



STORMWATER MANAGEMENT PLAN (SWMP)

Prepared for:

Hargrave Construction Inc

Project:

Poudre Trails Apartments

Prepared by:
CMS Environmental Solutions
1778 S. Broadway
Denver, CO 80120
303-593-2107

Location:

**W Valley Dr & Poudre Trail Dr
City of Greeley, Weld County, CO 80631**

October 2019

TABLE OF CONTENTS

1 INTRODUCTION.....	1
1.1 Project Name and Location	1
1.2 Purpose & Objective of Stormwater Management Plan	2
1.3 Co-Permittees	2
1.4 Qualified Stormwater Managers and Other Project Contacts	2
2 SPILL PREVENTION AND RESPONSE PLAN & MATERIALS HANDLING	5
2.1 Spill Prevention & Response Plan	5
2.2 Materials Handling	5
3 POTENTIAL POLLUTANT SOURCES.....	6
4 IMPLEMENTATION OF CONTROL MEASURES USED TO MEET EFFLUENT LIMITATIONS	9
4.1 Control Measures Located Outside Permitted Area.....	9
4.2 Control Measures for Erosion and Sediment Control	9
4.3 Practices for Other Common Pollutants.....	11
4.4 Temporary Stabilization Requirements.....	12
5 SITE DESCRIPTION	13
5.1 Nature of Construction Activity	13
5.2 Schedule and Sequence of Major Construction Activities and the Planned Implementation of Control Measures for Each Phase	13
5.3 Estimate of Total and Disturbed Acreage	14
5.4 Soils and Potential for Soil Erosion	14
5.5 Existing Vegetative Ground Cover	14
5.6 Allowable Non-Stormwater Discharges.....	15
5.7 Discharges Under Low Risk Discharge Guidance Policy or Other Regulation.....	15
5.8 Receiving Waters	17
5.9 Stream Crossings.....	18
5.10 Federally Endangered and Threatened Species.....	18
5.11 Historical Locations	18
6 SITE MAP.....	19
6.1 Site Map Contents	19
7 FINAL STABILIZATION REQUIREMENTS & LONG-TERM STORMWATER MANAGEMENT.....	20
7.1 Final Stabilization Requirements	20
7.2 Long-Term Water Quality Management.....	20
8 SWMP REVIEW AND REVISIONS, AVAILABILITY, AND RETENTION OF RECORDS	21

8.1	SWMP Review and Revisions	21
8.2	SWMP Availability	21
8.3	Retention of Records.....	21
9	INSPECTION FREQUENCY AND SCOPE.....	22
9.1	Inspection Frequency	22
9.2	Inspection Frequency for Discharges to Outstanding Waters	22
9.3	Reduced Inspection Frequency	22
9.4	Inspection Scope	23
10	LOCAL MUNICIPALITY REQUIREMENTS.....	25
10.1	City of Greeley Minimum Performance and Design Criteria	25
11	SWMP PREPARER STATEMENT.....	26
12	LIMITATIONS	26

LIST OF TABLES

Table 1.	Owner & Operator Contact Information
Table 2.	SWMP Qualified Stormwater Managers
Table 3.	Other Project Contacts
Table 4.	Spill and Emergency Contact Information
Table 5.	Materials Handling Control Measures
Table 6.	Potential Pollutants Sources and Planned Control Measures
Table 7.	Permit-Specific Control Measure Requirements
Table 8.	Other Common Pollutants and Control Measures
Table 9.	Land Development Sequencing
Table 10.	Vertical Construction Sequencing
Table 11.	Soil Attributes for this Project
Table 12.	Allowable Non-Stormwater Discharges
Table 13.	Non-Stormwater Under CDPHE Low-Risk Policy or Other Regulation

LIST OF TABS

Narrative
Site Maps
Permits & Certifications
Spill Prevention and Response Plan
Soils Report
Endangered Species and Historical Properties Report
Control Measures Detail Specification Sheets
<u>Rain Log</u>
Inspection Reports
Inspector Qualifications
Delegation Letter

1 INTRODUCTION

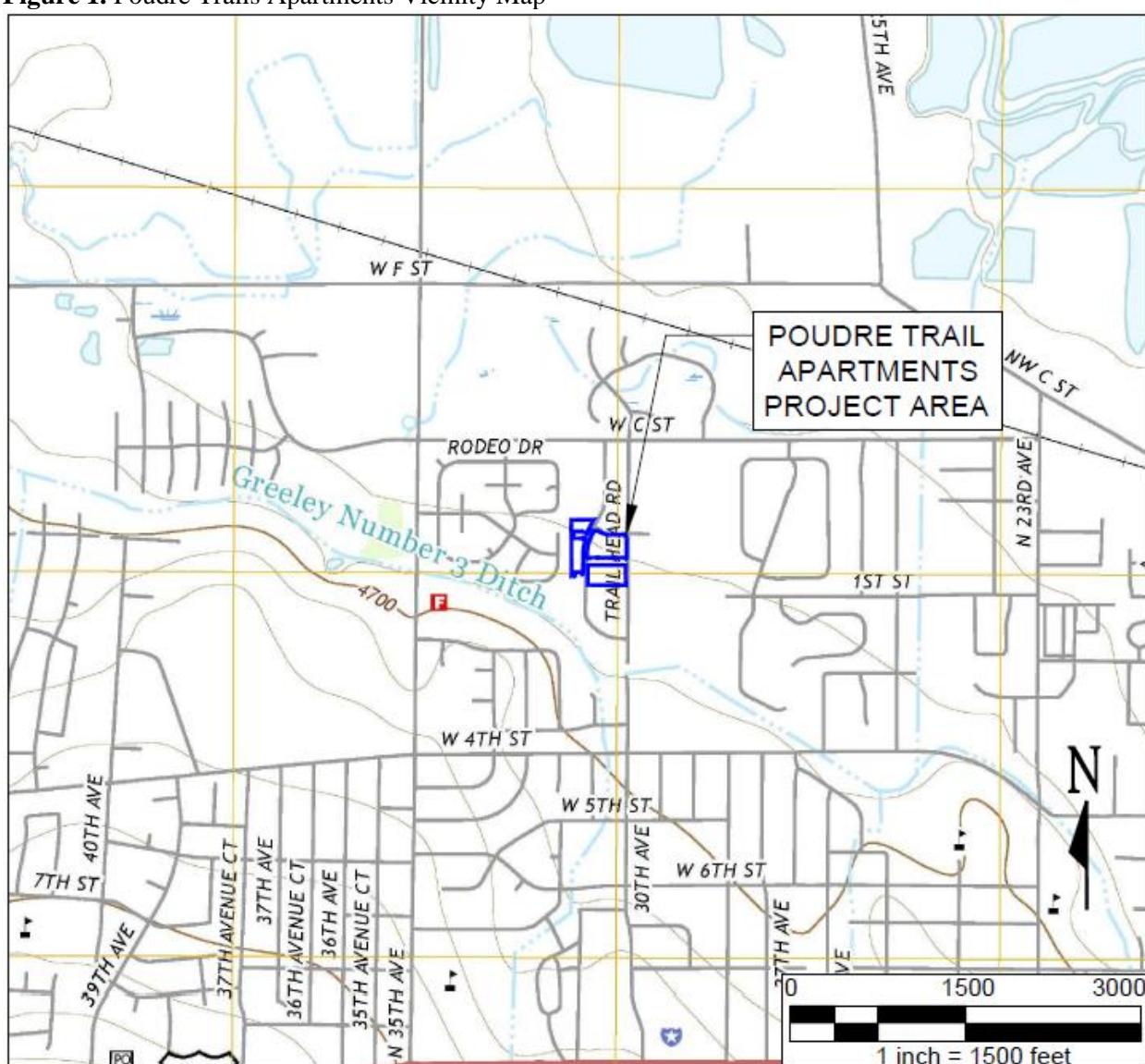
1.1 Project Name and Location

Project/Site Name: Poudre Trails Apartments
Location: W Valley Dr & Poudre Trail Dr
City: Greeley 40.435348 -104.729491
County: Weld
Latitude: 40.43527° N Longitude: 104.72946° W
Permittee: Hargrave Construction Inc
CDPS Permit #: COR COR407184

Is this project a federal facility? Yes No

Is this project located on Native American property? Yes No

Figure 1. Poudre Trails Apartments Vicinity Map



1.2 Purpose & Objective of Stormwater Management Plan

The Colorado Discharge Permit System (CDPS) general permit COR400000 (Permit) requires a stormwater management plan (SWMP) be developed prior to commencement of construction activities. The goal of the SWMP is to identify construction site potential pollutant sources that may contribute pollutants to stormwater, and identify control measures that, when implemented in accordance with good engineering, hydrologic and pollution control practices, will reduce or eliminate any possible water quality impacts. The Permittee must implement the provisions of the SWMP as written and updated, from commencement of construction activity until final stabilization. A copy of the SWMP must be retained onsite or be onsite when construction activities are occurring at the site unless the permittee specifies another location and obtains approval from the division.

1.3 Co-Permittees

The Permit requires both the Owner and Operator as defined in the permit to be co-permittees. Both the Owner and Operator (Table 1) will be subject to the same obligations, including implementation of the SWMP. In cases where the duties of the owner and operator are managed by the owner, both signatures may be completed by the owner.

Table 1. Owner & Operator Contact Information

Owner:	Operator:
Jim Hargrave West C LLC 1905 W 8th St #200 Loveland, CO 80537 Phone: 970-613-1477 Email: jimhargrave8@gmail.com	Matthew Proehl Hargrave Construction Inc. 1905 W 8th St #200 Loveland, CO 80537 Phone: (509) 590-5030 Email: mq3construction@gmail.com

1.4 Qualified Stormwater Managers and Other Project Contacts

The Permit requires a Qualified Stormwater Manager as defined in the permit to be designated to be responsible for implementing the SWMP in its entirety. The Permit also requires the stormwater inspector to be a Qualified Stormwater Manager. These roles may be filled by more than one individual, resulting in a Qualified Stormwater Manager team see Table 2 below.

Table 2. SWMP Qualified Stormwater Managers

(Permittee) Qualified Stormwater Manager:	(Site Contacts) Qualified Stormwater Manager:
Matthew Proehl Hargrave Construction Inc. 1905 W 8th St #200 Loveland, CO 80537 Phone: (509) 590-5030 Email: mq3construction@gmail.com	*Same as Permittee*

(Stormwater Inspections) Qualified Stormwater Manager:	
CMS Environmental Solutions Environmental Analyst Nicholas Weston 1778 S. Broadway Environmental Analyst Denver, CO 80210 720-388-0450 Phone: (303) 472-6651 Fax: 303.923.3416	For a list of all CMS consultants that may perform inspections at this site reference the inspector qualifications pages

Table 3. Other Project Contacts

Contact	Area of Responsibility
Developer of SWMP CMS Environmental Solutions, LLC Victoria Arnot, Staff Engineer 1778 S. Broadway Denver, Colorado 80210 Phone: (720) 656-8631 Facsimile: (303) 923-3416 Email: varnot@cmsenviro.com	Develop a SWMP binder to document control measure inspections, correspondence, amendments, training, and other SWMP related items.
Contractor/ Sub-contractor (Erosion and Sediment Controls) *In House* Reference site contact on page 2	Install, maintain, repair, and replace erosion and sediment controls under the supervision of the Qualified Stormwater Manager.
HAZMAT Emergency Response Contractor Custom Environmental Services 8041 N. I-70 Frontage Rd. Unit 11 Arvada, CO 80002 Emergency Number: 1-800-310-7445 FAX: 303-423-1854	Hazardous materials contractor that is available 24/7 to respond to a significant or major spill. See Spill Prevention and Response Plan Section 2.

Contact	Area of Responsibility
Other:	
Other:	

2 SPILL PREVENTION AND RESPONSE PLAN & MATERIALS HANDLING

2.1 Spill Prevention & Response Plan

Reference full spill prevention and response plan in separate tab

The Permittee will take all measures necessary to prevent spills that could impact stormwater. This includes, but is not limited to, the proper storage and handling of materials and chemicals. Bulk storage, 55 gallons or greater, for petroleum products and other liquid chemicals will have secondary containment, or equivalent protection, in order to contain spills and to prevent spilled material from entering state waters. See the full Spill Prevention & Response Plan included in the tab of this SWMP for further details. Additional spill related contacts are listed below:

Table 4. Spill and Emergency Contact Information

Emergency Local Fire, Police or Ambulance	911
EPA National Response Center	1-800-424-8802
Colorado Department of Public Health and Environment	1-877-518-5608
Colorado Emergency Planning Committee	303-273-1622
City of Greeley – Public Works	970-336-4074

2.2 Materials Handling

The SWMP must describe and locate all control measures implemented at the site to minimize impacts from handling significant materials that could contribute pollutants to runoff. These handling procedures can include control measures for pollutants and activities such as listed in Table 5 below.

Table 5. Materials Handling Control Measures

Material	Control Measure Description
Exposed storage of building material	See Potential Pollutants Table 6, No. 5
Paints and solvents	See Potential Pollutants Table 6, No. 16
Landscape materials	See Potential Pollutants Table 6, No. 14
Fertilizers or chemicals	See Potential Pollutants Table 6, Nos. 5, 8, 14-16
Sanitary waste material	See Potential Pollutants Table 6, No.12
Trash	See Potential Pollutants Table 6, No. 12
Equipment maintenance	See Potential Pollutants Table 6, Nos. 6 and 8
Fueling procedures	See Potential Pollutants Table 6, No. 17

3 POTENTIAL POLLUTANT SOURCES

The SWMP must list all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the site. This shall include, but is not limited to, the following pollutant sources:

- (a) disturbed and stored soils;
- (b) vehicle tracking of sediments;
- (c) management of contaminated soils;
- (d) loading and unloading operations;
- (e) outdoor storage activities (erodible building materials, fertilizers, chemicals, etc.);
- (f) vehicle and equipment maintenance and fueling;
- (g) significant dust or particulate generating processes (e.g. saw cutting material, including dust);
- (h) routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.;
- (i) on-site waste management practices (waste piles, liquid wastes, dumpsters);
- (j) concrete truck/equipment washing, including washing of the concrete truck chute and associated fixtures and equipment;
- (k) dedicated asphalt, concrete batch plants and masonry mixing stations;
- (l) non-industrial waste sources such as worker trash and portable toilets.

Wherever
SWMP refers to
BMPs, please
read as control
measures

Other control measures not mentioned in this column may also be used to manage pollutant sources; all structural control measures on site can be found in the control measure detail section

Table 6. Potential Pollutants Sources and Planned Control Measures

Potential Pollutant Sources	Project potential	Associated activities	Planned Control Measures
1. All disturbed and stored soils	Yes	Foundation excavation, backfill, Stockpile management. Building construction and final stabilization	Perimeter BMPs, sediment barriers such as silt fence, erosion control blanket, vehicle tracking control measures, inlet protections, phasing, training all workers and street sweeping. Note: BMPs must be implemented downgradient of disturbed and stored soils prior to disturbance.
2. Vehicle tracking of sediments	Yes	Points of Ingress and Egress	Practices must be implemented for all areas of potential vehicle tracking, and can include: minimizing site access, street sweeping or scraping, tracking pads, graveled parking areas, requiring that vehicles stay on paved areas on-site, wash racks, and contractor education. Tracking control measures will be maintained and monitored regularly for effectiveness. Street sweeping as needed.
3. Management of contaminated soils	Low	No known contaminated soils exist on this site.	If contaminated soils are encountered work relating to the contamination must stop and the <u>Administrator</u> will be notified. Soils should be properly stored in a 55-gallon drum and disposed of. Refer to the spill prevention & response plan. CMS should also be notified to determine if activities can continue or if further site analysis is required

Qualified Stormwater Manager

Potential Pollutant Sources	Project potential	Associated activities	Planned Control Measures
4. Loading and unloading operations	Yes	Delivery of materials.	<p>It is recommended that when material delivery or loading/unloading occurs that equipment tires do not come in contact with soil or when soil is dry utilize access point and do not track soil onto streets. Otherwise access through stabilized construction entrance, parking area or other control measure as conditions require. If access does occur while wet and mud is tracked onto the roadway it must be cleaned up immediately.</p>
5. Outdoor storage of erodible building materials, fertilizers, chemicals, etc.)	Yes	Delivery of materials, staging.	Storage area or per lot. Implement perimeter controls and good housekeeping. Also see Nos. 14-16 below.
6. Vehicle and equipment maintenance and fueling	Yes	Off-site fueling shall be conducted whenever it is practical. Some equipment may be fueled onsite.	Fueling operations shall be conducted by qualified personnel who are trained in fueling procedures, including the use of drip pans and proper spill cleanup and reporting procedures.
7. Significant dust or particulate generating processes	Yes	Soil moving activities	Moisture condition soil and/or cease soil disturbing operations during high winds.
8. Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.	Yes	Vehicle use and storage, foundation forms, vertical construction, and final stabilization	All activities will be conducted by personnel trained in good housekeeping, use of on-site BMPs, perimeter BMPs, and spill response and prevention.
9. On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.)	Yes	Building construction and final stabilization	Trash shall be emptied prior to overflow, and all liquid wastes will either be hauled off site and properly disposed of, if materials are onsite then while onsite they must be stored in a manner where a release of those waste to stormwater is not likely to occur.
10. Concrete truck & equipment washing, including washing of the concrete truck chute and associated fixtures and equipment. Mortar, or portable mortar mixers.	Yes	Foundation construction, flatwork and brick installation.	Concrete washout area (See Table 8), and secondary containment (i.e. earth berm) for mortar mixers.
11. Dedicated asphalt and concrete batch plants	No	Not anticipated for this project	Not applicable for this site at the time of the SWMP. If such activities are added then the SWMP shall be amended.

Reference section 4.3 table 8 for additional information

Potential Pollutant Sources	Project potential	Associated activities	Planned Control Measures
12. Non-industrial waste sources such as worker trash and portable toilets. Sanitary waste.	Yes	All activities	Dumpsters will be provided on site. A licensed company will be contracted to empty the dumpsters, as needed. Portable sanitary facilities will be provided on-site. A licensed company will be hired to maintain and clean the units, inspect for any deficiencies, and keep the units in good working order.
13. Other areas or procedures where potential spills can occur	No	None identified at this time	Not applicable for this site at the time of the SWMP. If such activities are added then the SWMP shall be amended.
14. Fertilizers, Pesticides, herbicides, soil amendments, and related landscape materials	Yes	Final Stabilization	These materials will typically be in use onsite and stored offsite. If stored on-site they will be either covered or have secondary containment provided. Trades will remove and properly dispose of all unused products and wastes off site.
15. Glues, adhesives, caulk and related products	Yes	Building construction, final stabilization	These materials will typically be in use onsite and stored offsite. If stored on-site they will be either covered or have secondary containment provided. Trades will remove and properly dispose of all unused products and wastes off site.
16. Paint, stains, solvents and related products	Yes	Building construction, final stabilization	These materials will typically be in use onsite and stored offsite. If stored on-site they will be either covered or have secondary containment provided. Trades will remove and properly dispose of all unused products and wastes off site.
17. Petroleum products-fuels, oils, grease and form oil (other hydrocarbons)	Yes	During all construction activities onsite.	These products must be stored with individual trade vehicles and use of these products is to be used by only those individuals who are trained in spill response and or are certified mechanics. Any waste or by products shall be hauled offsite and properly disposed of.
18. Stockpile Management	Yes	During foundation installation	Stockpiles must be behind adequate BMPs to prevent materials from migrating off site and into the storm sewer system. For temporary stockpiles on the interior portion of a construction site, where other downgradient controls, including perimeter control, are in place, stockpile perimeter controls may not be required.

For specific locations see Site Map for most current data.

Reference section 4.3
table 8 for additional information

4 IMPLEMENTATION OF CONTROL MEASURES USED TO MEET EFFLUENT LIMITATIONS

The SWMP must include design specifications that contain information on the implementation of control measures in accordance with good engineering hydrologic and pollution control practices; including as applicable drawings, dimensions, installation information, materials, implementation processes, control measure-specific inspection expectations, and maintenance requirements.

If control measures are being used that are outside of the permitted area, then a use agreement between the two parties must be made, ensuring that control measures are being properly designed, installed, inspected and maintained.

4.1 Control Measures Located Outside Permitted Area

Are there any control measures located outside of the permit boundary being used by this project that are not under control of this permittee? Yes No

If yes, the SWMP must include a documented use agreement between the permittee and the owner or operator of any control measures located outside of the permitted area, that are utilized by the permittee's construction site for compliance with this permit, but not under the direct control of the permittee. The permittee is responsible for ensuring that all control measures located outside of their permitted area, that are being utilized by the permittee's construction site, are properly maintained and in compliance with all terms and conditions of the permit. The SWMP must include all information required of and relevant to any such control measures located outside the permitted area, including location, installation specifications, design specifications and maintenance requirements.

4.2 Control Measures for Erosion and Sediment Control

The permittee must implement structural and/or nonstructural control measures that effectively minimize erosion, sediment transport, and the release of other pollutants related to construction activity to the maximum extent practicable.

The Site Maps (Section 6) show the locations of all structural and non-structural control measures. The Control Measures Specification Details tab attached to the SWMP includes the specifications, implementation, and maintenance requirements for each control measure. Control Measures will be evaluated, reviewed and revised on a regular basis in order to maintain compliance and maximize site efficiency. All changes to Control Measures, including installation and removal, are reflected in the SWMP and documented on the active site map.

Part I.B.1.a.i. of the Permit outlines specific Control Measures requirements which are summarized in Tables 7 and 8 below.

Table 7. Permit-Specific Control Measure Requirements

Requirement	Planned Control Measures
Part I.B.1.a.i.(a). Vehicle tracking controls shall either be implemented to minimize vehicle tracking of sediment from disturbed areas, or the areas where vehicle tracking occurs shall meet subsection Part I.B.1.a.i(b).	Vehicle tracking control measures are addressed in Table 6, in Section 3 of this SWMP and shown on the Site Map. Also reference the Control Measures Specifications Details tab of this SWMP.
Part I.B.1.a.i.(b). Stormwater runoff from all disturbed areas and soil storage areas for which permanent or temporary stabilization is not implemented, must flow to at least one control measure to minimize sediment in the discharge. This may be accomplished through filtering, settling, or straining. The control measure must be selected, designed, installed and adequately sized in accordance with good engineering, hydrologic and pollution control practices. The control measure(s) must contain or filter flows in order to prevent the bypass of flows without treatment and must be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions (i.e., sheet or concentrated flow).	The Control Measures outlined and designed in the City of Greeley approved Erosion Control Plan and updated Site Maps attached to this SWMP consist of one or more control measures that treat flows to minimize sediment in the discharge. Also reference the current Site Map and associated Control Measures Specifications Details.
Part I.B.1.a.i.(c). Outlets that withdraw water from or near the surface shall be installed when discharging from basins and impoundments, unless infeasible.	Vertical construction is not anticipated to utilize basins or impoundments as sediment controls.
Part I.B.1.a.i.(d). Maintain pre-existing vegetation or equivalent control measures for areas within 50 horizontal feet of receiving water as defined by this permit, unless infeasible.	The project does not have receiving waters or areas within 50 horizontal feet of a receiving water within the project boundary.
Part I.B.1.a.i.(e). Soil compaction must be minimized for areas where infiltration control measures will occur or where final stabilization will be achieved through vegetative cover.	Soil compaction may be minimized by limiting points of ingress and egress within the project. Typical and unavoidable equipment wheel or tracks in contact with soil throughout the site is not considered soil compaction for purposes of this definition. If compaction occurs on areas to be seeded it shall be adequately scarified in accordance with the implementation of final stabilization prior to applying seed. Compaction efforts shall be applied in areas deemed necessary by the soils engineer, public works or building division.
Part I.B.1.a.i.(f). Unless infeasible, topsoil shall be preserved for those areas of a site that will utilize vegetative final stabilization	Final stabilization for vertical construction will utilize landscaping, sod, and/or hardscaping therefore preserving topsoil does not apply for vertical construction.

Requirement	Planned Control Measures
Part I.B.1.a.i.(g). Minimize the amount of soil exposed during construction activity, including the disturbance of steep slopes	The Permit requires to minimize the amount of soil exposed during construction. Phasing is implemented on this project that minimizes disturbance to the extent practicable. Steep slopes are defined as (3:1 or greater where no other definition exists).

4.3 Practices for Other Common Pollutants

Table 8. Other Common Pollutants and Control Measures

Requirement:	Control Measure Description
Part I.B.1.a.ii.(a). Bulk storage, 55 gallons or greater, for petroleum products and other liquid chemicals must have secondary containment, or equivalent protection, in order to contain spills and to prevent spilled material from entering state waters	During vertical, bulk storage of materials greater than 55 gallons is not anticipated. Typically, if 55 gallons of material such as concrete curing agent is observed it would be an in-use product and is not to be stored onsite. If materials are stored on-site then adequate secondary containment will be utilized and noted on the site map.
Part I.B.1.a.ii.(b). Control measures designed for concrete washout waste must be implemented. This includes washout waste discharged to the ground as authorized under this permit and washout waste from concrete trucks and masonry operations contained on site. The permittee must ensure the washing activities do not contribute pollutants to stormwater runoff, or receiving waters in accordance Part I.A.1.b.ii. Discharges that may reach groundwater must flow through soil that has buffering capacity prior to reaching groundwater, as necessary to meet the effluent limits in this permit, including Part I.B.3.a. The concrete washout location shall be not be located in an area where shallow groundwater may be present and would result in buffering capacity not being adequate, such as near natural drainages, springs, or wetlands. This permit authorizes discharges to the ground of concrete washout waste	<p>Concrete washout waste is controlled by use of a concrete washout area (CWA). The CWA is not located near shallow groundwater, drainages, springs or wetlands. Soil conditions beneath the CWA are expected to have adequate buffering capacity to prevent any impact groundwater.</p> <p>If the CWA is within 50' of waterway or is located within areas of known shallow groundwater the CWA must be lined with an impermeable liner.</p> <p>Concrete waste may be temporarily stored onsite, prior to being removed as long as it does not have the potential to discharge offsite in stormwater. Concrete waste cannot be disposed onsite. While Concrete spills may accidentally be discharged onto the ground during construction, it must be cleaned up or contained by the end of the day, or prior to a storm event – whichever is first. Any materials must be cleaned up prior to rough grading or fine grading activities</p> <p>See CWA Detail in Control Measure Specification Tab.</p>

4.4 Temporary Stabilization Requirements

Temporary stabilization must be implemented for earth disturbing activities on any portion of the site where ground disturbing construction activity has permanently ceased, or temporarily ceased for more than 14 calendar days. Temporary stabilization methods may include, but are not limited to, tarps, soil tackifier, and hydroseed. The permittee may exceed the 14-day schedule when either the function of the specific area of the site requires it to remain disturbed, or, physical characteristics of the terrain and climate prevent stabilization. The SWMP must document the constraints necessitating the alternative schedule, provide the alternate stabilization schedule, and identify all locations where the alternative schedule is applicable on the site map.

Other temporary stabilization measures include, but are not limited to, terracing, ripping/grooving (surface roughening), crimp mulching or other similar practice.

5 SITE DESCRIPTION

5.1 Nature of Construction Activity

Hargrave Construction Inc plans to build multi-family apartments within the Poudre Trails Apartments project area. Land development was previously completed under a different permit. Soil disturbing activities include foundation excavation and stockpiling, foundation backfill and compaction, home building activities and staging, until final stabilization (landscaping) is complete.

Construction Activity:

- Single Family Residential Multi-family residential
 Land Development Vertical Construction
 Commercial Industrial Road Construction Utility (Linear)
 Other _____

Is this an Emergency Related Project Yes No

If yes, document the cause of the public emergency and information sustaining its occurrence.

5.2 Schedule and Sequence of Major Construction Activities and the Planned Implementation of Control Measures for Each Phase

Estimated Project Start Date: 10/2019 Actual: 11/11/19

Estimated Project Completion Date: 10/2021

The following table describes the sequencing of the project as well as the planned control measures for each phase. Specific locations of control measures are shown on the Site Maps (Section 6). Potential Pollutants for the project are described in Section 3, and installation and maintenance specifications for each control measure are described in Section 4 and Control Measures Specifications Details section of the SWMP. Also, it is always important to plan accordingly and minimize disturbed areas to the maximum extent practicable through proper planning.

Table 10. Vertical Construction Sequencing

Construction Activity	Anticipated Start Date	Anticipated End Date
Phase I - Lot Start, Install Initial Control Measures (Based on lot sales), Excavation, Foundation Installation and Backfill -Maintain or install back of curb controls. When applicable install rear and side lot controls, lot construction may share same block controls. -Install or maintain inlet protections. -Install dumpsters and portable sanitary facilities. -Implement vehicle tracking control measures, -Locate and protect stockpiles as needed. -Install or maintain concrete washout area for project. -Street sweeping, -Implement good housekeeping, dumpsters and portable sanitary facilities.	10/2019 Actual: 11/11/19	02/2020

Construction Activity	Anticipated Start Date	Anticipated End Date
Phase II - Frame, Roof, Exterior Siding and Masonry, Interior Finishes -Maintain lot or block sediment controls as appropriate -Maintain inlet protections -Implement materials handling control measures -Use secondary containment for mixing operations. Berms to be used for masonry mixing operations. Tarps, trays, "kiddie pools", or equivalent to be used when mixing liquids (ex: drywall, paint, stains, etc.) -Upon completion of home/unit construction fine grade lots -Street sweeping -Implement good housekeeping, maintain dumpsters and portable sanitary facilities.	02/2020 <i>Actual: 1/6/2020</i>	02/2021
Phase III - Final Stabilization (Residential) -Stabilize surrounding area with sod and/or landscaping -Remove front perimeter controls, dumpsters, and portable sanitary facilities -Once construction activities on the residential lot is complete and lot sold to the homeowner and the other provisions of Part I.A.j of the Permit are met, permit coverage for the lot may be terminated -Refer to Table 9 Phase IV.	10/2020 <i>Actual: 6/2/2020</i>	10/2021

5.3 Estimate of Total and Disturbed Acreage

The total area of the project site is ~~~4.0 acres~~.

5.4 acres

Total area of the project disturbance from construction activities is ~~~4.0 acres~~.

Reference the most recent site inspection report for approximate current acreage disturbed.

5.4 Soils and Potential for Soil Erosion

NCRS soils data was obtained for the site. The existing soils onsite are Otero sandy loam, 1 to 3 percent slopes.

Table 11. Soil Attributes for this Project

Map symbol and soil name	Pct of AOI	Hydrologic group	Kf	T factor	% Sand	% Silt	% Clay	WEG Rating
51 - Otero sandy loam, 1 to 3 percent slopes	100	A	.15	5	65.9	19.1	15.0	3

Group A soils are well drained soils. An erosion factor (Kf) of 0.15 represents an extremely low susceptibility to sheet and rill erosion. For a detailed explanation of the erosive properties of these soils see the full NCRS report in the soils tab.

5.5 Existing Vegetative Ground Cover

The site has been previously disturbed by others prior to the current vertical construction phase and has been seeded and stabilized. Visual methods were used to determine that the surrounding areas are consistent with native prairie grasses across the front range with a typical vegetative density of 60-70%. For the purposes of this project the upper range will be assumed for a pre-existing vegetative density of 70%.

5.6 Allowable Non-Stormwater Discharges

The following non-stormwater discharges are allowable under the Permit if the discharges are identified in the SWMP in accordance with Part I.C. and if they have appropriate control measures in accordance with Part I.B.1.

Table 12. Allowable Non-Stormwater Discharges

Allowable Non-Stormwater Discharge	Control Measures
i. Discharges from uncontaminated springs that do not originate from an area of land disturbance.	There are no known spring waters on the site.
ii. Discharges to the ground of concrete washout water associated with the washing of concrete tools and concrete mixer chutes. Discharges of concrete washout water must not leave the site as surface runoff or reach receiving waters as defined by this permit.	A concrete wash-out area will be utilized to capture waste water and waste products resulting from the cleaning of concrete and masonry equipment. See Section 4, Table 8 for further details.
iii. Discharges of landscape irrigation return flow.	Down gradient controls will be installed prior to the installation and testing of irrigation lines. These controls include sediment controls. The builder does not have control of private homeowners' irrigation systems once the homes are transferred to them.

Note: Discharges resulting from emergency firefighting activities are authorized by the Permit.

5.7 Discharges Under Low Risk Discharge Guidance Policy or Other Regulation

There is the potential of other sources of non-stormwater at the site that are not classified as allowable non-stormwater discharges under the Permit but may be managed and conditionally discharged to land in accordance with the CDPHE Water Quality Policy (WQP)-27 Low Risk Discharges or other appropriate regulations.

Table 13. Non-Stormwater Under CDPHE Low-Risk Policy or Other Regulation

Non-Stormwater Source	WQP Policy or Regulation	Control Measures
Fire hydrant flushing	CDPHE Low Risk Discharge Guidance – Discharges of Potable Water	Flushing is the responsibility of the local municipality. It is important that the local municipality leave in place down gradient BMPs prior to flushing. Refer to CDPHE low risk guidance for further details. Please note the permittee does not have control over the local municipality or permitting authority.
Waters used to wash vehicles or wash down buildings where detergents are not used	CDPHE Low Risk Discharge Guidance - Discharges from Surface Cosmetic Power Washing Operations to Land.	Vehicle washing will not be allowed on site however the builder does not have control of private homeowners once the homes are transferred to them. If the water will come in contact of any other pollutants other than soil, then the activities are to cease immediately until those other pollutants have been removed. Refer to CDPHE low risk guidance for further details.
Water used to flush waterlines	CDPHE Low Risk Discharge Guidance – Discharges of Potable Water	Waterlines may be flushed as part of installation. The discharge of potable water from a potable water distribution system must meet the conditions set forth in the low risk guidance. Refer to CDPHE low risk guidance for further details.
Groundwater dewatering to land and discharges from foundation drains	CDPHE Low Risk Discharge Guidance – Discharges of Uncontaminated Groundwater to Land	The CDPHE Low Risk Discharge Guidance allows groundwater to be discharged to the ground provided that: <ul style="list-style-type: none"> -The source is groundwater and/or groundwater combined with stormwater that does not contain pollutants in excess of State groundwater standards in Regulations 5 CCR 1002-41 and 42. -The water infiltrates into the soil without leaving the site as surface water or to surface waters. -The source and associated Control Measures are identified in the SWMP, and Control Measures are implemented in accordance with the SWMP such as secondary containment on generators for pumps. -Refer to CDPHE low risk guidance for further details. Residential foundation drain discharges will be allowed to infiltrate into the ground. The builder does not have control of private homeowners' foundation drains once the homes are transferred to them. Note: Dewatering of stormwater-only that ponds in excavations or depressions etc. falls under the stormwater general permit.
Air conditioning condensate	Uncontaminated Non-Potable Water – Discharge to Sanitary	Air conditioning condensate will be discharged into a floor drain in the basement of the completed homes that is connected to sanitary sewer system.
Water used to moisture condition soil	CDPHE Low Risk Discharge Guidance – Discharges of Potable Water	Water will be discharged to ground within existing perimeter controls of the project site and will not be applied at a rate to cause erosion or to discharge off-site.

5.8 Receiving Waters

Does site discharge to Municipal Separate Storm Sewer System?: Yes No

If yes, the MS4 name and permit number: City of Greeley MS4 COR090033

Immediate Receiving Waters

Name: City of Greeley MS4 to Cache la Poudre River

Proximity to site: throughout the project and approximately 0.9 miles northeast respectively.

Ultimate Receiving Waters

Name: South Platte River

Proximity to site: approximately 6.8 miles east

Is the immediate receiving water a designated Outstanding Water? Yes No

If yes, see inspection frequency Section 9.

Is the immediate receiving water (excluding MS4) within the project area? Yes No

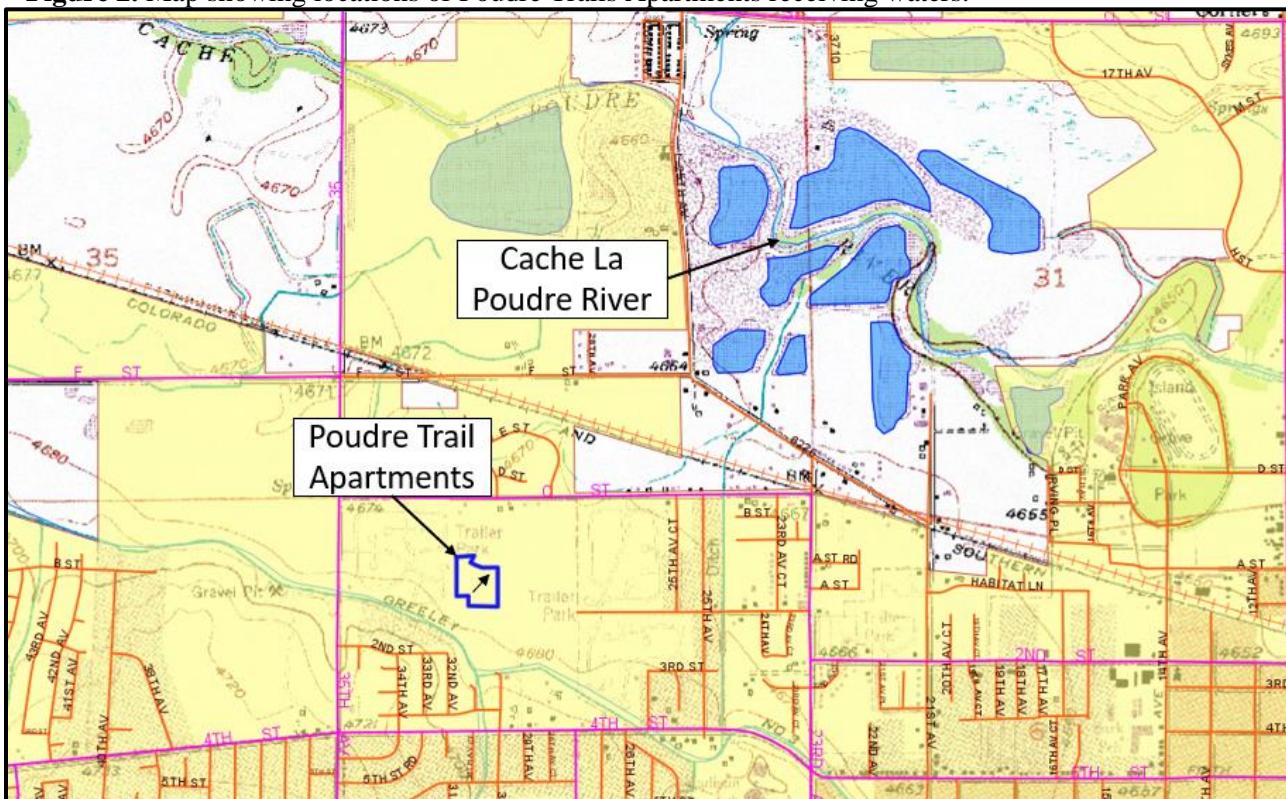
If yes, maintain pre-existing vegetation or equivalent control measures for areas within 50 horizontal feet of receiving water, unless infeasible. See Section 4.

Are the immediate receiving waters on the 303 (d) list of impaired waters: Yes No

Cause of impairment: E.coli (Cache la Poudre River)

Are the immediate receiving waters subject to TMDLs: Yes No

Figure 2. Map showing locations of Poudre Trails Apartments receiving waters.



5.9 Stream Crossings

Are any temporary stream crossings associated with this project? Yes No

If yes, provide description of all temporary stream crossing(s) located within the construction site and locate on site map:

5.10 Federally Endangered and Threatened Species

Are federally listed endangered or threatened species and critical habitats within the project area?

Yes No

If yes, describe the species and/or critical habitat. (Additional certifications may be necessary and eligibility criterion established.)

Please refer to the attached USFWS IPaC report that may list species, critical habitat, migratory birds or other natural resources that may potentially be in the project area. Please note the above and IPaC report provides general information only obtained from on-line resources from the USFWS and does not constitute a site-specific biological assessment or specific clearance from the USFWS.

5.11 Historical Locations

There are no historical properties within the construction boundaries of the project. See the Historical Buildings Section of this SWMP for all historical sites located in the City of Greeley, Colorado.

6 SITE MAP

The Site Map is a living document that needs to be routinely updated to reflect site conditions specifically as they are in the field. All potential pollutant sources as well as all pertinent control measures (structural and non-structural) need to be marked on the map using the symbols found in the control measures legend.

6.1 Site Map Contents

The SWMP must include a site map which includes, at a minimum, the following:

- (a) construction site boundaries;
- (b) flow arrows that depict stormwater flow directions on-site and runoff direction;
- (c) ~~areas of ground disturbance including areas of borrow and fill;~~ Land development completed under a prior permit
- (d) areas used for storage of soil;
- (e) locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt;
- (f) locations of dedicated asphalt, concrete batch plants and masonry mixing stations;
- (g) locations of all structural control measures;
- (h) locations of all non-structural control measures;
- (i) locations of springs, streams, wetlands and other state waters, including areas that require pre-existing vegetation be maintained within 50 feet of a receiving water, where determined feasible in accordance with Part I.B.1.a.i.(d); and
- (j) locations of all stream crossings located within the construction site boundary.

See Site maps tab attached to SWMP.

7 FINAL STABILIZATION REQUIREMENTS & LONG-TERM STORMWATER MANAGEMENT

7.1 Final Stabilization Requirements

Final stabilization is reached when all ground surface disturbing activities at the construction site are complete; and, for all areas of ground surface disturbing activities, either a uniform vegetative cover with an individual plant density of at least 70 percent of pre-disturbance levels is established, or equivalent permanent alternative stabilization methods are implemented. Final stabilization must be designed and installed as a permanent feature. Reference site specific landscape plans

For the residential lots, Hargrave Construction Inc anticipates to sod and landscape or hardscape all lots and tracts before transferring responsibility to lot owners.

It is not anticipated that Hargrave Construction Inc will disturb areas outside the permitted areas however should such a disturbance occur seed and temporary erosion controls may need to be installed until final stabilization is achieved.

Refer to the Urban Storm Drainage Criteria Manual Volume 3 for seed mix and application rates. Refer to the Site Map for locations vegetated and non-vegetated final stabilization locations.

The permittee(s) must ensure all temporary control measures are removed from the construction site once final stabilization is achieved, except when the control measure specifications allow the control measure to be left in place (i.e., bio-degradable control measures).

7.2 Long-Term Water Quality Management

Long-term stormwater management for the project will utilize down gradient regional water quality facilities with flows transported from local MS4 to address permanent water quality and flood attenuation.

8 SWMP REVIEW AND REVISIONS, AVAILABILITY, AND RETENTION OF RECORDS

8.1 SWMP Review and Revisions

Permittees must keep a record of SWMP changes made that includes the date and identification of the changes. The SWMP must be amended when the following occurs:

- a change in design, construction, operation, or maintenance of the site requiring implementation of new or revised control measures;
- the SWMP proves ineffective in controlling pollutants in stormwater runoff in compliance with the permit conditions;
- control measures identified in the SWMP are no longer necessary and are removed; and
- corrective actions are taken onsite that result in a change to the SWMP.

For SWMP revisions made prior to or following a change(s) onsite, including revisions to sections addressing site conditions and control measures, a notation must be included in the SWMP that identifies the date of the site change, the control measure removed, or modified, the location(s) of those control measures, and any changes to the control measure(s). The permittee must ensure the site changes are reflected in the SWMP. The permittee is noncompliant with the permit until the SWMP revisions have been made.

8.2 SWMP Availability

A copy of the SWMP must be provided upon request to the division, EPA, and any local agency with authority for approving sediment and erosion plans, grading plans or stormwater management plans within the time frame specified in the request. If the SWMP is required to be submitted to any of these entities, the submission must include a signed certification in accordance with Part I.A.3.e., certifying that the SWMP is complete and compliant with all terms and conditions of the permit.

All SWMPs required under this permit are considered reports that must be available to the public under Section 308(b) of the CWA and Section 61.5(4) of the CDPS regulations. The permittee must make plans available to members of the public upon request. However, the permittee may claim any portion of a SWMP as confidential in accordance with 40 CFR Part 2. *As of 7/7/20 this SWMP will be managed and made available digitally*

8.3 Retention of Records

Post-Expiration or Termination Retention

Copies of documentation required by this permit, including records of all data used to complete the application for permit coverage to be covered by this permit, must be retained for at least three years from the date that permit coverage expires or is terminated. This period may be extended by request of EPA at any time.

On-site Retention

The permittee must retain an electronic version or hardcopy of the SWMP at the construction site from the date of the initiation of construction activities to the date of expiration or inactivation of permit coverage; unless another location, specified by the permittee, is approved by the division.

9 INSPECTION FREQUENCY AND SCOPE

9.1 Inspection Frequency

Site inspections shall start within 7 calendar days of the commencement of construction activities on site. Permittees must conduct site inspections in accordance with one of the following minimum frequencies, unless the site meets the requirements of Part I.D.3

- At least one inspection every 7 calendar days. Or
- At least one inspection every 14 calendar days, if post-storm event inspections are conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Post-storm inspections may be used to fulfill the 14-day routine inspection requirement. Or
- Reduced inspection frequency reference 9.3

Inspection frequency for this project is?

7-day 14 day and post-storm Once every 30 days*

*Reduced inspection frequency must meet conditions of Part I.D.4. of permit and described in Section 9.3 below.

Local City of Greeley inspection frequency allows 14-day and post storm inspections.

9.2 Inspection Frequency for Discharges to Outstanding Waters

Permittees must conduct site inspections at least once every 7 calendar days for sites that discharge to a water body designated as an Outstanding Water by the Water Quality Control Commission.

Does the site discharge to Outstanding Waters? Yes No

9.3 Reduced Inspection Frequency

The permittee may perform site inspections at the following reduced frequencies when one of the following conditions exists:

Post-Storm Inspections at Temporarily Idle Sites

For permittees choosing to combine 14-day inspections and post-storm-event- inspections, if no construction activities will occur following a storm event, post-storm event inspections must be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The delay of any post-storm event inspection must be documented in the inspection record. Routine inspections must still be conducted at least every 14 calendar days.

Inspections at Completed Sites/Areas

When the site, or portions of a site are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system at least once every 30 days. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:

- i. all construction activities resulting in ground disturbance are complete;

- ii. all activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
- iii. the SWMP has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph.

Winter Conditions Inspections Exclusion

Inspections are not required for sites that meet all of the following conditions: construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This inspection exception is applicable only during the period where melting conditions do not exist, and applies to the routine 7-day, 14-day and monthly inspections, as well as the post-storm-event inspections. When this inspection exclusion is implemented, the following information must be documented in accordance with the requirements in Part II:

- i. dates when snow cover existed;
- ii. date when construction activities ceased; and
- iii. date melting conditions began.

9.4 Inspection Scope

Areas to be Inspected

When conducting a site inspection, the following areas, if applicable, must be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters:

- i. construction site perimeter;
- ii. all disturbed areas;
- iii. designated haul routes;
- iv. material and waste storage areas exposed to precipitation;
- v. locations where stormwater has the potential to discharge offsite; and
- vi. locations where vehicles exit the site. For corrective actions that cannot be completed immediately a note will be added describing the delay and an alternate schedule will be provided

Inspection Requirements

- i. Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.
- ii. Determine if there are new potential sources of pollutants.
- iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.
- iv. Identify all areas of non-compliance with the permit requirements and, if necessary, implement corrective action in accordance with Part IB.1.c.

Inspection Reports

The permittee must keep a record of all inspections conducted for each permitted site. Inspection reports must identify any incidents of noncompliance with the terms and conditions of this permit. Inspection records must be retained in accordance with Part II.O. and signed in accordance with Part I.A.3.f. At a minimum, the inspection report must include:

- i. the inspection date;

- ii. name(s) and title(s) of personnel conducting the inspection;
- iii. weather conditions at the time of inspection;
- iv. phase of construction at the time of inspection;
- v. estimated acreage of disturbance at the time of inspection
- vi. location(s) of discharges of sediment or other pollutants from the site;
- vii. location(s) of control measures needing maintenance;
- viii. location(s) and identification of inadequate control measures;
- ix. location(s) and identification of additional control measures are needed that were not in place at the time of inspection;
- x. description of the minimum inspection frequency (either in accordance with Part I.D.2., I.D.3. or I.D.4.) utilized when conducting each inspection.
- xi. deviations from the minimum inspection schedule as required in Part I.D.2.;
- xii. after adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the report shall contain a statement as required in Part I.A.3.f.

Inspection Records are maintained in the Records tab of the SWMP.

10 LOCAL MUNICIPALITY REQUIREMENTS

10.1 City of Greeley Minimum Performance and Design Criteria

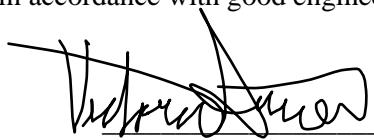
The City shall evaluate the adequacy and appropriateness of the proposed BMPs based on their fulfillment of the previously stated objectives, as well as the satisfaction of the following minimum performance and design criteria:

1. Erosion Control Plan approved by the City.
2. Adjacent properties are protected from increased erosion and/or sediment deposition.
3. Construction access routes protect adjacent properties from sediment and mud tracking through either immediate placement of street base or construction of mud pads.
4. Timing and stabilization of sediment trapping practices is scheduled before site grading and construction.
5. Sediment traps/basins must be constructed if one (1) acre, or greater, of disturbed land drains to a common outfall.
6. All disturbed areas shall be adequately stabilized as defined in the USDCM, Volume 3, “Best Management Practices”. Permanent or temporary soil stabilization shall be required within 7 days after final grade is reached. If disturbed areas or stockpiles are not brought to final grade within 30 days following the initial disturbance, or re-disturbance, temporary stabilization measures shall be required.
7. All storm drain inlets shall be protected from the entry of sediment-laden water.
8. The landowner shall be held responsible for the long-term stability of cut and fill slopes and the successful establishment of permanent vegetative cover on exposed soil as defined in the USDCM, Volume 3.
9. Inspection of all erosion and sediment control BMPs shall be required at the end of each day's work, with necessary maintenance and repairs provided immediately.
10. All temporary erosion and sediment control measures shall be removed as soon as their function has been fulfilled. Sediment traps/basins shall be cleaned and removed, or stabilized, when all upstream areas are permanently stabilized.
11. Construction work in or directly adjacent to a watercourse shall require adequate bed and bank stabilization as defined in the USDCM, Volume 3. Construction work within a defined channel shall require a stream crossing structure for bed and bank protection.
12. Construction work in flowing channels is prohibited in the months of May and June.
13. The construction of underground utilities shall be included as a land disturbing activity. All excavated material shall be placed where sediment will erode back into the trench. All trenches shall be backfilled by the end of the days work; backfill shall be permanently stabilized before construction is considered complete.

11 SWMP PREPARER STATEMENT

This is to certify that this plan was prepared in accordance with the Clean Water Act. This document was also prepared in accordance with the Colorado Health and Environment General Permit No. COR-400000. This plan was prepared in accordance with good engineering, hydrologic and pollution control practices.

Signature:



Date: 10/21/2019

Name: Victoria Arnot

Title: Plan Preparer

Company CMS Environmental Solutions, LLC

12 LIMITATIONS

This SWMP was prepared in accordance with applicable stormwater regulations. This document represents a planning tool to assist the client to comply with all applicable stormwater regulations during the construction of the project.

It is the clients' sole responsibility on how to operate the construction site and not CMS Environmental Solutions, LLC. Therefore, CMS Environmental Solutions, LLC is not liable for operational decisions made by the client and for the clients' failure to follow recommendations as outlined in this SWMP.

Client agrees to hold CMS Environmental Solutions, LLC Harmless for any potential violations the client may receive for operational violations brought forth by any regulatory agency including all Federal, State and local agencies.

By accepting the SWMP the client agrees to this disclaimer and its conditions.

Security

BMP	Unit	Installation Unit Cost	Quantity	Cost
Seeding and Mulching	AC	\$2,500.00	2.7	\$6,750.00

STORMWATER MANAGEMENT PLAN (SWMP)

FOR

POUDRE TRAIL APARTMENTS

W VALLEY DR & POUDRE TRAIL DR

CITY OF GREELEY, WELD COUNTY, CO 80631

LOCATED IN PORTION OF SECTION 1, TOWNSHIP 5 NORTH, RANGE 66 WEST OF THE 6TH P.M.
LATITUDE 40.43527°, LONGITUDE -104.72946°

CITY OF GREELEY STANDARD EROSION & SEDIMENT CONTROL NOTE

THESE EROSION & CONTROL DETAILS HAVE BEEN SUBMITTED TO THE CITY OF GREELEY IN FULFILLMENT OF THE CITY CRITERIA. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE NEEDED IF UNFORESEEN PROBLEMS OCCUR OR IF THE SUBMITTED PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS PLAN SHALL RUN WITH THE LAND AND BE THE OBLIGATION OF THE LAND OWNER UNTIL SUCH TIME AS THE PLAN IS PROPERLY COMPLETED, MODIFIED, OR VOIDED.

MATTHEW PROEHL
HARGRAVE CONSTRUCTION INC,

DATE

NOTE: THESE EROSION & SEDIMENT CONTROL DETAILS IN AND OF THEMSELVES DO NOT FULFILL THE REQUIREMENTS OF THE COLORADO DEPARTMENT OF PUBLIC HEALTH: STORMWATER CONSTRUCTION PERMIT FOR A STORMWATER MANAGEMENT

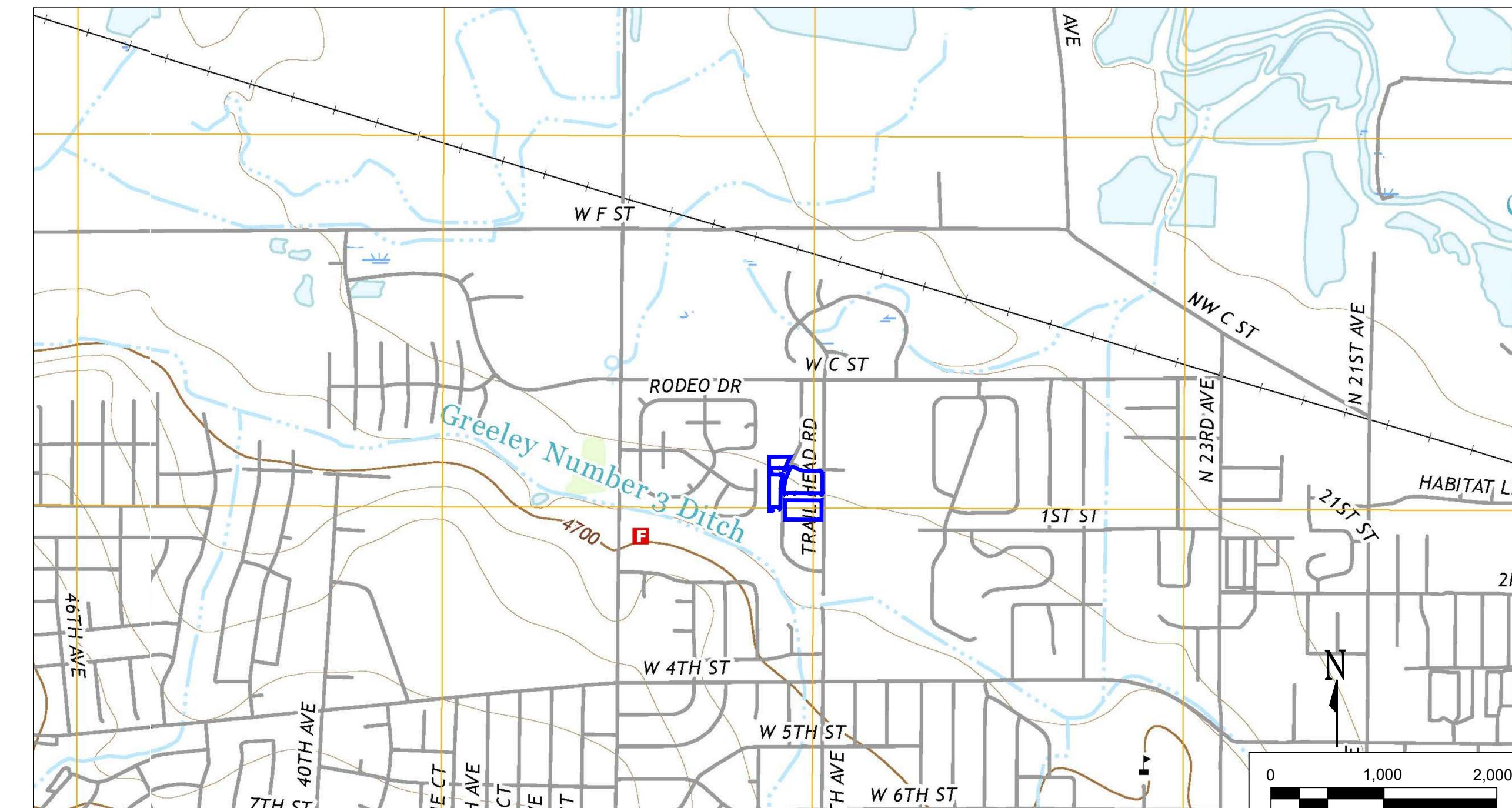
ENGINEER'S CERTIFICATION
THE CONSTRUCTION PLANS INCLUDED HEREIN HAVE BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF THE EROSION AND SEDIMENT CONTROL PLAN OF THE CITY OF GREELEY.

ESC PLANS PREPARED BY:

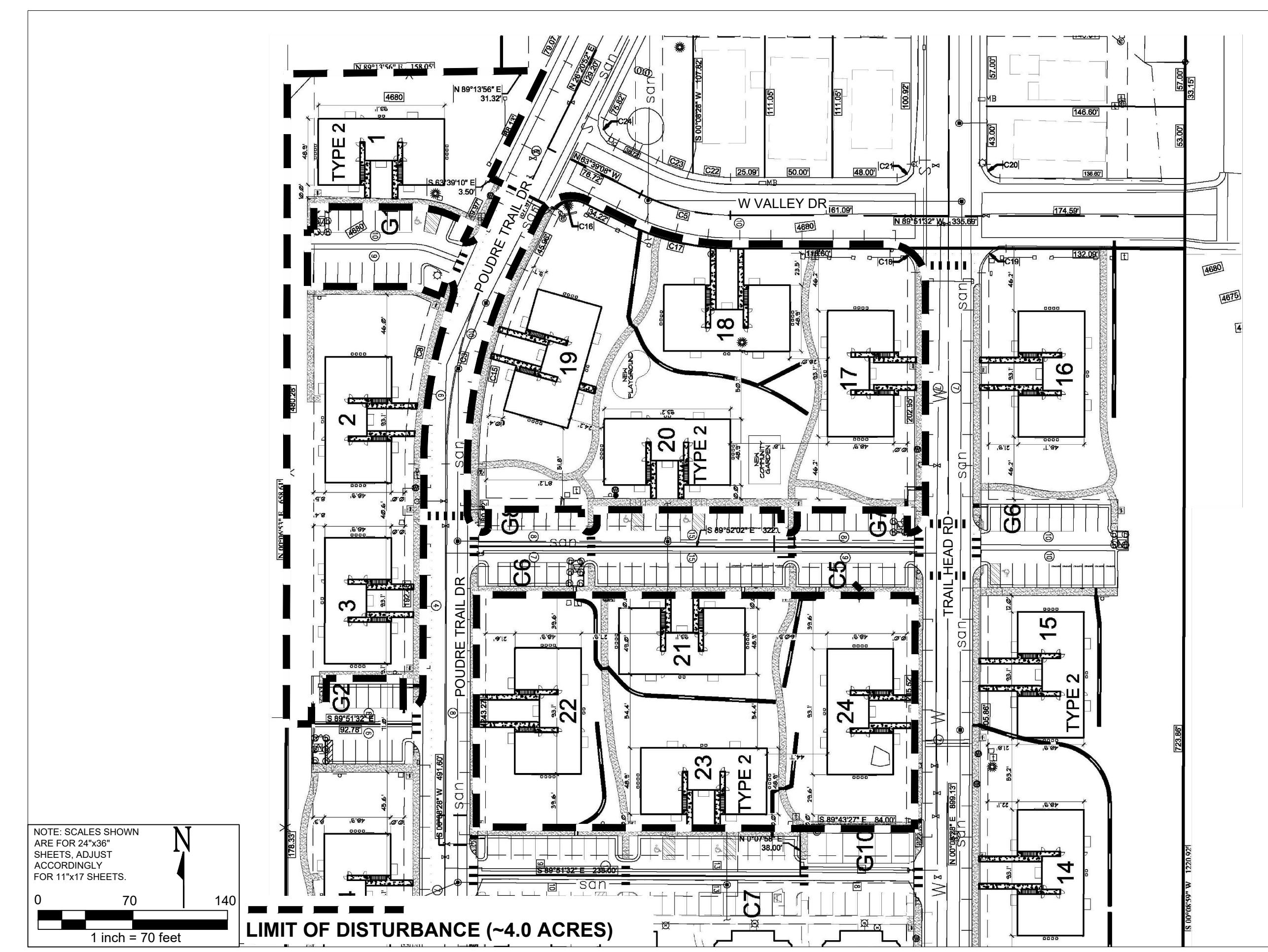
DAVID C. HAINES, P.E. DATE P.E. NUMBER
CMS ENVIRONMENTAL SOLUTIONS

OPERATOR:
MATTHEW PROEHL
HARGRAVE CONSTRUCTION INC.
1905 W 8TH ST, #200
LOVELAND, CO 80537
PHONE: 509-590-5030
EMAIL: MQ3CONSTRUCTION@GMAIL.COM

SHEET INDEX	
EC-1	COVER SHEET
EC-2	VERTICAL DEVELOPMENT EROSION AND SEDIMENT CONTROL PLAN PAGE 1
EC-3	BMP DETAILS PAGE 1
EC-4	BMP DETAILS PAGE 2
EC-5	BMP DETAILS PAGE 3



VICINITY MAP



SITE MAP



Know what's below.
Call before you dig.
CALL UTILITY NOTIFICATION
CENTER OF COLORADO
CALL 811 OR
1-800-922-1987

PROJECT TITLE: POUDRE TRAIL APARTMENTS
SHEET TITLE: COVER SHEET
PERMITTEE: HARGRAVE CONSTRUCTION INC.
1905 W 8TH ST, #200, LOVELAND, CO 80537

COVER SHEET

PROJECT TITLE: POUDRE TRAIL APARTMENTS
SHEET TITLE: COVER SHEET
PERMITTEE: HARGRAVE CONSTRUCTION INC.
1905 W 8TH ST, #200, LOVELAND, CO 80537

EC-1

NO.	DATE	REVISIONS
0	10/09/2019	ORIGINAL
ENG	CAD	DH
ENG	CAD	VA



Environmental Solutions
ENVIRONMENTAL COMPLIANCE MADE SIMPLE



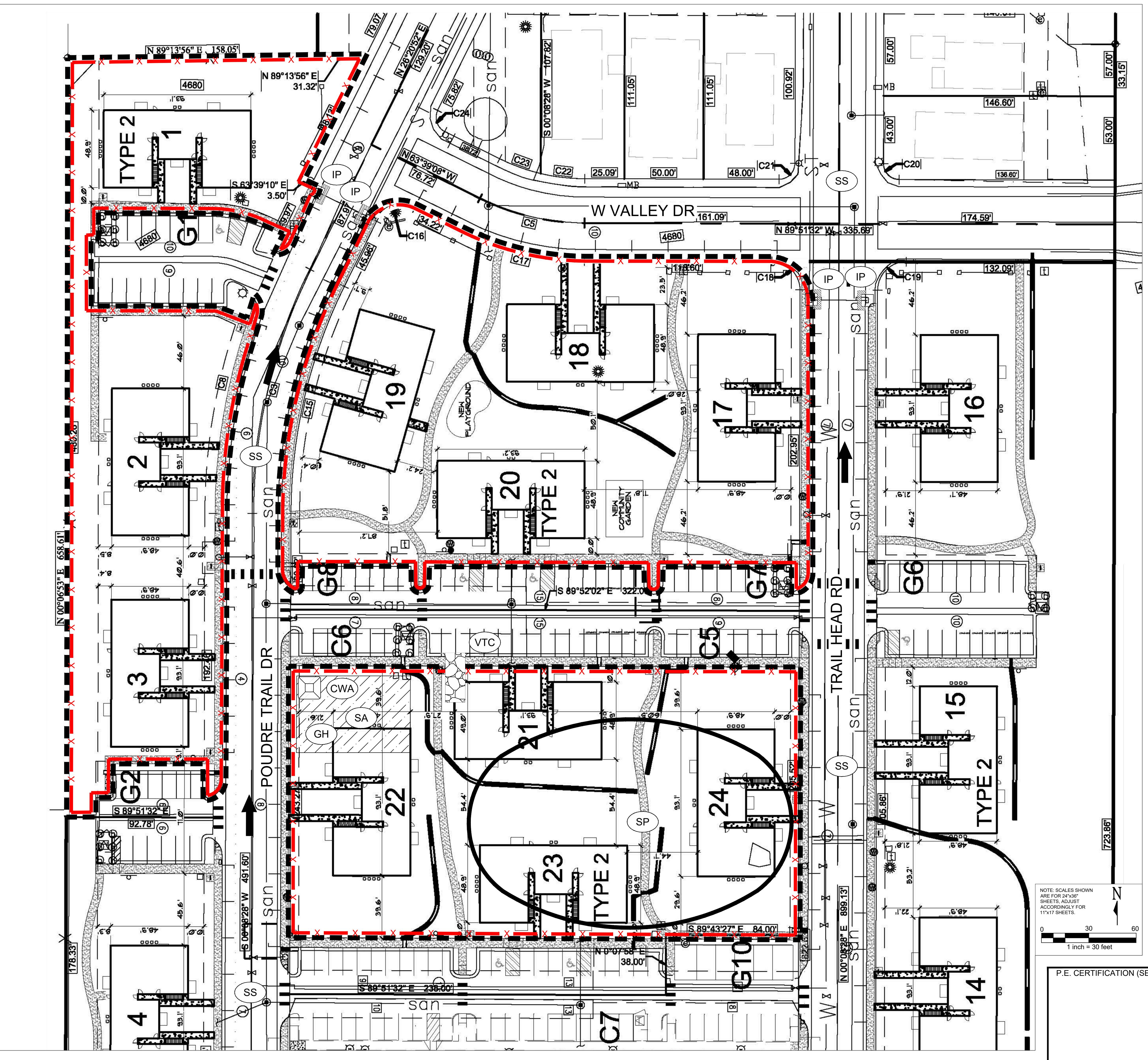
1778 S. Broadway,
Denver, CO 80210
P: (303) 593-2107
F: (303) 923-3416

PROJ #: 10-2019
DATE: 10/09/2019
DESIGN ENG: VA
CHECKED BY: DH

VERTICAL CONSTRUCTION NOTES:

- REFER TO CONSTRUCTION PLANS FOR FULL CONSTRUCTION DETAILS INCLUDING BENCHMARK.
- SEQUENCING OF THE PROJECT WILL BE DETERMINED DURING CONSTRUCTION AND UPDATES CAN BE OBTAINED FROM SITE SUPERINTENDENT. REFER TO THE SITE MAP IN SECTION 6.1 OF THE SWMP FOR FURTHER SCHEDULING INFORMATION.
- CONSTRUCTION AND DISTURBANCE OF THE GROUND WILL BE CONFINED TO THE LIMITS OF CONSTRUCTION AND THE LOTS WITHIN THE PERMITTED AREA. ANY UNEXPECTED DISTURBANCE OUTSIDE THE PERMITTED AREA WILL REQUIRE STABILIZATION AND POSSIBLE MODIFICATION OF THE PERMIT.
- SOILS FROM FOUNDATION EXCAVATION WILL BE STOCKPILED ON EACH LOT OR THE ADJACENT LOT IF POSSIBLE. ENSURE PROPER LOADING OPERATIONS TAKE PLACE. REFER TO SWMP SECTION 3 FOR ADDITIONAL INFORMATION.
- CWA LOCATION(S) WILL BE DETERMINED IN FIELD. THE CONCRETE WASHOUTS NEED TO BE INSTALLED PRIOR TO PLACING ANY CONCRETE ON THE SITE. ADEQUATE SIGNAGE SHALL BE PLACED AROUND THE PROJECT TO IDENTIFY THE LOCATION OF THE CONCRETE WASHOUT. LOCATION OF STOCKPILING AREA WILL BE DETERMINED IN THE FIELD AND UPDATED ON THE ACTIVE SITE MAP.
- WORKERS WILL BE INSTRUCTED TO PARK ON PAVED ROADWAYS OR ADJACENT PARKING LOTS. IF AN ADDITIONAL STAGING AREA IS REQUIRED AT THIS POINT OF CONSTRUCTION IT WILL BE REFLECTED IN ACTIVE SITE MAP.
- LOCATIONS OF STABILIZED CONSTRUCTION ENTRANCES (SCE) ARE TO BE DETERMINED IN FIELD. MUD MATS OR MODIFIED VTC'S DO NOT NEED TO BE INSTALLED UNTIL DISTURBANCE OF AN AREA COMMENCES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SWEEPING AND CLEAN UP OF ALL PAVED AREAS SURROUNDING THE PROJECT ON A DAILY BASIS, AS NEEDED DURING THE DAY WHEN SEDIMENT AND OTHER MATERIALS ARE TRACKED OR DISCHARGED ONTO THEM OR PRIOR TO ANY STORM EVENT. ADDITIONAL GOOD HOUSEKEEPING PRACTICES (PORTABLE TOILETS, DUMPSTERS) WILL BE IMPLEMENTED THROUGHOUT CONSTRUCTION AND WILL BE REFLECTED ON THE ACTIVE SITE MAP.
- DEPLOYMENT AND/OR REMOVAL OF THE ABOVE BMP'S ARE DEPENDENT OF WORK SEQUENCING AND PROXIMITY TO EACH DISTURBANCE AREA. ADDITIONAL BMPS MAY BE REQUIRED PER THE DETAILS OR NARRATIVE.
- IT IS THE PERMITTEE'S RESPONSIBILITY TO ADJUST OR REMOVE INLET PROTECTIONS AS NECESSARY PRIOR TO LARGE RAIN EVENTS THAT MAY EXCEED THE NORMAL CAPACITY OF THE INLET PROTECTION TO PREVENT FLOODING AND POTENTIAL PROPERTY DAMAGE.

PLANNED BMP LEGEND	
	CONCRETE WASHOUT AREA
	INLET PROTECTION (G(ONGRADE), S(SUMP), A(AREA))
	LIMITS OF CONSTRUCTION
	SILT FENCE OR COMPARABLE BMP (STRAW WATTLE, ETC.)
	TREE LAWN CONTROLS (ECB, HEAVY WEIGHT WATTLE, SEDIMENT CONTROL LOG, ETC.)
	STAGING AREA
	STOCKPILING AREA
	VEHICLE TRACKING CONTROL
	GOOD HOUSEKEEPING
	STREET SWEEPING
	SURFACE FLOW DIRECTION



PROJECT TITLE:	POUDRE TRAIL APARTMENTS	
SHEET TITLE:	VERTICAL CONSTRUCTION	
PERMITTEE:	HARGRAVE CONSTRUCTION INC.	1905 W 8TH ST, #200, LOVELAND, CO 80537
PROJ #:	10-2019	
DATE:	10/09/2019	
DESIGN ENG:	VA	
CHECKED BY:	EC-2	DH

GENERAL EROSION CONTROL NOTES

CONTRACTOR SHALL INSTALL ALL PERIMETER SEDIMENT AND EROSION CONTROL DEVICES IN ACCORDANCE WITH THE URBAN STORM DRAINAGE CRITERIA MANUAL VOLUME 3 BY UDFCD, CITY OF AURORA STANDARD DETAILS, AND DOUGLAS COUNTY GESC DETAILS. THESE BEST MANAGEMENT PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, SILT FENCE, INLET PROTECTION, VTC LOG, WHEEL WASHOUT, AND SEDIMENT BASINS. BEST MANAGEMENT PRACTICES SHALL BE MAINTAINED BEFORE COMMENCEMENT AND DURING CONSTRUCTION OR GRAZING ACTIVITIES. THE CONTRACTOR SHALL LIMIT CONSTRUCTION OPERATIONS TO WITHIN THE AREAS IN WHICH THEY WILL BE IMMEDIATELY WORKING. THE CONSTRUCTION OF UNDERGROUND UTILITIES SHALL BE INCLUDED AS A LAND DISTURBING ACTIVITY. ALL EXCAVATED MATERIAL SHALL BE PLACED WHERE SEDIMENT WILL ERODE BACK INTO THE TRENCH. ALL TRENCHES SHALL BE BACKFILLED BY THE END OF THE DAYS WORK. BACKFILL SHALL BE PERMANENTLY STABILIZED BEFORE CONSTRUCTION IS CONSIDERED COMPLETE.

ALL DISTURBED AREAS AND SOIL STOCKPILES SHALL BE ADEQUATELY STABILIZED AS DEFINED IN UDFCD, VOLUME 3, CONSTRUCTION BEST MANAGEMENT PRACTICES. ALL DISTURBED SOILS AND SOIL STOCKPILES SHALL BE WATERED AND MAINTAINED IN A ROUGHENED CONDITION AT ALL TIMES DURING CONSTRUCTION ACTIVITIES TO PREVENT WIND-CAUSED EROSION. ALL LAND DISTURBING ACTIVITIES WILL BE IMMEDIATELY DISCONTINUED WHEN FUGITIVE DUST IMPACTS ADJACENT PROPERTIES, AS DETERMINED BY CITY INSPECTOR. PERMANENT OR TEMPORARY STABILIZATION (SEE EROSION CONTROL STRUCTURES - DETAIL 12-2 FOR SPECIFICATIONS) SCL STABILIZATION SHALL BE REQUIRED WITHIN 14 DAYS AFTER FINAL GRADE IS REACHED. IF DISTURBED AREAS OR STOCKPILES ARE NOT BROUGHT TO FINAL GRADE WITHIN 30 DAYS FOLLOWING THE INITIAL DISTURBANCE OR RE-DISTURBANCE, TEMPORARY STABILIZATION MEASURES SHALL BE REQUIRED. NO SOIL STOCKPILE SHALL EXCEED TEN (10) FEET IN HEIGHT. ALL SOIL STOCKPILE SIDE SLOPES SHALL NOT EXCEED A SLOPE OF 4V:1H.

ALL STORM SEWER INLETS SHALL BE PROTECTED FROM THE ENTRY OF SEDIMENT-LADEN WATER. HAY BALES ARE NOT RECOGNIZED BY THE CITY OF GREELEY AS AN ACCEPTABLE FORM OF EROSION CONTROL.

INSPECTION OF ALL EROSION AND SEDIMENT CONTROL BMP'S SHALL BE REQUIRED AT THE END OF EACH DAY'S WORK, WITH NECESSARY MAINTENANCE AND REPAIRS PROVIDED IMMEDIATELY. THE CITY OF GREELEY INSPECTOR SHALL, AT THEIR DISCRETION, REQUIRE ANY EROSION CONTROL DEVICES BE REPAIRED, REPLACED, RELOCATED, MODIFIED, OR REMOVED. SUCH REQUESTS SHALL BE COMPLETED WITHIN 5 WORKING DAYS FOLLOWING RECEIPT OF THE WRITTEN REQUEST FROM THE INSPECTOR. ALL PUBLIC RIGHT OF WAY POLLUTED WITH DIRT, MUD, OR DEBRIS SHALL BE SWEEP CLEAN AT THE END OF EACH DAYS WORK OR AFTER STORM EVENTS, AS NECESSARY. ALL TEMPORARY AND PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AS SOON AS THEIR FUNCTION HAS BEEN FULFILLED. SEDIMENT TRAPS/BASINS SHALL BE CLEANED AND REMOVED, OR STABILIZED, WHEN ALL UPSTREAM AREAS ARE PERMANENTLY STABILIZED. THE SITE CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL SILT FROM THE SITE, IF IT IS NOT REUSABLE ON SITE.

THE LANDOWNER SHALL BE HELD RESPONSIBLE FOR THE LONG-TERM STABILITY OF CUT AND FILL SLOPES AND THE SUCCESSFUL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER ON EXPOSED SOIL AS DEFINED IN THE UDFCD, VOLUME 3, CONSTRUCTION BEST MANAGEMENT PRACTICES.

ALL CONSTRUCTION SUPPLIES OR MATERIALS USED OR STORED ON SITE MUST BE DISPOSED OF PROPERLY AND MUST MEET ALL APPLICABLE MATERIAL SAFETY DATA SHEET CRITERIA.

THE STATE STORMWATER DISCHARGE PERMIT HOLDER MAY BE LIABLE FOR ANY VIOLATIONS RESULTING FROM THE ACTIONS TAKEN BY SITE CONTRACTORS, SUBCONTRACTORS, MAINTENANCE CREWS, ETC.

EROSION CONTROL STRUCTURES
DETAIL 12-1
DATE: MARCH 2007 Revised Aug 2019 SCALE: N.T.S.

INLET PROTECTION

INLET PROTECTION - SUMP (IP)

INLET PROTECTION - SUMP WITH DROP INLET GRATE (IP)

ADAPTED FROM URBAN STORM DRAINAGE CRITERIA MANUAL VOLUME 3 BY UDFCD, CITY OF AURORA STANDARD DETAILS, AND DOUGLAS COUNTY GESC DETAILS

CMS ENVIRONMENTAL SOLUTIONS, LLC
1778 S. Broadway, Denver, CO 80210
P: (720) 343-6561, F: (303) 923-3416
WWW.CMSENVIRO.COM

IP-1

ADAPTED FROM URBAN STORM DRAINAGE CRITERIA MANUAL VOLUME 3 BY UDFCD, CITY OF AURORA STANDARD DETAILS, AND DOUGLAS COUNTY GESC DETAILS

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IP-2

**Public Works
Stormwater Management**

**1778 S. Broadway, Denver, CO 80210
P: (303) 923-2107
F: (303) 923-3416**

**Environmental Solutions
ENVIRONMENTAL COMPLIANCE MADE SIMPLE**

REVISIONS	NO.	DATE	ENG	CAD
ORIGINAL	0	10/09/2019	DH	VA

PROJECT TITLE:	BMP DETAILS PAGE 1	HARGRAVE CONSTRUCTION INC. 1905 W 8TH ST, #200, LOVELAND, CO 80537
SHEET TITLE:		
PERMITTEE:		
PROJ #:	10-2019	
DATE:	10/09/2019	
DESIGN ENG:	VA	
CHECKED BY:	DH	
EC-3		

INLET PROTECTION

SEDIMENT CONTROL LOG

SEDIMENT CONTROL LOG AS CHECK STRUCTURES

SILT FENCE

POUDRE TRAIL APARTMENTS

ADAPTED FROM URBAN STORM DRAINAGE CRITERIA MANUAL VOLUME 3 BY UDFCD, CITY OF AURORA STANDARD DETAILS, AND DOUGLAS COUNTY GESC DETAILS

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IP-3

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SCL-1

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MARCH 2018

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SCL-2

ADAPTED FROM URBAN STORM DRAINAGE CRITERIA MANUAL VOLUME 3 BY UDFCD, CITY OF AURORA STANDARD DETAILS, AND DOUGLAS COUNTY GESC DETAILS

CMS ENVIRONMENTAL SOLUTIONS, LLC
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JUNE 2018

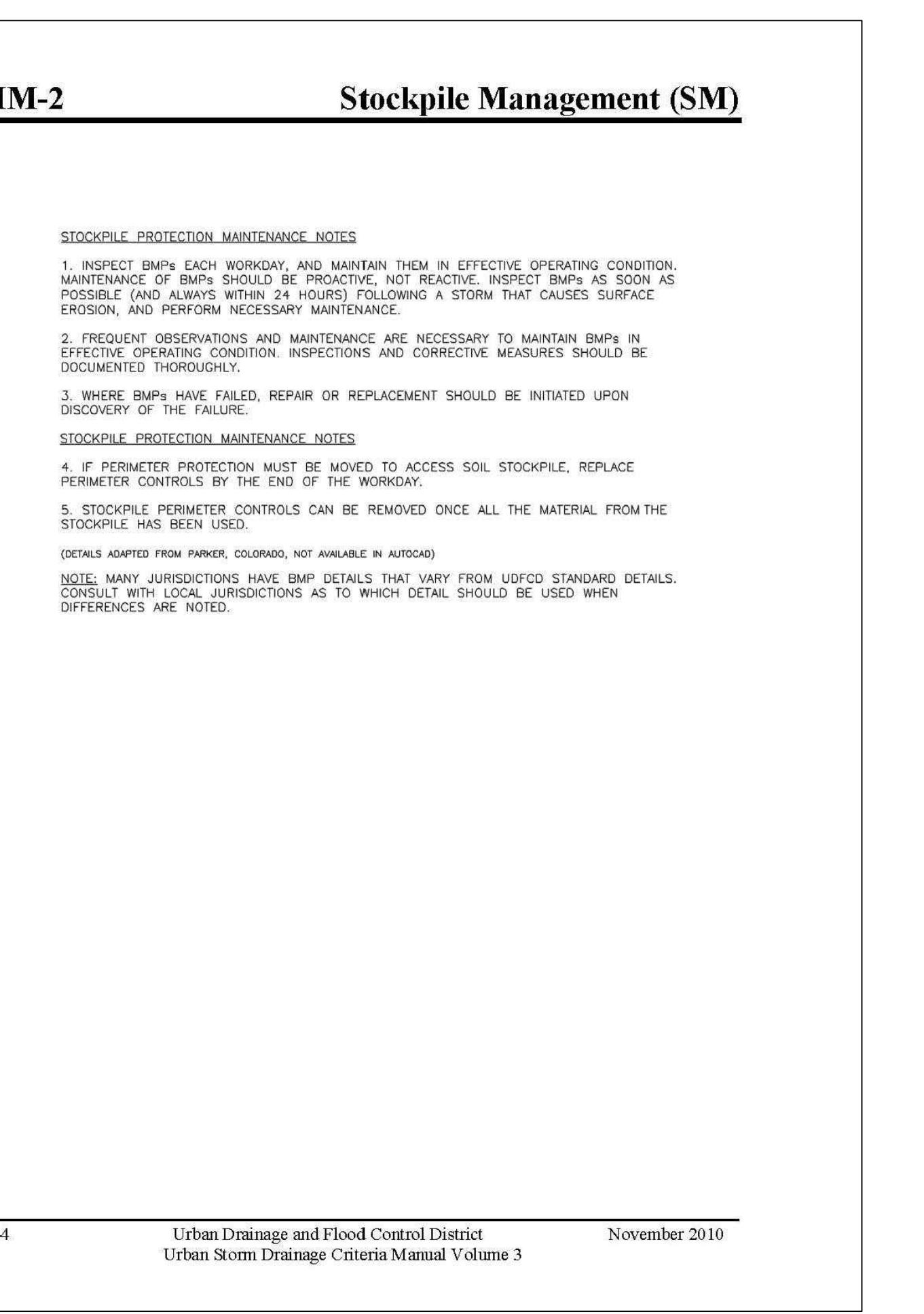
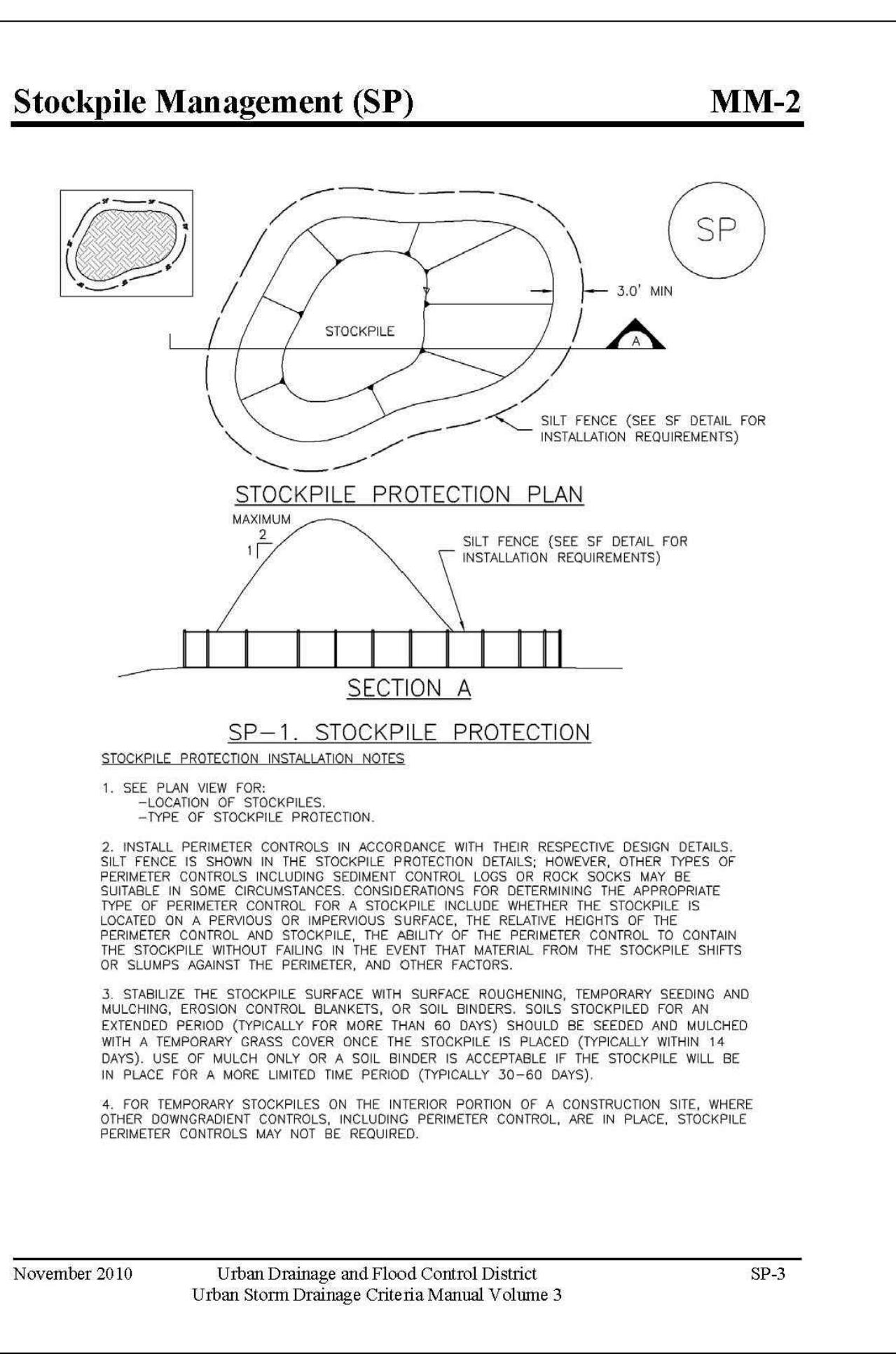
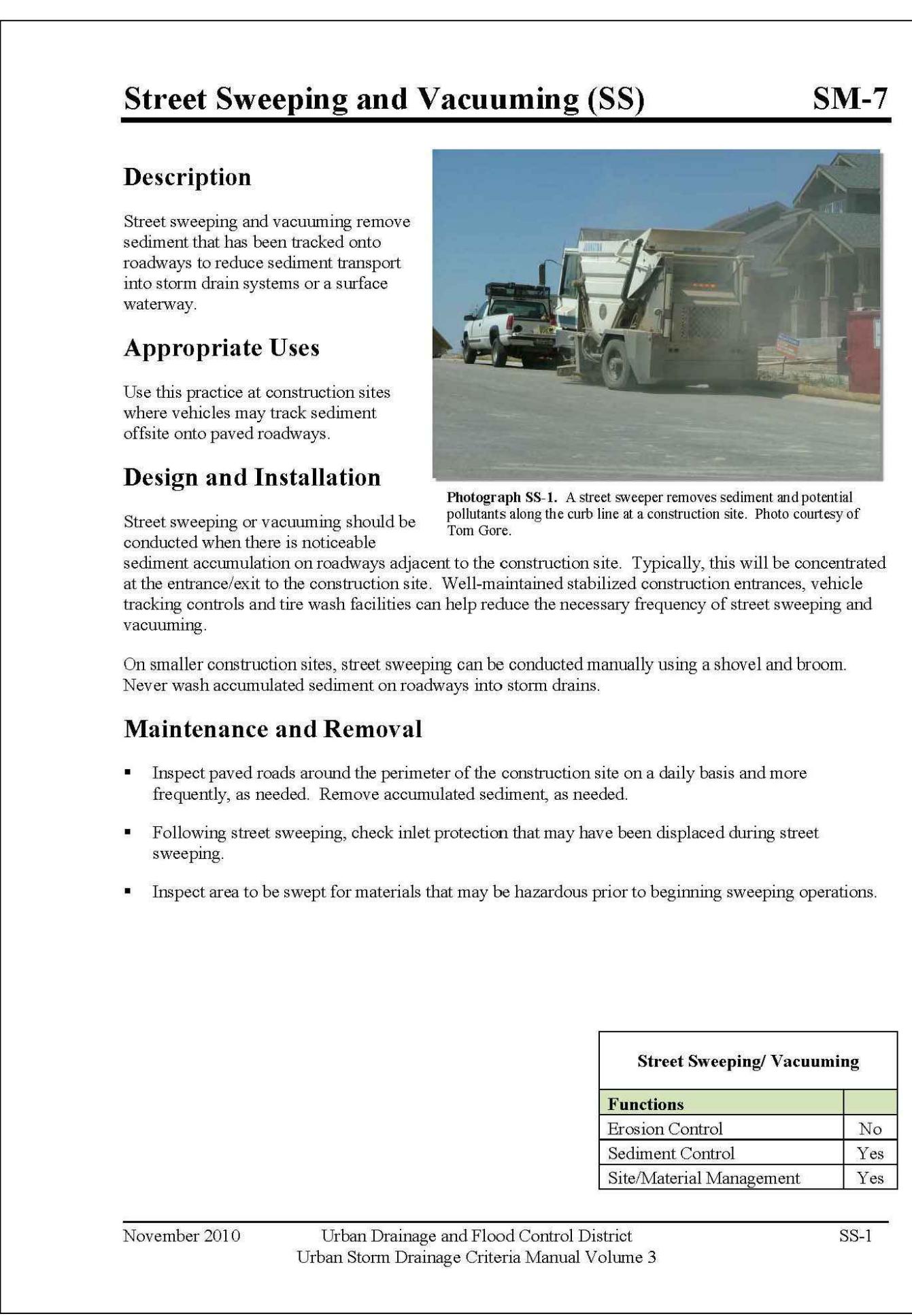
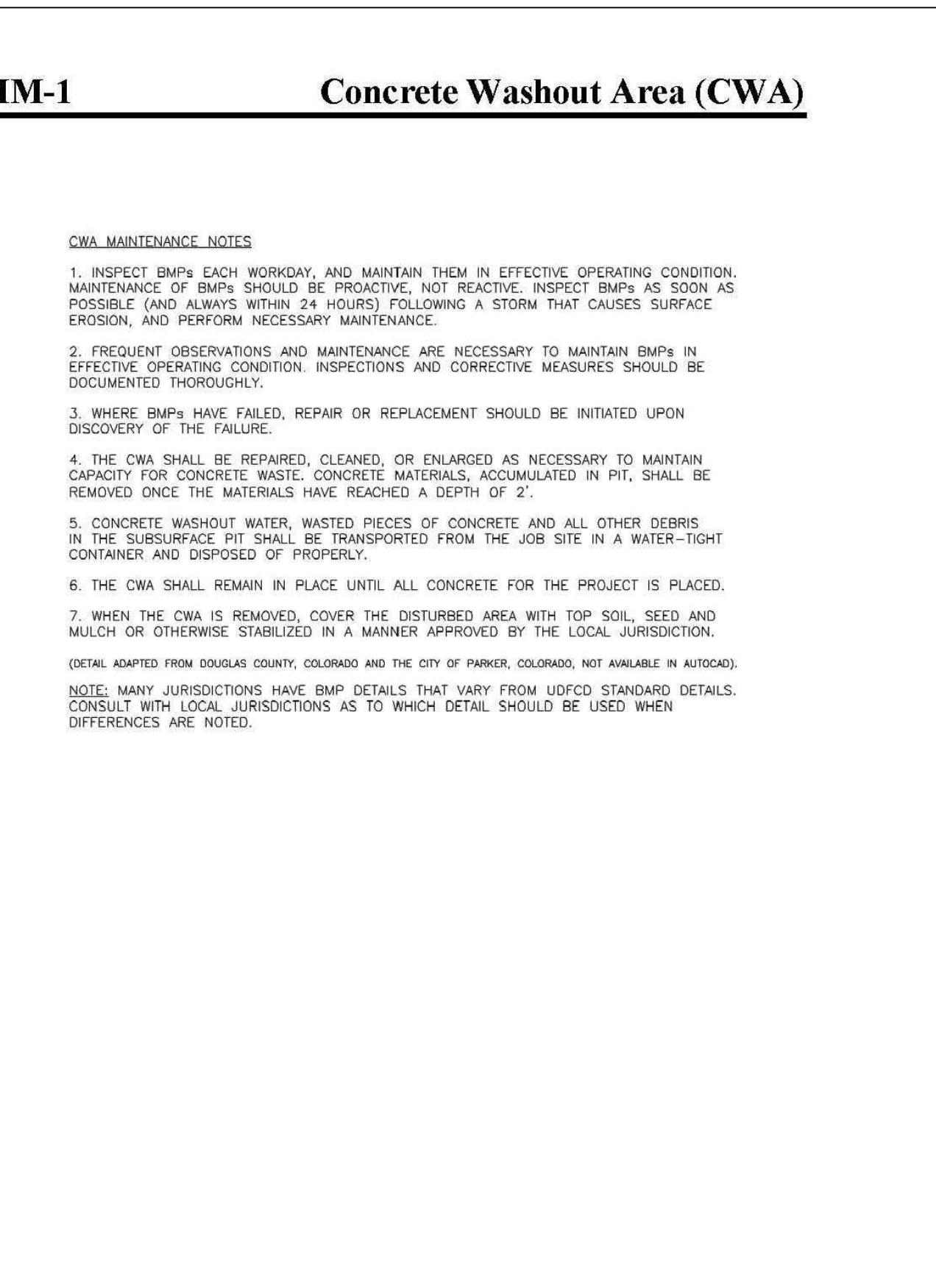
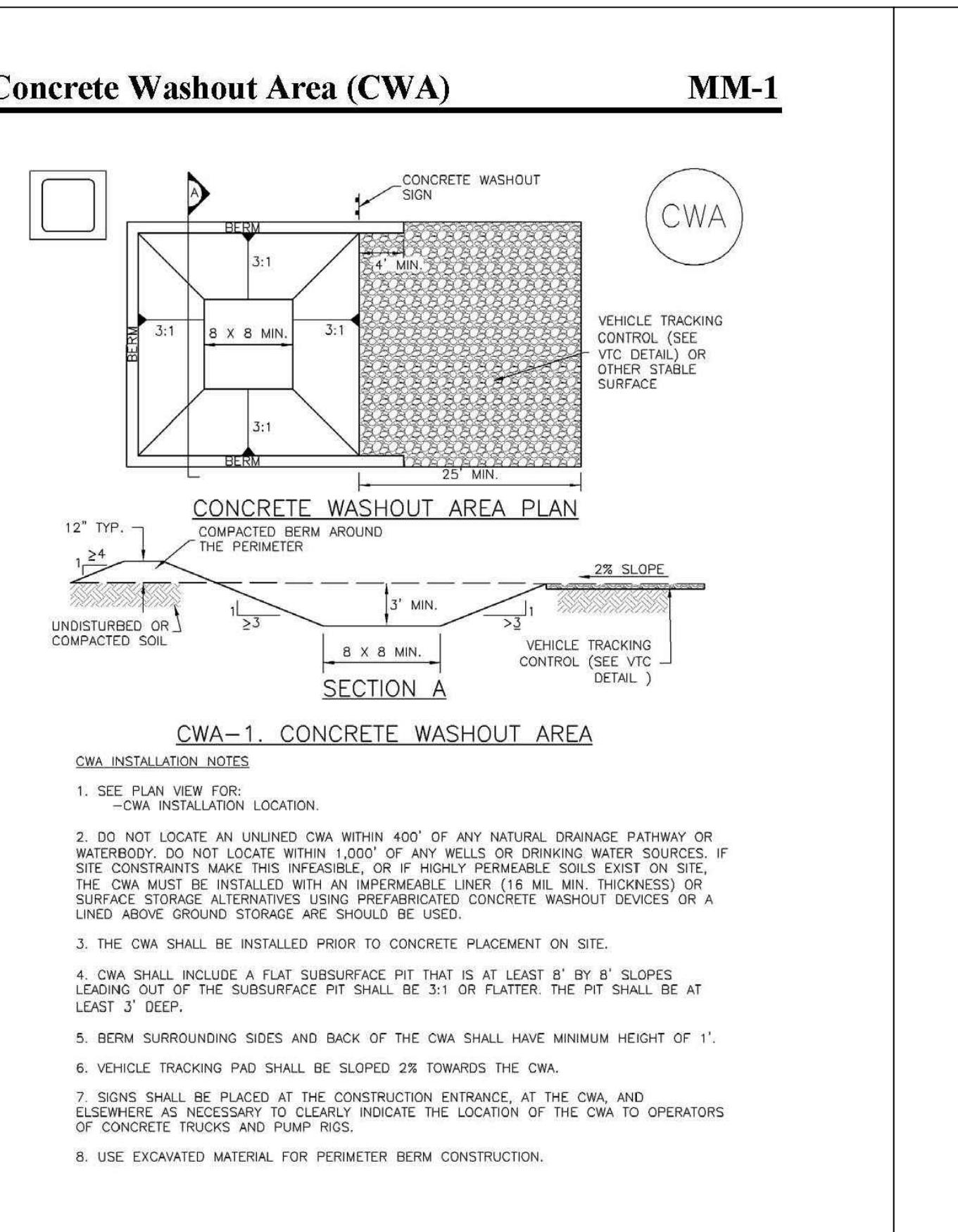
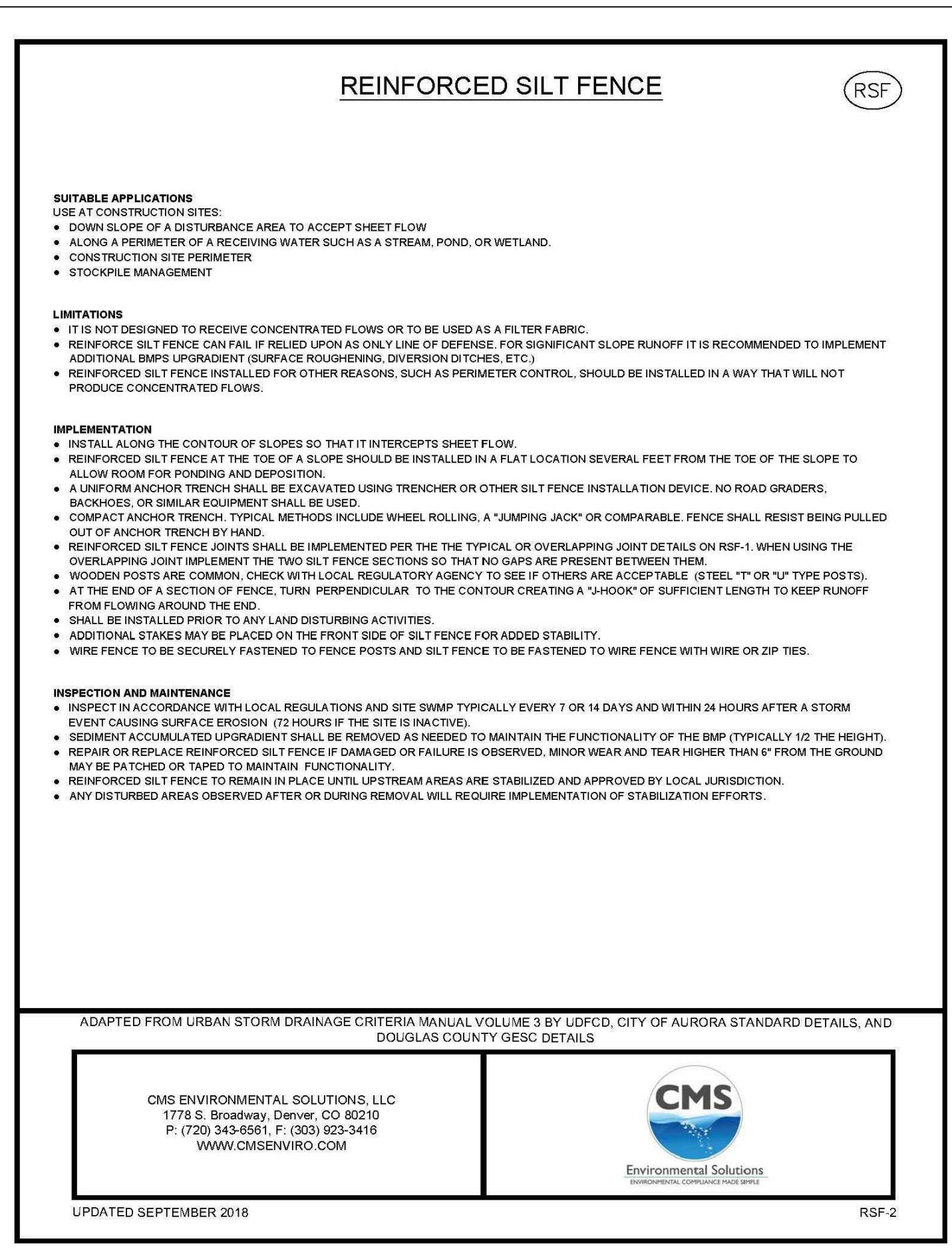
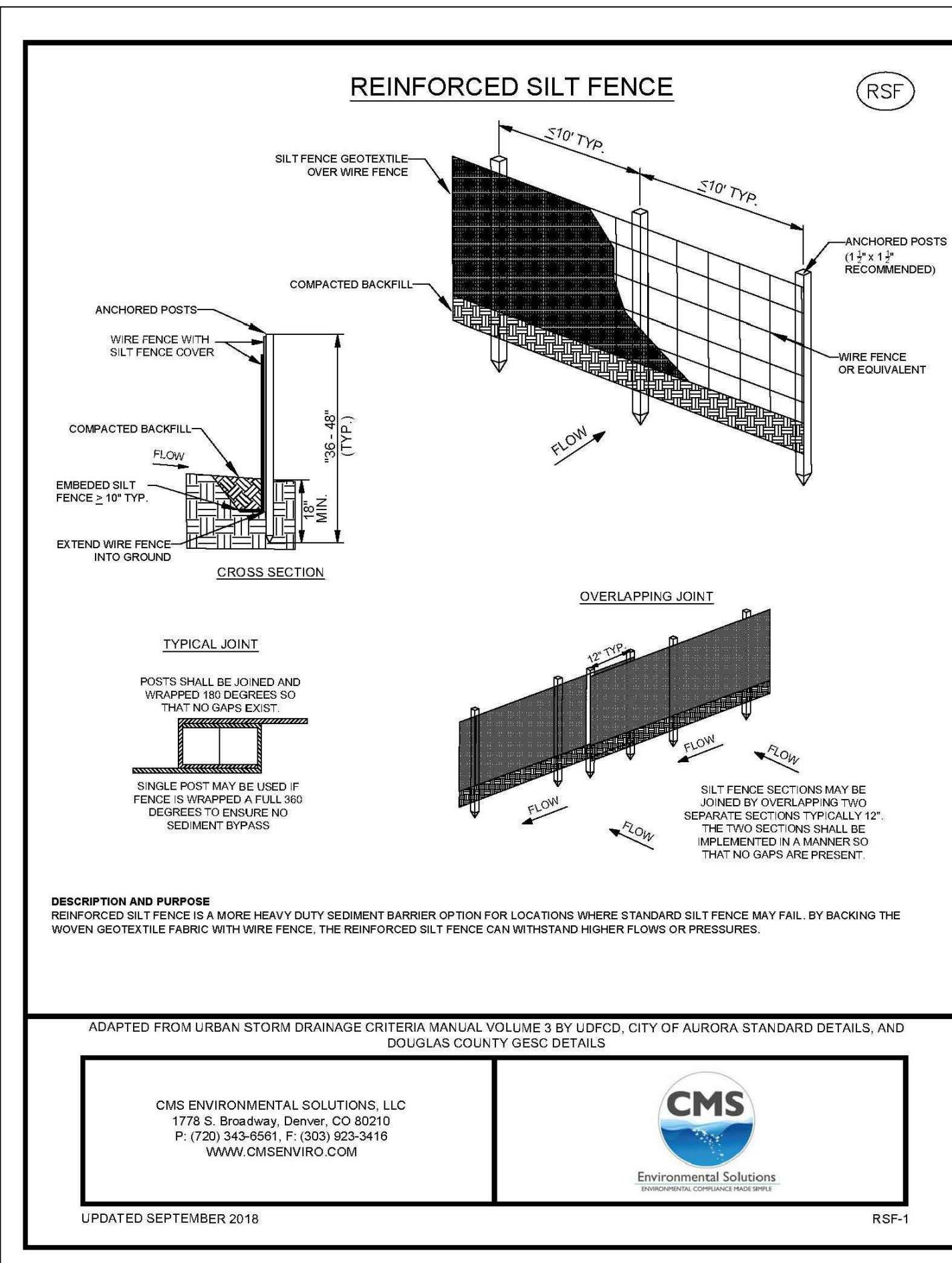
SF-1

PROJ #:	10-2019
DATE:	10/09/2019
DESIGN ENG:	VA
CHECKED BY:	DH

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POUDRE TRAIL APARTMENTS

BMP DETAILS PAGE 2

HARGRAVE CONSTRUCTION INC.

1905 W 8TH ST, #200, LOVELAND, CO 80537

PROJECT TITLE: SHEET TITLE: PERMITTEE: PROJ #: DATE: DESIGN ENG: CHECKED BY:

10-2019 10/09/2019 VA DH EC-4

1778 S. Broadway,
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NO.	DATE	REVISIONS
0	10/09/2019	ORIGINAL

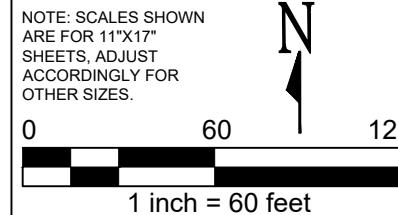
Good Housekeeping Practices (GH)	MM-3	Good Housekeeping Practices (GH)	MM-3	Good Housekeeping Practices (GH)	MM-3	Good Housekeeping Practices (GH)	MM-3									
Description		MM-3	Good Housekeeping Practices (GH)		MM-3	Good Housekeeping Practices (GH)										
Implement construction site good housekeeping practices to prevent pollution associated with solid, liquid and hazardous construction-related materials and wastes. Stormwater Management Plans (SWMPs) should clearly specify BMPs including these good housekeeping practices:		<ul style="list-style-type: none"> ○ Recycle materials whenever possible (e.g., paper, wood, concrete, oil). ○ Segregate and provide proper disposal options for hazardous material wastes. ○ Clean up litter and debris from the construction site daily. ○ Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters, and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to minimize the likelihood of contaminated discharges. ○ Empty waste containers before they are full and overflowing. 		<ul style="list-style-type: none"> ○ Hazardous waste containers should be inspected to ensure that all containers are labeled properly and that no leaks are present. 		<ul style="list-style-type: none"> ○ Do not washout concrete trucks or equipment into storm drains, streets, gutters, uncontained areas, or streams. Only use designated washout areas. 										
<ul style="list-style-type: none"> ▪ Provide for waste management. ▪ Establish proper building material staging areas. ▪ Designate paint and concrete washout areas. ▪ Establish proper equipment/vehicle fueling and maintenance practices. ▪ Control equipment/vehicle washing and allowable non-stormwater discharges. ▪ Develop a spill prevention and response plan. 		<ul style="list-style-type: none"> ○ Sanitary and Septic Waste ○ Provide convenient, well-maintained, and properly located toilet facilities on-site. ○ Locate toilet facilities away from storm drain inlets and waterways to prevent accidental spills and contamination of stormwater. ○ Maintain clean restroom facilities and empty portable toilets regularly. ○ Where possible, provide secondary containment pans under portable toilets. ○ Provide tie-downs or stake-downs for portable toilets. ○ Educate employees, subcontractors, and suppliers on locations of facilities. ○ Treat or dispose of sanitary and septic waste in accordance with state or local regulations. Do not discharge or bury wastewater at the construction site. ○ Inspect facilities for leaks. If found, repair or replace immediately. ○ Special care is necessary during maintenance (pump out) to ensure that waste and/or biocide are not spilled on the ground. 		<ul style="list-style-type: none"> ○ Establish Proper Building Material Handling and Staging Areas. The SWMP should include comprehensive handling and management procedures for building materials, especially those that are hazardous or toxic. Paints, solvents, pesticides, fuels and oils, other hazardous materials or building materials that have the potential to contaminate stormwater should be stored indoors or under cover whenever possible or in areas with secondary containment. Secondary containment measures prevent a spill from spreading across the site and may include dikes, berms, curbing, or other containment methods. Secondary containment techniques should also ensure the protection of groundwater. Designate staging areas for activities such as fueling vehicles, mixing paints, plastic mortar, and other potential pollutants. Designated staging areas enable easier monitoring of the use of materials and clean up of spills. Training employees and subcontractors is essential to the success of this pollution prevention principle. Consider the following specific materials handling and staging practices: 		<ul style="list-style-type: none"> ○ Provide storage in accordance with Spill Prevention, Control and Countermeasures (SPCC) requirements and plans and provide cover and impermeable perimeter control, as necessary, for hazardous materials and contaminated soils that must be stored on site. ○ Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or other signs of deterioration and tested for soundness. ○ Reuse and recycle construction materials when possible. 										
Acknowledgement: This Fact Sheet is based directly on EPA guidance provided in Developing Your Stormwater Pollution Prevent Plan (EPA 2007).				<ul style="list-style-type: none"> ▪ Designate Concrete Washout Areas. Concrete contractors should be encouraged to use the washout facilities at their own plant or dispatch facilities when feasible; however, concrete washout commonly occurs on construction sites. If it is necessary to provide for concrete washout areas on-site, designate specific areas and design facilities to handle anticipated washout water. Washout areas should also be provided for paint and stucco operations. Because washout areas can be a source of pollutants from leaks or spills, care must be taken with regard to their placement and proper use. See the Concrete Washout Area Fact Sheet for detailed guidance. 		<ul style="list-style-type: none"> ○ Train employees and subcontractors in proper handling and storage practices. ○ Clearly designate site areas for staging and storage with signs and on construction drawings. Staging areas should be located in areas central to the construction site. Segment the staging area into sub-areas designated for vehicles, equipment, or stockpiles. Construction entrances and exits should be clearly marked so that delivery vehicles enter/exit through stabilized areas with vehicle tracking controls (See Vehicle Tracking Control Fact Sheet). 		<ul style="list-style-type: none"> ○ Establish Proper Equipment/Vehicle Fueling and Maintenance Practices. Create a clearly designated on-site fueling and maintenance area that is clean and dry. The on-site fueling area should have a spill kit, and staff should know how to use it. If possible, conduct vehicle fueling and maintenance activities in a covered area. Consider the following practices to help prevent the discharge of pollutants to stormwater from equipment/vehicle fueling and maintenance. Include the location of designated fueling and maintenance areas and inspection and maintenance procedures in the SWMP. 								
Appropriate Uses				<ul style="list-style-type: none"> ○ Train employees and subcontractors in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shutoff valves, etc.). ○ Inspect on-site vehicles and equipment regularly for leaks, equipment damage, and other service problems. ○ Clearly designate vehicle/equipment service areas away from drainage facilities and watercourses to prevent stormwater run-on and runoff. ○ Use drip pans, drip cloths, or absorbent pads when replacing spent fluids. ○ Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible. 		<ul style="list-style-type: none"> ○ Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or other signs of deterioration and tested for soundness. ○ Reuse and recycle construction materials when possible. 		<ul style="list-style-type: none"> ○ Control Equipment/Vehicle Washing and Allowable Non-Stormwater Discharges. Implement practices to prevent contamination of surface and groundwater from equipment and vehicle wash water. Representative practices include: 								
Good housekeeping practices are necessary at all construction sites.				<ul style="list-style-type: none"> ○ Educate employees and subcontractors on proper washing procedures. ○ Use off-site washing facilities, when available. ○ Clearly mark the washing areas and inform workers that all washing must occur in this area. ○ Contain wash water and treat it using BMPs. Infiltrate washwater when possible, but maintain separation from drainage paths and waterbodies. 												
Design and Installation																
The following principles and actions should be addressed in SWMPs:																
<ul style="list-style-type: none"> ▪ Provide for Waste Management. Implement management procedures and practices to prevent or reduce the exposure and transport of pollutants in stormwater from solid, liquid and sanitary wastes that will be generated at the site. Practices such as trash disposal, recycling, proper material handling, and cleanup measures can reduce the potential for stormwater runoff to pick up construction site wastes and discharge them to surface waters. Implement a comprehensive set of waste-management practices for hazardous or toxic materials, such as paints, solvents, petroleum products, pesticides, wood preservatives, acids, roofing tar, and other materials. Practices should include storage, handling, inventory, and cleanup procedures, in case of spills. Specific practices that should be considered include: 																
Solid or Construction Waste																
<ul style="list-style-type: none"> ○ Designate trash and bulk waste-collection areas on-site. 		Good Housekeeping <table border="1"> <tr> <th>Functions</th> </tr> <tr> <td>Erosion Control</td> <td>No</td> </tr> <tr> <td>Sediment Control</td> <td>No</td> </tr> <tr> <td>Site/Material Management</td> <td>Yes</td> </tr> </table>	Functions	Erosion Control	No	Sediment Control	No	Site/Material Management	Yes							
Functions																
Erosion Control	No															
Sediment Control	No															
Site/Material Management	Yes															
November 2010	Urban Drainage and Flood Control District	GH-1	GH-1	November 2010	Urban Drainage and Flood Control District	GH-2	GH-2	November 2010	Urban Drainage and Flood Control District							
Urban Storm Drainage Criteria Manual Volume 3			Urban Storm Drainage Criteria Manual Volume 3		Urban Storm Drainage Criteria Manual Volume 3		Urban Storm Drainage Criteria Manual Volume 3		Urban Storm Drainage Criteria Manual Volume 3							

NOTE: ADDITIONAL BMP INSTALLATION AND MAINTENANCE SPECIFICATIONS ARE ATTACHED TO SWMP NARRATIVE.

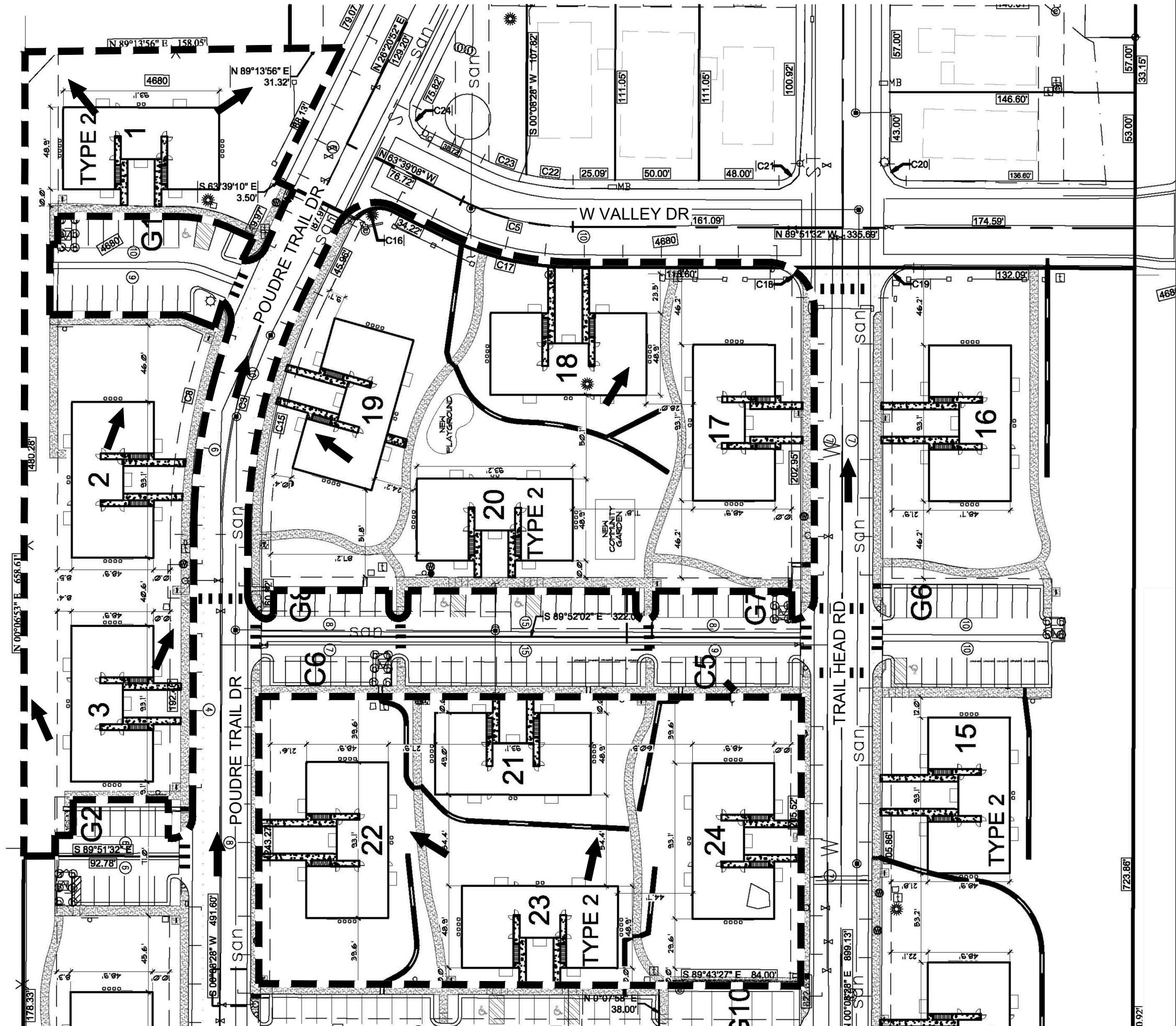
Good Housekeeping Practices (GH)	MM-3	Good Housekeeping Practices (GH)	MM-3	TYPICAL LANDSCAPING PLAN - MULTI LOT STRUCTURE (MULTI-FAMILY RESIDENTIAL LOTS)					
<ul style="list-style-type: none"> ○ Use high-pressure water spray at vehicle washing facilities without detergents. Water alone can remove most dirt adequately. ○ Do not conduct other activities, such as vehicle repairs, in the wash area. ○ Include the location of the washing facilities and the inspection and maintenance procedures in the SWMP. 		Spill Prevention, Control, and Countermeasure (SPCC) Plan <p>Construction sites may be subject to 40 CFR Part 112 regulations that require the preparation and implementation of a SPCC Plan to prevent oil spills from aboveground and underground storage tanks. The facility is subject to this rule if it is a non-transportation-related facility that:</p> <ul style="list-style-type: none"> ▪ Has a total storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons. ▪ Could reasonably be expected to discharge oil in quantities that may be harmful to navigable waters of the United States and adjoining shorelines. <p>Furthermore, if the facility is subject to 40 CFR Part 112, the SWMP should reference the SPCC Plan. To find out more about SPCC Plans, see EPA's website on SPCC at www.epa.gov/oilspill/spcc.htm.</p> <p>Reporting Oil Spills</p> <p>In the event of an oil spill, contact the National Response Center toll free at 1-800-424-8802 for assistance, or for more details, visit their website: www.nrc.uscg.mil.</p>	Maintenance and Removal <p>Effective implementation of good housekeeping practices is dependent on clear designation of personnel responsible for supervising and implementing good housekeeping programs, such as site cleanup and disposal of trash and debris, hazardous material management and disposal, vehicle and equipment maintenance, and other practices. Emergency response "drills" may aid in emergency preparedness. Checklists may be helpful in good housekeeping efforts.</p> <p>Staging and storage areas require permanent stabilization when the areas are no longer being used for construction-related activities.</p> <p>Construction-related materials, debris and waste must be removed from the construction site once construction is complete.</p>	<p>MULTI-LOT STRUCTURE</p> <p>NOTE: 1. LANDSCAPING SHALL BE A COMBINATION OF SOD, ROCK, MULCH, TREES, AND SHRUBS. TEMPORARY STABILIZATION EFFORTS MAY BE IMPLEMENTED UNTIL WEATHER AND/OR GROUND IS SUITABLE FOR FINAL LANDSCAPING. 2. LOT/BLOCK CONTROLS WILL BE LEFT IN PLACE ON DOWNGRADE SIDES OF DISTURBED AREAS UNTIL FINAL LANDSCAPING IS IMPLEMENTED.</p>					
<ul style="list-style-type: none"> ▪ Develop a Spill Prevention and Response Plan. Spill prevention and response procedures must be identified in the SWMP. Representative procedures include identifying ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and response. The plan should also specify material handling procedures and storage requirements and ensure that clear and concise spill cleanup procedures are provided and posted for areas in which spills may potentially occur. When developing a spill prevention plan, include the following: 		<ul style="list-style-type: none"> ○ Note the locations of chemical storage areas, storm drains, tributary drainage areas, surface water bodies on or near the site, and measures to stop spills from leaving the site. ○ Provide proper handling and safety procedures for each type of waste. Keep Material Safety Data Sheets (MSDSs) for chemical use on site with the SWMP. ○ Establish an education program for employees and subcontractors on the potential hazards to humans and the environment from spills and leaks. ○ Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or municipal sewage treatment facilities to request assistance. Emergency procedures and contact numbers should be provided in the SWMP and posted at storage locations. ○ Describe the procedures, equipment and materials for immediate cleanup of spills and proper disposal. ○ Identify personnel responsible for implementing the plan in the event of a spill. Update the spill prevention plan and clean up materials as changes occur to the types of chemicals stored and used at the facility. 		<p>Landscaping Flow Direction Tree/Bushes etc.</p> <p>1778 S. Broadway, Denver, CO 80210 P: (720) 543-6561 F: (303) 593-2107 WWW.CMSENVIRO.COM</p> <p>CMS Environmental Solutions ENVIRONMENTAL COMPLIANCE MADE SIMPLE</p>					
November 2010	Urban Drainage and Flood Control District	GH-5	GH-6	November 2010	Urban Drainage and Flood Control District	November 2010			
Urban Storm Drainage Criteria Manual Volume 3			Urban Storm Drainage Criteria Manual Volume 3		Urban Storm Drainage Criteria Manual Volume 3				

PROJECT TITLE:	POUDRE TRAIL APARTMENTS
SHEET TITLE:	BMP DETAILS PAGE 3
PERMITTEE:	HARGRAVE CONSTRUCTION INC.
ADDRESS:	1905 W 8TH ST, #200, LOVELAND, CO 80537
PROJ #:	10-2019
DATE:	10/09/2019
DESIGN ENG:	VA
CHECKED BY:	DH

EC-5



- NOTES:
- ACTIVE SITE MAP REFLECTS CURRENT ACTIVITY, POTENTIAL POLLUTANT SOURCES, AND BMP'S IN USE.
 - SEE PLANNED BMP MAPS FOR MORE DETAILS.
 - LANDSCAPE IRRIGATION RETURN FLOW ANTICIPATED ON LOTS WITH FINAL LANDSCAPING. SEE SWMP NARRATIVE FOR FURTHER REQUIREMENTS.
 - MAP LEGEND CAN BE FOUND ON SEPARATE SHEET IN SWMP.
 - IT IS THE PERMITTEE'S RESPONSIBILITY TO ADJUST OR REMOVE INLET PROTECTIONS AS NECESSARY PRIOR TO LARGE RAIN EVENTS THAT MAY EXCEED THE NORMAL CAPACITY OF THE INLET PROTECTION TO PREVENT FLOODING AND POTENTIAL PROPERTY DAMAGE.



PROJECT: POUDRE TRAIL APARTMENTS

SHEET TITLE: ACTIVE SITE MAP

OPERATOR: HARGRAVE CONSTRUCTION INC.

1905 W 8TH ST, #200, LOVELAND, CO 80537

PROJ #: 10-2019

DATE: 10/09/2019

DESIGN ENG: VA

CHECKED BY: DH

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www.CMSENVIRO.COM



ENVIRONMENTAL SOLUTIONS
ENVIRONMENTAL COMPLIANCE MADE SIMPLE

NO.	DATE	REVISIONS
0	10/09/2019	ORIGINAL
ENG	DH	
CAD	VA	

ASM

SPILL PREVENTION & RESPONSE PLAN

In case of release that meets or exceeds reportable quantities then contact the CDPHE within a 24-hour period. A written report will be required to be filed within 5 days.

Emergency Local Fire, Police or Ambulance	911
CMS Environmental Solutions	720-343-6561
EPA National Response Center	1-800-424-8802
Colorado Department of Public Health and Environment	1-877-518-5608
Colorado Emergency Planning Committee	303-273-1622
City of Greeley – Public Works	970-336-4074

Reporting

- Document and record all significant spills, discharges, overflows, upsets, events in the SWMP and on the Map immediately.
- Report significant spills to local agencies, such as the Fire Department; they can assist in cleanup.
- Federal regulations require that any oil spill into a water body or onto an adjoining waterline that results in a sheen be reported to the National Response Center (NRC) at 800-424-8802 (24 hours). Use the following measures related to specific activities:

Description and Purpose

Prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

- Fuels
- Lubricants
- Other petroleum distillates
- Concrete
- Fertilizers

Limitations

- In some cases it may be necessary to use a private spill cleanup company.
- This BMP applies to spills caused by the contractor and subcontractors.
- Procedures and practices presented in this BMP are general. Contractor should identify appropriate practices for the specific materials used or stored onsite

Implementation

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

- Be aware that different materials pollute in different amounts. Make sure that each employee knows what a “significant spill” is for each material they use, and what is the appropriate response for “significant” and “insignificant” spills.
- Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

- Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

- Store hazardous materials and wastes in covered containers and protect from vandalism.
- Train employees in spill prevention and cleanup.
- Designate responsible individuals to oversee and enforce control measures.
- Spills should be covered and protected from stormwater run-on during rainfall to the extent that it doesn't compromise cleanup activities.
- Do not bury or wash spills with water.
- Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
- Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water.
- Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
- Place proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
- Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.
- Never shall materials be stored in the river or between the tops of the two river banks.
- Store materials so they are protected from stormwater and will not migrate into waters of the US.

Cleanup

- A spill kit is recommended but not mandated once construction activity has commenced and should be located in the Construction office.
- All spills must be documented and properly cleaned up
- Clean up leaks and spills immediately.
- Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials may be hazardous and must be disposed of properly.
- Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly.

Minor Spills (less than 5 gallons)

- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Absorbent materials should be promptly removed and disposed of properly.
- Follow the practice below for a minor spill:

- Contain the spread of the spill.
- Recover spilled materials.
- Clean the contaminated area and properly dispose of contaminated materials.
- Keep within permitted area
- It must not threaten any stormwater conveyance

Semi-Significant Spills (greater than 5 gallons but less than the reportable quantity [Table 1])

- Semi-significant spills still can be controlled by the first responder along with the aid of other trained personnel. This response may require the cessation of all other activities.
- Spills must be cleaned up immediately:
 - Contain spread of the spill.
 - Notify the project foreman immediately.
 - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials i.e. oil-dri® and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
 - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
 - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills (greater than the reportable quantity [Table 1])

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps should be taken:
 - Authorized personnel shall notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
 - For spills of federal reportable quantities (see chart below) authorized personnel shall notify the National Response Center at (800) 424-8802.
 - Secure the area
 - Notify CDPHE and the Local Municipality immediately and provide written documentation to the State within 5 days.
 - Notification should first be made by telephone and followed up with a written report.
 - The services of a spill contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
 - Other agencies which may need to be consulted include, but are not limited to, the Fire Department, and the Public Works Department.

All employees handling materials are to be educated on spill prevention and response procedures:

Spill Prevention: This can be accomplished by using offsite facilities, fueling by trained personnel only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures. Drip Pans should be used whenever possible.

Response Procedures: Should any material spill, a down slope berm or other barrier method should be constructed immediately in order to contain the spill. The spill must be immediately cleaned up

with an absorbent material. That material should then be bagged, taken offsite and properly disposed of. If the material has absorbed into the soil, then the contaminated soil must be collected in drums or appropriate container, taken offsite and disposed of properly. If a spill does occur, an immediate inspection of the site should be conducted documenting the spill and procedures to be taken to prevent spills from re-occurring.

For any spills that are of a reportable quantity, contact the SWMP Administrators, the EPA, and CDPHE.

Inspection and Maintenance

- Site superintendent or designated personnel will visually inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, ~~inspect weekly during rainy periods and of two-week intervals in non-rainy periods~~ to verify continued BMP implementation.
- Visually inspect BMPs subject to non-stormwater discharge ~~daily~~ while non-stormwater discharges occur.

Inspect per SWMP

Table 1. Reportable Quantities of Hazardous Materials

Reportable Quantities		
Material	Location of Spill	Reportable Quantity
Engine oil, fuel, hydraulic & brake fluid	Land	25 gallons
Engine oil, fuel, hydraulic & brake fluid	Water	Visible layer, sheen
Antifreeze	Land	~540 gallons (5,000 lbs)
Battery Acid	Land	13 gallons

In case of release that meets or exceeds reportable quantities contact the CDPHE within a 24 hour period. A written report will be required to be filed within 5 days:

Recommended On-site Spill Kit

- Spill kit should be kept onsite in the trailer (or in an onsite staff vehicle) and its location documented on the SWMP site map. The spill kit is not mandatory however recommended, relevant subcontractors should be prepared and provide their own spill kits if one is not kept onsite.
- UN and DOT approved 20-gallon over pack
- Compact design with molded grab handles
- Source: CMS Environmental Solutions, LLC
- **Each kit includes:** 1 Emergency Response Guidebook, 4 - 3"x4' socks, 2 - 9" x 15" pillows, 25 - 15" x 19" pads, 1 pair chemical resistant gloves, 1 pair safety goggles, 2 disposal bags/ties, 1 - 20 gallon Over Pack
- Spill kit materials should be refilled if its contents are utilized and depleted in the field.
- Inventory the spill kit contents routinely to check for any depleted items.

SPILL FORM

Date of spill _____ Time of spill _____

Company _____ Address _____

Person Reporting _____ Telephone Number _____

Type of Spill (Fuel Type, chemical, etc.) _____ Name of Chemical _____

Quantity of Spill (gallons) _____

Where did spill occur? _____

Duration of discharge D Batch (a single release, e.g. spilled drum)

D Continuous (approximate duration _____ hours _____ minutes)

Action taken to contain spill _____

Containment: D Contained in immediate vicinity of source

D Contained prior to entry into storm drain

D Contained after entry to storm drain

D Contained in storm system pipe/ditch

Did the spill leave the facility boundary? D Yes D No

Was anyone injured? D Yes D No

Other pertinent information/Cause of spill _____

Weather conditions at time of incident:

Rainfall D Rainfall occurred (approximate amount _____ inches over _____ hours)

D Rainfall had occurred within 3 hours of incident

D Rainfall occurred prior to clean-up being completed

D No rainfall occurred

Parties notified of spill

D Fire Department

D State Agency Date _____ Time _____

D National Response Center Date _____ Time _____

In the space provided below, draw a diagram of the location of the spill as it relates to your facility and operations.



Colorado Department
of Public Health
and Environment

Environmental Spill Reporting

Colorado Department of Public
Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

<http://www.cdphe.state.co.us>

January 2009

When a release of a hazardous material or other substance occurs to the environment, there are a number of reporting and notification requirements that must be followed by the company or individual responsible for the release. Most spills are covered by more than one reporting requirement, and **all** requirements must be met. In addition to verbal notification, written reports are generally required. This brochure briefly explains the major requirements. A more detailed description is provided in the "Reporting Environmental Releases in Colorado" Guidance Document, available on the web.

Releases that must be reported to the Colorado Department of Public Health and Environment (CDPHE) may be reported to the Colorado Environmental Release and Incident Reporting Line.

ENVIRONMENTAL SPILL REPORTING

CERCLA, EPCRA and RCRA

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA) require that a release of a reportable quantity or more of a hazardous substance to the environment be reported immediately to the appropriate authorities when the release is discovered.

Under CERCLA, reportable quantities were established for hazardous substances listed or designated under other environmental statutes. These include:

- all hazardous air pollutants (HAPs) listed under Section 112(b) of the Clean Air Act.
- all toxic pollutants designated under Section 307(a) or Section 311(b)(2)(A) of the Clean Water Act.
- all Resource Conservation and Recovery Act (RCRA) characteristic and listed hazardous wastes.
- any element, compound, or substance designated under Section 102 of CERCLA.

EPCRA established a list of extremely hazardous substances (EHS) that could cause serious irreversible health effects from accidental releases. Many substances appear on both the CERCLA and EPCRA lists. EPCRA extremely hazardous substances that are also CERCLA hazardous substances have the same reportable quantity (RQ) as under CERCLA. EPCRA extremely hazardous substances that are not listed under CERCLA have a reportable quantity that is equal to their threshold planning quantity (TPQ). A list of CERCLA reportable quantities is included in 40 CFR Section 302.4. A list of EPCRA threshold planning quantities is included in 40 CFR Part 355 Appendices A & B.

CERCLA-reportable releases must be reported immediately to the National Response Center (NRC), while EPCRA-reportable releases must be reported immediately to the National Response Center, the State Emergency Response Commission (SERC) and the affected Local Emergency Planning Committee (LEPC). If the release is an EPCRA extremely

hazardous substance, but not a CERCLA hazardous substance, and there is absolutely no potential to affect off-site persons, then only the State Emergency Planning Commission (represented by CDPHE for reporting purposes) and the Local Emergency Planning Committee need to be notified.

Radiation Control

Each licensee or registrant must report to the Radiation Incident Reporting Line in the event of lost, stolen or missing licensed or registered radioactive materials or radiation machines, releases of radioactive materials, contamination events, and fires or explosions involving radioactive materials. Releases of radionuclides are reportable under CERCLA.

Clean Water Act

The Clean Water Act requires the person in charge of a facility or vessel to immediately report to the National Response Center all discharges of oil or designated hazardous substances to water. Oil means oil of any kind or form. Designated hazardous substances are included in the CERCLA list.

The Clean Water Act also requires that facilities with a National Pollutant Discharge Elimination System (NPDES) permit report to the National Response Center within 24 hours of becoming aware of any unanticipated bypasses or upsets that cause an exceedance of the effluent limits in their permit and any violations of their maximum daily discharge limits for pollutants listed in their permit.

A release of **any** chemical, oil, petroleum product, sewage, etc., which may enter waters of the state of Colorado (which include surface water, ground water and dry gullies and **storm sewers leading to surface water**) must be reported immediately to CDPHE. Any accidental discharge to the sanitary sewer system must be reported immediately to the local sewer authority and the affected wastewater treatment plant. For additional regarding releases to water, please see "Guidance for Reporting Spills under the Colorado

Water Quality Control Act and Colorado Discharge Permits" at <http://www.cdphe.state.co.us/op/wqcc/Resources/Guidance/spillguidance.pdf>.

Clean Air Act

Hazardous air pollutants (HAPs) are designated as hazardous substances under CERCLA. If a facility has an air permit but the permit does not allow for or does not specify the release of a substance, or if the facility does not have an air permit, then all releases in excess of the CERCLA / EPCRA reportable quantity for that substance must be reported to the National Response Center and CDPHE. If the facility releases more of a substance than is allowed under its air permit, the facility must also report the release. Discharges of a substance that are within the allowable limits specified in the facility's permit do not need to be reported.

Regulated Storage Tanks

Owners and operators of regulated storage tank systems must report a release or suspected release of regulated substances to the Division of Oil and Public Safety at the Colorado Department of Labor and Employment within 24 hours. Under this program, the reportable quantity for petroleum releases is 25 gallons or more, or any amount that causes a sheen on nearby surface water. Spills of less than 25 gallons of petroleum must be immediately contained and cleaned up. If cleanup cannot be accomplished within 24 hours, the Division of Oil and Public Safety must be notified immediately. Spills of hazardous substances from tanks in excess of the CERCLA or EPCRA reportable quantity must be reported immediately to the National Response Center, CDPHE and the local fire authority, and to the Division of Oil and Public Safety within 24 hours.

Transportation and Pipelines

The person in physical possession of a hazardous material must notify the National Response Center as soon as practical, but not to exceed 12 hours after the incident, if as a direct result of the hazardous material, a person is killed or injured, there is an evacuation of the general public lasting more than an hour, a major transportation artery is shut down for an hour or more, the flight pattern of an aircraft is altered, there is fire, spillage or suspected contamination

involving a radioactive or infectious material, or there is a release of a marine pollutant.

Spills and incidents that have or may result in a spill along a highway must be reported to the nearest law enforcement agency immediately. The Colorado State Patrol and CDPHE must also be notified as soon as possible. In the event of a spill of hazardous waste at a transfer facility, the transporter must notify CDPHE within 24 hours if the spill exceeds 55 gallons or if there is a fire or explosion.

The National Response Center should be notified as soon as possible after discovery of a release of a hazardous liquid or carbon dioxide from a pipeline system if a person is killed or injured, there is a fire or explosion, there is property damage of \$50,000 or more, or any nearby water body is contaminated.

The National Response Center and the Colorado Public Utilities Commission Gas Pipeline Safety Section must be notified as soon as possible, but not more than two hours after discovery of a release of gas from a natural gas pipeline or liquefied natural gas facility if a person is killed or injured, there is an emergency shutdown of the facility, or there is property damage of \$50,000 or more. The Colorado Public Utilities Commission should also be notified if there is a gas leak from a pipeline, liquefied natural gas system, master meter system or a propane system that results in the evacuation of 50 or more people from an occupied building or the closure of a roadway.

Oil and Gas Exploration

All Class I major events on federal lands, including releases of hazardous substances in excess of the CERCLA reportable quantity and spills of more than 100 barrels of fluid and/or 500 MCF of gas released, must be reported to the Bureau of Land Management (BLM) immediately. Spills of oil, gas, salt water, toxic liquids and waste materials must also be reported to the BLM and the surface management agency.

Spills of exploration and production (E&P) waste on state or private lands in excess of 20 barrels, and spills of any size that impact or threaten to impact waters of the state, an occupied structure, or public byway must be reported to the Colorado Oil and Gas Conservation Commission as soon as practicable, but not more than 24 hours after discovery. Spills of any

size that impact or threaten to impact waters of the state must be reported to CDPHE immediately. Spills that impact or threaten to impact a surface water intake must be reported to the emergency contact for that facility immediately after discovery. Spills of more than five (5) barrels of E&P waste must be reported in writing to the Oil and Gas Conservation Commission within 10 days of discovery.

REPORTING NUMBERS

National Response Center (24-hour)
1-800-424-8802

CDPHE Colorado Environmental Release and Incident Reporting Line (24-hour)
1-877-518-5608

Radiation Incident Reporting Line (24-hour)
303-877-9757

Colorado State Patrol (24-hour)
303-239-4501

Division of Oil and Public Safety
(business hours)
303-318-8547

Oil and Gas Conservation Commission
(business hours)
303-894-2100

Colorado Public Utilities Commission Gas Pipeline Safety Section (business hours)
303-894-2851

Local Emergency Planning Committees
(to obtain list, business hours)
720-852-6603

Colorado Water Quality Control Division

WATER QUALITY
CONTROL
DIVISION

Policy No: WQE-10

Initiated By: Dave Akers

Approved By:

Effective Date: 3/1/08

Revision No.:

Revision Date:

Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits

I. Purpose

To provide guidance on applicable Colorado reporting requirements pursuant to § 25-8-601(2), C.R.S., that pertains to spills or discharges that may cause pollution of State waters. This guidance does not relieve an entity of any other statutory or regulatory requirements applicable to a spill. Facilities possessing a Colorado Discharge Permit System (CDPS) permit should follow applicable permit terms and conditions regarding spill reporting and response. This guidance is not intended to supersede or modify such permit terms and conditions or the applicable statute and regulations. This guidance does not limit the existing rights or responsibilities of persons with respect to spill reporting. For example, persons retain the right and responsibility to determine in the first instance whether a particular spill is covered by an existing permit or may cause pollution to State waters (i.e., surface or ground waters).

II. Statutory Requirement Addressed

Colorado Water Quality Control Act - Spill Reporting Requirements - § 25-8-601(2), C.R.S.

"Any person engaged in any operation or activity which results in a spill or discharge of oil or other substance which may cause pollution of the waters of the state contrary to the provisions of this article as soon as he has knowledge thereof, shall notify the division of such discharge."

State waters means any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed (§ 25-8-103 (19), C.R.S.).

Examples of State waters include, but are not limited to, perennial streams, intermittent or ephemeral gulches and arroyos, ponds, lakes, reservoirs, irrigation canals or ditches, wetlands, stormwater conveyances (when they discharge to a surface water), and groundwater.

III. Policy/Applicability

The Division distinguishes between reporting requirements for spills that occur with respect to activities that result in a discharge that is authorized under a CDPS permit and those that are not. For non-permitted activities, or in the case of an activity where a permit does not address reporting of or response to a given spill, the Division recommends that the responsible person(s) take the following actions:

1. Immediately report spills that may result in a non-permitted discharge of pollutants to State waters to the Environmental Release and Incident Reporting Line at 1-877-518-5608;
2. Include the following information, if available, when notifying the Division of a spill:
 - a. The name of the responsible person and, if not reported by that person, the name of the person reporting the spill and the name of the responsible person if known;
 - b. An estimate of the date and time that the spill began or the actual date and time, if known;

- c. The location of the spill, its source (e.g., manhole, tanker truck), and identification of the type of material spilled (e.g., untreated wastewater, biosolids, specific chemical);
- d. The estimated volume of the spill and, if known, the actual date and time the spill was fully controlled/stopped.
- e. Whether the spill is ongoing and, if it is, the rate of flow and an estimate of the time that the spill will be fully controlled, if known;
- f. Measures that are being or have been taken to contain, reduce, and/or clean up the spill;
- g. A list of any potentially affected area and any known downstream water uses (e.g., public water supplies, irrigation diversions, public use areas such as parks or swim beaches) that will be or have been notified; and
- h. A phone number and e-mail to contact a representative of the responsible person that is in charge of the response. Where a non-responsible person is reporting the spill, they are encouraged, but not required, to provide contact information.

Reporting and management of spills that occur with respect to activities resulting in a discharge authorized under a permit should be performed in accordance with the specific requirements of that permit. If the permit does not provide specific reporting or management response requirements for a given spill that may pollute State waters, the Division recommends that the responsible person report the spill in accordance with the procedures listed above.

This guidance only addresses reporting requirements under the Division's authority. The person or entity engaged in any operation or activity that results in a spill is responsible for any other applicable reporting requirements associated with the spill to other regulatory agencies.

Section 25-8-601(2), C.R.S. only addresses spill reporting to the Division. Section 25-8-202(7), C.R.S. provides certain water quality responsibilities to other state "implementing agencies." The Division's position is that, where a spill to the ground that may impact ground water only is fully and timely reported to an implementing agency having jurisdiction over that spill, the intent of section 601(2) has been fulfilled, and the spill need not also be reported to the Division. The Division suggests that the responsible person confirm with the implementing agency that a spill falls under the jurisdiction of the implementing agency at the time it is reported in order to avoid possible legal liability should it fall under the Division's jurisdiction.

IV. Division Examples of Non-Reportable Spills

The Division has identified the following examples of types of spills that are considered "non-reportable" under § 25-8-601(2), C.R.S. Documentation of such spills, including the information listed in section III.2.a – III.2.f above, should be maintained by the responsible person for Division review for a period of three years.

- 1. A spill to a generally impervious surface or structure (e.g., paved street/parking lot, storm sewer, warehouse floor, manhole, vault, concrete basement), or onto soils, that is fully contained in/on the impervious surface/structure or soils, or that is managed in a manner so that it will not reach State waters at the time of the spill or in the future. Such spills that are cleaned up within 24 hours will be considered by the Division to have no potential to reach State waters. However, even if such spills are not cleaned up within 24 hours, the responsible person may be able to "fully contain" or otherwise manage a spill such that it will not reach State waters. Where there is a sump pump present in a basement to which a spill occurred, the responsible person must establish that the pump did not discharge to State waters during the time between the start of the spill and the completion of clean-up in accordance with best management practices.
- 2. A spill or discharge that is managed consistent with best management practices that are established in accordance with a CDPS discharge permit or any Water Quality Control Commission-adopted control regulation related to spill management or reporting.
- 3. A spill of potable water from a public water system that does not reach surface waters.

**Colorado Department of Public Health and Environment
Water Quality Control Division**

**Incident / Spill / SSO Release Reporting
Five (5) Day Reporting Form**

<input type="checkbox"/> Field Services - Grand Junction 222 South 6th Street, Room 232 Grand Junction, CO 81501 Telephone: 970-248-7150 Fax: 970-248-7198 Contact email: michelle.thiebaud@state.co.us	<input type="checkbox"/> Field Services - Pueblo 140 Central Main, Suite 300 Pueblo, CO 81003 Telephone: 719-295-5060 Fax: 719-543-8441 Contact email: carol.keever@state.co.us	<input type="checkbox"/> Field Services - Denver 4300 Cherry Creek Dr. South, B2 Denver, Colorado 80246-1530 Phone: 303-692-3650 Fax: 303-782-0390 Contact email: annemarie.goolsby@state.co.us
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Reporting Form: Incident / Spill / Sanitary Sewer Overflow (SSO)

The Water Quality Control Division distinguishes between reporting requirements for spills that occur with respect to activities that result in a discharge that is authorized under a CDPS permit and those that are not. Reporting and management of spills that occur with respect to activities resulting in a discharge authorized under a permit should be performed in accordance with the specific requirements of that permit. If the permit does not require a 5-day report, please provide the information below in writing. For non-permitted activities, or in the case of an activity where a permit does not address reporting of or response to a given spill, please submit this written response to the Water Quality Control Division within five (5) working days of the date of the event. If sufficient space is not provided, please attach other sheets. Please send the completed form with signature via fax or email to the Division's Field Services office indicated above. If you have any questions please contact the Division's Field Services Engineer at your earliest convenience. The Field Services County list is available at: <http://www.colorado.gov/cdphe/wqcd> (Contacts, Inspection services contacts, then Field services contacts).

Prior to the five (5) working day deadline, you may request an extension to submit the report if sample analyses justifiably are going to require more time to analyze than the reporting time allows. To request an extension please send an email to the Division's Field Services Engineer for the County that the incident / spill / SSO took place or to the email listed above.

Incident Background Information			
County			
Incident / Spill Number (Division provided) and Spill Date			
Type of Incident / Spill / SSO (check one)	<input type="checkbox"/> Sanitary Sewer Overflow/Reuse	<input type="checkbox"/> Petroleum Product	<input type="checkbox"/> Chemical
	<input type="checkbox"/> WW Treatment Plant Bypass or Upset (through an authorized outfall point)	<input type="checkbox"/> Combined Sewer Overflow	<input type="checkbox"/> Biosolids
	<input type="checkbox"/> Unplanned potable water release (e.g., water line break)	<input type="checkbox"/> Other	
Contact Information			
Potentially Responsible Party (PRP): Contact Name		Potentially Responsible Party (PRP): Company / Agency	
PRP Phone / Fax	Phone: Fax:	PRP email address	
CDPS Permit Number:		CDPS Permittee Name:	
Reported by (if not PRP): Contact Name		Reported by (if not PRP): Company / Agency	
Reported by (if not PRP): Phone / Fax	Phone: Fax:	Reported by (if not PRP): email address	
Incident Information: Please provide the following information.			
A	Incident / spill / SSO source, cause, and event description. Response:		
B	Material released (e.g., untreated wastewater, biosolids, specific chemicals or products) and estimated total quantity (e.g., gallons). Please attach MSDS for any and all chemicals or products involved in spill or release. Response:		
C	Actual or estimated dates and times of the event, including duration and actual date and time spill was fully controlled/stopped. If release is still occurring, the date and time the release is expected to be stopped. Response:		

Colorado Department of Public Health and Environment
Water Quality Control Division

Incident / Spill / SSO Release Reporting
Five (5) Day Reporting Form

D	<p>Location of release (e.g., address, lat/long, road name and mile marker).</p> <p>Response:</p>
E	<p>Describe measures taken or planned to contain, reduce, and clean up spill or release.</p> <p>Response:</p>
F	<p>Steps taken or planned to prevent reoccurrence of the event.</p> <p>Response:</p>
<p>Incident Impact to State Waters (As defined in § 25-8-103(19), C.R.S.).</p> <p><i>Examples of State waters include: perennial streams, intermittent or ephemeral gulches, ditches, ponds, lakes, reservoirs, irrigation canals, wetlands, stormwater conveyances (when they discharge to surface water), and groundwater.</i></p>	
G	<p>Did flow or materials reach surface waters of the State? If so, please describe the path of flow to State waters and which State water body was impacted (e.g., spill impacted a storm drain which was directly connected to Cherry Creek, Colorado River, etc.). If yes, what quantity of material (e.g., gallons) reached the surface water and what was the resulting impact?</p> <p>Response:</p>
H	<p>Were any water quality samples or other samples taken? If so, please describe sampling process and attached results.</p> <p>Response:</p>
I	<p>Did flow or materials reach groundwater of the State? If so, please describe the path of flow to State waters and which State water body impacted (e.g., spill soaked into ground and wet soil was not excavated). If yes, what quantity of material (e.g., gallons) reached the ground or groundwater and what was the resulting impact?</p> <p>Response:</p>
J	<p>Did the incident include any of the following (check if yes)? If so, please include additional details below.</p> <p><input type="checkbox"/> Toxic Chemical Release <input type="checkbox"/> Fish Kill</p> <p>Response:</p>
<p>Incident Impact to Areas or Water Users</p>	
K	<p>Did the incident / spill / SSO impact any areas (e.g., public use areas including parks or swim beaches) or downstream water users (e.g., public water suppliers, irrigation diversions)? Please list impacted areas and/or users, their location, and potential impacts.</p> <p>Response:</p>
L	<p>How were the impacted area users (e.g., park patrons) and downstream water users notified (e.g., signs posted, list downstream users contact via phone).</p> <p>Response:</p>

I hereby certify that the information presented above is accurate and complete.

Date	Company	Typed Name and Title	Signature



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Weld County, Colorado, Southern Part

Poudre Trail Apartments



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....	2
How Soil Surveys Are Made.....	5
Soil Map.....	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Weld County, Colorado, Southern Part.....	13
51—Otero sandy loam, 1 to 3 percent slopes.....	13
Soil Information for All Uses.....	15
Soil Properties and Qualities.....	15
Soil Erosion Factors.....	15
K Factor, Whole Soil.....	15
Wind Erodibility Group.....	18
Soil Reports.....	22
Soil Erosion.....	22
RUSLE2 Related Attributes.....	22
References.....	23

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units).

Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

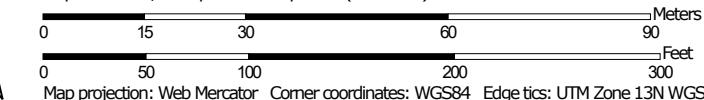
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:1,120 if printed on A portrait (8.5" x 11") sheet.

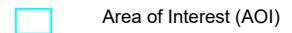


Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)



Area of Interest (AOI)

Soils



Soil Map Unit Polygons



Soil Map Unit Lines



Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot

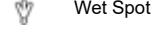
Spoil Area



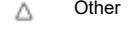
Stony Spot



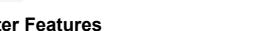
Very Stony Spot



Wet Spot

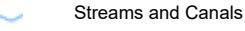


Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Weld County, Colorado, Southern Part

Survey Area Data: Version 18, Sep 13, 2019

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

Date(s) aerial images were photographed: Jul 17, 2015—Oct 2, 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
51	Otero sandy loam, 1 to 3 percent slopes	4.7	100.0%
Totals for Area of Interest		4.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Weld County, Colorado, Southern Part

51—Otero sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3630
Elevation: 4,700 to 5,250 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 130 to 180 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

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

Description of Otero

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits and/or mixed outwash

Typical profile

H1 - 0 to 12 inches: sandy loam
H2 - 12 to 60 inches: fine sandy loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 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 slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.7 inches)

Interpretive groups

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

Minor Components

Kim

Percent of map unit: 10 percent
Hydric soil rating: No

Custom Soil Resource Report

Vona

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

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

K Factor, Whole Soil

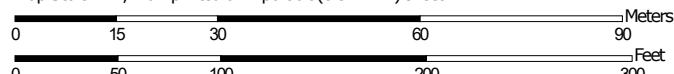
Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in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

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

Custom Soil Resource Report Map—K Factor, Whole Soil



Map Scale: 1:1,120 if printed on A portrait (8.5" x 11") sheet.



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

Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)	
 Area of Interest (AOI)	
Soils	
Soil Rating Polygons	
 .02	
 .05	
 .10	
 .15	
 .17	
 .20	
 .24	
 .28	
 .32	
 .37	
 .43	
 .49	
 .55	
 .64	
 Not rated or not available	
Soil Rating Points	
 .02	
 .05	
 .10	
 .15	
 .17	
 .20	
 .24	
 .28	
 .32	
 .37	
 .43	
 .49	
 .55	
 .64	
 Not rated or not available	
Soil Rating Lines	
 .02	
 .05	
 .10	
 .15	
 .17	
 .20	
 .24	
Water Features	
 .24	
 .28	
 .32	
 .37	
 .43	
 .49	
 .55	
 .64	
 Not rated or not available	

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Weld County, Colorado, Southern Part
 Survey Area Data: Version 18, Sep 13, 2019

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

Date(s) aerial images were photographed: Jul 17, 2015—Oct 2, 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.

Table—K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
51	Otero sandy loam, 1 to 3 percent slopes	.15	4.7	100.0%
Totals for Area of Interest			4.7	100.0%

Rating Options—K Factor, Whole Soil

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

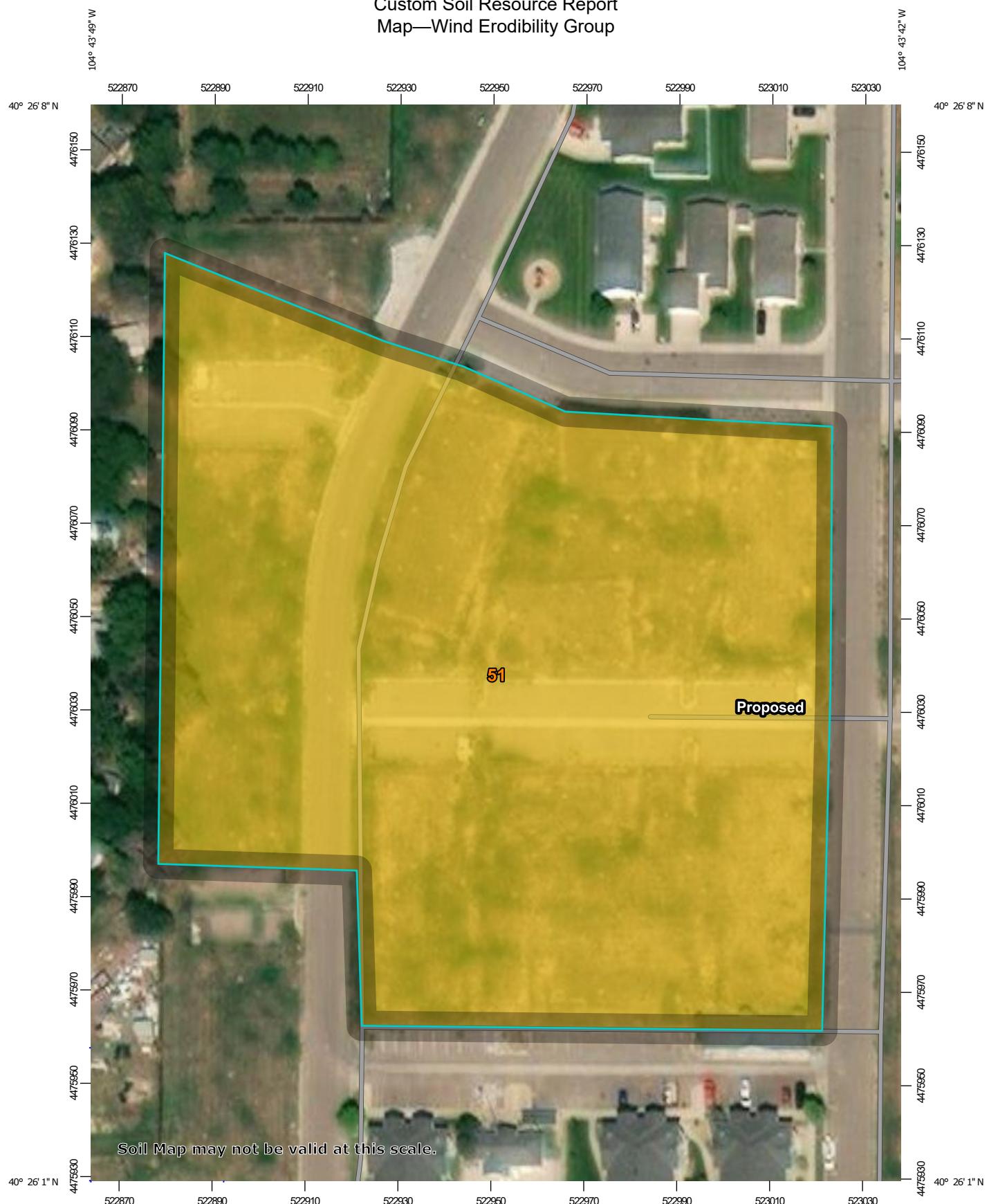
Tie-break Rule: Higher

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

Wind Erodibility Group

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

Custom Soil Resource Report Map—Wind Erodibility Group



Map Scale: 1:1,120 if printed on A portrait (8.5" x 11") sheet.

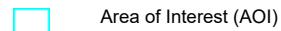
0 15 30 60 90 Meters
0 50 100 200 300 Feet

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

Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)



Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features



Transportation



Background



MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Weld County, Colorado, Southern Part

Survey Area Data: Version 18, Sep 13, 2019

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

Date(s) aerial images were photographed: Jul 17, 2015—Oct 2, 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.

Table—Wind Erodibility Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
51	Otero sandy loam, 1 to 3 percent slopes	3	4.7	100.0%
Totals for Area of Interest			4.7	100.0%

Rating Options—Wind Erodibility Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Soil Erosion

This folder contains a collection of tabular reports that present soil erosion factors and groupings. The reports (tables) include all selected map units and components for each map unit. Soil erosion factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

RUSLE2 Related Attributes

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

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed. Organic surface horizons are not displayed.

RUSLE2 Related Attributes—Weld County, Colorado, Southern Part								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
51—Otero sandy loam, 1 to 3 percent slopes		—						
Otero	85	—	A	.15	5	65.9	19.1	15.0

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Weld County, Colorado



Local office

Colorado Ecological Services Field Office

📞 (303) 236-4773

📠 (303) 236-4005

MAILING ADDRESS

Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486

PHYSICAL ADDRESS

134 Union Boulevard, Suite 670
Lakewood, CO 80228-1807

<http://www.fws.gov/coloradoES>
<http://www.fws.gov/platteriver>

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
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Preble's Meadow Jumping Mouse *Zapus hudsonius preblei*

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/4090>

Threatened

Birds

NAME	STATUS
Least Tern <i>Sterna antillarum</i>	Endangered
<p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/8505</p>	
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened
<p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/8196</p>	
Piping Plover <i>Charadrius melanotos</i>	Threatened
<p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/6039</p>	
Whooping Crane <i>Grus americana</i>	Endangered
<p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/758</p>	

Fishes

NAME	STATUS

Pallid Sturgeon *Scaphirhynchus albus***Endangered**

This species only needs to be considered if the following condition applies:

- Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7162>

Flowering Plants

NAME	STATUS
Colorado Butterfly Plant <i>Gaura neomexicana</i> var. <i>coloradensis</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6110	Threatened
Ute Ladies'-tresses <i>Spiranthes diluvialis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2159	Threatened
Western Prairie Fringed Orchid <i>Platanthera praecox</i> This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1669	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Oct 15 to Jul 31

Golden Eagle *Aquila chrysaetos*

Breeds Jan 1 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
<https://ecos.fws.gov/ecp/species/1680>

Semipalmated Sandpiper *Calidris pusilla*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Willet *Tringa semipalmata*

Breeds Apr 20 to Aug 5

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

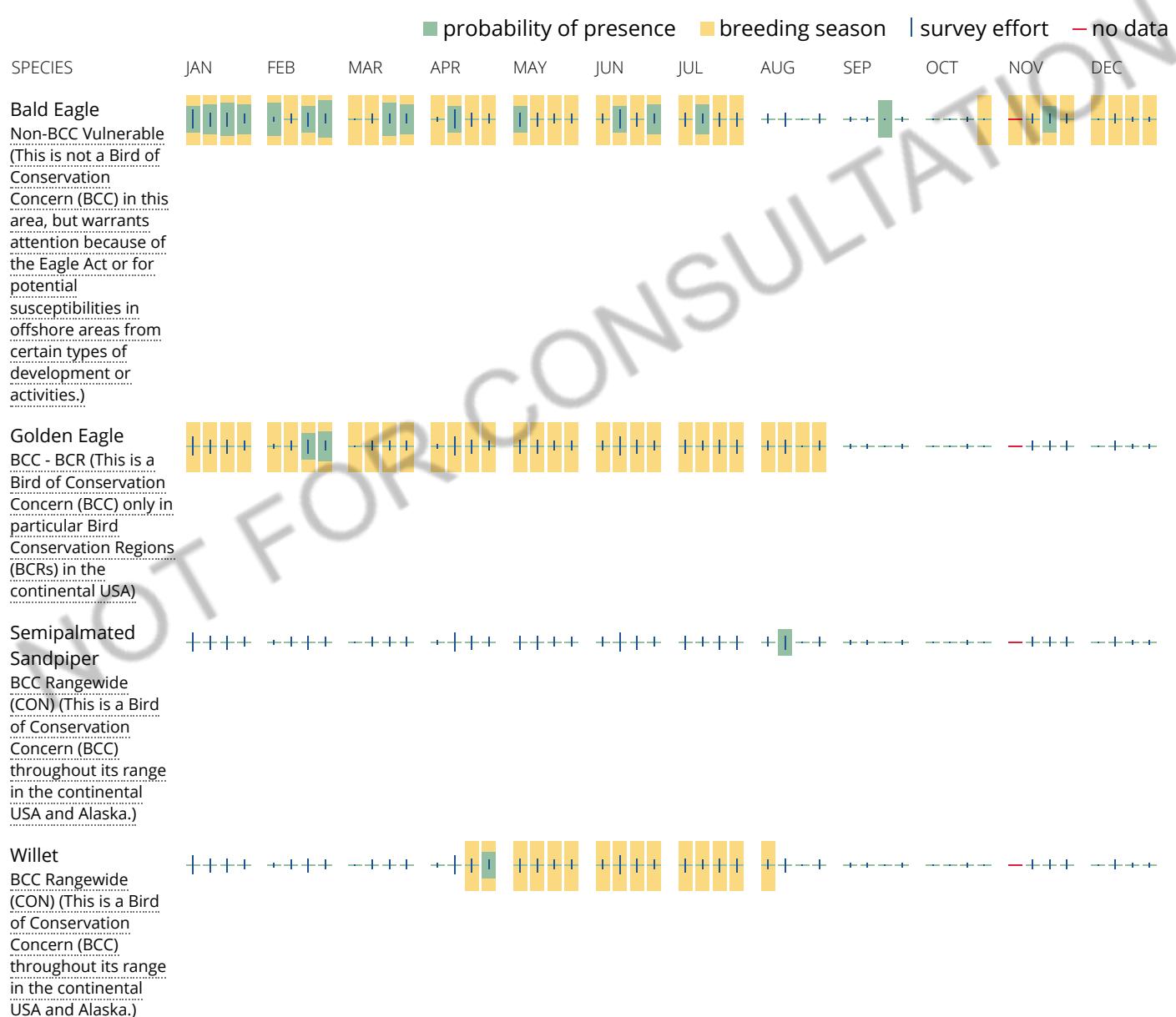
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.