

STORMWATER MANAGEMENT PLAN
FOR CARRIAGE MEADOWS SOUTH AT
LORSON RANCH
FILING NO. 2
(EGP 19-005)

Stormwater Permit # _____

Certification # _____

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SWMP Location

On-site (copy) and Lorson, LLC (original)

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APPENDIX A: VICINITY MAP, FEMA FLOODPLAIN MAP**APPENDIX B (EARLY GRADING & EROSION CONTROL PLANS**

- EXHIBIT 1: CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2
GRADING PLANS, DATED FEBRUARY 12, 2020

**APPENDIX C: STORMWATER INSPECTION REPORTS (BY REFERENCE ONLY
NOT ATTACHED)****APPENDIX D: SPILL REPORT FORM****APPENDIX E: RECORD OF STABILIZATION AND CONSTRUCTION ACTIVITY DATES****APPENDIX F: FEDERAL, STATE, OR LOCAL STORM WATER OR OTHER
ENVIRONMENTAL INSPECTOR SITE VISIT LOG****APPENDIX G: GENERAL PERMIT AND APPLICATION**

SWMP REPORT REVISION LOG

REVISION #	DATE	BY:	COMMENTS
1.			
2.			
3.			
4.			
5.			

1.0 INTRODUCTION

The proposed **Carriage Meadows South at Lorson Ranch Filing No. 2** development is currently vacant land consisting of 5.322 acres. This SWMP report covers the residential portion of the site which will disturb approximately 5.05 acres. The property is bounded on the east by Jimmy Camp Creek, the west side by Carriage Meadows Drive, and on the south by Carriage Meadows at Lorson Ranch Filing No. 1, and the north by Fontaine Boulevard. The property drains generally southwest towards Carriage Meadows Drive where an existing inlets collect runoff. Runoff flows west and south into existing WQ/Detention ponds and eventually discharges the treated/detained runoff into Jimmy Camp Creek.

Carriage Meadows South at Lorson Ranch Filing No. 2 consists of 49 residential lots and the supporting street infrastructure that will be completed in one phase. St. Aubyn Homes is the overall developer and will construct major infrastructure (grading, roads, utilities, etc.) to serve the entire site. This Stormwater Management Plan (SWMP) will only cover construction activities that are provided as the developer. As the Lorson Ranch development progresses, this SWMP plan may need to be updated to reflect the revised scope of infrastructure.

The major infrastructure for **Carriage Meadows at Lorson Ranch Filing No. 2** includes but is not limited to construction of residential streets, onsite utilities, and grading the site for residential lots. Detention/Water quality for this development is located offsite in an existing pond (Pond G1). Pond G1 will treat and detain stormwater runoff prior to discharging into Jimmy Camp Creek.

The legal description is:

**CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2
LEGAL DESCRIPTION**

TRACT O, CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 1

2.0 SEQUENCE OF MAJOR ACTIVITIES – Exhibit 1 Construction

The anticipated date for beginning construction activities is January, 2020 and will be complete in December, 2020. Implementation of the storm water management plan should be in place prior to initiating construction activities. The anticipated sequence of construction is as follows:

1. Installation of perimeter erosion control measures as shown on Exhibit 1.
2. Site Clearing/Grubbing and topsoil stockpiling.
3. Construct sediment ponds
4. Rough grading of the site.
5. Construct underground water/sewer/storm.
6. Construct curb/gutter and pavement.
7. Final stabilize areas outside of ROW.
8. Construct gas/electric/cable/phone in the street areas.
9. Landscape common areas

10. Final stabilize site.
11. Final erosion control measures as areas are completed
12. Remove construction BMP's

3.0 PRE-DEVELOPMENT CONDITIONS

According to the current FEMA Flood Insurance Rate Map (FIRM) number 08041C0957 G, Dated December, 2018 this site is not located within the 100-year floodplain.

Existing Vegetation:

The site is currently undeveloped and has been vacant land for several years. Vegetation consists of native grasses. There is no brush or trees within the area to be graded. Ground cover is estimated at 70% density.

Existing Slopes:

Existing slopes are around 1-10% that direct runoff southwesterly to existing inlets in the southwest corner of the site. No grading will be done in Jimmy Camp Creek under this SWMP.

Existing Drainage Patterns:

The site has moderate slopes in a south-southwesterly direction to an existing CDOT type "D" inlet in the SW corner of the site. Runoff is then directed westerly via 24" & 30" RCP's to an existing detention facility, located west side of Carriage Meadows Drive which functions as a sediment forebay. These flows then continue west and south to WQ/Detention Pond G1.

Existing Soil Types:

The following table summarizes the characteristics of the soil type.

Table 3.1: SCS Soils Survey.

Soil	Hydro. Group	Shrink/Swell Potential	Permeability	Surface Runoff Potential	Erosion Hazard
28-Ellicott Loamy Coarse Sand (1%)	A	Low	Rapid	Slow	High
52-Manzanst Clay Loam (59%)	C	Moderate to High	Slow	Medium	Moderate

The existing soil types have a moderate potential for erosion which can be mitigated by employing appropriate downstream construction BMP's before/during/after construction to limit potential impacts to discharges. Based upon the location of the different soil types and type of construction, the contractor shall employ the most appropriate method of erosion control measures based on the El Paso County/City of Colorado Springs Drainage Criteria Manual, Vol. 2 or as directed by the SWMP administrator or his representative.

The existing soil types have a moderate potential for erosion which can be mitigated by employing appropriate downstream construction BMP's before/during/after construction to limit potential impacts to stormwater discharges. The potential impacts are sediment discharge into the existing storm sewer system and the proposed storm sewer system. Sediment should not be allowed to enter these existing and proposed facilities and can be mitigated by constructing

small temporary sediment basins at low points prior to discharge into the systems. Based upon the location of the different soil types and type of construction, the contractor shall employ the most appropriate method of erosion control measures based on the El Paso County/City of Colorado Springs Drainage Criteria Manual, Vol. 2 or as directed by the SWMP administrator or his representative.

More detailed soils information can be found in the SCS soils survey for El Paso County.

4.0 DEVELOPED CONDITIONS

The overall drainage concept for **Carriage Meadows South at Lorson Ranch Filing No. 2** is to direct flow to existing storm sewer infrastructure in the southwest corner of the site.

Proper erosion protection will be installed so no sediment enters the storm sewer system or is discharged offsite.

Construction Site Estimates:

- Project Site: 5.322 acres
- Disturbed Area: 5.05 acres

- Percent Impervious before Construction: 0%
- Runoff Coefficient before Construction: 0.35
- Ground Cover density prior to construction 70%

- Percent Impervious after Construction: 65%
- Runoff Coefficient after Construction: 0.65
- Final stabilization must be 70% of pre-construction density.

Receiving Waters:

- Jimmy Camp Creek.
- Description: The creek channel is a dry creek bed that flows water intermittently after significant rainfall events in the drainage basin. The creek has been armored and channelized in 2006
- Description of Storm Sewer System: There is an existing 24" storm sewer and inlet in the southwest corner of the site. All the runoff drains to this system. The existing storm sewer system outlets into existing WQ/detention ponds located south of this site and flow ultimately into Jimmy Camp Creek south of this site.
- Description of impaired waters or waters subject to TMDLs: The site contains no impaired waters or waters subject to TMDLs.
- Description of unique features that are to be preserved: There are no known protected plant species within the project limits.
- Describe measures to protect these features: There are no known protected plant species

Site Features and Sensitive Areas to be Protected:

This site is not located within waters of the state (100-year floodplain) and they contain no other sensitive areas such as wetlands or endangered species. No grading will occur in the creek.

Stream Crossings:

This site is not located within (100-year floodplain) but there will be no stream crossings with this development.

5.0 POTENTIAL SOURCES OF POLLUTION AND CONTROL STRATEGIES

Potential sources of sediment to stormwater runoff include earth moving and concrete activities associated with grading and landscaping.

Potential pollutants and sources, other than sediment, to stormwater runoff include Trash, debris, line transfer, Dewatering, fueling and equipment failure.

A dewatering permit is not required

Construction activities produce many different kinds of pollutants which may cause storm water contamination problems. Grading activities remove rocks, vegetation and other erosion controlling surfaces, resulting in the exposure of underlying soil to the elements. Because the soil surface is unprotected, soil and sand particles are easily picked up by wind and/or washed away by rain or other water sources.

The following sections highlight the potential sources of pollution at the Project Site and list the “Best Management” strategies that will be used to prevent migration of pollution offsite. Chemical materials stored indoors or that have no reasonable chance of impacting storm water quality will not be discussed in this plan.

Materials of significance stored on the project site include:

- Sediment
- Concrete Washout
- Cement
- Trash & Debris
- Sanitary Wastes
- Fuels & Oils

5.1 Wind Erosion & Dust Control

Pollutant: Sediment

Best Management Strategies:

- Daily inspections will occur for areas experiencing excessive winds, vehicle traffic, or precipitation events.
- Water trucks will spray down dust on the project Site as needed to not impact adjacent properties.
- Attention will be given to prevent the over use of water in dust control operations to minimize any muddying of the surface and possible sediment transportation.

5.2 Vehicular Transport

Pollutant: Sediment Tracking

Best Management Strategies:

- Construct a stabilized construction entrance to provide ingress and egress of the site.
- Restrict access to the stabilized construction entrance.
- Fencing will be erected if problems with access control are evident.
- Maintain track out pads by fluffing up the rock material or by adding additional rock as needed.
- Inspect, sweep and clean adjacent streets where track out is evident.

5.3 Stockpiles

Pollutant: Sediment

Best Management Strategies:

- Locate stockpiles clear of any water flow paths.
- Locate stockpiles within the property boundary.
- Stockpiles will have erosion control devices as needed installed around the base to prevent the migration of soil.
- Topsoil stock piles and disturbed portions of the site where construction activity temporarily ceases for at least 14 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in the area.

5.4 Grading, Trenching, Export/Import

Pollutant: Sediment

Best management Strategies:

- Earth moving will be minimized by the engineering balancing of the site.
- Disturbed portions of the site where construction activity temporarily ceases for at least 14 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in the area.
- Seed bed preparation is not required if soil is in loose condition.
- Prior to seeding, fertilizer shall be applied to each acre to be stabilized in accordance with the manufacturer's specifications.
- If required seeding areas shall be mulched with straw to a uniformed cover. The straw mulch is to be tacked into place by a disk with blades set nearly straight.
- A site specific erosion control drawing has been developed showing the location of Best Management practices to be used during site construction.
- Where indicated on the erosion control plan, Best Management Practices will be installed.
- Material shall be in accordance with the plans and specifications and all construction shall be provided in accordance with the manufacturer's specifications.
- All BMP's will be inspected bi-weekly and cleaned/maintained as required.

5.5 Waste, Residual Concrete

Pollutant: Concrete, paint, and Phosphoric Acid

Best Management Strategies:

- A cleanup and washout area will be designated and posted.
- Subcontractors will be instructed on the locations and importance of the washout and cleanup areas. No on-site disposal is allowed.
- Instruct subcontractors to remove waste for which proper onsite disposal facilities are not provided back to their own facilities for ultimate transport, storage & disposal.

- Subcontractors and subcontractor employees are held responsible for improper washout.

5.6 Sanitary Facilities, Trash Containers & Littering

Pollutant: Bacteria, Ammonia, Trash

Best Management Strategies:

- Portable facilities will be regularly serviced to prevent excessive waste containment and overflow.
- All waste materials will be collected and stored in a container which will meet all local and any state solid waste management regulations.
- Trash dumpsters will be emptied prior to becoming 90% full or when debris control becomes an issue.
- Employees will be instructed on the importance of recycling and waste management, and will be held responsible for improper waste management.

5.7 Fueling, Hazardous Materials, Equipment Leakage, Fertilizer

Pollutant: Petroleum Hydrocarbons, Ethylene Glycol, Sediment

Best Management Strategies:

- MSDS sheets will be maintained in the project trailer for all onsite materials
- All dry materials such as cement will be covered and protected from rain.
- Secondary containment will be provided for stored fuel, oil, paint and any material classified as hazardous.
- Subcontractors are responsible for hazardous waste removal back to their own facilities for ultimate transportation, storage and disposal.
- Supplies will be kept onsite as necessary to control any potential spill.
- Employees will be held responsible for any illegal dumping.
- Seals will be checked by a qualified professional on all equipment and containers containing significant materials that could contribute potential pollutants and will be replaced as necessary.
- Equipment will be inspected by a qualified professional.
- Drip pans will be available for minor leaks and during fueling operations.
- Fueling nozzles, gauges, hoses, seals, and emergency shutoff valves will be inspected for leaks prior to use.
- Under no circumstances during fueling will the fueling hose/nozzle be left unattended.
- Fertilizers used will be applied only in the minimum amounts recommended by soil tests.
- Once applied, fertilizers will be worked into the soil to limit exposure to storm water.
- Stored fertilizer will be protected from exposure to precipitation and storm water runoff.

5.8 Dewatering – not needed. This shown for information only

Pollutant: Sediment, Oil and/or Grease and Phosphoric Acid

Best Management Strategies:

- All dewatering will be filtered through rock and/or woven geo mesh fabric.
- All dewatering will be tested for Pollutants per state guidelines weekly.

5.9 Concrete and Asphalt Batch Plant This shown for information only

There are no existing batch plants located on this project site and there are no proposed batch plants in the future.

6.0 BEST MANAGEMENT PRACTICES (BMP's)

Also refer to attached Erosion and Sediment Control notes and plans included in the site plans

6.1 – Erosion and Sediment Control BMP's

6.1.1 Minimize Disturbed Area and Protect Natural Features and Soil

All work will occur inside the limits of construction per the erosion Control Site Plan. See Exhibit 1

6.1.2 Phase Construction Activity

The sequence for the installation and removal of erosion and sediment control measures is as follows:

Perimeter control measures (silt barriers and fencing) installed at designated areas as noted on the site plans (Exhibit 1), cleaning of street surfaces during construction if applicable, site grading, installation of utilities, paving final and grading, installation of sod or other vegetation, removal of temporary practices and perimeter controls, and site cleanup.

6.1.3 Control Stormwater Flowing onto and through the Project

Narrative:

Offsite stormwater flows onto this project site from the East Tributary of Jimmy Camp Creek. Reconstruction of the East Tributary north of Fontaine Boulevard will be performed under a separate permit. On-site stormwater will be directed to a detention ponds that will function as sedimentation basins so that no sediment enters the downstream receiving waters into the East Tributary.

6.1.4 Stabilize Soils

No disturbed area which is not actively being worked shall remain denuded for more than 14 calendar days unless otherwise authorized by the director. Temporary cover by seeding or mulching should be provided on areas which will be exposed for a period greater than 14 days before permanent stabilization can be achieved. Permanent cover should be provided on all areas as soon as possible, by means of seeding and mulching, straw or hay mulch is required. All soil stock piles and borrow areas must protected with silt fence within 14 days after grading. All slopes within the project limits that are found to be eroding excessively within two years of permanent stabilization shall be provided additional slope stabilization methods such as seeding and mulching.

Water is to be used for dust control. The Contractor will prevent the escape of this water and any sediment it may carry from the construction site.

6.1.5 Protect Slopes

Temporary stabilization will include the installation of silt fences on level contours spaces at 10-20 foot intervals. Slopes will be seeded and covered with hay, straw or erosion control blankets on slopes greater than 3:1 as needed to provide for temporary stabilization until vegetation is permanently established.

All slopes within the project limits that are found to be eroding excessively within two years of permanent stabilization shall be provided additional slope stabilization methods such as seeding

and mulching. Where slopes are steeper than 3:1 erosion control blankets (per specification requirements) will be utilized for final stabilization.

6.1.6 Protect Storm Drain Inlets

Inlet protection will be installed as soon as storm drain inlets are installed and before land-disturbance activities begin in areas with existing storm drain systems.

At the Contractor's discretion, additional temporary erosion control practices to include rock bags and sand bag barriers may be installed to prevent sediment movement. Inlet protection will include rock bags erosion logs curb inlet sediment filters where an overflow capacity is necessary to prevent excessive ponding in front of the curb inlet. Concrete block and wire screen inlet protection if used detail will be included Appendix C prior to installation, will be used where heavy flows are expected and where an overflow capacity is necessary to prevent excessive ponding around the inlet.

Inlet protection devices will be inspected and accumulated sediment will be removed as needed.

6.1.7 Establish Perimeter Controls and Sediment Barriers

Temporary stabilization will include the installation of silt fences on the downslope perimeter of project area. The silt fence will be trenched in on the uphill side 6 inches deep and 6 inches wide as detailed in the silt fence exhibit. Sediment will be removed when it reaches 1/3 the height of the fence. Silt fence will be inspected and replaced or repaired as needed.

6.1.8 Retain Sediment On-Site

Temporary sediment traps shall be installed to detain sediment laden runoff from small watersheds for a period long enough to allow sediment to settle before discharge into receiving waters. For small drainage locations smaller sediment traps should be used. At a minimum, silt fences, vegetative buffer strips or equivalent sediment controls are required for all down-slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal will be utilized. Sediment traps will be checked regularly for sediment cleanout. Sediments shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design volume of the wet storage. Sediment shall be disposed in suitable areas and in such a manner that will not erode or cause sedimentation problems.

The gravel outlets will be checked regularly for sediment buildup which will prevent damage. If the gravel is clogged by sediment, it shall be removed and cleaned or replaced.

An alternate to sediment traps are temporary sediment basins.

6.1.9 Establish Stabilized Construction Exits

The construction entrance will be established in the entry points of roads. The construction entrance will be at least 50 feet in length and approximately 12 feet wide and graded so runoff does not leave the site. The aggregate will be established at 8 inches thick on top of 4 inch minimum thick free draining material on top of geotextile and will consist of Type G dense graded material. A stabilized stone pad with a filter fabric under liner will be placed at points of vehicular ingress and egress.

6.1.10 Additional BMP's

BMP Schedule:

All Sediment and Erosion control BMP's (detailed below and only on BMP site map and details if utilized onsite) will be installed prior to any excavation or demolition and will be coordinated with the construction schedule.

As construction changes and new temporary BMP's are needed to control sediment and erosion temporary BMP's will be installed within 24 hours of inspection report.

Recommended BMP's:

ALL RECOMMENDED BMP'S WILL BE INSTALLED PRIOR TO EXCAVATION NEAR ANY SENSITIVE AREAS.

Culvert Inlet Protection will be used to protect existing and new culvert inlets. Inlet Protection Detail will be included in Appendix before using onsite. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment builds up will be removed and the area exposed shall be seeded.

Silt Fence is to be installed in sensitive areas to protect stream channels, pond, and overland runoff. On this site it will be used to protect runoff from the slip pits. See Silt Fence Detail. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment builds up will be removed and the area exposed shall be seeded.

Vehicle Tracking Control is needed at the main construction entrance location. Vehicle tracking control shall be installed at the edge of the construction staging area where construction vehicles regularly exit onto existing asphalt road. If sediment tracking occurs it will be cleaned within 24 hours.

See Vehicle Tracking Control Detail in Appendix C. Removal of this BMP will occur only after project is substantially complete and is ready for seeding operations; the area will then be seeded per specification with the rest of the project.

Check Dams (rip rap) will be used to reduce storm water velocities in drainage channels during construction as a temporary measure until permanent stabilization can be created and vegetation has been established. Check Dam Detail will be included in the the Appendix before using onsite. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment build-up will be removed and the area exposed shall be seeded.

Portable Toilets: Portable toilets are brought in from a service contractor and will be maintained in accordance with standard waste disposal practices using vacuum trucks and place on stable ground to minimize risk of spillage. All portable toilets will be kept a minimum of 500' from any waterway.

Waste Disposal: If needed Roll offs will be utilized for standard construction waste. A qualified contractor will remove waste weekly and take to an appropriate dump site off this project.

6.1.11 Permanent BMP'S:

Re-vegetation:

During construction any disturbed area not being currently worked left dormant longer than 14 days will be re-vegetated per specification with native seed and mulched and crimped with weed free straw.

Final Stabilization will be considered complete when all disturbed areas have a minimum of 70% preconstruction coverage for the specification requirements. Then all temporary BMP's will be removed and the exposed areas left behind will be seeded.

Other permanent BMP's include Offsite Detention/WQ Pond G1/G2 to treat storm runoff prior to entering Jimmy Camp Creek.

6.2 Good Housekeeping BMP'S

6.2.1 Material Handling and Waste Management

The site will use a private refuse collector that will remove litter twice weekly. No less than one litter receptacle will be present at the construction site. In the event that unusual items such as tanks, cylinders, unidentified containers, etc. which could contain potentially hazardous materials are discovered or disturbed, the Fire and Rescue services will be notified. Litter and debris will be picked up and disposed of properly daily. Temporary toilet facilities will be located 500 feet away from any storm drain inlets and all waters of the state.

6.2.2 Establish Proper Building Material Staging Areas

A designated staging area will be used, location to be determined based on available space in the field and plans will be redlined. The staging area will be contained per SWMP guidelines. All Equipment and Materials will be brought into the site as needed.

6.2.3 Designate Washout Areas

A concrete washout will be installed to detail as shown in the APPENDIX , and will be placed more than 500 feet away from any waters of the state.

6.2.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

During construction the site will be exposed to operation and maintenance of construction equipment. The contractor shall be responsible for all activities such as fueling, oil changing, lubrication and repair which require use of petroleum products. Such products shall be transported to and from the site in special trucks equipped for that purpose. No waste petroleum products, rags, residue, or equipment parts shall be left on site. In the event of a spill or leak, causing soil to be contaminated, that soil shall be excavated placed in sealed barrels and removed from the site for transport to an approved location for disposal.

See section 6.2.6 for the Spill Plan.

6.2.5 Control Equipment/Vehicle Washing

This activity will not be allowed onsite.

6.2.6 Any Additional BMPs

Additional BMP's will be added to this SWMP as needed.

6.2.7 Allowable Non-Stormwater Discharge Management

There are no visible natural springs or irrigation or other non-stormwater discharges anticipated to be encountered. The existing FMIC irrigation ditch was removed from this site in 2006.

6.2.8: SELECTING POST-CONSTRUCTION BMPs

Post Construction BMPs. Re-vegetation including seeding, mulching and erosion control blanket will be final BMP's. Permanent stabilization will be achieved with 70% pre construction vegetative establishment.

7.0 SPILL PREVENTION AND CONTROL PLAN

The SITE SUPERINTENDENT will act as the point of contact for any spill that occurs at this jobsite. The project manager will be responsible for implementation of prevention practices, spill containment / cleanup, worker training, reporting and complete documentation in the event of a spill. The ECO shall immediately notify the Owner, /Construction Manager, STATE and the Local Fire Department in addition to the legally required Federal, State, and Local reporting channels (including the National Response Center, 800.424.8802) if a reportable quantity is released to the environment

7.1 SPILL PREVENTION BEST MANAGEMENT PRACTICES

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

7.1.a Equipment Staging and Maintenance

Store and maintain equipment in a designated area Reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials.
Use secondary containment (drain pan) to catch spills when removing or changing fluids.
Use proper equipment (pumps, funnels) to transfer fluids Keep spill kits readily accessible Check incoming vehicles for leaking oil and fluids.
Transfer used fluids and oil filters to waste or recycling drums immediately following generation.
Inspect equipment routinely for leaks and spills Repair equipment immediately, if necessary implement a preventative maintenance schedule for equipment and vehicles.

7.1.b Fueling Area

Perform fueling in designated fueling area minimum 50' away from federal waters
Use secondary containment (drain pan) to catch spills
Use proper equipment (pumps, funnels) to transfer fluids
Keep spill kits readily accessible
Inspect fueling areas routinely for leaks and spills

Hazardous Material Storage Areas

Reduce the amount of hazardous materials by substituting non-hazardous or Less hazardous materials.

7.1. c Hazardous Material Storage Areas

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

7.1. d Unexpected Contaminated Soil and Water

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

7.2 SPILL CONTAINMENT METHODS

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

- **Equipment Staging and Maintenance Area.** An equipment leak from a fuel tank, equipment seal, or hydraulic line will be contained within a spill containment cell placed beneath all stationary potential leak sources. An undetected leak from parked equipment will be cleaned up using hand shovels and containerized in a 55-gallon steel drum for offsite disposal.

- **Fueling Area.** A small spill during fueling operations will be contained using fuel absorbent pads at the nozzle. The transfer of fuel into portable equipment will be performed using a funnel and/or hand pump and a spill pad used to absorb any incidental spills/drips. Any leaking tanks or drums will have fluids removed and transferred to another tank, drum, or container for the fluids. A spill response kit will be located near the fueling area or on the fuel truck for easy access. The spill response kit will include plastic sheeting, tarps, over pack drums, absorbent litter, and shovels.

- **Hazardous Material Storage Area.** A spill from containers or cans in a hazardous material storage area will be contained within the storage cabinet these materials are kept in.

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

Table 1: Spill Prevention and Containment Methods

Potential Spill Source	Potential Spill Source
Equipment Staging and Maintenance Area	Spill containment pad, spill kit, pumps, funnels
Fueling Area (site equipment only)	Spill containment pad, spill kit, pumps, funnels
Hazardous Material Staging Area	Spill containment pad, spill kit, pumps, funnels
Unexpected Contaminated Soil	Plastic liner, plastic cover, soil berm, hay bales, lined super sacks

7.3 SPILL COUNTERMEASURES

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

1. **Stop the Spill:** The severity of a spill at the site is anticipated to be minimal as large containers/quantities of Hazardous Materials (HM) are not anticipated. The type of spill

would occur while dispensing material at the HM storage facility and would likely be contained in secondary containment. Thus, the use spill kits or other available absorbent materials should stop the spill.

2. **Warn Others:** Notify co-workers and supervisory personnel of the release. Notify emergency responders if appropriate. For site personnel, an alarm system will consist of three one second blasts on an air horn sounded by the person discovering a spill or fire. In the event of any spill, the Superintendent and Project Manager shall be notified **if the spill is 5 gallons or more the STATE will be contacted along with the Fire Department.**

3. **Isolate the Area:** Prevent public access to the area and continue to minimize the spread of the material. Minimize personal exposure throughout emergency response actions.

4. **Containment:** A spill shall only be contained by trained personnel and if it is safe to do so. DO NOT PLACE YOURSELF IN DANGER. Attempt to extinguish a fire only if it is in the incipient stage; trash can size or smaller. For larger spills, wait for the arrival of emergency response personnel and provide directions to the location of the emergency.

5. **Complete a Spill and Incident Report:** For each spill of a Hazardous Material a spill and incident report shall be completed and submitted to the Owner/Construction Manager and if applicable to the Engineer and the State of Colorado Department of Public Health and Environment

8.0 INSPECTIONS

8.1 Inspections

Inspections will occur at least every 14 days and within 24 hours of a precipitation event producing runoff, which from past experience this occurs with precipitation of 1/4 inch of rain or more, the primary site for tracking weather data and rainfall measurements will be taken from Weather Underground and a rain gauge will be onsite for verification only.

1. Inspection Personnel:

The contract Stormwater Inspector will conduct the site inspections as mentioned above in Section 1.

2. Inspection Schedule and Procedures:

The inspection schedule will be routinely accomplished every 14 days and after every storm event for the entire site with all BMP's evaluated for performance and need. Any BMP found to be ineffective will be re-accomplished or replaced with a new BMP to provide the level of protection needed. BMP's found to be no longer needed will be removed. Inspections will also be accomplished as soon as practical, but within 24 hours of the end of a precipitation event causing surface erosion, over 1/4" or more.

The general procedures for correcting problems when they are identified will be to document the problem in the report, and devise a solution utilizing all resources available to formulate BMP's that will correct the problem as soon as possible.

A copy of the inspection report to be used for the site is attached. See Appendix.

8.2 Delegation of Authority

Duly Authorized Representative(s) or Position(s):

Authorized representatives for the SWMP plan will be: Jared St. Aubyn – Primary Contact
SWMP INSPECTOR – Trevor Terril

8.3 Revisions to the SWMP

The SWMP Inspector and/or the site superintendent have the authority to add/subtract/revise BMP's as necessary to accommodate construction activities. However, the engineer should be notified when any major redirection of runoff, offsite runoff, pond modifications, or other substantial changes are made to this SWMP. Changes should be documented per Section 9.0.

9.0 RECORDKEEPING AND TRAINING

9.1 Recordkeeping

Records will be retained for a minimum period of at least 3 years after the permit is terminated.

Major grading activities will start on 01.2020:

Date(s) when construction activities permanently cease on a portion of the site: 12/2020

Date(s) when an area is either temporarily or permanently stabilized: 12/2020

9.2 Changes to the SWMP

Any changes will be referenced in APPENDIX. See Section 8.3 for authority to change the SWMP.

9.3 Training

Individual(s) Responsible for Training:

All personnel on site will trained on the site specific SWMP requirements to be conducted by the SWMP Inspector and/or the site superintendent.

9.4 SWMP Location

The on-site SWMP will be located at the SW corner of this site next to Carriage Meadows Drive

10.0 FINAL STABILIZATION

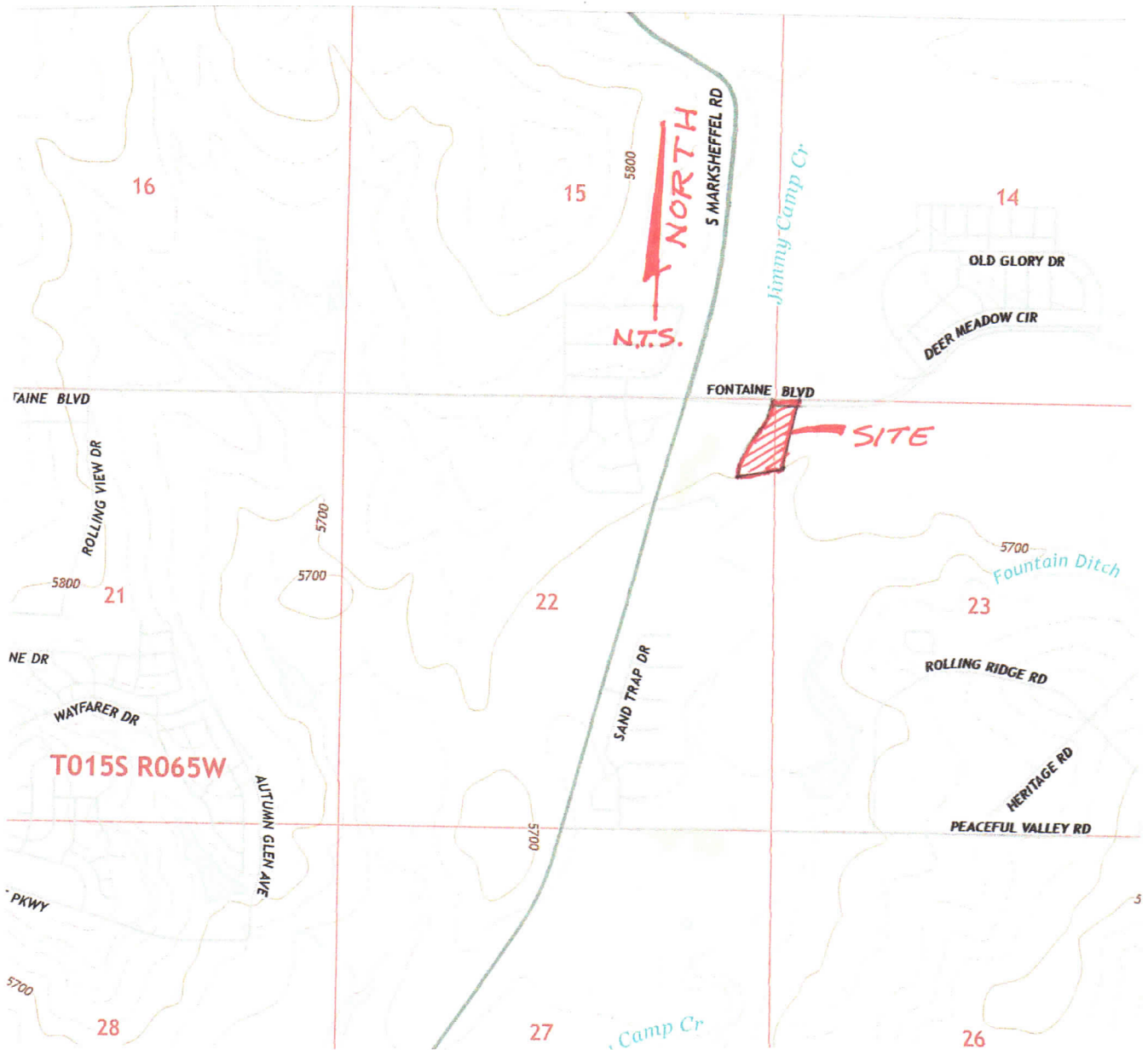
Final stabilization will be accomplished by contractors to re-vegetate the area of disturbance per the approved plans and specifications. Final stabilization will include permanent seeding/mulching of disturbed areas, sediment forebays, erosion control blankets, turf reinforcement mats, and permanent BMP's.

Once 70% of the pre-development vegetative cover has been established and has been accepted, temporary BMP's will be removed and the permit will be terminated and filed.

Long term stormwater quality will be achieved by on-site full spectrum detention ponds with WQ outlet structures.

Final stabilization is anticipated to be completed in December, 2020

APPENDIX A



**CORE
ENGINEERING GROUP**

15004 1st Avenue South
Burnsville, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: RichS@ceg1.com

**CARRIAGE MEADOWS SOUTH TOWNHOMES
VICINITY MAP**

SCALE:
NTS

DATE:
Nov. 29, 2018

FIGURE NO.
1

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:1,340 if printed on A portrait (8.5" x 11") sheet.

0 15 30 60 90 Meters

0 50 100 200 300 Feet

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	A 3.9	75.8%
52	Manzanst clay loam, 0 to 3 percent slopes	C 1.2	24.2%
Totals for Area of Interest		5.1	100.0%

Map Unit Descriptions

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

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

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

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

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

El Paso County Area, Colorado

28—Ellicott loamy coarse sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 3680
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Ellicott and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ellicott

Setting

Landform: Flood plains, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium

Typical profile

A - 0 to 4 inches: loamy coarse sand
C - 4 to 60 inches: stratified coarse sand to sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A
Ecological site: Sandy Bottomland LRU's A & B (R069XY031CO)
Other vegetative classification: SANDY BOTTOMLAND (069AY031CO)
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquoll

Percent of map unit:
Landform: Swales
Hydric soil rating: Yes

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

52—Manzanst clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2w4nr
Elevation: 4,060 to 6,660 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Manzanst

Setting

Landform: Terraces, drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Clayey alluvium derived from shale

Typical profile

A - 0 to 3 inches: clay loam
Bt - 3 to 12 inches: clay
Btk - 12 to 37 inches: clay
Bk1 - 37 to 52 inches: clay
Bk2 - 52 to 79 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent

Custom Soil Resource Report

Gypsum, maximum in profile: 3 percent
Salinity, maximum in profile: Slightly saline (4.0 to 7.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: Saline Overflow (R067BY037CO)
Hydric soil rating: No

Minor Components

Ritoazul

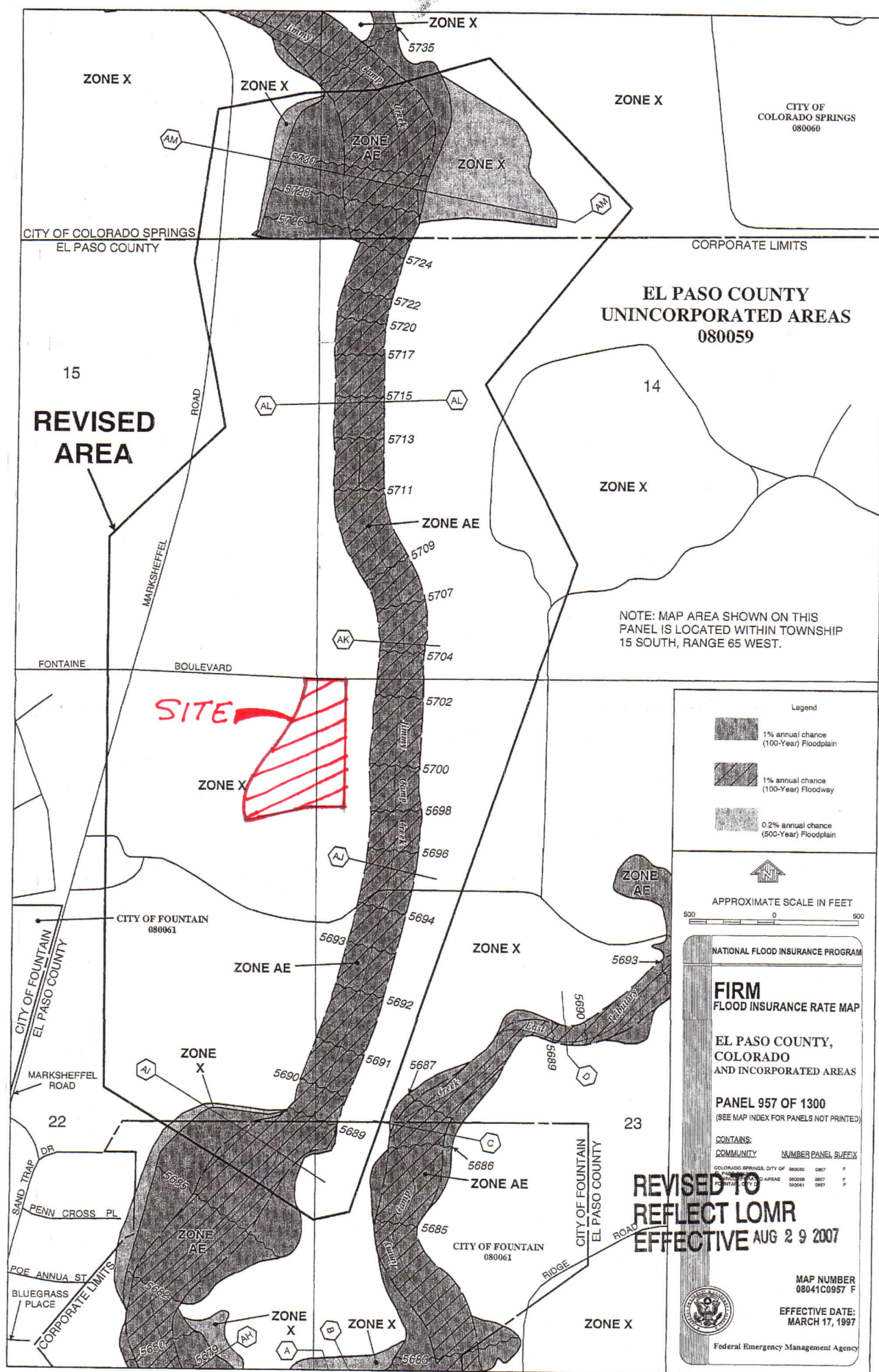
Percent of map unit: 7 percent
Landform: Drainageways, interfluves
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey Plains (R067BY042CO)
Hydric soil rating: No

Arvada

Percent of map unit: 6 percent
Landform: Interfluves, drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Salt Flat (R067XY033CO)
Hydric soil rating: No

Wiley

Percent of map unit: 2 percent
Landform: Interfluves
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Loamy Plains (R067BY002CO)
Hydric soil rating: No



National Flood Hazard Layer FIRMMette



38°44'24.77"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

38°43'56.71"N

Legend

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

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



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/14/2019 at 9:45:48 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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



APPENDIX B
CONSTRUCTION PLANS

CONSTRUCTION NOTES

1. ALL WORK SHALL COMPLY WITH THE CODES AND POLICIES FOR EL PASO COUNTY.
2. EXISTING TOPOGRAPHIC INFORMATION SHOWN ON THIS GRADING PLAN WAS OBTAINED FROM AERIAL CONTOURS AND PREVIOUS CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE TO EXAMINE THE SITE AND BE FAMILIAR WITH THE EXISTING CONDITIONS.
3. DEPTH OF MOISTURE–DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS:
BASE OF ALL CUTS AND FILLS – 12 INCHES,
FULL DEPTH OF ALL EMBANKMENTS
4. THE CONTRACTOR IS RESPONSIBLE FOR THE RE–ESTABLISHMENT OF ALL SURVEY MONUMENTS DISTURBED WITHIN THE PROJECT LIMITS.
5. THE CONTRACTOR SHALL PROTECT ALL WORK AREAS AND FACILITIES FROM FLOODING AT ALL TIMES. AREAS AND FACILITIES SUBJECTED TO FLOODING, REGARDLESS OF THE SOURCE OF WATER, SHALL BE PROMPTLY DEWATERED AND RESTORED.
6. PRIOR TO PAVING OPERATIONS, THE ENTIRE SUBGRADE SHALL BE PROOF–ROLLED WITH A LOADED 988 FRONT–END LOADER OR SIMILAR HEAVY RUBBER Tired VEHICLE (GVW OF 50,000 POUNDS WITH 18 KIP PER AXLE AT TIRE PRESSURES OF 90 PSI) TO DETECT ANY SOFT OR LOOSE AREAS. IN AREAS WHERE SOFT OR LOOSE SOILS, PUMPING OR EXCESSIVE MOVEMENT IS OBSERVED, THE EXPOSED MATERIALS SHALL BE OVER–EXCAVATED TO A MINIMUM DEPTH OF TWO FEET BELOW PROPOSED FINAL GRADE OR TO A DEPTH AT WHICH SOILS ARE STABLE. AFTER THIS HAS BEEN COMPLETED, THE EXPOSED MATERIALS SHALL BE SCARIFIED TO A DEPTH OF 12 INCHES AND MOISTURE CONDITIONED. THE SUBGRADE SHALL THEN BE UNIFORMLY COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY (ASTM D–698) AT 0 TO +4.0% OF OPTIMUM MOISTURE CONTENT FOR A–6 AND A–7–6 SOILS ENCOUNTERED. OTHER SUBGRADE TYPES SHALL BE UNIFORMLY COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR DENSITY (ASTM D–1557) AT PLUS OR MINUS 2.0% OF OPTIMUM MOISTURE CONTENT. AREAS WHERE STABLE NATURAL SOILS ARE ENCOUNTERED AT PROPOSED SUBGRADE ELEVATION SHALL ALSO BE SCARIFIED (18 INCHES FOR A–7–6 SOILS BELOW FULL–DEPTH ASPHALT CONCRETE) AND COMPACTED AS OUTLINED ABOVE PRIOR TO PAVING OPERATIONS. SUBGRADE FILL SHALL BE PLACED IN SIX–INCH LIFTS AND UNIFORMLY COMPACTED, MEETING THE REQUIREMENTS AS PREVIOUSLY DESCRIBED.
7. SUBGRADE MATERIALS DEEMED UNSUITABLE BY THE ENGINEER SHALL BE EXCAVATED, DISPOSED OF AND REPLACED WITH APPROVED MATERIALS.
8. FILL SHALL BE PLACED IN 8–INCH MAXIMUM LOOSE LIFTS AND SHALL BE COMPACTED PRIOR TO SUCCESSIVE LIFTS.
9. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DURING CONSTRUCTION ACTIVITIES AT ALL TIMES DURING GRADING AND CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING EROSION AND SEDIMENT CONTROL MEASURES:
 - HAY BALE BARRIERS WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.
 - SILT FENCE WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.
 - TEMPORARY SEDIMENTATION BASINS WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.
 - MULCHING AND SEEDING OF EXCESSIVE SLOPED AREAS AS NEEDED OR AS DIRECTED BY THE ENGINEER.
 - TEMPORARY VEHICLE TRACKING CONTROL AS NEEDED AND/OR DIRECTED BY THE ENGINEER.
 - CONCRETE WASH AREAS.
 - INLET PROTECTION.THESE AND ALL EROSION CONTROL BEST MANAGEMENT PRACTICES AS SHOWN IN THE GRADING AND EROSION CONTROL PLANS SHALL BE STRICTLY ADHERED TO.
10. FINISHED CONTOURS/SPOT ELEVATIONS SHOWN HEREON REPRESENT FINISHED GRADES. ALL PAVEMENT SUBGRADES ARE BASED ON THE COMPOSITE ASPHALT PAVEMENT RECOMMENDATIONS MADE IN THE "GEOTECHNICAL STUDY" FOR THIS PROJECT.

EL PASO COUNTY STANDARD CONSTRUCTION NOTES:

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 SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
 - a. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - b. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
 - c. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
 - d. 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 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. 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 (PCD) – INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND 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 DSD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. ALL STORM DRAIN PIPE 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 AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY PUBLIC WORK DEPARTMENT AND MUTCD CRITERIA.
14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY PWD, 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.

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS (rev. 7/02/2019)

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 has been prepared by RMG, "GEOLOGY AND SOILS STUDY FOR CARRIAGE MEADOWS SOUTH AT LORSON RANCH FIL NO. 2", DATED OCTOBER 7, 2019 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:

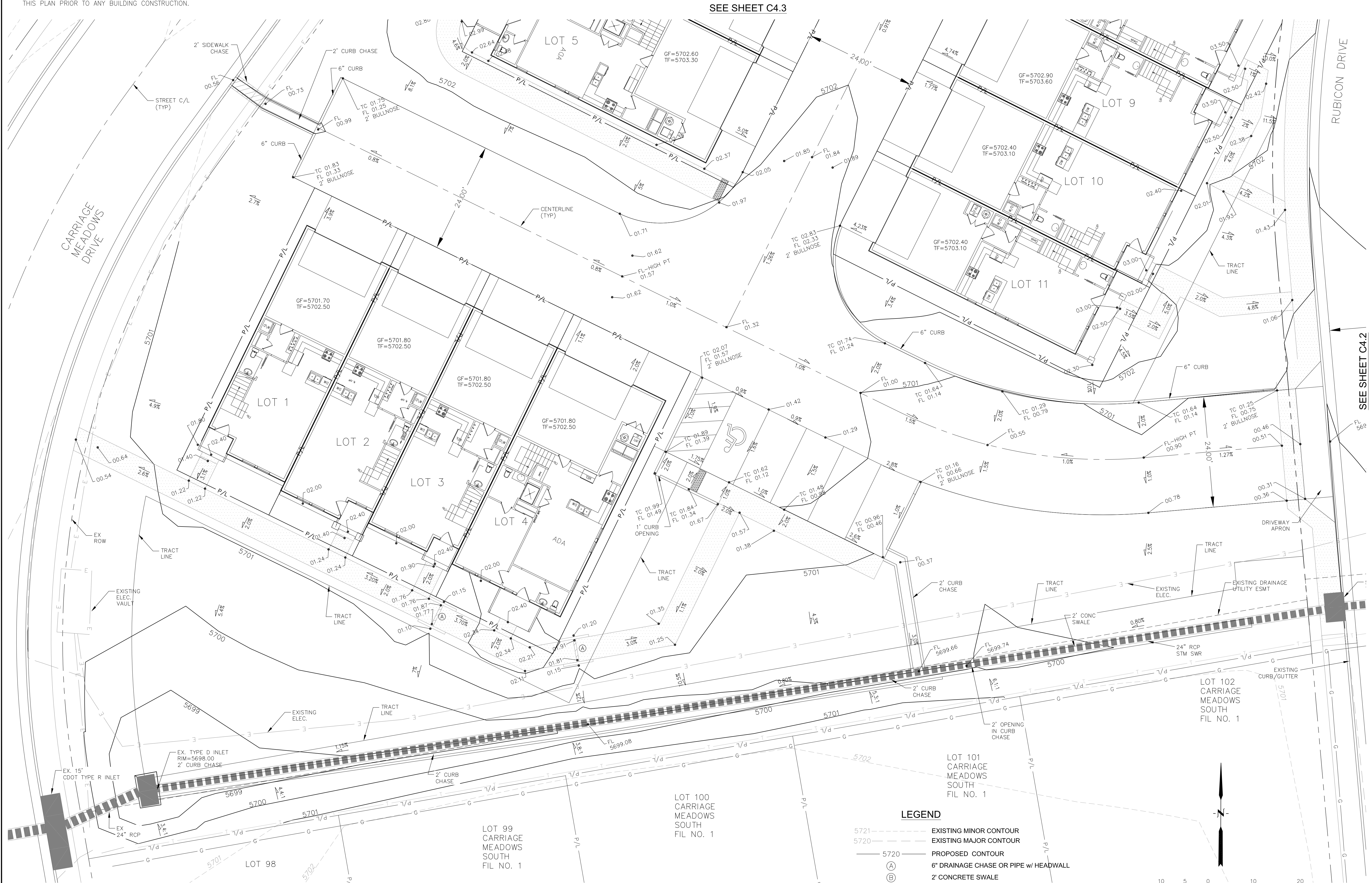
Colorado Department of Public Health and Environment
Water Quality Control Division
WQCD – Permits
4300 Cherry Creek Drive South
Denver, CO 80246–1530
Attn: Permits Unit

CORE ENGINEERING GROUP	DATE				
	DESCRIPTION				
	NO.				
	DRAWN: DESIGNED: CHECKED:	RLS RLS RLS			
PROJECT: CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2 PREPARED FOR: LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@cegi.com					
EARLY SITE GRADING AND EROSION CONTROL PLAN NOTES					
DATE: FEB 12, 2020					
PROJECT NO. 100.046					
SHEET NUMBER C0.2					
TOTAL SHEETS: 14					



TYPICAL STREET AND DRIVEWAY SECTIONS		DATE: FEB 12, 2020	PROJECT NO. 100.046	SHEET NUMBER C0.3	TOTAL SHEETS: 14	DRAWN: RLS DESIGNED: RLS CHECKED: RLS		NO.		DESCRIPTION		DATE	
						PROJECT: CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2 FONTANE BLVD-CARRIAGE MEADOWS DR COLORADO SPRINGS, COLORADO (719) 635-3200 CONTACT: JEFF MARK		PREPARED FOR: LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg1.com					
CORE ENGINEERING GROUP						15004 1ST AVENUE S. DENVER, COLORADO 80202 PH: 771-6594-7800 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg1.com							

NOTE:
HOME BUILDER OR CONTRACTOR SHALL AS-BUILT ALL
IMPROVEMENTS PRIOR TO CONSTRUCTING ANY BUILDINGS. THE
ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY FROM
THIS PLAN PRIOR TO ANY BUILDING CONSTRUCTION.



CORE
ENGINEERING GROUP

15004 1ST AVENUE S,
DENVER, CO 80202
PHONE: 719-559-7800
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

DATE: _____

NO: _____

DESCRIPTION: _____

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

PROJECT: **CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2**
FONTAINE BLVD-CARRIAGE MEADOWS DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

**CARRIAGE MEADOWS SOUTH AT LORSON RANCH FIL. NO. 2
DETAILED GRADING PLAN**

DATE:
FEB 12, 2020

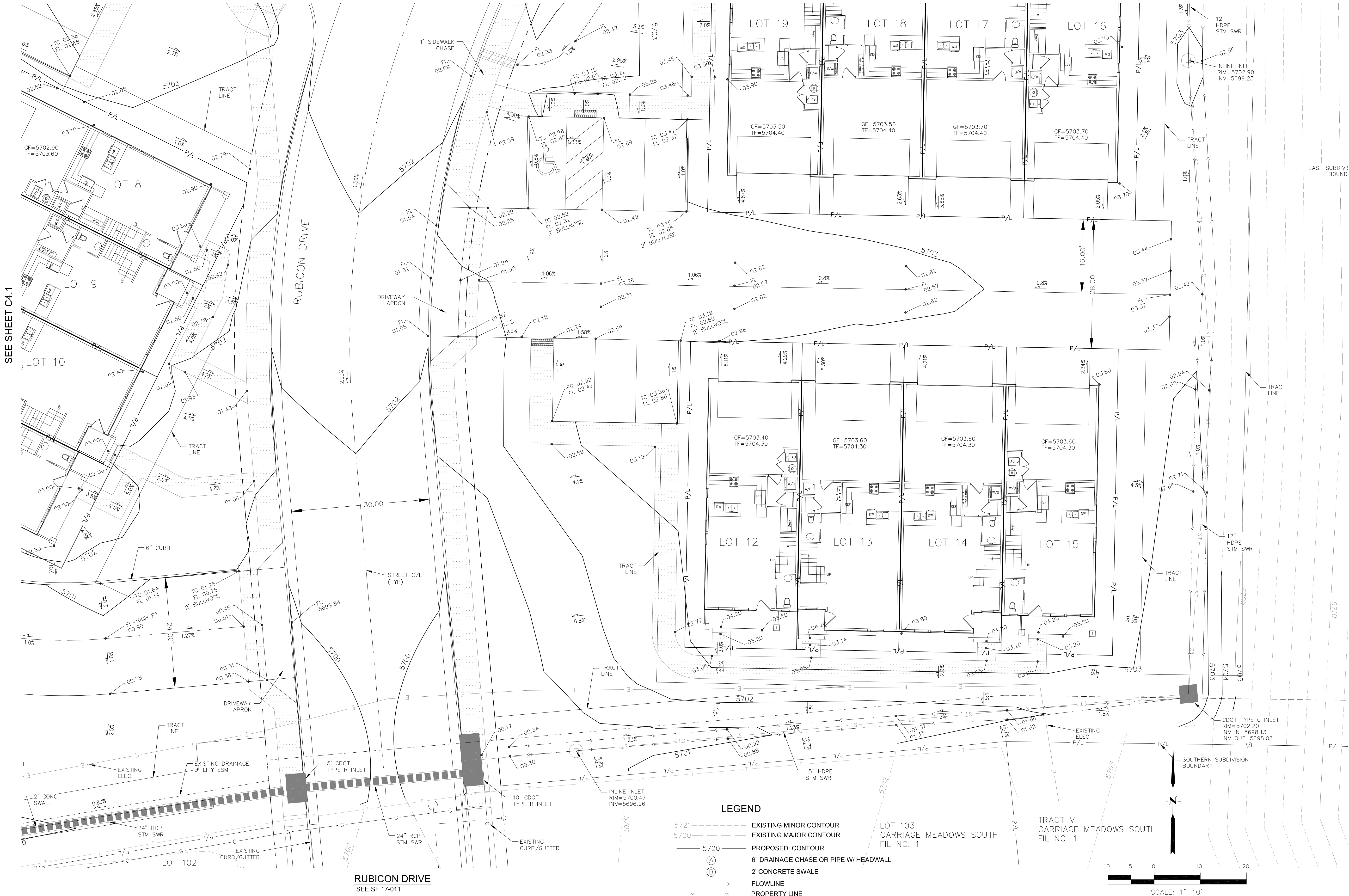
PROJECT NO.
100.046

SHEET NUMBER
C4.1

TOTAL SHEETS: 14

NOTE:
HOME BUILDER OR CONTRACTOR SHALL AS-BUILT ALL
IMPROVEMENTS PRIOR TO CONSTRUCTING ANY BUILDINGS. THE
ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY FROM
THIS PLAN PRIOR TO ANY BUILDING CONSTRUCTION.

SEE SHEET C4.4



CORE
ENGINEERING GROUP
15004 1ST AVENUE S.
DENVER, CO 80202
PHONE: 303-759-7800
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

DATE

DESCRIPTION

NO.

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
CONTACT: JEFF MARK

PROJECT:
CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2
FONTAINE BLVD-CARRIAGE MEADOWS DR
COLORADO SPRINGS, COLORADO

CARRIAGE MEADOWS SOUTH AT LORSON RANCH FIL. NO. 2
DETAILED GRADING PLAN

DATE:
FEB 12, 2020

PROJECT NO.
100.046

SHEET NUMBER
C4.2

TOTAL SHEETS: 14

LEGEND

- 5721----- EXISTING MINOR CONTOUR
5720----- EXISTING MAJOR CONTOUR
5720----- PROPOSED CONTOUR
(A) 6" DRAINAGE CHASE OR PIPE W/ HEADWALL
(B) 2' CONCRETE SWALE
----- FLOWLINE
----- PROPERTY LINE

SEE SHEET C4.5

NOTE:
HOME BUILDER OR CONTRACTOR SHALL AS-BUILT ALL IMPROVEMENTS PRIOR TO CONSTRUCTING ANY BUILDINGS. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY FROM THIS PLAN PRIOR TO ANY BUILDING CONSTRUCTION.

CORE
ENGINEERING GROUP
15004 1ST AVENUE S.
DENVER, CO 80202
PHONE: 719-559-7800
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@cog1.com

DATE: _____
NO: _____
DESCRIPTION: _____
DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS
PROJECT: CARRIAGE MEADOWS SOUTH AT LORSON RANCH FIL. NO. 2
CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2
FONTAINE BLVD-CARRIAGE MEADOWS DR
COLORADO SPRINGS, COLORADO 80903
CONTACT: JEFF MARK

CARRIAGE MEADOWS SOUTH
AT LORSON RANCH FIL. NO. 2
DETAILED GRADING PLAN

DATE: FEB 12, 2020
PROJECT NO. 100.046
SHEET NUMBER C4.3
TOTAL SHEETS: 14



SEE SHEET C4.1

SEE SHEET C4.4

NOTE:
HOME BUILDER OR CONTRACTOR SHALL AS-BUILT ALL
IMPROVEMENTS PRIOR TO CONSTRUCTING ANY BUILDINGS. THE
ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY FROM
THIS PLAN PRIOR TO ANY BUILDING CONSTRUCTION.

SEE SHEET C4.5

LEGEND

- 5721 --- EXISTING MINOR CONTOUR
5720 --- EXISTING MAJOR CONTOUR
5720 --- PROPOSED CONTOUR
(A) 6" DRAINAGE CHASE OR PIPE
W/ HEADWALL
(B) 2' CONCRETE SWALE
FLOWLINE
PROPERTY LINE

CORE
ENGINEERING GROUP

15004 1ST AVENUE S,
DENVER, CO 80202
PHONE: 779-659-7800
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@cog1.com

DATE
DESCRIPTION
NO.

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
CONTACT: JEFF MARK

PROJECT: CARRIAGE MEADOWS
SOUTH AT LORSON
RANCH FILING NO. 2
FONTAINE BLVD-CARRIAGE MEADOWS DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

CARRIAGE MEADOWS SOUTH
AT LORSON RANCH FIL. NO. 2
DETAILED GRADING PLAN

DATE:
FEB 12, 2020

PROJECT NO.
100.046

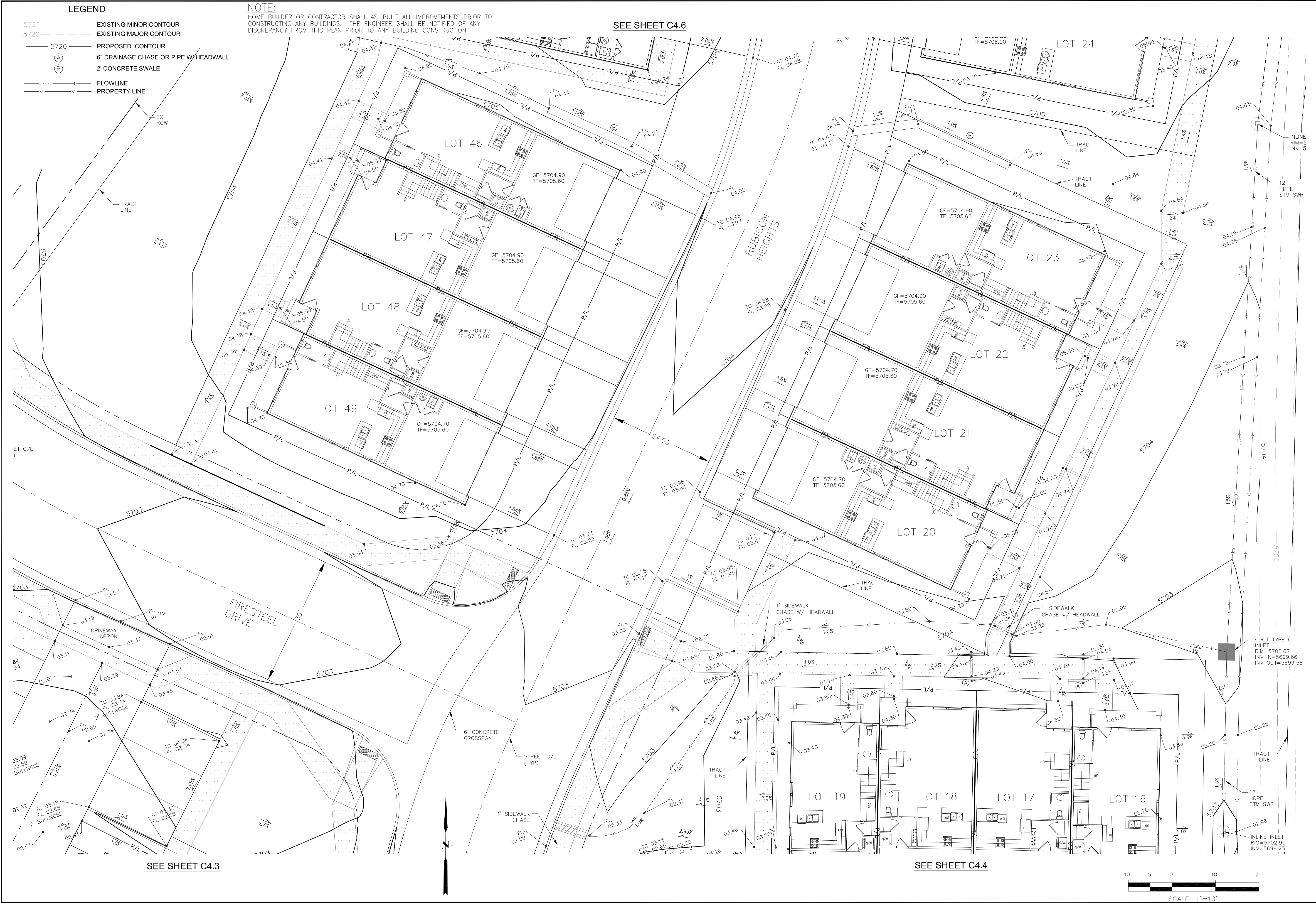
SHEET NUMBER
C4.4

TOTAL SHEETS: 14

SEE SHEET C4.3

SEE SHEET C4.2

SCALE: 1"=10'



CORE ENGINEERING GROUP 15004 1ST AVENUE S. DENVER, CO 80202 PHONE: 779-659-7800 CONTACT: RICHARD L. SCHINDLER, P.E. EMAIL: Rich@ceg.com	DATE
	DESCRIPTION
	NO.
	DRAWN: RLS DESIGNED: RLS CHECKED: RLS
CARRIAGE MEADOWS SOUTH AT LORSON RANCH FIL. NO. 2 DETAILED GRADING PLANS	PROJECT: CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2 FONTAINE BLVD-CARRIAGE MEADOWS DR COLORADO SPRINGS, COLORADO
	PREPARED FOR: LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLORADO SPRINGS, COLORADO 80903 (719) 635-3200 CONTACT: JEFF MARK
	DATE: FEB 12, 2020
	PROJECT NO. 100.046
TOTAL SHEETS: 14	SHEET NUMBER C4.5

5721----- EXISTING MINOR CONTOUR
5720----- EXISTING MAJOR CONTOUR
----- 5720----- PROPOSED CONTOUR
(A) 6" DRAINAGE CHASE OR PIPE W/ HEADWALL
(B) 2' CONCRETE SWALE
-----> FLOWLINE
----- P.A. ----- P.A. / PROPERTY LINE

HOME BUILDER OR CONTRACTOR SHALL AS-BUILT ALL IMPROVEMENTS PRIOR TO CONSTRUCTING ANY BUILDINGS. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY FROM THIS PLAN PRIOR TO ANY BUILDING CONSTRUCTION.

SEE SHEET C4.5



CARRIAGE MEADOWS SOUTH
AT LORSON RANCH FIL. NO. 2
DETAILED GRADING PLAN

DATE:
FEB 12 2020

PROJECT NO.
100.046

SHEET NUMBER
C4.6

TOTAL SHEETS: 14

CORE
ENGINEERING GROUP
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719-659-7800
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceal.com

NAME	DATE
PREPARED FOR: LORSON, LLC 212 N. WAHSATCH AVE, SUITE 301 COLO RADO SPRINGS, CO RADO 80903	

DESCRIP
CT: CARRIAGE MEADOWS
SOUTH AT LORSON
RANCH FILING NO. 2

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

DATE	

FOR: **ORSON, LLC**
 WAHSATCH AVE, SUITE 300
 SPRINGS, COLORADO 80904
 (719) 635-3200
 CONTACT: JEFF MARK

5721----- EXISTING MINOR CONTOUR
 5720----- EXISTING MAJOR CONTOUR
 ----- 5720----- PROPOSED CONTOUR
 (A) 6" DRAINAGE CHASE OR PIPE W/ HEADWALL
 (B) 2' CONCRETE SWALE
 -----> FLOWLINE
 KA----- PROPERTY LINE

SEE SHEET C4.8



SEE SHEET C4.6

SCALE: 1"=10'

NO.	DESCRIPTION	DATE
	PROJECT: CARRIAGE MEADOWS	PREPARED FOR: LORSON, LLC 212 N. WAHSATCH AVE., SUITE 200 COLORADO SPRINGS, COLORADO (719) 635-3200 CONTACT: JEFF MARK
	SOUTH AT LORSON	
	RANCH FILING NO. 2	
	FOUNTAIN BLVD.-CARRIAGE MEADOWS DR COLORADO SPRINGS, COLORADO	

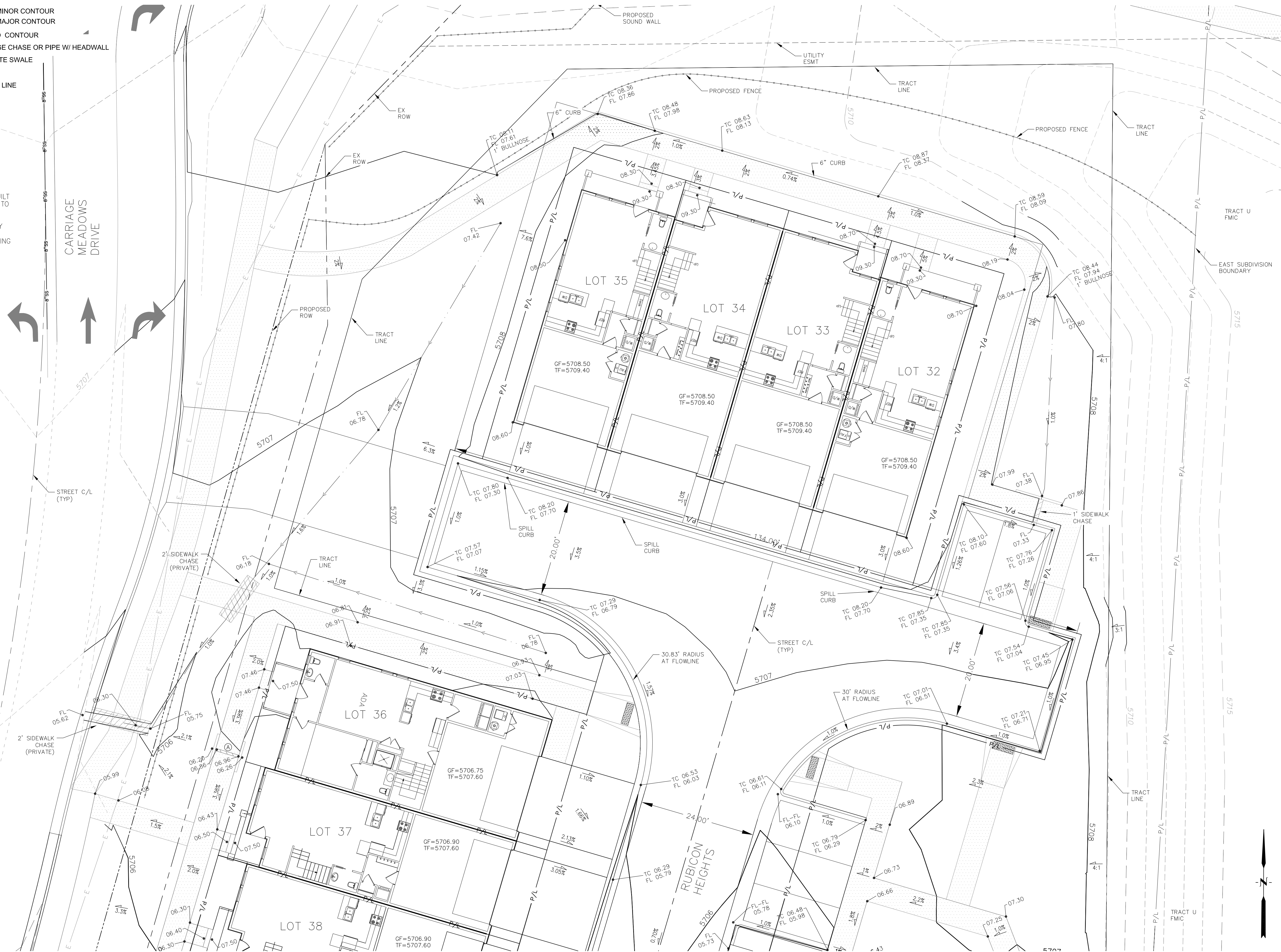
CARRIAGE MEADOWS SOUTH
AT LORSON RANCH FIL. NO. 2
DETAILED GRADING PLAN

DATE:	FEB 12, 2020
PROJECT NO.	100.046
SHEET NUMBER	C4.7
TOTAL SHEETS:	14

Diagram illustrating a drainage easement layout with the following features and dimensions:

- EXISTING MINOR CONTOUR**: Indicated by a dashed line with a dimension of 5721.
- EXISTING MAJOR CONTOUR**: Indicated by a dashed line with a dimension of 5720.
- PROPOSED CONTOUR**: Indicated by a solid line with a dimension of 5720.
- 6" DRAINAGE CHASE OR PIPE W/ HEADWALL**: Represented by two circles labeled (A) and (B).
- 2' CONCRETE SWALE**: Indicated by a solid line.
- FLOWLINE**: Indicated by a solid line with an arrow pointing right.
- PROPERTY LINE**: Indicated by a solid line with labels PA on either side.

NOTE:
HOME BUILDER OR
CONTRACTOR SHALL AS-BUILT
ALL IMPROVEMENTS PRIOR TO
CONSTRUCTING ANY
BUILDINGS. THE ENGINEER
SHALL BE NOTIFIED OF ANY
DISCREPANCY FROM THIS
PLAN PRIOR TO ANY BUILDING
CONSTRUCTION.



SEE SHEET C4.7

CORE
ENGINEERING GROUP
15004 1ST AVENUE S.

BURNSVILLE, MN 55306
PH: 719-659-7800
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

PROJECT: CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2 FONTAINE BLVD-CARRIAGE MEADOWS DR COLORADO SPRINGS, COLORADO	PREPARED FOR: LORSON, LLC 212 N. WAHSATCH AVE. SUITE 301 COLORADO SPRING, CO 80903 (719) 635-3200 CONTACT: JEFF MARK
---	---

DRAWN: RLS
 DESIGNED: RLS
 CHECKED: RLS

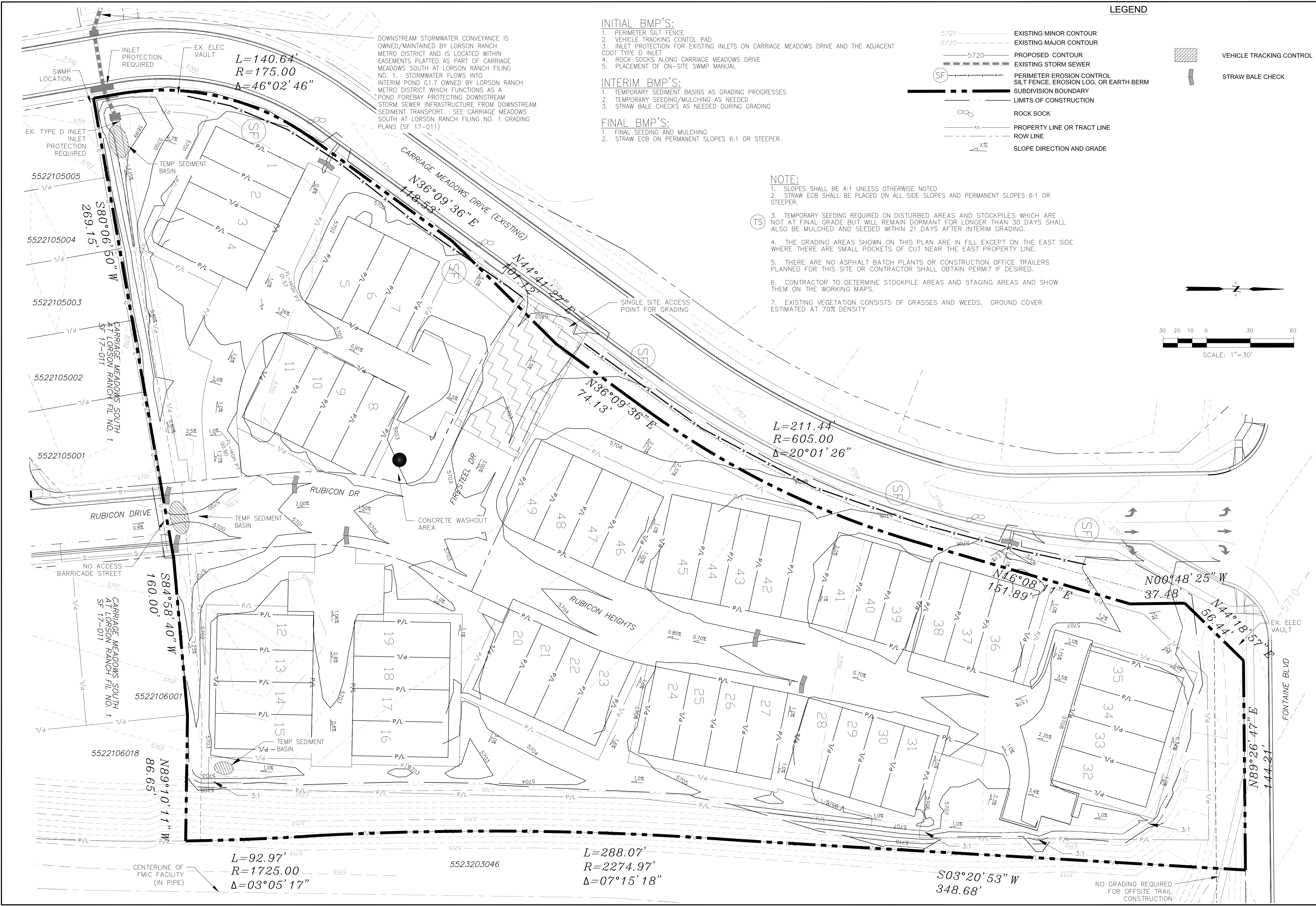
CARRIAGE MEADOWS SOUTH
AT LORSON RANCH FIL. NO. 2
GRADING AND EROSION CONTROL PLAN

DATE:
FEB 12, 2020

PROJECT NO.
100.046

SHEET NUMBER
C4.8

TOTAL SHEETS: 14



CORE

ENGINEERING GROUP

15004 1ST AVENUE S.
DENVER, CO 80202
PHONE: 720-459-7800
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: rich@ceg1.com

DATE

DESCRIPTION

NO.

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

PROJECT: CARRIAGE MEADOWS SOUTH AT LORSON RANCH FILING NO. 2
FONTAINE BLVD-CARRIAGE MEADOWS DR
COLORADO SPRINGS, COLORADO

PREPARED FOR: LORSON, LLC
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

CARRIAGE MEADOWS SOUTH AT LORSON RANCH FIL. NO. 2
GRADING AND EROSION CONTROL PLAN

DATE:
FEB 12, 2020

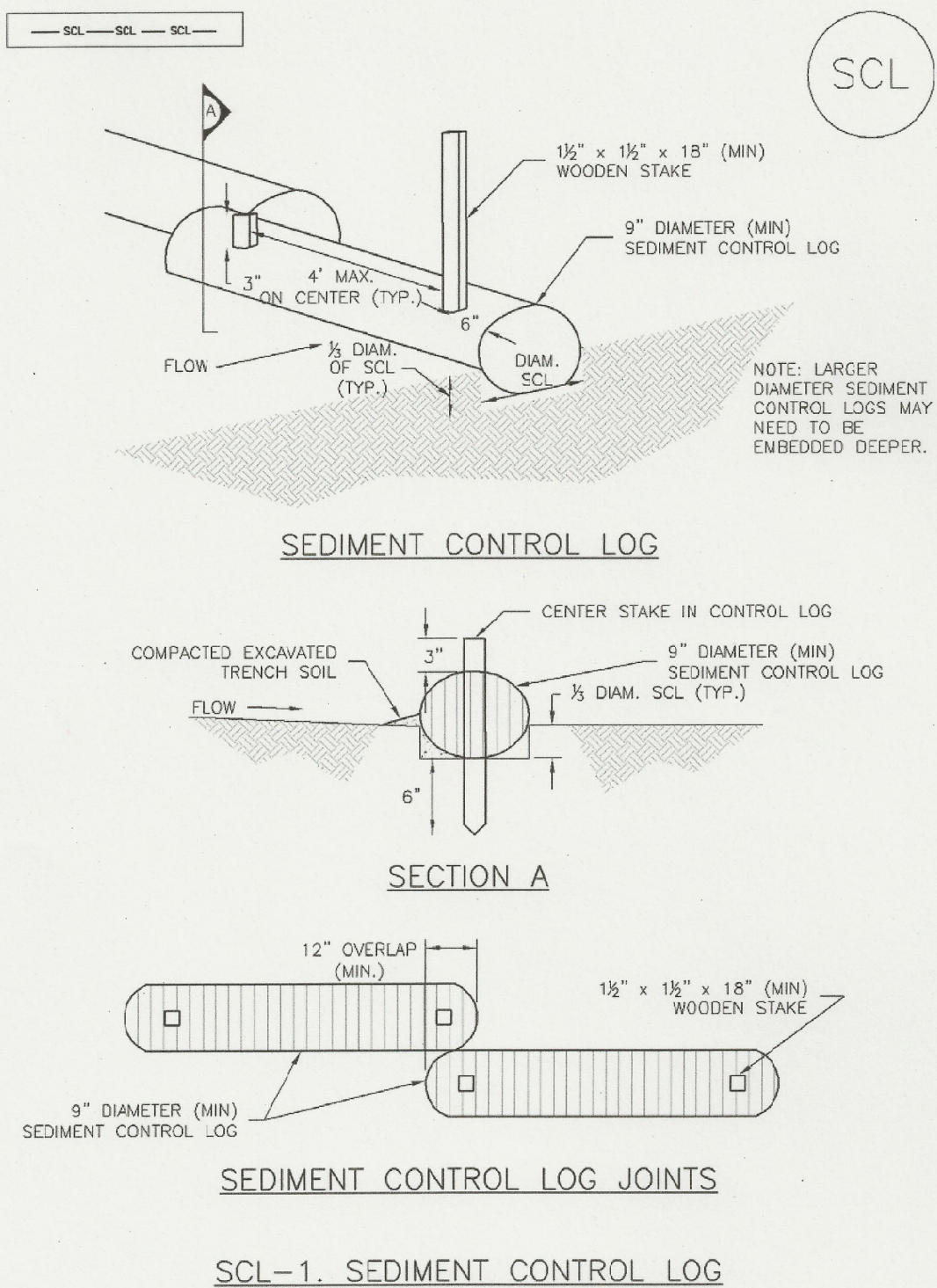
PROJECT NO.
100.046

SHEET NUMBER
C4.9

TOTAL SHEETS: 14

Sediment Control Log (SCL)

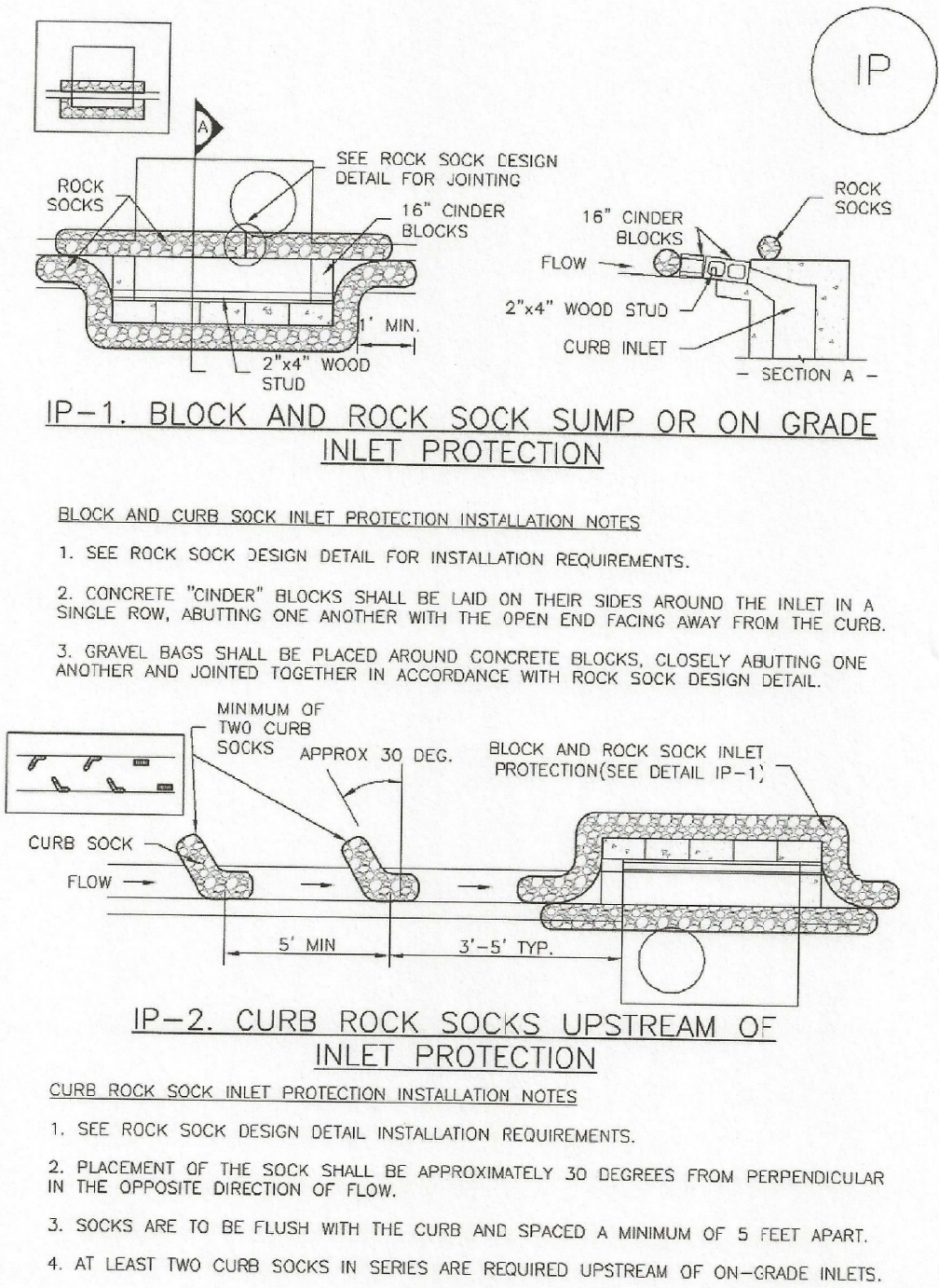
SC-2



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-3

SC-6

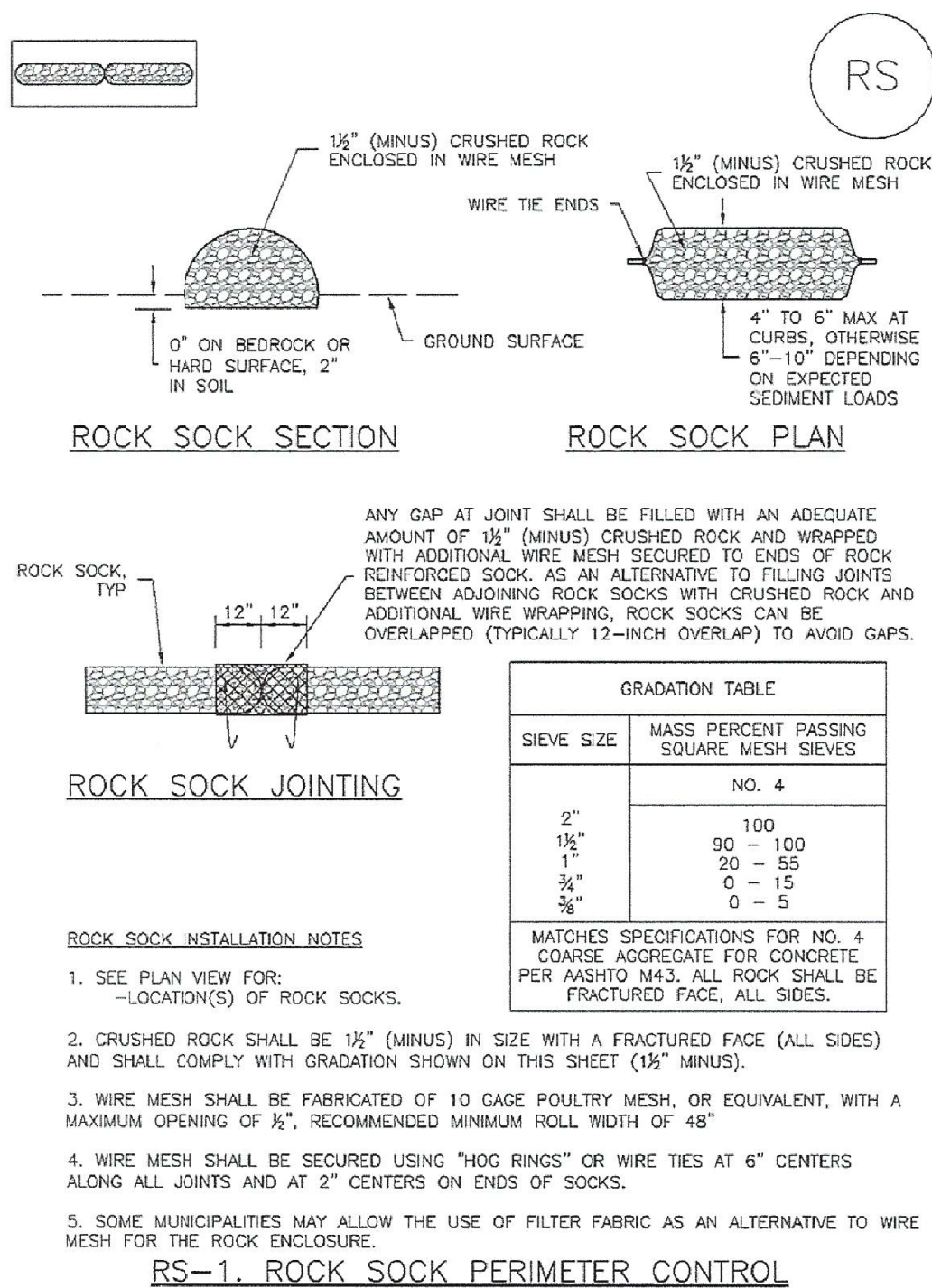
Inlet Protection (IP)



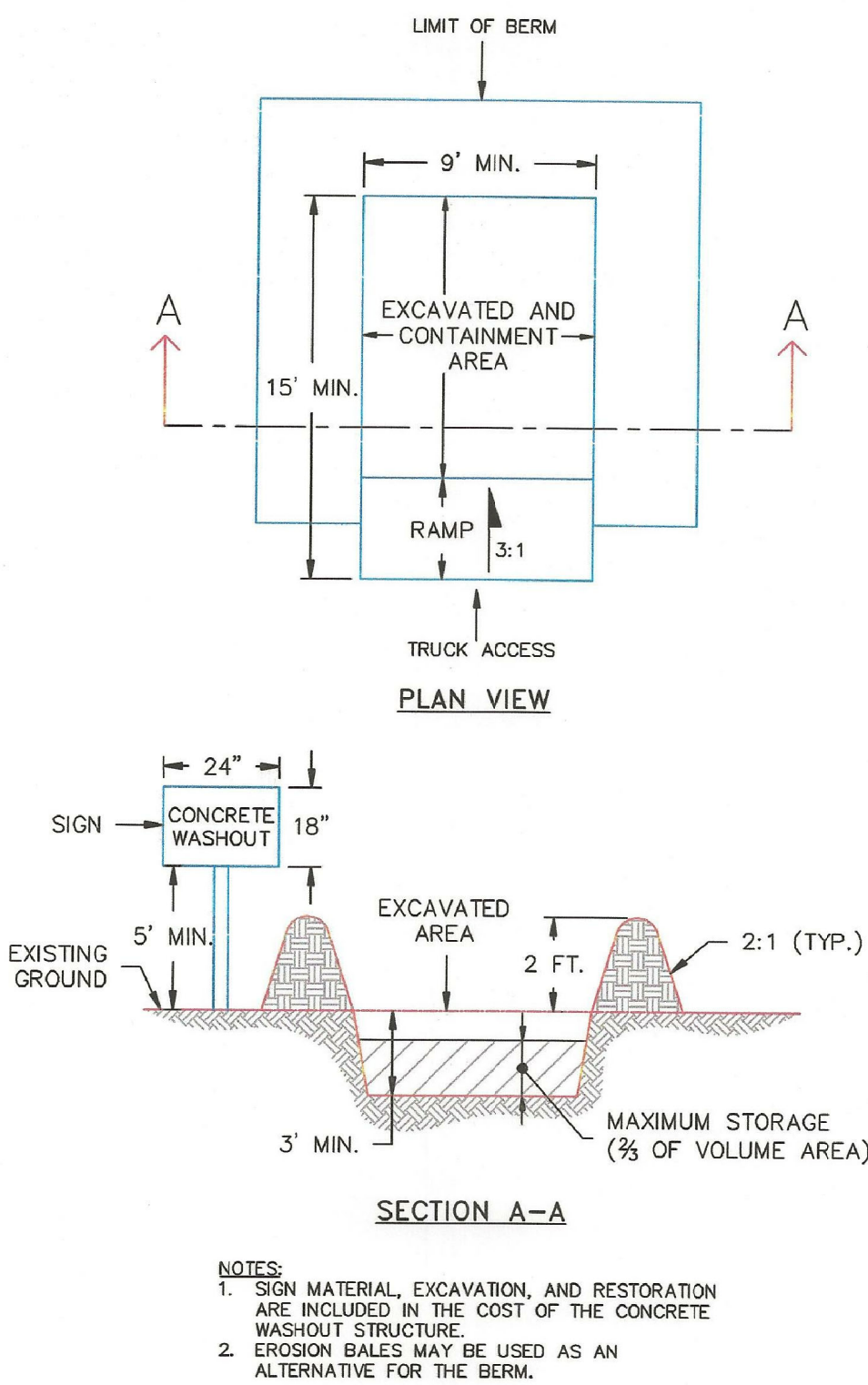
IP-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

SC-5

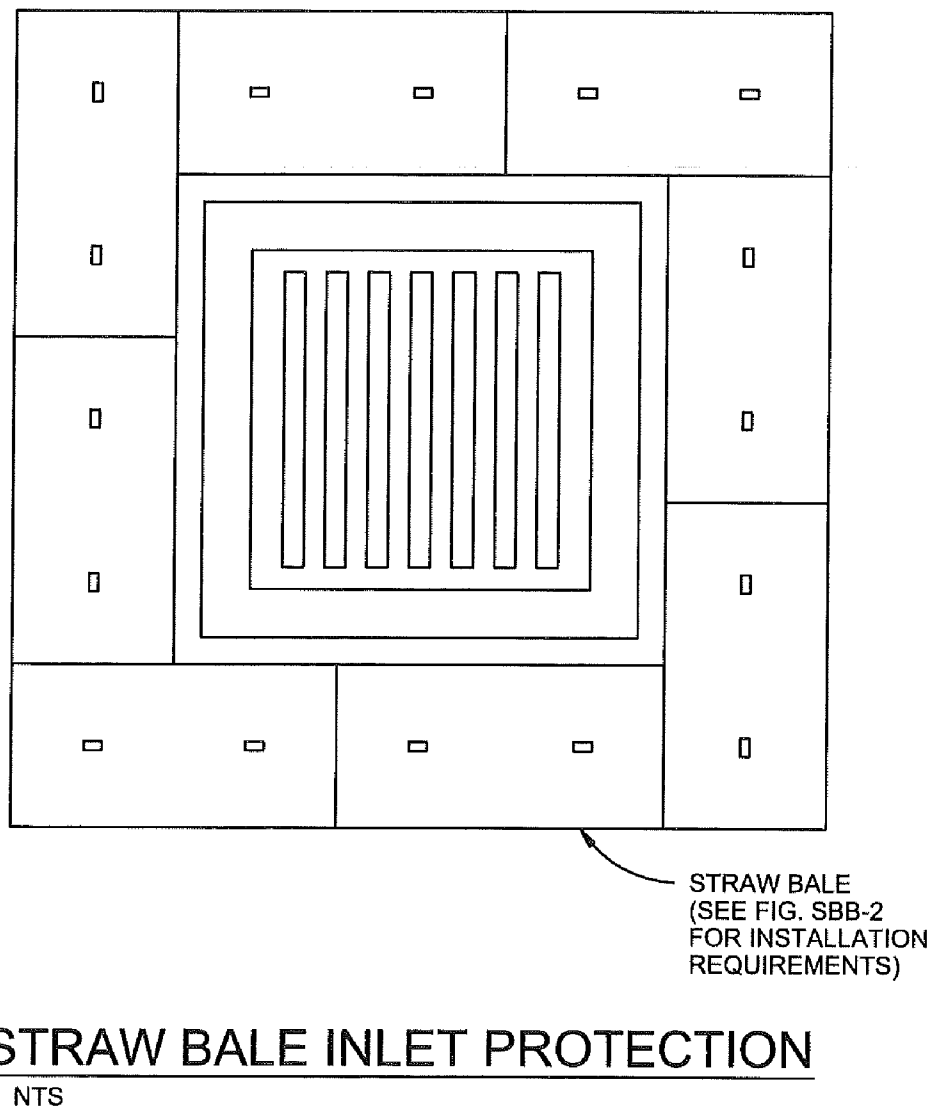
Rock Sock (RS)



RS-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010



1/1/08	Concrete Washout Structure	
DATE APPROVED:	Standard Drawing	
John A. McCarty	REVISION DATE: 7/17/07 FILE NAME: SD_3-84	



STRAW BALE INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. BALES ARE TO BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
3. SEE STRAW BALE BARRIER FIGURE SBB-2 FOR INSTALLATION REQUIREMENTS.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT STRAW BALE INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNENTRENCHED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALES WHEN IT ACCUMULATES TO APPROXIMATELY 1/3 THE HEIGHT OF THE BARRIER.
4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE CITY.

City of Colorado Springs Stormwater Quality

Figure IP-2 Straw Bale Inlet Protection Construction Detail and Maintenance Requirements

3-26

CORE

ENGINEERING GROUP

15004 1ST AVENUE S.
DENVER, CO 80202
PHONE: 720-459-7800
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg.com

DATE

DESCRIPTION

NO.

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE. SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

GRADING AND EROSION CONTROL DETAILS

DATE:
FEB 12, 2020

PROJECT NO.
100.046

SHEET NUMBER
C4.11

TOTAL SHEETS: 14

APPENDIX C

STORMWATER INSPECTION REPORT

Stormwater Inspection Report

Project Name and Location: _____

Inspector Name and Title: _____ Director: _____

Date/Time of Inspection: _____ Weather Conditions: _____

Schedule Completion Date: _____ Construction Stage (circle all that apply):

Clearing/Grubbing Paving Rough Grading Infrastructure Building Construction Final

Grading Final Stabilization Terminate Permit _____

Type of Control	Describe status, identify problems, maintenance needs, or non-conformance with details or temporary alteration	Problem addressed (date and description of corrective action)
Structural:		
Silt Fence <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Tears/Holes <input type="checkbox"/> Burial <input type="checkbox"/> Sed. Accum. <input type="checkbox"/> Sediment bypass	
Const. Exit <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Voids Filled <input type="checkbox"/> Trackout	
Check Dam <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Sediment Accumulation	
Inlet Protection <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Sed. Accum. <input type="checkbox"/> Sed. Bypass <input type="checkbox"/> Application not appropriate	
Diversion Ditch/Berm <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Erosion <input type="checkbox"/> Stabilization	
Sediment Trap <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Sediment Accumulation	
Sediment Basin <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Sed. Accumulation <input type="checkbox"/> Bank erosion <input type="checkbox"/> Stabilization	
Discharge Point <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Erosion <input type="checkbox"/> Sediment Discharge	
Material Storage/Secondary Contain. <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Not shown on Site Map <input type="checkbox"/> Spills <input type="checkbox"/> Out of design. area <input type="checkbox"/> Improper storage: chemicals; solvents; paint; fuels, etc.	

Other Structural Controls <input type="checkbox"/> OK <input type="checkbox"/> N/A		
Non-Structural:		
Good Housekeeping <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Solid Waste <input type="checkbox"/> Sanitary Waste <input type="checkbox"/> Dust Control	

Project Name and Location: _____ Date: _____ Page 2

Equip. Wash/Maint. <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Spills <input type="checkbox"/> Outside designated area	
Concrete Washout <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Spills out of designated area <input type="checkbox"/> Not shown on Site Map	
Stabilization:		
Seed/Sod Mulching, Geotextile, Blankets <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Need Temp. stab. <input type="checkbox"/> Need final stab. <input type="checkbox"/> Health of veg.	
Record Keeping:		
Entrance Postings <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> NOI <input type="checkbox"/> Permits <input type="checkbox"/> Construction Site Notice	
SWPPP Notebook <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Missing Sections <input type="checkbox"/> Missing Forms	
Site Map/Details <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Activities not up-to-date <input type="checkbox"/> Deviate from details <input type="checkbox"/> BMP Additions <input type="checkbox"/> Modifications <input type="checkbox"/> Not up-to-date	
Other <input type="checkbox"/> OK <input type="checkbox"/> N/A		

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Inspector's Signature

Date

APPENDIX D

SPILL REPORT FORM

Spill Report Form

Project Type and Location: _____

Spill Reported by: _____

Date/Time Spill: _____

Describe spill location and events leading to spill: _____

Material spilled: _____

Source of spill: _____

Amount spilled: _____ Amount spilled to waterway: _____

Containment or clean up action: _____

Approximate depth of soil excavation: _____

List Injuries or Personal Contamination: _____

Action to be taken to prevent future spills: _____

Modifications to the SWPPP necessary due to this spill: _____

Agencies notified of the spill: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Contractor Superintendent

Date

APPENDIX E

**RECORD OF STABILIZATION AND
CONSTRUCTION ACTIVITY DATES**

SITE STABILIZATION and CONSTRUCTION ACTIVITY DATES

A record of dates when BMPs are installed or removed, stabilization measures are initiated, major grading activities occur, and construction activities temporarily or permanently cease on a portion of the site shall be maintained until final site stabilization is achieved.

MAJOR STABILIZATION AND GRADING ACTIVITIES

Description of
Activity: _____

Site Contractor: _____ Begin (date):

End(date): _____

Location: _____

Description of
Activity: _____

Site Contractor: _____ Begin (date):

End(date): _____

Location: _____

Description of
Activity: _____

Site Contractor: _____ Begin (date):

End(date): _____

Location: _____

APPENDIX F

**FEDERAL, STATE, OR LOCAL STORM WATER OR OTHER
ENVIRONMENTAL INSPECTOR SITE VISIT LOG**

Federal, State, or Local Storm Water or other Environmental Inspector Site Visit Log

Inspectors Name: _____ Agency: _____

Contractors Representative Present: _____

Others Present: _____

Comments: _____

Time and Date: _____ Report Prepared:
Yes No

Inspectors Name: _____ Agency: _____

Contractors Representative Present: _____

Others Present: _____

Comments: _____

Time and Date: _____ Report Prepared:
Yes No

Inspectors Name: _____ Agency: _____

Contractors Representative Present: _____

Others Present: _____

Comments: _____

Time and Date: _____ Report Prepared:
Yes No

APPENDIX G
GENERAL PERMIT