



**STORMWATER MANAGEMENT PLAN
FOR
PINE VIEW ESTATES FILING NO. 1**

November 2020

Prepared for:

COLORADO DEPARTMENT PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION-STORMWATER PROGRAM
WQCD-Permits-B2
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Catamount Engineering Job 18-158

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Pine View Estates Filing No. 1

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APPENDIX

- Vicinity Map
- General Permit Application
- Recommended BMP Maintenance Inspection Checklist
- Sample Spill Response Plan & Spill Report Form
- Federal, State, or Local Storm water or other Environmental Inspector Site Visit Log
- Details & Drawings
 - Silt Fence*
 - Concrete Wash-out Detail*
 - Stabilized Staging Area*
 - Stockpile Management*
 - Straw Bale Barrier*
 - Port-o-Let Detail*
 - Vehicle Tracking Control Pad*

STORMWATER MANAGEMENT PLAN

Pine View Estates Filing No. 1

PURPOSE

The following storm water management plan (SWMP) is a detailed account of the requirements for the CDPS permit. The primary objective of this plan is to prevent storm water contamination during construction activity.

It is estimated that clearing, grading, roadway construction will impact 3.5 acres of the 38.8 acre site. Grading operations will require approximately 1,360 CY of earth be moved. Grading operations will commence in Fall 2020 with final site stabilization proposed in Fall 2021.

This document must be kept at the construction site at all times; and be made available to the public and any representative of the Colorado Department of Health - Water Quality Control Division or El Paso County Representative, if requested.

The Grading & Erosion Control Plans are considered part of this SWMP and are included in the appendix. These plans shall be kept at the site at all times. Modifications to the erosion control plan may be necessary occasionally based on site inspections. Any additions or deletions of erosion control measures should be documented on the site copy of the Grading & Erosion Control Plans.

Due to large lot zoning with minimal infrastructure development the project will change rational method C₅ values from 0.09 (agricultural) to 0.12 (weighted average) and C₁₀₀ values from 0.36 (agricultural) to 0.39 (weighted average).

No on-site batch plant is proposed with the development. There is no dewatering operation anticipated to take place within the construction site area of the gravel road.

SITE DESCRIPTION

The subject 38.8 acres consists of unplatted land to be developed into 7 rural residential lots with associated street. The parcel is located on a portion of the west 1/2 of Section 13, Township 11 South, Range 64 West of the 6th principal meridian in unincorporated El Paso County.

The parcel is bounded to the north and west by unplatted land zoned A-35 and to the east and south by platted RR-5 residential lots.

Using Google aerial photos and drive-by images, it is estimated that the site is vegetated with native grasses and occasional trees with an area of coverage rate of approximately 80%. Existing soils on the site consist of Brussett loam, hydrologic soil group B (84%), and Peyton -Pring complex, hydrologic soil group B (16%) as determined by the Natural Resources Conservation Service Web Soil Survey. The site is located on a ridge within the Bijou Creek drainage. The westerly portion of the parcel sheet flows west to an unnamed tributary of West Bijou Creek within the adjacent agriculturally zoned unplatted parcel at slopes between 2% and 6%. The

Item 8 - discuss soil erosion potential

SOIL DISCUSSION ADDED

southeasterly portion of the parcel sheet flows east to an unnamed tributary of West Bijou Creek within adjacent 5-acre residential parcels at slopes between 2% and 5%. The northeasterly portion of the parcel sheet flows north at slopes between 2% and 5% through a historic stock pond and continues north to an unnamed tributary of West Bijou Creek. The site is located within the West Bijou Creek Basin and outfalls to West Bijou Creek. There is no stream crossing within the project area.

FLOODPLAIN STATEMENT

The site lies within a F.E.M.A. Zone X designated area per FIRM 08041C0350 G, effective December 7, 2018.

BASIC GRADING, EROSION AND STORMWATER QUALITY REQUIREMENTS AND GENERAL PROHIBITIONS

*Information taken from the City of Colorado Springs/ El Paso County Drainage Criteria Manual Volume 2, herein referred to as the "Manual."

1. Storm water discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters.
2. Concrete wash water shall not be discharged to or allowed to runoff to the Municipal Separate Sewer System (MS4).
3. Building, construction, excavation, or other waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. BMPs may be required by the MS4 Permittee if deemed necessary, based on specific conditions and circumstances (e.g., estimated time of exposure, season of the year, etc.).
4. Vehicle tracking of soils off-site shall be minimized.
5. All wastes composed of building materials must be removed from the construction site for disposal in accordance with local and state regulatory requirements. No building material wastes or unused building materials shall be buried, dumped, or discharged at the site.
6. No chemicals are to be added to the discharge unless permission for the use of a specific chemical is granted by the state. In granting the use of such chemicals, special conditions and monitoring may be required.
7. Bulk storage structures for petroleum products and other chemicals shall have secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering the MS4, including any surface or subsurface storm drainage system or facilities.
8. All persons engaged in earth disturbance shall implement and maintain acceptable soil erosion and sediment control measures including BMPs in conformance with the erosion control technical standards of the Drainage Criteria Manual, Volume 2 and in accordance with the approved Erosion and Stormwater Quality Control Plan approved by the MS4 permittee, if required.

9. All temporary erosion control facilities including BMPs and all permanent facilities intended to control erosion of any earth disturbance operations shall be installed as defined in the approved Erosion and Stormwater Quality Control Plan and the Drainage Criteria Manual, Volume 2 and maintained throughout the duration of the earth disturbance operation. The installation of the first level of temporary erosion control facilities and BMPs shall be installed and inspected prior to any earth disturbance operations taking place.
10. Any earth disturbance shall be conducted in such a manner so as to effectively reduce accelerated soil erosion and resulting sedimentation.
11. All earth disturbances shall be designed, constructed, and completed in such a manner so that the exposed area of any disturbed land shall be limited to the shortest practical period of time.
12. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters, including wetlands.
13. Suspended sediment caused by accelerated soil erosion shall be minimized in runoff water before it leaves the site of the earth disturbance.
14. Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be designed to limit the discharge to a non-erosive velocity.
15. Temporary soil erosion control facilities shall be removed and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to the standards and specifications prescribed in the Drainage Criteria Manual, Volume 2, and in accordance with the permanent erosion control features shown on the approved Erosion and Stormwater Quality Control Plans approved by the City of Colorado Springs/El Paso County, if required.
16. Soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within twenty-one (21) calendar days after final grading, or final earth disturbance, has been completed. Disturbed areas and stockpiles which are not at final grade but will remain dormant for longer than 30 days shall also be mulched within 21 days after interim grading. An area that is going to remain in an interim state for more than 60 days shall also be seeded. On a case-by-case basis, the MS4 permittee may allow appropriate BMP to be in place that prevents sediment from leaving the site. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented.
17. No person shall cause, permit, or contribute to the discharge into the municipal separate storm sewer pollutants that could cause the MS4 permittee to be in violation of its Colorado Discharge Permit System MS4 Permit.
18. The owner, site developer, contractor, and/or their authorized agents shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, and sand that may accumulate in the storm sewer or other drainage conveyance system and stormwater appurtenances as a result of site development.
19. No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter, including the temporary or permanent ramping with materials for vehicle access.
20. Individuals shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CRS), and the "Clean Water Act" (33 USC 1344), regulations promulgated, certifications or permits issued, in addition to the requirements included in the Drainage Criteria Manual, Volume 2. In the event of conflicts between these requirements and

water quality control laws, rules, or regulations of other Federal or State agencies, the more restrictive laws, rules, or regulations shall apply.

21. The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels. Materials shall not be stored in a location where they may be carried by stormwater runoff into the MS4 at any time.
22. Spill prevention and containment measures shall be used at storage, and equipment fueling and servicing areas to prevent pollution from discharging to the MS4. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer's recommended methods for spill cleanup shall be followed, along with proper disposal methods.

BMP PHASING PLAN

Phase 1: Construction is anticipated to begin in the Fall of 2020 or immediately after plan approvals have been obtained. Initial erosion control measures such as roadside drainage swales, silt fence, stabilized staging and stockpile areas, straw bale barriers, portable toilet, concrete washout and vehicle tracking control are a part of the Initial phase of construction activity.

Phase 2: The Interim phase of construction is anticipated to begin in the Winter of 2020-2021. Many initial erosion control measures such as roadside drainage swales, silt fence, stabilized staging and stockpile areas, straw bale barriers, portable toilet, concrete washout and vehicle tracking control are to remain in place. This phase is anticipated to be completed by the end of Spring 2021.

Phase 3: The Final phase of construction is anticipated to begin in the Summer of 2021. Removal of the initial and interim erosion control measures such as roadside drainage swales, silt fence, stabilized staging and stockpile areas, portable toilet, concrete washout and vehicle tracking control are to be removed. Seeding and mulching of the disturbed areas will occur during this phase. Straw bale barriers will remain in place until vegetative cover of 70% has been reached. This phase is anticipated to be completed by the end of Fall 2021.

CONSTRUCTION ACTIVITIES

The following is a list of major construction activities and the anticipated order of construction.

1. **“Overlot” grading of undeveloped portions of site.**
 - a. Install initial erosion control measures.
 - i. *Develop Stabilized Staging Area*
 - ii. *Vehicle tracking control.*
 - iii. *Perimeter silt fence.*
 - iv. *Install external erosion control measures.*
 1. Straw Bale Barriers.
 - b. Overlot grade portions of the site.

- i. Strip and stockpile topsoil.
 - 1. Install silt fence around topsoil stockpile.
- ii. Overlot grade site.
- c. Install remaining site erosion control measures.
 - i. Additional silt fence.
 - ii. Straw Bale Barriers.
 - iii. Crimp & mulch.
 - iv. Seed exposed areas not intended for further development

2. Site construction

- a. Dry utility installation (trench & backfill)

It is ultimately the property owner’s responsibility to ensure that the work at the site is in compliance with this SWMP, the Grading and Erosion Control Plan, and all applicable statutes and ordinances. For this project the overall property owner is responsible for installing, inspecting, and maintaining all erosion control measures and BMP’s during the overlot grading process. Catamount Engineering recommends that the responsibility for compliance be transferred with property ownership to the buyer of any individual lot or other portion of this site. For example, if a retail developer purchases a lot, then that developer should become responsible for compliance with this SWMP and all applicable statutes and ordinances on that lot. Catamount Engineering recommends that the current overall property owner establish an agreement with potential buyers to knowingly transfer this responsibility with property ownership.

The main potential pollutant to Stormwater on this site is sediment from the soil stockpile, grading and vehicle tracking.

Review 1 Comment:
Item 10 - Discuss vehicle tracking in more detail

SECTION 03 VTC
ADDED. INCLUDES
OFFSITE CLEANUP
OF GRAVEL ROADS

Other known potential sources of pollution:

▪ Vehicle fueling.....	Yes	Notes
▪ Vehicle washing.....	No	See Below
▪ Vehicle maintenance.....	Yes	See Below
▪ Waste incineration, treatment, storage, or disposal.....	No	
▪ Storage of chemical/fertilizers.....	No	
▪ Concrete washout	Yes	See Below
▪ Other (specify) – Portable Toilets.....	Yes	See Below

Non-stormwater components of discharge:

▪ Landscape irrigation return flow.....	No	Notes
▪ Springs.....	No	
▪ Other (specify).....	No	

Notes:

- Vehicle Fueling – there is no known vehicle fueling station to be installed or used on this site. However, it is anticipated that construction equipment may be refueled during construction. Spill prevention and containment measures shall be used at equipment fueling

Review 1 Comment:
Item 13 - discuss street/cleaning in this section for vehicles tracking soil offsite.

EGG
ADDED

and servicing areas to prevent the pollution of any state waters, including wetlands. A sample spill report form is included in the Appendix of this report. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer's recommended methods for spill cleanup shall be followed, along with proper disposal methods. The contractor shall follow the recommendations of the appropriate Hazard Communication Plan of the site construction manager, general contractor, or site superintendent. Vehicle refueling should be done in an area surrounded by an earthen berm to contain any fuel spills. Containment berming should be of sufficient size to safely contain a spill from the largest tank truck or other containment device located inside the possible spill area. In the event of a spill, a method of removal must be provided, such as application of absorbent materials and the use of a pump or vacuum truck. Any material removed from the spill site must be disposed of according to local, state, and federal standards. Stormwater and snowmelt runoff shall be diverted away from the containment berming area. Water that collects within the berming due to rainfall or snowmelt must be treated to meet standards before release from the spill area.

- Vehicle Maintenance – from time to time it may be necessary for the contractor to perform maintenance on the construction equipment being used on the site. If possible, major repairs to construction equipment shall be done off-site. Basic vehicle maintenance shall be performed in the vehicle fueling area and all recommendations listed above shall be followed.
- Concrete wash water shall not be discharged to or allowed to runoff to State Waters, including any surface or subsurface storm drainage system or facilities. Any concrete wash water shall be done in a temporary pit on site. The area around this pit shall be protected per the detail provided and concrete inside the pit shall be removed when done.
- Portable toilets located on the site shall be staked in place using t-posts to prevent them from tipping over during high winds.

SITE MAP

See attached plans.

Review 1 Comment:
Toilets: Portable toilets will be located a minimum of 10 feet from stormwater inlets and 50 feet from state waters. They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills.

ADDED TEXT.

BMP EROSION CONTROL MEASURES

Steps to prevent sediment from entering the Stormwater discharge system are listed below.

Structural Practices:

Structural sediment control measures include the following:

Discuss pond.
No Pond Proposed

1. Use of filter fabric silt fencing at site perimeter locations and throughout the site (*before commencement of construction activities*). Silt fence shall also be located around homesites and dirt stockpiles during home building operations. Erosion control measures on individual home sites are the responsibility of the homebuilder. This responsibility should be transferred to the homebuilder with the purchase of any lot. The transfer of

Review 1 Comment:
Item 26. Add a note stating that this project does not rely on control measures owned or operated by another entity.

Note Added

- erosion control responsibility should be clearly stated in the purchase contract for any lot(s).
2. Straw bale barriers to protect ditches and swales (*immediately after construction of each item*).
 3. Vehicle tracking control devices at construction traffic ingress/egress points to prevent sediment tracking onto surrounding streets (*before commencement of construction activities*).
 4. All disturbed areas shall have crimped straw installed and shall be reseeded. A recommended seed mix and application rate is included below.
 5. All slopes not covered with slope protection erosion control blankets shall be roughed. Roughening shall be performed to follow the contour of the slope, that is, the roughening shall be perpendicular to surface runoff flow direction.
 6. Temporary sedimentation basins located along the roadside swales shall have straw bale barriers installed per the detail during site construction. The contractor should be aware that the sedimentation basins are considered a last line of defense and that the majority of sediment should be contained on the site near the source of the erosion using the other structural sediment control measures described in this report. Accumulated sedimentation shall be removed periodically to ensure proper functioning of the facility to capture sediment. The contractor shall remove any accumulated sediment prior to landscaping or seeding.
 7. It is recommended that construction haul roads, if used on this site, have small stormwater diversions installed at intermittent locations and low points to prevent rutting and erosion on the roads.

See attached Grading and Erosion Control, and Detail sheets in the Appendix for locations and technical drawings for structural BMP's.

Show location on GEC Plans

BASIS ON GEC

Recommended Seed Mix:

Sandy Soils

30 lbs/ acre

25% Sideoats Gramma

25% Little Bluestem

15% Blue Gramma

15% Prairie Sandreed

20% Switch Grass

Nonstructural Practices:

Temporary or permanent seeding will be employed in all areas disturbed by construction activities. Should excessive blowing of sediment become apparent, then the contractor shall water the site for dust control.

Review 1 Comment:
Item 15 - discuss ultimate receiving waters

SECTION ABOVE

Other Controls:

Contractors shall take steps to keep the site reasonably free from large amounts of construction debris during construction. All waste materials generated by construction activities shall be removed from the site. All wastes composed of building materials must be removed from the construction site for disposal in accordance with local and state regulatory requirements. No building material wastes or unused building materials shall be buried, dumped, or discharged at the site.

Spill prevention and containment measures shall be used at storage, and equipment fueling and servicing areas to prevent the pollution of any state waters, including wetlands. While only a suggestion, a tarp staked down and used to line a depression in the ground could be utilized as a containment option. The contractor is responsible for installing and maintaining an area (whether using a tarp or a kiddie pool or some other method of containment) established for spill prevention and containment.

A sample of the spill report form is included in the Appendix of this report. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer’s recommended methods for spill cleanup shall be followed, along with proper disposal methods. The contractor shall follow the recommendations of the appropriate Hazard Communication Plan of the site construction manager, general contractor, or site superintendent.

Final Stabilization and Long-Term Stormwater Quality:

Permanent sediment control measures include the installation of landscaping and reseeded with a native grass seed mix. The contractor shall consult the approved Landscape Plan for the proper location, species, and installation methods for landscaping on the site. If the owner reasonably maintains the landscaping and reseeded, then it will provide good soil stability and sediment control. After these permanent measures are installed and final stabilization is achieved, then temporary measures can be removed. Final stabilization is considered achieved when all earth disturbing activities at the site have been completed and uniform vegetative cover has been established with a density of at least 70% of pre-disturbance levels and such cover is capable of adequately controlling soil erosion.

Review 1 Comment:
Discuss SWQ facility in section above

Inspection and Maintenance:

NO SWQ PROPOSED

The site construction manager or site inspector responsible for these measures shall inspect them every 14 days and after every storm or snowmelt event that causes surface erosion. Self-Monitoring Inspections and reports thereof shall be completed by a Qualified Stormwater Manager (QSM) sufficiently qualified for the required duties per the ECM Appendix 1.5. This report recommends that all erosion control measures on the site are inspected a minimum of once every 7 days, except during winter snow pack conditions where no melting is occurring or when all construction activities are completed. Repairs shall be made within 24 to 48 hours after deficiencies are discovered. A record of all inspections made shall be kept with the SWMP Report for a minimum of 3 years. A sample BMP Checklist is included in the Appendix of this report. See attached Detail sheet for specific maintenance requirements for individual BMP’s.

SWMP Revision procedures:

The site construction manager or site inspector is responsible for updating the on-site SWMP report to reflect field conditions and project phasing. Upon determination that addition, modification, or deletion of proposed erosion control measures, the site construction manager will notify the El Paso County Inspector and the project engineer of proposed modifications. Any field modifications shall be reflected within the on-site copy upon completion of modifications.

The SWMP is considered a 'living document' that is continuously being reviewed and modified as a part of the overall process of evaluating and managing stormwater quality issues at the site. The Qualified Stormwater manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of the controlling pollutants in stormwater discharges associated with construction activity or when BMPs are no longer necessary and are removed.

Prepared by:

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For and on behalf of Catamount Engineering

Date