the Project site can be removed.

- **Erosion Control Blanket:** An erosion control blanket (ECB) is a rolled-fiber product typically made up of straw, coconut, or synthetic fibers that are used to prevent scour erosion, stabilize slopes, and to aid revegetation by providing a protective layer over seeded areas. Turf reinforcement mats are similar to ECBs and are made to withstand greater stress such as traffic, extended life, or continuous and frequent water flow. ECBs are available in both biodegradable and photodegradable varieties.

Used for this project?  Yes  No

*Application Notes:* Exposed slopes greater than 3:1 will be covered by an erosion control blanket. The use of rebar, steel stakes, or steel fence posts to anchor ECB is prohibited.

- **Sediment Control Logs:** SCLs are log-shaped, rolled straw products encased in a polypropylene monofilament filter fabric. SCLs are used for sediment control usually at the perimeter of a disturbance or as a channel check in low flow areas. SCLs can also be used for slope length reduction.

Used for this project?  Yes  No

*Application Notes:* SCLs that act as perimeter control shall be installed prior to any upgradient land-disturbing activities. SCLs may be used as small check dams in ditches and swales, however they should not be used in perennial streams or high velocity drainage ways.

- **Inlet Protection (gravel):** Storm sewer inlet protection is typically comprised of 1.5-inch angular rock (gravel) wrapped in a chicken wire mesh to form an approximate 6-inch diameter roll in varying lengths. The gravel roll should be firmly secured in front of the inlet opening with a spacing device to prevent the roll from entering the inlet. A sufficiently-sized overflow opening should be left to prevent flooding during high surface water flow volumes. The basic design applies to curb and drop-style inlets.

Used for this project?  Yes  No

*Application Notes:* Inlet protection measures for existing inlets shall be installed *before* clearing and grading is initiated.

- **Inlet/Outlet Protection:** Inlet/outlet protection can be composed of 4- to 6-inch rock (rip-rap) underlain with geotextile fabric placed at the outlet or inlet of a drainage pipe, culvert, or other areas where high surface water flow may be encountered. Geotextile socks filled with gravel may also be used as a temporary BMP. This BMP is used to reduce erosion sediment transport by reducing flow velocity.

Used for this project?  Yes  No

**The Trails at Aspen Ridge**  
**Stormwater Management Plan**

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*Application Notes:* Temporary rip rap outlet protection specified in the SWMP specification drawings is for outlets intended to be utilized less than 2 years. Rough cut street control measures (geotextile socks filled with gravel or compacted earthen berms) shall be installed after a road has been cut and will not be paved for more than 14 days, or for temporary construction roads that have not received road base.

- **Straw Bale Barriers:** Bound straw bale barriers (SBB) are typically used for inlet protection or as drainage swale check dams. Installation of the bales is critical to avoid erosion at the ends of the bales.

Used for this project?  Yes  No

*Application Notes:* Straw bales shall consist of certified weed-free straw or hay and shall consist of approximately 5 cubic feet of straw or hay. Straw bales must weigh at least 35 pounds.

- **Earthen Berms:** Earthen Berms can be used as temporary or permanent solutions for sediment and erosion control. The berms are typically designed to control the flow path of runoff by diverting surface water around areas prone to erosion such as steep slopes or other preferential flow pathways.

Used for this project?  Yes  No

*Application Notes:*

- **Drainage Swales:** Swales can be permanent or temporary and are typically designed to control storm water runoff in a non-erosive manner to a destination such as a detention pond or other stormwater collection facility. Swales can also be designed with velocity control devices and can be made of concrete or lined with materials such as rock or grass.

Used for this project?  Yes  No

*Application Notes:* Temporary drainage swales identified on the Grading and Erosion Control Plan will be constructed during overlot grading activities.

- **Sediment/Detention Basins:** Sediment/Detention basins are designed according to project size and runoff volume and are used for flood control and to aid in temporary retention of runoff to aid in sediment deposition. A release point for runoff water is typically present and consists of an emergency overflow or regulating structure.

Used for this project?  Yes  No

*Application Notes:* Sediment basins will be installed prior to any other land disturbing activities that rely on basins for stormwater control. Embankment materials shall consist of soil free of debris. Organic material, and rocks or concrete greater than 3-inches diameter and shall have a minimum of 15% by weight passing a No. 200 sieve. Embankment materials must be compacted to at least 95% of maximum density.

- **Vehicle Tracking Control:** VTC is used to limit off-site tracking of sediment from disturbed or unpaved areas to paved areas. VTC can include: TRM or mud mats installed at the point of access from unpaved areas (used when traffic is limited or light), a 1.5-inch diameter rock gravel access pad combined with pavement sweeping (used when traffic is limited or light), or a 3+-inch rock with geotextile underlayment combined with street sweeping (used for heavy construction traffic or at the main access point to a development site).

Used for this project?  Yes  No

*Application Notes:* VTC Entrances to disturbed areas will be constructed *before* clearing and grading begins.

## **2.2 Non-Structural BMPs**

Non-structural BMPs are implemented at the site to minimize erosion and sediment transport and may include temporary or permanent vegetation, mulching, landscaping, geotextiles, sod stabilization, surface roughening, vegetative buffer strips (VBS), and protection/preservation of trees and other mature vegetation. The non-structural BMPs outlined below are general definitions and guidelines. Project-specific specifications for selected BMPs are detailed in the SWMP Drawings included in the Attachments.

- **Temporary and permanent seeding:** Seeding of disturbed areas provides soil stabilization and helps prevent erosion and sediment transport. Seeding is usually performed by ripping the area, spreading the appropriate seed mix, and applying straw mulch at a rate of two tons per acre over the seeded area. In some cases, a tackifier may be used to anchor the straw mulch. Managing and applying the proper seed mix and following the specified maintenance procedures are very important in promoting timely growth of grasses while minimizing weed growth. This BMP is effective on slopes up to 3:1 and where soil conditions are adequate.

Used for this project?  Yes  No

*Application Notes:* A mixture developed for elevations 3,000 feet to 8,000 feet will provide natural cover under dryland conditions. Seed for this project will be broadcast spread at a rate of 20 to 25 pounds per acre or drilled at a rate of 15 to 20 pounds per acre. Overseeding will be broadcast spread at a rate of 10 to 15 pounds per acre or drilled at a rate of 5 to 10 pounds per acre. Seed mixture specifications are included in the attached SWMP Drawings. Seed will be mulched with weed-free straw mulch. Temporary seeding may be used on disturbed areas not planned for activity within 30 days. Top soil stock piles will be stabilized with temporary seed and mulch no later than fourteen days from the last construction activities in that area. Once construction activity ceases permanently in an area, the area will be stabilized with permanent seed and mulch. Permanent seeding will be used in designated Open Space areas. Soils that are stockpiled for more than 30 days shall be mulched and seeded with a temporary or permanent grass cover within 21 days of stockpile construction.

- **Mulching:** A layer of suitable mulch is typically applied at a rate of two tons per acre and can be tacked or fastened by an approved method suitable for the type of mulch used. Rough cut streets can be mulched in lieu of a layer of aggregate road base or asphalt paving. Seeding shall be placed in areas designated as being in an interim state.

Used for this project?  Yes  No

*Application Notes:* A layer of suitable mulch shall be applied at a rate of two tons per acre to all disturbed portions of the site within 21 days of the completion of grading. If the area is to remain in an interim state for more than 60 days, seeding BMPs shall be used. Mulch can be used in areas of rough cut streets unless a layer of road base or asphalt paving is planned within 21 days.

- **Landscaping:** Landscaping includes rock, mulch, sod, trees, bushes, geofabrics, hardscaping, etc. as identified in the final stabilization specifications. Landscaping may be done by the developer or by the property owner.

Used for this project?  Yes  No

*Application Notes:* Landscaping is planned for all disturbed areas that are not paved, hardscaped, or covered with permanent seeding.

- **Surface Roughening:** Surface roughening is the mechanical breaking up of soils as a short-term method of temporary stabilization in areas where temporary seeding is not practical or in areas where active construction is ongoing. Surface roughening is achieved through ripping or tilling the surface to increase surface area and infiltration.

Used for this project?  Yes  No

*Application Notes:* Surface roughening using scarifying methods such as disking or dragging bucket teeth over areas of disturbed soils parallel to slope contours will be completed in areas of active construction.

- **Vegetative Buffer Strips:** VBS are areas of original vegetation kept in place during construction that are preserved and maintained to filter sediment deposited from sheet flow. Maintenance includes cleanup of sediment and re-vegetation of VBS as necessary. Maintaining vegetative buffers is important around sensitive areas such as wetlands, waterways, etc.

Used for this project?  Yes  No

*Application Notes:* Pre-existing vegetation shall be protected and maintained within 50 horizontal feet of waters of the State unless unfeasible.

### **2.3 Housekeeping BMPs**

Housekeeping BMPs are maintenance practices implemented to keep the site clean, reduce potential chemical or biological exposures, and to minimize the tracking of soils to hard surfaces and airborne particles. Maintenance BMPs include street sweeping, dust suppression techniques, spill prevention and response (Section 1.13), waste management and disposal, and materials handling and management (Section 1.14). Project-specific specifications for selected BMPs are detailed in the SWMP Drawings included in the Attachments.

- **Street Sweeping:** Street sweeping is the practice of removing soil clumps, scraping packed dirt/mud, and sweeping loose soils tracked onto paved surfaces to prevent sediment transport in runoff water. Materials removed as part of this BMP should be deposited in an area contained by perimeter BMPs or disposed offsite.

Used for this project?  Yes  No

*Application Notes:* Street sweeping methods will be employed in areas of ingress/egress from paved areas to the construction site. Vehicle tracking of soils and construction debris off-site shall be minimized. Materials tracked offsite shall be cleaned up and properly disposed immediately. The owner, site developer, contractor, and their agents shall be responsible for the removal of dirt, rock, construction debris, trash, sediment, and sand that accumulates in public right of ways, storm sewers, or other drainage conveyance system and stormwater appurtenances.

- **Dust Suppression:** Dust suppression BMPs are typically used to minimize the transport of fine particles through the air. Dust suppression techniques may include keeping the site wet using water trucks or other wetting methods or covering of loose soils in disturbance areas. During periods of high wind, the following activities should be monitored: limited street sweeping, restriction of major grading activities, restriction of soil stockpiling, controlling vehicular speed.

Used for this project?  Yes  No

*Application Notes:* A water source shall be available onsite during earthwork operations and utilized as required to minimize dust from earth working operations and wind.

- **Load Covering:** Trucks or other vehicles carrying cut or fill materials to or from the site should be covered to prevent accidental loss of material during transport onto public right of ways

Used for this project?  Yes  No

*Application Notes:* Loads of cut and fill must be properly covered.

- **Site Waste Management and Disposal:** Construction waste disposal and trash generated by onsite personnel should be collected in dumpsters or similar trash containers and emptied on a regular basis. Construction waste and trash should be kept in a secure area and lidded if required

to avoid accidental spreading of waste. Trash containers should be kept on permeable surfaces within perimeter BMPs. Loose trash should be collected daily and disposal services should be on a regular schedule to avoid overfilling of containers. Hazardous materials may not be disposed in trash containers and no waste materials should be buried onsite.

Used for this project?  Yes  No

*Application Notes:* Trash at the site will be cleared daily and kept in secured and/or covered receptacles. Waste disposal will be managed through a licensed contractor.

- **Portable Toilet Facilities:** A proper amount of portable toilets should be located at the Project Site and should be kept within the perimeter BMPs on permeable surfaces. Portable toilets should be anchored to prevent tipping and should be at least five feet behind curbs and at least 50 feet from any storm sewer inlets. Toilets should also be kept away from preferential flow pathways and from all water bodies. Regularly scheduled maintenance should be in place to empty and clean the receptacles to prevent overflow and waste collecting.

Used for this project?  Yes  No

*Application Notes:* Portable toilets will be provided and maintained through a private contractor.

- **Concrete Washout:** Concrete washout areas typically consist of an unlined pit in the ground with a vehicle tracking control (VTC) entrance and are designed to capture and contain concrete washout water. In areas with a high groundwater table, poly-lined pits or a portable waste bin may be used. Pits should be placed to minimize the potential for pollutant discharge. Washout basin deposits (hardened concrete waste) should be removed and properly disposed offsite as solid waste on a regular basis after liquids have evaporated.

Used for this project?  Yes  No

*Application Notes:* Concrete wash water shall be contained and disposed in accordance with the SWMP. No concrete wash water shall be discharged to or allowed to runoff to State waters. 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. Unless confined to a predefined, bermed containment area, the cleaning of concrete truck delivery chutes is prohibited at the Project area.

### **3. FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT**

Once construction activity ceases permanently in an area, the area shall be stabilized with permanent landscaping and/or seed and mulch as designated below. Final stabilization is complete when all ground disturbing activities are complete and all disturbed areas have either a uniform vegetative cover with an individual plant density of 70% of pre-disturbance levels, permanent hardscaping or paving is in place, or an equivalent permanent alternative stabilization method is implemented. Once stabilization is complete, all temporary sediment and erosion control measures shall be removed.

Final Stabilization for this site will consist of a combination of landscaping and permanent seeding including the following:

- *Landscaping.* Disturbed areas around finished units that are not paved or otherwise hardscaped should be landscaped on completion of the vertical structure. Weather may delay landscaping which may be offset by temporary measures such as erosion control blankets, wattles, inlet protection, or other BMPs outlined in Section 2.
- *Paving/Hardscaping.* Areas not planned for landscaping should be paved or hardscaped including roadways, sidewalks, driveways, parking areas, etc.
- *Temporary controls.* Temporary erosion and sediment control measures should be maintained on un-stabilized areas until landscaping or hardscaping activities are complete. Disturbed areas should be surface-roughened and slopes steeper than 3:1 should be covered with erosion control blankets. Temporary controls may be removed once stabilization is complete.
- *Permanent BMPs.* Permanent post-construction BMPs should remain onsite after construction activities have been completed and the site is stabilized. These BMPs may include detention facilities, storm drain systems, swales, and natural depressions.

#### **3.1 Inspection and Maintenance**

Visual inspections of all cleared and graded areas of the construction site will be performed on a minimum occurrence of once per week and/or within 24 hours of the end of any precipitation or snowmelt event that causes surface erosion. The inspection will be the responsibility of the Qualified Stormwater Manager. An inspection report form has been provided in the Attachments. The inspection will verify that the structural BMPs described in Section 2.1 of this SWMP are functioning properly, in good condition, up to date and continue to minimize erosion. The inspection will also verify that the procedures used to prevent stormwater contamination from construction materials and petroleum products are effective. The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Accumulated sediment and debris shall be removed from a BMP when the sediment/debris level reaches one half the height of the BMP or at any time that sediment or debris adversely impacts the functioning BMP.
- Built up sediment will be removed from silt fencing when it has reached one-third the height of the fence.
- Silt fences will be inspected for depth of sediment, for tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- Sediment basins will be inspected for depth of sediment and built up sediment will be removed when it reaches 1 foot in depth.
- Temporary and permanent seeding will be inspected AND noted for bare spots, washouts, and healthy growth.
- The stabilized construction entrances will be inspected for sediment tracked on the road, for clean gravel, and to make sure that all traffic uses the stabilized entrance when leaving the site.
- The maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the Qualified Stormwater Manager is provided in the Attachments. Completed forms will be maintained on-site during the entire construction project. Following construction and the expiration or inactivation of the permit, the completed forms will be retained at the general contractor's office, for a minimum of 3 years.
- If construction activities or design modifications are made to the site plan which could impact stormwater, this SWMP will be amended appropriately. The amended SWMP will have a description of the new activities that contribute to the increased pollutant loading and the planned source control activities.

### **3.2 BMP Replacement and Failed BMPs**

At a minimum, the contractor shall inspect and keep a log of all BMPs on a weekly basis and after a significant precipitation event. BMPs should be assessed by a qualified inspector to determine if new or replacement BMPs are necessary. Where BMPs have failed, the failure must be addressed as soon as possible to minimize discharge of additional pollutants. As new BMPs are installed and/or replaced, this SWMP should be updated to reflect the change(s).

### **3.3 Qualified Inspectors**

Qualified inspectors should be knowledgeable in the principals and practices of erosion and sediment control and should have a good working knowledge of the regulation and BMPs included in this SWMP. Inspectors should also be able to anticipate site conditions and assess BMP functionality that could impact stormwater runoff.

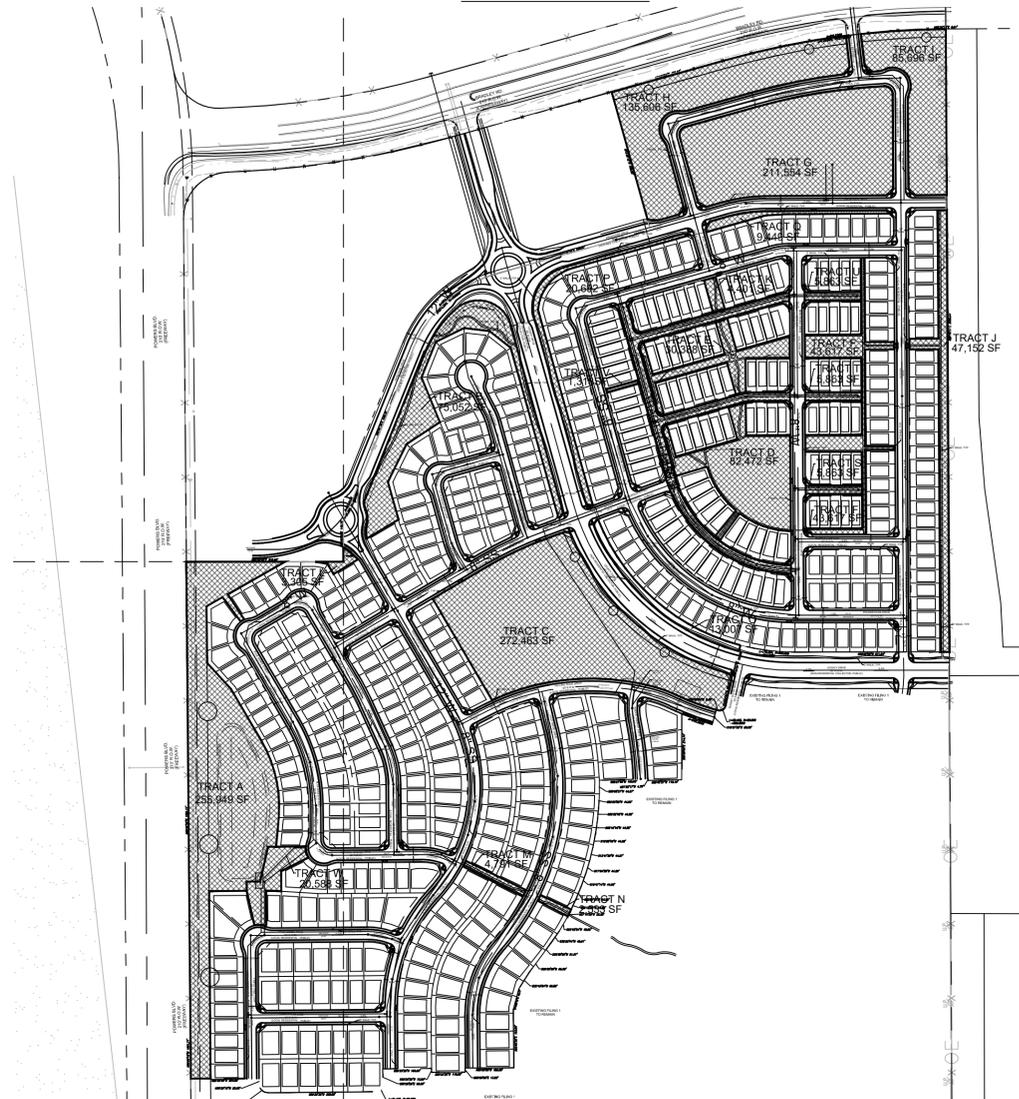
### **3.4 Additional SWMP and BMP Practices**

An employee training program should be developed and implemented to educate employees about the requirements of the SWMP. This education program will include background on the components and goals of the SWMP and hands-on training in erosion controls, spill prevention and response, good housekeeping, proper material handling, disposal and control of waste, equipment fueling, and proper storage, washing, and inspection procedures.

This plan was prepared in accordance with the CDPS General Permit. A copy of this permit is provided in the Attachments.

## **Attachments**

**TRACT MAP**



**TRACT TABLE**

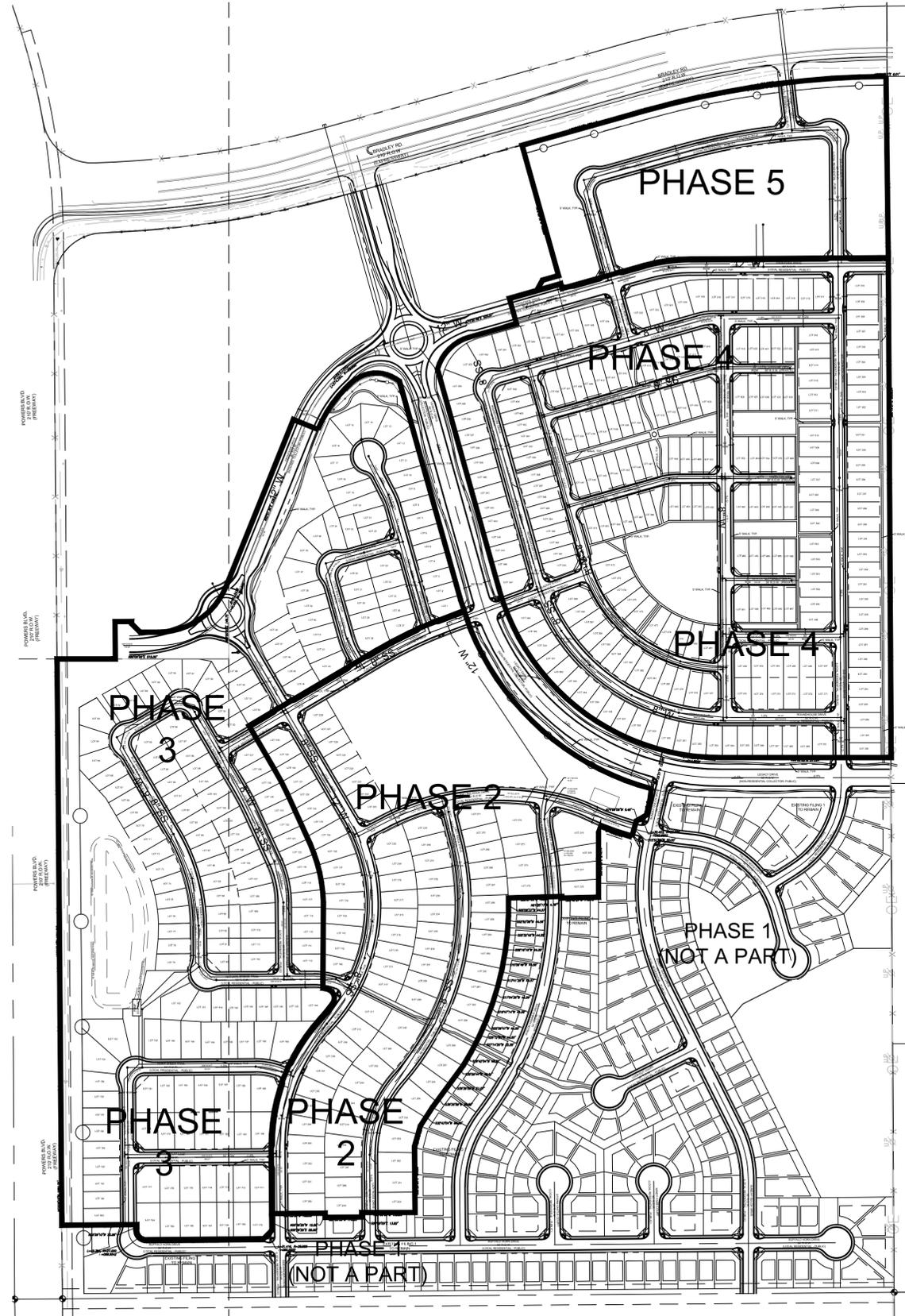
TRACT	SIZE	LANDSCAPE/ PARK OPEN SPACE/ TRAIL	SIGNAGE/ PUBLIC IMPROVEMENTS	DRAINAGE/ DETENTION	PRIVATE DRIVE/ ACCESS ROAD	PUBLIC UTILITIES	FUTURE DEVELOPMENT	WATER PUMP HOUSE FACILITY	OWNED/ MAINTAINED BY
A	255,949 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
B	75,052 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
C	272,463 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
D	82,472 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
E	30,388 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
F	43,617 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
G	211,554 SF	X	X	X		X	X		WATERVIEW II METRO DISTRICT
H	135,606 SF	X	X	X		X	X		WATERVIEW II METRO DISTRICT
I	85,696 SF	X	X	X		X	X		WATERVIEW II METRO DISTRICT
J	47,152 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
K	4,401 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
L	3,305 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
M	4,791 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
N	2,533 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
O	13,007 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
P	20,692 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
Q	9,449 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
R	64,435 SF	X	X	X	X	X			WATERVIEW II METRO DISTRICT
S	5,863 SF	X	X	X	X	X			WATERVIEW II METRO DISTRICT
T	5,863 SF	X	X	X	X	X			WATERVIEW II METRO DISTRICT
U	5,863 SF	X	X	X	X	X			WATERVIEW II METRO DISTRICT
V	1,318 SF	X	X	X		X			WATERVIEW II METRO DISTRICT
W	20,588 SF	X	X	X	X	X		X	WIDEFIELD WATER & SANITATION DISTRICT

TOTAL TRACT AREA: 1,403,674 SF (32.22 AC)

\*X= DENOTES PERMITTED USE WITHIN DESIGNATED TRACTS

TRACTS G, H, & I WILL REQUIRE A FUTURE PUD/ DEVELOPMENT PLAN FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION

**PHASING MAP**



**PHASING PLAN AND SCHEDULE OF DEVELOPMENT:**

1. THE TRAILS AT ASPEN RIDGE IS ILLUSTRATING FOUR PHASES BASED UPON COLLECTOR ROADWAYS AND PRODUCT TYPES.
2. THE PHASING IS BASED UPON ANTICIPATED CONSTRUCTION, SEQUENCING OF ROADS AND UTILITIES; HOWEVER, TRAILS AT ASPEN RANCH MAY BE DEVELOPED INDEPENDENT OF THE PHASING AS OUTLINED PENDING MARKET DEMAND AND ACTUAL CONSTRUCTION SCHEDULES.
3. THE FIRST PHASE OF CONSTRUCTION IS PROJECTED TO BEGIN IN FALL/ WINTER 2019.

**TRAILS AT ASPEN RIDGE**  
EL PASO COUNTY, COLORADO  
**PLANNED UNIT DEVELOPMENT AND PRELIMINARY PLAN**

CONSULTANT:



2435 Research Parkway, Suite 300  
Colorado Springs, CO 80920  
Phone 719-575-0100  
Fax 719-575-0208

CIVIL ENGINEER:

Stantec  
5725 Mark Dabbling Blvd, Suite 190  
Colorado Springs, CO 80919  
Phone 719-227-7388

PROJECT:

TRAILS AT ASPEN RIDGE  
PUD/ SP

EL PASO COUNTY  
FEBRUARY 2019

OWNER:

COLA, LLC  
555 MIDDLE CREEK PKWY, SUITE 380  
COLORADO SPRINGS, CO 80921  
(719) 382-9433

DEVELOPER:

COLA, LLC  
555 MIDDLE CREEK PKWY, SUITE 380  
COLORADO SPRINGS, CO 80921  
(719) 382-9433

PCD FILE:

ISSUE: FEBRUARY, 2019

DRAWING INFORMATION:

PROJECT NO: 19.886.008

DRAWN BY:

CHECKED BY:

APPROVED BY:

SHEET TITLE:

**PUD  
DETAILS**

**P3**

SHEET 3 OF 7

PCD FILE:

## **SWMP Drawings**



**TRAILS AT ASPEN RIDGE**  
EL PASO COUNTY, COLORADO  
**PRE-DEVELOPMENT GRADING & EROSION CONTROL PLAN**

CONSULTANT:  
PLANNER/ LANDSCAPE ARCHITECT:



2435 Research Parkway, Suite 300  
Colorado Springs, CO 80920  
Phone 719-575-0100  
Fax 719-575-0208

CIVIL ENGINEER:  
Stantec  
5725 Mark Dabling Blvd, Suite 190  
Colorado Springs, CO 80919  
Phone 719-227-7388

PROJECT:  
**TRAILS AT ASPEN RIDGE**

EL PASO COUNTY  
AUGUST, 2019

OWNER:  
**COLA, LLC**  
555 MIDDLE CREEK PKWY, SUITE 380  
COLORADO SPRINGS, CO 80921  
(719) 382-9433

DEVELOPER:  
**COLA, LLC**  
555 MIDDLE CREEK PKWY, SUITE 380  
COLORADO SPRINGS, CO 80921  
(719) 382-9433

ISSUE: SEPTEMBER, 2019

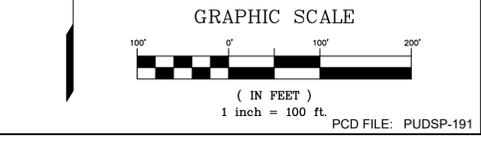
DRAWING INFORMATION:  
PROJECT NO: 19.886.008  
DRAWN BY: LUKE BONNER  
CHECKED BY: NICOLE SCHANEL  
APPROVED BY: NICOLE SCHANEL  
SHEET TITLE:

**GRADING & EROSION CONTROL PLAN**

GEC01  
**SHEET 4 OF 8**

BMP SEQUENCING	
INITIAL	SILT FENCE, CONSTRUCTION FENCE, VEHICLE TRACKING
INTERIM	SEDIMENT CONTROL LOGS, CHECK DAMS, TEMP SEDIMENT BASINS, INLET PROTECTION, STOCKPILES, STAGING
FINAL	EROSION CONTROL BLANKETS, SEEDING & MULCHING

- ECB** EXISTING BMP INSTALLED DURING THE CONSTRUCTION OF FILING NO. 1
- SCL** TEMPORARY DRAINAGE SWALE TO BE CONSTRUCTED BY CONTRACTOR DURING OVERLOT GRADING
- IP** EROSION CONTROL BLANKET
- DS** SEDIMENT CONTROL LOG
- ECB** CHECK DAMS
- SCL** VEHICLE TRACKING CONTROL
- SBB** SEDIMENT BASIN
- VTC** STOCKPILE/STAGING AREA
- SB** INLET PROTECTION
- SP** OUTLET PROTECTION
- IP** PROPOSED CONTOURS
- OP** EXISTING CONTOURS
- 7050** SLOPE DIRECTION
- 4:1** CUT/FILL LINE
- PROPERTY BOUNDARY
- CONSTRUCTION BOUNDARY LINE
- (A)** LOT DRAINS TO STREET
- (B)** LOT DRAINS TO STREET & REAR OF LOT
- (T)** LOT DRAINAGE VARIES
- (G)** GARDEN LEVEL BASEMENT
- (W)** WALK OUT BASEMENT



PCD FILE: PUDSP-191



**TRAILS AT ASPEN RIDGE**  
EL PASO COUNTY, COLORADO  
**PRE-DEVELOPMENT GRADING & EROSION CONTROL PLAN**

CONSULTANT:  
PLANNER/ LANDSCAPE ARCHITECT:



2435 Research Parkway, Suite 300  
Colorado Springs, CO 80920  
Phone 719-575-0100  
Fax 719-575-0208

CIVIL ENGINEER:  
Stantec  
5725 Mark Dabling Blvd, Suite 190  
Colorado Springs, CO 80919  
Phone 719-227-7388

PROJECT:  
**TRAILS AT ASPEN RIDGE**

EL PASO COUNTY  
AUGUST, 2019

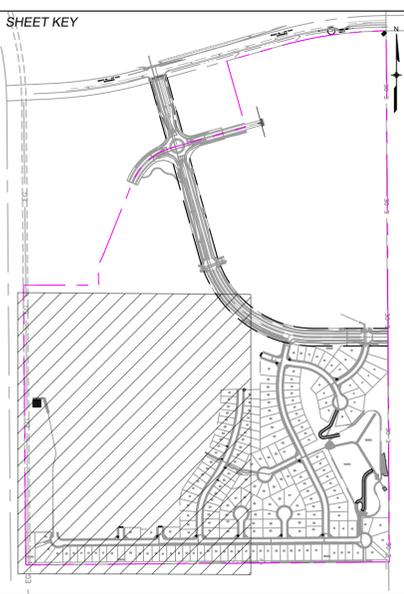
OWNER:  
**COLA, LLC**  
555 MIDDLE CREEK PKWY, SUITE 380  
COLORADO SPRINGS, CO 80921  
(719) 382-9433

DEVELOPER:  
**COLA, LLC**  
555 MIDDLE CREEK PKWY, SUITE 380  
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ISSUE: SEPTEMBER, 2019

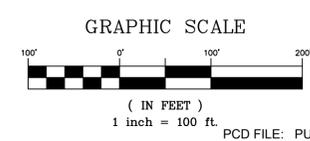
DRAWING INFORMATION:  
PROJECT NO: 19.886.008  
DRAWN BY: LUKE BONNER  
CHECKED BY: NICOLE SCHANEL  
APPROVED BY: NICOLE SCHANEL  
SHEET TITLE:

**GRADING & EROSION CONTROL PLAN**  
**GEC02**  
**SHEET 5 OF 8**

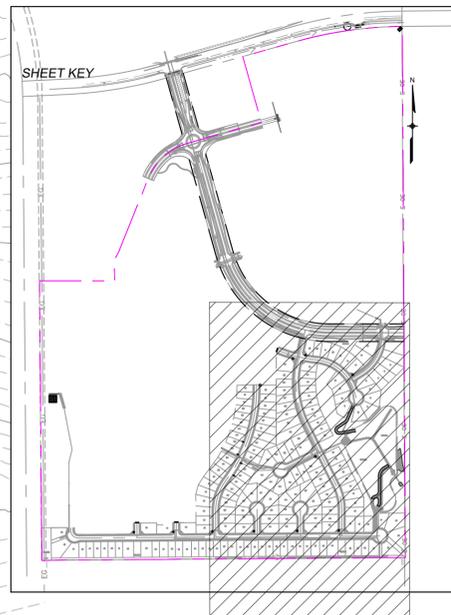
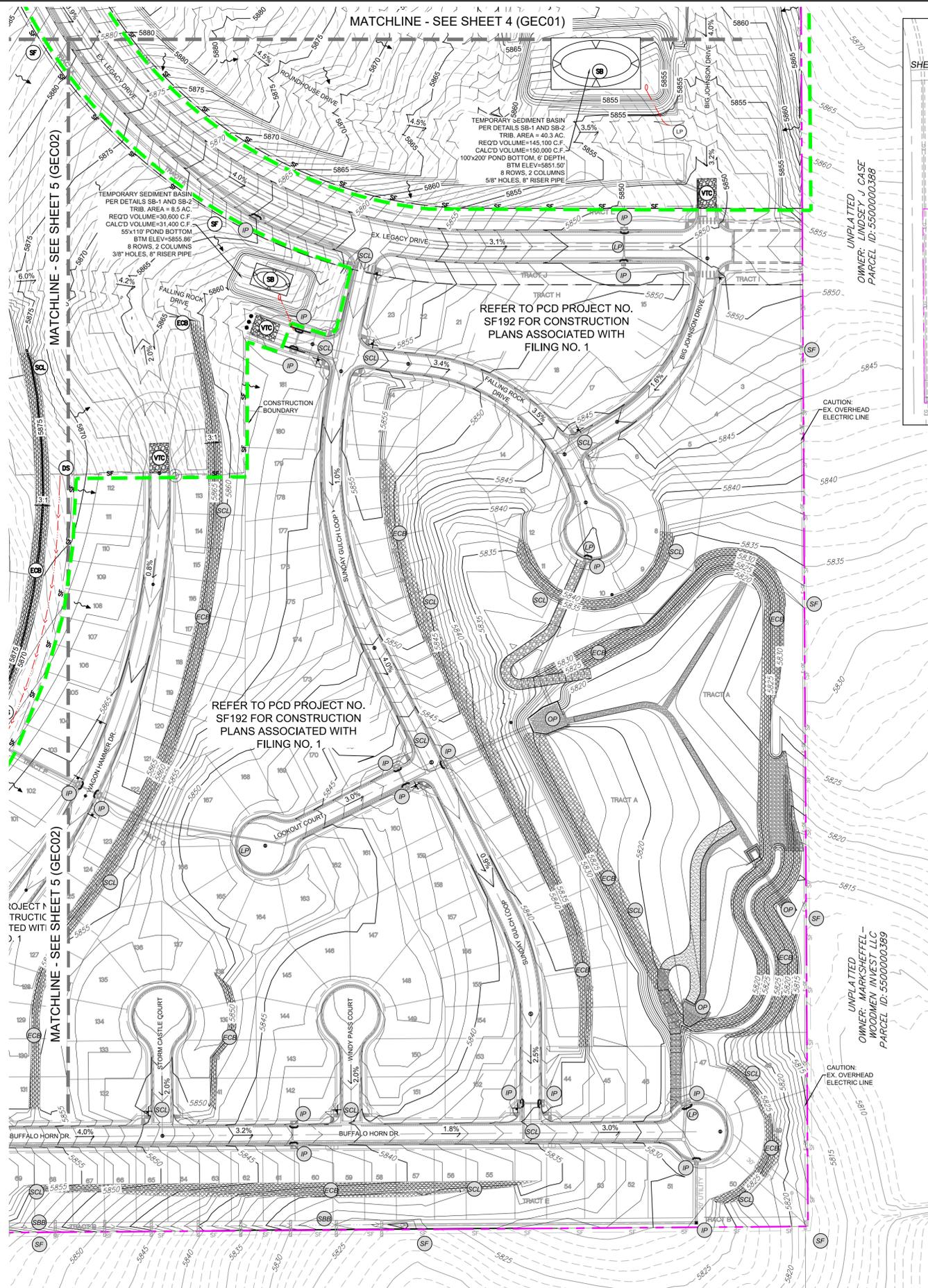


BMP SEQUENCING	
INITIAL	SILT FENCE, CONSTRUCTION FENCE, VEHICLE TRACKING
INTERIM	SEDIMENT CONTROL LOGS, CHECK DAMS, TEMP SEDIMENT BASINS, INLET PROTECTION, STOCKPILES, STAGING
FINAL	EROSION CONTROL BLANKETS, SEEDING & MULCHING

- EXISTING BMP INSTALLED DURING THE CONSTRUCTION OF FILING NO. 1
- TEMPORARY DRAINAGE SWALE TO BE CONSTRUCTED BY CONTRACTOR DURING OVERLOT GRADING
- EROSION CONTROL BLANKET
- SEDIMENT CONTROL LOG
- STRAW BALE BARRIER
- VEHICLE TRACKING CONTROL
- SEDIMENT BASIN
- CONTRACTOR TO COORDINATE LOCATIONS OF CONCRETE WASHOUTS, STOCKPILES, AND STAGING AREAS WITH ADJACENT TRAILS AT ASPEN RIDGE FILINGS
- INLET PROTECTION
- OUTLET PROTECTION
- PROPOSED CONTOURS
- EXISTING CONTOURS
- SLOPE DIRECTION
- LIMITS OF DISTURBANCE & CONSTRUCTION SITE BOUNDARY
- CONSTRUCTION SITE BOUNDARY
- 100-YR FLOODPLAIN
- STREAMSIDE OVERLAY
- PROPERTY LINE
- CUT/FILL LINE
- PROPERTY BOUNDARY
- CONSTRUCTION BOUNDARY LINE
- LOT DRAINS TO STREET
- LOT DRAINS TO STREET & REAR OF LOT
- LOT DRAINAGE VARIES
- GARDEN LEVEL BASEMENT
- WALK OUT BASEMENT



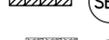
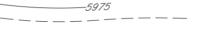
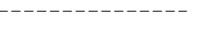
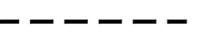
PCD FILE: PUDSP-191



BMP SEQUENCING	
INITIAL	SILT FENCE, CONSTRUCTION FENCE, VEHICLE TRACKING
INTERIM	SEDIMENT CONTROL LOGS, CHECK DAMS, TEMP SEDIMENT BASINS, INLET PROTECTION, STOCKPILES, STAGING
FINAL	EROSION CONTROL BLANKETS, SEEDING & MULCHING



Know what's below.  
Call before you dig.

-    EXISTING BMP INSTALLED DURING THE CONSTRUCTION OF FILING NO. 1
-  TEMPORARY DRAINAGE SWALE TO BE CONSTRUCTED BY CONTRACTOR DURING OVERLOT GRADING
-  EROSION CONTROL BLANKET
-  TEMPORARY MULCHING AND SEEDING
-  SEDIMENT CONTROL LOG
-  STRAW BALE BARRIER
-  VEHICLE TRACKING CONTROL
-  SEDIMENT BASIN
-  CONTRACTOR TO COORDINATE LOCATIONS OF CONCRETE WASHOUTS, STOCKPILES, AND STAGING AREAS WITH ADJACENT TRAILS AT ASPEN RIDGE FILINGS
-  INLET PROTECTION
-  OUTLET PROTECTION
-  PROPOSED CONTOURS
-  EXISTING CONTOURS
-  SLOPE DIRECTION
-  LIMITS OF DISTURBANCE & CONSTRUCTION SITE BOUNDARY
-  CONSTRUCTION SITE BOUNDARY
-  100-YR FLOODPLAIN
-  STREAMSIDE OVERLAY
-  PROPERTY LINE
-  CUT/FILL LINE
-  PROPERTY BOUNDARY
-  CONSTRUCTION BOUNDARY LINE
-  (A) LOT DRAINS TO STREET
-  (B) LOT DRAINS TO STREET & REAR OF LOT
-  (T) LOT DRAINAGE VARIES
-  (G) GARDEN LEVEL BASEMENT
-  (W) WALK OUT BASEMENT



GRAPHIC SCALE



( IN FEET )  
1 inch = 100 ft.

**TRAILS AT ASPEN RIDGE**  
EL PASO COUNTY, COLORADO  
**PRE-DEVELOPMENT GRADING & EROSION CONTROL PLAN**

CONSULTANT:  
PLANNER/ LANDSCAPE ARCHITECT:  
**Matrix**  
DESIGN GROUP  
2435 Research Parkway, Suite 300  
Colorado Springs, CO 80920  
Phone 719-575-0100  
Fax 719-575-0208

CIVIL ENGINEER:  
Stantec  
5725 Mark Dabling Blvd, Suite 190  
Colorado Springs, CO 80919  
Phone 719-227-7388

PROJECT:  
**TRAILS AT ASPEN RIDGE**

EL PASO COUNTY  
AUGUST, 2019

OWNER:  
**COLA, LLC**  
555 MIDDLE CREEK PKWY, SUITE 380  
COLORADO SPRINGS, CO 80921  
(719) 382-9433

DEVELOPER:  
**COLA, LLC**  
555 MIDDLE CREEK PKWY, SUITE 380  
COLORADO SPRINGS, CO 80921  
(719) 382-9433

ISSUE: SEPTEMBER, 2019

DRAWING INFORMATION:  
PROJECT NO: 19.886.008  
DRAWN BY: LUKE BONNER  
CHECKED BY: NICOLE SCHANEL  
APPROVED BY: NICOLE SCHANEL  
SHEET TITLE:

**GRADING & EROSION CONTROL PLAN**

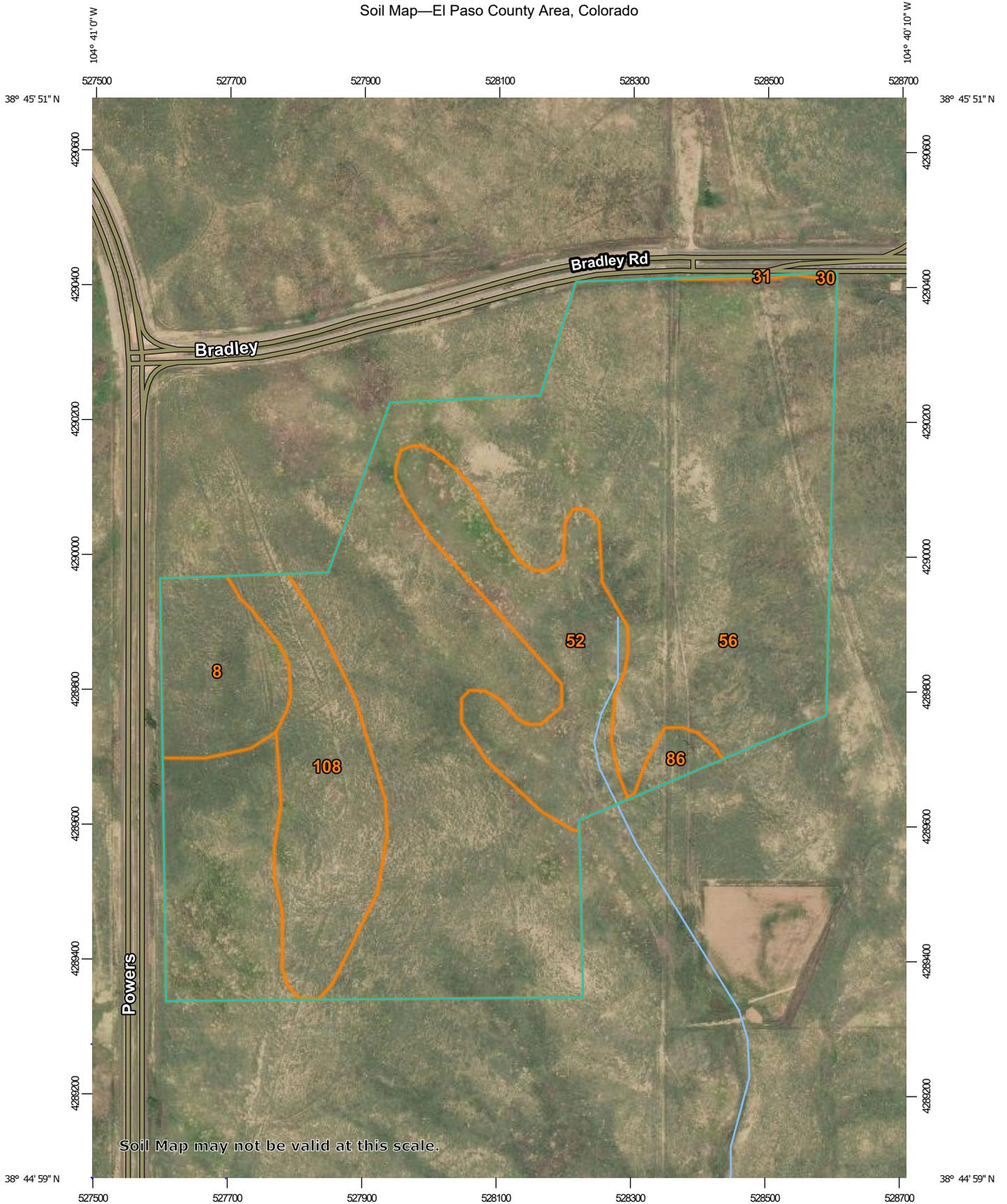
**GEC03**  
**SHEET 6 OF 8**

## **SWMP Inspection & Maintenance Log**



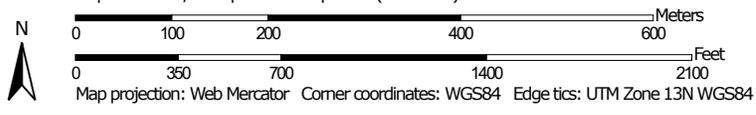
# **Soil Survey of El Paso County Area Soils Map**

Soil Map—El Paso County Area, Colorado



Soil Map may not be valid at this scale.

Map Scale: 1:7,810 if printed on A portrait (8.5" x 11") sheet.



### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

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

**Background**

 Aerial Photography

### MAP INFORMATION

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

**Warning:** Soil Map may not be valid at this scale.  
 Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado  
 Survey Area Data: Version 16, Sep 10, 2018

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

Date(s) aerial images were photographed: Apr 12, 2017—Nov 17, 2017

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	10.6	5.7%
30	Fort Collins loam, 0 to 3 percent slopes	0.1	0.1%
31	Fort Collins loam, 3 to 8 percent slopes	0.1	0.1%
52	Manzanst clay loam, 0 to 3 percent slopes	20.4	10.9%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	135.9	72.6%
86	Stoneham sandy loam, 3 to 8 percent slopes	1.7	0.9%
108	Wiley silt loam, 3 to 9 percent slopes	18.2	9.7%
<b>Totals for Area of Interest</b>		<b>187.1</b>	<b>100.0%</b>

## 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:* 85 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Blakeland

##### Setting

*Landform:* Hills, flats

*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

*Natural 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 in profile:* 5 percent

*Available water storage in profile:* Low (about 4.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* A

*Ecological site:* Sandy Foothill (R049BY210CO)

*Hydric soil rating:* No

### **Minor Components**

#### **Other soils**

*Percent of map unit:*

*Hydric soil rating:* No

#### **Pleasant**

*Percent of map unit:*

*Landform:* Depressions

*Hydric soil rating:* Yes

## **Data Source Information**

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 16, Sep 10, 2018

## El Paso County Area, Colorado

### 52—Manzanst clay loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2w4nr

*Elevation:* 4,060 to 6,660 feet

*Mean annual precipitation:* 14 to 16 inches

*Mean annual air temperature:* 50 to 54 degrees F

*Frost-free period:* 130 to 170 days

*Farmland classification:* Prime farmland if irrigated

#### Map Unit Composition

*Manzanst and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Manzanst

##### Setting

*Landform:* Terraces, drainageways

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear, concave

*Parent material:* Clayey alluvium derived from shale

##### Typical profile

*A - 0 to 3 inches:* clay loam

*Bt - 3 to 12 inches:* clay

*Btk - 12 to 37 inches:* clay

*Bk1 - 37 to 52 inches:* clay

*Bk2 - 52 to 79 inches:* clay

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 15 percent

*Gypsum, maximum in profile:* 3 percent

*Salinity, maximum in profile:* Slightly saline (4.0 to 7.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 10.0

*Available water storage in profile:* High (about 9.0 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 4c

*Hydrologic Soil Group:* C  
*Ecological site:* Saline Overflow (R067BY037CO)  
*Hydric soil rating:* No

### **Minor Components**

#### **Ritoazul**

*Percent of map unit:* 7 percent  
*Landform:* Drainageways, interfluves  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* Clayey Plains (R067BY042CO)  
*Hydric soil rating:* No

#### **Arvada**

*Percent of map unit:* 6 percent  
*Landform:* Interfluves, drainageways  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* Salt Flat (R067XY033CO)  
*Hydric soil rating:* No

#### **Wiley**

*Percent of map unit:* 2 percent  
*Landform:* Interfluves  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* Loamy Plains (R067BY002CO)  
*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: El Paso County Area, Colorado  
Survey Area Data: Version 16, Sep 10, 2018

## El Paso County Area, Colorado

### 56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes

#### Map Unit Setting

*National map unit symbol:* 3690

*Elevation:* 5,600 to 6,400 feet

*Mean annual precipitation:* 12 to 14 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 155 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Nelson and similar soils:* 45 percent

*Tassel and similar soils:* 30 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Nelson

##### Setting

*Landform:* Hills

*Landform position (three-dimensional):* Crest, side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Calcareous residuum weathered from interbedded sedimentary rock

##### Typical profile

*A - 0 to 5 inches:* fine sandy loam

*Ck - 5 to 23 inches:* fine sandy loam

*Cr - 23 to 27 inches:* weathered bedrock

##### Properties and qualities

*Slope:* 3 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock

*Natural drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately low to high (0.06 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 10 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water storage in profile:* Very low (about 2.8 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 4e

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* B

*Ecological site:* Shaly Plains (R067BY045CO)  
*Other vegetative classification:* SHALY PLAINS (069AY046CO)  
*Hydric soil rating:* No

### **Description of Tassel**

#### **Setting**

*Landform:* Hills  
*Landform position (three-dimensional):* Crest, side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Calcareous slope alluvium over residuum  
weathered from sandstone

#### **Typical profile**

*A - 0 to 4 inches:* fine sandy loam  
*C - 4 to 10 inches:* fine sandy loam  
*Cr - 10 to 14 inches:* weathered bedrock

#### **Properties and qualities**

*Slope:* 3 to 18 percent  
*Depth to restrictive feature:* 6 to 20 inches to paralithic bedrock  
*Natural drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):*  
Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 10 percent  
*Available water storage in profile:* Very low (about 1.2 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* Shaly Plains (R067BY045CO)  
*Other vegetative classification:* SHALY PLAINS (069AY046CO)  
*Hydric soil rating:* No

### **Minor Components**

#### **Other soils**

*Percent of map unit:*  
*Hydric soil rating:* No

#### **Pleasant**

*Percent of map unit:*  
*Landform:* Depressions

*Hydric soil rating:* Yes

## **Data Source Information**

Soil Survey Area: El Paso County Area, Colorado  
Survey Area Data: Version 16, Sep 10, 2018

## El Paso County Area, Colorado

### 108—Wiley silt loam, 3 to 9 percent slopes

#### Map Unit Setting

*National map unit symbol:* 367b  
*Elevation:* 5,200 to 6,200 feet  
*Mean annual precipitation:* 12 to 14 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 155 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Wiley and similar soils:* 85 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Wiley

##### Setting

*Landform:* Hills  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Calcareous silty eolian deposits

##### Typical profile

*A - 0 to 4 inches:* silt loam  
*Bt - 4 to 16 inches:* silt loam  
*Bk - 16 to 60 inches:* silt loam

##### Properties and qualities

*Slope:* 3 to 9 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):*  
Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 15 percent  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water storage in profile:* High (about 11.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 4e  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* B  
*Ecological site:* Loamy Plains (R067BY002CO)  
*Other vegetative classification:* LOAMY PLAINS (069AY006CO)

*Hydric soil rating:* No

**Minor Components**

**Other soils**

*Percent of map unit:*

*Hydric soil rating:* No

**Pleasant**

*Percent of map unit:*

*Landform:* Depressions

*Hydric soil rating:* Yes

**Data Source Information**

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 16, Sep 10, 2018

## El Paso County Area, Colorado

### 86—Stoneham sandy loam, 3 to 8 percent slopes

#### Map Unit Setting

*National map unit symbol:* 36b2

*Elevation:* 5,100 to 6,500 feet

*Mean annual precipitation:* 13 to 15 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 155 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Stoneham and similar soils:* 85 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Stoneham

##### Setting

*Landform:* Hills

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Calcareous loamy alluvium

##### Typical profile

*A - 0 to 4 inches:* sandy loam

*Bt - 4 to 8 inches:* sandy clay loam

*Btk - 8 to 11 inches:* sandy clay loam

*Ck - 11 to 60 inches:* loam

##### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately high to high (0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 15 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water storage in profile:* High (about 9.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* B

*Ecological site:* Sandy Plains (R067BY024CO)

*Other vegetative classification:* SANDY PLAINS (069AY026CO)

*Hydric soil rating:* No

**Minor Components**

**Other soils**

*Percent of map unit:*

*Hydric soil rating:* No

**Pleasant**

*Percent of map unit:*

*Landform:* Depressions

*Hydric soil rating:* Yes

**Data Source Information**

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 16, Sep 10, 2018

# **FEMA FIRM Floodplain Maps**

**NOTES TO USERS**

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services  
 NOAA, NINGS12  
 National Geodetic Survey  
 SSMC-3, #9202  
 1315 East-West Highway  
 Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov/>.

**Base Map** information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, and Anderson Consulting Engineers, Inc. These data are current as of 2008.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

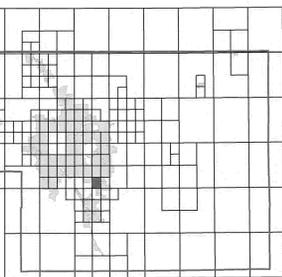
Contact **FEMA Map Service Center (MSC)** via the FEMA Map Information eXchange (FIMX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at <http://www.msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfp>.

**El Paso County Vertical Datum Offset Table**

Flooding Source	Vertical Datum Offset (ft)
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION	

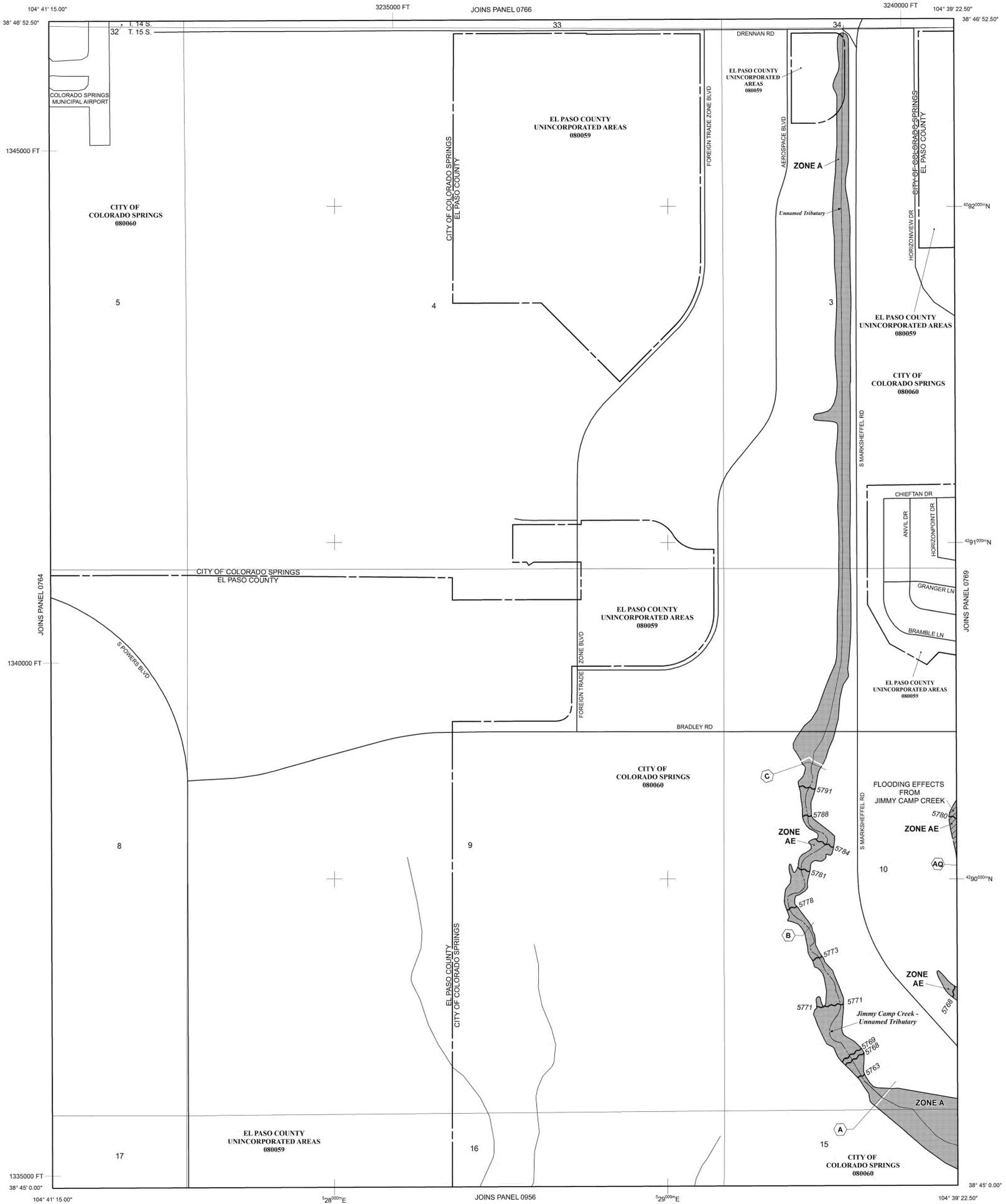
**Panel Location Map**



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).



Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 14 SOUTH, RANGE 65 WEST, AND TOWNSHIP 15 SOUTH, RANGE 65 WEST.

**LEGEND**

**SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently decreed. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**  
 The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**  
**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

**OTHER AREAS**  
**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.  
**ZONE D** Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**  
**OTHERWISE PROTECTED AREAS (OPAs)**

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D Boundary
- CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.  
 (EL 987)  
 Base Flood Elevation line and value; elevation in feet\*  
 Base Flood Elevation value where uniform within zone; elevation in feet\*

\* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- Cross section line
- Transsect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid ticks, zone 13

5000-foot grid ticks; Colorado State Plane coordinate system, central zone (FIPSZONE 0902), Lambert Conformal Conic Projection

Bench mark (see explanation in Notes to Users section of this FIRM panel)

River Mile

**MAP REPOSITORIES**  
 Refer to Map Repositories list on Map Index

**EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP**  
 MARCH 17, 1997

**EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL**  
 DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

**MAP SCALE 1" = 500'**

250 0 500 1000 FEET  
 150 0 150 300 METERS

**NFP**

**PANEL 0768G**

**FIRM**

**FLOOD INSURANCE RATE MAP**

**EL PASO COUNTY, COLORADO AND INCORPORATED AREAS**

**PANEL 768 OF 1300**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS**

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0768	G
EL PASO COUNTY	080059	0768	G

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER 08041C0768G**

**MAP REVISED DECEMBER 7, 2018**

**Federal Emergency Management Agency**

## **CDPHE General Permit**

# STATE OF COLORADO

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.  
Denver, Colorado 80246-1530  
Phone (303) 692-2000  
TDD Line (303) 691-7700  
Located in Glendale, Colorado  
<http://www.cdph.state.co.us>



Colorado Department  
of Public Health  
and Environment

For Agency Use Only
Permit Number Assigned
COR03- _____
Date Received ____/____/____
Month Day Year

## COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

### STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES APPLICATION

**PHOTO COPIES, FAXED COPIES, PDF COPIES OR EMAILS WILL NOT BE ACCEPTED.**

**Please print or type. Original signatures are required.** All items must be completed accurately and in their entirety for the application to be deemed complete. Incomplete applications will not be processed until all information is received which will ultimately delay the issuance of a permit. If more space is required to answer any question, please attach additional sheets to the application form. Applications must be submitted by mail or hand delivered to:

**Colorado Department of Public Health and Environment**  
**Water Quality Control Division**  
**4300 Cherry Creek Drive South**  
**WQCD-P-B2**  
**Denver, Colorado 80246-1530**

Any additional information that you would like the Division to consider in developing the permit should be provided with the application. Examples include effluent data and/or modeling and planned pollutant removal strategies.

#### PERMIT INFORMATION

Reason for Application:  NEW CERT  
 RENEW CERT    EXISTING CERT # \_\_\_\_\_

Applicant is:  Property Owner  Contractor/Operator

#### A. CONTACT INFORMATION - NOT ALL CONTACT TYPES MAY APPLY \* indicates required

**\*PERMITTEE (If more than one please add additional pages)**

**\*ORGANIZATION FORMAL NAME:** \_\_\_\_\_

1) **\*PERMITTEE** the person **authorized to sign and certify** the permit application. This person receives all permit correspondences and is **legally responsible** for compliance with the permit.

Responsible Position (Title): \_\_\_\_\_

Currently Held By (Person): \_\_\_\_\_

Telephone No: \_\_\_\_\_

email address \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**This form must be signed by the Permittee (listed in item 1) to be considered complete.**

**Per Regulation 61 In all cases,** it shall be signed as follows:

- a) In the case of corporations, by a responsible corporate officer. For the purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the application originates.
- b) In the case of a partnership, by a general partner.
- c) In the case of a sole proprietorship, by the proprietor.
- d) In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official

2) **DMR COGNIZANT OFFICIAL (i.e. authorized agent)** the person or position authorized to **sign and certify reports required by the Division** including Discharge Monitoring Reports \*DMR's, Annual Reports, Compliance Schedule submittals, and other information requested by the Division. The Division will transmit pre-printed reports (ie. DMR's) to this person. If more than one, please add additional pages. Same As 1) Permittee

Responsible Position (Title): \_\_\_\_\_

Currently Held By (Person): \_\_\_\_\_

Telephone No: \_\_\_\_\_

email address \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**Per Regulation 61** : All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(i) The authorization is made in writing by the permittee

(ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a **named individual** or any individual occupying a **named position**); and

(iii) The written authorization is submitted to the Division

3) **\*SITE CONTACT** local contact for questions relating to the facility & discharge authorized by this permit for the facility.

Same As 1) Permittee

Responsible Position (Title): \_\_\_\_\_

Currently Held By (Person): \_\_\_\_\_

Telephone No: \_\_\_\_\_

email address \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

4) **\* BILLING CONTACT** if different than the permittee

Responsible Position (Title): \_\_\_\_\_

Currently Held By (Person): \_\_\_\_\_

Telephone No: \_\_\_\_\_

email address \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

5) OTHER CONTACT TYPES (check below) Add pages if necessary:

Responsible Position (Title): \_\_\_\_\_

Currently Held By (Person): \_\_\_\_\_

Telephone No: \_\_\_\_\_

email address \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

- Pretreatment Coordinator
- Environmental Contact
- Biosolids Responsible Party
- Property Owner
- Inspection Facility Contact
- Consultant
- Compliance Contact
- Stormwater MS4 Responsible Person
- Stormwater Authorized Representative
- Other \_\_\_\_\_

B. Permitted Project/Facility Information

Project/Facility Name \_\_\_\_\_

Street Address or cross streets \_\_\_\_\_

(e.g., "S. of Park St. between 5<sup>th</sup> Ave. and 10<sup>th</sup> Ave.", or "W. side of C.R. 21, 3.25 miles N. of Hwy 10"; A street name without an address, intersection, mile marker, or other identifying information describing the location of the project is not adequate. For **linear projects**, the route of the project should be described as best as possible with the location more accurately indicated by a map.)

City, \_\_\_\_\_ Zip Code \_\_\_\_\_ County \_\_\_\_\_

Facility Latitude/Longitude— (approximate center of site to nearest 15 seconds using one of following formats

001A Latitude \_\_\_\_\_ . \_\_\_\_\_ Longitude \_\_\_\_\_ . \_\_\_\_\_ (e.g., 39.703°, 104.933°)  
degrees (to 3 decimal places) degrees (to 3 decimal places)

or

001A Latitude \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " Longitude \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " (e.g., 39°46'11"N, 104°53'11"W)  
degrees minutes seconds degrees minutes seconds

For the approximate center point of the property, to the nearest 15 seconds. The latitude and longitude must be provided as either degrees, minutes, and seconds, or in decimal degrees with three decimal places. This information may be obtained from a variety of sources, including:

- Surveyors or engineers for the project should have, or be able to calculate, this information.
- EPA maintains a **web-based siting tool** as part of their Toxic Release Inventory program that uses interactive maps and aerial photography to help users get latitude and longitude. The siting tool can be accessed at [www.epa.gov/tri/report/siting\\_tool/index.htm](http://www.epa.gov/tri/report/siting_tool/index.htm)
- U.S. Geological Survey **topographical map(s)**, available at area map stores.
- Using a **Global Positioning System (GPS) unit** to obtain a direct reading.

**Note:** the latitude/longitude required above is not the directional degrees, minutes, and seconds provided on a site legal description to define property boundaries.

C. MAP (Attachment) If no map is submitted, the permit will not be issued.

**Map:** Attach a map that indicates the site location and that CLEARLY shows the boundaries of the area that will be disturbed. Maps must be **no larger** than 11x17 inches.

D. LEGAL DESCRIPTION

**Legal description:** If subdivided, provide the legal description below, or indicate that it is not applicable (**do not** supply Township/Range/Section or metes and bounds description of site)

Subdivision(s): \_\_\_\_\_ Lot(s): \_\_\_\_\_ Block(s): \_\_\_\_\_

OR

- Not applicable (site has not been subdivided)

## E. AREA OF CONSTRUCTION SITE

---

Total area of project site (acres): \_\_\_\_\_ Area of project site to undergo disturbance (acres): \_\_\_\_\_

**Note:** aside from clearing, grading and excavation activities, disturbed areas also include areas receiving overburden (e.g., stockpiles), demolition areas, and areas with heavy equipment/vehicle traffic and storage that disturb existing vegetative cover

Total disturbed area of Larger Common Plan of Development or Sale, if applicable: \_\_\_\_\_  
(i.e., total, including all phases, filings, lots, and infrastructure not covered by this application)

Provide both the total area of the construction site, and the area that will undergo disturbance, in acres. **Note:** aside from clearing, grading and excavation activities, disturbed areas also include areas receiving overburden (e.g., stockpiles), demolition areas, and areas with heavy equipment/vehicle traffic and storage that disturb existing vegetative cover (see construction activity description under the APPLICABILITY section on page 1).

If the project is part of a **larger common plan of development or sale** (see the definition under the APPLICABILITY section on page 1), the disturbed area of the total plan must also be included.

## F. NATURE OF CONSTRUCTION ACTIVITY

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Check the appropriate box(s) or provide a brief description that indicates the general nature of the construction activities. (The full description of activities must be included in the Stormwater Management Plan.)

- Single Family Residential Development
  - Multi-Family Residential Development
  - Commercial Development
  - Oil and Gas Production and/or Exploration (including pad sites and associated infrastructure)
  - Highway/Road Development (not including roadways associated with commercial or residential development)
  - Other – Description:
- 

## G. ANTICIPATED CONSTRUCTION SCHEDULE

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Construction Start Date: \_\_\_\_\_ Final Stabilization Date: \_\_\_\_\_

- **Construction Start Date** - This is the day you expect to begin ground disturbing activities, including grubbing, stockpiling, excavating, demolition, and grading activities.
- **Final Stabilization Date** - in terms of permit coverage, this is when the site is finally stabilized. This means that all ground surface disturbing activities at the site have been completed, and all disturbed areas have been either built on, paved, or a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels. **Permit coverage must be maintained until the site is finally stabilized. Even if you are only doing one part of the project, the estimated final stabilization date must be for the overall project.** If permit coverage is still required once your part is completed, the permit certification may be transferred or reassigned to a new responsible entity(s).

## H. RECEIVING WATERS (If discharge is to a ditch or storm sewer, include the name of the ultimate receiving waters)

Immediate Receiving Water(s): \_\_\_\_\_

Ultimate Receiving Water(s): \_\_\_\_\_

Identify the receiving water of the stormwater from your site. Receiving waters are any waters of the State of Colorado. This includes all water courses, even if they are usually dry. If stormwater from the construction site enters a ditch or storm sewer system, identify that system and indicate the ultimate receiving water for the ditch or storm sewer. **Note:** a stormwater discharge permit does not allow a discharge into a ditch or storm sewer system without the approval of the owner/operator of that system.

**I. REQUIRED SIGNATURES (Both parts i. and ii. must be signed)**

**Signature of Applicant:** The applicant must be either the owner and/or operator of the construction site. Refer to Part B of the instructions for additional information.

The application must be signed by the applicant to be considered complete. In all cases, it shall be signed as follows: (Regulation 61.4 (1e))

- a) In the case of corporations, by the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the form originates
- b) In the case of a partnership, by a general partner.
- c) In the case of a sole proprietorship, by the proprietor.
- d) In the case of a municipal, state, or other public facility, by either a principal executive officer, ranking elected official, (a principal executive officer has responsibility for the overall operation of the facility from which the discharge originates).

**STOP!: A Stormwater Management Plan must be completed prior to signing the following certifications!**

**i. STORMWATER MANAGEMENT PLAN CERTIFICATION**

"I certify under penalty of law that a complete Stormwater Management Plan, has been prepared for my activity. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations."

XX

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Signature of Legally Responsible Person or Authorized Agent (submission must include original signature)	Date Signed
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Name (printed)	Title
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**ii. SIGNATURE OF PERMIT LEGAL CONTACT**

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I understand that submittal of this application is for coverage under the State of Colorado General Permit for Stormwater Discharges Associated with Construction Activity **for the entirety of the construction site/project described and applied for, until such time as the application is amended or the certification is transferred, inactivated, or expired.**"

XX

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Signature of Legally Responsible Person (submission must include original signature)	Date Signed
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Name (printed)	Title
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**DO NOT INCLUDE A COPY OF THE STORMWATER MANAGEMENT PLAN  
DO NOT INCLUDE PAYMENT – AN INVOICE WILL BE SENT AFTER THE CERTIFICATION IS ISSUED.**