

Stormwater Management Plan for: Optima Batteries, Inc. Subdivision Filing No. 1

Manko Window Systems, Inc. Building Additions
17500 E. 22nd Ave
Aurora, CO 80011
888-642-1488

Owner/Operator(s):

Manko Window Systems, Inc.
Gary Jones
17500 E. 22nd Ave.
Aurora, CO 80011
888-642-1488

Engineer Contact(s):

SMH Consultants
Brett Louk
620 N. Tejon St., Ste 201
Colorado Springs, CO 80903
719-465-2145
blouk@smhconsultants.com

SWMP Preparation Date: 3/27/2024

Estimated Project Dates:

Project Start Date: July 2024

Project Completion Date: June 2025

APPROVED FOR ONE YEAR FROM THIS DATE	
City Engineer	Date
Aurora Water Department	Date

“THIS STORMWATER MANAGEMENT PLAN HAS BEEN PLACED IN THE CITY OF AURORA FILE FOR THIS PROJECT AND HAS BEEN DETERMINED TO COMPLY WITH THE APPLICABLE CITY OF AURORA STORMWATER MANAGEMENT CRITERIA. ADDITIONAL STORMWATER MANAGEMENT, EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED OF THE OWNER OR HIS/HER AGENTS, DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT FUNCTION AS INTENDED.”

“REVIEW OF THIS PLAN BY THE CITY OF AURORA SHALL NOT IMPLY THAT IT HAS BEEN REVIEWED FOR COMPLIANCE WITH THE REQUIREMENTS SET FORTH BY THE STATE OF COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.”

“SEE APPROVED STORMWATER MANAGEMENT PLAN DESIGN DRAWINGS (SITE PLAN) FOR SITE SPECIFIC BEST MANAGEMENT PRACTICES.”

Project Owner/Developer Signature Block

I have reviewed the information contained within the Stormwater Management Plan and accept responsibility for the requirements set forth.

Permittee/Affiliation
Gary Jones, Manko Window Systems, Inc.

Date

Plan Preparer Signature Block

I acknowledge my responsibility for the preparation of the Stormwater Management Plan.

CO Professional Engineer
Brett Louk, PE, SMH Consultants

Date

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"Pursuant to Sections 138-440 and 138-442 of the Aurora Municipal Code, the Permittee shall locate, install, and maintain all Best Management Practices, including, but not limited to, erosion controls, sediment controls, drainage controls, and water quality BMPs as indicated in the approved Stormwater Management Plan (SWMP). The following notes are a requirement and shall be included in the SWMP narrative developed for this project and submitted for approval by the City. BMP installations shall be installed per the COA Standard Detail in effect at the time of installation or per the approved SWMP design drawing, a COA approved variance, or a COA approved design drawing plan amendment."

COA Stormwater Management Standard Notes

1. A City of Aurora Stormwater Quality Discharge Permit for Construction Activities must be issued by the City and executed by a COA Erosion Control staff prior to any earthwork activities. An on-site inspection will be conducted to verify the correct installation and adequacy of initial BMPs for the site. No earthwork, including clearing and grubbing, or demolition activities are to begin until the project site has passed an inspection and the City of Aurora Stormwater Quality Discharge Permit for Construction Activities has been executed. The Permittee is required to present the project's CDPHE-WQCD Stormwater Discharges Associated with Construction Activity Permit to the Inspector during the initial inspection. The Permittee shall designate a Stormwater Management Plan (SWMP) Administrator on the application for the City of Aurora Stormwater Quality Discharge Permit for Construction Activities. The SWMP Administrator will act as the project representative for any concerns or issues regarding environmental controls and stormwater management.
2. These requirements shall be the obligation of the Permittee, until such time as the Permit is properly closed, or otherwise allowed by the City to be voided, modified, transferred, re-assigned or replaced.
3. This SWMP narrative, the SWMP design drawings, and the Permittee's inspection and maintenance records are all components of required record keeping and shall be kept on site at all times and updated as required. These and any other pertinent records shall be provided to the City when requested.
4. Any discrepancy between this SWMP and any other approved Stormwater Management Plan for this site shall require compliance with the more restrictive valid, approved plan.
5. Streets shall be constructed with Rough Cut Street Control measures, surface roughened or otherwise temporarily stabilized with rough cut street controls within seven (7) days of completion of grading in the appropriate phase. If paving is to occur within fourteen (14) days after final grading, rough cut street controls shall be waived.
6. Inspection and maintenance of erosion and sediment control Best Management Practices (BMPs) are the continuous obligations of the Permittee. BMPs shall be inspected at a minimum every seven (7) days and within 24-hours after the end of a precipitation event that produces run-off, and following snowmelt events. If a site is temporarily idle and no construction activities will occur during the 48 hours following a storm event, the post-precipitation event (including

snowmelt) inspection shall be conducted prior to commencing construction activities on the site, but no later than 72 hours following the storm event. All necessary maintenance and repairs shall be initiated and completed on an on-going basis, as features are required to operate continuously. Inspections may need to be conducted at a greater frequency than noted above, to ensure features and systems are operating adequately. Erosion and sediment control BMPs shall be maintained and functional for the entire duration of the project.

7. Ingress and egress vehicle access points onto disturbed areas shall be stabilized with Vehicle Tracking Control Pads (VTC) and shall be constructed with angular rock, 3" to 6" in size and to a depth of at least 9-inches. The use of recycled asphalt or concrete is not permitted. The VTC shall be installed over a liner of non-woven geotextile with a weight of at least 10 oz/yd² and a grab tensile strength of at least 250 pounds. No dirt or other materials shall be placed on paved surfaces or curb flow lines to act as curb ramps. Only metal ramps or rock wattles may be used in the curb flow line.

8. Fugitive dust emissions resulting from grading activities and/or wind shall be controlled using reasonably available control technology as defined by the Colorado Department of Public Health and Environment.

9. All potential pollution sources on-site shall be identified and control measures installed and practiced to minimize the likelihood of a release. Spill prevention controls shall be developed for the site with BMPs in place to respond to any spills, leaks or other releases.

10. Hydraulic mulching as a means to cover and protect seeding is not an acceptable means of applying mulch in the City of Aurora unless a previously installed irrigation system is used to aid germination and growth and where approved through variance. Hydraulic seeding is not permitted.

11. For all porous landscape detention facilities, in order to prevent clogging of filter medium, installation of the filtration system must be delayed until after the site is fully landscaped.

12. If stockpiles are located within 100 feet of a drainageway or a public storm sewer system, additional sediment controls such as temporary diversion dikes, silt fence, or sediment basin shall be required.

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SECTION 1 SITE DESCRIPTION

In this section, the preparer can gather some basic site information that will be helpful to the permittee later when you file for permit coverage.

- For more information, see *City of Aurora Rules and Regulations Regarding Stormwater Discharges Associated with Construction Activities, current revision* (also known as the *Rules and Regs*), Chapter 2
- Detailed information on determining your site's latitude and longitude can be found at www.epa.gov/npdes/stormwater/latlong

i **Site Location**

- Site location including, Section, township, range, and latitude/longitude to the nearest 15 seconds.
- Project street location or nearest major cross streets
- If applicable, specific acknowledgement that the land is currently, or will ultimately be owned or managed by the Parks, Recreation and Open Space Department.

Project/Site Name: <u>Manko Window Systems, Inc. Building Additions</u>	
Project Street/Location: <u>17500 E. 22nd Ave.</u>	
City: <u>Aurora</u>	State: <u>CO</u> ZIP Code: <u>80011</u>
County or Similar Subdivision: <u>Adams County</u>	
Latitude/Longitude (Use one of three possible formats, and specify method)	
Latitude:	Longitude:
1. <u>39°44'55"</u> N (degrees, minutes, seconds)	1. <u>104°47'01"</u> W (degrees, minutes, seconds)
2. <u> </u> ° <u> </u> ' N (degrees, minutes, decimal)	2. <u> </u> ° <u> </u> ' W (degrees, minutes, decimal)
3. <u> </u> ° N (decimal)	3. <u> </u> ° W (decimal)
Method for determining latitude/longitude:	
<input type="checkbox"/> USGS topographic map (specify scale: <u> </u>)	<input type="checkbox"/> EPA Web site <input type="checkbox"/> GPS
<input checked="" type="checkbox"/> Other (please specify): <u>Google Earth</u>	

Is this land currently or will it ultimately be owned or managed by COA Parks, Recreation, and Open Space Department? Yes No

CDPS Permit #: TBD

COA SWQ Permit #: TBD

**(This is the unique identifying number assigned to your project by your permitting authority after you have applied for coverage under the appropriate construction permit.)*

ii Description of Adjacent Areas

- Provide a description of adjacent areas such as residential areas, roads, streams, lakes, etc, which might be affected by the proposed project’s land disturbing activity.

Provide adjacent area information

The subject site is approximately 14.1 acres in size and is zoned Accident Potential Zone II - North Restrictions (APZ-II). Existing and proposed land uses consist of manufacturing, storage, and warehousing. The manufacturing portion of the facility is a legal non-conforming land use within the zoning district. Surrounding properties are zoned APZ II as well. The site is bordered by East 22nd Avenue located on the north side of the property and Wagner Channel is located south of the property. Proper erosion control measures will be implemented during construction to protect Wagner Channel.

a) Nature and Purpose of Construction Activity

Describe of the nature and purpose of the construction activity, note any vertical construction.

The project will consist of two building additions to the existing building. Addition A will be located on the west/southwest corner of the existing building. Addition B will be located on the east side of the existing building. The proposed land use will remain consistent with the existing land use; storage, distribution, and warehousing. The two new additions will be used for storage and warehousing. A new 6' wide public sidewalk, and associated curb ramps, will also be constructed along E. 22nd Ave.

- Residential Commercial Industrial Road Construction Linear Utility Overlot Grading Over-excavation Vertical Construction
- Other (please specify): INSERT TEXT HERE

b) Construction Sequence

The proposed sequence for major activities should be described, including:

- An estimated project start
- An estimated project end date
- The sequence of major construction activities (Initial, interim, final or overlot grading, utilities, vertical, paving, over – excavation, etc.). This is expected to be a brief overview of the project as more detailed phasing information and specific BMPs will be addressed in later sections of the SWMP narrative report.

Estimated Project Start Date: July 2024

Describe the major phases of construction:

The project will be completed in one phase consisting of installing perimeter BMPs, site clearing and demolition, building addition/sidewalk construction, and permanent stabilization.

c) Area

The areas for the site should be described including any grading phasing which will need all of the information by phase, as well as for the overall project. This also includes overlot grading in different phases to achieve the outcome of the project. This may be required to be modified by the contractor with a phasing plan submittal.

- Provide estimates of the total area of the site and the sub area within the site expected to undergo clearing, excavation or grading.
- Include an estimate of the excavation and fill volumes involved during the proposed construction.
- Include an estimate of how excavation and fill will be phased.
- Include an estimate of over-excavation areas and volumes (and type) and an estimate of offsite trucking volume (import and/or export).

Note: If exporting material to an area within the COA limits, the receiving site must have its own SWMP and may be required to have its own COA Stormwater Quality Discharge Permit. If the export site is outside of COA limits, then the requirements of that local jurisdiction must be met and proof of a valid permit for the site will be required.

Total project area:		14.1	acres	
Construction site area to be disturbed:		1.59	acres	
Construction site over excavation area to be disturbed:			acres	
Export/Import Volume				
Phase Area		Cut/Fill	Net	
Cut		441	yd ³	
Fill		1132	yd ³	
Total		691	yd ³	

Description of phasing for sites disturbing more than 40 acres.:

N/A

d) Topography, Soils, and Rainfall Data

- Provide a summary describing the soil, the soil type, and hydrologic soil group, permeability, texture, soil erosion potential, depth, soil structure, etc. and potential impacts of the soil type on the quality of any stormwater discharge from the site.
- A description of the topography of the site, existing site conditions, drainage patterns, and existing site slopes should also be included.

Note: A soils map showing the site limits and excerpts regarding the soils information shall be placed in the SWMP narrative report appendices.

Soil type(s):

Ellicot-Glenberg Complex (EgA)

- Hydrologic Soil Group A
- 0-3% Slope
- Occasionally flooded
- More than 80” to depth of restrictive feature or water table
- Typical profile consists of 0-6 inches of sandy loam, 6-18 inches of sandy loam, 18-45 inches of sandy loam and 45-80 of loamy coarse sand

Truckton Sandy Loam (TuB)

- Hydrologic Soil Group A
- 0-3% Slope
- More than 80” to depth of restrictive feature or water table
- Typical profile consists of 0-6 inches of sandy loam, 6-10 inches of sandy loam, 10-16 inches of sandy loam and 16-80 inches of loamy coarse sand

Description	Result	Location of Occurrence
Highest Elevation:	5420	NE corner of site
Lowest Elevation:	5411	SW corner of site
Steepest Slope:	22%	SE corner of the site at the embankment for detention pond D3
Average Slope:	0.82%	

Slopes (describe current slopes and note any changes due to grading or fill activities):

The site overall slopes from northeast to southwest at an approximate slope of 0.82%. There are a couple areas on the site with slopes reaching approximately 20%. These are in the southeast corner of the site at the embankment for detention pond D3 and on the north side at some landscape berms along E. 22nd Ave. The only changes to these slopes, due to grading or fill activities, are some of the berms on the north side of the site will need to be regraded to accommodate the new 6' sidewalk.

Drainage Patterns (describe current drainage patterns and note any changes dues to grading or fill activities):

The northwest and western portions of the site flow to the southwest corner of the site, through detention ponds D1 and D2, and eventually into Wagner Channel. This will remain unchanged with this project. The northeast and eastern portions of the site flow to the southeast corner, through detention pond D3, and eventually into Wagner Channel. This will remain unchanged with this project.

Normal Monthly Precipitation Table in Inches

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.51	0.49	1.28	1.93	2.32	1.56	2.16	1.82	1.14	0.99	0.98	0.63

Adapted from: <http://www.ncdc.noaa.gov/oa/climate/online/ccd/nrmlprcp.html>

Imperviousness and Runoff Coefficients:

- Calculate the percentage of impervious surface area before and after construction
- Calculate the runoff coefficients before and after construction.

Percentage impervious area before construction:	40	%
Runoff coefficient before construction (100 Yr):	0.61	
Percentage impervious area after construction:	45.86	%
Runoff coefficient after construction (100 Yr):	0.60	

e) Existing Vegetation

- Provide a description of the existing vegetation at the site and an estimate of the percent vegetative cover density prior to disturbance in an average square yard of the site. This requirement does not encompass hard surfaces or damaged areas. The consultant may have to evaluate vegetation from a nearby area if there has already been disturbance. There may also be drastically different vegetation in areas of the project or prairie dog issues, discuss as appropriate.
- A plan showing the existing major trees (4" diameter trunks and larger), tree masses, and shrub masses should be provided.

Existing Vegetation on the site:

Turf, native grass, and trees.

Pre-disturbance vegetation density:

In areas where existing vegetation will be disturbed, mainly along the north property line where the new 6' sidewalk will be installed, the east half of the site is roughly 90% dense and the west half of the site is roughly 30% dense.

Discuss tree protections and removals (reference detail for protection):

5 existing trees will be removed along the north property line to accommodate the new 6' sidewalk. There will also be two existing trees, in two parking islands on the east side of the building, that will be removed to accommodate the building addition. All other trees onsite will remain in place, and if adjacent to construction, will be protected during construction utilizing City of Aurora standard tree protection detail. See attached landscape plan.

f) Potential Sources of Pollution

- Identify and list the proposed location and description of any potential pollution sources anticipated to be used during the project, such as portable toilets, vehicle fueling, grout/cement mixers, storage of fertilizers, paints or chemicals and stockpiles, etc.
- Materials of concern may include, but are not limited to, raw materials, fuels, metallic products, hazardous substances designated under Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), any chemical the facility is required to report pursuant to Section 313 of title III of the Superfund Amendments and Reauthorization Act (SARA), fertilizers, pesticides, ash, slag, sludge concrete washout, paints, solvents, and waste piles.

Note: This is expected to be a brief list with detailed information being addressed in later sections of the SWMP narrative report.

Potential pollutants and sources to stormwater runoff:

Trade Name, Material, or Operation	Stormwater Pollutants	Potential Location
Bedding Stockpiles	Sediment	Entire site
Boring Operations, Concrete Cutting Operations or Other Operations that use Water	Sediment, slurry, concrete fines, processed water, etc	Bore sites, site perimeters, pothole locations, etc
Carpentry and Framing	wood, solvents, stains, debris	Building Construction
Concrete Materials and Concrete Waste Management	Concrete	Entire site
Concrete Curing	Curing Compound	Areas of Concrete Construction
Demolition and Debris Disposal	Trash, Sediment, various other contaminants	Existing Building Areas
Dewatering and Poned Water Management	Ground Water and Poned Water containing various other pollutants	Entire site
Form Oil and Concrete Forms	Form Oil	Building Construction
Generators	Oil, Gasoline, etc	Entire site
Grading Operations (clearing, excavating, etc)	Sediment	Entire Site
Hazardous Wastes	Fire Retardant, Acid Wash, Graffiti Prevention Liquid, Processed Water	Building Construction
HVAC	Debris, Glue, etc	Building Construction
Insulation	Fiberglass, other debris	Building Construction
Landscape Products	Fertilizers, Herbicides, pesticides, fungicides, etc.	Entire site
Masonry	Cement, Grout, Masonry Mixers, Sand Stockpiles, etc	Building Construction
Material Delivery	Other Materials	Entire site
Painters	Paint, Primers, Stains, Glue	Building Construction
Paving Operations	Asphalt, Tar, Road Base, Lime	Roadways and Parking areas
Plumbing	Trash, Glue, Solder	Building Construction
Processed Water	Any number of chemicals or other toxins	Entire site
Roofing	Asphalt, Wood, Concrete	Building Construction
Sanitary Waste Management	Sanitary Waste	Building Construction and Staging Areas
Soil Stockpiling	Sediment	Entire site
Stabilized Staging/Haul Routes	Sediment, Fuel, Oil	Entire site
Stucco, Plastering, Drywalling	Drywall, Plaster, Tool Cleaning, etc	Building Construction
Trash	Debris, Bacteria, various chemicals, etc.	Building Construction and Staging Areas
Utility Excavations	Sediment, Fuel, Oil	Entire site

Trade Name, Material, or Operation	Stormwater Pollutants	Potential Location
Vehicle and Equipment Maintenance, Cleaning, or Leaks	Fuel, Oil, Grease, Chemicals, Hydraulic Oil	Entire site

g) Non Stormwater Discharges

Identify and list the location and description of any anticipated non-stormwater components of the discharge, such as springs (State permit required), potable water for dust suppression, landscape irrigation return flow, pipeline dewatering (i.e. waterline flushing and testing) diverted stream flows, flows from wetlands, firefighting activities, hydrant blow-offs, building power-washing where detergents are not used, construction dewatering of groundwater (State permit required), uncontaminated air conditioning or compressor condensate, foundation or footing drains where flows are not contaminated with process materials such as solvents (State permit may be required), or other discharges specifically authorized by a separate National Pollutant Discharge Elimination Systems (NPDES) permit or a separate Colorado Discharge Permit System (CDPS) permit etc. Discharges are those flows that are allowed to leave the site.

- Identify all allowable sources of non-stormwater discharges that are not identified. The allowable non-stormwater discharges identified might include those in the table below.
- Identify measures used to eliminate or reduce these discharges and the BMPs used to prevent those discharges from becoming contaminated.

Check if Applicable to Site	List of Potential Non-Stormwater Discharges	Management of Discharge
<input type="checkbox"/>	Waters used to wash vehicles where detergents are not used	This water will be captured by the existing detention ponds
<input type="checkbox"/>	Water used to control dust	Not anticipated for this project
<input type="checkbox"/>	Potable water including uncontaminated water line flushings	N/A
<input type="checkbox"/>	Routine external building wash down that does not use detergents	This water will be captured by the existing detention ponds
<input type="checkbox"/>	Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used	This water will be captured by the existing detention ponds

Check if Applicable to Site	List of Potential Non-Stormwater Discharges	Management of Discharge
<input type="checkbox"/>	Uncontaminated air conditioning or compressor condensate	N/A
<input type="checkbox"/>	Uncontaminated ground water or spring water	N/A
<input type="checkbox"/>	Foundation or footing drains where flows are not contaminated with process materials such as solvents	N/A
<input type="checkbox"/>	Uncontaminated excavation dewatering	N/A
<input type="checkbox"/>	Landscape irrigation	This water will be captured by the existing detention ponds
<input type="checkbox"/>	Potable water for firefighting activities	N/A
<input type="checkbox"/>	Diverted channels or streams	N/A
<input type="checkbox"/>	Flows from wetlands	N/A
<input type="checkbox"/>	Sanitary sewer/plumbing line testing	N/A
<input type="checkbox"/>		

h) Receiving Waters

List the name of all potential receiving water (s) and the size, type and location of any outfall. If the discharge is to a municipal storm sewer system, then provide the name of that system, the location of the storm sewer discharge, and the ultimate receiving water(s). State whether or not there are wetlands, the 100-year floodplain status (i.e. if the site is within a floodway, near a flood plain or not within a flood zone), if the receiving water is impaired or not, and if there are any stream crossings proposed.

Note: Floodplain maps shall be provided in the SWMP narrative report appendices and shall show the site in relation to the floodplain.

- List the waterbody(s) that would receive stormwater from your site, including streams, rivers, lakes, and wetlands. Describe each as clearly as possible, such as *Murphy Creek, a tributary to the Sand Creek*, and so on. Indicate the location of all waters, including wetlands, on the site map.
- Note any stream crossings or stream diversions, if applicable.
- List the downstream storm inlets, storm sewer system or drainage system that stormwater from your site could discharge to and the waterbody(s) that it ultimately discharges to. It is preferred that the waterbodies are listed to a reservoir, Sand Creek, Cherry Creek or the South Platte.

- If any of the waterbodies above are impaired and/or subject to Total Maximum Daily Loads (TMDLs), please list the pollutants causing the impairment and any specific requirements in the TMDL(s) that are applicable to construction sites. Your SWMP should specifically include measures to prevent the discharge of these pollutants.

The site is within the Cherry Creek Drainage Basin: Yes No

The site is within the Aurora Reservoir Drainage Basin: Yes No

Description of receiving waters:

The Wagner Channel, a tributary to the Sand Creek is the only water body that will be receiving water from the site. There are no downstream storm inlets or storm sewers that are receiving water from onsite. There are no stream crossings downstream of the site.

Description of storm inlets and storm sewer systems:

There are two main outfalls for the property. One is an existing 24” reinforced concrete pipe that enters Wagner Channel in the southwest corner of the site. This pipe provides outfall for existing detention ponds D1 and D2. The second main outfall is an existing 18” reinforced concrete pipe that enters Wagner Channel in the southern portion of the property. This pipe provides outfall for existing detention pond D3.

Description of impaired waters or waters subject to TMDLs:

N/A

100- Year Floodplain Status:

This site is located in both the shaded and unshaded Zone X according to Flood Insurance Rate Map #08005C0181L. Zone X indicates areas determined to be outside the 500-year or 0.2% annual chance floodplain, meaning it is not designated as a special flood hazard zone.

Description of wetlands:

N/A

Other: N/A

i) Site Features and Sensitive Areas to be Protected

- Describe unique site features including streams, stream buffers, wetlands, specimen trees, natural vegetation, steep slopes, or highly erodible soils that are to be preserved.
- Describe measures to protect these features.
- Include these features and areas on your SWMP design drawings.

No unique site features are located within the bounds of the site.

j) Other Applicable Federal, State or Local Programs, Regulations or Restrictions

State any other regulations that are affecting the site (i.e. State CDPHE, Regulation 72, Consent Decrees, etc).

State CDPHE

1) *Endangered Species Certification*

State whether or not there are any endangered species or critical habitats on or near the site. If so, then describe the impacts and the measures being taken to address that impact and supply documentation in the SWMP narrative report appendices.

Are endangered or threatened species and critical habitats on or near the project area?

Yes No

If yes, describe the species and/or critical habitat and provide reference to other documents as appropriate:

N/A

2) *Historic Preservation*

State whether or not there are any historic sites on or near the site. If so, then describe the impacts and the BMP measures being taken to address that impact

Are there any historic sites on or near the construction site?

Yes No

If yes, describe or refer to documentation that determines the likelihood of an impact on this historic site and the steps taken to address that impact.

N/A

SECTION 2 DESIGN DRAWINGS

Approved design drawings shall be kept with the approved narrative report (this document) in the field and must be kept current. See COA Rules and Regs Chapter 3 for more information regarding Living Documents. For most projects, a series of site maps is recommended. The first should show the undeveloped site and its current features. An additional map or maps should be created to show the developed site or for more complicated sites show the major phases of development.

- SWMP design drawings are required to indicate the types, locations, and extents of BMPs proposed for installation on the project site.
- For more information and requirements, see *Rules and Regulations Regarding Stormwater Discharges Associated with Construction Activities, current revision* (also known as the *Rules and Regs*), Chapter 2

SECTION 3 STORMWATER MANAGEMENT CONTROLS

This section shall describe the stormwater management controls that will be used to control pollutants in stormwater discharge during construction activity.

a) SWMP Administrator and Important Contacts

- List Contact names and phone numbers for the SWMP Administrator, alternates, owner, developer, etc that are known
- Copy as needed

Owner/Operator(s):
Manko Window Systems Inc.
Gary Jones
17500 E. 22 nd Ave.
Aurora, CO 80011
888-642-1488
Area of Control (if more than 1 operator at site):

Project Manager(s) or Site Supervisor(s):
Company or Organization Name:
Name:
Address:
City, State, Zip Code:
Telephone Number:
Fax/Email:
Area of Control (if more than 1 operator at site):

SWMP Administrator Contact(s):
Company or Organization Name:
Name:
Address:
City, State, Zip Code:
Telephone Number:
Fax/Email:
Area of Control (if more than 1 operator at site):

This SWMP was Prepared by (the Colorado Licensed Engineer):
SMH Consultants
Brett Louk, PE
620 N Tejon St, Ste 201
Colorado Springs, CO 80903
719-465-2145
blouk@smhconsultants.com

Emergency 24-Hour Contact (for site, not 911):
Company or Organization Name:
Name:
Address:
City, State, Zip Code:
Telephone Number:
Fax/Email:
Area of Control (if more than 1 operator at site):

Subcontractor(s):
Company or Organization Name:
Name:
Address:
City, State, Zip Code:
Telephone Number:
Fax/Email:
Area of Control (if more than 1 operator at site):

Other:
Company or Organization Name:
Name:
Address:
City, State, Zip Code:
Telephone Number:
Fax/Email:
Area of Control (if more than 1 operator at site):

Other:
Company or Organization Name:
Name:
Address:
City, State, Zip Code:
Telephone Number:
Fax/Email:

Area of Control (if more than 1 operator at site):

b) Identification of Potential Pollutant Sources

All potential pollutant sources, including materials and activities, at a site must be evaluated for the potential to contribute pollutants to stormwater discharges.

- Identify and describe the sources of potential pollutants to stormwater discharges. At a minimum, each of the following sources and activities shall be evaluated for the potential to contribute pollutants to stormwater discharges.
- Numbers in [] brackets indicate the appropriate section to describe the BMPs to be used to address the potential pollutant source

Applicable to Site (Y, N, Maybe)	Sources of Potential Pollutants to Stormwater Discharges
Y	All disturbed and stored soils (including borrow areas, stockpiles, haul routes, and over-excavation) [Section 3 c) 1, 2, and 3]
Y	Vehicle tracking controls and clean up [Section 3 c) 6]
N	Management of contaminated soils [Section 3 c) 4]
Y	Loading and unloading operations (including access points and protection of existing BMPs) [Section 3 c) 10]
Y	Outdoor storage areas (building materials, fertilizers, chemicals, etc.) [Section 3 c) 4]

Applicable to Site (Y, N, Maybe)	Sources of Potential Pollutants to Stormwater Discharges
M	Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc. [Section 3 c) 4]
Y	On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.) [Section 3 c) 7]
Y	Concrete truck/equipment washing, including the concrete truck chute, pump truck primary and associated fixtures and equipment [Section 3 c) 7]
N	Dedicated asphalt and concrete batch plants [Section 3 c) 5]
Y	Non-industrial waste sources such as worker trash and portable toilets [Section 3 c) 7]

Applicable to Site (Y, N, Maybe)	Sources of Potential Pollutants to Stormwater Discharges
Y	Vehicle and equipment maintenance and fueling [Section 3 c) 4]
M	Significant dust or particulate generating processes (including haul routes, masonry mixing, and silos) [Section 3 c) 2]
M	Power washing of building using detergents or other chemicals/solvents [Section 3 c) 4]
Y	Building/vertical construction (including paints, solvents, drywall, fire retardant, etc) [Section 3 c) 4, 7, 10]

Applicable to Site (Y, N, Maybe)	Sources of Potential Pollutants to Stormwater Discharges
Y	Other areas or procedures where potential spills can occur [Section 3 c) 4]
N	Stormwater or groundwater dewatering [Section 3 c) 9]

c) BMPs for Stormwater Pollution Prevention

This section of the SWMP narrative report shall include a narrative description of the appropriate controls and measures that will be implemented before, during and after construction activities at the project site to manage and control the runoff of pollutants.

The SWMP narrative report shall clearly describe the relationship between the phases of construction, and the implementation and maintenance of BMP controls and measures. For example, the report must indicate which controls will be implemented during each of the following phases of construction: clearing and grubbing for perimeter controls, installation of initial BMPs, clearing and grubbing, overlot grading, installation of interim BMPs, site construction, utility construction, vertical construction, other pertinent construction phases, final grading, stabilization, removal of BMPs, and Permit closeout.

1) Structural Practices

- Clearly describe the initial/interim, post-paving, and permanent structural site management practices to control erosion and sediment transport. Practices may

include, but are not limited to: silt fences, diversion dikes, temporary slope drains, inlet protection, outlet protection, check dams, curb/rock socks, sediment control logs, compacted earthen berm, and terracing.

BMP Description: Silt Fence

<i>Intended Use/Purpose:</i>	A silt fence can be used where runoff is conveyed from a disturbed area as sheet flow. Silt fence is not designed to receive concentrated flow or to be used as a filter fabric. Typical uses include: <ul style="list-style-type: none"> • Down slope of a disturbed area to accept sheet flow. • At the perimeter of a construction site.
<i>Appropriate Installation Timing:</i>	Silt fence shall be installed prior to any land disturbing activities.
<i>Appropriate Removal Timing:</i>	Silt fence may be removed when the upstream area has reached final stabilization.

BMP Description: Culvert Inlet Protection

<i>Intended Use/Purpose:</i>	Culvert Inlet protection is installed to control sediment (and other) discharges into culvert piping.
<i>Appropriate Installation Timing:</i>	Culvert inlet protection shall be installed prior to any land disturbing activities.
<i>Appropriate Removal Timing:</i>	Culvert inlet protection must be removed and properly disposed of when the upstream area is stabilized and vegetative cover is approved by the city.

BMP Description: Sump Inlet Protection

<i>Intended Use/Purpose:</i>	Sump Inlet protection is intended to maintain inlet capacity by allowing flows to convey over or through the wire-enclosed rock wattle. In some locations of sump and on-grade inlets, topside protection should be provided for inlets, specifically for those inlets that are bordered by disturbed areas. Such top-side protection should consist of barriers installed to control sediment-laden flows from entering the top of the inlet opening.
<i>Appropriate Installation Timing:</i>	Sump inlet protection to be installed prior to demolition of existing pavement, and earthwork, for west building addition.
<i>Appropriate Removal Timing:</i>	Sump inlet protection must be removed and properly disposed of when the west building addition is completed.

2) *Non-Structural Practices*

- Clearly describe initial/interim, post-paving, and permanent stabilization practices, including site specific scheduling of the implementation of these practices. Site plans should ensure that existing vegetation is preserved where possible and that all disturbed areas are stabilized. Non-structural practices may include, but are not limited to: temporary seeding, mulching, temporary sod stabilization, vegetative buffer strips, temporary landscaping, temporary erosion control blankets/matting, temporary soil retention matting, surface roughening, dust suppression, seasonal schedule, and preservation of mature vegetation.

BMP Description: Temporary and Permanent Seeding/Mulching

<i>Intended Use/Purpose:</i>	<p>Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Permanent seeding should be used to stabilize areas at final grade that will not be otherwise stabilized.</p> <p>When the soil surface is disturbed and will remain inactive for an extended period (typically determined by local government requirements), proactive stabilization measures, including planting a temporary seed mix, should be implemented. If the inactive period is short-lived (on the order of two weeks), techniques such as surface roughening may be appropriate. For longer periods of inactivity of up to one year, temporary seeding and mulching can provide effective erosion control. Permanent seeding should be used on finished areas that have not been otherwise stabilized.</p>
<i>Appropriate Installation Timing:</i>	<p>To provide temporary vegetative cover on disturbed areas which will not be paved, built upon, fully landscaped, or worked for an extended period (typically 30 days or more), plant an annual grass appropriate for the time of planting and mulch the planted areas.</p> <p>To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established.</p> <p>Permanent seeding should be performed promptly (typically within 14 days) after reaching final grade.</p> <p>Timing of seeding is an important aspect of the revegetation process. For upland and riparian areas on the Colorado Front Range, the suitable timing for seeding is from October through May. The most favorable time to plant non-irrigated areas is during the fall, so that seed can take advantage of winter and spring moisture. Seed should not be planted if the soil is frozen, snow covered or wet.</p>
<i>Appropriate Removal Timing:</i>	With permanent landscaping

BMP Description:

<i>Intended Use/Purpose:</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

3) Phase Construction Activity and BMP Implementation

This section shall describe the relationship between the phases of construction, and the implementation and maintenance of BMP controls and measures. For example, indicate which controls will be implemented during each of the following phases of construction: prior to clearing and grubbing for perimeter controls (installation of initial BMPs), clearing and grubbing, overlot grading, installation of interim BMPs, site construction, utility construction, vertical construction, other pertinent construction phases, final grading, stabilization, removal of BMPs, and Permit closeout.

- Clearly describe the various phases of construction and the implementation of BMPs to be used during each phase. Examples of project phases may include, but are not limited to, demolition, clearing and grubbing, overlot grading, over-excavation, road construction, utility installations, vertical construction, fine grading, and final stabilization. The description for a particular phase may have sub-phases. For example, the overlot grading of an 80 acre site may have to describe multiple sub-phases for the 40 acre disturbance limitation. Another example would be vertical construction phase may describe sub-phases of the construction such as grading, foundations, framing, finishing, and stabilization. For more information, see *Rules and Regs*, Chapter 2, Section 2.2.1)

Note: Some construction information may need to be added once a contractor(s) are involved. See the Manual and below for more information.

Phase Description: <i>One phase for entire construction</i>	
<i>Duration of phase (start/end dates):</i>	July 2024 – January 2025
<i>BMPs Associated with the Phase:</i>	Silt fence, culvert inlet protection, sump inlet protection, temporary and permanent seeding and mulching
<i>Describe Temp/Final Stabilization for Phase:</i>	Temporary stabilization includes temporary seeding/mulching. Permanent stabilization includes pavement and permanent seeding/mulching

Repeat as needed

a. Overlot Grading Specific Practices

Overlot grading specific practices should address items such as: surface roughening, blanketing, terracing, mulching, temporary seeding, permanent

seeding, temporary sediment pond construction and removal, phasing, haul routes, disturbance limits, rough cut street controls, etc.

- Address haul routes may be designated on the SWMP updates and shall take into consideration drainage, erosion and sediment control BMPs, along with interim stabilization measures.

BMP Description:

<i>Intended Use/Purpose:</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

No Overlot grading is proposed

- Discuss interim stabilization may be provided via plan amendment by the contractor and the engineer at the Erosion Control Kick Off meeting. These measures shall be provided with timeframes and down gradient controls.

BMP Description:

<i>Intended Use/Purpose:</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

Repeat as needed

Temporary drainage BMPs (diversion ditches, sediment traps or sediment basins) shall be maintained at all times.

- Discuss timing and procedural requirements for implementation, maintenance and removal of these items during this period of construction.

<i>BMP Description:</i>	
<i>Intended Use/Purpose:</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

No temporary drainage BMPs proposed/required.

b. Vertical and General Construction Requirements – See Appendix for Table of Required Information

- Staging areas change during construction regularly. Therefore, if “con/conex” boxes are to be utilized and if they are to include liquid pollutants, then a redundant BMP measure must be provided
- Site drainage will need to be maintained during vertical construction. Review conditions to ensure that it will continue to work as shown during the grading/utility timeframes.
- Provide redundant BMPs for generators and mobile concrete washouts to protect from fuel/hydraulic leaks
- Continuously review the down gradient BMPs within the impervious and disturbed areas to ensure that conveyances, inlets and outlets are protected appropriately during this phase.
- Areas of disturbance outside of the building envelope shall still require BMPs.
- Continuously review the timing/phasing of the project to ensure the appropriate BMPs are implemented as construction continues. Deletion of BMPs shall require different measures to be implemented upon deletion.
- BMPs for keeping impervious surfaces clean may need to be enhanced or added to as construction continues.
- Review and implement BMP measures to control roof drainage. This becomes a point source and may cause extensive erosion on site.

Optional Section – To be included if the items in bullet points cannot be addressed elsewhere in this report.

A Plan Amendment from the contractor shall be required to be submitted to the engineer of record and City of Aurora Water Engineering Plans Reviewer three (3) business days prior to the Erosion Control Kick-Off Meeting. This submittal shall provide narrative information and the associated details required for vertical construction BMPs (structural and non-structural) that will be implemented during this phase of construction.

- Provide a mixing station detail/area for masonry/brick. If the site is going to bring in silos for masonry mixing, wind protection will be required to minimize the maximum extent practicable the dust from impacting adjacent buildings and streets.
- Saw cutting station detail/area
- Options for handling paints, solvents, glues (i.e. utilize the CWS or provide alternative)
- Provide physical and procedural BMPs for clean up along the building during the installation of brick, stone or stucco
- Access may be required around the building, defining a haul route may be necessary and denote stabilization needs on this proposed haul route
- Address waste handling procedures for drywall, painters, carpet layers etc.
- Stream Diversion Method
- Cranes when access is required around the building and may impact BMPs, relocation may be required

4) Material Handling and Spill Prevention

This section shall describe any procedures and locations for all practices implemented at the site that will be used to minimize impacts from identified potential pollutant sources. BMPs need to address many different pollutant sources that include, but are not limited to exposed storage of construction materials, liquid contaminants, contaminated soils management, fueling procedures, redundant measures for any spill or leak sources, and equipment maintenance procedures. Activities involving potential for spills shall have spill prevention and spill response procedures identified.

- Identify and describe how the sources of potential pollutants to stormwater discharges identified in Section 3.2 will be controlled through BMP selection and implementation. The information provided may address frequency, seasonal considerations, characteristics of the area and surface type, primary and secondary containment, proximity to drainageways and stormwater facilities.

BMP Description: Good Housekeeping Practices

<i>Intended Use/Purpose:</i>	Implement construction site good housekeeping practices to prevent pollution associated with solid, liquid and hazardous construction related materials and wastes. Stormwater Management Plans (SWMPs) should clearly specify BMPs including these good housekeeping practices. <ul style="list-style-type: none">• Provide for waste management.• Establish proper building material staging areas.• Designate paint and concrete washout areas.• Establish proper equipment/vehicle washing and allowable non-stormwater discharges• Develop a spill prevention and response plan.
<i>Location(s)</i>	Throughout the site.

Repeat as needed

BMP Description: SPILL RESPONSE -Cleanup and Removal Procedures

NOTE: IN CASE OF FIRE, EVACUATE ALL PERSONNEL FROM THE IMMEDIATE AREA, RENDER FIRST AID TO ANYONE WHO IS INJURED, AND DIAL 911 IMMEDIATELY. TAKE APPROPRIATE STEPS TO PROTECT HUMAN LIFE AND TO CONTROL FIRES FIRST. SPILL CONTROL IS SECONDARY.

- Upon detection of any spill, the first action to be taken is to ensure personal safety. All possible ignition sources, including running engines, electrical equipment (including cellular telephones, etc.), or other hazards will be immediately turned off or removed from the area. The extent of the spill and the nature of the spilled material will be evaluated to determine if remedial actions could result in any health hazards, escalation of the spill, or further damage that would intensify the problem. If such conditions exist, a designated employee will oversee the area of the spill and the construction SWMP Administrator will be notified immediately.
- The source of the spill will be identified and if possible the flow of pollutants stopped if it can be done safely. However, no one should attend to the source or begin cleanup of the spill until **ALL** emergency priorities (fire, injuries, etc.) have been addressed.

Small Spills

Small spills (usually <5 gallons) consist of minor quantities of gasoline, oil, anti-freeze, or other materials that can be cleaned up by a single employee using readily available materials.

The following procedures should be used for clean-up of small spills:

- a. Ensure personal safety, evaluate the spill, and if possible, stop the flow of pollutants.
- b. Contain the spread of the spill using absorbents, portable berms, sandbags, or other available measures.
- c. Spread absorbent materials on the area to soak up as much of the liquid as possible and to prevent infiltration into the soil.
- d. Once the liquids have been absorbed, remove all absorbents from the spill and place the materials in a suitable storage container. On paved areas, wipe any remaining liquids from the surface and place the materials in a storage container. Do not spray or wash down the area using water. For open soil areas, excavate any contaminated soil as soon as possible and place the soil in a suitable storage container. All materials will then be transported off-site for disposal.
- e. If immediate transfer and storage of the contaminated soil is not practical, excavate and place the contaminated soil on a double thickness sheet of 3-mil or higher polyethylene film. In addition, a small berm should be formed around the outer edges of the soil stockpile, underneath the polyethylene film, to ensure that contaminants are not washed from the site during precipitation events and that materials do not seep through the berm.
- f. Record all significant facts and information about the spill, including the following:
 - Type of pollutant
 - Location
 - Apparent source
 - Estimated volume
 - Time of discovery
 - Actions taken to clean up spill
- g. Notify the SWMP Administrator of the spill and provide the information from Item f. The SWMP Administrator will then contact the City of Aurora Erosion Control Staff.

Medium to Large Spills

Medium to large spills consist of larger quantities of materials (usually >5 – 25 gallons) that are used on site that cannot be controlled by a single employee. Generally, a number of facility personnel will be needed to control the spill and a response may require the suspension of other facility activities.

The following procedure shall be used for the cleanup of medium to large spills:

- a. Ensure personal safety, evaluate the spill, and if possible, stop the flow of pollutants.
- b. Immediately dispatch a front-end loader or similar equipment to the spill and construct a berm or berms down gradient of the spill to minimize the spread of potential pollutants. On paved surfaces, portable berms, sandbags, booms, or other measures will be used to control the lateral spread of the pollutants.
- c. When the spread of the spill has been laterally contained, contact the SWMP Administrator or designated facility employee and provide them information on the location, type, and amount of

spilled material, and a briefing on the extent of the spread and measures undertaken to contain the contaminants.

- d. Depending on the nature of the spill, mobilize additional resources as needed to contain the contaminants.
- e. Cleanup will commence when the lateral spread has been contained and the notification to the SWMP Administrator has been made.
- f. Freestanding liquid will be bailed or pumped into 55-gallon storage drums, steel tanks, or other suitable storage containers. When all the liquid has been removed from the pavement or soil layer, absorbents will be applied to the surface and transferred to the storage containers when they have soaked up as much of the spill as possible.
- g. On paved surfaces, the remaining contaminants will be removed to the extent possible, with rags, sweeping, or similar measures. The area of the spill will not be sprayed or washed down using water. Any contaminant soaked materials will be placed into the storage containers with the other absorbents.
- h. The remaining contaminated soils will be excavated and loaded into a dump truck(s) for disposal off-site at a designated facility. If transport off-site is not immediately available, the remaining soils will be stockpiled on a double thickness sheet of 3-mil or higher polyethylene film. In addition, a small berm will be formed around the outer edges of the soil stockpile, underneath the polyethylene film, to ensure that contaminants are not washed from the site during precipitation and do not seep through the berm.
- i. Record all significant facts and information about the spill, including the following:
 - Type of pollutant
 - Location
 - Apparent source
 - Estimated volume
 - Time of discovery
 - Actions taken to clean up spill
- j. Provide the SWMP Administrator (or designated employee) with the information from Item i. The SWMP Administrator will then contact the City of Aurora Flow Control Center.

NOTIFICATION

Notification to the Colorado Department of Public Health & Environment (CDPHE) and the City of Aurora is required if there is any release or suspected release of any substance, including oil or other substances that spill into or threaten State waters. Unless otherwise noted, notifications are to be made by the SWMP Administrator and only after emergency responses related to the release have been implemented. This will prevent misinformation and assures that notifications are properly conducted.

The notification requirements are as follows:

April 2, 2024

Template Version 1.2

1. **Spills into/or Threatens State Waters:** Immediate notification is required for releases that occur beneath the surface of the land or impact or threaten waters of the State of threaten the public health and welfare. Notifications that will be made are:
 - a. For any substance, regardless of quantity, contact CDPHE at 1-877-518-5608. State as follows:
 - a) Give your name.
 - b) Give location of spill (name of city).
 - c) Describe the nature of the spill, type of products, and estimate size of spill.
 - d) Describe type of action taken thus far, type of assistance or equipment needed.
 - b. For any quantity of oil or other fluids, call the National Response Center at 1-800-424-8802. State as follows:
 - a) Give your name.
 - b) Give location of spill (name of city and state).
 - c) Describe the nature of the spill, type of product, and estimate size of spill.
 - d) Describe type of action taken thus far, type of assistance or equipment needed.

2. **Reportable Quantity Spill on Land Surface:** Immediate notification is required of a release upon the land surface of an oil in quantity that exceeds 25 gallons, or of a hazardous substance that equals or exceeds 10 pounds or its reportable quantity under Section 101(14) of the Comprehensive Environmental Response, Compensation Liability Act (CERCLA) of 1980 as amended (40 CFR Part 302) and Section 329 (3) of the Emergency Planning and Community Right to Know Act of 1986 (40 CFR Part 355) whichever is less. This requirement does apply at a minimum to the substances listed in Table A below.

TABLE A

Substances Requiring Notification

SUBSTANCE	REPORTABLE QUANTITY
Motor Oil	25 Gallons
Hydraulic Oil	25 Gallons
Gasoline/Diesel Fuel	25 Gallons

The notification procedures to be followed are:

- a) Give your name.
 - b) Give location of spill (name of city and state).
 - c) Describe nature of the spill, type of product, and estimate size of spill.
 - d) Describe type of action taken thus far, type of assistance or equipment needed.

3. Notification is not required for release of oil upon the land surface of 25 gallons or less that will not constitute a threat to public health and welfare, the environmental or a threat of entering the waters of the State.

4. Notification, as required in paragraphs 1 and 2 above, will be made to the CDPHE using the 24-hour telephone number to report environmental spills. All information known about the release at the time of discovery is to be included, such as the time of occurrence, quantity and type of material, location and any corrective or clean-up actions presently being taken. Table B lists these phone numbers.

SPILL RESPONSE CONTACTS

TABLE B

Emergency Notification Contacts

Name/Agency	Number
City of Aurora Fire Department	911
City of Aurora Police Department	911
Ambulance	911
Hospital	911
National Response Center	1-800-424-8802
CDPHE – Report Environmental Spills (24 hrs/day)	1-877-518-5608
City of Aurora – Water Dept Erosion Control Staff	303-326-8645
Colorado Emergency Planning Committee	303-273-1622
Also contact SWMP Administrator and Owner	See Section 3 a) of this report

It is the responsibility of the SWMP Administrator to contact the City of Aurora, CDPHE, and/or the National Response Center.

- **The National Response Center** is to be contacted when a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR 110, 4- DFR 117, or 40 CFR 302 occurs during a 24-hour period.
- Notification to the **CDPHE** and **COA** is required if there is any release or suspected release of any material, including oil or hazardous substances that spill into or threaten state waters.

REPORTS

The CDPHE and COA require written notification of a spill or discharge of oil or other substance that may cause pollution of the waters of the State of Colorado. A written report must be submitted to the Water Quality Control District (WQCD) and the COA Erosion Control Staff within five days after becoming aware of the spill or discharge.

The CDPHE and COA require a written final report within 15 days for all releases of an oil or hazardous substance that require implementation of a contingency plan. The CDPHE and COA may also require additional reports on the status of the clean up until any required remedial action has been complete.

Written notification of reports must contain at a minimum:

1. Date, time, and duration of the release.
2. Location of the release.
3. Person or persons causing and responsible for the release.

4. Type and amount of oil or substance released.
5. Cause of the release.
6. Environmental damage caused by the release.
7. Actions taken to respond, contain, and clean up the release.
8. Location and method of ultimate disposal of the oil or other fluids.
9. Actions taken to prevent a reoccurrence of the release.
10. Any known or anticipated acute or chronic health risks associated with the release.
11. When appropriate advice regarding medical attention necessary for exposed individuals.

5) Dedicated Concrete or Asphalt Batch Plants

- Describe measures to control stormwater pollution from dedicated concrete batch plants or dedicated asphalt batch plants covered by the SWMP.

BMP Description:

<i>Intended Use/Purpose:</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

No dedicated Concrete or Asphalt Batch Plants are proposed

6) Vehicle Tracking Control

- Describe all practices implemented at the site to control potential sediment discharges from vehicle tracking. Practices must be implemented for all areas of potential vehicle tracking, and can include: minimizing site access; street sweeping or scraping; tracking pads; stabilized staging and parking areas; requiring that vehicles stay on paved areas on-site; wash racks; contractor education; and/or sediment control BMPs, etc

BMP Description: Mandatory sweeping of all internal and adjacent external paved areas is required on a weekly basis at a minimum. This applies until Initial Close-Out acceptance. At that time it will be on an as needed basis.

BMP Description: Vehicle Tracking Control

<i>Location(s):</i>	Site entrance and exit
<i>Intended Use/Purpose:</i>	Vehicle tracking controls should be used to control sediment tracking from disturbed areas onto paved sections. These features are intended to reduce the likelihood that vehicles entering and exiting the site will come in contact with mud and help strip mud from tires prior to vehicles leaving the area of disturbance.
<i>Appropriate Installation Timing:</i>	A stabilized construction entrance/exit shall be installed prior to any land disturbing activities.
<i>Appropriate Removal Timing:</i>	A stabilized entrance should be removed only when there is no longer the potential for vehicle tracking to occur. This is typically after the site has been stabilized.

BMP Description: Street Sweeping

<i>Location(s):</i>	Where sediment is tracked off-site onto paved roadways
<i>Intended Use/Purpose:</i>	Street sweeping reduces sediment transport into storm drain systems or a surface waterway by removing sediment that has been tracked off-site onto paved roadways.
<i>Appropriate Installation Timing:</i>	Street sweeping should be conducted when there is noticeable sediment accumulation on roadways adjacent to the construction site.
<i>Appropriate Removal Timing:</i>	When sediment has been removed from paved roadways adjacent to the construction site.

BMP Description: Stabilized Staging Area

<i>Location(s):</i>	Stabilized Staging Areas are constructed in an open area of the site that can house construction equipment.
<i>Intended Use/Purpose:</i>	A Stabilized Staging Area consists of installing a layer of rock in areas to be used for trailers, personnel parking, and/or material storage. A stabilized staging area reduces the likelihood that the vehicles entering and exiting the site are going to come into contact with mud, sediment, and/or debris and subsequently transport them onto paved surfaces, as well as minimizing runoff leaving the construction site.
<i>Appropriate Installation Timing:</i>	The staging area shall be stabilized prior to any equipment or materials being brought to the site.
<i>Appropriate Removal Timing:</i>	The stabilized staging area should be removed after construction is completed and no equipment is needed onsite.

7) Waste Management and Disposal, Including Concrete Washout

- Clearly describe the practices implemented at the site to control stormwater pollution from all construction site wastes (liquid and solid), including concrete washout activities and liquid waste washouts, dumpsters, worker trash, and portable toilets.

BMP Description: Concrete Washout

<i>Locations</i>	Near site entrance/exit
<i>Intended Use/Purpose</i>	A concrete washout is a designated, shallow excavation with a perimeter berm to contain waste from concrete trucks, small batch concrete mixers, pump trucks, and other washout operations.
<i>Appropriate Installation Timing:</i>	The concrete washout area shall be installed prior to any concrete placement on a project
<i>Appropriate Removal Timing:</i>	At the end of construction all concrete shall be removed from the site in a watertight container and disposed of at an approved waste site. When the concrete washout area is removed, the disturbed area shall be drill seeded and crimp mulched or otherwise stabilized in a manner approved by the city.

BMP Description:

<i>Locations</i>	
<i>Intended Use/Purpose</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

Repeat as needed

8) BMP Specifications

BMP Details for installation and maintenance shall be the City of Aurora Standard Details in Appendix D of the (*City of Aurora Rules and Regulations Regarding Stormwater Discharge Associated with Construction Activities (Rules and Regs)*), latest revision, an approved variance, or an approved plan amendment. All approved variances must be documented in the SWMP. It is understood that not all details in the COA Rules and Regs will be used on this project site, but that all details are available for implementation if unforeseen circumstances warrant their use. Proper procedures must be used to update the living document and get approval as documented in the COA Rules and Regs. All physical BMPs require a detail to show installation and maintenance information. If a detail is not available through the manufacturer, then one must be created by the preparer of this SWMP narrative report.

9) Groundwater and Stormwater Dewatering

- The SWMP shall clearly describe the practices to be implemented at the site to control stormwater pollution from the dewatering of groundwater or stormwater from excavations, wells, etc.
- For any construction dewatering of stormwater from construction areas, describe the BMPs to be used to control additional erosion and transport of sediment.

Note: This City of Aurora Stormwater permit does not authorize dewatering of groundwater. A separate State permit is required for this activity.

<i>BMP Description:</i>	
<i>Intended Use/Purpose:</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

No dewatering of groundwater or stormwater is anticipated.

10) Developer/Builder Specific Practices

Include a description of standard practices of the company for whom this SWMP is being developed. At a minimum it shall include:

- Standard practices for construction operations during wet weather conditions and winter weather conditions
- Methods used to obtain compliance from sub-contractors (i.e. fines, education, etc)
- Stormwater education policies for educating personnel and subcontractors
- Company Standard Operating Procedures as they relate to stormwater management (as appropriate)
- Describe any standard construction practices that will be used on the site such as material loading and unloading practices, lot controls, lot access etc.

Note: Any practices requiring a variance that are discussed here must reference the variance section, and must be requested in the variance section, or they will be considered unapproved and not allowed.

<i>BMP Description:</i>	
<i>Intended Use/Purpose:</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

Repeat as needed

[Additional Developer/Builder practices not listed herein shall be submitted 3 days prior to the Erosion Control kick-off meeting for review and approval.](#)

SECTION 4 FINAL STABILIZATION AND LONG TERM STORMWATER MANAGEMENT

a) Final Stabilization Measures

Include a description of the proposed measures to be used to achieve final stabilization and long-term stormwater control. Revegetation with seeding and mulching, revegetation with seeding with erosion control blankets, landscaping, green roofs, permeable paving, permanent water quality ponds and permanent outlet protection are examples of final stabilization measures.

b) Seed Mix Information

Provide the name of the City of Aurora standard seed mix(es) that may be appropriate for the site and the soils anticipated for the site and the preferred method(s) for protecting the seed. If the site is not using a COA standard seed mix, then a variance request must be submitted and the preferred seed mix must be provided with the application rates.

c) Final Stabilization Notes

See Chapter 5 of the Rules and Regulations for more information.

- 1) *Final stabilization is reached when all soil disturbing activities at the site have been completed, and uniform vegetative cover has been established with a density of at least 70% of pre-disturbance levels, or equivalent permanent physical erosion reduction methods have been employed.*
- 2) *Vegetative coverage density does not apply to paved areas, walks, buildings, or other hard surface impermeable areas.*
- 3) *Establishment of a vegetative cover capable of providing the erosion control equivalent to pre-existing conditions at the site can be considered final stabilization (i.e. landscape rocks, mulch, shrubs, etc). This determination will be made by the City of Aurora Water Department Erosion Control Program Staff prior to the close-out of the permit.*

BMP Description: Permanent Seeding and Mulching

<i>Intended Use/Purpose:</i>	Seeding and mulching will be used to stabilize disturbed areas that will be inactive for an extended period of time
<i>Appropriate Installation Timing:</i>	Seeding and mulching to be installed on disturbed areas that are at final grade
<i>Appropriate Removal Timing:</i>	Permanent seeding is not to be removed.

Repeat as needed

SECTION 5 INSPECTIONS AND MAINTENANCE

This section shall describe procedures to inspect and maintain, in good effective operating condition, the vegetation, erosion, and sediment control measures and all other protective measures identified in the plan.

The following are the required frequencies of inspections:

- i. *Prior to Initial Closeout Acceptance:* Permittee shall self-inspect the site at least every 7 calendar days and within 24-hours after the end of any precipitation event or snowmelt event that results in runoff and causes surface erosion, except as allowed in Item iii below.
 - ii. *Following Initial Closeout Acceptance and until permit closeout:* Permittee shall self-inspect the site at least every 30 calendar days, and within 24-hours after the end of any precipitation event or snowmelt event that results in runoff and causes surface erosion
 - iii. *Post-Precipitation Event Inspections for Temporarily Idle Sites:* If a site is temporarily idle and no construction activities will occur during the 48 hours following a storm event, the post-precipitation event (including snowmelt) inspection shall be conducted prior to commencing construction activities on the site, but no later than 72 hours following the storm event.
- Describe all other procedures necessary to inspect and maintain all BMPs on this site.

Note: Do not duplicate information that is provided in the COA Standard Details for Maintenance and Inspection.

BMP Maintenance or Inspection Description:

[Reference the COA Standard Details found in the Rules & Regulations Regarding Stormwater Discharges Associated with Construction Activities.](#)

SECTION 6 PROBABLE COST FOR INSTALLATION OF BMPs

The standardized probable cost form shall include costs for required maintenance during the construction phase and shall establish the required Fiscal Security amount.

Notes: City of Aurora projects do not require Fiscal Security, unless otherwise required. The Forms should be located in the Appendix of this SWMP narrative report.

- List the total cost and the Fiscal Security amount, which is equal to the 25% Maintenance Cost amount of the higher of the two forms.

Initial BMP Total Cost:	\$	18669
Initial BMP Maintenance Cost:	\$	3,734
Post-Paving BMP Total Cost:	\$	0
Post-Paving BMP Maintenance Cost:	\$	0
Fiscal Security amount:	\$	3734

SECTION 7 CALCULATIONS MADE FOR THE DESIGN

Include calculations made in the design of the SWMP, including calculations for sizing of sediment basins, design of erosion control matting, soil retention matting, sediment traps, diversion ditches, temporary stream crossings, weir sizing, or sizing of outlet protection riprap in the appendix with a summary of the results below.

- Address any required additional information below.

Not Applicable

SECTION 8 VARIANCE REQUESTS

As may be reasonably required by COA, additional information shall be included here. A listing of variances requested and/or requests for special consideration of innovative BMPs should be provided along with their justification.

Any variance from COA Rules and Regulations Regarding Stormwater Discharges Associated with Construction Activities shall be approved by the City of Aurora. If it is not specifically listed within this section of the narrative, then it shall not be considered an approved variance. There are provisions for Variance requests once construction has begun. See Chapter 3 Section 3.3.3 of the Rules and Regulations. In such cases the City of Aurora approved variance shall be added to the field maintained SWMP.

Note: Manufacturer documentation and specifications for requested variances shall be provided in the appendices. If no detail is provided for a physical BMP, the request for variance will automatically be denied.

- List all Variances being requested

<i>Variance Description:</i>	
<i>Intended Use/Purpose:</i>	
<i>Reason for Variance:</i>	
<i>Maintenance Requirements:</i>	
<i>Appropriate Installation Timing:</i>	
<i>Appropriate Removal Timing:</i>	

No variances requested

[Add additional sections here to meet requirements of other regulations]

REFERENCES

References should include the drainage report, the COA Rules and Regs, and the CDPHE permit at a minimum. Other relevant references may be included.

Rules and Regulations Regarding Stormwater Discharges Associated with Construction Activities, current revision

Colorado Department of Public Health and Environment CDPS General Permit – Stormwater Discharges Associated with Construction Activity, current revision to expire June 30, 2012.

Mile High Flood District (2017-2018)(Rev. August 2018). *Drainage Criteria Manual Volume 1*. Retrieved from: [Draft_V1C4_StormwaterControlMeasures_20230501-1.pdf \(mhfd.org\)](#)

Mile High Flood District (2010-2021)(Rev. May 2023). *Drainage Criteria Manual Volume 3*. Retrieved from: [Draft_V3C4_StormwaterControlMeasures_20230501-1.pdf \(mhfd.org\)](#)

United States Department of Agriculture Natural Resources Conservation Service (2091, July 31). *Web Soil Survey*. Retrieved from: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Federal Emergency Management Agency (2020). *FEMA Flood Map Service Center*. Retrieved from: <https://msc.fema.gov/portal/home>

City of Aurora (2010). *Storm Drainage Criteria*. Retrieved from: [Storm Drainage Design & Technical Criteria \(civiclive.com\)](#)

Previous Drainage Report (June 1994). *Final Drainage Report for Optima Batteries, Inc. Sub Filing #1*. Author: Northern Engineering Services Inc. RSN: 940075

City of Aurora GIS (2023). *Aurora Property Info*. Retrieved from: [Aurora Property Info \(arcgis.com\)](#)

[SMH Drainage Letter \(December 21, 2018\). Conformance to Final Drainage Study, Optima Batteries, Inc., Sub Filing No. 1.](#) Author: Jeffrey D. Hancock, P.E., SMH Consultants

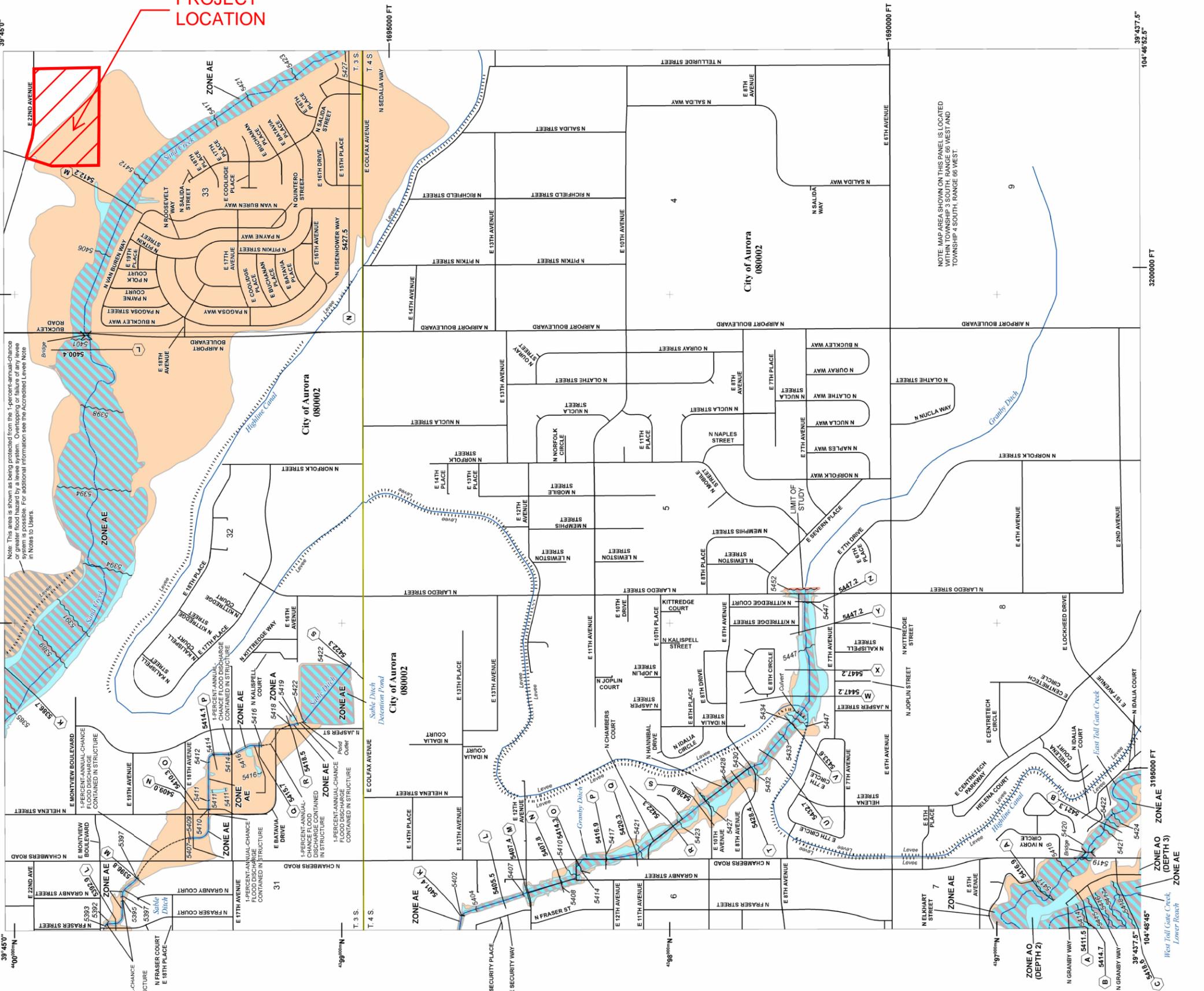
[NOAA's National Weather Service Atlas 14 \(December 2023\). Point Precipitation Frequency Estimates.](#) Retrieved from: [PF Data Server-PFDS/HDSC/OWP \(noaa.gov\)](#)

SWMP APPENDIX A – Floodplain Information

104°48'45"
39°45'0"

041°18'00"E

104°46'52.5"
39°45'0"



PROJECT LOCATION

Note: This area is shown as being protected from the 1-percent-annual-chance or greater flood hazard by a levee system. Overlapping or failure of any levee system is possible. For additional information see the Accredited Levee Note in Notes to Users.

FLOOD HAZARD INFORMATION

SEE THIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://msc.fema.gov)

- SPECIAL FLOOD HAZARD AREAS**
 - Without Base Flood Elevation (BFE) Zone A, V, A59
 - With BFE or Depth Zone AE, AO, AH, VE, AR
 - Regulatory Floodway
 - 0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood Hazard, Areas of 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
 - NO SCREEN
 - Area of Minimal Flood Hazard Zone X
 - Area of Undetermined Flood Hazard Zone D
- OTHER AREAS**
- GENERAL STRUCTURES**
 - Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
 - Cross Sections with 1% Annual Chance
 - Water Surface Elevation (BFE)
 - Coastal Transect
 - Coastal Transect Baseline
 - Profile Baseline
 - Hydrographic Feature
 - Base Flood Elevation Line (BFE)
 - Limit of Study
 - Jurisdiction Boundary
- OTHER FEATURES**

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with the FIRM, including historic versions, the current map date for each FIRM panel, how to order FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-8227) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include: Flood Insurance Rate Map (FIRM), Flood Hazard Data (FHD), Flood Insurance Study (FIS) and Flood Insurance Study Report (FISR). Many of these products can be ordered or obtained directly from the website. Community planning and other protective measures. For more information on flood insurance, interested parties should visit the FEMA website at <http://www.fema.gov/national-flood-insurance-program>.

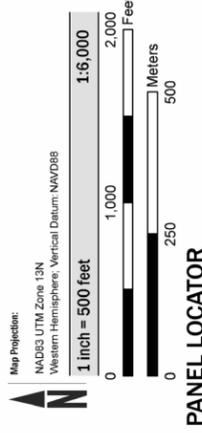
Community planning and other protective measures. For more information on flood insurance, interested parties should visit the FEMA website at <http://www.fema.gov/national-flood-insurance-program>.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction. To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-8626.

Base map information shown on this FIRM is current as of 2015, provided in digital format by the Arapahoe County, City of Aurora, and City of Littleton Geographic Information System (GIS) Departments.

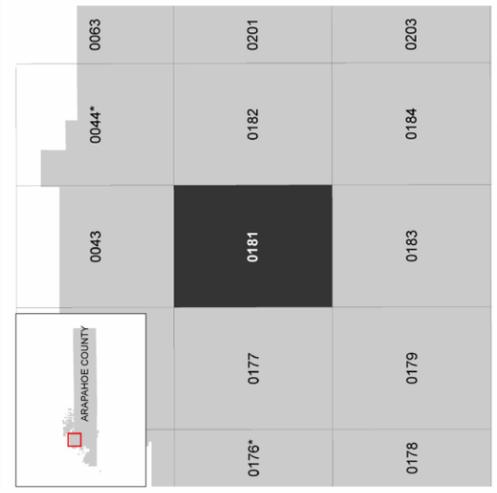
ACCREDITED LEVEE: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Flood Evacuation Routes. For more information on flood insurance, interested parties should visit the FEMA website at <http://www.fema.gov/national-flood-insurance-program>.

SCALE



NATIONAL FLOOD INSURANCE PROGRAM
 FLOOD INSURANCE RATE MAP
 ARAPAHOE COUNTY, COLORADO
 and Incorporated Areas
 PANEL 181 of 725
 Panel Contains:
 COMMUNITY NUMBER 080002
 AURORA, CITY OF
 PANEL SUFFIX L
 MAP NUMBER 0181
 FEMA
 NATIONAL FLOOD INSURANCE PROGRAM
 FLOOD INSURANCE RATE MAP
 ARAPAHOE COUNTY, COLORADO
 and Incorporated Areas
 PANEL 181 of 725
 Panel Contains:
 COMMUNITY NUMBER 080002
 AURORA, CITY OF
 PANEL SUFFIX L
 MAP NUMBER 0181
 FEMA

PANEL LOCATOR



* PANEL NOT PRINTED

SWMP APPENDIX B – Soils Information



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Adams County Area, Parts of Adams and Denver Counties, Colorado



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

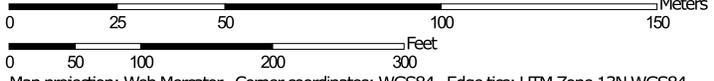
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.



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 Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

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 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
 Survey Area Data: Version 20, Aug 24, 2023

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

Date(s) aerial images were photographed: Jun 9, 2021—Jun 12, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EgA	Ellicott-Glenberg complex, 0 to 3 percent slopes, occasionally flooded	8.2	59.1%
TuB	Truckton sandy loam, 0 to 3 percent slopes	5.6	40.9%
Totals for Area of Interest		13.8	100.0%

Map Unit Descriptions

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

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

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

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

Custom Soil Resource Report

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Adams County Area, Parts of Adams and Denver Counties, Colorado

EgA—Ellicott-Glenberg complex, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2x0j6
Elevation: 3,950 to 5,960 feet
Mean annual precipitation: 13 to 17 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 135 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Ellicott, occasionally flooded, and similar soils: 65 percent
Glenberg, rarely flooded, and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ellicott, Occasionally Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Noncalcareous, stratified sandy alluvium

Typical profile

A - 0 to 4 inches: sand
AC - 4 to 13 inches: sand
C1 - 13 to 30 inches: sand
C2 - 30 to 44 inches: sand
C3 - 44 to 80 inches: coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 39.96 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

Description of Glenberg, Rarely Flooded

Setting

Landform: Ephemeral streams, flood-plain steps
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified, calcareous alluvium

Typical profile

A - 0 to 6 inches: sandy loam
AC - 6 to 18 inches: sandy loam
C1 - 18 to 45 inches: sandy loam
C2 - 45 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

Minor Components

Las animas, occasionally flooded

Percent of map unit: 10 percent
Landform: Flood plains, ephemeral streams
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R067BY038CO - Wet Meadow
Hydric soil rating: No

Ellicott sandy-skeletal, occasionally flooded

Percent of map unit: 5 percent
Landform: Channels, flood plains
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

TuB—Truckton sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2yvr

Elevation: 4,600 to 6,100 feet

Mean annual precipitation: 12 to 17 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 125 to 155 days

Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Truckton and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Interfluves, terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Wind re-worked alluvium derived from arkose

Typical profile

A - 0 to 6 inches: sandy loam

Bt1 - 6 to 10 inches: sandy loam

Bt2 - 10 to 16 inches: sandy loam

C - 16 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 1 percent

Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

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Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 4 percent
Landform: Interfluves, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Vona

Percent of map unit: 4 percent
Landform: Dunes, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Blakeland

Percent of map unit: 3 percent
Landform: Interfluves, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Pleasant, frequently ponded

Percent of map unit: 2 percent
Landform: Closed depressions
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R067BY010CO - Closed Depression
Hydric soil rating: Yes

Urban land

Percent of map unit: 2 percent
Hydric soil rating: No

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SWMP APPENDIX C – Probable Cost Forms

PROBABLE BMP COST SHEETS

Standardized Probable Cost Spreadsheet for Initial BMPs

Project Name: Optima Batteries, Inc. Subdivision Filing No. 1

Date: 4/2/2024

No.	BMP	ID	Unit	Installation Unit Cost	Initial / Interim Quantity	Initial / Interim Cost
1	Check Dam	CD	LF	\$ 24.00		\$ -
2	Compost Blanket	CB	SF	\$ 0.50		\$ -
3	Compost Filter Berm	CFB	LF	\$ 4.00		\$ -
4	Concrete Washout Area	CWA	EA	\$ 1,000.00	1	\$ 1,000.00
5	Construction Fence	CF	LF	\$ 5.00		\$ -
6	Curb Socks	CS	EA	\$ 20.00		\$ -
7	Diversion Channel	DC	EA	\$ 2,000.00		\$ -
8	Diversion Dike	DD	LF	\$ 1.50		\$ -
9	Dewatering	DW	EA	\$ 600.00		\$ -
10	Erosion Control Blanket	ECB	SY	\$ 5.00	1013	\$ 5,065.00
11	Inlet Protection - All types	IP	EA	\$ 300.00	2	\$ 600.00
12	Outlet Protection	OP	EA	\$ 250.00		\$ -
13	Reinforced Check Dam	RCD	LF	\$ 36.00		\$ -
14	Rock Socks	RS	LF	\$ 10.00		\$ -
15	Rough Cut Street Control	RCS	EA	\$ 50.00		\$ -
16	Sediment Basin	SB	CY	\$ 3.00		\$ -
17	Sediment Control Log	SCL	LF	\$ 3.00		\$ -
18	Sediment Trap	ST	EA	\$ 600.00		\$ -
19	Seeding & Mulching (Less than 10 Acres)	SM	AC	\$ 2,500.00	0.39	\$ 975.00
	(Greater than 10 Acres)	SM	AC	\$ 1,500.00		\$ -
20	Silt Fence	SF	LF	\$ 2.00	1050	\$ 2,100.00
21	Silt Fence - Reinforced	SF-R	LF	\$ 4.00		\$ -
22	Stabilized Staging Area	SSA	SY	\$ 2.00	380	\$ 760.00
23	Surface Roughening	SR	AC	\$ 600.00		\$ -
24	Temporary Slope Drain	TSD	LF	\$ 25.00		\$ -
25	Temporary Stream Crossing	TSC	EA	\$ 1,500.00		\$ -
26	Terracing	TER		\$ -		\$ -
27	Tree Protection Fencing	TP	LF	\$ 5.00	687	\$ 3,435.00
28	Vehicle Tracking Control	VTC	EA	\$ 1,000.00	1	\$ 1,000.00
29	VTC with Wheel Wash	WW	EA	\$ 1,500.00		\$ -
30	Mobilization (required on all projects)	MB	LS	\$ 5,000.00		\$ -
31	Pond Maintenance/Sediment Removal (Based on area tributary to the pond)	PM	AC	\$ 1,000.00		\$ -
32	Street Maintenance (Based on lane miles of streets within project and adjacent to project)	STM	LM	\$ 1,500.00		\$ -
33	Other: _____			\$ -		\$ -
Subtotal Cost of Initial BMPs						\$ 14,935.00
34	Maintenance (required on all projects)		%	25% of Subtotal		\$ 3,733.75
Total Cost of Initial & Interim BMPs						\$ 18,668.75
Fiscal Security Amount						\$ 3,733.75

* For Temporary Batch Plant BMPs allow \$5000.00 in line 32.

** Fiscal Security required is the higher amount of either the Initial or the Post-Paving, not both.

PROBABLE BMP COST SHEETS

Standardized Probable Cost Spreadsheet for Post Paving BMPs

Project Name: Optima Batteries, Inc. Subdivision Filing No. 1

Date: 4/02/2024

No.	BMP	ID	Unit	Installation Unit Cost	Initial / Interim Quantity	Initial / Interim Cost
1	Check Dam	CD	LF	\$ 24.00		\$ -
2	Compost Blanket	CB	SF	\$ 0.50		\$ -
3	Compost Filter Berm	CFB	LF	\$ 4.00		\$ -
4	Concrete Washout Area	CWA	EA	\$ 1,000.00		\$ -
5	Construction Fence	CF	LF	\$ 5.00		\$ -
6	Curb Socks	CS	EA	\$ 20.00		\$ -
7	Diversion Channel	DC	EA	\$2,000		\$ -
8	Diversion Dike	DD	LF	\$ 1.50		\$ -
9	Dewatering	DW	EA	\$ 600.00		\$ -
10	Erosion Control Blanket	ECB	SY	\$ 5.00		\$ -
11	Inlet Protection - All types	IP	EA	\$ 300.00		\$ -
12	Perimeter Erosion Control BMPs (Lot)	PC	EA	\$ 500.00		\$ -
13	Outlet Protection	OP	EA	\$ 250.00		\$ -
14	Reinforced Check Dam	RCD	LF	\$ 36.00		\$ -
15	Rock Socks	RS	LF	\$ 10.00		\$ -
16	Sediment Basin	SB	CY	\$ 3.00		\$ -
17	Sediment Control Log	SCL	LF	\$ 3.00		\$ -
18	Sediment Trap	ST	EA	\$ 600.00		\$ -
19	Seeding & Mulching (Less than 10 Acres)	SM	AC	\$ 2,500.00		\$ -
	(Greater than 10 Acres)	SM	AC	\$ 1,500.00		\$ -
20	Silt Fence	SF	LF	\$ 2.00		\$ -
21	Silt Fence Reinforced	SF-R	LF	\$ 4.00		\$ -
22	Stabilized Staging Area	SSA	SY	\$ 2.00		\$ -
23	Surface Roughening	SR	AC	\$ 600.00		\$ -
24	Temporary Slope Drain	TSD	LF	\$ 25.00		\$ -
25	Temporary Stream Crossing	TSC	EA	\$ 1,500.00		\$ -
26	Terracing	TER		\$ -		\$ -
27	Tree Protection Fencing	TP	LF	\$ 5.00		\$ -
28	Vehicle Tracking Control	VTC	EA	\$ 1,000.00		\$ -
29	VTC with Wheel Wash	WW	EA	\$ 1,500.00		\$ -
30	Mobilization (required on all projects)	MB	LS	\$ 5,000.00		\$ -
31	Pond Maintenance/Sediment Removal (Based on area tributary to the pond)	PM	AC	\$ 1,000.00		\$ -
32	Street Maintenance (Based on lane miles of streets within project and adjacent to project)	STM	LM	\$ 1,500.00		\$ -
33	Other: _____			\$ -		\$ -
Subtotal Cost of Post Paving BMPs						\$ -
34	Maintenance (required on all projects)		%	25% of Subtotal		\$ -
Total Cost of Post Paving BMPs						\$ -
Fiscal Security Amount						\$ -

Note: Do not include costs for BMPs carried over from the Initial Plan, only new installations

* For Temporary Batch Plant BMPs allow \$5000.00 in line 32.

** Fiscal Security required is the higher amount of either the Initial or the Post-Paving, not both.

SWMP APPENDIX D – Calculations



LEGEND

- DECIDUOUS TREE
- EVERGREEN TREE
- DECIDUOUS SHRUB
- EVERGREEN SHRUBS
- STEEL EDGER
- TURF GRASS MIX
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN

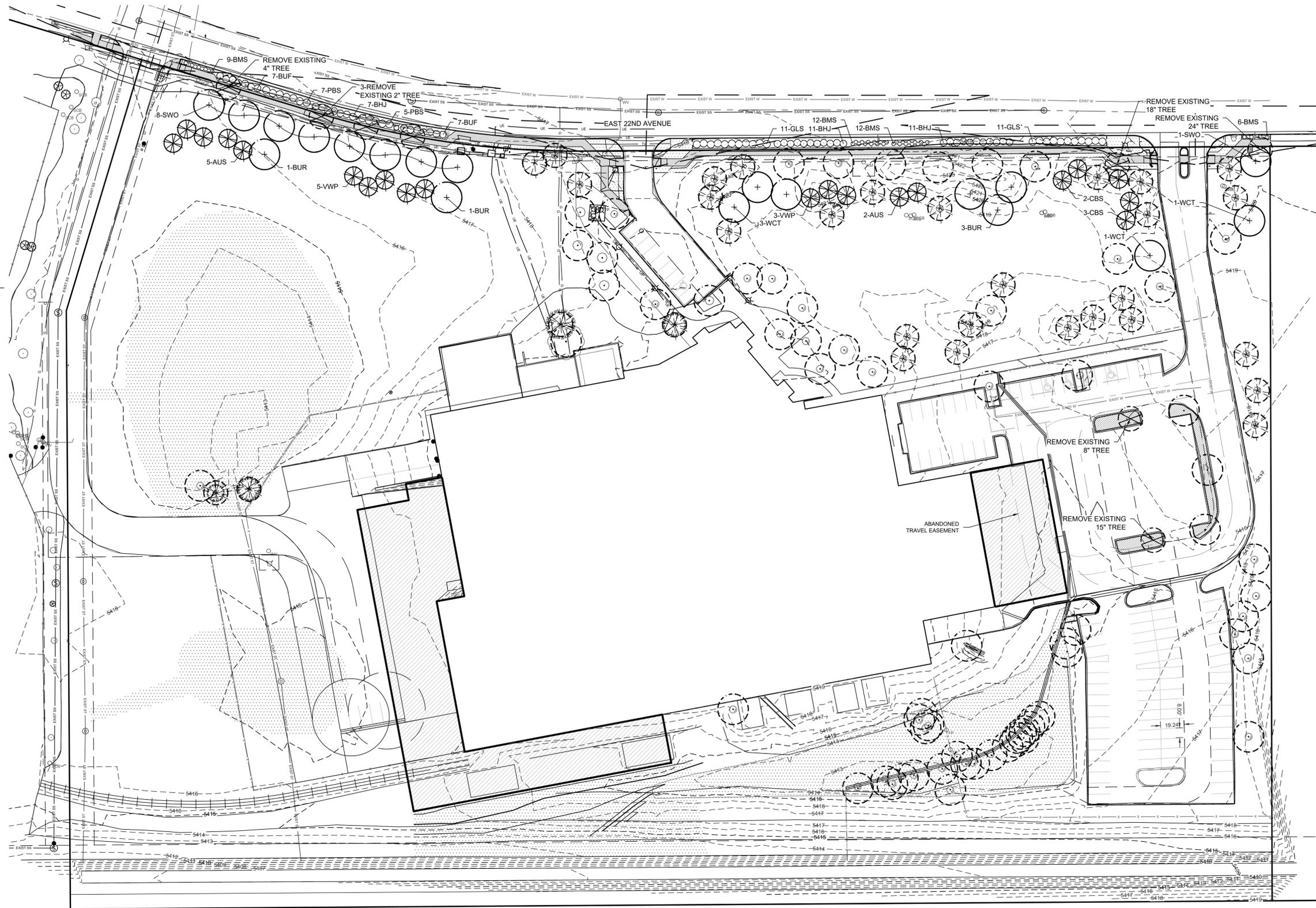
EXISTING TREES & SHRUBS PLANT LIST

- SHADE TREES**
- 17 WESTERN HACKBERRY
Celtis occidentalis
 - 12 THORNLESS COCKSPUR HAWTHORN
Crataegus crusgali 'thermis'
 - 19 AUTUMN PURPLE ASH
Fraxinus americana 'Autumn Purple'
 - 12 SKYLINE HONEYLOCUST
Gleditsia tri. inermis 'Skyline'
- EVERGREEN TREES**
- 6 BLUE SPRUCE
Picea pungens glauca
 - 34 Austrian Pine
Pinus aristata
- EVERGREEN & DECIDUOUS SHRUBS**
- 8 BLUE MIST SPIREA
Caryopteris incana
 - 25 BUFFALO JUNIPER
Juniperus sabina 'Buffalo'
 - 10 NATIVE NINEBARK
Physocarpus monogynus
 - 11 GOLD DROP POTENTILLA
Potentilla fruticosa 'Gold Drop'
 - 33 ALPINE CURRENT
Ribes alpinum
 - 10 SILVER BUFFALOBERRY
Shepherdia argentea
- PERENNIALS**
- 11 PURPLE CONEFLOWER
Echinacea purpurea 'Bright Star'
 - 9 PURPLE LEAF WINTERCREEPER
Euonymus fortunei 'Coloratus'

TREE MITIGATION

TREE #	SPECIES	MITIGATION VALUE	MITIGATION INCHES
1	AUSTRIAN PINE	8	\$324.39
2	AUSTRIAN PINE	10	\$506.76
3	HACKBERRY	10	\$723.30
4	HACKBERRY	10	\$723.30
5	HACKBERRY	7	\$370.82
6	HACKBERRY	10	\$723.30
7	HACKBERRY	7	\$370.82
TOTAL		62	\$3,742.70

* DEVELOPER ELECTS TO PAY THE \$3,742.70 VALUE



PROPOSED PLANT LIST

- SHADE TREES**
- 5 BUR BUR OAK
Quercus macrocarpa
2 1/2" CAL. SINGLE TRUNK
 - 9 SWO SWAMP WHITE OAK
Quercus bicolor
2 1/2" CAL. SINGLE TRUNK
 - 5 WCT WESTERN CATALPA
Catalpa speciosa
2 1/2" CAL. SINGLE TRUNK
- EVERGREEN TREES**
- 7 AUS AUSTRIAN PINE
Pinus nigra
6' HT. SINGLE TRUNK
 - 5 CBS COLORADO BLUE SPRUCE
Picea pungens 'Glauca'
6' HT. SINGLE TRUNK
 - 8 VWP VANDERWOLF PINE
Pinus flexilis 'Vanderwolf's Pyramid'
6' HT. SINGLE TRUNK

- EVERGREEN SHRUBS**
- 29 BHJ BAR HARBOR JUNIPER
Juniperus horizontalis 'Bar Harbor'
5 GAL. 18"-24" SPREAD
 - 14 BUJ BUFFALO JUNIPER
Juniperus sabina 'Buffalo'
5 GAL. 18"-24" SPREAD
- DECIDUOUS SHRUBS**
- 39 BMS DARK KNIGHT BLUE MIST SPIREA
Caryopteris x clandonensis 'Dark Knight'
5 GAL. 18"-24" HT.
 - 22 GLS GRO LOW SUMAC
Rhus aromatica 'Grow Low'
5 GAL. 18"-24" SPREAD
 - 12 PBS PAWNEE BUTTES SAND CHERRY
Prunus besseyi 'Pawnee Buttes'
5 GAL. 18"-24" SPREAD

LANDSCAPE REQUIREMENTS

STANDARD R.O.W.

DESCRIPTION	LENGTH /SQ. FT.	NOTES	TREE (SHRUB) / FEET REQUIRED	NO. OF TREES (SHRUBS) REQ. / PROV.
E. 22ND AVE	311'	BETWEEN WEST & MIDDLE DRIVE	1 TREE / 40'	8 / 8
E. 22ND AVE	4,410 SF	LS AREA BETWEEN BOC & SIDEWALK	1 SHRUB / 40 SF	110 / 116

TREE PRESERVATION

DESCRIPTION	INCHES	INCHES REMOVED / INCHES REPLACED	NO. OF INCHES REQ. / PROV.
E. 22ND AVE & SITE	75"	1" / 1"	75' / 75"

SWMP APPENDIX E – Variance Request Details

SWMP APPENDIX F – Vertical and General Construction Matrix

Vertical and General Construction Concern	BMP Measures	Information Provided by:	Approved by (COA Employee):
Provide a mixing station detail/area for masonry/brick. If the site is going to bring in silos for masonry mixing, wind protection will be required to minimize the maximum extent practicable the dust from impacting adjacent buildings and streets.			
Saw cutting station detail/area (must address slurry waste)			
Tool Cleanup BMPs and Practices			
Procedural BMPs for clean up in the above areas and clean up if spills should occur as traveling to the building area			
Options for handling paints, solvents, glues (i.e. utilize the CWS or provide alternative)			
Provide physical and procedural BMPs for clean up along the building during the installation of brick, stone or stucco (strike zone and scaffolding impacts to BMPs)			
Access may be required around the building, defining a haul route may be necessary and denote stabilization needs on this proposed haul route (cranes)			

<p>Address access to the building as different stages of vertical construction occur. For example, a VTC may work for the duration of the infrastructure construction but as the grading is fine tuned, different measures may need to be implemented to limit access or be more mobile. Controlling access is important during vertical construction, especially when taking access from an impervious surface (i.e. pavement).</p>			
<p>Staging areas change during construction regularly. Therefore, if “con/conex” boxes are to be utilized and if they are to include liquid pollutants, then a redundant BMP measure must be provided</p>			
<p>Site drainage will need to be maintained during vertical construction. Review conditions to ensure that it will continue to work as shown during the grading/utility timeframes.</p>			
<p>Provide redundant BMPs for generators to protect from fuel/hydraulic leaks</p>			
<p>Utility Installation BMPs</p>			
<p>Waterproofing BMPs and procedures</p>			

Review the down gradient BMPs within the impervious areas to ensure that conveyances, inlets and outlets are protected appropriately during each phase.			
Areas of disturbance outside of the building envelope shall still require BMPs review the timing/phasing of the project to ensure the appropriate BMPs are implemented as construction continues.			
BMPs for keeping impervious surfaces clean may need to be enhanced or added to as construction continues.			
Provide redundant BMPs for mobile concrete washouts and policies for cleanup of blobs of concrete by trades			
Review and implement BMP measures to control roof drainage. This becomes a point source and may cause extensive erosion on site.			
Address waste handling procedures for drywall, painters, carpet layers etc.			
Provide BMPs for delivery trucks – i.e. controlled access points, staging areas, delivery areas, parking area.			
Coordination Plan – required if different phases of work is to be done by different general contractors (i. e. road work vs. building façade)			

Details and BMP measures for form oil and form oil laydown area			
Run on modifications			
Interim lot stabilization techniques			
The methods to be used to address the following issues:			
<ul style="list-style-type: none"> ▪ Irrigation testing 			
<ul style="list-style-type: none"> ▪ Water main/fire line testing 			
<ul style="list-style-type: none"> ▪ Sewer line testing 			
<ul style="list-style-type: none"> ▪ Building washing 			

▪ Graffiti deterrent application			
▪ Fire retardant application			
▪ Fueling			
▪ Process water (paving rollers, boring equipment, wet saws, etc)			