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Flying Horse North Filing No. 3
Stormwater Management Plan (SWMP)

April 2024

HR Green Project No: 211030.20

El Paso County No. SF-2326

Prepared For (Applicant/Owner):

PRI #2, LLC.

Mr. Drew Balsick

Vice President / Project Manager

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Prepared By:

HR Green Development, LLC

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Designated Stormwater Manager:

[TBD Name]

[TBD Company Name]

GEC Administrator:

[TBD Name]

[TBD Company Name]

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Appendices

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▷ DESIGNATOR STORMWATER MANAGER

Contact:

Company:

Title:

Phone Number:

Address:

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Contact:

Company:

Title:

Phone Number:

Address:

Engineer's Statement

The Stormwater Management Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County and State for Stormwater Management Plans.

Name: Richard D. Lyon, P.E. Date: 04/12/2024

Phone Number: 719-394-2435

Seal

Review Engineer's Statement

The Stormwater Management Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request.

_____ Date: _____

Review Engineer

I. Site Location & Description

Location

Flying Horse North Filing No. 3 is in El Paso County. The larger Flying Horse North development is bordered by Highway 83 to the west, Black Forest Road to the east, Cathedral Pines to the south, and High Forest Ranch to the north. The greater Flying Horse North area contains approximately 1,459 acres within the whole Section 36, Township 11 South, Range 66 West of the Sixth Principal Meridian, and a portion of Section 30 and 31, Township 11 South, and Range 65 West of the Sixth Principal Meridian. The Flying Horse Filing No. 3 area is 173.48 acres and the replat includes a total of 293.68 acres with existing Golf Course Tracts E and F totaling 120.20 acres.

Legal Description

Flying Horse North Filing No. 3

Description of Property

The Flying Horse North Filing No. 3 property is located within the Flying Horse North Golf Course general area, bordering Filing No. 1. The existing property is undeveloped with exception of a previously cut in maintenance pathway.

The Filing No. 3 area totals 293.68 acres consisting of 2.5-acre single-family residential estate lots totaling 51 lots, replat area of Filing No. 1 golf course and the inclusion of the single-family residential lot within Filing No. 2. Of the total Filing No. 3 area, approximately 186.3 acres is developable residential and right-of-way area. The development includes the single-family residential lots for future development, 60’ width rights-of-way that consist of asphalt paved roadways with roadside swale sections and electric easements. There are basins to the east that are dedicated to future Flats development, one sub-basin within the Black Squirrel Creek Basin that is tributary to an existing detention facility in Filing No. 1 and one sub-basin within the East Cherry Creek Basin that is tributary to a proposed detention pond as a part of this filing. The future Flats area consists of modified urban local residential 60’ right-of-way similar to a typical urban local typical roadway section with tree lawn and detached sidewalk with electric easement. Filing No. 3 construction activity only includes the urban roadway section to be constructed in the Flats area to establish the 60’ right-of-way section. No Flats are proposed to be constructed at this time.

There are no existing drainageways traversing the site. Most of the site falls within the Black Squirrel Creek Basin and the remainder to the east is within the East Cherry Creek Basin. The stormwater runoff for areas of proposed development within the Black Squirrel Creek basin drain to a proposed pond at the southwest of the site and a portion drains to an existing pond built as a part of Filing No. 1. The stormwater runoff for areas of proposed development within the East Cherry Creek basin drain to a proposed pond at the northeast of the site.

Neighboring Areas

The surrounding areas include Flying Horse North Filing No. 1 to the north and east, Flying Horse North Golf Course throughout the filing’s boundary, and Cathedral Pines Filing No. 2 to the south. The land uses at the perimeter of Filing No. 3 include residential and the commercial golf course.

Construction Activity

The proposed development is to only include construction of the roadway, utilities, and detention ponds. Construction activities include but are not limited to corridor grading, pavement installation, and final stabilization of the proposed roadways and right-of-way corridors, storm sewer and culvert pipe installation, construction of a rock chute, and pond construction for Ponds A and B which include forebays, trickle channels, micropools, outlet structures, and emergency spillways.

A vertical/final phase plan is included within the GEC and SWMP report for the future development of the 51 2.5-acre single-family residential estate lots which will include construction of homes in the vicinity of the designated pad sites shown on the plans, driveways with culvert pipes, and any hardscape and landscaping. The future Flats development area is not to be constructed at this time and is not a part of this GEC and SWMP report scope of work. A future filing will require an approved GEC and SWMP report for construction of the Flats development beyond the proposed public right-of-way covered in this report.

Construction will begin with setting up perimeter controls, followed by corridor grading for the roadways, installation of erosion control blanket for roadside swales, storm pipe and drainage structure installations. Construction will be completed with final stabilization including seeding.

Temporary stabilization measures (silt fence and vehicular tracking control) will be installed prior to construction. Stabilized staging area(s) and stockpile management area(s) are shown on the GEC plans. During construction, temporary stabilization measures, including inlet protection, temporary sediment basins, and erosion control blanket, will be utilized to control stormwater runoff. The proposed ponds will serve as temporary sediment basins to collect stormwater runoff and sediment during construction activities for disturbed areas. Other temporary sediment basins capture runoff and sediment for the areas of disturbance greater than one acre that are not tributary to the larger permanent ponds. Once final stabilization is achieved, temporary erosion control measures will be removed.

No off-site disturbance is anticipated. No control measures will be located outside the property line and limits of disturbance.

II. Construction Phasing

Phasing and Sequence Schedule

The proposed sequence of major construction activities and Construction Control Measures for the project as are follows:

1. Install VTC, SSA, SP, TSB and other perimeter erosion and stormwater control measures (i.e. silt fence, construction fence etc.) (Summer 2024)
2. Install Inlet Protection control measures (Summer 2024)
3. Clear, grub and grade site for improvements. Install ECB per GEC plans. (Summer 2024)
4. Excavate and install improvements including underground piping and drainage structures. (Fall 2024)

5. Landscaping, restoration and final stabilization. Ensure final stabilization achieved prior to site closure. (Fall/Winter 2024)
6. Remove construction BMPs (Fall/Winter 2024)

Construction Documentation

Construction drawings are provided with this document showing the Grading and Erosion Control plan for this project and are intended to be a "living" document used by the SWMP Manager to document construction activities. See Appendix E for record log.

III. Pre-Development Conditions and Soils

Floodway

According to the current FEMA Flood Insurance Rate Maps FEMA FIRM 08041C0305G and FIRM 08041C0315G, revised December 7, 2018, this site is designated as Zone X (outside 0.2% chance of flood). See Appendix A for FEMA FIRM Exhibit.

Existing Vegetation

The existing vegetative cover is 90 percent as evidenced by a field survey and aerial imagery. The existing vegetation includes native grasses and weeds, shrubs, and pinyon pine trees. Previous clearing of future planned roadways was done several years ago, and native grass and weeds have covered those areas.

Existing Drainage Patterns

The site is tributary to the Black Squirrel Creek drainageway and the East Cherry Creek drainageway. Stormwater from the site flows into respective ponds which outlet onsite within the filing boundary. The northeast Pond A outlets due east toward the existing Flying Horse North Golf Course which ultimately drains to the East Cherry Creek. The southwest Pond B outlets due west toward Highway 83 which ultimately drains to the Black Squirrel Creek. There are no stream crossings located in within the construction boundary.

The stormwater outfalls to the respective downstream waterways from this site are not in the vicinity of this site and are not directly connected to outfall locations. The Black Squirrel Creek outfall is located approximately 5,000 feet to the west of this project site and the outfall is to the creek is via overland flow through undeveloped forested area. East Cherry Creek has a relatively small tributary channel located approximately 2,600 feet east of Black Forest Road. The outfall from the project site is via channelized flow on the east side of Black Forest Road that drains within the south roadside ditch of Hodgen Road into the creek located approximately 3,200 feet due east from the Black Forest Road and Hodgen Road intersection. There are no public or private storm outfall pipes known to convey stormwater from the site directly to outfall locations.

Existing Slopes

The Filing No. 3 area consists of varied slopes between 2% and 20% with several peaks and gullies throughout the property.

Soils

According to the US Department of Agriculture Natural Resources Conservation Service Soil Survey of El Paso County, Colorado, the primary soil through the filing is Elbeth sandy loam within the Black Squirrel Creek Basin area and Peyton sandy loam and Peyton-Pring complex within the East Cherry Creek basin area. All soil types

within the filing are within Hydrologic Soil Group B. Runoff coefficients for this study were selected based on "A/B" type soils. This agrees with the MDDP report which also identified these soil classifications and hydrologic soil groups for the area. A copy of the soil map for the site can be found in Appendix A.

The existing soil types have a slight potential for erosion which can be mitigated by employing appropriate downstream construction BMPs before/during/after construction to limit potential impacts to stormwater discharges. The potential impacts are sediment discharge into the existing stormwater conveyance system.

IV. Description of Potential Pollutants

Potential sources of sediment to stormwater runoff include earth moving and concrete activities associated with grading, residential structure construction including concrete foundations and hardscape, and landscaping.

Potential pollutants and sources other than sediment to stormwater runoff include trash, debris, fueling and equipment failure. Materials of significance stored on the project site include: sediment, concrete washout, cement, trash & debris, fuels and oils.

There is no non-stormwater discharge anticipated from the site.

Construction activities can produce a variety of pollutants that can potentially cause stormwater contamination. Grading activities remove rocks, vegetation and other erosion controlling surfaces and can result int he exposure of underlying soil to the elements, which can then be displaced into water sources.

Wind and erosion and vehicular transport can produce sediment debris.

Potential Sources of Pollution:

1. Potential sources of pollution from construction activities include
    a. Disturbed or stored soils
    b. Vehicle tracking of sediment
    c. Loading & unloading operations
    d. Outdoor Storage activities
    e. Vehicle and Equipment Maintenance/Fueling
    f. Dust or Particulate Generating Processes
    g. Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents etc.
    h. On-site waste management (waste piles, liquid wastes, dumpsters)
    i. Concrete truck/equipment washing (washing truck chute and associated fixtures)
    j. Non-industrial waste (worker trash and portable toilets)

V. Areas and Volumes

The filing totals 293.68 acres which includes replat area of the existing Filing No. 1 golf course and single-family residential lot of Filing No. 2 as a part of this Filing No. 3. Of the total filing area, 41.5 acres is to be disturbed per the Grading and Erosion Control Plan for right-of-way improvements such as roadways, trails, sidewalk, curb and gutter, and ditches as well as Ponds A and B and daylight grading from the rights-of-way. The final construction phase shows a limits of disturbance and construction that encompasses and the full vertical construction of each single-family lot development totaling 186.3 acres. The full developable area including

private lots is included in the limits of disturbance and construction for the final phase to account for private lot construction and to establish perimeter control measures such as silt fence at the initial construction phase. However, the total disturbance area is not 186.3 acres as individual lot development will require future plans and lot specific control measures at the time of construction. The initial construction activity will be for construction of the roadway which has anticipated limits of disturbance and construction of approximately 41.5 acres or 14% of the total Filing No. 3 area and 22% of the developable area.

Below are roadway construction earthwork figures. These numbers are adjusted using a fill factor of 1.10.

Initial Roadway Construction Phase:

Cut Quantity : 136,700 c.y.

Fill Quantity: 137,420 c.y.

Net: 2,280 c.y. cut.

The full build-out earthwork quantities cannot be quantified at this stage as each respective lot disturbance and construction will vary by architecture, layout, and plot plan.

VI. Self-Inspections

Self-inspections of the Construction Control Measures must be completed by the certified GEC Administrator. The below provides the minimum to satisfy the El Paso County self-inspection requirements. A more frequent self-inspection schedule may be required to ensure Control Measures are operating in compliance with the approved GEC plan.

1. Inspection Schedules:
    a. The GEC Administrator shall make a thorough inspection of the Control Measures:
        i. At least once every fourteen (14) calendar days.
        ii. Within 24 hours following any precipitation event (i.e. rain, snow, hail etc.) that causes surface erosion.
            - Alternatively, the GEC Administrator can perform a thorough inspection of the Control Measures once every seven (7) days and forego post-precipitation inspections.
    b. For sites where construction activities have completed and final stabilization measures installed but final stabilization has not yet been achieved, the GEC Administrator shall make a thorough inspection of the Control Measures:
        i. At least once every month
        ii. Within 72 hours following any precipitation event that causes surface erosion
2. Inspection Procedures:
    a. Site Inspection & Observation Items:
        i. Limits of disturbance perimeter and stormwater discharge points
        ii. All disturbed areas to ensure necessary Construction Control Measures are in place to control potential stormwater runoff.
        iii. Areas used for material/waste storage.

iv. Any areas having a signification potential for storm water pollution (i.e site entrances, concrete washout areas etc.)
v. All Construction Control Measures identified on the GEC plans.

b. Inspection Requirements:
   i. Determine any locations, or potential locations, where pollutants and stormwater may be exiting the site/entering the receiving waters.
   ii. Evaluate Construction Control measures and determine if they are constructed in accordance with the latest revision of the approved GEC plan and operating effectively.
   iii. Provide recommendations for the need of additional Construction Control measures and the maintenance of existing measures in disrepair to ensure complication with the El Paso County Stormwater Construction Manual.
c. Construction Control Measure Maintenance/Replacement:
   i. The GEC administrator shall ensure sediment has been removed from perimeter controls and relocated to an area without the potential for sediment to discharge from the site
   ii. The GEC administrator shall ensure diversion ditches and temporary sediment ponds have not accumulated excess sediment that impedes their functionality.
   iii. The GEC administrator shall ensure that failed Control Measures are repaired/reinstalled within three (3) calendar days, according to the El Paso County Stormwater Control Measure details, to ensure pollutants and/or sediment do not discharge from the site. GEC details are provided in Appendix B.
d. Documentation:
   i. Update the GEC plan to document the installation/revision of Control Measures
   ii. Identify Control Measure deficiencies and that noncompliance is resolved within three (3) calendar days.
   iii. Identify Self-Inspection schedule in most recent inspection form
   iv. Complete and submit Self-Inspection forms to the El Paso County within five (5) business days of the completed inspection
   v. Ensure Self-Inspections are available, either physically or electronically, throughout the duration of the project
   vi. Self-Inspection Repost shall contain at least the following:
      - Inspection Date
      - Name and title of the GEC Administrator performing inspection
      - Location(s) of illicit discharges of stormwater, sediment or pollutants from the site
      - Location(s) of Construction Control Measures in need of maintenance/repair
      - Location(s) of Construction Control Measures that failed to operate as designed or proved inadequate
      - Location(s) of additional Construction Control Measures not shown on the latest, approved revision of the GEC plan
      - Any deviations from the minimum inspection schedule
      - Signature of GEC Administrator

VII. Materials Handling

1. General Materials Handling Practices:
    a. 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 be located away from storm drain inlets and should be equipped with covers, roofs or secondary containment as required to prevent stormwater from contacting stored materials. Chemicals that are not compatible shall be stored in segregated areas so that spill materials cannot combine and react.
    b. Disposal of materials shall be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
    c. Materials no longer required for construction shall be removed from the site as soon as possible.
    d. Adequate garbage, construction waste, and sanitary waste handling and disposal facilities shall be provided as necessary to keep the site clear of obstruction and Control Measures clear and functional.
2. Specific Materials Handling Practices:
    a. All pollutants, including waste materials and demolition debris, that occur onsite during construction shall be handled in a way that does not contaminate stormwater.
    b. All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored onsite shall be covered and protected from vandalism.
    c. Maintenance, fueling, and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operation, 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.
    d. Wheel wash water shall be settled and discharged onsite by infiltration.
    e. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturer's recommendations for application rates and procedures.
    f. pH-modifying sources shall be managed to prevent contamination of runoff and stormwater collected onsite. The most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.

VIII. Spill Prevention & Response Plan

1. The primary objective in responding to a spill is to quickly contain the material and prevent or minimize their mitigation into stormwater runoff and conveyance systems. If the release has impacted onsite stormwater, it is critical to contain the released materials onsite and prevent their release into receiving waters.
2. Spill Response Procedures:
    a. Notify site superintendent immediately when a spill, or the threat of a spill, is observed. The superintendent shall assess the situation and determine the appropriate response.

   b. If spills represent an imminent threat of escaping onsite facilities and entering the receiving waters, site personnel shall respond immediately to contain the release and notify the superintendent once the situation has stabilized.
   c. The site superintendent shall be responsible for completing a spill reporting form and for reporting the spill to the appropriate agency.
   d. Spill response equipment shall be inspected and maintained as necessary to replace any materials used in spill response activities.
3. Spill kits shall be on-hand at all fueling sites. Spill kit locations shall be reported to the GEC administrator.
4. Absorbent materials shall be on-hand at all fueling areas for use in containing advertent spills. Containers shall be on-hand at all fueling sites for disposal of used absorbents.
5. Recommended components of spill kits include the following:
   a. Oil absorbent pads
   b. Oil absorbent booms
   c. 55-gallon drums
   d. 9-mil plastic bags
   e. Personal protective equipment including gloves and goggles
6. 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.
7. Notification procedures:
   a. In the event of an accident or spill, the GEC administrator shall be notified.
   b. Depending on the nature of the spill and material involved, the Colorado Department of Public Health and Environment, downstream water users, or other agencies may also need to be notified.
   c. Any spill of oil which 1) violates water quality standards, 2) produces a “sheen” on a surface water, or 3) causes a sludge or emulsion, or any hazardous substance release, or hazardous waste release which exceeds the reportable quantity, must be reported immediately by telephone to the National Response Center Hotline at (800) 424-8802.

There are no dedicated batch plants proposed as a part of this project and therefore are not a source of pollution requiring spill prevention and response.

IX. Implementation of Control Measures

Stormwater control measures must be installed according to El Paso County design specifications, presented in Appendix D, and the approved Grading and Erosion Control plan this report supports. Within the context of this CSWMP’s construction activities the following control measures, at a minimum, are required:

- Perimeter Silt Fence
  - Silt fence is to be installed at the initial construction phase at the perimeter of the project to prevent sediment runoff offsite from the project disturbance area. While disturbance for roadway construction may be more central to the project construction area, the silt fence acts as a barrier for downstream sediment from the disturbed area and may remain in place for private lot construction.
- Vehicle Tracking Control

  - Vehicle Tracking Control is required for the ingress/egress areas of the project for large construction vehicles to access the site with minimal disturbance to existing infrastructure and pavement. The VTC also assists in debris removal from vehicles prior to exit of the site. The control measure is to be installed at the initial construction phase
- Stabilized Staging Area
  - A designated stabilized staging area is required for equipment staging at the initial construction phase. This area is to be sufficient in size and relatively flat to prevent erosion and sediment runoff when handling materials and maneuvering vehicles. Perimeter controls of the SSA are recommended as localized erosion and sediment control of this area.
- Stockpile Management
  - A designated stockpile area is required for dirt and debris containment at the initial construction phase. This area is to have perimeter controls for localized erosion and sediment control. Frequent export haul is recommended to maintain a minimal stockpile size and minimize sediment runoff during rain events during construction activities.
- Inlet Protection
  - Inlet protection is to be installed to prevent sediment runoff from entering storm systems and allow present and future stormwater conveyance as designed. Inlet protection is to remain in place until permanent stabilization is completed. Any sediment identified in inlets and storm pipes is to be removed prior to inspection and/or final permanent stabilization. Frequent inspection and maintenance of the inlet protection is to take place to ensure that wear and tear of the control measure has not taken place.
- Culvert Inlet Protection
  - Culvert protection, similar to inlet protection, is to be installed at the initial construction phase to prevent sediment runoff from entering storm systems and allow present and future stormwater conveyance as designed. Culvert protection is to remain in place until permanent stabilization is completed. Any sediment identified in inlets and storm pipes is to be removed prior to inspection and/or final permanent stabilization. Frequent inspection and maintenance of the culvert inlet protection is to take place to ensure that wear and tear of the control measure has not taken place.
- Temporary Outlet Protection
  - Temporary outlet protection is to be installed at the initial construction phase and as outlet pipes are installed to prevent sediment runoff from entering storm systems and allow present and future stormwater conveyance as designed. Culvert protection is to remain in place until permanent stabilization is completed. Any sediment identified in inlets and storm pipes is to be removed prior to inspection and/or final permanent stabilization. Frequent inspection and maintenance of the culvert inlet protection is to take place to ensure that wear and tear of the control measure has not taken place.
- Erosion Control Blanket
  - Erosion Control Blanket is to be installed on disturbed slopes of 3:1 or greater to stabilize these areas for permanent stabilization in future construction phases. The erosion control blanket remains in place from the time of disturbance and establishment of the slope in perpetuity as natural degradation of the control measure will occur over time. Any disturbance of the blanket itself requires replacement to ensure stabilization of the slope.
- Diversion Ditches (Earth Dikes & Drainage Swales)

    - Diversion Ditches proposed within this project scope include drainage swales that outfall to temporary sediment basins. The drainage swales are to be maintained throughout the initial construction phase to ensure that tributary areas that the temporary sediment basins are designed for are captured during rain events.
- Temporary Sediment Basins
    - Temporary Sediment Basins are to be constructed at the initial construction phase for stormwater attenuation during the initial construction phase which includes earthwork disturbance and results in sediment runoff. The TSB's are designed to capture sediment runoff during this phase to minimize sediment runoff directly offsite.
- Seeding & Mulching
    - Seeding and mulching is proposed as a temporary construction phase control measure for slope stabilization and restoration of disturbed areas to remain pervious areas. Permanent seeding and mulching is included in the final construction phase as a permanent stabilization method to stabilize disturbed areas and provide vegetation.
- Rock Socks
    - Rock socks are to be installed in curb and gutter urban roadway sections along flowlines as shown on the GEC. The rocks socks assist in mitigating sediment runoff within paved curb and gutter sections where earthwork disturbance erosion and sediment runoff can be conveyed downstream to inlets and stormwater infrastructure. Rock socks are to be inspected and maintained as needed. Cleaning of rock socks is to occur as needed to dispose of sediment build up during construction activities.
- Check Dams
    - Check dams are to be installed at elevation intervals per the GEC. This project includes extensive rural roadway sections with roadside ditches. Check dams are to be installed at the flowline of the roadside ditches for sediment control along the swales as well as energy dissipation to minimize erosion within the ditch sections.
- Concrete Washout Areas
    - Concrete Washout Areas are to be established at the initial construction phase as designated concrete washouts per MHFD details. The designated CWA's are to be monitored to ensure that effluent does not overflow or drain out of the excavation. Removal of materials is to take place prior to deconstruction and fill of the CWA.

Additional control measures may be required at the discretion of the County Stormwater Inspector.

Stormwater pollutant control measures for waste disposal and off-site soil tracking are to follow the State's CDPHE Brochure instructions and guidelines. Site specific off-site soil tracking is to be mitigated via Vehicle Tracking Control measures and daily project site street sweeping. Perimeter control measures are to be inspected and maintained as required to reduce sediment runoff.

X. Final Stabilization & Long-Term Stormwater Management Plan

1. Temporary seeding and mulching will be installed to provide interim stabilization prior to final landscaping installation (Refer to approved Landscape Plan). Final stabilization will be achieved at time of final landscaping. See approved landscaping plans for final stabilization details. Final stabilization is met when 70% of pre disturbance levels, not including noxious weeds, are stabilized. Final stabilization must be achieved prior to removal of temporary stormwater control measures. Anticipated date of final stabilization is Fall 2023; however this is subject to change. Long term stormwater management will be provided in the onsite, private full spectrum detention ponds. Pond A is located to the east of the site and Pond B is located to the southwest of the site. See the Permanent Control Measure Plans for construction details of the permanent full spectrum detention pond. See below for seeding and mulching details:
    a. Prior to seeding, fill any eroded rills and gullies with topsoil.
    b. Ensure all areas are seeded and mulched per the County Stormwater Construction Manual.
    c. Continue monthly self-inspections of final stabilization methods and the stormwater management system to ensure proper function. If repairs are needed, reseed and re-mulch as needed.
    d. Control noxious weeds in a manner acceptable to the GEC inspector.
    e. Seed Mix: See Appendix D for approved seed mixes.
    f. Seeding Requirements:
        i. Drill seed whenever possible, seed depth must be 1/3 to ½ inch when drill-seeding. Cross drilling should be used whenever possible with the seed divided between the two operations. The second drilling should be perpendicular to the first.
        ii. When drill seeding is not possible or on slopes greater than 3:1, hydro-seeding with tackifier may be substituted at the discretion of the GEC inspector. Hydro-seeding must be lightly raked into soil. Seeding rates are presented in Appendix D.
        iii. All seeded areas must be mulched.
    g. Mulching Requirements:
        i. Mulching shall be completed as soon as practical after seeding but no more than fourteen (14) days after planting. Erosion control blanket can be used in place of the below mulching methods.
        ii. Hay or straw mulch:
            1. Only certified weed-free and certified-seed free mulch may be used. Must be applied at 2 tons/acre and adequately secured.
            2. Crimping shall not be used no slopes greater than 3:1, tackifier must be used in place.
        iii. Hydraulic mulching:
            1. Allowable on steep slopes or areas with limited access
            2. If hydro-seeding is used, mulching must be applied secondly.
            3. Wood cellulose fibers mixed with water must be applied at a rate of 2,000-2,500 lbs/acre, and tackifier applied at a rate of 100 lbs/acre.
2. The project control measures are to be owned and maintained by the Developer or their assigns (General Contractor, GEC Administrator).
3. This Stormwater Management Plan Report is a living document that is to be continuously reviewed and modified as part of the overall process of evaluating and managing stormwater quality issues at the site.

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

XI. References

El Paso County – Drainage Criteria Manual, latest revision October 31, 2018

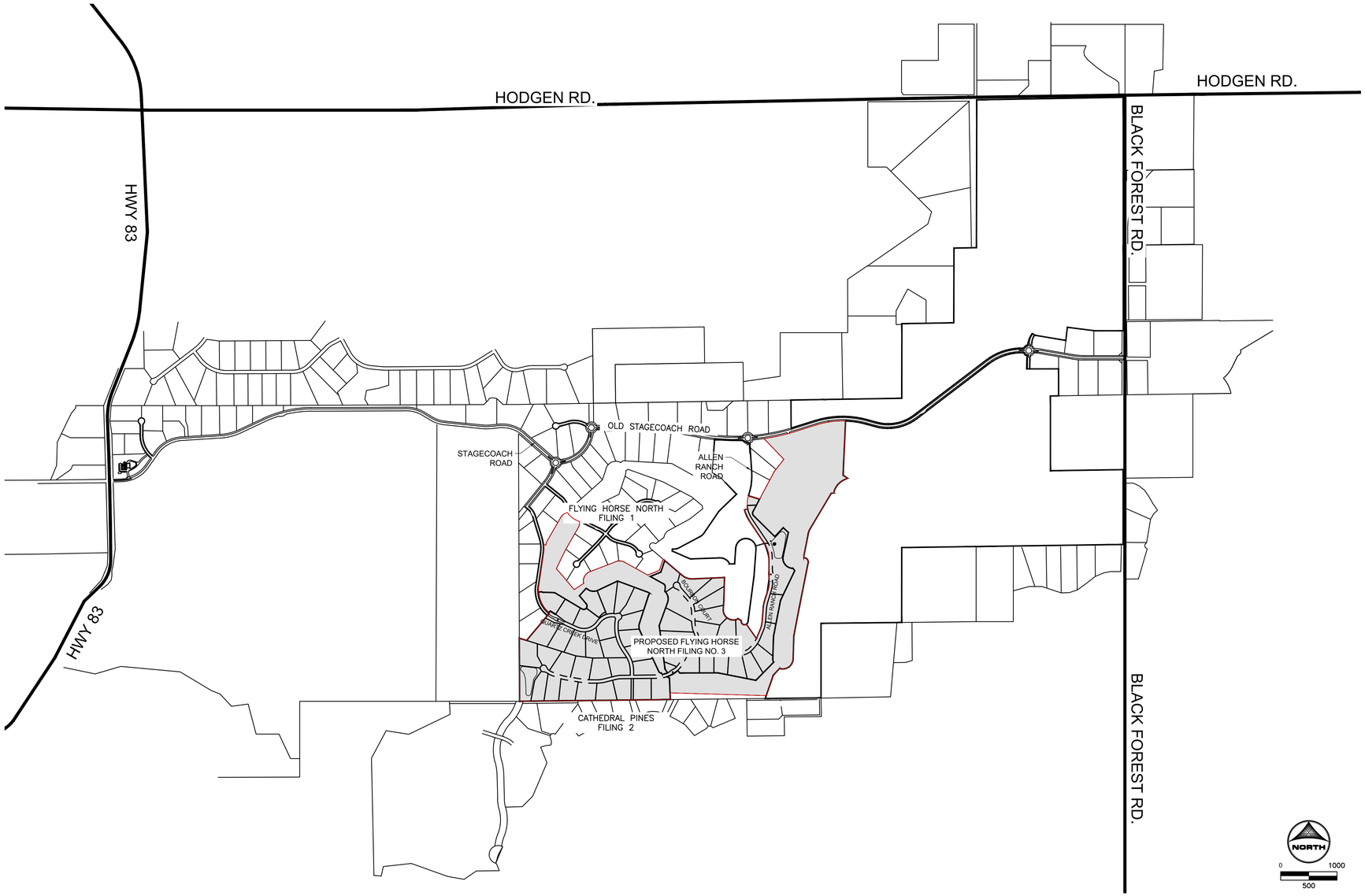
El Paso County – Engineering Criteria Manual, latest revision October 14, 2020

Mile High Flood District Urban Storm Drainage Criteria Manual Volumes 1, 2, and 3; latest revisions

APPENDIX A – VICINITY MAP & NRCS SOIL SURVEY & FEMA MAP

FLYING HORSE NORTH FILING NO. 3
VICINITY MAP

A TRACT OF LAND BEING A PORTION OF SECTION 36, TOWNSHIP 11 SOUTH,
RANGE 66 WEST OF THE 6TH P.M., AND A PORTION OF THE NORTHWEST QUARTER OF
SECTION 31, TOWNSHIP 11 SOUTH, RANGE 65 WEST OF THE 6TH P.M.,
CITY OF COLORADO SPRINGS, COUNTY OF EL PASO, STATE OF COLORADO



DRAWN BY:	DLH	JOB DATE:	3/5/2024
APPROVED:	KMH	JOB NUMBER:	211030
CAD DATE:	3/5/2024		
CAD FILE:	J:\2021\211030\CAD\Dwgs\C\Estates_CDs\Vicinity_Map		

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1"
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION

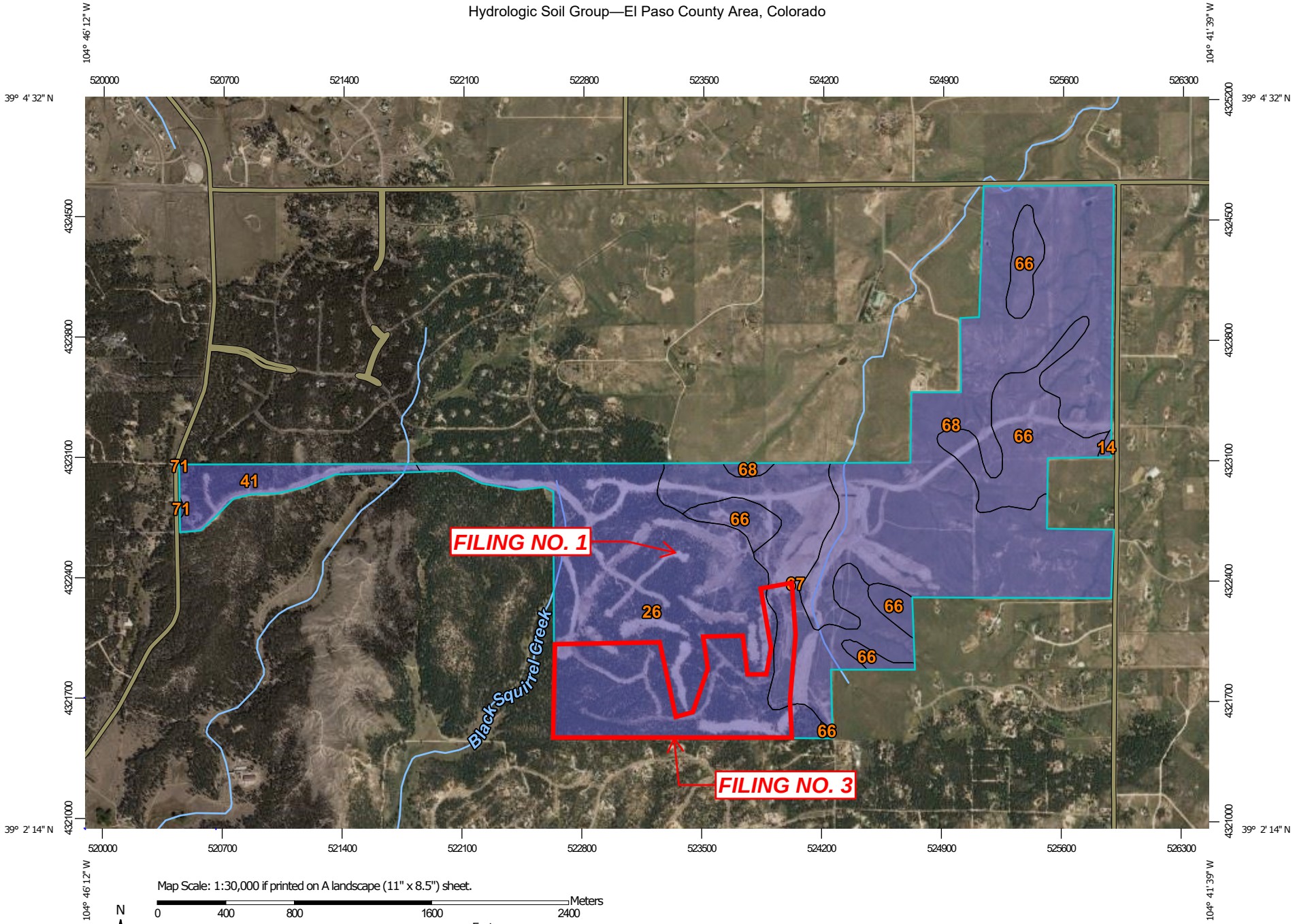
HRGreen
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY SUITE 230
COLORADO SPRINGS, CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

FLYING HORSE NORTH FILING 3
PRI #2, LLC.
EL PASO COUNTY, CO

CONSTRUCTION DOCUMENTS
VICINITY MAP

SHEET
VM

1


104° 46' 12" W
104° 41' 39" W
520000
520700
521400
522100
522800
523500
524200
524900
525600
526300
39° 4' 32" N
39° 2' 14" N
4325200
4324500
4323800
4323100
4322400
4321700
4321000
66
68
66
14
68
66
71
41
71
FILING NO. 1
67
26
66
66
66
Black Squirrel Creek
FILING NO. 3
Map Scale: 1:30,000 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
400
800
1600
2400
Feet
0
1000
2000
4000
6000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 19, Aug 31, 2021

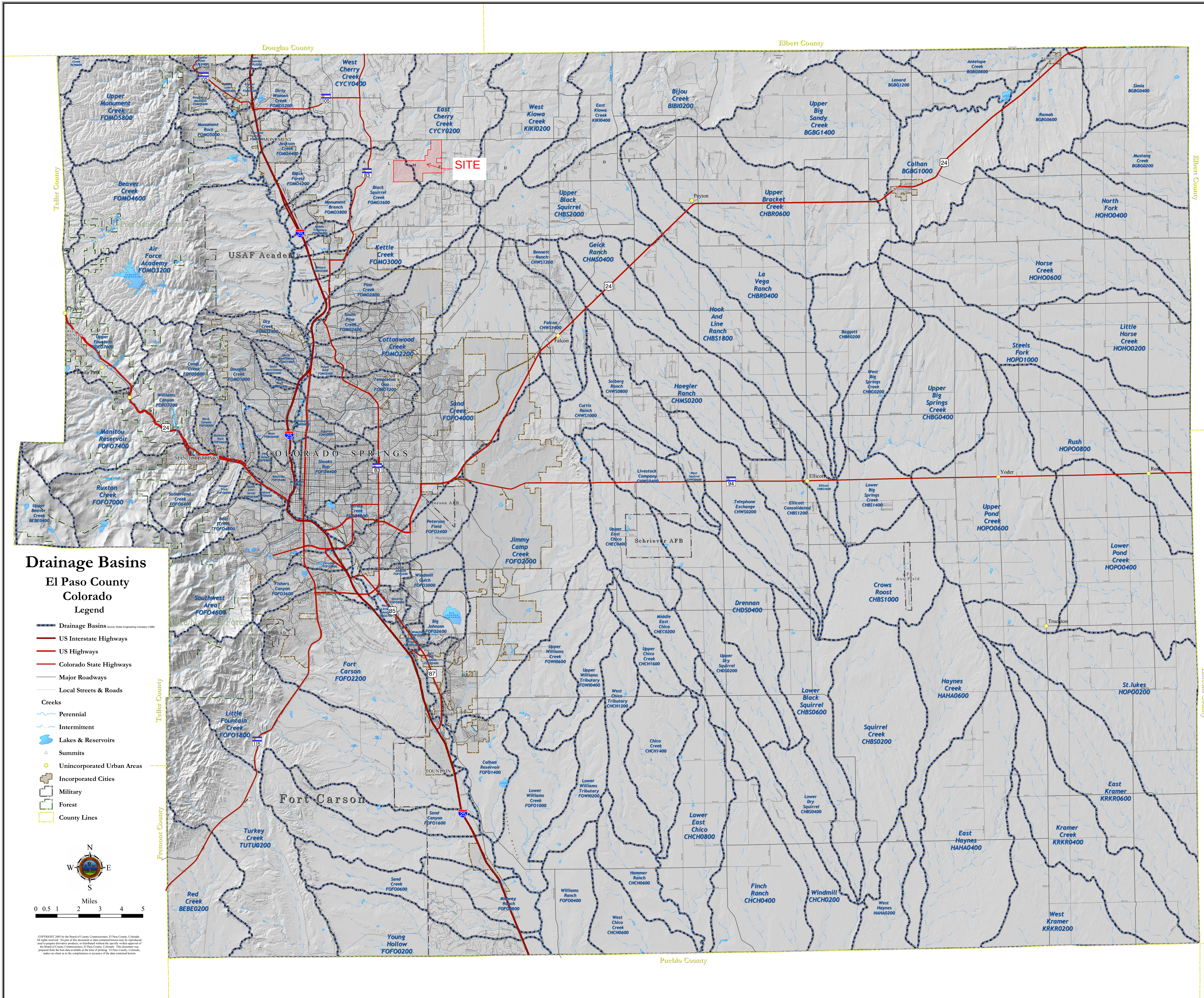
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 19, 2018—May 26, 2019

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
14	Brussett loam, 1 to 3 percent slopes	B	1.9	0.1%
26	Elbeth sandy loam, 8 to 15 percent slopes	B	474.2	33.7%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	B	53.4	3.8%
66	Peyton sandy loam, 1 to 5 percent slopes	B	160.9	11.4%
67	Peyton sandy loam, 5 to 9 percent slopes	B	182.8	13.0%
68	Peyton-Pring complex, 3 to 8 percent slopes	B	533.4	37.9%
71	Pring coarse sandy loam, 3 to 8 percent slopes	B	0.6	0.0%
Totals for Area of Interest			**1,407.3**	**100.0%**



Drainage Basins
El Paso County
Colorado
Legend
Drainage Basins
US Interstate Highways
US Highways
Colorado State Highways
Major Roadways
Local Streets & Roads
Creeks
Perennial
Intermittent
Lakes & Reservoirs
Summits
Unincorporated Urban Areas
Incorporated Cities
Military
Forest
County Lines
N
S
E
W
Miles
0 0.5 1 2 3 4 5
SITE
Douglas County
Elbert County
Teller County
Fremont County
Pueblo County
Lincoln County
USAF Academy
COLORADO SPRINGS
Fort Carson
Schriever AFB
Peyton
Falcon
Ellicott
Yoder
Rush
Truckton
West Cherry Creek CYCY0400
East Cherry Creek CYCY0200
West Kiowa Creek KIKI0200
Bijou Creek BIBI0200
Upper Big Sandy Creek BGBG1400
Calhan BGBG1000
Upper Monument Creek FOMO5800
Beaver Creek FOMO4600
Air Force Academy FOMO3200
Kettle Creek FOMO3000
Upper Black Squirrel Creek CHBS2000
Geick Ranch CHMS0400
Upper Bracket Creek CHBR0600
La Vega Ranch CHBR0400
North Fork HOHO0400
Horse Creek HOHO0600
Hook And Line Ranch CHBS1800
Little Horse Creek HOHO0200
Steels Fork HOPO1000
Cottonwood Creek FOMO2200
Sand Creek FOFO4000
Haegler Ranch CHMS0200
Upper Big Springs Creek CHBG0400
Rush HOPO0800
Manitou Reservoir FOFO7400
Ruxton Creek FOFO7000
Upper Pond Creek HOPO0600
Jimmy Camp Creek FOFO2000
Lower Pond Creek HOPO0400
Crows Roost CHBS1000
Drennan CHBS0400
Southwest Area FOFO4600
Fort Carson FOFO2200
Little Fountain Creek FOFO1800
Haynes Creek HAHA0600
St.lukes HOPO0200
Lower Black Squirrel CHBS0600
Squirrel Creek CHBS0200
East Kramer KRKR0600
Turkey Creek TUTU0200
Lower East Chico CHCH0800
East Haynes HAHA0400
Kramer Creek KRKR0400
Red Creek BEBE0200
Finch Ranch CHCH0400
Windmill CHCH0200
West Kramer KRKR0200
Young Hollow FOFO0200

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, City of Fountain, Bureau of Land Management, National Oceanic and Atmospheric Administration, United States Geological Survey, and Anderson Consulting Engineers, Inc. These data are current as of 2006.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact **FEMA Map Service Center** (MSC) via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

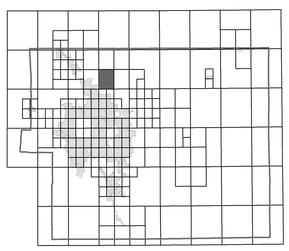
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

El Paso County Vertical Datum Offset Table

Flooding Source	Vertical Datum Offset (ft)

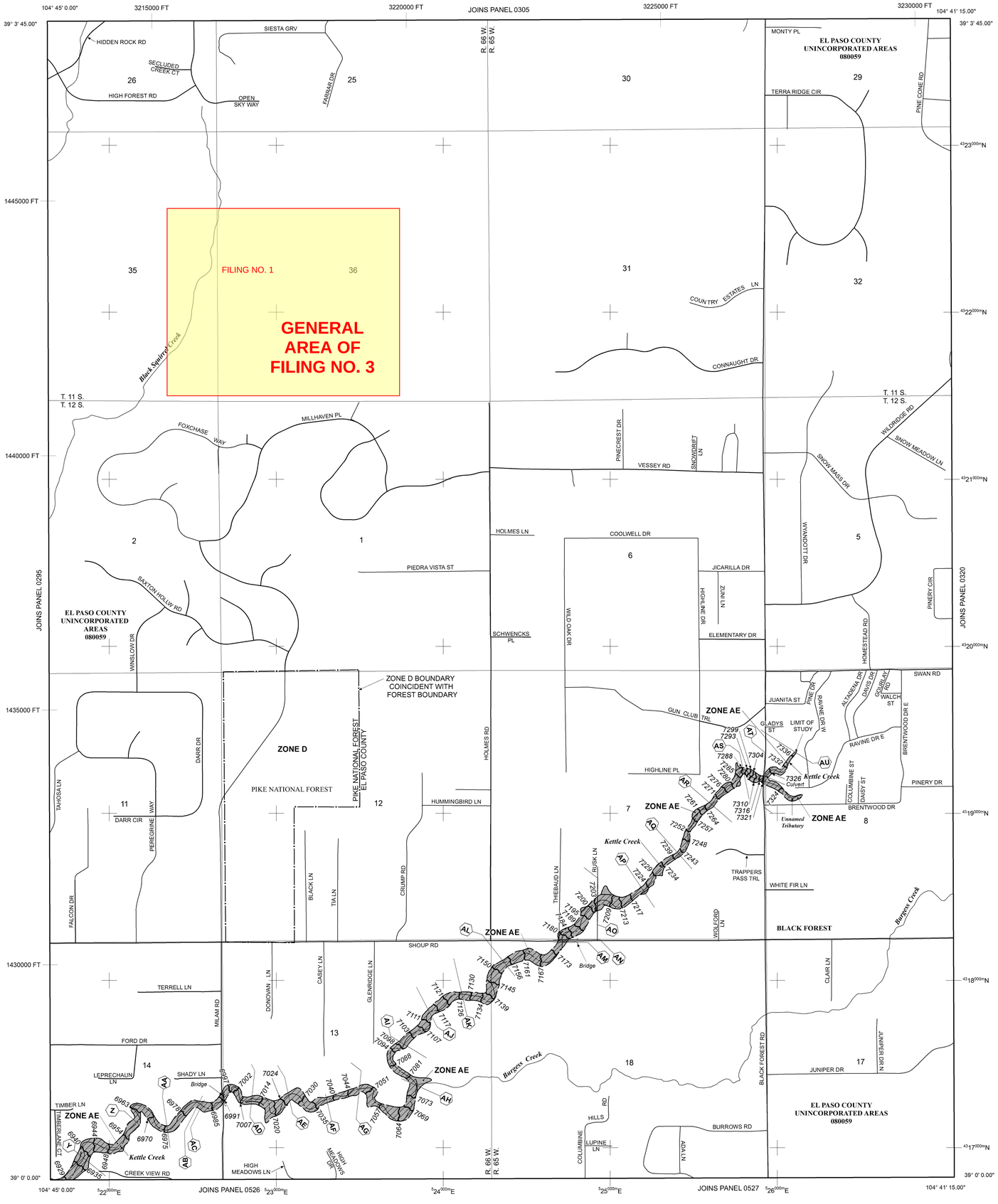
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION

Panel Location Map



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).

Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.
ZONE AE Base Flood Elevations determined.
ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary
Floodway boundary
Zone D Boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513 — Base Flood Elevation line and value; elevation in feet*
(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A Cross section line
23 — 23 Transect line
97° 07' 30.00" / 32° 22' 30.00" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN 1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 FT 5000-foot grid ticks: Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection
DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP

PANEL 0315G

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 315 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY	080059	0315	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 08041C0315G

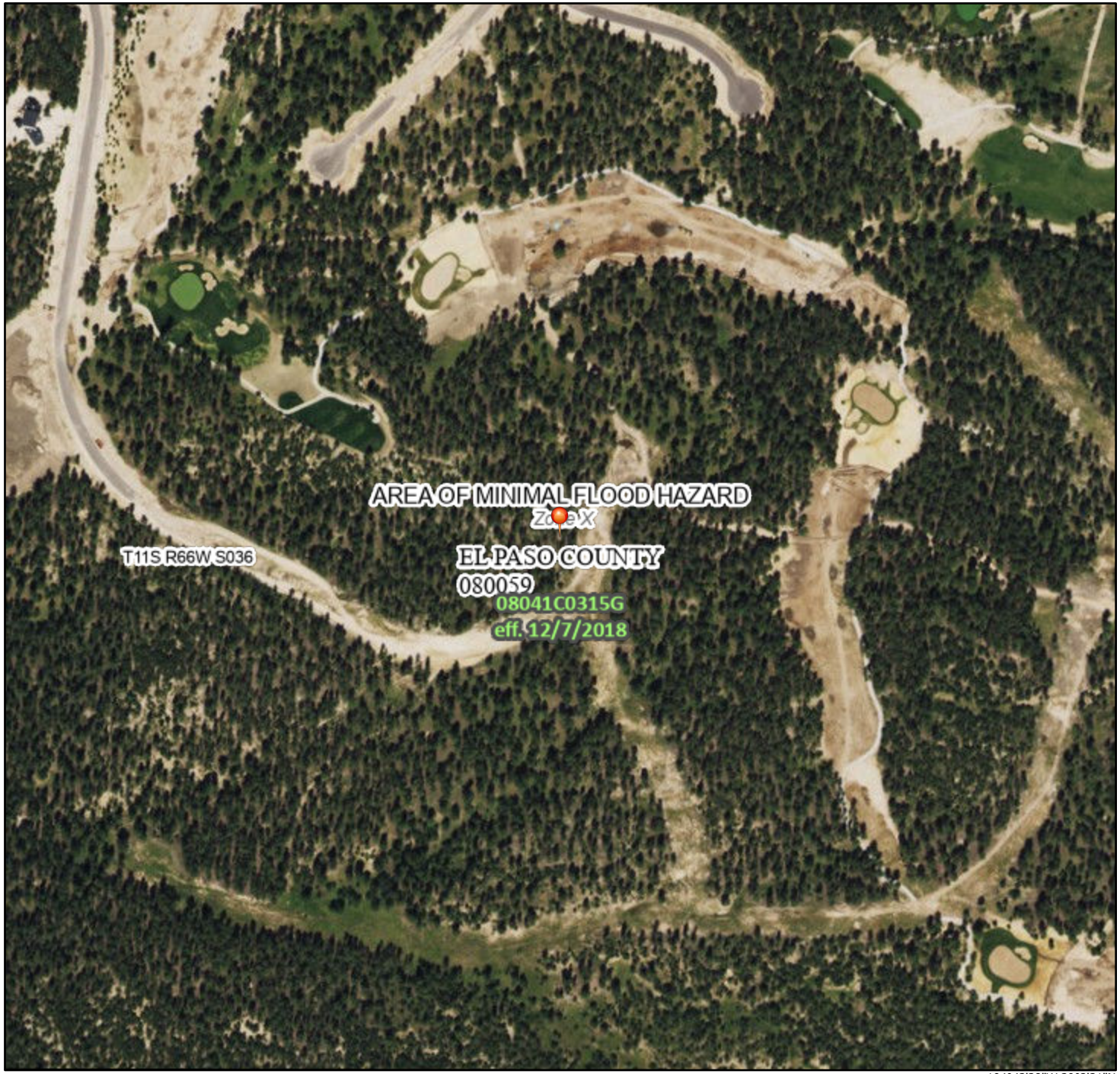
MAP REVISED DECEMBER 7, 2018

Federal Emergency Management Agency

National Flood Hazard Layer FIRMette

FEMA

104°44'16"W 39°2'59"N



104°43'38"W 39°2'31"N

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

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
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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 8/2/2023 at 11:16 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.

National Flood Hazard Layer FIRMette

FEMA

104°43'45"W 39°3'17"N

104°43'8"W 39°2'49"N

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

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
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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 8/2/2023 at 11:04 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 – GEC PLANS

APPENDIX C – CALCULATIONS

SEDIMENT BASIN A - POND A INITIAL PHASE
SEDIMENT BASIN STAGE-STORAGE CALCULATIONS

Elevation	Area S.F.	Area Acre	Volume Cu. Ft.	Volume Acre-Ft	Cumm Vol Cu. Ft.	Cumm Vol Acre-Ft	Proration Enter Vol. in Cu-Ft*	Proration Enter Vol. in Acre-Ft*	Elev. ft.
7559.0	10								
7560.0	1091		402		402	0.009			
7561.0	7411		3,782		4,184	0.096			
7562.0	17259		11,993		16,177	0.371	17,275	0.397	7,562.05
7563.0	23517		20,307		36,484	0.838	34,550	0.793	7,562.90
7564.0	28715		26,073		62,557	1.436			
7565.0	34100		31,369		93,926	2.156			
7566.0	40636		37,320		131,246	3.013			
7567.0	48445		44,483		175,730	4.034			
7568.0	57141		52,733		228,463	5.245			
7569.0									
7570.0									
7571.0									
7572.0									
7573.0									
7574.0									
7575.0									
7576.0									
7577.0									
7578.0									
7579.0									
7580.0									

COLUMN 1	COLUMN 2	CENTROID EL.
ORIFICE 1-1	ORIFICE 1-2	7,562.05
ORIFICE 2-1	ORIFICE 2-2	7,562.38
ORIFICE 3-1	ORIFICE 3-2	7,562.71

SED Basin riser pipe orifice calculations				
A_0 =	area per row of orifices spaved on 4" centers (in^2)			
V=	0.3966	design volume (acre feet)	*<15 ac.	
T_D=	72	time to drain the prescribed colume (hrs) (Typically 72 hours for EURV)		
H=	0.851	depth of volume (ft)		
S=	0.0001	Trickel channel slope (ft/ft) [Use 0.0001 for flat slope]		
			S=0%	
A_0 =	1.1798	in^2	**1.1763**	**in^2**
Dia	1.22	in	***EXCEEDS 1", USE TWO COLUMNS @ A_0=0.59 in^2**	
	2.45	Dia=/2	**0.59 in^2 = 7/8 in. dia.**	
	4.90	Dia=/4		
	9.79	Dia=/8		
	19.58	Dia=/16		
	39.16	Dia=/32		

SEDIMENT VOLUME CALCULATIONS				
Disturbed area-acres	9.000	Acres		
Undisturbed area-acres	4.300	Acres		
Total Area-acres	13.300	Acres		
Sediment volume	34,550	cu-ft	0.7932	Acres-ft
Volume below lowest hole	17,275	cu-ft	0.3966	Acres-ft
Volume above lowest hole	17,275	cu-ft	0.3966	Acres-ft
Total Volume	34,550	cu-ft	0.7932	Acres-ft

Note: **Enter values in highlighted cells only.**

SEDIMENT BASIN B - POND B INITIAL PHASE
SEDIMENT BASIN STAGE-STORAGE CALCULATIONS

Elevation	Area S.F.	Area Acre	Volume Cu. Ft.	Volume Acre-Ft	Cumm Vol Cu. Ft.	Cumm Vol Acre-Ft	Proration Enter Vol. in Cu-Ft*	Proration Enter Vol. in Acre-Ft*	Elev. Cu-Ft
7366.0	440								
7367.0	6860		3,012		3,012	0.069			
7368.0	11730		9,187		12,199	0.280			
7369.0	17800		14,660		26,859	0.617	35,530	0.8157	7,369.41
7370.0	24750		21,180		48,039	1.103			
7371.0	32325		28,453		76,492	1.756	106,590	2.4470	7,371.86
7372.0	37580		34,920		111,412	2.558			
7373.0	41900		39,720		151,132	3.470			
7374.0	45840		43,855		194,987	4.476			
7375.0	50000		47,905		242,892	5.576			
7376.0	54370		52,170		295,062	6.774			
7376.5	62250		29,133		324,195	7.442			
7377.0	64651		31,723		355,918	8.171			
7378.0									
7379.0									
7380.0									
7381.0									
7382.0									
7383.0									
7384.0									
7385.0									
7386.0									

COLUMN 1	COLUMN 2	CENTROID EL.
ORIFICE 1-1	ORIFICE 1-2	7,369.41
ORIFICE 2-1	ORIFICE 2-2	7,369.74
ORIFICE 3-1	ORIFICE 3-2	7,370.07
ORIFICE 4-1	ORIFICE 4-2	7,370.40
ORIFICE 5-1	ORIFICE 5-2	7,370.73
ORIFICE 6-1	ORIFICE 6-2	7,371.06
ORIFICE 7-1	ORIFICE 7-2	7,371.39
ORIFICE 8-1	ORIFICE 8-2	7,371.72

SED Basin riser pipe orifice calculations				
A_0 =	area per row of orifices spaved on 4" centers (in^2)			
V=	2.4470	design volume (acre feet)	*<15 ac.	
T_D=	72	time to drain the prescribed colume (hrs) (Typically 72 hours for EURV)		
H=	2.453	depth of volume (ft)		
S=	0.0001	Trickel channel slope (ft/ft) [Use 0.0001 for flat slope]		
			S=0%	
A_0 =	5.3128	in^2	**5.2973**	**in^2**
Dia	2.60	in	***EXCEEDS 1", USE TWO COLUMNS @ $A_{0=}$ 2.64 in^2**	
	5.19	Dia=/2	**2.64 in^2 = 2-5/8" in. dia.**	
	10.39	Dia=/4		
	20.78	Dia=/8		
	41.55	Dia=/16		
	83.11	Dia=/32		

SEDIMENT VOLUME CALCULATIONS				
Disturbed area-acres	26.200	Acres		
Undisturbed area-acres	71.700	Acres		
Total Area-acres	97.900	Acres		
Sediment volume	106,590	cu-ft	2.4470	Acres-ft
Volume below lowest hole	35,530	cu-ft	0.8157	Acres-ft
Volume above lowest hole	106,590	cu-ft	2.4470	Acres-ft
Total Volume	142,084	cu-ft	3.2618	Acres-ft

Note: **Enter values in highlighted cells only.**

SEDIMENT BASIN C

SEDIMENT BASIN STAGE-STORAGE CALCULATIONS

Elevation	Area S.F.	Area Acre	Volume Cu. Ft.	Volume Acre-Ft	Cumm Vol Cu. Ft.	Cumm Vol Acre-Ft	Proration Enter Vol. in Cu-Ft*	Proration Enter Vol. in Acre-Ft*	Elev. Cu-Ft
7484.0	2850								
7485.0	3910		3,366		**3,366**	**0.077**	6,765	0.1553	**7,485.78**
7486.0	4830		4,362		**7,728**	**0.177**			
7487.0	7100		5,929		**13,657**	**0.314**	13,530	0.3106	**7,486.98**
7488.0	7350		7,225		**20,881**	**0.479**			
7489.0									
7490.0									
7491.0									
7492.0									
7493.0									
7494.0									
7495.0									
7496.0									
7497.0									
7498.0									
7499.0									
7500.0									
7501.0									
7502.0									
7503.0									
7504.0									
7505.0									

COLUMN 1	**CENTROID EL.**
ORIFICE 1	7,485.78
ORIFICE 2	7,486.11
ORIFICE 3	7,486.44
ORIFICE 4	7,486.77

SED Basin riser pipe orifice calculations				
A_0 =	area per row of orifices spaved on 4" centers (in^2)			
V=	0.1553	design volume (acre feet) *<15 ac.		
T_D=	72	time to drain the prescribed colume (hrs) (Typically 72 hours for EURV)		
H=	1.203	depth of volume (ft)		
S=	0.0001	Trickel channel slope (ft/ft) [Use 0.0001 for flat slope]		
			S=0%	
$A_{0=}$	0.4760	in^2	0.4746	in^2
Dia	0.78	in	**use 3/4"**	
	1.56	Dia=/2		
	3.11	Dia=/4		
	6.23	Dia=/8		
	12.46	Dia=/16		
	24.91	Dia=/32		

SEDIMENT VOLUME CALCULATIONS				
Disturbed area-acres	3.300	Acres		
Undisturbed area-acres	3.300	Acres		
Total Area-acres	6.600	Acres		
Sediment volume	13,530	cu-ft	0.3106	Acres-ft
Volume below lowest hole	6,765	cu-ft	0.1553	Acres-ft
volume above lowest hole	6,765	cu-ft	0.1553	Acres-ft
Total Volume	13,530	cu-ft	0.3106	Acres-ft

Note: Enter values in highlighted cells only.

SEDIMENT BASIN D-1
SEDIMENT BASIN STAGE-STORAGE CALCULATIONS

Elevation	Area S.F.	Area Acre	Volume Cu. Ft.	Volume Acre-Ft	Cumm Vol Cu. Ft.	Cumm Vol Acre-Ft	Proration Enter Vol. in Cu-Ft*	Proration Enter Vol. in Acre-Ft*	Elev. Cu-Ft
7398.0	2300								
7399.0	3105		2,692		**2,692**	**0.062**	5,260		**7,399.74**
7400.0	3890		3,490		**6,183**	**0.142**	10,520		**7,400.99**
7401.0	4888		4,380		**10,562**	**0.242**			
7402.0	5960		5,415		**15,977**	**0.367**			
7403.0									
7404.0									
7405.0									
7406.0									
7407.0									
7408.0									
7409.0									
7410.0									
7411.0									
7412.0									
7413.0									
7414.0									
7415.0									
7416.0									
7417.0									
7418.0									
7419.0									

COLUMN 1	**CENTROID EL.**
ORIFICE 1	7,399.74
ORIFICE 2	7,400.07
ORIFICE 3	7,400.40
ORIFICE 4	7,400.73

SED Basin riser pipe orifice calculations				
A_0 =	area per row of orifices spaved on 4" centers (in^2)			
V=	0.1208	design volume (acre feet) *<15 ac.		
T_D=	72	time to drain the prescribed colume (hrs) (Typically 72 hours for EURV)		
H=	1.255	depth of volume (ft)		
S=	0.0001	Trickel channel slope (ft/ft) [Use 0.0001 for flat slope]		
			S=0%	
A_0 =	0.3762	in^2	**0.3751**	in^2
Dia	0.69	in	**use 11/16"**	
	1.38	Dia=/2		
	2.76	Dia=/4		
	5.53	Dia=/8		
	11.06	Dia=/16		
	22.12	Dia=/32		

SEDIMENT VOLUME CALCULATIONS				
Disturbed area-acres	2.200	Acres		
Undisturbed area-acres	5.200	Acres		
Total Area-acres	7.400	Acres		
Sediment volume	10,520	cu-ft	0.2415	Acres-ft
Volume below lowest hole	5,260	cu-ft	0.1208	Acres-ft
volume above lowest hole	5,260	cu-ft	0.1208	Acres-ft
Total Volume	10,520	cu-ft	0.2415	Acres-ft

Note: **Enter values in highlighted cells only.**

SEDIMENT BASIN D-2
SEDIMENT BASIN STAGE-STORAGE CALCULATIONS

Elevation	Area S.F.	Area Acre	Volume Cu. Ft.	Volume Acre-Ft	Cumm Vol Cu. Ft.	Cumm Vol Acre-Ft	Proration Enter Vol. in Cu-Ft*	Proration Enter Vol. in Acre-Ft*	Elev. Cu-Ft
7397.0	2102								
7398.0	2950		2,514		**2,514**	**0.058**	5,050		**7,398.76**
7399.0	3730		3,332		**5,846**	**0.134**	10,100		**7,399.99**
7400.0	4850		4,278		**10,124**	**0.232**			
7401.0	5760		5,298		**15,423**	**0.354**			
7402.0									
7403.0									
7404.0									
7405.0									
7406.0									
7407.0									
7408.0									
7409.0									
7410.0									
7411.0									
7412.0									
7413.0									
7414.0									
7415.0									
7416.0									
7417.0									
7418.0									

COLUMN 1	**CENTROID EL.**
ORIFICE 1	7,398.76
ORIFICE 2	7,399.09
ORIFICE 3	7,399.42
ORIFICE 4	7,399.75

SED Basin riser pipe orifice calculations				
A_0 =	area per row of orifices spaved on 4" centers (in^)			
V=	0.1159	design volume (acre feet) *<15 ac.		
T_D=	72	time to drain the prescribed colume (hrs) (Typically 72 hours for EURV)		
H=	1.233	depth of volume (ft)		
S=	0.0001	Trickel channel slope (ft/ft) [Use 0.0001 for flat slope]		
			S=0%	
A_0 =	0.3622	in^2	**0.3611**	in^2
Dia	0.68	in	**use 11/16"**	
	1.36	Dia=/2		
	2.71	Dia=/4		
	5.42	Dia=/8		
	10.85	Dia=/16		
	21.70	Dia=/32		

SEDIMENT VOLUME CALCULATIONS				
Disturbed area-acres	2.500	Acres		
Undisturbed area-acres	2.200	Acres		
Total Area-acres	4.700	Acres		
Sediment volume	10,100	cu-ft	0.2319	Acres-ft
Volume below lowest hole	5,050	cu-ft	0.1159	Acres-ft
volume above lowest hole	5,050	cu-ft	0.1159	Acres-ft
Total Volume	10,100	cu-ft	0.2319	Acres-ft

Note: **Enter values in highlighted cells only.**

BMP FEATURE	TOTAL TRIBUTARY AREA (AC)	DISTURBED AREA (AC)	UNDISTURBED AREA (AC)	BOTTOM SIZE (FT)	SEDIMENT VOLUME (AC-FT)	BASIN VOLUME (AC-FT)	BOTTOM ELEVATION	CREST ELEVATION	CREST, WxL (FT)	TOP OF POND ELEVATION	LOWEST ORIFICE ELEVATION	TOTAL AREA OF ORIFICES (SQ IN)	# OF ORIFICE COLUMNS	DIA. OF ORIFICES	RISER PIPE INVERT	DAYLIGHT ELEVATION	OUTLET PIPE LENGTH (FT)	OUTLET PIPE SLOPE
SB-A	13.3	9.0	4.3	146' x 211'	0.79	5.24	7559.00	7568.00	25' x 40'	7568.00	7562.05	1.18	2	7/8"	7560.72	7558.50	88	2.5%
SB-B	97.9	26.2	71.7	210' x 440'	2.45	8.17	7366.00	7376.50	50' x 32'	7377.50	7369.41	5.30	2	2-5/8"	7368.08	7364.50	67	5.3%
SB-C	6.6	3.3	3.3	40' x 80'	0.31	0.31	7484.00	7487.00	18' x 16'	7488.00	7485.78	0.47	1	3/4"	7484.45	7484.00	40	1.1%
SB-D1	7.4	2.2	5.2	37' x 74'	0.24	0.24	7398.00	7401.00	18' x 16'	7402.00	7399.74	0.38	1	11/16"	7398.41	7398.00	40	1.0%
SB-D2	4.7	2.5	2.2	36' x 72'	0.23	0.23	7397.00	7400.00	12' x 16'	7401.00	7398.76	0.36	1	11/16"	7397.43	7397.00	40	1.1%

*ORIFICES TO BE EVERY 3" FROM LOWEST ORIFICE ELEVATION TO THE TOP OF RISER PIPE, TOTAL NUMBER OF ORIFICES VARY.

APPENDIX D – EL PASO COUNTY CONSTRUCTION CONTROL MEASURES

APPENDIX E – SPILL PREVENTION PLAN

Spill Prevention, Control and Countermeasure (SPCC) Plan

Facility Name: _____
Address: _____
_____

Contact Name: _____
Phone: _____
Fax: _____
Email: _____

Certification: I hereby certify that I have examined the facility, and, being familiar with the provisions of 40 CFR part 112, attest that this SPCC plan has been prepared, or updated within 5 years, in accordance with good engineering practices and meets the requirements listed in 40 CFR part 112.

This plan has been certified by:

Date of certification: _____ *Engineer's Seal*

Copies of this plan are located at the facility and are available to all employees.

Location(s) of plan(s): _____

I. FACILITY INFORMATION

a. Facility Name: _____

b. Mailing Address: _____
_____

c. Physical address if different: _____
_____
_____

d. Owner Name: _____

e. Owner Address: _____
_____

f. Primary Contact Name: _____
Work Phone Number: _____
Home Phone Number: _____
Mobile Phone Number: _____

g. Secondary Contact Name:
Work Phone Number: _____
Home Phone Number: _____
Mobile Phone Number: _____

h. Date of Initial Operation: _____

II. SITE ASSESSMENT

a. Location:
Describe where facility is located. For example, "This site is located along Broad Creek about 2 miles north of its confluence with the Choptank River at Holland Point. Road access is from. . . . The site is located on Talbot County ADC map 22 (H5). Latitude is ___ and longitude is ___ ."

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

III. FACILITY DESCRIPTION

a. Acres of land: ____

b. Facilities and Equipment:
Place an X beside all that apply.

____ Garage for vehicle processing
____ Parts store
____ On-site crushcr
____Impervious crush pad for crusher
____ Impervious pad for outside vehicle processing
____ Spill kit/emergency equipment
____ Refrigerant (Freon) extractor
____ Parts washer
____ Other structures and major equipment:

Please list: _____
_____
_____
_____
_____

c. Services:
Place an X beside all that apply.

____ Dismantler/Recycler
____ Sell used parts
____ Sell vehicles for scrap
____Crushing
____ Auto body/repair shop
____ Sell used cars
____ Other services:

Please list: _____
_____
_____
_____

d. Fixed Storage:
List capacity and contents of each storage container. For example, "One 6,000 gallon above ground tank containing diesel fuel." Be sure to include diesel, gasoline, waste oil, heating oil, kerosene, paint thinner and other solvents. Also describe the construction of the containers, secondary containment for each, liquid level indicators, alarms and method of corrosion protection for each container._____

e. Non-Fixed Storage:
List capacity and contents of each storage container. For example, "One 55 gallon drum for recycled oil." Be sure to indicate what each container is used for, its condition and construction and how secondary containment is provided. _____

f. Total quantity of stored materials:
The combined quantity of the materials listed above: _____ gallons

IV. OIL SPILL HISTORY

Place an X on the appropriate line and proceed accordingly.

___ There has never been a significant spill at the above named facility.

___ There have been one or more significant spills at the above named facility. Details of such spill(s) are described below.

For each spill that occurred, supply the following information:

- Type and amount of oil spilled
- Location, date and time of spill(s)
- Watercourse affected
- Description of physical damage
- Cost of damage
- Cost of clean-up
- Cause of spill
- Action taken to prevent recurrence

V. POTENTIAL SPILL VOLUMES AND RATES

Fill in all applicable blanks. Be prepared to show the engineer documentation of flow rates. Your fuel vendor and the manufacturer of your storage and dispensing equipment should be able to provide this documentation.

Potential Event	Volume Released	Spill Rate
Complete failure of a full tank*	____ gallons	instantaneous
Partial failure of a full tank*	1 to ____ gallons	gradual to instantaneous
Tank overflow**	1 to ____ gallons	up to ____ gallons per minute
Leaking during unloading***	up to ____ gallons	up to ____ gallons per minute
Pipe failure****	up to ____ gallons	up to ____ gallons per minute
Leaking pipe or valve****	several ounces to gallons	up to ____ gallons per minute
Fueling operations****	several ounces to gallons	up to ____ gallons per minute
Oil and grease	several ounces to quarts	spotting

* Volume of largest tank
** Calculate using the rate at which fuel is dispensed from the delivery truck into your tank(s).
*** Calculate using the rate at which petroleum would be withdrawn from the tank if it should have to be emptied (*e.g.*, if it was being taken out of service).
**** Calculate based on the specifications of your equipment.

VI. SPILL PREVENTION AND CONTROL

a. Spill Prevention:
Provide specific descriptions of containment facilities and practices. Include description of items such as double-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures and spill response kits. Also, describe how and when employees are trained in proper handling procedures and spill prevention and response procedures.

b. Spill discharge and flow:
For each potential spill source, describe where petroleum would flow in the event of a spill. For example, "The 6,000 gallon diesel tank has a pre-manufactured secondary containment system capable of holding 110 percent of the total volume of the tank" and, "A spill from engine repair would be contained inside the shop building and quickly cleaned up with oil absorbents." Incorporate site map by reference (see instructions under *Appendices*).

c. Spill response:
Identify what equipment would be deployed by whom and in what situation. Also, include phone numbers for response agencies, *e.g.*, U.S. Coast Guard, fire department, spill response contractors, etc. A copy of your spill response plan may be attached as an appendix to this SPCC plan in lieu of completing this section.

d. Security
Provide a description of how all containers are protected when the facility is not in operation or unattended. Include a description of fencing, access control, gates, locks, etc. that prevent access by unauthorized individuals.

VII. FACILITY INSPECTIONS

a. Routine Inspections

Name facilities and the frequency with which they are inspected. For example, "The fuel pumps are inspected daily. The materials storage area is inspected monthly." Describe all facility containers, piping, etc. that is to be inspected. Name the person who has responsibility to implement preventative maintenance programs, oversee on-site inspections, coordinate employee training, maintain records, update the plan as necessary, and ensure that reports are submitted to the proper authorities.

b. Annual Inspections

Include a description of annual comprehensive inspections. For example, "A site inspection is also conducted annually by appropriate responsible personnel to verify that the description of potential pollutant sources are accurate, that the map reflects current site conditions, and that the controls to reduce the pollutants identified in this plan are being implemented and are adequate. This annual inspection will be conducted above and beyond the routine inspections done focusing on designated equipment and areas where potential sources are located."

VIII. RECORD KEEPING

Describe record keeping procedures. For example, "Record keeping procedures consist of maintaining all records a minimum of three years. The following items will be kept on file: current SPCC plan, internal site reviews, training records, and documentation of any spills or maintenance conducted in regards to these sites." *Maintenance Inspection*, *Employee Training*, and *Record Keeping* logs are included in this template for your use.

IX. MAINTENANCE INSPECTIONS

Maintenance Coordinator: _____. Maintenance Coordinator responsibilities include implementation of preventative maintenance programs and oversight of on-site inspections.

Use this table to record inspections:

Facility Inspected	Date of Inspection	Name of Inspector	Result Pass/Fail	Comments

X. RECORD KEEPING OF INCIDENTAL SPILLS

Record Keeper: _____. Record Keeper responsibilities include maintaining records of incidents, updating the SPCC plan as necessary and ensuring reports are submitted to the proper authorities when necessary.

Incident No.	Type of Incident	Date of Occurrence	How it was Cleaned Up

APPENDIX F – CSWMP REPORT REVISION LOG

SWMP REPORT REVISION LOG

REVISION #	DATE	BY	COMMENTS