THE RESERVE AT CORRAL BLUFFS SUBDIVISION STORMWATER MANAGEMENT PLAN (SWMP)

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1. Applicant / Contact Information

Owner/Developer: Corral Ranches Development Company
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Contractor: To Be Determined

2. Site Description

a. The Reserve at Corral Bluffs Subdivision is a proposed rural residential development consisting of 31 single-family lots on a 156-acre parcel in eastern El Paso County, Colorado. Site development activities will consist of site grading, utilities, and roadway construction.

b. Proposed sequence of major activities:
- Mobilization / implementation of BMP's
- Clearing and grubbing
- Rough grading
- Roadway paving (gravel)
- Final grading of building sites

c. Total site area = 156 acres; Projected disturbed area = 10 acres (approx.)

d. Historic runoff coefficient, C = 0.35;
Developed runoff coefficient, C = 0.38

e. Existing vegetation on site: native meadow grasses and shrubs (approx. 70% coverage)

f. Potential pollution sources: vehicle fueling on-site

g. Non-stormwater components of discharge: none anticipated

h. Receiving water: Curtis Ranch Drainage Basin; surface drainage from this site will continue to follow historic drainage patterns, flowing northerly into existing natural drainage swales, ultimately reaching a tributary channel of the West Fork of Black Squirrel Creek.

i. Soil erosion potential and potential impacts upon discharge: On-site soils are comprised of Ascalon sandy loam, Badland complex, Bresser sandy loam, and Stapleton-Bernal sandy loams. The majority of on-site soils are classified as Hydrologic Soils Group B (moderate erosion hazard).

3. Site Map (see Construction Drawings – Sheet C1)

4. BMP's for Stormwater Pollution Prevention (See Sheet C1):

Phase	BMP
Clearing and Grubbing necessary for perimeter controls	VTC's
Initiation of perimeter controls	Silt Fence
Remaining clearing and grubbing	
Road Grading	ECB/STB/IP
Stabilization	SM
Removal of erosion control measures	

a. Erosion and Sediment Controls
   1) Structural Practices:
      - Silt fence at toe of slope along downstream limits of disturbed areas
      - Erosion Control Blankets (ECB) along drainage ditches
      - Inlet protection (IP) at culvert inlets
   2) Non-Structural Practices:
      - Preserve existing vegetation beyond limits of work
      - Temporary seeding of areas to remain disturbed for significant periods of time
      - Permanent seeding/mulching (SM) upon completion of rough grading

b. Materials Handling and Spill Prevention
   - General Materials Handling Practices:
     - 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 and segregated areas so that spilled materials cannot combine and react.

    - Disposal of materials shall be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
    - Materials no longer required for construction shall be removed from the site as soon as possible.
- 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.

- Specific Materials Handling Practices:
    - All pollutants, including waste materials and demolition debris, that occur on-site during construction shall be handled in a way that does not contaminate storm water.
    - All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored on site shall be covered and contained and protected from vandalism.
    - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing 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.
    - Wheel wash water shall be settled and discharged on site by infiltration. Wheel wash water shall not be discharged to the storm water system.
    - Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and ad application rates that will not result in loss of chemical to storm water runoff. Follow manufacturer's recommendations for application rates and procedures.
    - pH-modifying sources shall be managed to prevent contamination of runoff and storm water collected on site. 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, an concrete pumping an mixer washout waters.
- Equipment maintenance and fueling: Contractor shall implement appropriate spill prevention and response procedures

- Spill Prevention and Response Procedures:
    - 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 on-site storm water, it is critical to contain the released materials on site and prevent their release into receiving waters.
    - Spill Response Procedures:
        - 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.
        - If spills represent an imminent threat of escaping on-site facilities and entering the receiving waters, site personnel shall respond immediately to contain the release and notify the superintendent after the situation has stabilized.
        - The site superintendent, or his designee, shall be responsible for completing a spill reporting form and for reporting the spill to the appropriate agency.
        - Spill response equipment shall be inspected and maintained as necessary to replace any materials used in spill response activities.
    - Spill kits shall be on-hand at all fueling sites. Spill kit location(s) shall be reported to the SWMP Administrator.
    - 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.
    - Recommended components of spill kits include the following:
        - Oil absorbent pads (one bale)
        - Oil absorbent booms (40 feet)
        - 55-gallon drums (2)
        - 9-mil plastic bags (10)
        - Personal protective equipment including gloves and goggles

- Concrete Wash Water: Unless confined in a pre-defined, bermed containment area, the cleaning of concrete truck delivery chutes is prohibited at the job site. The discharge of water containing waste cement to the storm drainage system is prohibited.
- Notification Procedures:
    - In the event of an accident or spill, the SWMP Administrator shall be notified as a minimum.
    - Depending on the nature of the spill material involved, the Colorado Department of Public Health and Environment (24-

hour spill reporting line: 877-518-5608), downstream water users, or other agencies may also need to be notified.

- 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

- Permanent seeding will be provided to achieve long-term stabilization of the site.
- Seed Mix: "Foothills Mix" or approved equal
- 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:
  - Dryland: 20-25 lbs/acre
  - Irrigated: 40 lbs/acre
- Soil Stabilization Practices:
  - 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.
- Soil Conditioning and Fertilizer Requirements:
  - Soil conditioner, organic amendment shall be applied to all seeded areas at 3 CY / 1000 SF.
  - 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.
- 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 plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.

6. Other Controls

- Contractor shall dispose of all waste materials at a permitted off-site disposal site.
- Vehicle tracking pads will be installed at all access points to limit off-site soil tracking.

7. Inspection and Maintenance

a. Inspection Schedules:

- Contractor shall inspect BMPs bi-weekly as a minimum, and immediately (within 24 hours) after any precipitation or snowmelt event that causes surface erosion (i.e. that results in stormwater running across the ground), to ensure that BMPs are maintained in effective operating condition.

b. Inspection Procedures:

1) Site Inspection / Observation Items:

- Construction site perimeter and discharge points (including discharges into a storm sewer system)
- All disturbed areas
- Areas used for material / waste storage that are exposed to precipitation
- Other areas having a significant potential for stormwater pollution, such as demolition areas or concrete washout locations, or locations where vehicles enter or leave the site
- Erosion and sediment control measures identified in the SWMP
- Any other structural BMPs that may require maintenance, such as secondary containment around fuel tanks, or the condition of spill response kits.

2) Inspection Requirements:

- Determine if there is any evidence of, or potential for, pollutants entering the drainage system.
- 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.
- Upgrade and/or revise any BMPs not operating in accordance with the SWMP, and update the SWMP to reflect any revisions.

c. BMP Maintenance / Replacement and Failed BMPs:

- 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.
- 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.
- Contractor shall update Erosion Control Plans as required with any new BMPs added during the construction period.
- Contractor shall address BMPs that have <u>failed</u>, or have the potential to fail without maintenance or modifications, as soon as possible, <u>immediately</u> in most cases, to prevent discharge of pollutants.

d. Record Keeping and Documenting Inspections:

- Contractor shall maintain records of all inspection reports, including signed inspection logs, at the project site.
- 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.
- Site inspection records shall include the following:
    - Inspection date
    - Name and title of personnel making the inspection
    - Location of discharges of sediment or other pollutants from the site
    - Location(s) of BMPs that need to be maintained
    - Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location
    - Location(s) where additional BMPs are needed that were not in place at the time of inspection
    - Deviations from the minimum inspection schedule