

# STORMWATER MANAGEMENT PLAN

## LOT 5, BLOCK 1 PALMER PARK BUSINESS CENTER SUBDIVISION

### FILING No. 3

PHASES TRUCK AND AUTO REPAIR  
1670 PAONIA STREET  
COLORADO SPRINGS, COLORADO  
80915

PREPARED FOR APPLICANT:  
CASCO CONSTRUCTION CORP.  
1775 JET STREAM DRIVE, SUITE 102  
COLORADO SPRINGS, CO 80921

QUALIFIED STORMWATER MANAGER:  
MT2 METALS TREATMENT TECHNOLOGIES (GENERAL CONTRACTOR)  
NAME: TBD

PCD FILING No. XXX-XX-XXX

JANUARY 15, 2021

PPR-21-021

Prepared by

**Richard Lyon, P.E.**

Rocky Mountain Group

2910 Austin Bluffs Pkwy. | Colorado Springs, CO 80918 | 719-454-5638



Item 1. Add Qualified Stormwater Manager and Contractor Information to cover/title sheet. If unknown, add a placeholder to be updated prior to the pre-construction meeting:

#### QUALIFIED STORMWATER MANAGER

Name: \_\_\_\_\_

Company: \_\_\_\_\_

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

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#### CONTRACTOR

Name: \_\_\_\_\_

Company: \_\_\_\_\_

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

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## 1.0 EXISTING CONDITIONS

Phases Truck and Auto Repair is located at 1670 Paonia Street, Colorado Springs, Colorado south of Palmer Park Boulevard and north of Omaha Boulevard in El Paso County. The 2.58 acre lot is zoned as I-2 CAD-0, schedule no. 5406304014 and the legal description reads as “Lot 5, Block 1 Palmer Park Business Center Subdivision Filing no. 3”. The land use is a commercial truck and auto repair shop. The property is surrounded by commercial businesses.

The property currently consists of a PEMB with a concrete sidewalk at the frontage leading to the office on the east side. An asphalt drive access from Paonia Street enters the parcel and wraps around the existing building back to Paonia Street. A Landscaped island at the frontage is surrounded by curb and gutter. 3:1 slope berms are on the north and south side of the asphalt drive access that range from the fence on the east side to the end of the asphalt drive access on the west side. The existing topography slopes vary from 1 to 3 percent slopes. The rear of the lot towards the west property line is vegetated with native grasses. The parcel is determined to be 65.1 percent pervious.

A concrete drainage channel is located towards the rear of parcel on the west side that runs from the north to south of the lot into a dedicated pond known as ‘Tract A’. According to FEMA flood plain map 08041C0752G revised December 7, 2018, the lot is designated as Zone X, an area of minimal flood hazard. The parcel is located within the Sand Creek Basin.

The schedule numbers, addresses, owners, and lot sizes of adjacent lots are listed on the grading and drainage plan. This property is surrounded by commercial zoned businesses of acreages ranging from greater than 1 acre to over 7 acres in all directions. All adjacent lots and roadways are not expected to have significant impacts due to this construction. The proposed grading plan seeks to convey storm water according to the historic drainage pattern. There are no known/anticipated allowable non-stormwater discharges such as ground water, springs, or irrigation. A vicinity map is provided on the following page. The thick red lines are property boundaries.

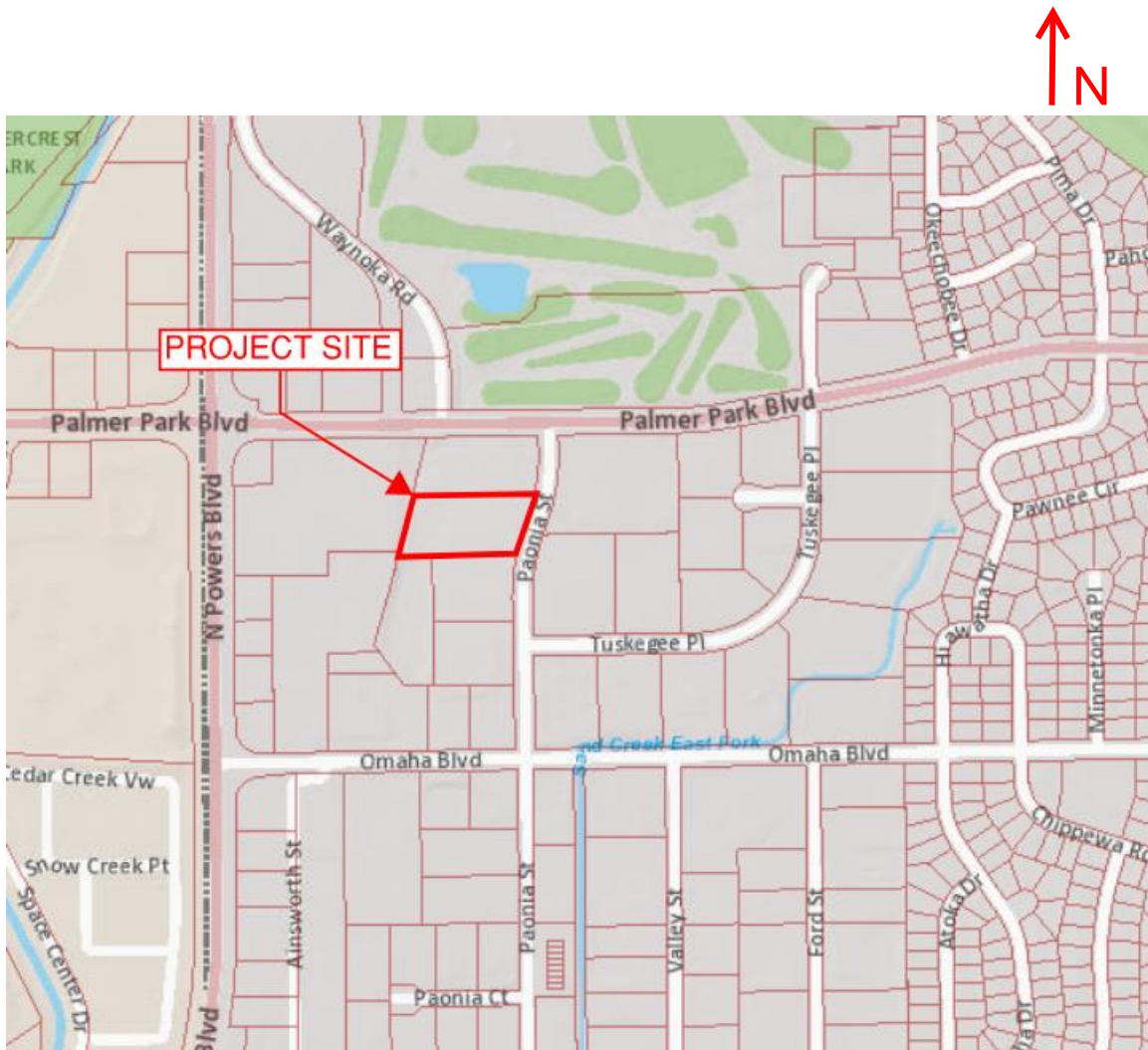


Figure 1: Vicinity Map of project location.

According to the USGS soils survey map, the eastern portion of the parcel consists of Blakeland loamy sand. The western region consists of Blendon sandy loam. The soils are classified as NRCS Hydrologic Soil Group A and B respectively which are soils having a high and moderate infiltration rate, respectively, when thoroughly wet.

Checklist Item 8 - Also discuss soil erosion potential

## 2.0 CONSTRUCTION ACTIVITIES PROPOSED

The proposed project consists of the construction of a Pre-engineered Metal Building (PEMB), surrounding asphalt drive access, a non-structural retaining wall and the development of a concrete pad to relocate the existing trash enclosure. The proposed project will not impact downstream facilities or neighboring developments.

The limits of disturbance for construction is 37,800 square feet (0.87 acres).

The project phasing is to include building of the proposed PEMB and their associated hardscapes and drive areas, starting on the north side and then proceeding to wrap around on the west side towards the south side.

As part of the construction process, proper erosion control measures will be required for development of the site including silt fencing along downstream limits of disturbance to minimize off-site transport of construction sediment. Other control measures such as a vehicle tracking pad at the construction entrance to the site and stock pile protection are to be installed in applicable areas. A stormwater management plan is provided as a guide to proper control measure placement.

The site construction consists of earthwork of undeveloped land and the erection of a pre-engineered metal building with associated hardscapes and pavement. The grading activities include cut and fill to the areas shown on the engineering plan set. Removal of temporary control measures labelled as interim on the erosion control and SWMP plan are to be removed according to construction phasing activities.

The Stormwater Management Plan includes the following notes for Builders and Property Owners:

1. Proposed site conditions shall not significantly vary from the conditions presented in this report. The degree to which variance from the proposed conditions allowed is at the discretion of the County. The most critical variable is the percent impervious of the site.
2. Individual builders shall provide positive drainage away from structures and account for potential cross-lot drainage impacts within the lot.
3. The builders and property owner shall implement and maintain erosion control best management practices/control measures for protection of downstream properties and facilities.
4. Recognizing the location of this subdivision adjacent to the storm inlets and developed downstream properties, the builders and property owner shall take extra care in providing and maintaining erosion control BMP's/control measures at downstream property boundaries.

The SWMP is presented as a comprehensive erosion and sediment control plan for stormwater quality management by displaying control measures with labels for initial, interim, and final. The initial phasing is to include erosion and sediment control BMP installation, clearing and grubbing of any significant vegetation, and surface roughening where applicable. The interim phases include cut/fill activity according to the engineered plan set and installation of temporary sediment basins as needed. The final phase is for final stabilization and permanent seeding.

### **3.0 TIMING SCHEDULE**

The anticipated start time period for site grading is upon the receipt of the permit, assumed to be beginning of May of 2021. Construction sequencing of major activities includes 2 days for clearing and grubbing, and installation of BMPs followed immediately by excavation of common

utility trenches and foundations. Beginning of July, 2021, hardscapes and wall installations are to commence. Structure erections and fine grading are anticipated to take place through the months of August and September of 2021. Final phase construction and landscape will be completed by October, 2021. All erosion and sediment control measures are constant throughout the construction phases. The project end date following permanent stabilization is anticipated to be end of October of 2021.

#### **4.0 SITE DISTURBANCE**

The proposed project consists of the addition of a pre-engineered metal building (PEMB) and associated hardscapes and pavement to follow and wrap around the proposed PEMB. The total limits of disturbance are 37,800 square feet or 0.87 acres. With an assumed 33 percent swell and compaction factor for an adjusted cut/fill of 384 cubic yards of cut and 1,821 cubic yards of fill yields a net of 1,437 cubic yards of fill.

The stabilized staging area which may include stockpiling is phased into two locations where phase 1 is located on the north west end of the construction site and phase 2 is located on the southwest end of the construction site. However, the contractor shall haul material as often as possible to retain sufficient space on site and decrease sediment runoff whenever possible. Any on-site stockpiling that is to occur over night is to be on an elevated surface relative to the existing ground elevation and not to be within 100 feet of the existing water way displayed on the plan set and FEMA maps. Any on-site stockpiling is to be covered with tarps and secured. No stockpiling shall exceed 50 feet in height.

#### **5.0 STRUCTURAL EROSION AND SEDIMENT CONTROLS**

The project will consist of any clearing and grubbing within the disturbance limits and implementation of perimeter controls at the initial stage. Perimeter controls such as silt fence are to be installed after any clearing and grubbing. At this time, traffic control is to be implemented which may include construction signs, cones, or barriers to allow the flow of traffic within the on-site roadway and existing parking lot area during mobilization of large construction vehicles. Road grading is not a part of the scope of this project. Final grading and stabilization is to take place as soon as possible after hardscapes and pavement have been installed. All BMPs are to remain until permanent stabilization is completed.

Any waste disposal is to be done off-site at the designation of the contractor at a location approved by the City of Colorado Springs. Waste disposal, spill prevention, and response procedures are to be according to CDPHE and El Paso County standards. Site specific plans and procedures are addressed in Section 7.0. A CDPHE brochure is included as an appendix item in this report.

There are no anticipated inlet protection needs for this project, however, the contractor shall do their due diligence regarding any downstream inlet protection needs. Inlet protection reduces sediment deposition in storm drains and culverts and reduces sediment pollution in stormwater by filtering out some of the sediment carried by runoff flowing through the inlet protection. The details for the installation and maintenance of the inlet protection are included in the Appendix.

Inlet protection should be installed wherever the contractor deems them necessary or helpful in the prevention of sediment runoff during construction. Inlet protection installed at the discretion of the contractor is not to be shown on the SWMP BMP site plan as there are no anticipated locations.

Prior to construction activity, vehicle tracking control will be installed at the designated access point. Vehicle tracking control helps reduce the deposition of sediment, dirt, mud, and debris by vehicles exiting the site onto the adjacent streets. The location of the site entrance called out for a gravel vehicle tracking control with wash rack is shown on the SWMP BMP site plan along with installation and maintenance of the controls within the details sheets.

Before any grading or other significant disturbance activities, silt fence is to be installed along any edge of an area to be disturbed where runoff would otherwise go untreated. Silt fence will be installed along those portions of the site perimeter where potentially sediment-laden runoff may flow into adjacent properties or into nearby private storm sewer grates. Silt fence is also to be installed as a perimeter around the stockpile area, especially on downstream sides. Silt fences help reduce pollution of stormwater by filtering out some of the sediment carried by runoff flowing through the fences and by facilitating deposition of sediment by slowing the runoff. These BMPs also assist in reducing erosion by slowing and distributing runoff. The locations in which to install silt fence are on the SWMP BMP site plan. As with other BMPs, silt fences can be installed wherever the contractor deems them to be necessary or helpful and these locations may not be shown on the site plan.

There are no offsite stormwater control measures proposed for use by this project or under the direct control or ownership of the Owner or Operator.

## **6.0 NON-STRUCTURAL EROSION AND SEDIMENT CONTROLS**

Prior to commencement of construction activities, the construction vehicle traffic areas to and around the project site including all construction roads, parking areas, loading and unloading zones, storage areas, and staging areas, are to be stabilized through proper grading, compaction, and surfacing. Stabilization of large vehicle traffic areas reduces erosion and vehicle tracking thus helping to eliminate potential pollution of stormwater by sediment. Designated construction ingress and egress with tracking control is to be used as shown on the SWMP BMP site plan. Should significant soil still be deposited on the surrounding roadways, street sweeping will be utilized to remove the soil from roadways immediately following deposition.

Mulch is to be applied to all disturbed areas that are not otherwise stabilized immediately if possible or within 14 days of completion of final grading. Additionally, mulch is to be applied to all disturbed areas that are not yet at final grade but will remain dormant or undisturbed for longer than 30 days. Mulch helps prevent erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff.

When seasonally appropriate, seed is to be applied to all disturbed areas that are not otherwise stabilized immediately if possible or within 14 days of completion of final grading. Additionally, seed is to be applied to all undisturbed areas that are not yet at final grade but will remain

dormant or undisturbed for longer than one year. When the season is inappropriate for seed application, surface roughening and mulch is to be applied within 14 days and seed is to be applied as soon as the appropriate seasonality commences.

## 7.0 POTENTIAL EROSION AND DISCHARGE

The SWMP calls for control measures to be implemented for initial, interim, and final phases of construction to ensure that erosion and sediment runoff is minimized and that there is no negative impact on downstream water quality. There is no anticipated discharge of pollutants from the site as long as the contractor implements control measures appropriately. Similarly, the developed conditions of a commercial store property and parking lot are not anticipated to have erosion issues following permanent stabilization and seeding.

Any contaminated soils are to be properly disposed of by the contractor immediately. Loading and unloading operations are to occur on-site and large vehicular mobilization will require traffic control measures. Any waste disposal is to be done off-site at the designation of the contractor at a location approved by the County. Waste disposal, spill prevention, and response procedures are to be according to the Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division. A CDPHE brochure is included in the Appendix for contractor reference. **Appropriate spill prevention and response measures will be implemented on the site.** The details and specifications referenced within this section provide general and specific guidelines for spill prevention and response measures relating to the various potential non-sediment pollution sources.

Item 11 - discuss this in more detail. Will it be provided by the contractor? Will it be attached to the end of this report once it is created?

**for the described construction activities may be stored on site,** and then only in the smallest amounts reasonable and for the shortest time possible. Fueling and minor preventative maintenance of vehicles and equipment may occur only on areas specifically stabilized for construction vehicle traffic. Appropriate procedures will be taken to limit the potential of stormwater pollution from spills and leaks. No significant maintenance of vehicles and equipment and no vehicle and equipment washing will be allowed on site.

Batch plants are not anticipated at this site. The contractor is responsible for the cleaning of trash on site and prevention of any loose trash leaving the site at all times during construction. A portable toilet is required on site.

The contractor is responsible for dust control at all times during construction. Sediment runoff is controlled by use of silt fencing on all downstream sides of the disturbance area within the lot and the contractor is to prevent sediment flow off-site at all times. End of day procedures include BMP inspection by the contractor and removal of any sediment.

Portable toilets will be located a minimum of 10 feet from Stormwater inlets and 50 feet from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills.

The contractor shall not track mud/dirt off-site and project site cleanup including sweeping and waste disposal is to occur at the end of each working day.

No groundwater and/or stormwater dewatering activities are proposed or expected for the proposed construction activities. If groundwater is discovered during construction, all work is to cease and the contractor shall contact the engineer and County to await instructions.

No significant waste generation is expected as a result of the proposed construction activities. Any minor waste that is produced is to be disposed of properly and promptly.

Appropriate spill prevention and response measures will be implemented on the site. The details and specifications referenced above in this section provide general and specific guidelines for spill prevention and response measures relating to the various potential non-sediment pollution sources. There are no batch plants on site to address spill prevention and pollution controls for dedicated batch plants.

## **8.0 NON-STORMWATER DISCHARGE**

There is no anticipated non-stormwater surface discharge to and from the site. There is no proposed impervious area and all runoff is according to historic drainage patterns via overland flow over pervious native vegetation and soils. There are no springs, irrigation, groundwater discharge or any other discharge covered by CDPHE Low Risk Guidance that is associated with this site.

## **9.0 RECEIVING WATERS**

According to the “Drainage Report for Palmer Park Business Center Preliminary Plan and Palmer Park Business Center Subdivision Filing No. 1”, prepared by K L H Engineering Consultants, Inc., dated July, 1982, runoff travels west towards the rear of the lot into a private 6-foot wide concrete trapezoidal drainage channel. From here the runoff is intercepted and conveyed south into an existing private 6,5 acre-foot detention pond. The pond outlets into a public 48” CMP Storm Drain that travels under Omaha Boulevard and ultimately outlets into the immediate receiving waters of Sand Creek East Fork.

## **10.0 PERMANENT STABILIZATION**

All drainage measures are to be implemented according to the engineering plan set. Final stabilization will include seeding of drilled seeding and hydro mulch to revegetate the landscape of the lot and improve the site drainage and aesthetics.

The site will be stabilized at final grades as indicated by the engineering plan set with compaction to the standards according to El Paso County Engineering Criteria Manual. All berms and embankments are to be implemented according to the engineering plan set in order to convey storm water according to the historic drainage patterns consistent with the drainage report. Final stabilization will include seeding of hydro seed and hydro mulch to revegetate the landscape of the lot and improve the site drainage.



**Ponds:** The contractor will be responsible for any re-excavation of sediment and debris that collects in the basin depression required to ensure that the basin meets the design grades following construction. The storm lines (or in this case, the concrete channel) shall also be cleaned and free of sediment once the site becomes stabilized.

According to the Stormwater Construction Permit, final stabilization is reached when all soil disturbing activities at the site have been completed, and uniform vegetative cover has been established with a density of at least 70 percent of pre-disturbance levels or equivalent permanent, physical erosion reduction methods have been employed. This vegetative cover is to be established within one year of completion of construction activities on all disturbed areas not otherwise stabilized. Unless otherwise indicated on a landscape plan, revegetation will be achieved through seedbed preparation, including but not necessarily limited to soil roughening, seeding, mulching, and irrigating when specified.

The structural BMPs described in section 5.0 Structural Erosion and Sediment Controls are to remain in place until final stabilization in order to prevent erosion and pollution of stormwater by sediment after completion of construction activities. BMPs that must remain in place until final stabilization shall be removed following final stabilization and the resulting disturbed areas shall be seeded and mulched.

## **11.0 OWNER INSPECTIONS AND MAINTENANCE OF CONSTRUCTION BMPs**

The contractor is to be familiar with all requirements of the erosion and sediment control plans and notes. The contractor shall protect the existing structures and reroute any runoff as necessary during construction activities to prevent erosion and damage. All exposed and unworked soils shall be stabilized by suitable application of best management practices such as vegetative cover, mulching, plastic covering or application of gravel surfaces in areas to be graveled. No exposed and unworked soils shall remain unstabilized. Once construction activity is completed, permanent seeding shall be installed. All temporary and permanent erosion and sediment control facilities shall be inspected, maintained, and repaired by the contractor as needed to assure continued performance of their intended use. All on-site erosion and control measures shall be inspected by the contractor at least once every seven days and within 24 hours of any storm event equal to or greater than 0.25" of rain per 24-hour period or snowmelt event that causes surface erosion. An inspection report file shall be maintained by the contractor and kept on site. The owner is responsible for inspection and maintenance of BMPs after final stabilization.

The Stormwater Construction Permit requires that a thorough inspection of the stormwater management system be performed and documented at least every 14 days and after any precipitation or snowmelt event that results in stormwater running across the ground according to CDPHE App. A Section C.6 (a).

The regular inspections of the site are to include observation of the construction site perimeter and all stormwater discharge points including storm drain system inlets and culverts that may be downstream. BMPs applied within the site perimeter or around stormwater discharge points include inlet protection, site entrance vehicle tracking control, silt fence, sediment control logs, and temporary sediment basins. Specific inspection and maintenance requirements for each of these BMPs are included in the Appendix.

The regular inspections of the site will also include observation of all disturbed areas and all stabilized and revegetated areas. Inspection of these areas should be given special attention to



identify any potential erosion issues. Specifications for surface stabilization and revegetation are included in the Appendix and provide specific inspection and maintenance requirements.

The regular inspections of the site will also include observation of material storage areas including waste collection areas and topsoil stockpiles. Inspection of these areas require special attention for potential leaks and spills. The topsoil stockpile is to be inspected for any potential runoff.

All structural BMPs on the site are to be thoroughly examined during each inspection to determine if they still meet the design and operational criteria in the SWMP and that they continue to adequately control pollutants on the site as directed in the CDPHE App. A, Section C.6 (b). Following each inspection, repairs will be performed on BMPs that are found to no longer function as needed and designed, and preventative maintenance will be exercised on BMPs as needed to ensure continued operation. BMPs that have failed or have the potential to fail without maintenance or modifications will be addressed immediately to prevent the discharge of pollutants. When a BMP is found to be ineffective in preventing discharge of pollutants, even though the BMP is in good repair and is functioning as designed, that BMP will be modified or an alternative or additional BMP will be installed promptly.

**Item 25 - note that the inspection logs must be signed.**

An Inspection Log is to be maintained on site and include a record of all stormwater management system inspections along with all BMP maintenance and repair activities. All inspection, maintenance, and repair requirements for each BMP, as described in this SWMP and as outlined in the details, will be performed as specified and will be recorded in the Inspection Log. The Inspection Log will also include a description of any incidence of non-compliance, such as uncontrolled releases of pollutants including mud, muddy water or measurable quantities of sediment found off the site along with a description of measures to be taken to prevent future pollutive discharges. Records of any spills, leaks, or overflows of non-sediment potential pollutants, whether or not such a spill, leak, or overflow results in pollution of stormwater, will be included.

Following an inspection that does not reveal any incidents of non-compliance, or following the completion of measures taken to correct any non-compliance issues, A Certification indicating the site is in compliance will be signed and dated.

In addition to regularly maintaining an Inspection Log and Certification, this SWMP will be updated regularly to reflect the actual stormwater management system as implemented on the site.

Should this project rely on control measures owned or operated by another entity other than the owner or its representative, a documented agreement must be submitted to El Paso County identifying location, installation and design specifications, and maintenance requirements and responsibility of the control measures.

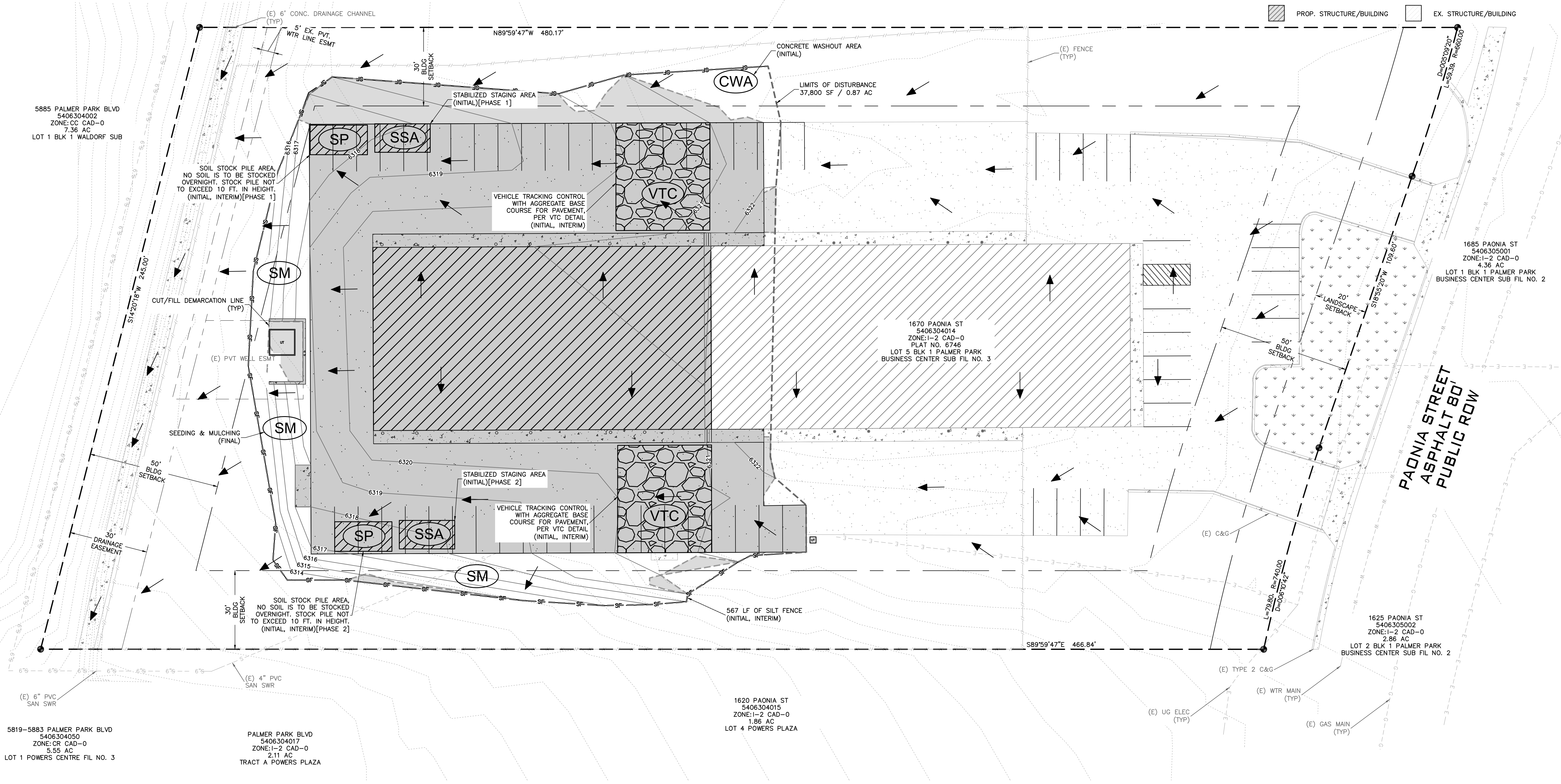
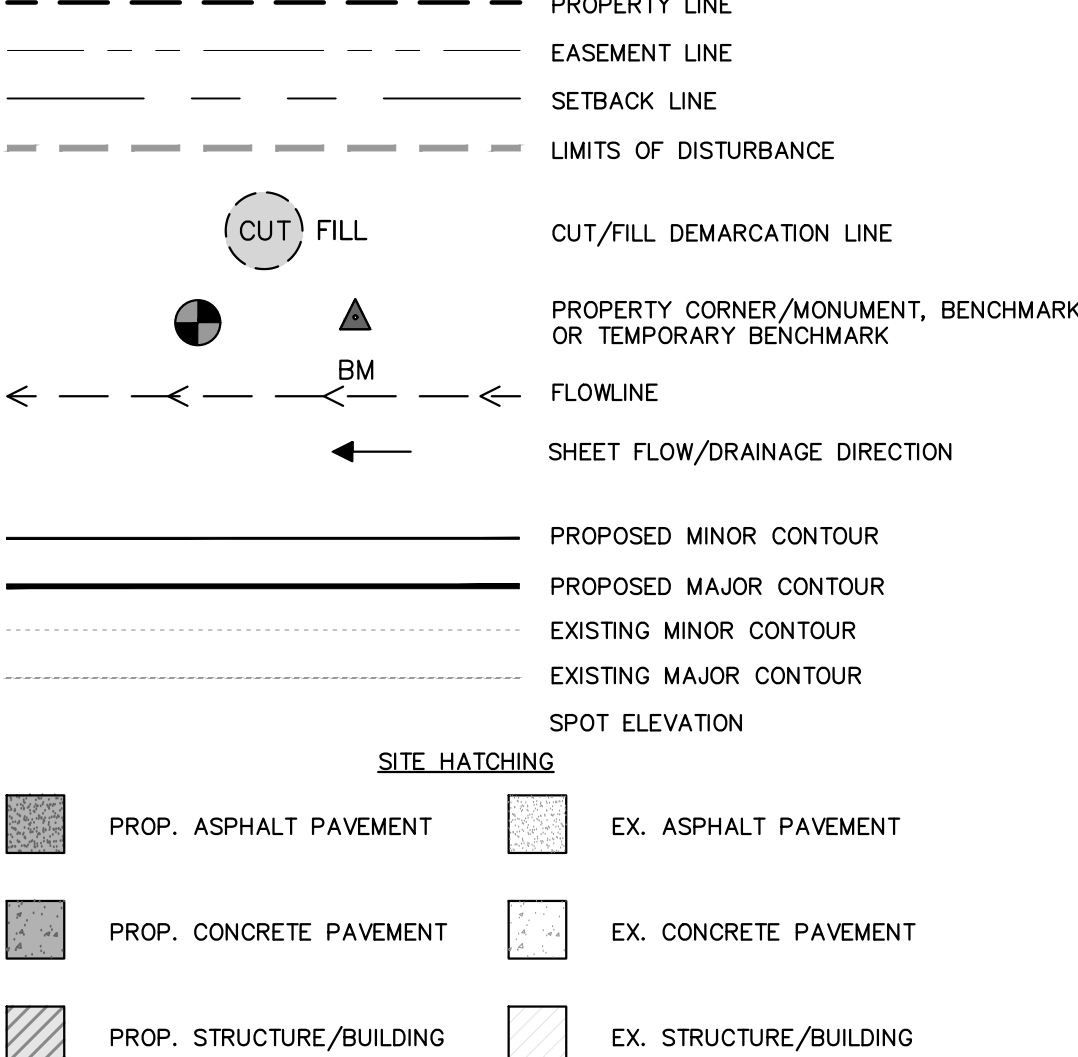
## **12.0 SWMP REVISIONS AND RECORD KEEPING PROCEDURES**

The contractor and/or qualified stormwater manager (QSM), General Contractor Casco Construction Corp., shall keep a log of all BMP inspections as well as revisions during all construction phases. The QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5. The records shall be kept at the job trailer or a designated location on site such as a foreman's vehicle, a specified on site lockbox, etc. This designated location is to be communicated to the County and Owner. The SWMP inspection and revisions records are to include the date, description, and the signature of the qualified stormwater manager for each respective inspection or revision. An appendix document of the logs that may be utilized for the project is provided.

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 QSM shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with the construction activity or when BMPs are no longer necessary and are removed.

## **APPENDIX A – SWMP PLAN AND DETAILS**

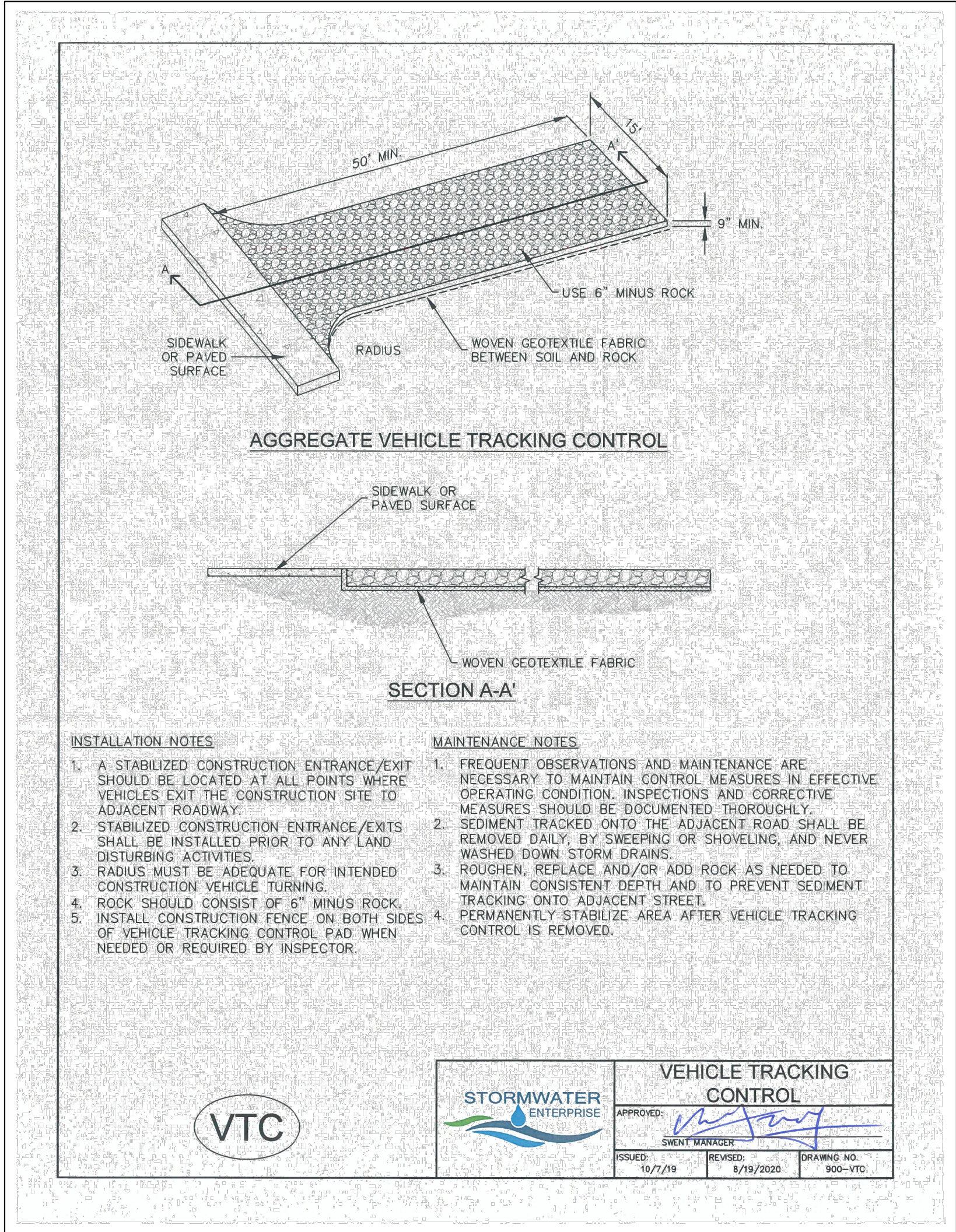
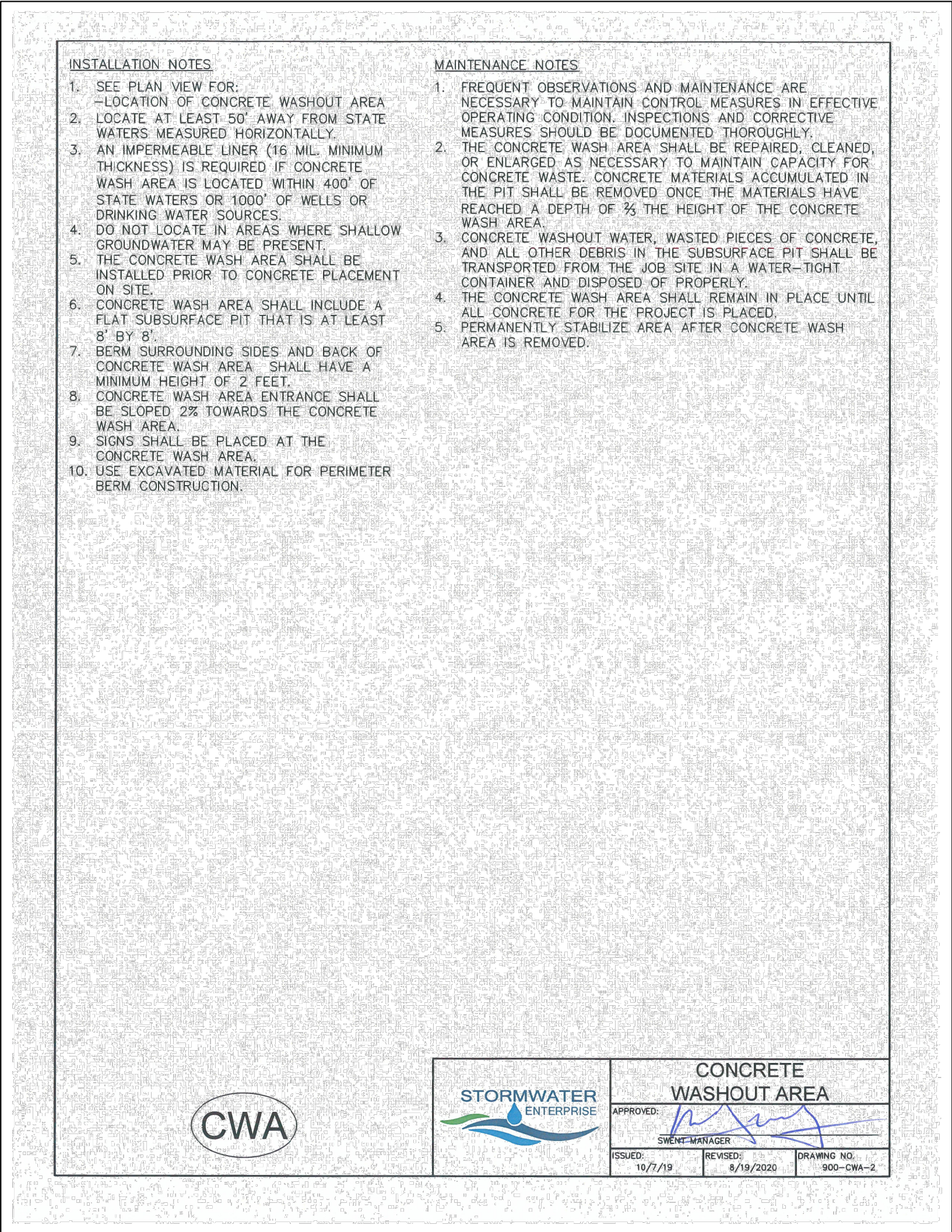
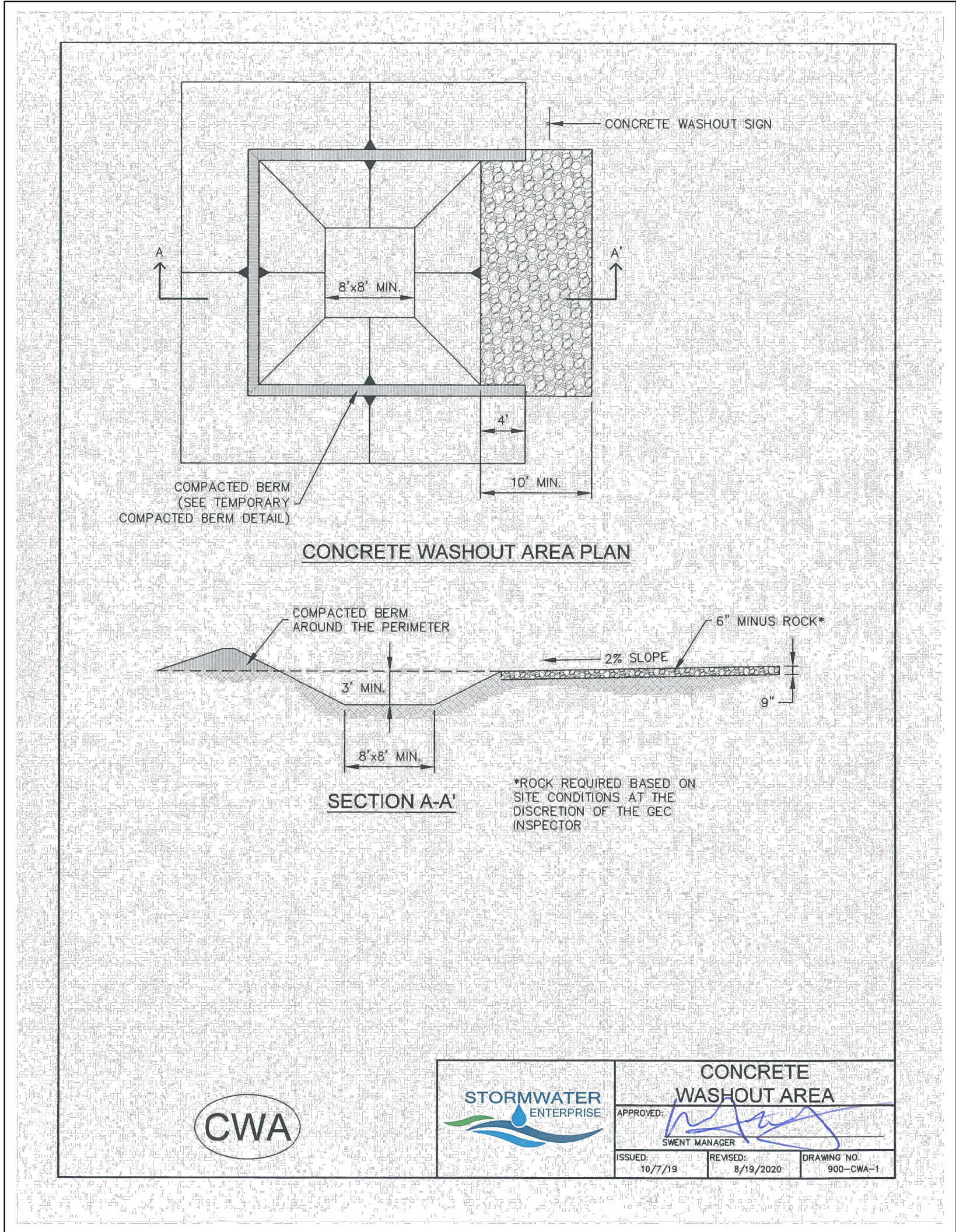
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PHASES TRUCK AND AUTO REPAIR

1670 PAONIA STREET  
COLORADO SPRINGS, COLORADO

CASCO CONSTRUCTION CORP.

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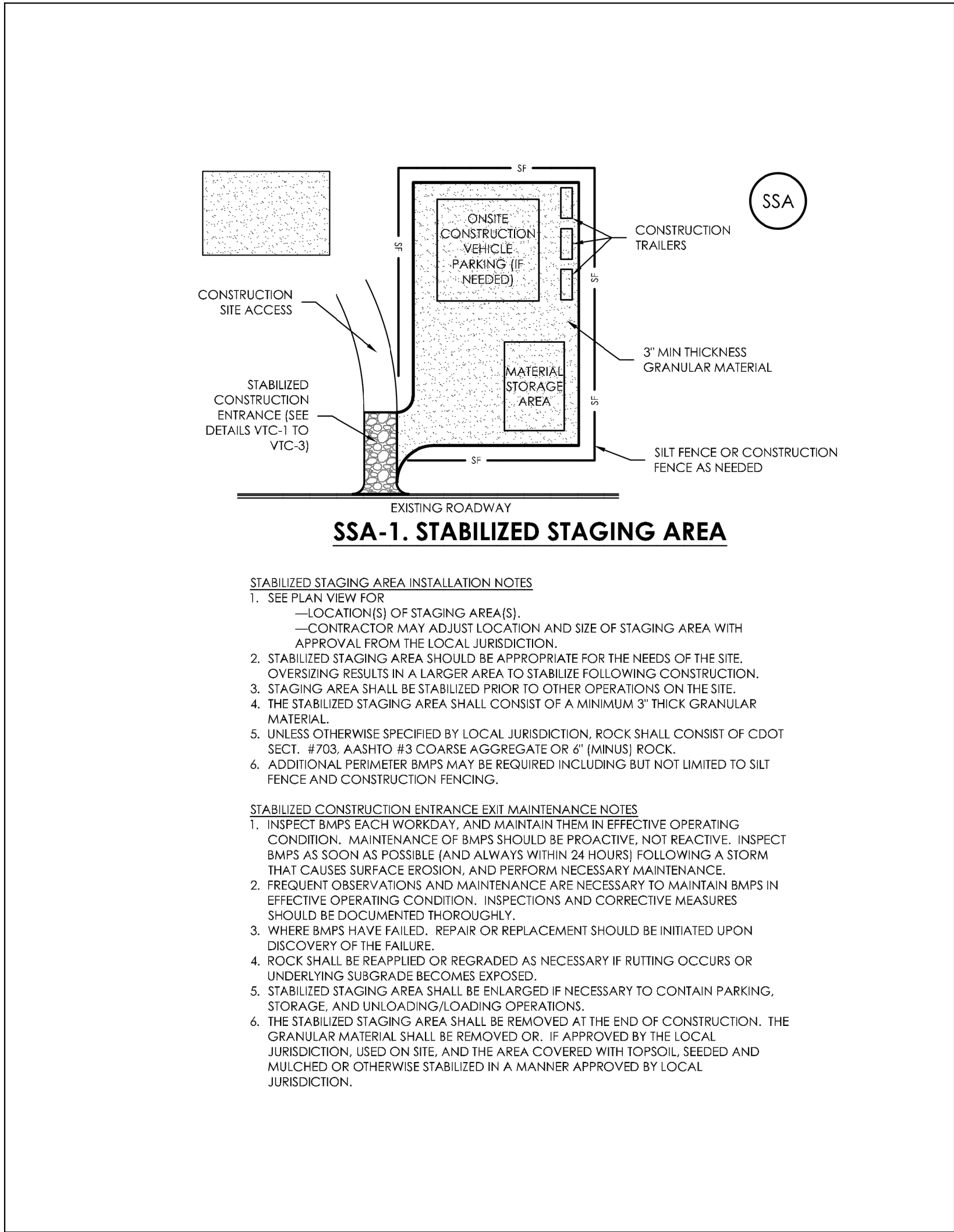
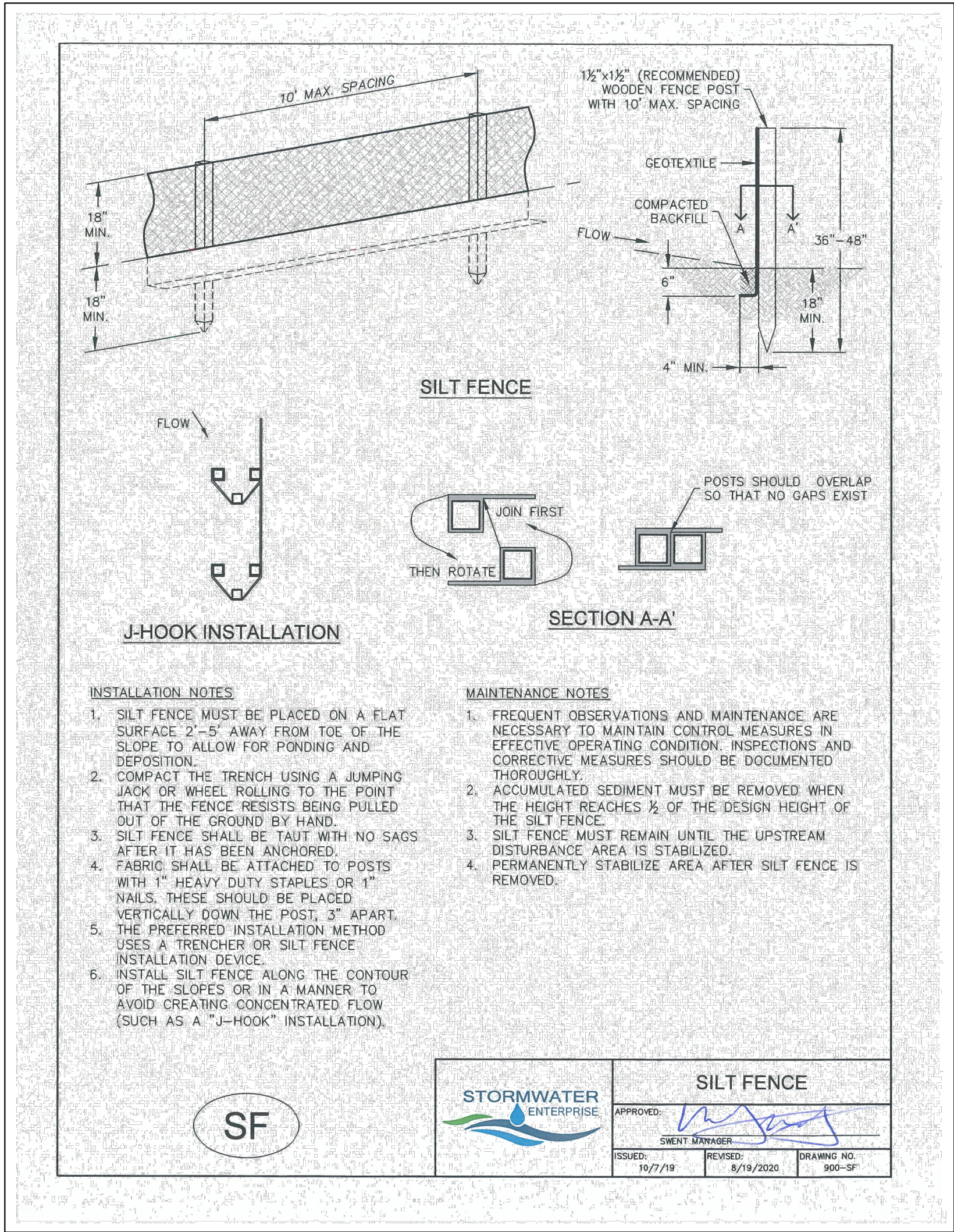
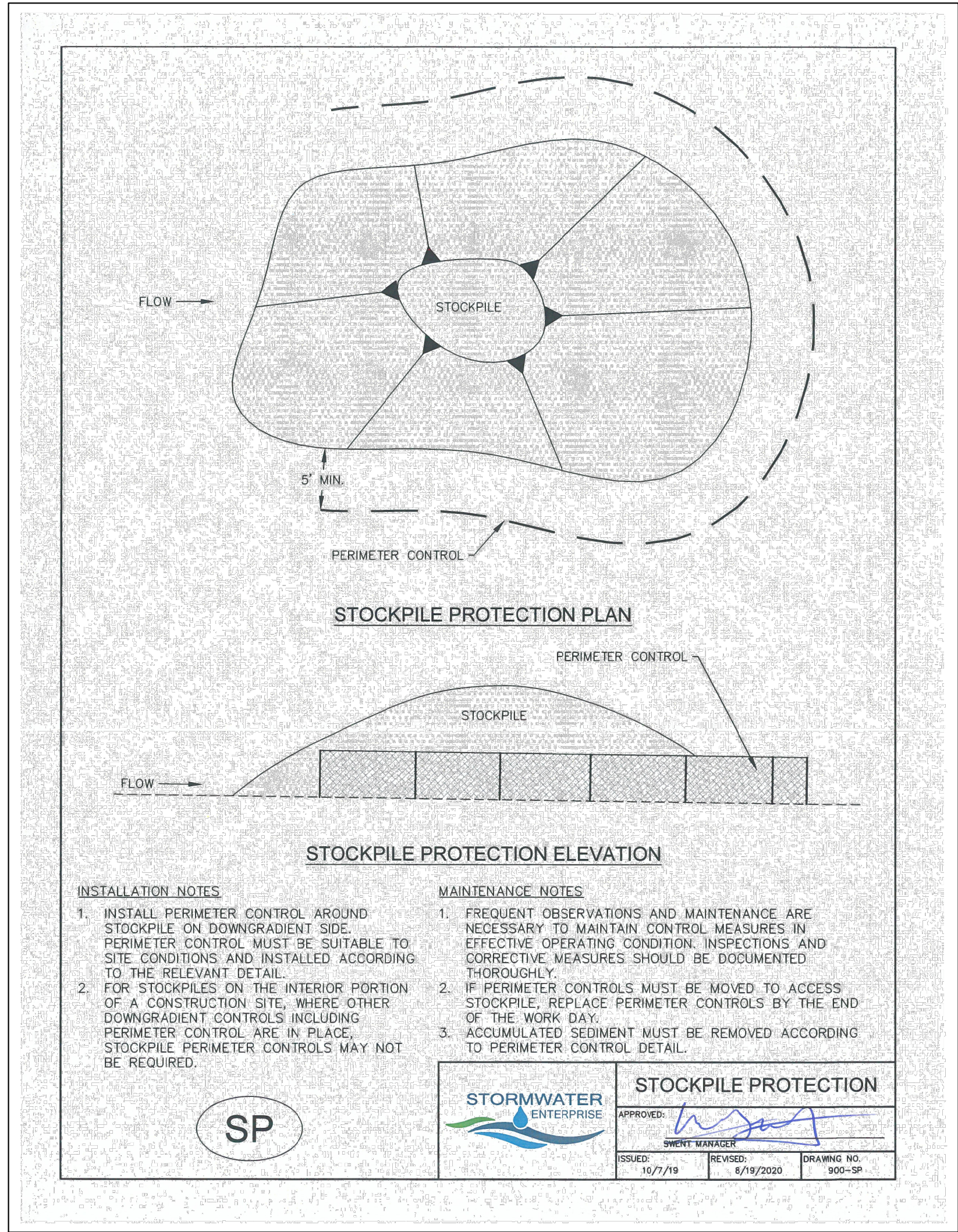
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PHASES TRUCK AND AUTO REPAIR

1670 PAONIA STREET  
COLORADO SPRINGS, COLORADO  
CASCO CONSTRUCTION CORP.

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FOR/NOT FOR CONSTRUCTION  
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ROCKY MOUNTAIN GROUP




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SM

STORMWATER  
ENTERPRISE

SEEDING & MULCHING

APPROVED:   
SWMT MANAGER  
ISSUED: 10/7/18    REVISED: 8/7/5/2020    DRAWING NO: 500-SM

SEEDING & MULCHING

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

SOIL PREPARATION

1. IN AREAS TO BE SEEDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRIABLE CONDITION. LESS THAN 85% STANDARD PROCTOR DENSITY IS ACCEPTABLE. AREAS OF COMPACTION OR GENERAL CONSTRUCTION ACTIVITY MUST BE SCARIFIED TO A DEPTH OF 6 TO 12 INCHES PRIOR TO SPREADING TOPSOIL TO BREAK UP COMPACTED LAYERS AND PROVIDE A BLENDING ZONE BETWEEN DIFFERENT SOIL LAYERS.

2. AREAS TO BE PLANTED SHALL HAVE AT LEAST 4 INCHES OF TOPSOIL SUITABLE TO SUPPORT PLANT GROWTH.

3. THE CITY RECOMMENDS THAT EXISTING AND/OR IMPORTED TOPSOIL BE TESTED TO IDENTIFY SOIL DEFICIENCIES AND ANY SOIL AMENDMENTS NECESSARY TO ADDRESS THESE DEFICIENCIES. SOIL AMENDMENTS AND/OR FERTILIZERS SHOULD BE ADDED TO CORRECT TOPSOIL DEFICIENCIES BASED ON SOIL TESTING RESULTS.

4. TOPSOIL SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD TO RETAIN ITS STRUCTURE AVOID COMPACTION, AND TO PREVENT EROSION AND CONTAMINATION. STRIPPED TOPSOIL MUST BE STORED IN AN AREA AWAY FROM MACHINERY AND CONSTRUCTION OPERATIONS, AND CARE MUST BE TAKEN TO PROTECT THE TOPSOIL AS A VALUABLE COMMODITY. TOPSOIL MUST NOT BE STRIPPED DURING UNDESIRABLE WORKING CONDITIONS (E.G. DURING WET WEATHER OR WHEN SOILS ARE SATURATED). TOPSOIL SHALL NOT BE STORED IN SWALES OR IN AREAS WITH POOR DRAINAGE.

SEEDING

1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.

2. SEED SHOULD BE DRILL-SEEDED WHENEVER POSSIBLE

•SEED DEPTH MUST BE 1/8 TO 1/2 INCHES WHEN DRILL-SEEDED IS USED

3. BROADCAST SEEDING OR HYDRO-SEEDED WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED

•SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO-SEEDED

•BROADCAST SEEDING MUST BE LIGHTLY HAND-RAKED INTO THE SOIL

MULCHING

1. MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING, HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.

2. MULCHING REQUIREMENTS INCLUDE:

•HAY OR STRAW MULCH

- ONLY CERTIFIED WEED-FREE AND CERTIFIED SEED-FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 2 TONS/ACRE AND ADEQUATELY SECURED BY CRIMPING AND/OR TACKIFIER.

- CRIMPING MUST NOT BE USED ON SLOPES GREATER THAN 3:1 AND MULCH FIBERS MUST BE TUCKED INTO THE SOIL TO A DEPTH OF 3 TO 4 INCHES.

- TACKIFIER MUST BE USED IN PLACE OF CRIMPING ON SLOPES STEEPER THAN 3:1.

•HYDRAULIC MULCHING

- HYDRAULIC MULCHING IS AN OPTION ON STEEP SLOPES OR WHERE ACCESS IS LIMITED.

- IF HYDRO-SEEDED IS USED, MULCHING MUST BE APPLIED AS A SEPARATE, SECOND OPERATION.

- WOOD CELLULOSE FIBERS MIXED WITH WATER MUST BE APPLIED AT A RATE OF 2,000 TO 2,500 POUNDS/ACRE, AND TACKIFIER MUST BE APPLIED AT A RATE OF 100 POUNDS/ACRE.

•EROSION CONTROL BLANKET

- EROSION CONTROL BLANKET MAY BE USED IN PLACE OF TRADITIONAL MULCHING METHODS.

ROCKY MOUNTAIN GROUP

Architectural  
Structural  
Forensics

ARCHITECTS  
RMG  
ENGINEERS

Geotechnical  
Materials Testing  
CM Planning

SOUTHERN COLORADO  
2910 AUSTIN BLUFFS PARKWAY, COLORADO SPRINGS, CO 80918  
(719) 488-2145 - WWW.RMENGINEERS.COM  
SOUTHERN COLORADO SPRINGS NORTH PLATTSBURGH

FOR/NOT FOR CONSTRUCTION  
FOR CIVIL ONLY

PHASES TRUCK AND AUTO REPAIR

1670 PAONIA STREET  
COLORADO SPRINGS, COLORADO  
CASCO CONSTRUCTION CORP.

EROSION CONTROL DETAILS - 3

PERMIT

ENG: RDL  
DRAWN: AMC  
CHECKED: RDL  
DATE  
01/14/2021

#	REVISION	DATE

JOB NO.  
179592

SHEET NO.  
C-07  
of 8



## **APPENDIX B – FEMA FLOODPLAIN MAP**



# National Flood Hazard Layer FIRMette



104°43'20"W 38°51'36"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

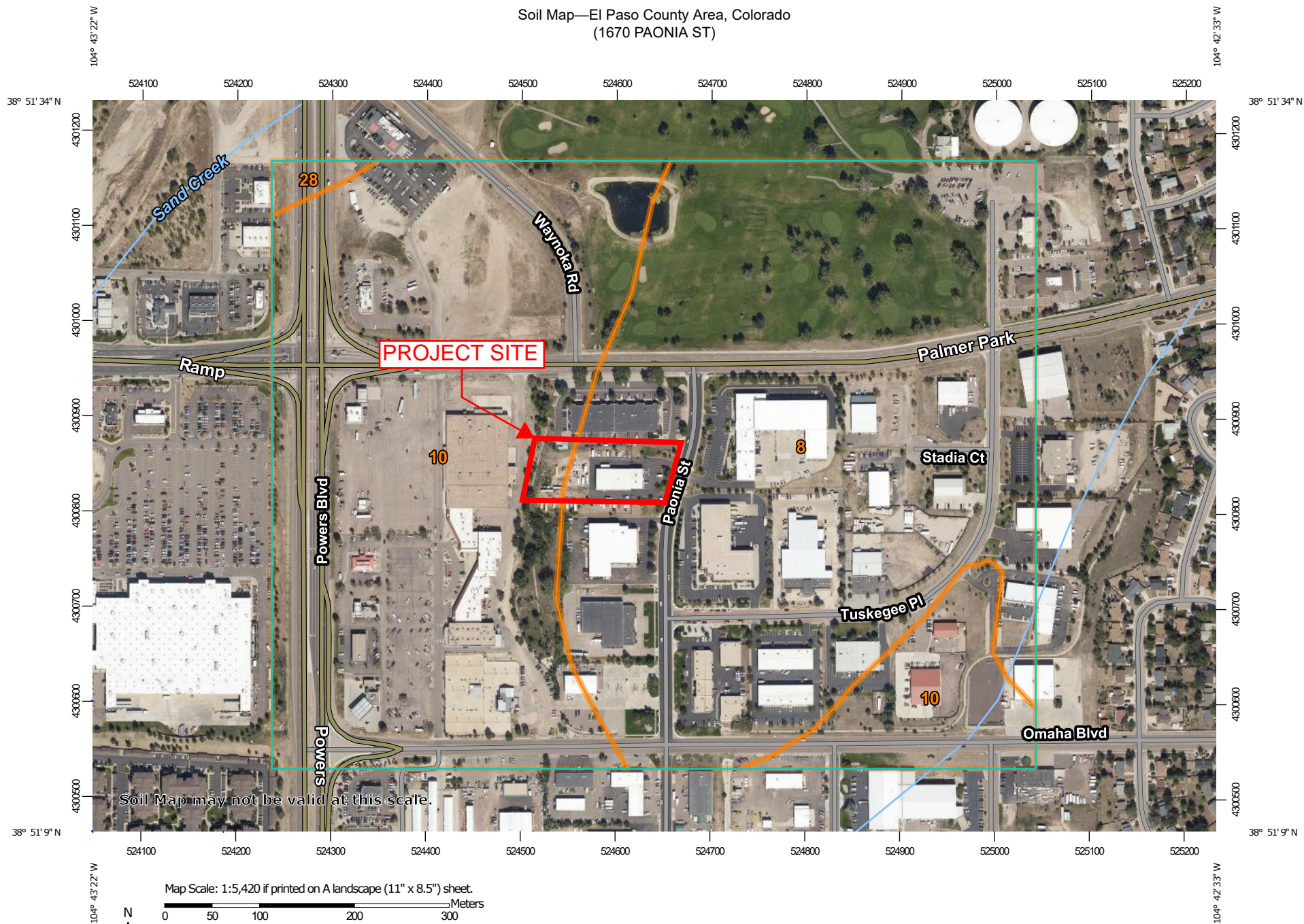
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/18/2020 at 10:15 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

## **APPENDIX C – USDA SOILS MAPS**



Soil Map—El Paso County Area, Colorado  
(1670 PAONIA ST)



## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 18, Jun 5, 2020

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

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

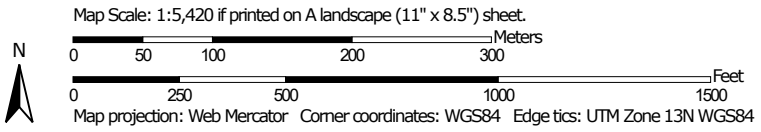
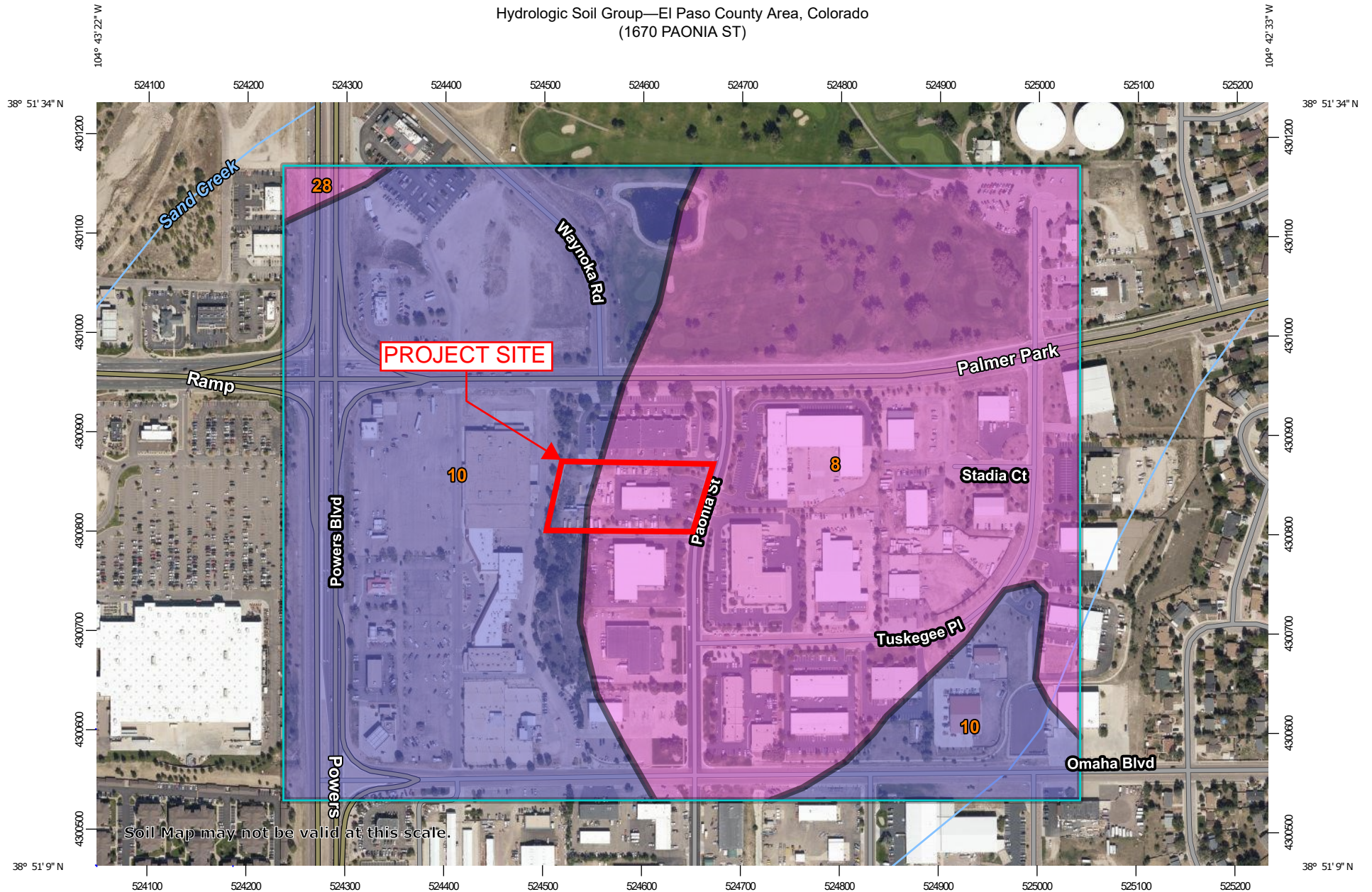
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	65.3	51.2%
10	Blendon sandy loam, 0 to 3 percent slopes	61.5	48.2%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	0.9	0.7%
<b>Totals for Area of Interest</b>		<b>127.7</b>	<b>100.0%</b>



# Hydrologic Soil Group—El Paso County Area, Colorado (1670 PAONIA ST)



Hydrologic Soil Group—El Paso County Area, Colorado  
(1670 PAONIA ST)

## MAP LEGEND

### Area of Interest (AOI)









 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons

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

#### Soil Rating Lines

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

#### Soil Rating Points

 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available

### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado  
 Survey Area Data: Version 18, Jun 5, 2020

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

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

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

## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	A	65.3	51.2%
10	Blendon sandy loam, 0 to 3 percent slopes	B	61.5	48.2%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	A	0.9	0.7%
<b>Totals for Area of Interest</b>			<b>127.7</b>	<b>100.0%</b>

## Description

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

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

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

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

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

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

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



## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

## **APPENDIX D – SWMP INSPECTION/REVISIONS LOG TEMPLATE**

## STORMWATER MANAGEMENT PLAN INSPECTION AND REVISIONS LOG

Project Name: Frontier Sportman's Club - 3885 Pheasant Lane Peyton, CO

EPC Project #: PPR19-054

Qualified Stormwater Manager: \_\_\_\_\_

[illegible]