STORM WATER MANAGEMENT PLAN FOR

14160 STONE EAGLE PLACE EL PASO COUNTY, COLORADO

December 2021

EPC PROJECT #:

CDR2119

Prepared For:

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SWMP is to be maintained on site in the construction trailer whenever work is occurring. If construction trailer is not available, another alternative must be provided.

COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

TO: Site Inspector Responsible For All CDPS Requirements

The following storm water pollution management plan (SWMP) is a detailed account of the requirements for the CDPS permit. The main objective of this plan is to prevent any contamination of the storm water while construction activity is taking place.

This document must be kept at the construction site at all times and be made available to the public and any representative of the Colorado Department of Health – Water Quality Control Division, if requested.

Enclosed are temporary erosion control details for the construction site and storm sewer outfall points (Detail A). The operation and maintenance inspection record should be used as a guideline for the inspection of permanent and temporary control devices. Items to be inspected are not limited to those listed. The inspections should be made at regular intervals and before and after storm events. The inspection records must be signed and kept in this binder for no less than three (3) years.

STORM WATER MANAGEMENT PLAN FOR 14160 STONE EAGLE PLACE

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STORM WATER MANAGEMENT PLAN FOR 14160 STONE EAGLE PLACE

SITE DESCRIPTION & EXISTING CONDITIONS

This Storm Water Management Plan for 14160 Stone Eagle Place is an analysis of an approximately 24,291 SF lot which is designated for the construction of a new house along with associated driveway and grading. The site was previously platted at Lot 7 Gleneagle Golf Course Residential Infill Development Filing No 2. The site currently consists of previously graded land with no existing vegetation.

The site is located within the northwest quarter of Section 6 in Township 12 South, Range 66 West of the 6th Principal Meridian currently within El Paso, Colorado. This site is within the Black Forest drainage basin.

The site drains from the east towards the west, mainly by sheet flow. Drainage is routed towards Monument

Creek and, eventually, the Arkansas River.

If site was previously graded or land use was such that there is no or minimal vegetation, the % cover required for final stabilization should then be based on neighboring properties to show natural native vegetative cover (ie: an adequate reference site).

The soils on this site are noted as 100% pring course sandy loam (71). The soils are in hydrologic soil group B. Therefore, the site has moderate runoff potential. The study area consists of previously graded land with no vegetative cover based on aerial photos. The existing topographic slopes for these soils group range from 3% to 8%.

Item 16. State that there are no stream crossings on site

CONSTRUCTION ACTIVITY AND STORAGE

No known toxic materials have been treated, stored, disposed, spilled or leaked onto the construction site. Practices to minimize contact of construction materials, equipment and vehicles within the storm water include installation of sediment control log and sub-contractor cleaning and hauling of excess debris and material upon completion of work. Construction material loading and unloading, and access to such areas occur from gravel staging areas as shown or noted on the plans. Potential pollutants such as adhesives, sediment, porta potty runoff, and oil spills will also be dealt with as required. Soils are not to be tracked offsite and any soils tracked offsite should be swept up.

There will be no on-site mobile fueling. Contractor shall have the Hazardous Material emergency response number posted on the site. No concrete or asphalt batch plants are planned for the construction site. The site will be considered stabilized when all lines have been installed and site vegetation is at 70% established. There will be approximately 0.48 acres of disturbed soil area. No non-stormwater discharges are anticipated at the site. No portion of this construction site is within a designated 100-year floodplain.

BEST MANAGEMENT PRACTICES AND OTHER CONTROLS

Erosion control measures shall be implemented in a manner that will protect properties and public facilities from the adverse effects of erosion and sedimentation as a result of construction and earthwork activities.

Construction will begin in Winter of 2021 with completion of the work anticipated to be in Spring of 2022. The 70% established vegetation is estimated to be in Spring of 2022.

Before clearing and grubbing may begin the first level of BMP'S are to be installed. These measures include sediment control log (SCL). The Staging Area (SSA) is also to be setup with appropriate measures to protect downstream (i.e., sediment control log).

The Second and Third level of BMP'S are to check all installed BMP's for conformance and adjust appropriately.

Fourth level of BMP'S shall be installed once the previous BMP'S and construction are completed. This level includes any disturbed areas and stockpiles which are not at final grade, but will remain dormant for longer than 30 days to be mulched within 21 days after interim grading. Any area that is going to remain in an interim state for more than 60 days shall also be seeded. All temporary soil erosion control measures and BMP'S shall be maintained until permanent soil erosion control measures are implemented and vegetation has been established to 70% on areas not to be covered with gravel. These temporary BMPS's are to be removed once the 70% of pre-disturbed levels of vegetation has been established.

POTENTIAL SOURCES OF POLLUTION

The potential sources of pollution associated with this development are:

• Disturbed and stored soils

- Vehicle tracking of sediments
- Management of contaminated soils (if exist)
- Loading and unloading operations
- Significant dust or particulate generating processes
- Onsite waste management practices (waste piles, liquid wastes, dumpsters)
- Non-industrial waste sources such as worker trash and portable toilets
- Vehicle/equipment fueling and maintenance

IMPLEMENTATION OF CONTROL MEASURES

BMP design specifications and implementation information can be found in the UDFCD BMP Description Sheets included in the Appendix. This project does not rely on control measures owned or operated by another entity.

MATERIALS HANDLING

All construction materials shall be handled in a manner to minimize the chance of stormwater contamination. Additional info is included in the Spill Prevention and Control Plan section.

WASTE MANAGEMENT AND DISPOSAL

All waste and debris created by construction activities at the site shall be disposed of in compliance with all laws, regulations, and ordinances of the federal, state and local agencies. Waste disposal bins should be checked weekly for leaks and overflowing capacity and should be emptied when they reach 75% of capacity.

SPILL PREVENTION AND CONTROL PLAN

The Site Superintendent will act as the point of contact for any spill that occurs at this jobsite. The Construction Manager will be responsible for implementation of prevention practices, spill containment / cleanup, worker training, reporting and complete documentation in the event of a spill. The Site Superintendent shall immediately notify the Owner, /Construction Manager, State and the Local Fire

Department in addition to the legally required Federal, State, and Local reporting channels (including the National Response Center, 800.424.8802) if a reportable quantity is released to the environment.

SPILL PREVENTION BEST MANAGEMENT PRACTICES

This section describes spill prevention methods Best Management Practices (BMP) that will be practiced to eliminate spills before they happen.

Equipment Staging and Maintenance

- Store and maintain equipment in a designated area.
- Keep spill kits readily accessible.
- Check incoming vehicles for leaking oil and fluids.
- Inspect equipment routinely for leaks and spills.
- Repair equipment immediately, if necessary, implement a preventative maintenance schedule for equipment and vehicles.

Fueling Area

- Perform fueling in designated fueling area minimum 50' away from federal waters.
- Use secondary containment (drain pan) to catch spills.
- Use proper equipment (pumps, funnels) to transfer fluids.
- Keep spill kits readily accessible.
- Inspect fueling areas routinely for leaks and spills.
- Hazardous Material Storage Areas: Reduce the amount of hazardous materials by substituting nonhazardous or less hazardous materials.

Hazardous Material Storage Areas

- Minimize the quantity of hazardous materials brought onsite.
- Store hazardous materials in a designated area away from drainage points.

Unexpected Contaminated Soil and Water

- Investigate historical site use.
- Perform all excavation activities carefully and only after the Owner/Construction.
- Manager directs any activities.

Toilets

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

SPILL CONTAINMENT METHODS

The following discussion identifies the types of secondary containment that will be used in the event of a spill. Table 1 summarizes the containment methods for each potential source.

- Equipment Staging and Maintenance Area: An equipment leak from a fuel tank, equipment seal, or
 hydraulic line will be contained within a spill containment cell placed beneath all stationary potential
 leak sources. An undetected leak from parked equipment will be cleaned up using hand shovels and
 containerized in a 55-gallon steel drum for offsite disposal.
- Fueling Area: A small spill during fueling operations will be contained using fuel absorbent pads at the nozzle. The transfer of fuel into portable equipment will be performed using a funnel and/or hand pump and a spill pad used to absorb any incidental spills/drips. Any leaking tanks or drums will have fluids removed and transferred to another tank, drum, or container for the fluids. A spill response kit will be located near the fueling area or on the fuel truck for easy access. The spill response kit will include plastic sheeting, tarps, over pack drums, absorbent litter, and shovels.
- Hazardous Material Storage Area: A spill from containers or cans in a hazardous material storage area will be contained within the storage cabinet these materials are kept in.
- Unexpected Contaminated Soil: If contaminated soil is encountered during the project, the

Owner/Construction Manager will be notified immediately. Small quantities of suspected contaminated soil will be placed on a 6-mil plastic liner and covered with 6-mil plastic. A soil berm or silt fence will be used to contain the stockpile and prevent migration of contaminated liquids in the soil.

Table 1: Spill Prevention and Containment Methods

Potential Spill Source	Containment Method(s)
Equipment staging and maintenance area	Spill containment pad, spill kit, pumps, funnels
Fueling area (site equipment only)	Spill containment pad, spill kit, pumps, funnels
Hazardous material staging area	Spill containment pad, spill kit, pumps, funnels
Unexpected contaminated soil	Plastic liner, plastic cover, soil berm, hay bales, lined super sacks

SPILL COUNTERMEASURES

Every preventative measure shall be taken to keep contaminated or hazardous materials contained. If a release occurs, the following actions shall be taken:

- 1. **Stop the Spill**: The severity of a spill at the site is anticipated to be minimal as large containers/quantities of Hazardous Materials are not anticipated. The type of spill would occur while dispensing material at the hazardous materials storage facility and would likely be contained in secondary containment. Thus, the use spill kits or other available absorbent materials should stop the spill.
- 2. **Warn Others**: Notify co-workers and supervisory personnel of the release. Notify emergency responders if appropriate. For site personnel, an alarm system will consist of three one second blasts on an air horn

sounded by the person discovering a spill or fire. In the event of any spill, the Superintendent and Project Manager shall be notified if the spill is 5 gallons or more the STATE will be contacted along with the Fire Department.

- 3. **Isolate the Area**: Prevent public access to the area and continue to minimize the spread of the material. Minimize personal exposure throughout emergency response actions.
- 4. **Containment**: A spill shall only be contained by trained personnel and if it is safe to do so. DO NOT PLACE YOURSELF IN DANGER. Attempt to extinguish a fire only if it is in the incipient stage; trash can size or smaller. For larger spills, wait for the arrival of emergency response personnel and provide directions to the location of the emergency.
- 5. **Complete a Spill and Incident Report**: For each spill of a Hazardous Material a spill and incident report shall be completed and submitted to the Owner/Construction Manager and if applicable to the Engineer and the State of Colorado Department of Public Health and Environment.

MAINTENANCE, INSPECTION AND REPAIR

The owner or his representative shall inspect and monitor all drainage facilities using the enclosed "Monitoring and Maintenance Inspection Record" checklist in the appendix. In order to ensure that all graded surfaces, structures, vegetation, erosion and sediment control measures and other protective devices identified in the erosion control plan are maintained in good and effective condition, an Operation and Maintenance Inspection Monitoring Program will be implemented by the permit holder during the construction phase. A systematic inspection of all the above-mentioned protective devices will be performed by a qualified stormwater manager (who is sufficiently qualified for the required duties per the ECM Appendix 1.5) using the operation and maintenance inspection record form in the appendix every 14 days. Also, post-storm event inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Provided the timing is appropriate, the post-storm inspections may be used to fulfill the 14-day routine inspection requirement. A more frequent

inspection schedule than the minimum inspections described may be necessary to ensure that BMPs continue to operate as needed to comply with the plan. All monitoring records are to be kept with the SWMP for a period of no less than three (3) years. The inspection logs shall be signed by the stormwater inspector. All maintenance of temporary and permanent erosion and sediment control facilities shall be per the details included in this report.

This lot will be considered stabilized when all construction activities have been completed and vegetation has been established to 70% of pre-disturbed levels. Erosion control measures such as sedimentation control log must be removed after final stabilization.

Any major revisions or modification to this Storm Water Management Plan will require a report addendum and erosion control map revision. Minor revisions may be made by the Stormwater Manager by redlining the Storm Water Management Plan or inserting additional pages. The SWMP should be viewed as a "living document" that is continuously being reviewed and modified as a part of the overall process of evaluating and managing stormwater quality issues at the site. The Qualified Stormwater Manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity or when BMPs are no longer necessary and are removed.

The onsite SWMP will be located at: _____ On Site Information Board

FINAL STABILIZATION AND LONGTERM STORMWATER MANAGEMENT

Permanent stabilization measures include seeding, and mulching. These temporary BMPS's are to be removed once the 70% of pre-disturbed levels vegetation has been established.

Discuss downstream WQ/detention facility.

STATE REQUIREMENTS THAT ARE NOT APPLICABLE

The requirement for a phasing plan is not applicable as only one construction phase is proposed.

The requirement for spill prevention and pollution controls for dedicated batch plants is not applicable as no

batch plants are proposed.

The requirement to show the location of any dedicated asphalt / concrete batch plants is no applicable as no batch plants are proposed.

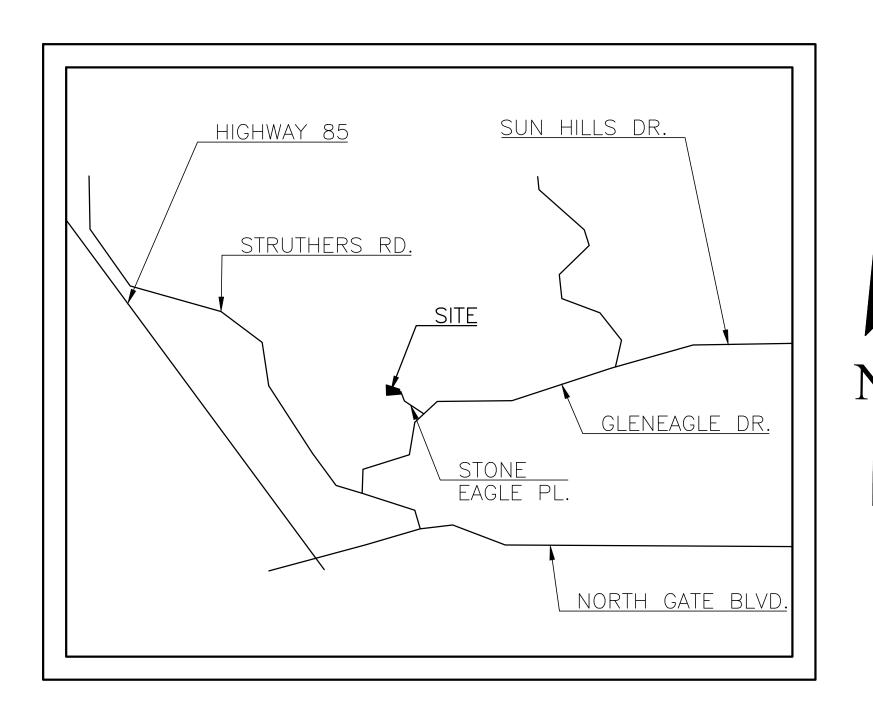
PREPARED BY:



Terra Nova Engineering, Inc. L Ducett, P.E. Project Manager Jobs/219917/Word/219917 SWMP-RPT.doc

APPENDIX

GENERAL LOCATION MAP



VICINITY MAP N.T.S.

TEMPORARY EROSION CONTROL DETAILS

(See Sheets 3 & 4 of Grading & Erosion Control Plan)

CONSTRUCTION SCHEDULE AND SEQUENCE

Erosion control measures shall be implemented in a manner that will protect properties and public facilities from the adverse effects of erosion and sedimentation as a result of construction and earthwork activities.

Construction will begin in Winter of 2021 with completion of the work anticipated to be in Spring of 2022. The 70% established vegetation is estimated to be in Spring of 2022.

Before clearing and grubbing may begin the first level of BMP'S are to be installed. These measures include sediment control log (SCL). The Staging Area (SSA) is also to be setup with appropriate measures to protect downstream (i.e., sediment control log). Stone Eagle Place will be used for access to the project. It will be cleared/swept as necessary to remove any significant sediment accumulation and prevent migration of uneven dirt clods/mud.

The Second & Third level of BMP'S are to check all installed BMP's for conformance and adjust appropriately.

Fourth level of BMP'S shall be installed once the previous BMP'S and construction are completed. This level includes any disturbed areas and stockpiles which are not at final grade, but will remain dormant for longer than 30 days to be mulched within 21 days after interim grading. Any area that is going to remain in an interim state for more than 60 days shall also be seeded. All temporary soil erosion control measures and BMP'S shall be maintained until permanent soil erosion control measures are implemented and vegetation has been established to 70% on areas not to be covered with gravel. These temporary BMPS's are to be removed once the 70% vegetation or permanent landscaping has been established.

GENERAL PERMIT APPLICATION

OPERATION AND MAINTENANCE INSPECTION RECORD

The following inspection records are to be used at each bi-monthly stormwater management system inspection and after any precipitation or snowmelt event that causes surface runoff. As a result of these inspections, the SWMP may need to be revised. The inspection records and revised SWMP shall be made available to the division upon request. If the construction activity lasts more than 12 months, a copy of the inspection records and revised SWMP shall be sent to the division by May 1 of each year covering April 1 to March 31.

EROSION CONTROL PLAN

(see back pocket)

OPERATION AND MAINTENANCE INSPECTION RECORD

CONSTRUCTION STORMWATER SITE INSPECTION REPORT

Facility Name			Permittee			
Date of Inspection			Weather Conditions			
Permit Certification #			Disturbed Acreage			
Phase of Construction			Inspector Title			
Inspector Name						
Is the above inspector a qualified storm					YES	NO
(permittee is responsible for ensuring t	hat the ir	spector	is a qualified stormwater r	nanager)		
INSPECTION FREQUENCY						
Check the box that describes the minim	num inspe	ection fre	equency utilized when cond	ducting each insp	ection	
At least one inspection every 7 calenda	•					
At least one inspection every 14 calendary					Г	7
24 hours after the end of any precipitat	tion or sn	owmelt	event that causes surface e	erosions	L	_
 This is this a post-storm event i 	nspection	n. Event	Date:			
Reduced inspection frequency - Include	site cond	ditions t	hat warrant reduced inspec	ction frequency	Г	
Post-storm inspections at temporary	orarily idl	e sites			F	<u>-</u>
 Inspections at completed sites/ 						<u>-</u>
Winter conditions exclusion	area					
Have there been any deviations from the	ne minimu	ım inspe	ection schedule?		YES	NO
If yes, describe below.					Ш	
INSPECTION REQUIREMENTS*						
 i. Visually verify all implemented co designed in the specifications 	ontrol me	asures a	re in effective operational	condition and ar	e working	as
ii. Determine if there are new poter	itial sourc	es of no	Hutants			
iii. Assess the adequacy of control materials				a new or modifie	d control	measures
to minimize pollutant discharges	cusui es u	t the site	e to identify dreas requiring	g new or mounte	a control	measures
iv. Identify all areas of non-complian	ce with t	he perm	it requirements, and if neo	essary, impleme	nt correct	ive action
*Use the attached Control Measures		•				
Corrective Action forms to document re				-		-
To the second se		1113 4336.	sometic that thigger entirer h	inamice or c		300.01.3
AREAS TO BE INSPECTED						
Is there evidence of, or the potential f				ooundaries, ente	ring the st	tormwater
drainage system or discharging to state	waters a	t the fol				
			If "YES" describe discharç			
	NO	YES	Document related mainte			
			and corrective actions	•	Control	Measures
Construction site perimeter			Requiring Corrective Act	tion form		
All disturbed areas						
Designated haul routes						
<u> </u>		Ш				
Material and waste storage areas exposed to precipitation						
Locations where stormwater has the						
potential to discharge offsite						
Locations where vehicles exit the site						
Other:		1 Ш				

CONTROL MEASURES REQUIRING ROUTINE MAINTENANCE

Definition: Any control measure that is still operating in accordance with its design and the requirements of the permit, but requires maintenance to prevent a breach of the control measure. These items are not subject to the corrective action requirements as specified in Part I.B.1.c of the permit.

Are there control measures requiring maintenance?	NO	YES	
			If "YES" document below

Date Observed	Location	Control Measure	Maintenance Required	Date Completed

INADEQUATE CONTROL MEASURES REQUIRING CORRECTIVE ACTION

Definition: Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design. This includes control measures that have not been implemented for pollutant sources. If it is infeasible to install or repair the control measure immediately after discovering the deficiency the reason must be documented and a schedule included to return the control measure to effective operating condition as possible.

Are there inadequate control measures requiring corrective action?	NO	YES	
Are there madequate control measures requiring corrective action?			If "YES" document below
Are there additional control measures needed that were not in place at the time of inspection?	NO	YES	
Are there additional control measures needed that were not in place at the time of inspection?			If "YES" document below

Date Discovered	Location	Description of Inadequate Control Measure	Description of Corrective Action	Was deficiency corrected when discovered? YES/NO if "NO" provide reason and schedule to correct	Date Corrected

REPORTING REQUIREMENTS

The permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances. The division may waive the written report required if the oral report has been received within 24 hours.

All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit
a. Endangerment to Health or the Environment
Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a of the Permit)
This category would primarily result from the discharge of pollutants in violation of the permit
 b. Numeric Effluent Limit Violations Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit) Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit) Daily maximum violations (See Part II.L.6.d of the Permit) Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if numeric effluent limits are included in a permit certification.

				NO	YES	
Has thoro hoo	as there been an incident of noncompliance requiring 24-hour notification?					
nas there bee		ioncompliance requiring 24-ii	our notification:		☐ If	"YES" document below
Date and Time of	Location	Description of Noncompliance	Description of Corrective Action	24 I	and Time o Hour Oral	Date of 5 Day Written Notification *

Time of Incident	Location	Noncompliance	Description of Corrective Action	24 Hour Oral Notification	Notification *

^{*}Attach copy of 5 day written notification to report. Indicate if written notification was waived, including the name of the division personnel who granted waiver.

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 individual(s) designated as the Qualified Stormwater Manager, shall sign and certify the below statement:							
"I verify that, to the best of my knowledge and bel during the inspection are complete, and the site is	ief, all corrective action and maintenance items identified currently in compliance with the permit."						
Name of Qualified Stormwater Manager	Title of Qualified Stormwater Manager						
Signature of Qualified Stormwater Manager	Date						
Notes/Comments							

14160 STONE EAGLE PLACE

EL PASO COUNTY, CO

GRADING, EROSION, & SEDIMENT CONTROL PLAN

Standard Notes for El Paso County Grading and Erosion Control Plans

Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters.

2. Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing.

3. A separate Stormwater Management Plan (SMWP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. Management of the SWMP during construction is the responsibility of the designated Qualified Stormwater Manager or Certified Erosion Control Inspector. The SWMP shall be located on site at all times during construction and shall be kept up to date with work progress and changes in the field.

4. Once the ESQCP is approved and a "Notice to Proceed" has been issued, the contractor may install the initial stage erosion and sediment control measures as indicated on the approved GEC. A Preconstruction Meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County staff.

5. Control measures must be installed prior to commencement of activities that could contribute pollutants to stormwater. Control measures for all slopes, channels, ditches, and disturbed land areas shall be installed immediately upon completion of the disturbance.

6. All temporary sediment and erosion control measures shall be maintained and remain in effective operating condition until permanent soil erosion control measures are implemented and final stabilization is established. All persons engaged in land disturbance activities shall assess the adequacy of control measures at the site and identify if changes to those control measures are needed to ensure the continued effective performance of the control measures. All changes to temporary sediment and erosion control measures must be incorporated into the Stormwater Management Plan.

7. Temporary stabilization shall be implemented on disturbed areas and stockpiles where ground disturbing construction activity has permanently ceased or temporarily ceased for longer than 14 days.

8. Final stabilization must be implemented at all applicable construction sites. Final stabilization is achieved when all ground disturbing activities are complete and all disturbed areas either have a uniform vegetative cover with individual plant density of 70 percent of pre-disturbance levels established or equivalent permanent alternative stabilization method is implemented. All temporary sediment and erosion control measures shall be removed upon final stabilization and before permit closure.

9. All permanent stormwater management facilities shall be installed as designed in the approved plans. Any proposed changes that affect the design or function of permanent stormwater management structures must be approved by the ECM Administrator prior to

10. Earth disturbances shall be conducted in such a manner so as to effectively minimize accelerated soil erosion and resulting sedimentation. All disturbances shall be designed, constructed, and completed so that the exposed area of any disturbed land shall be limited to the shortest practical period of time. Pre-existing vegetation shall be protected and maintained within 50 horizontal feet of a waters of the state unless shown to be infeasible and specifically requested and approved.

11. Compaction of soil must be prevented in areas designated for infiltration control measures or where final stabilization will be achieved by vegetative cover. Areas designated for infiltration control measures shall also be protected from sedimentation during construction until final stabilization is achieved. If compaction prevention is not feasible due to site constraints, all areas designated for infiltration and vegetation control measures must be loosened prior to installation of the control measure(s).

12. Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be a stabilized conveyance designed to minimize erosion and the discharge of sediment off site.

13. Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to enter State Waters, including any surface or subsurface storm drainage system or facilities. Concrete washouts shall not be located in an area where shallow groundwater may be present, or within 50 feet of a surface water body, creek or stream

14. During dewatering operations of uncontaminated ground water may be discharged on site, but shall not leave the site in the form of surface runoff unless an approved State dewatering permit is in place.

15. Erosion control blanketing or other protective covering shall be used on slopes steeper than 3:1.

16. Contractor shall be responsible for the removal of all wastes from the construction site for disposal in accordance with local and State regulatory requirements. No construction debris, tree slash, building material wastes or unused building materials shall be buried, dumped, or discharged at the site.

17. Waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. Control measures may be required by El Paso County Engineering if deemed necessary, based on specific conditions and circumstances.

18. Tracking of soils and construction debris off-site shall be minimized. Materials tracked off-site shall be cleaned up and properly disposed of immediately.

19. The owner/developer shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, soil, and sand that may accumulate in roads, storm drains and other drainage conveyance systems and stormwater appurtenances as a result of site development.

20. The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on—site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels.

21. No chemical(s) having the potential to be released in stormwater are to be stored or used onsite unless permission for the use of such chemical(s) is granted in writing by the ECM Administrator. In granting approval for the use of such chemical(s), special conditions and monitoring may be required.

22. Bulk storage of allowed petroleum products or other allowed liquid chemicals in excess of 55 gallons shall require adequate secondary containment protection to contain all spills onsite and to prevent any spilled materials from entering State Waters, any surface or subsurface storm drainage system or other facilities.

23. No person shall cause the impediment of stormwater flow in the curb and gutter or ditch except with approved sediment control measures.

24. Owner/developer and their agents shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CRS), and the "Clean Water Act" (33 USC 1344), in addition to the requirements of the Land Development Code, DCM Volume II and the ECM Appendix I. All appropriate permits must be obtained by the contractor prior to construction (1041, NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and other laws, rules, or regulations of other Federal, State, local, or County agencies, the most restrictive laws, rules, or regulations shall apply.

25. All construction traffic must enter/exit the site only at approved construction access points.

26. Prior to construction the permittee shall verify the location of existing utilities.

27. A water source shall be available on site during earthwork operations and shall be utilized as required to minimize dust from earthwork equipment and wind.

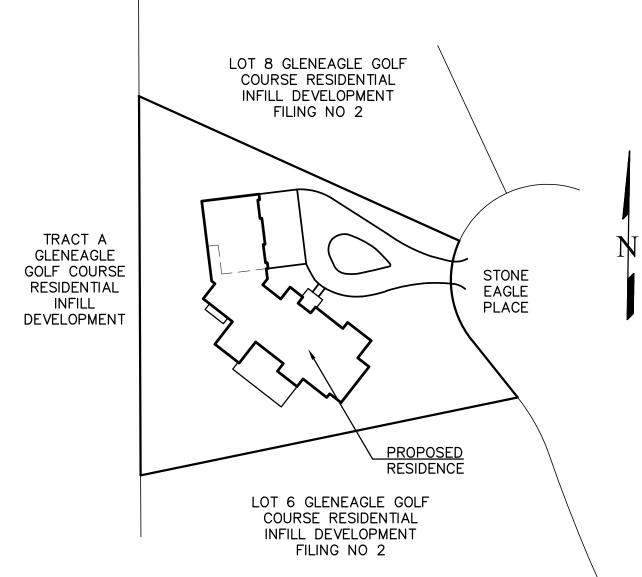
28. The soils report for this site has been prepared by $____N/A_____$ and shall be considered a part of these plans.

29. At least ten (10) days prior to the anticipated start of construction, for projects that will disturb one (1) acre or more, the owner or operator of construction activity shall submit a permit application for stormwater—discharge to the Colorado Department of Public Health and Environment, Water Quality Division. The application contains certification of completion of a stormwater management plan (SWMP), of which this Grading and Erosion Control Plan may be a part. For information or application materials contact:

Colorado Department of Public Health and Environment Water Quality Control Division

WQCD -Permits 4300 Cherry Creek Drive South Denver, CO 80246-1530 Attn: Permits Unit

DECEMBER 2021



SITE MAP

SCALE: 1"=50'

GENERAL NOTES

THE CONTRACTOR.

OF EXISTING UNDERGROUND UTILITIES.

KNOW WHAT'S BELOW, CALL BEFORE YOU DIG.

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE

EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE SITE.

THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE PLANS IS

NOT TO BE CONSIDERED AS THE NON-EXISTENCE OF OR A DEFINITE LOCATION

2. THE CONTRACTOR WILL TAKE THE NECESSARY PRECAUTIONS TO PROTECT

EXISTING UTILITIES, BUILDINGS, FENCES, AND ROADWAYS FROM DAMAGE DUE TO THIS OPERATION. ANY DAMAGE TO THE ABOVE WILL BE REPAIRED AT THE

CONTRACTOR'S EXPENSE, AND ANY SERVICE DISRUPTION WILL BE SETTLED BY

3. AS DETERMINED BY THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL #

IS LOCATED WITHIN A DESIGNATED 100-YEAR F.E.M.A. FLOODPLAIN.

EROSION CONTROL COST OPINION

4. 1 EA.-VEHICLE TRACKING CONTROL @ \$1325.00/EA

1. 370 LF-SEDIMENT CONTROL LOGS \$2.75/LF

2. 0.30 AC-SEEDING & MULCH @ \$785/AC

3. 1 EA.-FUEL SPILL KIT @ \$200.00/EA

5. 1 EA.-CONCRETE WASHOUT @ \$760.00/EA.

6. 40% MAINTENANCE AND REPLACEMENT

08041C02587G EFFECTIVE DATES DECEMBER 7, 2018, NO PORTION OF THIS SITE

1,018

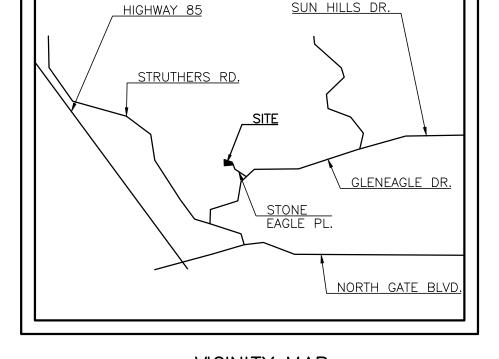
236

200

760

1,325

1,416



SHEET INDEX

COVER SHEET GRADING & EROSION CONTROL PLAN **EROSION CONTROL DETAILS** EROSION CONTROL DETAILS

1 OF 4 2 OF 4 3 OF 4 4 OF 4

SITE DATA

OWNER/PETITIONER: PAUL JOHN SHEKOSKI 4314 CARLISLE DRIVE CRYSTAL LAKE, IL 60012

PREPARER: TERRA NOVA ENGINEERING, INC. 721 S 23RD STREET COLORADO SPRINGS, CO 80904 (719) 635-6422 OFFICE

APPLICANT: JAYDEN HOMES (719) 535-9030

ZONING = RS-6000 RR-5

2) TAX SCHEDULE NO.: 62062-01-127

3) TOTAL LOT SQ. FT.=24,291

4) SETBACKS: FRONT: 30', SIDE: 15', REAR: 25'

DESCRIPTION OF ACTIVITIES:

THE DEVELOPER PROPOSES TO CONSTRUCT A NEW RESIDENCE AND ASSOCIATED DRIVEWAY. THE SITE CONSISTS OF APPROXIMATELY 24,291 SQUARE FEET. THE SITE CURRENTLY CONSISTS OF GROUND THAT HAS BEEN RECENTLY CLEARED FOR THE

EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IN A MANNER THAT WILL PROTECT PROPERTIES AND PUBLIC FACILITIES FROM THE ADVERSE EFFECTS OF EROSION AND SEDIMENTATION AS A RESULT OF CONSTRUCTION AND EARTHWORK ACTIVITIES. IT IS ANTICIPATED THAT CONSTRUCTION ACTIVITIES WILL OCCUR BETWEEN WINTER OF 2021 AND SRPING OF 2022, AT WHICH POINT IT WILL BE CONSIDERED COMPLETED.

CONSTRUCTION PHASING IS ANTICIPATED TO OCCUR AS FOLLOWS:

PRIOR TO START OF CONSTRUCTION, INITIAL EROSION CONTROL MEASURES TO BE INSTALLED INCLUDE SEDIMENT CONTROL LOG (SCL) ALONG THE DOWNHILL SIDE OF DISTURBED AREA. ALSO INCLUDED IN THIS PHASE WILL BE INSTALLATION OF SEDIMENT CONTROL LOG (SCL) AROUND THE BASE OF ANY DIRT STOCKPILE AREAS. UNTIL THE STOCKPILE HAS BEEN REMOVED, THE SEDIMENT CONTROL LOG SHALL REMAIN IN PLACE AND BE MAINTAINED IN SUCH A WAY AS TO REDUCE TRANSFERENCE OF SEDIMENTATION OVER THE SITE.

ALL PREVIOUSLY INSTALLED BMP'S SHALL REMAIN IN PLACE UNTIL A LATER PHASE.

ANY AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL BE SEEDED IN ORDER TO ESTABLISH A VEGETATIVE COVER UNTIL THE FINAL LANDSCAPING IS INSTALLED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND VEGETATION HAS BEEN ESTABLISHED TO 70% ON AREAS NOT COVERED BY GRAVEL. ONCE VEGETATIVE COVER HAS BEEN ESTABLISHED AT 70% OF THE DISTURBED AREAS, SEDIMENT CONTROL LOG WILL BE REMOVED FROM ANY DIRT STOCKPILE AREAS. THE DIRT STOCKPILES (SP) WILL BE REMOVED AND RE-VEGETATED AS PART OF THIS PHASE.

FINAL CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED AT THIS POINT. THE PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

3% TO 8% SLOPES. THE SOIL IS IN HYDROLOGIC SOIL GROUP B. THERE ARE NO WETLANDS ON THIS SITE. THIS SITE IS WITHIN THE BLACK FOREST DRAINAGE BASIN. DRAINAGE FLOWS FROM

THE SOILS ON THIS SITE ARE NOTED AS 100% PRING COURSE SANDY LOAM (71),

THE EAST TOWARDS THE WEST ON THIS SITE. THE PROPERTY OWNER OR OWNERS REPRESENTATIVE IS RESPONSIBLE FOR INSPECTING AND MAINTAINING THE SITE ON A REGULAR BASIS. INITIAL CRITERIA FOR

THE OCCURRENCE OF INSPECTIONS IS AS FOLLOWS: ONCE EVERY 14 DAYS OR AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT SIGNIFICANT ENOUGH TO

CAUSE SURFACE EROSION. A WRITTEN RECORD OF INSPECTIONS SHALL BE KEPT BY THE OWNER OR OWNERS REPRESENTATIVE AND MADE AVAILABLE TO THE COUNTY UPON REQUEST. THIS WILL CONTINUE UNTIL THE SITE IS STABILIZED AND THE STOCKPILE IS NO LONGER NEEDED.

LEGAL DESCRIPTION

LOT 7 GLENEAGLE GOLF COURSE RESIDENTIAL INFILL DEVELOPMENT FILING NO 2

TOTAL AREA TO BE CLEARED, EXCAVATED, GRADED OR DISTURBED IS 0.48 ACRES.

ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. 1 POPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OF OMSEGO 🗞 on my part in preparing

FOR AND ON BEHALF OF TERRA NOVA I

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

DATE: 12/21/2021

EL PASO COUNTY APPROVAL

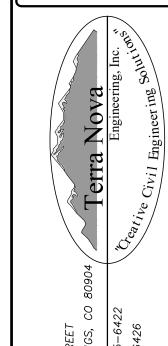
DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS

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

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

COUNTY ENGINEER / ECM ADMINISTRATOR

DRAW BY BY REVE TERR INC.



EA STONE 9

IGNED BY JF (AWN BY

HECKED BY LD SCALE AS SHOW SCALE NA

DB NO. 2199.17 ATE ISSUED 12/5/2

HEET NO. 1 OF 4

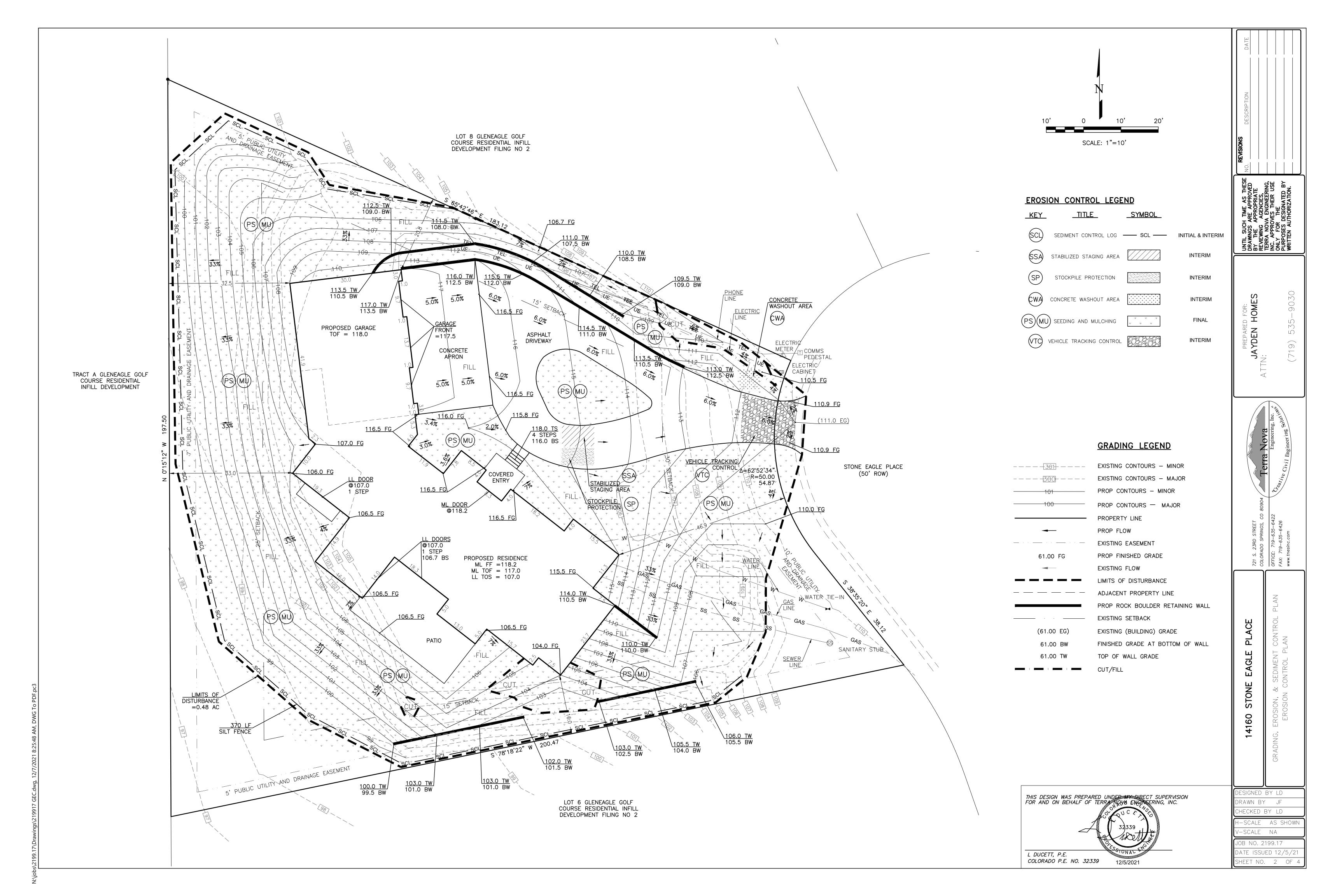
PCD FILE NO.

OWNER'S STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY

DISCRETION.

JENNIFER IRVINE, P.E.



VEHICLE PARKING (1F NEEDED) CONSTRUCTION SITE ACCESS GRANULAR MATERIAL STORAGE STABILIZED AREA . CONSTRUCTION ENTRANCE (SEE TO VTC-3) SILT FENCE OR CONSTRUCTION FENCING AS NEEDED — SF/CF — SF/CF —

SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

EROSION, AND PERFORM NECESSARY MAINTENANCE.

DOCUMENTED THOROUGHLY.

1. SEE PLAN VIEW FOR -LOCATION OF STAGING AREA(S).

-CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE. 4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

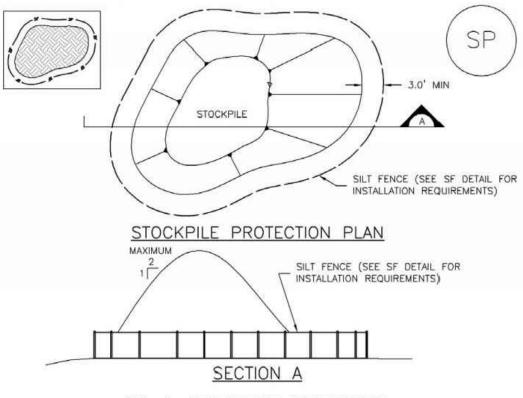
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR

November 2010

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SSA-3

November 2010

Stockpile Management (SP) MM-2



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES 1. SEE PLAN VIEW FOR:

-LOCATION OF STOCKPILES.
-TYPE OF STOCKPILE PROTECTION.

. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS, SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).

4. 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.

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

November 2010

Stockpile Management (SM)

CWA-4

Stabilized Staging Area (SSA) **SM-6**

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS. 6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE

GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION. NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF

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

Urban Drainage and Flood Control District

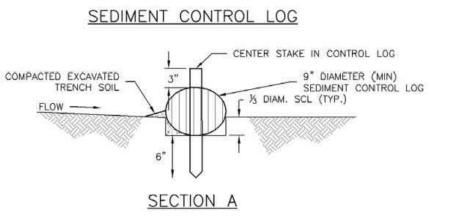
Urban Storm Drainage Criteria Manual Volume 3

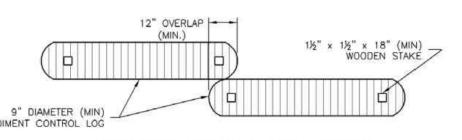
(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

Sediment Control Log (SCL)

1½" x 1½" x 18" (MIN) WOODEN STAKE CENTER (TYP DIAMETER SEDIMENT CONTROL LOGS MAY NEED TO BE EMBEDDED DEEPER.





SEDIMENT CONTROL LOG JOINTS

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

SCL-1. SEDIMENT CONTROL LOG

SCL-3

Sediment Control Log (SCL)

SP-4

MM-2

STOCKPILE PROTECTION MAINTENANCE NOTES

STOCKPILE PROTECTION MAINTENANCE NOTES

PERIMETER CONTROLS BY THE END OF THE WORKDAY.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

DISCOVERY OF THE FAILURE.

STOCKPILE HAS BEEN USED.

EROSION, AND PERFORM NECESSARY MAINTENANCE.

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION.

MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS

POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE

5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE

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

SC-2

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS. 2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR

TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY & OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST

6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE

7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED

SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG. 5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

November 2010

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-5

Concrete Washout Area (CWA) MM-1

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

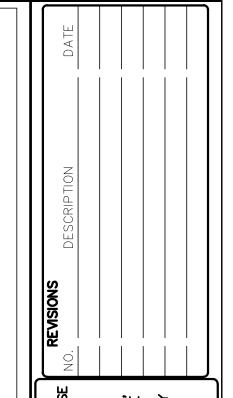
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'

5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED. 7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION, (DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD). NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN



UNTIL SUCH DRAMINGS / BY THE / REVIEWING TERRA NOV INC. APPRO ONLY FOR PURPOSES

November 2010

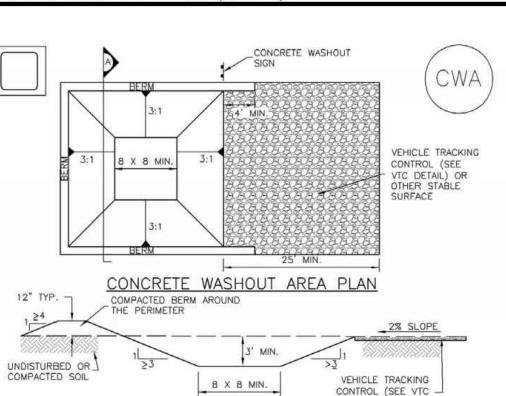
Concrete Washout Area (CWA)

Urban Drainage and Flood Control District

Urban Storm Drainage Criteria Manual Volume 3

MM-1

DETAIL



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY, DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE. 4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'. 6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

November 2010

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CWA-3

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOWA ENCINEERING INC.

RAWN BY HECKED BY LD

EA

S

9

SCALE NA

HEET NO. 3 OF

SSA-4

L DUCETT, P.E.

COLORADO P.E. NO. 32339

12/5/2021

SCALE AS SHOW

B NO. 2199.17 ATE ISSUED 12/5/2 Chapter 14 Revegetation

Table 14-9. Recommended Seed Mix for High Water Table Conditions¹

during dry or warm seeding times.

or irrigation to wet and settle the seed bed. Firming of the seedbed following seeding will improve results

Common Name (Variety)	Scientific Name	Growth Season	Growth Form	Seeds/Lb	Lbs PLS/ Acre Drilled	Lbs PLS/Acre Broadcast or Hydroseeded
Redtop ²	Agrostis alba	Warm	Sod	5,000,000	0.1	0.2
Switchgrass (Pathfinder)	Panicum virgatum	Warm	Sod/ Bunch	389,000	2.2	4.4
Western wheatgrass (Arriba)	Pascopyrum smithii	Cool	Sod	110,000	7.9	15.8
Indian saltgrass	Distichlis spicata	Warm	Sod	520,000	1.0	2.0
Wooly sedge	Carex lanuginose	Cool	Sod	400,000	0.1	0.2
Baltic rush	Juncus balticus	Cool	Sod	109,300,000	0.1	0.2
Prairie cordgrass	Spartina pectinata	Cool	Sod	110,000	1.0	2.0
Annual rye	Lolium multiflorum	Cool	Cover crop	227,000	10.0	20.0
				TOTAL	22.4	44.8
Wildflowers				8		
Nuttall's sunflower	Helianthus nuttallii			250,000	0.10	0.20
Wild bergamot	Monarda fistulosa	Same	-	1,450,000	0.12	0.24
Yarrow	Achillea millefolium		3 	2,770,000	0.06	0.12
Blue vervain	Verbena hastata	37772	<u> </u>		0.12	0.24
		3		TOTAL	0.40	0.80

wetland plants 2-foot on-center is recommended for sites with wetland hydrology.

May 2014 City of Colorado Springs

Drainage Criteria Manual, Volume 1

Mulching (MU)

Description

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

standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

Mulch can be applied either using



EC-4

Photograph MU-1. An area that was recently seeded, mulched,

Appropriate Uses

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeding. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

Design and Installation

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

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MU-1

3" MIN OF COURSE AGGREGATE ON ALL CONSTRUCTION ROADS, PARKING AREAS, STAGING AREA, LOADING/UNLOADING AREAS, AND STORAGE AREAS. OARSE AGGREGATE 3 INCHES (D₅₀) GEOTEXTILE (MATERIAL REQUIREMENTS IN APPENDIX B, TABLE MT-3) SECTION **VEHICLE TRACKING VEHICLE TRACKING NOTES** INSTALLATION REQUIREMENTS MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM

2. STONES ARE TO BE REAPPLIED PERIODICALLY AND

3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM

4. STORM SEWER INLET PROTECTION IS TO BE IN

PLACE, INSPECTED, AND CLEANED IF NECESSARY.

5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

Figure VT-2

Vehicle Tracking

Application Examples

WHEN REPAIR IS NECESSARY.

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE

2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT

SHOULD NOT BE BUILT OVER EXISTING PAVEMENT

3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN

LOADING/UNLOADING ZONES, STORAGE AREAS, AND

City of Colorado Springs

Stormwater Quality

4. CONSTRUCTION ROADS, PARKING AREAS,

5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE

STAGING AREAS ARE TO BE STABILIZED.

EXCEPT FOR A SLIGHT OVERLAP.

GEOTEXTILE AND STONE.

EXCESSIVELY STEEP.

TO BE STABILIZED PRIOR TO CONSTRUCTION

Table 14-10. Recommended Seed Mix for Transition Areas

Common Name (Variety)	Scientific Name	Growth Season	Growth Form	Seeds/Lb	Lbs PLS/Acre Drilled	Lbs PLS/Acre Broadcast or Hydroseeded
Sheep fescue (Durar)	Festuca ovina	Cool	Bunch	680,000	1.3	2.6
Western wheatgrass (Arriba)	Pascopyrum smithii	Cool	Sod	110,000	7.9	15.8
Alkali sacaton	Spolobolus airoides	Warm	Bunch	1,758,000	0.5	1.0
Slender wheatgrass	Elymus trachycaulus	Cool	Bunch	159,000	5.5	11.0
Canadian bluegrass (Ruebens) ¹	Poa compressa	Cool	Sod	2,500,000	0.3	0.6
Switchgrass (Pathfinder)	Panicum virgatum	Warm	Sod/ Bunch	389,000	1.3	2.6
Annual rye	Lolium multiflorum	Cool	Cover crop	227,000	10.0	20.0
			3:	TOTAL	26.8	53.6
Wildflowers						
Blanket flower	Faillardia aristata	2/4		132,000	0.25	0.50
Prairie coneflower	Ratibida columnaris		nancie	1,230,000	0.20	0.40
Purple prairie clover	Petalostemum purpurea			210,000	0.20	0.40
Gayfeather	Liatris punctata	I -	 :	138,000	0.06	0.12
Flax	Linum lewisii	1.00		293,000	0.20	0.40
Penstemon	Penstemon strictus	Deffect	111 16	592,000	0.20	0.40
Yarrow	Achillea millefolium			2,770,000	0.03	0.06
			2	TOTAL	1.14	2.28

For side slopes or between wet and dry areas. ²Substitute 1.7 lbs PLS/acre of inland saltgrass (Distichlis spicata) in salty soils.

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Mulching (MU)

- Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.
- Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided
- On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.
- Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.
- Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

Maintenance and Removal

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

May 2014

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STONE

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HEET NO. 4 OF 4

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