J·R ENGINEERING
A Westrian Company

STORMWATER MANAGEMENT PLAN
FOR
TAMLIN ROAD RV STORAGE

Prepared For:

C&M Properties, LLC
12748 Barossa Valley Road
Colorado Springs, CO 80921
(719) 210-9460
Contact: Edward McDonald

Prepared By:

JR Engineering, LLC
5475 Tech Center Drive, Suite 235
Colorado Springs, Colorado 80919
(303) 267-6240
Contact: Mike Bramlett

JR Project No. 25134.00

July, 2020

El Paso County PCD File No.:
PPR1945

Qualified Stormwater Manager
Name: TBD
Company: TBD
Address: TBD

Contractor
Name: TBD
Company: TBD
Address: TBD

ENGINEER'S CERTIFICATION

I hereby certify that this Stormwater Management Plan for Tamlin Road RV Storage was prepared under my direct supervision in accordance with the provisions of the Colorado Water Quality Control Act, and the El Paso County Drainage Criteria Manual. JR Engineering does not and will not assume liability for the implementation of the methods, requirements, and standards set forth in this report.

_____

Mike Bramlett, P.E.
Registered Professional Engineer
State of Colorado No. 32314
For and on behalf of JR Engineering, LLC.

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Appendices

1. Applicant / Contact Information

Owner/Developer:
C&M Properties, LLC
Attn: Edward McDonald
12748 Barossa Valley Road
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(719) 210-9460

Engineer:
JR Engineering, LLC
5475 Tech Center Drive, Suite 235
Colorado Springs, CO 80919
Attn: Mike Bramlett (303) 267-6240
mbramlett@jrengineering.com

Qualified Stormwater Manager: Contractor

Contractor: To Be Determined

2. Site Description and Location

Tamlin Road Storage Yard, known as 'the site' from herein, is currently vacant land located in a portion of Section 20, Township 13 South, Range 65 West of the Sixth Principal Meridian in unincorporated El Paso County, Colorado. The site is located northeast of the Tamlin Road and Marksheffel Road intersection. The site is bound by Tamlin Road to the west and north, vacant land owned by Norwood to the east and south. Stetson Hills Filing No. 3 and 4 is located adjacent to the site on the west side of Marksheffel Road. A vicinity map has been presented in Appendix A.

Sand Creek East Fork tributary is located approximately ¼ mile east of the site. The ultimate outfall of this drainageway is Fountain Creek. However, there are no existing stormwater facilities located on site. Additionally, no streams cross the project site.

The site is approximately 16.5 acres and is covered with sparse trees and native vegetation. There are no existing structures on the site. An existing dirt road proceeds southeast from Tamlin Road through the site to service an existing water tank, located south of the site. In the developed condition, the site will be gravel drive aisles, parking stalls and a full spectrum water quality and detention pond. In the future condition, the site may be paved and therefore all stormwater facilities are sized for the future condition.

Site details:

a. Estimated area to undergo disturbance: 10.6 acres (Total Area = 16.5 acres)
b. Soil erosion potential and potential impacts upon discharge: The site is comprised solely of Truckton sandy loam, which is classified as a Type A soil by the NRCS. Group A soils exhibit a high infiltration rate when thoroughly wet and consist chiefly of deep, well drained to excessively drained gravelly sands. These soils

have a high rate of water transmission. A NRCS soil survey map is presented in Appendix B. Eroded soil may adversely impact downstream drainageways. BMPs will be installed and maintained to mitigate adverse impacts due to soil erosion.

c. Existing vegetation: Native meadow grasses (approximately 99% coverage) per aerial.
d. Location and description of potential pollution sources: Potential sources of pollution include: onsite vehicle fueling, portable toilets, and temporary stock pile. The locations of these sources are shown in the GEC plans in Appendix C or will be determined by the contractor.
e. Spill prevention and pollution controls for dedicated batch plants: Not applicable for this site since there will be no dedicated batch plants.
f. Location and description of anticipated non-stormwater components of discharge: A potential source of non-stormwater discharge could be the irrigation of permanent seeding (PS). Irrigation will be kept at a rate so as to not create runoff.
g. Ultimate receiving waters: There is a ridge that divides the drainage patterns on the site. Roughly 6.5 acres drains southwest with slopes between 3-10% while the remaining 10 acres drains northeast with slopes up to 8%. Both onsite drainage basins ultimately discharge to Fountain Creek.
h. Waste Disposal: All waste generated from the construction of the project site will be disposed of properly.
i. Surface Waters: There are no existing sources of surface waters on the project site.

3. Proposed Sequence of Major Activities

The project will follow standard construction sequences for construction, i.e., clearing and grubbing, over excavation, overlot grading, utility installation, and street paving.

The contractor will be responsible for implementing and maintaining the erosion and sediment control measures described in this document and the accompanying design drawings. The contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and their proposed function at each phase of the project remains with the contractor.

The order of major activities (with estimated completion dates) will be as follows:

1. Install VTC and other perimeter soil erosion control measures (July 2020).
2. Clear and rough grade for improvements (July 2020).
3. Excavate and install improvements including underground piping and drainage structures (July 2020).
4. Fine grading and placement of gravel drive aisles (August 2020).
5. Install landscaping (October 2020).
6. Clean up and final stabilization (October 2020).

4. BMPs for Stormwater Pollution Prevention

See GEC plans in Appendix C for BMP locations and detail sheets.

a. Erosion and Sediment Controls (Note: BMP phasing is shown on GEC plans in the appendix):
    i. Structural BMPs:
        1. Sediment basins (SBs) to collect runoff before it enters receiving waters
        2. Silt fence (SF) along downstream limits of disturbed areas to filter sediment from runoff
        3. Stabilized staging area (SSA) near site entrance to consolidate construction equipment in a stabilized location
        4. Construction marker (CM) to identify limits of construction (LOC)
        5. Vehicle tracking control (VTC) at site entrance to prevent sediment from leaving the site via vehicle tires
        6. Temporary stock pile (TSP) to consolidate materials such as topsoil in a controlled area bounded by silt fence
        7. Erosion control blanket (ECB) placed on any slopes of 3:1 or greater, including the sides of sediment basins
        8. Inlet protection (IP) around pipe entrances
        9. Outlet protection (OP) at pipe outlets
    ii. Non-structural BMPs:
        1. Mulching (MU) to stabilize soils and promote seed growth
        2. Permanent seeding (PS) to stabilize disturbed areas
b. Materials Handling and Spill Prevention
    i. General Materials Handling Practices:
        1. Potential pollutants shall be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practical, material storage areas should not be located near storm drain inlets and should be equipped with covers, roofs, or secondary containment as required to prevent storm water from contacting stored materials. Chemicals that are not compatible shall be stored in segregated areas so that spilled materials cannot combine and react.
        2. Disposal of materials shall be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
        3. Materials no longer required for construction shall be removed from the site as soon as possible.
        4. Adequate garbage, construction waste, and sanitary waste handling and disposal facilities shall be provided as necessary to keep the site clear of obstruction and BMPs clear and functional.
    ii. Specific Materials Handling Practices
        1. All pollutants, including waste materials and demolition debris, that occur onsite during construction shall be handled in a way that does not contaminate storm water.

2. All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored onsite shall be covered and protected from vandalism.
3. Maintenance, fueling, and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants, shall be conducted under cover during wet weather and on an impervious surface to prevent release of contaminants onto the ground. Materials spilled during maintenance operations shall be cleaned up immediately and properly disposed of.
4. Wheel wash water shall be settled and discharged onsite by infiltration.
5. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to storm water runoff. Follow manufacturer's recommendations for application rates and procedures.
6. pH-modifying sources shall be managed to prevent contamination of runoff and storm water collected onsite. The most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.

iii. Spill Prevention and Response Procedures

1. The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize their migration into storm water runoff and conveyance systems. If the release has impacted onsite storm water, it is critical to contain the released materials onsite and prevent their release into receiving waters.
2. Spill Response Procedures:
    a. Notify site superintendent immediately when a spill, or the threat of a spill, is observed. The superintendent shall assess the situation and determine the appropriate response.
    b. If spills represent an imminent threat of escaping onsite facilities and entering the receiving waters, site personnel shall respond immediately to contain the release and notify the superintendent after the situation has stabilized.
    c. The site superintendent, or his/her designee, shall be responsible for completing a spill reporting form and for reporting the spill to the appropriate agency.
    d. Spill response equipment shall be inspected and maintained as necessary to replace any materials used in spill response activities.
3. Spill kits shall be on-hand at all fueling sites. Spill kit location(s)

shall be reported to the qualified stormwater manager.

4. Absorbent materials shall be on-hand at all fueling areas for use in containing inadvertent spills. Containers shall be on-hand at all fueling sites for disposal of used absorbents.
5. Recommended components of spill kits include the following:
    a. Oil absorbent pads (one bale)
    b. Oil absorbent booms (40 feet)
    c. 55-gallon drums (2)
    d. 9-mil plastic bags (10)
    e. Personal protective equipment including gloves and goggles
6. Concrete wash water: the cleaning of concrete truck delivery chutes is prohibited at the job site.
7. Notification procedures:
    a. In the event of an accident or spill, the Qualified stormwater manager shall be notified.
    b. Depending on the nature of the spill material involved, the Colorado Department of Public Health and Environment (24-hour spill reporting line: 887-518-5608), downstream water users, or other agencies may also need to be notified.
    c. Any spill of oil which 1) violates water quality standards, 2) produces a "sheen" on a surface water, or 3) causes a sludge or emulsion, or any hazardous substance release, or hazardous waste release which exceeds the reportable quantity, must be reported immediately by telephone to the National Response Center Hotline at (800) 424-8802.

5. Final Stabilization and Long-Term Stormwater Management

a. Permanent seeding will be provided to achieve long-term stabilization of the site.
b. Seed Mix: "Foothills" or approved equal.
c. Seeding Application Rate: Drill seed 0.25" to 0.5" into the soil. In small areas not accessible to a drill, hand broadcast at double the rate and rake 0.25" to 0.5" into the soil. Apply seed at the following rates:
    i. Dryland: 20-25 lbs/acre
    ii. Irrigated: 40 lbs/acre
d. Soil stabilization Practices:
    i. Mulching Application: Apply 1-1/2 tons of certified weed free hay per acre mechanically crimped into the soil in combination with an organic mulch tackifier. On slopes and ditches requiring a blanket, the blanket shall be placed in lieu of much and mulch tackifier.
e. Soil Conditioning and Fertilization Requirements:
    i. Soil conditioner, organic amendment shall be applied to all seeded areas at 3 CY / 1000 SF.
    ii. Fertilizer shall consist of 90% fungal biomass (mycelium) and 10% potassium-magnesia with a grade of 6-1-3 or approved equal. Fertilizer shall be applied as recommended by seed supplier.

f. Final stabilization is reached when all soil-disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plan density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.
g. Long term stormwater management will be provided in a single, full spectrum water quality and detention pond. The pond will discharge to the east to follow historic drainage patterns and will release at less than historic rates for the site.
h. Note: this project does not rely on control measures owned or operated by another entity.

6. Inspection and Maintenance

a. Inspection Schedules:
    i. The contractor shall inspect BMPs once every 14 days at a minimum, and immediately (within 24 hours) after any precipitation or snowmelt event that causes surface erosion (i.e. that results in storm water running across the ground), to ensure that BMPs are maintained in effective operating condition.
b. Inspection Procedures:
    i. Site Inspection / Observation Items:
        1. Construction site perimeter and discharge points
        2. All disturbed areas
        3. Areas used for material / waste storage that are exposed to precipitation
        4. Other areas having a significant potential for storm water pollution, such as demolition areas or concrete washout areas, or locations where vehicles enter or leave the site
        5. Erosion and sediment control measures identified in the SWMP
        6. Any other structural BMPs that may require maintenance, such as secondary containment around fuel tanks, or the conditions of spill response kits.
    ii. Inspection Requirements:
        1. Determine if there is any evidence of, or potential for, pollutants entering the receiving waters.
        2. Review BMPs to determine if they still meet design and operational criteria in the SWMP, and if they continue to adequately control pollutants at the site.
        3. Upgrade and/or revise any BMPs not operating in accordance with the SWMP and update the SWMP to reflect any revisions.
    iii. BMP Maintenance / Replacement and Failed BMPs:
        1. The contractor shall remove sediment that has been collected by perimeter controls, such as silt fence and inlet protection, on a regular basis to prevent failure of BMPs, and remove potential of sediment from being discharged from the site in the event of BMP failure.
        2. Removed sediment must be moved to an appropriate location

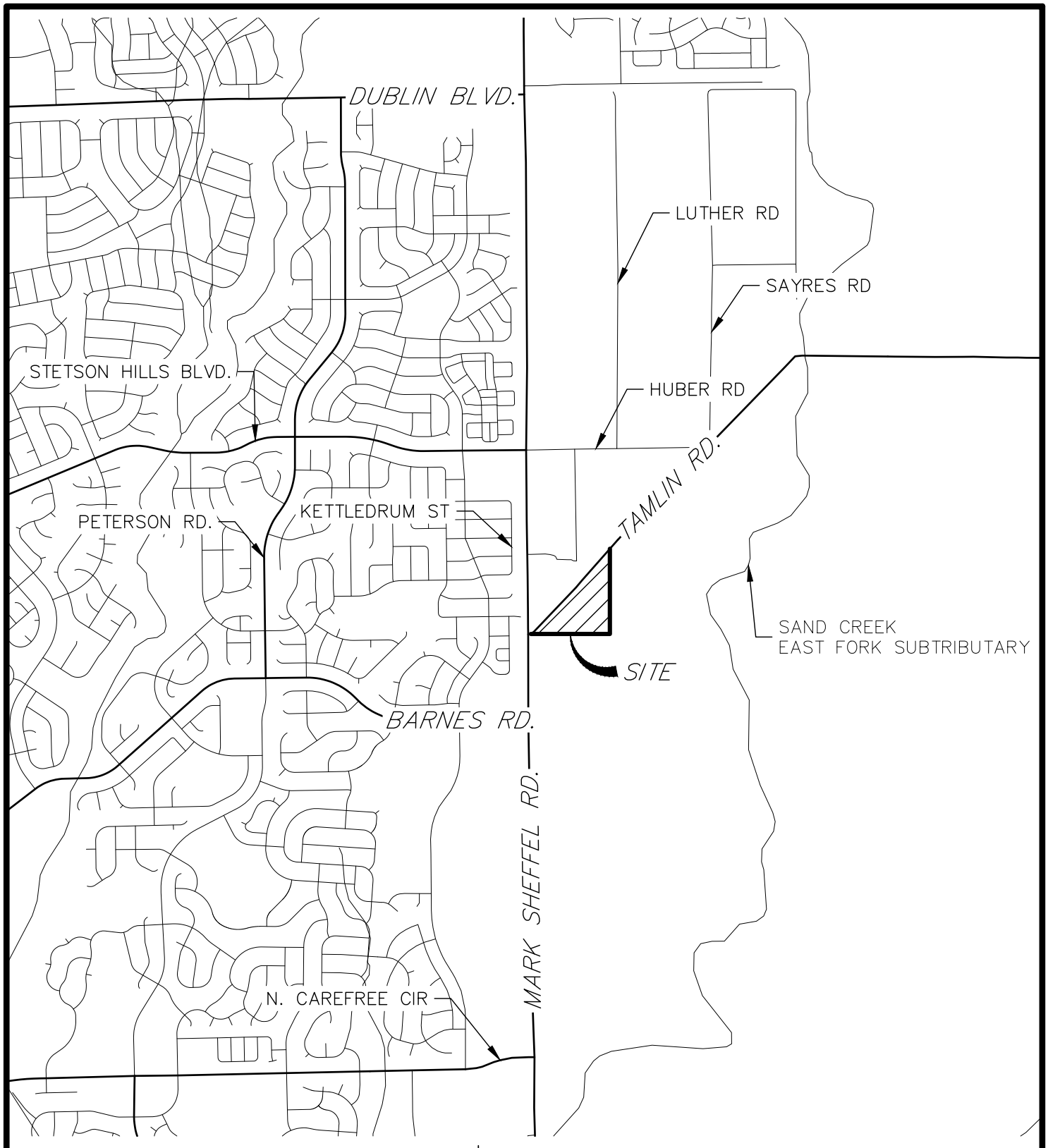
where it will not become an additional pollutant source, and should never be placed in ditches or streams.

3. The contractor shall update the GEC as required with any new BMPs added during the construction period.
4. The contractor shall address BMPs that have failed or have the potential to fail without maintenance or modifications, as soon as possible, immediately in most cases, to prevent discharge of pollutants.

iv. Record Keeping and Documenting Inspections:

1. 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 are changes 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.
2. The contractor shall maintain records of all inspection reports, including signed inspection logs, at the project site.
3. The permittee shall document inspection results and maintain a record of the results for a period of 3 years following expiration or inactivation of permit coverage.
4. Site inspection records shall include the following:
    a. Inspection date
    b. Name and title of personnel making the inspection
    c. Location of discharges of sediment or other pollutants from the site
    d. Location(s) of BMPs in need of maintenance
    e. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location
    f. Location(s) where additional BMPs are needed that were not in place at the time of inspection
    g. Deviations from the minimum inspection schedule

APPENDIX A – VICINITY MAP



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2000 1000 0 2000

ORIGINAL SCALE: 1" = 2000'

VICINITY MAP
TAMLIN ROAD STORAGE YARD
2513400
06/14/19
SHEET 1 OF 1

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APPENDIX B – SOILS MAP


104° 40' 58" W
104° 40' 39" W
527510
527580
527650
527720
527790
527860
527930
38° 54' 32" N
38° 54' 13" N
4306710
4306640
4306570
4306500
4306430
4306360
4306290
4306220
4306150
Tamlin Rd
97
Soil Map may not be valid at this scale.
Map Scale: 1:2,840 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 40 80 160 240
Feet
0 100 200 400 600
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

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 16, Sep 10, 2018

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

Date(s) aerial images were photographed: Apr 15, 2011—Aug 17, 2017

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
97	Truckton sandy loam, 3 to 9 percent slopes	A	17.9	100.0%
Totals for Area of Interest			**17.9**	**100.0%**

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 C – GEC PLANS AND DETAILS

TAMLIN ROAD RV STORAGE

5080 TAMLIN ROAD

LOCATED IN SECTION 21, TOWNSHIP 13S, RANGE 65W OF THE 6TH P.M.,

EL PASO COUNTY, COLORADO

GRADING AND EROSION CONTROL PLANS (W/ POND DETAILS)

GRADING AND EROSION CONTROL STANDARD NOTES

1. 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, INCLUDING WETLANDS.

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 IMPLEMENTATION.

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.

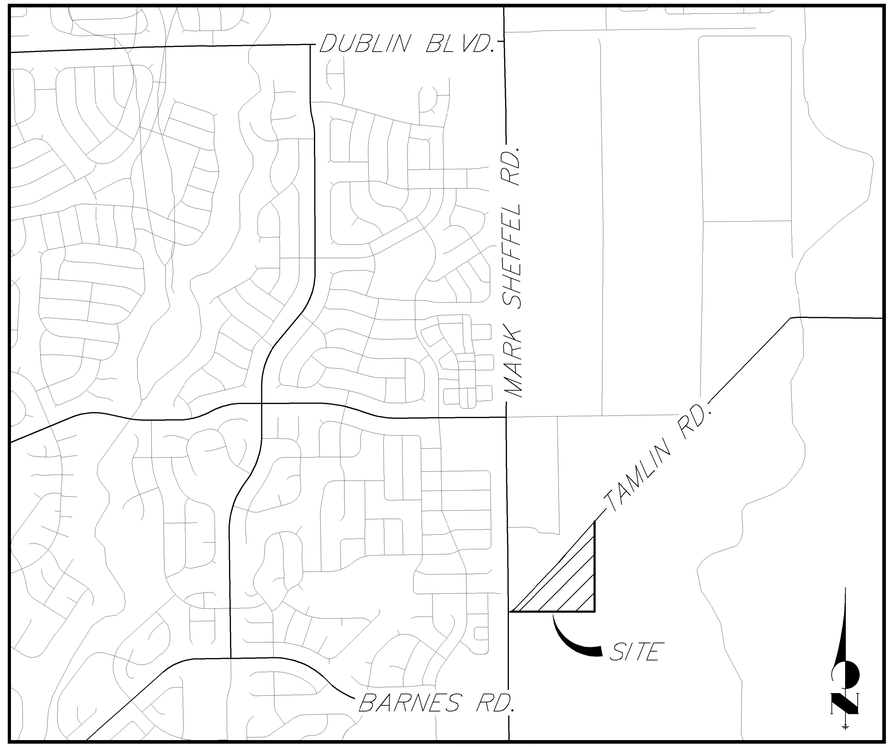
27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.

28. THE SOILS REPORT FOR THIS SITE WAS PREPARED BY RMG ENGINEERS ON 3/2/2020 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

THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.



VICINITY MAP

SCALE: 1"=1000'

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).

3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOIL AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   3.1. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   3.2. CITY OF COLORADO SPRINGS/ EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   3.3. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS AND BRIDGE CONSTRUCTION
   3.4. CDOT M&S STANDARDS

4. 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 VERSIONS 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. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.

5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.

6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.

7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.

8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND EL PASO COUNTY PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.

9. ALL STORM DRAIN PIPES SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.

10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.

11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.

12. SIGHT VISIBILITY TRIANGLES IDENTIFIED IN THE PLANS, SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED IN SIGHT TRIANGLES.

13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS AND MUTCD CRITERIA.

14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.

15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

CONTACTS:

OWNER/DEVELOPER	C&M PROPERTIES, LLC 12748 BAROSSA VALLEY ROAD COLORADO SPRINGS, CO P~(719)-210-9460
ENGINEER/SURVEYOR	JR ENGINEERING, LLC ATTN: MIKE A. BRAMLETT 5475 TECH CENTER DRIVE, SUITE 235 COLORADO SPRINGS, CO 80919 P~(303) 267-6240
FIRE PROTECTION DISTRICT	FALCON FIRE PROTECTION 12072 ROYAL COUNTY DOWN ROAD FALCON, CO 80831 P~(719) 495-4050

SHEET INDEX

BENCHMARK:

THE VERTICAL DATUM IS BASED OFF A FOUND RED PLASTIC CAP "AZTEC PLS 36256" AT 6715.627.

BASIS OF BEARINGS:

TBD BY BOUNDARY SURVEY.

OWNER/DEVELOPER STATEMENT

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

EDWARD MCDONALD — DATE

C&M PROPERTIES, LLC
12748 BAROSSA VALLEY ROAD
COLORADO SPRINGS, CO 80921

EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY 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 DOCUMENT.

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 DIRECTORS DISCRETION.

JENNIFER IRVINE, P.E. — DATE

COUNTY ENGINEER/ECM ADMINISTRATOR

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. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLANS.

COLORADO REGISTERED PROFESSIONAL ENGINEER — MIKE A. BRAMLETT — 32314

MIKE A. BRAMLETT, P.E. — DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

PCD FILE NO.: PPR1945

Know what's below. Call before you dig. 811

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
C&M PROPERTIES, LLC
12748 BAROSSA VALLEY ROAD
COLORADO SPRINGS, CO 80921
EDWARD MCDONALD
719-210-9480

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1"=1000'
V-SCALE	N/A
DATE	07/14/20
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

TAMLIN ROAD RV STORAGE
GRADING AND EROSION CONTROL PLANS
(W/ POND DETAILS)

COVER SHEET

SHEET 1 OF 10

JOB NO. 25134.00

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LAYER LINETYPE LEGEND

	EXISTING	PROPOSED
PHASE LINE		
MATCH LINE		
SECTION LINE		
BOUNDARY LINE		
PROPERTY LINE		
EASEMENT LINE		
RIGHT OF WAY		
R.O.W. A LINE	A	A
CENTERLINE		
CITY LIMITS		
WIRE FENCE		
CHAIN LINK FENCE		
WOOD FENCE		
MASONRY FENCE		
GUARDRAIL		
CONC. BARRIER		
CABLE TV	TV	TV
ELECTRIC	E	E
FIBER OPTIC	FO	FO
GAS MAIN	G	G
IRRIGATION MAIN	IRR	IRR
OIL/PETRO. MAIN	O	O
OVERHEAD UTILITY	OHU	OHU
SANITARY SEWER	S	
STORM DRAIN		
TELEPHONE	T	T
WATER MAIN	W	
RAW WATER LINE	RWL	RWL
SWALE/WATERWAY FLOWLINE		
DIVERSION DITCH		
DIVERSION CHANNEL		
MAJOR DRAINAGE BASIN		
MINOR DRAINAGE BASIN		
TOP OF SLOPE		
TOE OF SLOPE		
EDGE OF WATER		
INDEX CONTOUR	6100	6100
INTERMEDIATE CONTOUR		
DEPRESSION CONT. (INDEX)	6100	6100
DEPRESSION CONT. (INTER)		
TOP OF CUTS		
TOE OF FILLS		
CUT AND FILL LINE		C/F
SILT FENCE	SF	SF
100 YEAR FLOODPLAIN	100YR	100YR
500 YEAR FLOODPLAIN	500YR	500YR
FLOODWAY	FLDWY	FLDWY
BASE FLOOD ELEVATION		
EDGE OF WETLANDS		
STONE WALL		

UTILITIES LEGEND

	EXISTING	PROPOSED
STORM SEWER		
MANHOLE		
STORM INLET		
AREA INLET – SQUARE		
AREA INLET – ROUND		
FLARED END SECTION		
RIPRAP		
SANITARY SEWER		
LINE MARKER	Mkr San	
SERVICE MARKER		
CLEAN-OUT		
MANHOLE W/ DIRECTIONAL FLOW ARROW		
WATER LINE		
LINE MARKER	Mkr W	
SERVICE MARKER		
FIRE HYDRANT		
FIRE CONNECTION		
MANHOLE		
BEND		
BLOW-OFF VALVE		
WELL	WELL	WELL
METER		
VALVE		
REDUCER		
THRUST BLOCK		
CROSS		
PLUG W/ THRUST BLOCK		
TEE		
REVERSE ANCHOR		
ANODE		
AIR & VACUUM VALVE ASSEMBLY		
TRANSMISSION BLOW-OFF ASSEMBLY		
GAS LINE		
MARKER	Mkr G	
SERVICE MARKER		
METER		
VALVE		
PLUG		
TEE		
DRY UTILITIES		
CABLE TV MARKER	Mkr TV	
CABLE TELEVISION PEDESTAL		
ELECTRIC MARKER	Mkr E	
ELECTRIC SERVICE MARKER		
ELECTRICAL PEDESTAL		
ELECTRICAL METER		
ELECTRICAL MANHOLE		
FIBER-OPTIC MARKER	Mkr FO	
IRRIGATION PEDESTAL		
TELEPHONE MARKER	Mkr T	
TELEPHONE PEDESTAL		
TELEPHONE MANHOLE		
UTILITY POLE		
GUY ANCHOR		
GUY POLE		
MISC. UTILITIES		
VENT PIPE	VP	VP
TEST HOLE DESIGNATOR	TH# FIRM/AGENCY	

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PREPARED FOR
C&M PROPERTIES, LLC
12748 BAROSSA VALLEY ROAD
COLORADO SPRINGS, CO 80921
EDWARD MCDONALD
719-210-9480

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	V-SCALE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
N/A	N/A	07/14/20	NQJ	NQJ	

TAMLIN ROAD RV STORAGE

LEGEND

SHEET 2 OF 10

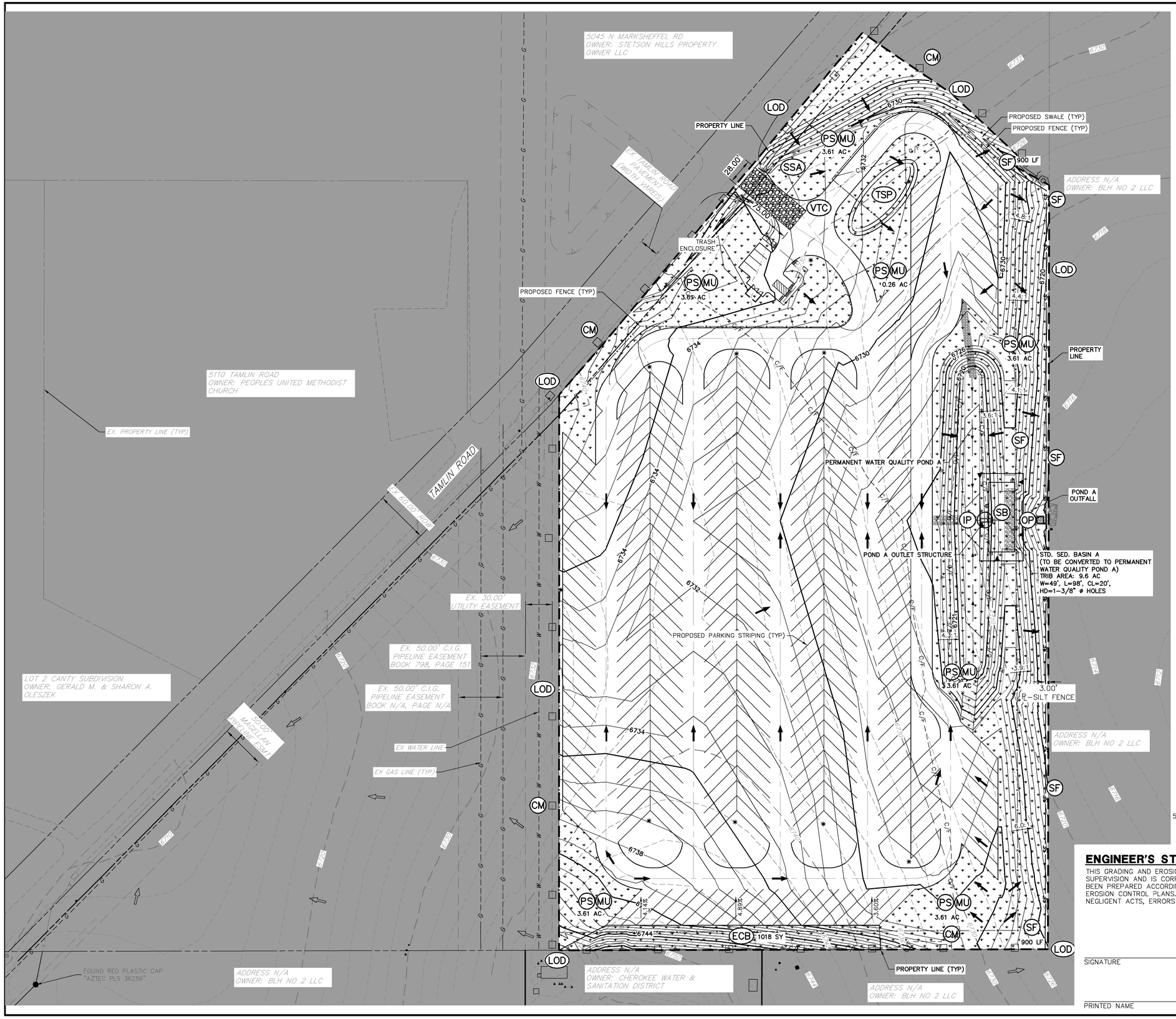
JOB NO. 25134.00

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED MIKE A. BRAMLETT, P.E. 32314 PROFESSIONAL ENGINEER

MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC



LEGEND

- SEDIMENT BASIN (SB)
- SILT FENCE (SF) — SF
- STABILIZED STAGING AREA (SSA)
- CONSTRUCTION MARKER (CM)
- VEHICLE TRACKING CONTROL (VTC)
- TEMPORARY STOCK PILE (TSP)
- EROSION CONTROL BLANKET (ECB)
- INLET PROTECTION (IP)
- OUTLET PROTECTION (OP)
- DIVERSION DITCH AND DIKE, TEMPORARY (DD)
- CUT AND FILL LINE — — — — C/F — — — — C/F —
- LIMITS OF DISTURBANCE (LOD)
- PERMANENT SEEDING/MULCHING (MU) (PS)
- PROPOSED DRAINAGE ARROW
- EXISTING DRAINAGE ARROW

EROSION CONTROL NOTES

1. THE EXISTING SITE VEGETATION INCLUDES NATIVE WEEDS AND GRASSES. THERE ARE NO AREAS OF SIGNIFICANT VEGETATION OR TREE CLUSTERS.
2. NO CONCRETE OR ASPHALT BATCH PLANS ARE PROPOSED FOR THIS PROJECT.
3. NO STREAMS, SPRINGS, WETLANDS OR OTHER SURFACE WATER CROSS THIS SITE.
4. THE REQUIRED SEEDING AND MULCHING AREA FOR THE SITE TOTALS 4.26 ACRES. ALL AREAS NOT PAVED OR GRAVEL, SHALL BE SEEDED AND MULCHED. SEE EROSION CONTROL PLAN FOR AREAS REQUIRING SEEDING AND MULCHING.
5. PER NRCS SOILS MAP, SOILS ON SITE ARE CLASSIFIED AS "TYPE A", GRAVELLY SAND. THIS SOIL TYPE IS FOUND TO BE SUITABLE FOR USE IN EMBANKMENTS (MAX 3:1 SLOPES) AND ROADWAYS. REFER TO SOILS REPORT PREPARED BY RMG ENGINEERS 3/2/2020.
6. THE CONSTRUCTION SITE BOUNDARY IS THE SAME AS THE LIMITS OF DISTURBANCE (LOD).

BMP PHASING

INITIAL (JULY 2020):
1) INSTALL VTC
2) ESTABLISH SSA
3) INSTALL CONSTRUCTION MARKERS
4) INSTALL SILT FENCE
5) INSTALL SEDIMENT BASINS
6) INSTALL DIVERSION DITCHES

INTERIM (SEPTEMBER 2020):
1) LOCATE/INSTALL TEMPORARY STOCKPILE
2) MAINTAIN ALL BMPS
3) INSTALL INLET AND OUTLET PROTECTION
4) INSTALL EROSION CONTROL BLANKETS

FINAL (DECEMBER 2020):
1) INSTALL MULCH AND PERMANENT SEEDING IN ALL DISTURBED AREAS
2) REMOVE SILT FENCE AFTER STABILIZED

FINAL STABILIZATION ANTICIPATED APRIL 2021.

50 25 0 50 100
ORIGINAL SCALE: 1" = 50'

Know what's below. Call before you dig.

ENGINEER'S STATEMENT

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SIGNATURE

PRINTED NAME

DATE

COLORADO REGISTERED 32314 PROFESSIONAL ENGINEER

SEAL

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DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

TAMLIN ROAD RV STORAGE

GRADING AND EROSION CONTROL PLAN

SHEET 3 OF 10

JOB NO. 25134.00

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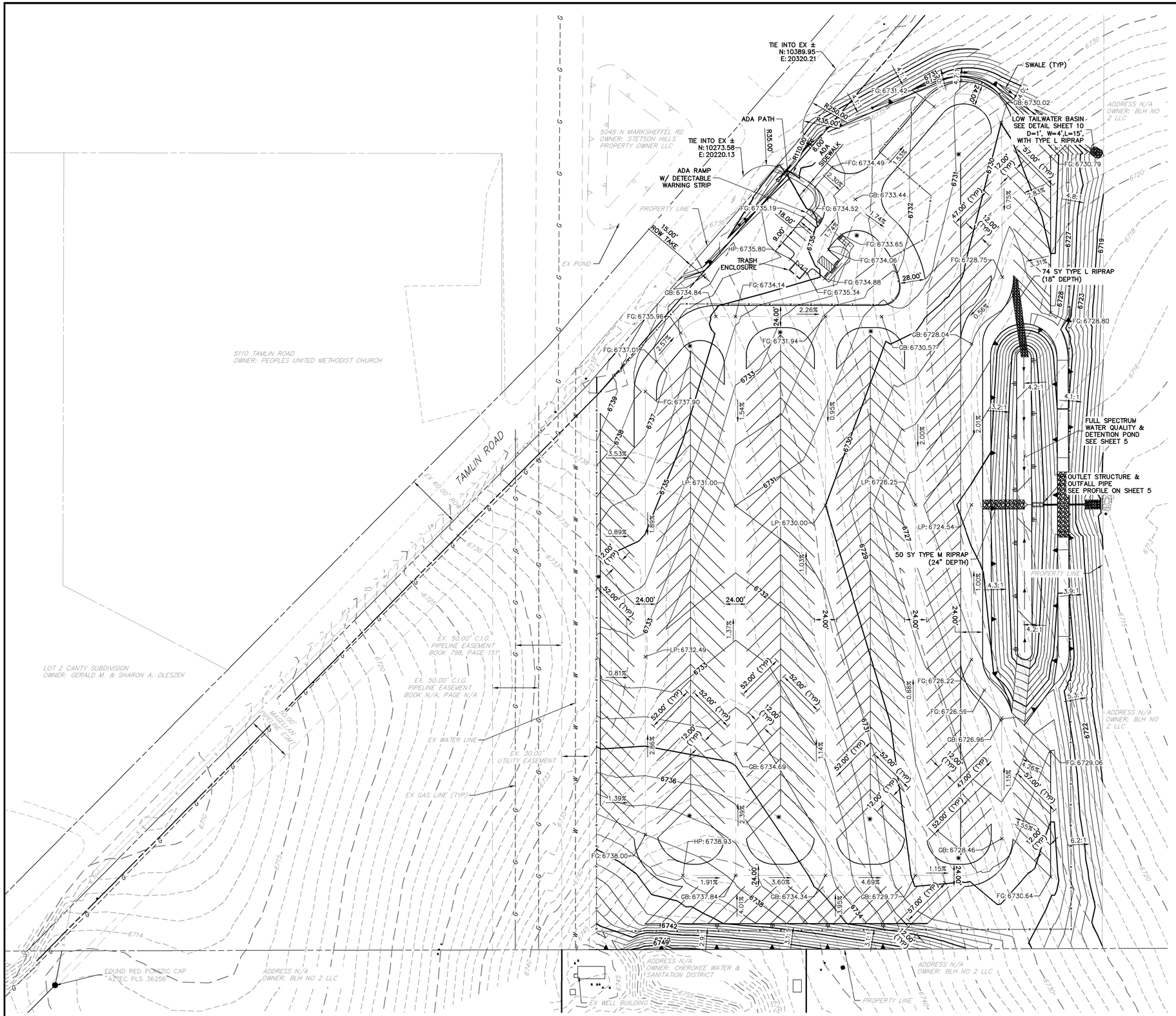

GRADING NOTES

1. ALL DRIVE AISLES AND PARKING AREAS ARE TO BE RECYCLED ASPHALT. ALL OTHER AREAS ARE TO BE SEEDED PER GRADING AND EROSION CONTROL PLAN.
2. REFER TO THE SOILS REPORT PREPARED BY RMG ENGINEERS 3/2/2020. THE REPORT IS CONSIDED A PART OF THESE PLANS. THE REPORT RECOMMENDS A MAXIMUM OF 3:1 EMBANKMENT SLOPES.

ABBREVIATIONS

FG – FINISHED GRADE
GB – GRADE BREAK
LP – LOW PONT
HP – HIGH PONT

Know what's below. Call before you dig.

50 25 0 50 100
ORIGINAL SCALE: 1" = 50'

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING

DATE

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CHECKED BY	

TAMLIN ROAD RV & BOAT STORAGE

OVERALL GRADING PLAN

SHEET 4 OF 10
JOB NO. 25134.00

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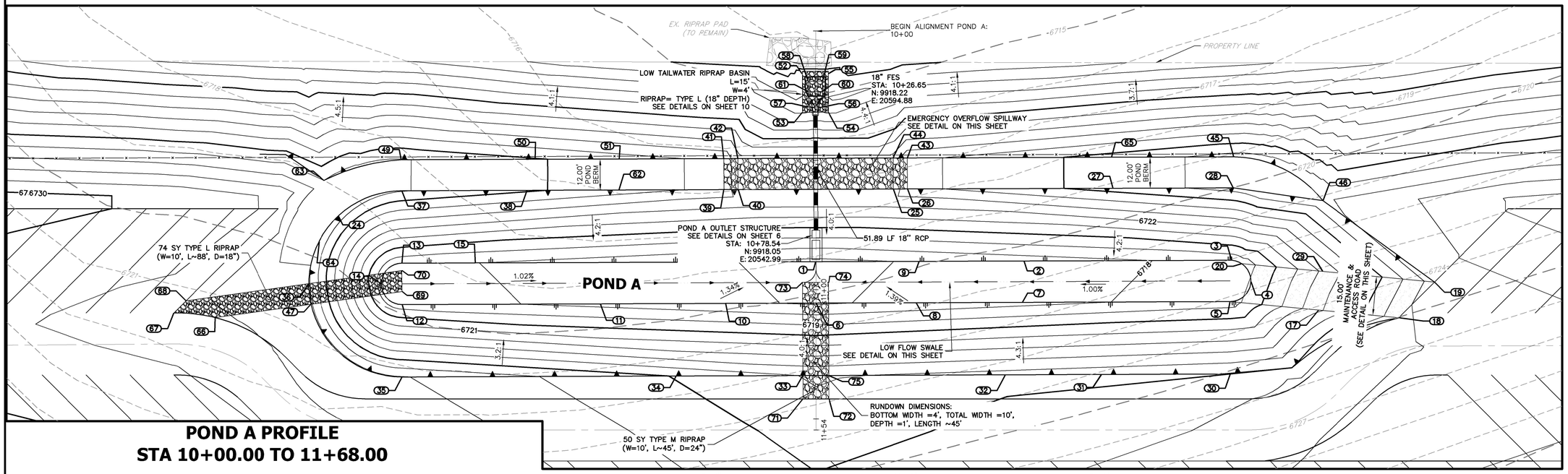

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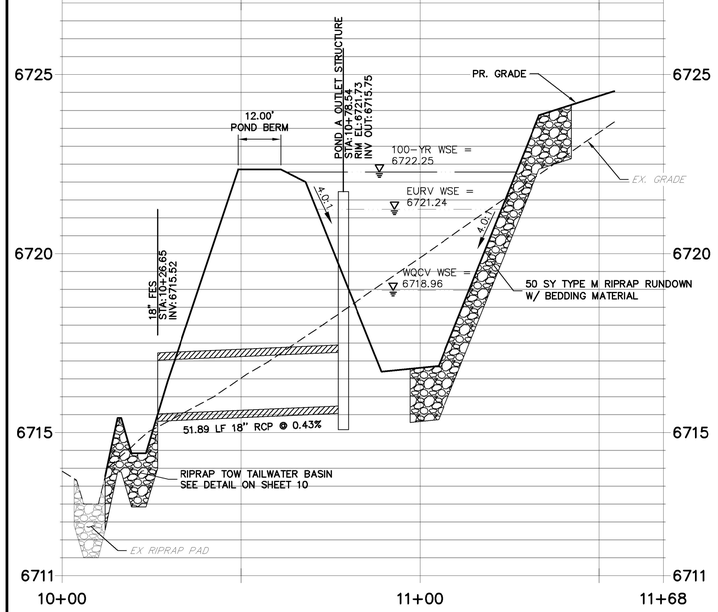
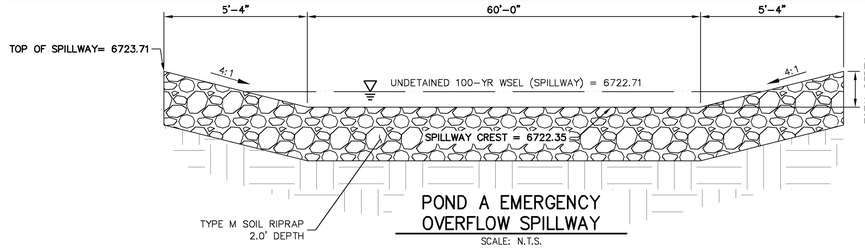
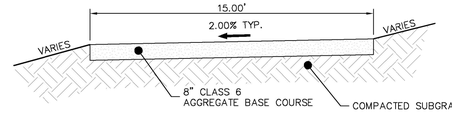
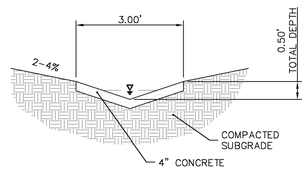




POND A EMERGENCY OVERFLOW SPILLWAY
SCALE: N.T.S.



POND MAINTENANCE & ACCESS ROAD TYPICAL SECTION
N.T.S.



WATER QUALITY POND – LOW FLOW SWALE
N.T.S.

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
1	OUTLET STRUCTURE	N: 9918.05 E: 20532.33	6716.70
2	TOE OF SLOPE	N: 9837.72 E: 20532.60	6717.50
3	TOE OF SLOPE	N: 9757.40 E: 20532.88	6718.31
4	TOE OF SLOPE	N: 9750.01 E: 20524.61	6719.09
5	MAINT. & ACCESS ROAD/TOE OF SLOPE	N: 9757.98 E: 20516.90	6718.46
6	TOE OF SLOPE/RIPRAP	N: 9918.03 E: 20516.32	6716.86
7	TOE OF SLOPE	N: 9838.33 E: 20516.61	6717.66
8	TOE OF SLOPE	N: 9879.39 E: 20516.46	6717.25

POINT TABULATION				POINT TABULATION				POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION	ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION	ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
10	TOE OF SLOPE	N: 9952.98 E: 20516.20	6717.21	34	TOP OF SLOPE	N: 9971.97 E: 20488.14	6724.94	56	DISSIPATOR	N: 9915.51 E: 20592.13	6716.42
11	TOE OF SLOPE	N: 10001.44 E: 20516.02	6717.69	35	TOP OF SLOPE	N: 10077.90 E: 20487.75	6727.06	57	DISSIPATOR	N: 9921.01 E: 20592.11	6716.42
12	TOE OF SLOPE	N: 10078.00 E: 20515.75	6718.46	36	TOP OF SLOPE/RIPRAP	N: 10114.03 E: 20523.84	6727.13	58	DISSIPATOR	N: 9921.05 E: 20602.11	6714.42
13	TOE OF SLOPE	N: 10078.06 E: 20531.75	6718.30	37	TOP OF SLOPE	N: 10078.16 E: 20559.75	6726.07	59	DISSIPATOR	N: 9915.55 E: 20602.13	6714.42
14	TOE OF SLOPE/RIPRAP	N: 10086.03 E: 20523.72	6718.51	38	TOP OF SLOPE	N: 10029.60 E: 20559.93	6725.15	60	DISSIPATOR	N: 9915.53 E: 20598.13	6714.42
15	TOE OF SLOPE	N: 10049.63 E: 20531.85	6718.02	39	TOP OF POND/BEGIN SPILLWAY	N: 9953.58 E: 20560.20	6723.71	61	DISSIPATOR	N: 9921.03 E: 20598.11	6714.42
16	TOE OF SLOPE	N: 9966.08 E: 20532.15	6717.18	40	SPILLWAY CREST	N: 9948.14 E: 20560.22	6722.35	62	TOP OF POND	N: 9994.27 E: 20560.05	6724.48
17	MAINT. & ACCESS ROAD	N: 9723.82 E: 20513.63	6722.79	41	TOP OF POND/BEGIN SPILLWAY	N: 9953.63 E: 20572.20	6723.71	63	TOP OF POND	N: 10108.14 E: 20563.79	6726.00
18	MAINT. & ACCESS ROAD	N: 9692.81 E: 20510.67	6726.72	42	SPILLWAY CREST	N: 9948.19 E: 20572.22	6722.35	64	TOP OF POND	N: 10110.05 E: 20540.21	6726.81
19	MAINT. & ACCESS ROAD	N: 9679.06 E: 20524.43	6727.48	43	TOP OF POND/BEGIN SPILLWAY	N: 9882.75 E: 20572.45	6723.71	65	TOP OF POND	N: 9803.90 E: 20572.72	6725.39
20	MAINT. & ACCESS ROAD/TOE OF SLOPE	N: 9753.55 E: 20531.54	6718.35	44	SPILLWAY CREST	N: 9888.19 E: 20572.43	6722.35	66	EDGE OF ROAD/RIPRAP	N: 10150.11 E: 20510.72	6728.18
24	RIPRAP	N: 10102.65 E: 20550.02	6726.58	45	TOP OF SLOPE	N: 9756.61 E: 20572.88	6726.38	67	EDGE OF ROAD/RIPRAP	N: 10166.14 E: 20512.51	6728.52
25	SPILLWAY CREST	N: 9888.14 E: 20560.43	6722.35	46	TOP OF SLOPE	N: 9722.26 E: 20555.94	6726.75	68	EDGE OF ROAD/RIPRAP	N: 10161.45 E: 20517.21	6728.55
26	TOP OF POND/BEGIN SPILLWAY	N: 9882.70 E: 20560.45	6723.71	47	TOP OF SLOPE/RIPRAP	N: 10113.16 E: 20515.89	6727.15	69	RIPRAP	N: 10078.02 E: 20520.80	6718.41
27	TOP OF SLOPE	N: 9803.15 E: 20560.74	6725.41	49	TOP OF SLOPE	N: 10078.20 E: 20571.75	6726.07	70	RIPRAP	N: 10078.05 E: 20528.88	6718.33
28	TOP OF SLOPE	N: 9756.78 E: 20560.88	6726.40	50	TOP OF SLOPE	N: 10026.47 E: 20571.94	6725.09	71	EDGE OF ROAD/RIPRAP	N: 9923.03 E: 20479.28	6724.25
29	MAINT. & ACCESS ROAD	N: 9722.19 E: 20528.55	6722.19	51	TOP OF SLOPE	N: 9993.97 E: 20572.05	6724.47	72	EDGE OF ROAD/RIPRAP	N: 9913.03 E: 20479.28	6724.21
30	TOP OF SLOPE	N: 9757.88 E: 20488.90	6725.00	52	DISSIPATOR	N: 9923.29 E: 20604.95	6715.42	73	RIPRAP	N: 9923.20 E: 20524.30	6716.83
31	TOP OF SLOPE	N: 9807.61 E: 20488.72	6724.65	53	DISSIPATOR	N: 9923.25 E: 20590.10	6716.90	74	RIPRAP	N: 9913.20 E: 20524.34	6716.83
32	TOP OF SLOPE	N: 9844.80 E: 20488.59	6724.38	54	TOP OF SLOPE	N: 9913.25 E: 20590.13	6716.89	75	TOP OF SLOPE/RIPRAP	N: 9913.07 E: 20488.34	6723.89
33	TOP OF SLOPE/RIPRAP	N: 9923.07 E: 20488.30	6723.96	55	DISSIPATOR	N: 9913.31 E: 20604.99	6715.39				

Know what's **below.** **Call** before you dig.

20 10 0 20 40

HORIZONTAL ORIGINAL SCALE: 1" = 20'
VERTICAL ORIGINAL SCALE: 1" = 2'

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

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C&M PROPERTIES, LLC
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Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1"=20'		
V-SCALE	1"=2'		
DATE	07/14/20		
DESIGNED BY	NQJ		
DRAWN BY	NQJ		
CHECKED BY			

TAMLIN ROAD RV STORAGE

POND A GRADING PLAN

SHEET 5 OF 10

JOB NO. 25134.00

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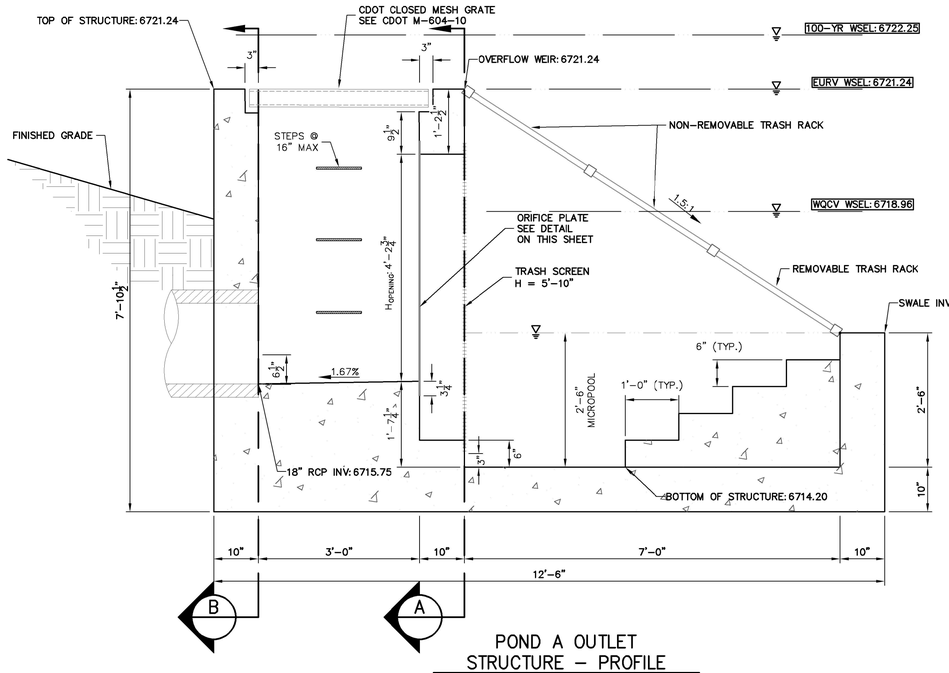
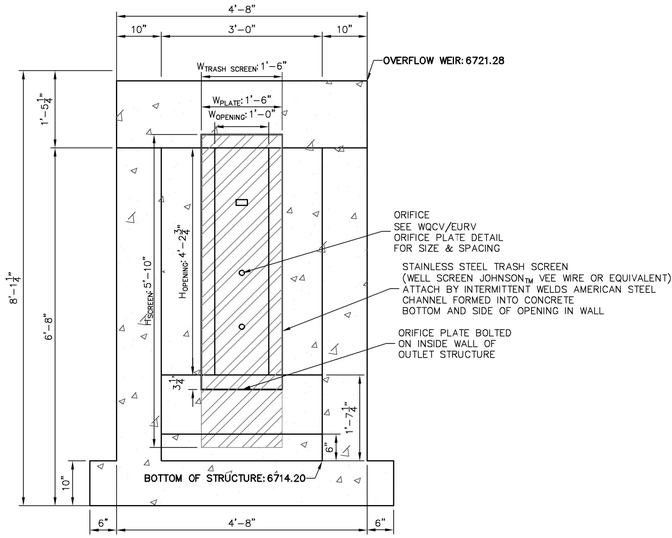
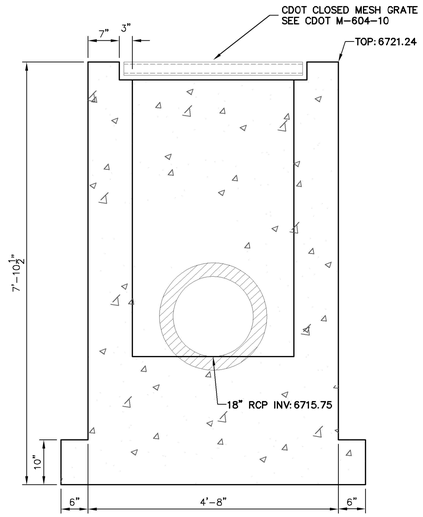


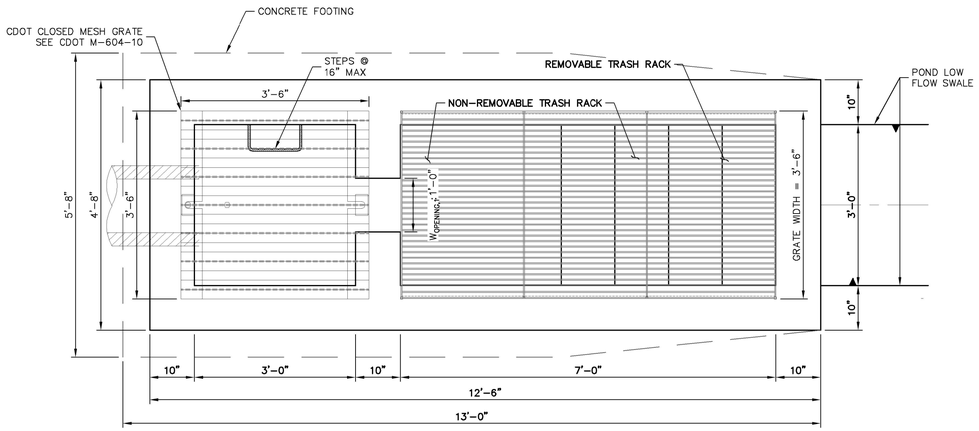
POND A OUTLET
STRUCTURE – PROFILE
SCALE: 3/4"=1'



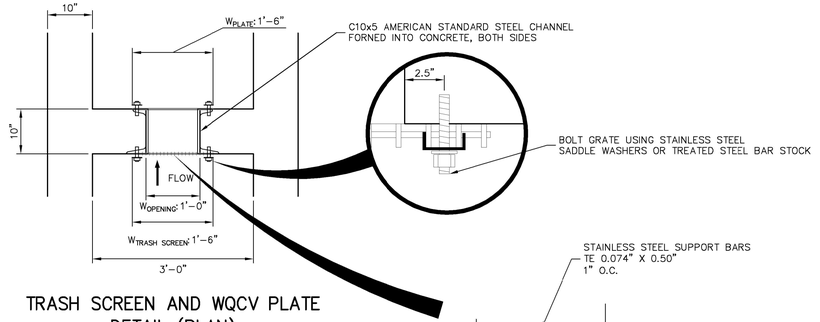
A 40 SECTION A AT ORIFICE (FRONT) WALL
SCALE: 3/4"=1'



B 40 SECTION B AT OUTLET (REAR) WALL
SCALE: 3/4"=1'



POND A OUTLET
STRUCTURE – PLAN
SCALE: 3/4"=1'

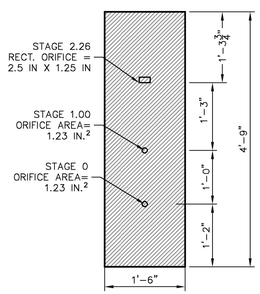


TRASH SCREEN AND WQCV PLATE
DETAIL (PLAN)
SCALE: 3/4"=1'

R VALUE = (NET OPEN AREA)/(GROSS RACK AREA) = 0.60

TRASH SCREEN DETAIL
N.T.S.

EURV/WQCV ORIFICE PLATE:
4'-9" x 1'-6" x ½" THICK FLOW GALVANIZED STEEL FLOW CONTROL PLATE. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE. BOLT PLATE TO CONCRETE @ 12" MAX O.C., 1½" FROM PLATE EDGE.



WQCV/EURV ORIFICE
PLATE DETAIL
SCALE: 3/4"=1'

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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V-SCALE	3/4" = 1'
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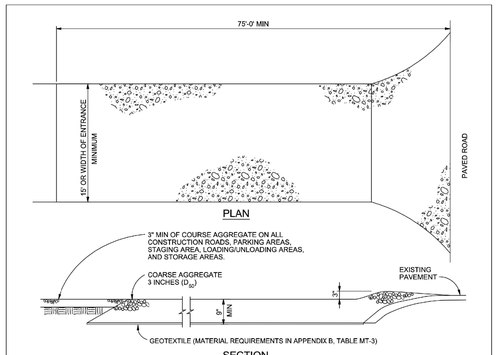
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

TAMLIN ROAD RV STORAGE

POND A OUTLET STRUCTURE

SHEET 6 OF 10

JOB NO. 25134.00



VEHICLE TRACKING
NTS

VEHICLE TRACKING NOTES

INSTALLATION REQUIREMENTS

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.

2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.

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

4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.

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

MAINTENANCE REQUIREMENTS

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

2. STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.

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

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.

City of Colorado Springs Stormwater Quality	Figure VT-2 Vehicle Tracking Application Examples

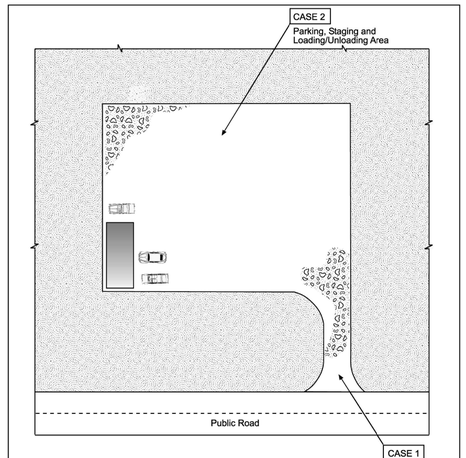
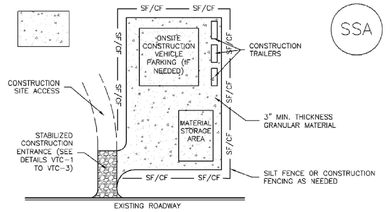


Table VT-1

	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO

City of Colorado Springs Storm Water Quality	Figure VT-1 Vehicle Tracking Application Examples

DEINM153722.CS.CB/FigVT-1/9-99



SSA-1, STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF STAGING AREA(S).
   -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

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 MATERIAL.

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 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. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

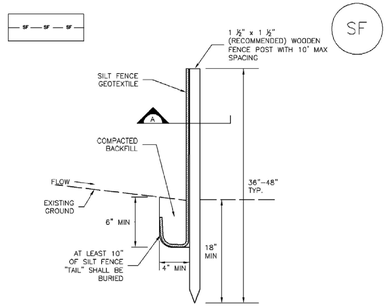
5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

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 VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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.

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



SILT FENCE

SECTION A

SF-1, SILT FENCE

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 8" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE 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. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, 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.

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

COLORADO REGISTERED MIKE K. BRAMLETT 32314 PROFESSIONAL ENGINEER

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING

DATE

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Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	N/A	DESIGNED BY	NQJ
V-SCALE	N/A	DRAWN BY	NQJ
DATE	07/14/20	CHECKED BY	

TAMLIN ROAD RV STORAGE

GRADING AND EROSION CONTROL DETAILS

SHEET 7 OF 10

JOB NO. 25134.00

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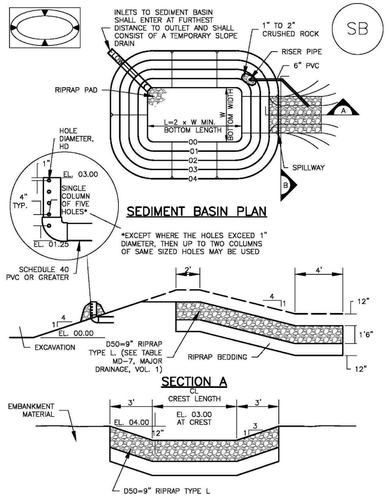


TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 ½	2	9/32
2	21	3	13/64
3	28	5	1/4
4	33 ½	6	9/64
5	38 ½	8	23/32
6	43	9	23/32
7	47 ¼	11	23/32
8	51	12	23/32
9	55	13	3/8
10	58 ¼	15	19/64
11	61	16	23/32
12	64	18	1/2
13	67 ½	19	1 1/4
14	70 ½	21	1 3/8
15	73 ¼	22	1 9/64

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF SEDIMENT BASIN.
   –TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
   –FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   –FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SEDIMENT BASIN 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. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

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.

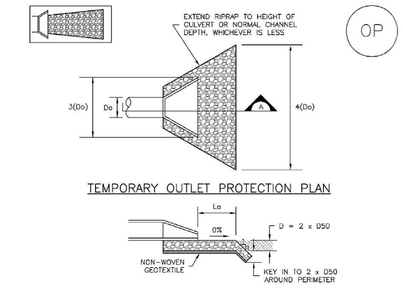
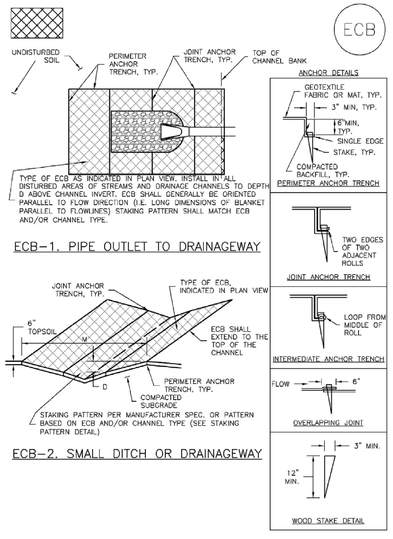
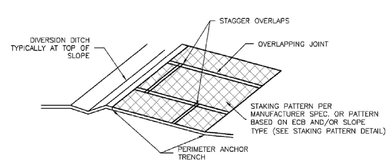
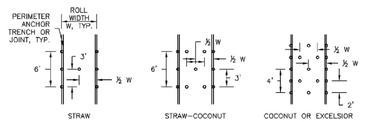


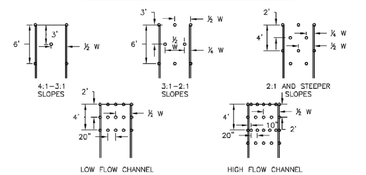
TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE			
PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, La (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	13	6
18	10	10	6
	20	16	9
	30	23	12
	40	26	16
24	30	16	9
	40	26	9
	50	26	12
	60	30	16

OP–1. TEMPORARY OUTLET PROTECTION









EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF ECB.
   –TYPE OF ECB (STRAW, STRAW–COCONUT, COCONUT, OR EXCELSIOR).
   –AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE–HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB–1.
9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS SHALL BE RESEEDED AND MULCHED.
10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB–1. ECB MATERIAL SPECIFICATIONS				
TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	–	100%	–	DOUBLE/ NATURAL
STRAW–COCONUT	30% MIN	70% MAX	–	DOUBLE/ NATURAL
COCONUT	100%	–	–	DOUBLE/ NATURAL
EXCELSIOR	–	–	100%	DOUBLE/ NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNELS.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS

EROSION CONTROL BLANKET 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. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

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.

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

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

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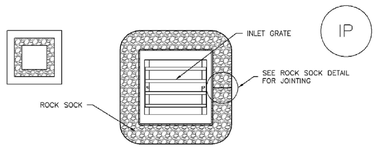
No.	REVISION	BY	DATE

H-SCALE N/A
V-SCALE N/A
DATE 07/14/20
DESIGNED BY NQJ
DRAWN BY NQJ
CHECKED BY

TAMLIN ROAD RV STORAGE

GRADING AND EROSION CONTROL DETAILS (CONT.)

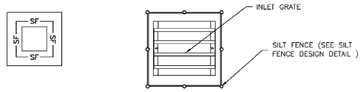
SHEET 8 OF 10
JOB NO. 25134.00



IP–3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES
1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



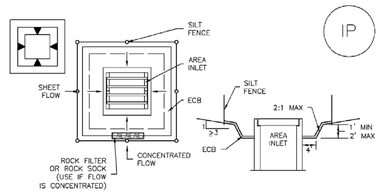
IP–4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



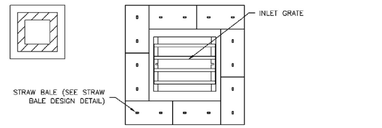
IP–5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.

2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.

3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



IP–6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
–LOCATION OF INLET PROTECTION.
–TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)

2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

3. 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.

INLET PROTECTION 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. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR ¼ OF THE HEIGHT FOR STRAW BALES.

5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.

6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, 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.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

- 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 above).
- 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.

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species[a] (Common name)	Growth Season[b]	Pounds of Pure Live Seed (PLS)/acre[c]	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Millet	Warm	3 - 15	½ - ¾
6. Sudangrass	Warm	5–10	½ - ¾
7. Sorghum	Warm	5–10	½ - ¾
8. Winter wheat	Cool	20–35	1 - 2
9. Winter barley	Cool	20–35	1 - 2
10. Winter rye	Cool	20–35	1 - 2
11. Triticale	Cool	25–40	1 - 2

[a] Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

[b] See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

[c] Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common[a] Name	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Alakali Soil Seed Mix					
Alkali sacaton	*Sporobolus airoides*	Cool	Bunch	1,750,000	0.25
Basin wildrye	*Elymus cinereus*	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Jose tall wheatgrass	*Agropyron elongatum 'Jose'*	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.75**
Fertile Loamy Soil Seed Mix					
Ephriam crested wheatgrass	*Agropyron cristatum 'Ephriam'*	Cool	Sod	175,000	2.0
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	7.0
Total					**15.5**
High Water Table Soil Seed Mix					
Meadow foxtail	*Alopecurus pratensis*	Cool	Sod	900,000	0.5
Redtop	*Agrostis alba*	Warm	Open sod	5,000,000	0.25
Reed canarygrass	*Phalaris arundinacea*	Cool	Sod	68,000	0.5
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Pathfinder switchgrass	*Panicum virgatum 'Pathfinder'*	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	*Agropyron elongatum 'Alkar'*	Cool	Bunch	79,000	5.5
Total					**10.75**
Transition Turf Seed Mix[c]					
Ruebens Canadian bluegrass	*Poa compressa 'Ruebens'*	Cool	Sod	2,500,000	0.5
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	*Lolium perenne 'Citation'*	Cool	Sod	247,000	3.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Total					**7.5**

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	*Bouteloua gracilis*	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	*Schizachyrium scoparium 'Camper'*	Warm	Bunch	240,000	1.0
Prairie sandreed	*Calamovilfa longifolia*	Warm	Open sod	274,000	1.0
Sand dropseed	*Sporobolus cryptandrus*	Cool	Bunch	5,298,000	0.25
Vaughn sideoats grama	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**10.25**
Heavy Clay, Rocky Foothill Seed Mix					
Ephriam crested wheatgrass[d]	*Agropyron cristatum 'Ephriam'*	Cool	Sod	175,000	1.5
Oahe Intermediate wheatgrass	*Agropyron intermedium 'Oahe'*	Cool	Sod	115,000	5.5
Vaughn sideoats grama[e]	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.5**

[a] All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

[b] See Table TS/PS-3 for seeding dates.

[c] If site is to be irrigated, the transition turf seed rates should be doubled.

[d] Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

[e] Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
Seeding Dates	**Warm**	**Cool**	**Warm**	**Cool**
January 1–March 15			✓	✓
March 16–April 30	4	1,2,3	✓	✓
May 1–May 15	4		✓	
May 16–June 30	4,5,6,7			
July 1–July 15	5,6,7			
July 16–August 31				
September 1–September 30		8,9,10,11		
October 1–December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
C&M PROPERTIES, LLC
12748 BAROSSA VALLEY ROAD
COLORADO SPRINGS, CO 80921
EDWARD MCDONALD
719-210-9480

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE N/A
V-SCALE N/A
DATE 07/14/20
DESIGNED BY NQJ
DRAWN BY NQJ
CHECKED BY

TAMLIN ROAD RV STORAGE

GRADING AND EROSION CONTROL DETAILS (CONT.)

SHEET 9 OF 10

JOB NO. 25134.00

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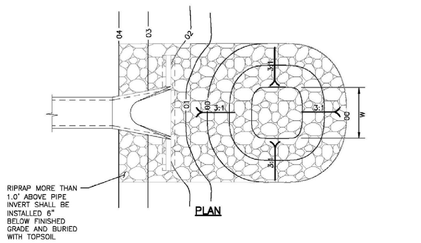

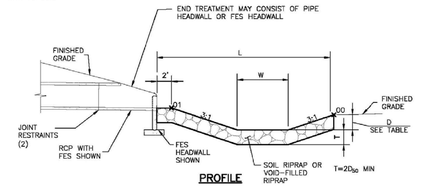

PIPE SIZE OR BOX HEIGHT	D	W*	L
18" – 24"	1'–0"	4'	15'
30" – 36"	1'–6"	6'	20'
42" – 48"	2'–0"	7'	24'
54" – 60"	2'–6"	8'	28'
66" – 72"	3'–0"	9'	32'

* IF OUTLET PIPE IS A BOX CULVERT WITH A WIDTH GREATER THAN W, THEN W = CULVERT WIDTH

Figure 9-37. Low tailwater riprap basin

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

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TAMLIN ROAD RV STORAGE

STORM SEWER DETAILS

SHEET 10 OF 10

JOB NO. 25134.00

ENGINEER'S STATEMENT
STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

COLORADO REGISTERED MIKE A. BRAMLETT P.E. PROFESSIONAL ENGINEER 32314

MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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APPENDIX D – SWMP CHECKLIST

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www.elpasoco.com

EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

STORMWATER MANAGEMENT PLAN CHECKLIST

Revised: July 2019

		Applicant	PCD
1. STORMWATER MANAGEMENT PLAN (SWMP)			
1	Applicant (owner/designated operator), SWMP Preparer, Qualified Stormwater Manager, and Contractor Information. (On cover/title sheet)	X	
2	Table of Contents	X	
3	Site description and location to include: vicinity map with nearest street/crossroads description.	X	
4	Narrative description of construction activities proposed (e.g., may include clearing and grubbing, temporary stabilization, road grading, utility / storm installation, final grading, final stabilization, and removal of temporary control measures)	X	
5	Phasing plan – may require separate drawings indicating initial, interim, and final site phases for larger projects. Provide "living maps" that can be revised in the field as conditions dictate.	X	
6	Proposed sequence for major activities: Provide a construction schedule of anticipated starting and completion dates for each stage of land-disturbing activity depicting conservation measures anticipated, including the expected date on which the final stabilization will be completed.	X	
7	Estimates of the total site area and area to undergo disturbance; current area of disturbance must be updated on the SWMP as changes occur.	X	
8	Soil erosion potential and impacts on discharge that includes a summary of the data used to determine soil erosion potential		
9	A description of existing vegetation at the site and percent ground cover and method used to determine ground cover	X	
10	Location and description of all potential pollution sources including but not limited to: disturbed and stored soils; vehicle tracking; management of contaminated soils; loading and unloading operations; outdoor storage of materials; vehicle and equipment maintenance and fueling; significant dust generating process; routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.; on-site waste management; concrete truck/equipment washing; dedicated asphalt, concrete batch plants and masonry mixing stations; non-industrial waste such as trash and portable toilets	X	
11	Material handling to include spill prevention and response plan and procedures.	X	
12	Spill prevention and pollution controls for dedicated batch plants	X	
13	Other SW pollutant control measures to include waste disposal and off site soil tracking	X	
14	Location and description of any anticipated allowable non-stormwater discharge (ground water, springs, irrigation, discharge covered by CDPHE Low Risk Guidance, etc.)	X	
15	Name(s) of ultimate receiving waters; size, type and location of stormwater outfall or storm sewer system discharge	X	
16	Description of all stream crossings located within the project area or statement that no streams cross the project area	X	

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STORMWATER MANAGEMENT PLAN CHECKLIST

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		Applicant	PCD
17	SWMP Map to include:		
17a	construction site boundaries	X	
17b	flow arrows to depict stormwater flow directions	X	
17c	all areas of disturbance	X	
17d	areas of cut and fill	X	
17e	areas used for storage of building materials, soils (stockpiles) or wastes	X	
17f	location of any dedicated asphalt / concrete batch plants	X	
17g	location of all structural control measures	X	
17h	location of all non-structural control measures	X	
17i	springs, streams, wetlands and other surface waters, including areas that require maintenance of pre-existing vegetation within 50 feet of a receiving water	X	
18	Narrative description of all structural control measures to be used. Modifications to EPC standard control measures must meet or exceed County-approved details.	X	
19	Description of all non-structural control measures to be used including seeding, mulching, protection of existing vegetation, site watering, sod placement, etc.	X	
20	Technical drawing details for all control measure installation and maintenance; custom or other jurisdiction's details used must meet or exceed EPC standards	X	
21	Procedure describing how the SWMP is to be revised	X	
22	Description of Final Stabilization and Long-term Stormwater Quality (describe nonstructural and structural measures to control SW pollutants after construction operations have been completed, including detention, water quality control measure etc.)	X	
23	Specification that final vegetative cover density is to be 70% of pre-disturbed levels	X	
24	Outline of permit holder inspection procedures to install, maintain, and effectively operate control measures to manage erosion and sediment	X	
25	Record keeping procedures identified to include signature on inspection logs and location of SWMP records on-site	X	
26	If this project relies on control measures owned or operated by another entity, a documented agreement must be included in the SWMP that identifies location, installation and design specifications, and maintenance requirements and responsibility of the control measure(s).	X	
	Please note: all items above must be addressed. If not applicable, explain why, simply identifying "not applicable" will not satisfy CDPHE requirement of explanation.		
2. ADDITIONAL REPORTS/PERMITS/DOCUMENTS			
a	Grading and Erosion Control Plan (signed)	X	
b	Erosion and Stormwater Quality Control Permit (ESQCP) (signed)	X	
3. Applicant Comments:			
a	Phasing plan – may require separate drawings indicating initial, interim, and final site phases for larger projects. Provide "living maps" that can be revised in the field as conditions dictate. -JR RESPONSE: THE SITE DOES NOT REQUIRE A PHASED PLAN. Location and description of any anticipated allowable non-stormwater discharge (ground water, springs, irrigation, discharge covered by CDPHE Low Risk Guidance, etc.) - JR RESPONSE: NO NON-STORMWATER DISCHARGES ANTICIPATED.		

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STORMWATER MANAGEMENT PLAN CHECKLIST

		Applicant	PCD
b	springs, streams, wetlands and other surface waters, including areas that require maintenance of pre-existing vegetation within 50 feet of a receiving water. - JR RESPONSE: NO EXISTING SPRINGS, STREAMS WETLANDS OR OTHER SURFACE WATERS ON OR NEAR THE SITE.		
c	If this project relies on control measures owned or operated by another entity, a documented agreement must be included in the SWMP that identifies location, installation and design specifications, and maintenance requirements and responsibility of the control measure(s). - JR RESPONSE: NO CONTROL MEASURES BEING UTILIZED THAT ARE OWNED BY OTHERS.		
4.	**Checklist Review Certifications:**		
a	Engineer of Record: The Stormwater Management 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 and State for Stormwater Management Plans. _____ _____ Engineer of Record Signature Date	X	
b	Review Engineer: The Stormwater Management Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request. _____ _____ Review Engineer Date		

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EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

GRADING AND EROSION CONTROL PLAN CHECKLIST

Revised: July 2019

		Applicant	PCD
1. GRADING AND EROSION CONTROL PLAN			
a	Vicinity map.	X	
b	Adjacent city/town/jurisdictional boundaries, subdivision names, and property parcel numbers labeled.	X	
c	North arrow and acceptable scale (1"=20' to 1"=100').	X	
d	Legend for all symbols used in the plan.	X	
e	Existing and proposed property lines. Proposed subdivision boundary for subdivision projects.	X	
f	All existing structures.	X	
g	All existing utilities.	X	
h	Construction site boundaries.	X	
i	Existing vegetation (notes are acceptable in cases where there is no notable vegetation, only grasses/weeds, or site has already been stripped).	X	
j	FEMA 100-yr floodplain.	N/A	
k	Existing and proposed water courses including springs, streams, wetlands, detention ponds, stormwater quality structures, roadside ditches, irrigation ditches and other water surfaces. Show maintenance of pre-existing vegetation within 50 feet of a receiving water.	X	
l	Existing and proposed contours 2 feet or less (except for hillside).	X	
m	Limits of disturbance delineating all anticipated areas of soil disturbance.	X	
n	Identify and protect areas outside of the construction site boundary with existing fencing, construction fencing or other methods as appropriate.	X	
o	Offsite grading clearly shown and called out.	N/A	
p	Areas of cut and fill identified.	X	
q	Conclusions from soils/geotechnical report and geologic hazards report incorporated in grading design (slopes, embankments, materials, mitigation, etc.)	X	
r	Proposed slopes steeper than 3:1 with top and toe of slope delineated. Erosion control blanketing or other protective covering required.	X	
s	Stormwater flow direction arrows.	X	
t	Location of any dedicated asphalt / concrete batch plants.	N/A	
u	Areas used for staging, storage of building materials, soils (stockpiles) or wastes. The use of construction office trailers requires PCD permitting.	X	
v	All proposed temporary construction control measures, structural and non-structural. Temporary construction control measures shall be identified by phase of implementation to include" "initial," "interim," and "final" or shown on separate phased maps identifying each phase.	X	
w	Vehicle tracking provided at all construction entrances/exits. Construction fencing, barricades, and/or signage provided at access points not to be used for construction.	X	
x	Temporary sediment ponds provided for disturbed drainage areas greater than 1 acre.	X	
y	Dewatering operations to include locations of diversion, pump and discharge(s) as anticipated at time of design.	N/A	
z	All proposed temporary construction control measure details. Custom or other jurisdiction's details used must meet or exceed EPC standards.	X	
aa	Any offsite stormwater control measure proposed for use by the project and not under the direct control or ownership of the Owner or Operator.	N/A	

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		Applicant	PCD
bb	Existing and proposed permanent storm water management facilities, including areas proposed for stormwater infiltration or subsurface detention.	X	
cc	Existing and proposed easements (permanent and construction) including required off site easements.	X	
dd	Retaining walls (not to be located in County ROW unless approved via license agreement). Design by P.E. and building permit from Regional Building Department required for walls greater than or equal to 4 feet in height, series of walls, or walls supporting a surcharge.	N/A	
ee	Plan certified by a Colorado Registered P.E., with EPC standard signature blocks for Engineer, Owner and EPC.	X	
ff	Engineer's Statement (for standalone GEC Plan): 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. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this plan. _____ _____ Engineer of Record Signature Date	X	
gg	Engineer's Statement (for GEC Plan within Construction Drawing set): These detailed plans and specifications were prepared under my direction and supervision. Said plans and specifications have been prepared according to the criteria established by the County for detailed roadway, drainage, grading and erosion control plans and specifications, and said plans and specifications are in conformity with applicable master drainage plans and master transportation plans. Said plans and specifications meet the purposes for which the particular roadway and drainage facilities are designed and are correct to the best of my knowledge and belief. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparation of these detailed plans and specifications. _____ _____ Engineer of Record Signature Date		
hh	Owner's Statement (for standalone GEC Plan): I, the owner/developer have read and will comply with the requirements of the Grading and Erosion Control Plan. _____ _____ Owner Signature Date	X	
ii	Owner's Statement (for GEC Plan within Construction Drawing set): I, the owner/developer have read and will comply with the requirements of the grading and erosion control plan and all of the requirements specified in these detailed plans and specifications. _____ _____ Owner Signature Date		

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EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

GRADING AND EROSION CONTROL PLAN CHECKLIST

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		Applicant	PCD
jj	El Paso County (standalone GEC Plan): County plan review is provided only for general conformance with County 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 document. 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 discretion. _____ _____ County Engineer/ECM Administrator Date	X	
2. ADDITIONAL REPORTS/PERMITS/DOCUMENTS			
a	Soils report / geotechnical investigation as appropriate for grading/utilities/drainage/road construction.		
b	Use Agreement/easement between the Owner or Operator and other third party for use of all offsite grading or stormwater control measures, used by the owner or operator but not under their direct control or ownership.		
c	Floodplain Development Permit		
d	USACE 404/wetlands permit/mitigation plan		
e	FEMA CLOMR		
f	State Engineer's permit/Notice Of Intent to Construct		
g	Stormwater Management Plan (SWMP)		
h	Financial Assurance Estimate (FAE) (signed)		
i	Erosion and Stormwater Quality Control Permit (ESQCP) (signed)		
j	Pre-Development Site Grading Acknowledgement and Right of Access Form (signed)		
k	Conditions of Approval met?		

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EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

GRADING AND EROSION CONTROL PLAN CHECKLIST

Revised: July 2019

		Applicant	PCD
3. STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS			
1	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, including wetlands.	X	
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.	X	
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.	X	
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.	X	
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.	X	
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.	X	
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.	X	
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.	X	
9	All permanent stormwater management facilities shall be installed as designed in the approved plans. Any proposed changes that effect the design or function of permanent stormwater management structures must be approved by the ECM Administrator prior to implementation.	X	
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.	X	

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EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

GRADING AND EROSION CONTROL PLAN CHECKLIST

	Revised: July 2019	Applicant	PCD
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).	X	
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.	X	
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.	X	
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.	X	
15	Erosion control blanketing or other protective covering shall be used on slopes steeper than 3:1.	X	
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.	X	
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.	X	
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.	X	
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.	X	
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.	X	
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.	X	
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.	X	
23	No person shall cause the impediment of stormwater flow in the curb and gutter or ditch except with approved sediment control measures.	X	

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		Applicant	PCD
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.	X	
25	All construction traffic must enter/exit the site only at approved construction access points.	X	
26	Prior to construction the permittee shall verify the location of existing utilities.	X	
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.	X	
28	The soils report for this site has been prepared by _____ and shall be considered a part of these plans.	X	
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	X	
a	FEMA 100-yr floodplain. - JR RESPONSE: NO FLOODPLAIN WITHIN VICINITY OF SITE. Offsite grading clearly shown and called out. - JR RESPONSE: NO OFFSITE GRADING PROPOSED Dewatering operations to include locations of diversion, pump and discharge(s) as anticipated at time of design. - JR RESPONSE: NO DEWATERING OPERATIONS ANTICIAPTED ON SITE.		
b	Any offsite stormwater control measure proposed for use by the project and not under the direct control or ownership of the Owner or Operator. - JR RESPONSE: NO UTILIZATION OF OFFSITE STORMWATER CONTROL MEASURES. Retaining walls (not to be located in County ROW unless approved via license agreement). Design by P.E. and building permit from Regional Building Department required for walls greater than or equal to 4 feet in height, series of walls, or walls supporting a surcharge. - JR RESPONSE: NO RETAINING WALLS PROPOSED.		
c			

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GRADING AND EROSION CONTROL PLAN CHECKLIST

Revised: July 2019

		Applicant	PCD
5. Checklist Review Certifications:			
a	Engineer of Record: The Grading and Erosion Control Plan was prepared under my direction and supervision and is complete and 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. _____ _____ Engineer of Record Signature Date	X	
b	Review Engineer: The Grading and Erosion Control Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request. _____ _____ Review Engineer Date		