



Title	ES-301-3.01 Construction
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1) Activity Description: MS4 Maintenance and Operations Procedures for DEN

This guideline addresses environmental concerns associated with construction activities taking place on DEN property. Planning and design requirements for construction projects are located in Environmental Guideline ES-301-3.02 Planning and Design.

Each airport tenant, contractor, or operator conducting construction activities is responsible for understanding the applicable regulations and managing their activities accordingly; this Environmental Guideline is meant as guidance only and does not supersede any regulations.

* This EG is one of several specifically identified procedures for activities/facilities that are required by the Pollution Prevention/Good Housekeeping section of CCD's MS4 permit. Related procedures not specially addressed in this EG include, but not limited to, those identified in the Reference section of this document.

2) Potential Environmental Risks

A. The following environmental concerns are associated with these activities:

- Fuel spills
- Air pollution & odors
- Improper or inappropriate disposal of Wastes
- Sanitary sewer overflow
- Contamination of ground water
- Collection of wash water
- Improper or inappropriate disposal of pesticides and herbicides
- Disposal of contaminated spill response media
- Sediment & erosion
- Contamination of soils
- Contamination of surface water
- Adverse impacts to Wildlife/Protected Species
- Adverse impacts to non-target organisms
- Adverse impacts to wetlands

B. Potential consequences from performing the activity incorrectly:

- Personal injury, property damage, or damage to the environment
- Possible regulatory noncompliance, Notices of Violation, and related [financial & non-financial] penalties
- Inability to obtain federal funding
- Bad press for the airport
- Delays to project schedule and increased project cost

3) General Critical Requirements and Tasks

A. Prohibited Activities

- i) Construction activities shall not commence on any project until all FAA approvals have been received, applicable permits have been issued to and signed by the permittee, and all inspection requirements have been satisfied in accordance with State and local permitting requirements.

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- ii) Abandonment or disposal of construction debris, spoils, and/or waste on municipal airport property is strictly prohibited by State and local law. Placement of concrete spoils and asphalt spoils is permitted at designated areas ONLY with the prior approval of the DEN Project Manager (PM).
- iii) Concrete washout activities are prohibited anywhere on DEN property unless: a) the activity is specifically authorized under a CDPS permit and included in the SWMP, or b) the washwater is collected and hauled off site for disposal at an appropriately permitted facility.
- iv) Concrete washout activities, authorized by permit, are only allowed at a designated concrete washout area as indicated in the approved Construction Activities Stormwater Management Plan (CASMP) and include the washing of the chute and tools ONLY. Concrete washout spoils are eligible for recycling once the washout has been segregated and allowed to dry and harden in accordance with permitted methods.
- v) Spills of any kind shall not be washed into any sewer system or waterway, or onto any soils.

B. General Considerations

- i) Obtain all applicable federal, state, and local permits for construction projects
 - (1) Either one or both the Colorado Stormwater Construction General permit and/or the Denver Construction Activities Stormwater Discharge Permit apply to construction sites meet one or more of the following criteria:
 - (a) Disturbing one acre or more, or less than one acre but part of a larger common plan of development,
 - (b) Are part of a larger common plan of development is defined as a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan,
 - (c) The site has been identified as having a significant potential for erosion, based on site characteristics including steep topography,
 - (d) The site is not known to contain contaminated soils or pre-existing environmental impairment, and
 - (e) The site is not directly adjacent to receiving waters (i.e. creek, stream, river, pond, lake, etc.).
 - (2) A dewatering permit may be required if construction activities require the removal and discharge of groundwater offsite.
 - (3) A U.S. Army Corp of Engineers (USACE) Section 404 Permit may be needed if the work will be conducted in or impact waters of the United States, including wetlands, washes, drainages, ditches, creeks, streams, and rivers.
- ii) In most cases, the contractor is responsible for applying for and obtaining all environmental permits at the direction of the DEN PM. Actual permit needs are identified through the planning and design process (see Environmental Guideline ES-301-3.02 Planning and Design).
- iii) Environmental permitting requirements are identified in the planning and design phases of a project so that permits can be secured in a timely and cost-effective manner. Some environmental permits and approvals can be secured in a matter of days, while others can take months to obtain.
- iv) All contractor waste must be sent to the Denver Arapahoe Disposal Site (DADS) per Mayor's Executive Order 115.
- v) All airport tenants shall comply with the airport's Tenant Development Guidelines (TDGs).

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- vi) Applicable sediment and erosion controls shall be installed to prevent illegal discharges to the storm sewer or waterways, such as inlet protection, silt fence, sediment traps, erosion control logs, check dams, and vehicle tracking control. Sediment and erosion controls will be installed and maintained in accordance with approved design criteria and/or industry standards.
- vii) Where practicable, non-structural controls will be used, such as phased construction, dust control, good housekeeping practices (daily sweeping), and spill prevention and response procedures.
- viii) Protect storm drain inlets and drains with curb socks, rock berms, inlet protection, or drain covers/mats prior to any activity.
- ix) Where feasible, schedule maintenance activities during dry weather.
- x) Obtain any required waste profile acceptance for each waste stream at proper disposal sites prior to initiating work. Refer to ES-301-6.01 General Waste Management.
- xi) Leaking material containers should be properly discarded and replaced.
- xii) Store materials in containers under cover when not in use and away from any storm drain inlet.
- xiii) Monitor equipment for leaks and use drip pans as necessary.

C. Employee Training

- i) Develop training programs to inform personnel, at all levels of responsibility, who are involved in construction activities that may impact stormwater runoff. Training should include topics such as permit requirements, inspection procedures, spill response, good housekeeping, and material management practices.
- ii) DEN Field Maintenance Staff receive waste management training from DEN Environmental Services (ES) on an annual basis. DEN Construction Engineering is responsible for ensuring that Contractors comply with Technical Specification 01566.

D. Storage & Material Handling Requirements

- i) Soil stockpiles are allowed with prior approval by the DEN PM. Soil stockpiles must contain only "clean" soils, i.e. stockpile cannot contain mixed materials such as concrete, trash, rebar, or other construction debris. Soil stockpiles are considered a potential pollutant source and must be managed in accordance with State and City permit requirements.
- ii) Store materials per RCRA-approved methods.
- iii) Maintain legible labels and markings on all containers and tanks.
 - Label all cans and containers with product information, 24/7/365 contact information (name and number), put in a fire department-approved cabinet, and locked.
 - Label all drums; label empty drums with the words "EMPTY." Place all drums under cover. Replace damaged drums. Use containers that are compatible with the material stored in them.
- iv) Cover and routinely empty waste containers (e.g., roll-off dumpsters).
- v) Ensure adequate secondary containment for all bulk storage containers, and that all containers and containment are in good operating condition.
- vi) Whenever possible, recycle concrete and asphalt rubble; otherwise, dispose of it as solid waste

E. Emergency Response

- i) Call DEN Communications Center immediately at 303-342-4200 for all spills.
- ii) If a spill occurs, refer to Environmental Guideline ES-301-5.02 Spill Response.
- iii) Control spills to minimize property damage and eliminate imminent risk to human health and the environment.
- iv) Containerize all collected wastes and evaluate for labeling, storage and disposal.

4) Planning Critical Requirements and Tasks:

- i) The DEN PM should obtain a copy of the “Facility Development/Redevelopment Environmental Checklist” for the project from DEN ES. Normally, this checklist is completed during design; however, the checklist details environmental requirements during both the design and construction phases of each project.

5) Construction Activities Critical Requirements and Tasks:

- i) For all construction sites requiring a City construction permit, prior to any earth disturbance operations, conduct an Initial Inspection when the first level of temporary erosion and sediment control BMPs have been installed. The contractor shall schedule the Initial Inspection with the assigned City and County of Denver Public Works Wastewater Department (DPW) National Pollutant Discharge Elimination System (NPDES) Inspector once initial BMPs have been installed. The DEN PM or a designated representative should be present during the Initial Inspection.
- ii) For construction projects conducted by DEN Field Maintenance, the Director of Field Maintenance shall assign an acting Project Manager. This individual is responsible for compliance with all applicable permit and program requirements. Responsibilities include all duties assigned to the “contractor” and the DEN PM as stated herein.
 - Perform work in accordance with contract documents and permits obtained for the project.
 - Stabilize all areas of disturbance including but not limited to, staging areas, laydown area, and contractor yards in accordance with State and local permit requirements, airport rules and regulations, and or restore the site to the condition that the City initially provided the site.
 - In accordance with Technical Specification 01500, a final inspection of all temporary contractor facilities shall be conducted by the DEN PM or representative. These areas include, but are not limited to, staging areas, laydown areas, borrow areas, and contractor yards and offices. The DEN PM will ensure these areas have been properly stabilized in accordance with DEN contract agreements and restored to the condition in which the City initially provided them to the contractor. A DEN representative should be present during the final walk through.
 - In accordance with Airport Rule and Regulation 180, restore any area on DEN property that becomes contaminated as a result of contractor operations. Restoration shall be in accordance with federal and state regulations, as well as applicable standards or to such

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other levels as may be required by the Manager of Aviation, at the Manager's sole discretion.

- If questionable materials are encountered during construction activities, immediately notify the DEN Communications Center at (303) 342-4200 and the DEN PM.
- Submit final as-built drawings to the DEN PM and DPW, if required.

BMP Inspection and Maintenance

For construction projects conducted by contractors, the contractor is responsible for performance of all Self-Monitoring Inspections pursuant to State and City issued permits.

For a construction project conducted by DEN Field Maintenance, the Director of Field Maintenance or designee will assign a site inspector to the project. The inspector's duties include performance of all Self-Monitoring Inspections pursuant to State and City issued permits.

Conduct inspections in accordance with State CDPS permit requirements and the City and County of Denver Public Works Construction Sites Program (pursuant to the MS4 permit and the Denver Revised Municipal Code).

The assigned DPW NPDES Inspector is responsible for performance of all MS4 Compliance Inspections in accordance with the City and County of Denver's Construction Sites Program.

Schedule a Final Inspection with the DPW NPDES Inspector when final stabilization has been achieved. After site stabilization has been inspected and accepted by the DPW NPDES Inspector, close all applicable environmental permits.

Expected Records / Outputs:

- Document all inspections in accordance with applicable permit requirements. A copy of these inspections should be submitted to the PM assigned to the project. All inspection documentation shall be readily available for State, City, and DEN ES inspectors.
- Contractors must submit all permit inactivation and/or termination documentation to the DEN PM.
- Facility Development/Redevelopment Environmental Checklist should be on file with DEN ES and DEN PM for the project design and construction.
- The DEN PM will send copies of all environmental related submittals (permit applications, final permits, plans, etc.) to DEN ES for review and comment. Keep the DEN PM files in PM's own project file. DEN ES files in File 09.29.03.

6) Concrete and Asphalt Recycling Yards:

- North Recycle Yard located at 110th Ave. and Queensburg St.
- South Recycle Yard located at 71st Ave and Jacksons Gap St.

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DEN maintains two dry concrete and asphalt recycling yards used for the accumulation and crushing/recycling of these materials. The use of these yards is only allowed with the DEN PM's approval.

The only allowable materials at the recycle yards are dry concrete and asphalt materials generated from construction activities occurring on DEN property. The following are NOT permitted at the recycle yards:

- Rejected concrete and asphalt loads
 - Rejected loads shall be returned to point of origin.
- Unused portions of delivered loads
 - Return to point of origin.
- Concrete washout from chutes, tools, and drums
 - Washing of equipment, chutes, and tools must be conducted within a designated concrete washout area.
- Trash, wood, or other construction-related debris
 - Dispose of offsite per 01566 at DADS

Expected Records / Outputs:

- A Recycle Materials Manifest is required for each load of concrete or asphalt placed in these areas. Submit completed manifests weekly to the responsible DEN PM (see Technical Specification 01566 for details).
- A copy of the Recycled Materials Manifest form is available from the DEN PM. A copy of all manifests must be turned in on a weekly basis to the Director of Construction (Michael Steffens).

7) Soil Stockpile Areas:

- North Soil Stockpile Area located at 110th Ave. and Queensburg St.
- South Soil Stockpile Area located at 73rd Ave. and Gun Club Road (south of Pikes Peak Parking)

With permission from the DEN PM, the north and south soil stockpile areas may be utilized for stockpiling clean soil materials only. Acceptable clean soil materials include non-contaminated excavated soils and native rock generated during construction activities occurring on DEN property.

Unacceptable materials include soils contaminated with the following:

- Trash/debris/incidental construction materials (formwork, construction fencing, etc.)
 - Dispose of offsite per 01566 at DADS
- Oil or other regulated/hazardous material contaminant spills
 - Dispose of offsite per 01566 in accordance with applicable State & Federal regulations
- Erosion and sediment control materials (silt fence, ECBs, ECLs, VTC rock, etc.)
 - Dispose of offsite per 01566 at DADS
- Metals (pipe/flashing/rebar/etc.)
 - Recycle per 01566 and metal salvage requirements

- Concrete in any form (rejected loads, truck rinse, demo'd material, recycled crushed concrete, etc.)
 - Rejected loads shall be returned to point of origin.
 - Washing of equipment, chutes, and tools must be conducted within a designated concrete washout area.
- Concrete with rebar
 - Dispose of offsite per 01566 at DADS.
 - Concrete without rebar shall be recycled at the north or south concrete and asphalt recycle yards.
- Asphalt/rotomillings/bituminous materials
 - Liquid bitumen shall be returned to point of origin.
 - Collect equipment rinse from asphalt paving operations and dispose of at properly permitted facility.
 - Demo'd asphaltic materials shall be recycled at the north or south concrete and asphalt recycle yards.
- Free-flowing liquids including excessive water (no slurries)
 - Unless otherwise approved in writing by DEN ES, oversaturated soils that emit free-flowing water (cannot pass paint filter test per SW-846) shall be contained and disposed of offsite at a facility permitted to accept liquid wastes.

8) References

A. Phone Numbers

DEN Communications Center (for Spill Reporting).....	(303) 342-4200
Kim Ohlson (DEN Environmental Services).....	(303) 342-2637
Mark Kunugi (DEN Environmental Services).....	(303) 342-2629
DEN Environmental Services (Main Line).....	(303) 342-2730

B. Guidance Materials (list not limited to the following)

- Facility Development/Redevelopment Environmental Checklist
- City and County of Denver Construction Sites Program
- City and County of Denver Construction Activities Stormwater Management Plans Information Guide
- Urban Storm Drainage Criteria Manual Vol. 3
- MSDSs
- SPCC Plan

C. Related Environmental Guidelines (list not limited to the following):

- ES-301-1.07 Storage of Vehicles and Equipment Containing Chemicals
- ES-301-3.02 Planning and Design
- ES-301-4.03 Cleaning/Washing – Outdoor Areas and Structures
- ES-301-4.08 Inspection and Maintenance of MS4 Structural Controls
- ES-301-4.09 Management of Petroleum Storage Tanks & Containers

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- ES-301-4.11 Storage, Handling, and Management of Hazardous Materials
- ES-301-5.02 Spill Response
- ES-301-6.01 General Waste Management
- ES-301-6.03 Management of Recyclable and Reusable Materials
- ES-301-6.04 Management of Hazardous Wastes
- ES-301-6.06 Management of Special Wastes

D. Applicable Regulations (list not limited to the following)

- 40 CFR 122-124 NPDES Regulations for Storm Water Discharges
- 6 CCR 1007-3, Part 261 State RCRA Regulations
- Federal hazardous waste regulations (40 CFR Parts 260-279)
- State hazardous waste regulations (6 CCR 1007-3, Parts 260-279)
- For DEN projects on Denver land, Denver illegal dumping ordinances (D.R.M.C. Title II, Chapter 48, Articles IV and VI)
- For DEN projects on Aurora land, Aurora illegal dumping ordinances (Aurora Code of Ordinances, Chapter 114, Article II)
- Mayor's Executive Order 115 Required Use of Denver Arapahoe Disposal Site (Landfill)
- Municipal separate storm sewer system (MS4) permit for the City and County of Denver (Permit No. COS-000001)
- Project Stormwater Management Plan
- DEN Tenant Development Guidelines
- DEN Technical Specifications – Section 01500
- DEN Technical Specifications – Section 01566
- City and County of Denver Ordinances
- DEN Rules and Regulations
- City and County of Denver Mayor's Executive Orders

E. Other Documents

- Construction-related inspection records
- Project permits and plans